By EZDriver of Holly Lake Ranch, Texas

Hello to one and all. Thought I would share my experience with pics of replacing the 2nd generation cam chain tensioners with the new metal tensioners the third generation. This instruction is in support of "2nd tensions DIY instructions by sininnellen listed below. This information is also in two parts due to the number of pics. The first part, this part, is mostly for the purpose of showing the pics of the inside where the parts are replaced. The second thread will show pics and discuss the problems I ran into with solutions.

2nd tensions instructions by sininnellen

Ok here's how I did the job. I did one side at a time, I assume you can get to the stage where you have the cam covers removed if you need help with those let me know. Anyway here are complete instructions for my 2001 XKR 49K miles starting with the passenger side.

Passenger side

1/ Remove the air intake to the throttle body, unclip air cleaner cover, disconnect MAFS electrical connector, disconnect cam breather tube, undo two bolts above throttle body, lift of air intake. Put a rag over the throttle body intake to stop anything falling in there!

2/ Remove the coil cover I think its 8 little bolts. Then lift of plastic cover. Undo 4 coils 2 bolts each gently release coils. If the rubber tubes get stuck on top of the spark plugs just spray WD40 into the stuck bung then use long nose pliers to wiggle them off. I recommend you change your spark plugs if they are near 50K use. Check for any oil in the spark plug wells should be clean. Lift the coils out and lay them over the throttle body.

3/ Loosen the 14 bolts that hold the cam cover in place start from the outside in. Then remove the cam cover.

4/ Take a cable tie and secure the secondary chain to the exhaust sprocket (exhaust cam is the lower one) via the holes in the sprocket. The secondary tensioners red for 1st generation is held in place by two bolts. The new tensioner is metal and should come with two new bolts that are larger heads that the originals.

5/ Undo the exhaust cam caps (5 of them) start from the middle out and undo the bolts one turn each until you have reduced the tension across the cam. Takes 6-7 turns depending on the position of the cam. Remove the cam caps these must be kept in order and direction. This is easy as they are all marked with numbers and little arrows.

6/ Undo the two bolts on the 2nd tensioners.

7/ Gently lift up the exhaust cam and remove the secondary tensioner.

8/ Clean the mating surfaces of the cam caps and tensioners note the small hole between the tensioners bolt holes this is the oil hole so don't block it.

9/ Lift the exhaust cam and install the new secondary tensioner. Bolt it down and remove the release pin from the tensioner. Pore a little engine oil into the hole in the plastic runner to prime it.

10/ Pore a little oil on the exhaust cam but keep mating surfaces clean. Bolt the 5 exhaust cam caps in place. Tension from the inside out a few turns at a time.

11/ Torque the cam bolts and secondary tensioner down. Think the correct torque is 80N.

12/ Clean and replace the cam cover use a new gasket. I used the blue gasket seal, take your time as it's a bit fiddly and clean all parts as you go. Torque the 14 bolts from the inside out.

13/ Replace sparkplug (if you are changing them), air intake, new air filter if needed.

14/ Start engine and let it run till hot, check for leaks around the cam cover. Expect some smells as any cleaning fluids spilt oil are burnt of. After 10miles driving should be all good.

Drivers side

1/ Drain coolant, remove coolant cap, on the passenger side of the radiator, bottom right there is a plastic bung that has a cross head. You need to jack the car up to get to it. I used a very large washer from a ¾ inch nut/bolt (note this size bolt also fits the bleed cap in the supercharger).

2/ Remove the three clips on the 3 small pipes that connect to the coolant reservoir. The clips are removed by squeezing the clip together the use a very small screw driver to leaver them up. They should pop open. Lift up the coolant reservoir and disconnect the pipe underneath. Remove the little wire clip from the electrical connector under the reservoir and remove connector. Remove coolant reservoir.

3/ Remove air breather pip from cam cover top left. You squeeze it from the sides and pull gently. Remove the dip stick nut and gently pull the dip stick tube up an inch or so.

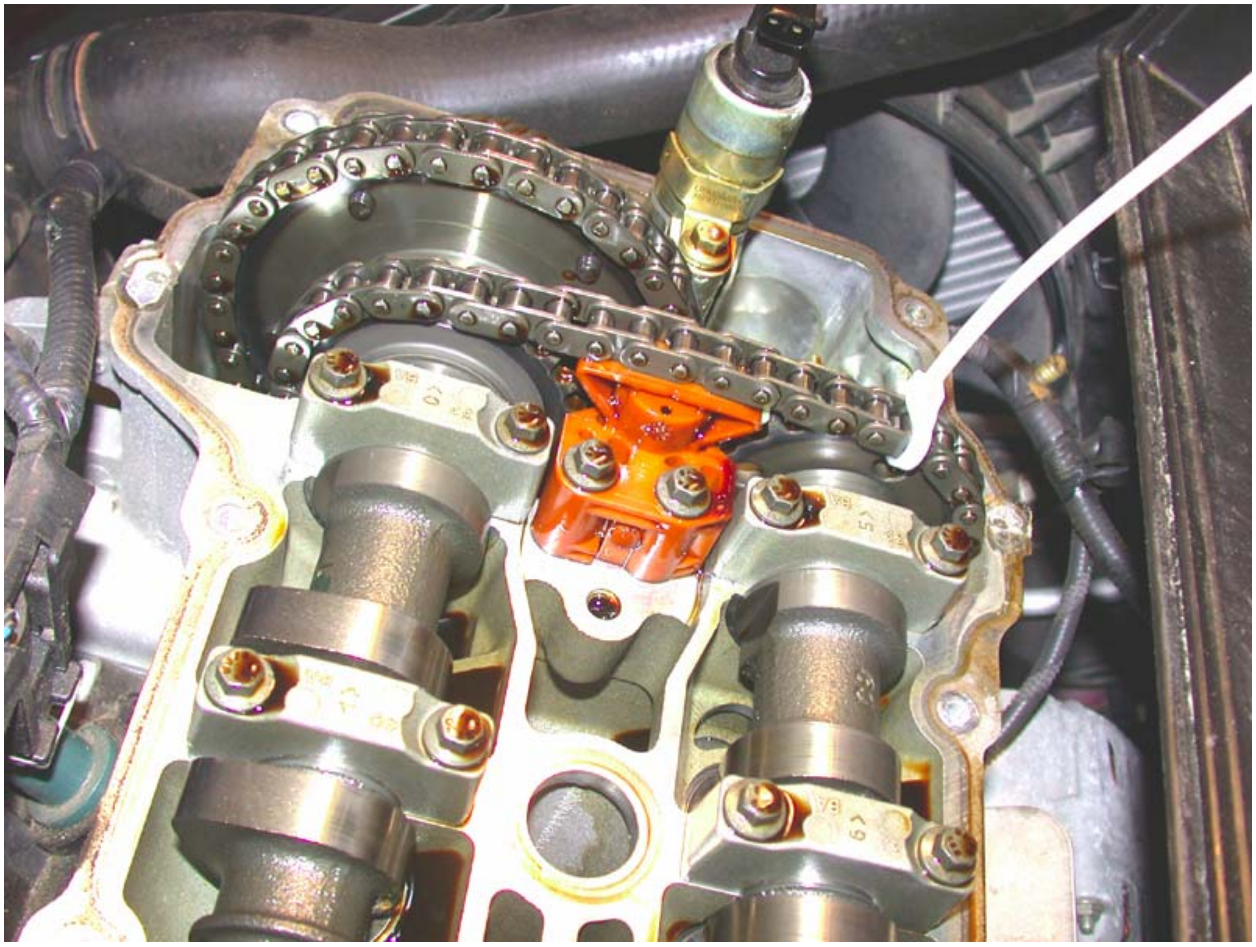
4/ Now repeat what you did on the passenger side.

5/ Remember to check the coolant level after you have completed the job and run the car. I found I didn't need to bleed the supercharger as we didn't empty this system of coolant but you may just want to check this. After you have replaced the coolant and coolant reservoir cap undo the supercharger bleed cap (3/4 inch inset bolt on top of super charger) turn ignition on and top up supercharger bleed hole until full. Done

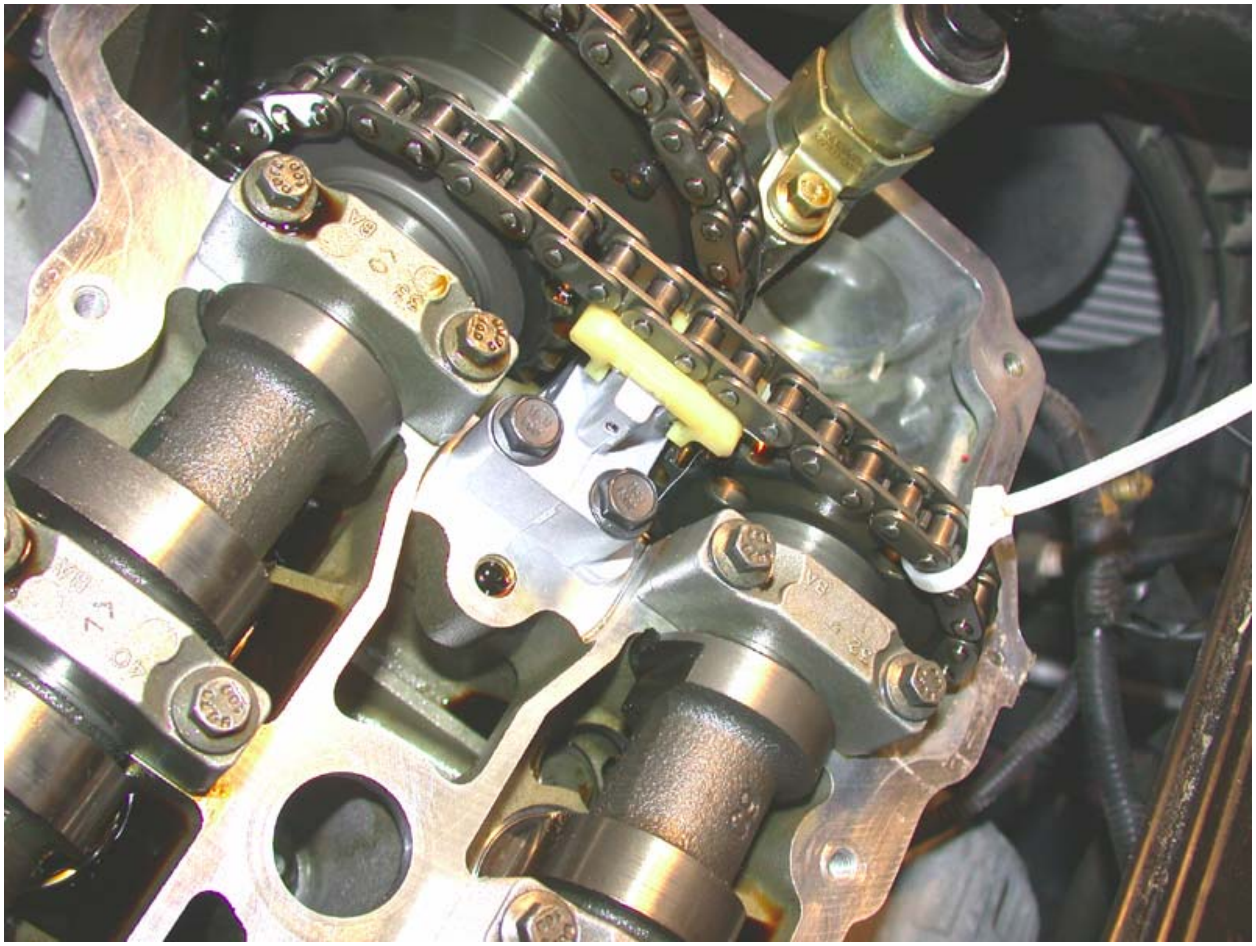
That's it simple. Just make sure you go slow and clean as you go.

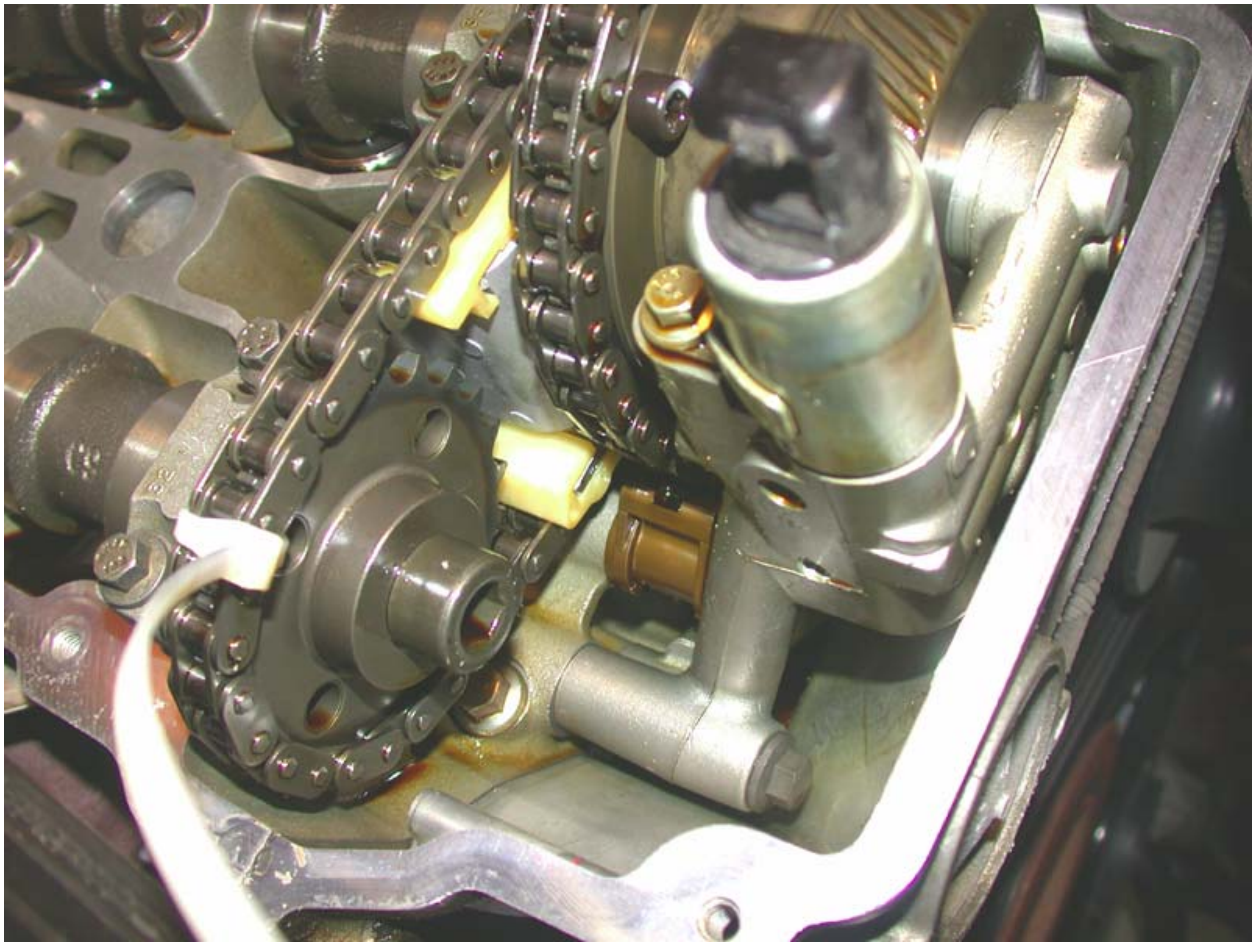
Procedure by EZDriver

The first three pics are of the right bank. First pic shows what it looked like initially but with the tie wrap installed on the exhaust cam sprocket and chain. This is with the 2nd generation tensioner still installed.

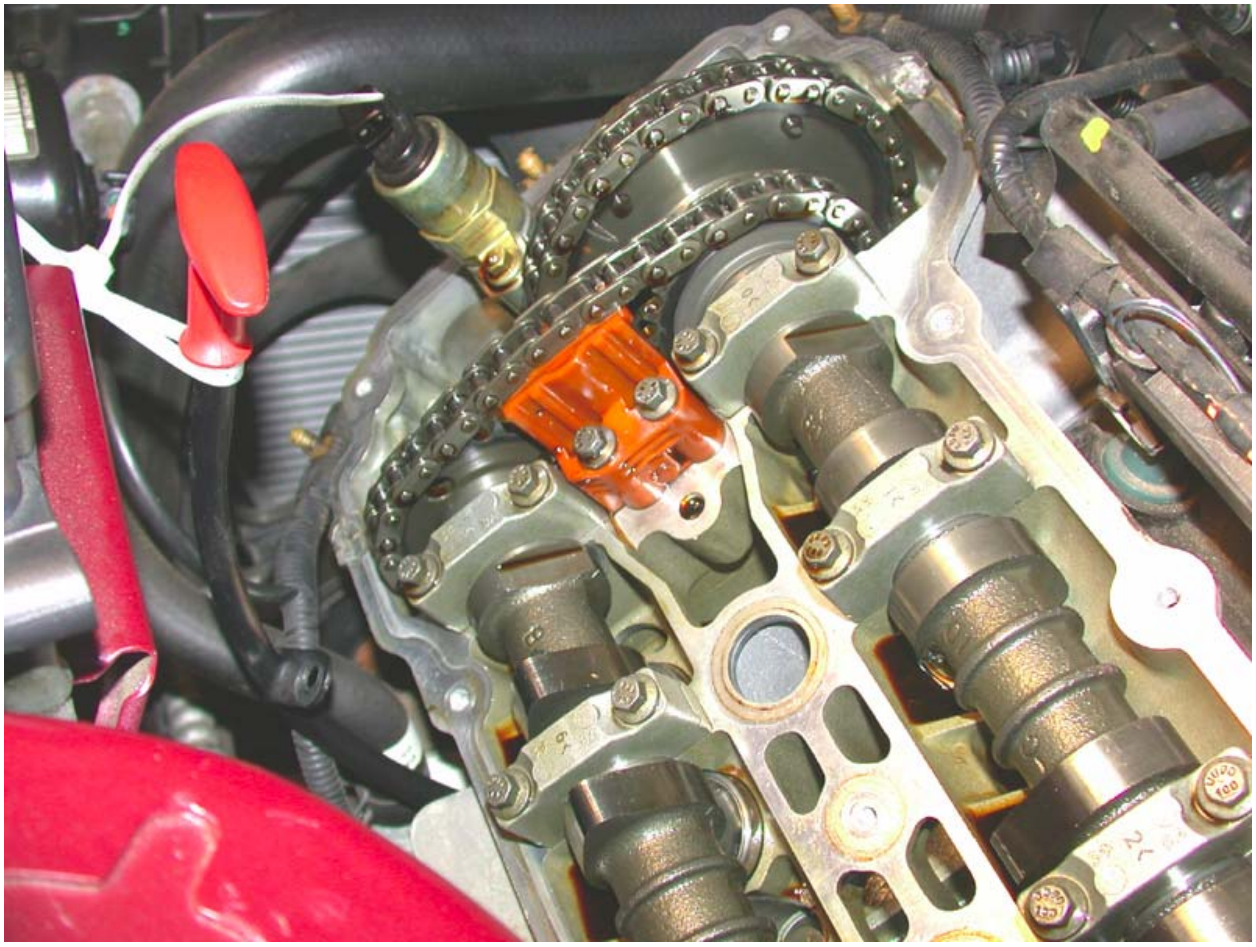


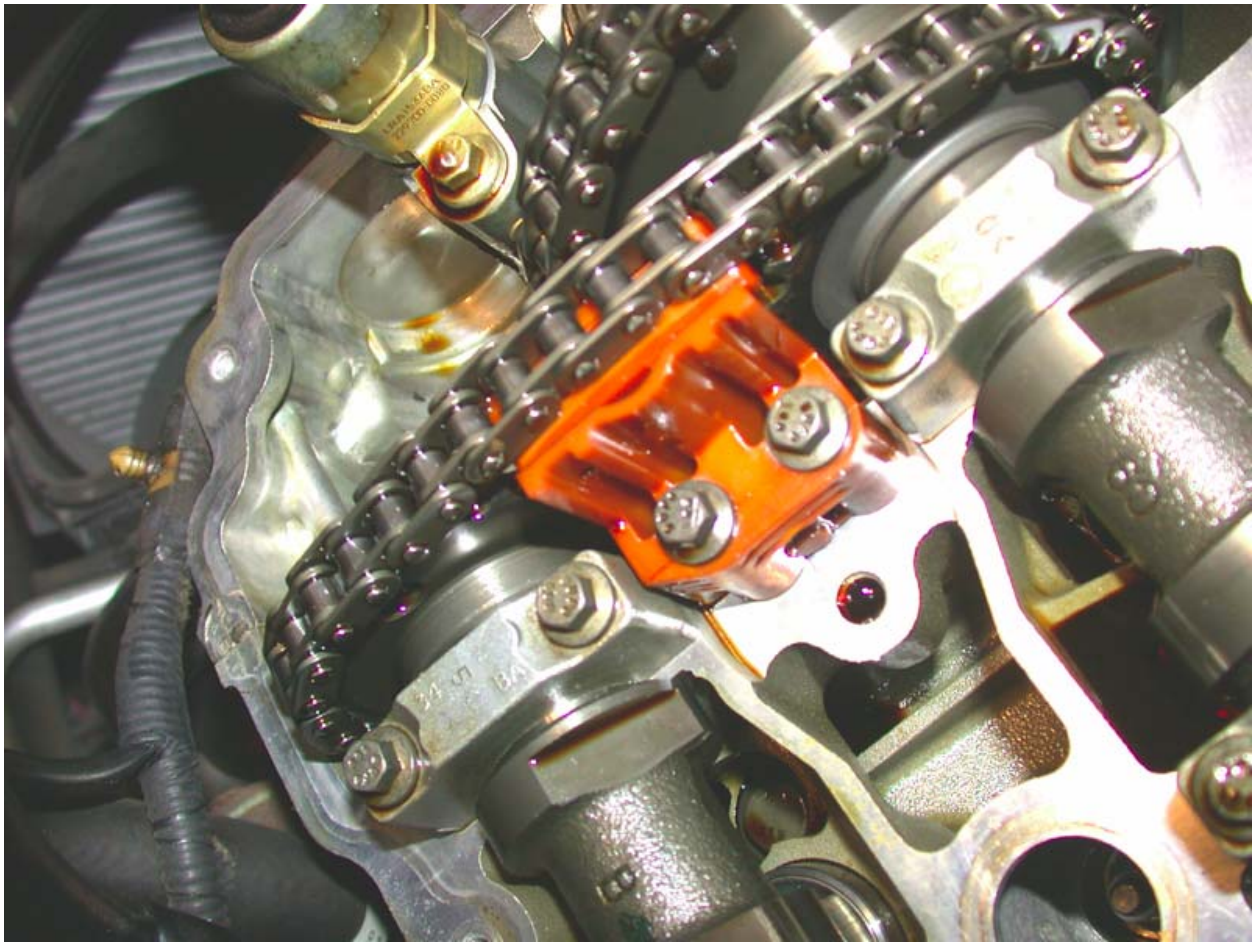
The next two pics show the new metal 3rd generation installed both front and rear view with the tie wrap still installed. Don't forget to remove the tie wrap.

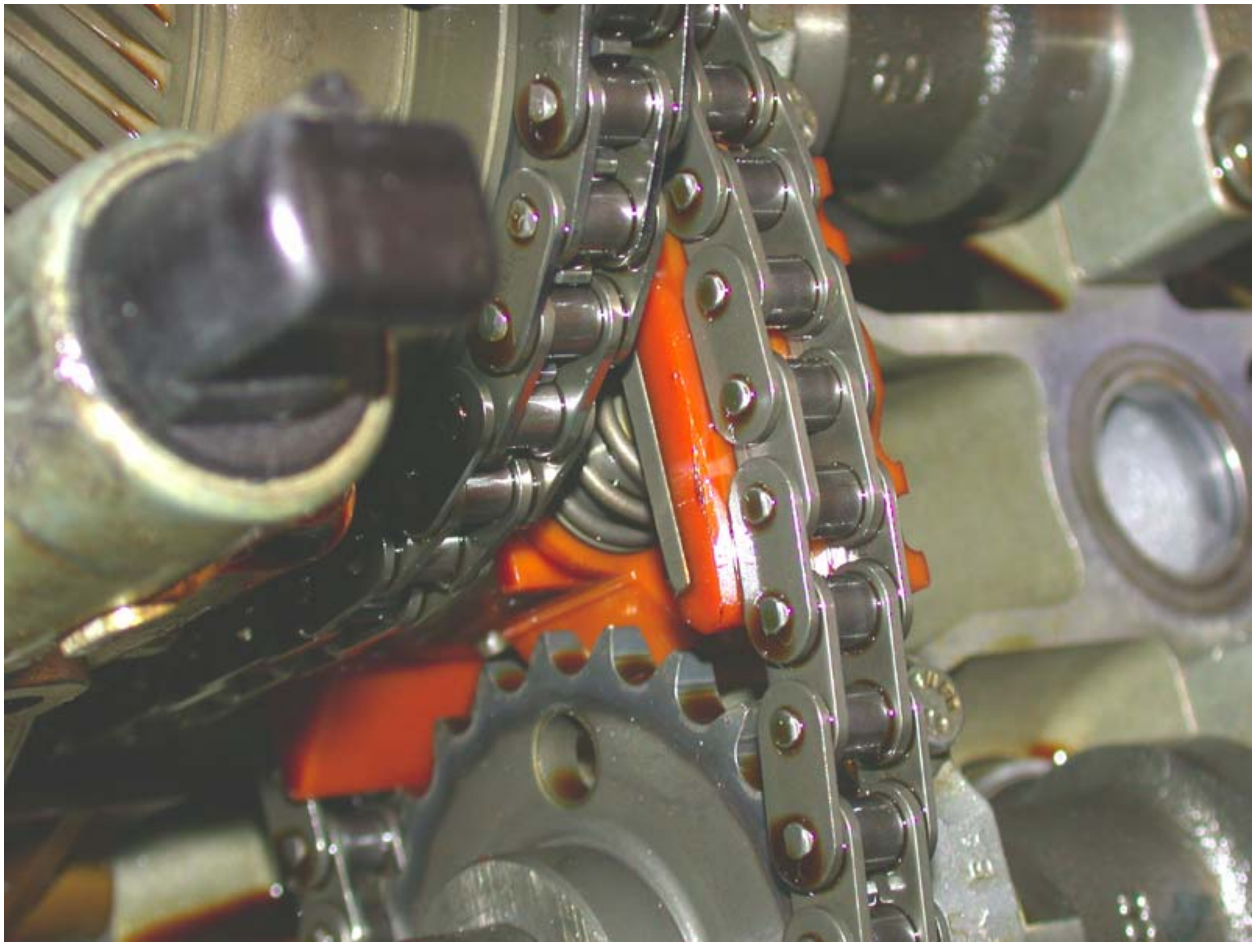


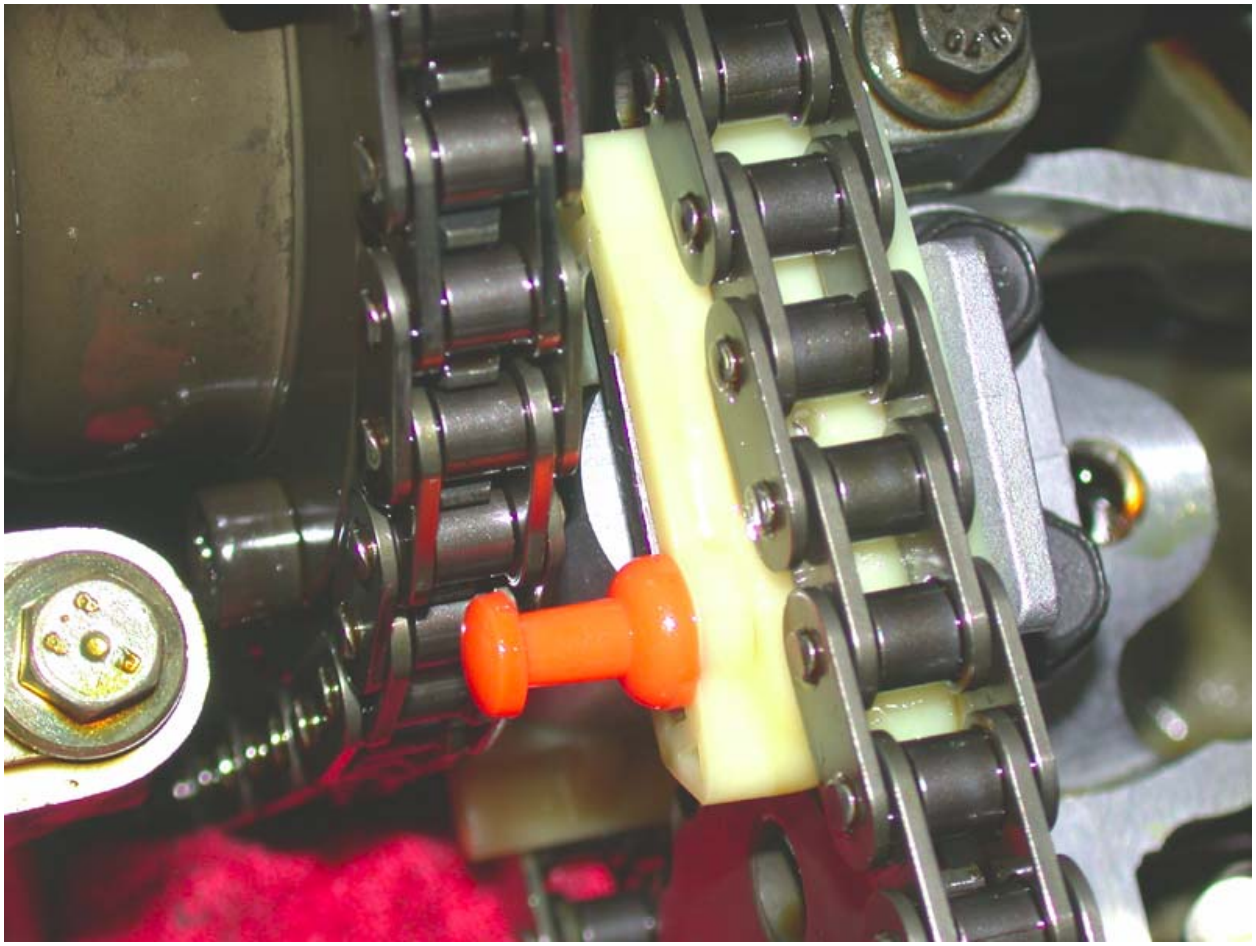


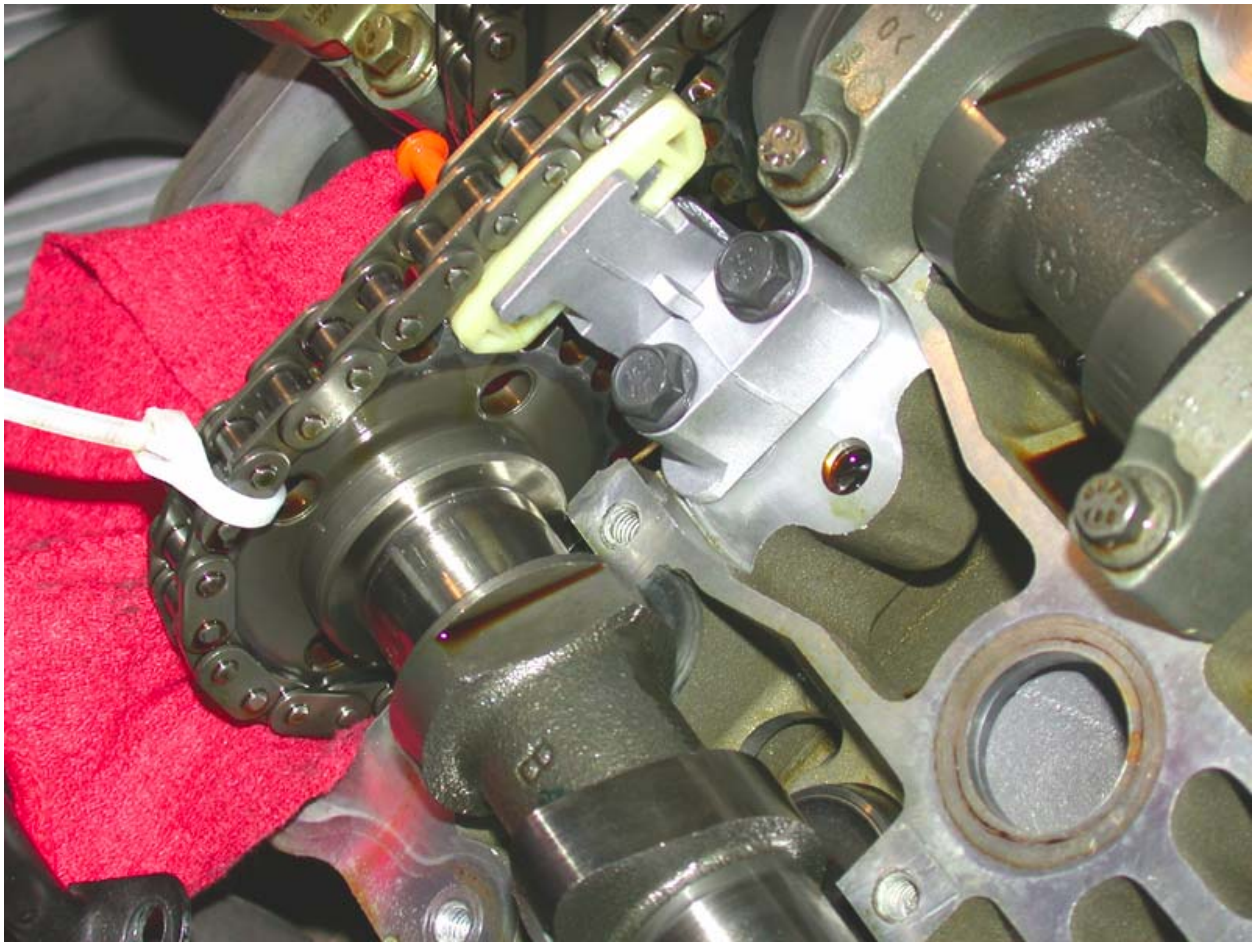
The next set of pics are of the left bank with the first three showing the as was installation, 2nd generation still in place. The next two show the new metal version installed both fore and aft. These last two also show a shop rag jammed in the big hole up there. I thought that was a good idea to avoid any parts falling down the big hole. I did that on both sides. Removing the old tensioners is not a concern here in that they stay in one piece due to the oil in the piston causing a suction that keeps them from falling apart. But, on the right bank you have to remove the red safety pin that holds the new tensioner together before you can install it. Therefore you have to hold it together as you place it. On the left bank you can leave the red pin in place as it is installed. See next to last pic. Just don't forget to remove it. Also the new tensioners are different left to right. They are labeled LB and RB.











To do this job you have to undo the exhaust cam as covered in the FAQ. I will not repeat those instructions except to add that the cam wants to roll down hill when lifted up for tensioner replacement. It will put a twisting load on the cam chain. I anticipated this and put one of the cam cap bolts back in the lower most aft location. This gave the aft end of the cam something to rest on which kept it from trying to twist the chain.

The last pic is the only one that shows the cam caps removed. Also the first pic of the left bank shows a tie wrap holding the oil dip stick out of the way. That worked good.

The torque values for the tensioners and cam caps are 14 and 11 nm respectively.

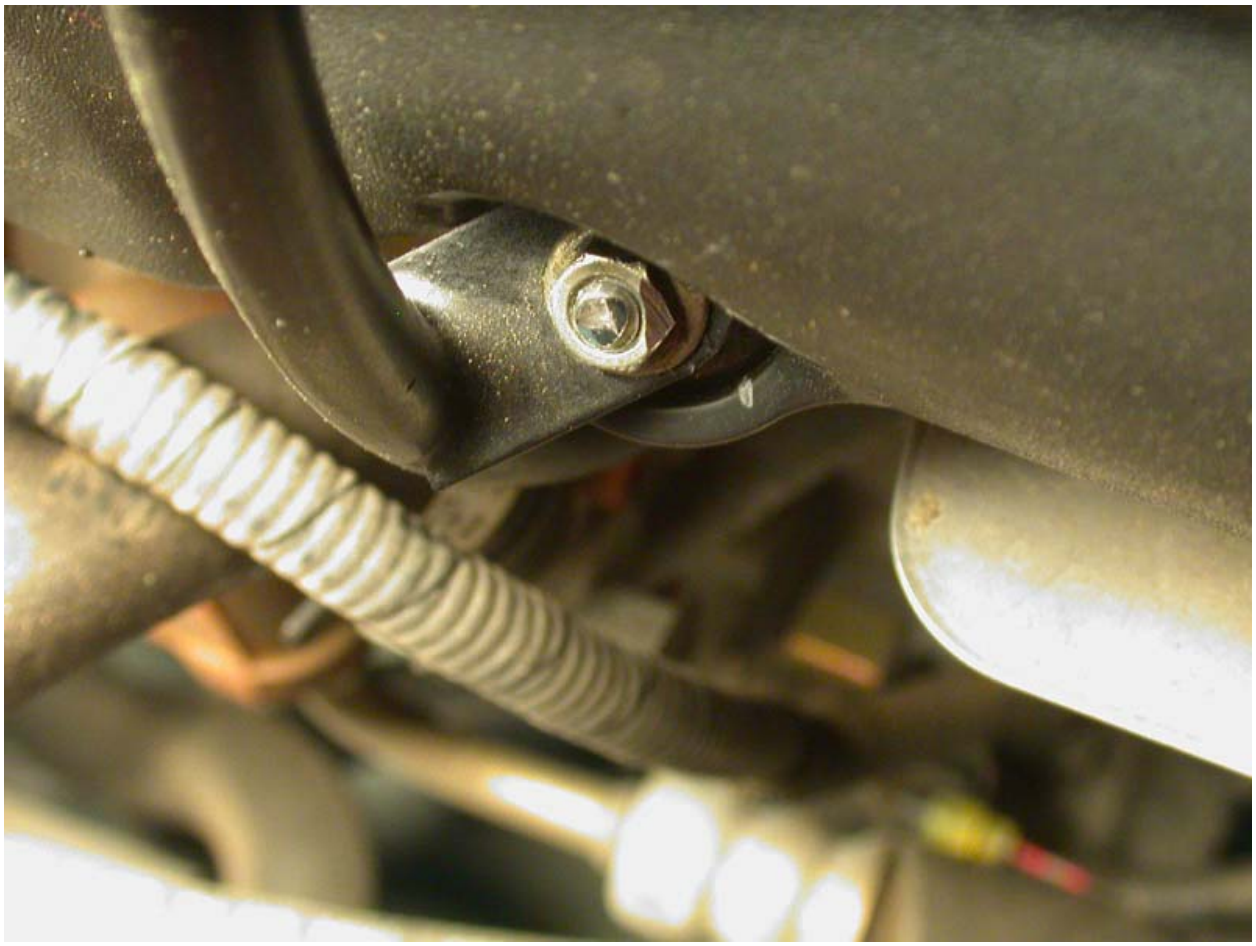
I will continue on with more pics and discussion in the second thread.

Second Section

This is the second of two series on this subject. The biggest headache I had was removing the cam covers. On the right bank cam cover I had one @#$%^ problem with the lower rear most perimeter bolt. It is really tight in there and the first thing one should do is make sure one can get that thing out before even starting the job. I don't mean removing it first. Just make sure you can get to it well enough to

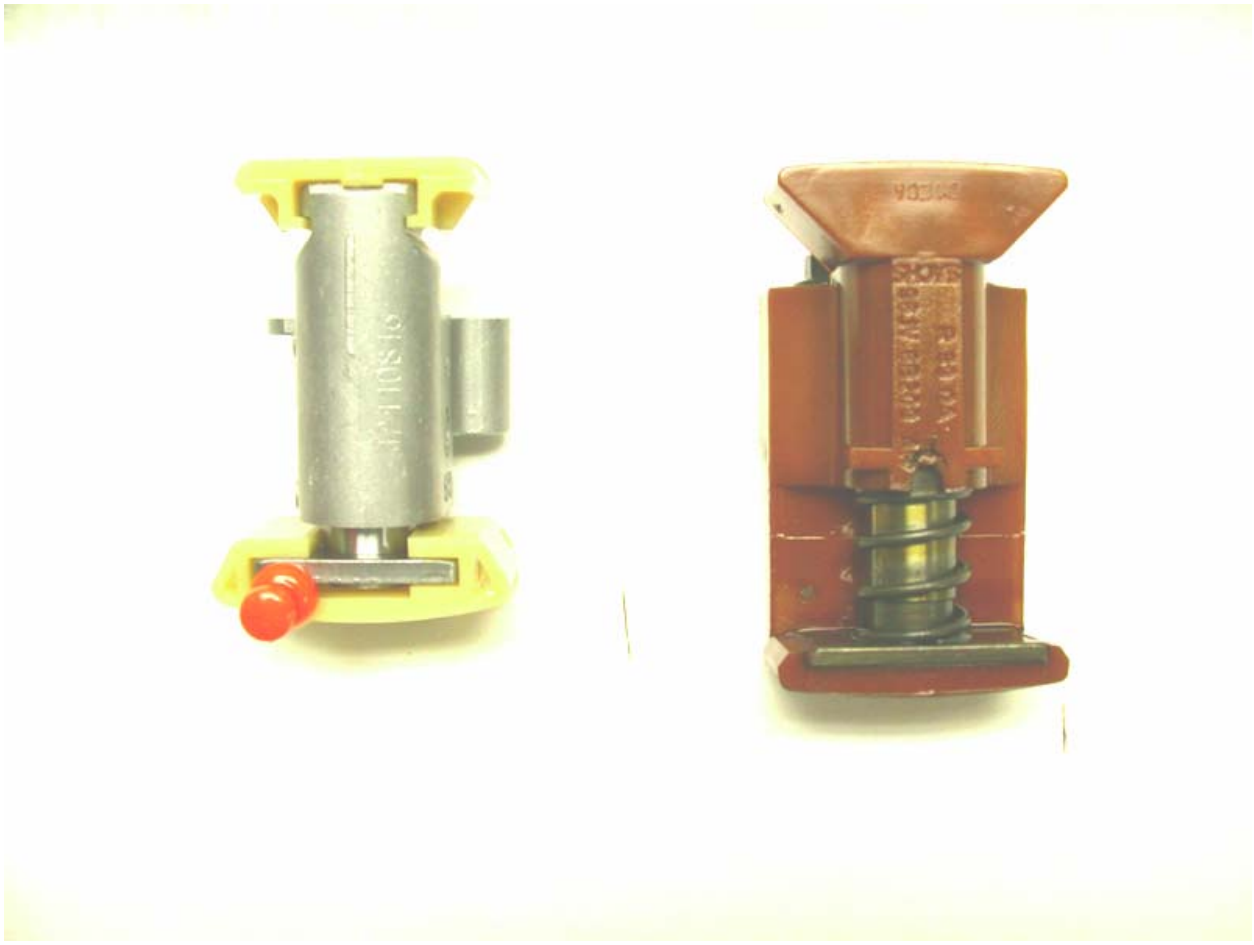
remove it and reinstall it. I used a quarter inch socket set and had to go buy a universal and a long extension in addition. I wish I could have found a combination universal and socket of the correct size which would have been better. But with a short socket, universal and long extension I got it.

On the left bank cam cover removal I hit a real snag and almost gave up. I was told to remove the oil dip bracket nut and gently lift the dip stick bracket off the cam cover nut/stud which is about an inch or more long. I don't think that is possible. At least I'm not strong enough. And I know of one local mechanic that broke that bracket trying to gently lift the bracket off the stud. I was stuck. So I do what I always do. Sit and think. Finally I had it. I got my dremel tool out with a cut off saw blade and cut the stud off just above the nut that was still installed. Then I could gently lift the oil dip stick bracket off the stud after removing the nut. After removing the cam cover I cleaned up the stud end so the nut would easily go back on. The results of this can be seen in the first picture attached. It worked well. Just be careful with the dremel tool and don't damage the cam cover.

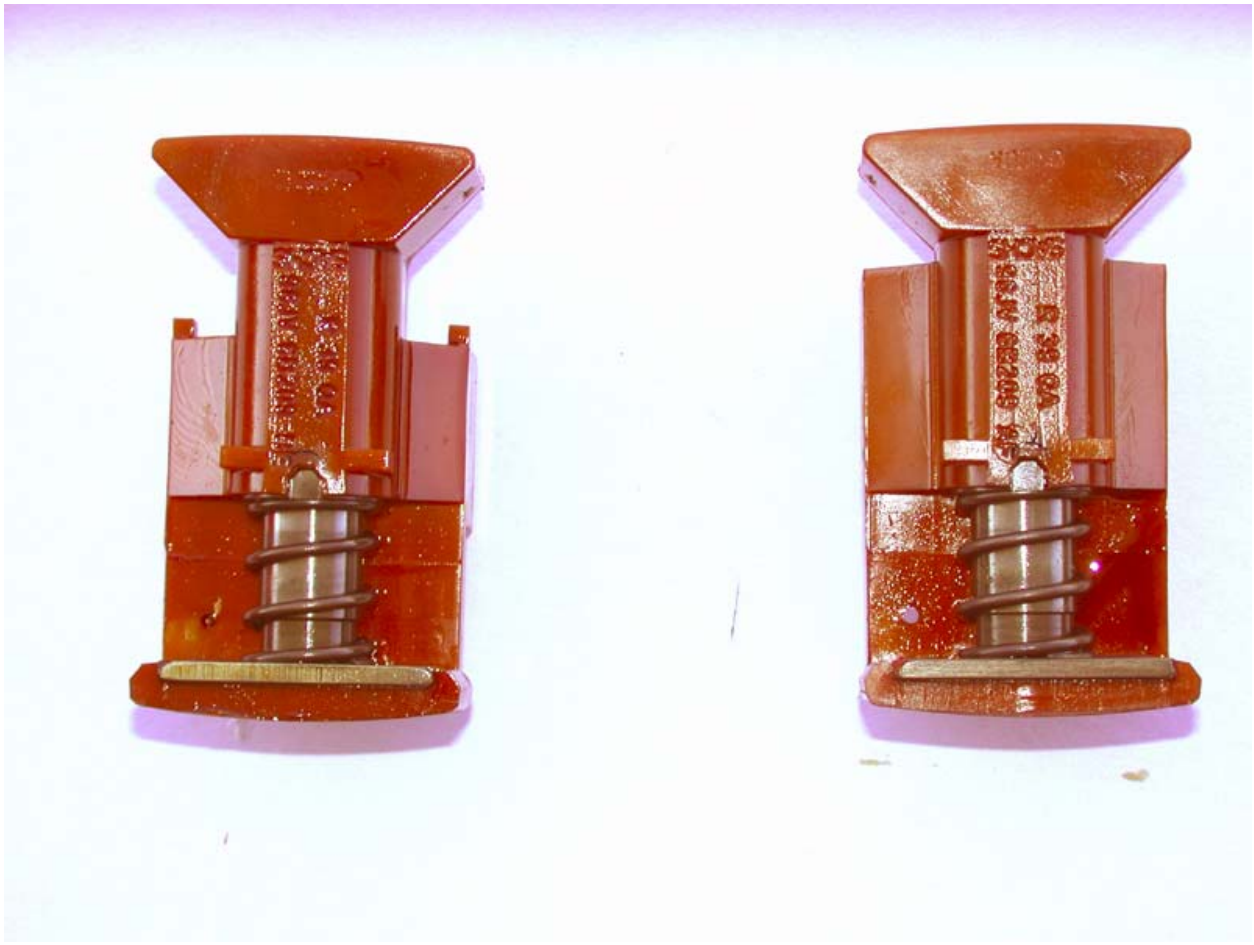


It was recommended to removing the cooling overflow tank. There is one bolt on top that I removed and pulled it aside with a tie wrap and didn't loose a drop. Worked good.

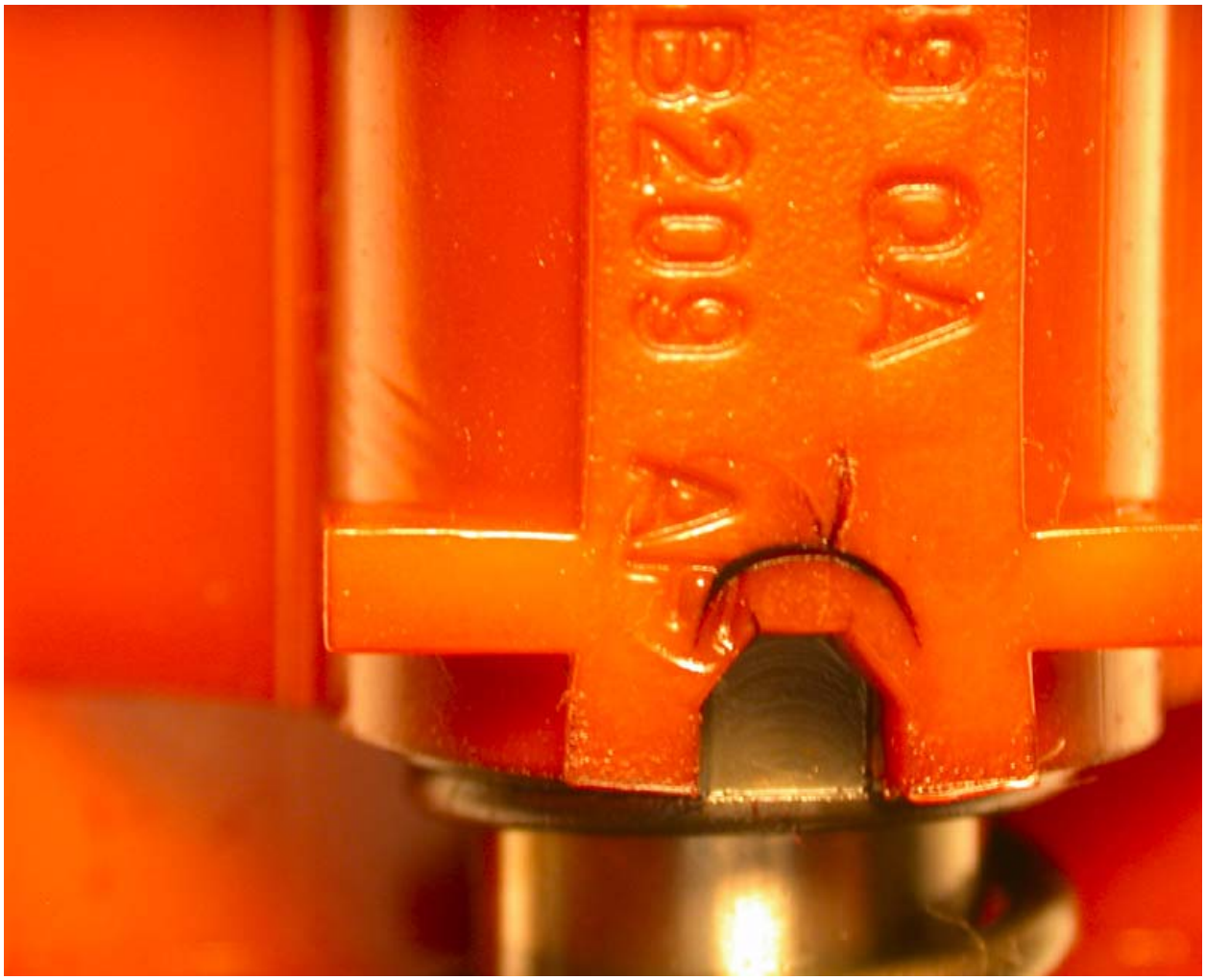
The next picture shows the comparison of the new metal tensioner with the big plastic tensioner. Quite a difference in size.



The next picture shows the two removed plastic tensioners.



At first I thought they looked pretty good and probably would have kept on cooking. But after a close look as you get in the last picture cracks were starting just above the notch cut out at the bottom of the barrel. As you can see in the picture the cut out has sharp corners that cause stress concentration in that area which in turn causes fatigue cracking.



That is exactly what is happening. These upper tensioners are subject to side load especially during engine start up. Why the notch cut out? I don't know but it sure was a stupid idea and probably ruined a good part.

The engine runs fine with no loud racket on first start up so I guess I did a good job and didn't forget any tie wraps. I did notice one thing though. With the new metal tensioners I can now hear the faint sound of the cam chains running. I couldn't hear that before with the plastic parts. It sounds good to me.

Hope all this helps!