

BMW 1985 – 325e Timing Belt and Water Pump Replacement *Start to Finish*

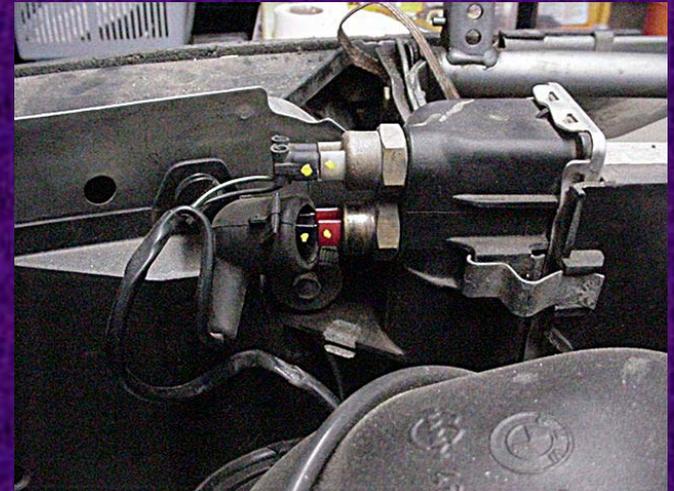
Take Your Time, It's Not as Bad as It Seems! I was VERY apprehensive about doing this work, but with encouragement from many on the Unofficial BMW Bulletin Board (www.unofficialbmw.com), I got through it with flying colors!

This guide is just that... a guide. Follow the instructions in the BENTLEY manual to the letter. I hope these pictures will help it all make sense. I took them as I was doing the job. I'm not a professional mechanic, just a weekend hack, but this job seemed daunting at first. You CAN do it!

Some people say that this job can easily be done with the hood on the car. I found it MUCH easier with the hood off as I ran into a few problems and had better reach with the hood off.



Before removing the hood, trace the hinges with a Sharpie or other pen so alignment is easy when you put the hood back on.



Mark everything well. Here I've marked the proper wiring attachments for the radiator electronics.



Drain the coolant from the system, and make sure you also drain the engine block by unscrewing the 19mm drain plug by the exhaust manifold.



Remove the radiator by unhooking the shroud, hanging it on the fan, disconnect the top hoses and the bottom hose, and undo the two bolts and remove it

Removal: The Fan & Clutch, the water pump pulley, the distributor cap & rotor and the drive belts.



Remove the fan & clutch. Remember, the 32mm nut opens CLOCKWISE as you look at the car. I used Channel-Locks and a strap wrench to hold the pulley still.



I also used the strap wrench to hold the water pump pulley while I removed its 4 retaining bolts.

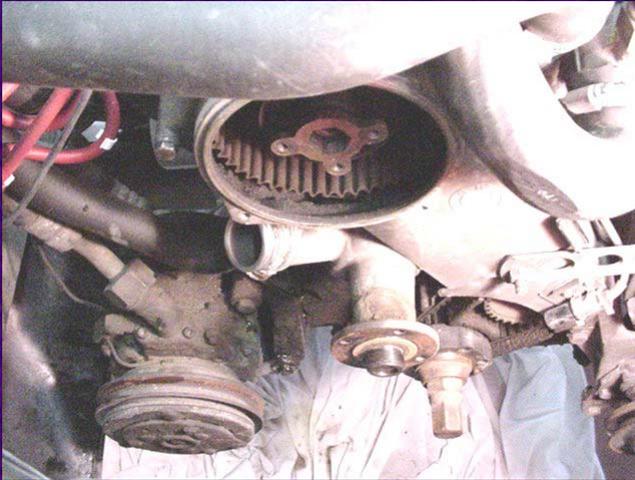


Remove the distributor cap and rotor, pushing the cap aside, with the wires still connected..



Remove the fan belts by loosening the star adjusters, slackening the alternator and steering pumps off, and removing the belts. Remove the spark plugs and rotate the engine to TDC... Leave it there and mark positions with paint!

Removal: The timing belt covers, the tensioner, the belt and the water pump.



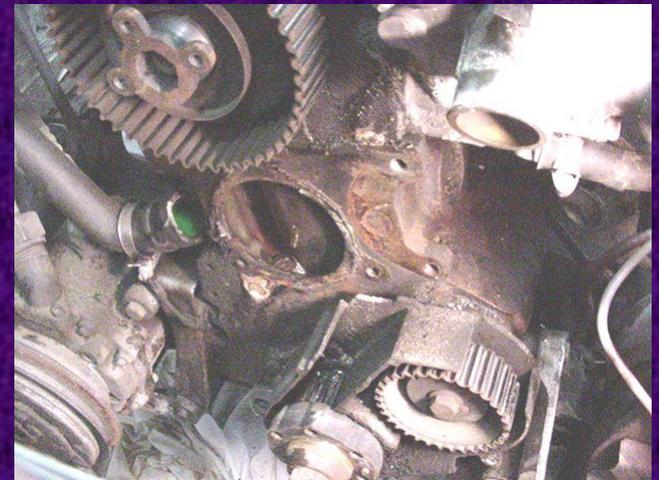
Remove the 6 hex bolts from the crankshaft pulley, and remove it and the vibration damper behind it from the car. The vibration damper is indexed and has no separate bolts.



Remove the tensioner gently, making sure that the spring and adjustment pin don't fly out!



Remove the two upper bolts from the top timing belt cover, the alternator bracket, the top cover, then the lower cover bolt and cover. Loosen the top bolt on the tensioner, push it left, retighten. Snake out the belt.



Remove the water pump.



Removal: Cleaning the Engine Block, Getting Rid of Old Gasket Material, and General Housekeeping!



I blocked the water pump housing hole with paper towel so I could remove old gasket material and dirt from the engine without getting any inside the system.



I cleaned everything, including the belt trough which was caked with grease and dirt. Once the gasket material and dirt were gone, I vacuumed all assemblies to make sure they were all dirt free. This wasn't mandatory but...

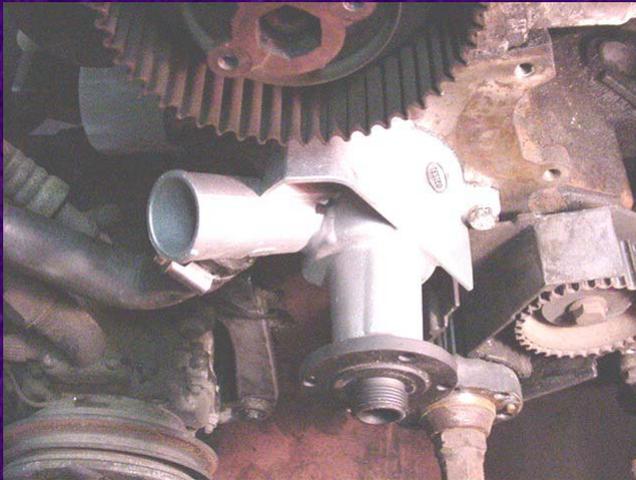


The track came out very clean... everything was ready for re-assembly.

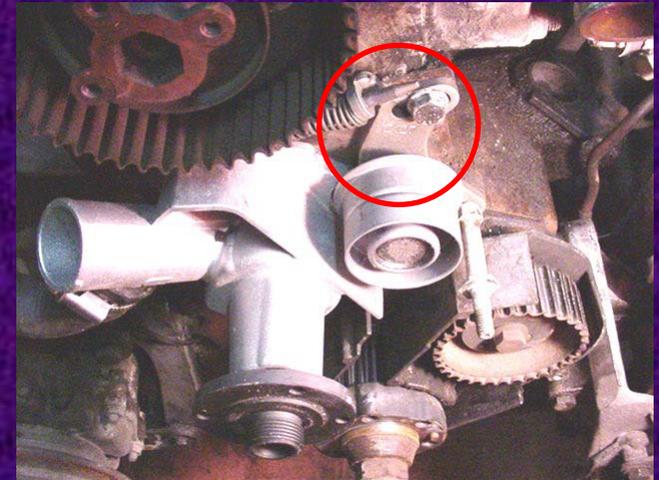


NOW ON TO REASSEMBLY!

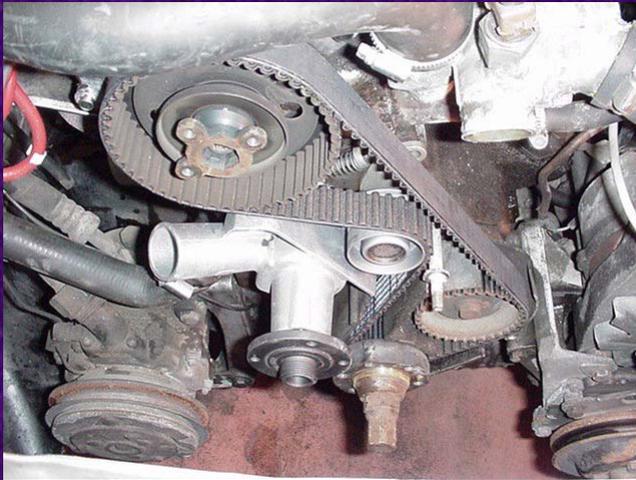
Re-assembly: The Water Pump, the Belt Tensioner and Timing Belt. Checking Your Work...



Install the new water pump using a NEW gasket, smeared lightly on both sides with Permatex gasket stuff. Mount with the 3 bolts. Torque properly.



Install the tensioner, making sure the adjustment pin seats in the receptacle on the water pump and the pin is through the tensioner bracket. Push it ALL the way to the left and tighten down.



Install the belt. Start at the bottom, around the lower gear, around the tensioner and up to the top timing gear. It'll be a tight fit and you have to gently ease it on. Unscrew the bolt holding the tensioner, and let it spring into action. Tighten tensioner bolts



Now, with a 22mm ratchet on the main crankshaft bolt, rotate the engine CLOCKWISE 4 complete revolutions and check to see that your timing marks still line up. If not, go back and redo it. If the belt is one notch off, your engine's timing will be off too, and things could be even worse!!! If everything lines up properly, keep going on, you're doing great!

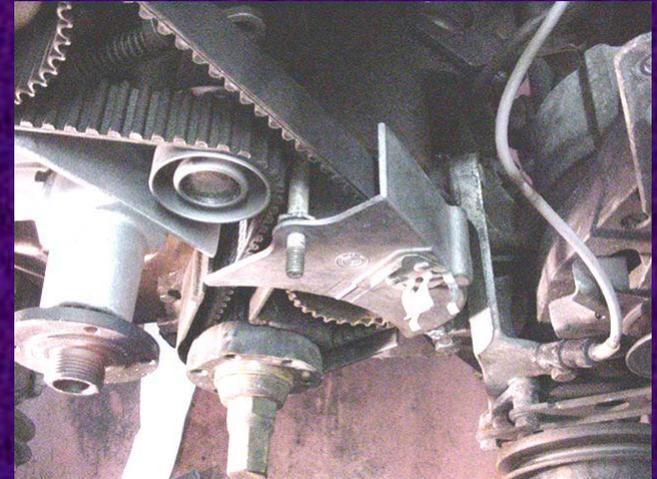
Re-assembly: Timing Belt Covers, Main Crankshaft Vibration Damper & Pulley, and Water Pump Pulley.



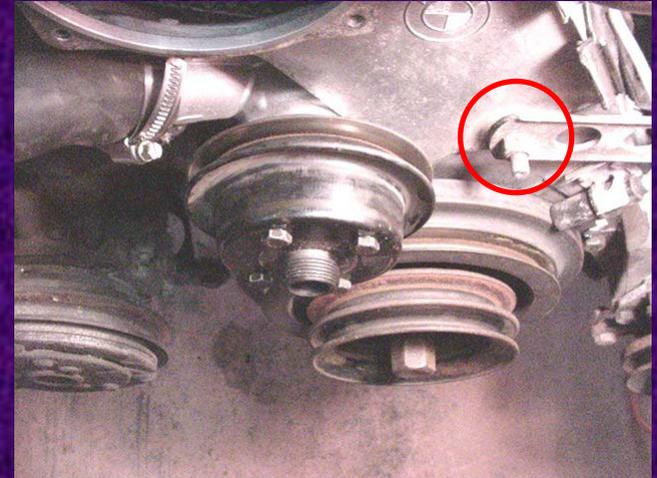
This is where I ran into trouble. I over-tightened the lower timing cover bolt and it sheared off. I was able to drill out the center of the broken bolt and removed it with an extractor.



Next, install the upper timing belt cover, the black plastic protector strip and the timing sensor. Notice here that I screwed up! Attach the alternator bracket to the middle bolt BEFORE putting on the nut!

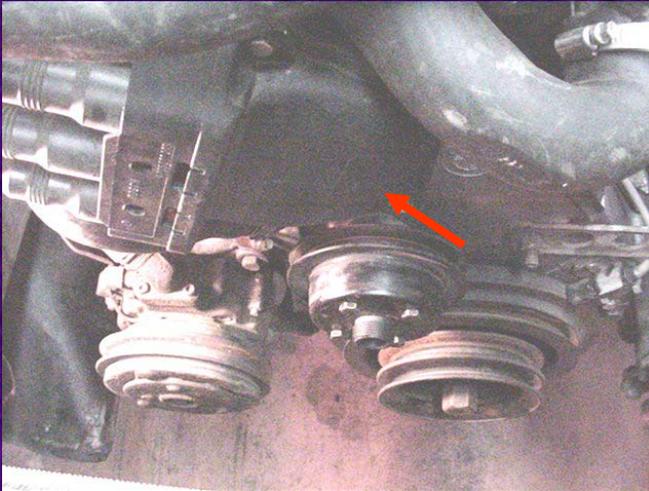


After getting the sheared bolt squared away, I mounted the lower timing belt cover.

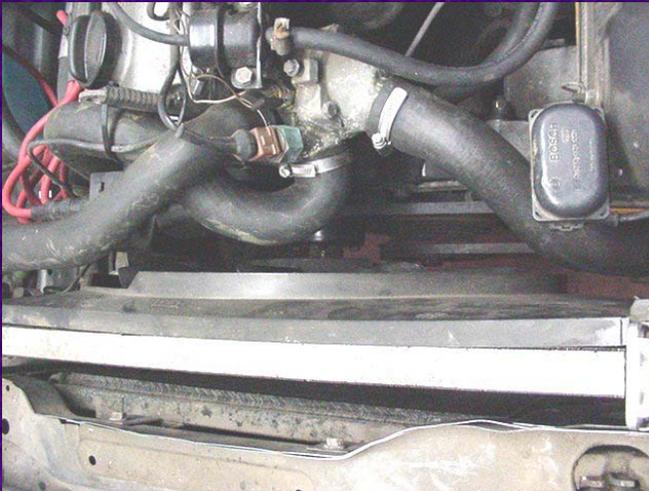


Install the water pump pulley and the main crankshaft vibration damper and pulley. Torque bolts to specs. Notice the alternator bracket correctly attached unlike last picture.

Re-assembly: Distributor Dust Shield, Rotor, Distributor Cap, Drive Belts, Radiator, Coolant & BEER!



Reinstall distributor shield, rotor and cap. Now, put the drive belts, the alternator belt and the A/C belts back on, and tension all belts properly.



Replace the shroud first, then the radiator. Reconnect all electrical connections to the right top side of the radiator.



Reattach the fan & clutch. Again, I used a strap wrench to hold the pulley steady and the Channel-Locks to tighten the fan nut to the water pump shaft. Remember, it goes on COUNTER-CLOCKWISE..

You're almost done!!! Replace the 19mm coolant drain plug on the passenger side of the engine block, make sure ALL hoses are reattached properly, then refill the system with anti-freeze, replace the hood with the help of a friend, and...

IT'S MILLER TIME!!!