

BLAU PARTS®

PLEASE READ THE FOLLOWING BULLETIN BEFORE CONTINUING WITH YOUR TIMING BELT REPLACEMENT



Bulletin: Prevent Premature Water Pump Failure!

BLAUfergnugen! Inc. recommends that an Audi Vw Factory Trained ASE Certified Technician install your parts to ensure your safety. Always read Robert Bentley factory service manual safety instructions and guidelines. ALWAYS WEAR SAFETY GLASSES AND OTHER SAFETY ITEMS WHEN PERFORMING THE FOLLOWING WORK!

Installers Responsibility:

Blauparts recommends that installers take the necessary time to thoroughly follow the steps outlined in this bulletin to prevent future labor costs, as well as any inconvenience after the installation of the water pump included in this timing belt kit. It has been noted that due to time constraints, inconvenience, and profit, many individuals and mechanics alike, do not take the extra time needed to thoroughly flush the entire vehicle cooling system prior to the installation of the new water pump. Just draining the cooling system and refilling the system is not enough! Premature water pump failure (water pump seals and bearings) can occur because of failing to take the time to flush the entire cooling system and its related components. Often when problems arise, such as a coolant leak, the new water pump is blamed as the cause when in fact the opposite is true. It is usually because the installer has neglected to follow these steps listed below.

Flushing the Cooling System:

It is imperative that the cooling system be thoroughly flushed of all accumulated silt and sediment build up, including all aftermarket cooling system additives, or stop leak products that may have been added to the cooling system, past or present. This would entail flushing the radiator, engine block, heater core and hoses etc. **Use Only Tap Water** to flush the entire cooling system. **DO NOT USE Cooling System Flush Products** since many contain muriatic and/or other acids. Remnants of such acids left in the cooling system can cause your new water pump to prematurely fail.

Water Pump Installation:

Take extra time in cleaning the water pump gasket/o-ring mating surfaces. Make sure the surface is free of all old gasket material and corrosion build up before installing your new water pump. It may be necessary to use a light abrasive scuff pad or razor blade. Gasket sealing agents should NOT be used if your water pump includes a paper gasket. If the water pump mounting surface area on the engine block is thoroughly cleaned, smooth and free from old gasket debris, gasket sealing agents (*Form a Gasket* products in gel or spray forms) are not needed. Sealing agents vary in composition and intended usage, and when used in conjunction with paper gaskets may affect the paper gaskets' long term ability to compress and/or perform its sealing function. Appropriate gel like gasket sealing agents should only be used in the case of severe pitting of the engine block surface whereby an even and smooth mounting surface for the water pump is not attainable. Double check all water pump mounting bolts for tightness. A loose or missing water pump or thermostat housing bolt can result in a leak and falsely attributing the water pump as defective.

Filling the Cooling System:

IMPORTANT: Read the Warnings on the antifreeze coolant bottle, improper use is HARMFUL or FATAL. Use only Audi, Vw G-12 antifreeze coolant which was included in your timing belt kit. These bottles contain coolant that is concentrated. You must dilute the coolant. Mix 50% coolant with 50% DEIONIZED WATER. DEIONIZED WATER IS PREFERRED. However, if it is not available use distilled water. **DO NOT MIX TAP WATER** with new coolant if at all possible. Tap water varies in Ph and mineral content and depending on these factors, can adversely effect your new water pump and other cooling system components.

Water Pump Break in Period:

All water pumps are inspected and air pressure tested at the factory for any leaks. However, new water pumps do have a break in period. It is not uncommon for a new water pump to have some seepage of coolant from the discharge hole below the water pump pulley shortly after start up. This is because the unique seal material in the new water pump is designed to 'bed in' as the impeller shaft spins. Slight weeping or dampness from or around the discharge hole or cap is allowable for at least 100 miles after installation and should not be attributed as a defective water pump.

Maintenance:

Mixing other brands of unauthorized antifreeze coolants with the approved G-12 antifreeze coolant included in your new timing belt kit can also cause an adverse chemical reaction to G-12 coolant, causing the coolant to gel and clot. This can damage the new water pump, plug the cooling system, and weaken other plastic cooling system components such as, the radiator and plastic coolant hose connections.

Environment:

Be environmentally responsible. Dispose of the old anti freeze coolant properly.

BLAU PARTS®

Guidelines For Installation Of Your VW TDI BHW (PD) Timing Belt Kit

Applies to Part Number : GH21127

! CAUTION !

Performing Work on Your Automobile Without Having Proper Knowledge, Mechanical Ability or the Proper Tools and Safety Equipment, CAN CAUSE SEVERE INJURY OR DEATH !

BLAUferngnugen! Inc. recommends you have an Volkswagen Factory Certified A.S.E. Certified Technician install your parts to ensure your safety.

ALWAYS WEAR SAFETY GLASSES AND OTHER SAFETY ITEMS WHEN PERFORMING THE FOLLOWING WORK

The following information is simply a guideline and is not intended to replace the official Bentley Factory Manual. Always refer to the factory manual for proper installation and safety guidelines.

PLEASE NOTE: The proceeding instructions are only a basic outline of your timing belt replacement. More detailed instructions on disassembly are under development and coming soon!!

PLEASE NOTE: Before proceeding with the following guidelines, locate and follow the Bumper Cover Removal section for yourspecific vehicle as found starting on page 5 of this document.

- 1) Position the vehicle in the air using a certifiend automotive lift.
- 2) Remove the protective splash pan.
- 3) Loosen and remove the decorative engine cover as well as all hoses or engine harness that's in the general area of the timing belt area.
- 4) Drain the coolant from the engine by removing the lower hose from the oil cooler , **(Image 1)**
- 5) Remove tension from the serpentine belts and remove the belt.
- 6) Remove any components directly in front of the timing belt covers.
- 7) Remove upper timing belt cover by releasing (2) clips and then pull upward on the cover. **(Image 2)**
- 8) Remove the plastic cover on the vibration damper pulley then remove (4) 6mm allen head bolts then remove the pulley.

Note: To counter hold the crankshaft use a 1/2" drive rachet and 19mm socket. Torque Spec-14 ft lbs

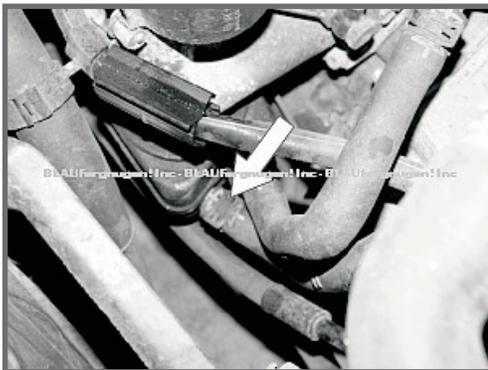


Image 1

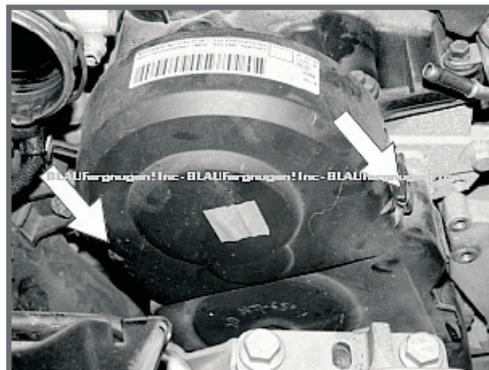


Image 2

Guidelines For Installation Of Your VW TDI BHW (PD) Timing Belt Kit continued.....

9) Remove the lower timing belt cover by removing (5) 10mm bolts. **(Image 3)** (upper most bolt not pictured)

- **Important:** Apply Loctite to these bolts when reinstalling the cover.

10) If the seal is bone dry you may wish to not replace the crankshaft seal. If the crankshaft seal is showing signs of leakage begin the replacement of the seal as follows: **A)** Position tool 3099 in the lower crank toothed pulley and loosen the 12 point 19mm crank bolt. **Note:** Make sure you fully thread in tool 3099 securing bolts into the toothed sprocket.

Note: Do not remove the bolt or toothed pulley at this time. You will continue the replacement of the crankshaft seal at step 17. **(Image 4)**

Timing Belt Removal:

11) Rotate engine clockwise until engine timing marks align. If one of the timing marks do not align rotate the engine another revolution and check your timing marks again. The crankshaft timing mark should align with the machined hole in the oil pump casting. The camshaft timing marks will be (2) tabs on the hub behind the cam sprocket that will need to be centered with the timing arrow on the timing belt backing cover. **(Image 5 and 6)**

12) Install crankshaft locking tool T10050. To do this slide the tool into the teeth of the toothed belt pulley then into the round machined hole in the oil pump casting. **(Image 7)** **(Note: NEVER use tool T10050 to torque crank fasteners)**

13) Install tool 3359 into camshaft sprocket hub. Slide tool into empty slotted hole at left of camshaft sprocket hub. **(Image 8)** **(Note: NEVER use tool 3359 for torque of cam fasteners)** **(Note: you may have to tap gently on the pin tool to get it into the hole of the hub and rear casting.)**

14) Loosen the (3) 13mm bolts holding the outer cam sprocket in place keeping bolts finger tight at this time. **(Image 8)**

15) Loosen and remove timing belt tensioning idler, timing belt, fixed tensioner and water pump.

16) Rotate the outer cam sprocket counter clockwise until it stops in the slotted holes. Keep outer cam sprocket in this location throw the timing belt assembly as this will allow proper adjustments later if needed. **(Image 8)**



Image 3



Image 4



Image 5

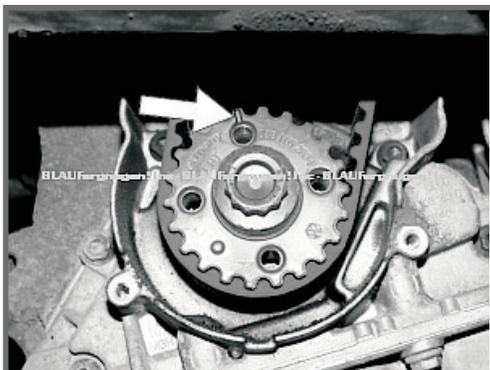


Image 6

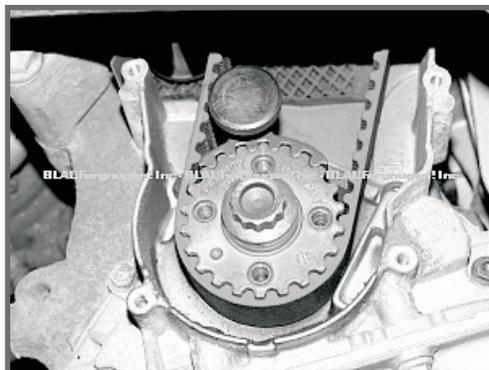


Image 7



Image 8

Guidelines For Installation Of Your VW TDI BHW (PD) Timing Belt Kit continued.....

Crankshaft Seal Removal and Installation:

17) At this time if your going to replace your crankshaft seal remove the crank shaft bolt as it should be loose as described in step 10. Using tool 3203, remove lower crank seal. Inspect crankshaft for possible groove from where the old seal rubbed on the crankshaft. Lubricate the sealing lip of the new crank seal with clean motor oil. Using tool 3265, gently tap new crank seal into place. If a groove existed in the crankshaft, recess the new seal slightly deeper so the seal lip rides on a new surface area of the crankshaft. **Important:** Do not rotate or turn the crank shaft at this time.

18) Re-install toothed belt pulley and using tool 3099 torque crank bolt to 88 ft lbs + 1/4 turn.

19) Most likely during steps 17 and 18 the crankshaft timing mark may have slightly moved. Rotate timing mark back into place and install tool T10050.

Camshaft Seal Removal and Installation: **Note:** if the cam seal is bone dry you may wish to leave it alone.

20) As completed in step 14 the (3) outer cam sprocket bolts should be loose. Remove these (3) 13mm fasteners along with the cam sprocket.

21) Use tool T10051 to counter hold the camshaft hub and loosen the main center bolt but do not remove. When the bolt has been loosened you will want to loosen the bolt two full turns but do not remove.

22) Use Hub Puller tool T10052 to remove camshaft hub. To properly use this tool align the (3) bolts on the tool with the threaded holes in the hub and fully thread the (3) bolts into the hub.

(**Note:** Lightly torque bolts , but make sure not to over tighten as this can damage the tool)

Next turn the center spindle on tool T10052 evenly and strait until the hub separates from the taper of the camshaft.

23) Remove camshaft seal using extractor tool 3240. Inspect camshaft for possible groove from old seal wearing on camshaft seal surface area. Lubricate the seal lip of cam seal with clean motor oil and using tool 10-203 tap new cam seal into place. If a groove existed on the camshaft, locate the new seal a few millimeters outward on the camshaft so that it rides on a new surface area.

24) Install camshaft hub to camshaft so that the hub aligns or centers with the timing mark on the rear timing belt cover. Torque camshaft hub to 74 ft lbs using counter holding tool T10051.

25) Install camshaft sprocket onto the hub leaving the (3) 13mm bolts hand tight at this time. Line up the camshaft sprocket alignment holes with the hub and install tool locking pin 3359. (**Image 8**)

Installation of New Tensioners and Belts:

26) Clean machined area where the water pump will mate with engine block. Install the new improved water pump by turning all water pump fasteners equally snug by hand and then slowly and evenly torque the fasteners to 11 ft lbs.

27) Install timing belt tensioning idler. Position backing plate flange on tensioner with machined hole in plastic cover and slide tensioner onto stud. Tighten securing nut only finger tight at this time. (**Image 9**)

28) Install your timing belt working from the crankshaft upward to the camshaft lastly sliding the belt onto the water pump. (**Note:** During this step keep the camshaft sprocket fully rotated in the counter clockwise direction. Also leave the small tension idler pulley off as this will make installation of the timing belt easier. Make sure that the timing belt is properly in place and engaged evenly in the teeth of the lower crank pulley, camshaft pulley and water pump.)

29) Install the small tension idler pulley and torque to 15 ft lbs.(Apply loctite)

30) Using eccentric tool 3387 rotate Adjustable tensioner pulley until arrow on backing plate is aligned with the open gap and torque to 15 ft lbs +1/8 turn. (**Image 10**)

31) Torque (3) camshaft sprocket bolts to 18 ft lbs.

32) Remove crank lock tool T10050 and cam lock pin tool 3359 and rotate engine clockwise two full revolutions making sure of no interference or resistance. Check your timing marks and as well make sure the arrow on the backing plate of the tensioner is aligned with the open gap. If tension has changed adjustment is needed and please do so at this time as outlined in step 30. (Warning: Failure to perform the above guidelines in step 30 could cause severe engine damage)

Guidelines For Installation Of Your VW TDI BHW (PD) Timing Belt Kit continued.....

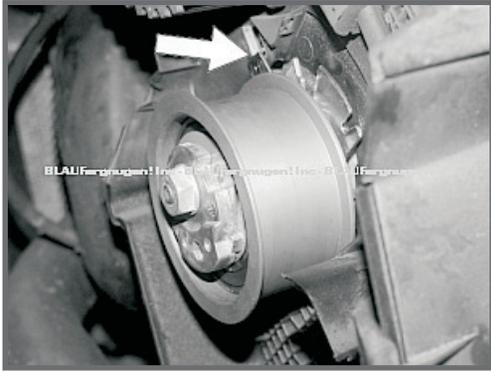


Image 9



Image 10

Thermostat Removal and Installation:

- 33) Remove any engine components in the location of the thermostat and place off to the side.
- 34) Use a pliers to loosen the hose clamp at the thermostat housing and remove hose.
- 35) Using a 1/4" drive ratchet and 10mm socket remove the (2) bolts mounting the thermostat manifold.
- 36) Remove old thermostat, noting the orientation of it. Clean thermostat mating surface on engine block. Install the new thermostat in the same orientation as removed along with the o-ring.
- 37) Reinstall thermostat housing to block and torque housing to 7 ft lbs. and reinstall hose and clamp.

Wrap Up:

- 38) Turn engine over by hand two full revolutions and verify that there is no interference.
- 39) Bring # 1 cylinder of engine to top dead center and verify all timing marks align properly as outlined earlier.
- 40) Install the lower timing belt cover. Important: Apply Loctite to the (5) 10mm bolts when reinstalling.
- 41) Reinstall motor mount casting to engine block. Be sure to apply thread locker to all existing bolts. Install lower bolt into motor mount casting before positioning bracket in place, then position casting into place in between engine and body of vehicle. Install the (3) bolts into casting at the same time and start threads of all the bolts before tightening any one of them down. - Torque spec for these fasteners is 33 ft lbs.
- 42) Reinstall the body motor mount bracket with (2) bolts. - Torque spec for these fasteners is 30 ft lbs +1/4 turn
- 43) With the engine lowered and back at the proper level, install the motor mount to engine bracket bolts. - Torque spec on these fasteners is 74 ft lbs.
- 44) Locate any components removed not specifically addressed in this guideline and re-install.
- 45) Review each step found in this set of guidelines to ensure each component has been addressed properly and has been re-fastened to specification.

Cooling System Filling:

- 46) Reconnect the lower oil cooler hose to fitting.
- 47) Make sure the radiator drain knob is tight.
- 48) Fill the coolant expansion tank slowly with a 50/50 mix of coolant/antifreeze and water.
- 49) Install your coolant expansion tank cap, start your engine and allow the engine to warm until the radiator fans cycle at least once or until you are sure the thermostat has opened. You can safely bring the engine up to around 2000 RPM to quickly develop heat in the engine in order for the thermostat to open. *If the coolant expansion tank fluid level goes down while you are running the engine, turn off the vehicle and carefully remove the coolant expansion tank cap. Re-fill with coolant to the max line and re-start the engine and let warm again until the radiator fan cycles.
- 50) When the engine has cooled re-check the coolant and add as needed.

BLAU PARTS®

Guidelines For 2001 Onward VW Passat Front Bumper Removal

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- 1) Elevate vehicle on an automotive lift or proper jack stands and remove the lower splash pan.
- 2) Remove the lower drivers and passengers side bumper grilles. Reach in behind the fog light and unplug the electrical connectors.
- 3) Remove the main hood latch mechanism by removing the (3) 10 mm fasteners and the electrical plug. Additionally, remove the secondary hood release lever. Pry up and remove the spring clip from the hood latch lever, then use a flat blade screwdriver to spread the latch apart so that the rod clears the latch pins. Next, remove the latch and place it off to the side. **(Images 1 and 2)**
- 4) Remove the main grille by removing (2) Torx head fasteners, one located at each side of the grille. Firmly pull up on the grille until the grilles lower mounting tabs pop out. **(Images 3 and 4)**



Image 1



Image 2



Image 3

- 5) With the main grille removed, locate and remove the (4) Torx screws found in lower grille cavity. **(Image 5)**

- 6) Locate and remove the fasteners located on the forward side of each wheel well. You will find a total of (4) fasteners in each wheel well, with one being rather hidden toward the very top of each wheel well as pictured. **(Image 6)**



Image 4



Image 5



Image 6

Guidelines For 2001 Onward VW Passat Front Bumper Removal *Continued*

- 7) Remove the bumper cover by firmly pulling the cover forward, one side at a time. While pulling the bumper cover forward, you will need to unplug the electrical connectors for the amber side indicator lamps found on each side of the bumper. **(Image 7)**
- 8) Locate and remove the (5) fasteners that hold the upper plastic bumper cover reinforcement, and also the (2) fasteners holding the lower steel bumper cover reinforcement. **(Image 8)**
- 9) Remove the upper outer fasteners from the bumper shock brackets on each side of vehicle, then replace fasteners with special tool # 3411. Once installed, remove all remaining fasteners from bumper shock brackets. **(Image 9)**



Image 7



Image 8



Image 9

- 10) Remove the (2) fasteners that hold the air box intake tube in place, then pull upward on intake tube to completely remove it.
- 11) Remove the upper radiator valance fastener located at the forward fender edge on each side of vehicle. **(Image 10)**
- 12) Locate and remove (2) fasteners holding the fender to the radiator valance, one fastener found under each headlamp. **(Image 11)**



Image 10



Image 11

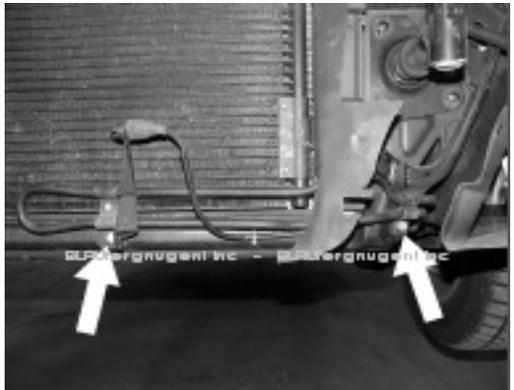


Image 12

- 13) Remove the fasteners that hold the power steering cooler in front of the radiator. Let cooler tube hang free, but take care that it does not get damaged. **(Image 12)**
- 14) Drain the coolant out of the radiator by opening the drain screw found on the lower drivers side of the radiator. **(Image 13)**
- 15) Remove the lower intercooler hoses from the intercooler crossover pipe.
- 16) Remove the upper and lower radiator hoses by gently prying on the removal clip integrated into the hose clamp with a screwdriver blade.
- 17) Slide entire radiator and front support assembly forward on the pair of previously installed special tools # 3411.



Image 13