Pole Position

AUDI SKODA
FORD VW
SEAT

Issue 3 · 2009

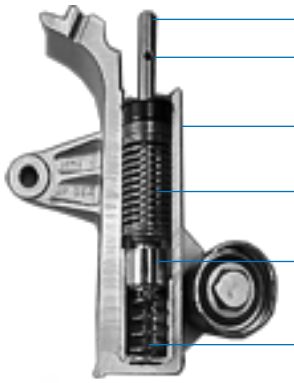
VKMA 01942

SKF timing belt kit with hydraulic damper

This bulletin will mainly focus on the hydraulic damper included in the timing belt kit reference VKMA 01942. We will also highlight the mounting instructions for the hydraulic damper, but also make you aware of doing a system overhaul in order to do a complete and professional repair.

The VKMA 01942 kit contains a hydraulic damper (see picture 1), which is a relatively new type of automatic tensioner. The hydraulic damper has been developed to be used in engines with high loads and angular vibrations, where a mechanical automatic tensioner can not provide sufficient damping. It works like a shock absorber, where a spring in combination with the damping feature of the oil will maintain a constant timing belt tension (see picture 2). This is necessary to ensure and maintain optimum engine performance.

However, after a period of time a hydraulic damper will show indications of wear. Even the smallest leak in the actuator, can result in having incorrect damping and therefore incorrect system tension. Make sure you always change the hydraulic damper in order to prevent engine failure.



Picture 2: The hydraulic damper and its components.

Picture 1: VKMA 01942 kit content: Hydraulic damper, timing belt, tensioner and idler pulley, 2 bolts, 1 nut and specific fitting instruction.

Vehicle applications - VKMA 01942

AUDI:	A2, A3, A4, A4 Avant, A6, A6 Avant
FORD:	Galaxy
SEAT:	Alhambra, Arosa, Leon, Toledo
SKODA:	Fabia, Fabia Combi, Fabia Saloon, Octavia, Octavia Combi, Superb
VW:	Bora, Bora Estate, Golf IV, Golf IV Variant, Lupo, New Beetle, Passat, Polo, Sharan




Replacement of the hydraulic damper on VW Golf IV - 1.9 TDI, 115 HP, AJM Motor, Year 1999

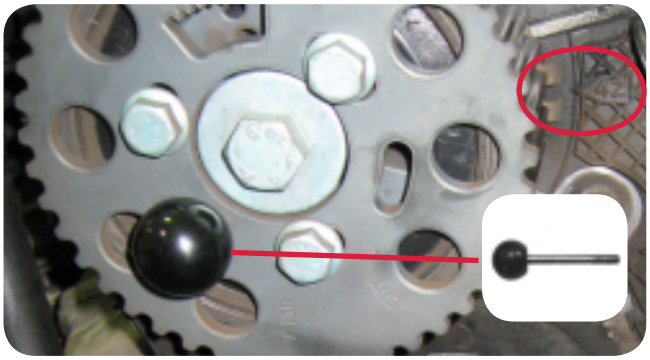
With the engine safely supported, from either above, or below, release engine by removing the right hand engine bolts, mounts and bracket. Remove the auxiliary system and the crankshaft pulley, then the other timing covers.

Remove the necessary component covers and hoses along with the auxiliary drive belt and tensioner. Power steering and coolant expansion tank (see picture 3) can be moved without disconnecting the hoses. Detach the fuel pipes from cylinder head.

Picture 3

Turn the crankshaft to TDC on No.1 piston. Ensure the timing mark is aligned on the camshaft pulley (mark 4Z on AJM engine) and then lock crankshaft and camshaft using the special tools
(see pictures 4 and 5).

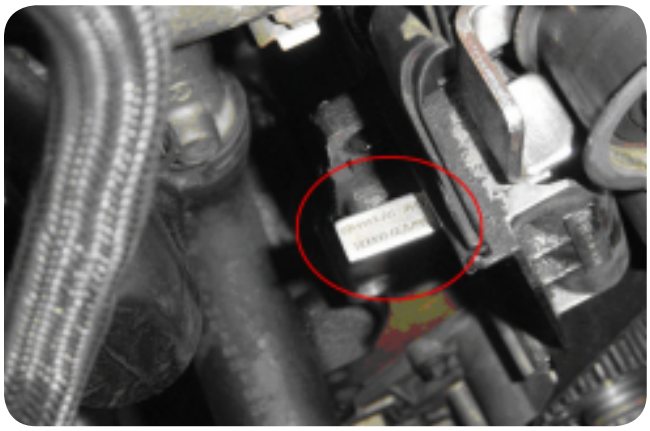
Picture 4: Crankshaft locking tool



Picture 5: Camshaft locking tool, and the 4Z mark.

To remove the timing system components, slowly turn the tensioner anti-clockwise until you are able to insert the locking pin into the hydraulic damper (see picture 6). Once locked you can dismount the timing belt, pulleys and tensioner. Check all related components in the timing system for signs of wear and replace where necessary.

Note: The installation should be carried out at an ambient temperature.



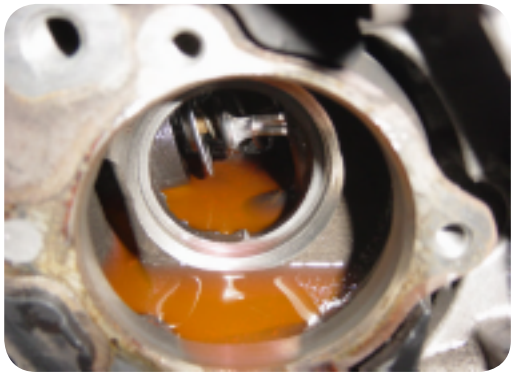
Picture 6

Note: This engine may be used on different car makes and models, so a slightly different approach at the setting up of the components may be advised. These comments reflect those used for the Golf listed above.

Check that crank and cam locking tools are in place. Loosen the three camshaft bolts and turn the camshaft sprocket fully clockwise, so it rotates along the slots, then finger tighten the retaining bolts. Fix the hydraulic damper (do not remove the retaining pin yet) and tensioner in place, then mount the timing belt starting with the camshaft, to the tensioner, followed by the crankshaft sprocket and water pump. At this point the belt should be tightly wrapped around the system.

Note: A water pump change during timing belt kit replacement is also recommended (picture 7 highlights a newly installed water pump). Ensure the cooling system is flushed and clean before replacing the pump, as dirty coolant will destroy the ceramic seals inside the pump! (see picture 8).

Picture 7: The new water pump fitted.



Picture 8: Dirty coolant system.

Turn the tensioner slowly in an anti clockwise direction using adjuster key, until you can remove the hydraulic damper piston locking key - at the same time keep the adjuster key mounted against the tensioner. Allow the piston to release under control and slowly, taking up the timing belt slack until 4mm (+/- 1mm) of the piston has extended. Tighten the tensioner nut to 3 daNm and also the three camshaft bolts to 2.5 daNm. Remove the camshaft /crank locking tools then turn crankshaft two turns until TDC on No1 cylinder again. Reinstall crankshaft, and camshaft locking tools. Recheck the piston exposure is still 4mm (+/-1mm) - deviation will mean incorrect hydraulic control of the timing belt tension under engine running. When all checks are complete, remove the camshaft /crank locking tools.

Reinstall auxiliary components in reverse order.

Picture 9: The new hydraulic damper and the tensioner fitted.

Note: To avoid any risk, please refer to the SKF specific fitting instructions contained in the VKMA 01942. The specific fitting instructions also covers the following kits: VKMA 01140, VKMA 01141, VKMA 01142, VKMA 01143, VKMA 01940, VKMA 01941 and VKMA 01943.

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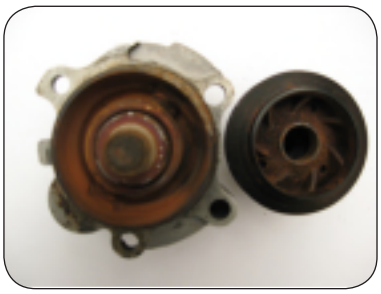
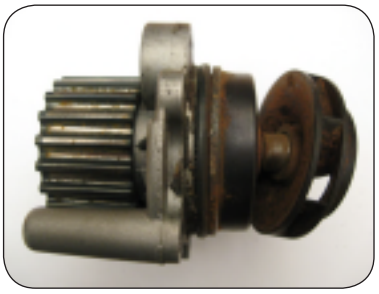
Think about the complete system

The water pump is an integral part of the timing drive system. The water pump has been running on the old timing system and consequently the bearings have covered the same mileage as the timing system. When you change the timing belt kit, also change the water pump to avoid the risk of future coolant leakage. Don't run the risk of your customers engine breaking down due to a water pump failure. On pictures 10a to 10c, you can see the consequences of re-using the old water pump. The bearing, and the seal have become attuned to running under an ever decreasing system tension. By fitting a new timing tensioner/belt, and idler/s (if fitted), the water pump bearings and seal will not be able to operate under the new load, and in time will leak and ultimately fail. This engine requires SKF water pump kit VKPC 81626.



Picture 10a



Picture 10b

Picture 10c

SKF: your single source for auxiliary drive

For a complete repair, to avoid unnecessary claims, and to also ensure you install confidence every time - whenever you change the timing system, also change the complete VKMA auxiliary kit!

Applications with AC	Applications without AC
VKMA 31001	-
VKMV 6DK1195 (position ALT)	VKMV 6PK1120 (position ALT)
VKM 31019 (position ALT)	VKM 31019 (position ALT)

The table above only covers the applications for VW Golf IV Engine AJM Year 1999 and not all applications of the VKMA 01942. In order to select the right parts and references, always consult the SKF engine catalogue.

Auxiliary belts and the related accessories have to fit together perfectly and perform to OE requirements to get the job done right. With SKF, you can be sure they will, every time. SKF auxiliary replacement belts match automotive OEM specs down to the millimeter. And our tensioners, pulleys and dampers offer OE quality. So you'll never have to settle for "close enough" – and risk an unhappy customer.

SKF auxiliary belts are always the exact OE length.

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