

VKMA 01040



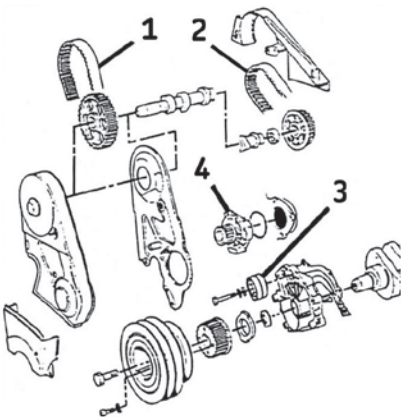
VKMC 01040



A

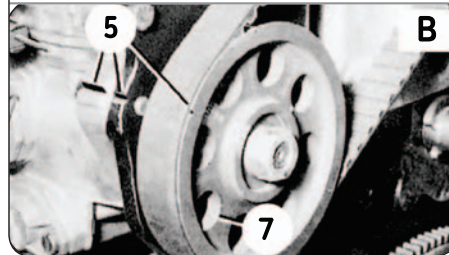


- (6): Blocking wrench (Volvo 5187 ; VAG 2084).
- (8): Blocking wrench (Volvo, 5199 ; VAG 3036).
- (9): Shim rule (Volvo 5190 ; VAG 2065A).
- (11): Extractor (Volvo 5202 ; VAG 3034).
  - Shim gauge (Volvo 5193 ; VAG 2064).
  - Comparator extension (Volvo 5194).
  - Belt tension tool (VAG 3303).



- (10): 20 Nm
- (12): 20 Nm (25 Nm: VW LT45)
- (13): 100 Nm (460 Nm: VW LT45)

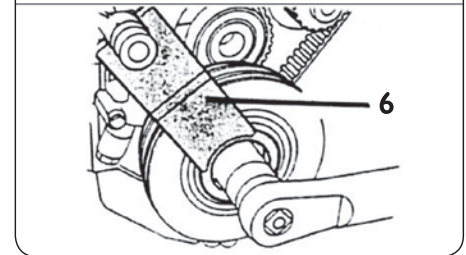
B



**Removal**

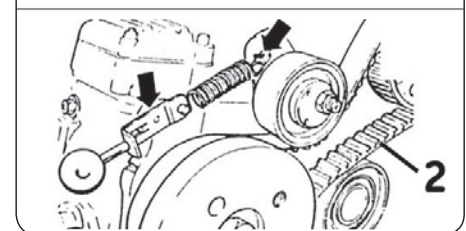
- 1) Disconnect the battery according to the vehicle manufacturing guidelines.
- 2) Prepare the vehicle for the timing replacement according to the vehicle manufacturing guidelines.
- 3) Set cylinder Nr 1 up to TDC by turning the engine: align the mark on the flywheel with the one on the clutch casing, and mark (5) on the injection pump with the mark on the pump bracket (Fig. B).
- 4) Loosen and remove the 4 bolts securing the pulley on the crank gear.
- 5) Lock the crank pulley with tool (6) (Fig. C)
- 6) Loosen and remove the bolt at the centre of the crank pulley.
- 7) Remove tool (6) then remove the crank pulley (Fig. C).
- 8) Remove the injection pump belt (2):
  - Fit the shim gauge in the pump bracket through the injection pump pulley (7) (Fig. B).
  - Fitting with 1 or 2 rollers: loosen and tilt the tensioner roller (Fig. D and E).
  - Fitting without roller: loosen the fastenings in the injection pump bracket, lift it, and tighten it in the upper position.
  - Remove the injection pump belt.
- 9) Lock the camshaft rear sprocket (injection pump side) using wrench (8), loosen and remove the fastening bolt (Fig. F).

C



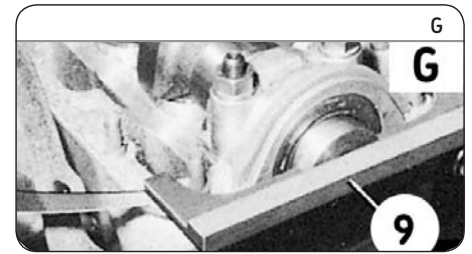
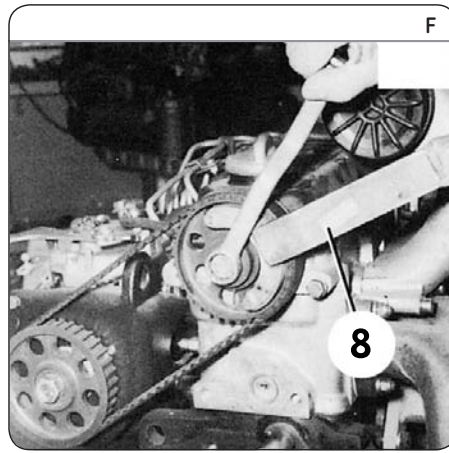
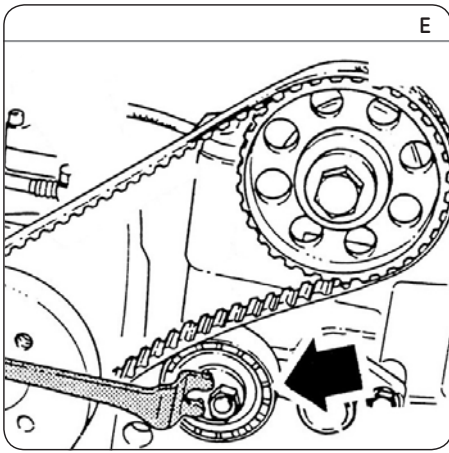
- 10) Pull and remove the camshaft rear sprocket using a rubber mallet.
- 11) Set the rule (9) supported on the cylinder head sealing surface in the groove at the rear end of the camshaft, and slide on the injection pump side a 0.2 mm gauge between the rule and the sealing surface (Fig. G).
- 12) Lock the camshaft front sprocket on the timing side with wrench (8) and loosen the fastening bolt by a half-turn.
- 13) Pull the pinion on the camshaft cone using a rubber mallet. Loosen the fastening bolt (10) of the water pump (4) and turn it **clockwise** to loosen the belt (Fig. H).
- 14) Remove the timing belt (1) (Fig. A).
- 15) Remove the idler roller (3) using the extractor (11) (Fig. I).
- 16) **Removing the water pump (VKMC 01040):** firstly bleed the cooling circuit, check it is clean, and clean if required; remove the pump (4) (Fig. A).

D



Install Confidence



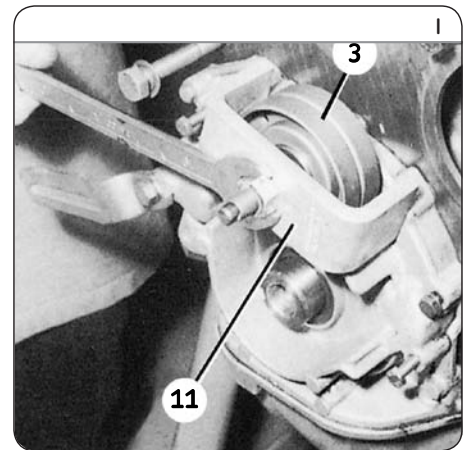
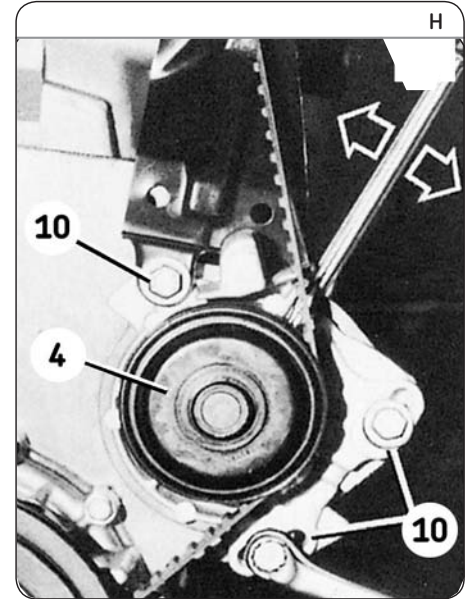


## Refitting

**Caution!** Clean the bearing surfaces of the rollers.

- 17) **Refitting the water pump:** firstly fit the new water pump (4), with TORQUE to manufacturer recommendations then check that the water pump pulley runs properly, and has no hard or locking spots.
- 18) Reassemble the new idler roller (3) (Fig. A) to a torque of **10 Nm**.
- 19) Reassemble the new timing belt (1) (Fig. A).
- 20) Tilt the water pump (4) **counterclockwise** to tighten the timing belt (Fig. H).
- 21) When tightening the timing belt, the camshaft front sprocket may turn on its shaft.
- 22) Check the tension of the timing belt (1)(Fig. A).
- 23) Tighten the water pump fastening bolts (10) at **20 Nm**.
- 24) Lock the camshaft front pinion using the tool (8) and tighten at **45 Nm** (Audi: **120 Nm**).
- 25) Remove the rule (9) and the thickness shim (Fig. G).
- 26) Reassemble the camshaft rear sprocket without tightening its fastening screw.
- 27) Reassemble the injection pump belt (2).
- 28) Tighten the injection pump belt (2) (Fig. D) Fitting with 2 rollers:
  - Fit the tension device (Fig. D), the injection pump belt is tightened automatically.
  - Tighten the fastening screw on the tensioner roller at **45 Nm**.
  - Remove the tension device, fitting with 1 roller:
    - Tighten the injection pump belt by turning the tensioner roller.
    - Tight the fastener of tension roller to **20 Nm**.
  - Fitting without roller:
    - Loosen the injection pump fasteners and push it downwards to tighten the injection pump belt.
    - Lock the injection pump fastenings. When tightening the injection pump belt, the camshaft rear sprocket may turn on its shaft.

- 29) Lock the camshaft rear sprocket using the tool (8) and tighten at **100 Nm** (Audi engines: **160 Nm**).
- 30) Remove the shimming gauge.
- 31) Check and if required adjust the shimming of the injection pump using a comparator and its extension (according to manufacturer data).
- 32) Reassemble the crank pulley centred on the crank pinion, then tighten the 4 fastening bolts (12) at **20 Nm** (Volkswagen LT 45: **25 Nm**).
- 33) Lock the crank pulley with tool (6) (Fig. C).
- 34) Fit the central crank pulley bolt (13) smeared with Loctite locking compound, and tighten at **100 Nm**, then angular tightening at **180°** (Volkswagen LT 45: **460 Nm**).
- 35) Remove tool (6) (Fig. C).
- 36) Turn the crank by two turns and check the alignment of the TDC shimming marks.
- 37) Reassemble the injection pump belt cover.
- 38) Refit the remainder of the removed elements in the reverse order to removal.
- 39) Fill the cooling circuit with the permanent fluid recommended.
- 40) Check the circuit's leak-tightness when the engine reaches its running temperature and secure the level of coolant when the engine is at ambient temperature (20 °C).



**Notice:** Always follow the vehicle manufacturer instructions when working on the engine. The SKF KITS are designed for the automotive repair professional and must be fitted using tooling used by these professionals. These instructions are to be used as a guideline only. This document is the exclusive property of SKF. Any representation, partial or full reproduction, is forbidden without prior written consent from SKF.