

#### 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) Turn the crankshaft in the engine rotation direction up to TDC. Check the alignment of the timing marks of the camshaft sprocket (5) (Fig. B1), (6) and of the crankshaft pulley (Fig. B2).

**Note:** If necessary, turn the crankshaft one extra turn to align the marks.

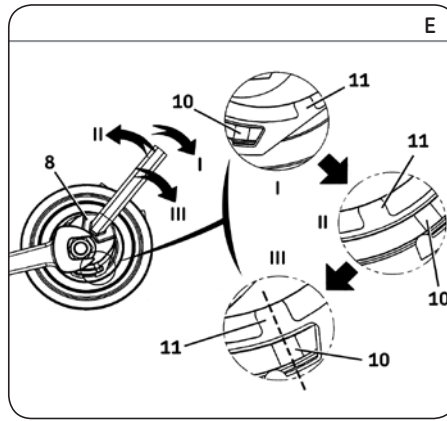
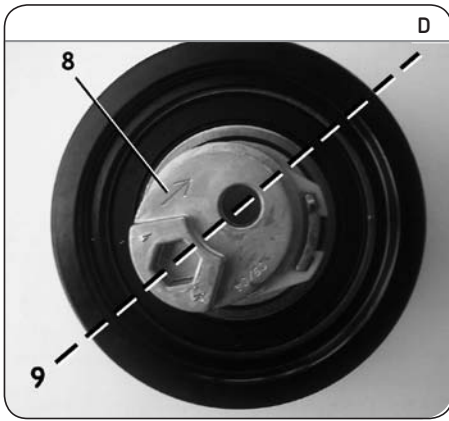
- 4) Remove the crankshaft pulley and the timing casings.
- 5) Loosen the nut of the tensioner roller (2) and remove the timing belt (1) (Fig. A).
- 6) Remove the tensioner roller (2).
- 7) Loosen and remove the idler bolts and then remove the idler rollers (3) and (4) (Fig. A).
- 8) **Removing the water pump**  
(VKMC 01222/-1): firstly bleed the cooling circuit, check it is clean, and clean if required; secondly fully loosen the water pump fastening bolts and remove the pump (Fig. A).

#### Refitting

**Caution!** First carefully clean thoroughly the bearing surfaces of the rollers and of the tensioning device.

- 9) **Refitting the water pump:** Firstly fit the new water pump, apply the torque **15 Nm** to the waterpump bolts; then check that the water pump pulley runs properly, and has no hard or locking spots.
- 10) Check that the engine is at TDC: marks (5) (Fig. B1) and (6) (Fig. B2) aligned.
- 11) Refit the idler rollers (3) and (4), refit the new bolts (13) and (14), and tighten to the following torques:
  - 25 Nm,
  - 35 Nm.
- 12) Refit the new tension roller (2). Place the positioning tab (7) in the hole in the engine block (Fig. C). Turn the adjustment dial (8) with an Allen wrench until the wrench reaches the "7 o'clock" position (9) (Fig. D) then slightly tighten the tensioner roller fastening nut by hand.
- 13) Refit the timing belt (1) in the following order: camshaft sprocket, idler roller (4), tensioner roller (2), camshaft sprocket, water pump sprocket and idler roller (3) (Fig. A).

Install Confidence



- 14) Tighten the timing belt (1): turn the adjustment dial (8) on the tensioner roller (2) **clockwise** with an Allen wrench, while holding the roller fastening nut in position with a hex nut wrench.
- Continue turning the adjustment dial (8) **clockwise** until the moving pointer (10) goes beyond the notch (11) as far as it will go position (I) Fig. E).
  - Then turn the adjustment dial (8) **anti-clockwise** until the moving pointer (10) moves beyond the notch (11) (position (II) Fig. E).
  - Finally, turn the adjustment dial (8) **clockwise** until the moving pointer (10) is in line with the notch (11) (position (III) Fig. E). Tighten the tensioner roller fastening nut to **25 Nm**.
- 15) Remove the Allen wrench and the hex. nut wrench.
- 16) Refit the lower timing casing and crankshaft pulley. Tighten the 6 new crankshaft pulley fastening bolts to **10 Nm + 90°**.
- 17) Turn the crankshaft two turns in the engine rotation direction up to TDC.
- 18) Check the timing marks (Fig. B1 and Fig. B2).

**Note:** If necessary, turn the crankshaft one extra turn to align the marks.

- 19) Check the setting of the moving pointer (10) (position III - Fig. E) (the moving pointer (10) must be aligned with the notch (11)).
- 20) If the marks on the tensioner roller are not aligned, proceed as follows: remove the crankshaft pulley then hold the tensioner roller (2) in position with an Allen wrench while slightly loosening the tensioner roller fastening nut. Then turn the adjusting plate (8) (Fig. E) so as to bring the moving index back to its initial position (position before refitting the roller on the engine), then remove the timing belt. Restart the tension setting operation from step 13).
- 21) Refit the elements removed in reverse order to removal.
- 22) Fill the cooling circuit with the permanent fluid recommended.
- 23) 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).

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