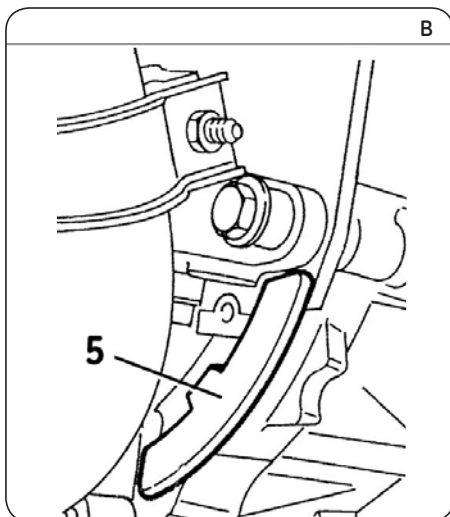
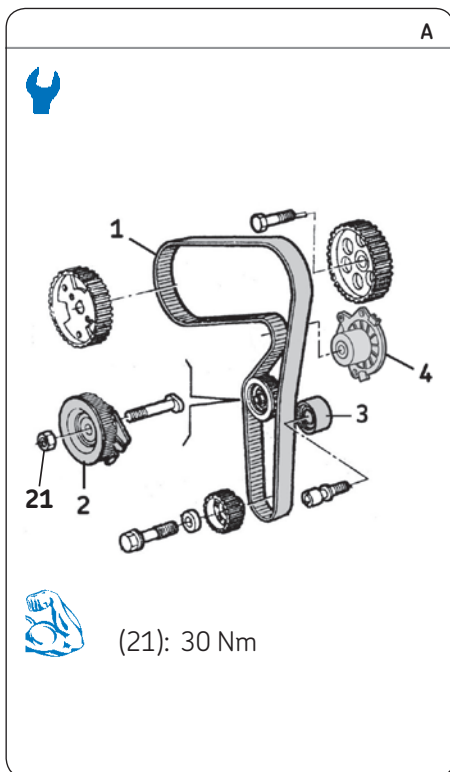


VKMA 02174

VKMC 02174

VKMA 02176

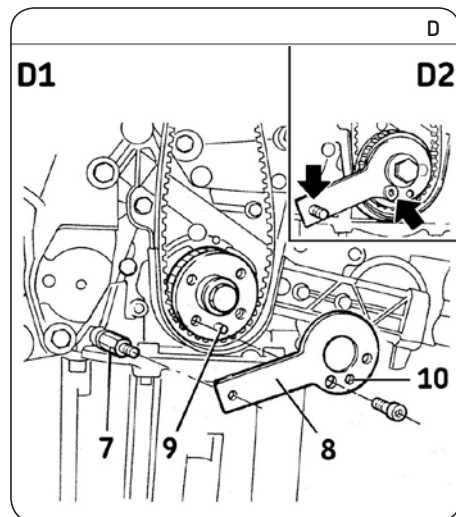
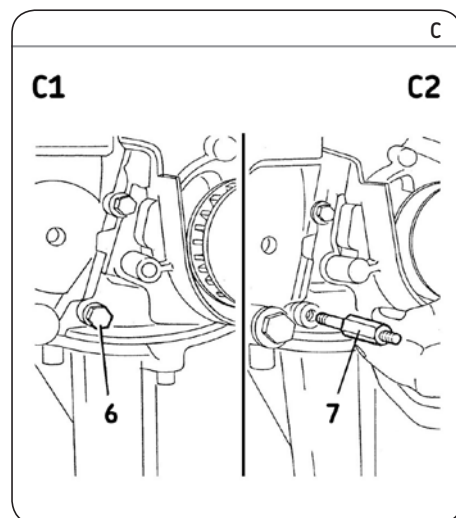
VKMC 02176



### Removal

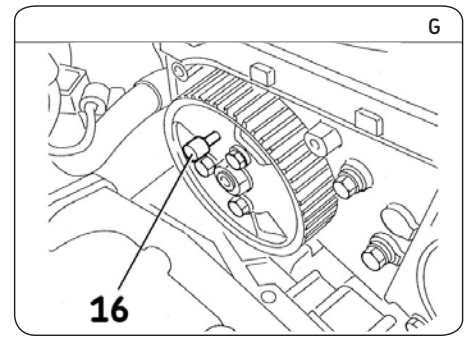
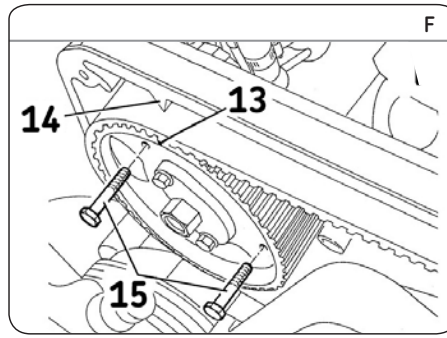
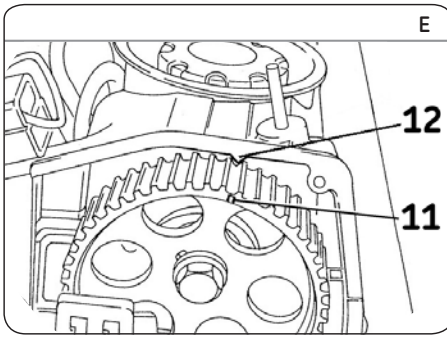
- 1) Disconnect the battery according to the vehicle manufacturing guidelines.
  - 2) Prepare the vehicle for the timing replacement according to the vehicle manufacturing guidelines.
  - 3) **2.4 l. TD/JTD Engines**  
– Insert the pin into the hole provided to keep the accessories belt tensioner roller in position.
  - 4) Remove the upper timing belt cover.
  - 5) Remove the flywheel lower cover, fit the immobilisation tool (5) and remove the crankshaft pulley (Fig. B).
  - 6) Withdraw the immobilisation tool (5) (Fig. B) and remove the accessories belt idler roller.
  - 7) Remove the lower timing belt cover.
  - 8) Remove the oil pump mounting bolt (6) (Fig. C1) and put the pin (7) (Fig. C2) of the timing tool (8) (Fig. D1) in its place.
  - 9) Position the timing tool (8) on the crankshaft pinion and the pin (7) (Fig. D1).
  - 10) Rotate the crankshaft slowly until the lug (9) on the pinion is in line with the hole (10) in the timing tool (8) (Fig. D2).
  - 11) Check whether the marker (11) on the camshaft gear and the marker (12) on the cylinder head cover are in line (Fig. E). Cylinder n°1 is now in the TDC (top dead centre) position.
  - 12) **1.9 l. TD/JTD and 2.4 l. TD/JTD Engines**  
– Make sure that the markers (13) on the injection pump gear and (14) on the cylinder head cover are in line (Fig. F).
  - 13) Insert:  
– The two bolts (15) (Fig. F) into the injection pump gear (2.4 l. TD and 75 hp 1.9 l. TD engines).  
– The pin (16) (Fig. G) into the injection pump gear (100 hp 1.9 l. TD engines).
- Note:** The injection pump does not require timing on JTD engines.
- 14) Refit the flywheel immobilisation tool (5) (Fig. B) and remove the timing tool (8) (Fig. D1).
  - 15) Untighten the mounting nut of tension roller (2), loosen and remove the timing belt (1), then the tensioner roller (2) and idler roller (3).

- 16) **Removing the water pump (VKMC 02174/ VKMC 02176):** firstly bleed the cooling circuit, check it is clean, and clean if required; secondly fully loosen the water pump (4) fastening bolts (22) and remove the pump (Fig. A).



Install Confidence



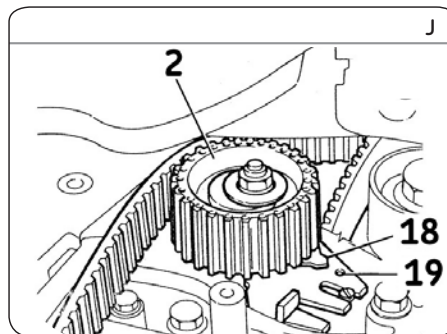
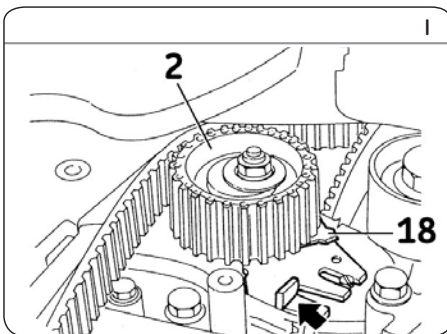
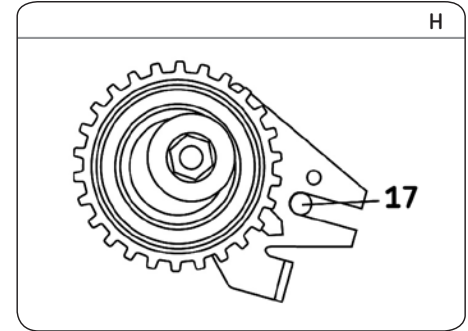


## Refitting

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

- 17) **Refitting the water pump:** Firstly fit the new water pump (4), apply the torque **25 Nm** to the waterpump bolts; then check that the water pump pulley runs properly, and has no hard or locking spots.
- 18) Fit the new tensioner roller (2), tighten its mounting nut lightly (push the lug (17) on the engine to the end of the slot in the roller back plate) (Fig. H). Fit the new idler roller (3) and its new bolt and new washer (Fig. A).
- 19) Fit the new timing belt (1) in the following order: crankshaft gear, idler roller (3), camshaft gear, injection pump gear, water pump pinion and then the tensioner roller (2).
- 20) Refit the timing tool (8) (Fig. D1) to the crankshaft pinion and remove the flywheel immobilisation tool (5) (Fig. B).
- 21) Adjust the tensioner roller (2) with a flat screwdriver to bring the moving index (18) to the maximum tension position (see arrow in Fig. I) and tighten the mounting nut (21) to a torque of **30 Nm**.
- 22) Remove:
  - The two screws (15) (Fig. F) from the injection pump gear (2.4 l. TD and 1.9 l. TD 75 hp engines),
  - The pin (16) (Fig. G) from the injection pump gear (1.9 l. TD 100 hp engines).

- 23) Remove the timing tool (8) (Fig. D1) and rotate the crankshaft evenly through two turns in the direction of engine rotation until cylinder n°1 returns to the TDC position.
- 24) Untighten the mounting nut (21) of the tensioner roller (2) slightly while holding its position with a flat screwdriver. Release the tension roller until the moving index (18) is in line with the fixed marker (19) (Fig. J).
- 25) Tighten the tensioner roller (2) mounting nut (21) to a torque of **30 Nm** and rotate the crankshaft evenly through two turns in the direction of engine rotation until cylinder n°1 returns to the TDC position.
- 26) Check the tensioner roller setting (the moving index (18) must be in line with the fixed marker (19) (Fig. J)) and check the timing markers (Fig. E and Fig. F).
- 27) If the markers are not in line, remove the new timing belt and repeat the tension setting operation from step 19).
- 28) Reassemble the remaining components in reverse order to original removal.
- 28) Refit the elements removed in reverse order to removal.
- 29) Fill the cooling circuit with the permanent fluid recommended.
- 30) 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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