

VKMA 06604

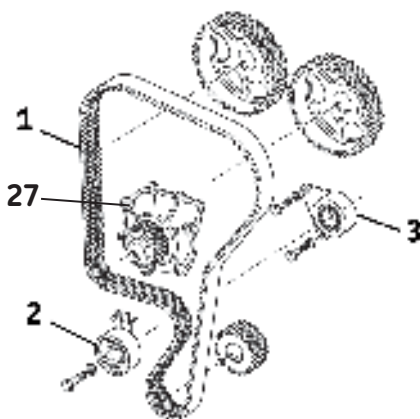
VKMC 06604



A



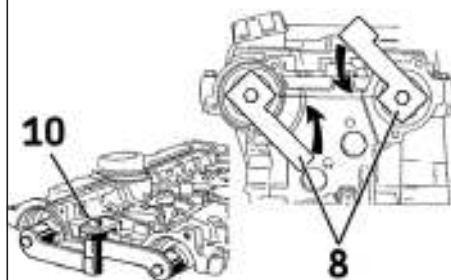
- (8): Camshaft locking tool (REN. Mot.1337).
- (9): TDC pin (REN. mot. 1340).
- (19): Locking tool for camshaft sprockets REN. mot. 799-01).



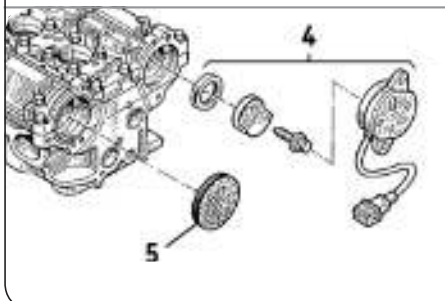
- (20): 20 Nm
- (24): 25 Nm + 30°
- (25): 180 Nm
- (26): 20 Nm



D



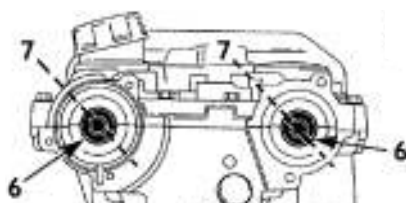
B



#### 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) Remove the crankshaft pulley.
- 4) Remove the cylinder sensor unit (4) (Fig. B).
- 5) Remove the camshaft cover (5) (Fig. B).
- 6) Remove the TDC shaft located behind the starter.
- 7) Before fitting the TDC, position the grooves (6) of the camshafts in position (7) (Fig. C).
- 8) Place the tool (8) on the end of the camshafts (Fig. D).
- 9) Place the TDC pin (9) (Fig. E), then turn the engine **clockwise** until the two parts of the tool (8) (Fig. D) are in contact. Continue insertion of the TDC pin (9) then check that the crankshaft pulley is touching the pin (Fig. E).
- 10) Immobilize the tool (8) using the bolt (10) (Fig. D).
- 11) Loosen the tensioner roller (2) by unscrewing the holding bolt (11), then using an Allen key turn the dial (12) until the pointer (13) is in position (14) (Fig. F).
- 12) Remove the timing belt (1).
- 13) Remove the tensioner roller (2) and the roller (3) (Fig. A).
- 14) **Removing the water pump (VKMC 06604):** 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).

C



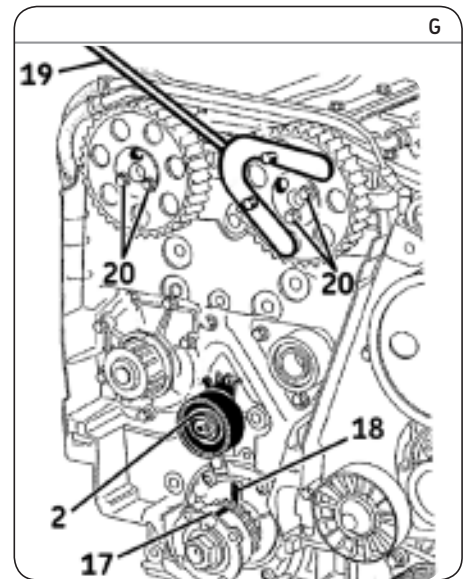
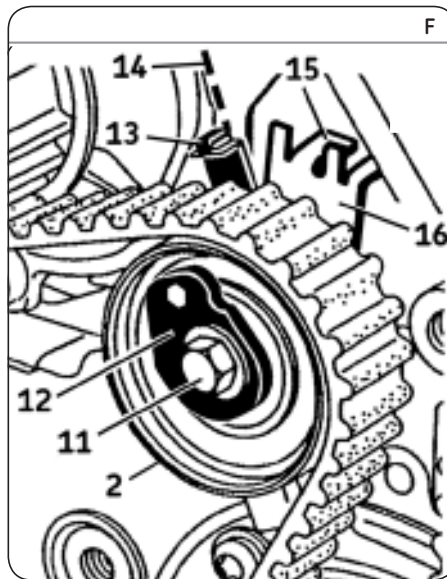
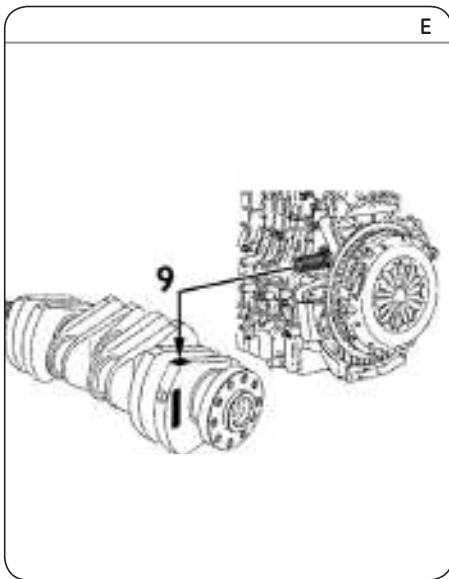
#### Refitting

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

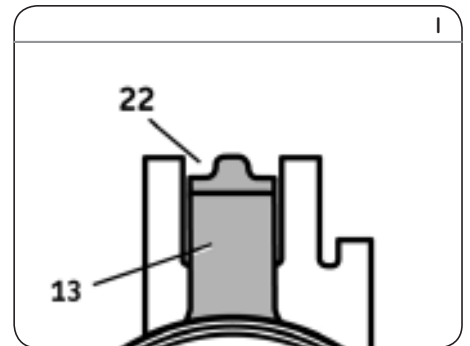
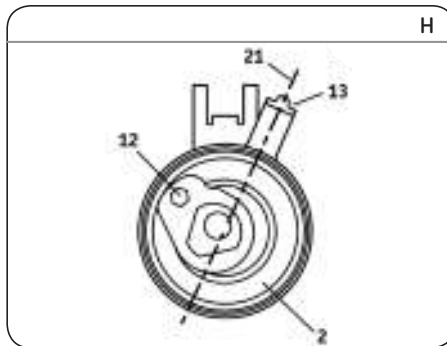
- 15) **Refitting the water pump:** Firstly fit the new water pump (27), then check that the water pump pulley runs properly, and has no hard or locking spots.
  - 16) Fit the new idler roller (3).
  - 17) Fit the new tensioner roller (2) then using an Allen key move the dial (12) and the pointer (13) in position (14) (Fig. F).
- Note:** When refitting the new tensioner roller (2), check that the positioning pin (15) of the roller plate (16) correctly engages in the engine block (Fig. F).
- 18) When the marker (17) of the crankshaft is lined up with the marker (18) of the oil pump (Fig. G). At this point, check that the crankshaft pulley rests on the TDC pin (9) (Fig. E).
  - 19) Loosen the six bolts (20) using the tool (19) (Fig. G).
  - 20) Fit the timing belt in position (1) in the following order: crankshaft sprocket, idler roller (3), camshaft sprockets, water pump sprocket, then the tensioner roller (2).

**Note:** Check that the camshaft sprockets do not rest against the bolts (20) when the belt is tightened: If necessary, remove a bolt from each camshaft sprocket (Fig. G). This enables positioning of the threaded holes of the two removed bolts at the centre of the oblong holes of the camshaft sprockets.

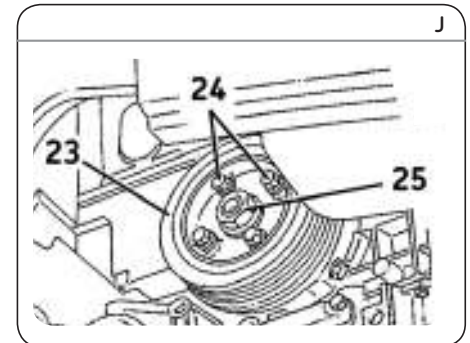
Install Confidence



- 21) Tighten the timing belt (1):
  - While holding the tensioner roller fastening bolt in position with a wrench, turn the dial (12) on the tensioner roller anticlockwise using an Allen key until the moving pointer (13) is in position (21) (Fig. H).
  - Then turn the dial **clockwise** until the moving pointer (13) is in the centre of the positioning slot (22) (Fig. I).
- 22) Tighten the tensioner roller mounting bolt (11) to **20 Nm**.
- 23) If necessary, remove the two bolts from the camshaft sprockets.
- 24) Using the tool (19), tighten the six bolts (20) to a torque of **20 Nm** (Fig. G).
- 25) Remove the tool (8) and the TDC pin (9) (Fig. D and Fig. E).
- 26) Rotate the crankshaft two turns in the engine rotation direction, then before the end of the second rotation, Refit the tool (8) (Fig. D) and the TDC pin (9) (Fig. E) and proceed as described in stages (8), (9) and (10).
- 27) When the marker (17) of the crankshaft is lined up with the marker (18) of the oil pump (Fig. G).
- 28) Check the tensioner roller setting: the moving pointer (13) must be in the centre of the positioning slot (22) (Fig. I).
- 29) If the marks are not aligned, remove the new timing belt and adjust the belt tension again, by returning to step 20).



- 30) Remove the tool (8) and the TDC pin (9) (Fig. D and Fig. E).
- 31) Refit the elements removed in reverse order to removal respecting the following points: Fit crankshaft pulley (23) (Fig. J):
  - Fastening bolts (24): **25 Nm + 30°**.
  - Fastening nut (25): **180 Nm**.
- 32) Fill the cooling circuit with the permanent fluid recommended.
- 33) 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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