

VKMA 03235



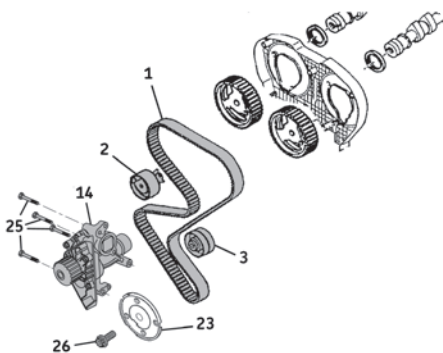
VKMC 03235



A

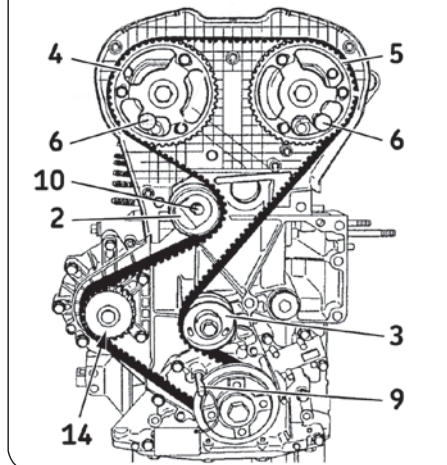


- (6): ref. 0189-A
(EW7J4 / EW10J4)
- (7): ref. 0189-AZ
(EW12J4)
- (8): ref. 0189-L
(EW12J4)
- (9): ref. 0189-B
- (13): ref. 0189-K
- (20): ref. 0189-J
- (24): ref. 6310-T

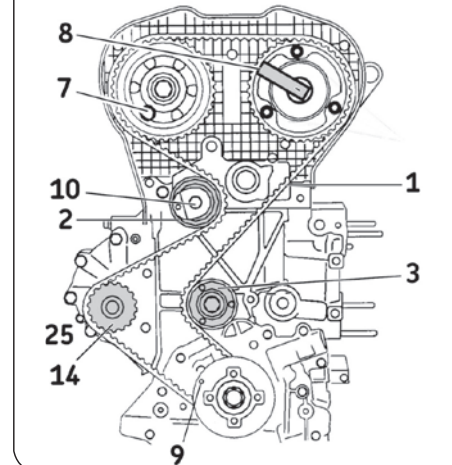


- (10): 20 Nm
- (25): 14 Nm
- (26): 36-44 Nm + 53°±4°

B1



B2



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:
 - Then lock the camshaft sprockets (4) and (5) with the tools (6), (7) and (8) (Fig. B1 and Fig. B2) according to layout (EW7J4 / EW10J4 or EW12J4).
 - Lock the crankshaft with the timing pin (9) (Fig. B1 and B2).
- 4) Loosen the bolt (10) securing the tensioner roller (2). Rotate the tensioner roller **clockwise** to loosen and remove the belt (1) (Fig. A).
- 5) Remove the plate (11) from the rib (12) on the cylinder block (Fig. C).
- 6) Remove the tensioner roller (2) and idler roller (3) (Fig. A).
- 7) **Removing the water pump (VKMC 03235):** firstly bleed the cooling circuit, check it is clean, and clean if required; secondly fully loosen the water pump fastening bolts (25) and remove the pump (14) (Fig. A).

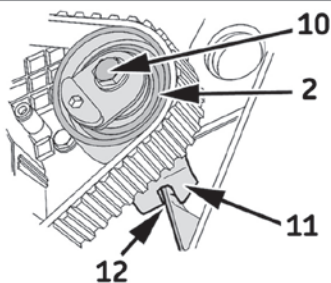
Refitting

Caution! Clean the bearing surfaces of the rollers.

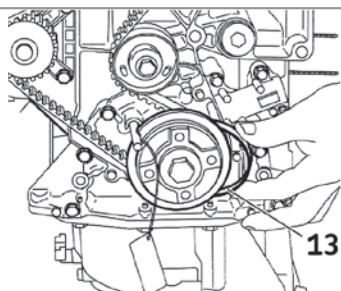
- 8) **Refitting the water pump:** firstly fit the new water pump (14), apply the torque **14 Nm** to the waterpump bolts (25); then check that the water pump pulley runs properly, and has no hard or locking spots.
- 9) Refit the new idler roller (3).
- 10) Refit the new tensioner roller (2): set the plate (11) on the rib (12) on the engine block (Fig. C).
- 11) Refit the timing belt (1) on the crankshaft sprocket according to assembly sequence (see arrows on the back of the belt). hold the belt on the sprocket using the holding tool (13) (Fig. D).
- 12) Fit the timing belt in the following order: idler roller (3), camshaft sprocket (5), camshaft sprocket (4), water pump sprocket (14) and tensioner roller (2) (Fig. B1 and B2).

Caution: When fitting the belt, check that it is correctly engaged on the teeth of the camshaft sprockets.

C

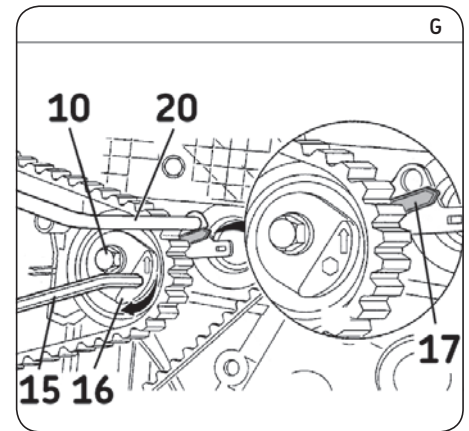
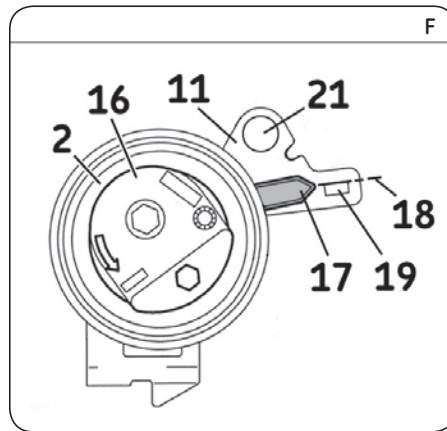
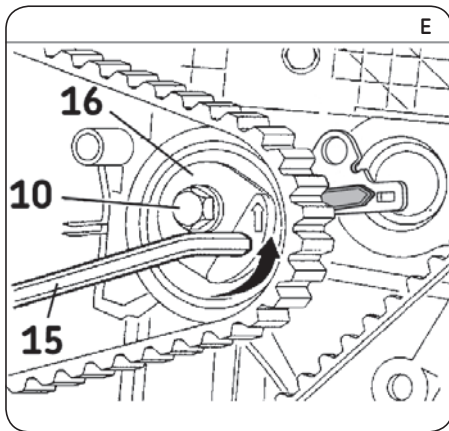


D



Install Confidence





- 13) Remove the belt holding tool (13) from the crankshaft sprocket (Fig. D).
- 14) Tighten the timing belt (1): using a hex key (15), turn the adjusting plate (16) (Fig. E) of the tensioner roller **anticlockwise** until the pointer (17) is set to position (18) (Fig. F) (the pointer is then aligned with the rectangular hole (19)).
- 15) Place the locating pin (20) (Fig. G) of the tensioner roller in the hole (21) located on the left edge of its plate (11) (Fig. F).
- 16) Turn the adjusting plate (16) **clockwise** until the pointer (17) lightly touches the locating pin (20) (Fig. G).

Note: The pointer (17) is then in position (22) (Fig. H) (it is aligned with the notch).

- 17) Tighten the tensioner roller fastening bolt (10) to **20 Nm** while holding the adjusting plate (16) in position with the hex key (15) (Fig. G).

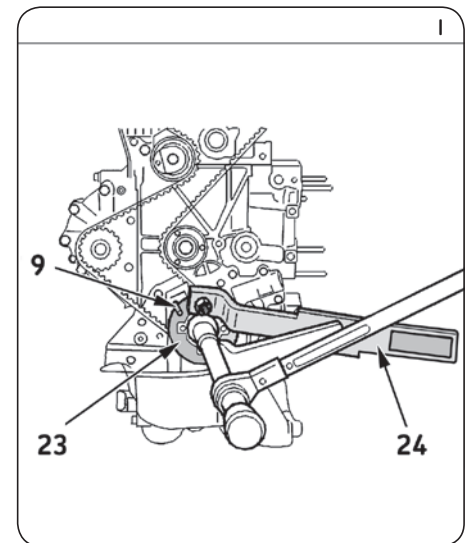
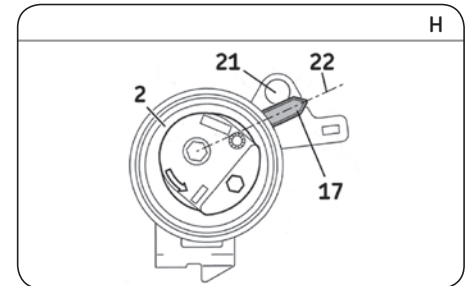
Caution: The adjusting plate must not turn when the tensioner roller fastening bolt is tightened.

- 18) Remove the locating pin (20) and the timing pins (6), (7) and (8) (Fig. B1 and B2).
- 19) Rotate the crankshaft **10 turns** in the engine rotation direction up to TDC.
- 20) Check the moving pointer setting (17) (Fig. H). (the moving pointer must be in position (22), aligned with the notch).
- 21) If the marks on the tensioner roller are not aligned, adjust the tension again, by returning to step 14).
- 22) Refit the timing pins (6), (7) and (8) (Fig. B1 and B2) to check that the timing is correctly set.

Note: Timing belt installation is correct when the timing tools (6), (7) and (8) can be fitted easily. If the crankshaft pin (9) cannot be refitted, then the flange (23) must be readjusted (Fig. I).

Flask readjustment operations (if required)

- Lock the crankshaft sprocket using the tool (24) (Fig. I)
 - Loosen the fastening bolt (26) to release the crankshaft sprocket.
 - Readjust the flange (23) to the timing point using the tool (24)
 - Insert the pin (9) (Fig. I).
 - Lock the crankshaft using the tool (24)
 - Remove the pins (6), (7), (8) and (9) (Fig. B1 and B2) and the tool (24).
- 23) Refit the new crankshaft bolt (26) to the torque of **36-44 Nm + 53±4°** (refer to the value recommended by the vehicle manufacturer guideline).
 - 24) Remove the timing pins (6), (7), (8) and (9) (Fig. B1 and B2).
 - 25) Refit the elements removed in reverse order to removal.
 - 26) Fill the cooling circuit with the permanent fluid recommended.
 - 27) 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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