

VKMA 03121



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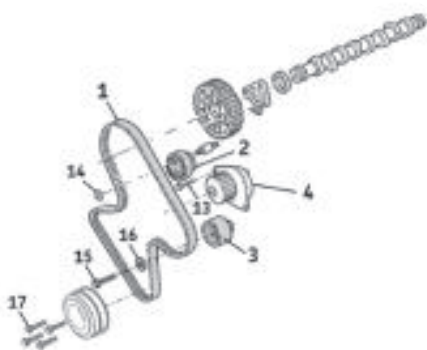


VKMC 03122



A

-  (5): Flywheel pin (CIT. 4507-TA) (PEU. 0132Q/Z).
- (6): Injection pump gear pin (CIT. 4527-TS1) (PEU. 0178C/D).
- (7): Camshaft sprocket pin (CIT. 4527-TS2) (PEU. 0132AB).
- (8): Sprocket locking tool (CIT. 6016-T).
- (11): Tension controller (CIT. 4099-T/4122-T) (PEU. 105/105,5).
- (12): Tensioner roller lever (CIT. 4507-TJ) (PEU. 0132X).



(9)/(10): 25 Nm
(14): tensioner nut: 23 Nm

Removal

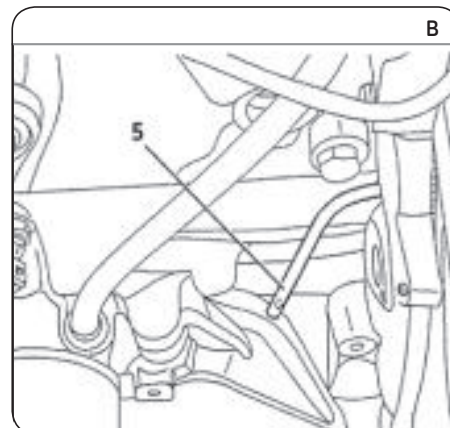
- 1) Disconnect the battery according to the vehicle manufacturing guidelines.
- 2) Prepare the vehicle for the timing replacement according to the vehicle manufacturing guidelines.
- 3) Rotate the crankshaft in the engine rotation direction until the pin (5) can be placed in the flywheel (Fig. B).
- 4) Place the pins (6) on the injection pump sprocket and (7) camshaft sprocket (Fig. C).
- 5) Loosen the tensioner roller (2) nut (14)(Fig. A).
- 6) Remove the timing belt (1) (Fig. A).
- 7) Remove the tensioner roller (2) and idler roller (3) (Fig. A).
- 8) **Removing the water pump (VKMC 03121/03122):** firstly bleed the cooling circuit, check it is clean, and clean if required; secondly fully loosen the water pump fastening bolts (13) and remove the pump (4) (Fig. A).

Refitting

Caution! Clean the bearing surfaces of the rollers.

- 9) **Refitting the water pump:** Firstly fit the new water pump (4), tighten the waterpump bolts (13) (Fig. A); then check that the water pump pulley runs properly, and has no hard or locking spots.
- 10) Fit the new tensioner rollers (2) and the idler roller (3) and its new bolt (15) and washer (16) (Fig. A).
- 11) Hold the camshaft and injection pump sprockets in position using the tool (8) (Fig. D).
- 12) Loosen the bolts (9) and (10) respectively (Fig. D).
- 13) Place the camshaft and injection pump sprockets at the bottom of their housings by turning them in the engine rotation direction.

B

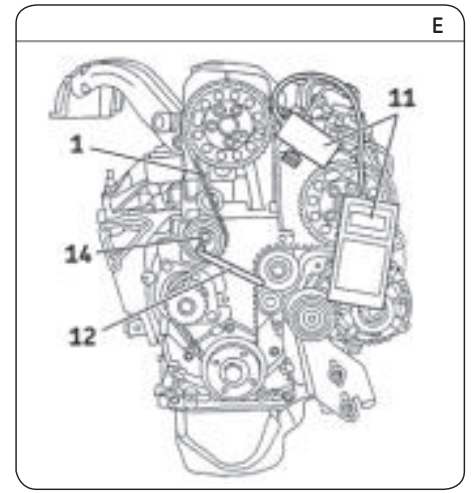
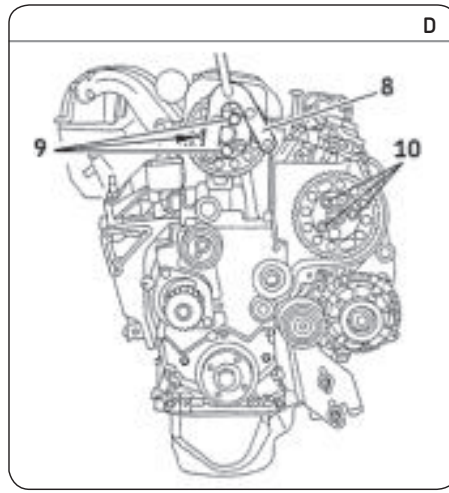
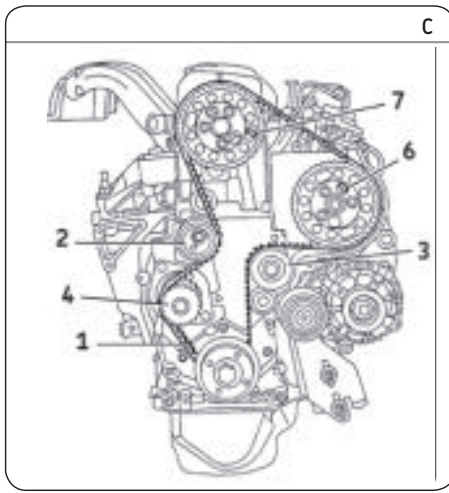


- 14) Fit the new timing belt (1) by applying the following sequence: crankshaft sprocket, idler roller (3), injection pump sprocket, camshaft sprocket, tensioner roller (2) and water pump sprocket (4) (Fig. C).

Caution: when fitting the belt, check that it is correctly engaged on the teeth of the camshaft and injection pump sprockets.

- 15) Pre-adjust the timing belt tension. The belt between sprockets must be slightly tensioned.
- 16) Check that the camshaft and injection pump sprocket fastening bolts (9) and (10) (Fig. D) are not at the bottom of their housings.
- 17) Tighten bolts (9) and (10) to 5 Nm and then loosen them half a turn (180°).
- 18) Tighten bolts (9) and (10) by hand so that they are in contact with the sprockets.
- 19) Place the controller (11) on the belt (Fig. E).

Install Confidence



- 20) Loosen the tensioner roller nut (14) and then turn it using the tool (12) until the controller (11) displays 100 SEEM units (Fig. E).
- 21) Tighten the tensioner roller fastening nut (14) to 23 Nm.
- 22) Tighten bolts (9) and (10) of the camshaft and injection pump sprockets to 25 Nm. Use the tool (8) to lock the sprockets (Fig. D).
- 23) Remove the timing tools (5) (Fig. D), (6) and (7) (Fig. C) and the controller (11) (Fig. E).
- 24) Turn the crankshaft 10 turns in the engine rotation direction until the timing tools (5), (6) and (7) can be refitted.

Note: if necessary, loosen the belt (1) slightly by turning the tensioner roller (2).

- 25) Loosen the camshaft and injection pump sprocket fastening bolts (9) and (10) one turn (360°) and then tighten them by hand so that they are in contact with the sprockets.
- 26) Refit the controller (11) on the belt (1) (Fig. E).
- 27) Turn the tensioner roller (2) using the tool (12) to adjust the belt tension until the controller (11) displays 55 ± 5 SEEM units (Fig. E).

- 28) Tighten the tensioner roller nut (14) to 23 Nm (Fig. E).
- 29) Tighten bolts (9) and (10) of the camshaft and injection pump sprockets to 25 Nm.
- 30) Remove the controller (11) and timing tools (5) (Fig. B), (6) and (7) (Fig. C).
- 31) Rotate the crankshaft through two revolutions in the engine rotation direction. If the belt is incorrectly located on the sprockets, turn the crankshaft another two revolutions.
- 32) Refit the controller (11) and check the tension, which must be 55 ± 5 SEEM units.
- 33) Check that the timing system is correctly adjusted.

Note: The timing belt installation is correct:

- When the tension reading is 55 ± 5 SEEM units,
- And when the timing tools (5), (6) and (7) can be inserted without any difficulty in the flywheel and sprockets of the camshaft and injection pump. If the tension is not correct and/or the timing tools cannot be inserted, remove the belt (1) (Fig. A) and adjust the tension again, by returning to step 14.

- 34) Refit the elements removed in reverse order to removal, without forgetting to tighten the four bolts (17) of the crankshaft pulley to 20 Nm (Fig. A).
- 35) Fill the cooling circuit with the permanent fluid recommended.
- 36) 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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