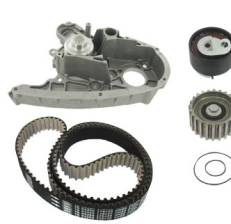


VKMA 02390



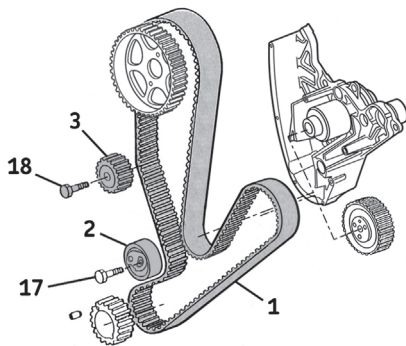
VKMC 02390



A

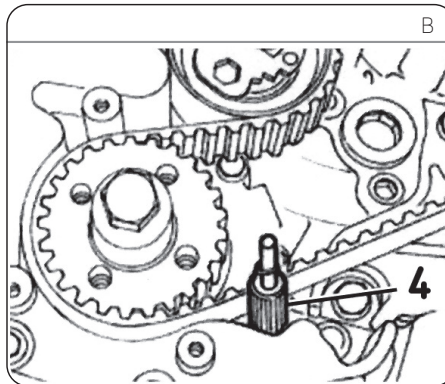


- (4): TDC gauge
(ref. 99360615 2006 +:
Crankshaft timing pin – Fiat
No. 2000018200).
- (6): Camshaft timing tools
(ref. 99360614).
- (12): Camshaft tool
(ref. 1870815000).
- (13): Camshaft sprocket pin
(ref. 1860617000).

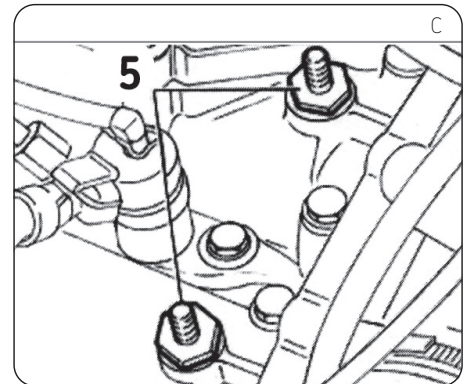


- (6)/(9): Tools: 5 Nm.
- (13): Camshaft sprocket
bolt: 120 Nm.
- (20): Tensioner nut:
25 Nm
- (21) Crankshaft bolts:
22 Nm

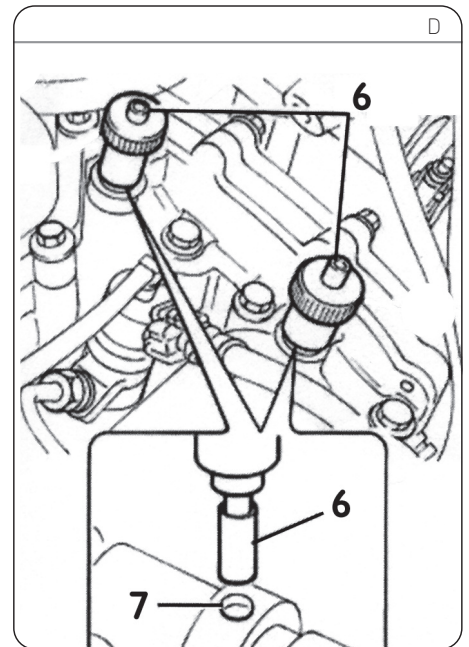
B



C



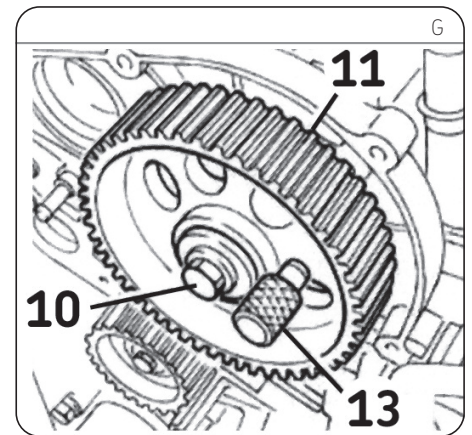
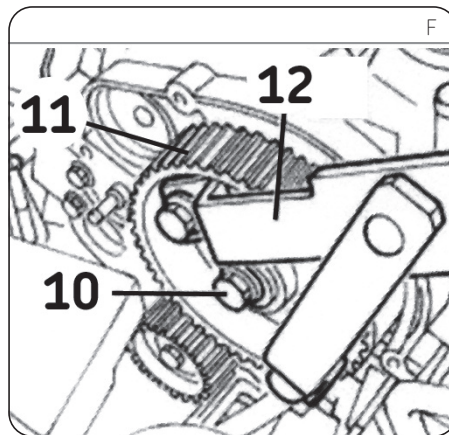
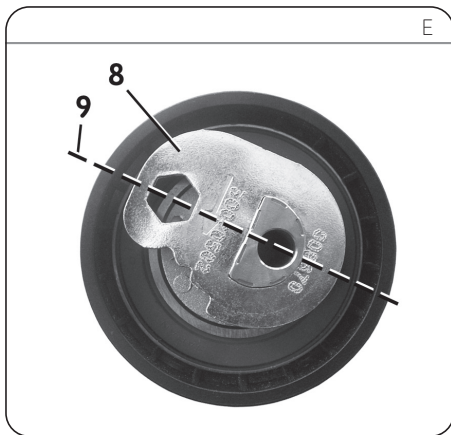
D



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 TDC plug. Insert and screw in the TDC pin (4) (Fig. B). Turn the engine clockwise slowly and smoothly until the crankshaft bears against the tool (4).
- 4) Unscrew and remove the studs (5) located on the cylinder head cover (Fig. C) then fit the timing tools (6) being careful to correctly position them in the camshaft holes (7) (Fig. D).
- 5) Loosen the bolt (17) fastening the tensioner roller (2) (Fig. A). Move the tensioner roller (2) to slacken the timing belt (1) and remove it.
- 6) Remove the tensioner roller (2) and idler roller (3) (Fig. A).

Install Confidence



Refitting

Caution! Clean the bearing surfaces of the rollers.

- 7) Refit the new idler roller (3). Tighten the fastening bolt (18) to 25 Nm (Fig. A).
- 8) Refit the new tensioner roller (2). Turn the adjustment dial (8) with an Allen key to the "10 o'clock" position (9) (Fig. E). Tighten slightly its fastening bolt (17) (Fig. A).
- 9) Check that the timing tools (4) and (6) are correctly installed (Fig. B and Fig. D).
- 10) Loosen, but do not remove, the fastening bolt (10) of the camshaft sprocket (11) using the tool (12) (Fig. F). Separate the camshaft sprocket from the hub and check it turns freely around its shaft without rocking.
- 11) Turn the camshaft sprocket (11) in order to insert the pin (13) (Fig. G).
- 12) Fit the new timing belt (1).
- 13) Remove the pin (13) (Fig. G) and retighten the fastening bolt (10) of the camshaft sprocket (11) to a torque of 90 Nm using the tool (12) (Fig. F).

Caution: 2 different tensioners available

Version 1

- 14) Tighten the timing belt (1): turn the dial (8) on the tensioner roller (2) anticlockwise with an Allen wrench, while holding the roller fastening bolt (17) in position with a hex nut wrench. Continue turning the dial until the notch (14) is in line with the hole (15) (Fig. H). Tighten the tensioner roller fastening bolt (17) to 36 Nm.
- 15) Remove the timing tools (4) and (6) (Fig. B and Fig. D).
- 16) Turn the crankshaft clockwise 8 turns to the timing position: Insert and tighten the TDC tool (4), then turn the engine slowly and smoothly until the crankshaft bears against the tool (Fig. B).
- 17) Hold the tensioner roller (2) in position with an Allen wrench while slightly loosening the tensioner roller fastening bolt (17). Next, turn the dial (8) to align the notch (16) with the hole (15) (Fig. I).
- 18) Tighten the tensioner roller fastening bolt (17) to 36 Nm while at the same time holding the adjusting dial in position with an Allen key.

- 19) Remove the TDC tool (4) (Fig. B).

- 20) Turn the crankshaft clockwise through 2 rotations until timing tools (4) and (6) can be inserted (Fig. B and Fig. D).

Version 2

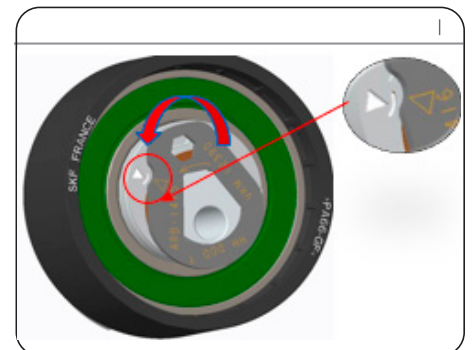
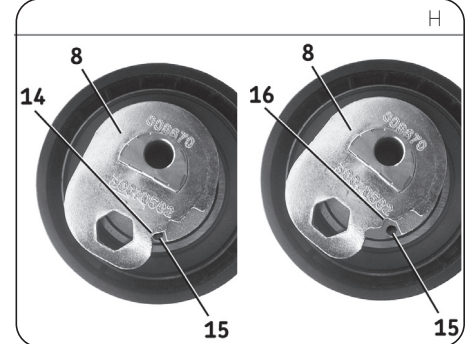
- 14) Tighten the timing belt (1): turn the dial (8) on the tensioner roller (2) anticlockwise with an Allen wrench, while holding the roller fastening bolt (17) in position with a hex nut wrench. Continue turning the dial until both arrows are aligned (Fig. I). Tighten the tensioner roller fastening bolt (17) to 36 Nm.
- 15) Remove the timing tools (4) and (6) (Fig. B and Fig. D).
- 16) Turn the crankshaft clockwise 8 turns to the timing position: Insert and tighten the TDC tool (4), then turn the engine slowly and smoothly until the crankshaft bears against the tool (Fig. B). Proceed with Step 21.

Note: Check that the timing tools (4) and (6) (Fig. B and Fig. D) can be easily inserted. If this is not the case, loosen the tensioner roller fastening bolt (17), then remove the new timing belt and restart the tension adjustment operation from step 9).

- 21) Check the tensioner roller setting: the notch (16) in the dial (8) must be aligned with the hole (15) (Fig. H and I).

Note: The timing belt tension is properly set when the notch (16) is aligned with the hole (15) of the tensioner roller (Fig. H and I).

- 22) If the marks are not aligned, loosen the tensioner roller fastening bolt then turn the dial (8) with an Allen key to the "10 o'clock" position (9) (Fig. E). Restart the tension setting operation from step 14).
- 23) Remove the timing tools (4) and (6) (Fig. B and Fig. D).
- 24) Refit the elements removed in reverse order to removal.
- 25) Fill the cooling circuit with the permanent fluid recommended.
- 26) 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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