NT 02015
VKMA 02204 – VKMC 02204-1/-2/-3

Fiat / Lancia

VKMA 02204

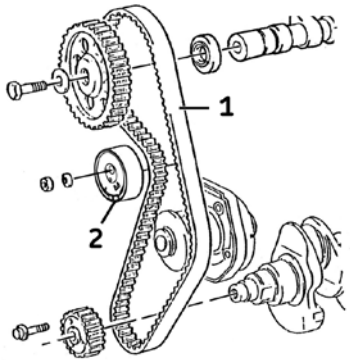
VKMC 02204-1

VKMC 02204-2

VKMC 02204-3

A

(6): Piston positioning tool (ref. 1860992000).
(9): Camshaft timing tools (ref. 1860985000).
(11): Tensioner roller tool (ref. 1860987000).
(14): Camshaft sprocket locking tool (ref.s1860831000).



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

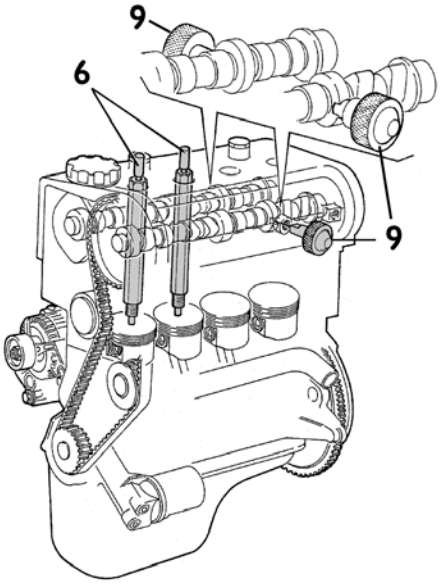
Removal

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) If the stud (**3**) (**Fig. B1**) is not mounted on the crankshaft pulley, then remove the crankshaft pulley.
4) Turn the crankshaft in the engine rotation direction until: the stud (**4**) of the crankshaft sprocket is aligned with the crankshaft position sensor (**5**) (**Fig. B2**) or the stud (**3**) of the crankshaft pulley is aligned with the crankshaft position sensor (**5**) (**Fig. B1**).
5) Remove the crankshaft pulley if it has not already been removed.
6) Remove the timing belt casings.
7) Fit the timing tools (**6**) in the place of the spark plugs of cylinders no. 1 and 2 (**Fig. C**) by hand. Slowly turn the crankshaft until the groove (**7**) of the tools (**6**) is level with the surface (**8**) (**Fig. D**).

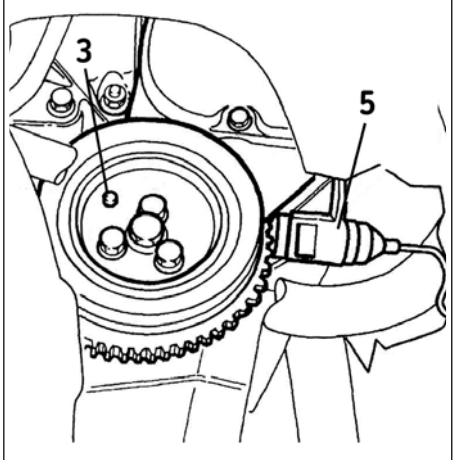
Note: The stud (**4**) must always be aligned with the crankshaft position sensor (**5**) (**Fig. B2**). If necessary, temporarily refit the crankshaft pulley to check the alignment of the stud (**3**) and the sensor (**5**) (**Fig. B1**).

8) Remove the sealing plugs from the camshafts then fit the timing tools (**9**) (**Fig. C**).
9) Loosen the screw fastening the tensioner roller (**2**) (**Fig. A**). Move the tensioner roller (**2**) to slacken the timing belt and remove it (**1**).
10) Remove the tensioner roller (**2**).
11) **Removing the water pump** (**VKMC 02204- 1/2/3**): 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**).

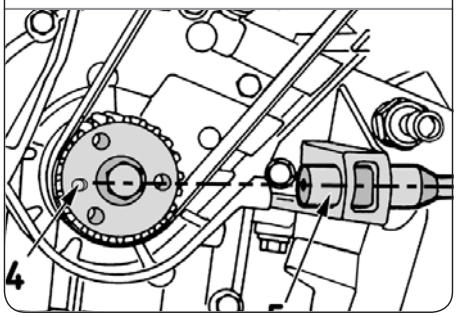
C



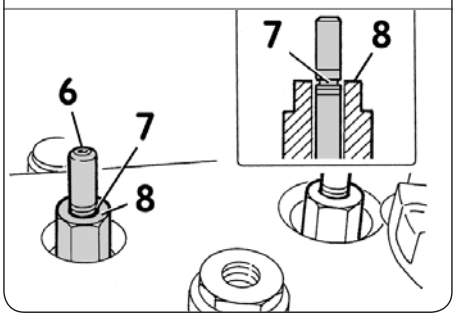
B1



B2



D

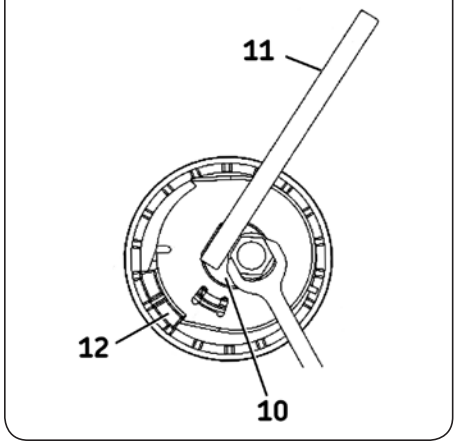


Install Confidence

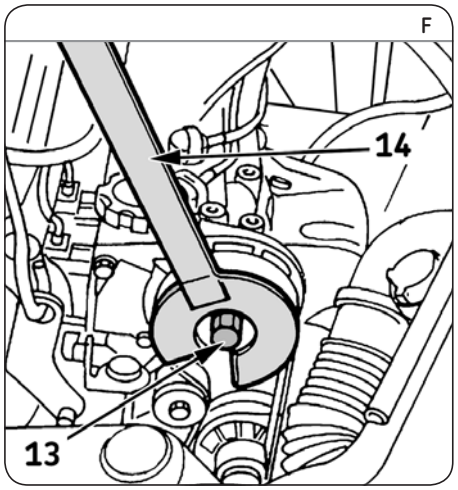
Refitting
Caution! Clean the bearing surfaces of the rollers.

12) **Refitting the water pump**: Firstly, fit the new water pump, then check that the water pump pulley runs properly, and has no hard or locking spots.
13) Refit the new tensioner roller (**2**). Lightly tighten the fastening nut (**20**) to a torque of **10 Nm**. Turn the adjustment dial (**10**) with tool (**11**) until the moving index (**12**) is in the "8 o'clock" position (**Fig. E**).
14) Loosen, but do not remove, the fastening bolt (**13**) of the camshaft sprocket using the tool (**14**) (**Fig. F**).
15) Check that timing tools (**6**) and (**9**) are correctly installed (**Fig. C**).
16) Fit the timing belt (**1**) in the following order: crankshaft sprocket, water pump sprocket, camshaft sprocket and tensioner roller.
17) Tighten the timing belt (**1**): turn the adjustment dial (**10**) on the tensioner roller (**2**) **anti-clockwise** using the tool (**11**), while holding the roller fastening nut (**20**) in position using a hex nut wrench (**Fig. E**). Continue turning the adjustment hub until the edge (**15**) of the moving index (**12**) is aligned with the notch (**16**) (**Fig. G**). Tighten the tensioner roller fastening nut (**20**) to **25 Nm**.
18) Using the tool (**14**), tighten the camshaft sprocket fastening bolt (**13**) (**Fig. F**) to a torque of **120 Nm**.
19) Remove the timing tools (**6**) and (**9**) (**Fig. C**).
20) Turn the crankshaft **clockwise** two turns to the timing position: stud (**4**) aligned with the sensor sensor (**5**) (**Fig. B2**) or refit the crankshaft pulley to check that the stud (**3**) is aligned with the sensor (**5**) (**Fig. B1**).
21) Hold the tensioner roller (**2**) in position with the tool (**11**) (**Fig. E**) while slightly unscrewing the roller fastening nut. Next turn the adjustment dial (**10**) to align the slot (**17**) on the moving index with the notch (**16**) (**Fig. H**).
22) Then tighten the tensioner roller fastening screw to **25 Nm** while holding the adjustment dial with the tool (**11**) (**Fig. E**).
23) Turn the crankshaft **clockwise** two turns to the timing position.
24) Check the tensioner roller setting: the slot (**17**) of the moving index (**12**) must be aligned with the notch (**16**) (**Fig. H**).
25) If the marks are not aligned, turn the adjustment dial (**10**) with tool (**11**) until the moving index (**12**) is in the "8 o'clock" position (**Fig. E**), then remove the new timing belt and restart the tension setting operation from step **16**).

E



F

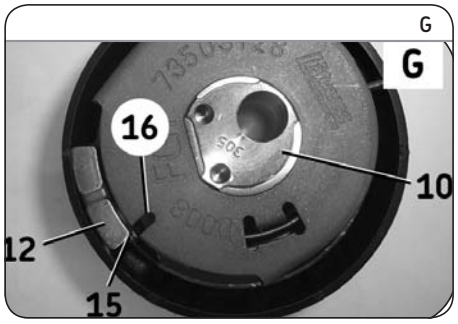


26) Fit the tools (**6**) (**Fig. C**). Slowly turn the crankshaft until the groove (**7**) of the tools (**6**) is level with the surface (**8**) (**Fig. D**).
27) Fit the tools (**9**) (**Fig. C**).

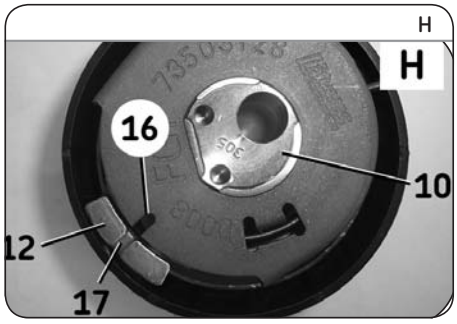
Note: Check that the tools (**9**) (**Fig. C**) can be easily inserted. If this is not the case, turn the adjustment hub (**10**) with tool (**11**) until the moving index (**12**) is in the "8 o'clock" position (**Fig. E**), then remove the new timing belt and restart the tension setting operation from step **16**).

28) Remove the tools (**6**) and (**9**) (**Fig. C**).
29) Refit the elements removed in reverse order to removal. Refit and tighten the crankshaft pulley fastening bolts (**21**) to **22 Nm**.
30) Fill the cooling circuit with the permanent fluid recommended.
31) 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).

G



H



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