NT 02013
VKMA 02215
VKMC 02215-1
VKMC 02215-2

Fiat / Lancia

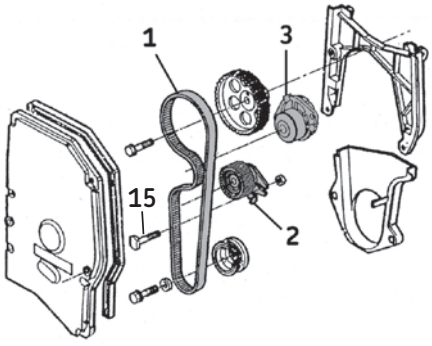
VKMA 02215

VKMC 02215-1

VKMC 02215-2

A

(7): Camshaft sprocket wrench (ref. 1860831000).
(9): Crankshaft timing tool (ref. 1860901000).
(12): Camshaft timing tool (ref. 1860899000).
– Tensioning tool (ref. 1860443000).



(15): 30 Nm

Removal

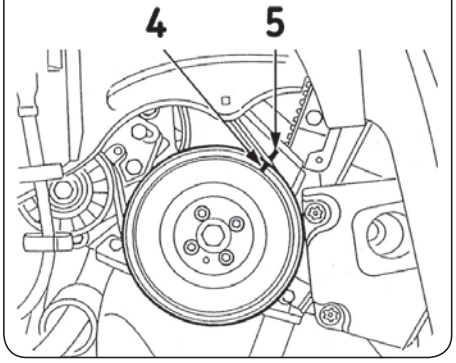
1) Disconnect the battery according to the vehicle manufacturing guidelines.
2) Prepare the vehicle for the timing replacement according to the vehicle manufacturing guidelines.
3) Turn the crankshaft in the engine rotation direction until the mark (**4**) on the pulley is aligned with the mark (**5**) on the lower timing casing (**Fig. B**).
4) Remove the crankshaft pulley.
5) Remove the lower timing casing.
6) Loosen the fastening nut (**15**) of the tensioner roller (**2**), then slacken and remove the timing belt (**1**) (**Fig. A**).
7) Remove tensioner roller (**2**) and the cylinder cover head.
8) **Removing the water pump** (**VKMC 02215**): firstly bleed the cooling circuit, check it is clean, and clean if required; secondly fully loosen the water pump (**3**) fastening bolts and remove the pump (**Fig. A**).

Refitting

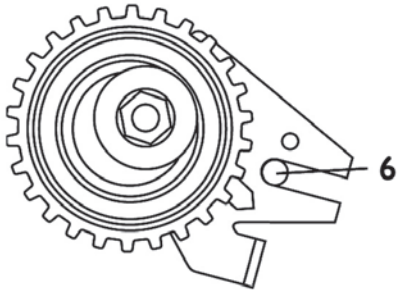
Caution: Clean the bearing surfaces of the rollers.

9) **Refitting the water pump**: firstly fit the new water pump (**3**), apply the torque to manufacturer recommendations; then check that the water pump pulley runs properly, and has no hard or locking spots.
10) Fit the new tensioner roller (**2**) by slightly tightening its securing nut (**15**) (adjust the pin (**6**) located on the engine down to the bottom of the slot on the roller rear plate) (**Fig. C**).
11) Loosen the camshaft sprocket fastening bolt using the wrench (**7**) (**Fig. D**)
12) Fit the timing belt (**1**) on the crankshaft sprocket.
13) Remove the two bolts (**8**) attaching the oil pump to the engine block (**Fig. E**).

B

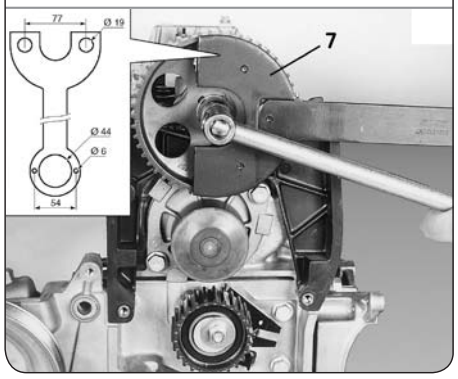


C

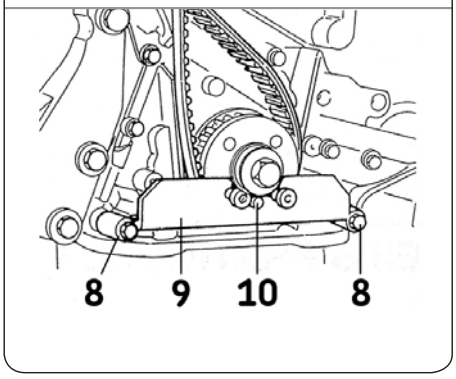


Install Confidence

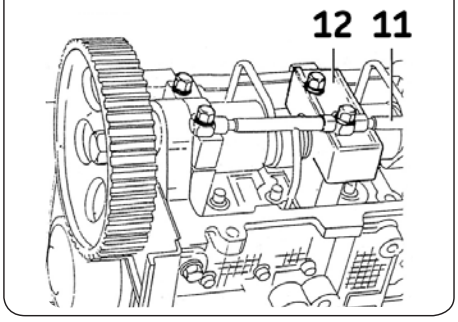
D



E



F



14) Place the tool (**9**) so that the orifice (**10**) coincides with the notch on the crankshaft sprocket, when cylinder N°1 is at TDC (**Fig. E**).
15) Loosen the bolts of the first, second, third and fourth camshaft upper half-bearings
16) Remove the previously loosened bolts on the exhaust side.
17) Lift the lubrication duct (**11**) (**Fig. F**).

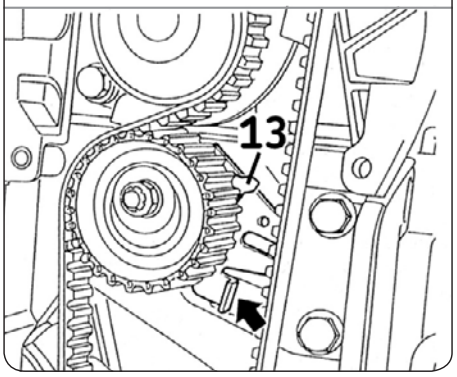
Caution! Lift the lubrication duct (**11**) (**Fig. F**) with care to avoid deformation or breakage.

18) Remove the second half-bearing and install tool (**12**) (**Fig. F**) in its place.
19) Next, tighten all the bolts of the half-bearings to **10 Nm**.
20) Continue refitting the timing belt (**1**) in the following sequence: crankshaft sprocket, camshaft sprocket, water pump sprocket and tensioner roller (**2**).

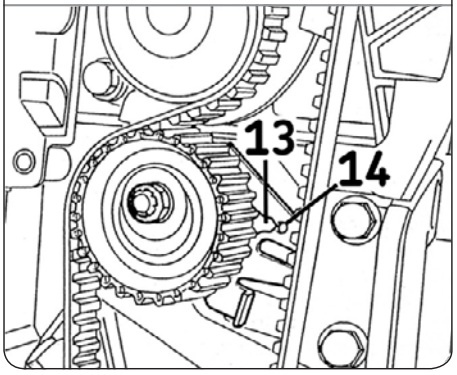
Note: place the timing belt in the right direction (an arrow indicates the direction of rotation).

21) Turn the tensioner roller (**2**) using the tensioning tool (ref: 1860443000) or a flat screwdriver (see black arrow **Fig. G**) to set the moving pointer (**13**) to the maximum tension position (**Fig. G**) and tighten the fastening nut (**15**) to **30 Nm**.
22) Tighten the camshaft sprocket fastening bolt to **118 Nm**.
23) Loosen the bolts of the first, second, third and fourth camshaft half-bearings
24) Remove the previously loosened bolts on the exhaust side.
25) Carefully lift the lubrication duct (**11**) and remove tool (**12**) (**Fig. F**).
26) Refit the second half-bearing.
27) Tighten all the bolts of the camshaft half-bearings to **15 Nm**.
28) Remove the tool (**9**) and refit the oil pump bolts (**8**) (**Fig. E**).
29) Turn the crankshaft by two turns in the engine rotation direction up to TDC.
30) Loosen slightly the fastening nut (**15**) on the tensioner roller (**2**) while holding it in position using the tensioning tool or a flat screwdriver. Release the tensioner roller until the moving pointer (**13**) is aligned with the indicator mark (**14**) (**Fig. H**). Tighten the securing nut (**15**) to **30 Nm**
31) Refit the lower casing and crankshaft pulley. Turn the crankshaft by two turns in the engine rotation direction up to TDC.
32) Check the setting of the tensioner roller (the moving pointer (**13**) must be aligned with the indicator mark (**14**) (**Fig. H**)). Check the timing setting by ensuring that the mark (**4**) on the crankshaft pulley is aligned with the mark (**5**) on the lower timing casing (**Fig. B**).
33) If the marks are not aligned, remove the new timing belt and adjust the belt tension again, by returning to step **15**).
34) To refit the elements removed, apply the reverse sequence of removal.
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).

G



H



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