NT 05009
VKMA/C 05228

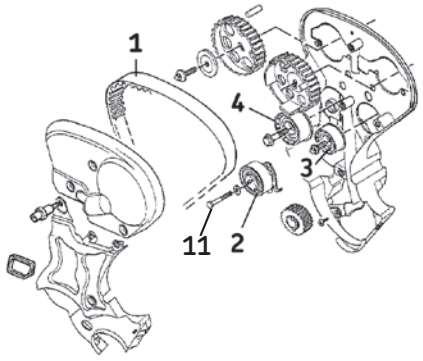
Opel / Vauxhall

VKMA 05228

VKMC 05228

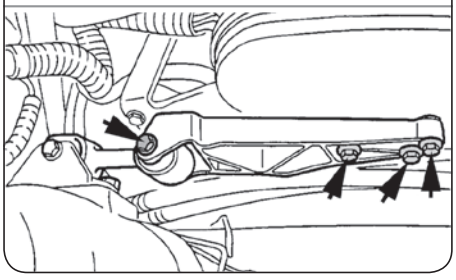
A

(10): Locking tool for camshaft sprockets (ref. KM-852 or ref. KM-853).



(3): 25 Nm
(4): 25 Nm
(11): 20 Nm

B



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 auxiliary belt and crankshaft pulley.
4) Fit the crankshaft pulley fastening bolt without tightening it completely.
5) Rotate the crankshaft in the engine rotation direction until the marks (**5**) on the crankshaft sprocket (**6**) and inner timing casing line up and the marks (**7**) on the camshaft sprockets (**8**) and (**9**) are aligned with those on the inner timing casing (**Fig. C**). Cylinder Nr 1 piston is now at TDC.
6) Lock the sprockets (**8**) and (**9**) using the tool (**10**) (**Fig. C**)
7) Loosen the fastening bolt (**11**) of the tensioner roller (**2**) and rotate the adjustment dial (**12**) **clockwise** (**Fig. D**). Loosen and remove the timing belt (**1**).
8) Remove the tensioner roller (**2**) and the idler rollers (**3**) and (**4**) (**Fig. C**)
9) **Removing the water pump** (**VKMC 05228**): Firstly bleed the cooling circuit, check it is clean, and clean if required; secondly fully loosen the water pump (**13**) fastening bolts and remove the pump (**Fig. C**).

Refitting

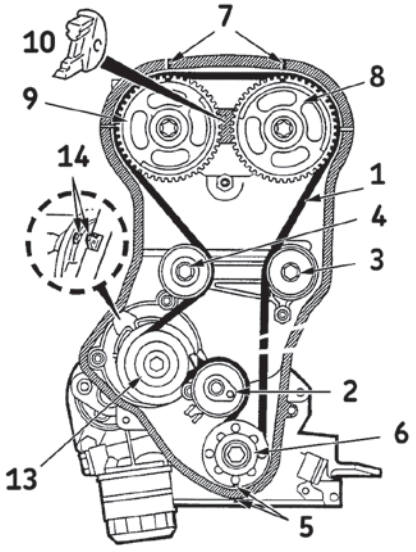
Caution: First carefully clean thoroughly the bearing surfaces of the rollers and of the tensioning device.

10) **Refitting the water pump**: Firstly fit the new water pump (**13**), and tighten the waterpump bolts with **torque** to manufacturer recommendations; then check that the water pump pulley runs properly, and has no hard or locking spots.
11) Fit the new idler rollers (**3**) and (**4**) and tighten them to **25 Nm**.
12) Check that the timing marks (**5**) on the crankshaft sprocket (**6**) and (**7**) camshaft sprockets (**8**) and (**9**) are aligned (**Fig. C**).
13) Check that the water pump (**13**) is correctly directed: the marks (**14**) (**Fig. C**) on the pump body and cylinder block must be aligned.
14) Fit the new tensioner roller (**2**).

Note: When refitting the new tensioner roller (**2**), check that the positioning stud (**15**) on the roller plate (**16**) is correctly engaged in the slot (**17**) of the engine block (**Fig. D**).

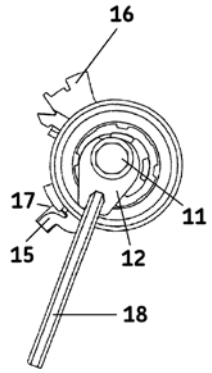
15) Using the Allen key (**18**), set the adjustment dial (**12**) of the tensioner roller to the "7 o'clock" position (**Fig. D**). Using an open-ended spanner, loosen the fastening bolt (**11**) slightly (**Fig. D**).

C

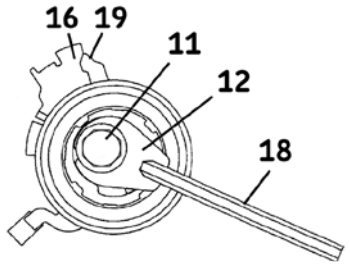


Install Confidence

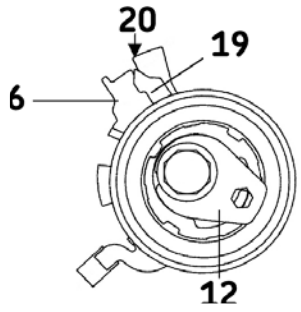
D



E



F



16) Fit the belt, starting with the crankshaft sprocket (**6**), idler roller (**3**), camshaft sprockets (**8**) and (**9**), idler roller (**4**), water pump (**13**) and the tensioner roller (**2**) (**Fig. C**).

17) Lock the fastening bolt (**11**) using an open-ended spanner. Rotate the setting plate (**12**) on the tensioner roller in an anticlockwise direction using the Allen key (**18**) until it reaches the maximum tension position. The moving pointer (**19**) is then aligned with the right edge of the plate (**16**) (**Fig. E**).

Note: The moving pointer must not go past the right edge of the plate.

18) Lock the tensioner roller in this position by tightening the fastening bolt (**11**) to **20 Nm** and remove the tool (**10**) (**Fig. C**).

19) Rotate the crankshaft two turns in the engine rotation direction until the timing point is reached, cylinder Nr 1 at TDC. Check that the various marks (**5**) on the crankshaft sprocket (**6**) and (**7**) on the camshaft sprockets (**8**) and (**9**) are aligned (**Fig. C**).

20) Place the Allen key (**18**) in the tensioner roller setting plate (**12**) and loosen the fastening bolt (**11**) using an open-ended spanner (**Fig. D**).

21) Rotate the adjustment dial (**12**) **clockwise** to align the moving pointer (**19**) with the notch (**20**) in the tensioner roller plate (**16**) (**Fig. F**).

22) Tighten the tensioner roller fastening bolt (**11**) to **20 Nm** by locking the adjustment dial (**12**) with the Allen key.

23) Rotate the crankshaft two turns in the engine rotation direction up to TDC. Check that the various marks (**5**) on the crankshaft sprocket (**6**) and (**7**) camshaft sprockets (**8**) and (**9**) are aligned (**Fig. C**).

24) Check the tensioner roller setting: the moving pointer (**19**) must be aligned with the notch (**20**) on the tensioner roller plate (**16**) (**Fig. F**).

25) If the marks are not aligned, remove the new timing belt and adjust the belt tension again, by returning to step **16**).

26) Refit the removed elements in reverse order to removal

27) Fill the cooling circuit with the permanent fluid recommended.

28) 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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