NT 05008
VKMA 05220
VKMA/C 05222
VKMA 05223
VKMA/C 05224

Opel / Vauxhall

VKMA 05220   VKMA 05222   VKMC 05222   VKMA 05223
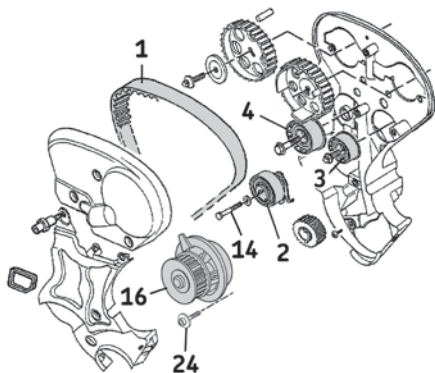
VKMA 05224   VKMC 05224

A

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

(3)/(4): 25 Nm
(14): Tensioner bolt: 20 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) Remove the auxiliary belt and crankshaft pulley.
4) Refit the crankshaft pulley fastening bolt without tightening it completely.

5) – **All engines, except for 1.8l 16V (X18XE)**: 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. B**). Cylinder Nr 1 piston is now at TDC.
   – **1.8l 16V engine (X18XE)**: In this position, the marks (**10**) on the camshaft sprockets (**11**) and (**12**) are aligned with the cylinder head gasket surface (**Fig. C**). Cylinder N° 1 piston is now at TDC.
6) **All engines, except for 1.8l 16V (X18XE)**: Lock the sprockets (**8**) and (**9**) using the tool (**13**) (**Fig. B**)
7) Loosen the fastening bolt (**14**) of the tensioner roller (**2**) and rotate the adjustment dial (**15**) **clockwise**, using the Allen key (**21**) (**Fig. D**). Loosen and remove the timing belt (**1**).
8) Remove the tensioner roller (**2**) and the idler rollers (**3**) and (**4**) (**Fig. B**).
9) **Removing the water pump** (**VKMC 05222-VKMC 05224**): Firstly bleed the cooling circuit, check it is clean, and clean if required; secondly fully loosen the water pump fastening bolts (**24**) and remove the pump (**16**) (**Fig A**).


B
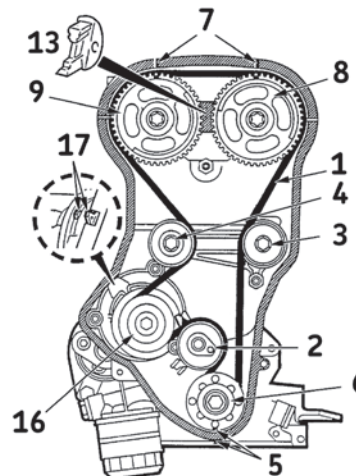
Refitting
**Caution!** Clean the bearing surfaces of the rollers.

10) **Refitting the water pump**: Firstly fit the new water pump (**16**), apply the torque **25 Nm** to the waterpump bolts (**24**); then check that the water pump pulley runs properly, and has no hard or locking spots.
11) Check that the water pump (**16**) is correctly directed: the marks (**17**) on the pump body and cylinder block must be aligned (**Fig. B**).
12) Fit the new idler rollers (**3**) and (**4**) and tighten them to **25 Nm** (**Fig A**).

C
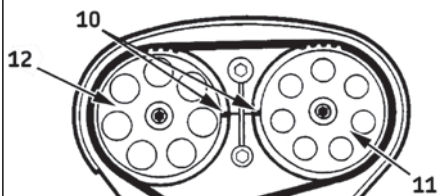
Install Confidence

SKF
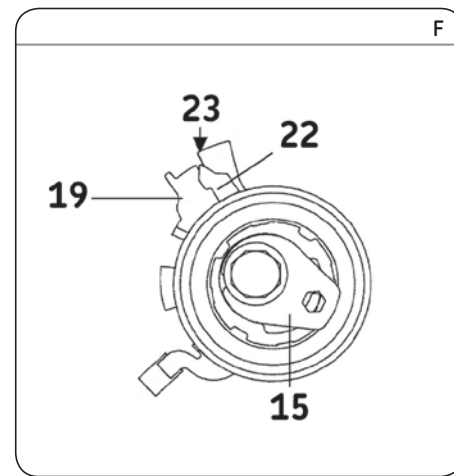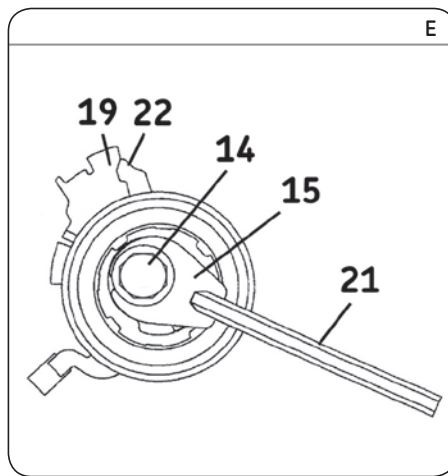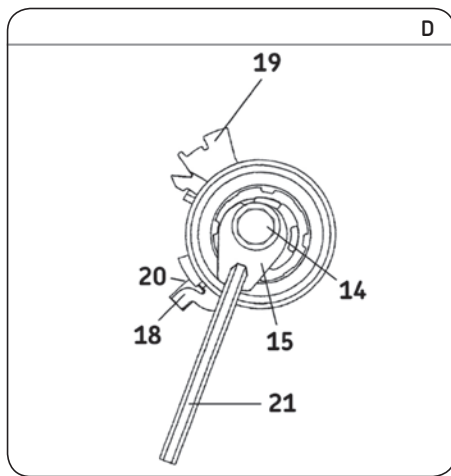
13) Check that the timing marks (**5**) on the crankshaft sprocket (**6**) and (**7**) on the camshaft sprockets (**8**) and (**9**) (**10**), (**11**) and (**12**) for 1.8l 16V engines) are aligned (**Fig. B** and **Fig. C**).

14) Fit the new tensioner roller (**2**).

Note: When refitting the new tensioner roller (**2**), check that the positioning stud (**18**) on the roller plate (**19**) is correctly engaged in the slot (**20**) of the engine block (**Fig. D**).

15) Using the Allen key (**21**), set the adjustment dial (**15**) of the tensioner roller to the "7 o'clock" position (**Fig. D**). Using an open-ended spanner, **tighten** the fastening bolt (**14**) slightly (**Fig. D**).

16) Fit the belt, starting with the crankshaft sprocket (**6**), idler roller (**3**), the camshaft sprockets (**8**) and (**9**) ((**11**) and (**12**) for 1.8l 16V engines), the idler roller (**4**), water pump (**16**) and the tensioner roller (**2**) (**Fig. B**).

17) Loosen the fastening bolt (**14**) using an open-ended spanner. Rotate the setting plate (**15**) on the tensioner roller in an **anti-clockwise** direction using the Allen key (**21**) until it reaches the maximum tension position. The moving pointer (**22**) is then aligned with the right edge of the plate (**19**) (**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 (**14**) to **20 Nm** and remove the tool (**13**) (**Fig. B**).

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 timing marks (**5**) on the crankshaft sprocket (**6**) and (**7**) on the camshaft sprockets (**8**) and (**9**), (**10**), (**11**) and (**12**) for 1.8l 16V engines) are aligned (**Fig. B** and **Fig. C**).

20) Place the Allen key (**21**) in the tensioner roller adjustment dial (**15**) and loosen the fastening bolt (**14**) using an open-ended spanner (**Fig. D**).

21) Rotate the adjustment dial (**15**) **clockwise** to align the moving pointer (**22**) with the notch (**23**) in the tensioner roller plate (**19**) (**Fig. F**).

22) Tighten the tensioner roller fastening bolt (**14**) to **20 Nm** by locking the adjustment dial (**15**) with the Allen key.

23) Rotate the crankshaft **2 turns** in the engine rotation direction up to TDC. Check that the various timing marks (**5**) on the crankshaft sprocket (**6**) and (**7**) the camshaft sprockets (**8**) and (**9**), (**10**), (**11**) and (**12**) for 1.8l 16V engines) are aligned (**Fig. B** and **Fig. C**).

24) Check the tensioner roller setting: the moving pointer (**22**) must be aligned with the notch (**23**) on the tensioner roller plate (**19**) (**Fig. F**).

25) If the marks are not aligned, remove the new timing belt and adjust the belt tension again, by returning to step **15**)

26) Refit the elements removed 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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