

NT 01018

VKMA/C 01120 –  
VKMA 01121 –  
VKMC 01221 - 1 /-2

Audi / Skoda / Seat / Volkswagen

VKMA 01120



VKMC 01120



VKMA 01121



VKMC 01221-1



VKMC 01221-2



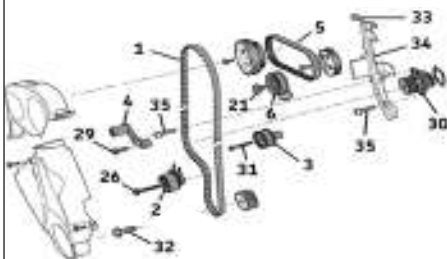
(9): T 10016

(13)/(14): 3415 + 3415/1

(Engines AQQ, AUA, AUB, AHW,  
AKQ, AFK, APE, AXP)

(36): T 10028 (Engines AUS, ATN, AJV)

(37):  $\varnothing 40 \times 6$  mm



(21): 20 Nm

(26): 20 Nm

(29): 50 Nm

(31): 50 Nm

(32): 90 Nm + 90°

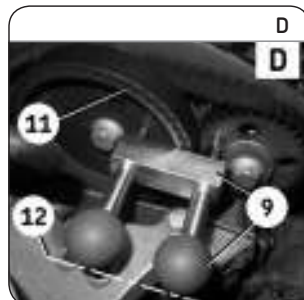
150 Nm + 180°

(33): 10 Nm

(35): 20 Nm

A

D



#### Removal

- 1) Disconnect the battery according to the vehicle manufacturing guidelines.
- 2) Prepare the vehicle for the timing replacement according to the manufacturing guidelines.
- 3) Rotate the crankshaft to the TDC of cylinder No. 1, aligning the notch on the crankshaft pulley with mark "O" on the casing (Fig. B). Check that the alignment openings (7) for the camshaft sprockets are in line with those of the cylinder head (Fig. C). If they are not, turn the crankshaft one more time.
- 4) Insert the two pins of the tool (9) (Fig. D) until they stop in the openings (7) (Fig. C) of the camshaft sprockets and bring the support of the tool (9) into contact with the intake sprocket (11) (Fig. D).

**Note:** the two pins of the tool (9) are correctly inserted when the two ends are aligned on the same line (12) (Fig. D).

- 5) Remove the crankshaft pulley using tools (13) and (14) (Fig. E) or (36) (depending on the engine).
- 6) Refit the crankshaft pulley bolt (32) using two washers and remove the lower timing casing.
- 7) Loosen the bolt holding the tensioner roller (2) then turn it **anti-clockwise** to release the belt (1) (Fig. A). Remove the belt (1).

**Note:** At this stage the locking tool (9) needs to be removed in order to remove the belt. Caution is advised! (Fig. A). Remove the belt (1). Refit the locking tool (9).

- 8) Remove the tensioner roller (2) and the idler rollers (3) and (4) (Fig. A).
- 9) Loosen the bolt (21) holding the tensioner roller (6) then turn it **clockwise** to release the belt (5). Remove the belt (5) (Fig. A).

- 10) Remove the tensioner roller (6) (Fig. A).
- 11) **Removing the water pump (VKMC 01120-VKMC 01121-1/2):** firstly bleed the cooling circuit, check it is clean, and clean if required; secondly fully loosen the belt protection bolt (33) and fully loosen the water pump fastening bolts (35) and remove the belt protection (34) and the pump (30) (Fig. A).

#### Refitting

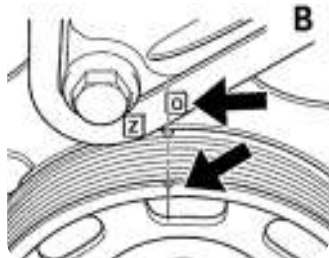
**Caution!** First clean thoroughly the bearing surfaces of the rollers.

- 12) **Refitting the water pump:** Firstly, fit the new water pump (30) and the belt protection (34), apply the torque **20 Nm** to the waterpump bolts (35) and apply the torque **10 Nm** to the belt protection bolt (33) (Fig. A); then check that the water pump pulley runs properly, and has no hard or locking spots.
- 13) Check that the crankshaft is at TDC: the tooth with chamfer (15) on the crankshaft sprocket must be aligned with mark (16) on the engine block.
- 14) Check that the tool (9) is in place (Fig. D).
- 15) Refit the new belt (5) (Fig. A) on the intake camshaft sprocket (11) then on the exhaust camshaft sprocket (17) (Fig. C).

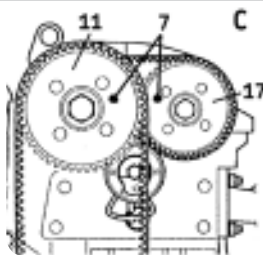
**Note:** Check that the section of belt opposite the tensioner roller is tight.

- 16) Before placing the new tensioner roller (6) on the engine block, turn the adjustment dial (18) **clockwise** until it reaches 6 o'clock (relaxed position) (Fig. G). Fit the tensioner roller (6) and its new bolt (21) (Fig. A) placing the base of the spigot (19) in the opening (20) of the engine block then tighten gently by hand the bolt (21) holding the tensioner roller (6) (Fig. G).

B



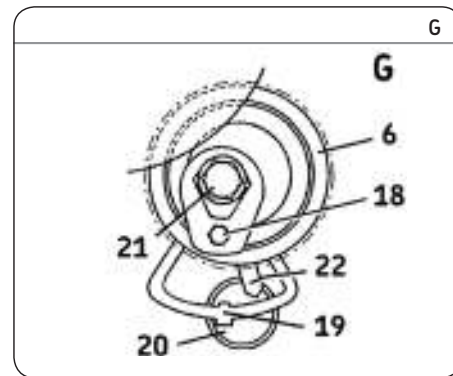
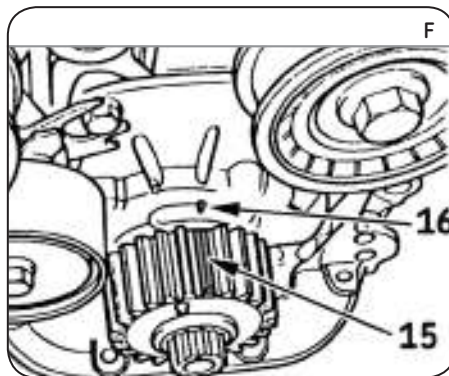
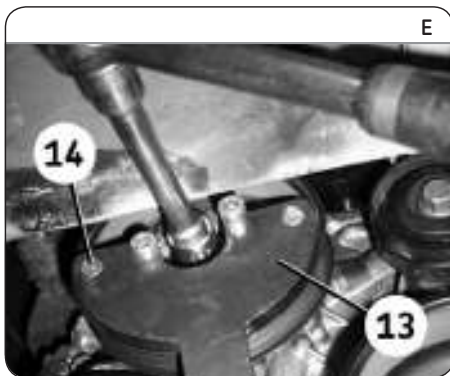
C



#### Install Confidence

VKN 1001





17) Tighten the belt (5): turn the setting dial (18) on the tensioner roller (6) **anti-clockwise** using an Allen wrench, while holding the fastening bolt (21) of the roller. Continue turning the adjusting dial (18) until the moving pointer (22) is aligned with the spigot (19) (Fig. H). Then tighten the fastening bolt (21) at 20 N.m.

18) Refit the new idler roller (3) and tighten the new bolt (31) to 50 Nm (Fig. A).

19) Refit the new idler roller (4) and tighten its new bolt (29) to 50 Nm (Fig. A).

20) Refit the new tensioner roller (2) and its new bolt (26) (Fig. A):

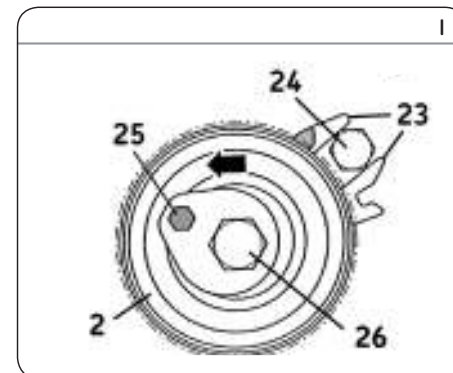
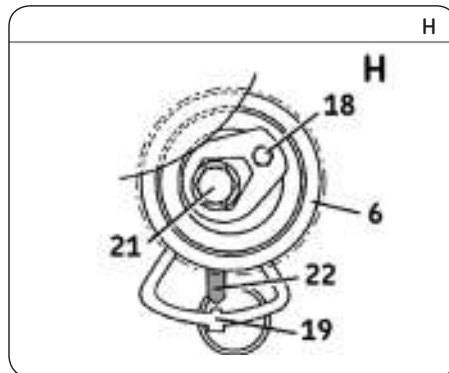
- Set the slot located between the fingers (23) on the centering bolt and that the backing plate is firmly against the engine. (24) (Fig. I).

- Turn the setting dial (25) by turning **anti-clockwise** the Allen wrench until it reaches the "10 o'clock" position (see black arrow in Fig. I) then tighten slightly by hand the securing bolt (26) on the tensioner roller (2) (Fig. I).

**Note:** At this stage the locking tool (9) needs to be removed in order to fit the new belt. Caution is advised!

21) Refit the new belt (1) in the following order: water pump sprocket, the tensioner roller (2), the crankshaft sprocket, the idler roller (3), the intake camshaft sprocket (11) and the idler roller (4) (Fig. A). **Refit** the locking tool (9) **Recheck** that the slot located between the fingers (23) is located on the centering bolt and that the backing plate is firmly against the engine. (24) (Fig. I).

22) Tighten the belt (1): turn the setting dial (25) on the tensioner roller (2) **clockwise** using an Allen wrench, while holding the fastening bolt (26) of the roller (Fig. J). Continue turning the adjusting dial (25) until the moving pointer (27) is aligned with the spigot (28) of the rear plate (Fig. J). Then tighten the holding bolt (26) of the tensioner roller (2) at 20 Nm (Fig. J). **Never overtighten the tensioner to avoid the damage of the roller.**



23) Remove the tool (9) (Fig. D).

24) Rotate the crankshaft two turns in the engine rotation direction up to TDC.

25) Check that the tool can be mounted (9) (Fig. D) in the camshaft sprockets and the alignment of the sprocket with the chamfer (15) with mark (16) (Fig. F).

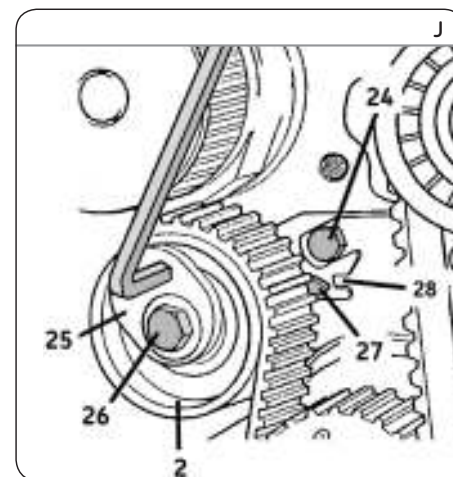
26) Check the adjustments of the tensioner rollers (2) and (6) (Fig. H and Fig. J). **Recheck** that the slot located between the fingers (23) is located on the centering bolt and that the backing plate is firmly against the engine. (24) (Fig. I).

27) If the marks of the tensioner rollers are not aligned remove the timing system belts (1) and (5) (Fig. A). Then repeat the tension setting operations from steps 15) and 21).

28) Refit the elements in the opposite direction to the one in which they were removed. **Replace** the crankshaft pulley fastening bolt (32) (Fig. A), and tighten it with the torque **90 Nm + 90°** (standard bolt head) or **150 Nm + 180°** (hollow bolt head).

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

30) 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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