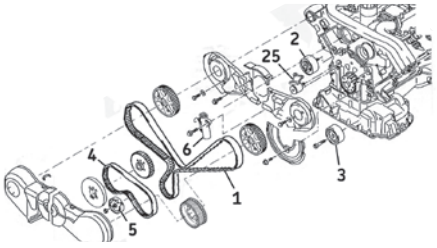
NT 01017
VKMA 01152
VKMA 01952
VKMC 01952
VKMC 01952-1

Audi / Skoda / Volkswagen

VKMA 01152 | VKMA 01952 | VKMC 01952 | VKMC 01952-1

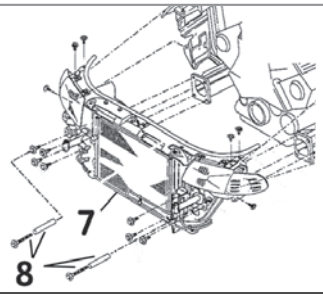
A

(8): Guides (ref. 3369).
(11): Crankshaft timing tool (ref. 3242).
(13): Camshaft timing tool (ref. 3458).
(17): Injection pump timing pin (ref. 3359).
(18): Tensioner roller tool (ref. 3078).
(24): Pin (diameter 2 mm).
– Camshaft tool (ref. 3036).
– Puller (ref. T40001).

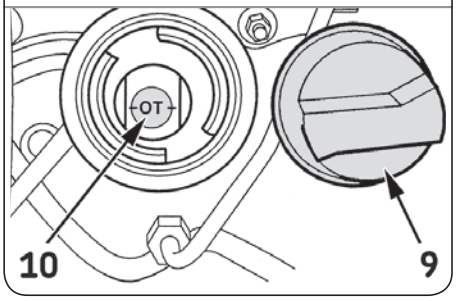


(19): 22 Nm
(20/21): 75 Nm
(22): 42 Nm
(32): 36 Nm
(33): 45 Nm
(34): 22 Nm
(36): 10 Nm

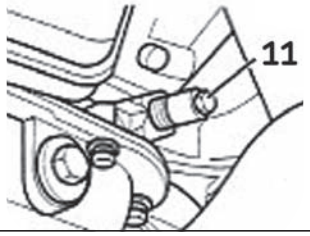
B



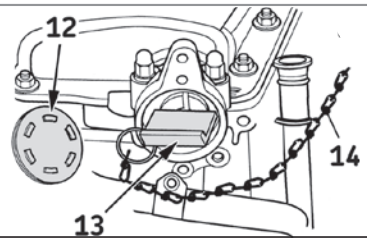
C



D



E



Important note!

– When refitting the timing system components, the idler roller (**3**) must be fitted using the new fastening bolt supplied in the SKF kits.
– When refitting the injection pump belt components, the tensioner roller (**5**) must be fitted using the new fastening nut supplied in the SKF kits

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 engine oil filling cap (**9**) (**Fig. C**).

Timing

4) Turn the crankshaft in the engine rotation direction (**clockwise**) up to the timing: check that the "OT" marking (**10**) is centered through the oil filling hole (**Fig. C**).
5) Remove the TDC cap from the cylinder block and mount the crankshaft timing tool (**11**) (**Fig. D**).
6) Unscrew and move the expansion chamber, the vacuum pump and the air filter unit without disconnecting their lines.
7) Remove the cap (**12**), and fit the camshaft (**Fig. E**) timingtools (**13**). Hold the timing tools (**13**) in position using the chain (**14**) (**Fig. E**).

Removing the injection pump belt elements

8) Remove the protective disk (**15**) from the injection pump sprocket without loosening its central bolt (**16**) (**Fig. F**).
9) Insert the timing pin (**17**) for the injection pump (**Fig. G**).
10) Slacken the tensioner roller (**5**) (**Fig. F**) using the tool (**18**) (**Fig. H1**) and an Allen key then remove the injection pump belt (**4**) (**Fig. H**).
11) Remove the crankshaft pulley (without slackening its central bolt) and the lower timing casing.
12) Remove the ventilator support.
13) Remove the exterior camshaft sprocket (**19**) (**Fig. F**).

Note: the timing tools (**13**) (**Fig. E**) must not be used to slacken the camshaft sprockets. Use a recognized camshaft gear retaining tool.

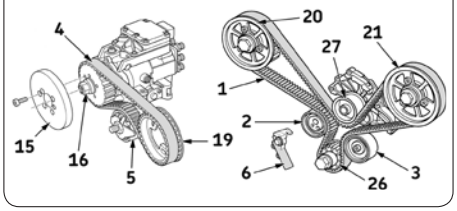
14) Remove the tensioner roller (**5**) from the injection pump (**Fig. F**).

Removing the timing elements

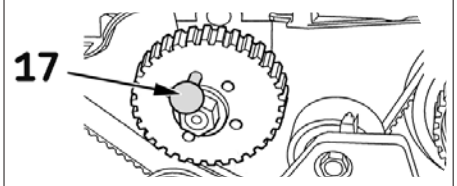
15) Gently slacken the camshaft sprockets (**20**) and (**21**) (**Fig. F**) using the camshaft tool No. 3036.
16) If necessary, gently slacken the holding nut (**22**) for the tensioner roller (**2**) and turn the roller clockwise using an Allen key in the hexagonal slot (**23**) (**Fig. I1**), until you can insert the pin (**24**) into the tension mechanism (**6**) (**Fig. J**).
17) Take out the camshaft sprockets (**20**) and (**21**) (**Fig. F**) using the puller tool No. T40001.
18) Remove the camshaft sprocket (**21**) with the timing belt (**1**) (**Fig. F**).
19) Remove the tensioner roller (**2**) and idler roller (**3**) (**Fig. F**).
20) **If you are fitting kits VKMA 01952 and VKMC 01952/-2**:
– Remove the tension mechanism (**6**) and the pin (**24**) (**Fig. J**).
21) **Removing the water pump** (**VKMC 01952/-2**): 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.

Install Confidence

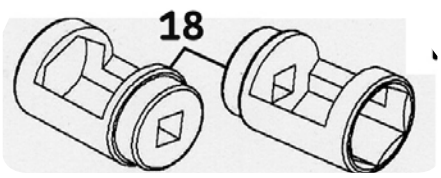
F



G



H1



Refitting
Caution! First carefully clean thoroughly the bearing surfaces of the rollers and of the tensioning device

22) **Refitting the water pump**: firstly fit the new water pump, apply the torque **10 Nm** to the waterpump bolts (**36**); then check that the water pump pulley runs properly, and has no hard or locking spots.

Refitting the timing elements

23) **If you are fitting kits VKMA 01952 and VKMC 01952/-2**:
– Fit the new tension mechanism (**6**) and the pin (**24**) (**Fig. J**).

24) Refit the new idler roller (**3**). Tighten the fastening bolt (**33**) to **45 Nm**.
25) Refit the new tensioner roller (**2**): check that the lever (**25**) (**Fig. J**) is in contact with the axis (**26**) behind the roller (**Fig. I2**).
26) Fit the new timing belt (**1**) in the following order: crankshaft sprocket (**26**), camshaft sprocket (**20**), tensioner roller (**2**), idler roller (**3**), water pump (**27**). Place the cam-shaft sprocket (**21**) in the belt and fit the assembly on the camshaft hub (**Fig. F**).
27) Gently tighten the camshaft sprockets (**20**) and (**21**) (**Fig. F**). Check that they turn freely and with no play along their axes.
28) Tighten the timing belt (**1**):
– Turn the tensioner roller **clockwise** using an Allen key in the hexagonal slot (**23**) (**Fig. I1**). The lever (**25**) comes to a stop on the tension mechanism piston rod (**6**) (**Fig. J**).
– Remove the pin (**24**) (**Fig. J**) then turn the tensioner roller **anticlockwise** using a dynamometric wrench adjusted to the torque of **15 Nm** inserted into the hexagonal slot (**23**) (**Fig. I1**): under the action of the piston rod, the tensioner roller moves and comes up against the belt which tightens.
29) Tighten the tensioner roller fastening nut (**22**) to **42 Nm**.
30) Re-tighten the camshaft sprockets (**20**) and (**21**) (**Fig. F**) with a torque of **75 Nm** using the camshaft tool No. 3036.

Refitting the injection pump belt elements

31) Refit the new injection pump belt tensioner roller (**5**) on the ventilator support. Check that the ventilator support pin (**28**) is correctly positioned in the slot (**29**) on the rear tensioner roller plate (**Fig. K**).
32) Refit the ventilator support on the engine block.
33) Refit the exterior camshaft sprocket (**19**) and gently tighten its fastening bolts (**Fig. F**). Check that it turns freely and without play.
34) Fit the new injection pump belt (**4**). Check that you install it in its rotation direction.
35) Tighten the injection pump belt (**4**) (**Fig. F**): using an Allen key and the tool (**18**) (**Fig. H1**), turn the adjustment hub **anti-clockwise** while holding the roller fastening nut in place until the moving pointer (**30**) is aligned with the fixed indicator mark (**31**) (**Fig. H**).

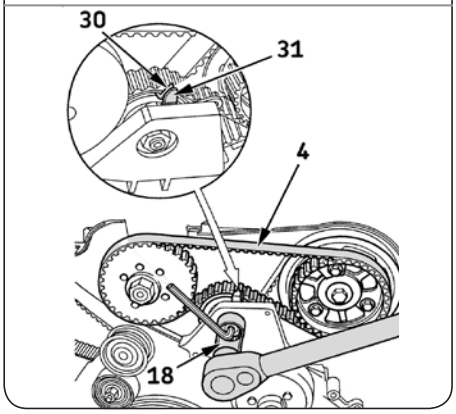
Note: Tighten the new idler roller (**5**) using the new fastening nut supplied in the SKF kits.

36) Tighten the tensioner roller (**5**) fastening nut (**32**) to a torque of **36 Nm** then tighten the exterior sprocket fastening bolts (**19**) on the injection pump to a torque of **22 Nm** (**Fig. F**).
37) Remove the timing tools (**11**) (**Fig. D**), (**13**) (**Fig. E**) and (**17**) (**Fig. G**).
38) Refit the lower timing casing and crankshaft pulley.
39) Rotate the crankshaft two turns in the engine rotation direction up to TDC: see "OT" marking (**10**) (**Fig. C**).
40) Check the tensioner roller setting: the moving pointer (**30**) must be aligned with the fixed indicator mark (**31**) on the tensioner roller (**Fig. H**).
41) If the marks are not aligned, remove the new injection pump belt and adjust the belt tension again, by returning to step **35**).
42) Check that the timing system is correctly adjusted:
– Refit the timing tools (**11**) (**Fig. D**), (**13**) (**Fig. E**) and (**17**) (**Fig. G**).

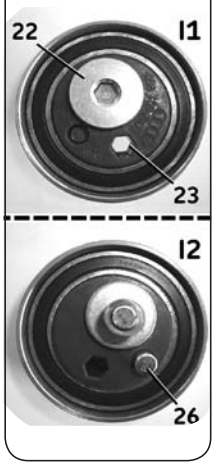
Note: The timing is correct when the timing tools (**11**) (**Fig. D**), (**13**) (**Fig. E**) and (**17**) (**Fig. G**) may be installed correctly and easily.

43) If the timing tools cannot be inserted easily, restart the timing operation from step **39**).
44) Remove the timing tools and refit the protective disk (**15**) for the injection pump sprocket by tightening the four fastening bolts (**34**) to a torque of **22 Nm** (**Fig.F**).
45) Refit the remainder of the removed elements in the reverse order to removal.
46) Refit the elements removed in reverse order to removal.
47) Fill the cooling circuit with the permanent fluid recommended.
48) 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).

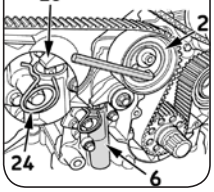
H



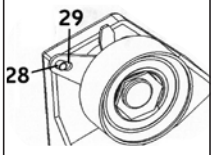
I



J



K



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