
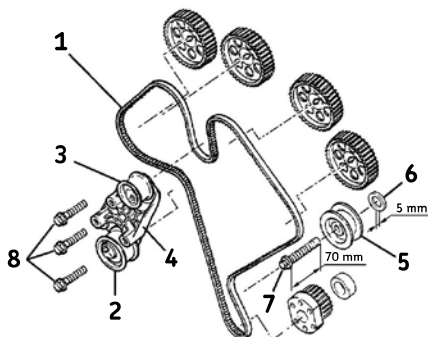




-  (9): Crankshaft timing tool (ref. KM-800-10).
- (17): Tool for locking cylinder camshaft sprockets (2-4-6) (ref. KM-800-2 (green)).
- (18): Tool for locking cylinder camshaft sprockets (1-3-5) (ref. KM-800-1 (red)).
- (19): Idler roller tension tool (ref. MKM-6038).
- (24): Belt holding shim (ref. KM-800-30).
- (27): Camshaft timing gauge (ref. KM-800-20).
- (-): Engine securing tool (ref. KM-883-1).



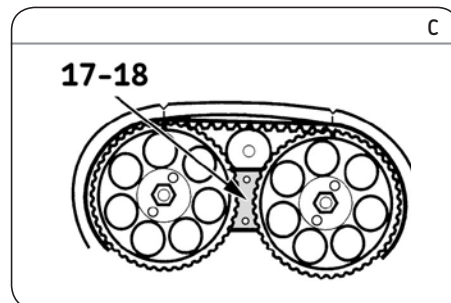
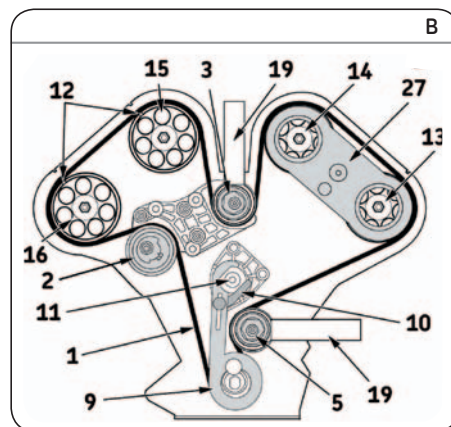
- (7): 40 Nm
- (8): 40 Nm

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.
- 2) **Vectra B fitted with air conditioning (...→2001)** Support the engine using the engine securing tool KM-883-1.
- 3) **Vectra B fitted with air conditioning (2001 →...)** Remove the right engine bracket.
- 4) Remove all the components for the auxiliary system, the timing system casing and the crankshaft pulley without untightening the central mounting bolt.
- 5) Rotate the crankshaft **clockwise** and stop approximately 10° before the Top Dead Centre (TDC)
- 6) Put in position timing tool KM-800-10 (9) on the crankshaft gear (Fig. B). Rotate the crankshaft slowly **clockwise** until the lever (10) of the tool is resting against the water pump end shield (11) (Fig. B). The crankshaft is timed.
- 7) Check that the timing marks (12) of the camshaft sprockets (13), (14), (15) and (16) and of the rear timing system casings are aligned (Fig. B).
- 8) Insert the green locking tool KM-800-2 (17) between the right camshaft sprockets (13) and (14) and then the red locking tool KM-800-1 (18) between the left camshaft sprockets (15) and (16) (Fig. B and Fig. C).

Note: The "Top" marks of locking tools (17) and (18) must be pointing upwards.

- 9) If it is difficult to make the green locking tool (17) (Fig. C) enter, proceed as follows:
 - Using tension tool MKM-6038 (19), hold and tighten the lower idler roller (5) without changing its position (Fig. B).
 - Untighten the belt by rotating the lower idler roller (5) until it is possible to insert the tool (17).
 - Retighten the lower idler roller (5) when the tool (17) is in position. Proceed in the same way but acting on the upper idler roller (3) if it is difficult to make the red locking tool (18) enter.



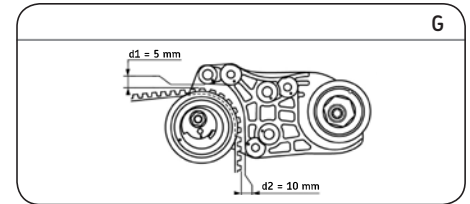
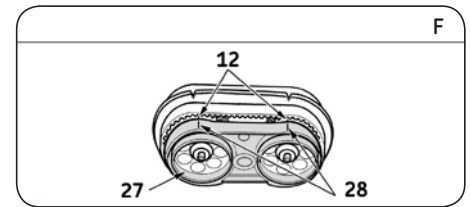
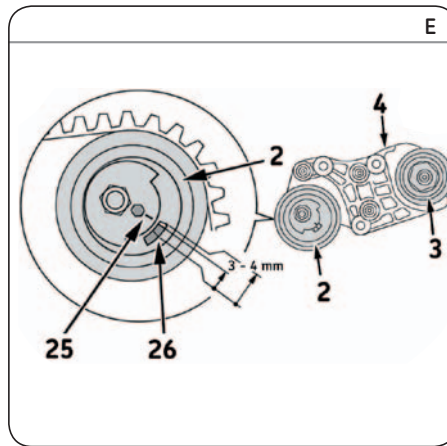
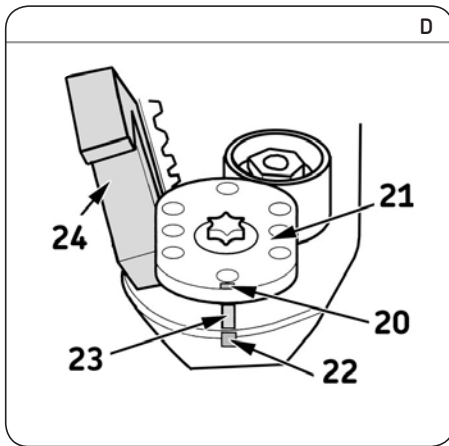
- 10) Untighten and rotate the tensioner roller (2) **clockwise** as far as the stop, and retighten lightly in this position. Untighten the upper idler roller (3) (Fig. B)
- 11) Untighten totally and remove the lower idler roller (5) (discard the mounting screw) (Fig. B). Remove the timing belt.
- 12) Remove the tensioner roller (2) and the upper idler roller (3) by removing the plate (4) (unscrew completely the 3 mounting bolts of the plate) (Fig. A).

Note: Discard the used mounting bolts and the plate (4) after removal.

Caution: It is prohibited to remove the tensioner roller and idler roller of the plate (4). **Any removal of the rollers without the plate voids the SKF guarantee.**

Install Confidence



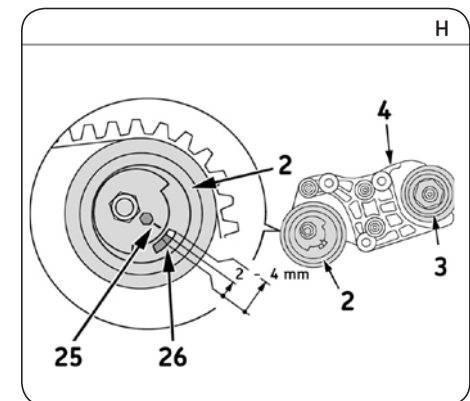


Refitting

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

Note: The timing belt has several marks (white lines) which must be aligned with those of the camshaft sprockets and the crankshaft gear. After several crankshaft rotations, the marks present on the belt no longer match the timing marks. They are used only for positioning the belt.

- 13) Fit the new lower idler roller (5) using the new mounting bolt (7) (thread length = 70 mm), not forgetting the support washer (6) (thickness = 5 mm) (Fig. A).
- 14) Fit the new tensioner roller (2) and upper idler roller (3) assembling the plate (4) on the engine unit using the 3 new mounting bolts (8) (delivered with the kit) (Fig. A). Tighten the bolts (8) to a torque of 40 Nm.
- 15) Ensure that timing tools (9), (17) and (18) (KM-800-10, KM-800-2 and KM-800-1) are correctly positioned (Fig. B and Fig. C). Check the alignment of the marks (12) of the camshaft sprockets with those of the rear timing system casings (Fig. B) and (20) of the crankshaft gear (21) with the notch (22) of the oil pump casing (Fig. D).
- 16) Position the new timing belt (1) on the crankshaft gear (21), aligning the double white line (23) with the marks (20) of the gear (21) and the oil pump (Fig. D). Also ensure that the belt direction is correct (see arrows on back of belt).
- 17) Immobilise the belt with the holding shim (24) (KM-800-30) (Fig. D).
- 18) Position the belt around the tensioner roller (2) (Fig. B).
- 19) Place the belt on the left camshaft sprockets (15) and (16) (Fig. B). Ensure that the belt timing marks are aligned with marks (12) (Fig. B). Position the belt around the upper idler roller (3) (Fig. B).
- 20) Place the belt on the right camshaft sprockets (13) and (14) (Fig. B). Ensure that the belt timing marks are aligned with the marks of the camshaft gears.
- 21) Position the belt around the lower idler roller (5) (Fig. B). Ensure that the belt timing marks are still aligned.
- 22) Untighten and rotate the lower idler roller (5) **anticlockwise** until the belt is stretched between the lower idler roller and the right camshaft sprocket (13) (Fig. B) (check that the deflection of the belt is not 10 mm higher). Tighten the mounting bolt (7) of idler roller to 40 Nm.
- 23) Untighten and rotate the upper idler roller (3) **anticlockwise** until the belt is stretched between the left camshaft gears (15) and (16) (Fig. B). Tighten the mounting bolt (7) to 40 Nm.
- 24) Untighten and rotate the tensioner roller (2) **anticlockwise** to pre-stretch the belt (Fig. B). Tighten the roller in this position to a torque of 20 Nm.
- 25) Rotate the moving pointer (25) **anticlockwise** until the stop and then return between 3 mm and 4 mm above the nominal position indicator mark (26) (Fig. E).
- 26) Remove the timing equipment (KM-800-10, KM-800-2, KM-800-1 and KM-800-30)
- 27) Rotate the crankshaft slowly **10 turns clockwise**, stopping approximately 10° before the TDC position.
- 28) Put in position the timing tool (KM-800-10) (9) on the crankshaft gear (Fig. B). Rotate the crankshaft slowly **clockwise** until the lever (10) of the tool is resting against the water pump end shield (11). Ensure that crankshaft timing marks (20), (22) and (23) are aligned (Fig. D).
- 29) Fit the timing gauge (KM-800-20) (27) (Fig. F) on the left camshaft sprockets (15) and (16) and then on the right-hand ones (13) and (14) (Fig. B).
- 30) Ensure that the marks (12) on the camshaft sprockets are aligned with the marks (28) on the timing gauge (27) (Fig. F). Check that the edge of the timing belt is aligned with the edges of the sprockets.
- 31) Check that d1 = 5 mm minimum and d2 = 10 mm minimum (Fig. G).



- 32) Check that the moving pointer (25) is between 2 and 4 mm above the nominal position indicator mark (26) (Fig. H).
- 33) If the marks are not aligned, and d1, d2 and the setting of the tensioner roller (2) are incorrect, repeat tension adjustment from step 24).
- 34) Remove timing tools KM-800-10 and KM-800-20.
- 35) Refit the removed elements in reverse order to removal :
- 36) Fill the cooling circuit with the permanent fluid recommended.
- 37) 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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