

NT 02012

VKMA/VKMC 02181 –
VKMA/VKMC 02183 –
VKMA 02184 / 02283

Alfa Romeo / Fiat / Lancia

VKMA 02181

VKMC 02181

VKMA 02183

VKMC 02183



VKMA 02184

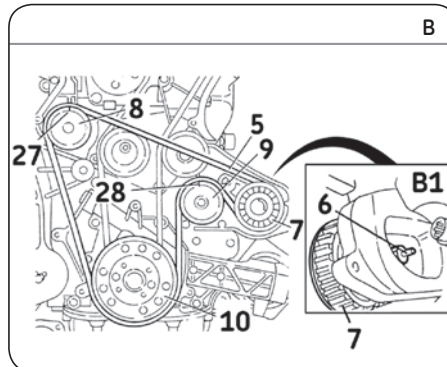
VKMA 02283



A

(11): ref. 1895879000-Fiat/
ref.1860895001-Alfa Romeo/
ref. 1860895000-Lancia
(14): ref. 1870859000-Alfa Romeo/
ref.1860875000-Fiat/Lancia
(17): ref. 1860856001 -Alfa Romeo/
ref.1860856000-Fiat-Lancia
(18): ref. 1860831002-Alfa Romeo/
ref.1860831000 or ref.
186084800-Fiat-Lancia
(24): ref.1822149000-Alfa Romeo/
ref.1860845000-Fiat-Lancia
(29): ref. 1822154000

(6): 16 Nm
(19): 30 Nm
(32): 25 Nm
(33): 23 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) Loosen the balancer shaft belt (5) by unscrewing the nut (6) (Fig. B1) fastening the tensioner roller (7), then remove the belt (5) (Fig. B).
- 4) Remove the tensioner roller (7).
- 5) Remove the sprocket (10) (Fig. B) on the crankshaft sprocket (21) (Fig. F). (at this step, for 2.0 16 V, we have to remove the balancer shaft sprocket (10), otherwise no way to work on the timing system)

All types:

- 6) Remove the ignition coil cover (except Fiat Punto and Stilo 1.8 16v)
- 7) Disconnect and remove the ignition coils and their supports (except Fiat Punto and Stilo 1.8 16v)
- 8) Remove the cylinder head cover and its gasket.
- 9) Place the dial gauge (11) in the spark plug well on the first cylinder (Fig. C) (except Fiat Punto and Stilo 1.8 16v)
- 10) Turn the crankshaft (engine rotation direction), up to TDC, using the dial gauge.

Fiat Punto and Stilo 1.8 16v:

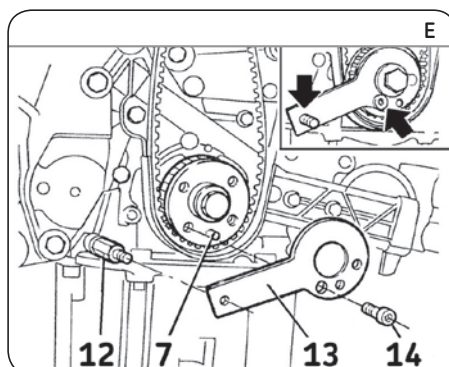
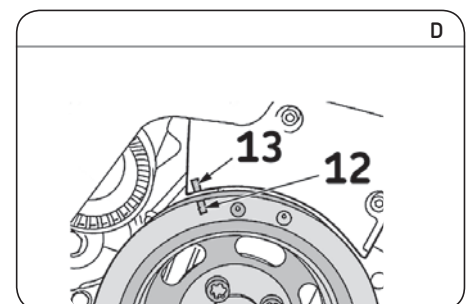
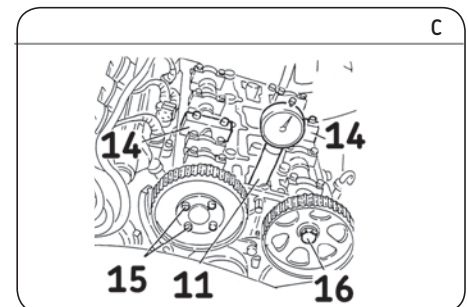
- 11) Turn cylinder No. 1 to TDC by aligning the marks on the crankshaft pulley (12) (Fig. C) and the rear timing casing (13) (Fig. D).

All types:

- 12) Remove the 2nd upper half-bearing on the intake camshaft and the 3rd upper half-bearing on the exhaust camshaft (Fig. C), then replace them with tools (14), while tightening their fastening bolts to 10 Nm.

Note: The timing tools (14) (Fig. C) are marked: "A" for intake and "S" for exhaust. Check these tools are adapted perfectly to the camshaft profiles.

- 13) Loosen the fastening bolts (15) and (16) (Fig. C) of the intake and exhaust camshaft sprockets using the tools (17) and (18) (Fig. E).
- 14) Loosen the fastening nut (19) of the tensioner roller (2), loosen then remove the timing belt (1) (Fig. F).



Install Confidence



- 15) Remove the tensioner roller (2) and idler roller (3) (Fig. F).
- 16) Removing the water pump (VKMC 02181- 02183): firstly bleed the cooling circuit, check it is clean, and clean if required; secondly fully loosen the water pump fastening bolts (32) and remove the pump (4) (Fig. A).

Refitting

Caution! Check crankshaft is at TDC on No. 1 Cylinder. (Use dial gauge) Clean the bearing surfaces of the rollers.

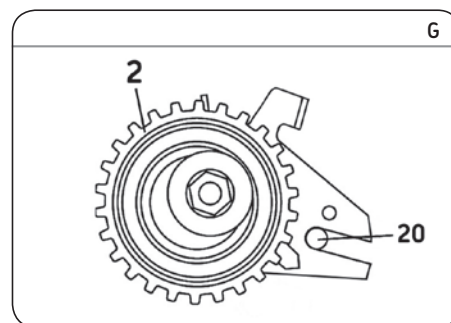
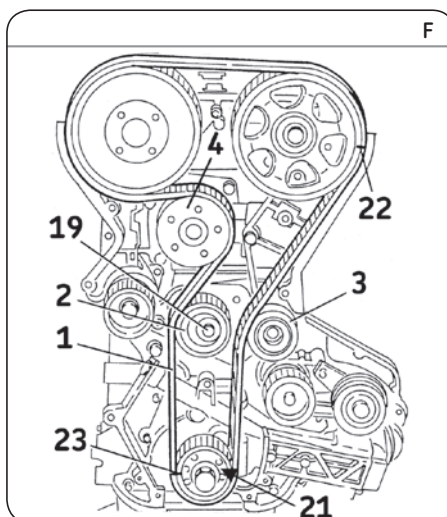
- 17) **Refitting the water pump:** Firstly fit the new water pump (4), apply the torque **25 Nm** to the waterpump bolts (32); then check that the water pump pulley runs properly, and has no hard or locking spots.
- 18) Fit the new tensioner roller (2) by tightening slowly its fastening nut (19) (adjust the pin (20) on the engine at the bottom of the slot in the roller plate) (Fig. G). Fit the new idler roller (3) (Fig. F) and tighten its fastening bolt (33) to **23 Nm** (Fig. A).
- 19) Fit the new timing belt (1) according to the following sequence (Fig. F): crankshaft sprocket (21), idler roller (3), exhaust then intake camshaft sprockets, water pump pulley, and tensioner roller (2).

Caution! Fit the timing belt (1) according to the engine rotation direction (arrow on belt). This same belt also has two marks, which must be aligned with those on the exhaust camshaft sprocket (22) and crankshaft sprocket (23) (Fig. F).

- 20) Turn the tensioner roller (2) using the tension tool (24) (Fig. H) to set the moving pointer (25) to the maximum tension position (Fig. H1) and tighten the fastening nut (19) to **30 Nm**.
- 21) Tighten bolts (15) fastening the intake camshaft sprocket and bolt (16) fastening the exhaust camshaft sprocket (Fig. C) to the torque recommended by the manufacturer (according to engine being repaired), using tools (17) and (18) (Fig. E).
- 22) Remove the two timing tools (14) (Fig. C) from the camshafts and refit the upper half-bearings, tighten to **14-17 Nm** according different manufacturers.
- 23) Turn the crankshaft by two turns (engine rotation direction) up to TDC on cylinder No. 1. Use dial gauge.
- 24) Loosen slightly the fastening nut (19) on the tensioner roller (2) while holding it in position using the tension tool (24) (Fig. H). Release the tensioner roller until the moving pointer (25) is aligned with the indicator mark (26) (Fig. H2).
- 25) Tighten the tensioner roller fastening nut (19) to **30 Nm** and turn regularly the crankshaft by two turns in the engine rotation direction up to TDC.
- 26) Check the adjustment of the tensioner roller (the moving pointer (25) must be aligned with the indicator mark (26) (Fig. H2)) and check the timing marks (22) and (23) (Fig. F).

Note: The timing belt tension is correct when the moving pointer (25) on the tensioner roller is aligned with the indicator mark (26) on the roller plate.

- 27) If the marks are not aligned, remove the new timing belt and adjust the belt tension again, by returning to step 12) (don't heed the steps 16) and 17)).



2.0 16V engine only:

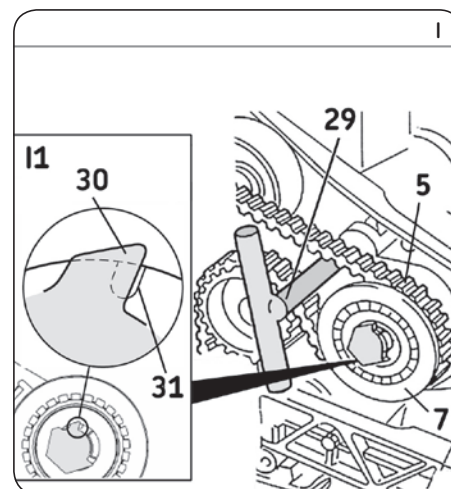
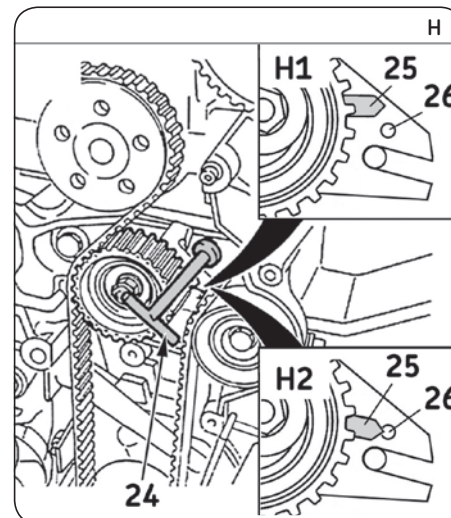
- 28) Fit the balancer shaft sprocket (10) (Fig. B).
- 29) Fit the new tensioner roller (7) for the balancer shafts (VKMA 02283) (Fig. B).
- 30) Check that the engraved marks (27) and (28) must be aligned with the marks on the rear timing belt casings (Fig. B).
- 31) Fit a new belt (5) from SKF kit VKMA 02283 on the balancer shafts according to the following sequence: sprocket (10), pulley (9), tensioner roller (7), pulley (8) (Fig. B).
- 32) Turn the tensioner roller (7) using the tension tool (29) (Fig. I) to align the moving pointer (30) with the notch (31) (Fig. I1). Tighten the fastening nut (6) to **16 Nm** (Fig. B1).
- 33) Turn the crankshaft by two turns in the engine rotation direction up to TDC, then check the engraved marks (27) and (28) must be aligned with the marks on the rear timing belt casings (Fig. B).
- 34) Check the setting of the tensioner roller (7) (the moving pointer (30) must be aligned with the notch (31) (Fig. I)).

Note: The belt tension is correct when the moving pointer (30) on the tensioner roller is aligned with the notch (31) (Fig. I1).

- 35) If the marks are not aligned, remove the belt (5) (Fig. B) and adjust again, by returning to step 30).

All types:

- 36) Remove the dial gauge (11) (Fig. C) (except Fiat Punto and Stilo 1.8 16v)
- 37) Refit the elements removed in reverse order to removal.
- 38) Fill the cooling circuit with the permanent fluid recommended.
- 39) 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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