

TOP AND FRONT OF ENGINE
Timing belt: Removal - Refitting

11A

K9K, and 764 or 772

mcx30.com

TOP AND FRONT OF ENGINE

Timing chain: Removal - Refitting

11A

M4R

Special tooling required

Mot. 919-02	Flywheel locking tool.
Mot. 1716	Removes housing with silicone seals.

Tightening torques

timing chain guide bolts	25 N.m
bolt of the timing chain tensioner pad	25 N.m
timing chain tensioner bolts	10 N.m
timing cover M5 bolts	7 N.m
timing cover M6 bolts	25 N.m
timing cover M10 bolts	55 N.m
timing cover M12 bolts	75 N.m
camshaft dephaser solenoid valve bolt	10 N.m

REMOVAL

I - REMOVAL PREPARATION OPERATION



IMPORTANT

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **Engine: Precautions for the repair**) .

WARNING

Applying pressure to the engine oil sump is strictly forbidden. Any damage to the sump may also damage the engine.

- ❑ Remove the « engine and gearbox » assembly (see **10A, Engine and cylinder block assembly, Engine - gearbox assembly: Removal - Refitting**, page **10A-162**) .

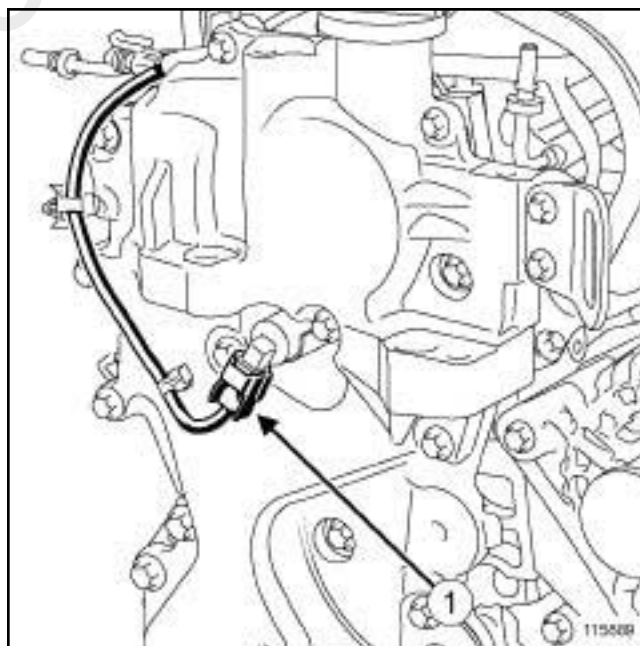
M4R, and 700

- ❑ Disconnect the manual gearbox from the engine (see **Manual gearbox: Removal - Refitting**) (21A, Manual gearbox).

M4R, and 701

- ❑ Disconnect the automatic gearbox from the engine (see **Automatic gearbox: Removal - Refitting**) (23A, Automatic transmission).

- ❑ Place the engine on the component support (see **Engine support equipment: Use**) .
- ❑ Drain the engine (see **10A, Engine and cylinder block assembly, Engine oil: Draining - Refilling**, page **10A-13**) .
- ❑ Remove the accessories belt (see **11A, Top and front of engine, Accessories belt: Removal - Refitting**, page **11A-5**) .



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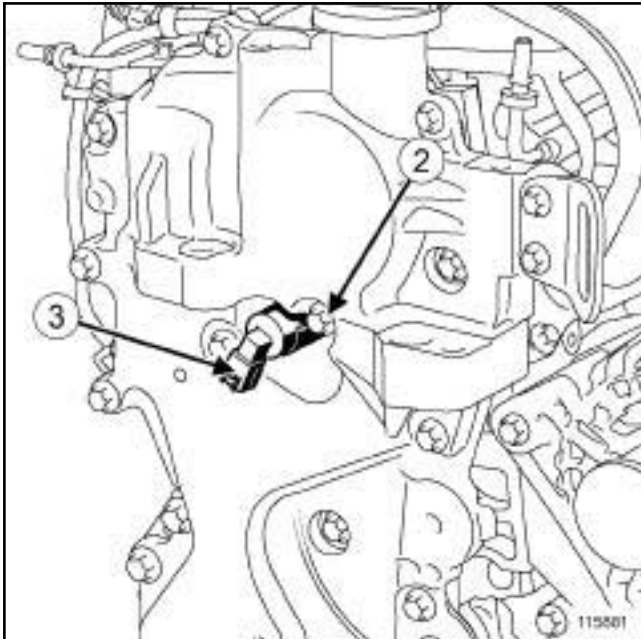
- ❑ Disconnect the wiring (1) from the camshaft dephaser solenoid valve.

TOP AND FRONT OF ENGINE

Timing chain: Removal - Refitting

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M4R

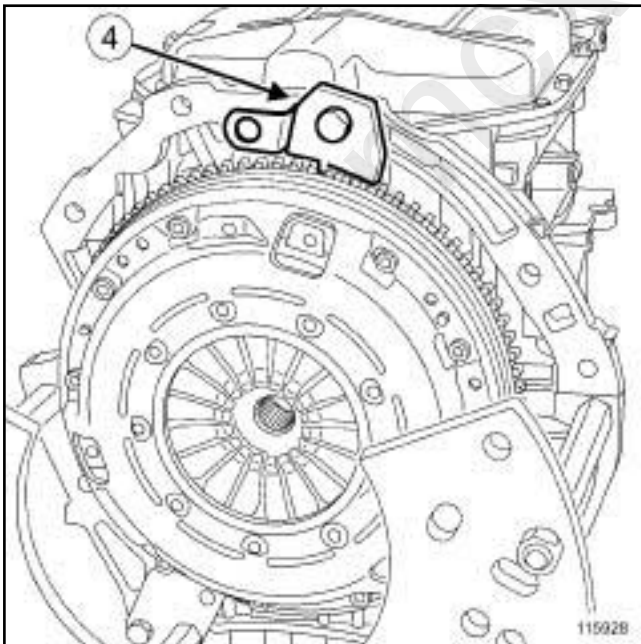


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❑ Remove:

- the bolt (2) from the camshaft dephaser solenoid valve,
- the camshaft dephaser solenoid valve (3) .

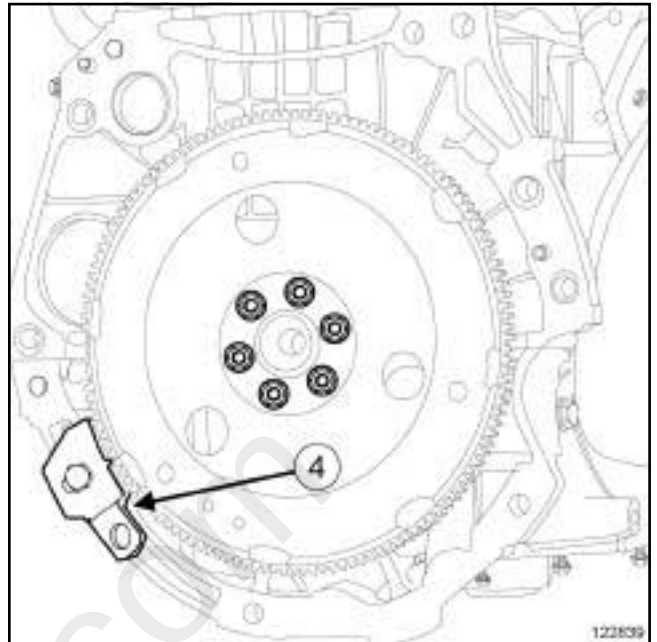
M4R, and 700



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- ❑ Fit the flywheel locking tool (Mot. 919-02) (4) onto the cylinder block.

M4R, and 701



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- ❑ Fit the drive plate locking tool (Mot. 919-02) (4) on the cylinder block.

❑ Remove:

- the crankshaft accessories pulley (see 11A, Top and front of engine, Crankshaft accessories pulley: Removal - Refitting, page 11A-31) ,
- the crankshaft seal on the timing side (see 10A, Engine and cylinder block assembly, Crankshaft seal on timing end: Removal - Refitting, page 10A-1) .

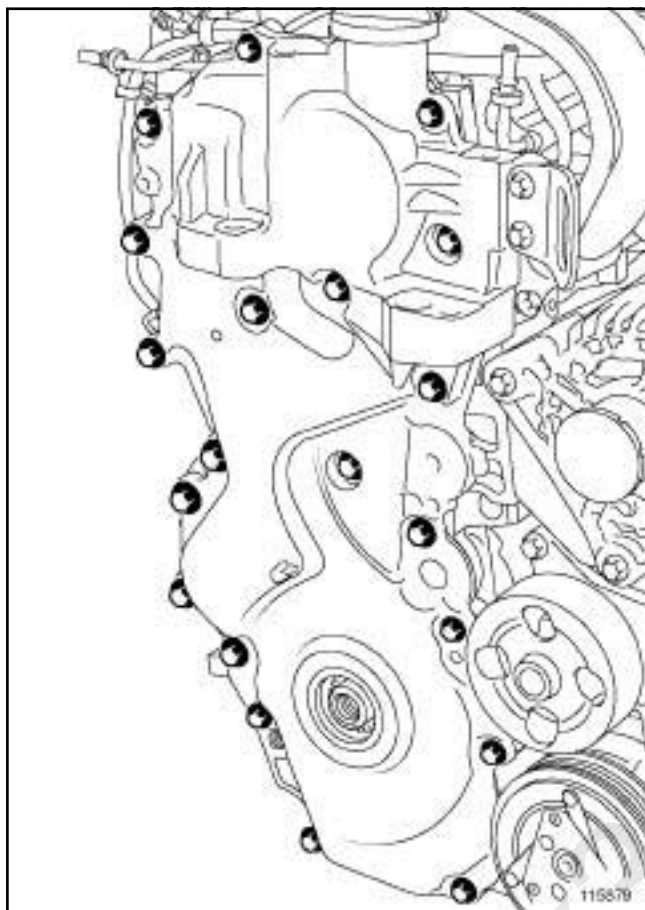
TOP AND FRONT OF ENGINE

Timing chain: Removal - Refitting

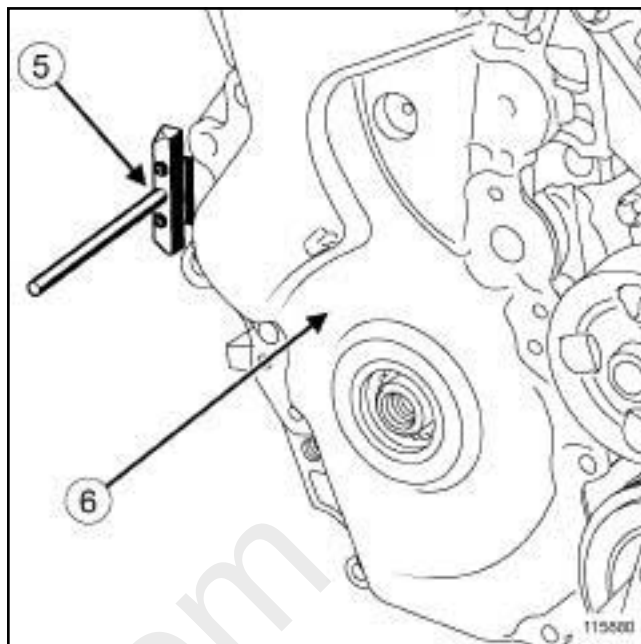
11A

M4R

II - TIMING CHAIN REMOVAL OPERATION



- ❑ Remove the bolts from the timing cover, marking the position of the bolts.



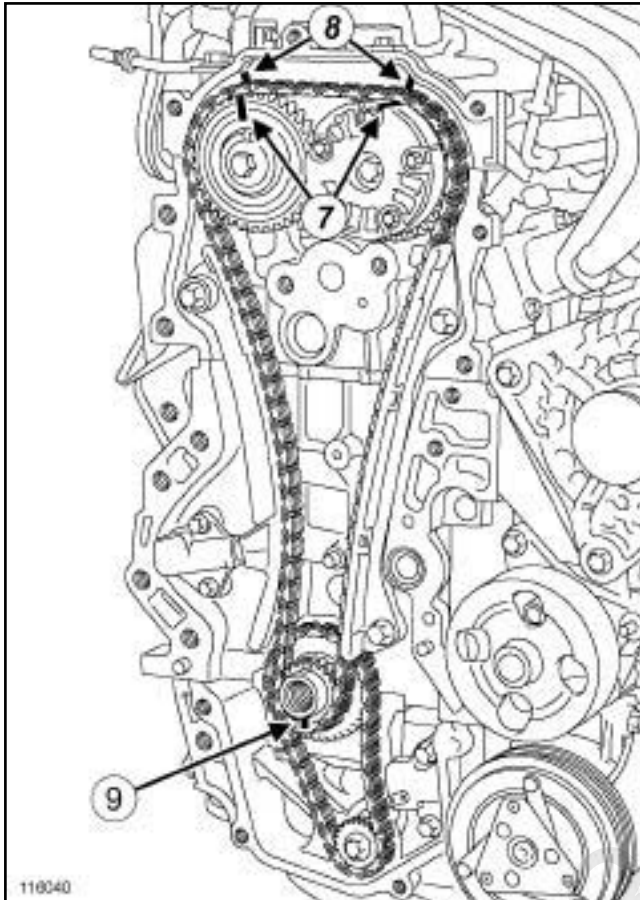
- ❑ Remove the timing cover using the (**Mot. 1716**) (5) .
- ❑ Remove the timing cover (6) .
- ❑ Tighten the crankshaft accessories pulley bolt fitted with a spacer (which does not cover the timing sprocket mark) onto the crankshaft.
- ❑ Remove the tool (**Mot. 919-02**).

TOP AND FRONT OF ENGINE

Timing chain: Removal - Refitting

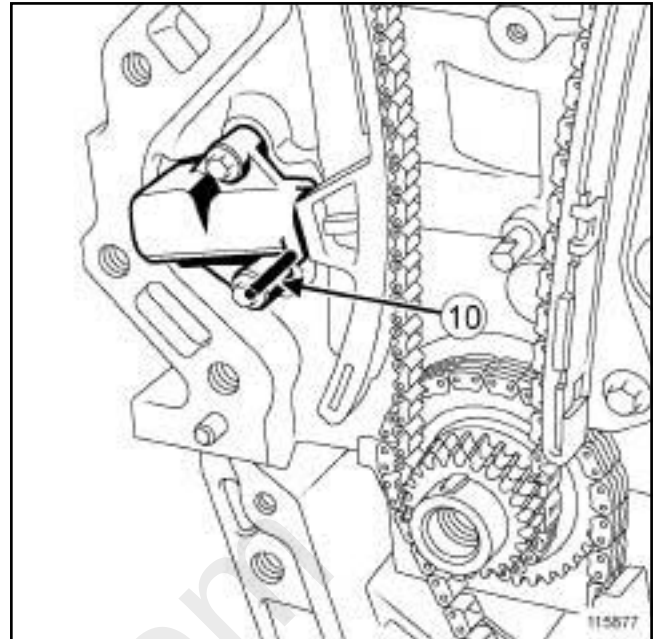
11A

M4R



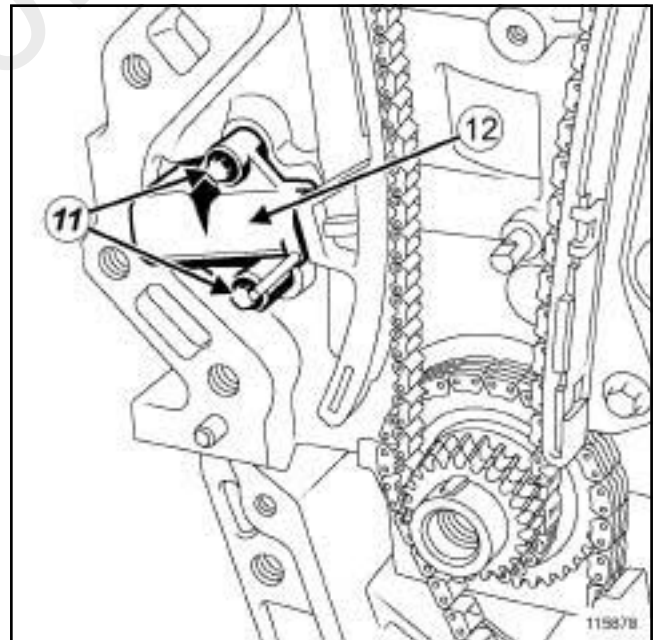
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- ☐ With a smooth action, turn the crankshaft clockwise (timing end) so that marks (7) of the camshaft sprockets are aligned with marks (8) on the cylinder head cover, and ensure that mark (9) on the crankshaft sprocket is in the lower vertical position.
- ☐ Position the **(Mot. 919-02)**.
- ☐ Remove the crankshaft accessories pulley bolt.



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- ☐ Engage the timing chain tensioner.
- ☐ Put a metal rod (10) into the tensioner to keep the chain loose.



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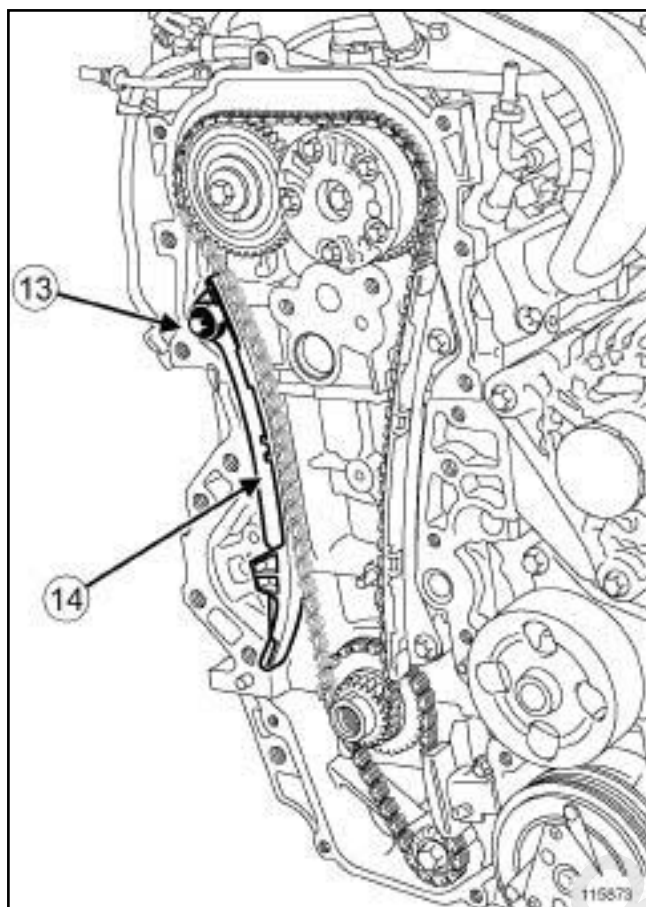
- ☐ Remove:
 - the timing chain tensioner bolts (11) ,
 - the timing chain tensioner (12) .

TOP AND FRONT OF ENGINE

Timing chain: Removal - Refitting

11A

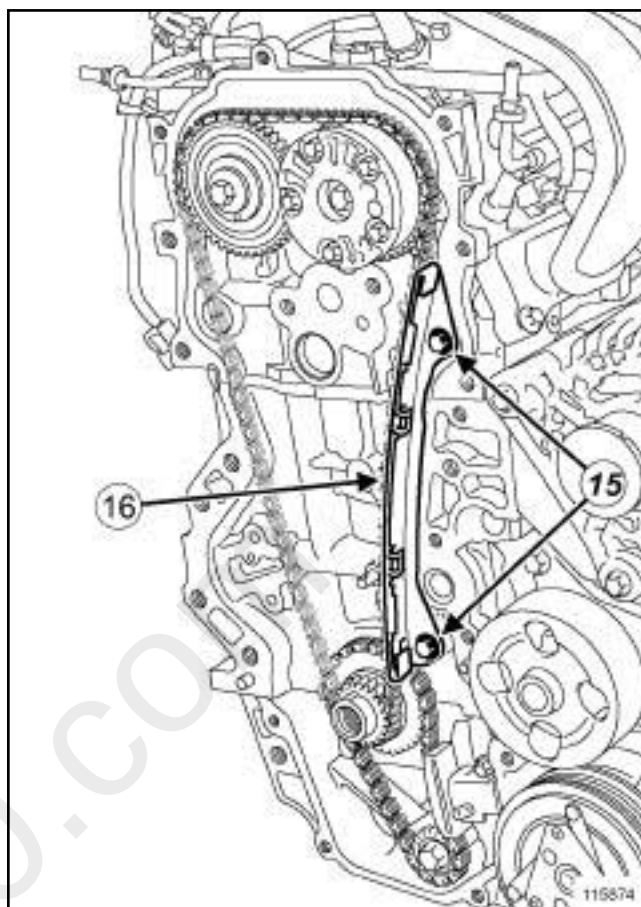
M4R



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❑ Remove:

- the bolt (13) of the timing chain tensioner pad,
- the timing chain tensioner pad (14) .



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❑ Remove:

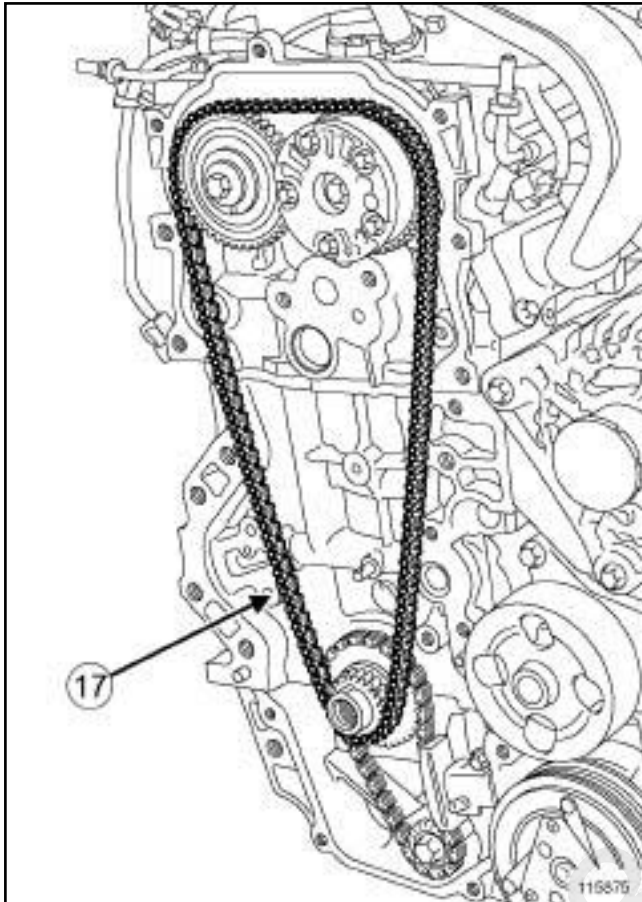
- the timing chain guide bolts (15) ,
- the timing chain guide (16) .

TOP AND FRONT OF ENGINE

Timing chain: Removal - Refitting

11A

M4R



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- ❑ Remove the timing chain (17) .

REFITTING

I - REFITTING PREPARATION OPERATION

❑

WARNING

Do not scrape the joint faces of the aluminium, any damage caused to the joint face will result in a risk of leaks.

- ❑ Clean the joint faces of the timing cover using **SUPER CLEANING AGENT FOR JOINT FACES** (see **Vehicle: Parts and consumables for the repair**) (04B, Consumables - Products).
- ❑ Remove the residue using a plastic spatula.

- ❑ Finish cleaning the joint faces using a **GREY ABRASIVE PAD**, part number **77 01 405 943**.

WARNING

To ensure proper sealing, the gasket surfaces must be clean, dry and not greasy (avoid any finger marks).

- ❑ Use **SURFACE CLEANER** (see **Vehicle: Parts and consumables for the repair**) (04B, Consumables - Products) to clean:
 - the joint face of the timing cover on the cylinder block and on the cylinder head,
 - the timing cover.
- ❑ Parts always to be replaced:
 - the crankshaft accessories pulley bolt,
 - the timing chain tensioner pad,
 - the timing chain tensioner,
 - the timing chain,
 - the crankshaft seal on the timing side,
 - the timing chain guide.

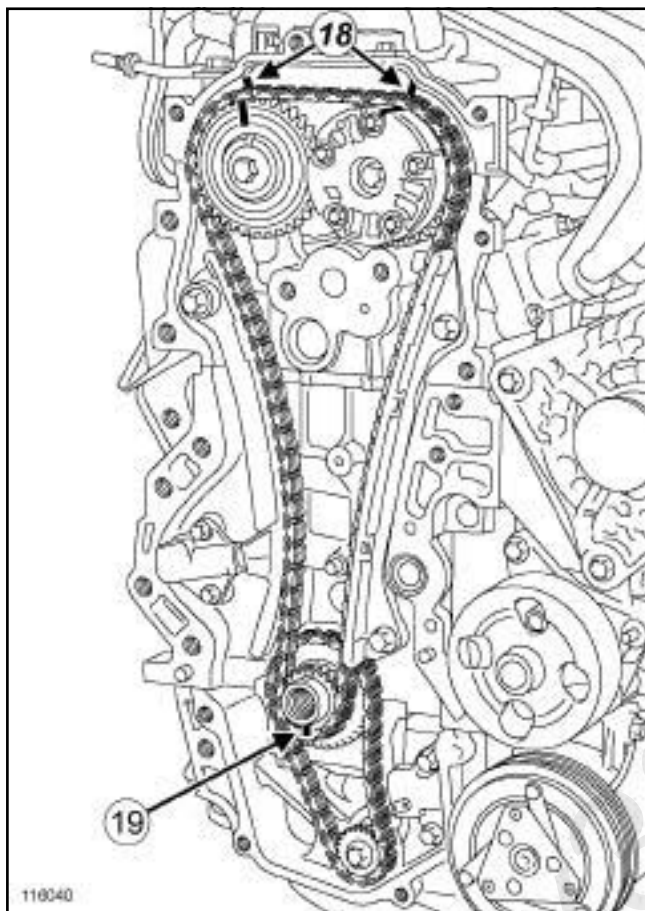
TOP AND FRONT OF ENGINE

Timing chain: Removal - Refitting

11A

M4R

II - OPERATION FOR REFITTING THE TIMING CHAIN



☐ Check that:

- the marks **(18)** on the cylinder head cover are aligned with those on the camshaft sprockets,
- the mark on the crankshaft sprocket **(19)** is in the lower vertical position.

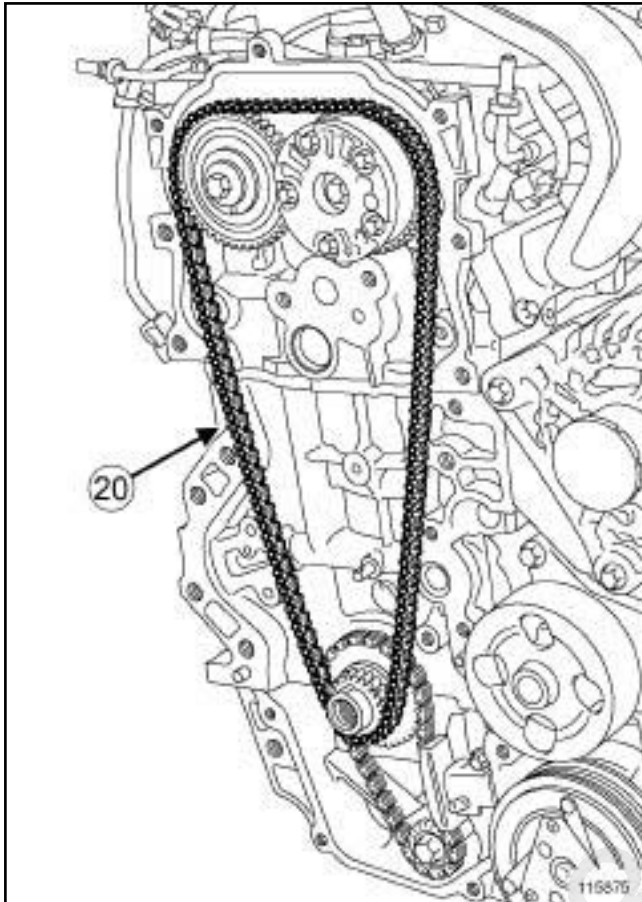
☐ Set the engine at top dead centre.

TOP AND FRONT OF ENGINE

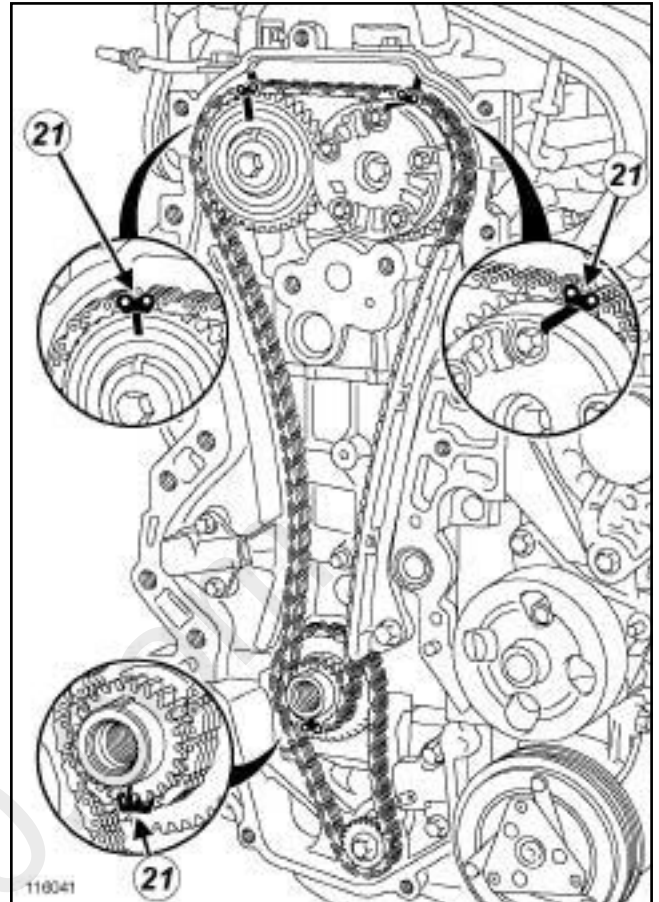
Timing chain: Removal - Refitting

11A

M4R



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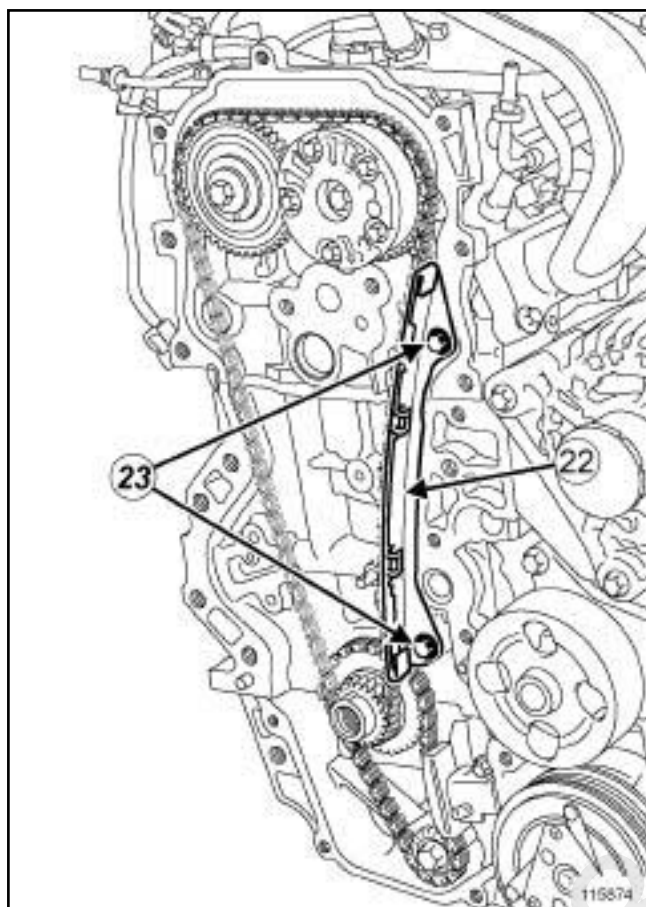
- Fit the new timing chain (20) so that the marks on the timing chain (21) are aligned with the marks on each of the sprockets.

TOP AND FRONT OF ENGINE

Timing chain: Removal - Refitting

11A

M4R

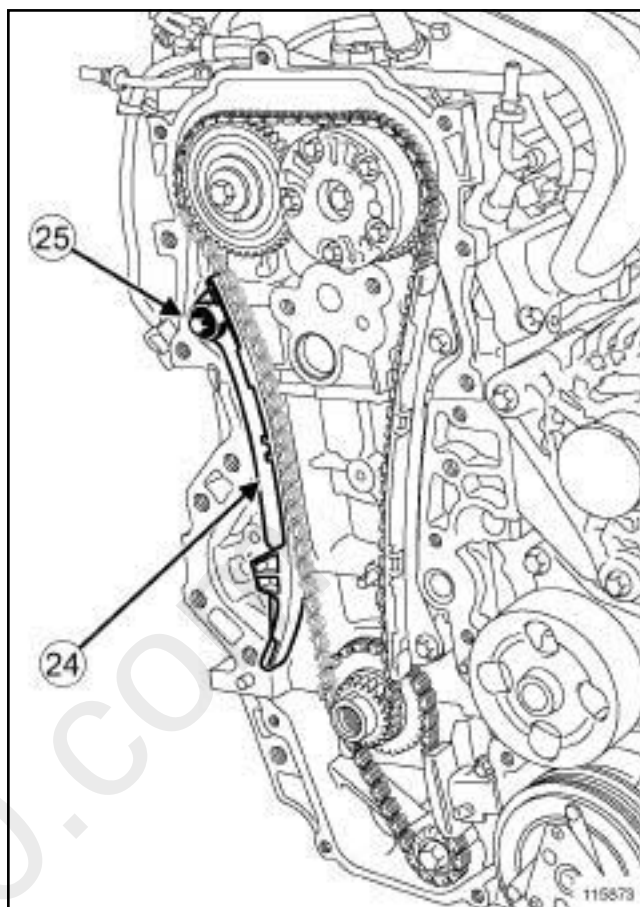


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❑ Refit:

- the new timing chain guide (22) ,
- the timing chain guide bolts (23) .

❑ Torque tighten the **timing chain guide bolts (25 N.m)**.



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❑ Refit:

- the new timing chain tensioner pad (24) ,
- the bolts (25) of the timing chain tensioner pad.

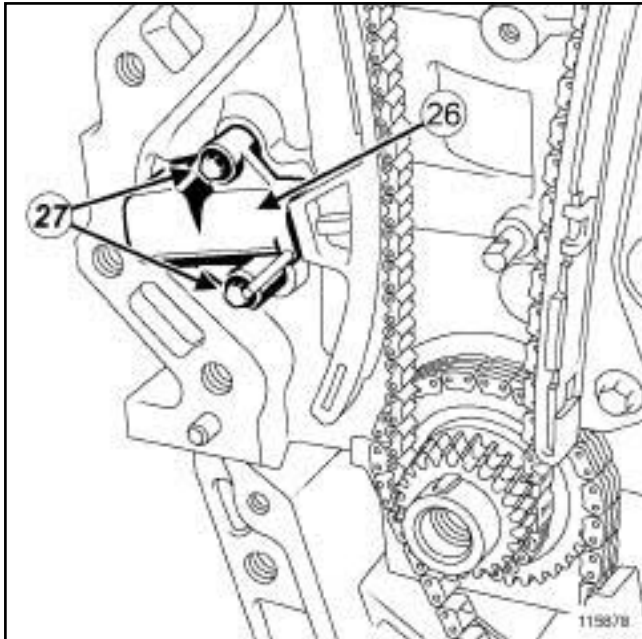
❑ Torque tighten the **bolt of the timing chain tensioner pad (25 N.m)**.

TOP AND FRONT OF ENGINE

Timing chain: Removal - Refitting

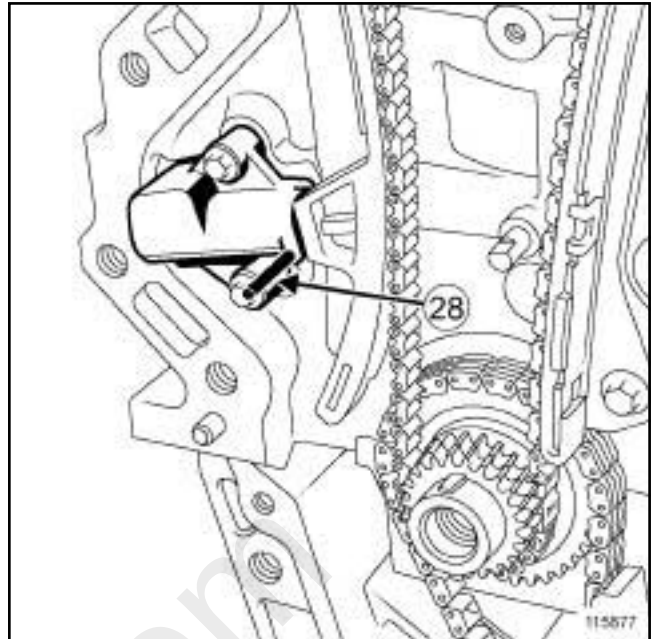
11A

M4R



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- ❑ Refit:
 - the new timing chain tensioner (26) ,
 - the timing chain tensioner bolts (27) .
- ❑ Torque tighten the **timing chain tensioner bolts (10 N.m)**.



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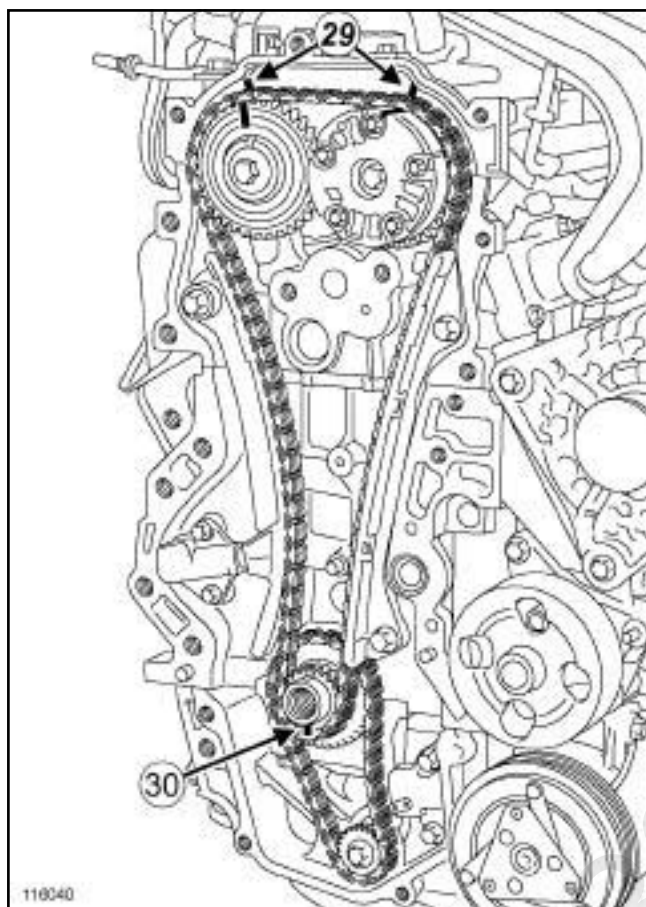
- ❑ Remove the metal rod (28) in order to release the timing chain tensioner.
- ❑ Tighten the old crankshaft accessories pulley bolt fitted with a spacer (which does not cover the timing sprocket mark) onto the crankshaft.
- ❑ Remove the tool (**Mot. 919-02**).
- ❑ Rotate the crankshaft clockwise through two revolutions (timing end).

TOP AND FRONT OF ENGINE

Timing chain: Removal - Refitting

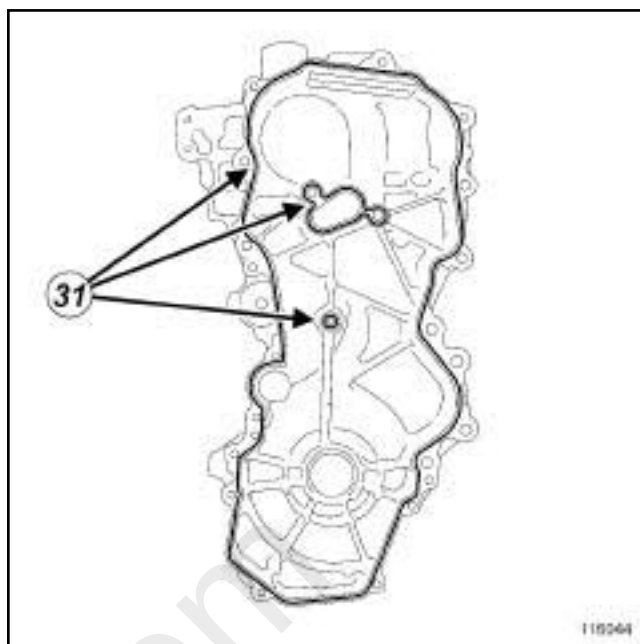
11A

M4R



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- ☐ Check that:
 - the marks on the camshaft sprockets are correctly aligned with the marks on the cylinder head cover (29) ,
 - the crankshaft sprocket mark is in the lower vertical position (30) .
- ☐ Immobilise the flywheel or the drive plate using the tool (Mot. 919-02).
- ☐ Remove the old crankshaft pulley bolt and spacer.
- ☐ Remove the tool (Mot. 919-02).



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WARNING

Applying excess sealant could cause it to be squeezed out when parts are tightened. A mixture of sealant and fluid could damage certain components (engine, radiator, etc.).

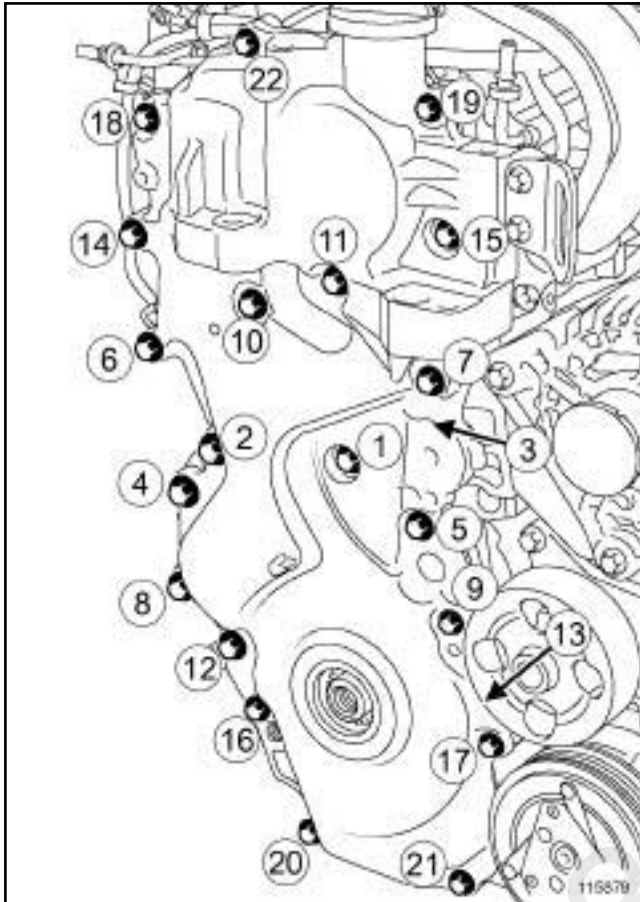
- ☐ Apply a bead of **SILICONE ADHESIVE SEALANT** (see **Vehicle: Parts and consumables for the repair**) (04B, Ingredients - Products) **4 mm** in diameter on the perimeter of the timing cover joint face (31) .

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M4R



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❑ Refit:

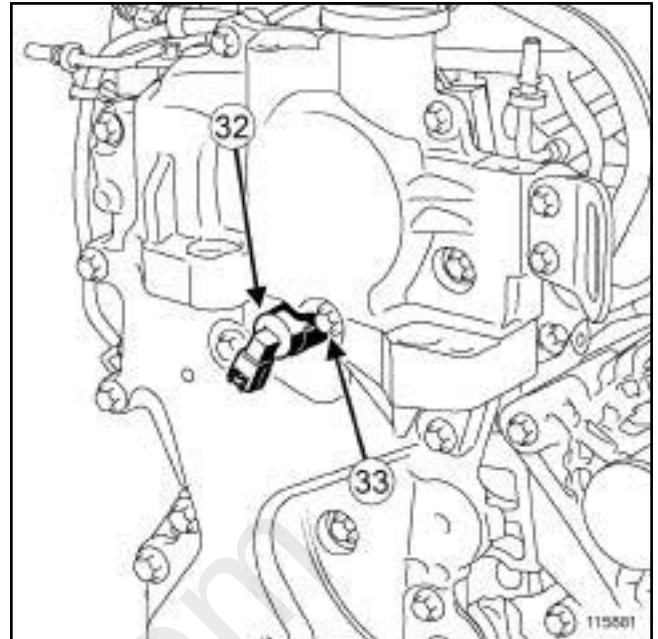
- the timing cover,
- the timing cover bolts.

❑ Torque tighten in order:

- the **timing cover M5 bolts (7 N.m)**,
- the **timing cover M6 bolts (25 N.m)**,
- the **timing cover M10 bolts (55 N.m)**,
- the **timing cover M12 bolts (75 N.m)**.

III - FINAL OPERATION

- ❑ Refit the crankshaft seal on the timing end (see **10A, Engine and cylinder block assembly, Crankshaft seal on timing end: Removal - Refitting, page 10A-1**).
- ❑ Immobilise the flywheel or the drive plate using the tool (**Mot. 919-02**).
- ❑ Refit the crankshaft accessories pulley (see **11A, Top and front of engine, Crankshaft accessories pulley: Removal - Refitting, page 11A-31**).
- ❑ Remove the tool (**Mot. 919-02**).

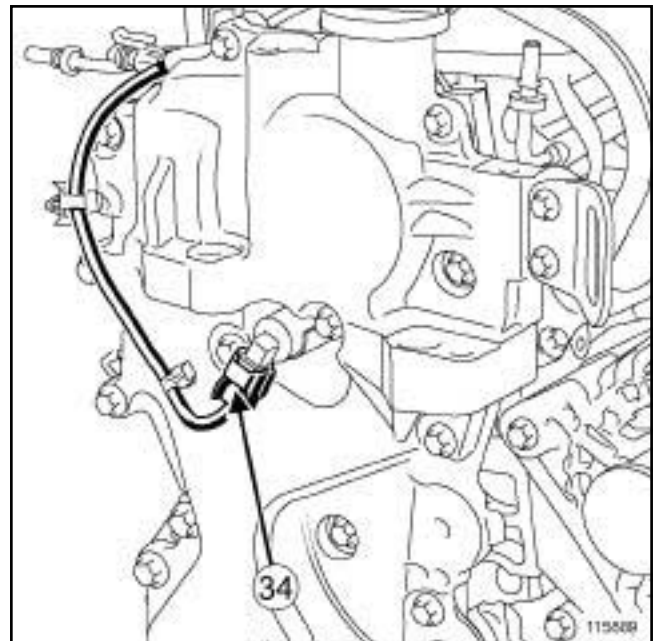


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❑ Refit:

- the camshaft dephaser solenoid valve (**32**),
- the bolt (**33**) of the camshaft dephaser solenoid valve.

❑ Torque tighten the **camshaft dephaser solenoid valve bolt (10 N.m)**.



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- ❑ Connect the wiring (**34**) of the camshaft dephaser solenoid valve.
- ❑ Refit the accessories belt (see **11A, Top and front of engine, Accessories belt: Removal - Refitting, page 11A-5**).