

TOP AND FRONT OF ENGINE

Accessories belt: Removal - Refitting

11A

K4M, and STANDARD HEATING RECIRCULATION

- ☐ Refit the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

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TOP AND FRONT OF ENGINE

Crankshaft accessories pulley: Removal - Refitting

11A

K9K

Special tooling required

Mot. 1489 TDC locating pin.

Tightening torques

accessories pulley bolt **120 N.m + 95°
±15°**

TDC pin plug **25 N.m**

IMPORTANT

Wear cut-resistant gloves during the operation.

WARNING

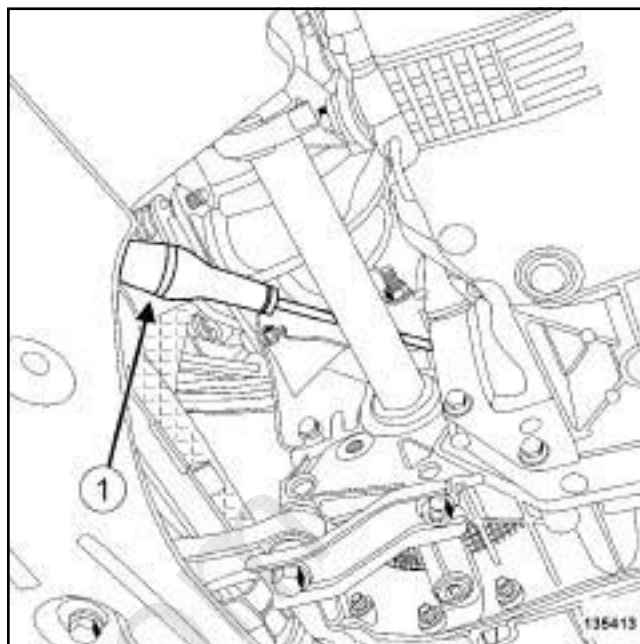
Do not run the engine without the accessories belt to avoid damaging the crankshaft accessories pulley.

REMOVAL

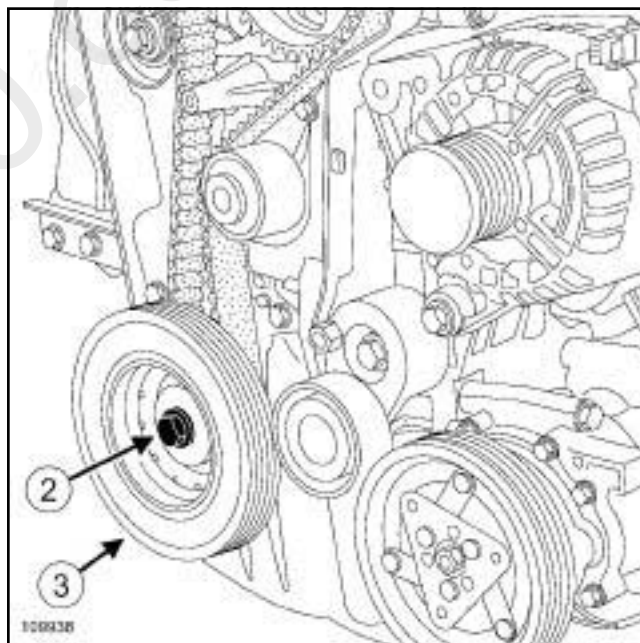
I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove:
 - the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
 - the front right-hand wheel arch side liner,
 - the front right-hand wheel arch partially (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
 - the plastic shield underneath the diesel filter,
 - the accessories belt (see **11A, Top and front of engine, Accessories belt: Removal - Refitting**, page **11A-2**) .

II - REMOVAL OPERATION



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- ☐ Remove:
 - the crankshaft accessories pulley bolt (2) , locking the flywheel using a large screwdriver (1) ,
 - the crankshaft accessories pulley (3) .

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Crankshaft accessories pulley: Removal - Refitting

11A

K9K

REFITTING

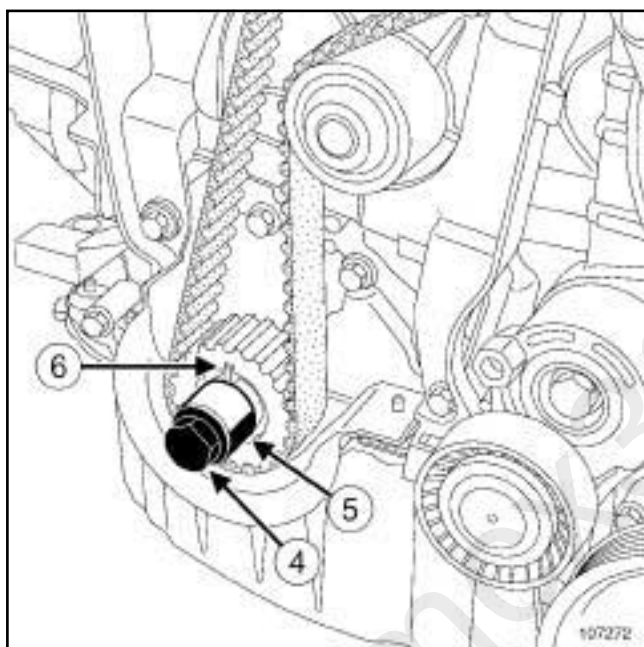
I - REFITTING PREPARATION OPERATION

- ❑ parts always to be replaced: Crankshaft accessories pulley bolts.

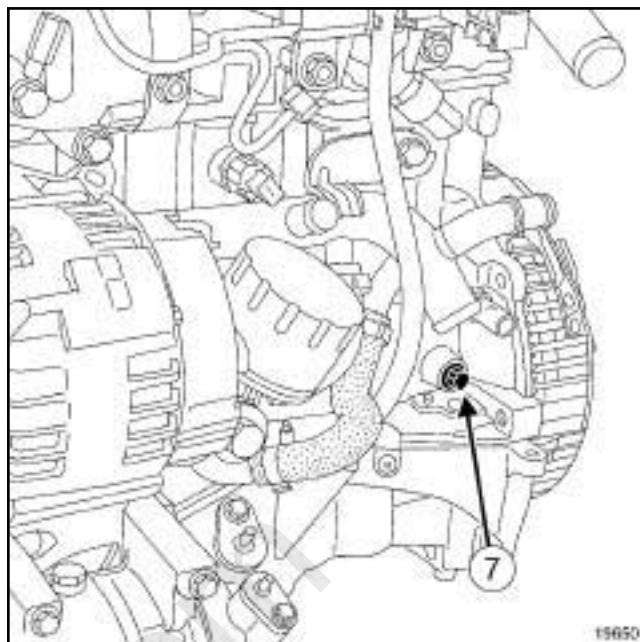
WARNING

Only use brushes with plastic or non-corrosive metal (brass) bristles.

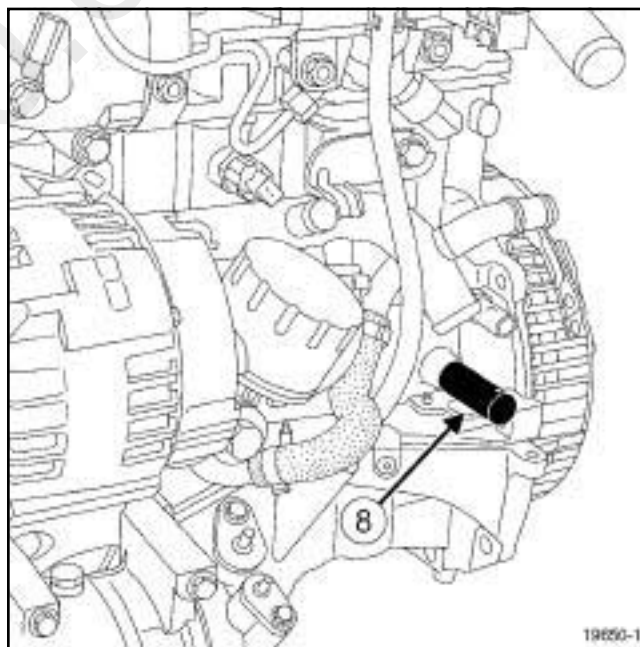
- ❑ If reusing the crankshaft accessories pulley, clean the crankshaft accessories pulley V-grooves with a brush to eliminate any deposits.



- ❑ Refit the old crankshaft accessories pulley bolt (4) with a spacer (5) .
- ❑ Turn the crankshaft clockwise (timing end) using the old bolt of the crankshaft accessories pulley, until the collet (6) of the crankshaft timing pinion is almost vertical and facing upwards.



- ❑ Remove the TDC setting pin plug (7) .

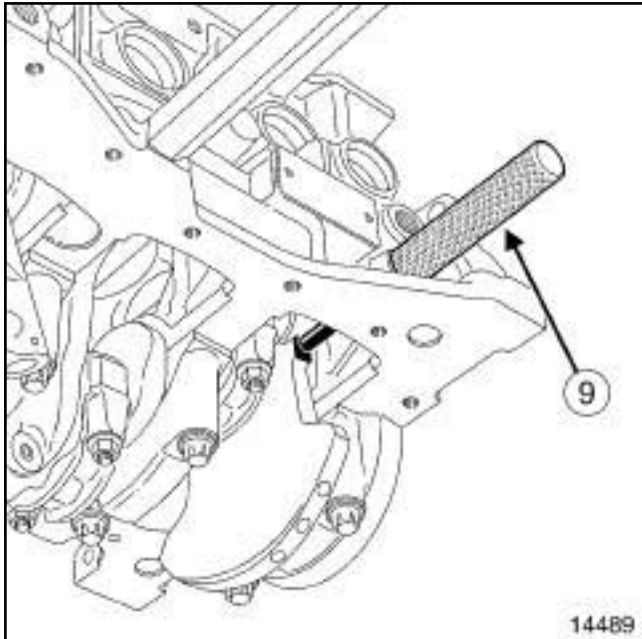


- ❑ Screw the TDC setting pin (**Mot. 1489**) (8) into the cylinder block.
- ❑ Remove the old bolt from the crankshaft accessories pulley fitted with its spacer.

II - REFITTING OPERATION

- ❑ Refit the accessories crankshaft pulley with a new bolt.

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- ☐ Turn the crankshaft clockwise (timing end) smoothly using the bolt of the crankshaft accessories pulley, until the crankshaft presses against the tool (**Mot. 1489**) (9) .
- ☐ Torque and angle tighten (with the crankshaft in contact with the TDC setting pin) the **accessories pulley bolt** (**120 N.m + 95° ±15°**).
- ☐ Remove the TDC setting rod (**Mot. 1489**).

III - FINAL OPERATION

- ☐ Apply a drop of **silicone adhesive sealant** (see **Vehicle: Parts and consumables for the repair**) (04B, Consumables - Products) to the thread of the TDC setting pin plug.
- ☐ Torque tighten the **TDC pin plug** (**25 N.m**).
- ☐ Refit:
 - the accessories belt (see **11A, Top and front of engine, Accessories belt: Removal - Refitting**, page **11A-2**) ,
 - the front right-hand wheel arch side liner,
 - the front right-hand wheel arch (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
 - the plastic shield underneath the diesel filter,
 - the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

TOP AND FRONT OF ENGINE

Crankshaft accessories pulley: Removal - Refitting

11A

K4M

Tightening torques

new crankshaft accessories pulley bolt	40 N.m + 145° ± 15°
TDC pin plug	25 N.m

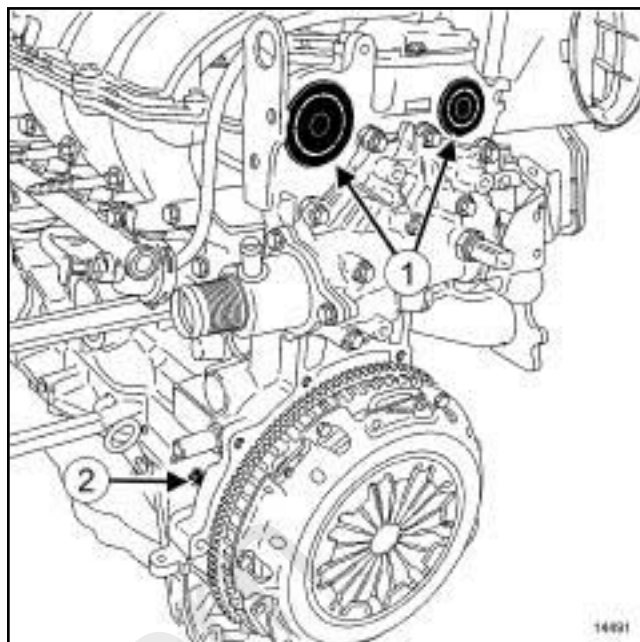
IMPORTANT

Wear cut-resistant gloves during the operation.

REMOVAL

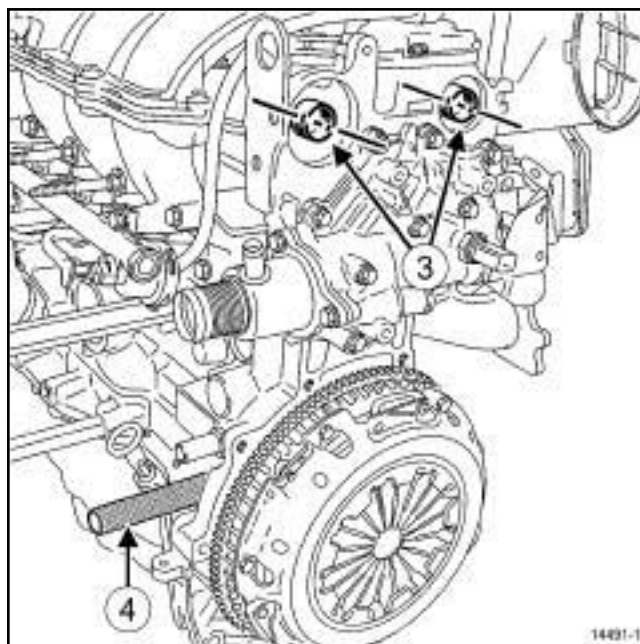
I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Remove:
 - the air inlet duct,
 - the air resonator (see **12A, Fuel mixture, Air resonator: Removal - Refitting**, page **12A-2**),
 - the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
 - the accessories belt (see **11A, Top and front of engine, Accessories belt: Removal - Refitting**, page **11A-2**).



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- ☐ Pierce the centre of the plugs (1) at the camshaft ends with a screwdriver.
- ☐ Remove:
 - the plugs from the camshaft ends with a screwdriver,
 - the TDC setting pin plug (2).



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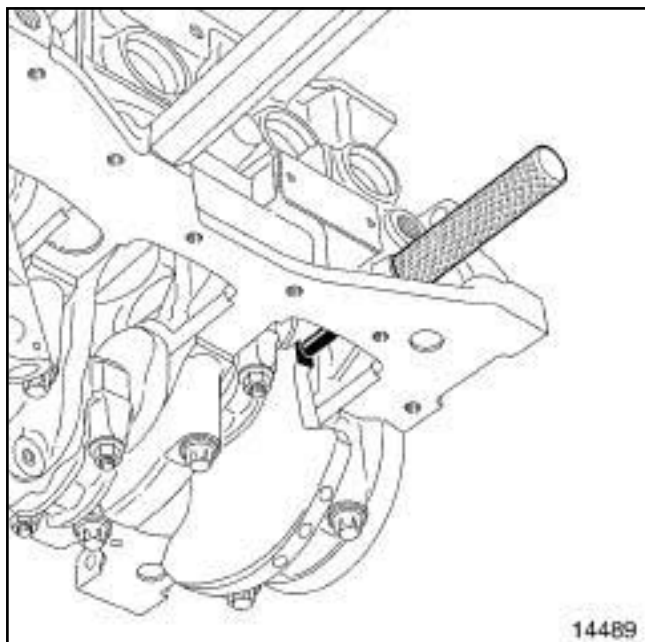
- ☐ Position the camshaft grooves (3) almost horizontally and offset towards the bottom turning the crankshaft in the operating direction (clockwise at timing end).
- ☐ Screw in the TDC setting pin (4).

TOP AND FRONT OF ENGINE

Crankshaft accessories pulley: Removal - Refitting

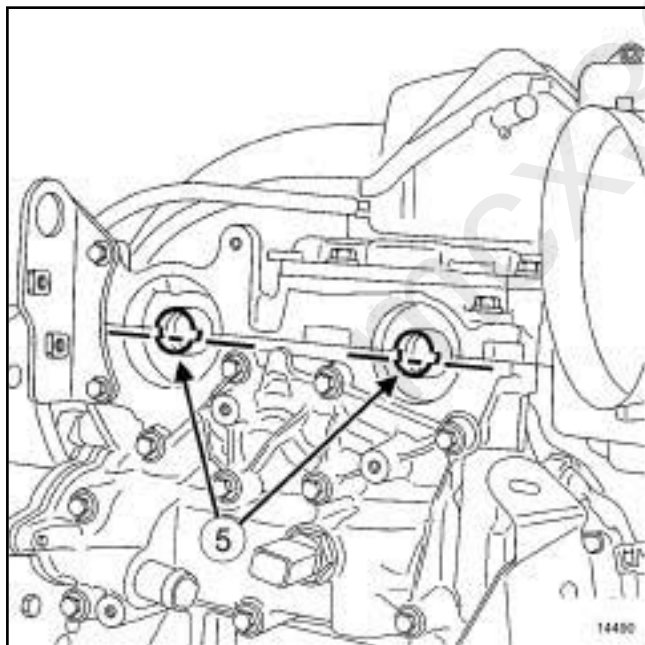
11A

K4M



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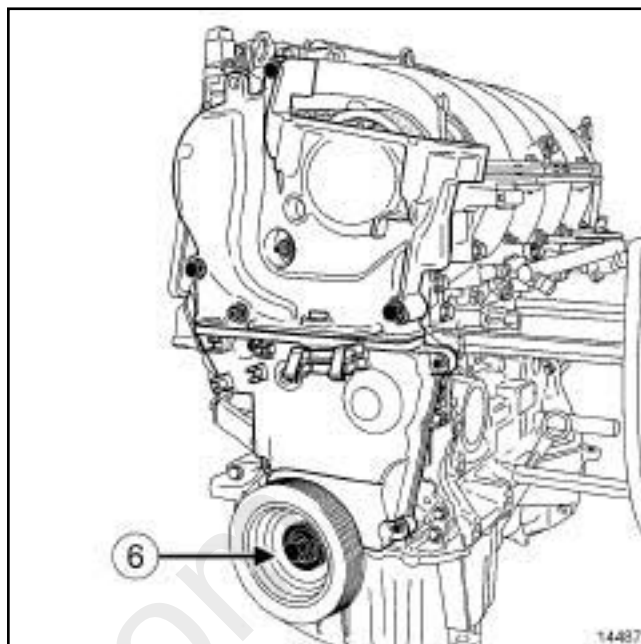
- ❑ Turn the crankshaft in its operating direction (clockwise at timing end), until the crankshaft presses against the TDC setting pin.



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- ❑ The camshaft grooves (5) must be horizontal and offset downwards.
- ❑ Remove the TDC setting pin.
- ❑ Lock the flywheel using a screwdriver.

II - REMOVAL OPERATION



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- ❑ Remove the crankshaft accessories pulley bolt (6) .

REFITTING

I - REFITTING PREPARATION OPERATION

- ❑ parts always to be replaced: Crankshaft accessories pulley bolts

❑

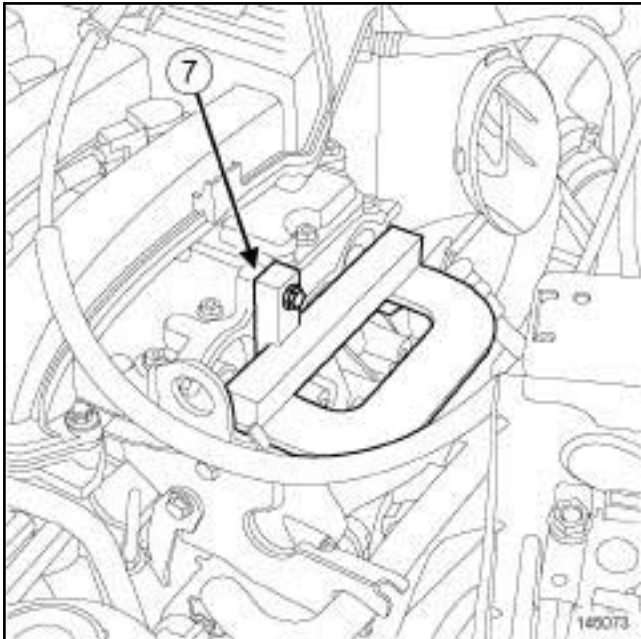
WARNING

Be sure to degrease:

- the end of the crankshaft,
- the bearing face of the crankshaft accessories pulley.

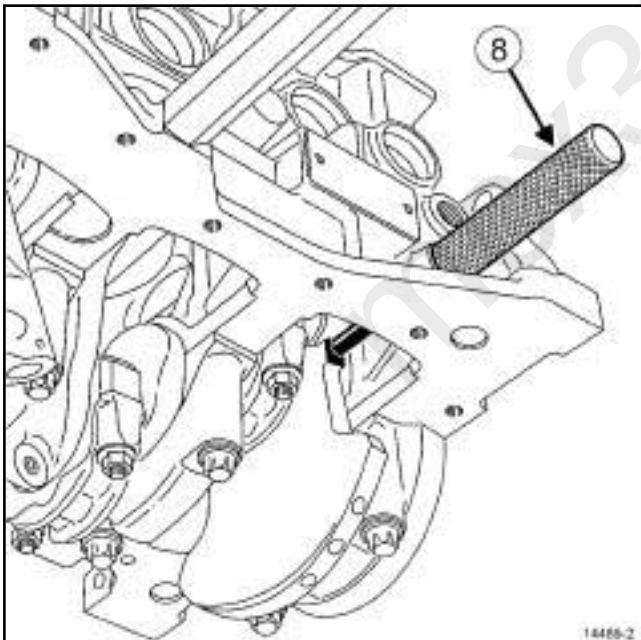
This is to prevent timing slippage.

K4M



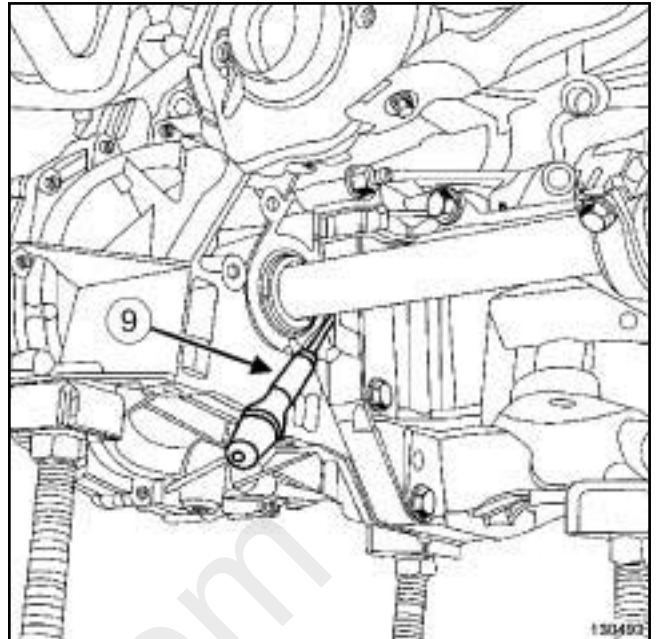
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- ☐ Position the setting tool.
- ☐ Secure the ends of the camshafts using an M6 bolt (7) .



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- ☐ Screw in the TDC setting pin (8) .
- ☐ Check that the crankshaft is pressing against the TDC tool.
- ☐ The crankshaft groove must be upwards.



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- ☐ If the crankshaft is not pressing against the TDC tool, bring the crankshaft back by turning the fly-wheel using a screwdriver (9) .

II - REFITTING OPERATION

- ☐ Refit the crankshaft accessories pulley.
- ☐ Torque and angle tighten the **new crankshaft accessories pulley bolt** (40 N.m + 145° ± 15°).

III - FINAL OPERATION

- ☐ Remove:
 - the TDC tool,
 - the setting tool.
- ☐ Refit:
 - a new inlet camshaft plug using the,
 - a new exhaust camshaft plug using the.
- ☐ Place a drop of **SILICONE ADHESIVE SEALANT** (see **Vehicle: Parts and consumables for the repair**) on the threading of the TDC pin plug.
- ☐ Refit the TDC setting pin plug.
- ☐ Torque tighten the **TDC pin plug** (25 N.m).
- ☐ Refit:
 - the accessories belt (see **11A, Top and front of engine, Accessories belt: Removal - Refitting, page 11A-2**),
 - the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),