

TOP AND FRONT OF ENGINE

Rocker cover: Removal - Refitting

11A

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III - FINAL OPERATION

- ☐ Connect the oil vapour rebreathing pipe.
- ☐ Refit the air filter unit (see **12A, Fuel mixture, Air filter unit: Removal - Refitting**, page 12A-6) .

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Equipment required

roller-type stud removal tool

Tightening torques

the camshaft dowel

8 N.m

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Remove:
 - 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) ,
 - the right-hand suspended engine mounting (see **19D, Engine mounting, Right-hand suspended engine mounting: Removal - Refitting**, page 19D-4) ,
 - the air resonator (see **12A, Fuel mixture, Air resonator: Removal - Refitting**, page 12A-2) ,
 - the timing belt (see **11A, Top and front of engine, Timing belt: Removal - Refitting**, page 11A-17) ,
 - the air filter unit (see **12A, Fuel mixture, Air filter unit: Removal - Refitting**, page 12A-6) ,
 - the throttle valve (see **12A, Fuel mixture, Throttle valve: Removal - Refitting**, page 12A-11) ,
 - the inlet distributor (see **12A, Fuel mixture, Inlet distributor: Removal - Refitting**, page 12A-12) ,
 - the ignition coils (see **17A, Ignition, Coils: Removal - Refitting**, page 17A-1) ,
 - the rocker cover (see **11A, Top and front of engine, Rocker cover: Removal - Refitting**, page 11A-42) ,
 - the timing end camshaft seals (see **11A, Top and front of engine, Camshaft seal, timing end: Removal - Refitting**, page 11A-56) .

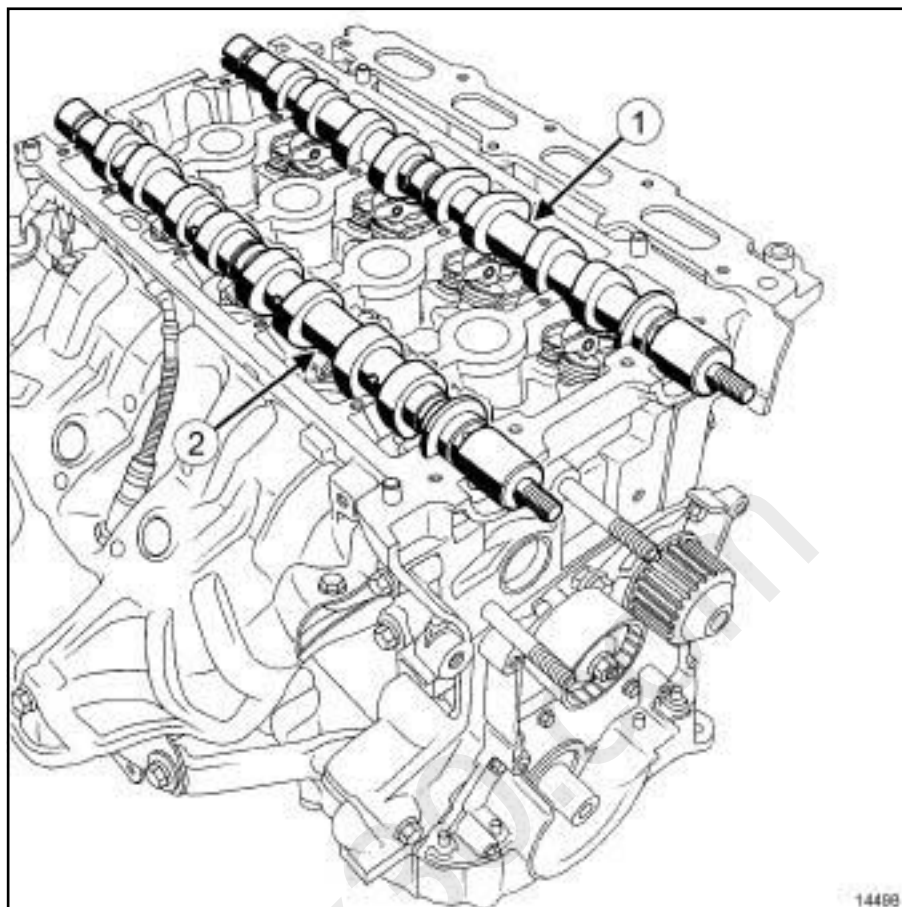
TOP AND FRONT OF ENGINE

Camshaft: Removal - Refitting

11A

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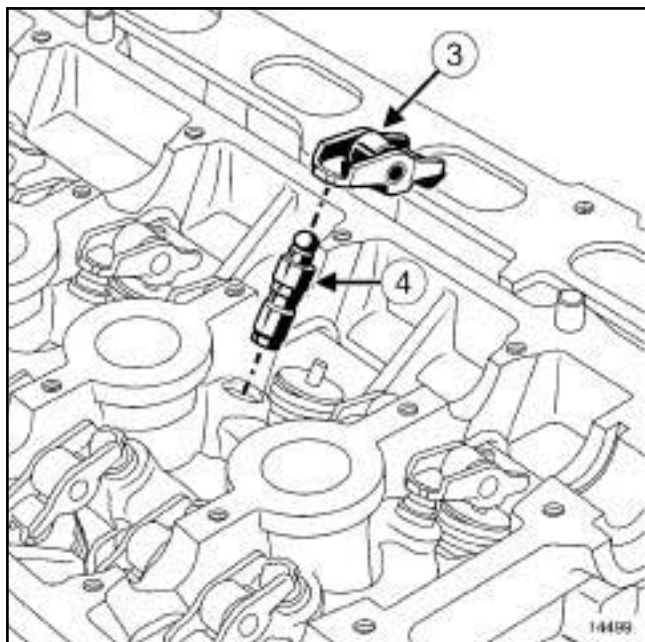
II - REMOVAL OPERATION



❑ Remove:

- the inlet camshaft (1) ,
- the exhaust camshaft (2) .

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☐ Remove:

- the valve rockers (3) ;
- the hydraulic tappets (4) .

Note:

To prevent any risk of unpriming the hydraulic tappets make sure that they are vertical.

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ Refit the camshafts while positioning them correctly (see) (Technical Note 6023A, 10A, Engine and peripherals).

Note:

It is essential to reprime the hydraulic tappets as these may become drained if removed for a long time.

- ☐ To check if re-priming is necessary, press the top of the tappet with your thumb. If the tappet piston depresses, immerse the tappets in a container full of diesel then reprime them.

Replacing a camshaft dowel

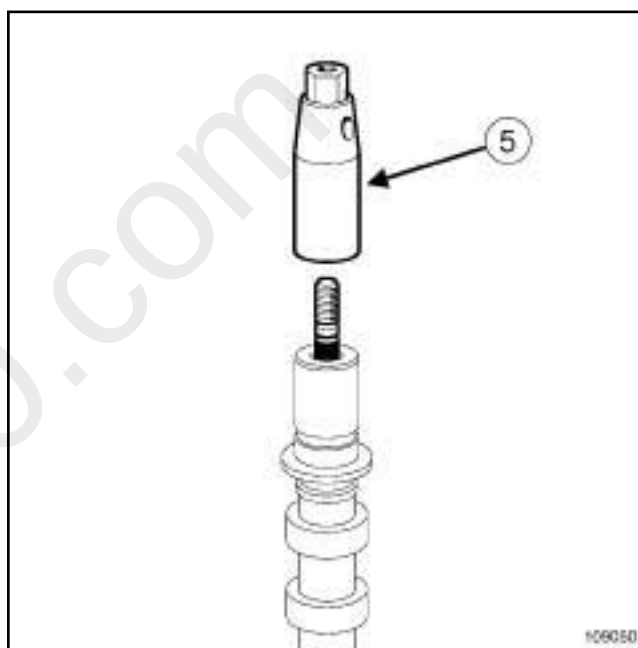


Note:

It is essential to replace the camshaft dowel if it comes loose at the same time as the nut.

a - Removal

- ☐ Place the camshaft in a vice with **aluminium jaws**.



- ☐ Remove the dowel using a **roller-type stud removal tool (5)** .

b - Cleaning the camshaft



Note:

Clean the thread hole of the camshaft carefully to prevent foreign bodies from entering the latter.

Failure to follow this advice could lead to the blocking of the oil inlet holes, which would quickly result in engine damage.

c - Refitting

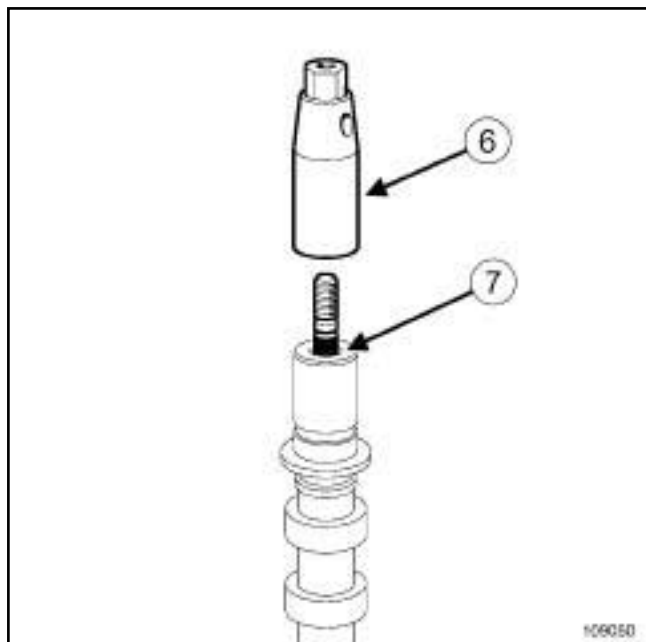
- ☐ Place the camshaft in a vice with **aluminium jaws**.

TOP AND FRONT OF ENGINE

Camshaft: Removal - Refitting

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- ☐ Refit the new camshaft dowel (precoated section (7) on the camshaft side).
- ☐ Torque tighten the camshaft dowel (8 N.m) using a roller-type stud removal tool (6) .

II - REFITTING OPERATION

- ☐ Refit:
 - the hydraulic tappets,
 - the valve rockers,
 - the inlet camshaft, by lubricating the inlet camshaft bearings,
 - the exhaust camshaft, by lubricating the exhaust camshaft bearings.

III - FINAL OPERATION

- ☐ Refit:
 - the rocker cover (see 11A, Top and front of engine, Rocker cover: Removal - Refitting, page 11A-42) ,
 - the camshaft seals (see 11A, Top and front of engine, Camshaft seal, timing end: Removal - Refitting, page 11A-56) ,
 - the ignition coils (see 17A, Ignition, Coils: Removal - Refitting, page 17A-1) ,
 - the inlet distributor (see 12A, Fuel mixture, Inlet distributor: Removal - Refitting, page 12A-12) ,
 - the throttle valve (see 12A, Fuel mixture, Throttle valve: Removal - Refitting, page 12A-11) ,

- the air filter unit (see 12A, Fuel mixture, Air filter unit: Removal - Refitting, page 12A-6) ,
- the timing belt (see 11A, Top and front of engine, Timing belt: Removal - Refitting, page 11A-17) ,
- the air resonator (see 12A, Fuel mixture, Air resonator: Removal - Refitting, page 12A-2) ,
- the right-hand suspended engine mounting (see 19D, Engine mounting, Right-hand suspended engine mounting: Removal - Refitting, page 19D-4) ,
- 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).

- ☐ Connect the battery (see Battery: Removal - Refitting) (80A, Battery).

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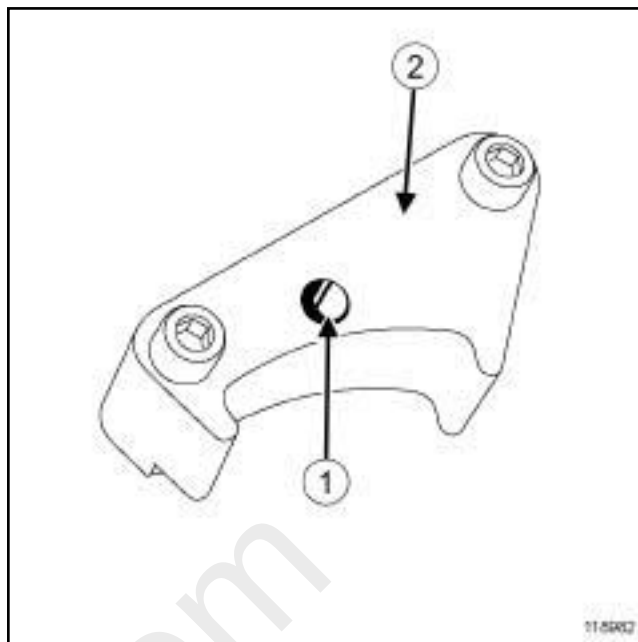
Tightening torques

bolts of the camshaft bearings	10 N.m
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REMOVAL

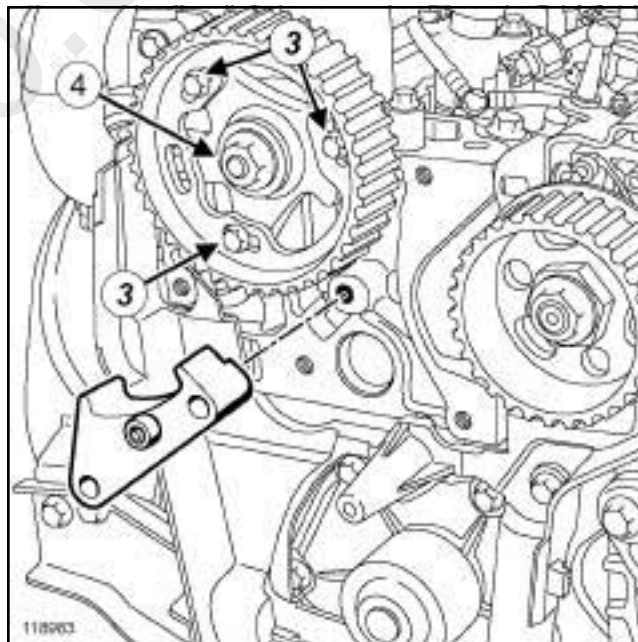
I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Remove:
 - the air filter box (see **12A, Fuel mixture, Air filter unit: Removal - Refitting**, page 12A-6) ,
 - the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
 - the front right-hand wheel arch liner partially (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
 - the engine undertray bolts,
 - the engine undertray,
 - the accessories belt (see **11A, Top and front of engine, Accessories belt: Removal - Refitting**, page 11A-2) ,
 - the right-hand suspended engine mounting (see **19D, Engine mounting, Right-hand suspended engine mounting: Removal - Refitting**, page 19D-4) ,
 - the camshaft position sensor (see **13B, Diesel injection, Camshaft position sensor: Removal - Refitting**, page 13B-7) ,
 - the crankshaft accessories pulley (see **11A, Top and front of engine, Crankshaft accessories pulley: Removal - Refitting**, page 11A-10) ,
 - the timing belt (see **11A, Top and front of engine, Timing belt: Removal - Refitting**, page 11A-17) ,
 - the vacuum pump (see **Vacuum pump: Removal - Refitting**) (37A, Mechanical component controls),
 - the rocker cover (see **11A, Top and front of engine, Rocker cover: Removal - Refitting**, page 11A-42) .



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- ☐ Increase the hole (1) of the (2) using an **8.5 mm** drill bit.



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- ☐ Undo the camshaft pulley hub bolts (3) .
- ☐ Fit theon the cylinder head to lock the camshaft pulley wheel.
- ☐ Tighten the camshaft pulley hub bolts (3) .
- ☐ Remove:
 - the nut (4) from the camshaft pulley,
 - the,
 - the camshaft pulley.

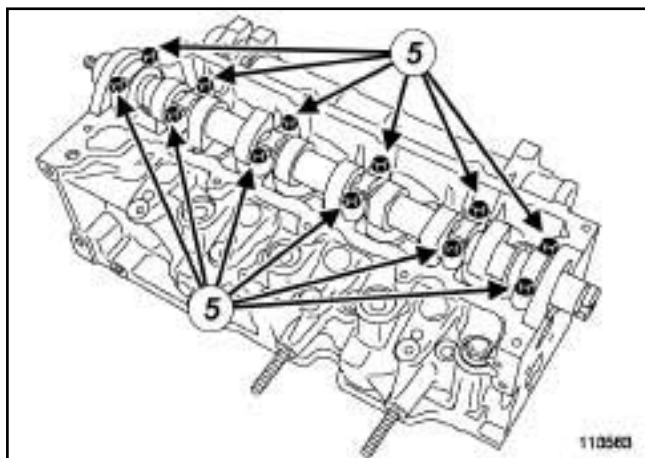
TOP AND FRONT OF ENGINE

Camshaft: Removal - Refitting

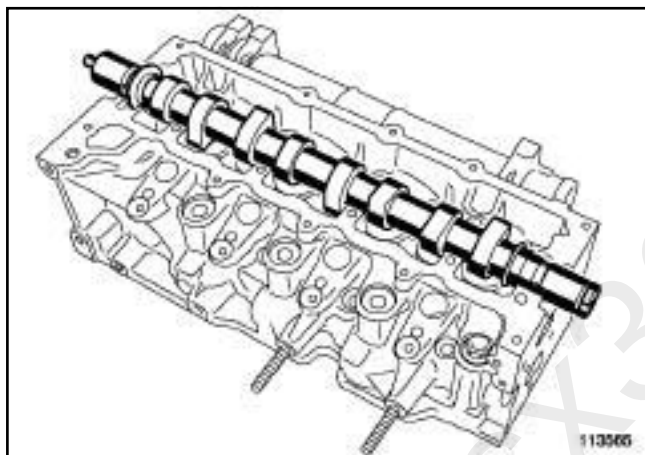
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II - OPERATION FOR REMOVAL OF PART CONCERNED



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- ☐ Mark the position of the camshaft bearings.
- ☐ Remove:
 - the camshaft bearing bolts (5) ,
 - the camshaft bearings,
 - the camshaft,
 - the timing end camshaft seal.

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ parts always to be replaced: Camshaft seal on timing end.

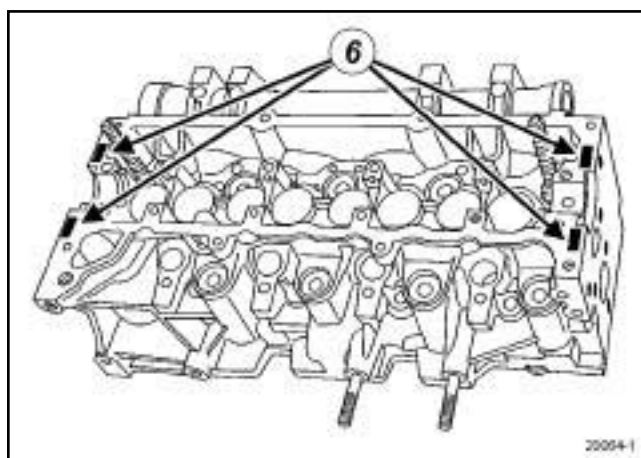
WARNING

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

WARNING

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

- ☐ Use **GREY ABRASIVE PADS** (see **Vehicle: Parts and consumables for the repair**) (04B, Consumables - Products) to clean the bearing faces of the camshaft bearings.
- ☐ Use **SURFACE CLEANER** (see **Vehicle: Parts and consumables for the repair**) (04B, Consumables - Products) to clean and degrease:
 - the bearing faces of the camshaft bearings on the cylinder head,
 - the bearing faces of the camshaft bearings on the camshaft bearings.



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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.).