

TOP AND FRONT OF ENGINE

Accessories belt: Removal - Refitting

11A

D4F

- (3) Alternator
- (4) Tensioning roller
- (5) Measuring point

☐ The accessories belt tension value is **277 Hz ± 5**.

- ☐ Torque tighten the **tensioning roller bolt (50 N.m)** using a **16 mm** socket and a **repositioner**, while keeping the tensioning roller tension at the adjustment value with a **20 mm** open-jawed spanner.
- ☐ Turn the engine through three revolutions clockwise (timing end) to position the belt correctly.
- ☐ Check the accessories belt tension value with the **(Mot. 1715)** or **(Mot. 1505)**.
- ☐ If the accessory belt tension is outside permitted tolerance values, readjust it.
- ☐ Refit the accessories belt tension wheel protector.

III - FINAL OPERATION.

- ☐ Refit:
 - the engine undertray,
 - the front section of the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection),
 - the front right-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres).
- ☐ Connect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).

TOP AND FRONT OF ENGINE

Crankshaft accessories pulley: Removal - Refitting

11A

D4F, and 740 or 742 or 764

Special tooling required

Mot. 582-01 Flywheel locking tool.

Tightening torques

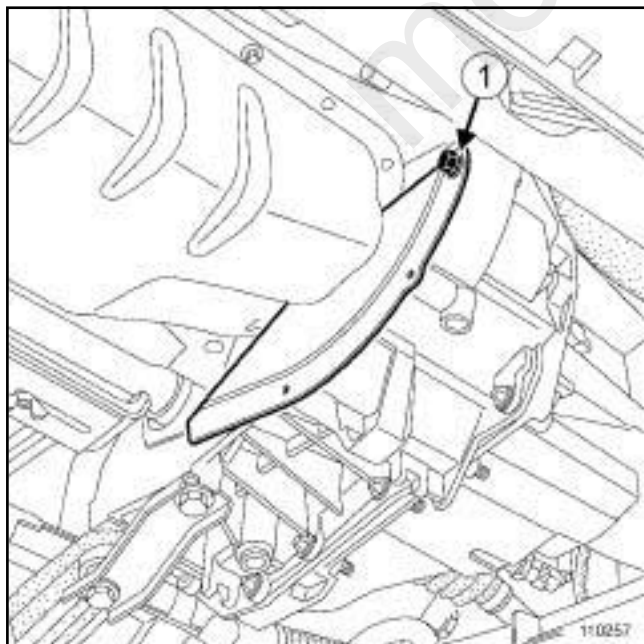
crankshaft accessories pulley mounting bolt	40 N.m + 70° ± 6°
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REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).
- ☐ Remove:
 - the front right-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
 - the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection),
 - the accessories belt (see **11A, Top and front of engine, Accessories belt: Removal - Refitting**, page 11A-5) .

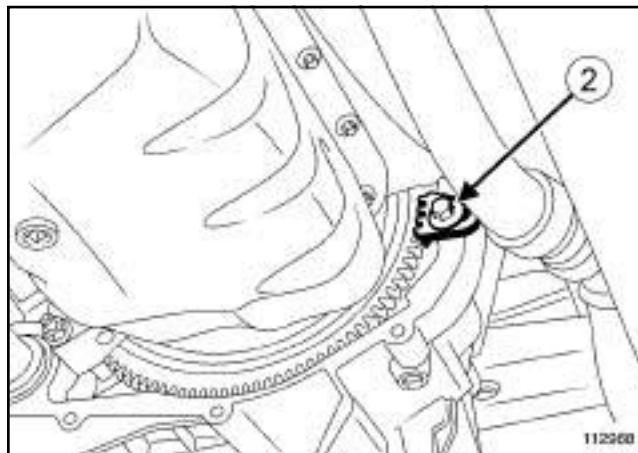
II - OPERATION FOR REMOVAL OF PART CONCERNED



110257

- ☐ Remove:
 - the flywheel cover mounting bolt (1) ,

- the flywheel cover.



112988

- ☐ Fit the immobilising tool (**Mot. 582-01**) (2) .
- ☐ Remove:
 - the accessories pulley mounting bolt,
 - the accessories pulley.

REFITTING

I - REFITTING PREPARATION OPERATION

☐

WARNING

You must replace the crankshaft accessories pulley mounting bolt.

Clean the crankshaft accessories pulley grooves with a wire brush to ensure there are no deposits.

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit the crankshaft accessories pulley using a new bolt.
- ☐ Torque tighten the **crankshaft accessories pulley mounting bolt (40 N.m + 70° ± 6°)**.

III - FINAL OPERATION.

- ☐ Refit:
 - the accessories belt (see **11A, Top and front of engine, Accessories belt: Removal - Refitting**, page 11A-5) ,
 - the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection),

TOP AND FRONT OF ENGINE

Crankshaft accessories pulley: Removal - Refitting

11A

D4F, and 740 or 742 or 764

- the front right-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres).

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TOP AND FRONT OF ENGINE

Crankshaft accessories pulley: Removal - Refitting

11A

K4J or K4M

Special tooling required	
Mot. 1489	TDC locating pin.
Mot. 1496	Camshaft timing tool.
Mot. 1750	Additional tool to support the camshaft adjusting tool, Mot. 1496.
Mot. 1487	Tool for refitting camshaft covers (57 mm diameter).
Mot. 1488	Tool for refitting camshaft covers (43 mm diameter).

Tightening torques 	
crankshaft accessories pulley mounting bolt	40 N.m + 145° ± 15°
TDC setting pin plug	20 N.m

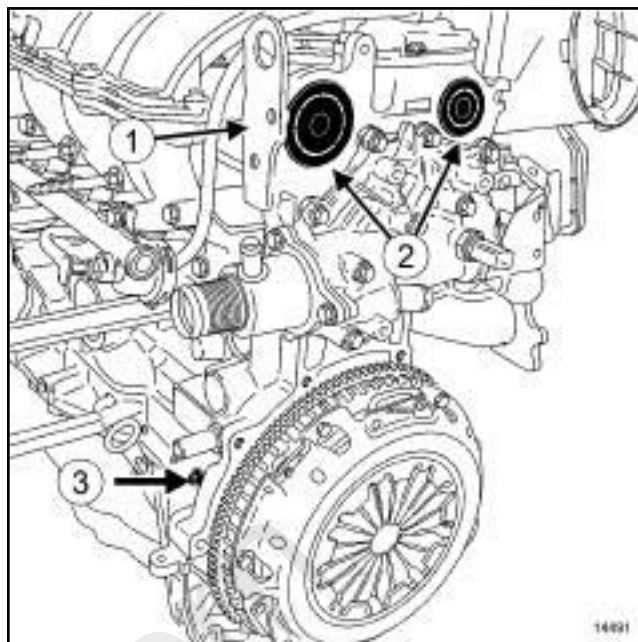
REMOVAL

I - REFITTING PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

- ☐ Remove:

- the battery (see **Battery: Removal - Refitting**) (80A, Battery),
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the accessories belt (see **11A, Top and front of engine, Accessories belt: Removal - Refitting**, page **11A-5**) ,
- the air inlet duct clips,
- the air inlet duct,
- the air filter unit (see **12A, Fuel mixture, Air filter unit: Removal - Refitting**, page **12A-17**) ,
- the throttle valve (see **12A, Fuel mixture, Throttle valve: Removal - Refitting**, page **12A-33**) .



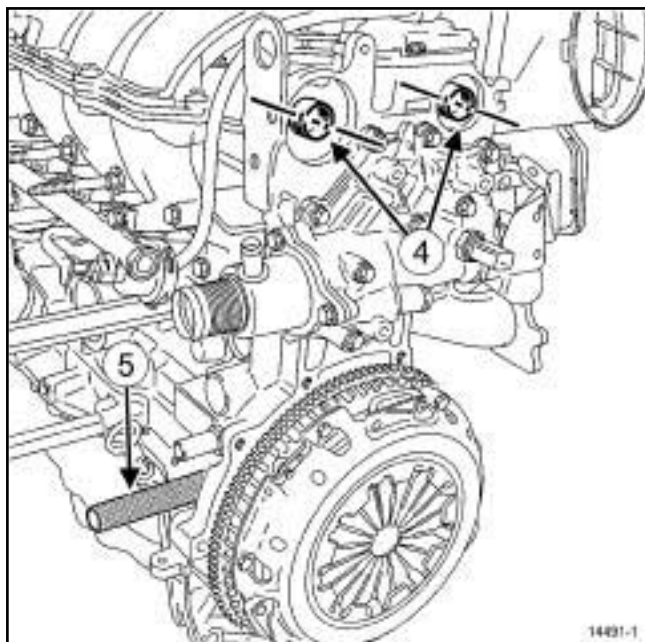
- ☐ Remove the engine lifting eye (1) on the flywheel side.
- ☐ Pierce the centre of the plugs (2) at the camshaft ends with a screwdriver.
- ☐ Remove:
 - the plugs from the camshaft ends with a screwdriver,
 - the TDC setting pin plug (3) .

TOP AND FRONT OF ENGINE

Crankshaft accessories pulley: Removal - Refitting

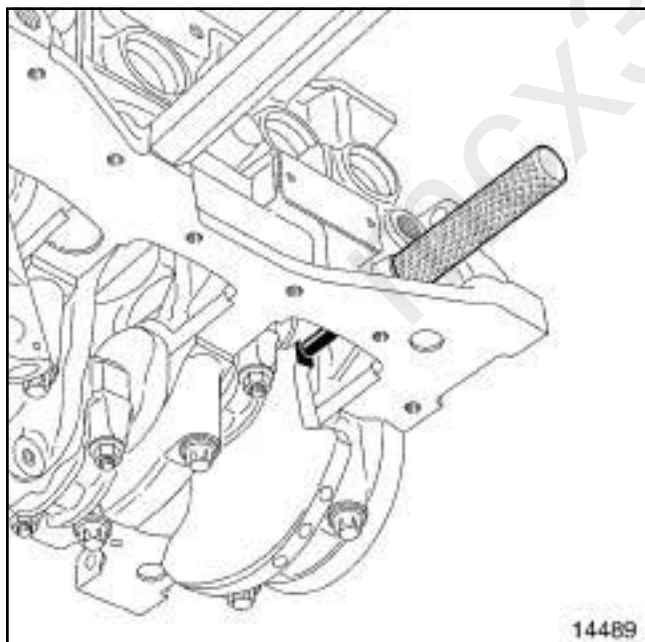
11A

K4J or K4M



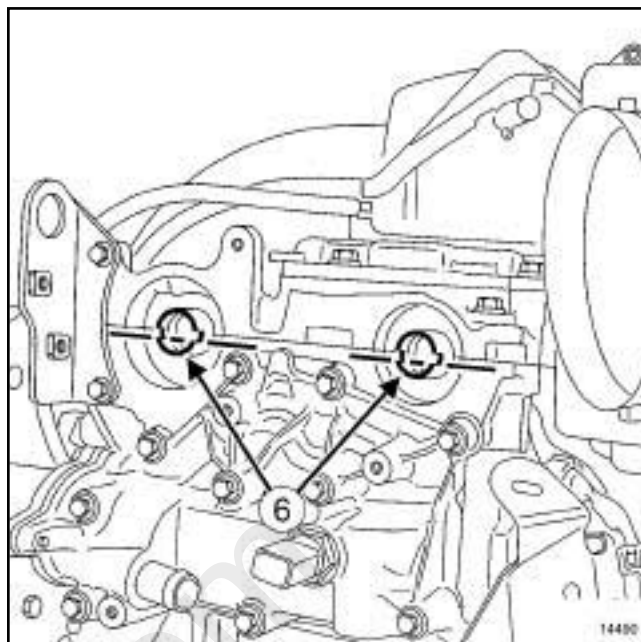
14491-1

- ❑ Position the camshaft grooves (4) almost horizontally and offset towards the bottom turning the crankshaft in the operating direction (clockwise at timing end).
- ❑ Screw in the TDC setting pin (5) (**Mot. 1489**).



14489

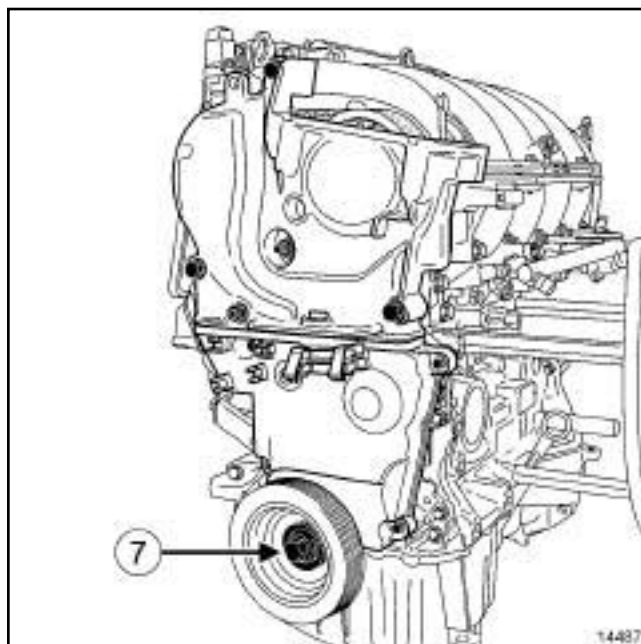
- ❑ Turn the crankshaft in its operating direction (clockwise at timing end), until the crankshaft presses against the TDC setting pin (**Mot. 1489**).



14490

- ❑ The camshaft grooves (6) must be horizontal and offset downwards.
- ❑ Remove the TDC setting pin (**Mot. 1489**).
- ❑ Lock the flywheel using a screwdriver.

II - REMOVAL OF PART CONCERNED



14487

- ❑ Remove the crankshaft accessories pulley mounting bolt (7) .

TOP AND FRONT OF ENGINE

Crankshaft accessories pulley: Removal - Refitting

11A

K4J or K4M

REFITTING

I - REFITTING PREPARATION OPERATION



WARNING

Always replace the bolt and the crankshaft accessories pulley.

WARNING

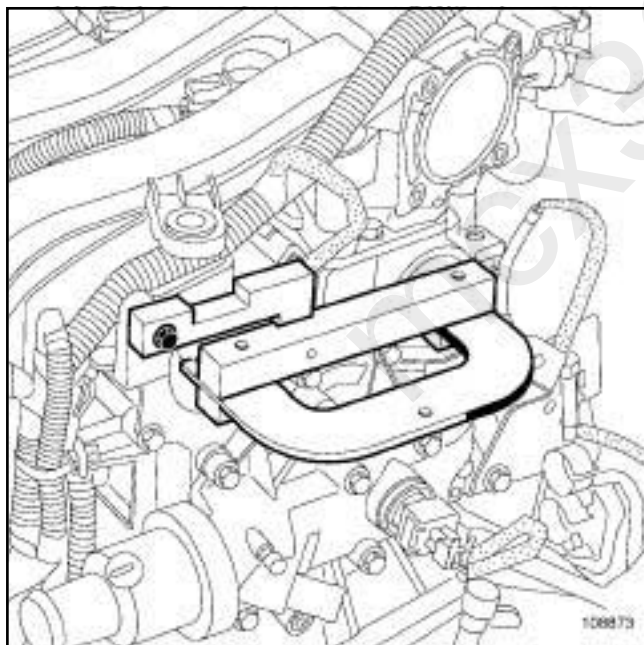
Be sure to degrease:

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

This is to prevent timing slippage.

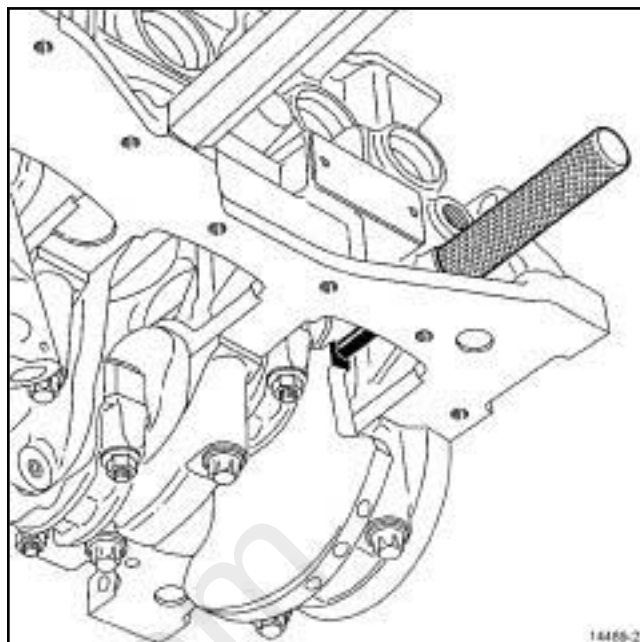
WARNING

Never run the engine in the opposite direction to that of normal operation.



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- ❑ Position timing tool (**Mot. 1496**) fitted with the (**Mot. 1750**).



14489-2

- ❑ Screw in the TDC setting pin (**Mot. 1489**).
- ❑ Check that the crankshaft is pressing against the TDC setting pin (**Mot. 1489**).
- ❑ The crankshaft groove must be upwards.

II - REFITTING PART CONCERNED

- ❑ Refit the crankshaft accessories pulley.
- ❑ Tighten to torque and angle the **crankshaft accessories pulley mounting bolt** (**40 N.m + 145° ± 15°**).

III - FINAL OPERATION

- ❑ Remove:
 - the TDC setting pin (**Mot. 1489**),
 - the timing tool (**Mot. 1496**) fitted with the (**Mot. 1750**).
- ❑ Refit:
 - the inlet camshaft plug using the (**Mot. 1487**),
 - the exhaust camshaft plug using the (**Mot. 1488**).
- ❑ Place a drop of **SILICONE ADHESIVE SEALANT** on the thread hole of the TDC pin plug.
- ❑ Refit the TDC setting pin plug.
- ❑ Torque tighten the **TDC setting pin plug** (**20 N.m**).
- ❑ Refit:
 - the engine lifting eye at the flywheel end,
 - the throttle valve (see **12A, Fuel mixture, Throttle valve: Removal - Refitting**, page **12A-33**).

TOP AND FRONT OF ENGINE

Crankshaft accessories pulley: Removal - Refitting

11A

K4J or K4M

- the air filter unit (see **12A, Fuel mixture, Air filter unit: Removal - Refitting**, page **12A-17**) ,
 - the air inlet duct,
 - the air inlet duct clips,
 - the battery (see **Battery: Removal - Refitting**) (80A, Battery),
 - the accessories belt (see **11A, Top and front of engine, Accessories belt: Removal - Refitting**, page **11A-5**) ,
 - the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
 - the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- ☐ Connect the battery (see **Battery tray: Removal - Refitting**) (80A, Battery).

TOP AND FRONT OF ENGINE

Crankshaft accessories pulley: Removal - Refitting

11A

K9K

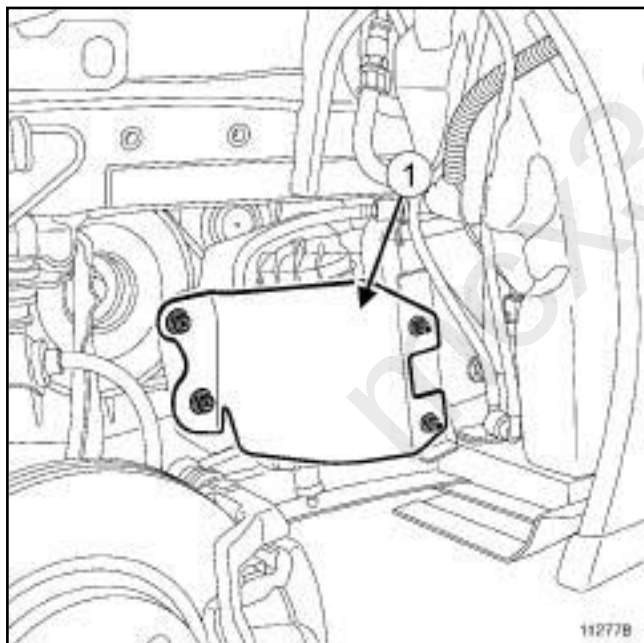
Tightening torques

M12 bolt of the crankshaft accessories pulley	60 N.m +100°
M14 bolt of the crankshaft accessories pulley	120 N.m + 95° ± 15°

REMOVAL

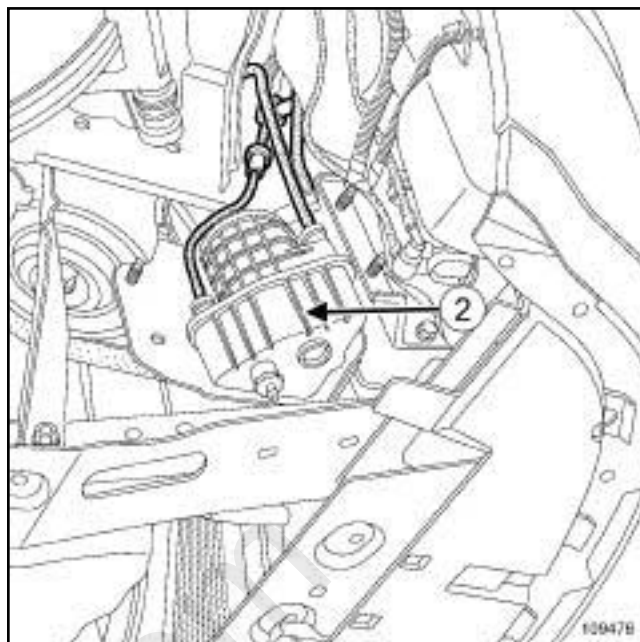
I - REMOVAL PREPARATION OPERATION

- ❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02, Lifting equipment).
- ❑ Disconnect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).
- ❑ Remove the right-hand wheel arch (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection).



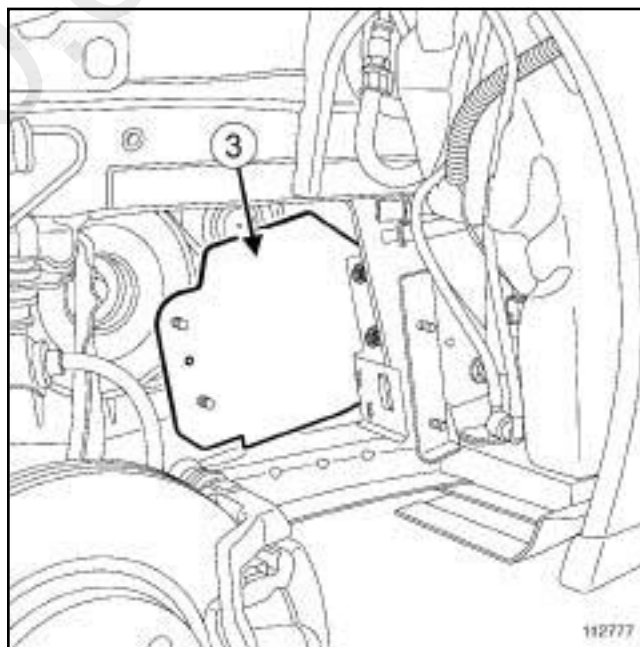
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- ❑ Remove the protector (1) in front of the diesel filter.



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- ❑ Lift the diesel filter (2) and fasten it to a suspension spring.



112777

- ❑ Remove:
 - the protector (3) behind the diesel filter,
 - the accessories belt (see **11A, Top and front of engine, Accessories belt: Removal - Refitting, page 11A-5**),
 - the accessories belt tensioning roller.

TOP AND FRONT OF ENGINE

Crankshaft accessories pulley: Removal - Refitting

11A

K9K

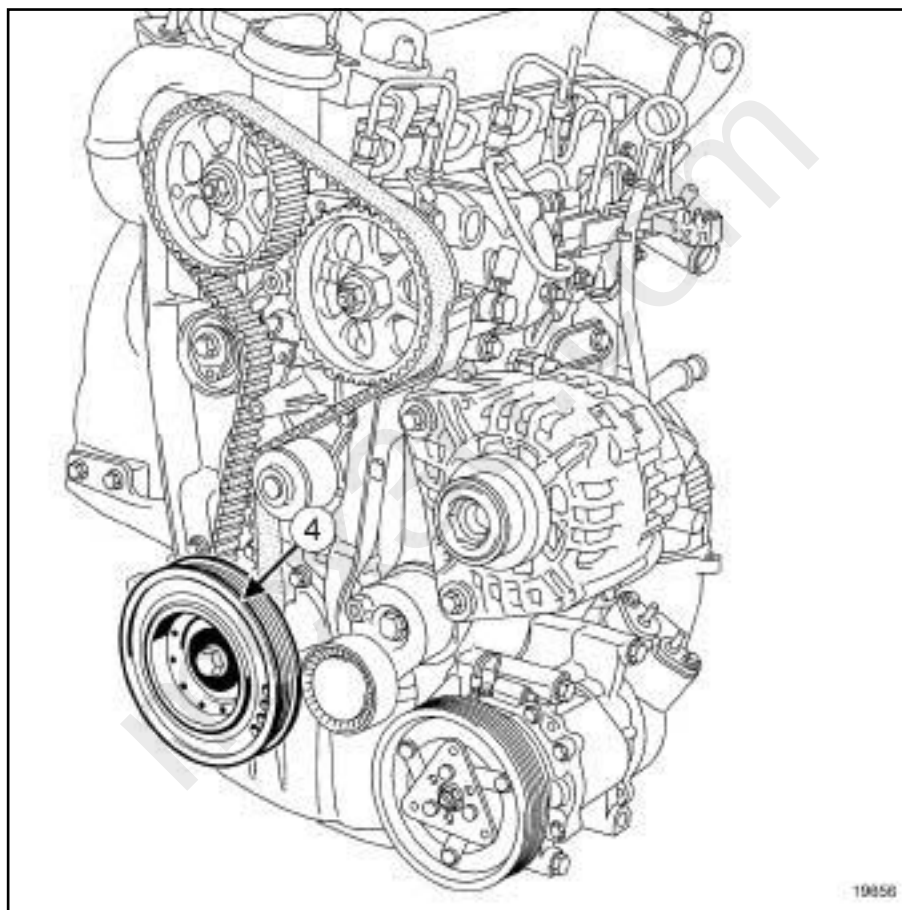
TL4

- ❑ Lock the flywheel using a flat-blade screwdriver positioned in the window under the starter.

JA5 or JH3 or JR5

- ❑ Immobilise the flywheel using a flat-blade screwdriver positioned in the window located in the clutch housing, at the rear of the engine.

II - OPERATION FOR REMOVAL OF PART CONCERNED



- ❑ Remove the bolt (4) then the crankshaft accessories pulley.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

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

TL4

- ❑ Lock the flywheel using a flat-blade screwdriver positioned in the window under the starter.

TOP AND FRONT OF ENGINE

Crankshaft accessories pulley: Removal - Refitting

11A

K9K

JA5 or JH3 or JR5

- ☐ Immobilise the flywheel using a flat-blade screwdriver positioned in the window located in the clutch housing, at the rear of the engine.
- ☐ Torque tighten the **M12 bolt of the crankshaft accessories pulley (60 N.m +100°)** or the **M14 bolt of the crankshaft accessories pulley (120 N.m + 95° ± 15°)**.

II - FINAL OPERATION

- ☐ Refit:
 - the accessories belt tensioning roller,
 - the accessories belt (see **11A, Top and front of engine, Accessories belt: Removal - Refitting, page 11A-5**) ,
 - the protector behind the diesel filter.
- ☐ Detach the diesel filter from the suspension spring and put it back into position.
- ☐ Refit:
 - the protector in front of the diesel filter,
 - the accessories belt (see **11A, Top and front of engine, Accessories belt: Removal - Refitting, page 11A-5**) .
- ☐ Connect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).

TOP AND FRONT OF ENGINE

Crankshaft accessories pulley: Removal - Refitting

11A

M4R

Special tooling required

Mot. 1789 Tool for immobilising the crankshaft pulley, timing end

Equipment required

two-claw extractor for exterior socket

Tightening torques

crankshaft pulley bolt (initial torque)	68 N.m
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crankshaft accessories pulley bolt	30 N.m + 60°
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subframe bolt on the body	105 N.m
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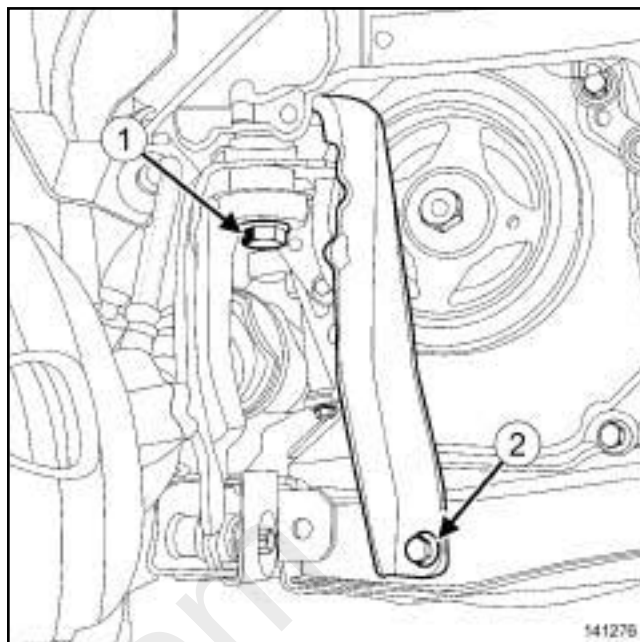
REMOVAL

I - REMOVAL PREPARATION OPERATION

☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

☐ Remove:

- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front section of the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the accessories belt (see **11A, Top and front of engine, Accessories belt: Removal - Refitting**, page 11A-5) .



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☐ Remove:

- the subframe bolt (1) on the body,
- the side reinforcement bolt (2) ,
- the side reinforcement.

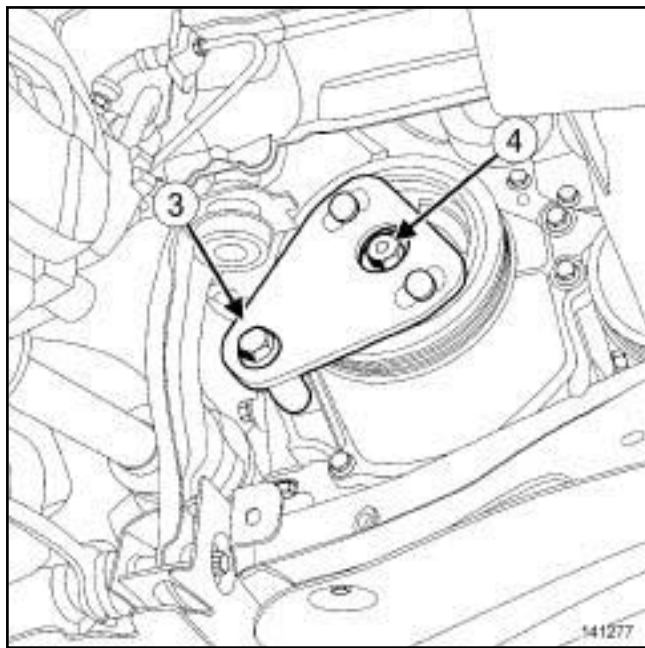
TOP AND FRONT OF ENGINE

Crankshaft accessories pulley: Removal - Refitting

11A

M4R

II - OPERATION FOR REMOVAL OF PART CONCERNED



- ☐ Position the **(Mot. 1789)** (3) to lock the crankshaft accessories pulley.
- ☐ Loosen the crankshaft accessories pulley bolt (4) .
- ☐ Remove:
 - the **(Mot. 1789)**,
 - the crankshaft accessories pulley bolt,
 - the crankshaft pulley using a **two-claw extractor for exterior socket**.

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ parts always to be replaced: Crankshaft accessories pulley (10,03,03,07),
parts always to be replaced: Crankshaft accessories pulley bolts (10,03,03,10)..
parts always to be replaced: Front sub-frame bolt (13,02,02,03).

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - a new crankshaft accessories pulley,
 - a new crankshaft accessories pulley bolt,
 - the **(Mot. 1789)**.

- ☐ Torque tighten the **crankshaft pulley bolt (initial torque) (68 N.m)**.
- ☐ Loosen the crankshaft accessories pulley bolts.
- ☐ Torque and angle tighten the **crankshaft accessories pulley bolt (30 N.m + 60°)**.
- ☐ Remove the tool **(Mot. 1789)**.

III - FINAL OPERATION

- ☐ Refit the side reinforcement.
- ☐ Torque tighten the **subframe bolt on the body (105 N.m)**.
- ☐ Refit:
 - the accessories belt (see **11A, Top and front of engine, Accessories belt: Removal - Refitting**, page **11A-5**) ,
 - the front section of the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
 - the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

TOP AND FRONT OF ENGINE

Crankshaft accessories pulley: Removal - Refitting

11A

F4R

Tightening torques

crankshaft accessories pulley bolt	40 Nm + 110° ± 10°
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REMOVAL

I - REFITTING PREPARATIONS OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).
- ☐ Remove:
 - the front right-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
 - the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393 Bodywork, 55A, Exterior protection),
 - the accessories belt (see **11A, Top and front of engine, Accessories belt: Removal - Refitting**, page **11A-5**) (MR 392, 11A, Top and front of engine).
- ☐ Lock the flywheel using a screwdriver.

II - REMOVAL OF PART CONCERNED

- ☐ Remove:
 - the crankshaft accessories pulley bolt,
 - the crankshaft accessories pulley.

REFITTING

I - REFITTING PREPARATIONS OPERATION



WARNING

The crankshaft accessories pulley bolt must always be replaced with a new one.

Note:

Always degrease:

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

This is to avoid timing slippage.

Note:

Never turn the engine in the opposite direction to its normal operating direction.

II - REFITTING PART CONCERNED

- ☐ Refit the crankshaft accessories pulley.
- ☐ Torque and angle tighten the **crankshaft accessories pulley bolt (40 Nm + 110° ± 10°)**.

III - FINAL OPERATION.

- ☐ Refit:
 - the accessories belt (see **11A, Top and front of engine, Accessories belt: Removal - Refitting**, page **11A-5**) (MR 392, 11A, Top and front of engine),
 - the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393 Bodywork, 55A, Exterior protection),
 - the front right-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres).
- ☐ Connect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).

TOP AND FRONT OF ENGINE

Crankshaft accessories pulley: Removal - Refitting

11A

D4F, and 784

Tightening torques

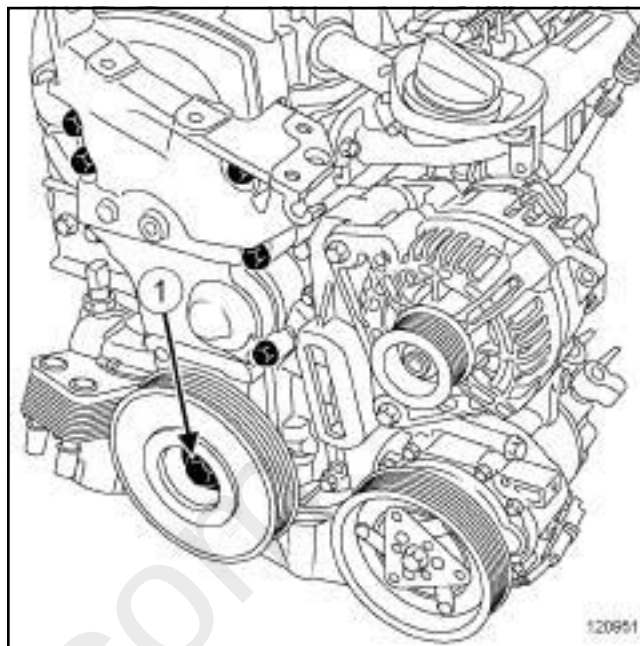
crankshaft accessories pulley bolt	40 Nm +100° ± 6°
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REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).
- ☐ Remove:
 - the engine undertray,
 - the front right-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
 - the front section of the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection),
 - the accessories belt (see **11A, Top and front of engine, Accessories belt: Removal - Refitting**, page 11A-5) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



- ☐ Lock the flywheel using a large flat screwdriver by inserting it into the gearbox opening (this operation requires two people).
- ☐ Remove:
 - the bolt (1) from the crankshaft accessories pulley,
 - the washer,
 - the crankshaft accessories pulley.

REFITTING

I - REFITTING PREPARATIONS OPERATION

- ☐ The crankshaft accessories pulley bolt must always be replaced with a new one.

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the crankshaft accessories pulley,
 - the washer,
 - the crankshaft accessories pulley bolt.
- ☐ Lock the flywheel using a large flat screwdriver by inserting it into the gearbox opening (this operation requires two people).
- ☐ Torque tighten the **crankshaft accessories pulley bolt (40 Nm +100° ± 6°)**.

TOP AND FRONT OF ENGINE

Crankshaft accessories pulley: Removal - Refitting

11A

D4F, and 784

III - FINAL OPERATION.

☐ Refit:

- the accessories belt (see **11A, Top and front of engine, Accessories belt: Removal - Refitting, page 11A-5**),
- the front section of the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection),
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
- the engine undertray.

- #### ☐ Connect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).

TOP AND FRONT OF ENGINE

Crankshaft accessories pulley: Removal - Refitting

11A

K4M, and 862

Tightening torques

new crankshaft accessories pulley bolt	40 N.m + 145° ± 15°
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IMPORTANT

Wear protective gloves during the operation.

WARNING

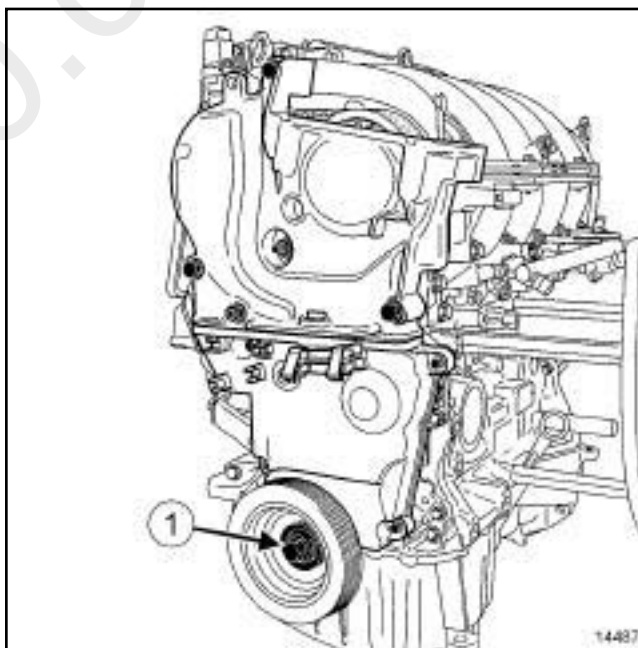
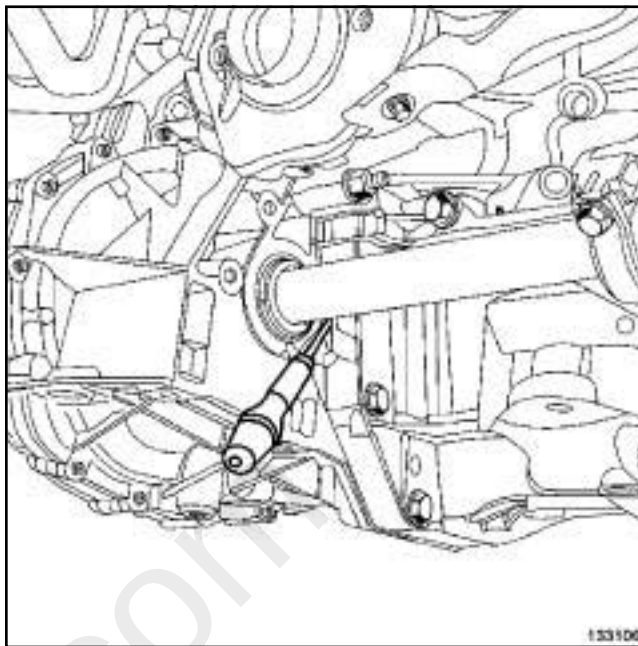
Do not run the engine without the accessories belt to avoid damaging the crankshaft accessories pulley.

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Remove:
 - the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
 - the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
 - the accessories belt (see **11A, Top and front of engine, Accessories belt: Removal - Refitting**, page 11A-5) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



- ☐ Remove:
 - the bolt (1) from the crankshaft accessories pulley by locking the flywheel using a screwdriver,
 - the crankshaft accessories pulley.