Contents

USING THE MANUAL

There are two main sections in this manual:
– **technical specifications,**
– **overhauling the engine.**

To repair the component on the vehicle, refer to the **Workshop Repair Manual** and **Technical Notes** for the vehicle.

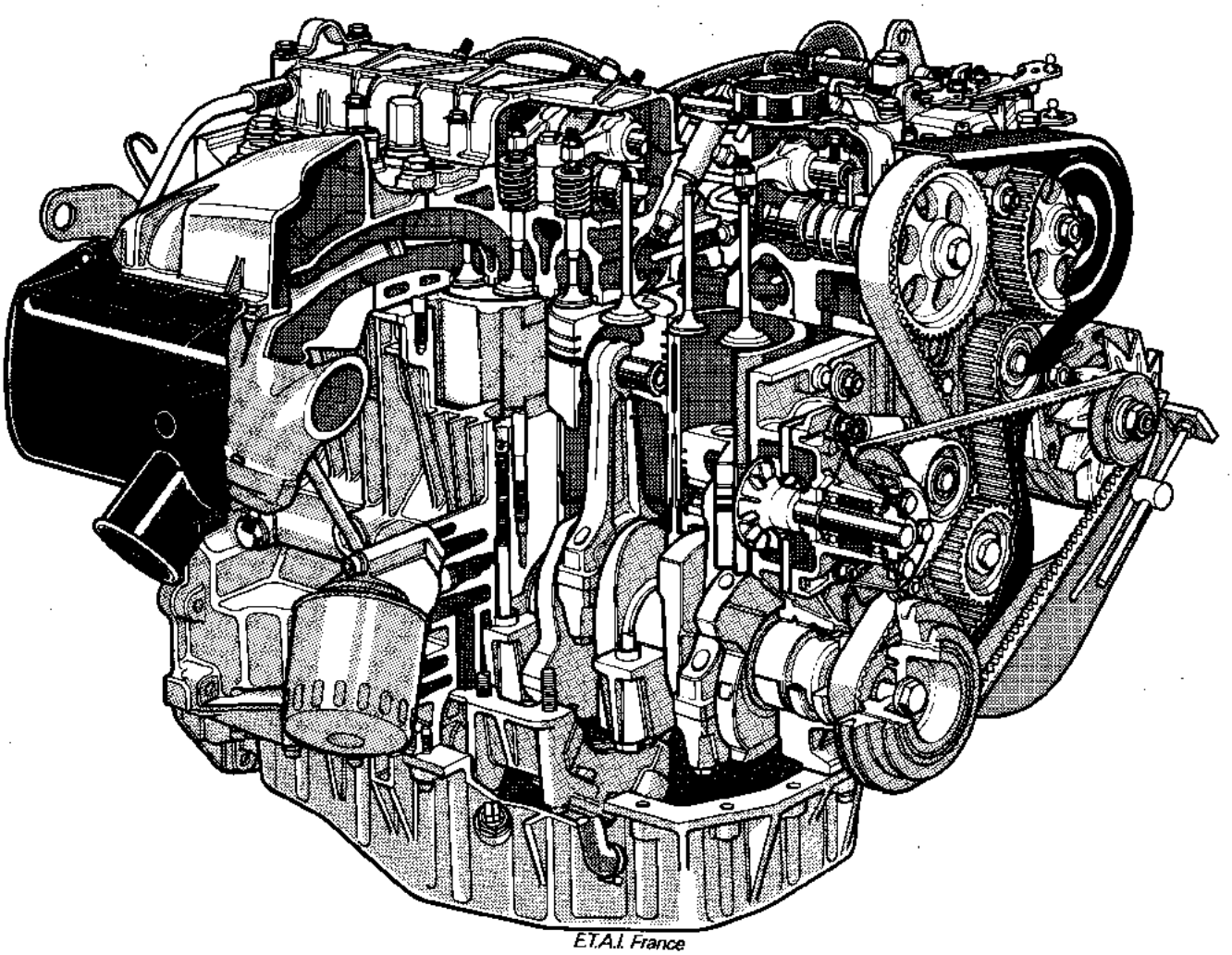
UNITS OF MEASUREMENT

– All dimensions are given in millimetres **(mm)** (except where stated otherwise).
– Tightening torques are expressed in decaNewtonmetres (**daNm**).
Reminder: **1 daNm = 1.02 m.kg.**
– Pressures in **bar**
Reminder: **1 bar = 100 000 Pa.**

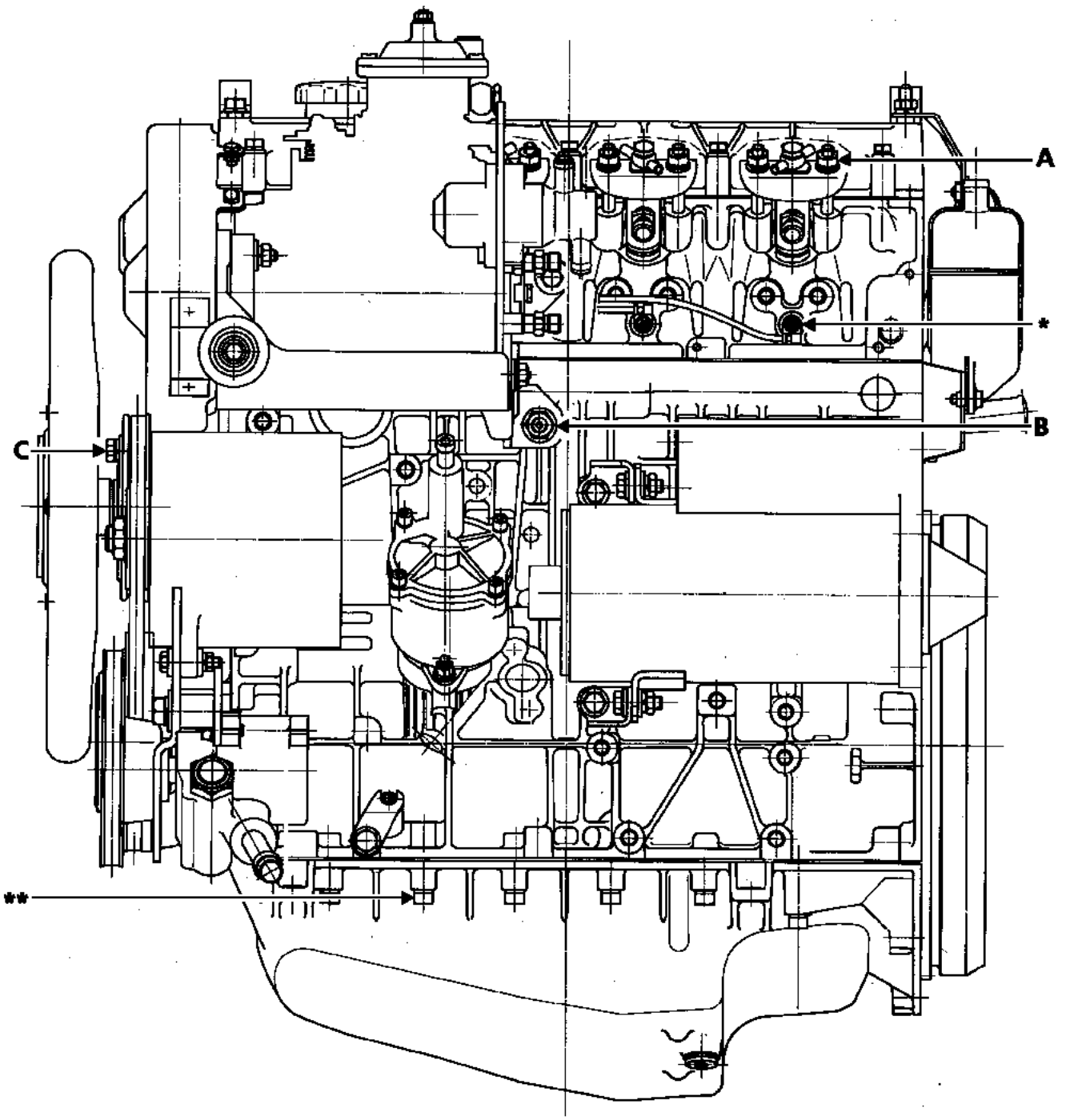
TOLERANCES

Tightening torques given without a tolerance must be accurate to within:
– in **degrees** (± **3**°).
– in **daNm** (± **10 %**).

J8S AND 852 ENGINES



CYLINDER BLOCK



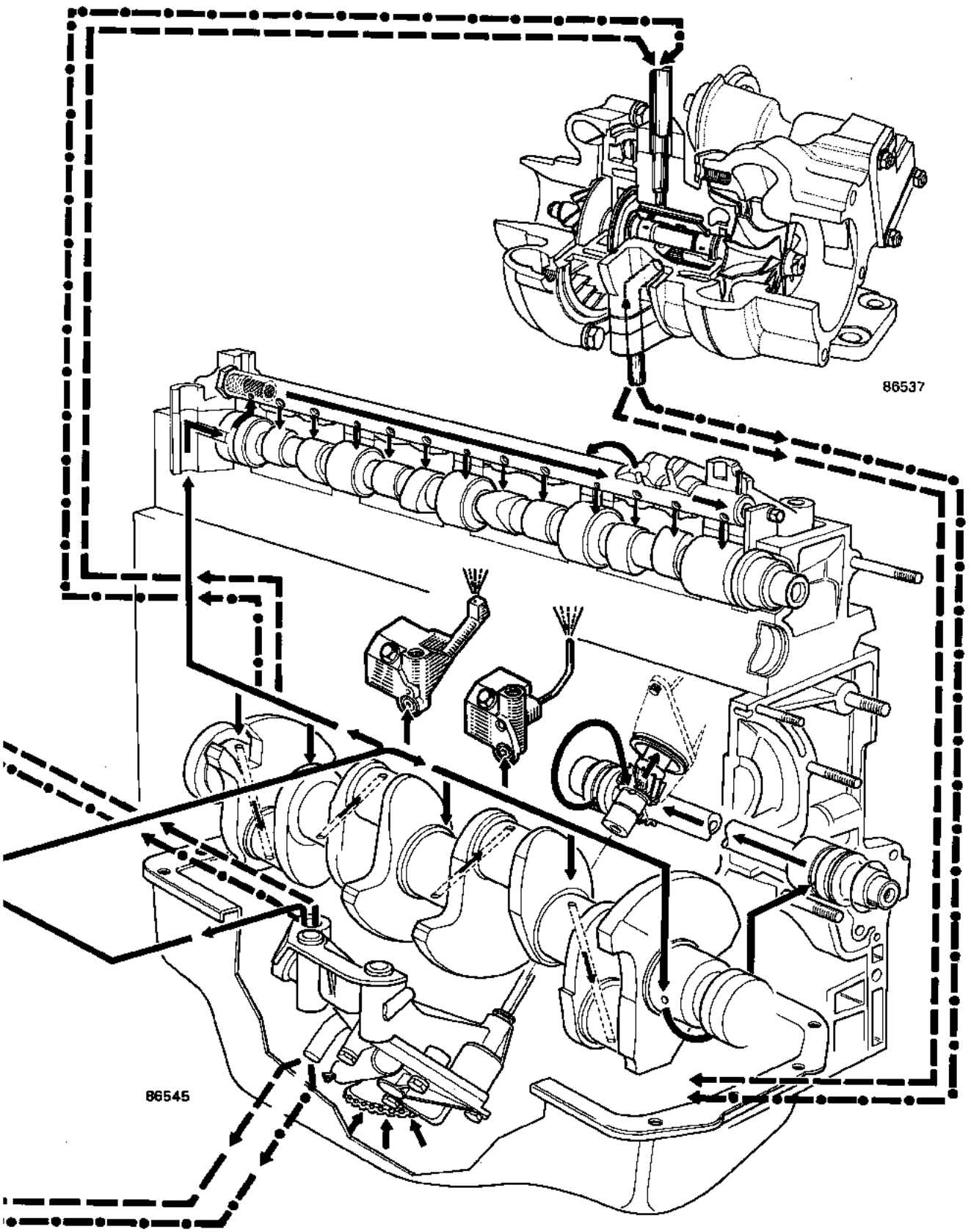
A	**2**
B	**2**
C	**2.5**

* Preheating shunt nut connector: **0.25 daNm**

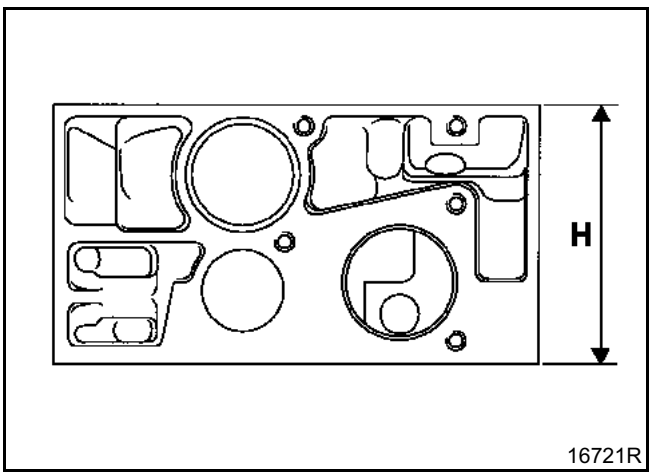
** Aluminium sump : **1.4 to 1.7 daNm**

Metal sump : **1.25 daNm**

Lubrication circuit diagram



Height of the cylinder head (in mm)
H = 104.5 ± 0.04



NO REDRESSING IS PERMITTED

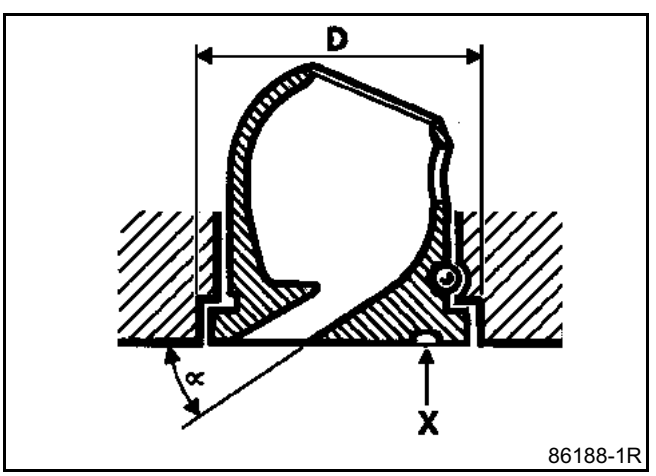
Test the cylinder head for cracks. (refer to the mating face checking section in the **Engine overhaul section**).

Maximum mating face deformation **0.05 mm**

Prechamber

Assembled prechamber

This is fitted in the cylinder head.



	Engine type	
	Normally aspirated	**Turbo**
Channel angle (α)	35°	31°
Mark (X)	None.	A drill stamp

Diameter (D) of the housing in the cylinder head (**in mm**)	
– Original dimension 1	35.5
– Original dimension 2	35.7

Original dimension **2** is exclusively for works-repaired cylinder head dimensions.

Protrusion in relation to cylinder head:
it should be between **0.01** and **0.04 mm**.

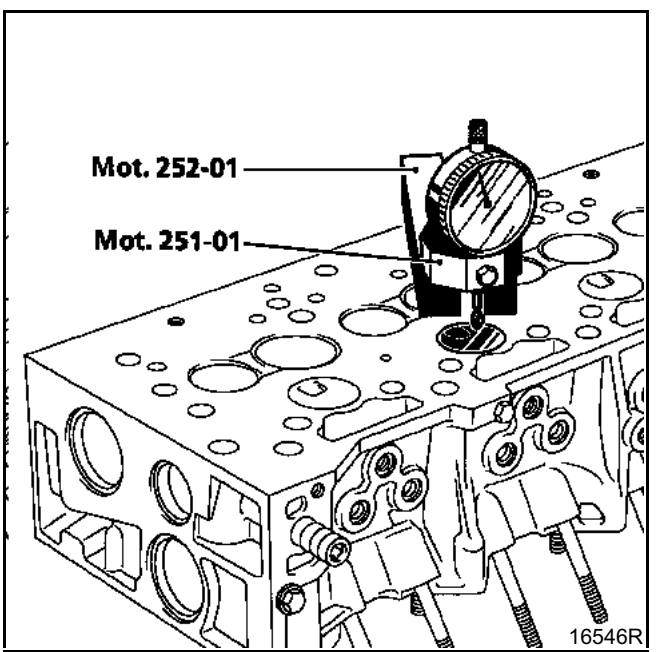
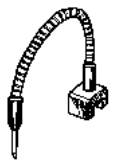
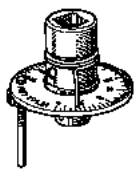
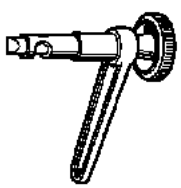
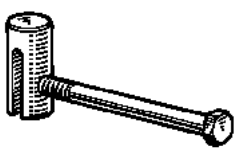
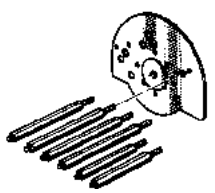
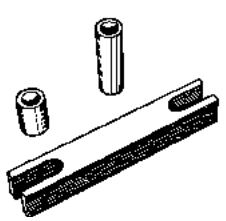
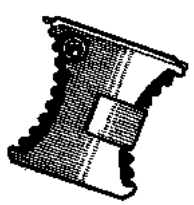
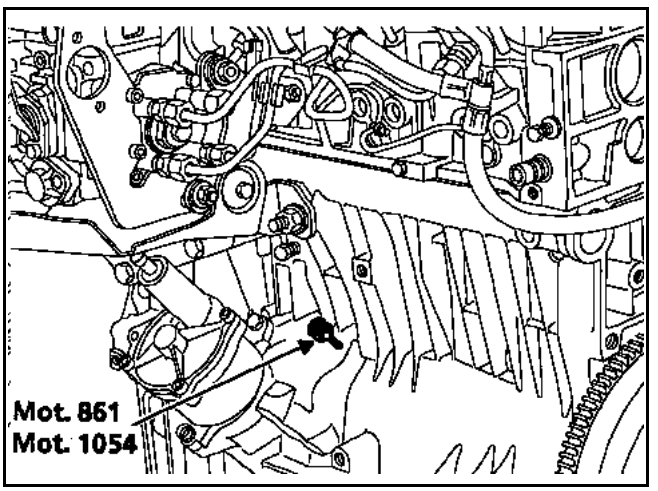
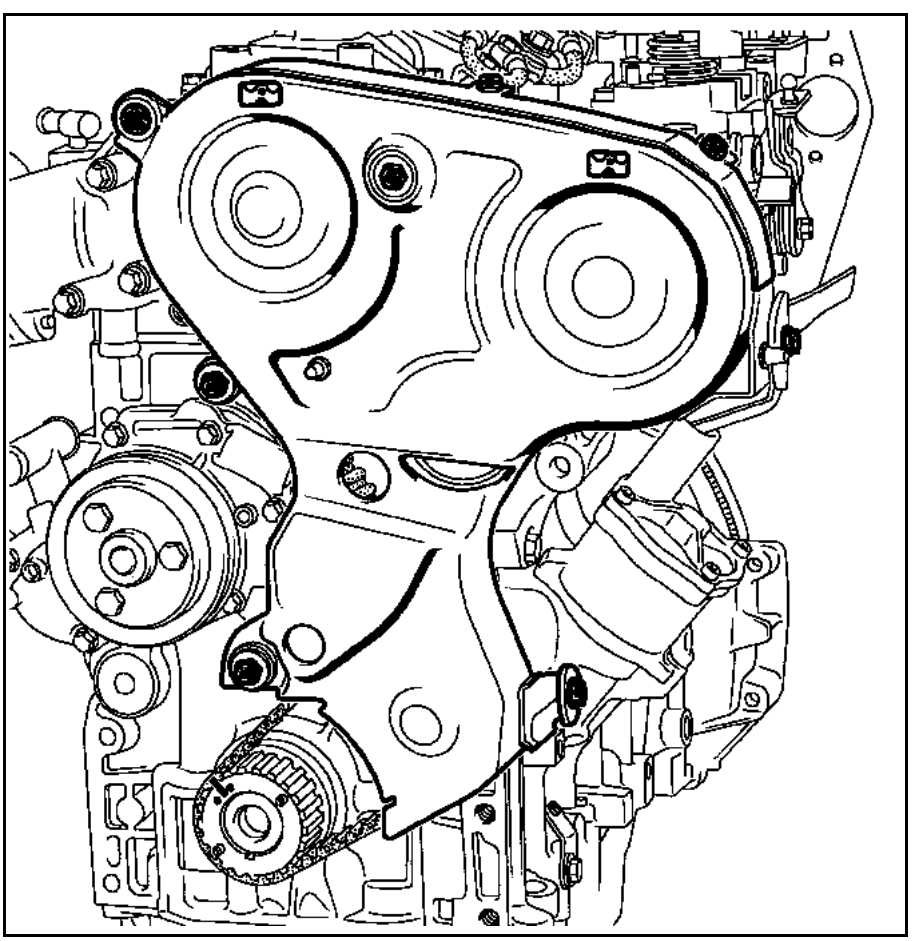


Illustration	Tool number	Parts Department number	Description
	**Mot. 591-02**	00 00 059 102	Magnetised flexible shaft for cylinder head angular wrench.
	**Mot. 591-04**	00 00 059 104	Cylinder head angular wrench, **1/2"** drive with gauge.
	**Mot. 647**	00 00 064 700	Tappet adjuster.
	**Mot. 720**	00 00 072 000	Cylinder head locating tool.
	**Mot. 792-03**	00 00 079 203	Engine support plate for Desvil engine stand.
	**Mot. 799-01**	00 00 079 901	Timing gear wheel immobiliser
	**Mot. 853**	00 00 085 300	Liner seal compression tool.
	**Mot. 854**	00 00 085 400	Diesel injection pump sprocket locking tool.

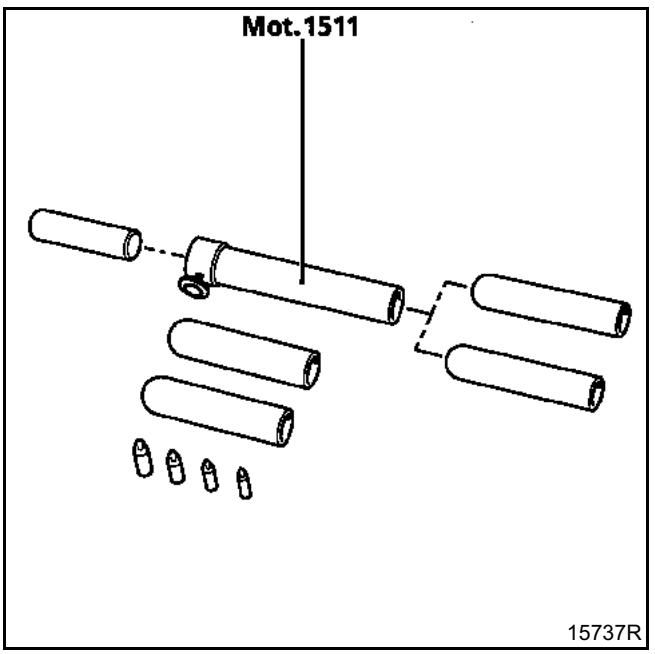
Adjusting the timing

Fit the TDC setting rod on **Mot. 861** or **Mot. 1054**, then turn the engine (clockwise from the timing end) to bring the camshaft sprocket and injection pump marks in line with the valve timing cover marks (**start to pull on the rod one half-tooth before the marks are aligned)**, in order to avoid dropping into a balance hole.





The valve stem seals must be fitted using tool Mot. 1511 or with the FACOM tool, part number DM6J4.

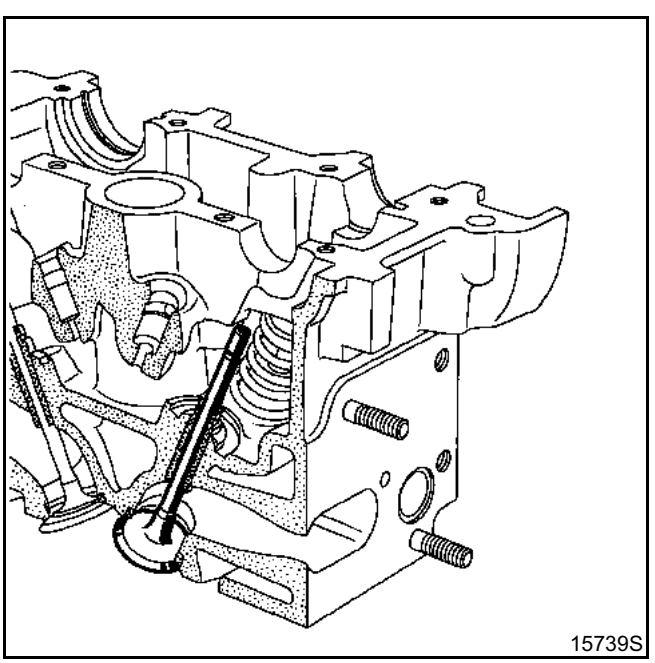


15737R

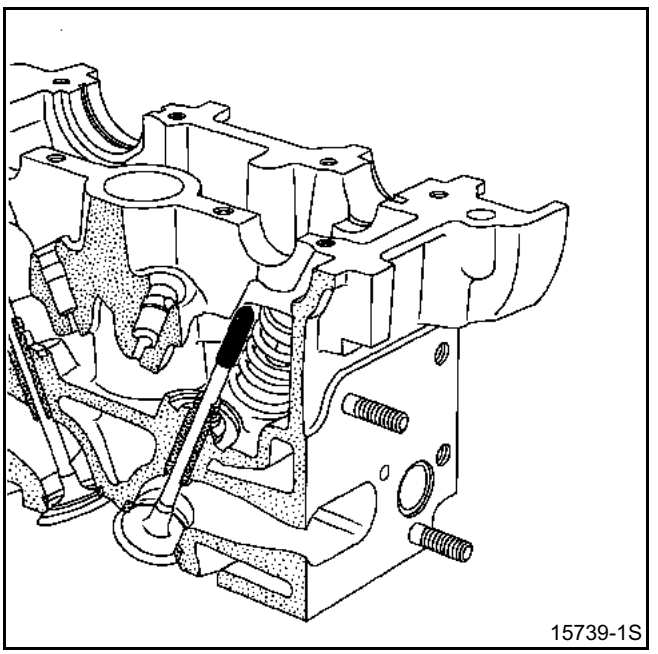
NOTE: do not lubricate the valve stem seals before fitting them.

Fitting new valve stem seals.

Locate the valve in the cylinder head.

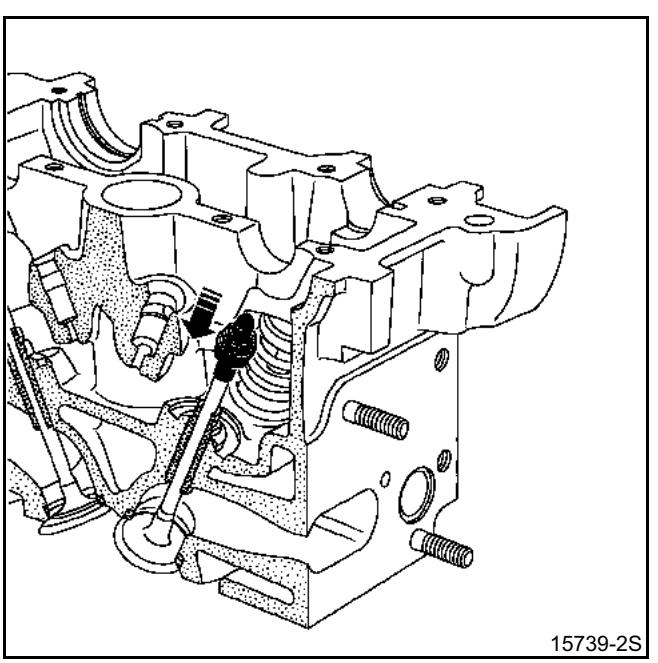

15739S

Place the barrel of the **Mot. 1511** tool over the valve stem (the internal diameter of the barrel must be identical to the diameter of the valve stem).


15739-1S

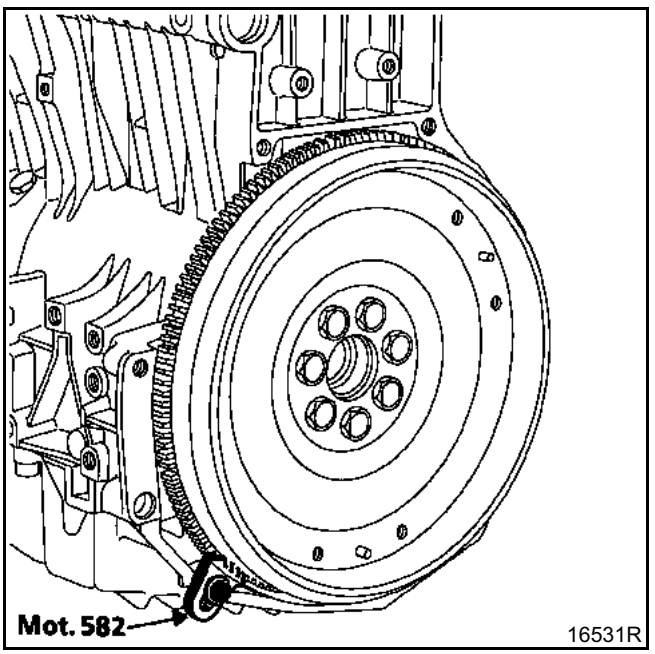
Keep the valve pressed against its seat.

Place the valve stem seal (not lubricated) over the tool barrel.


15739-2S

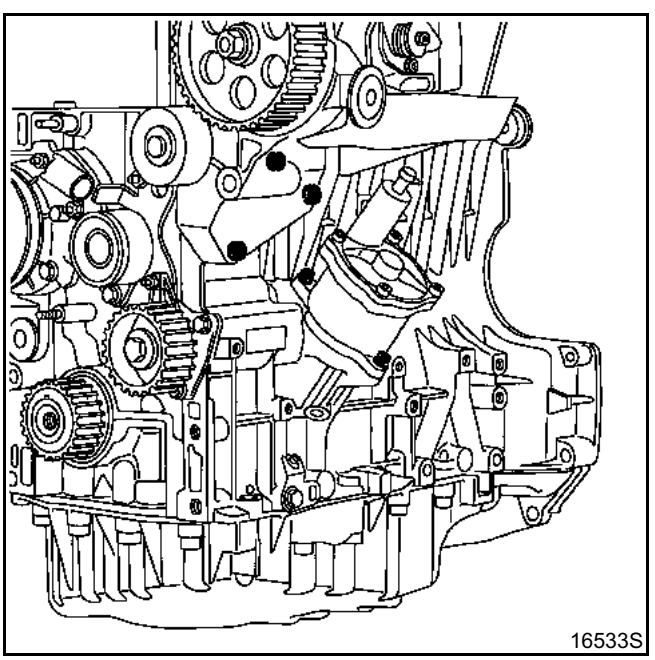
REMOVING THE BOTTOM ENGINE

Fit the flywheel locking tool **Mot. 582** and remove the clutch and the flywheel.

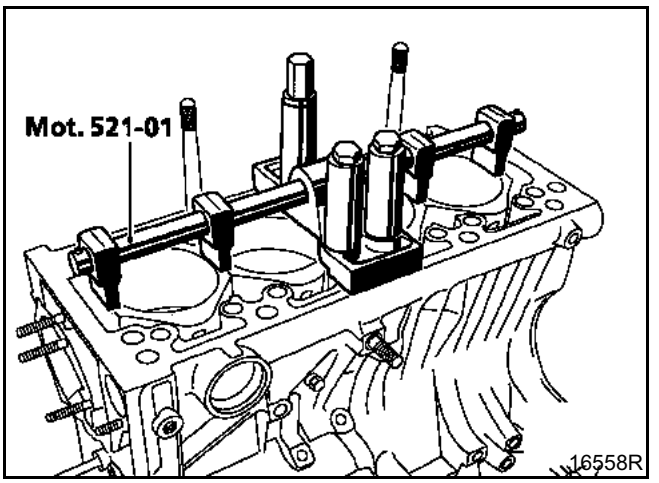


Unscrew the three mounting bolts on the injection pump support to remove the unit comprising the pump, the support and the injection pump pulley.

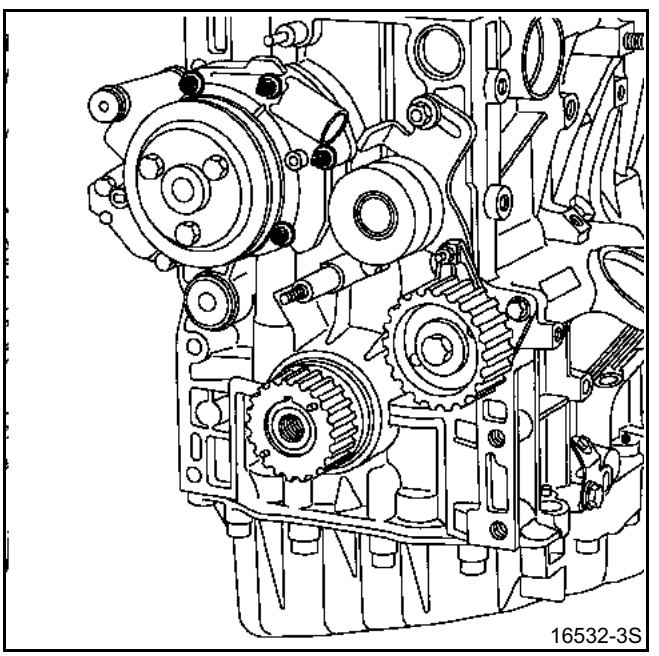
Remove the vacuum pump then remove the pinion and the six pieces holding the oil pump.



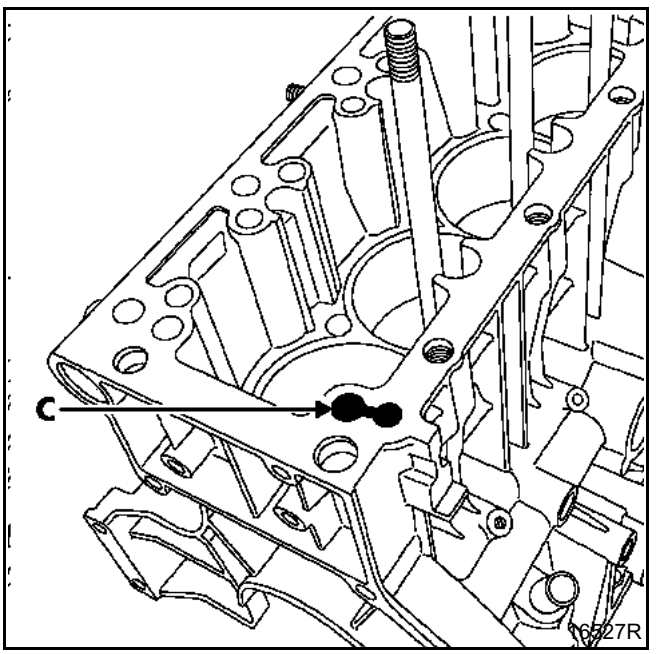
Fit the cylinder liner clamp **Mot. 521-01**.



Remove:
– the water pump.



Clean the cylinder head mounting holes, especially in the oil outlet duct (C).



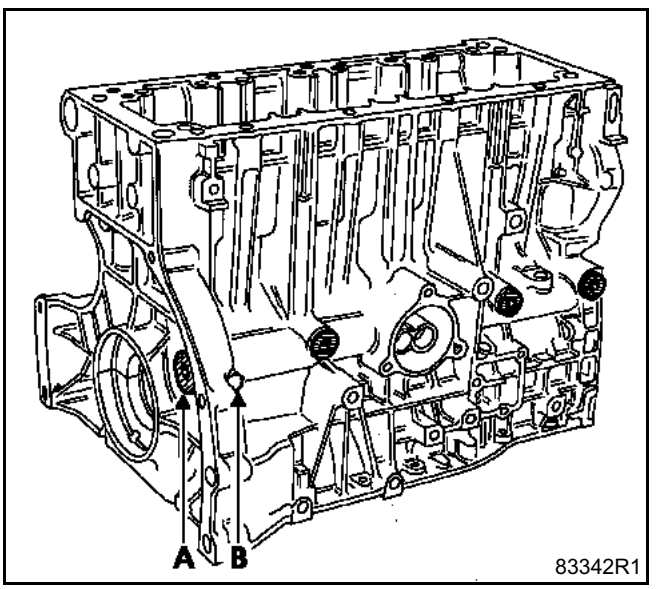
This is necessary in order to obtain the correct tightening of the bolts.

Also pass a wire through the crankshaft pipes.

REFITTING THE BOTTOM ENGINE

Replace the lubrication channel plugs, tightening them to:

- **8 daNm** for the plugs (A),
- **2 daNm** for the plugs (B) for bearing **n° 1**,
- **4 daNm** for the other plugs.

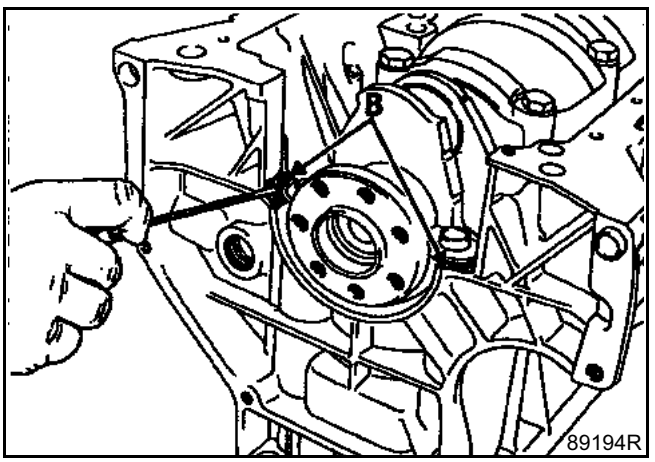


Check that the cylinder head mounting bolts can be screwed easily.

Screw and unscrew the bolts several times to clear the threads if necessary.

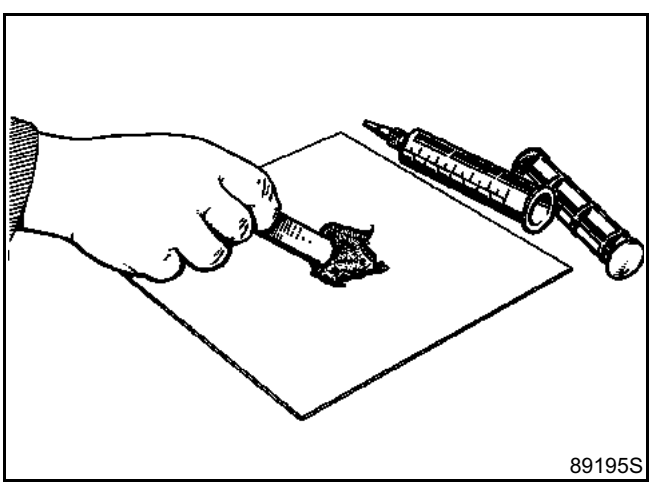
The cylinder head studs in the cylinder block must be fitted with **Loctite SCELBLOC**.

Lightly coat the inner surfaces of the cylinder block in (B) with **RHODORSEAL 5661** without obstructing the oil grooves.

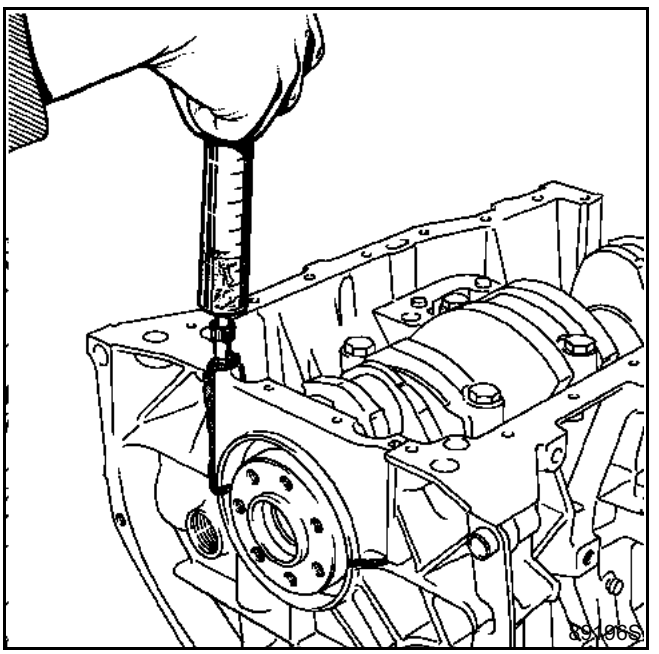


Fit the caps and tighten them to a torque of **8.75 to 9.75 daNm**.

Mix **45 ml** of **RHODORSEAL 5661** (approximately half a **100 g tube**) with half the tube of hardener. Stir with the spatula until the mixture forms a smooth, light pink paste.



Insert the mixture into the syringe and inject it into the grooves of the crankshaft bearing cap.



Let the paste run out slightly on either side of the grooves of the crankshaft bearing cap, to ensure that it has completely filled the sealing groove.

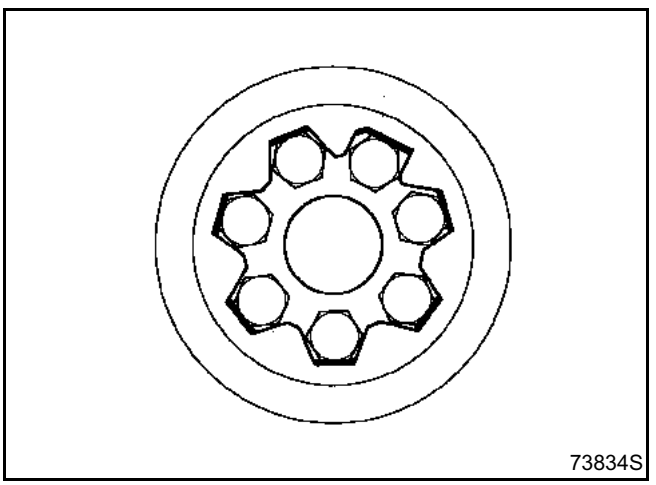
Fitting the flywheel

Use **Loctite AUTOFORM** to coat the flywheel bearing face on the crankshaft

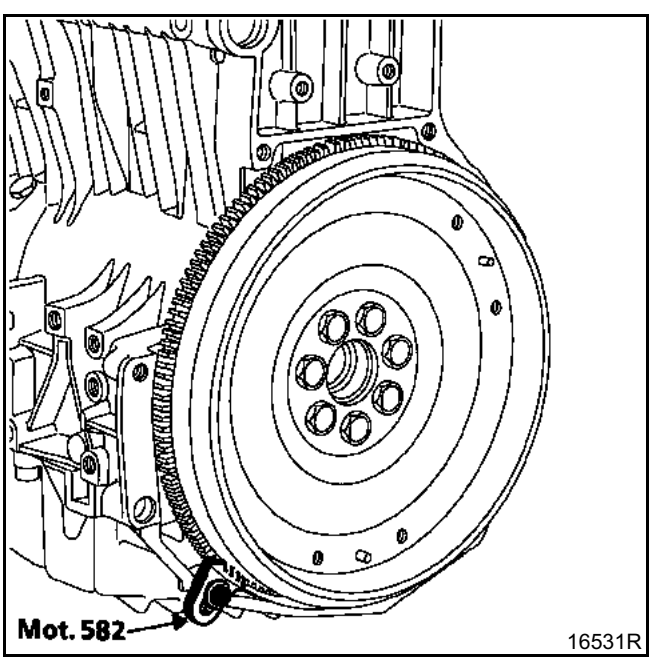
Fit the flywheel.

Place a drop of **Loctite FRENETANCH** on the new bolts.

Replace the flywheel bolt stop if there is one fitted.



Lock off the flywheel using locking tool **Mot. 582** and tighten the bolts to a torque of **6** to **6.5 daNm.**

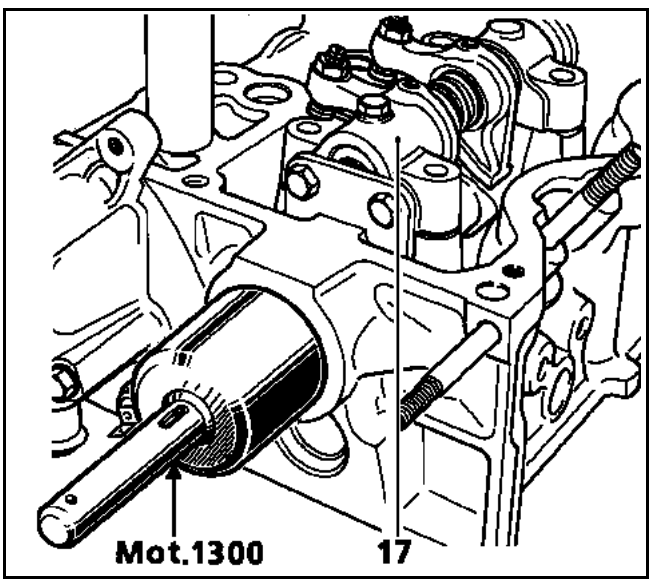


Close the stop, if there is one fitted on the flywheel.

Refit:
- the clutch, tightening it to a torque of **2 daNm**.
- the timing tensioner roller,
- the coolant pump and the coolant return pipe on the cylinder block. The water pump should be fitted with a new seal and tightened to a torque of **1.3 daNm**.
- the crankshaft timing sprocket,
- the relay shaft pinion with the key and tighten to a torque of **5 daNm** using **Mot. 855**,
- the water pump pulley by tightening it to a torque of **2 daNm**.

Fitting the camshaft seal (timing side)

Fit the seal (18) to the mounting bush **Mot. 1300**. Oil the external diameter of the seal. Fit the assembly on to the camshaft (16).

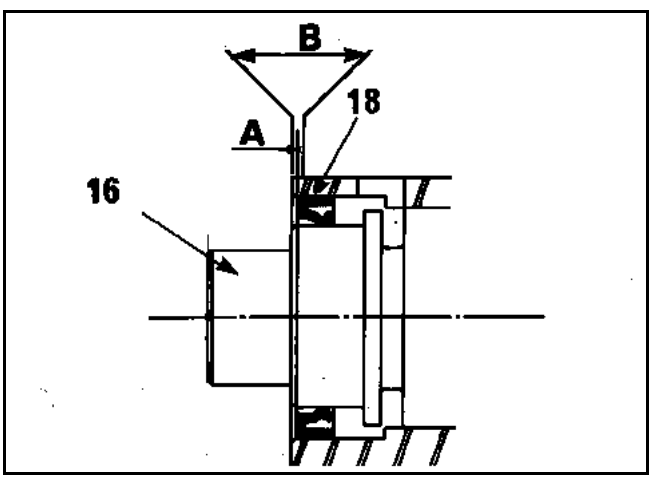


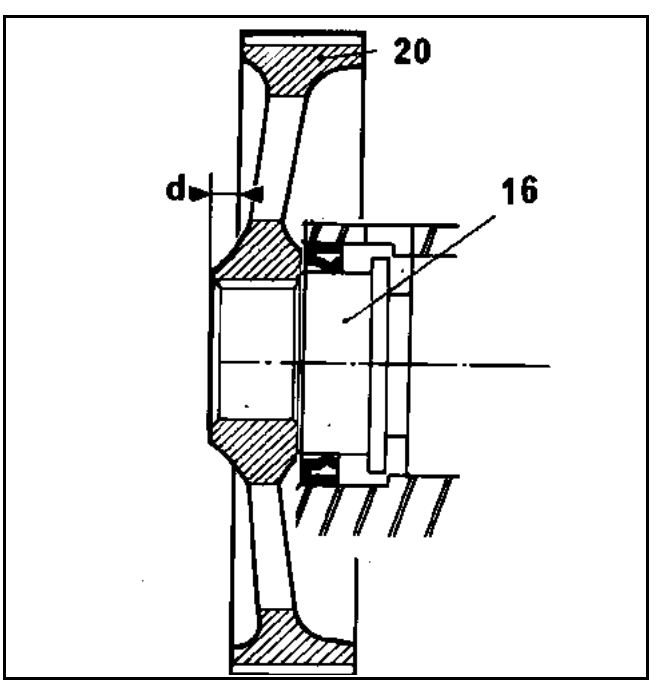
If the seal lip marks the crankshaft mating face a **1.5 mm** thick washer (fitting the tool) must be placed between the seal and the tool to shift the seal.

Refit:
- the camshaft sprocket and tighten to a torque of **5 daNm**,
- the injection pump rear mounting by tightening the bolts to a torque of **2.5 daNm (do not tighten the bolts at the front of the pump to carry out the injection pump setting),**
- Timing tensioning roller.

A: fitting dimension with tool **Mot. 1300**

B: fitting dimension with tool **Mot. 1300**, and the washer (repair).





NOTE:

Using device Mot. 1505

Switch on the device and bring the read head (A) up to the belt wire for measuring.

Hold the read head between approximately **5** and **10 mm** from the belt (distance X).

The measurement can be read on side (1) or (2) of the belt as appropriate.

Either sensor, (a) or (b), may be used, provided that the sensor being used as reference is outside the field of measurement.