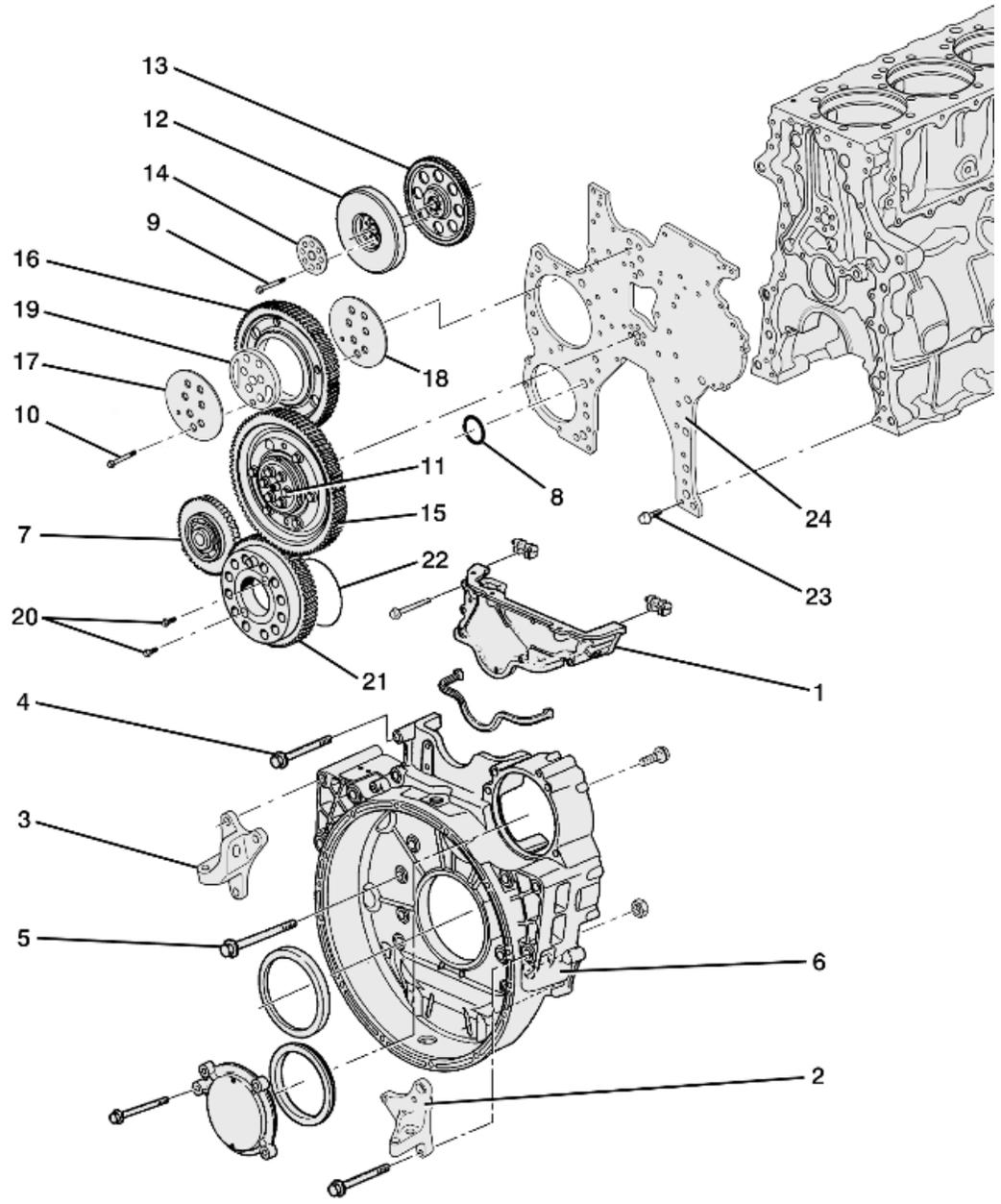


# Timing assembly, exploded view



21 3719A

## Timing assembly, removal

The item numbers indicated in the text refer to the drawing on page .

Remove starter motor.

Remove compressor.

Remove steering pump.

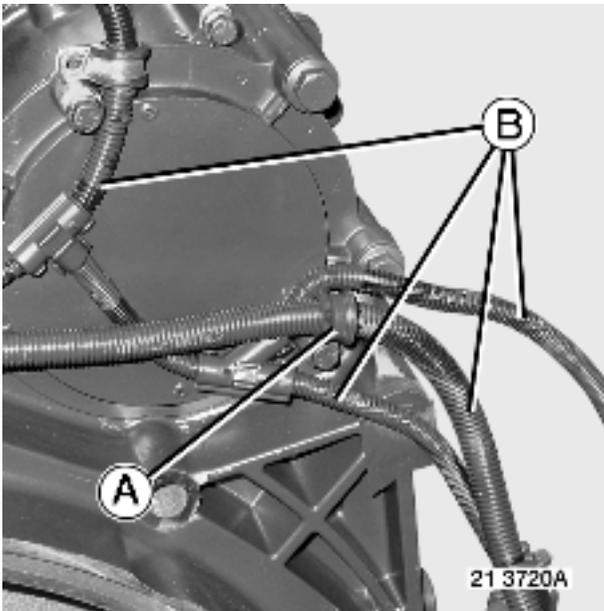
Remove flywheel.

Remove the crankshaft rear seal.

Remove the oil sump.

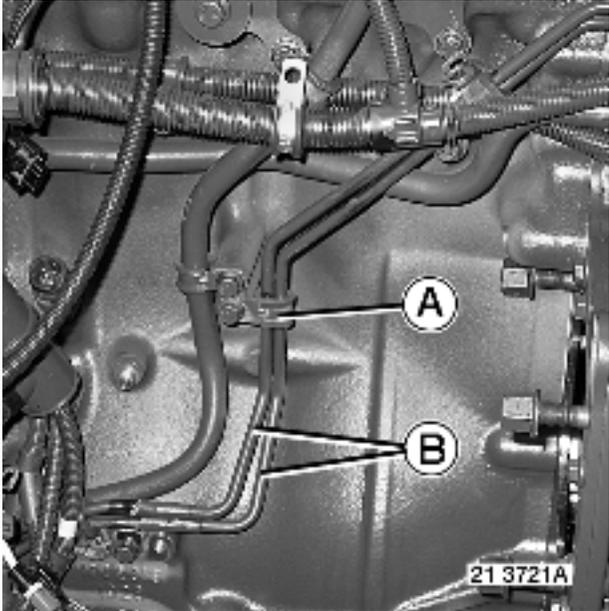
Remove upper timing casing (1).

Remove brackets (2 - 3).



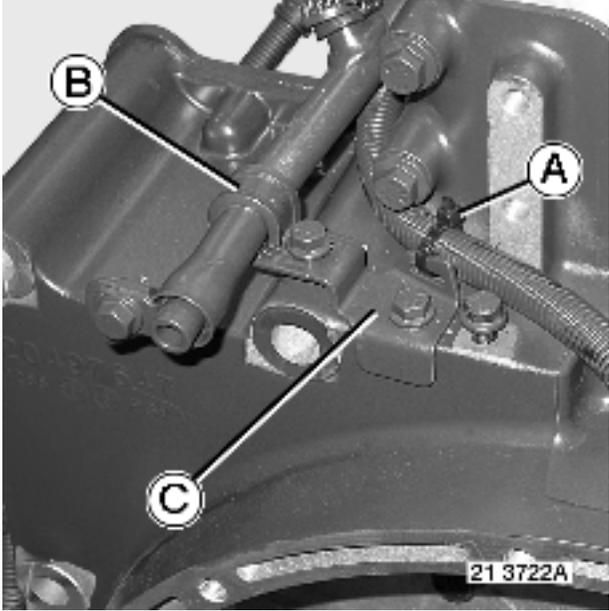
Remove clamp (A).

Disengage wiring harnesses (B).



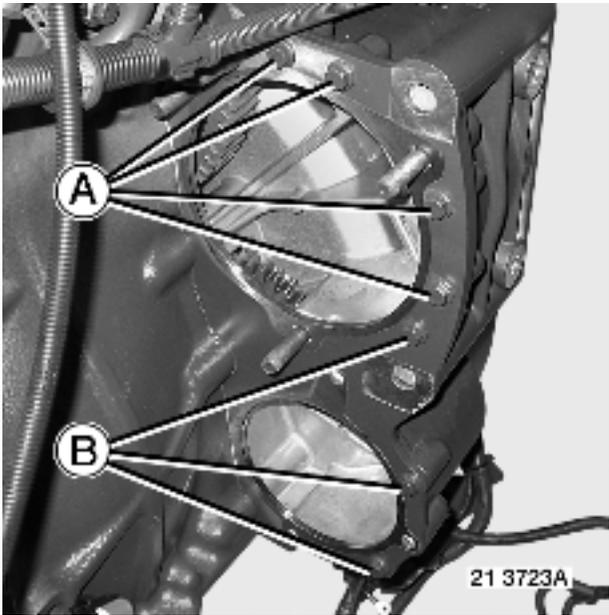
Remove clamp (A).

Remove pipes (B).

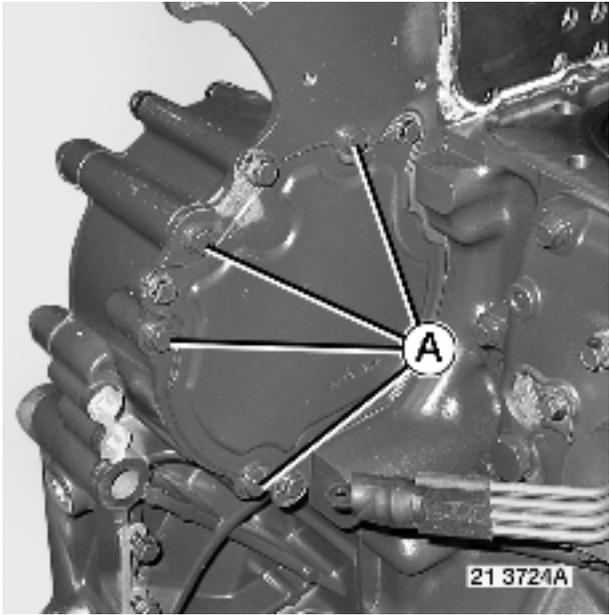


Cut cable tie (A).

Remove flange (B).  
Remove bracket (C).



Remove bolts (A - B) M8.



Remove bolts (A) M8.

Depending on the assembly.

Remove bolts **(4) M10 - (5) M14** by loosening them in the reverse sequence to tightening.

Remove flywheel **(6)**.

Depending on the assembly.

#### **Assembly type A**

Remove pinion **(7)**.

#### **Assembly type B**

Remove bolt.

Remove pinion **(7)**.

Remove gasket **(8)**.

Loosen bolts **(9 - 10 - 11)** proceeding in the reverse sequence to tightening.

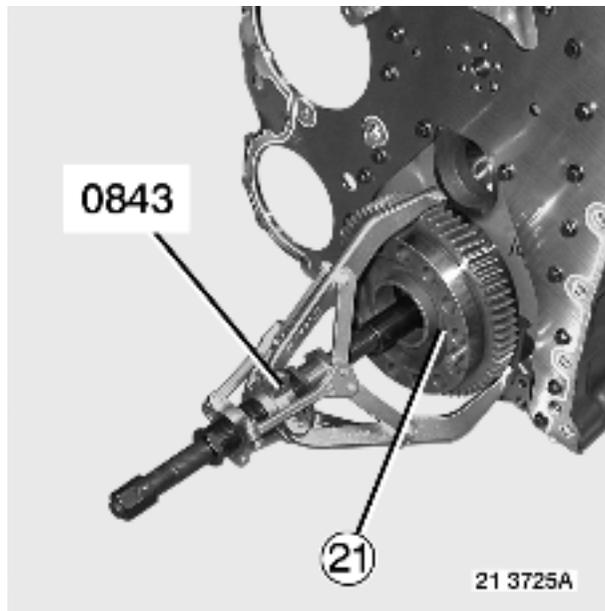
Remove vibration damper **(12)** and camshaft pinion **(13)**.

Remove washer **(14)**.

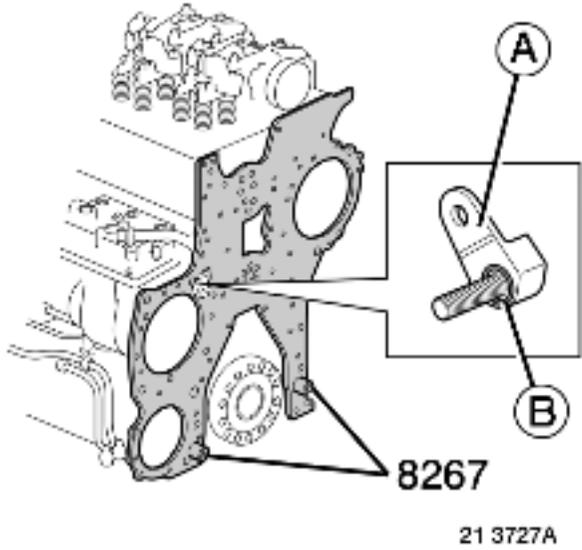
Remove pinions **(15 - 16)**.

Remove half-rings **(17 - 18)**.

Remove hub **(19)**.



Remove bolts **(20)**.  
 Remove pinion **(21)**.  
 Use tool 0843.  
 Remove gasket **(22)**.

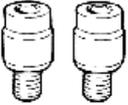


Place locating tools 8267 in position and tighten them to **60 Nm**.  
 Remove stud holder unit **(A)**.  
 Remove gasket **(B)**.  
 Depending on the assembly.  
 Remove bolts **(23)** by loosening them in the reverse sequence to tightening.  
 Remove timing plate **(24)**.

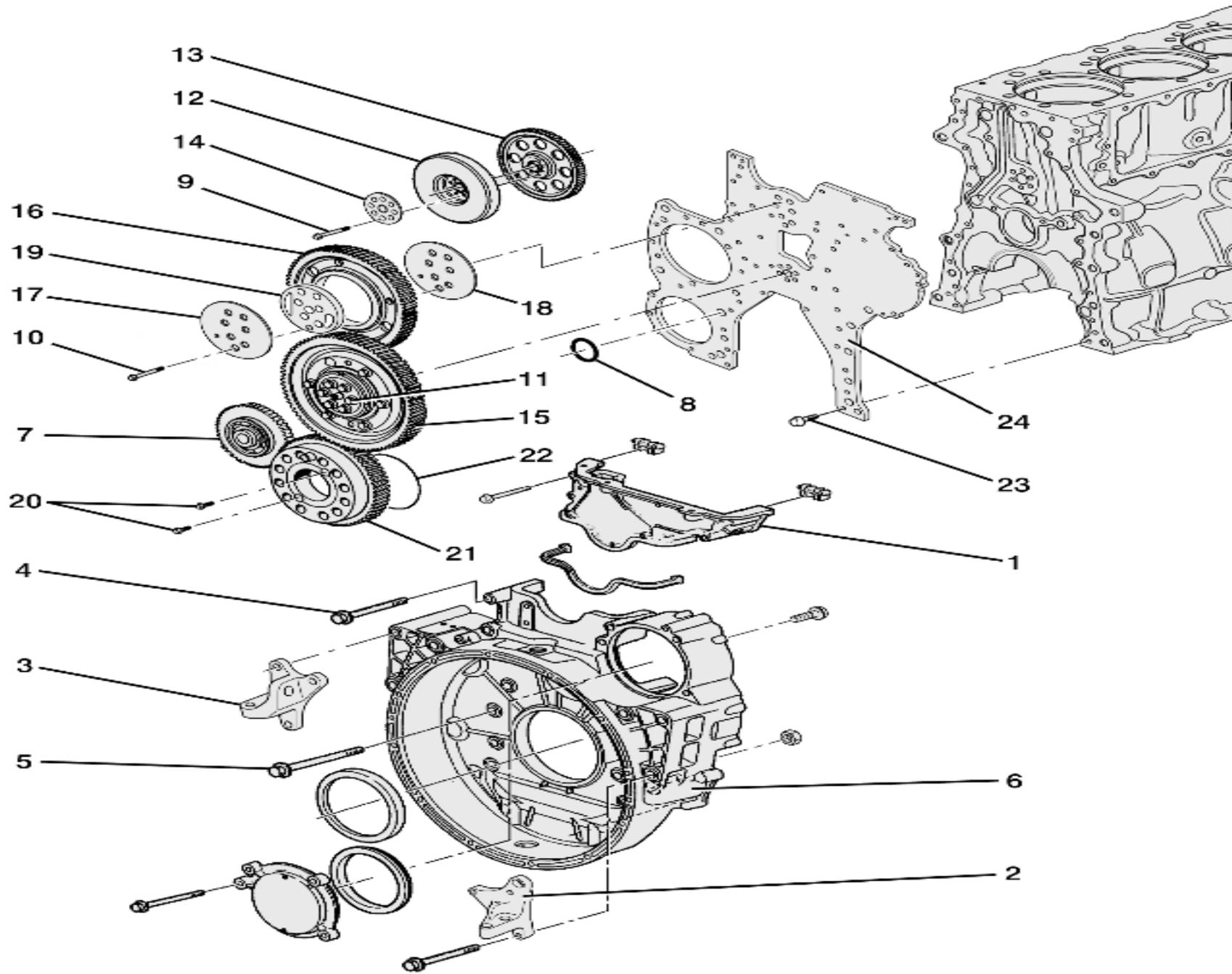
**Tools**

**Specific tools**

Illustration	RENAULT TRUCKS part N°	Designation	Manufacturer's reference N°	Manufacturer's code N°	Scale	Qty
	5000260843	PULLER			2	1

						
	<p>740998267</p>	<p>GUIDE</p>			<p>2</p>	<p>1</p>

**Timing assembly, exploded view**



21 3719A

## Timing assembly, fitting

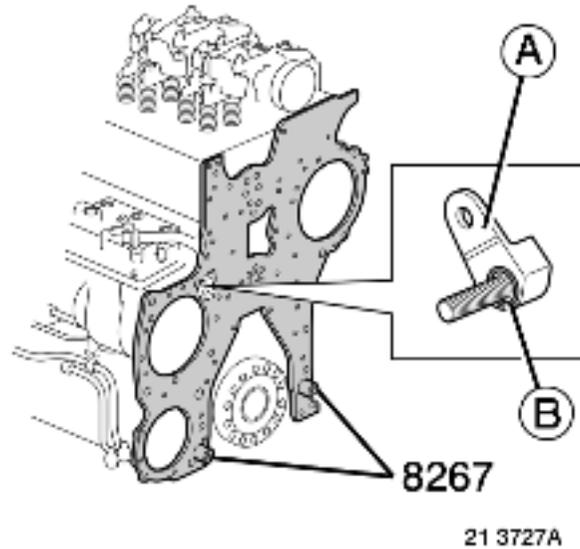
The item numbers indicated in the text refer to the drawing on page .

Clean the joint faces.

Depending on the assembly.

Apply a bead of silicone.

Fit timing plate **(24)**.



Replace O-ring **(B)** with a new O-ring.

Fit stud holder unit **(A)**.

Depending on the assembly.

Fit bolts **(23)**.

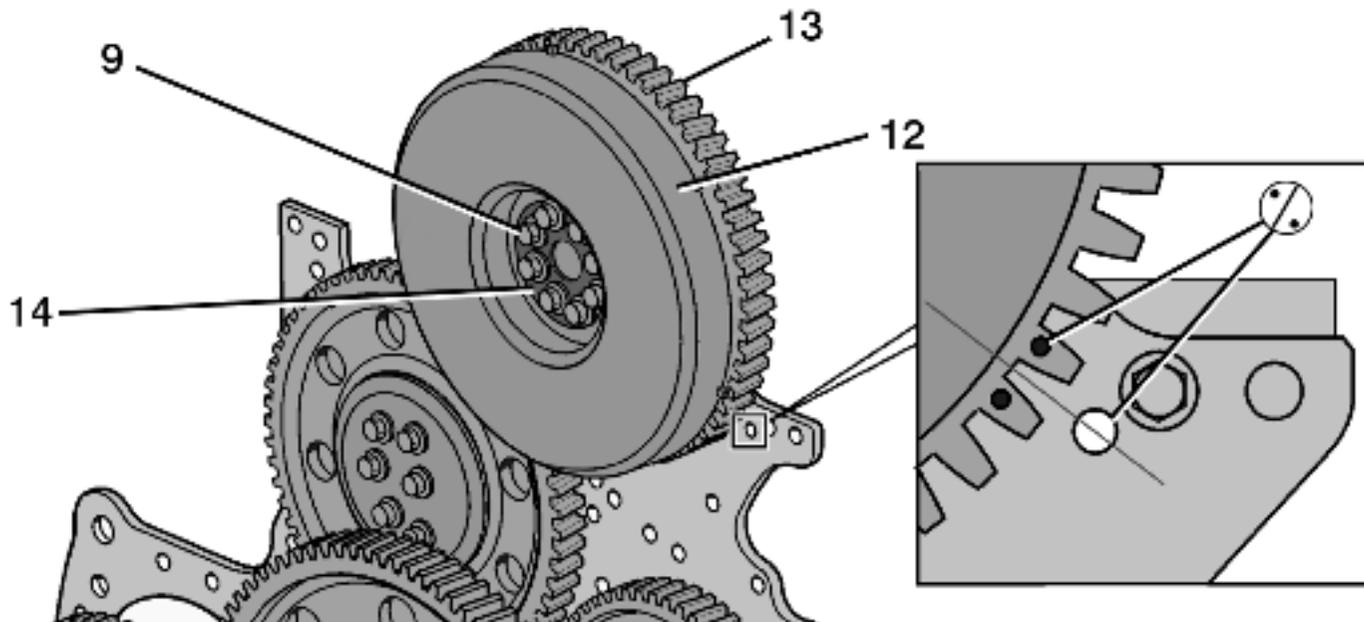
Tighten to torque.

Follow the tightening sequence.

Withdraw the locating tools 8267.



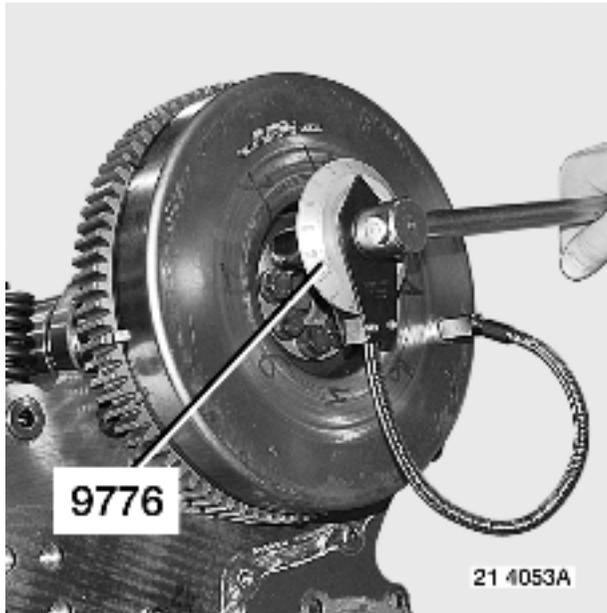
The camshaft top dead centre mark (TDC) must be positioned between the marks (A) on the camshaft front bearing cap.



21 3576B

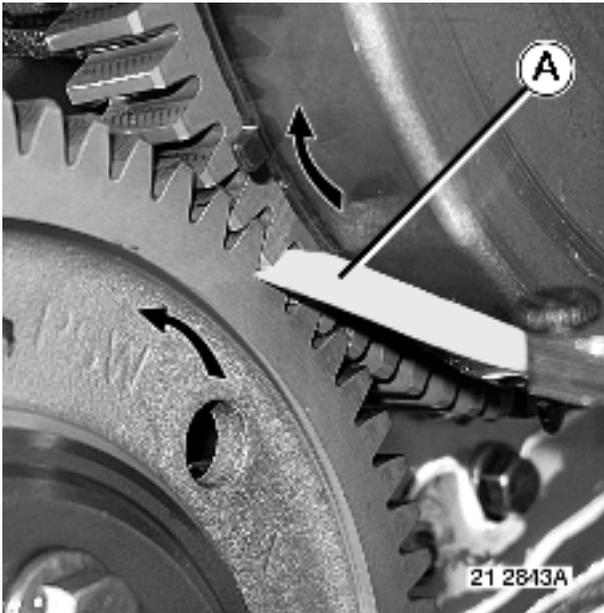
Fit pinion (13).

Check the position of marks.  
Fit vibration damper **(12)**.  
Fit the washer **(14)**.  
Fit bolts **(9)**.

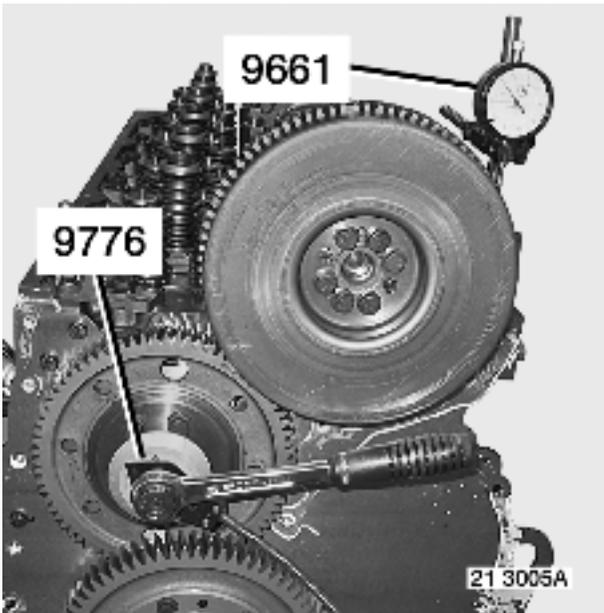


Tighten to torque.

Use tool 9776.  
Lubricate hub **(19)**.  
Use engine oil.  
Position hub **(19)** in pinion **(16)**.  
Install thrust half-rings **(17 - 18)**.  
Fit pinion **(16)**.  
Start bolts **(10)** but do not tighten.



Slide a feeler gauge (A) with a thickness of **0.1 mm** between the teeth contact faces of pinions (13 - 16). Preliminary tighten bolts (10) to a torque of **10 Nm**.



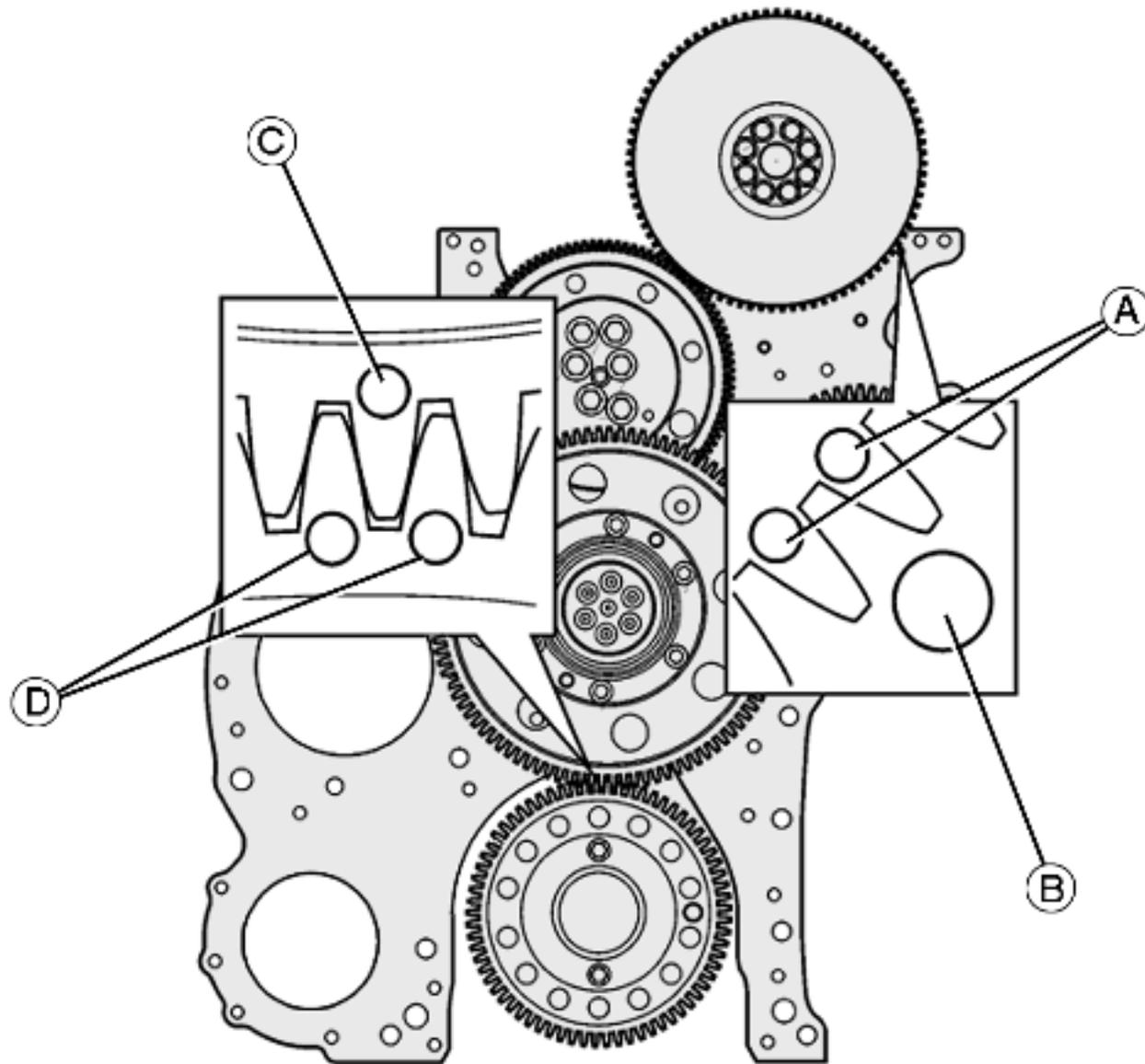
Check the backlash .  
Use tool 9661.

For values, see "Technical data" chapter.

If the backlash is correct, tighten bolts **(10)** to torque (see page(s) ).  
Use tool 9776.

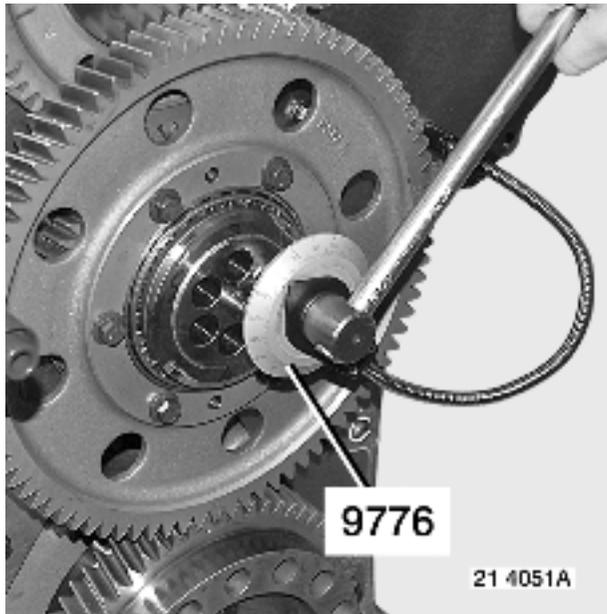


Lightly oil a new O-ring **(22)** and install.  
Fit pinion **(21)**.  
Tighten bolts **(20)** to torque.



21 3758A

Fit pinion (15) ensuring the position of marks (A - B) / (C - D).  
Tighten bolts (11) to torque following the tightening sequence.



Use tool 9776.



Replace O-ring **(8)** with a new O-ring.  
Depending on the assembly.

**Assembly type A**

Fit pinion **(7)**.

### **Assembly type B**

Fit pinion **(7)**.

Fit bolt.

Tighten to torque.

Check the timing.

Inspect the backlash of pinions **(7 / 21) - (15 / 21) - (16 / 15)**.

For values, see "Technical data" chapter.

In the event of non-conforming play, adjust timing plate **(24)**.

Clean the flywheel casing **(6)**.

Clean the joint faces.

Place the engine in a vertical position.

Depending on the assembly.

Apply a bead of silicone.

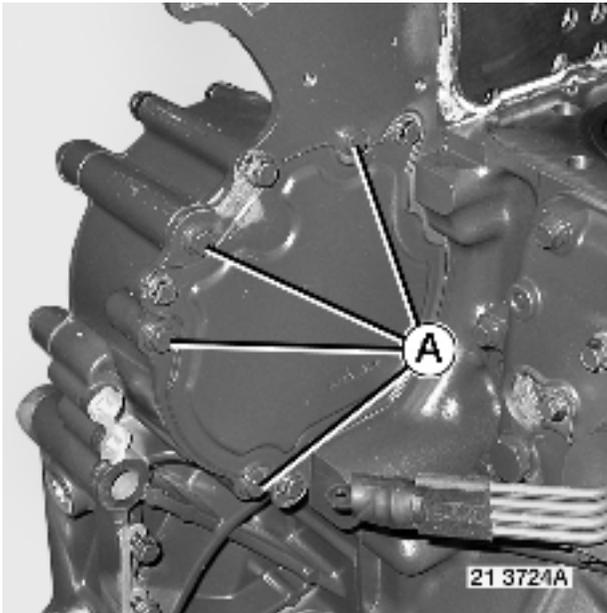
Apply "

ADHESIF SILICONE 7091

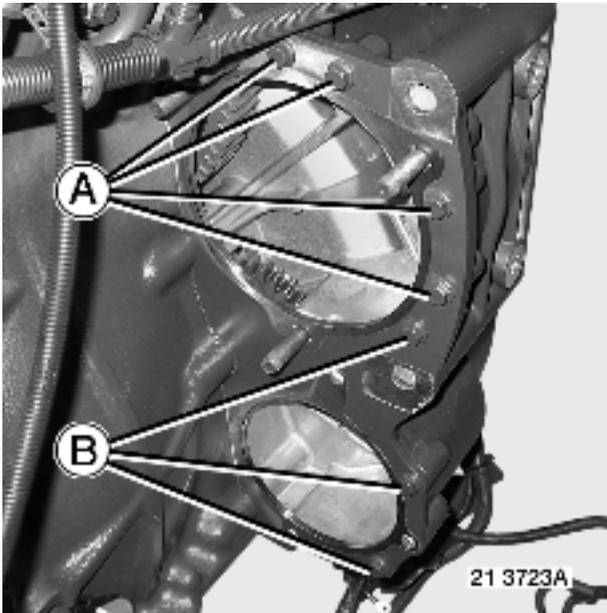
Fit flywheel **(6)**.

Depending on the assembly.

Tighten bolts **(4) M10 - (5) M14** to torque, following the tightening sequence.

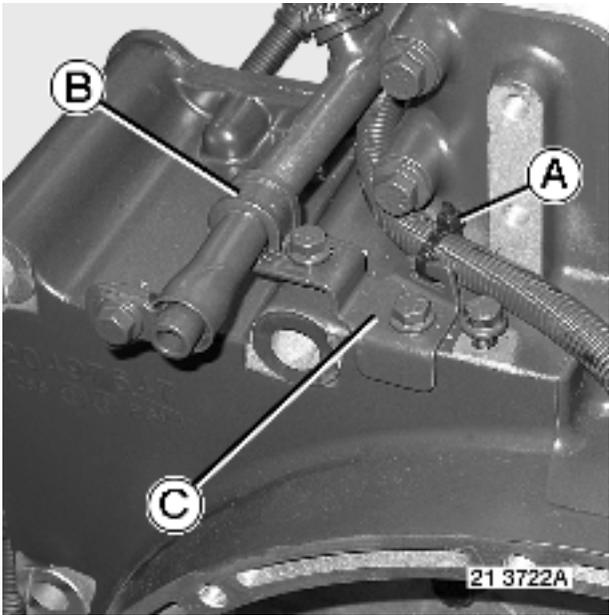


Fit bolts (A) M8.  
Tighten to torque.



Fit bolts (A - B) M8.

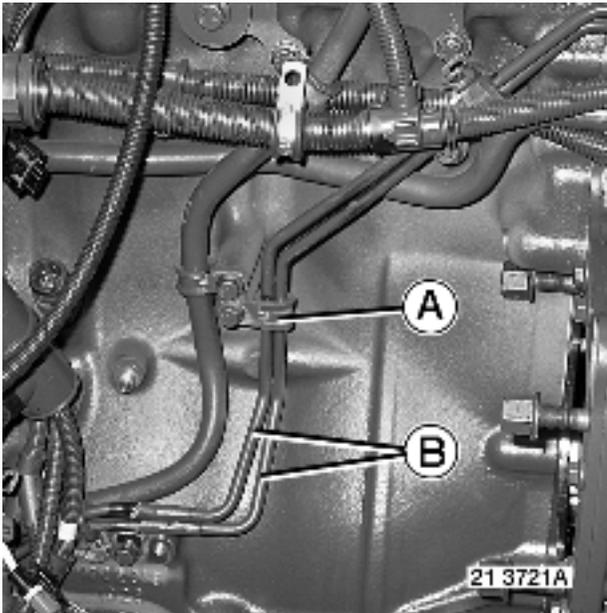
Tighten to torque.



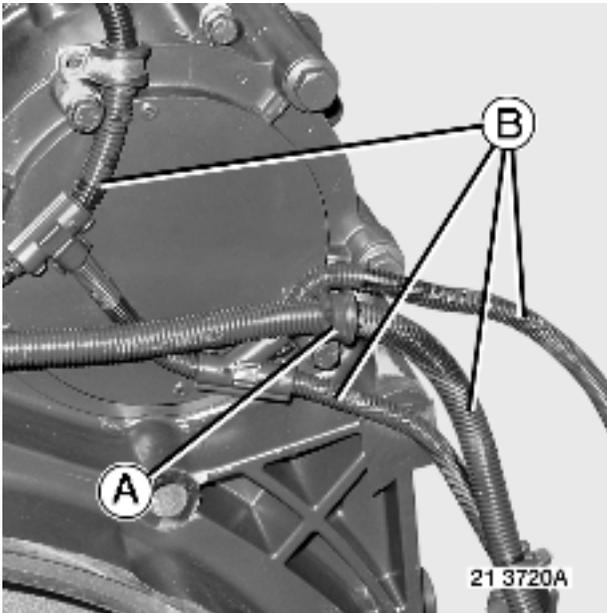
Fit bracket **(C)**.  
Tighten to torque.

Fit clamp **(B)**.  
Tighten to torque.

Fit clamp **(A)**.



Fit pipes **(B)**.  
Fit clamp **(A)**.  
Tighten to torque.



Install wiring harnesses **(B)**.  
Fit clamp **(A)**.  
Tighten to torque.

Fit brackets **(2 - 3)**.  
Tighten to torque.

Fit upper timing casing **(1)**.

Fit the oil sump.

Fit the crankshaft rear seal.

Fit flywheel.

Fit the steering pump.

Fit air compressor.

Fit starter motor.

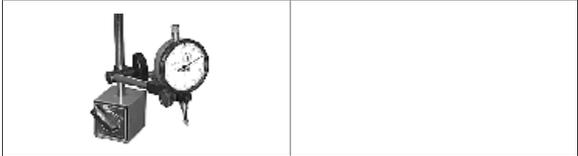
### Consumables

Automotive part N°	Industrial reference N°
56 89 501 292	Silicon adhesive 7091

### Tools

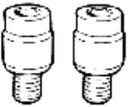
#### General purpose tools

Illustration	RENAULT TRUCKS part N°	Designation	Manufacturer's reference N°	Manufacturer's code N°	Scale	Qty
	9661					



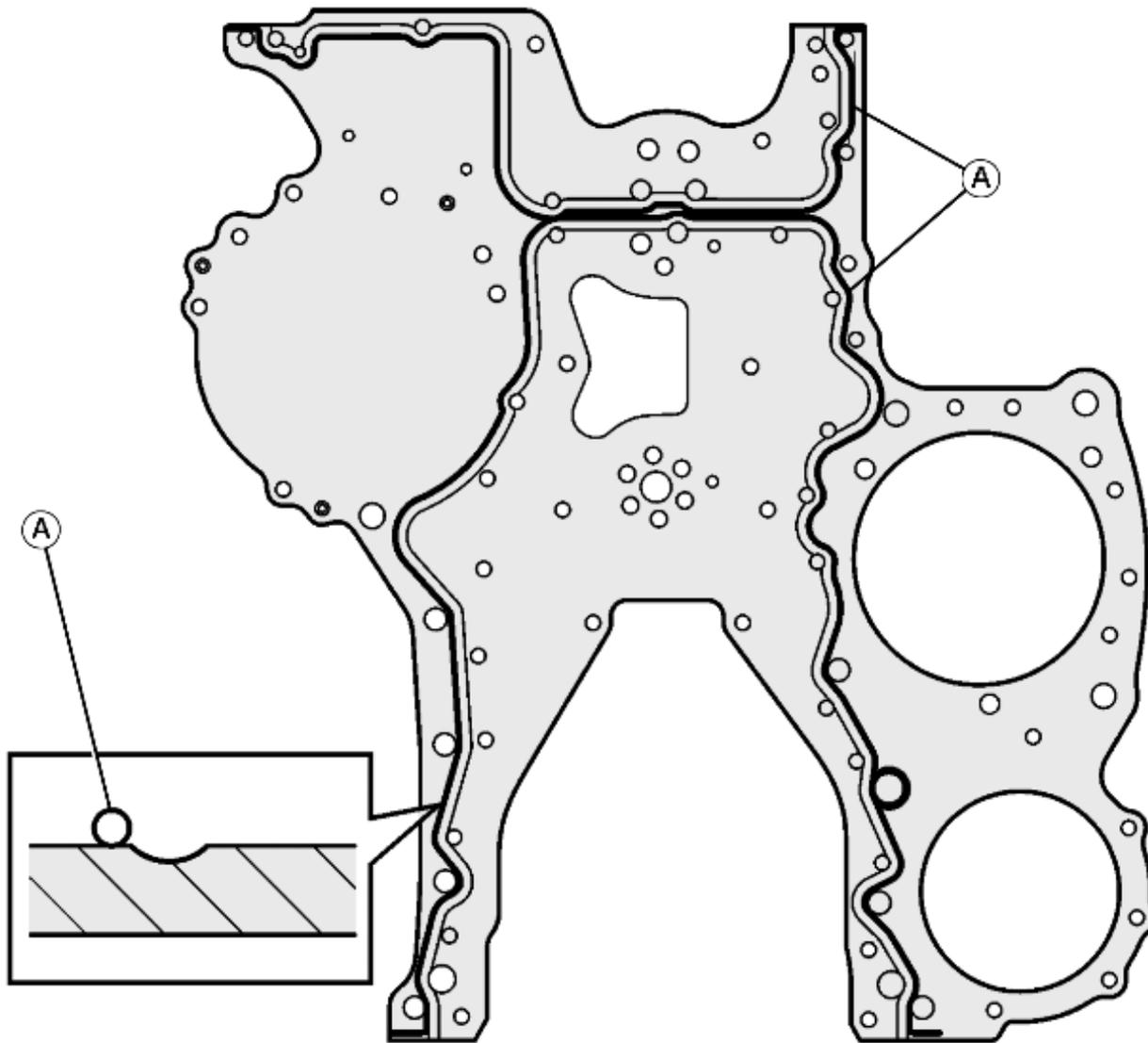
<b>AQ</b>	<b>BROWN &amp; SHARP ROCH</b>
	<b>13-15 avenue Georges de la Tour</b>
	<b>BP 45</b>
	<b>FRANCE</b>
	<b>03 83 76 83 76 - 03 83 74 13 16 -</b>

**Specific tools**

Illustration	RENAULT TRUCKS part N°	Designation	Manufacturer's reference N°	Manufacturer's code N°	Scale	Qty
	<b>5000269776</b>					
	<b>7409998267</b>					

**Timing system, tightening torques**

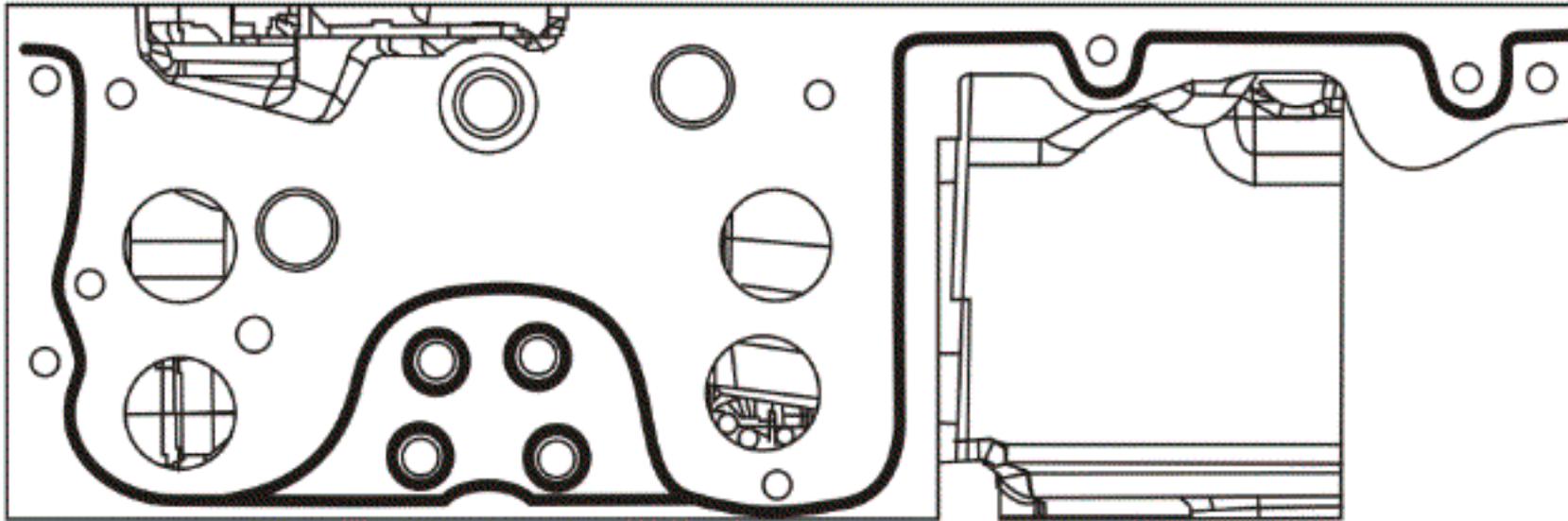
Assembly type A



21 3861A

Apply a bead of silicone **dia. 2 mm (A)** as shown in the drawing. Perform assembly within 20 minutes of application of the silicone.  
Use a silicone sealant "

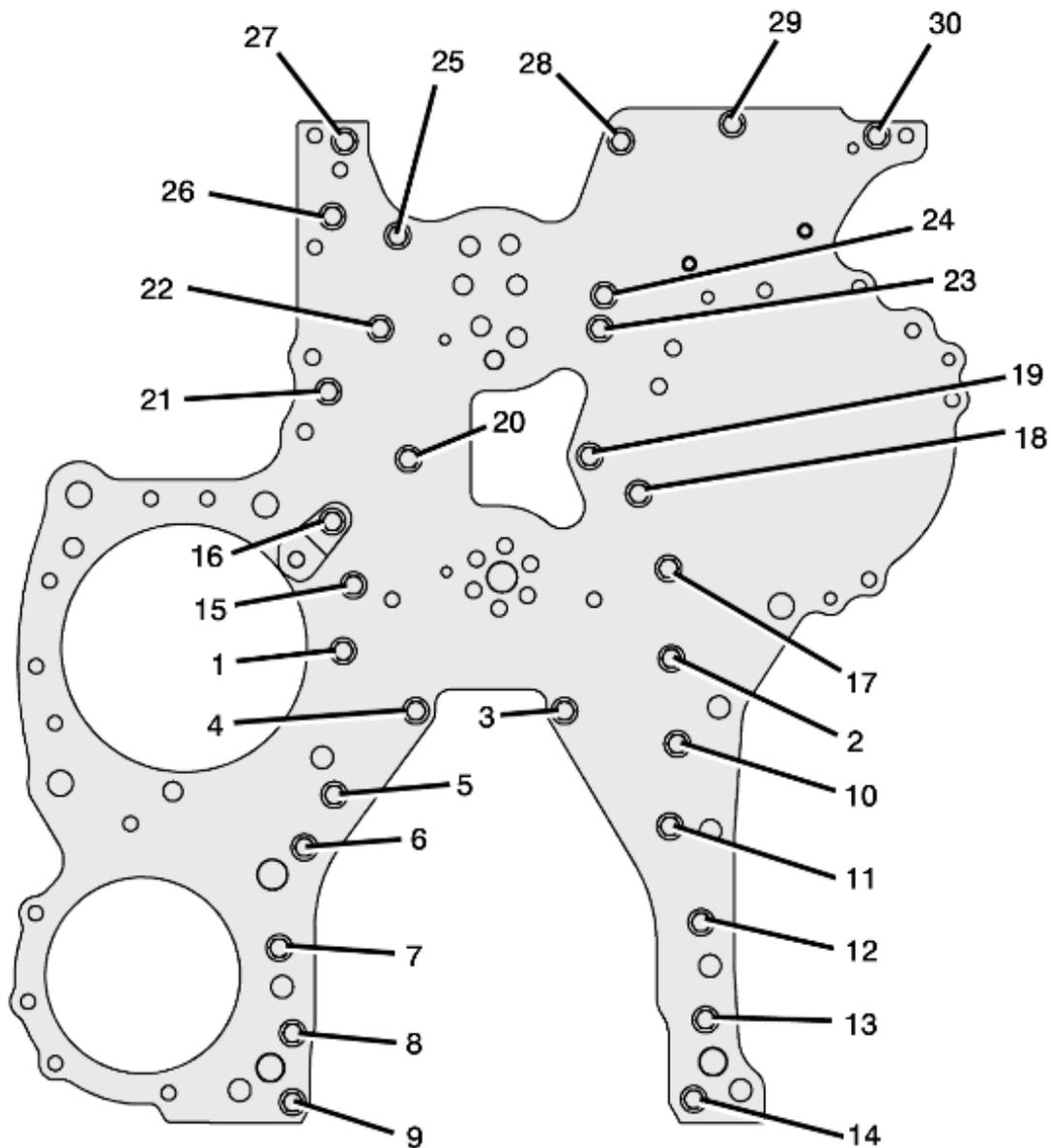
ADHESIF SILICONE 7091



224377

Apply a bead of silicone **dia. 2 mm (A)** as shown in the drawing. Perform assembly within 20 minutes of application of the silicone.  
Use a silicone sealant "

ADHESIF SILICONE 7091



21 3511A

The item numbers indicate the tightening sequence.

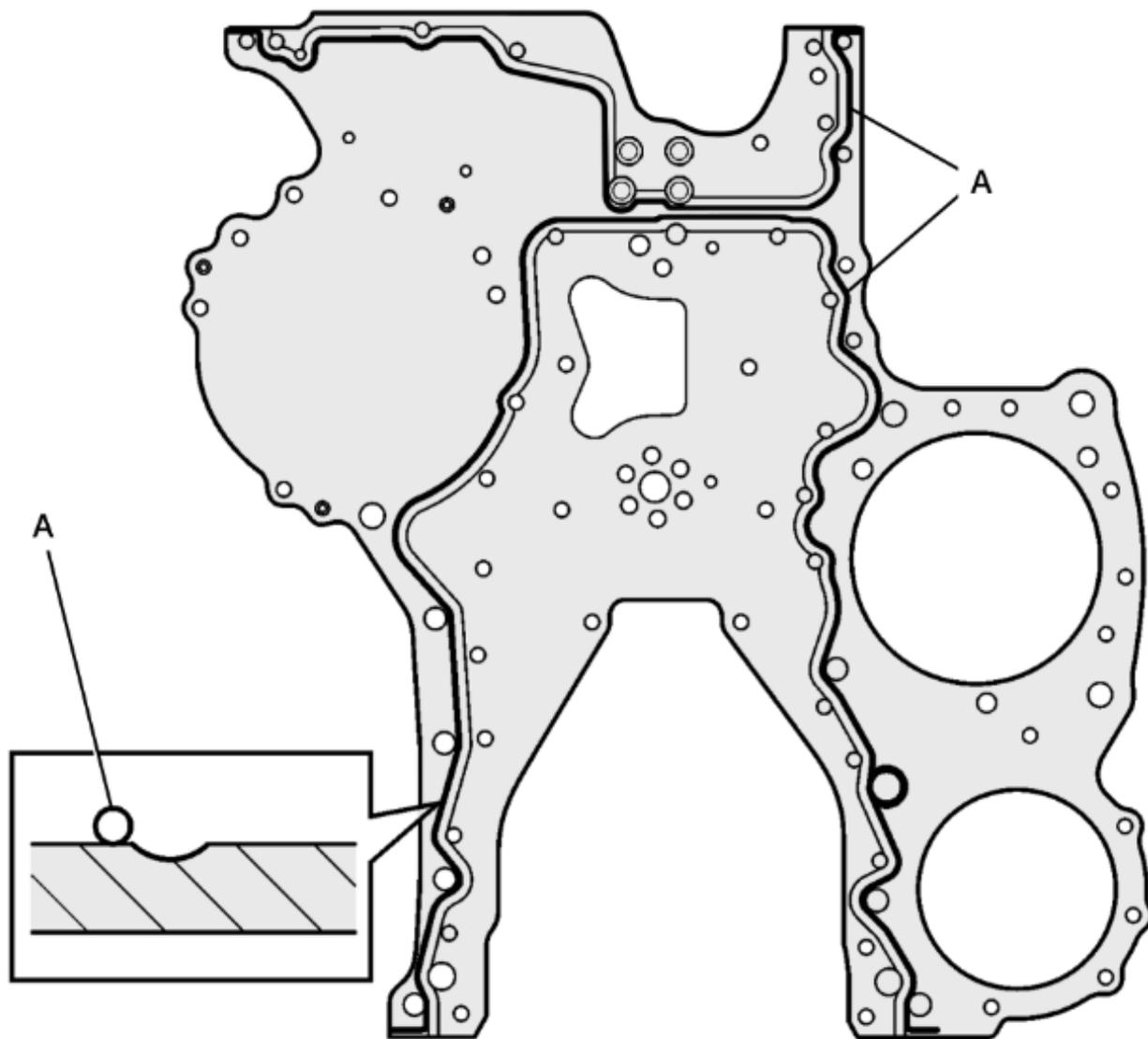
Timing plate securing bolts

**28±4 Nm**



**The bolts must not be re-used. Use new bolts.**

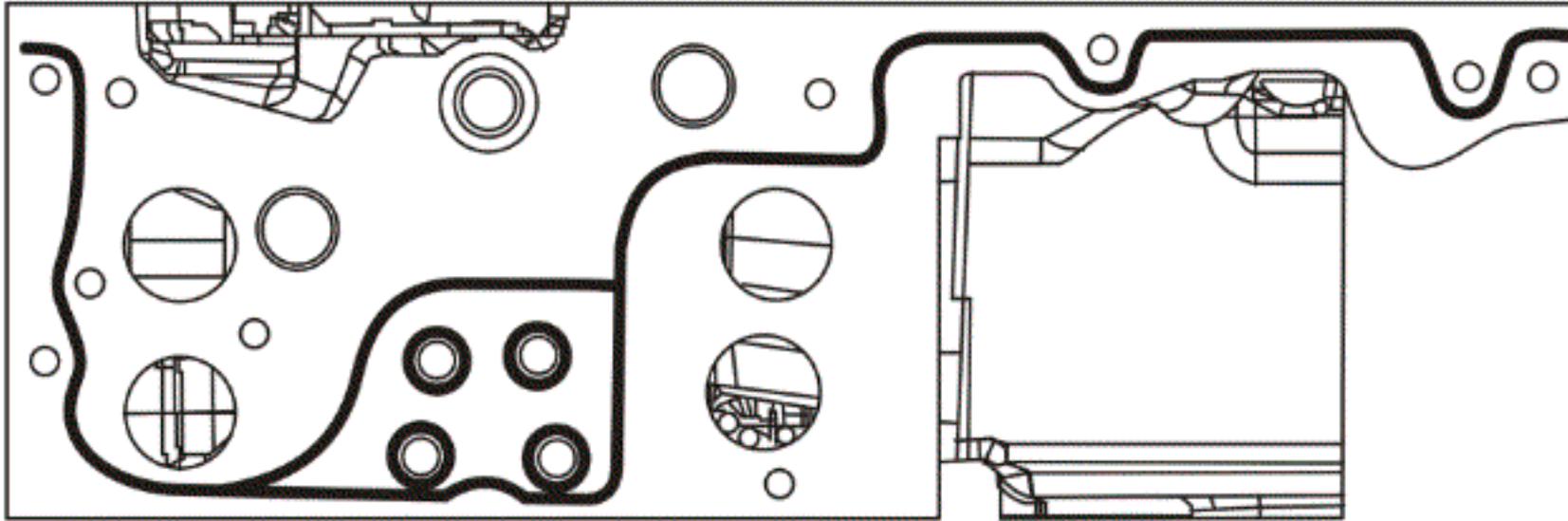
**Assembly type B**



224389

Apply a bead of silicone **dia. 2 mm (A)** as shown in the drawing. Perform assembly within 20 minutes of application of the silicone.  
Use a silicone sealant "

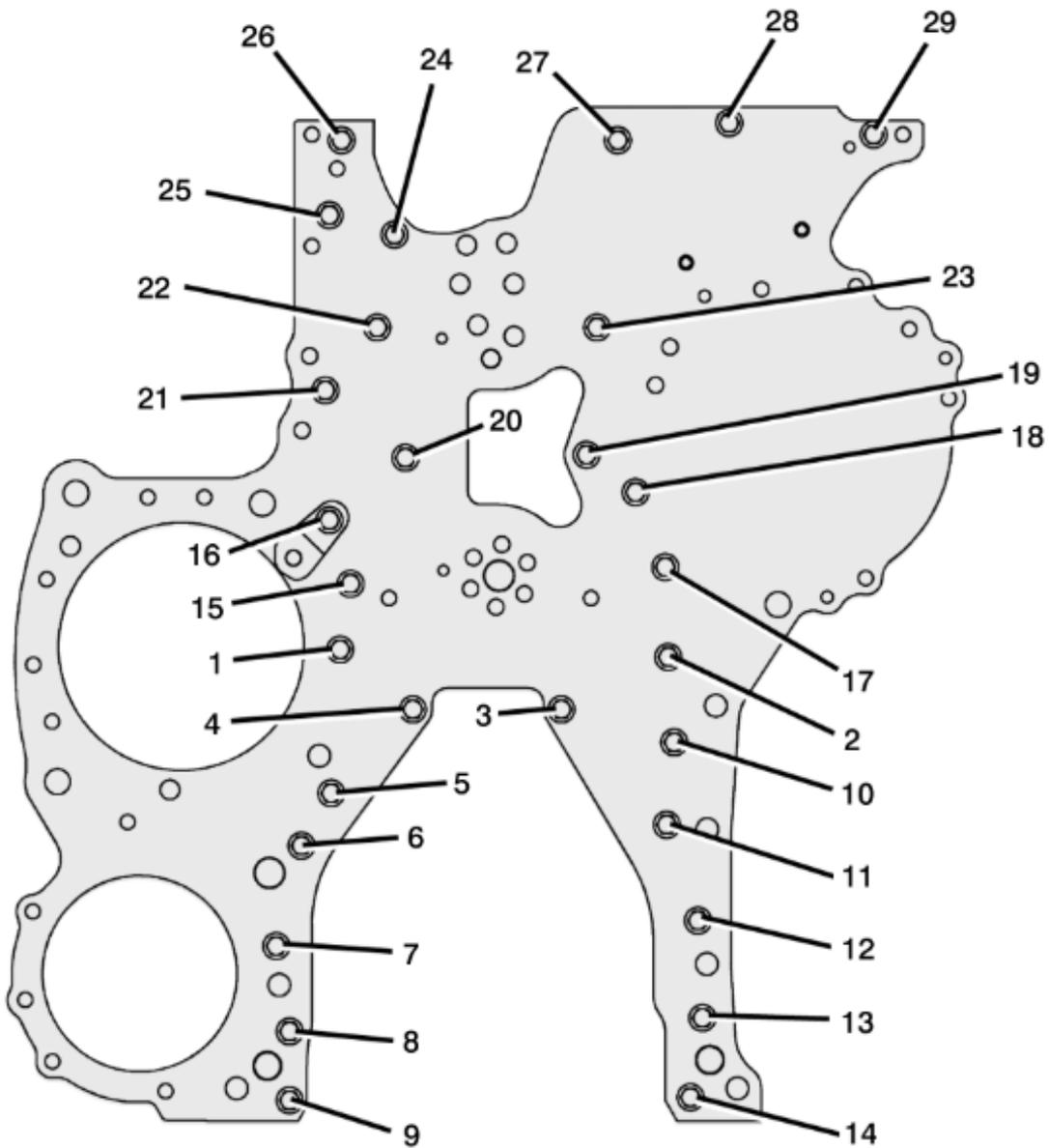
ADHESIF SILICONE 7091



224376

Apply a bead of silicone **dia. 2 mm (A)** as shown in the drawing. Perform assembly within 20 minutes of application of the silicone.  
Use a silicone sealant "

ADHESIF SILICONE 7091



224388

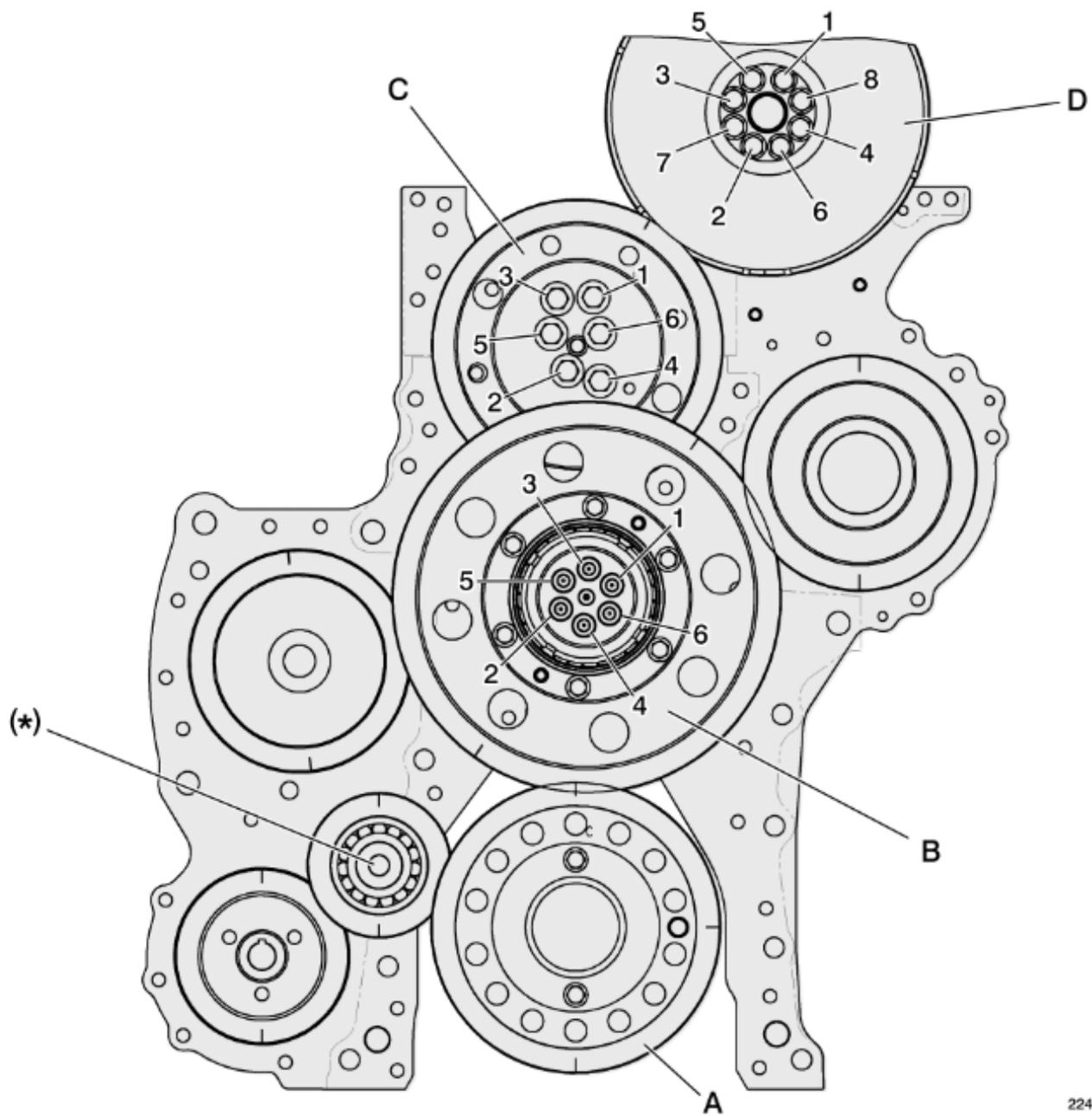
The item numbers indicate the tightening sequence.

Timing plate securing bolts

**28±4 Nm**



The bolts must not be re-used. Use new bolts.



224708

The item numbers indicate the tightening sequence.

Crankshaft pinion securing bolt (A)	24±4 Nm
Idler gear hub securing bolt (B)	25±3 Nm + 110±5 °

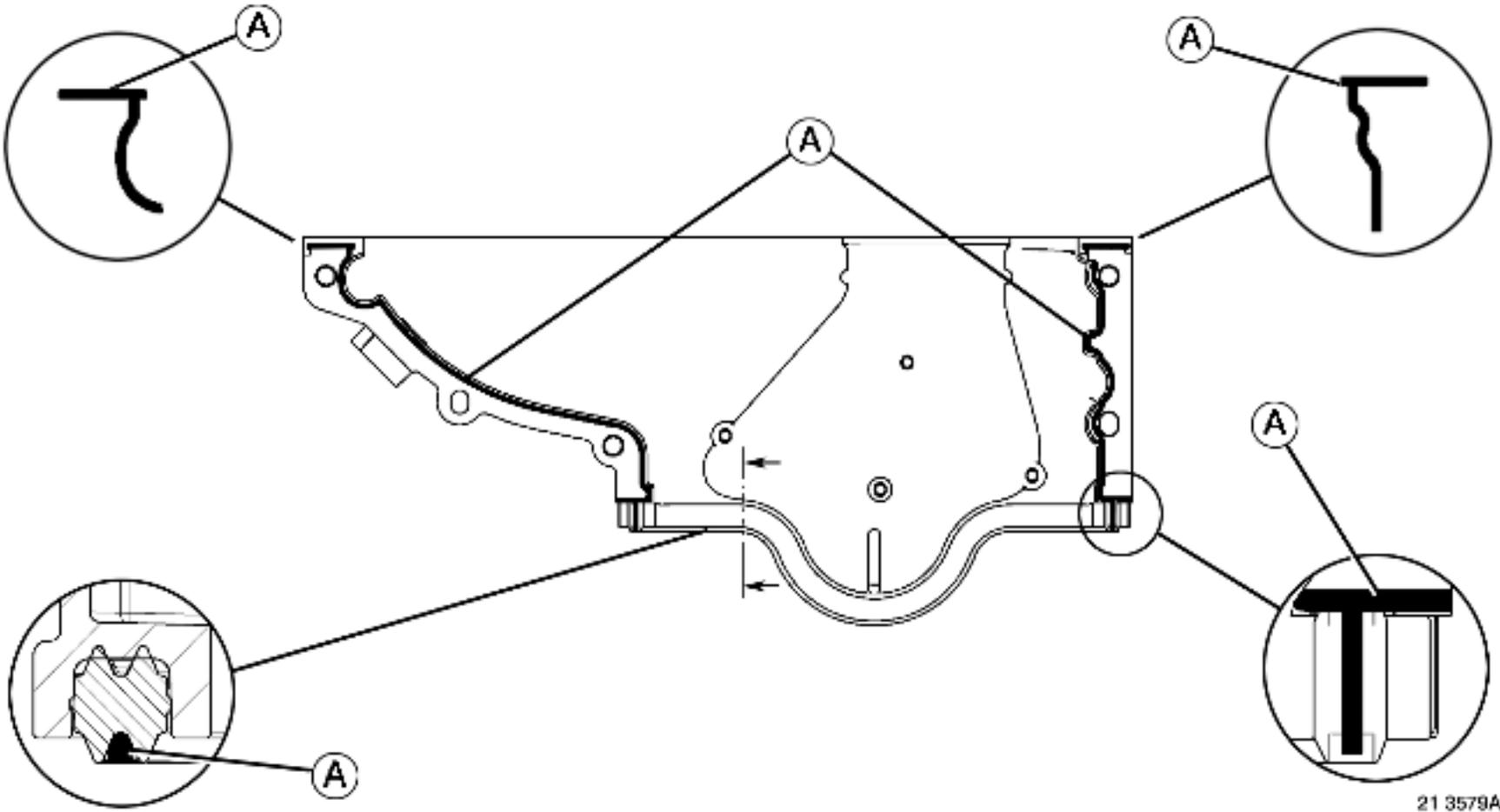


**The bolts must not be re-used. Use new bolts.**

Adjustable idler gear hub securing bolt (C)	35±4 Nm + 120±5 °
Camshaft pinion securing bolt (D)	45±5 Nm + 90±5 °

(\*)Depending on the assembly.

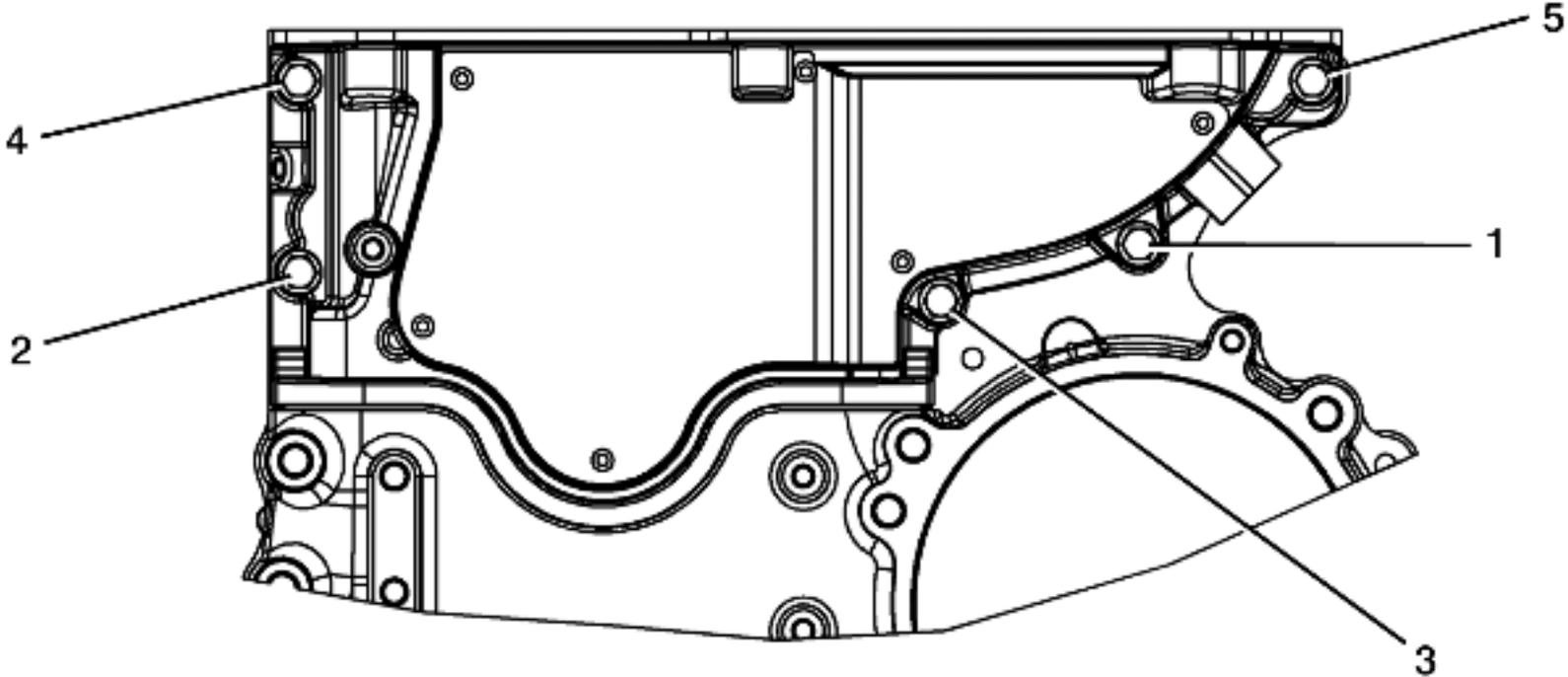
Idler pinion shaft securing bolts	140±10 Nm
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Apply a bead of silicone **dia. 2 mm (A)** as shown in the drawing. Proceed with assembly within 20 minutes following application of the silicone.

Use a sealing product

ADHESIF SILICONE 7091

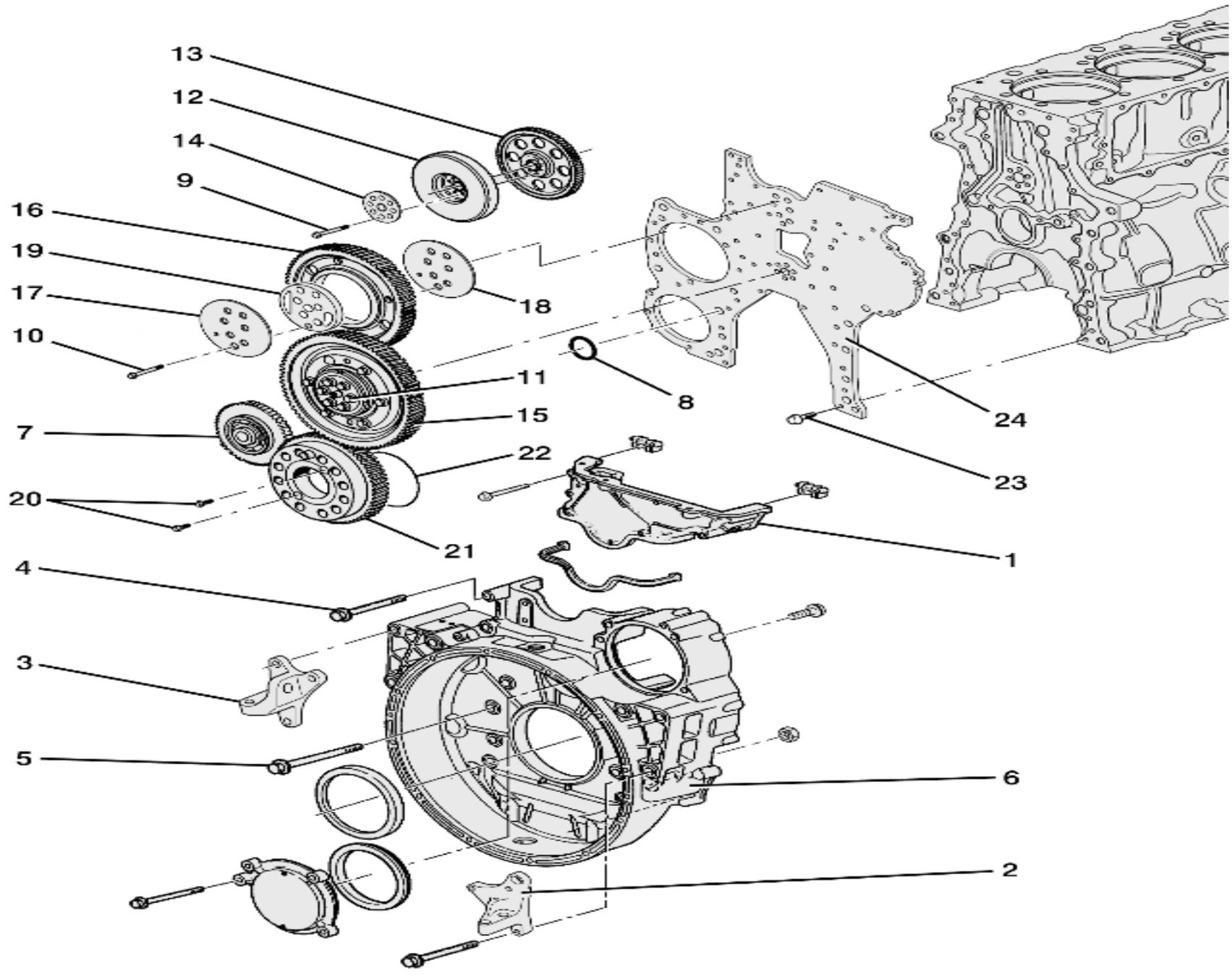


21 3580A

The item numbers indicate the tightening sequence.

Timing case to cylinder head securing bolts	24±4 Nm
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**Timing assembly, exploded view**



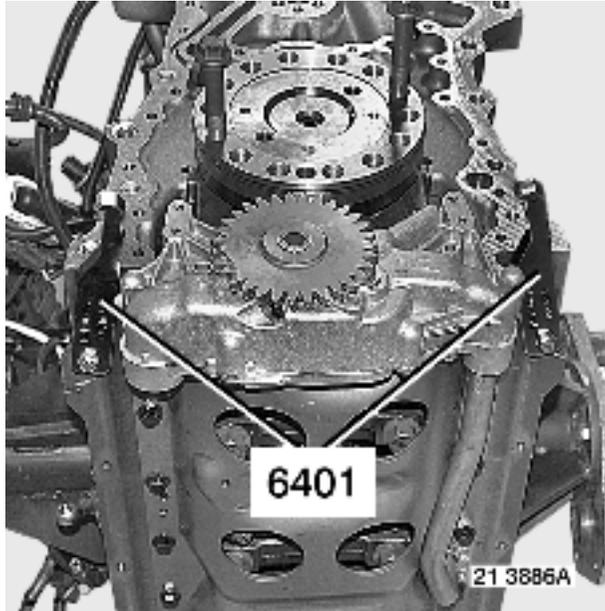
21 3719A

## Timing assembly, adjusting the timing plate



*It is necessary to adjust the timing plate if the timing idler gears backlash is incorrect.*

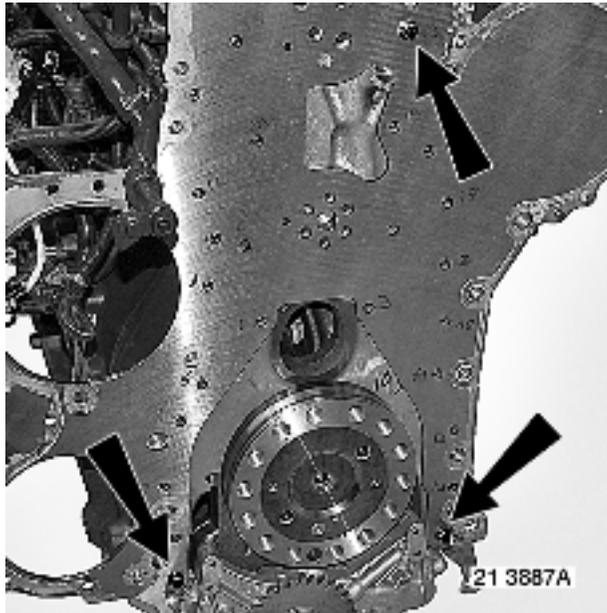
The item numbers indicated in the text refer to the drawing on page .



Mount tool 6401.



**Ensure that tools 6401 are smooth and free from burrs so as to not damage the oil sump face on the cylinder block.**



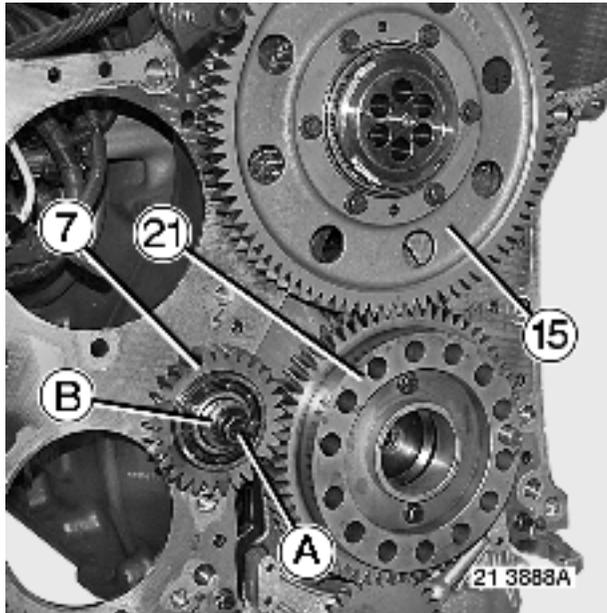
*The joint faces of the timing plate and of the cylinder block must be meticulously cleaned of all traces of sealing compound.*

Place timing plate **(24)** in position on tools 6401.

Fit **3** securing bolts; **2** on the lower edge and **1** on the upper edge of the timing plate.

See illustration opposite.

Bring the bolts into contact without tightening.



Fit pinion (21).

Fit pinion (7).

Depending on the assembly.

#### **Assembly type A**

Install one bolt (A) M 14x100 with a wide washer (B).

#### **Assembly type B**

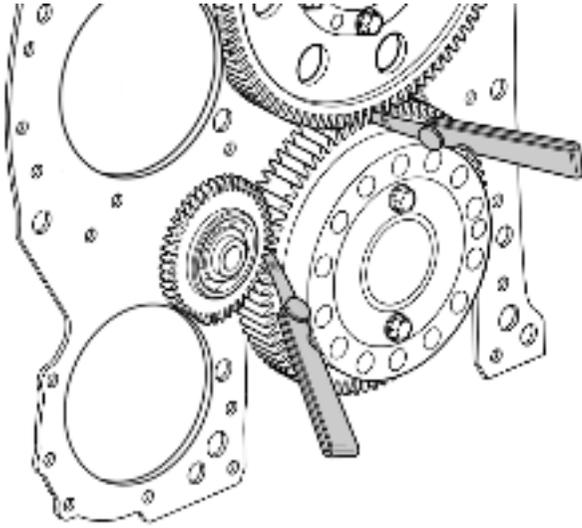
Fit bolt (A).

Bring bolt (A) into contact without tightening.

Fit pinion (15) with 2 bolts (11).

Bring the bolts into contact without tightening.

Check that the timing plate can always be moved sideways.



21 3884A

Insert two **0.10 mm** feeler gauges between the teeth of the idler gears and the teeth of the crankshaft pinion.  
Using a plastic mallet, tap on the side of the timing plate until the feeler gauges are a tight fit between the gear teeth.



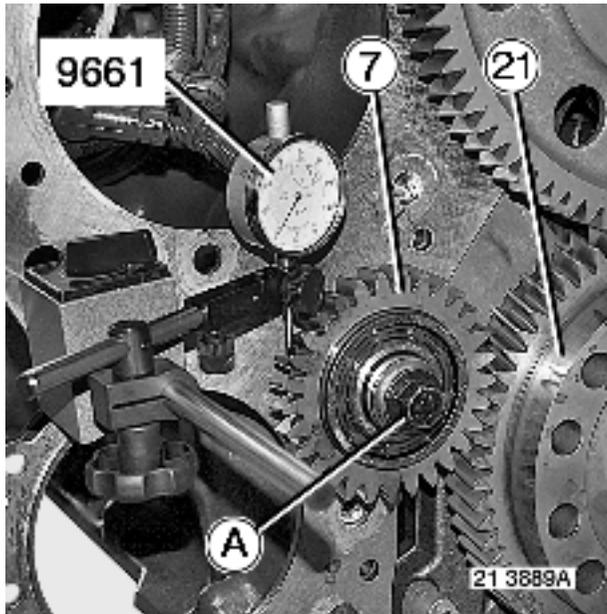
*Both feeler gauges must be as tight a fit as one another.*

Tighten the **3** timing plate securing bolts (**24**).

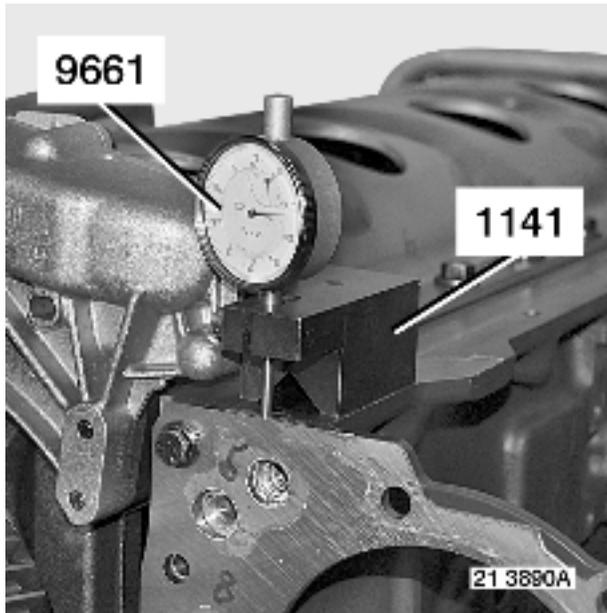


*Tighten the bolts with enough torque to prevent the position of the timing plate (**24**) from being modified.*

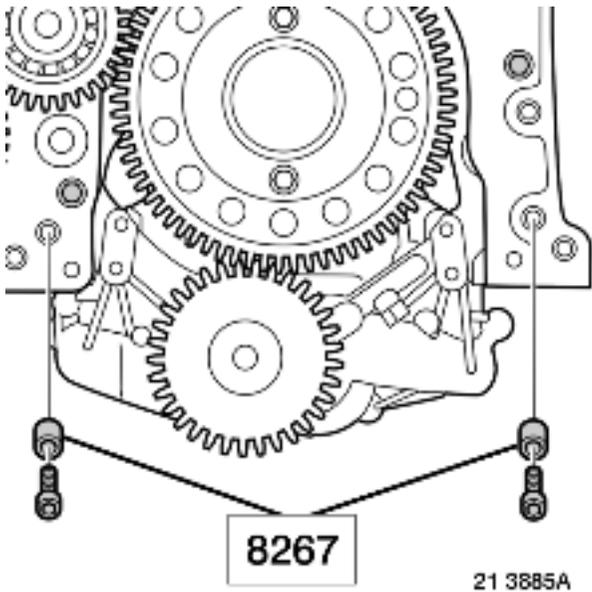
Tighten the setscrews (**11**).



Tighten bolt **(A)**.  
Take out the feeler gauges.  
Inspect the backlash of pinions **(7 / 21)**.  
Use tool 9661.  
For values, see "Technical data" chapter.



Check alignment of timing plate in relation to the bottom of the engine block. Correct distance  **$0 \pm 0.25$  mm**.  
Use tool 9661 + 1141.



Place locating tools 8267 in position and tighten them to **60 Nm**.  
Withdraw positioning tools 6401.

Remove idler gears (7 - 15 - 21).

Remove timing plate (24).



Take out timing plate (24) in a straight line, so as to not damage locating tools 8267.

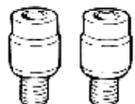
## Tools

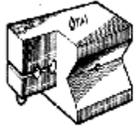
### General purpose tools

Illustration	RENAULT TRUCKS part N°	Designation	Manufacturer's reference N°	Manufacturer's code N°	Scale	Qty
	9661	MEASURING TOOL (DIAL GAUGE AND MAGNETIC FOOT)	AQ		2	1

AQ	BROWN & SHARP ROCH
	13-15 avenue Georges de la Tour
	BP 45
	FRANCE
	03 83 76 83 76 - 03 83 74 13 16 -

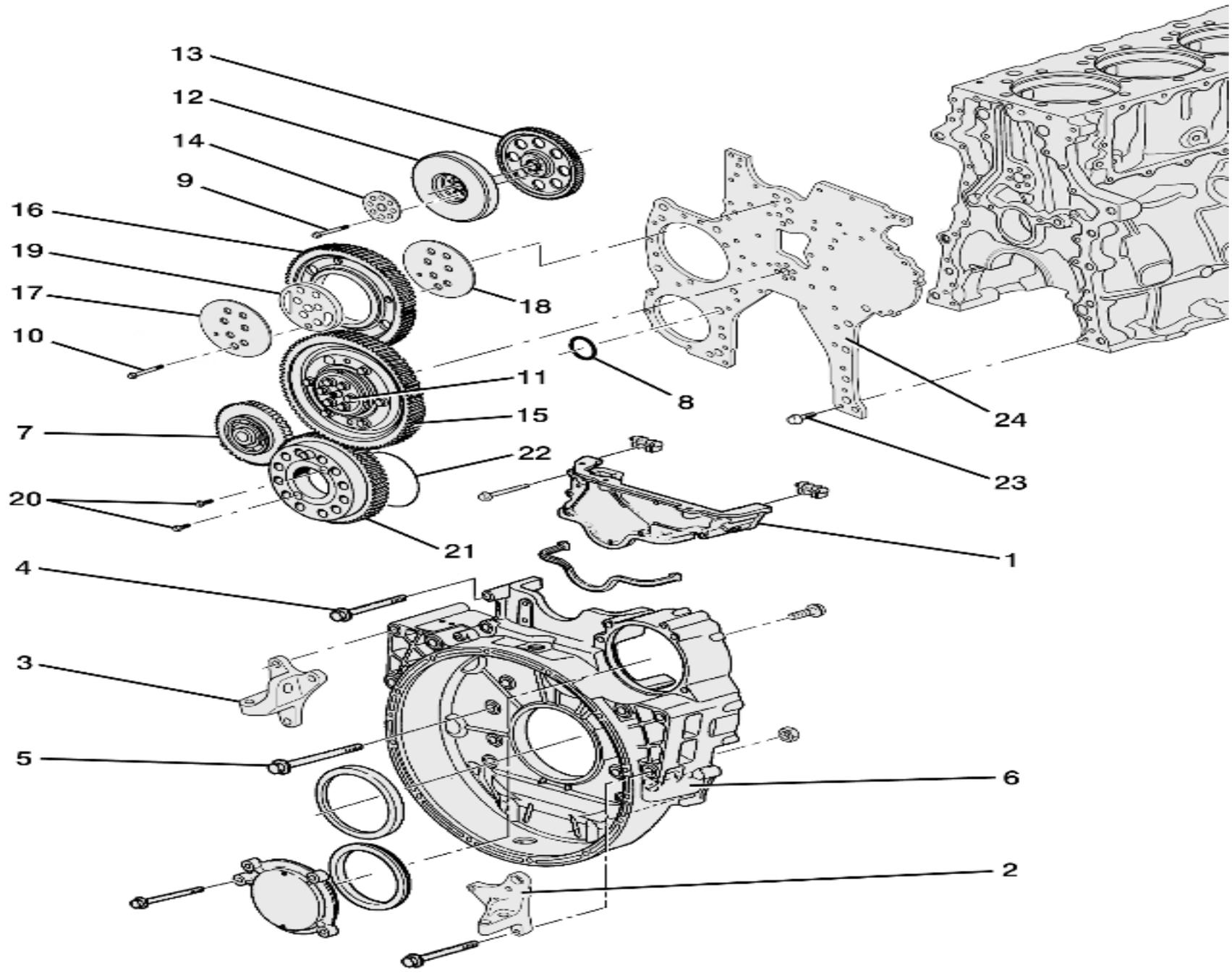
### Specific tools

Illustration	RENAULT TRUCKS part N°	Designation	Manufacturer's reference N°	Manufacturer's code N°	Scale	Qty
	7409996401	CLAMP			2	1
	7409998267	GUIDE			2	1
	5000261141	SUPPORT (DIAL GAUGE)			2	1



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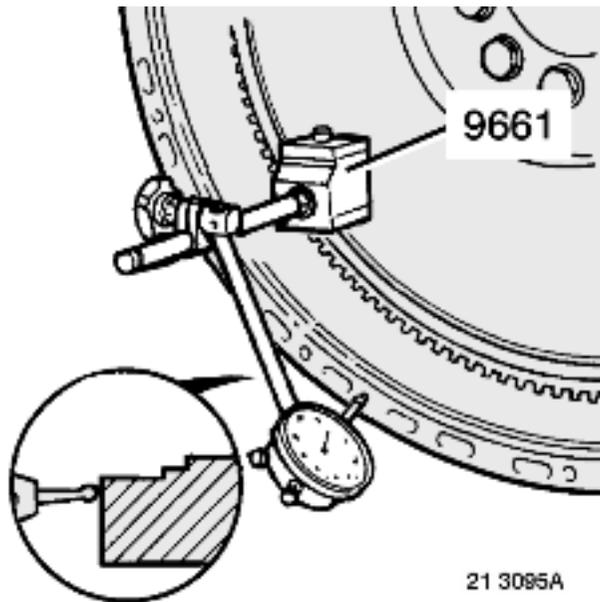
**Timing assembly, exploded view**



21 3719A

## Engine flywheel housing, checking for deformation

Check the run-out of the flywheel casing.



Clean the flywheel casing.

Place the dial gauge stylus on the outer face of the flywheel.

Use tool 9661.

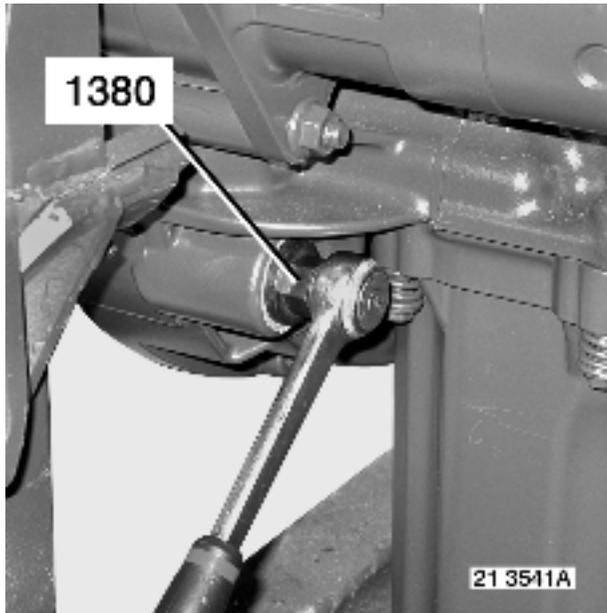
Note down the value.

Place the magnetic foot on the opposite side.

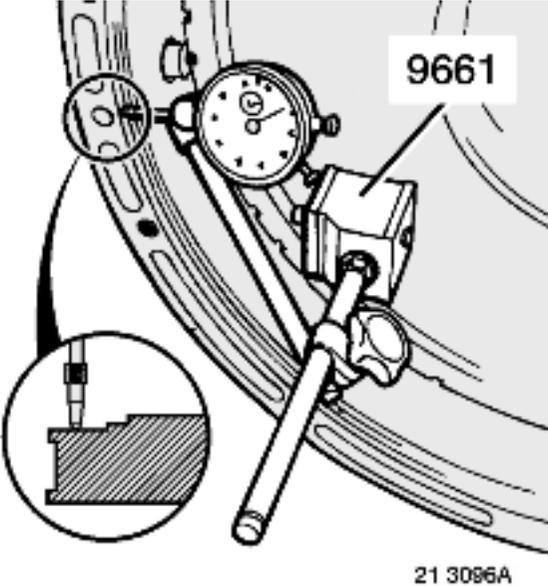
Check that the readings are inside the tolerances.



*Repeat the reading at 4 points.*



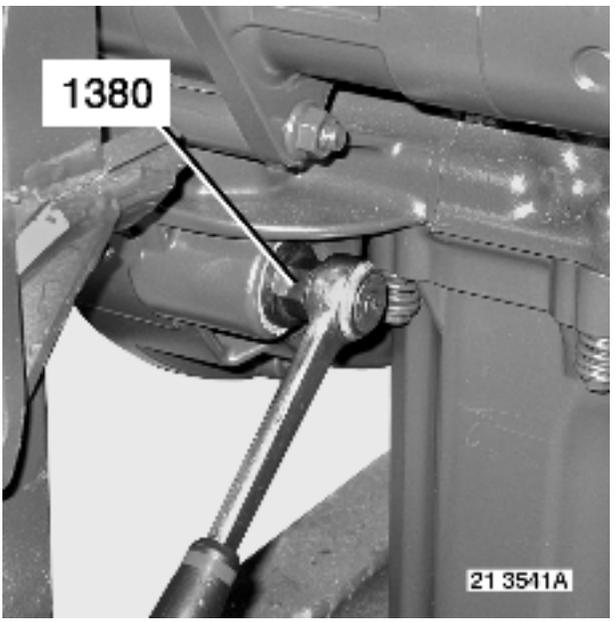
Mount tool 1380.



Place the dial gauge stylus on the inner face of the flywheel.  
Use tool 9661.  
Turn the flywheel using tool 1380.

Note down the value.  
 Check that the readings are inside the tolerances.

 If one or several readings are outside the tolerances, check the contact face between the flywheel and the cylinder block before replacing the casing.



Withdraw tool 1380.

**Tools**

**General purpose tools**

Illustration	RENAULT TRUCKS part N°	Designation	Manufacturer's reference N°	Manufacturer's code N°	Scale	Qty
	9661	MEASURING TOOL (DIAL GAUGE AND MAGNETIC FOOT)	AQ		2	1

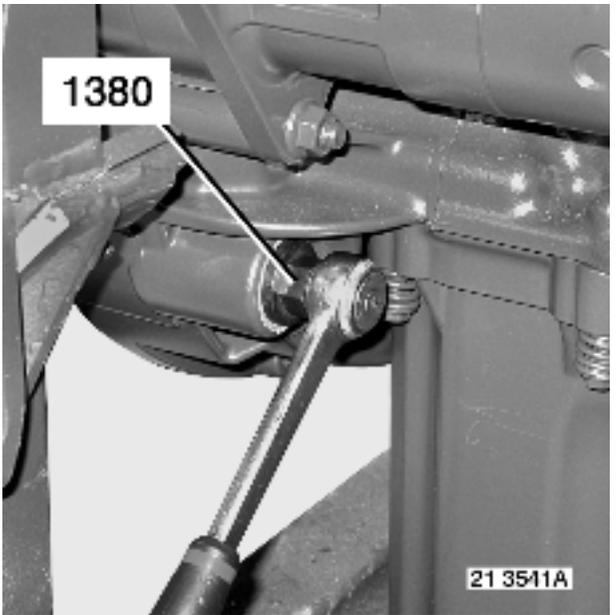
AQ	BROWN & SHARP ROCH
	13-15 avenue Georges de la Tour

	<b>BP 45</b>
	<b>FRANCE</b>
	<b>03 83 76 83 76 - 03 83 74 13 16 -</b>

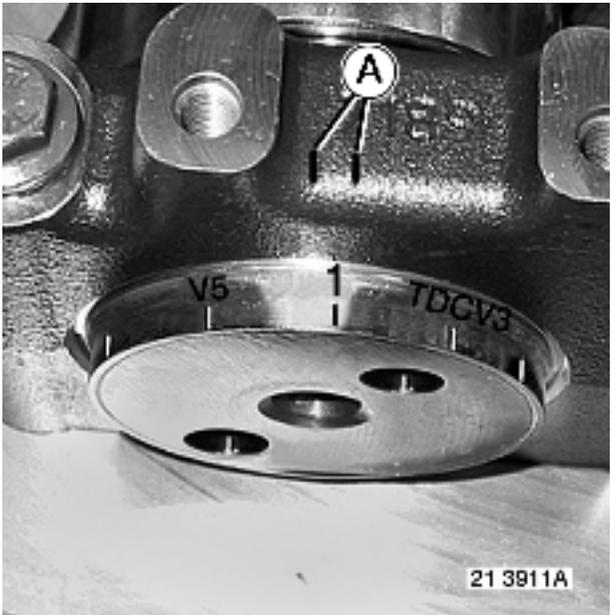
## Specific tools

<b>Illustration</b>	<b>RENAULT TRUCKS part N°</b>	<b>Designation</b>	<b>Manufacturer's reference N°</b>	<b>Manufacturer's code N°</b>	<b>Scale</b>	<b>Qty</b>
	<b>5000261380</b>	<b>CONTROL</b>			<b>1</b>	<b>1</b>

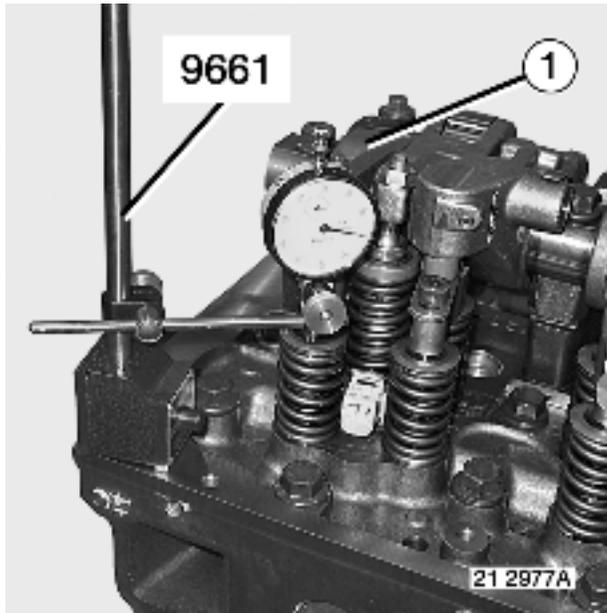
# Timing assembly, checking the shimming



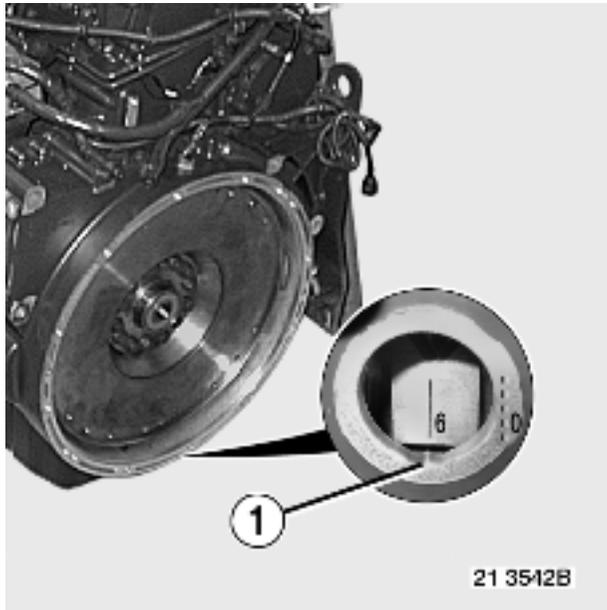
Turn the flywheel using tool 1380.



Align the mark (1) between the marks (A).



Adjust the inlet valve rocker arm clearance of **(1) N° 1** cylinder to nil.  
Install a dial gauge.  
Use tool 9661.  
Set the dial gauge to zero and mark the measuring point.



Turn the engine in the normal direction of rotation as far as mark 6 after TDC (about 1 1/4 of a revolution ), **N° 6 cylinder compression**.  
 The inlet valve of N° 1 cylinder opens by **1.6± 0.3 mm** when the flywheel is positioned at **6°** after top dead centre.



**After making the check, do not forget to adjust the N° 1 cylinder inlet valve rocker arm clearance.**

## Tools

### General purpose tools

Illustration	RENAULT TRUCKS part N°	Designation	Manufacturer's reference N°	Manufacturer's code N°	Scale	Qty
	9661	MEASURING TOOL (DIAL GAUGE AND MAGNETIC FOOT)	AQ		1	1

AQ	BROWN & SHARP ROCH
	13-15 avenue Georges de la Tour
	BP 45
	FRANCE
	03 83 76 83 76 - 03 83 74 13 16 -

### Specific tools

Illustration	RENAULT TRUCKS part N°	Designation	Manufacturer's reference N°	Manufacturer's code N°	Scale	Qty
	5000261380	CONTROL			2	1