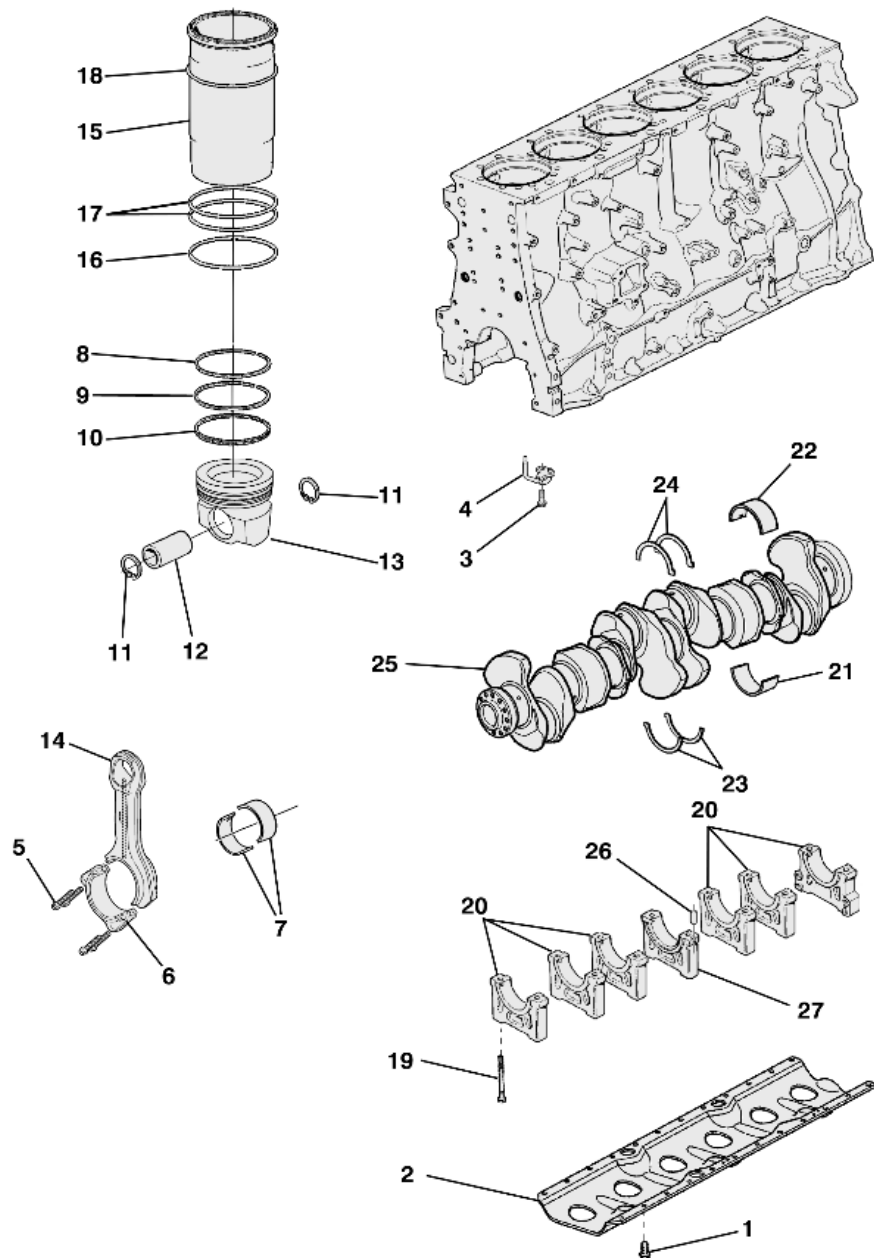


Mobile hitch, exploded view

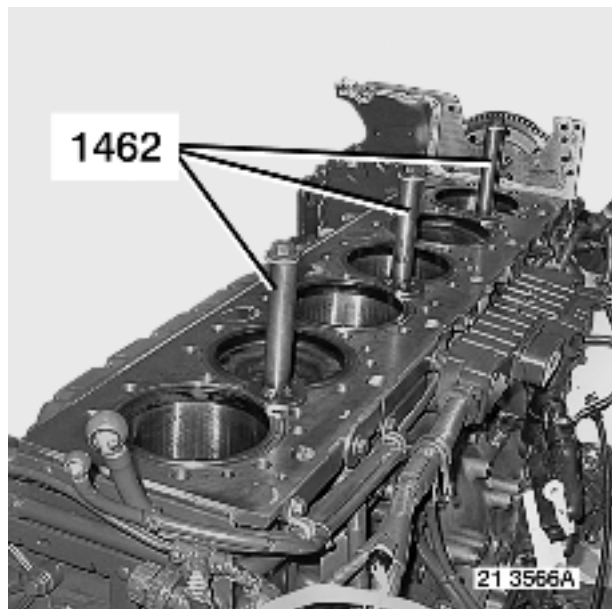


21 3669A

Mobile hitch, dismantling

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

Remove the cylinder head.

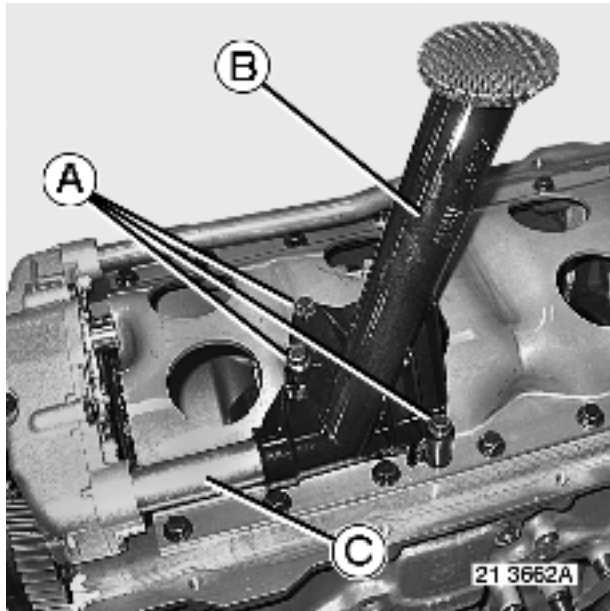


Install tool 1462.

Remove the oil sump.



During the reciprocating gear removal operation, carefully mark the position of installation of each part, and more particularly the connecting rod bearing half-shells and caps.



Cylinder block stiffener

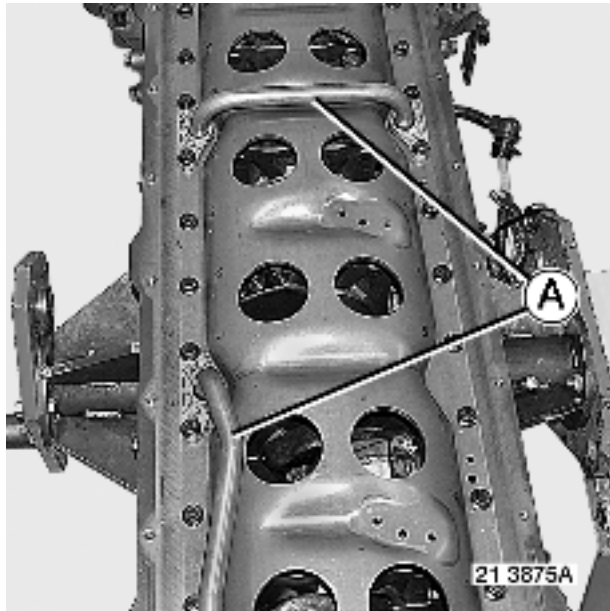
Turn the engine over.

Remove bolts **(A)**.

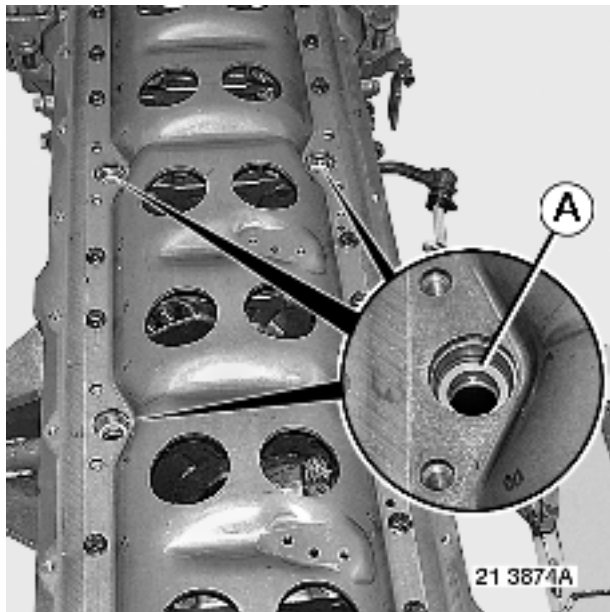
Remove oil strainer **(B)**.

Remove tube **(C)**.

Loosen bolts **(1)** proceeding in the reverse sequence to tightening.



Remove pipes **(A)**.



Remove seals **(A)**.

Remove bolts **(1)**.

Remove cylinder block stiffener **(2)**.

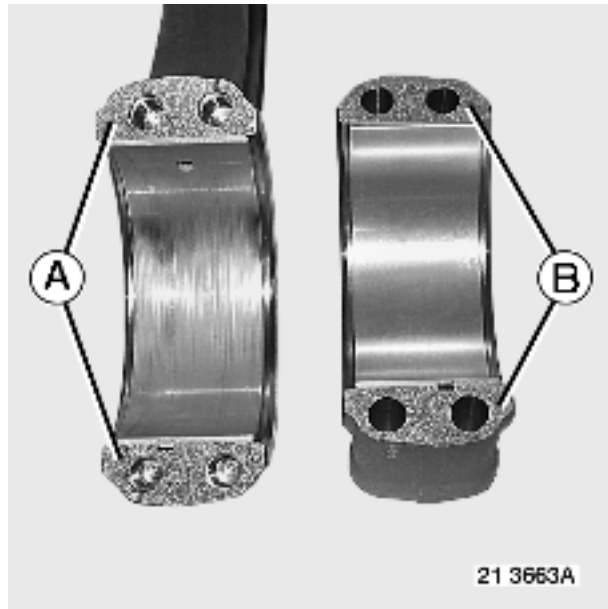


Wear gloves for protection.

Oil jets

Remove bolts (3).

Remove oil jets (4).

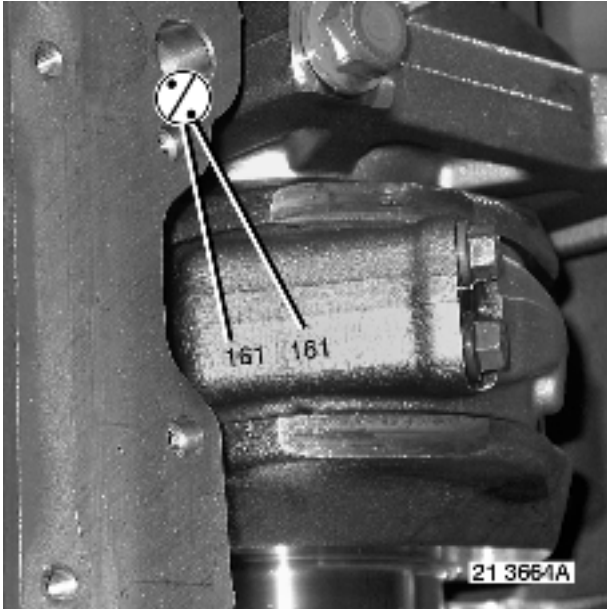


Connecting rods

Precautions



Split connecting rod So as to not have to loosen a connecting rod during operation, it is crucial to not bump, nor apply oil to the part and keep the contact faces (A - B), which correspond to the relief of the connecting rod cap / connecting rod parting line, immaculately clean.



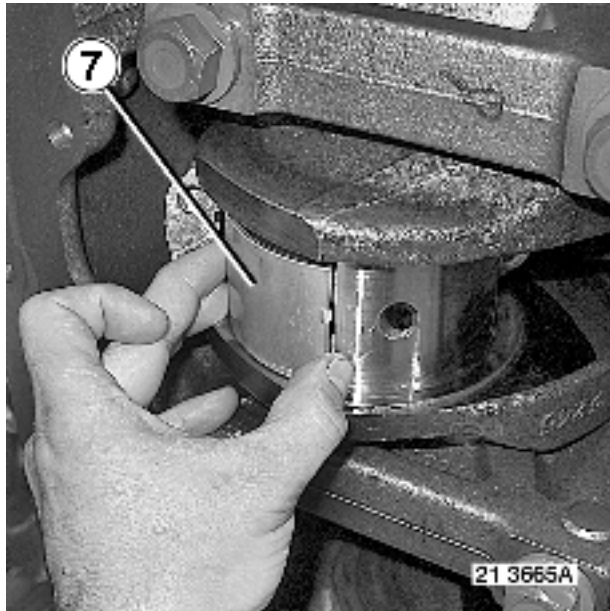
Turn the crankshaft so as to be able to gain access to the connecting rod cap to be removed.
Check for the presence of marks on the connecting rod.

Identification marking

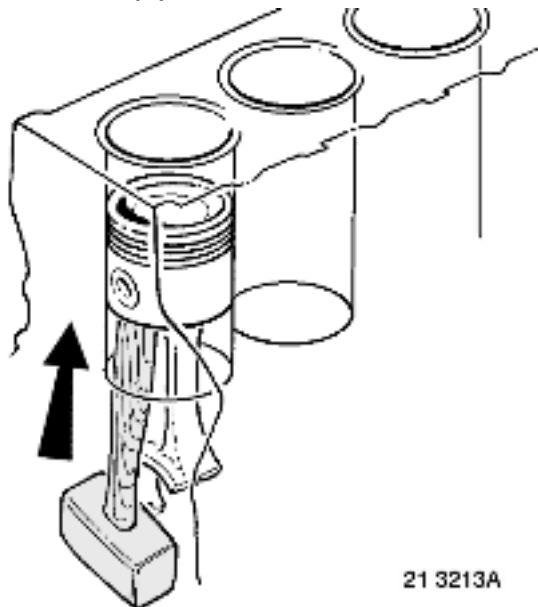
The connecting rod and its cap are paired and marked with a 3-figure identification number (*).



() With the identification markings opposite one another.*

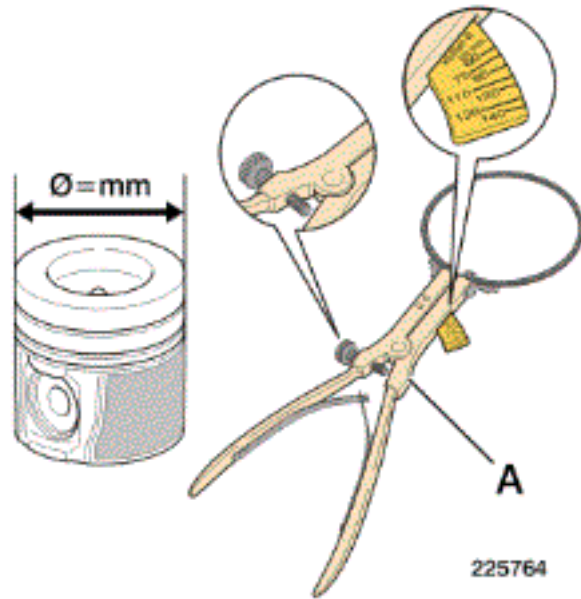


- Remove bolts **(5)**.
- Remove connecting rod caps **(6)**.
- Remove bearing half-shells **(7)**.



If necessary, remove the scale from the top of the liner.

Take out the connecting rod/piston assembly through the top of the cylinder block by pushing with the handle of a hammer.



Piston rings

Adjust the gap of grips on tool **A** according to the diameter of piston.

A = 0083

Remove piston rings (8- 9 - 10).



To avoid breakage of the piston rings during operation and during assembly / dismantling of the fire and compression rings, it is vital to not exceed the spacing distance X.
Fire ring (8): X = 37.6 mm
Compression ring (9): X = 38 mm
Oil scraper ring (10): X = 34.1 mm

Pistons

Remove circlips (11).

Remove spigot (12).

Remove piston (13).

Liners



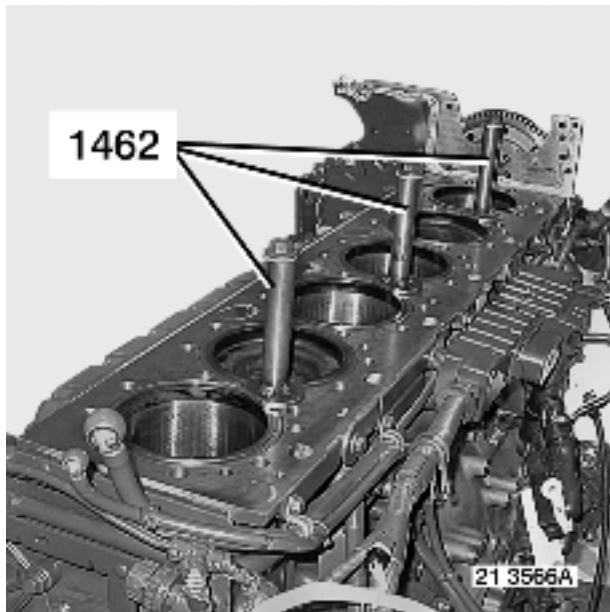
The O-rings for cylinder liners are made from fluoride rubber. When the fluoride rubber is subjected to elevated temperatures (more than 300°C), hydrofluoric acid may be formed. Hydrofluoric acid is highly corrosive!

*** Contact with the skin may cause ulcers.**

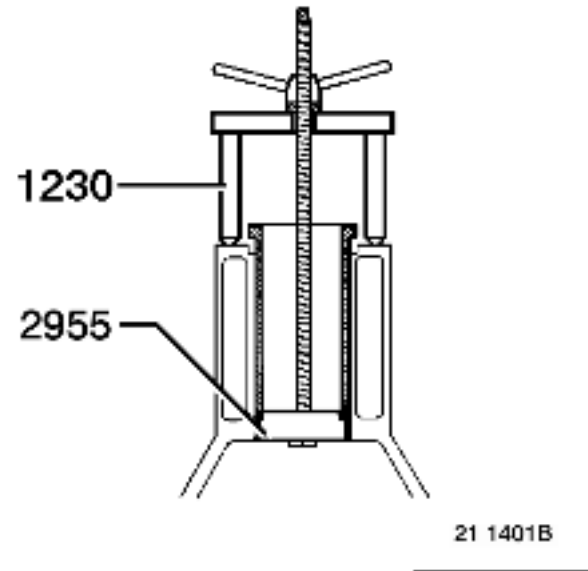
- * **Splashing into the eyes may cause serious burns.**
- * **Breathing in the vapours may cause lesions in the respiratory tracts.**

Pay utmost attention when working on engines that may have been subjected to elevated temperatures, e.g. overheating caused by seizing or fire. Under no circumstances should cylinder liner O-rings be burnt after disassembly or incinerated under non-controlled conditions.

- * **Always wear chloroprene gloves (gloves for handling chemical products) and safety goggles for protection.**
- * **Handle removed O-rings as if they were an acid.**
- * **Never use compressed air to clean off residue. Even the ashes may still be extremely corrosive.**
- * **Put all the remains in a plastic box TO WHICH a label with a warning text is to be affixed.**
- * **Before taking off the gloves, wash them in running water.**



Withdraw tool 1462.



Withdraw liners **(15)**.

Use tool 1230 + 2955.

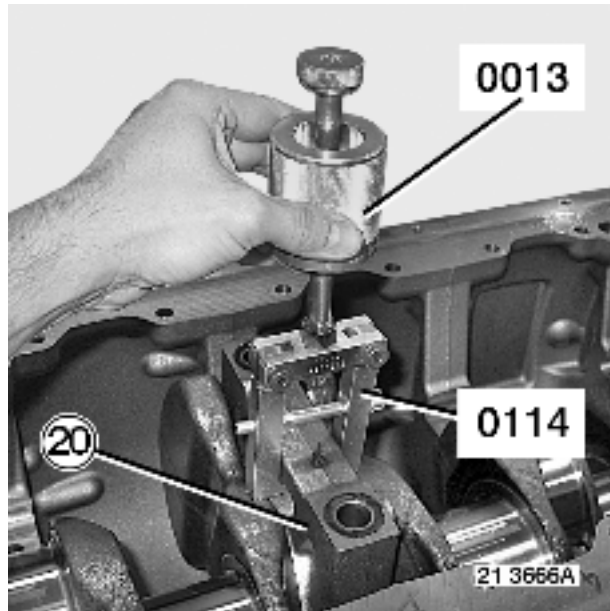
Remove gaskets **(16 - 17 - 18)**.

Crankshaft

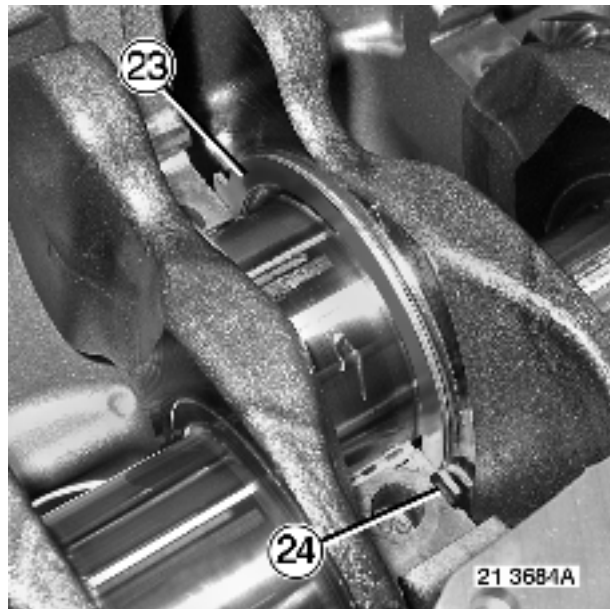
Remove crankshaft front seal casing.

Remove flywheel.

Remove oil pump.



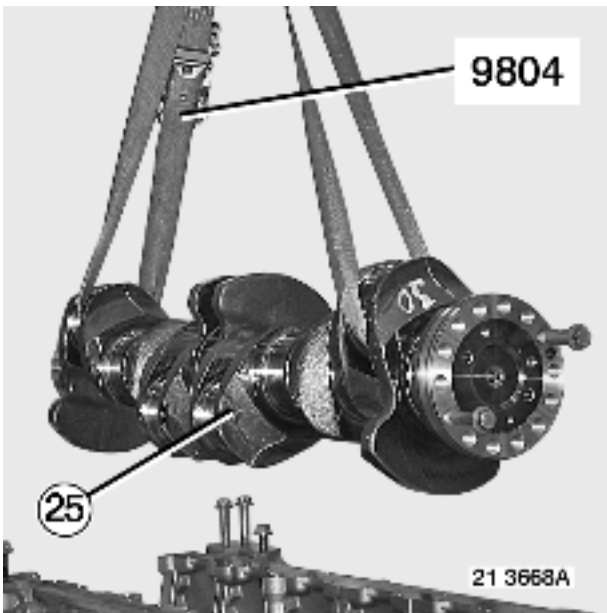
Remove bolts **(19)**.
Remove bearing caps **(20 - 27)**.
Use tool 0114 + 0013.
Remove bearing half-shells **(21)**.



Remove half-rings (23).



Remove half-rings (24).



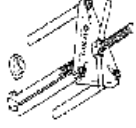
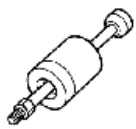
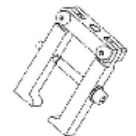
Remove crankshaft (25).
Use tool 9804.

Use lifting tackle.

Remove bearing half-shells (22).

Tools

Specific tools

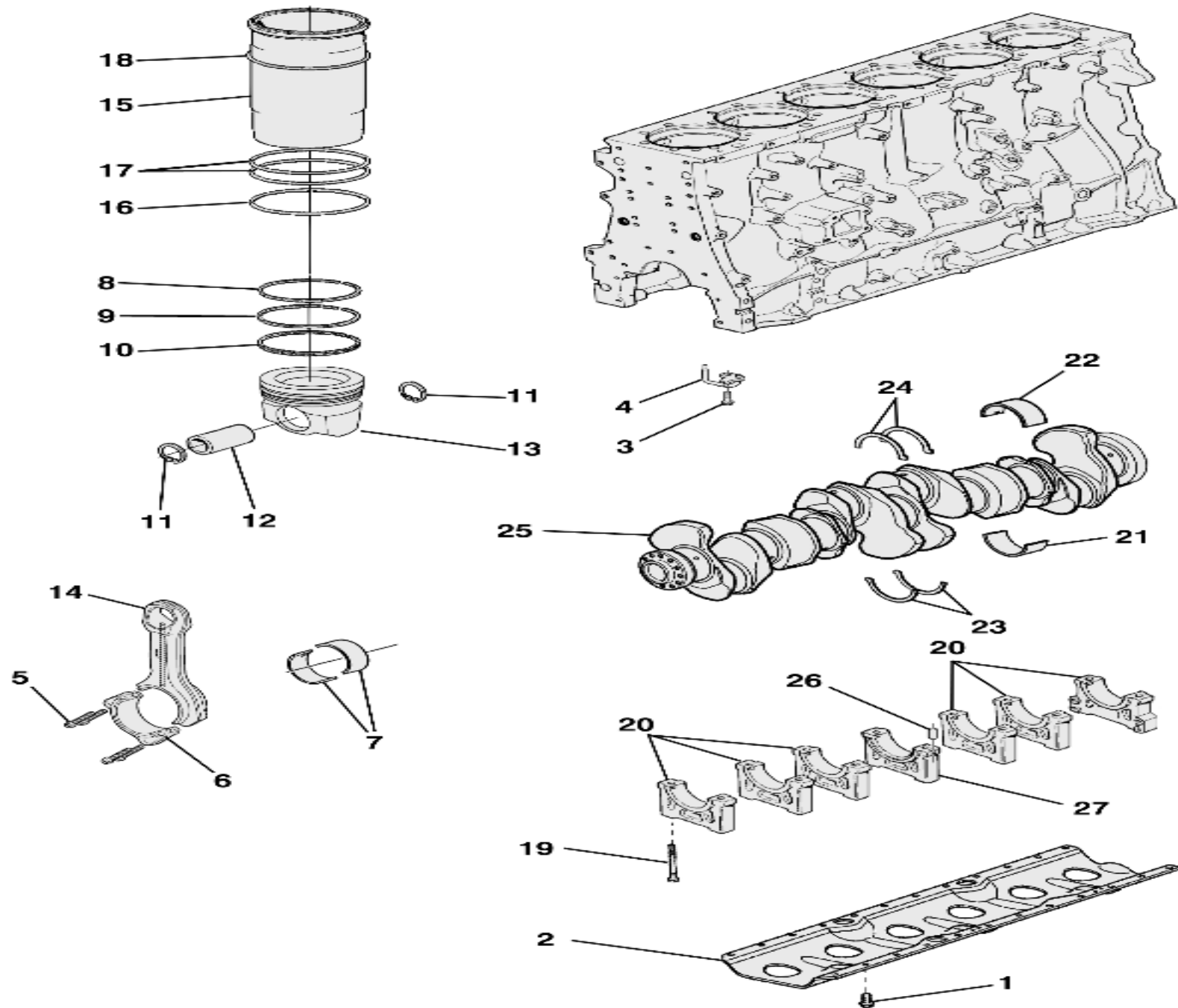
Illustration	RENAULT TRUCKS part N°	Designation	Manufacturer's reference N°	Manufacturer's code N°	Scale	Qty
	5000261230	PULLER			2	1
	5000269804	STRAP			2	1
	7409992955	PLATE			2	1
	7409990013	SLIDE HAMMER			2	1
	7409990114	PULLER			2	1
	7488800083	PULLER (PISTON RINGS)			2	1

Locally manufactured tool

Illustration		Designation		Manufacturer's code N°	Scale	Qty
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	RENAULT TRUCKS part N°		Manufacturer's reference N°			
	OFL1462	SPACER			2	1

Mobile hitch, exploded view



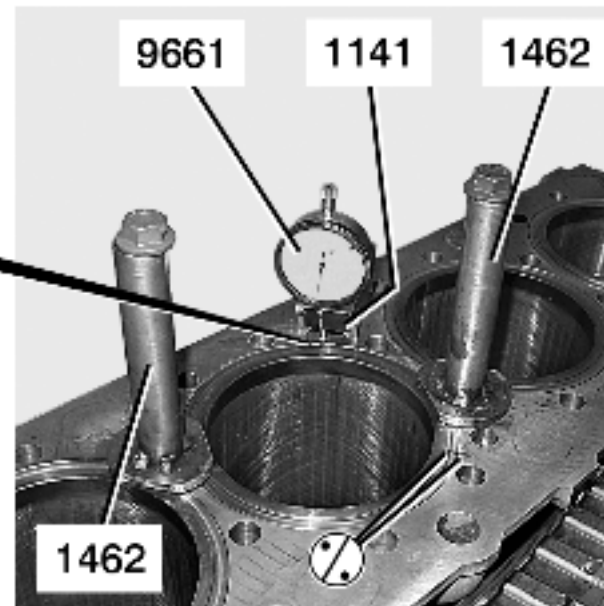
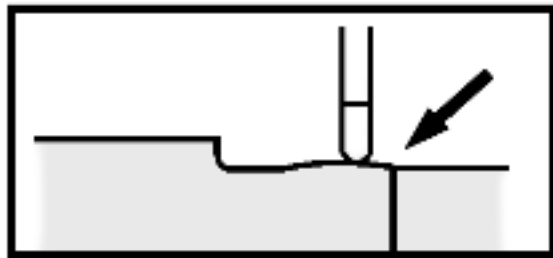
Mobile hitch, assembly

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

Liners

Clean the contact faces thoroughly.

Install the liners without seals.



21 3678A

Immobilize liners.

Use tool 1462.

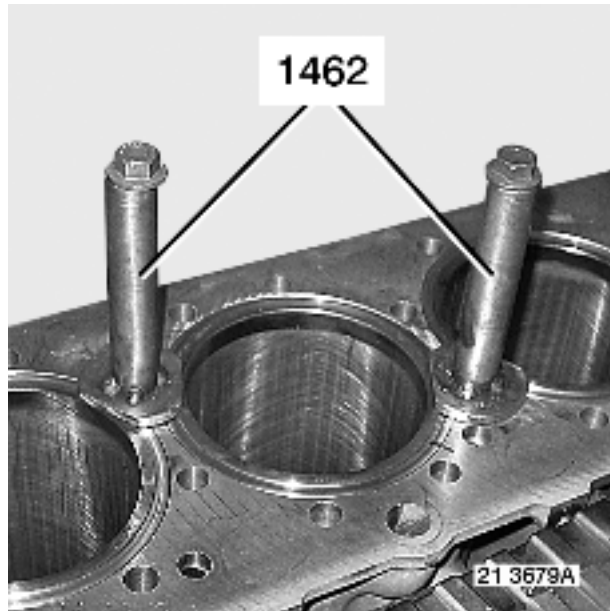
Check the protrusion of the liners.

Use tool 1141 + 9661.

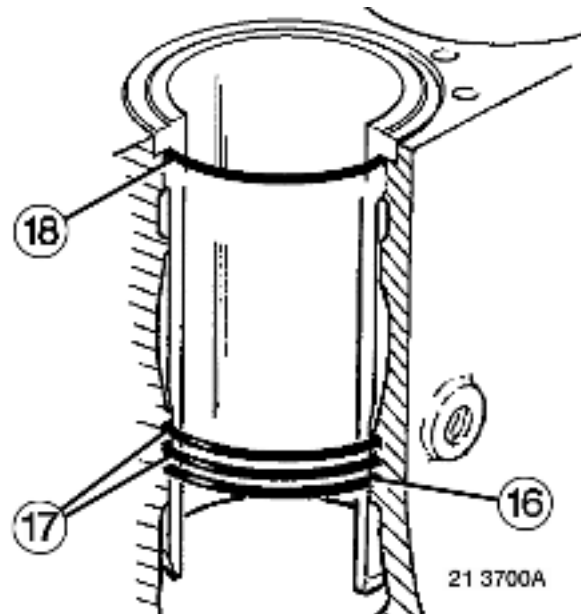


- * **Make 2 diagonally opposed measurements on the highest point of the sealing face of the liner. Calculate the average value of the 2 readings.**
- * **Mark the positioning of the liners in the cylinder block with a felt pen so as to obtain the same positioning during assembly.**

For values, see "Technical data" chapter.



Withdraw tool 1462.



Install seals **(16 - 17 - 18)**.
Ensure the position

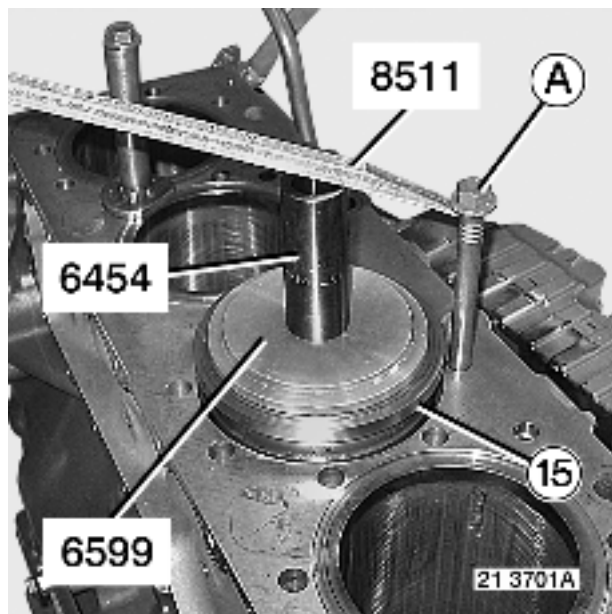


Place the violet seal (16) in position in the lower groove.



O-rings (16 - 17 - 18) are to be fitted dry and the exposed part then greased.

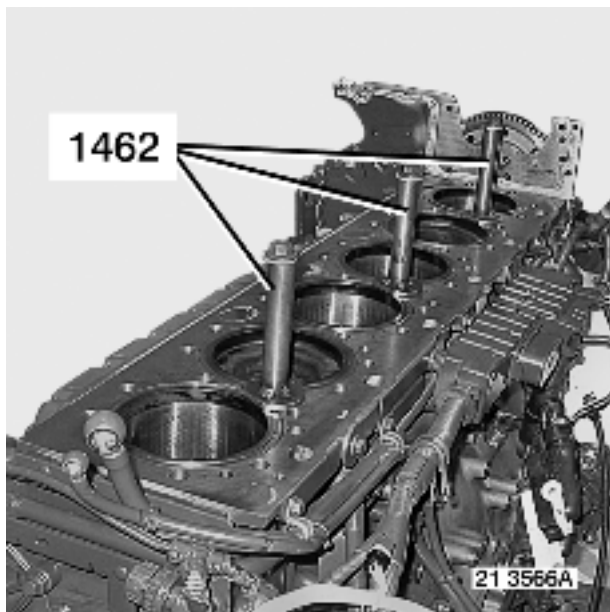
Lubricate the seals with the product supplied.



Fit liners (15).

Use a cylinder head bolt (A).

Use tools 6599 + 6454 + 8511.



Immobilize liners **(15)**.

Use tool 1462.

Crankshaft

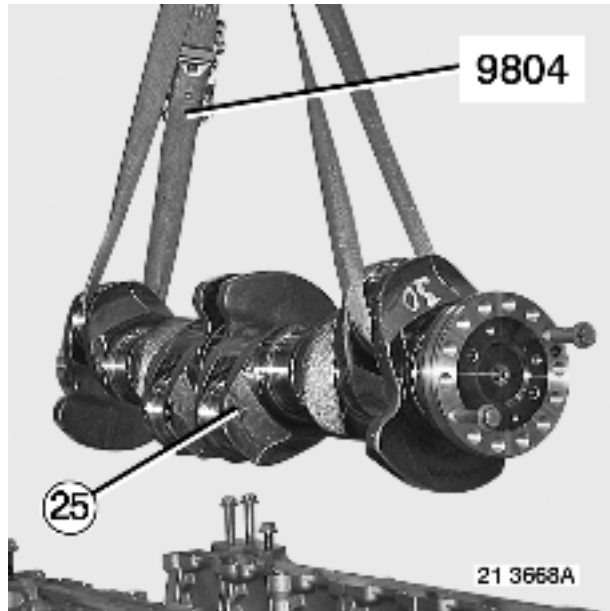
Clean the contact faces thoroughly.

Fit bearing half-shells **(22)**.

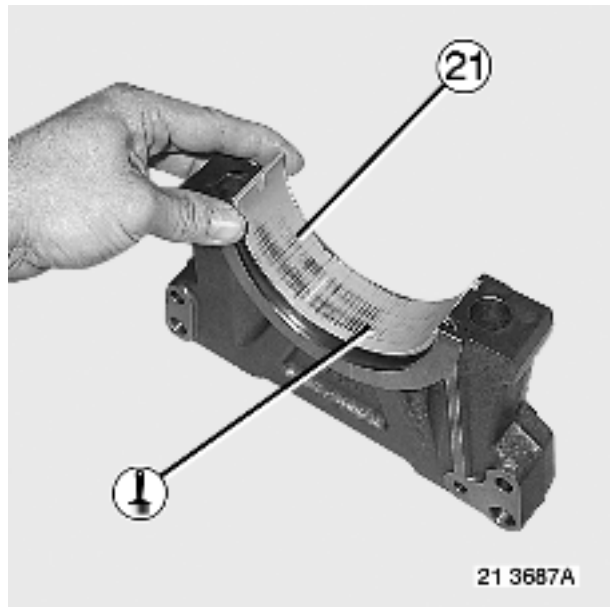
Match the direction of orientation.

Line up the lubrication holes.

Apply oil (engine oil) to the inner faces of bearing half-shells **(22)** when installing them. Do not apply oil to the support face.



Apply oil to the crankpins.
Fit crankshaft **(25)**.
Use tool 9804.
Use lifting tackle.



Clean the contact faces thoroughly.

Fit bearing half-shells **(21)**.

Match the direction of orientation.

Apply oil (engine oil) to the inner faces of bearing half-shells **(21)** when installing them. Do not apply oil to the support face.

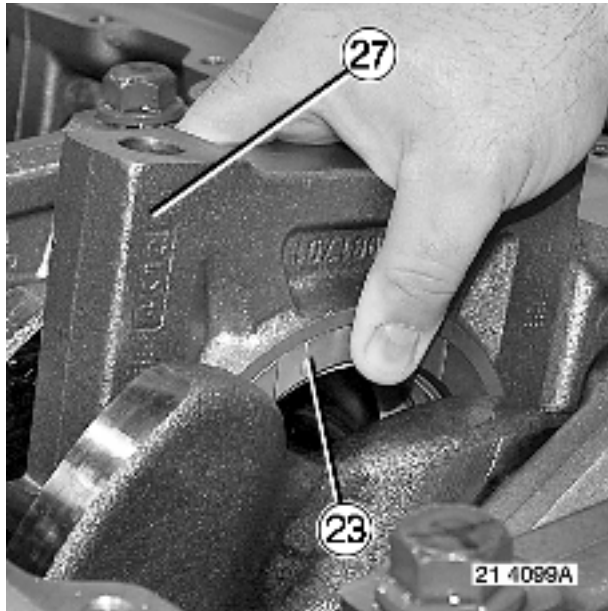
Lubricate thrust half-rings **(24)**.

Use engine oil.

Install thrust half-rings **(24)**.

Match the direction of orientation.

Check for the presence of dowel **(26)**.



Lubricate thrust half-rings **(23)**.

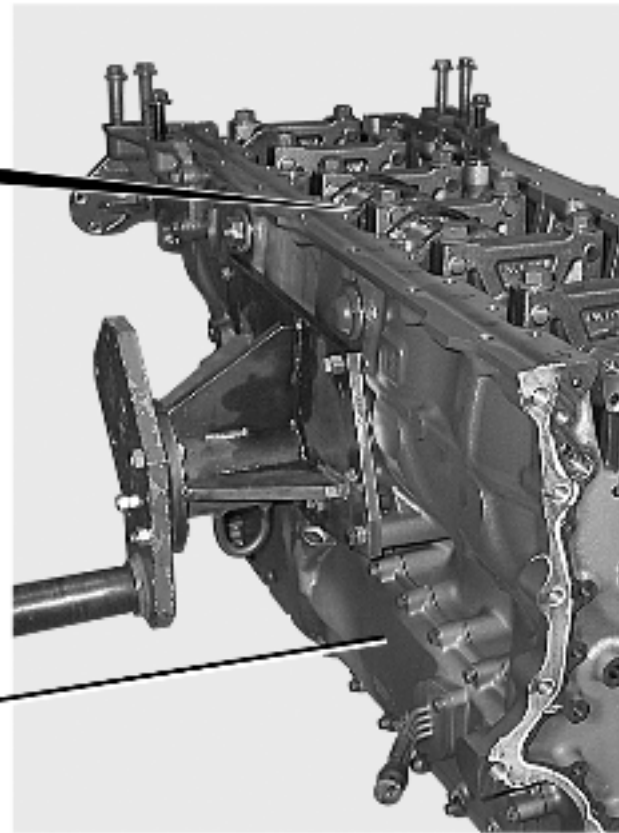
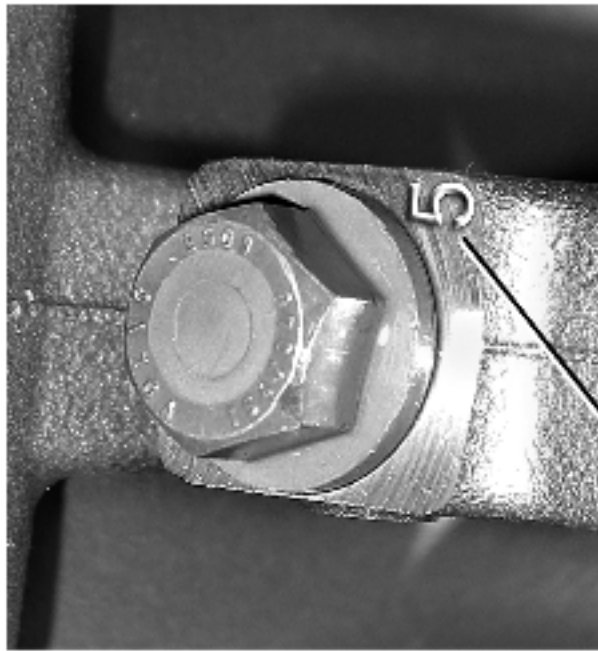
Use engine oil.

Position thrust half-rings **(23)** on bearing cap **(27)**.

Match the direction of orientation.

Fit bearing cap **(27)** complete with thrust half-rings **(23)**.

Check that dowel **(26)** is properly engaged in its housing.

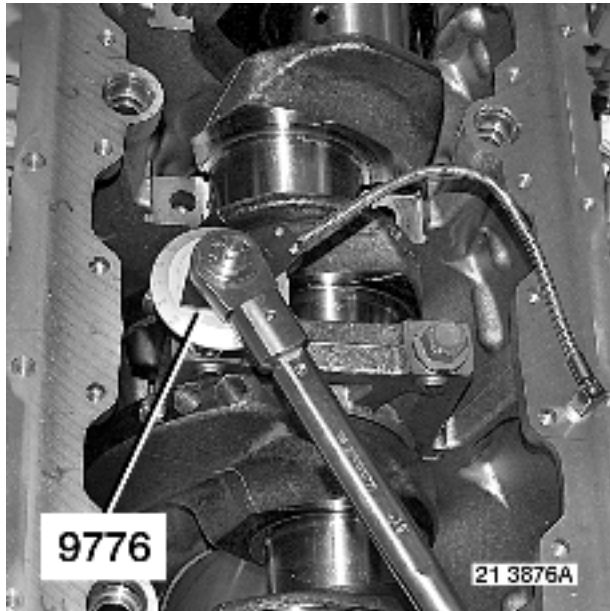


21 3705A

Fit bearing caps **(20)**.

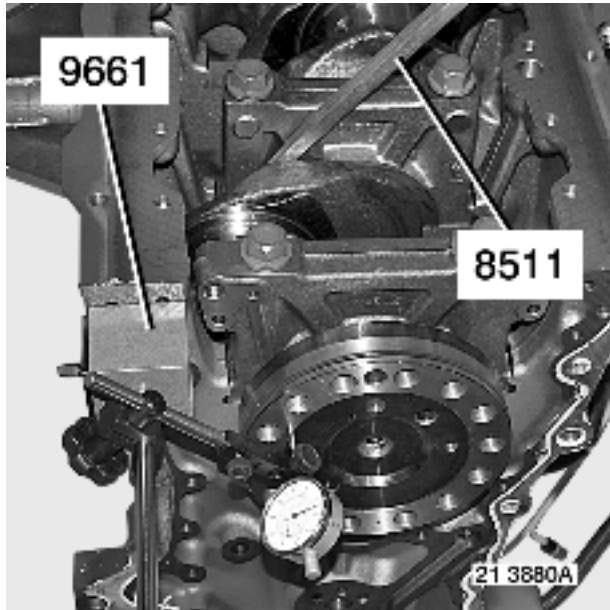
The numbers marked on the bearing caps must be positioned at the oil cooler casing end.

The bearing caps are marked from **1** to **7**, N° **1** bearing at the engine front end.



Fit bolts **(19)**.
Tighten to torque.

Use tool 9776.
Check that the crankshaft rotates freely by turning it by hand.



Crankshaft end play

Gauge the crankshaft end play .

Use tool 9661 + 8511.

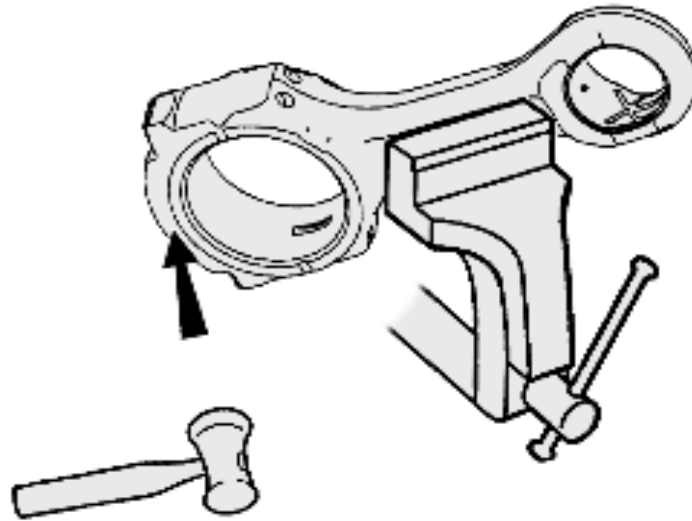
Correct, if necessary.

For values, see "Technical data" chapter.

Fit flywheel.

Fit crankshaft front seal casing varref vrefid="1" idpos="1">.

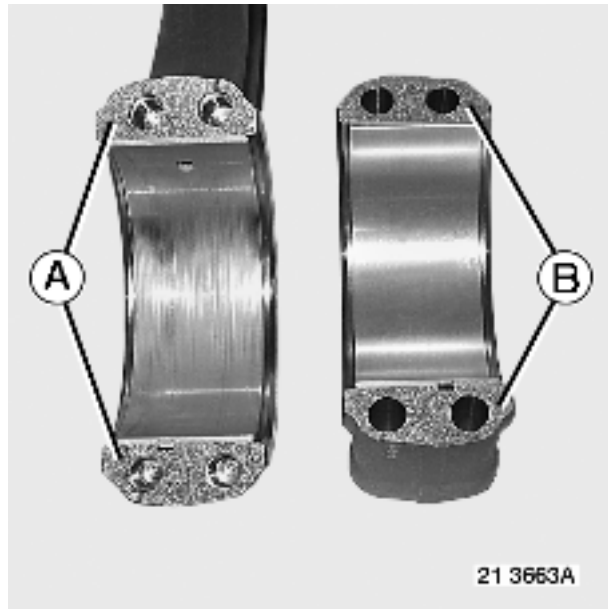
Reaction rod



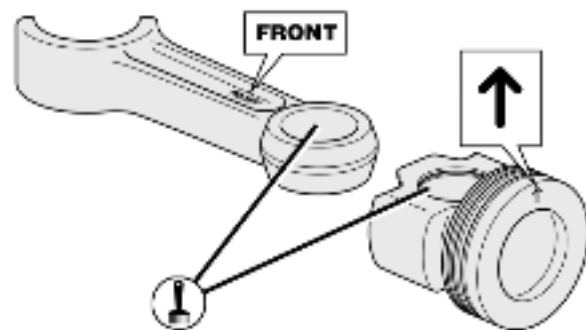
21 3238A

Preparing a new connecting rod

- * Immobilize the connecting rod **(14)** in a vice; use protections.
- * Remove bolts **(5)**.
- * Free connecting rod cap **(6)** using a plastic mallet.
- * Blow compressed air over the contact faces **(A - B)** of the connecting rod and of the connecting rod cap.



Split connecting rod So as to not have to loosen a connecting rod during operation, it is crucial to not bump, nor apply oil to the part and keep the contact faces (A - B), which correspond to the relief of the connecting rod cap / connecting rod parting line, immaculately clean.



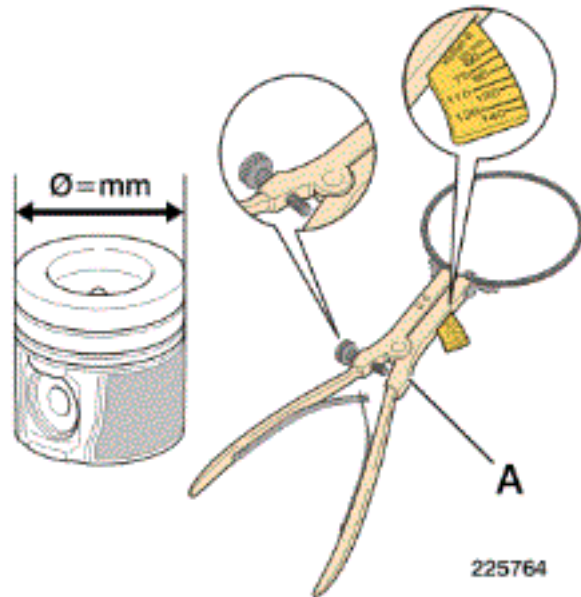
Lubricate gudgeon pin, piston and small end bush.

Assemble pistons (13) and connecting rods (14) with gudgeon pins (12).



When assembling the connecting rod / piston assembly, take care to position the marks correctly.

Install circlips (11).

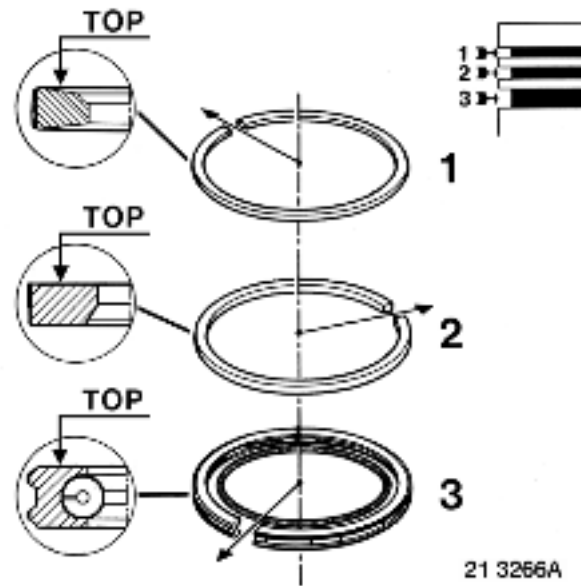


Adjust the gap of grips on tool **A** according to the diameter of piston.

A = 0083



To avoid breakage of the piston rings during operation and during assembly / dismantling of the fire and compression rings, it is vital to not exceed the spacing distance X.
Fire ring : X = 37.6 mm
Compression ring : X = 38 mm
Oil scraper ring : X = 34.1 mm



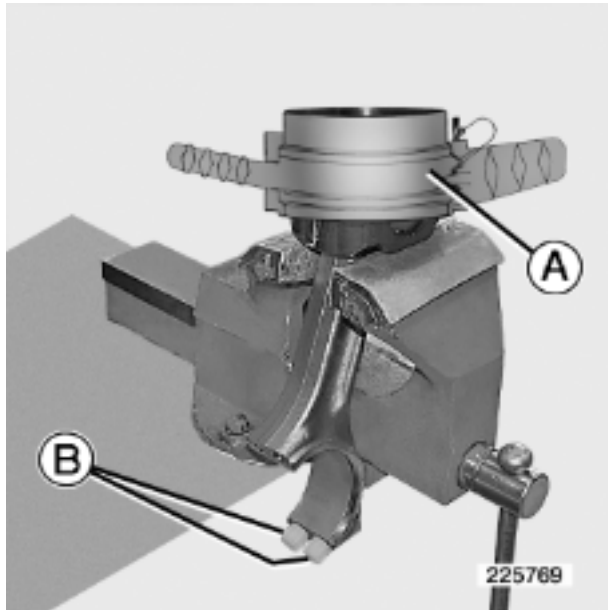
Fit piston rings (**10 - 9 - 8**) so that the "**TOP**" marks are facing upwards.

Use tool **A**.

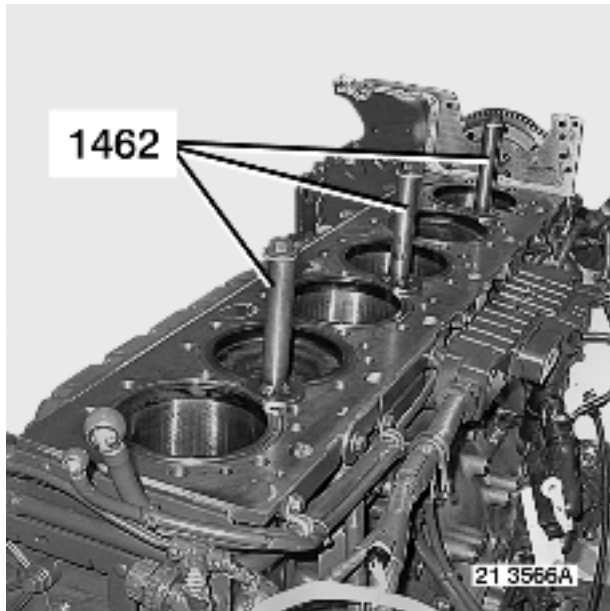
A = 0083

For the oil scraper ring (**10**), the spring gap must be diametrically opposed to the joint gap.

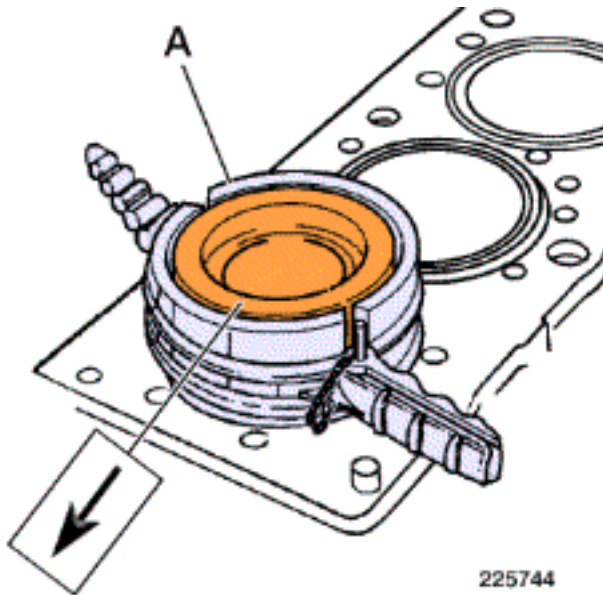
The piston ring joint gaps must be staggered in relation to one another.



In a vice.
Use a protective device.
Apply oil to piston **(13)** (engine oil).
Compress rings **(8 - 9 - 10)**.
Use tool **A**.
A = 8531
Mount tool **B**.
B = 2935



Withdraw tool 1462.

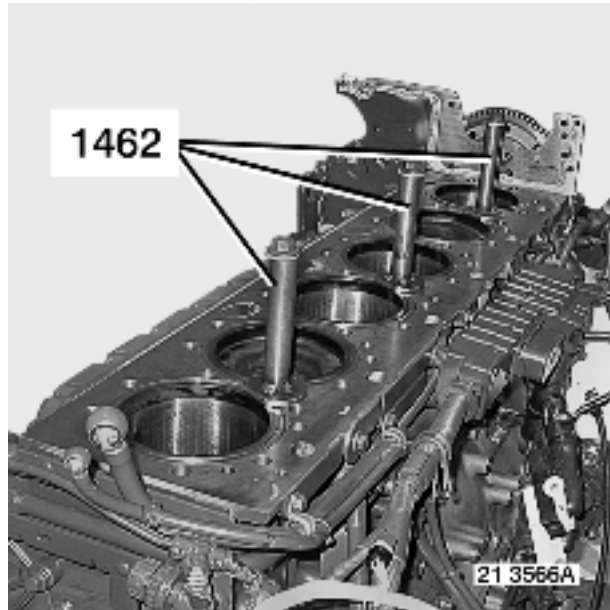


Install connecting rod/piston assemblies.

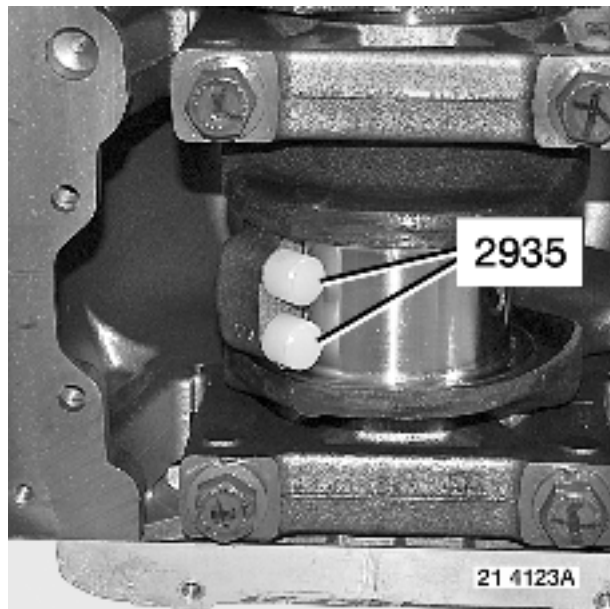
Use tool **A**.

A = 8531

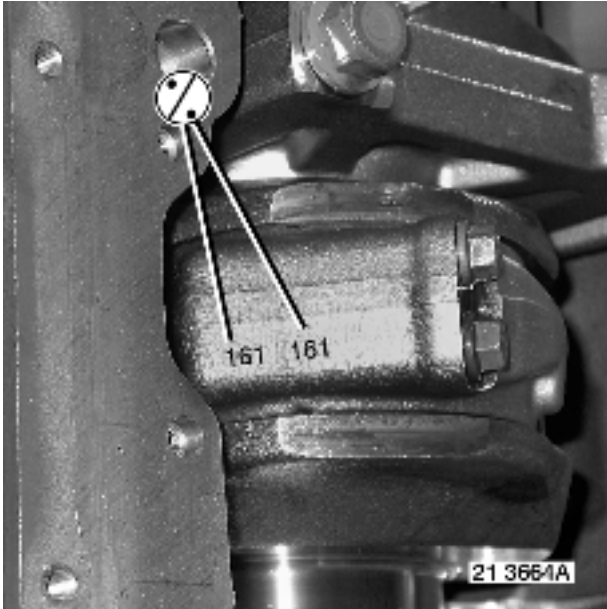
The marking (>) must be directed towards the front of the engine (N° 1 cylinder).



Immobilize liners.
Use tool 1462.



Withdraw tool 2935.



Clean the contact faces thoroughly.

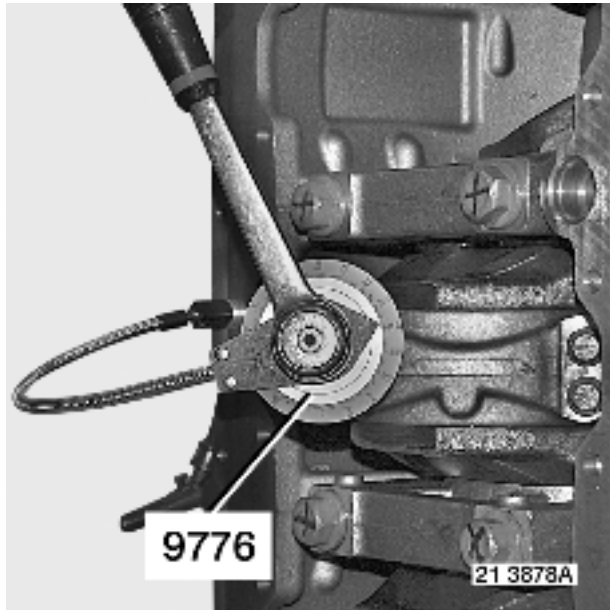
Fit bearing half-shells **(7)**.

Match the direction of orientation.

Apply oil (engine oil) to the inner faces of bearing half-shells **(7)** when installing them. Do not apply oil to the support face.

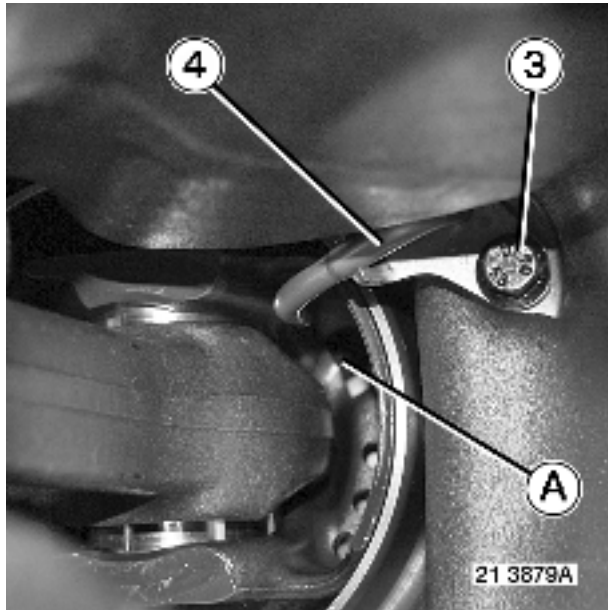
Fit connecting rod caps **(6)**.

Ensure the marking.



Fit securing bolts **(5)**.
Tighten to torque.

Use tool 9776.
Check that the crankshaft rotates freely by turning it by hand.



Oil jets

Fit oil jets **(4)**.

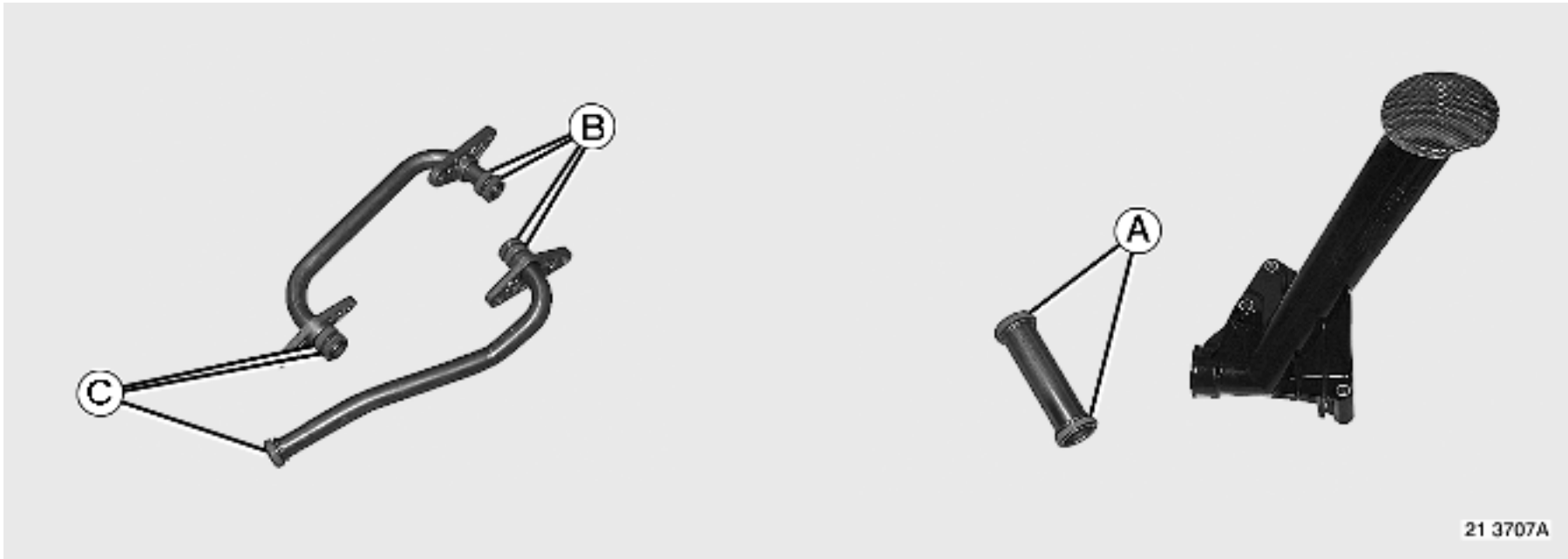
Fit securing bolts **(3)**.

Tighten to torque.

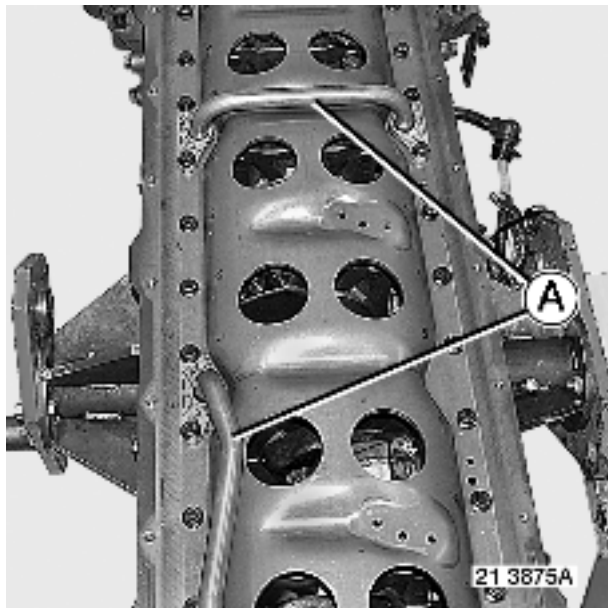
Check that jet **(4)** is right in front of the oilway port **(A)** under piston head **(13)**.

Fit the oil pump.

Cylinder block stiffener



Clean the contact faces thoroughly.
Replace the seals (**A - B - C**).



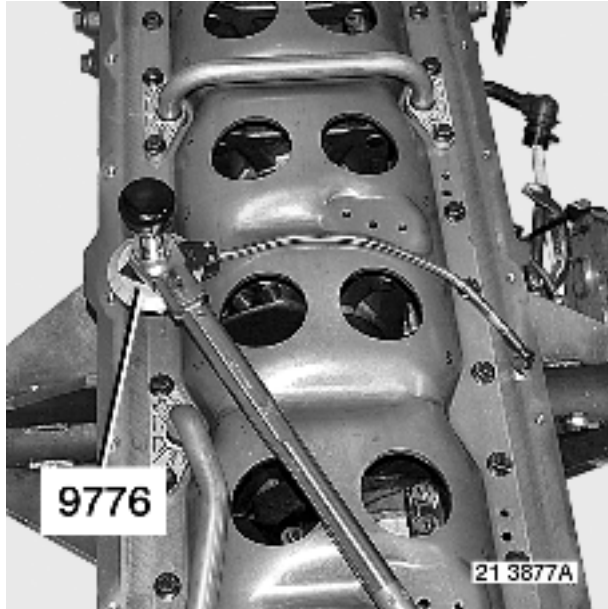
Fit cylinder block stiffener **(2)**.



Wear gloves for protection.

Fit pipes **(A)**.

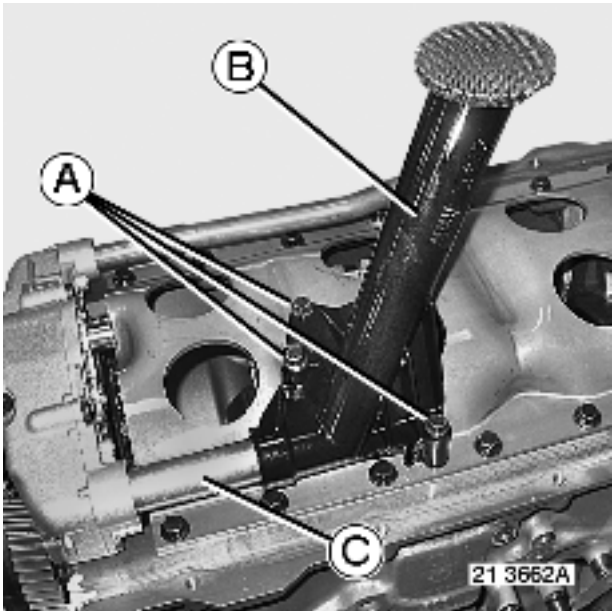
Fit bolts **(1)**.



Tighten bolts **(1)** to torque.

Follow the tightening sequence.

Use tool 9776.



- Fit pipe (C).
- Fit the oil strainer (B).
- Tighten bolts (A) to torque.

Fit the oil sump.

Fit the cylinder head.

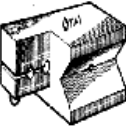
Tools

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
	5000269804	STRAP			3	1
	5000269776	INDICATOR DISC			2	1
	7409998511	CONTROL LEVER			2	1
	7409996454	PUSHER			2	1
	7409996599	PUSHER			2	1
	5000261141	SUPPORT (DIAL GAUGE)			2	1
	5000262935	PROTECTION (SPLIT CONNECTING ROD)			3	1

						
	7409998531	INSTALLATION TOOL (PISTON)			2	1
	7488800083	PULLER (PISTON RINGS)			2	1

Locally manufactured tool

Illustration	RENAULT TRUCKS part N°	Designation	Manufacturer's reference N°	Manufacturer's code N°	Scale	Qty
	OFL1462	SPACER			3	1

Big end caps, tightening torques



Tighten in diagonally opposed sequence.

Stage1	20±3 Nm
Stage2	60±3 Nm
Stage3	90±5 °
Control torque	115 › 195 Nm

Mobile hitch, exploded view

