

USING THIS MANUAL

This manual has three main sections :

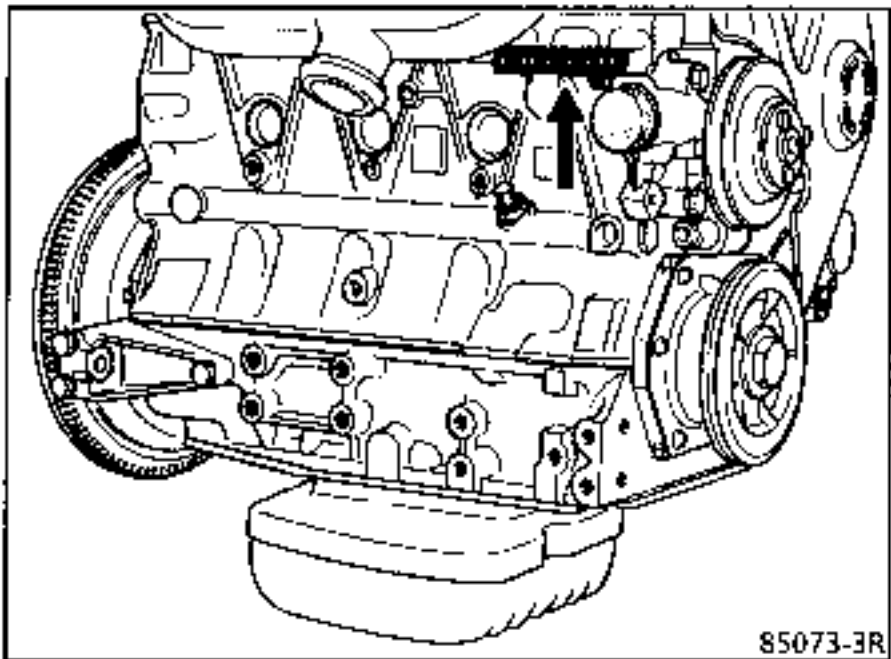
- specifications,
- overhauling the cylinder head,
- overhauling the cylinder block.

When repairing components on the vehicle refer to the vehicle Workshop Manual.

UNITS OF MEASUREMENT

- All dimensions are given in millimetres: mm (except where otherwise indicated).
- Tightening torques are given in decaNewton-metres : **daN.m** (reminder: $1 \text{ daN.m} = 1.02 \text{ m.kg}$).

The engine identification number is cold-stamped on the upper part of the cylinder block on the manifold side.



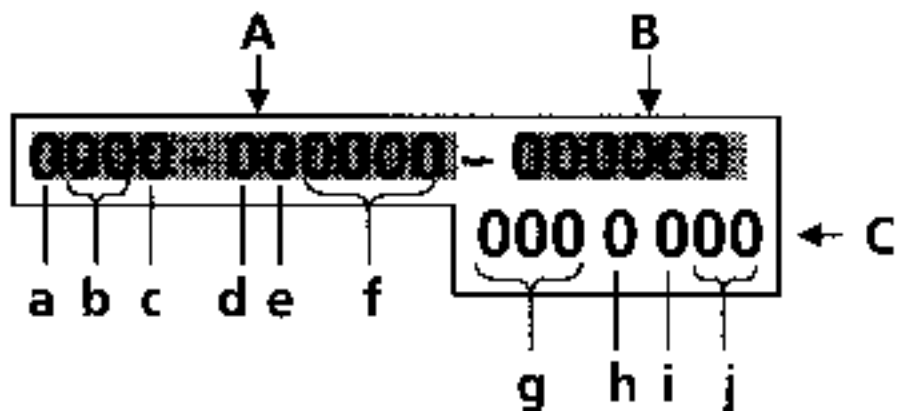
A : Engine type

- a : (8) Engine type**
- b : (14) Progressive number of design**
- c : (4) Passenger car**
(0) Goods transport
- d : (2) Turbocharged diesel engine with direct injection**
(6) Diesel engine with indirect injection
(9) Turbocharged diesel engine with indirect injection
- e : (1) 90 stroke**
(7) 92 stroke
- f : Version number**

B : Engine number

C : Renault SA identification (depending on version)

- g : Engine type**
- h : Engine homologation**
- i : Renault SA identification**
- j : Engine suffix**



STANDARD EXCHANGE

This plate determines which internal engine units have been REGROUND to the repair dimensions.

Each box on this plate concerns a unit, each unit has a number, i.e. 0, 1, 2.

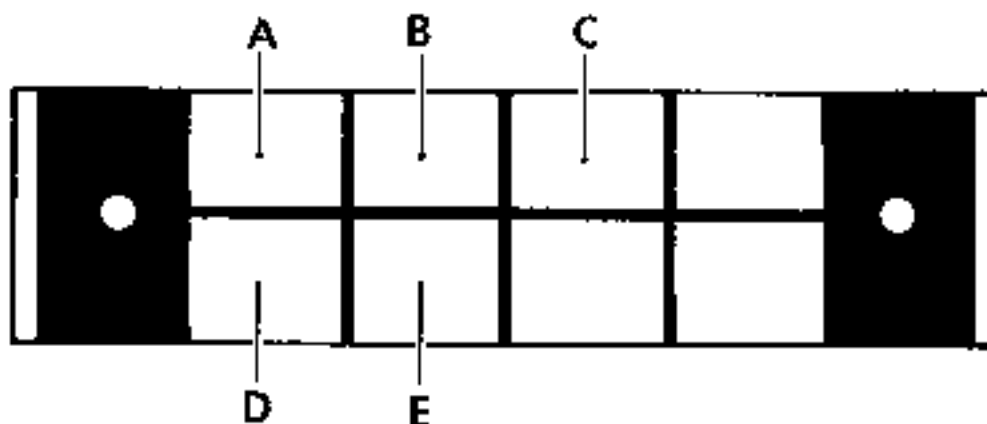
- 0 → Original dimension
- 1 or 2 → Repair dimension

A

B

C

MAIN BEARING JOURNAL	CRANKPIN	PISTON DIAMETER
0 → Original main bearing journal 1 → Main bearing journal dia. - 0.25 mm	0 → Original crankpin 1 → Crankpin dia. - 0.25 mm	0 → Original piston 1 → Piston dia. + 0.4 mm



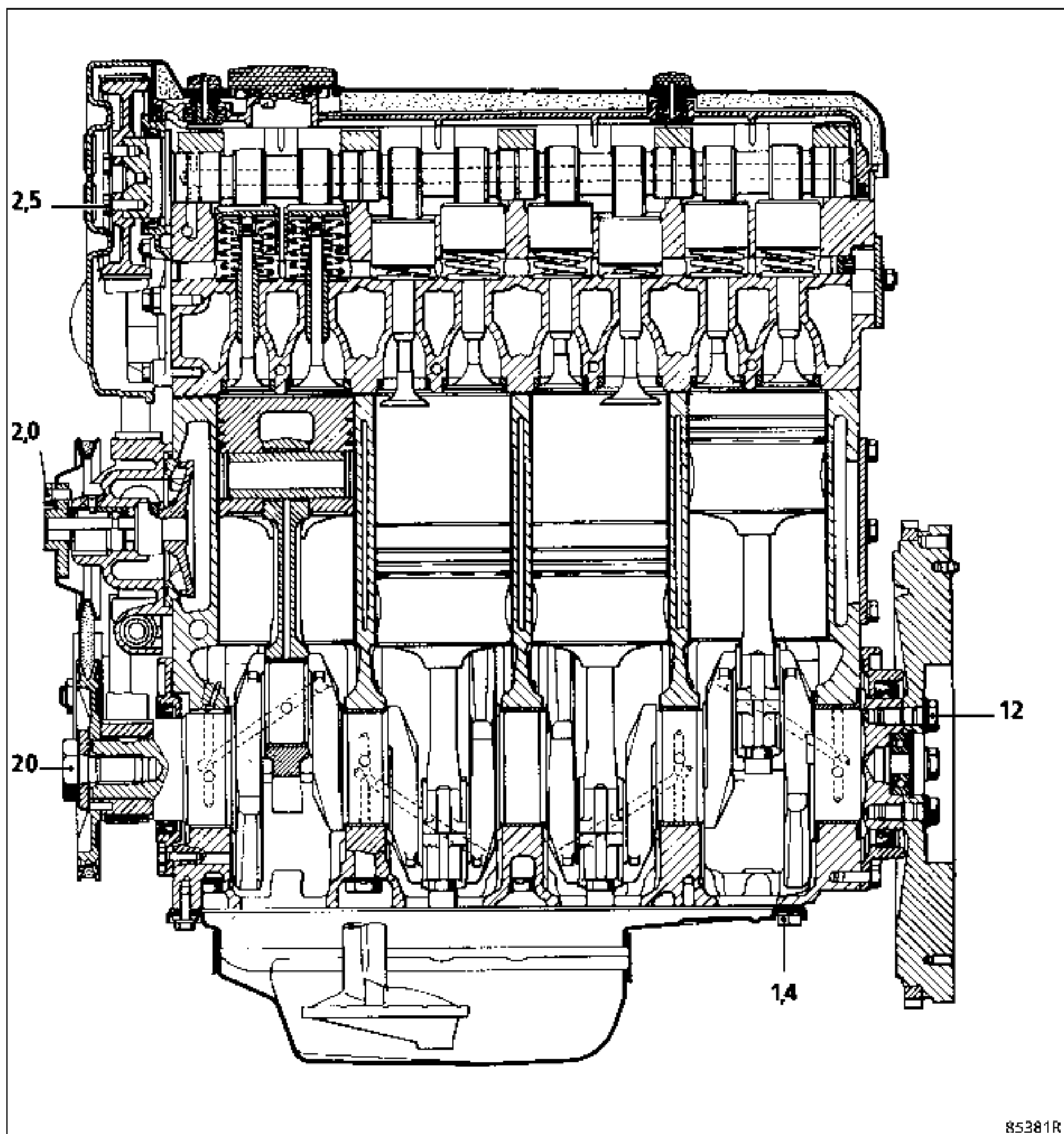
93052-1R

D

E

ENGINE BLOCK HEIGHT	CYLINDER HEAD HEIGHT
0 → Original height 1 → Height - 0.2 mm	0 → Original height 1 → Height - 0.2 mm

RANGE	VEHICLE	ENGINE	CUBIC CAPAC. (cc)	BORE (mm)	STROKE (mm)	COMPRESSION RATIO	
TRAFIC	PXX4	8140 61240 S8U 720 8140 61240 S8U 722	2445	93	90	22	
MASTER	QXX4	8140 612300 S8U 730 8140 61230 8140 61230D					
MASTER	RXX4	8140 612300 S8U 731 8140 61230D					
SAFRANE	B548	8144 972400 8144 972405 8144 972409 8144 972410 8144 972415 8144 972419 S8U 762 8144 971400 8144 971405 8144 971409 S8U 763	2499	93	92	22.5	
TRAFIC	TXX4 VXX4	8140 672500 S8U 750					22
TRAFIC	TXXB VXXB	8140 672580 S8U 752					22
TRAFIC	TXXG VXXG	8140 672550 S8U 758					22
MASTER	RXX5	8140 272500 S9U 700					17.5
MASTER	RXX6	8140 672510 S8U 742					22
MASTER	RXX7	8140 272510 S9U 704					17.5
MASTER	RXX7	8140 272512 S9U 704					17.5
MASTER	RXXC	8140 272580 S9U 702					17.5
MASTER	RXXG	8140 672560 S8U 748					23
MASTER	RXXH	8140 272560 S9U 714					18.5
MASTER	RXXJ	8140 272590 S9U 740					18.5



85381R

Securing bolts :

- Injection pump drive gear: 10

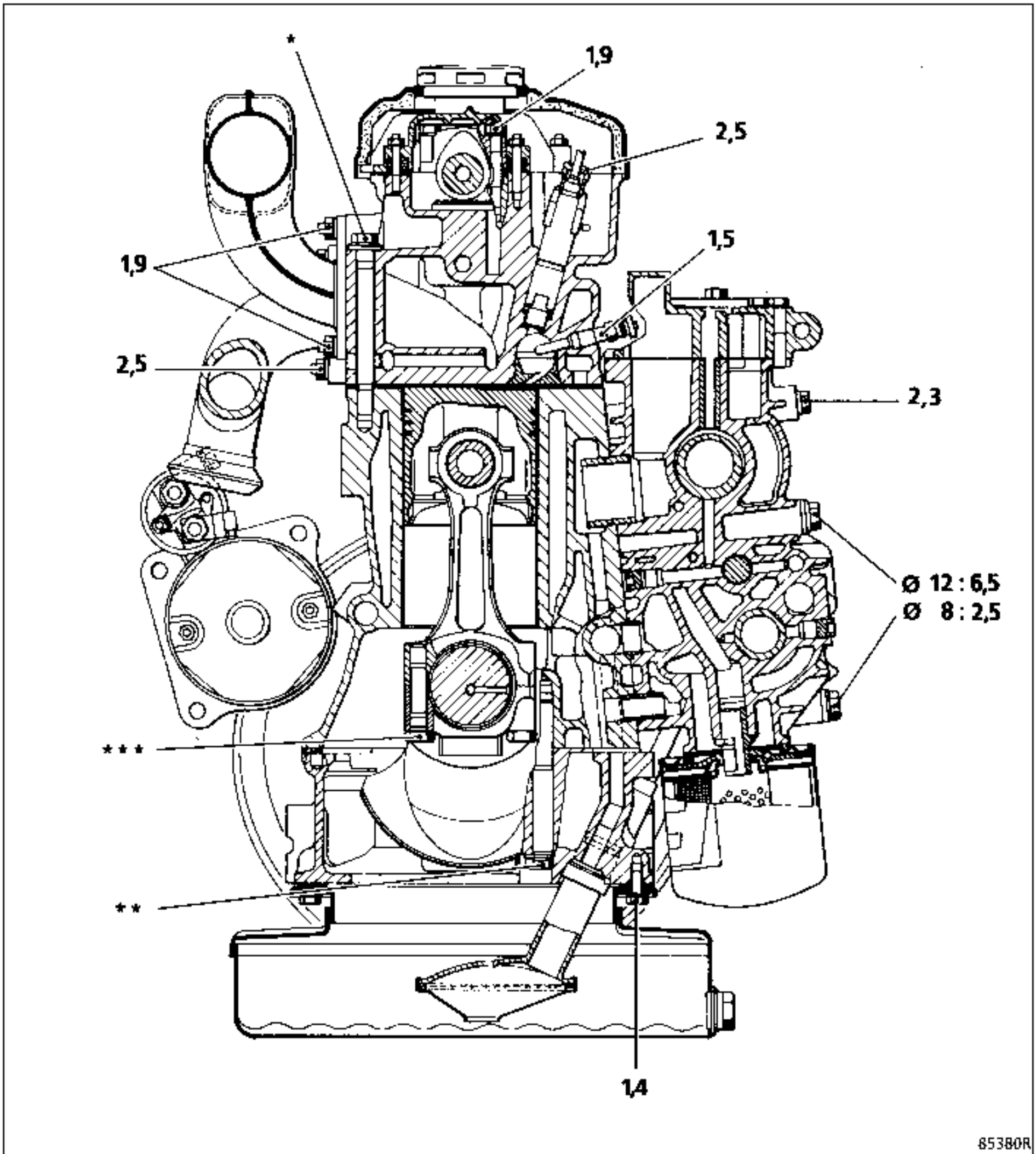
Nuts securing :

- Flywheel casing : 8

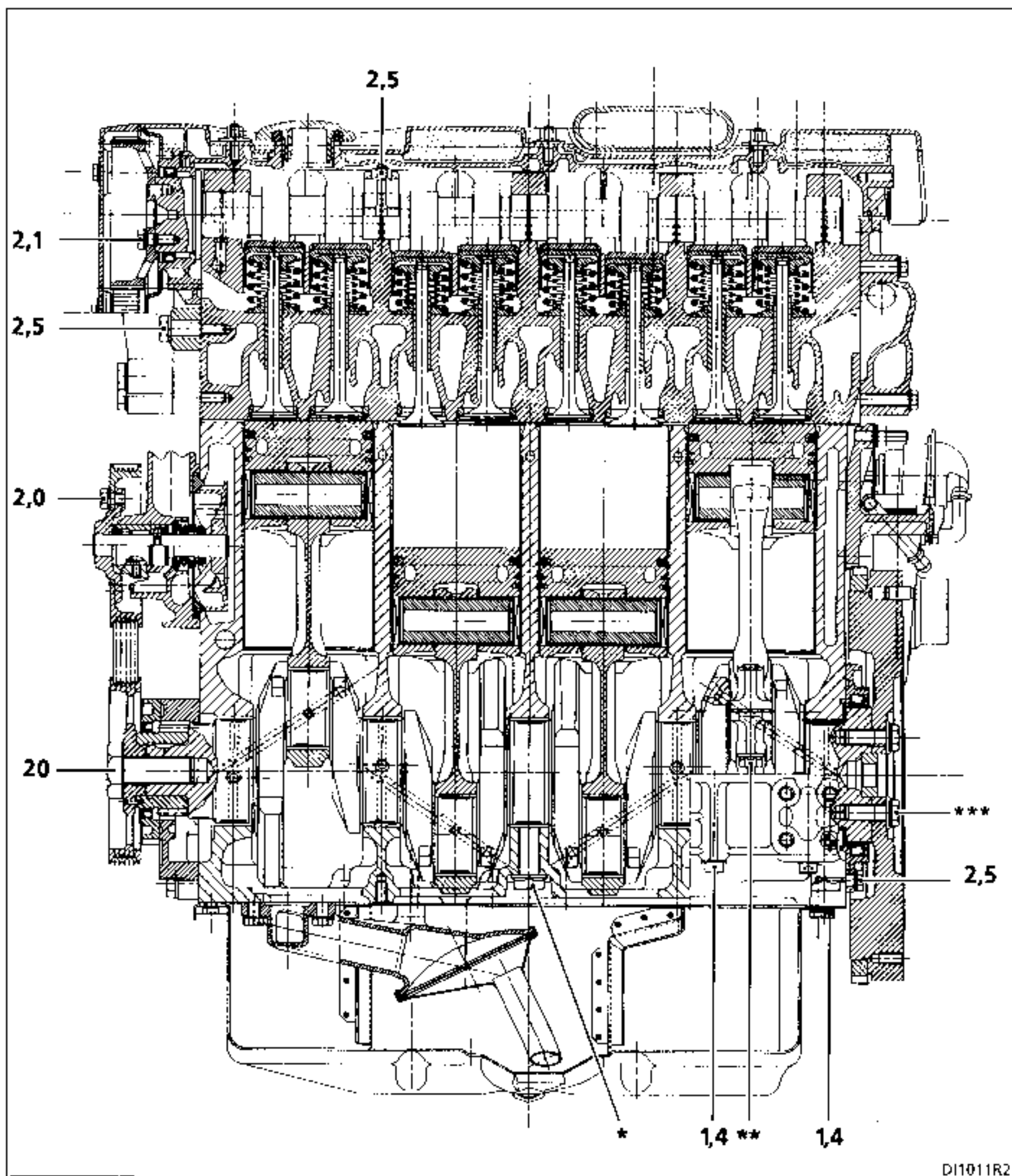
- Timing gear drive belt tensioner bracket : 2.5

- Timing gear drive belt tensioner : 4.5

- Oil filter union : 8



- * Pretightening to 4 daN.m and then tighten through an angle of 180°
- ** Pretightening to 8 daN.m and then tighten to 16 daN.m
- *** Pretightening to 5 daN.m and then tighten through an angle of 63°

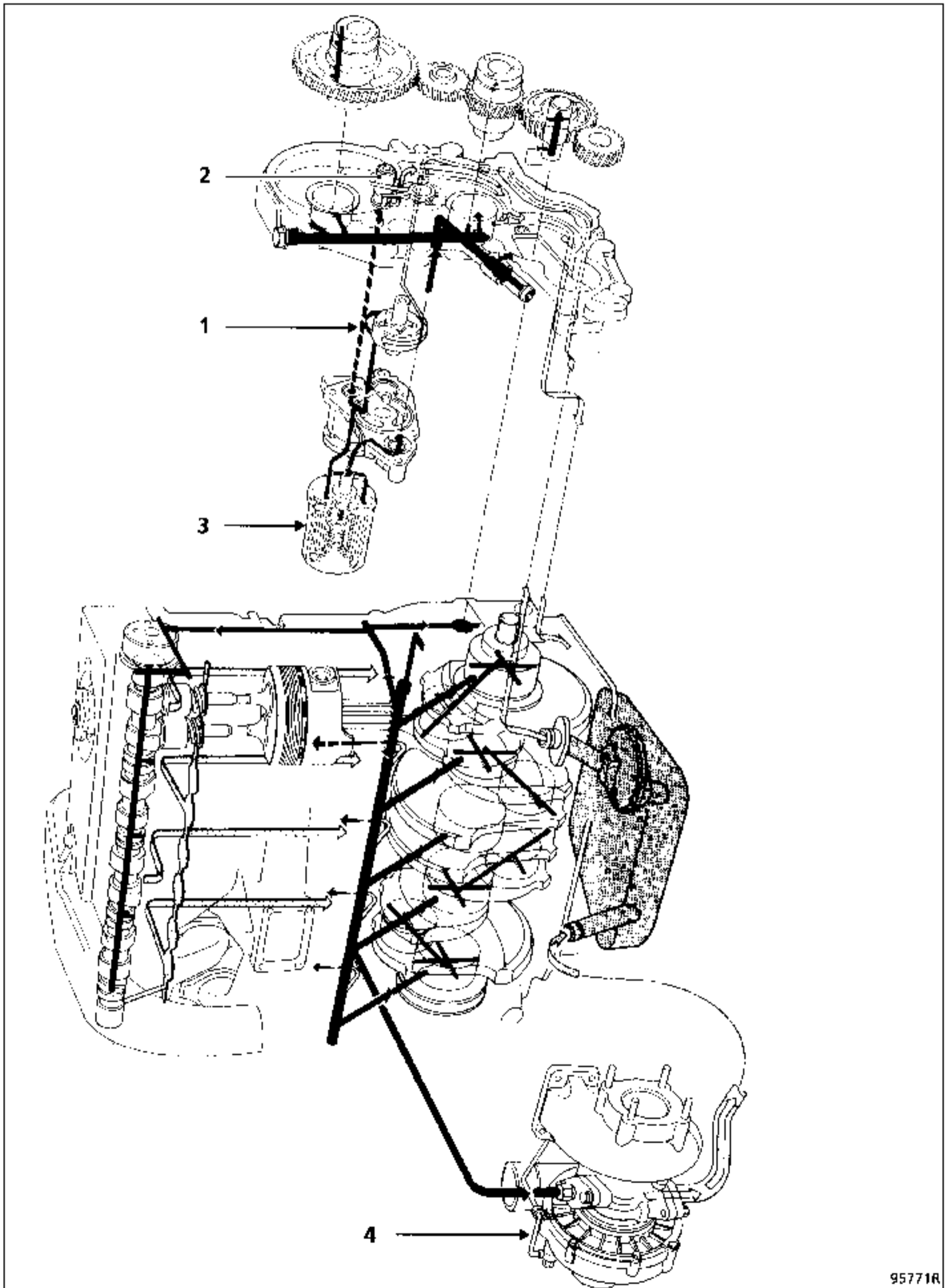


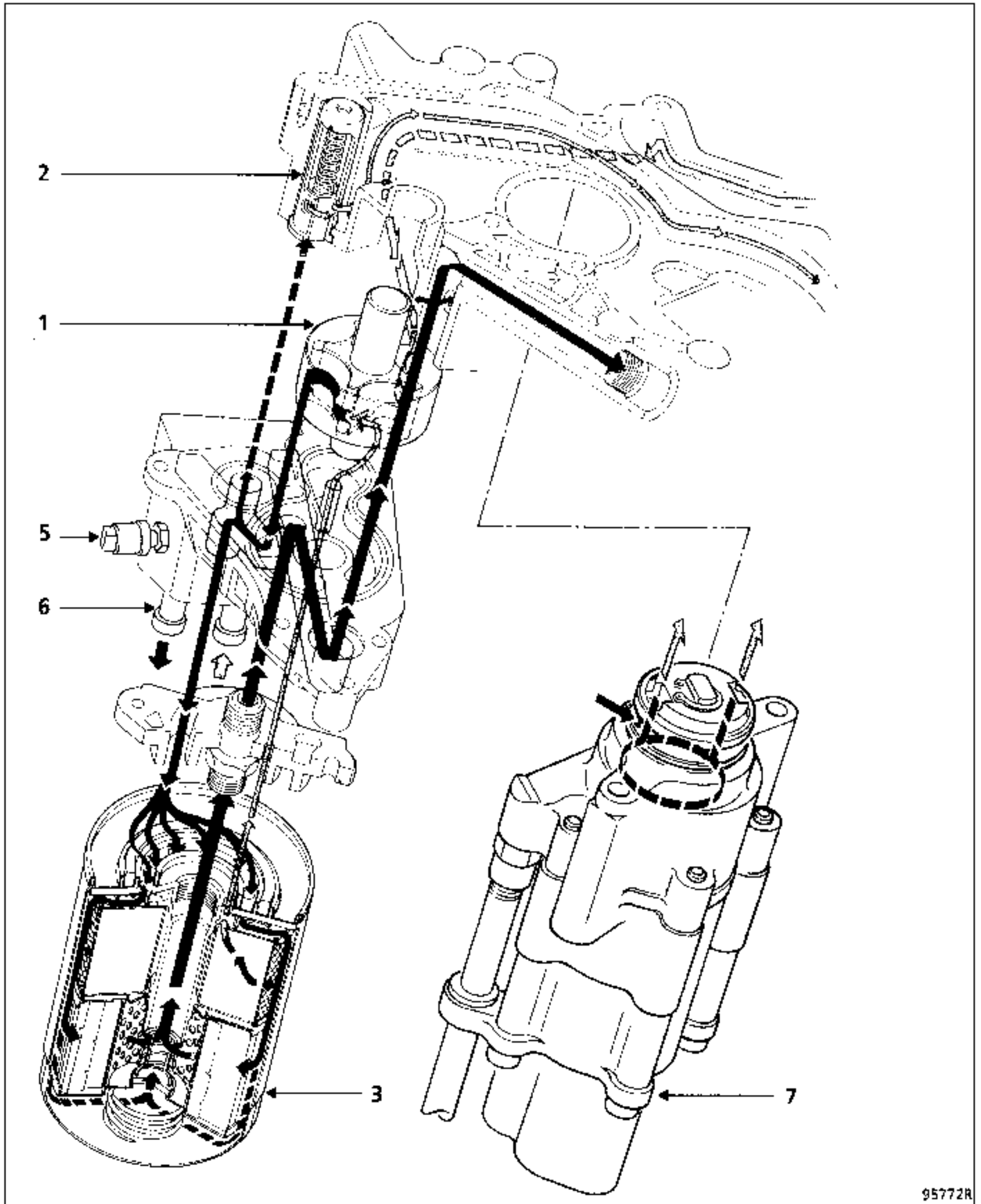
D11011R2

- * Pretightening to 8 daN.m and then tighten to 16 daN.m
- ** Pretightening to 5 daN.m then tighten through an angle of 63°
- *** Pretightening to 3 daN.m then tighten through an angle of 90°

(See page 10-13 for tightening cylinder head bolts).

Injector holder : 5 daN.m
Preheater plugs : 1.5 daN.m





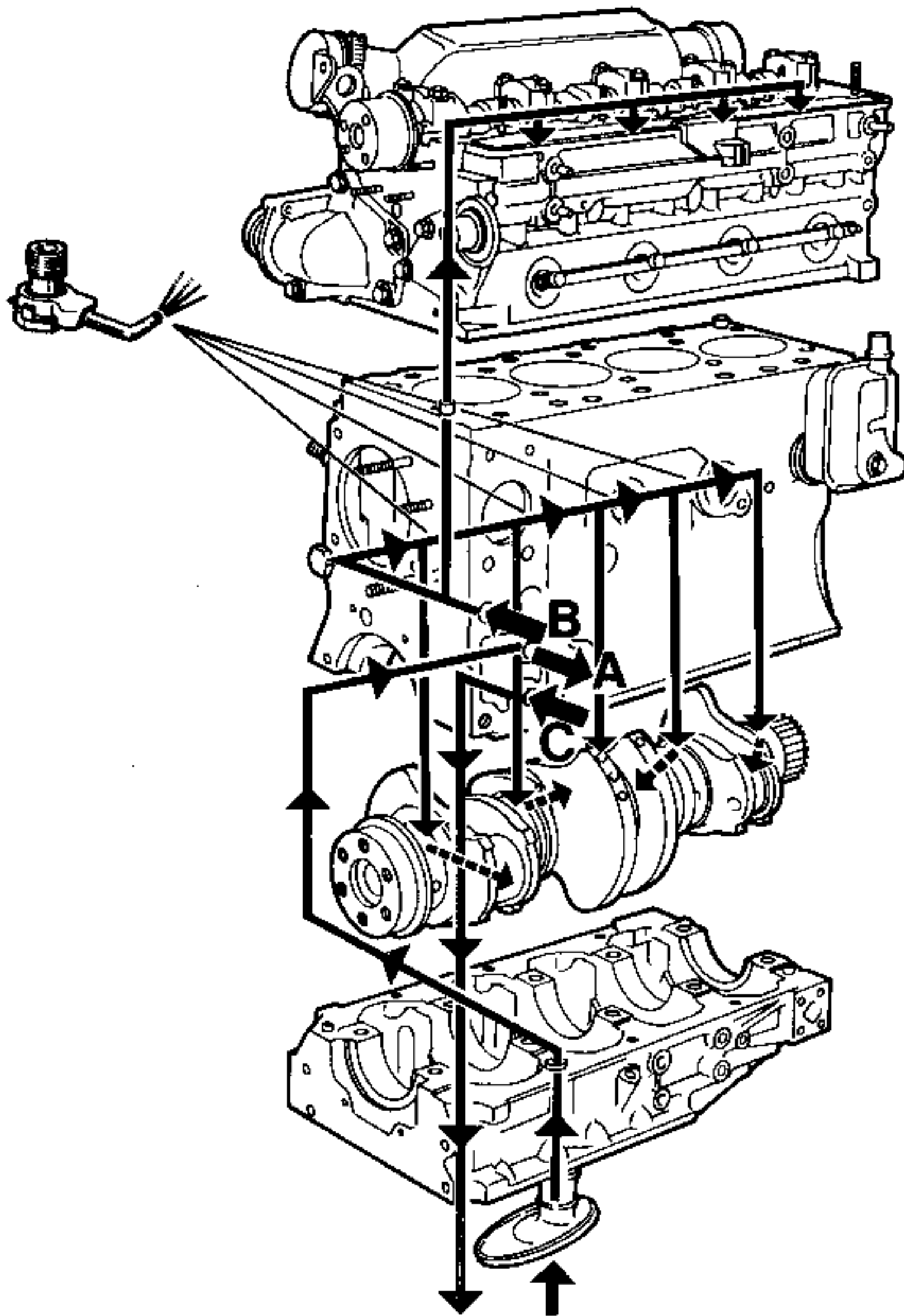


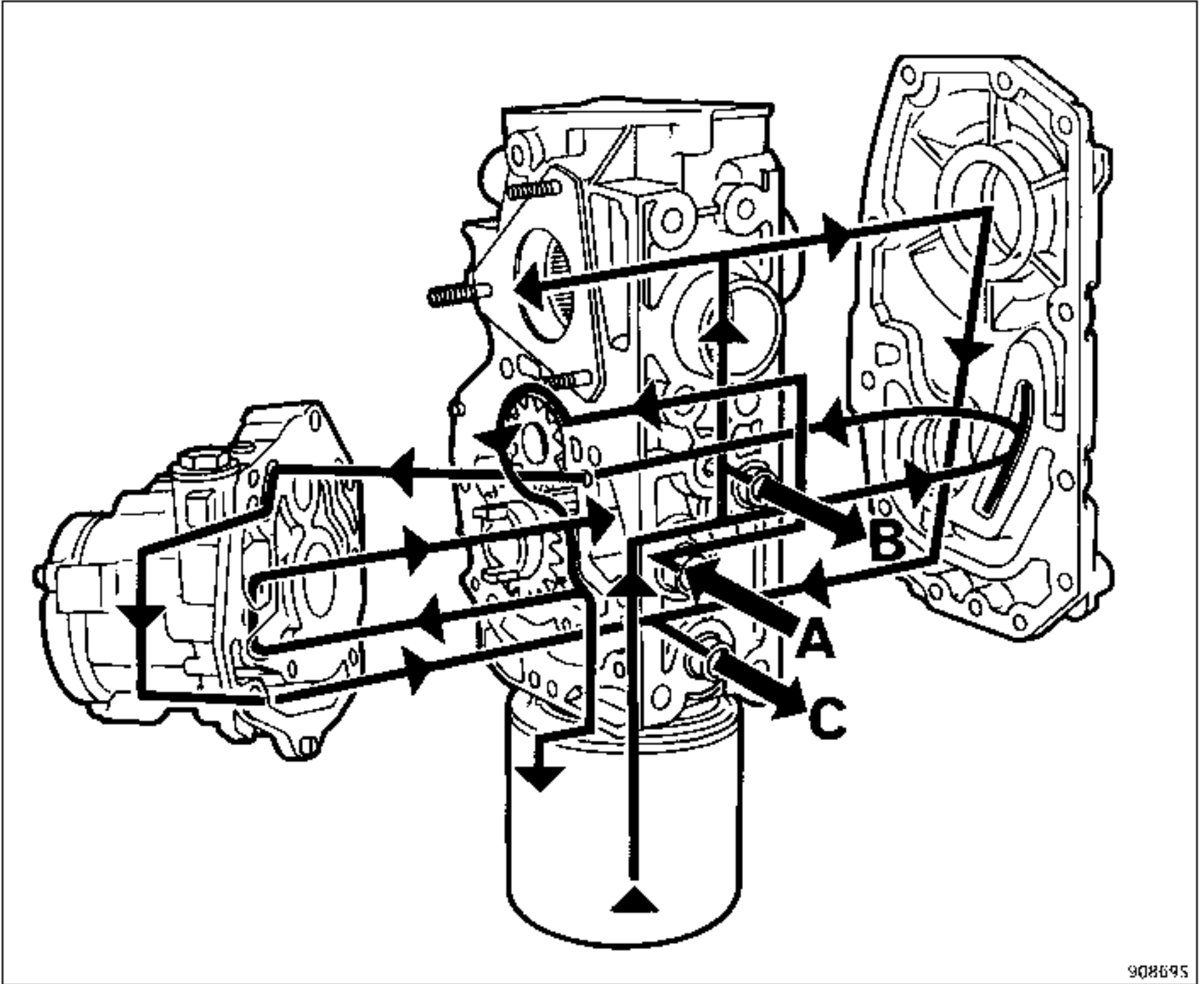
95772R

- 1 : Oil pump
- 2 : Regulation valve
- 3 : Oil filter
- 4 : Turbocharger
- 5 : Pressure gauge transmitter

- 6 : Branch to oil cooler
- 7 : Vacuum pump - steering pump

Pressurised lubrication 
Oil return 





569806

CYLINDER HEAD

AFTER SALES WORK

If the cylinder head is refitted, it will have to be pretightened and will then require final tightening using the angular method.

S8U/S9U/8140 engines

Tightening method

All the bolts must be renewed after the cylinder head has been dismantled.

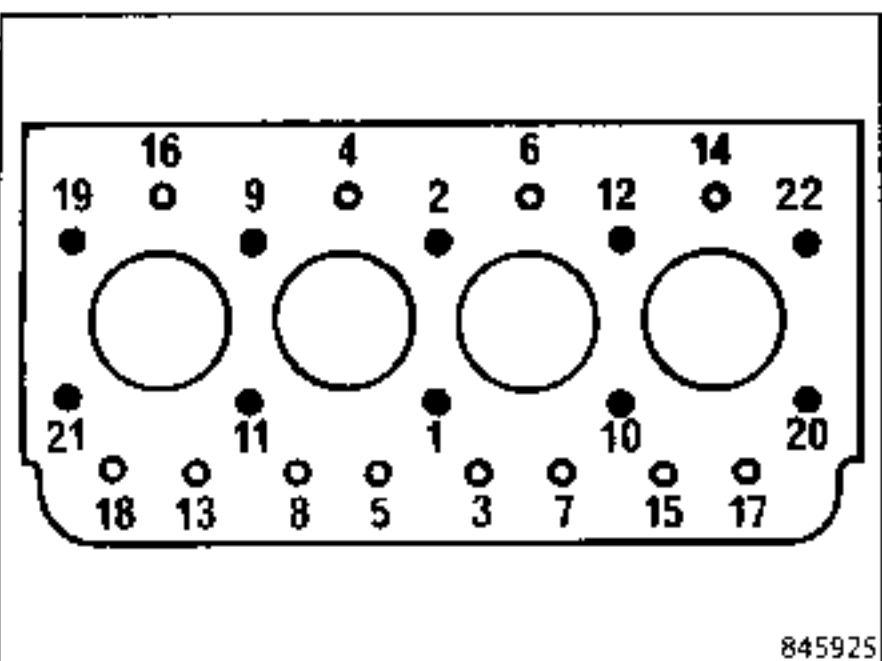
Lubricate the bolt threads and under the heads with engine oil.

Reminder:

In order to tighten the bolts correctly, use a syringe to remove any oil from the cylinder head mounting holes.

Pretightening: **4 daN.m**
 Tightening: **4 daN.m**
 Tightening (angle) : **180° ± 10°**

- Short bolts.
- Long bolts.



845925

Do not retighten the cylinder head bolts.

S8U/8144 engines (Safrane)

Tightening method

All the bolts must be renewed after the cylinder head has been dismantled.

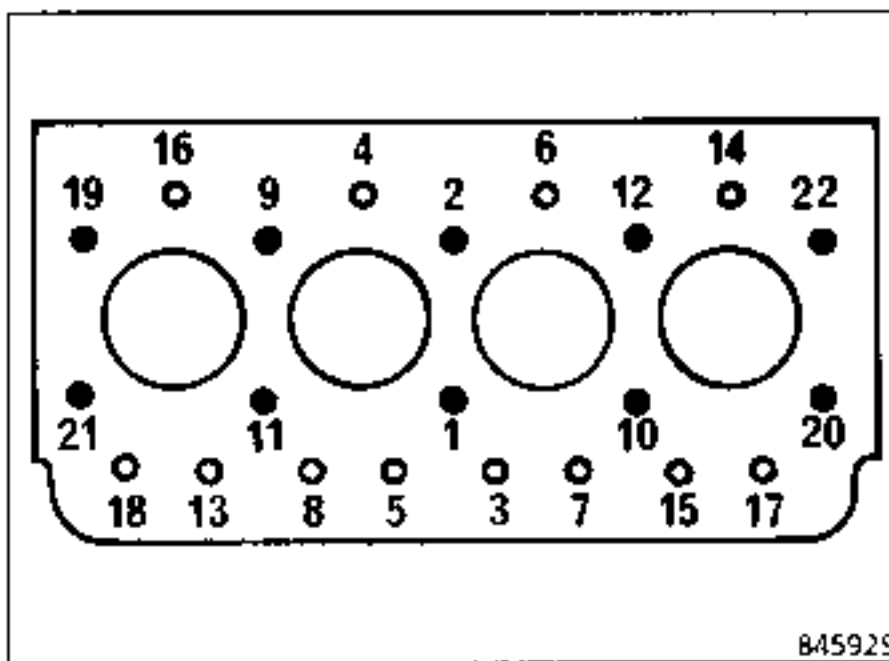
Lubricate the bolt threads and under the heads with engine oil.

Reminder:

In order to tighten the bolts correctly, use a syringe to remove any oil from the cylinder head mounting holes.

Pretightening : **6 daN.m**
 Tightening : **6 daN.m**
 Tightening (angle) : **180° ± 10°**

- Short bolts.
- Long bolts.



845925

Do not retighten the cylinder head bolts.

Valve clearances on a cold engine (mm) :

- Inlet : 0.50
- Exhaust : 0.50

These clearances are adjusted with shim pads (check and adjust, if necessary, every 18000 miles/ 30000 km).

Cylinder head height (mm) : 150 ± 0.10

Gasket face distortion (mm) : 0.05

Pre-combustion chamber protrusion (mm) : 0 to 0.04

Max. metal removal from gasket face : 0.4

VALVES

Stem diameter (mm) : 8

Seat angle :

	1st model	2nd model
- Inlet	91°	120° 30'
- Exhaust	91°	91°

Head diameter (mm) :

- Inlet : 41
- Exhaust : 34.5 or 36.7

The valve heads are recessed below the gasket face by (mm) : 1 to 1.40

VALVE SEATS

Seat angle :

	1st model	2nd model
- Inlet	90°	120°
- Exhaust	90°	90°

Outside diameter (mm) :

- Inlet : 43
- Exhaust : 35 or 38

Width of seat (mm) :

- Inlet : 2.7
- Exhaust : 2.7

VALVE GUIDE

All types

Bore (mm) : 8

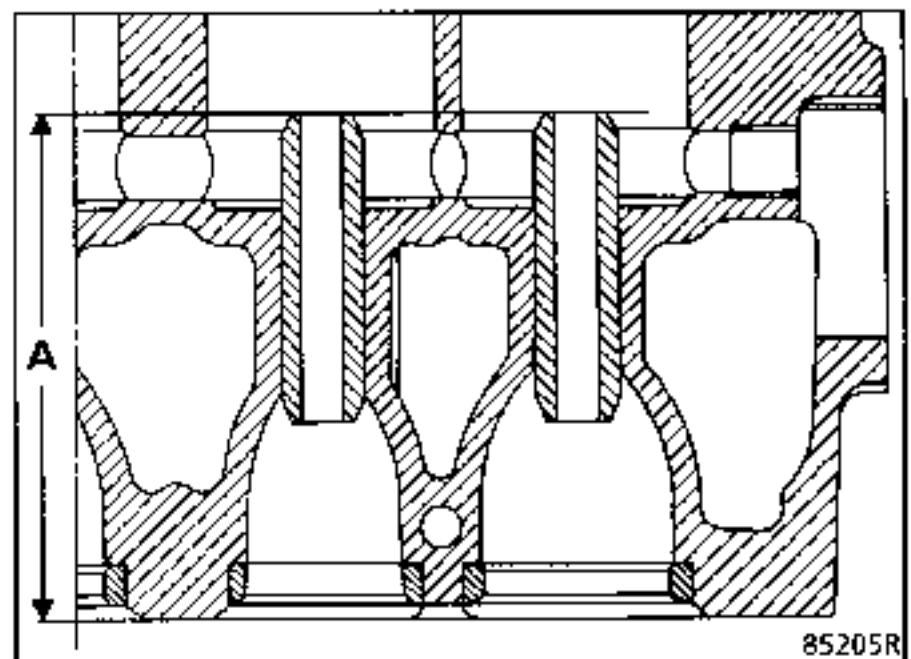
Original outside diameter (mm) : 13.250

The valve guide bore in the cylinder head is to be smaller than the guide diameter by approximately 0.1 mm to obtain the necessary interference fit.

The inlet and exhaust valves have valve stem seals.

Inlet and exhaust valve guide positions:

- Projecting into the tappet location (A) = (96.7 to 97.3 mm)



VALVE SPRINGS

All types

The inlet and exhaust valve springs are identical.

	Inner spring	Outer spring
Free length (mm)	45.5	52
Length under load of:		
15.4 to 17.4 daN.m	33.5	
28.5 to 31.5 daN.m	23.5	
41.3 to 46.3 daN.m		38.5
73.4 to 81.4 daN.m		28.5
Wire diameter (mm)	2.9	4.6
Coil internal diameter (mm)	18.9	29

NOTE : If one spring is damaged, both springs must be replaced.

The Parts Department will only supply the second model (double spring) as a replacement part.

CYLINDER HEAD GASKET

ENGINE	SEAL (Number)	THICKNESS (mm)
S8U 730/731 720/722	1	1.35
S8U 742/750 752	1	1.80
S9U 700/702 704	1	1.20
S8U 748/758	3	1.60 1.70 1.80
S9U 714/740	3	1.20 1.35 1.50
S8U 762/763	2	1.65 1.80

TAPPETS

Outside diameter : 43.950 to 43.970
 Locating bore diameter : 44 to 44.025
 Clearance between tappet and bore: 0.030 to 0.075

CAMSHAFT

Number of bearings : 5
 End float (mm) : 0.20 to 0.50
 Timing diagram :
 - Inlet opens BTDC : 8°
 - Inlet closes ABDC (2 models) : 48° or 37°
 - Exhaust opens BBDC : 48°
 - Exhaust closes ATDC : 8°

At a nominal valve clearance of 0.50 mm.

Diameter of camshaft bearings : 33.934 to 33.950

Diameter of bearing bores with caps fitted: 33.989 to 34.014

Cam lift :
 - Inlet: 9.5
 - Exhaust: 10.5

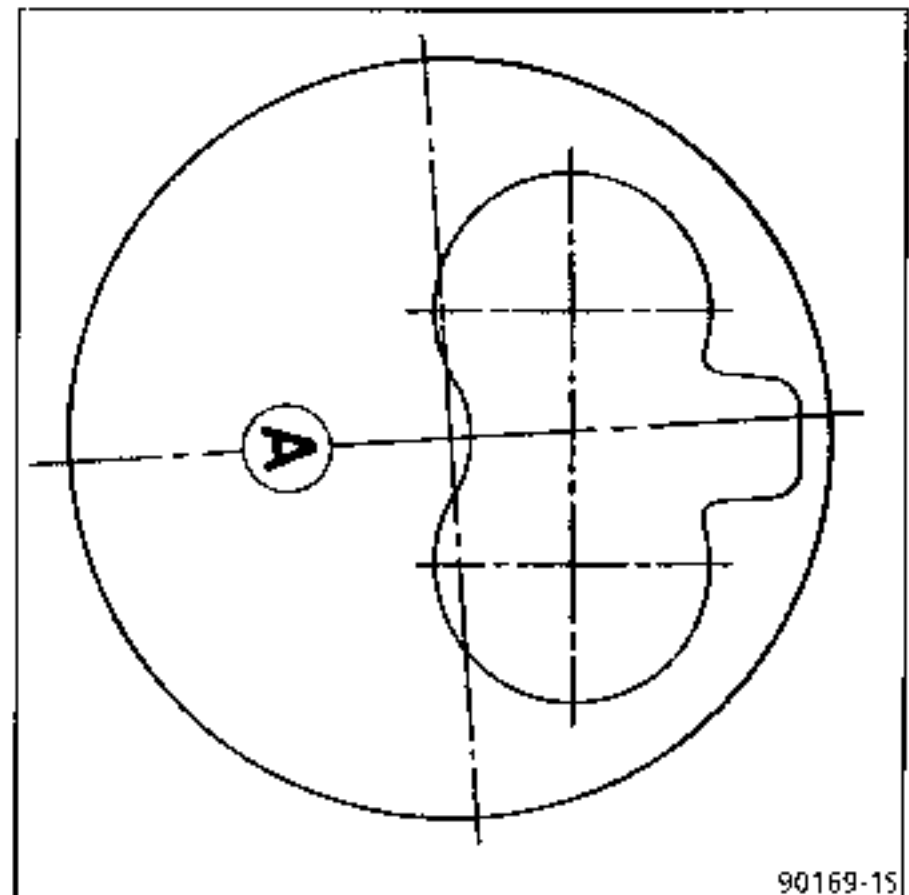
PISTONS

S8U/8140 engines

Two makes of piston may be fitted on the same engine.

PISTONS : Karl Schmid
 Mondial Piston

However, mixing of classes of piston is not allowed.

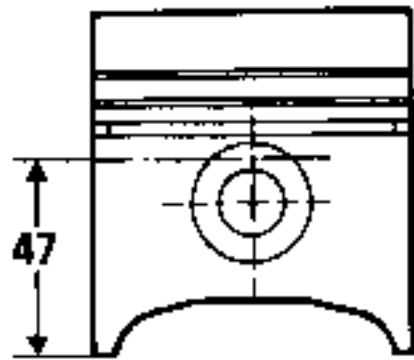


Classes	Weights (gr)
A	786 to 793
B	793 to 800

Sold individually to original size (mm) measuring 47 mm from bottom of skirt.

PISTONS : Karl Schmid : 92.861 to 92.854
Mondial Piston : 92.875 to 92.861

Also available in sets of four in the following repair sizes : + 0.2 + 0.4 + 0.6



85255R2

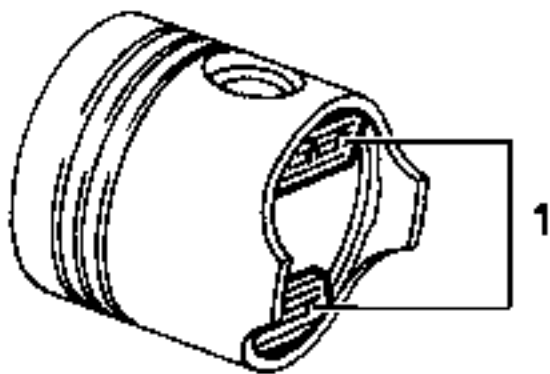
Fully floating gudgeon pins.

Direction of fitting :
turbulence chamber, facing injectors.

Gudgeon pin length (mm) : 79.4
Gudgeon pin diameter (mm) : 32

Balancing piston weights.

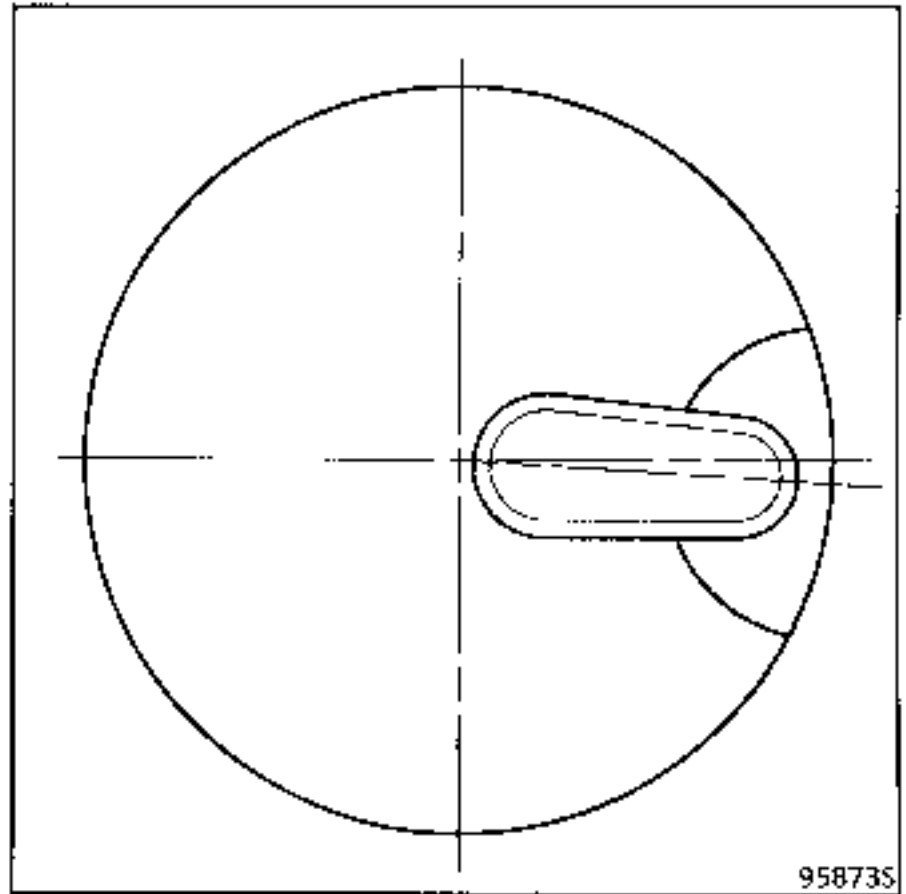
Max. difference between pistons ± 7 gr. Metal may be removed for this purpose from zones (1).



85217R

8144 engine

Make of piston: BORGIO

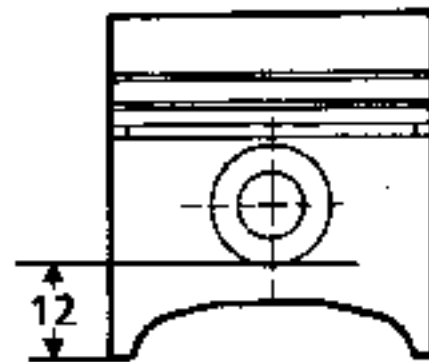


95873S

Classes	Weights (gr)
A	801 to 810
B	810 to 819

Original size (mm) measuring 12 mm from bottom of skirt : 92.948 to 92.962

Oversize : + 0.4

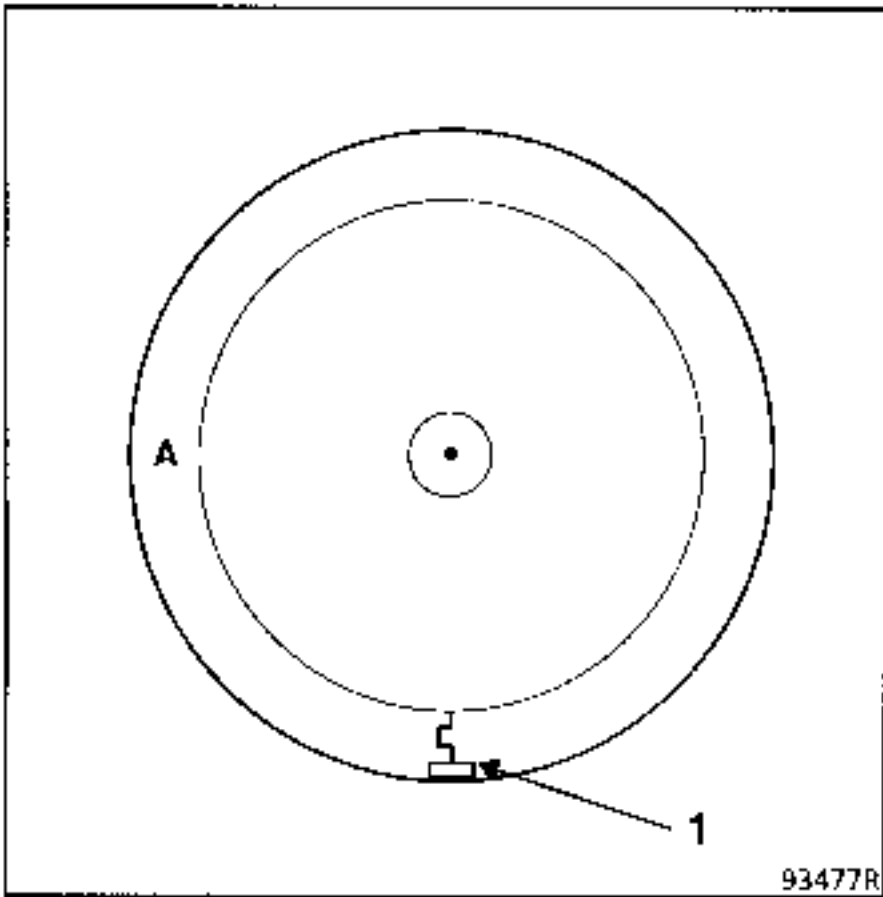


85255R1

Fully floating gudgeon pins.

59U/8140 engine

Make of piston : **BORG**



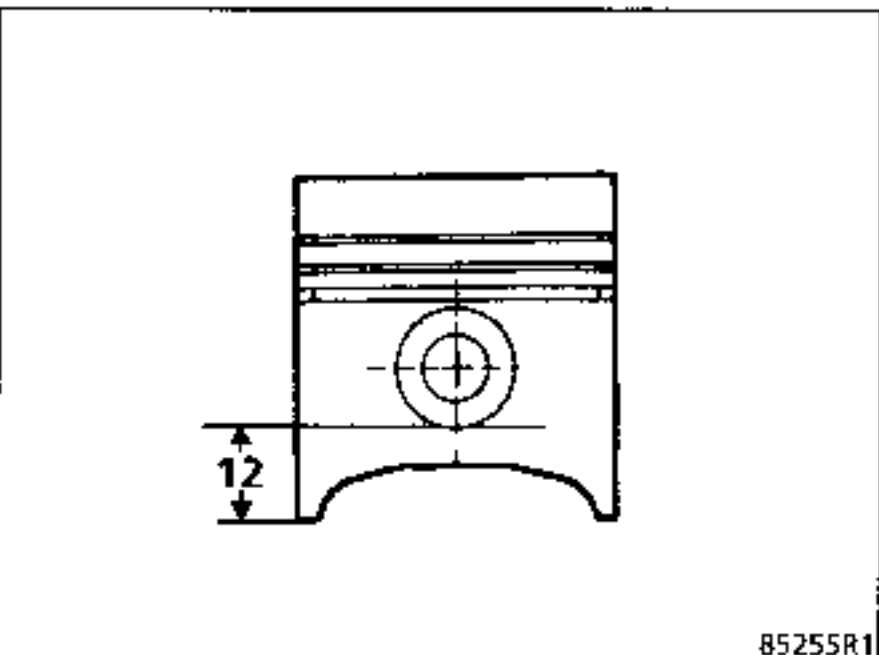
Mark (1) at flywheel end

Classes	Weights (gr)
A	801 to 810
B	810 to 819

Sold individually to original size (mm) measuring 12 mm from bottom of skirt

Original size : **92.948 to 92.962**

Also available in sets of four in the following repair sizes : **+ 0,2 + 0.4 + 0.6**

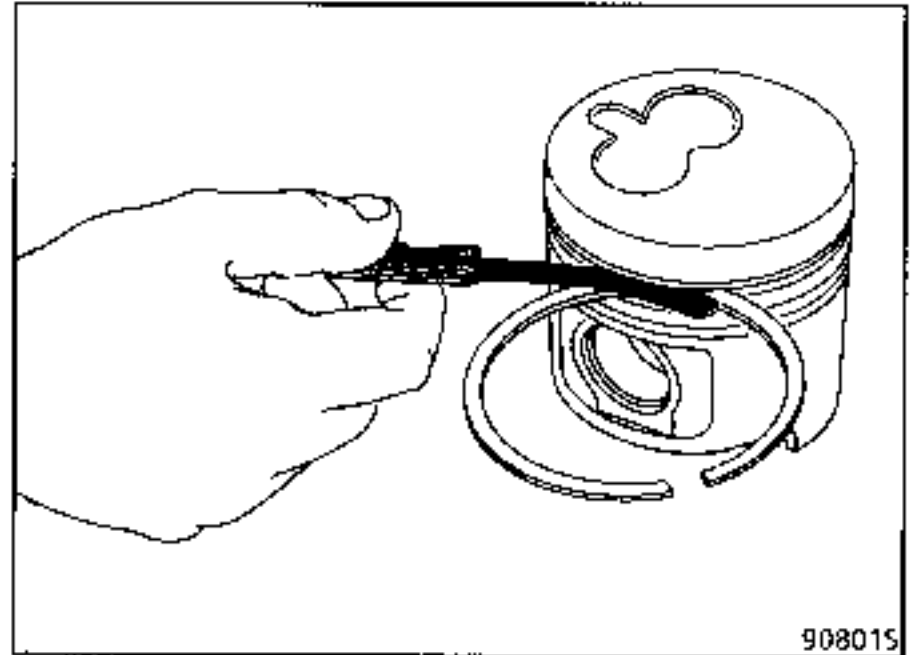


Fully floating gudgeon pins

PISTON RINGS

58U/8140 engines

Ring clearances in piston grooves (mm) :



Mondial Piston :

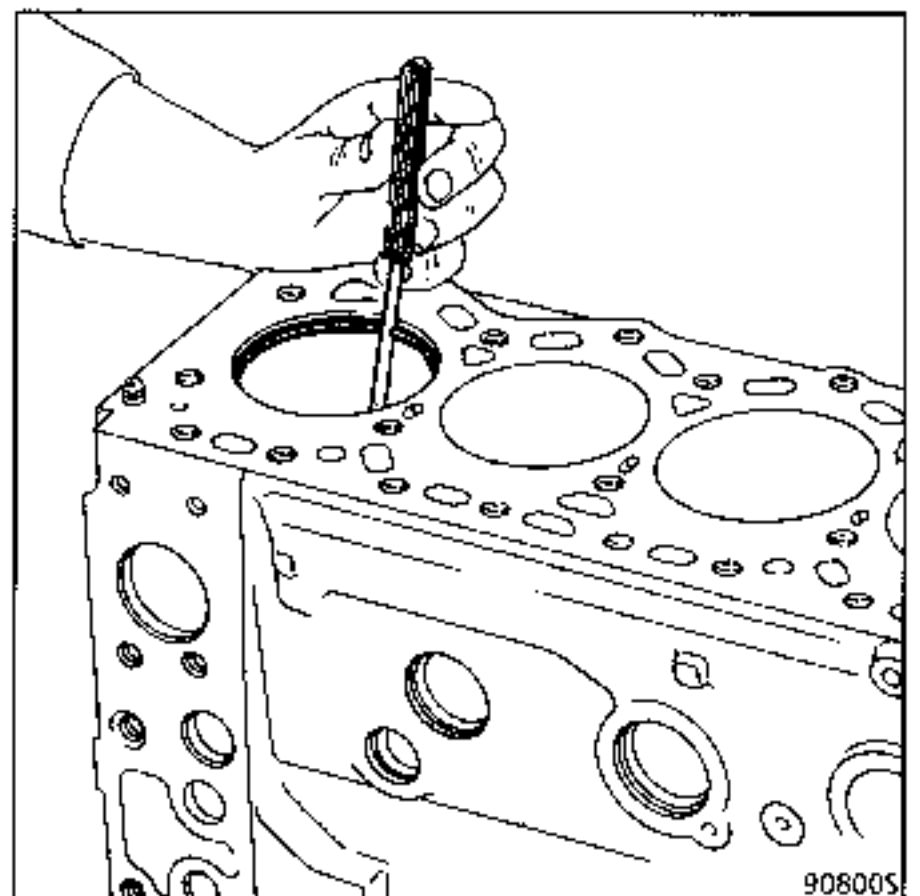
- Firing ring: **0.090 to 0.122**
- Compression: **0.060 to 0.092**
- Scraper: **0.035 to 0.067**

Karl Schmid :

- Firing ring : **0.090 to 0.122**
- Compression : **0.070 to 0.102**
- Scraper : **0.050 to 0.082**

Gap measurement (mm) (supplied pre-gapped) :

- Firing ring : **0.30 to 0.55**
- Compression : **0.30 to 0.55**
- Scraper: **0.25 to 0.40**



Piston rings (continued)

S8U/8144 engines

Thickness (mm) :

- Firing : 3
- Compression : 1.978 to 1.90
- Scraper : 2.975 to 2.990

The firing ring has no particular direction in which it should be fitted. It is trapezoidal in shape. The inscription TOP on the other two rings must be towards the piston crown.

Clearance (X) between rings and piston grooves (mm)

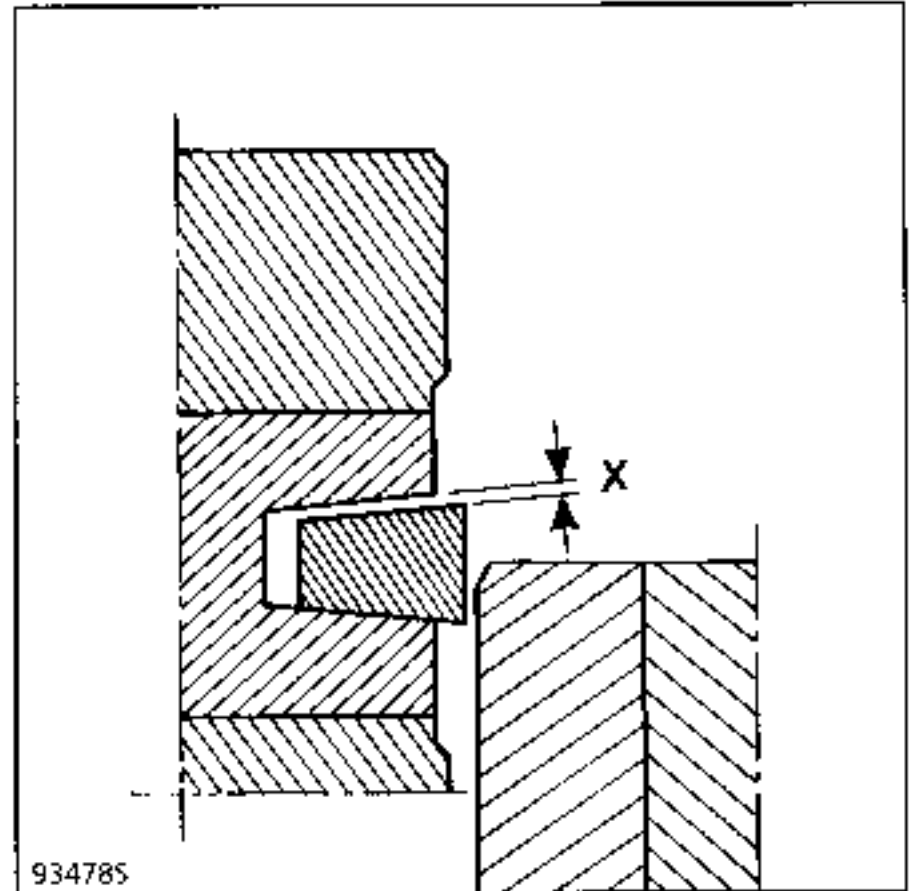
- Compression : 0.062 to 0.12
- Scraper : 0.035 to 0.070

Firing ring clearance

- Firing ring : 0.105 to 0.140

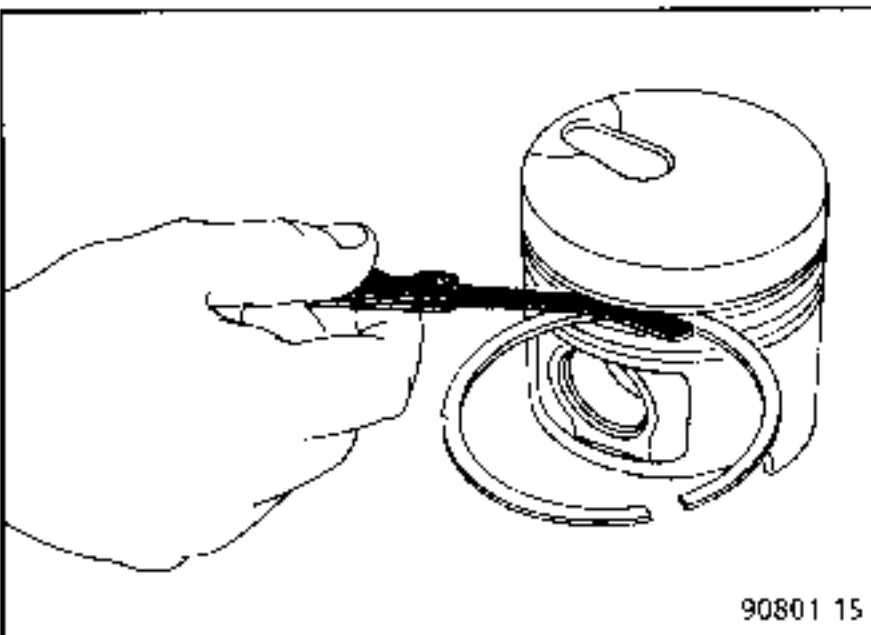
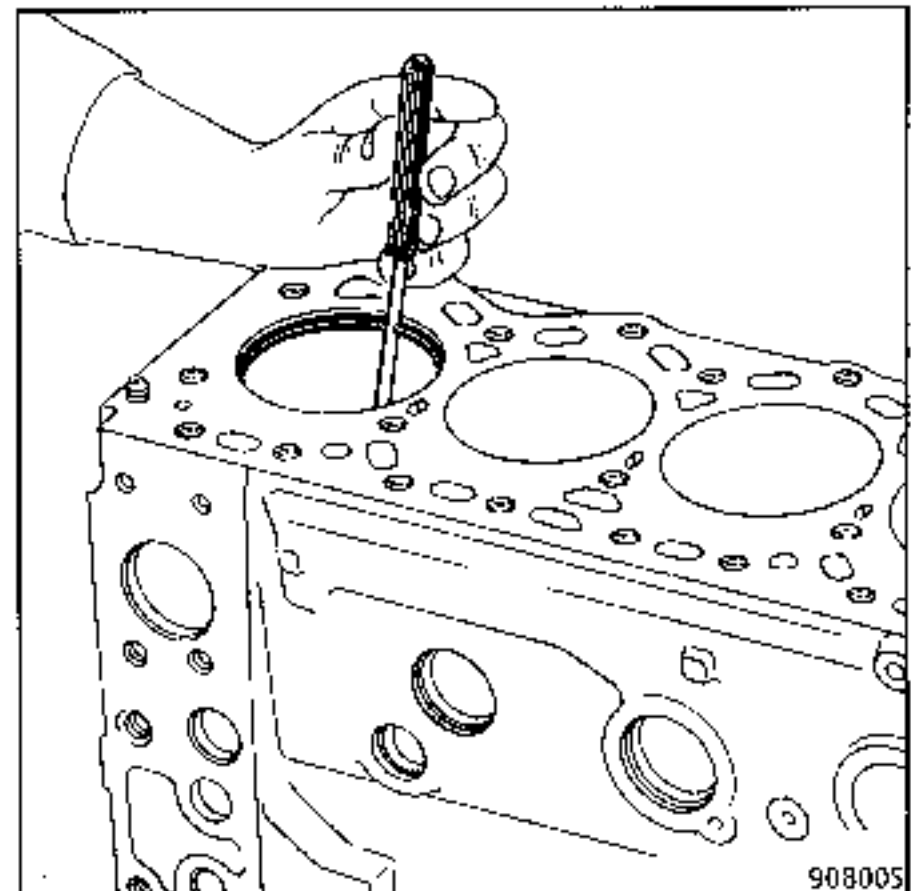
Insert the piston into the liner, fitted with the firing ring. Push up the piston in the liner so that the ring projects by half its thickness.

In this position, measure the clearance (X) with a set of feeler gauges.



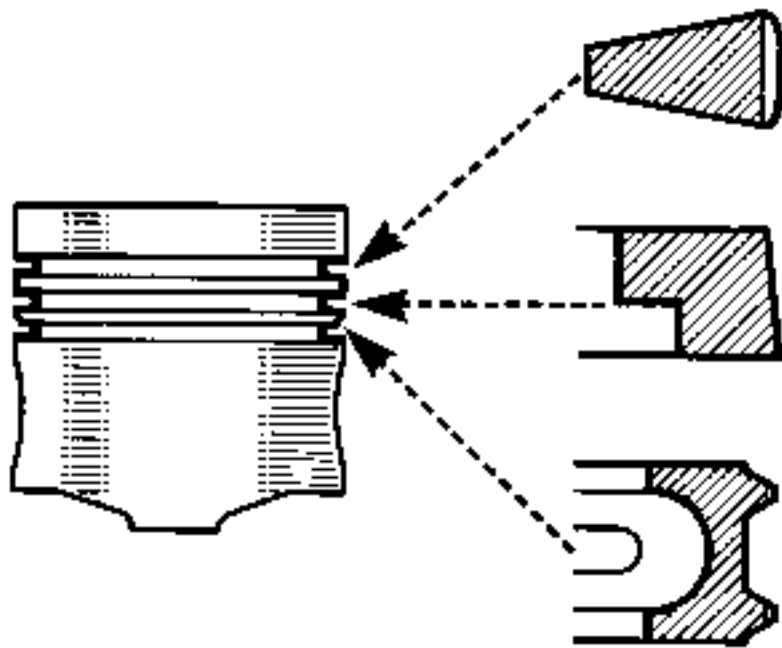
Gap measurement (mm) (supplied pre-gapped) :

- Firing : 0.25 to 0,50
- Compression : 0.60 to 0,85
- Scraper : 0.30 to 0,60



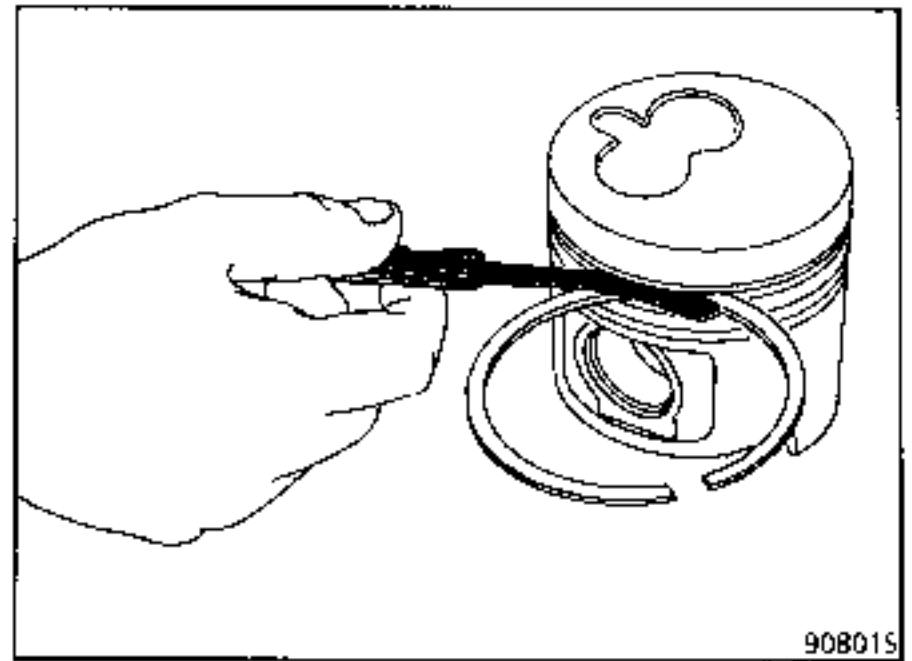
Piston rings (continued)

Direction of installation



86928-3S

Clearance of compression and scraper rings



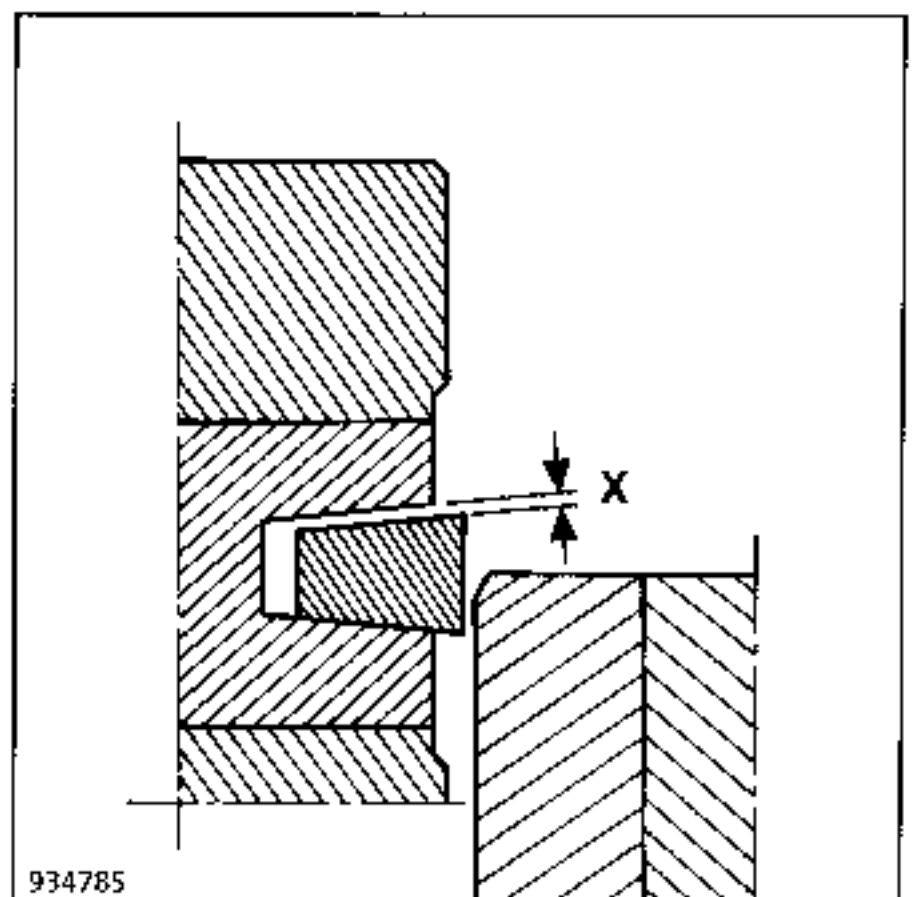
90801S

Checking the firing ring clearance

- Firing ring : **0.090 to 0.140**

Insert the piston into the liner, fitted with the firing ring. Push up the piston in the liner so that the ring projects by half its thickness.

In this position, measure the clearance (X) with a set of feeler gauges.



934785

S9U/B140 engines

Thicknesses (mm) :

- Firing : **2.575 to 2.595**
- Compression : **1.978 to 1.990**
- Scraper : **2.975 to 2.990**

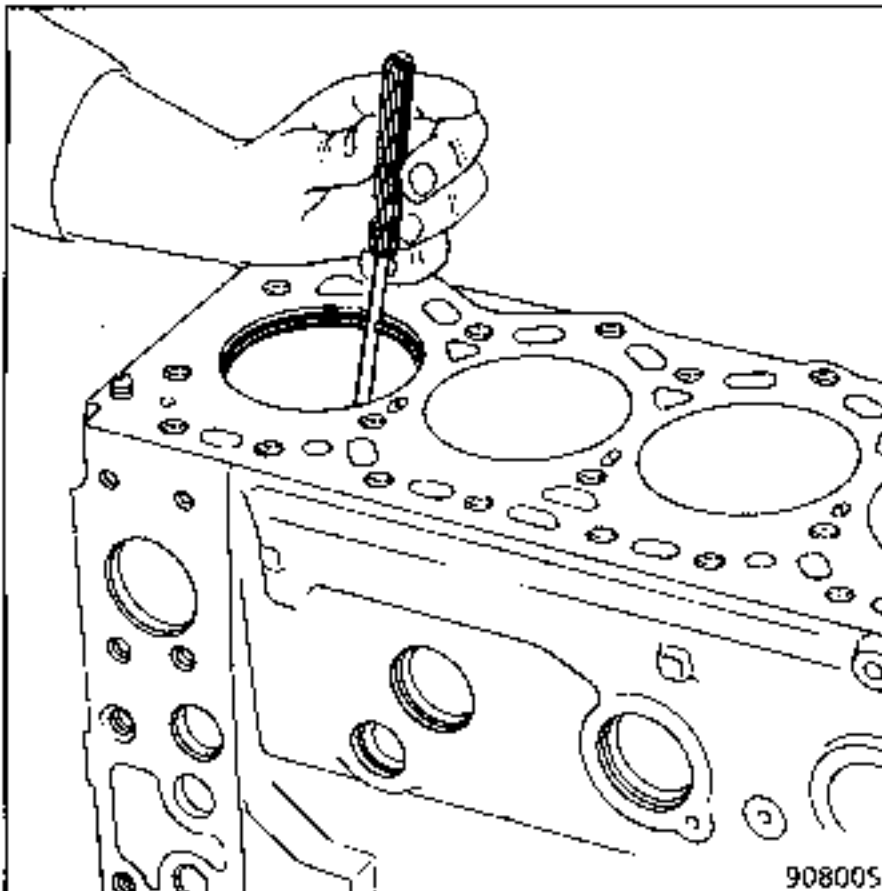
The firing ring has no particular direction in which it should be fitted. It is trapezoidal in shape. The inscription TOP on the other two rings must be towards the piston crown.

Clearance (X) between rings and piston grooves (mm)

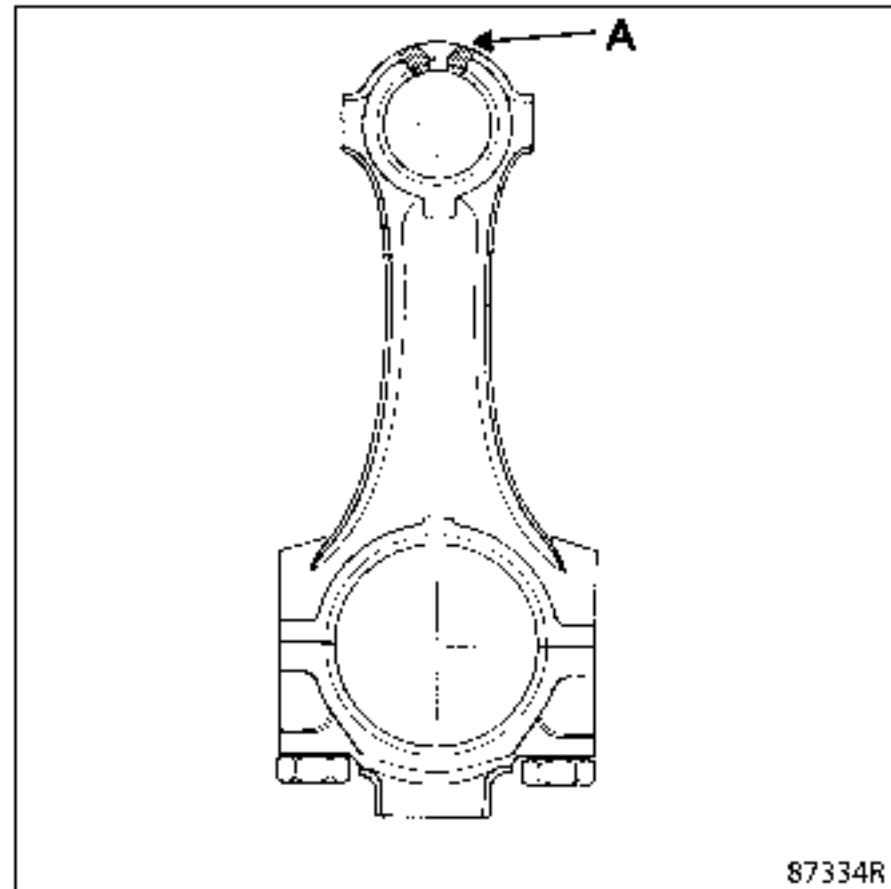
- Compression : **0.060 to 0.092**
- Scraper : **0.035 to 0.070**

Ring gaps (mm) (supplied pre-gapped) :

- Firing : 0.25 to 0.50
- Compression : 0.60 to 0.85
- Scraper : 0.30 to 0.60



2nd model

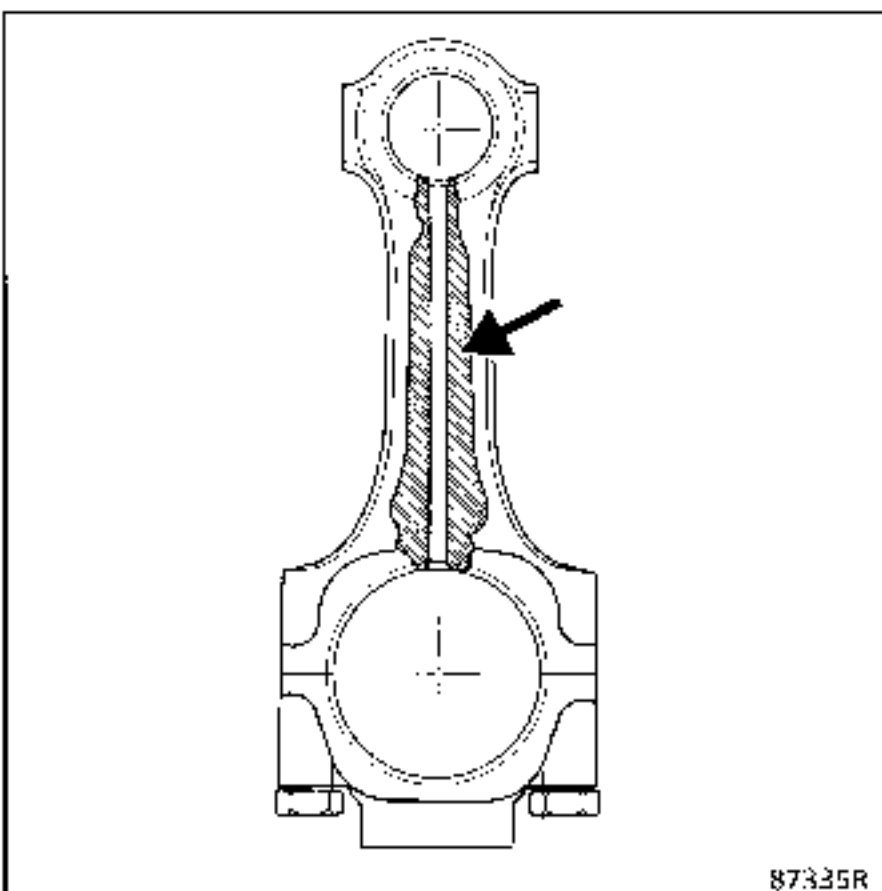


The **Parts Department** only supplies the second type of connecting rod (gudgeon pin for piston A lubricated) in service exchange.

CONNECTING RODS

All types

1st type

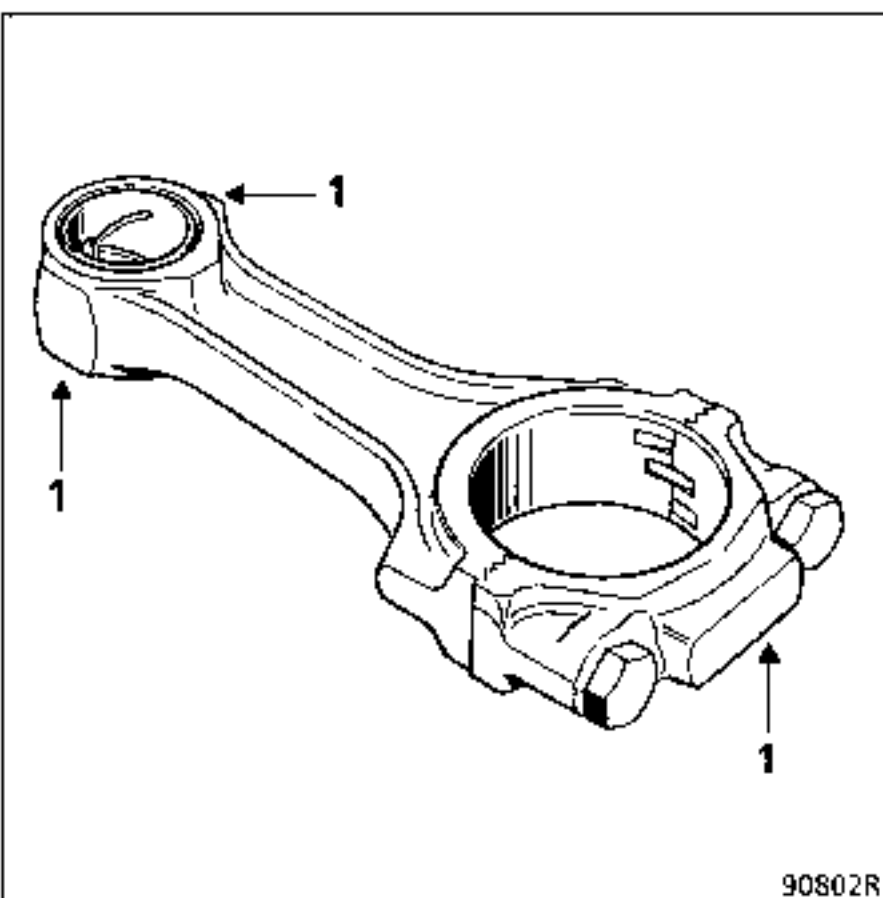


If a connecting rod of the first type is replaced, four connecting rods of the second type must be fitted in order to maintain the equilibrium of the moving parts.

Balancing the connecting rod weights

Max. difference between connecting rods on one engine \pm 8 gr.

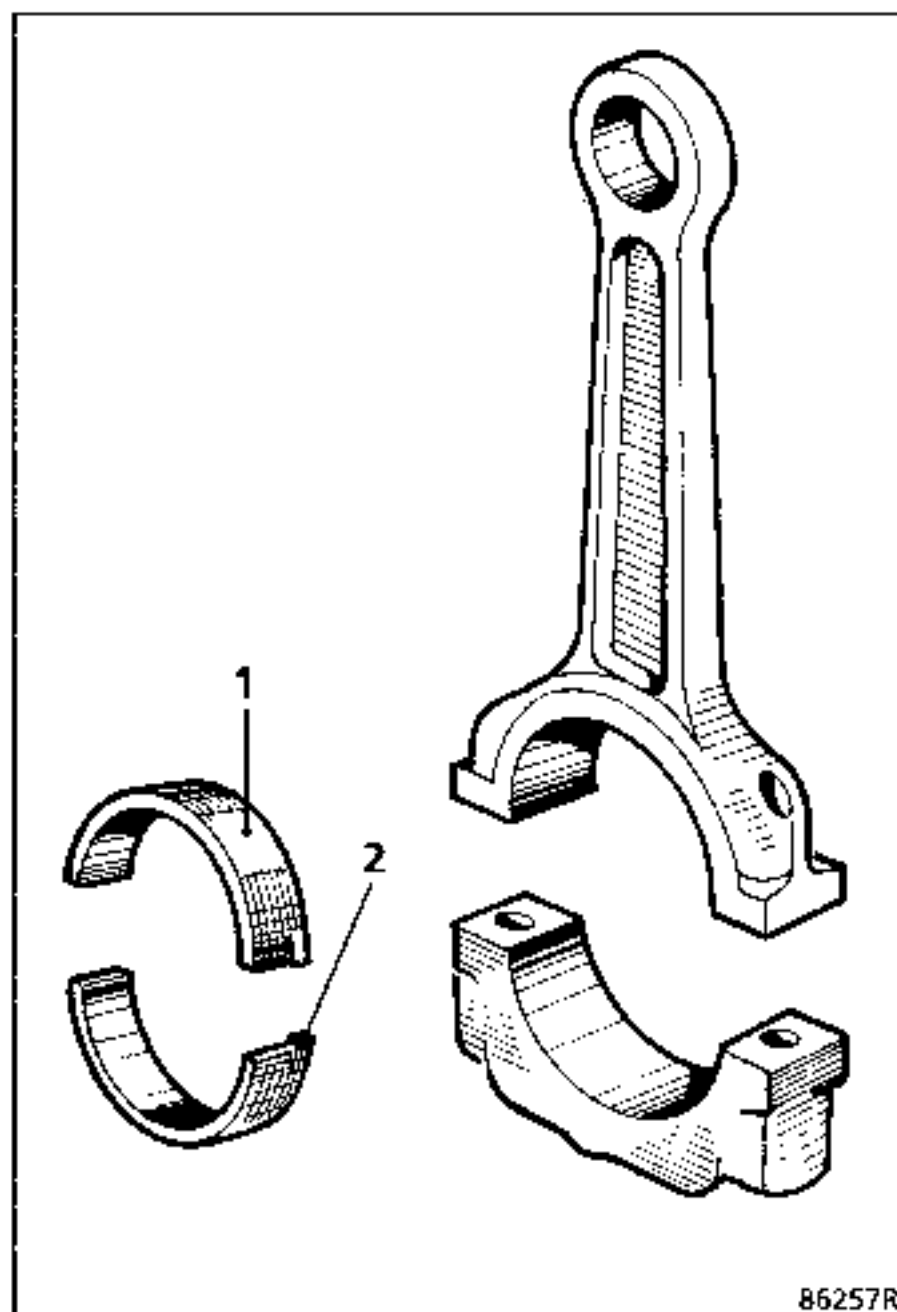
Metal may be removed for this purpose from zones (1).



BIG END BEARINGS

The upper and lower big end bearings are different.

The parts must be fitted in the following order.

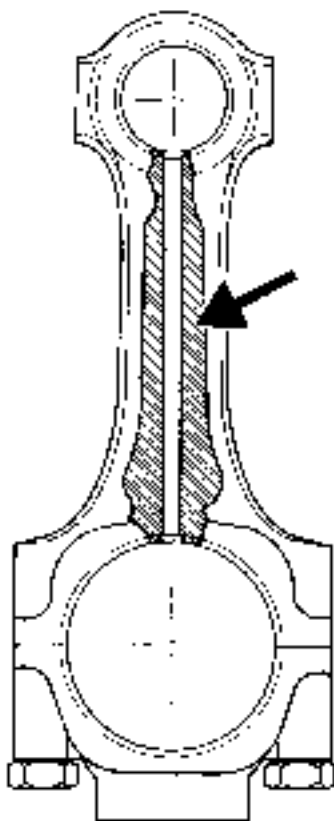


- 1 : Big end bearings have a mark "STELO" stamped on the bearing.
- 2 : Big end cap bearings :
 - dab of green paint on the edge of the bearing and, more particularly, a mark "CAPELLO" stamped on the bearing.
- 3 : Since 1994 the Parts Department has only supplied identical bearings which are not marked.

Depending on the type of connecting rod :
1st type or 2nd type, the big end bearing may or
may not be drilled.

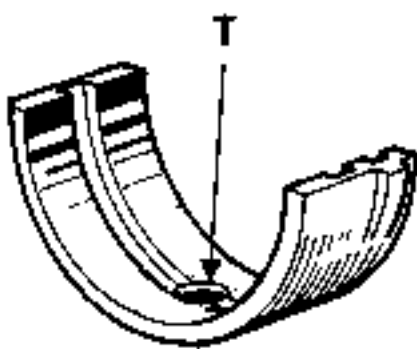
Bearings of the 1st type with a hole (T) must be fit-
ted on 1st type connecting rods.

1st type



87335R

1st type



873351R

CRANKSHAFT

All types

Number of bearings : 5

End play (mm) : 0.045 to 0.320
(no adjustment possible)

The thrust washers are integral with the half-
bearings (U-shape).

Roll-hardened main bearing journals:

Nominal diameter (mm) : 76.187 to 76.200

Roll-hardened crankpins :

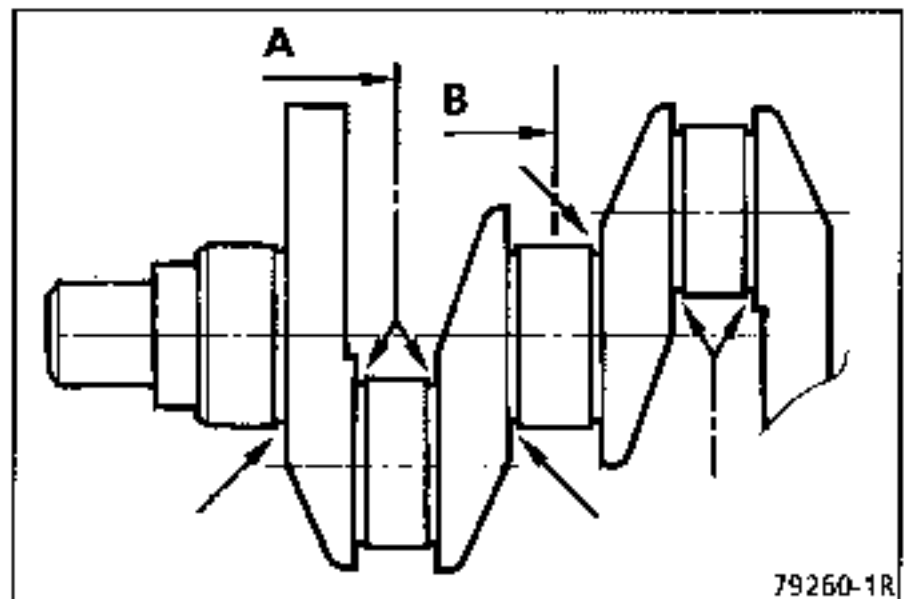
Nominal diameter (mm) : 56.520 to 56.535

Grinding tolerances for crankpins and main bea-
ring journals:

Regrind sizes :

1st regrind : Nominal dia. - 0.254

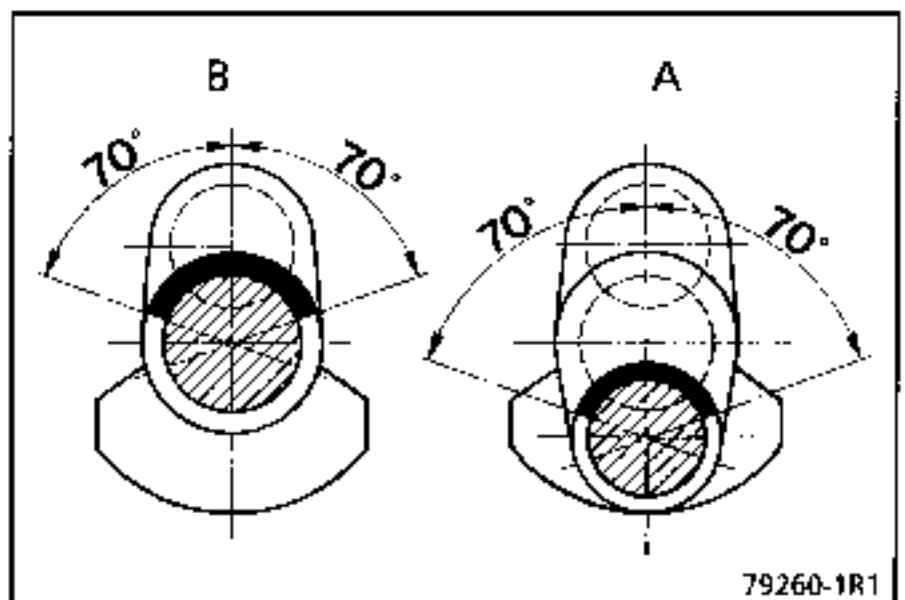
2nd regrind : Nominal dia. - 0.508



79260-1R

After regrinding, the roll-hardened zone should
still remain intact over the 140° zones shown by
the arrow.

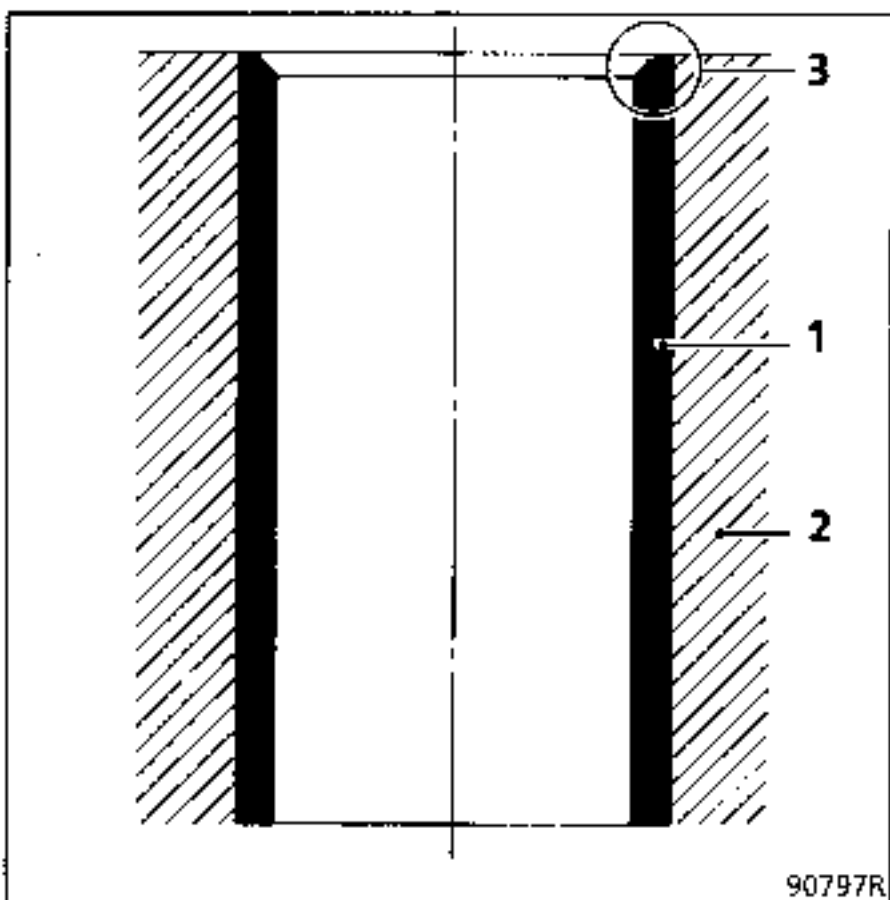
These zones are marked (A) and (B) in the illustra-
tion below.



79260-1R1

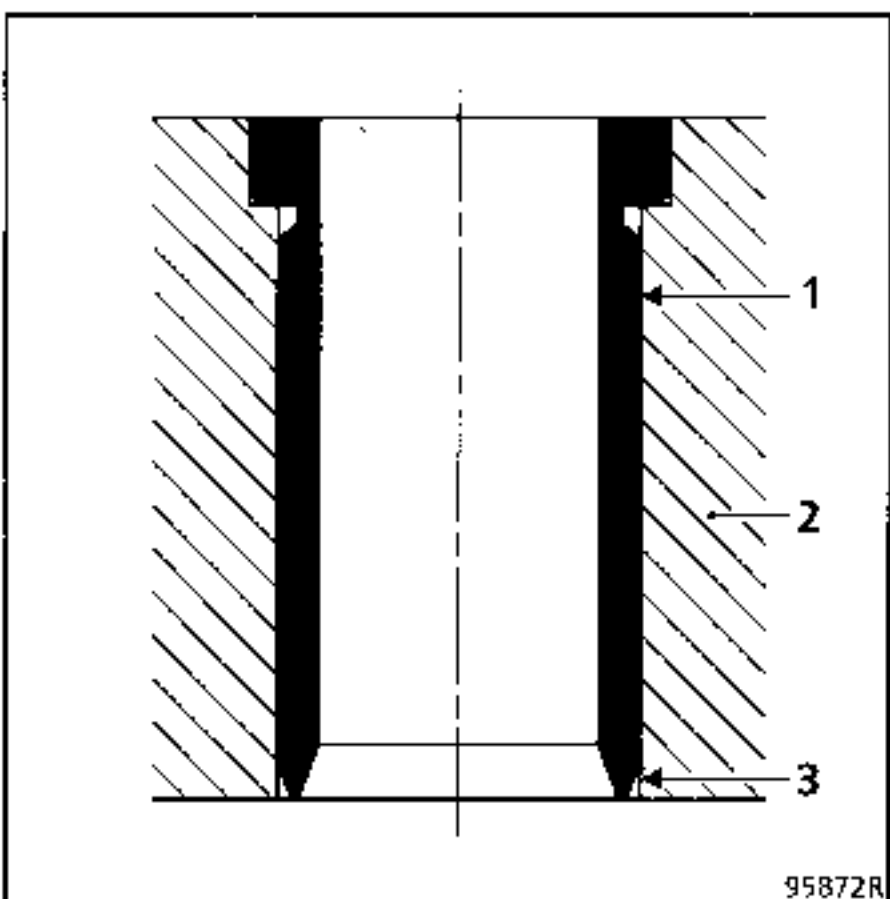
LINERS

1st type



90797R

2nd type



95872R

Dry-type liners, press fitted and then bored in position are fitted.

Bore size (mm) :

- Original size : **93 to 93.018**
- Repair size : **93.20 to 93.218**

Beyond these sizes the liners must be replaced.

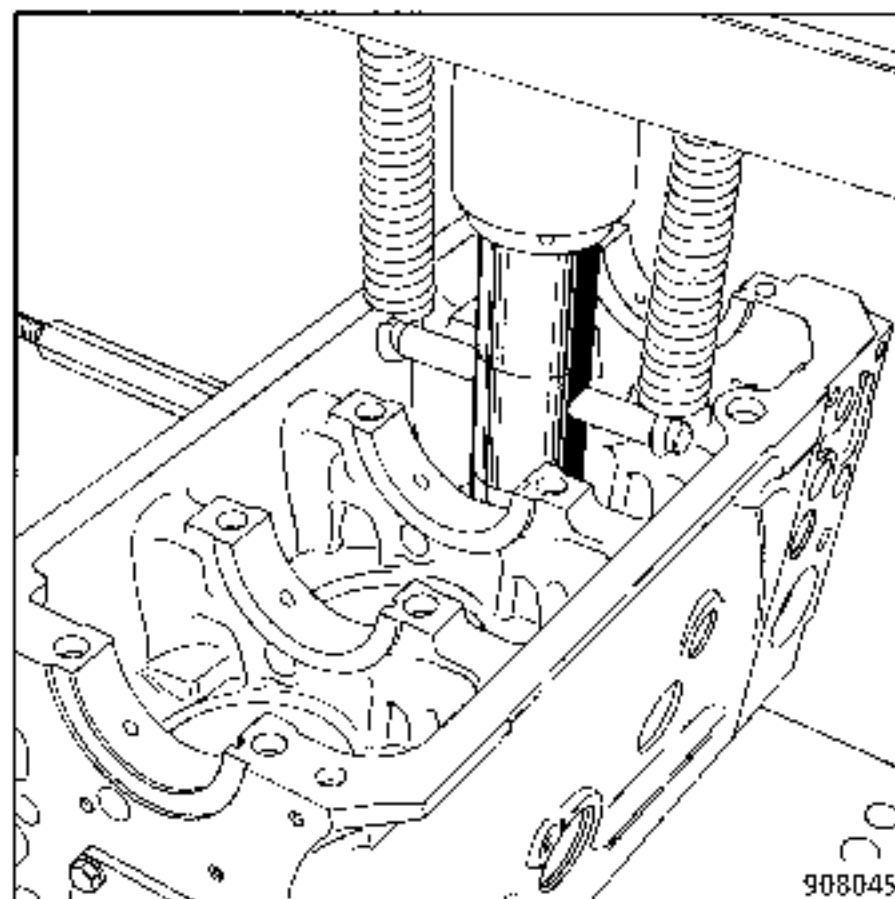
External diameter of liners (mm) :

- Original size : **95.970 to 96.000**
- Repair size : **96.170 to 96.200**

The liners are an interference fit in the block :

0.03 to 0.10

The liner is removed through the bore or on the press using a spigot.



908045

The liners are fitted in the block dry using a press.

Chamfer the outer edge of the 1st type liner.

- 1 : Liner
- 2 : Cylinder block
- 3 : Chamfer

Clearance between piston and liner for the following engines :

		Tolerance (min.)	
		Mondial Piston	Karl Schmid
S8U	720	0.125 to 0.157	0.114 to 0.164
S8U	722		
8140	61230D		
8140	61230		

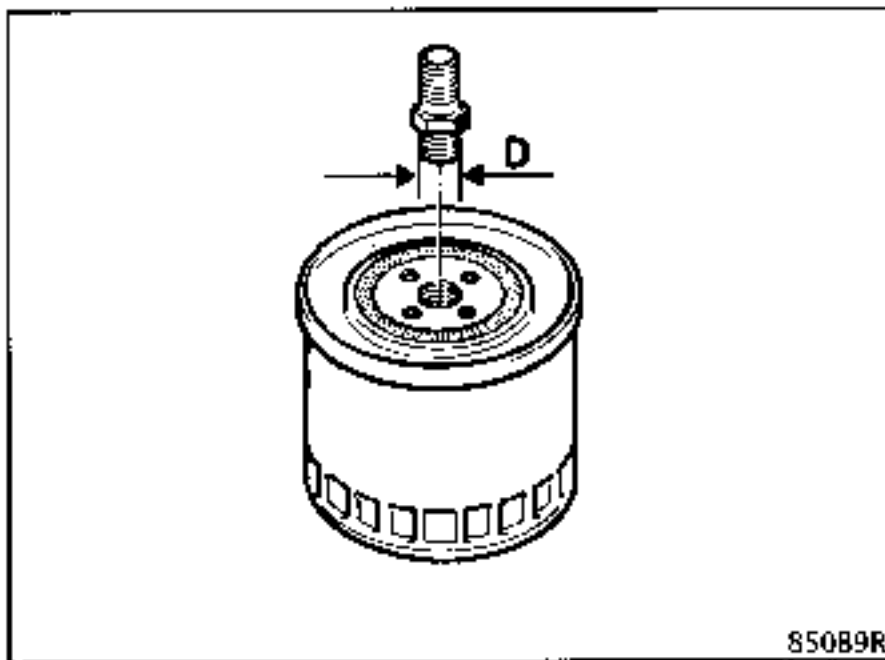
For all other engines
Piston/liner clearance: 0.038 to 0.070

LUBRICATION

An oil bath is cast into the cylinder head to lubricate the camshaft and tappets. (This must be refilled with oil on replacing the cylinder head.)

OIL FILTER

The oil filter is specific to these engines; the diameter of union (D) is 19 mm, with a pitch of 1.587 mm (3/4" and 16 threads per inch).



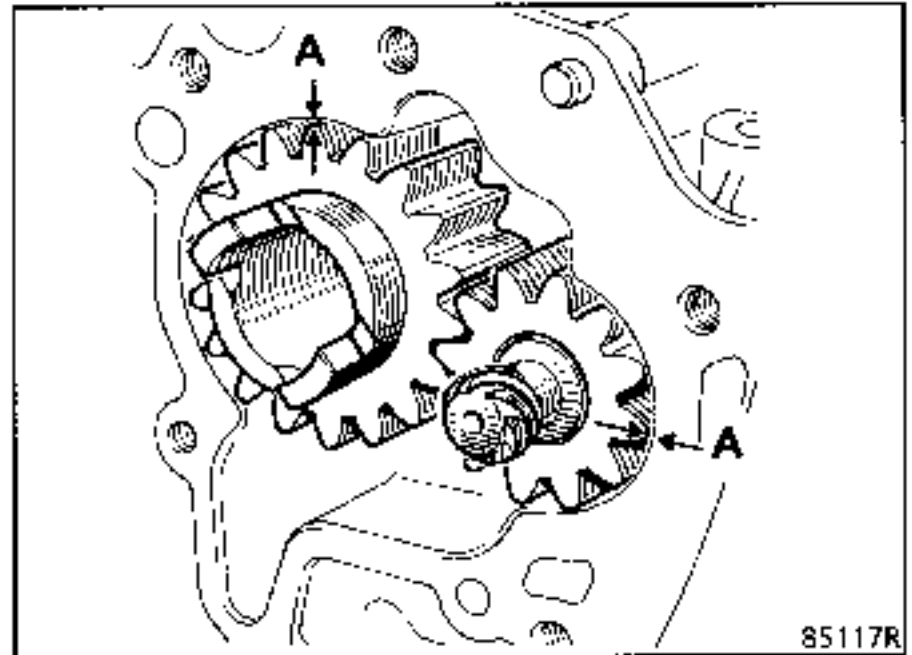
850B9R

OIL PUMP

All types except engine 8144

Clearance between gear teeth: 0.12

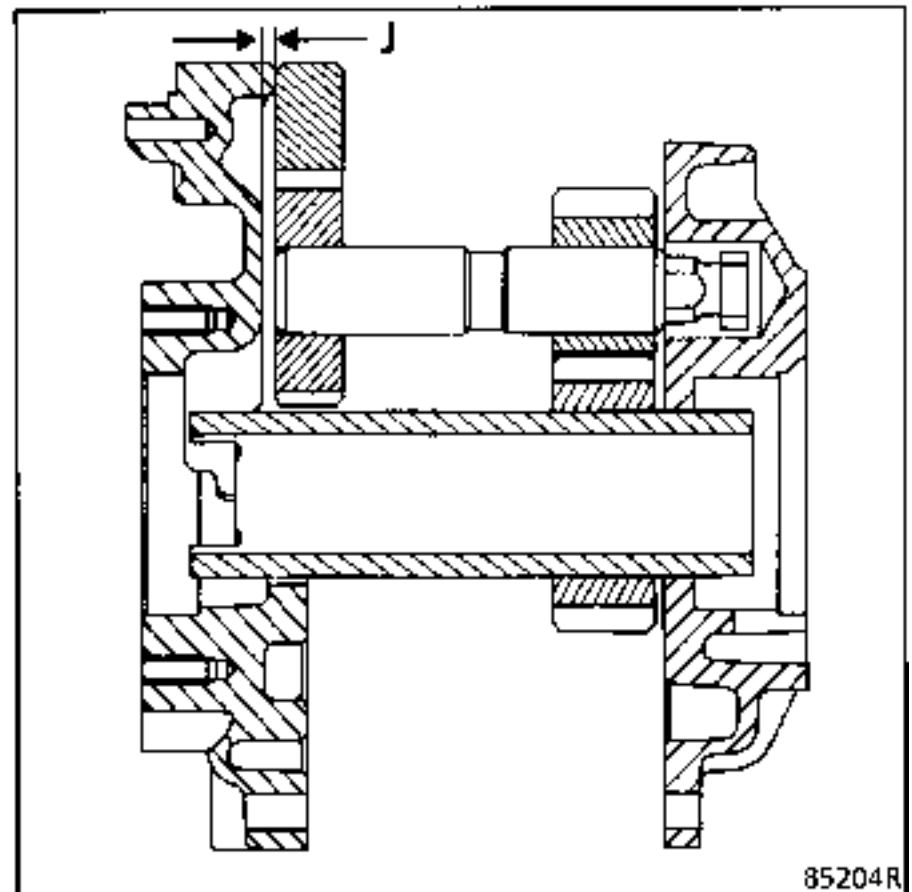
Clearance between top of teeth and casing (A): 0.06 to 0.17



85117R

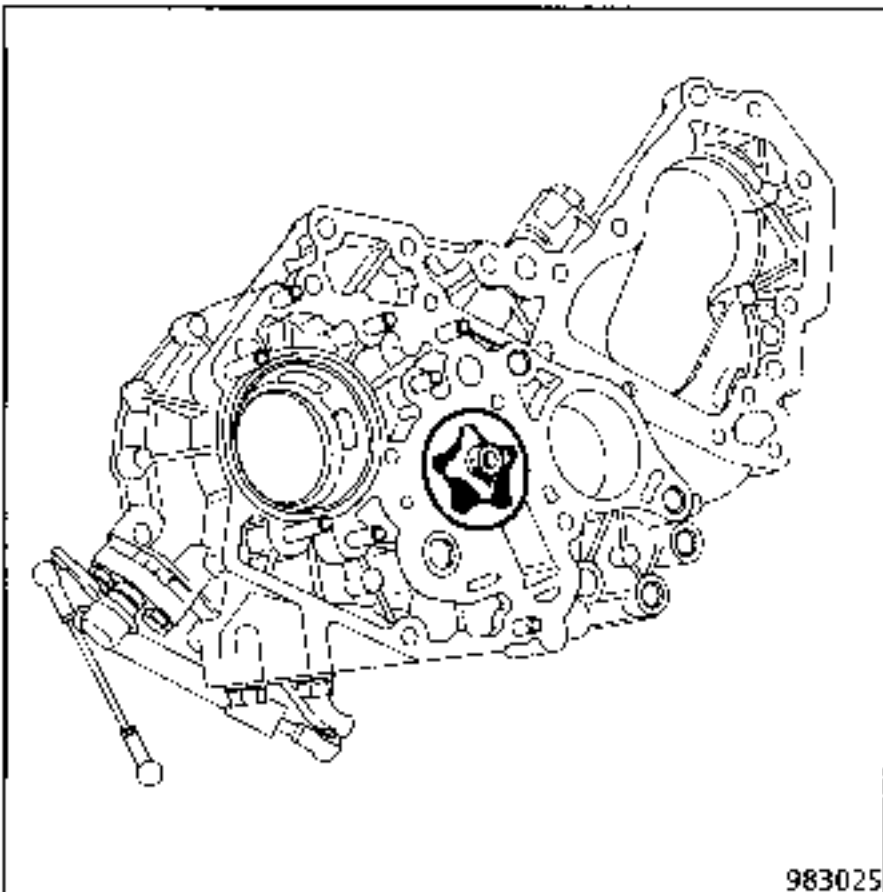
Clearance between gears and gasket face of cover (J):

0.065 to 0.131



85204R

Engine 8144



All types

Min. oil pressure at 80 °C :

- Idling speed : 0.8 bar
- 4100 rpm: 3.5 bars

FLYWHEEL

Previously, 8140 engines fitted to QXX4 and RXX4 vehicles were equipped with **MAGNETI MARELLI** starters and a flywheel ring gear with **99 teeth**.

Since **March 1985** these engines have been equipped with a **BOSCH** starter and a flywheel ring gear with **98 teeth**.

This modification has been applied from the following numbers:

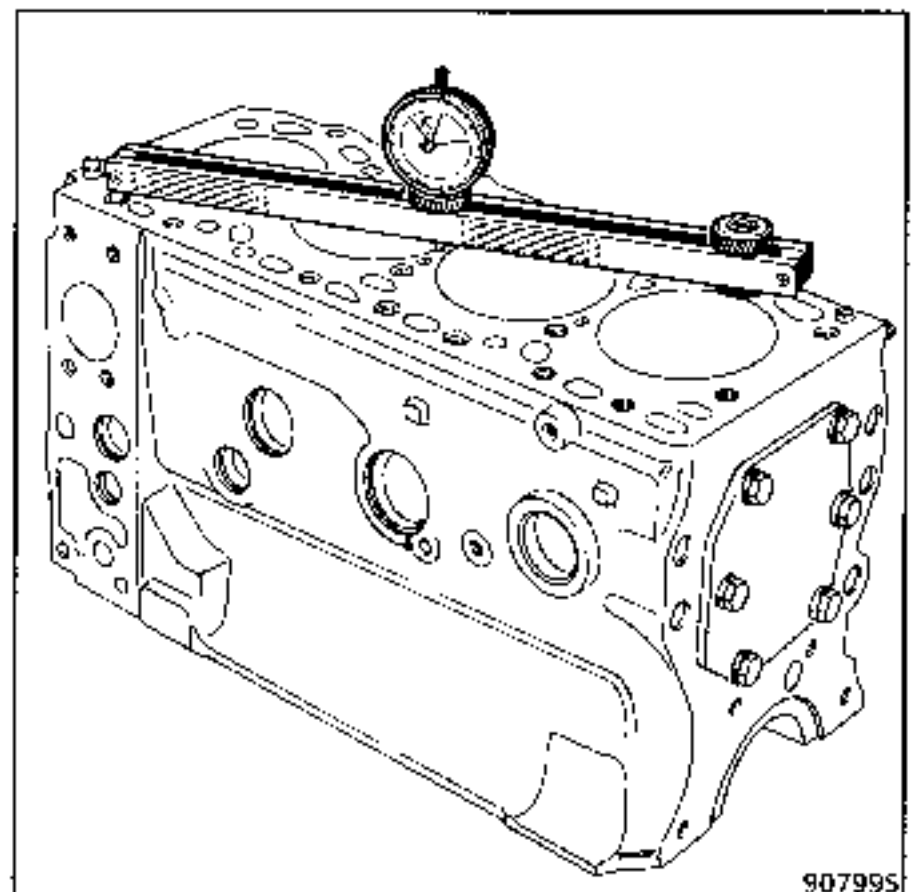
Oval plate number	Vehicle type	Starter type	Number of teeth
B7702	RXX4	BOSCH	98
B1139	QXX4	BOSCH	98

ATTENTION :

Whenever any work is performed on these components in service, the different types must not be mixed.

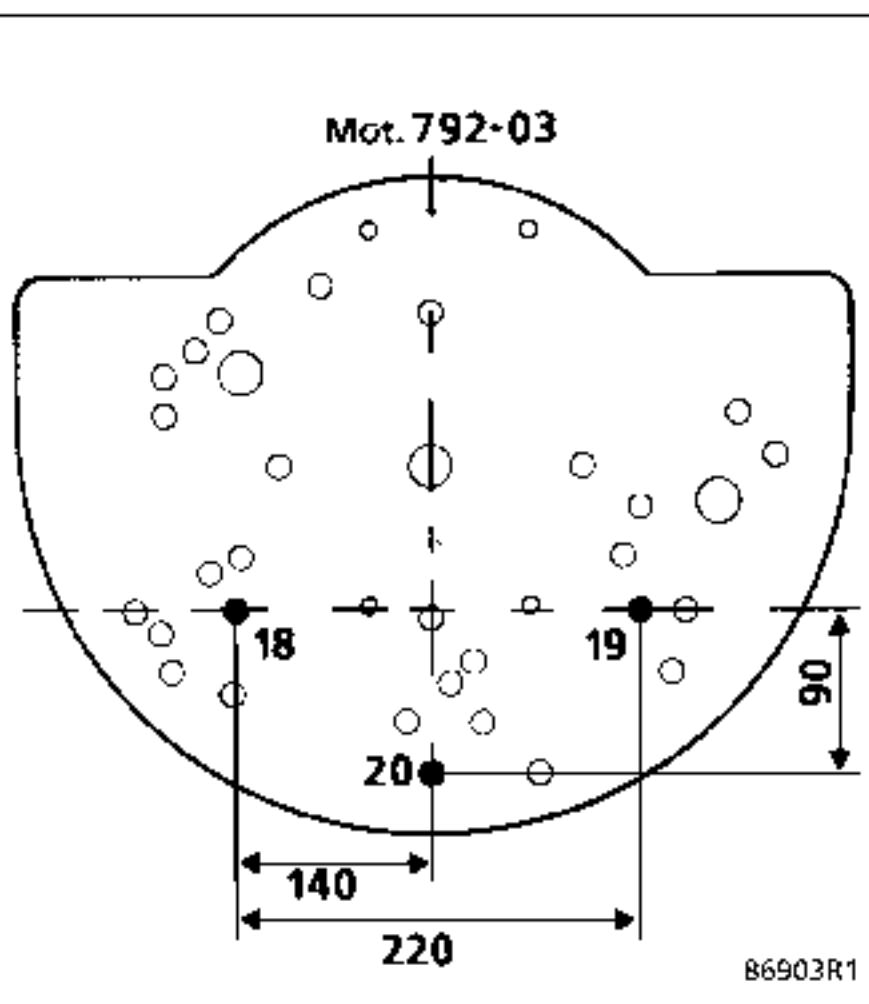
CYLINDER BLOCK

Checking the gasket face for bow.



**SECURING THE ENGINE TO ENGINE SUPPORT
Mot. 792-03**

- Secure engine to dismantling support **Mot. 792** or **Mot 792-03**.
- For **Mot. 792**, three 14.5 mm dia. holes marked (18), (19) and (20) must be drilled.
- Mark a horizontal line passing through the centre of holes (3) and (9).
- Draw a vertical line passing through the centre of the support plate securing holes.
- Drill holes at positions indicated on drawing.

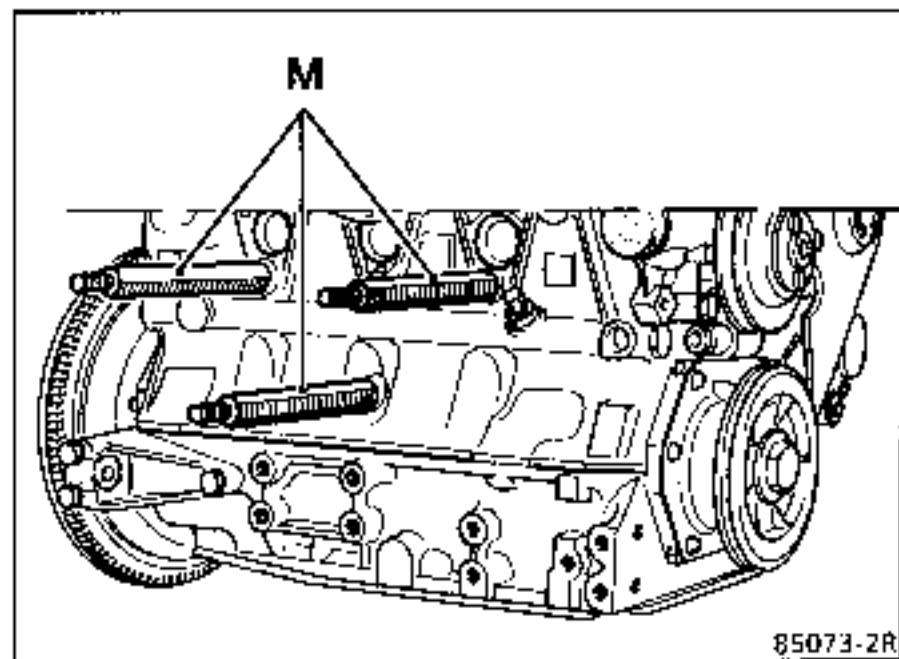


NOTE : Engine support **Mot. 792** is replaced by **Mot. 792-03** which has all the securing holes for the engines.

All types

NOTE: The following components must be removed before securing the engine to stand **Mot. 792-03**: inlet and exhaust manifolds, turbo-charger, air conditioning compressor (depending on version).

Screw studs (**M**) into the corresponding holes in the cylinder block.



Offer up the engine assembly with the mounting studs fitted so that the studs fit into holes (18), (19) and (20).

CONSUMABLES

Type	Quantity	Component concerned	Part Nos.
Ravitol S 56	-	Cleaning parts.	77 01 421 513
Loctite Frenetanch (locking and sealing compound)	1 to 2 drops	Mounting bolts: flywheel, crankshaft pulley, camshaft gear, auxiliary unit drive gear and cooling system pipe on cylinder head.	77 01 394 070
Loctite Autojoint OR AJ 66	Coat	Cylinder head cover gasket.	
Décapjoint	Coat	Cleaning gasket surfaces.	77 01 405 952
Loctite 518	Coat	Stiffening base and oil pump cover, water pump.	77 01 421 162

PRECAUTIONS

WASHING THE ENGINE

Protect the timing gear and alternator drive belt from splashes of water and cleaning fluids.

Never allow water to enter the air inlet pipes.

FITTING THREAD INSERTS

The threaded holes of all engine parts can be repaired using thread inserts.

PARTS TO BE REPLACED WHEN THEY HAVE BEEN DISMANTLED

- All seals and gaskets.
- Flame-proof washers.
- Oilway plugs.
- Cooling system rigid pipe.
- Flywheel mounting bolts.
- Valve guides.
- Connecting rod bearing bolts.
- Crankshaft bearing bolts.

PREPARING A WORN ENGINE FOR RETURN

The engine must be clean and drained of all oil and coolant.

Leave the following parts on the engine or enclose them in the cardboard container with the engine :

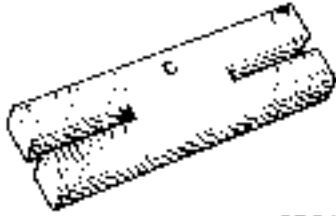

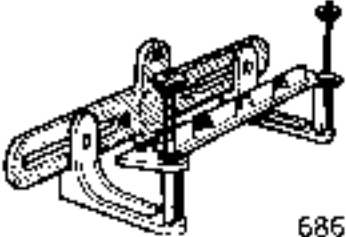
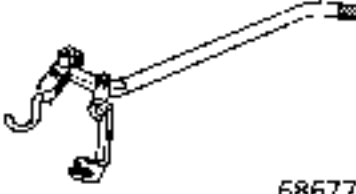


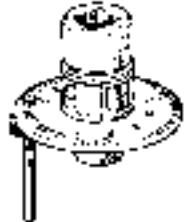
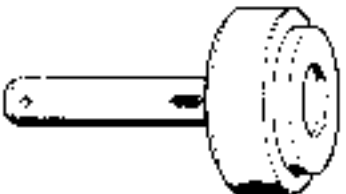
- the dipstick and its guide,
- the flywheel,
- the clutch disc and unit,
- the injection pump with its pipes and injectors,
- the water pump,
- the crankshaft gear,
- the cylinder head cover,
- the heater plugs,
- the belt tensioner,
- the pressure switch and thermal switch,
- the timing gear cover,
- the oil filter.






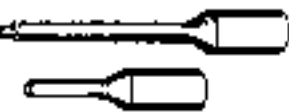


Remember to remove :

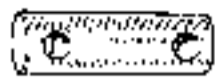
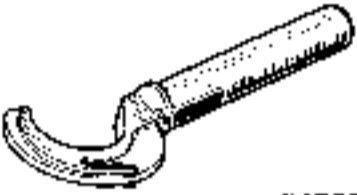




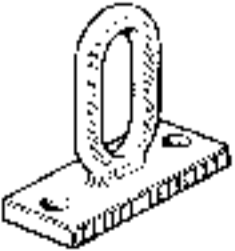

- All the coolant hoses.
- Belt(s), apart from the timing belt.

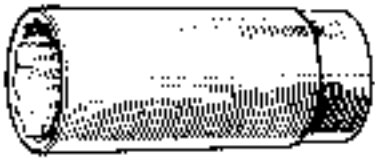

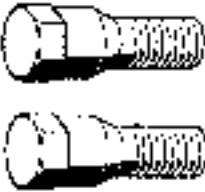
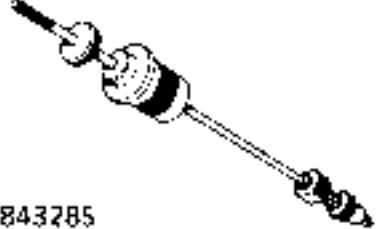
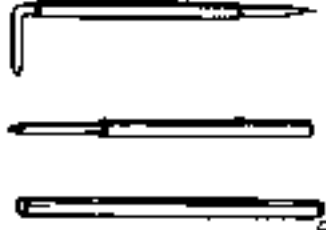
The used engine must be fixed to the wooden base and packaged in the same package as was used for the new engine :

- plastic plugs and covers fitted,
- cardboard cover over the entire assembly.

Drawing	Method reference	Part Number	Description
 <p>8381251</p>	Mot. 251-01	00 00 025 101	Clock gauge support (for measuring pre-combustion chamber protrusion). Used with tool Mot. 252-01
 <p>838125</p>	Mot. 252-01	00 00 025 201	Thrust plate for checking pre-combustion chamber protrusion. Used with tool Mot. 251-01
 <p>6866651</p>	Mot. 330-02	00 00 033 002	Cylinder head support. Used with DESVIL base.
 <p>6867751</p>	Mot. 382	00 00 038 200	Valve spring compressor. Used with Mot. 914 .
 <p>6971651</p>	Mot. 445	00 00 044 500	Oil filter spanner.
 <p>7788951</p>	Mot. 591-02	00 00 059 102	Replacement magnetised arm for angular wrench to tighten the cylinder head.
 <p>781815</p>	Mot. 591-04	00 00 059 104	Angular wrench for tightening the cylinder head, 1/2" drive.
 <p>968985</p>	Mot. 1297	00 00 129 700	Crankshaft oil seal fitting tool, flywheel end 90 × 110 × 11.

Drawing	Method reference	Part Number	Description
 968975	Mot. 1298	00 00 129 800	Crankshaft oil seal fitting tool, timing end 50 × 68 × 10.
 8291951	Mot. 792-03	00 00 079 203	DESVIL engine support plate.
 803595	Mot. 799	00 00 079 900	Timing gear wheel wrench.
 822585	Mot. 836-05	00 00 083 605	Oil pressure gauge kit.
 832895	Mot. 855	00 00 085 500	Timing gear wheel locking strap.
 849185	Mot. 910	00 00 091 000	Set of two TDC setting rods.
 849195	Mot. 911	00 00 091 100	Crankshaft oil seal fitting tool (timing end).
 849195	Mot. 913	00 00 091 300	Camshaft oil seal fitting tool.

Drawing	Method reference	Part Number	Designation
 848975	Mot. 914	00 00 091 400	Bar tool for valve spring compressor Mot. 382.
 847505	Mot. 915	00 00 091 500	Tappet lever for valve adjustment.
 847515	Mot. 916	00 00 091 600	Valve stem height checking gauge.
 847525	Mot. 917	00 00 091 700	Oil pump drive gear locking tool.
 847535	Mot. 918	00 00 091 800	Oil pump gear fit checking tool
 8475651	Mot. 921	00 00 092 100	Injector extractor (use with slide hammer Emb. 880).
 847575	Mot. 923	00 00 092 300	Cylinder block lifting bracket.
 849735	Mot. 929-01	00 00 092 901	Tappet pad pliers.

Drawing	Method reference	Part Number	Description
 <p>868905</p>	<p>Mot. 997</p>	<p>00 00 099 700</p>	<p>Tool for removing and refitting injector holders.</p>
 <p>9650851</p>	<p>Mot. 1273</p>	<p>00 00 127 300</p>	<p>Belt tensioner meter.</p>
 <p>9833551</p>	<p>Mot. 1334</p>	<p>00 00 133 400</p>	<p>Flywheel setting tool.</p>
 <p>843285</p>	<p>Emb. 880</p>	<p>00 00 088 000</p>	<p>Slide hammer for clutch fork pin and injector extraction (use with Mot. 921).</p>
 <p>68997-1S1</p>	<p>B. Vi. 31-01</p>	<p>00 01 259 401</p>	<p>Set of three drifts for inserting 5 mm dia. roll pins.</p>

ESSENTIAL EQUIPMENT

Valve lifting tool

(example : **FACOM U43 LA**)

Piston ring pliers

(example : **FACOM 750 TB**)

Set of milling tools for regrinding valve seats

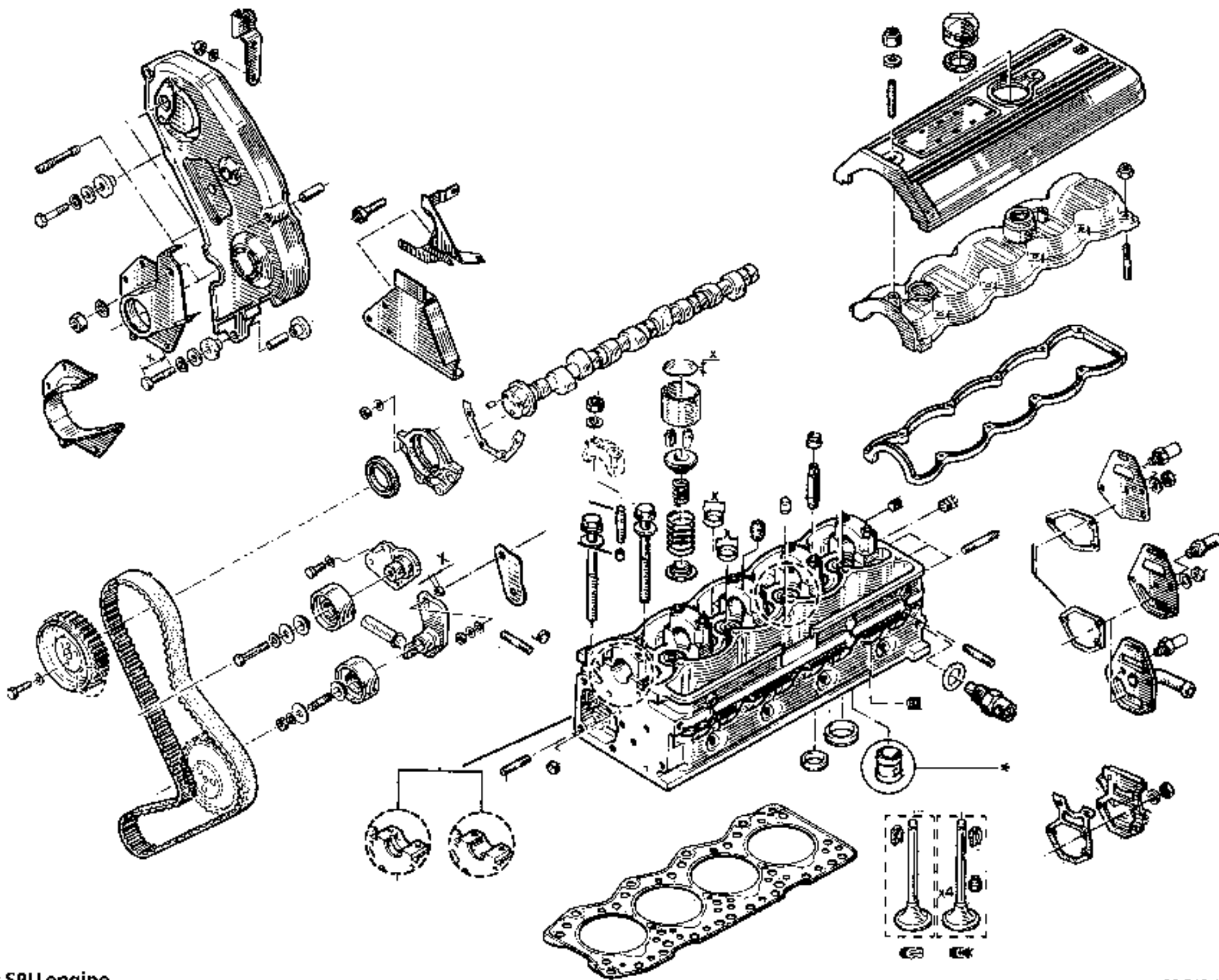
(example : **CERGY DIS CN108 NEWAY**)

Valve seal extractor

(example : **FACOM DM 10A**)

Tensioner fork (8144 engine)

EXPLODED VIEW OF CYLINDER HEAD



* Except S9U engine

DISMANTLING THE ENGINE

Drain off:

- the coolant from the cylinder block,
- engine oil.

Remove the fittings on the cylinder head:

- intake manifolds,
- exhaust manifolds,
- turbocharger,
- auxiliaries drive belt.

Mount the engine on support **Mot. 792-03**.

All types except engine 8144

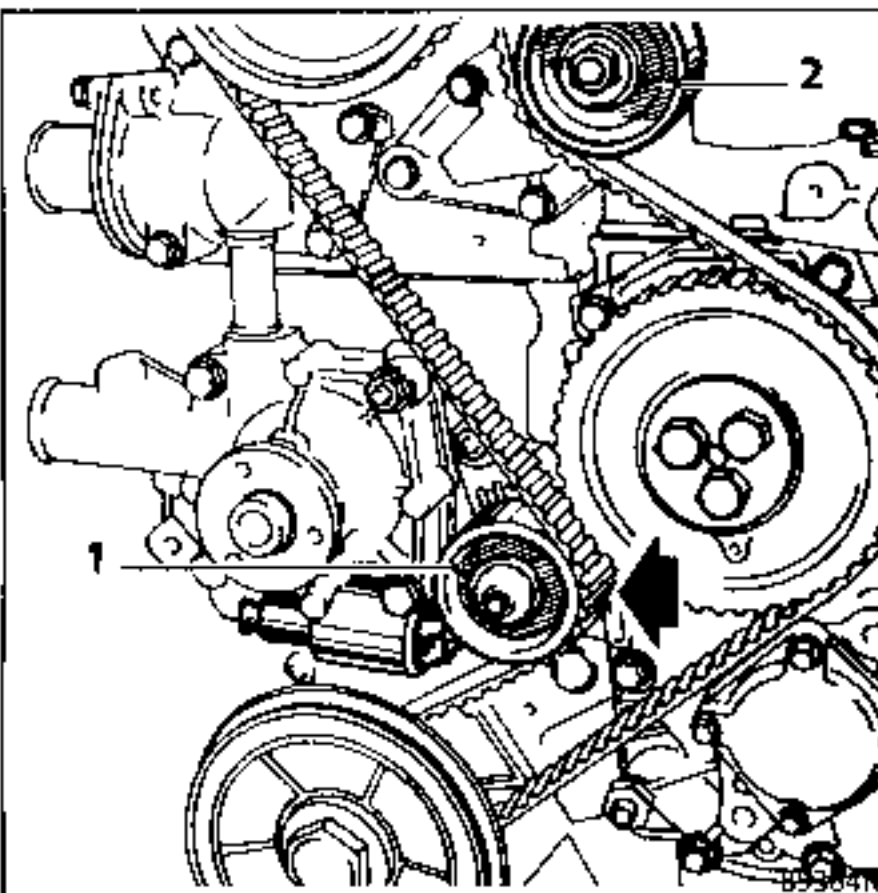
Remove :

- the timing gear cover,
- the cylinder head cover.

Slacken off pulley nut (1).

Use a hammer handle (arrow) to compress the tensioner tappet and lock the tensioner roller in this position.

Remove roller (2).

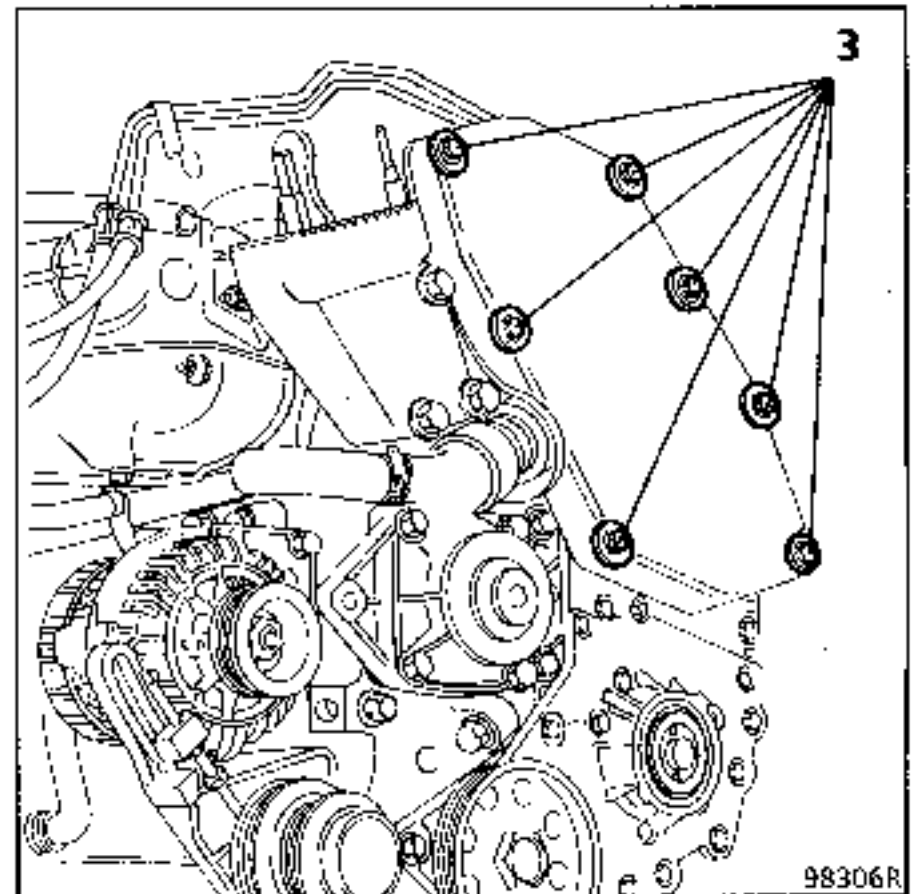


Remove the timing belt.

8144 engine

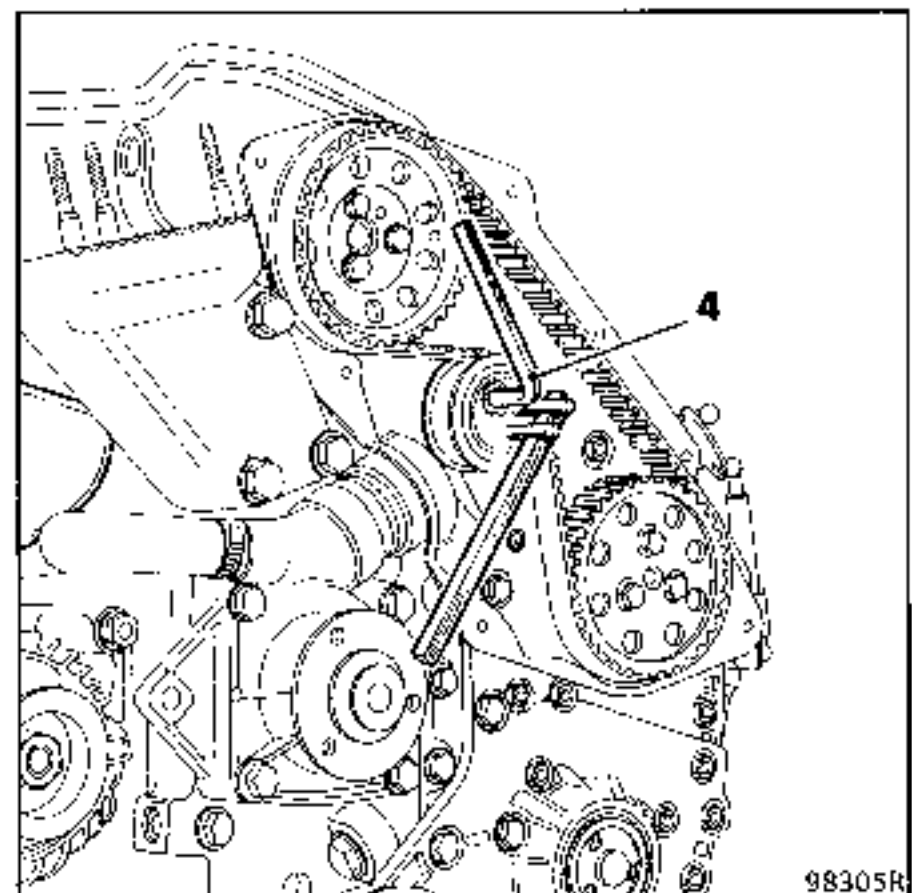
Remove :

- The timing gear cover bolts (3)
- The cylinder head cover



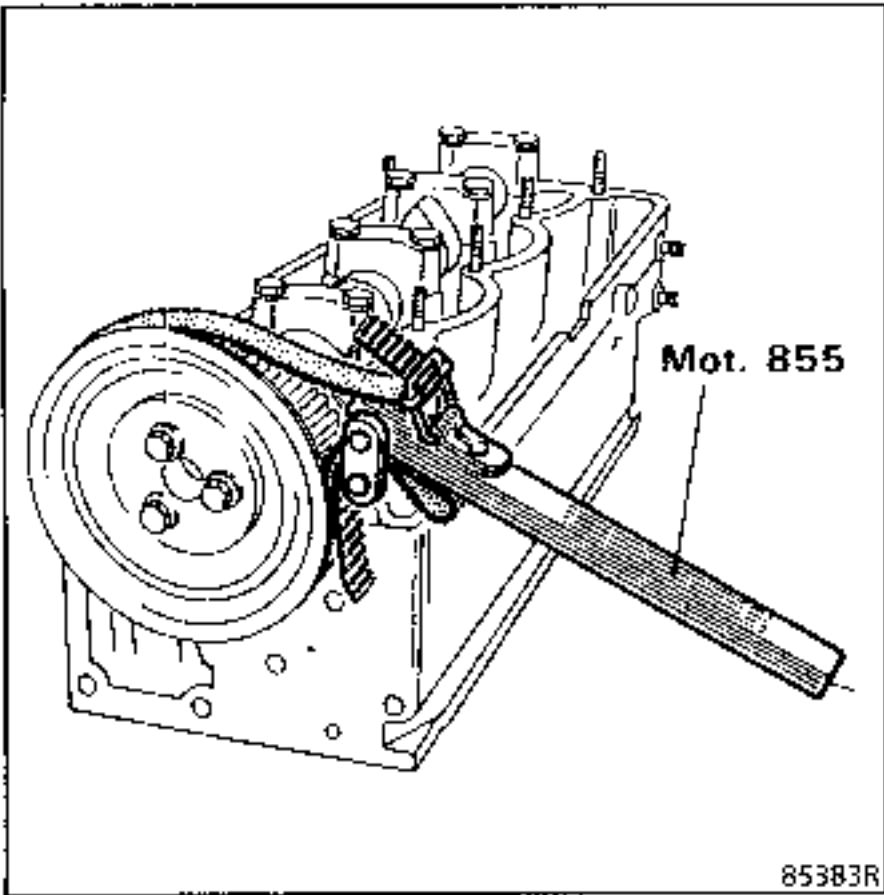
Slacken off the tensioner roller bolt (4).

Remove the timing gear belt.



All types

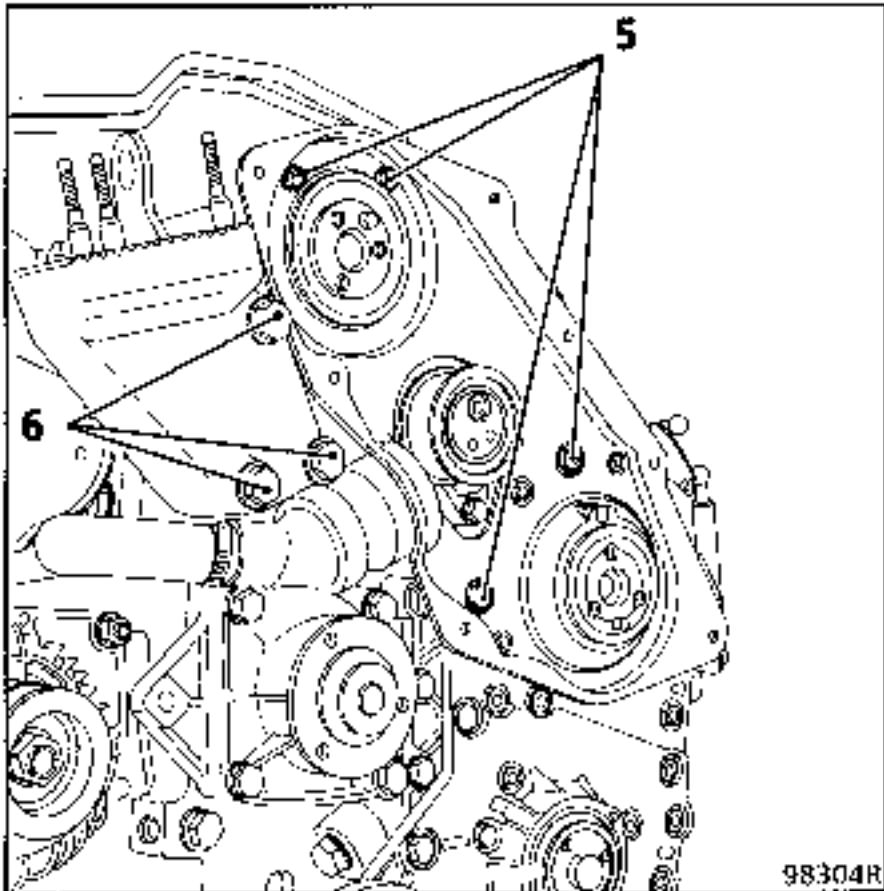
- Use tool **Mot. 855** to remove the camshaft mounting bolts and the injection pump.



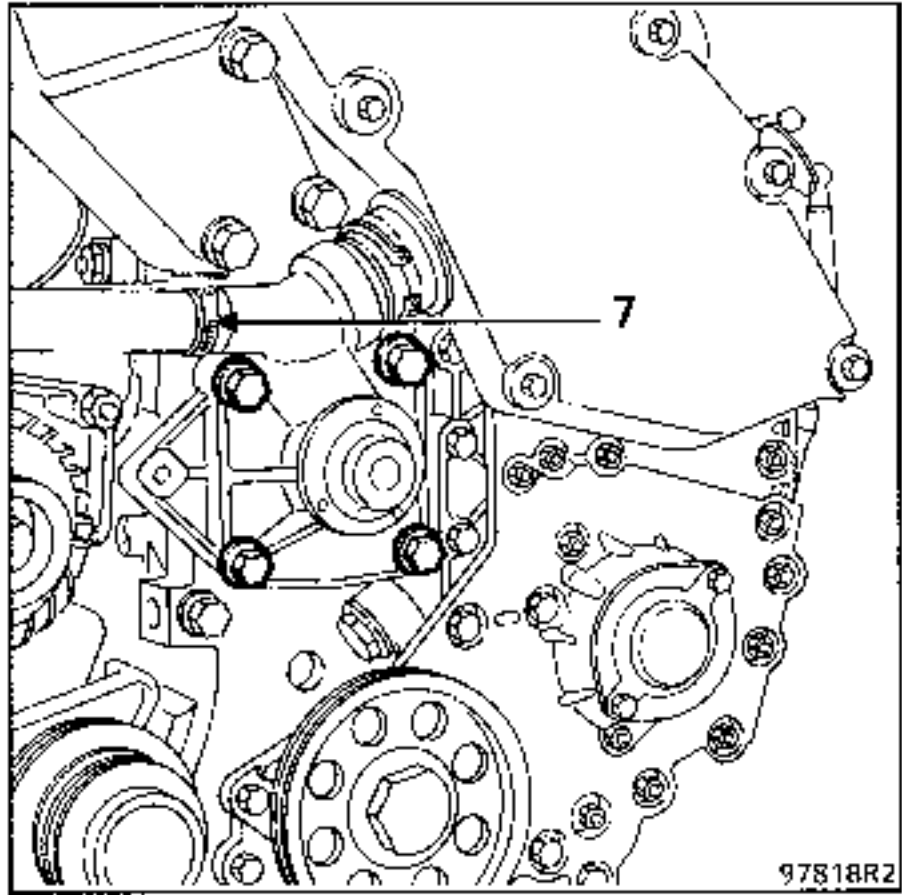
- Remove the injection pipes.

Engine 8144

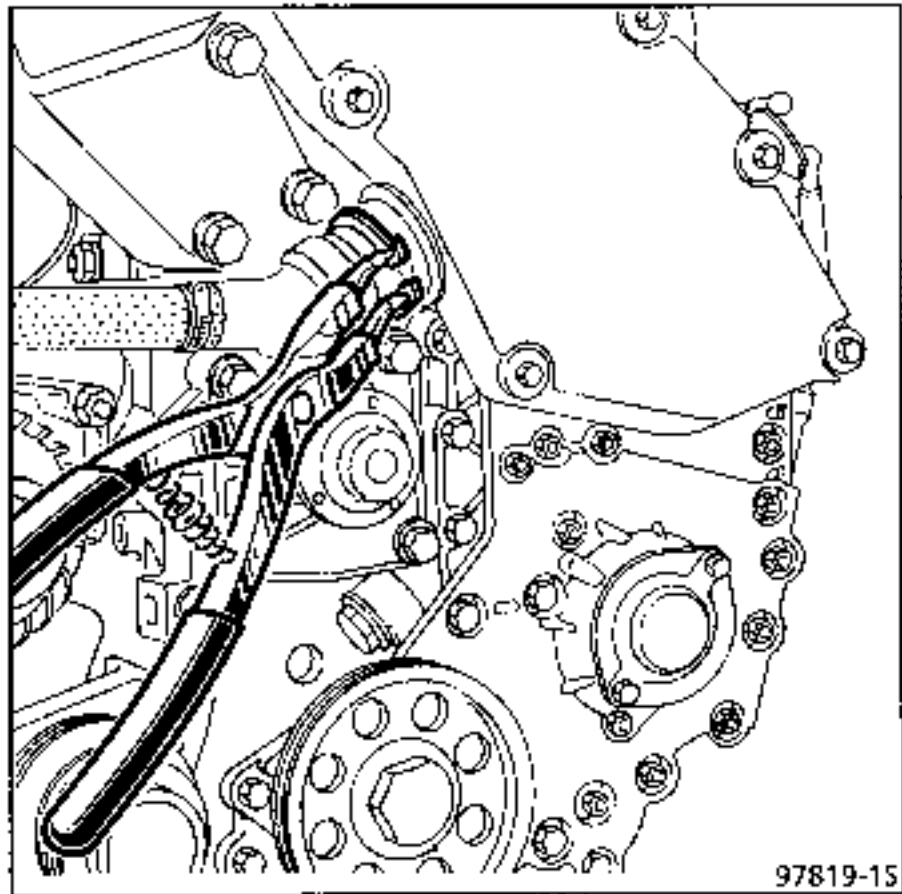
- Remove:
- the bolts (5) for the timing belt rear cover,
 - the hanging suspension mounting bolts (6).



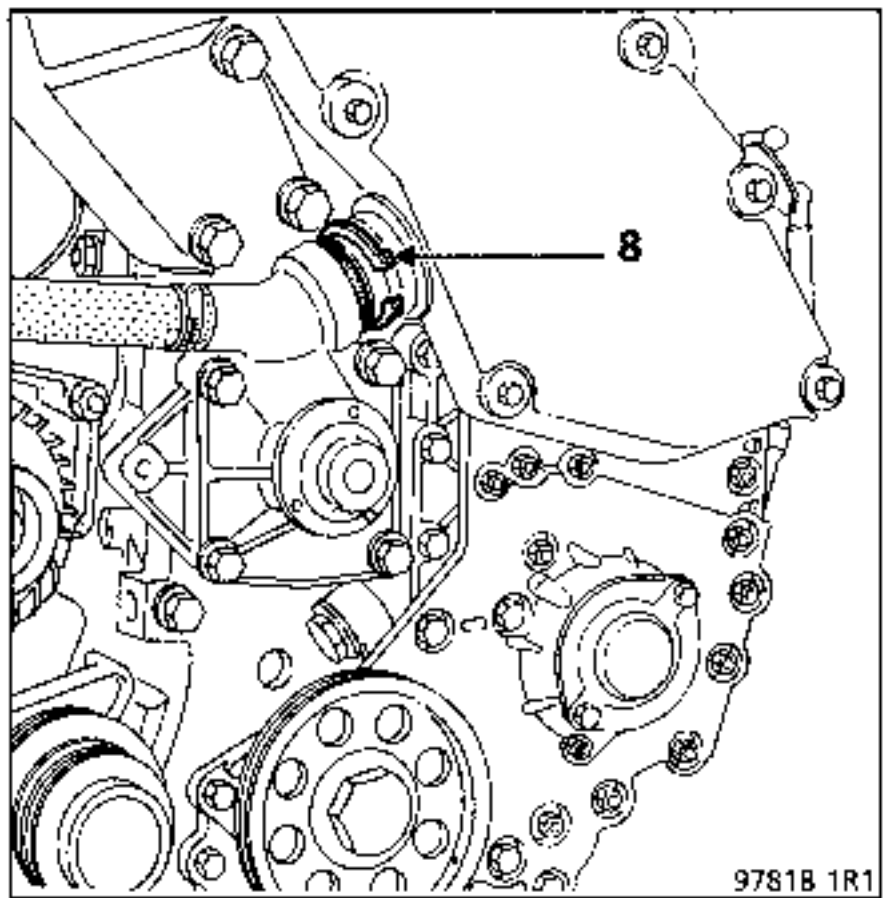
- the water pump pulley,
- the water pump/diesel reheater clamp (7).



Use circlip pliers with tips angled at 45° to remove the circlip.

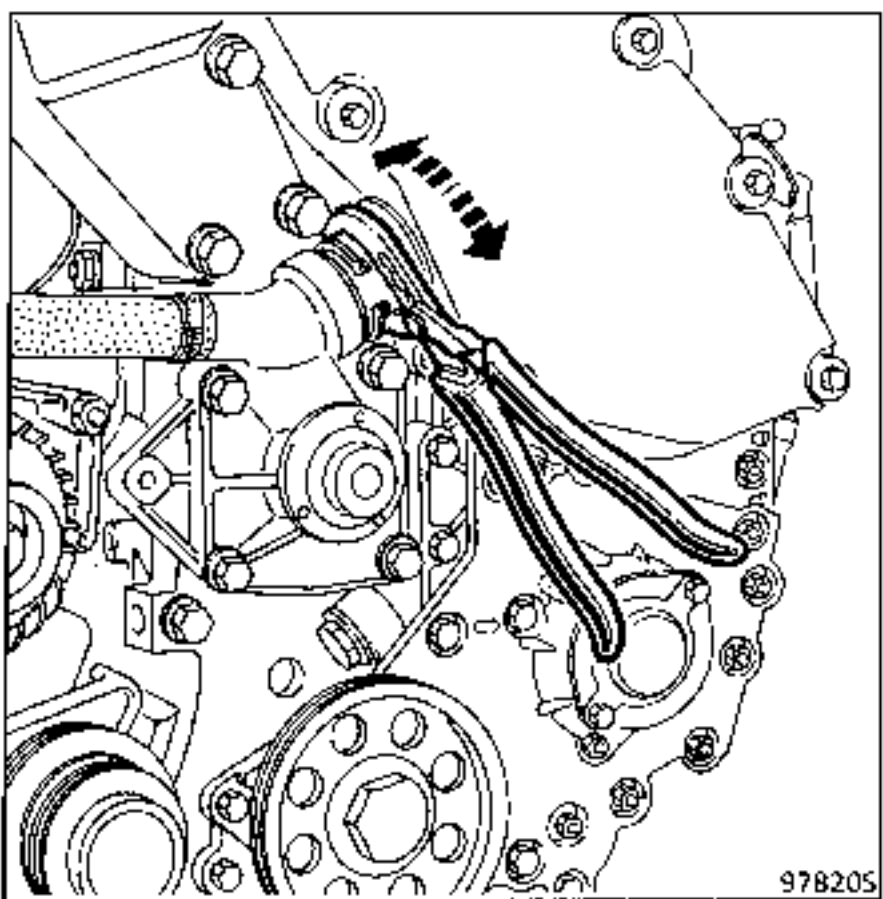


Place circlip (8) at half length on the connecting tube between the water pump and cylinder head.

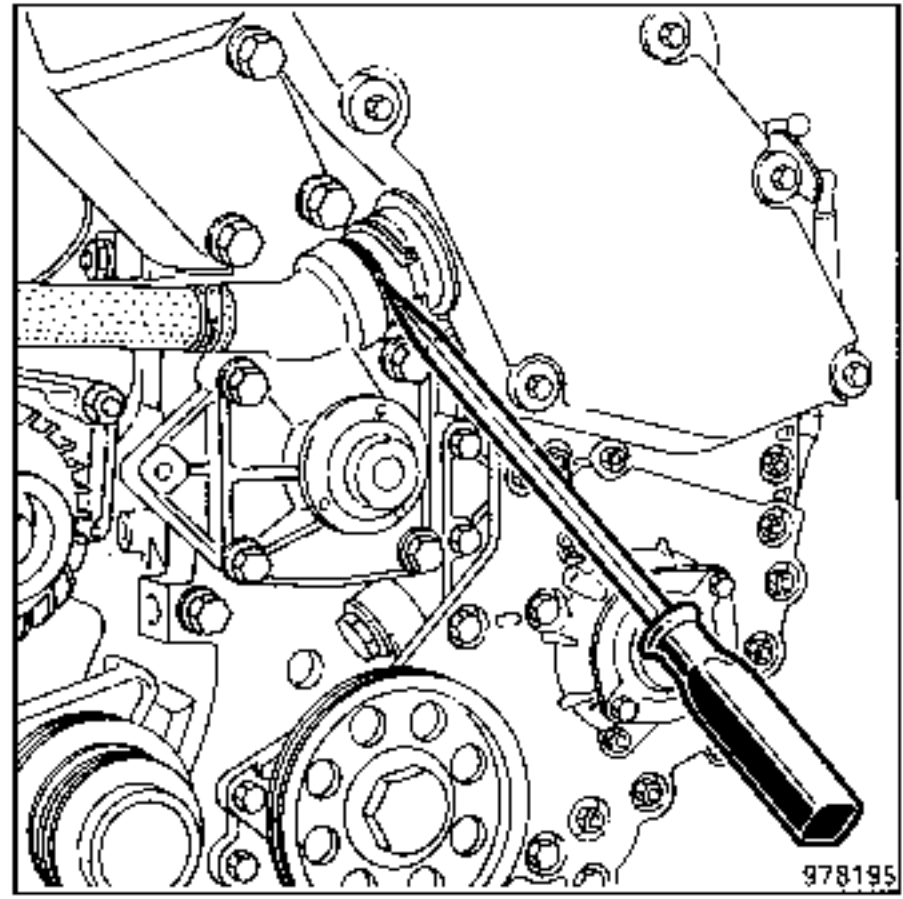


Clamp the connecting tube using a multi-part clamp.

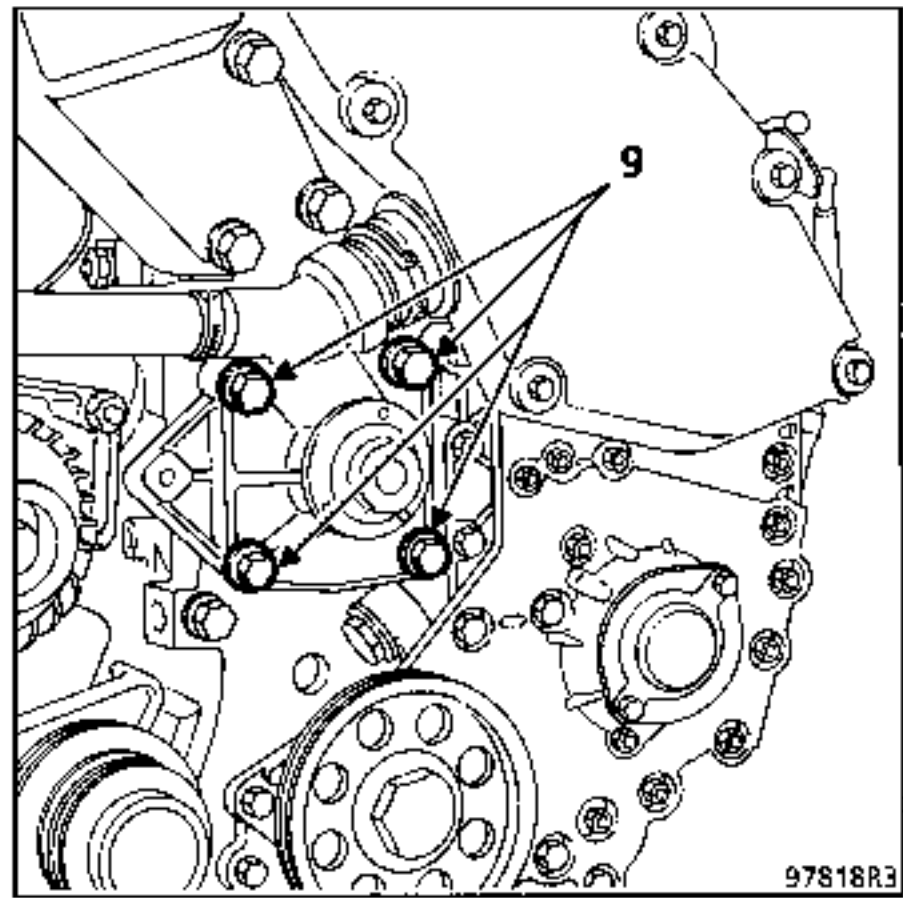
Rotate the connecting tube once to make it easier to detach the O-rings from the connecting tube.



Using a screwdriver, push the connecting tube upwards on the cylinder head side to release the pipe from the water pump.



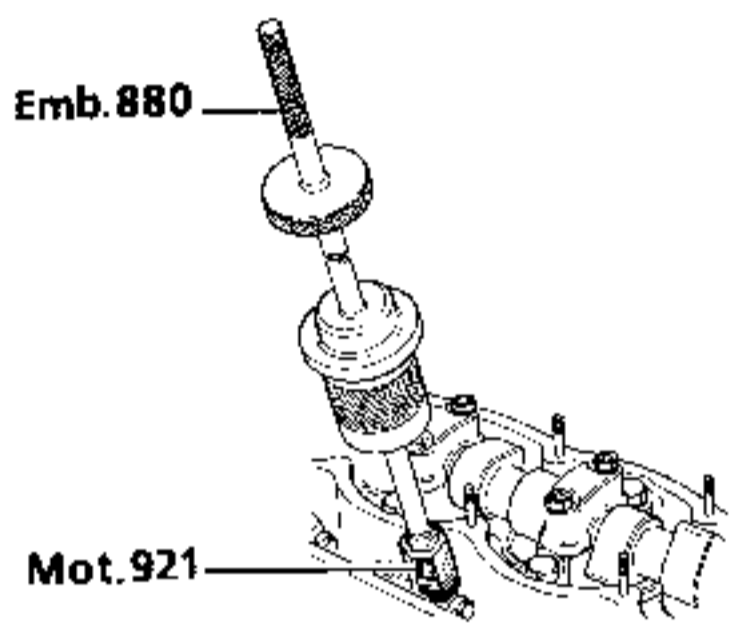
Remove the water pump mounting bolts (9) and take off the pump.



Remove the connecting tube.

All types

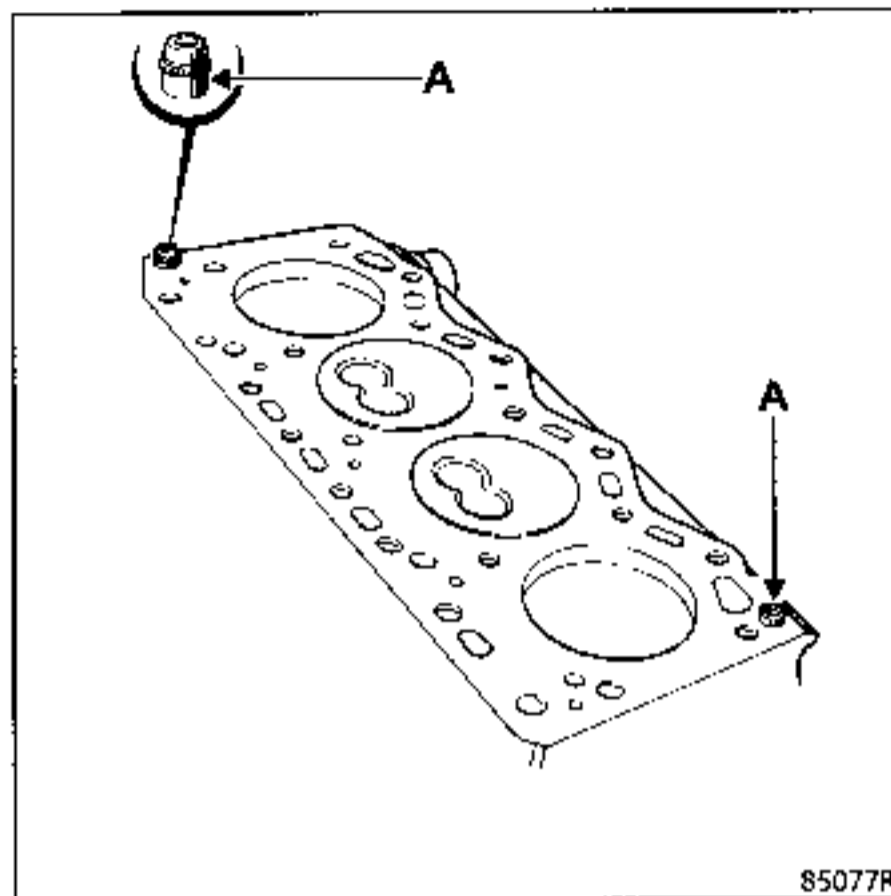
- Use tool **Mot. 987** to remove the injectors screwed into the cylinder head or use tool **Mot. 921** secured to slide hammer **Emb. 880** to remove the flanged injectors. (Save copper seals for future use.)



- Remove the cylinder head.
- Remove the thermostat unit (depending on the version).

Use a syringe to remove any oil from the cylinder head mounting holes.

Remove the cylinder head mounting bolts.



NOTE : The cylinder head is centred on the cylinder block by two dowels (A). Do not pivot the cylinder head: lift it up straight. (There is no risk of displacing the cylinder liners as these are force-fitted).

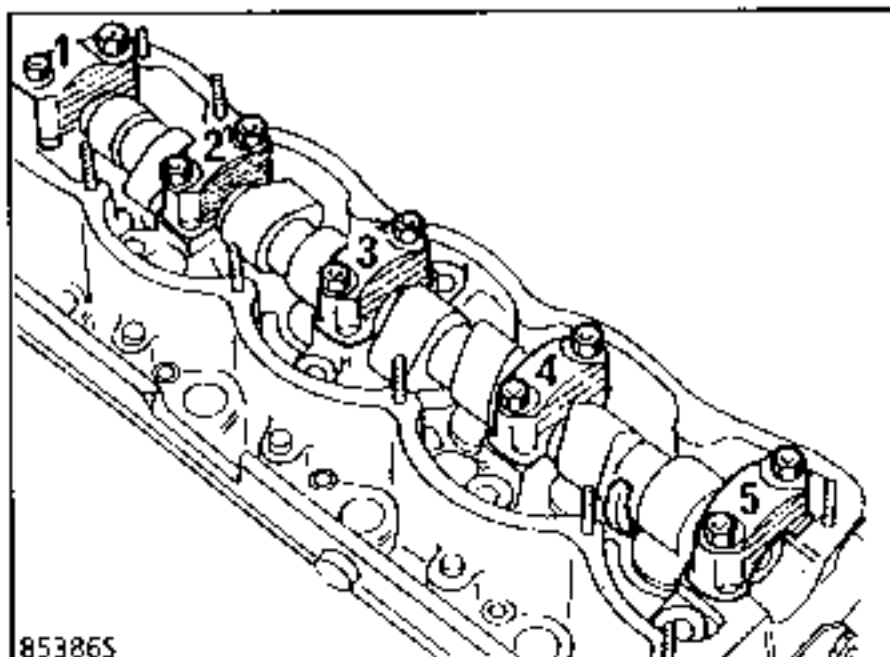
Remove the cylinder head.

Fasten support **Mot. 330-02** to the cylinder head and then place the assembly on the **DESVIL** support.

Remove the seal plate turning the camshaft.

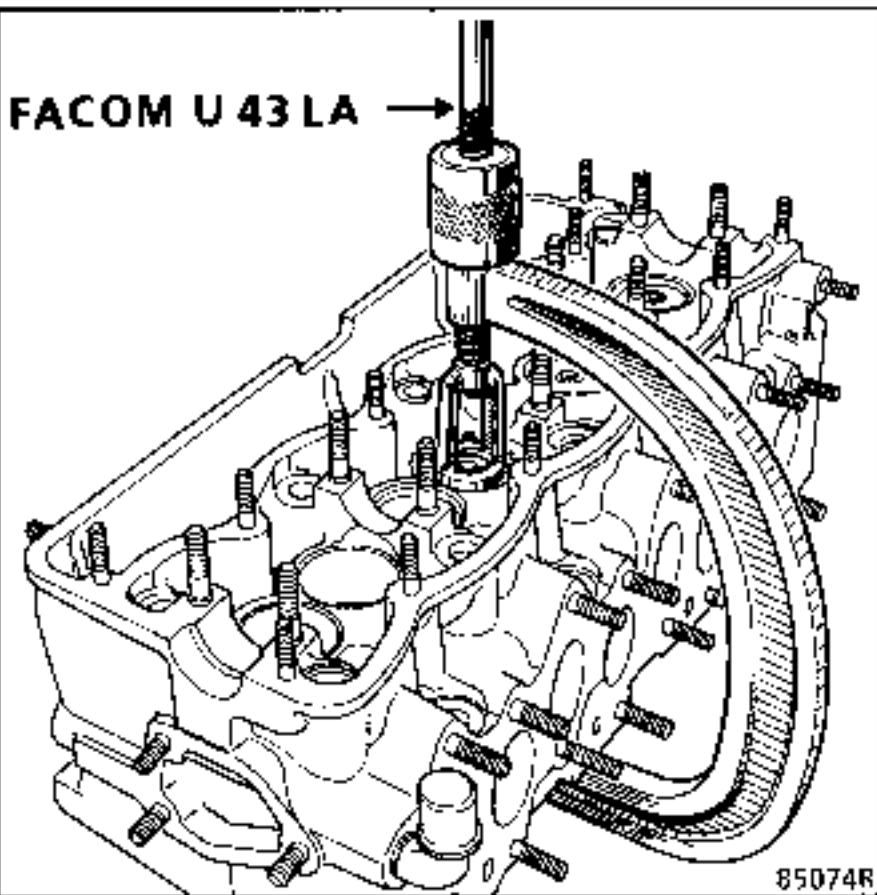
The bearing caps are marked. This marking is on the top and takes the form of a figure; No. 1 is the bearing next to the timing gear.

Mark them if necessary (numbers and direction).



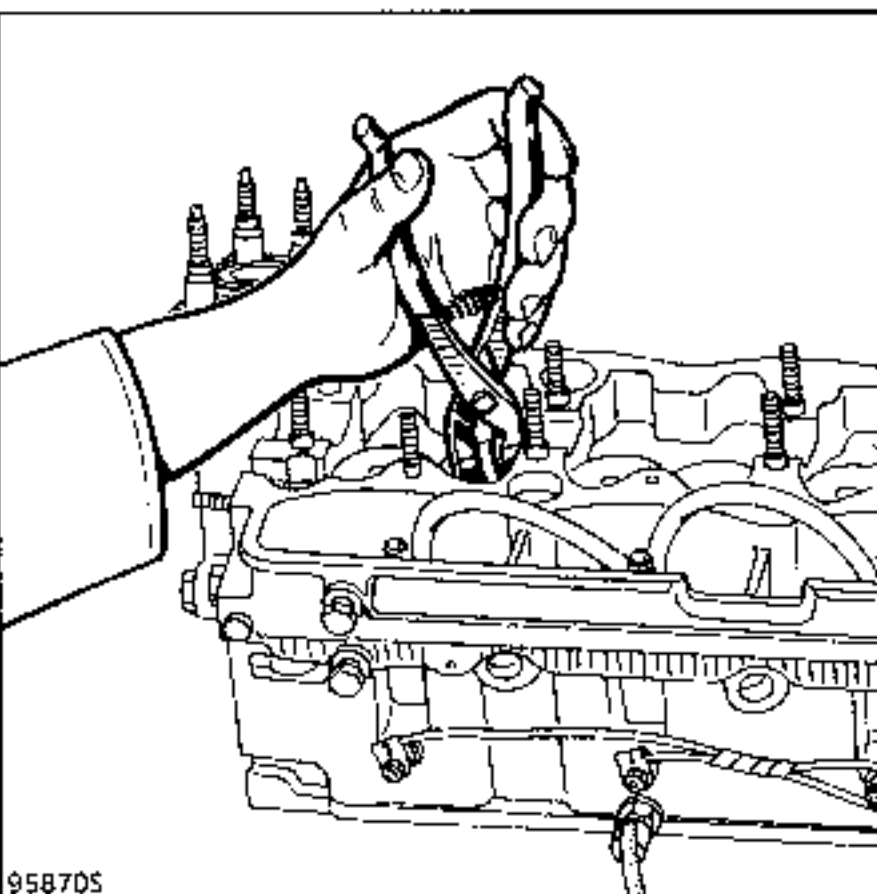
Remove the mechanical tappets matching the tappets to the adjusting pads.

Compress the springs using a tool (example: FACOM U43 LA).



Remove:

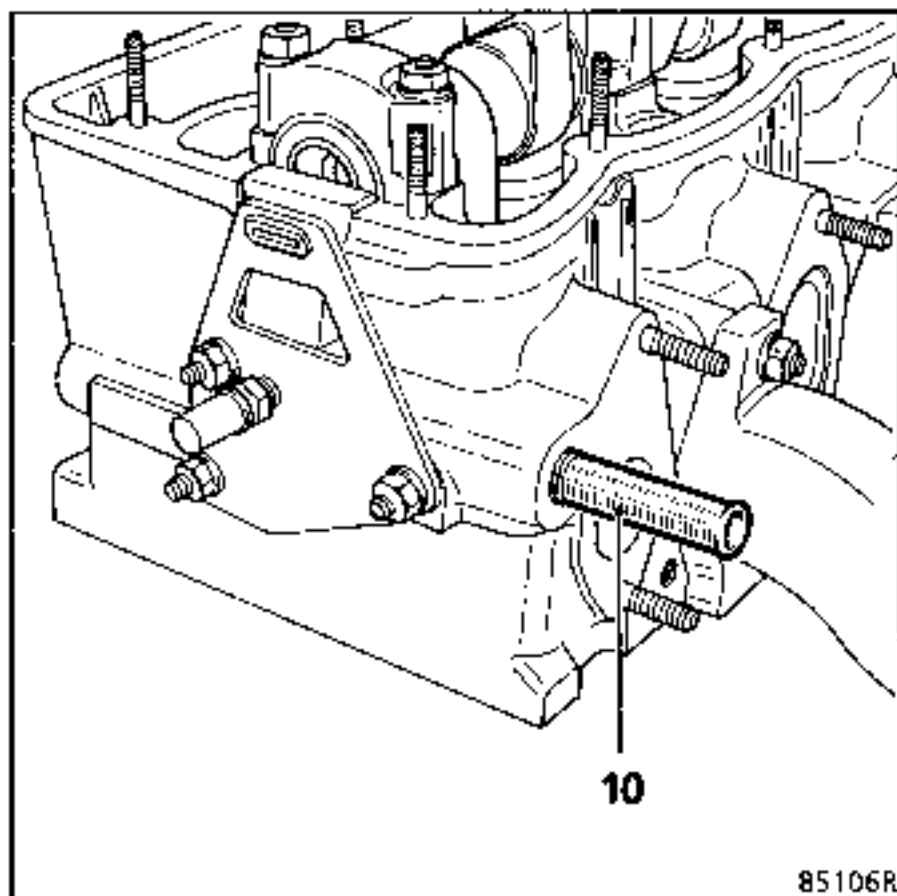
- the half rings,
- the upper retainers,
- the springs,
- the seals (on the valve guides) using pliers such as FACOM DM 10A.



REPLACING THE RIGID TUBE IN THE COOLING SYSTEM

REMOVING

Saw through tube (10) allowing maximum protrusion.

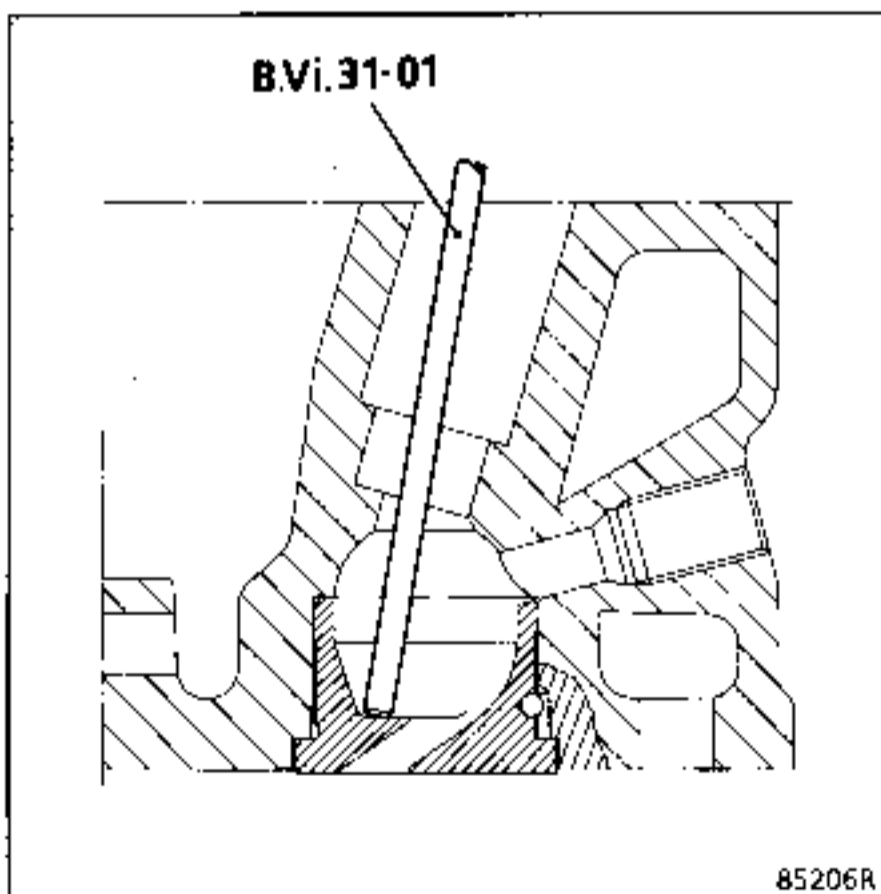
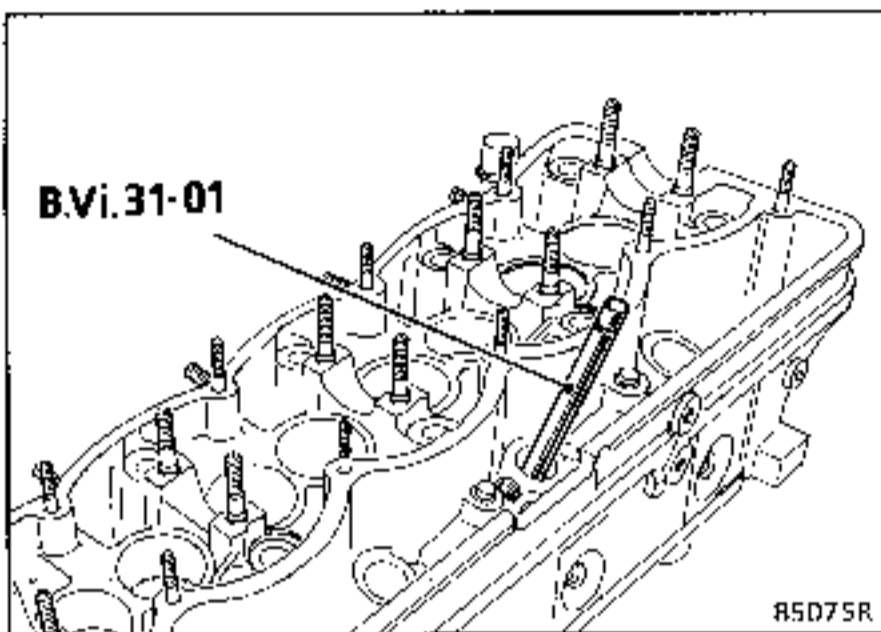


Use pliers to crush the tube and extract it.

Loctite Frenetanch is applied to the cooling system tube (10) when it is fitted.

Remove the heater plugs.

Extract the pre-combustion chambers by driving them off the injector holders using tool B.Vi. 31-01.



CLEANING

It is very important not to scratch the surface of components in aluminium.

Use **Décapjoint** to dissolve any remaining traces of gasket.

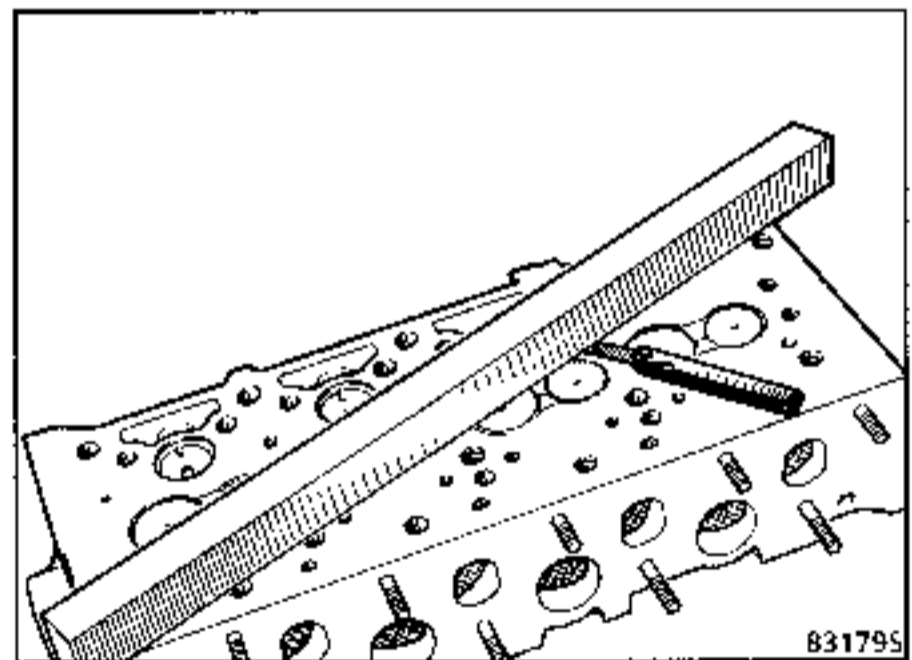
Apply the product to the area to be cleaned; wait for about 10 minutes then remove using a wooden spatula.

Gloves should be worn during this operation.

Avoid dropping any liquid on the paintwork.

Take great care with this operation to prevent foreign matter entering the pressurised oil channels.

Checking the gasket face for bow



Remove the pre-combustion chambers first, then use a straight edge and set of feelers to check if there is any bow.

Max. permissible bow :	0.05 mm
Max. permissible resurfacing :	0.4 mm

When the cylinder head has been resurfaced, the valves must be recessed by an amount proportional to the amount of metal removed from the cylinder head.

REFITTING THE CYLINDER HEAD

If the valves are being replaced and the cylinder head retained, it is advisable to regrind the valve seats.

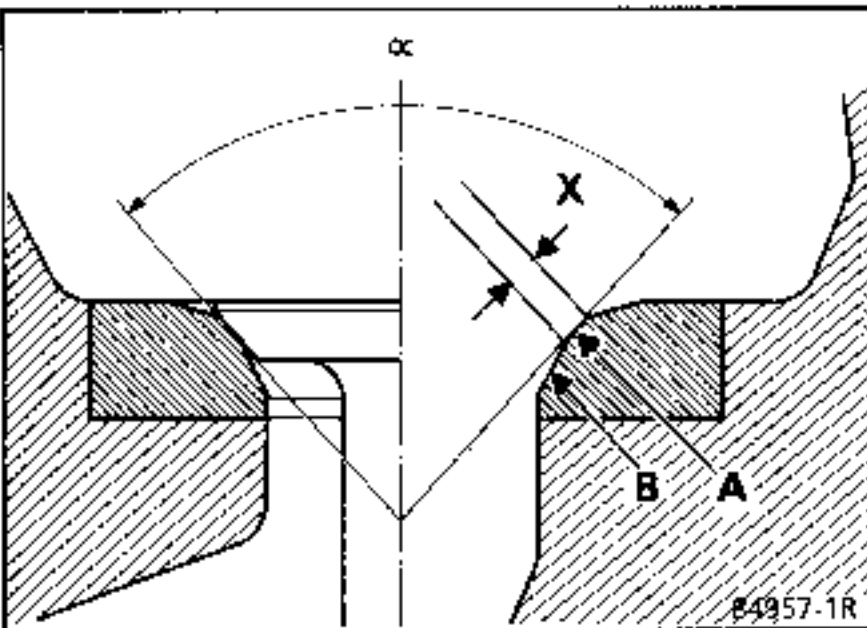
REGROUNDING THE VALVE SEATS

Seat angle : α

	1st type	2nd type
- Inlet	90°	120°
- Exhaust	90°	90°

Seat width (X) in (mm) :

- Inlet:	2.7
- Exhaust:	2.7

**1st type****Inlet and exhaust**

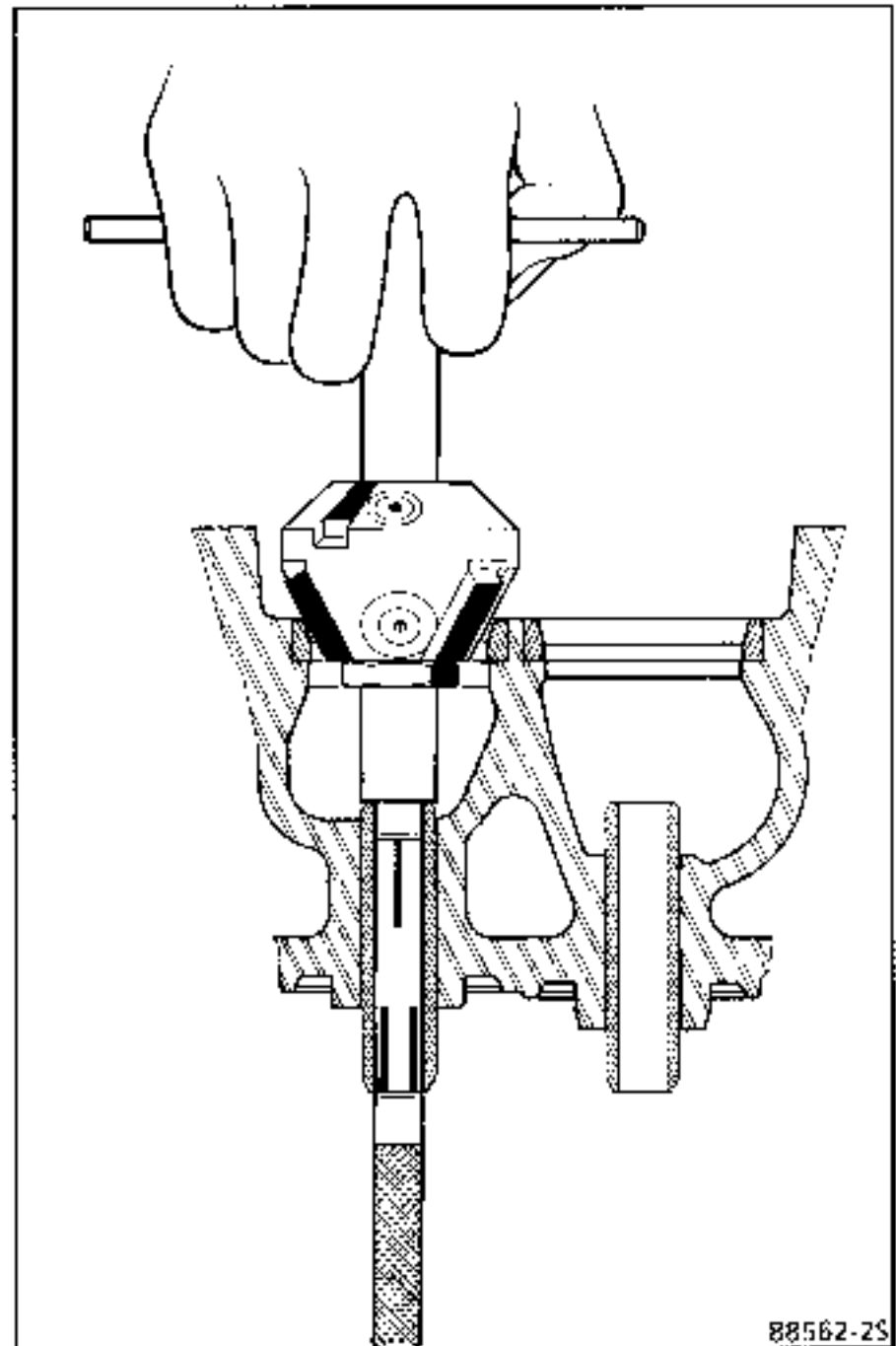
Seat (A) is reground using cutter **No. 208 side 46°**, reduce the width of this seat at (B) using cutter **No. 213 side 60°** until width X is obtained.

2nd model**Inlet**

Seat (A) is reground using cutter **No. 208 side 31°**, reduce the width of this seat at (B) using cutter **No. 213 side 60°** until width X is obtained.

Exhaust

Seat (A) is obtained using cutter **No. 208 side 46°**, reduce the width of the seat at (B) using cutter **No. 213 side 60°** until width X is obtained.



Only the minimum amount of metal must be removed from the valve seats in order for the valves to remain within the recessing tolerance.

Fit new valves.

Lightly grind in each valves in its seat.

Clean all the parts well.

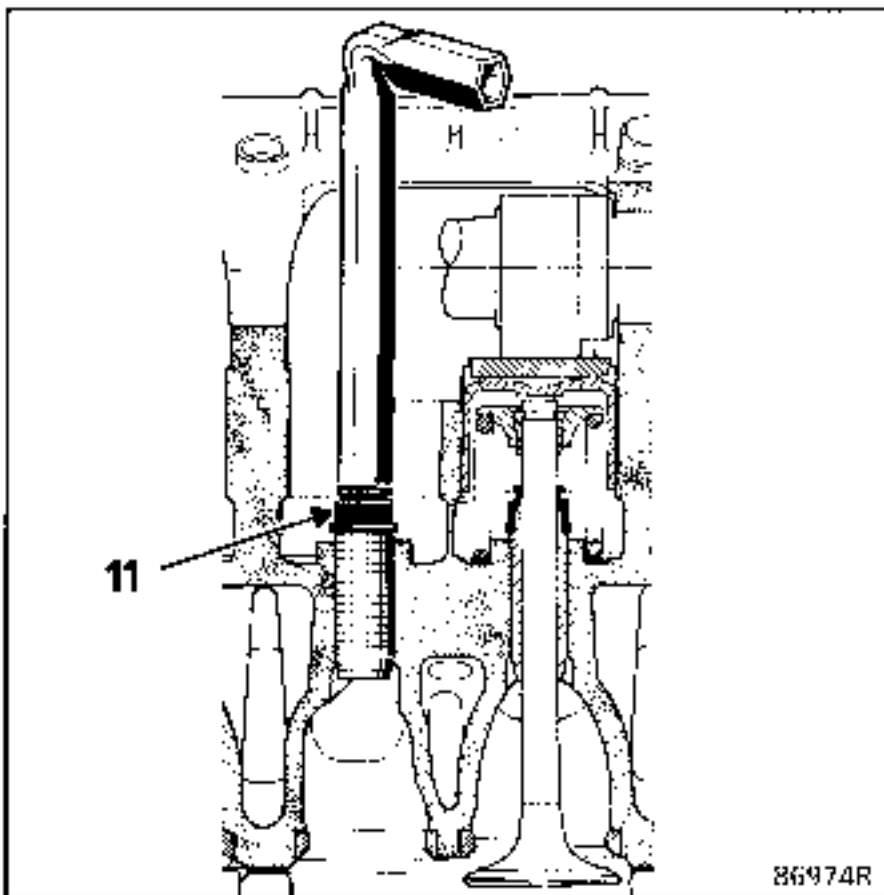
Oil the parts with engine oil.

ATTENTION

8140 612300 engine

If a camshaft on engines 8140 612300, serial numbers 1 to 162067, has to be replaced, the Parts Department only supplies the second type of camshaft as a replacement part (8-37-48-8 instead of 8-48-48-8). This means the four inlet valves also have to be replaced. (See exchange instructions on spare parts documents.)

Fit the valve stem seals in position (11) using a tubular spanner such as Nervus, size 12.

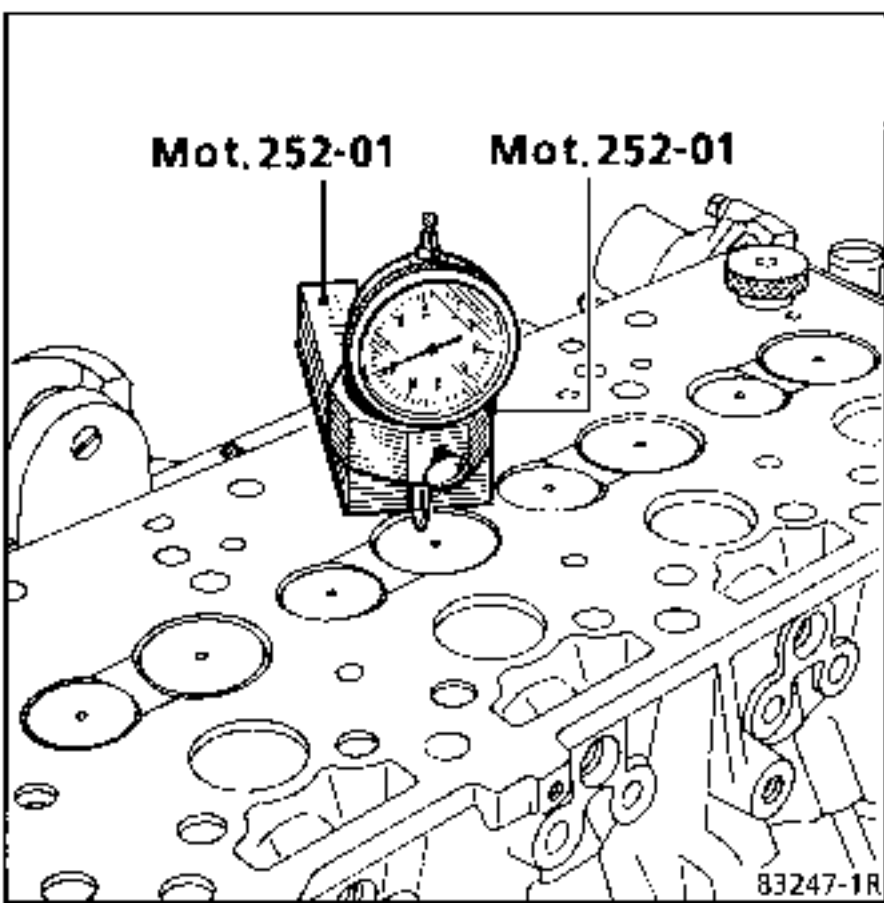


Replace the valves in the cylinder head.

Measuring valve recesses

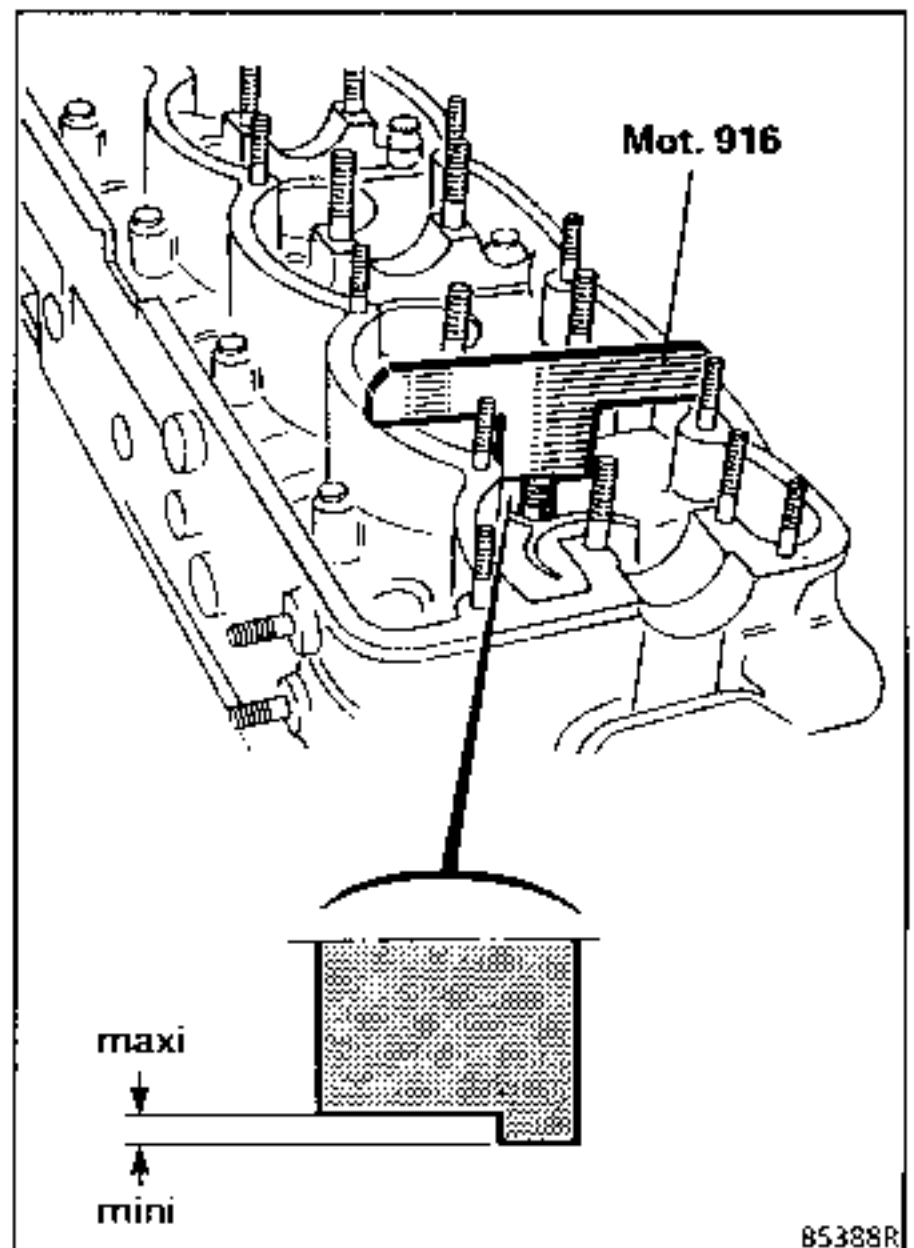
Use tools Mot. 251-01 and Mot. 252-01 to measure the distance between the cylinder head joint face and the inlet and exhaust valve heads.

The valves should be recessed between 1 and 1.4 mm.



CHECKING THE HEIGHT OF A VALVE STEM

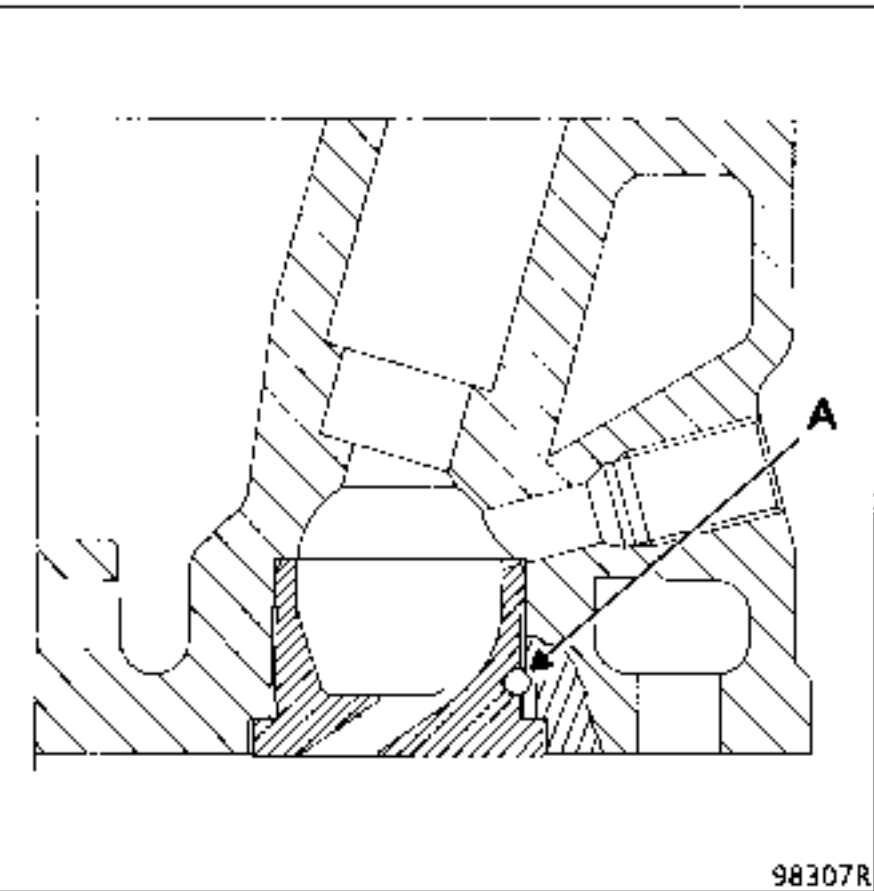
Once the valve seats have been reground, the valve stem protrusion must be checked. This must be within the minimum and maximum tolerances of tool Mot. 916. Excess protrusion should be removed by lightly grinding the valve stem face.



Refitting the pre-combustion chambers

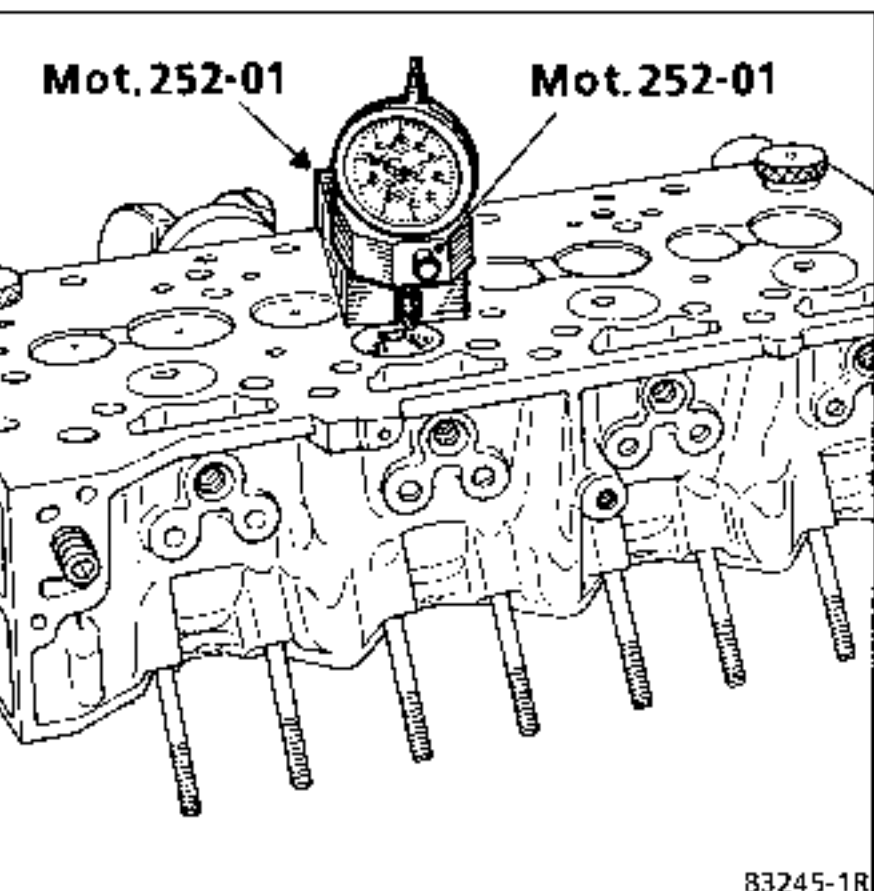
A removed pre-combustion chamber must not be refitted.

Align locking ball (A) on the pre-combustion chamber in relation to the location of the cylinder head.



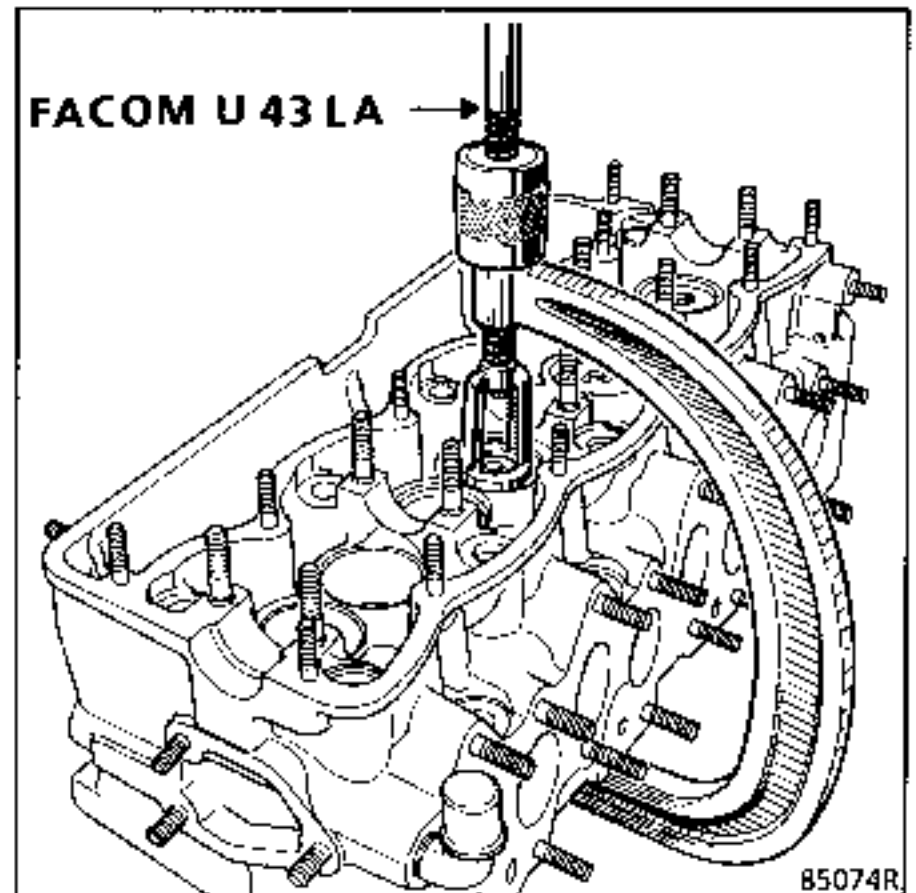
Insert the pre-combustion chamber and check the protrusion using tools **Mot. 251-01** and **Mot. 252-01**.

It should be between 0 and 0.04 mm. Two thicknesses of pre-combustion chamber are available: 4.50 to 4.52 mm and 4.52 to 4.54 mm.

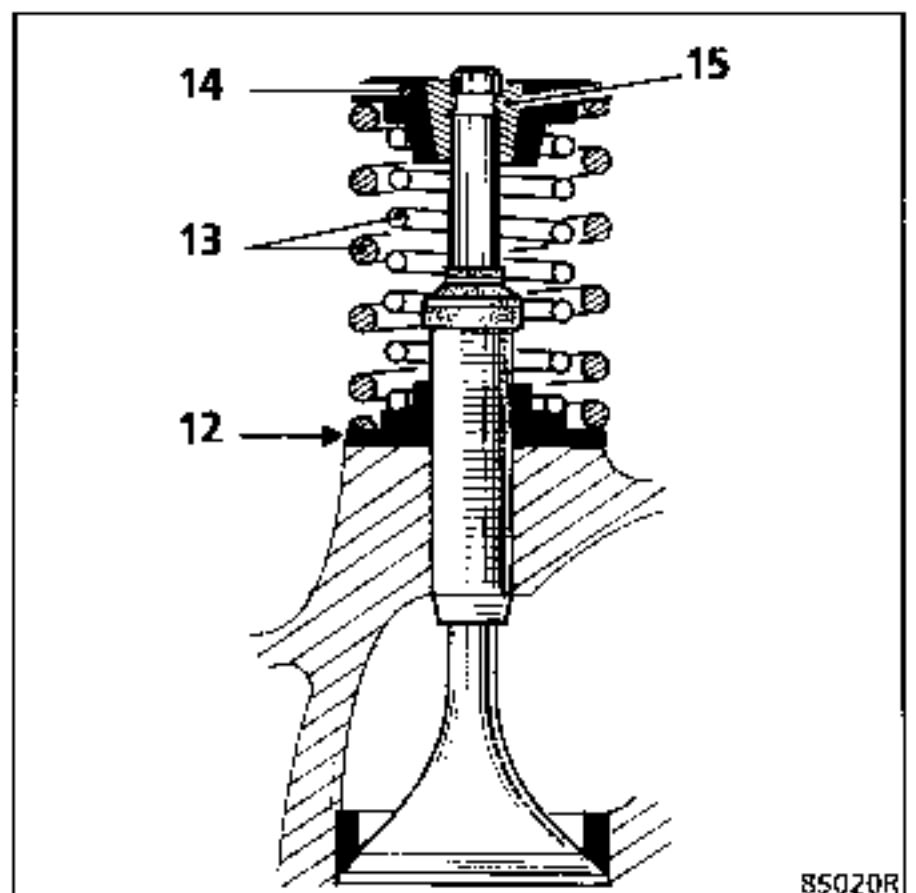


Fit base washers (12), the inner and outer valve springs (13) and the upper retainers (14).

Compress the valve springs using **FACOM U43 LA**.



Fit the half rings (15) (identical for inlet and outlet exhaust valves).

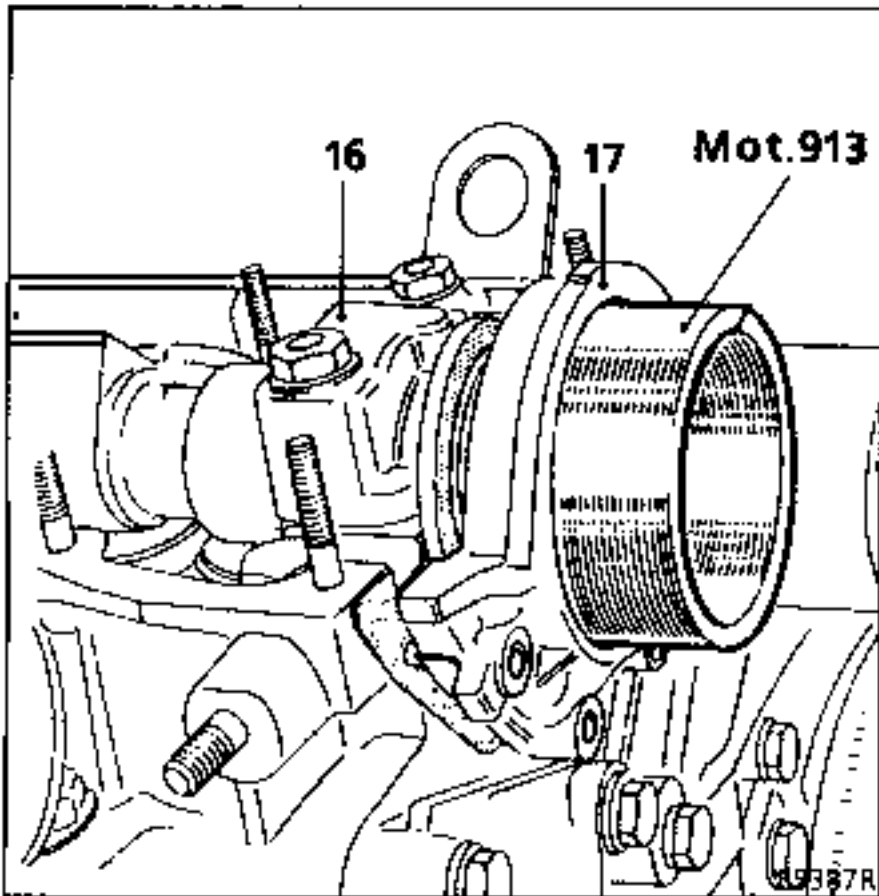


Fit the tappets and adjusting shims.

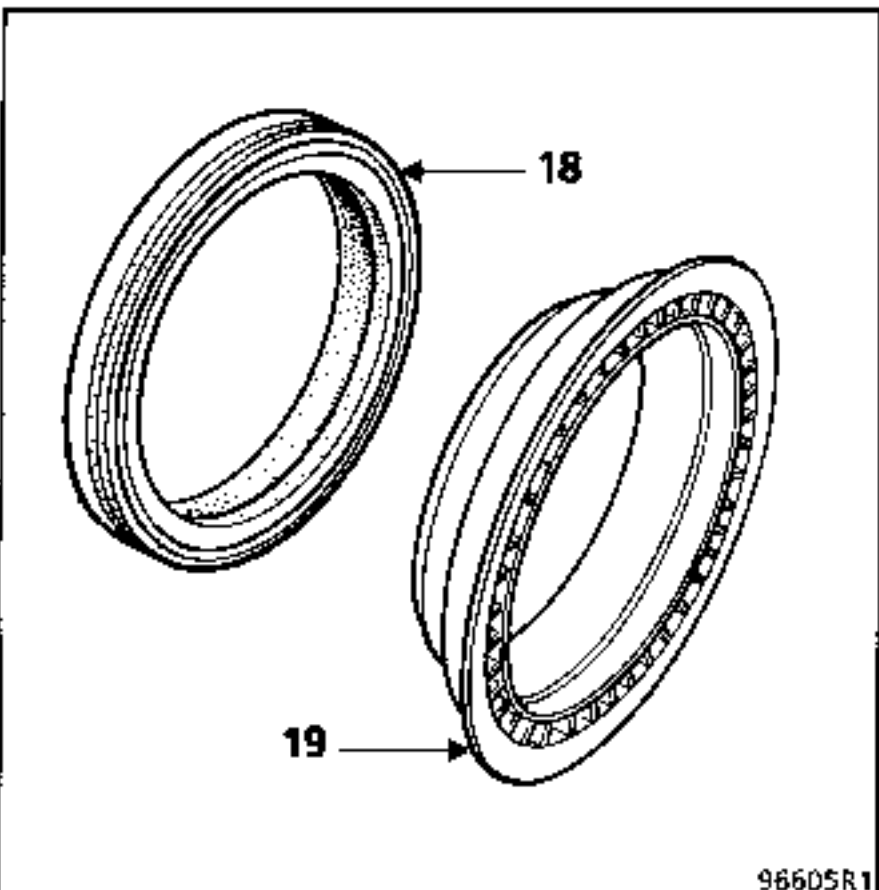
Fit the camshaft.

Fit the bearing caps (16) (making sure the numbers marked on dismantling match) and tighten them to a torque of 2.5 daN.m.

Fit support (17) comprising the seal at the end of the camshaft, using tool Mot. 913 or the seal protector.



The Parts Department supplies the seal (18) with a protector (19).



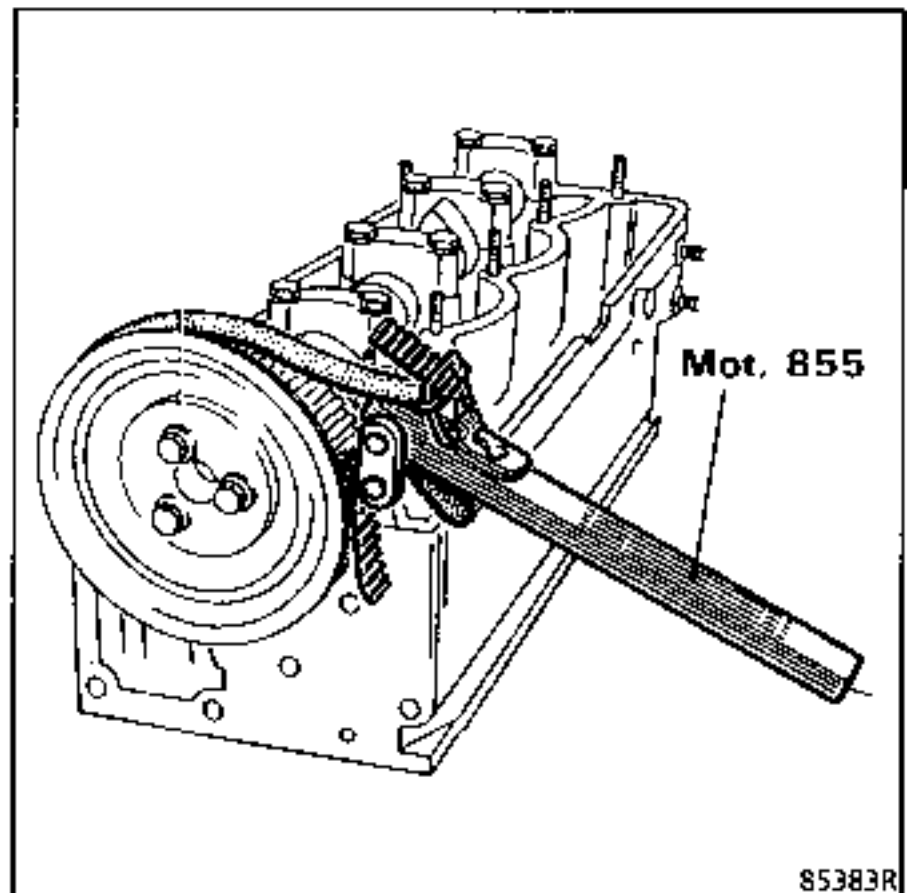
The protector is used to fit the seal in its housing using a tube with the same diameter as the protector concerned.

The seal is fitted either with a press or a small hammer, using the protector as a support.

Refit the camshaft pulley.

Method of adjusting tappet pads

With the cylinder head removed, use Mot. 855 to turn the camshaft.

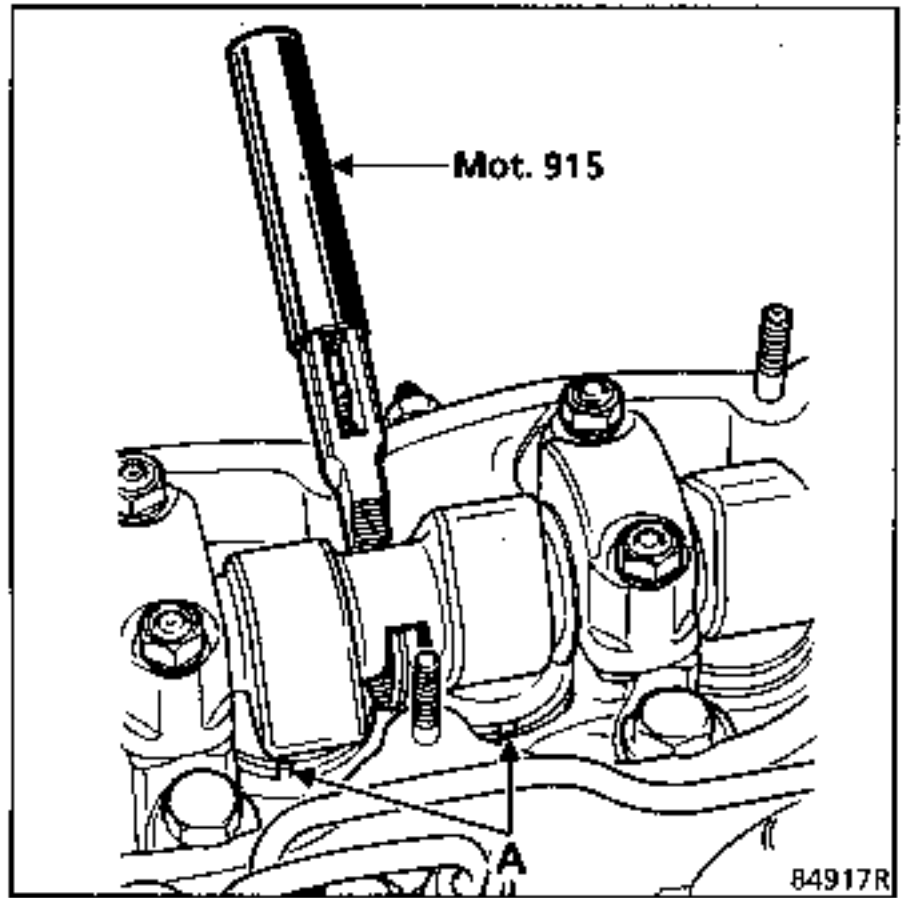


Turn the camshaft so that the valves in No. 1 cylinder are on balance (end of exhaust, commencement of inlet) and check the tappet clearances on cylinder No. 4, then repeat the process for cylinders 3, 4 and 2.

Operating clearance (when cold) (mm) :

- Inlet : 0.50
- Exhaust : 0.50

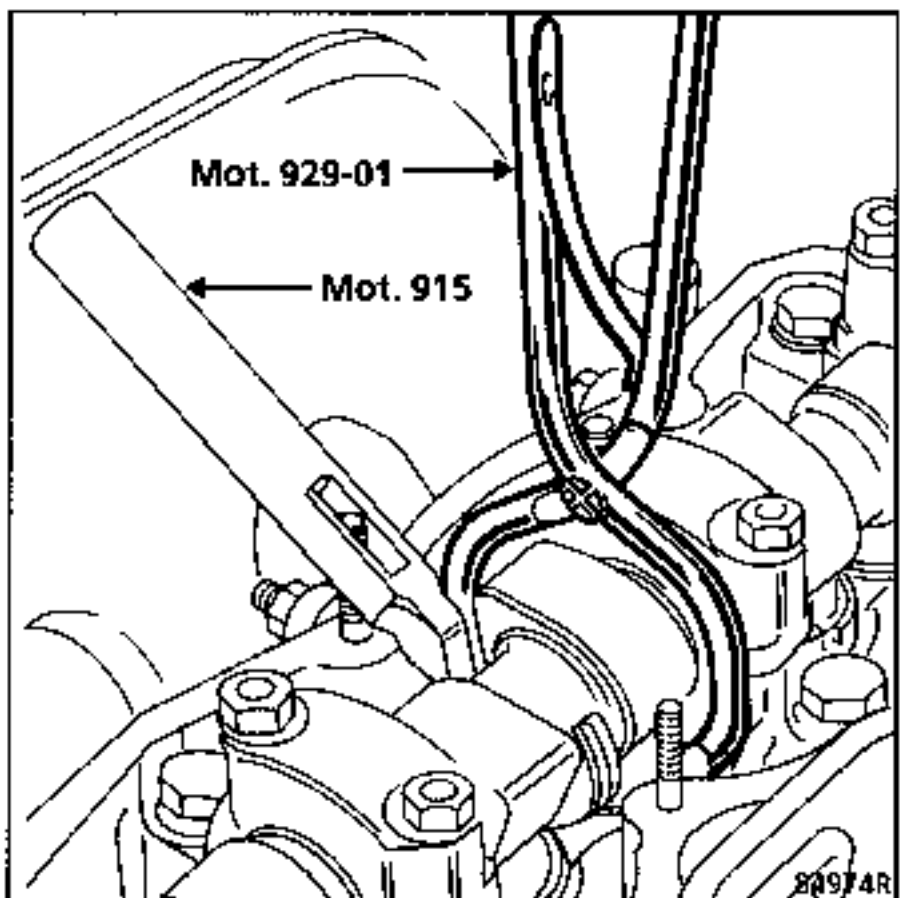
Changing the tappet pads



Turn the tappets so that their slots (A) are parallel to the camshaft.

Insert tappet compressor **Mot. 915** from the inlet manifold side and press down the tappets. Slots (A) must be at right angles to the camshaft.

Extract the pads using tool **Mot. 929-01**.

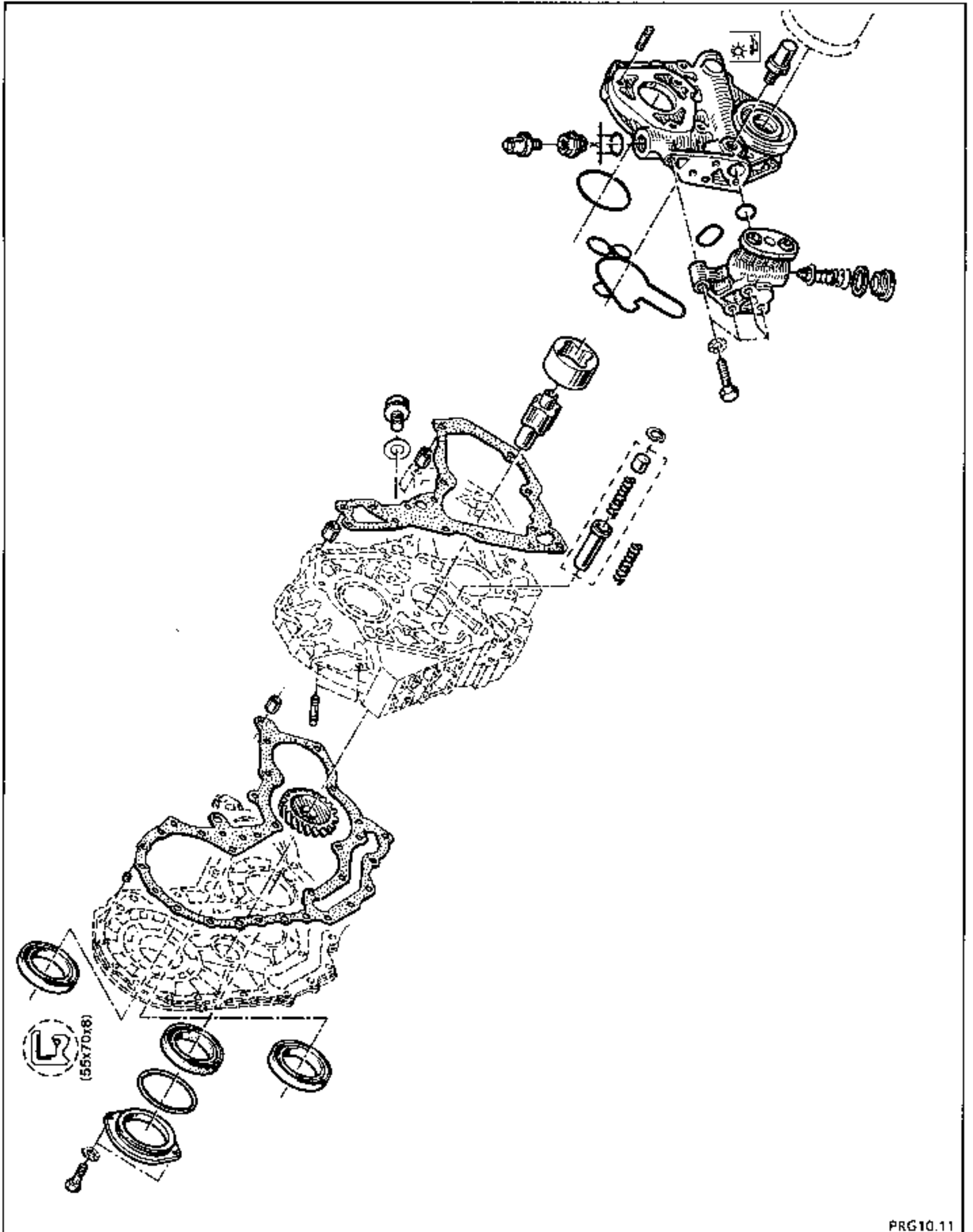


Each pad is marked with its thickness; the figures should face towards the tappet.

Check the pad thickness using a micrometer.

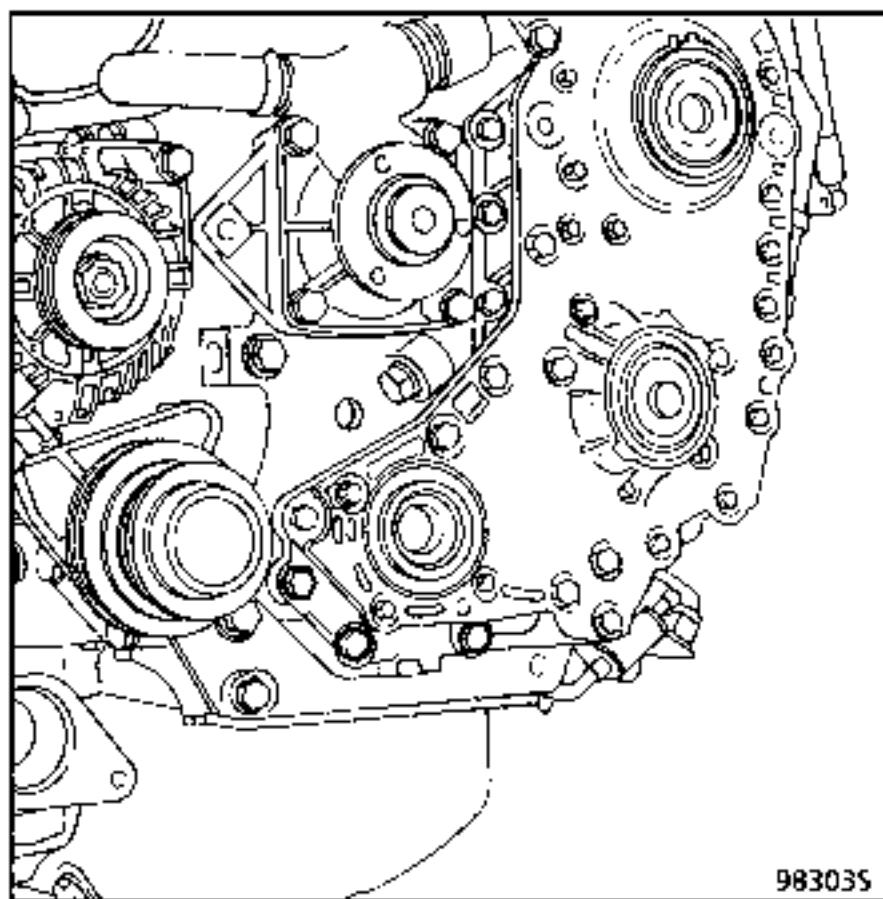
Tappet pads are available from the **Parts Department** in the following thicknesses: from 3.55 to 4.50 mm, from 0.05 increasing in steps of 0.05 mm.

EXPLODED VIEW OF ANCILLARY UNITS DRIVE GEAR



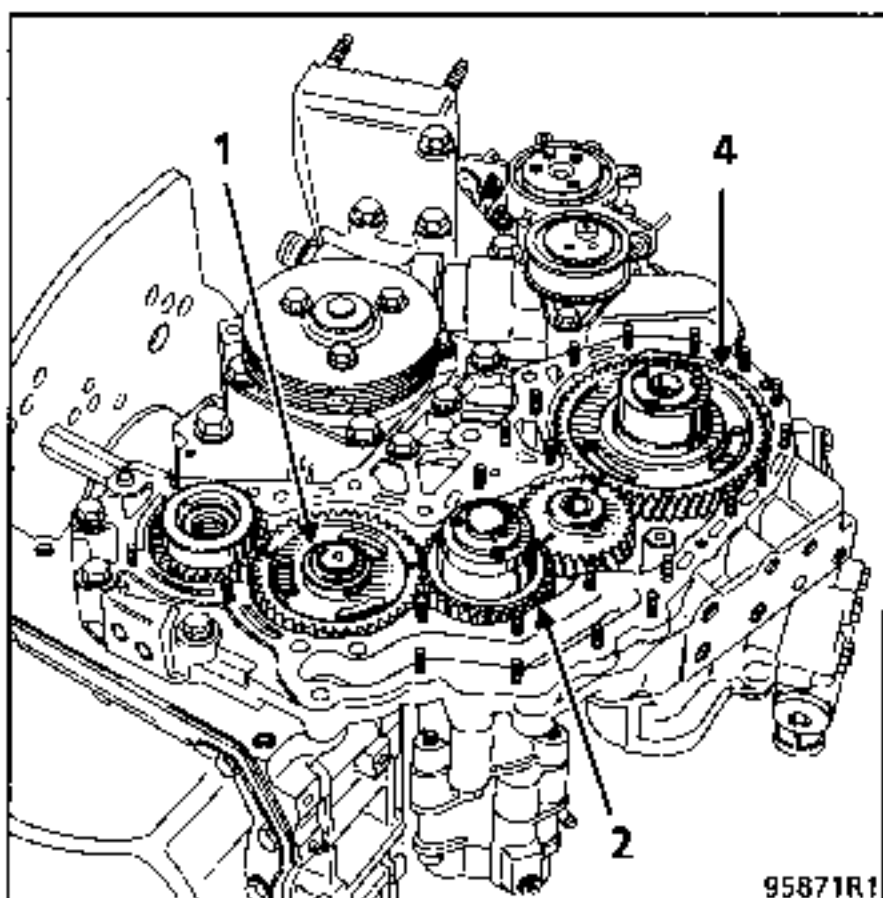
REMOVING SET OF TIMING GEARS

- Remove the gear set cover mounting bolts connecting the crankshaft to the injection pump.



- Remove the idle gear circlips (1).

Pull out gears (1), (2) and (4).

**Exploded view of idle gear**

There are two types of idle gear which may be fitted to this engine.

1st type

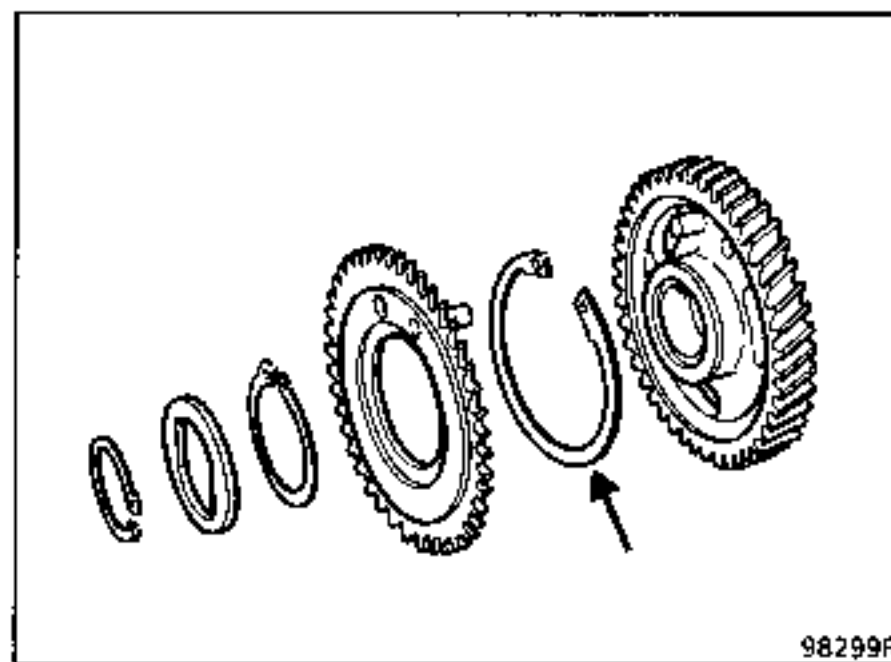
Single gear.

2nd type

Double gear with circlip which also has the function of adjusting play.

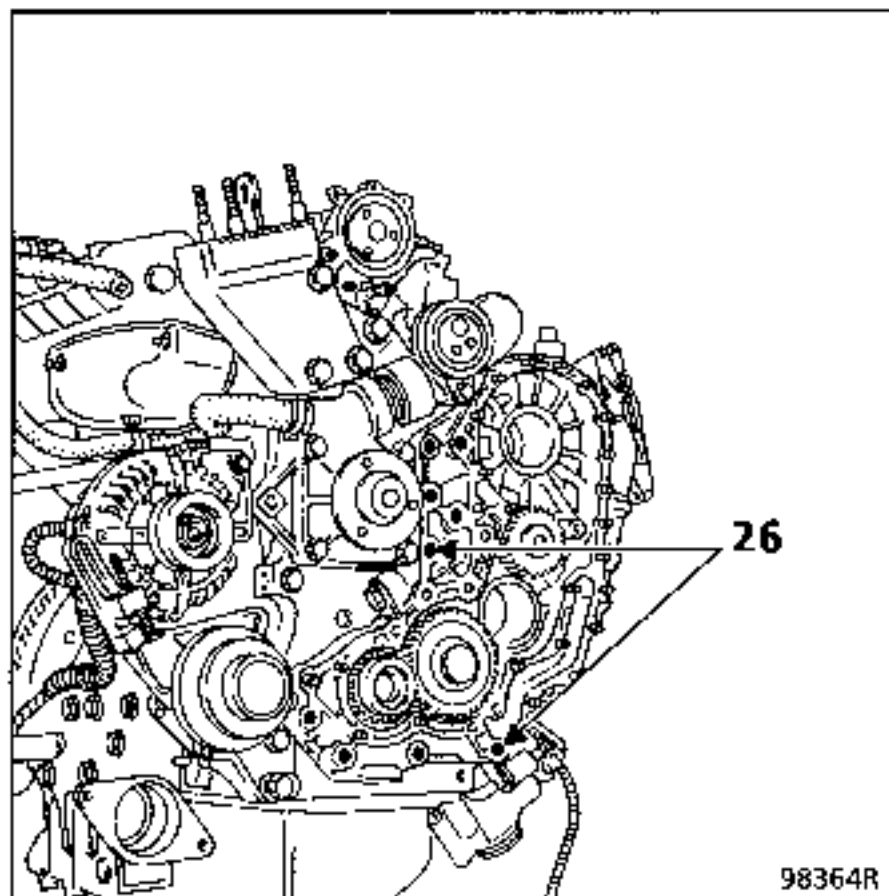
3rd type

The same as type 2 but it has two circlips.



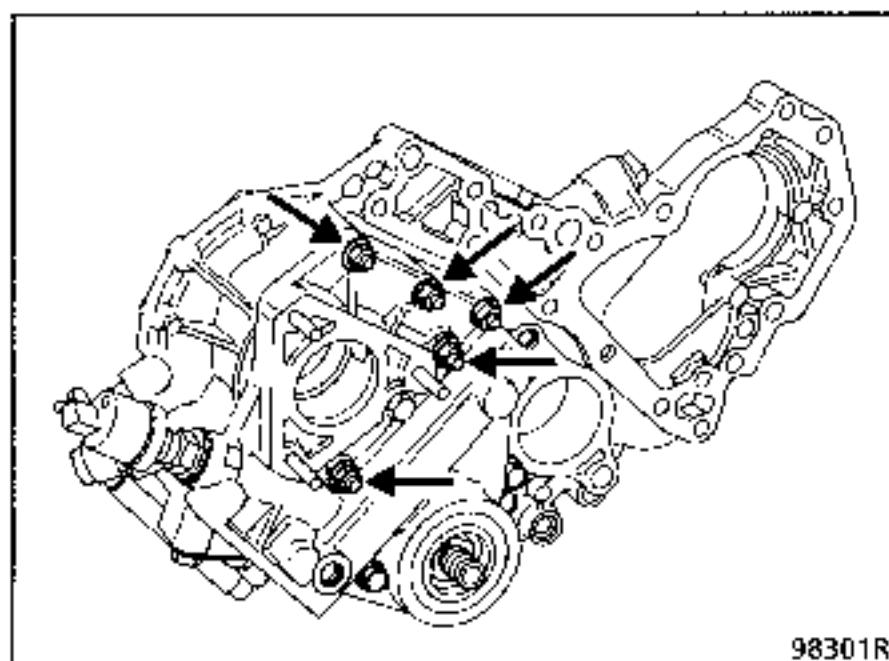
These gears cannot be repaired.

- Remove the oil filter.
- Remove the power steering and brake servo pumps.
- Remove the ancillary units group mounting bolts (26) on the cylinder block.



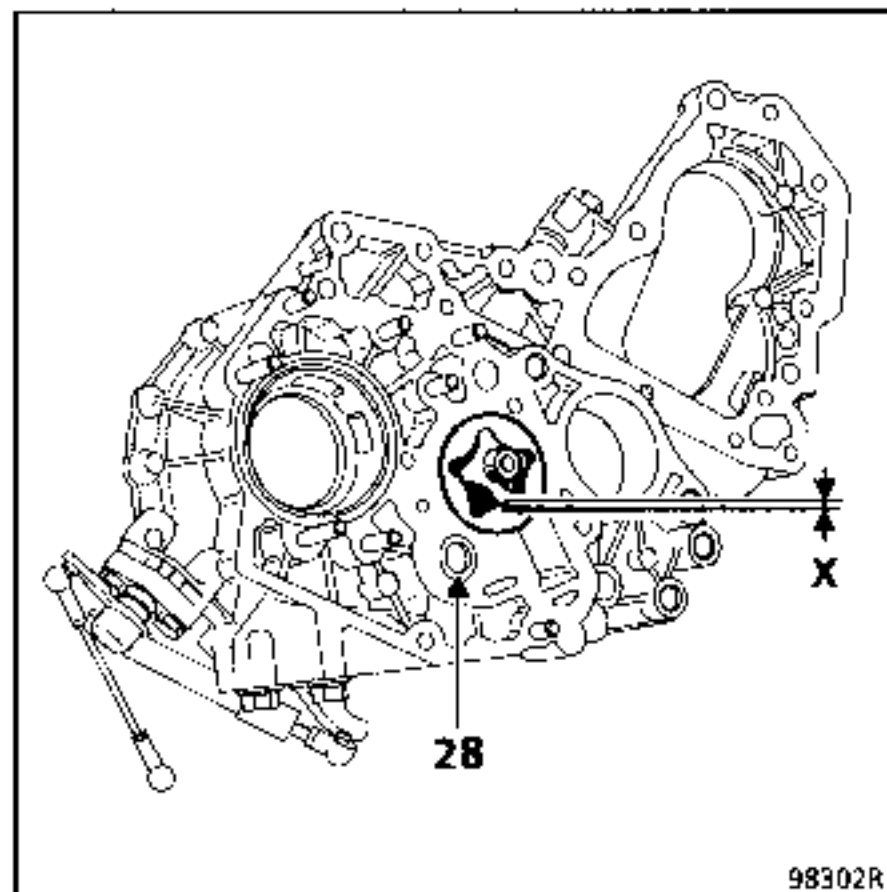
Pull out the cylinder block assembly.

- Remove the ancillary units group rear casing mounting bolts.



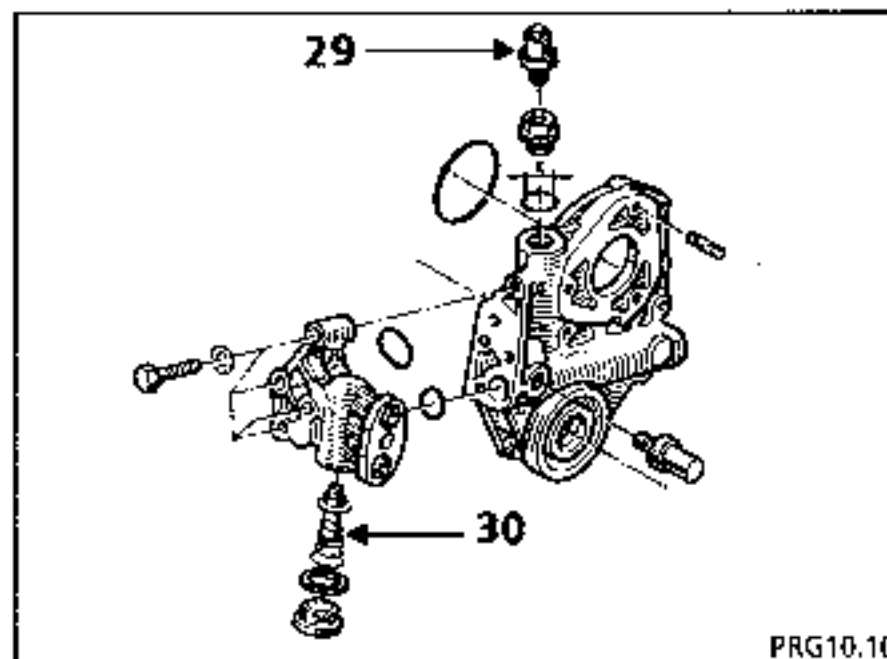
- Remove the discharge valve (28).

Check the oil pump play (X) and replace it if necessary.



Remove all the following accessories on the ancillary units group rear casing:

- Oil pressure contact (29),
- Oil cooling thermostat (30).



Before refitting the ancillary units group it is necessary to clean all the part of the ancillary units group thoroughly.

Take great care with this operation to prevent foreign matter entering the pressurised oil channels.

Refitting the set of TIMING GEARS

First case

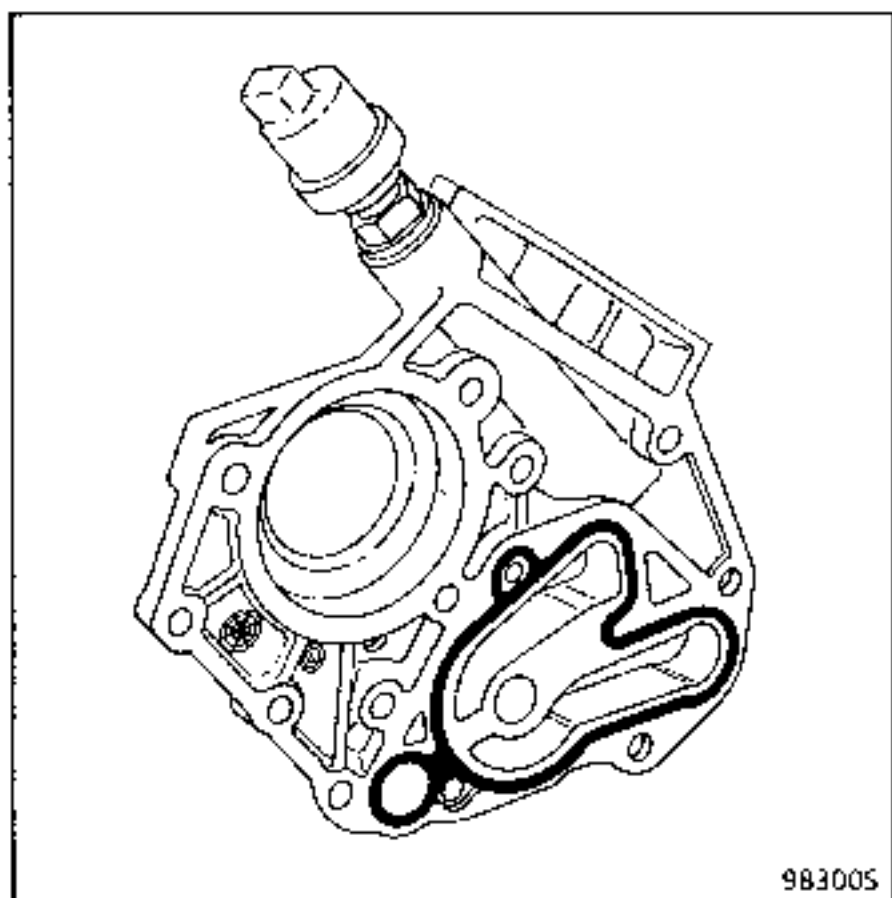
Refit the ancillary units group in reverse order to removal.

If this is adequate on its own

Oil the moving parts (example: oil pump, oil cooler thermostat, discharge valve).

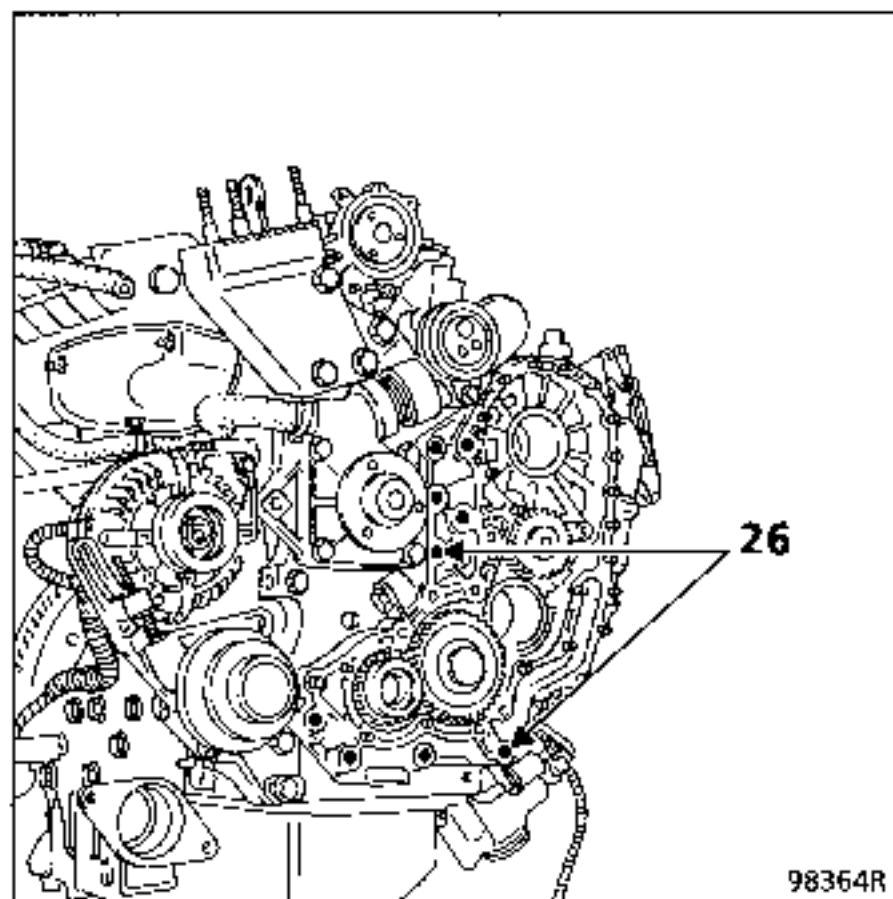
Always replace all the seals and gaskets.

Refit the ancillary units group rear casing with its gasket and torque tighten its bolts.



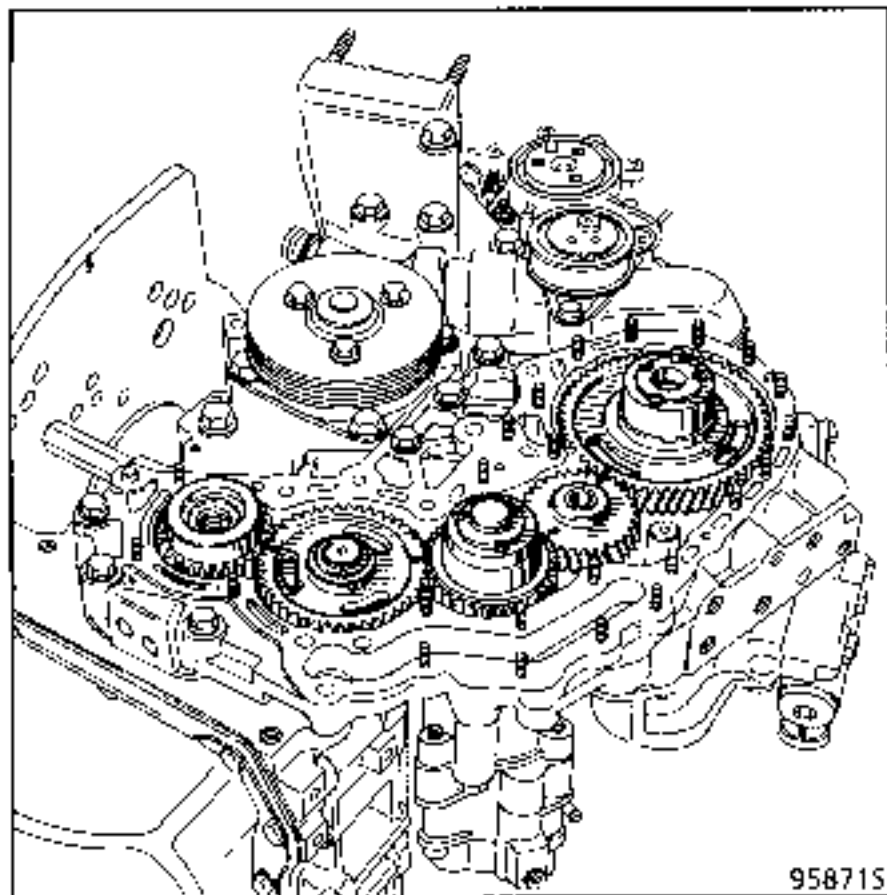
Fit the ancillary units group on the cylinder block.

Torque tighten the bolts (26).



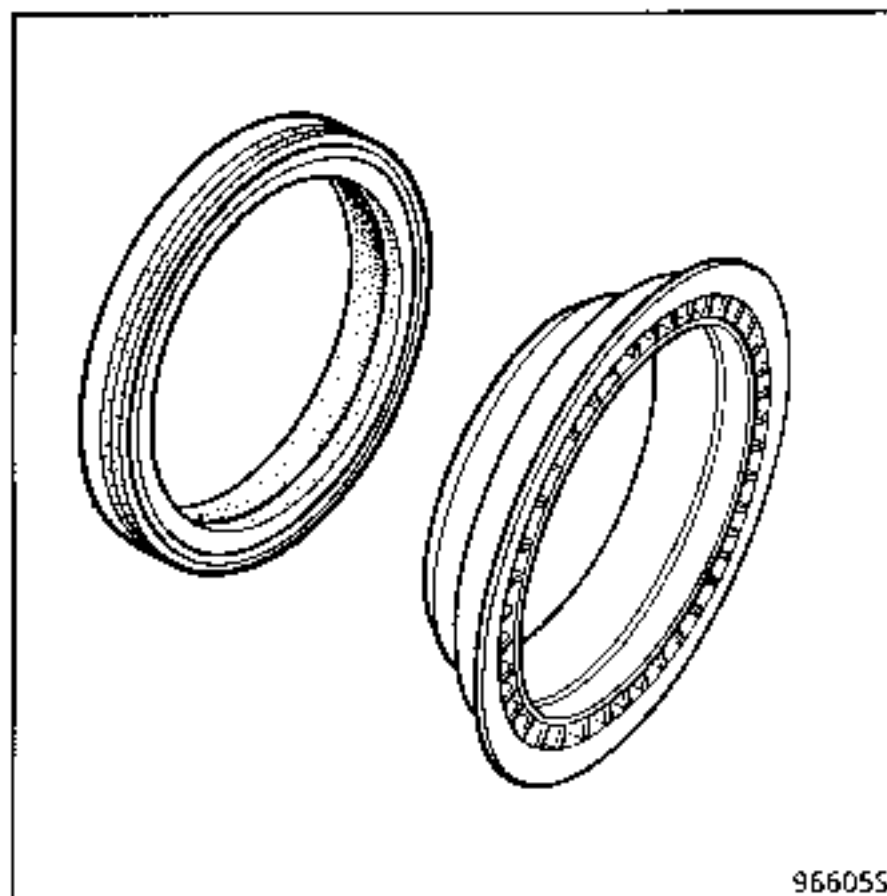
Set No. 1 cylinder to TDC (timing gear end).

Align all the marks on the gears so that they are opposite each other.



Refit the ancillary units group closing cover and torque tighten the bolts.

Fit the seals and gaskets with protectors.

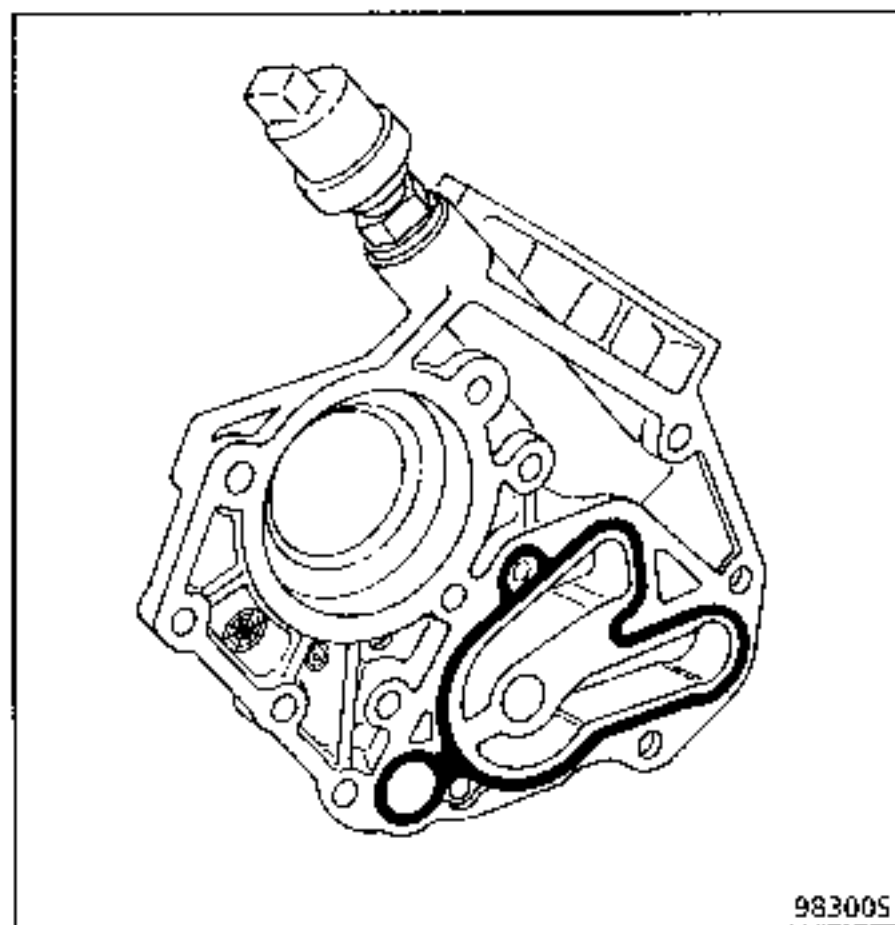


2nd case

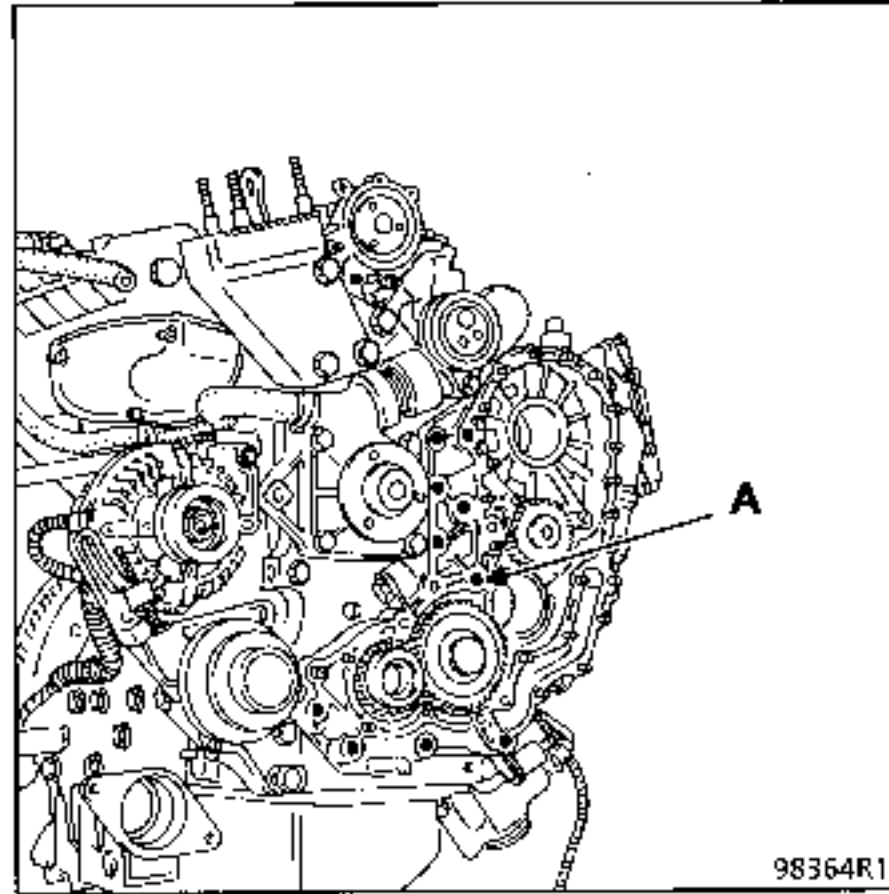
When a complete overhaul has been performed on the engine, only partial refitting of the ancillaries units group is required.

This requires the following work :

- Oil moving parts (example: oil pump, oil cooling thermostat, discharge valve).
- Always replace all the seals and gaskets.
- Refit the ancillary units group rear casing with its gasket and torque tighten the bolts.



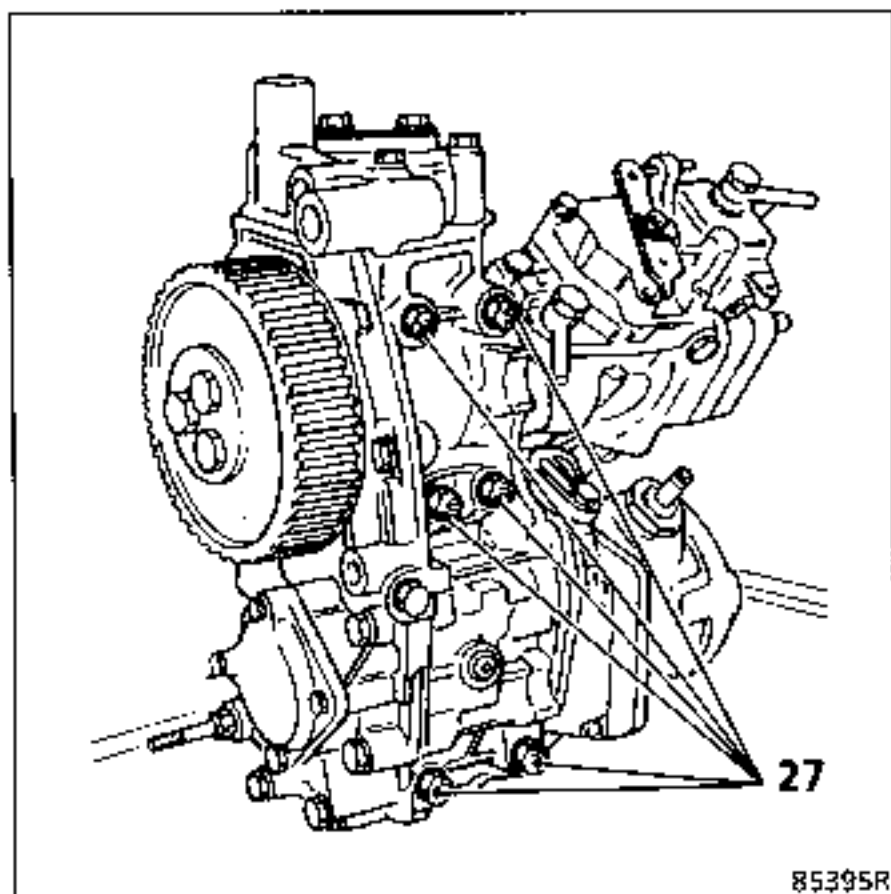
Do not replace the ancillary units group on the cylinder block, because bolt (A) behind the gear set idle gear will make an engine overhaul necessary.



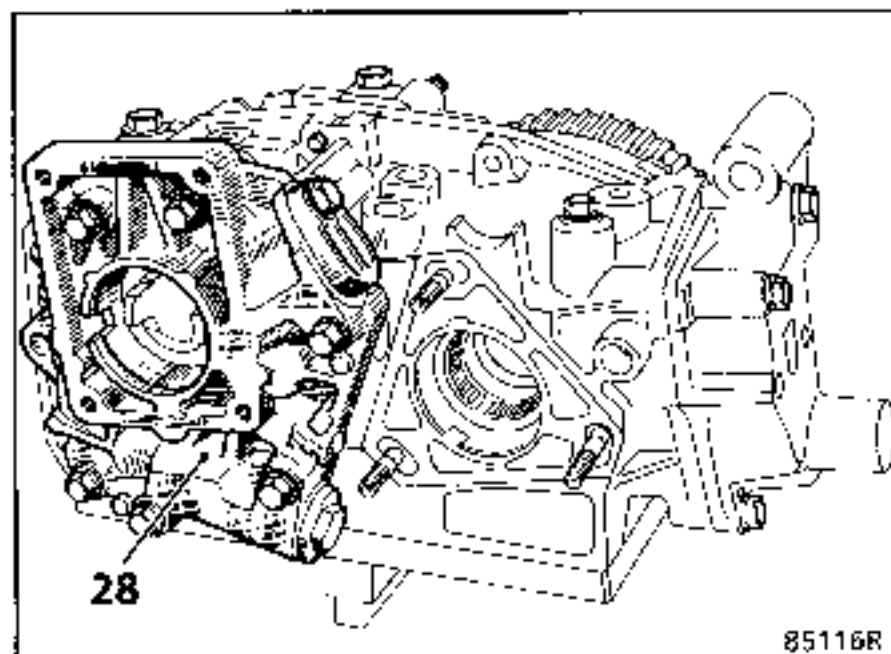
REMOVING THE ANCILLARY UNITS GROUP

Remove:

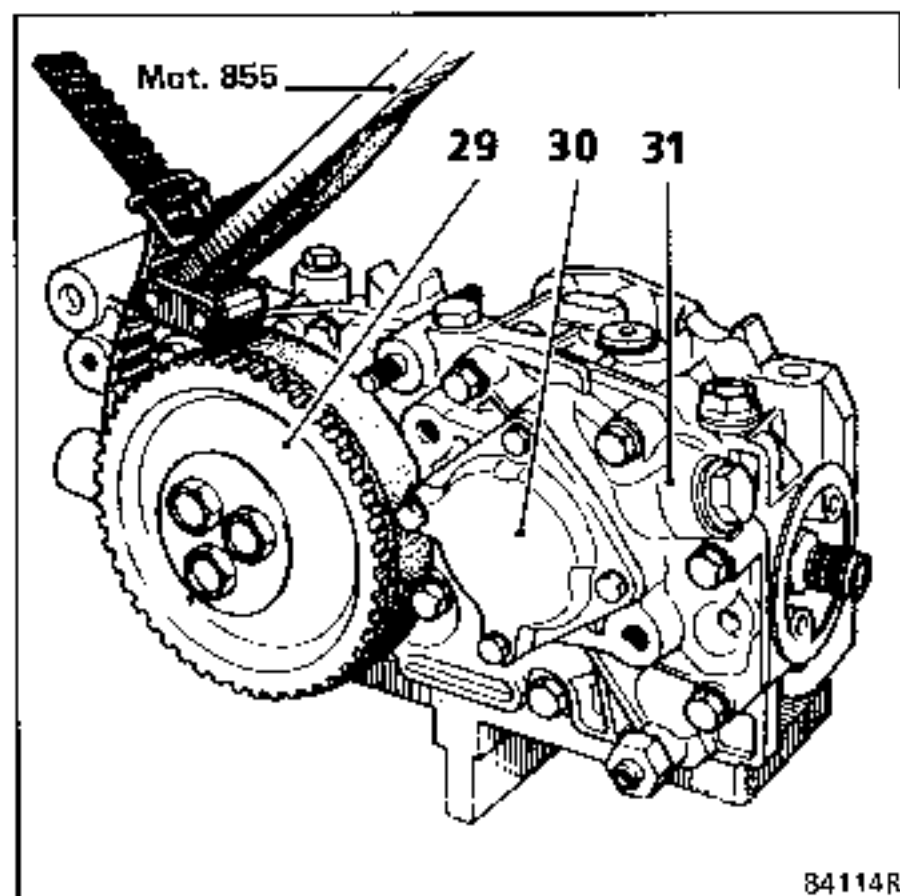
- the bolts (27) mounting the ancillary units group to the top of the cylinder block.



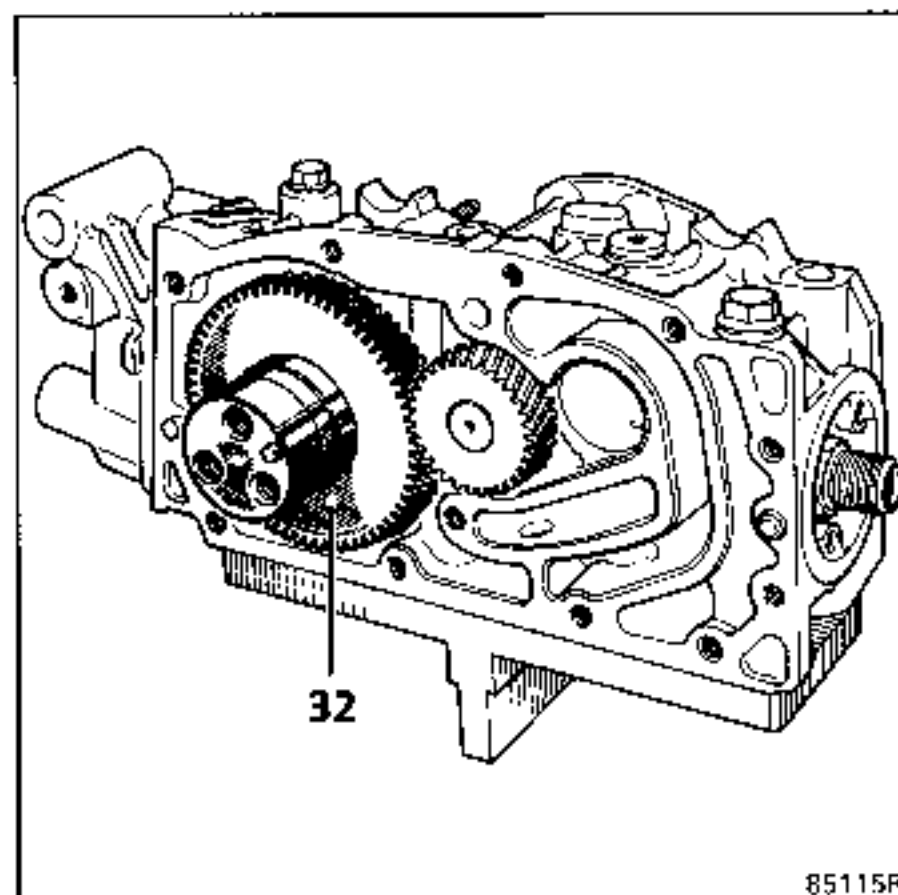
- the oil filter,
- the injection pump,
- the vacuum pump,
- the oil pump rear cover (28) which acts as the vacuum pump support.



- the oil pump drive gear,
- the timing gear (29) using tool Mot. 855,



- the power take-off cover (30),
- the cover (31) at the timing gear end,
- the injection pump drive gear (32).



Check :

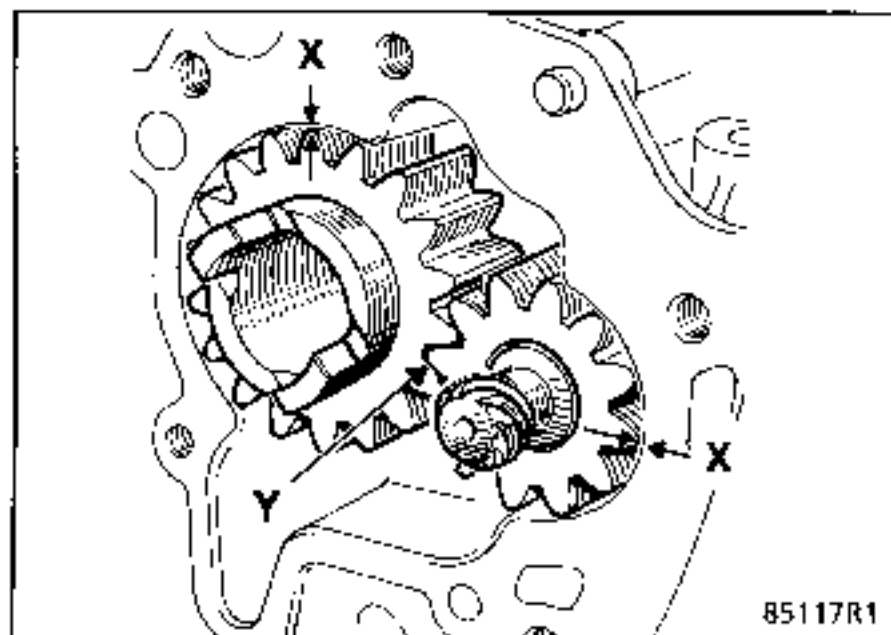
- Oil pump clearances (X),
- Oil pump tooth backlash (Y),
- Clearances at (X) :

min. : 0.06 mm

max. : 0.17 mm

- Tooth backlash (Y) :

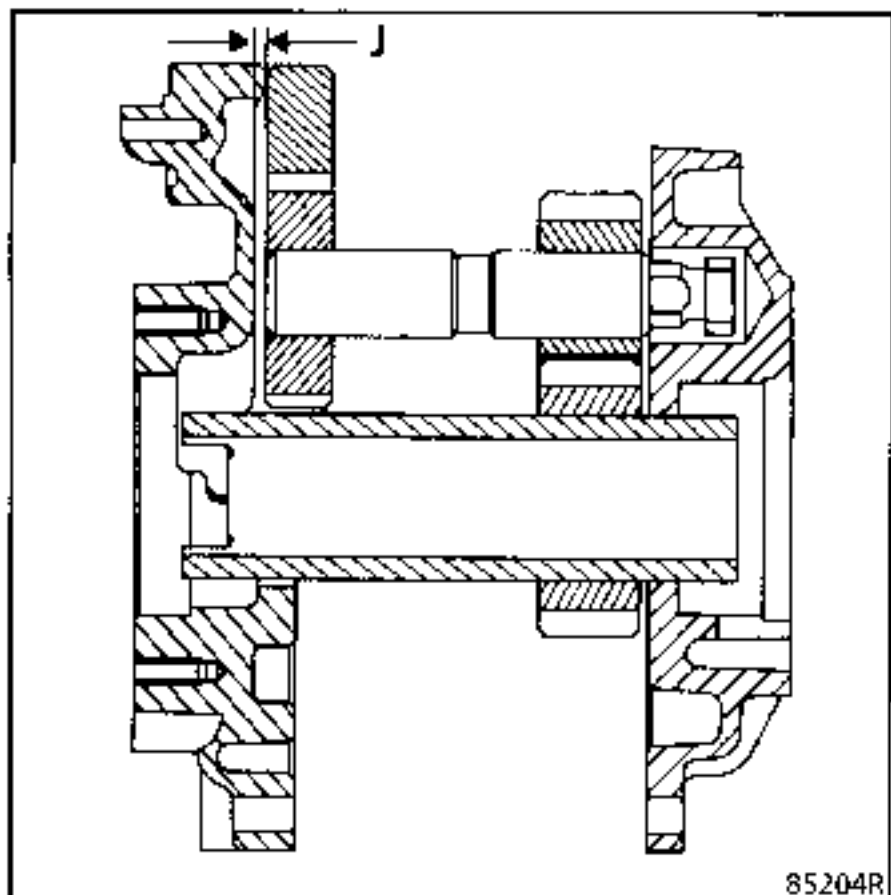
max. : 0.12 mm



- Oil pump gears end play (J) :

min. : 0.06 mm

max. : 1.13 mm



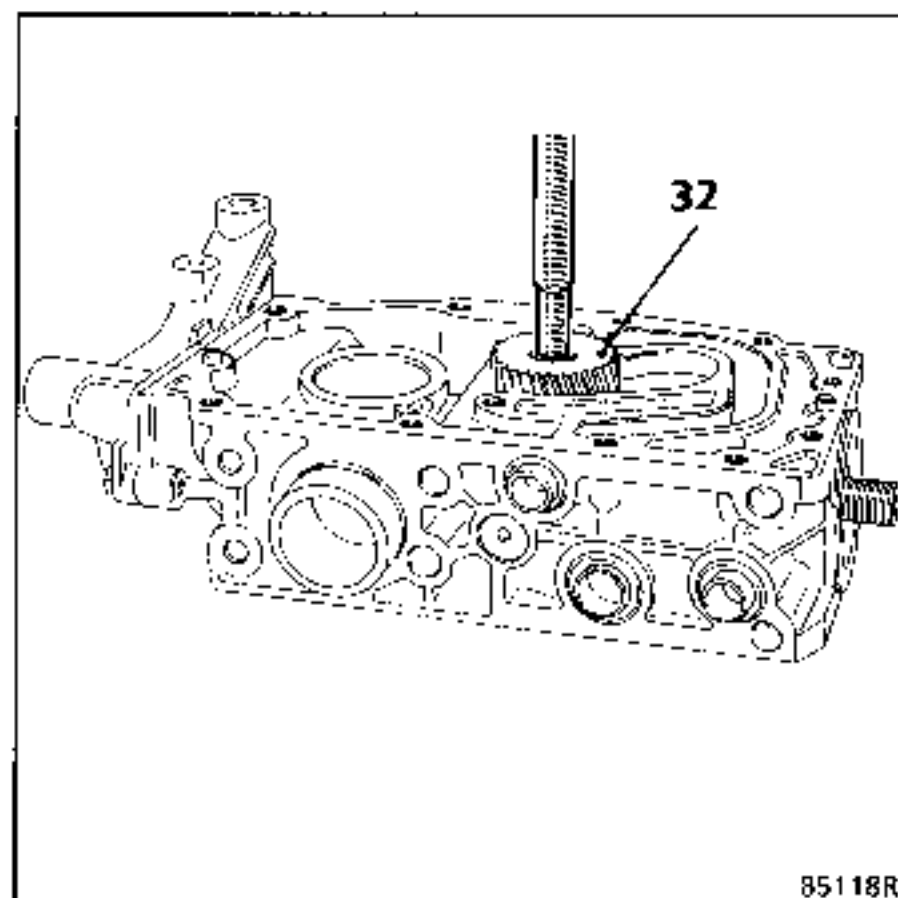
Replace defective parts.

Before refitting the ancillary units group it is necessary to clean all the part of the ancillary units group thoroughly.

Take great care with this operation to prevent foreign matter entering the pressurised oil channels.

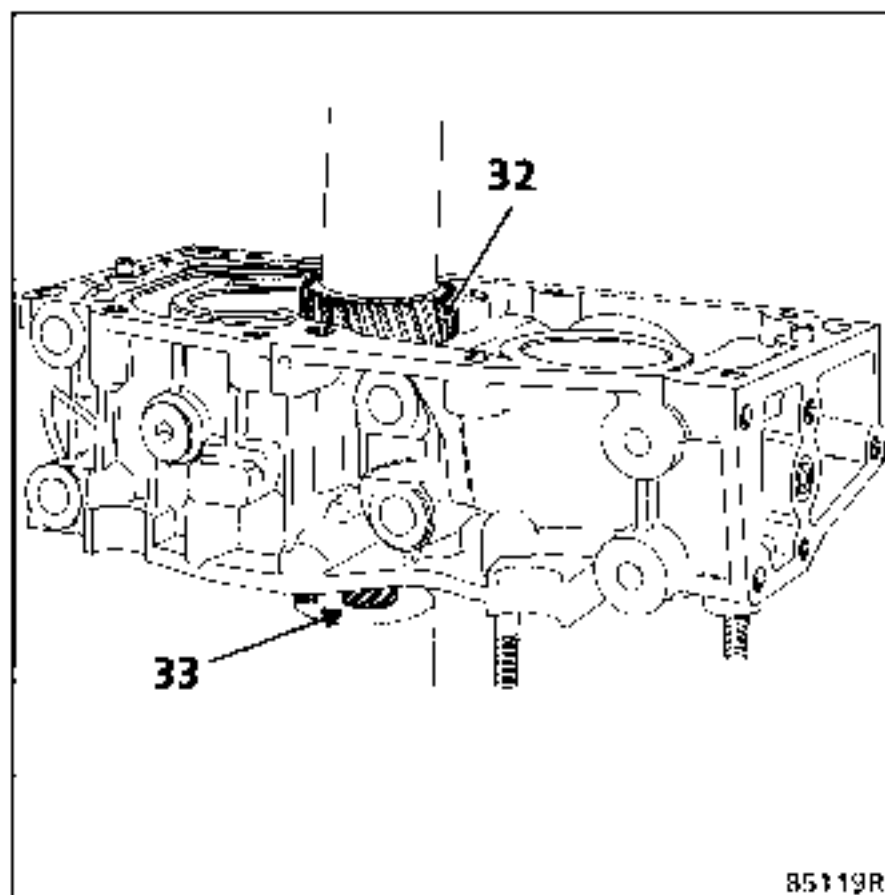
Replacing the oil pump gear.

Remove the oil pump drive gear (32) using a press.



Insert the new oil pump drive gear in the ancillary units casing.

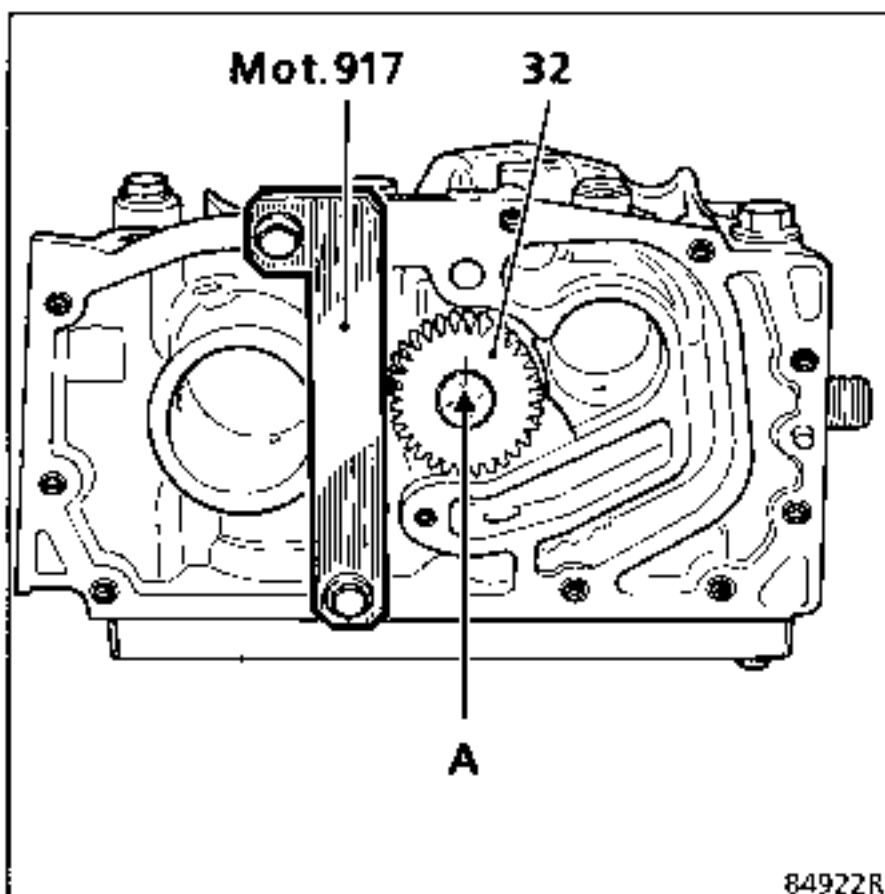
Heat up the gear (32) to a temperature of between 200 and 250 °C, slip it on to the oil pump shaft (33) and press it in position flush with the end of the shaft.



CHECKING DRIVE GEAR INTERFERENCE FIT ON THE SHAFT

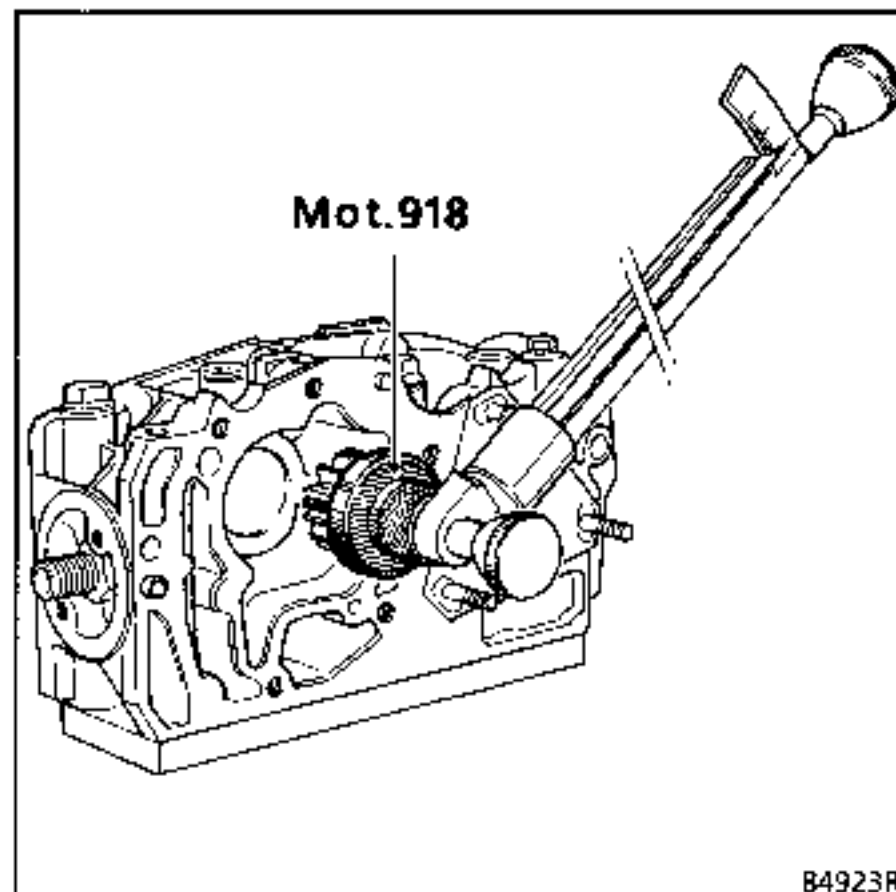
Prevent drive gear (32) from turning using locking tool Mot. 917.

Scribe a line (A) on the shaft and gear.



Using tool Mot. 918 attached to a torque wrench, apply a torque of 6.5 daN.m.

Check that the scribed line is still true.

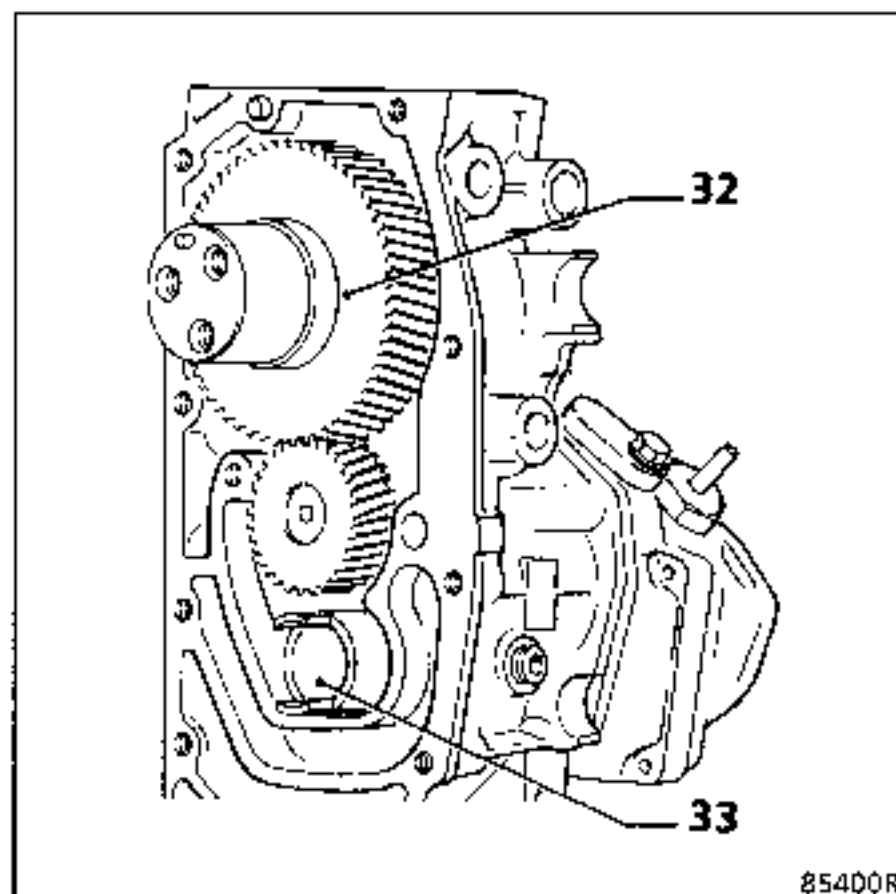


Fit oil pump gear (33).

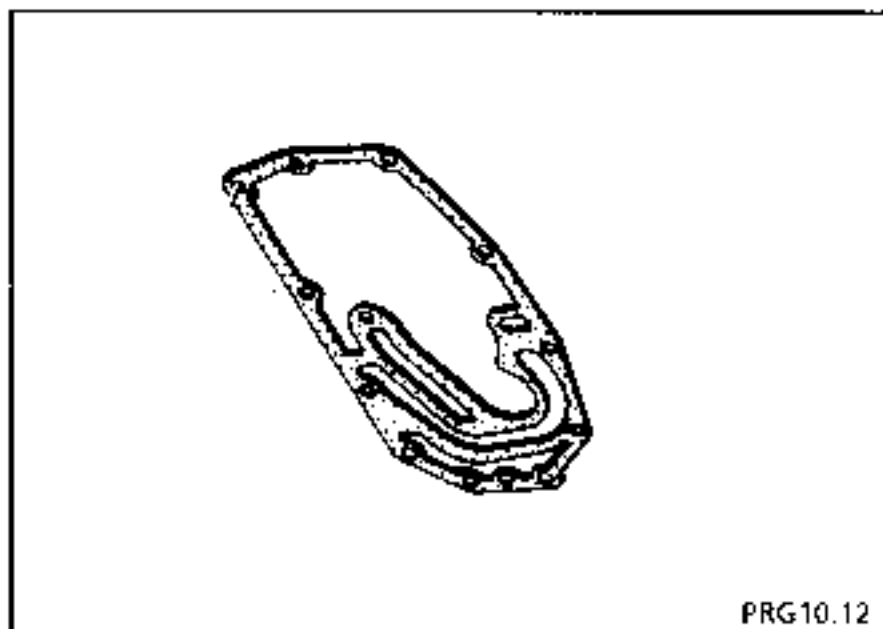
The oil pump casing face is sealed with Loctite 518.

Fit vacuum pump by aligning the driving dogs.

Fit gear (32) which drives the injection pump.

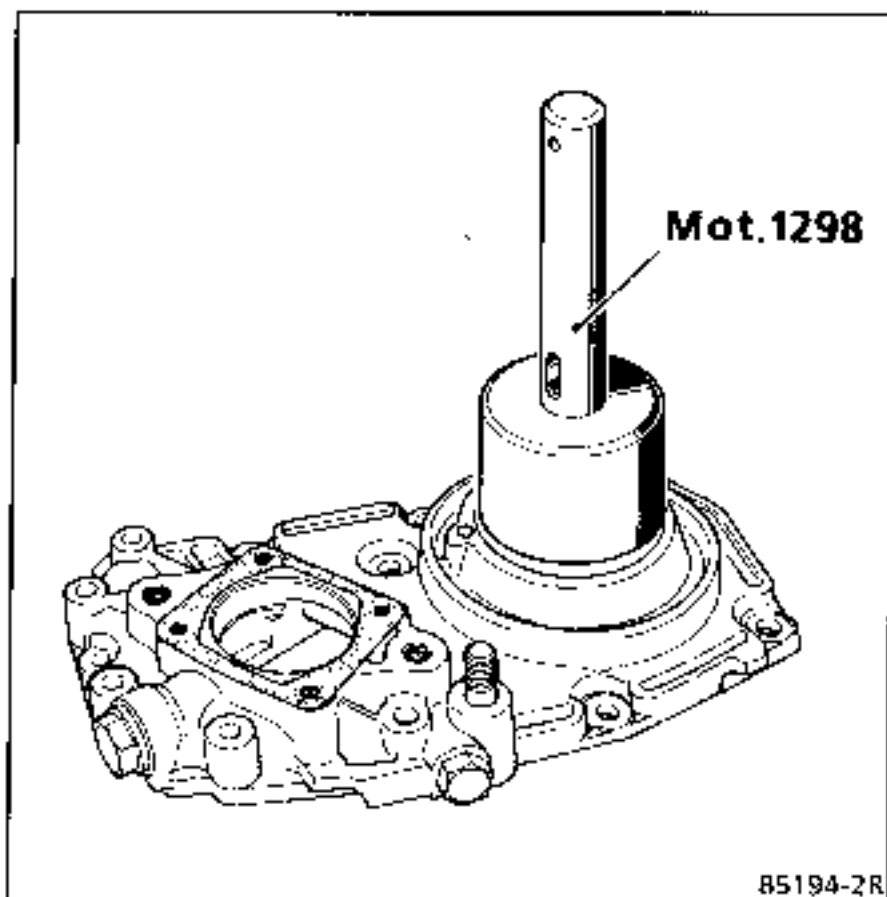


Fit a new seal.



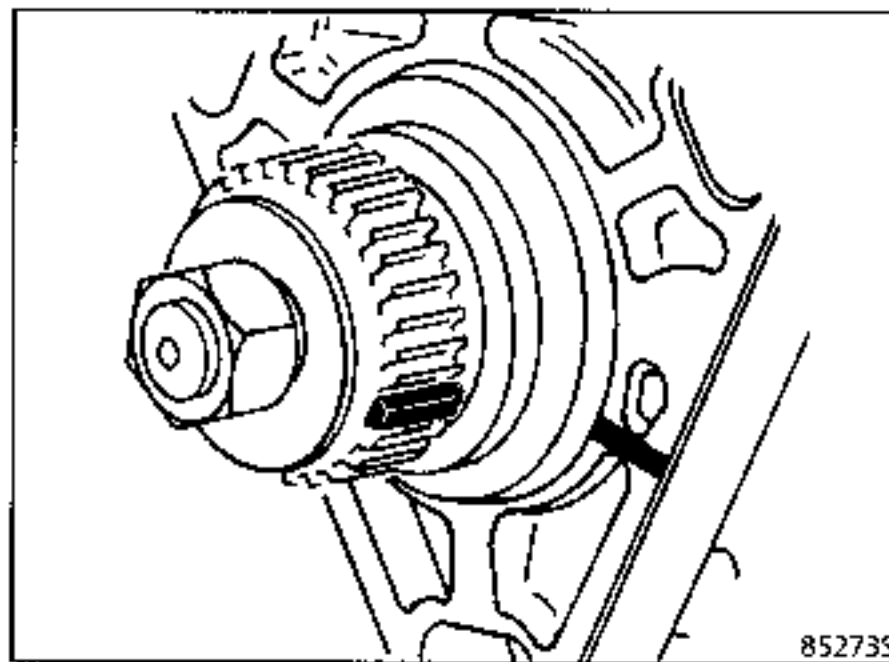
Fit a new seal on the front cover using tool **Mot. 1298**.

Fit the front cover on the ancillary units group leaving tool **Mot. 1298** on the front cover. This tool is used for centring.



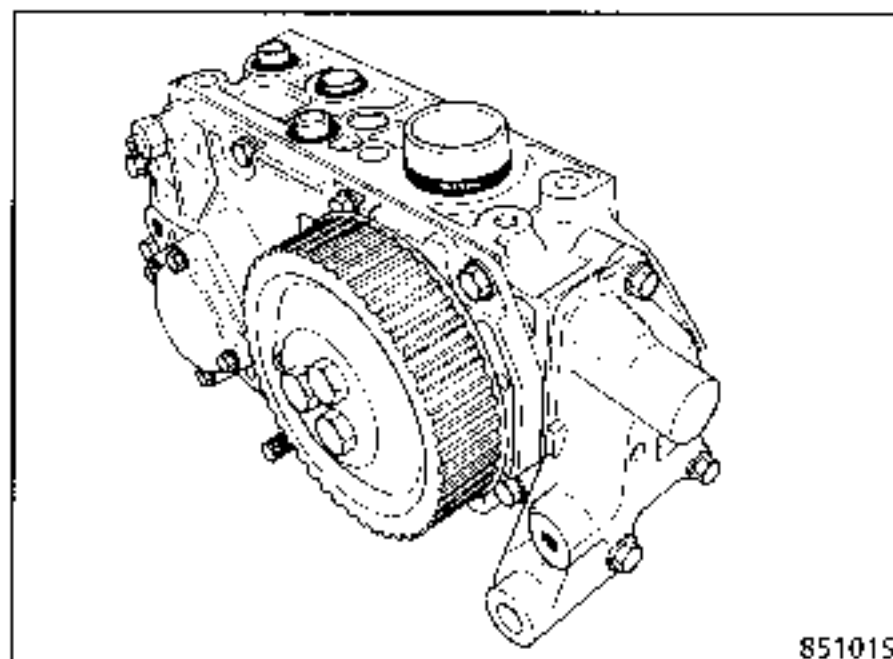
- Fit the timing gear.

- Fit the injection pump, making sure that the fool-proofing double tooth is in line with the driving gear (32),



- Fit a new oil filter.

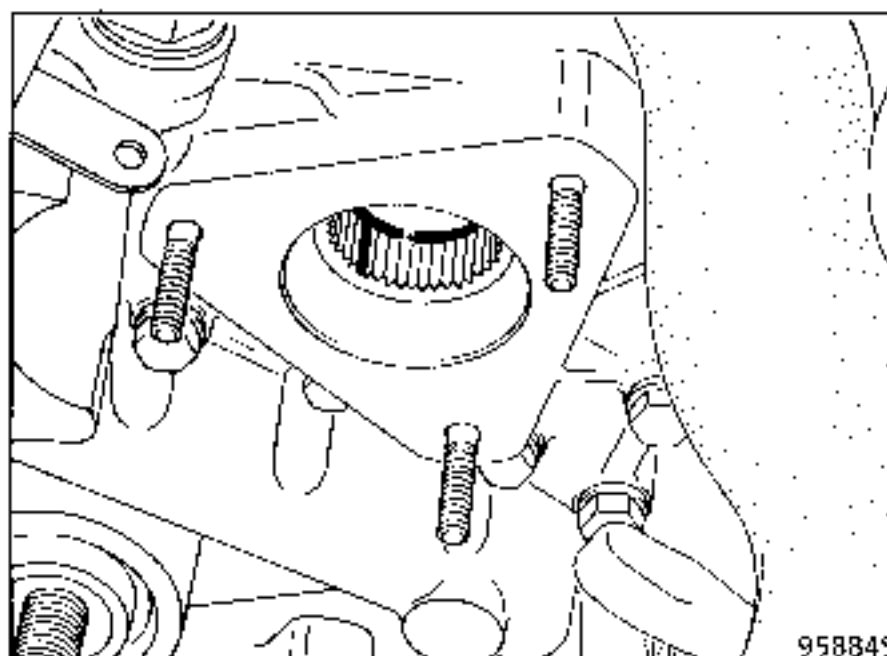
Fit new O-rings over the oilway locating dowels.



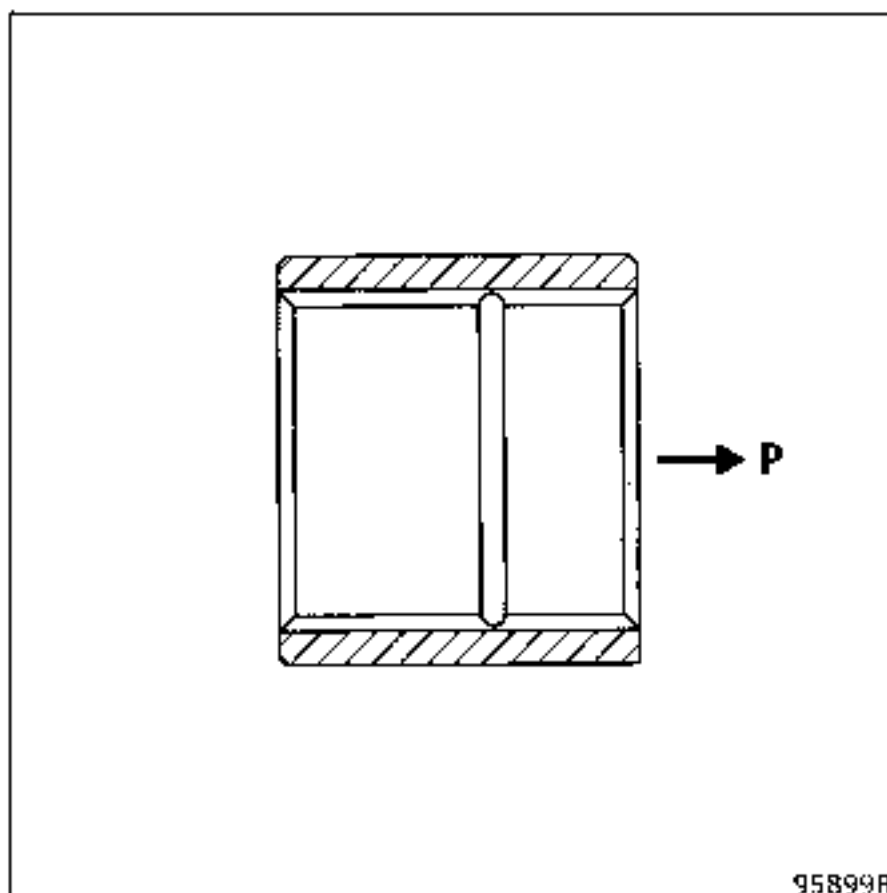
POSITIONING THE PUMP DRIVE HUB

The pump drive hub is not fixed in position and slides on the splines.

The hub may move from its position when the pump is removed.

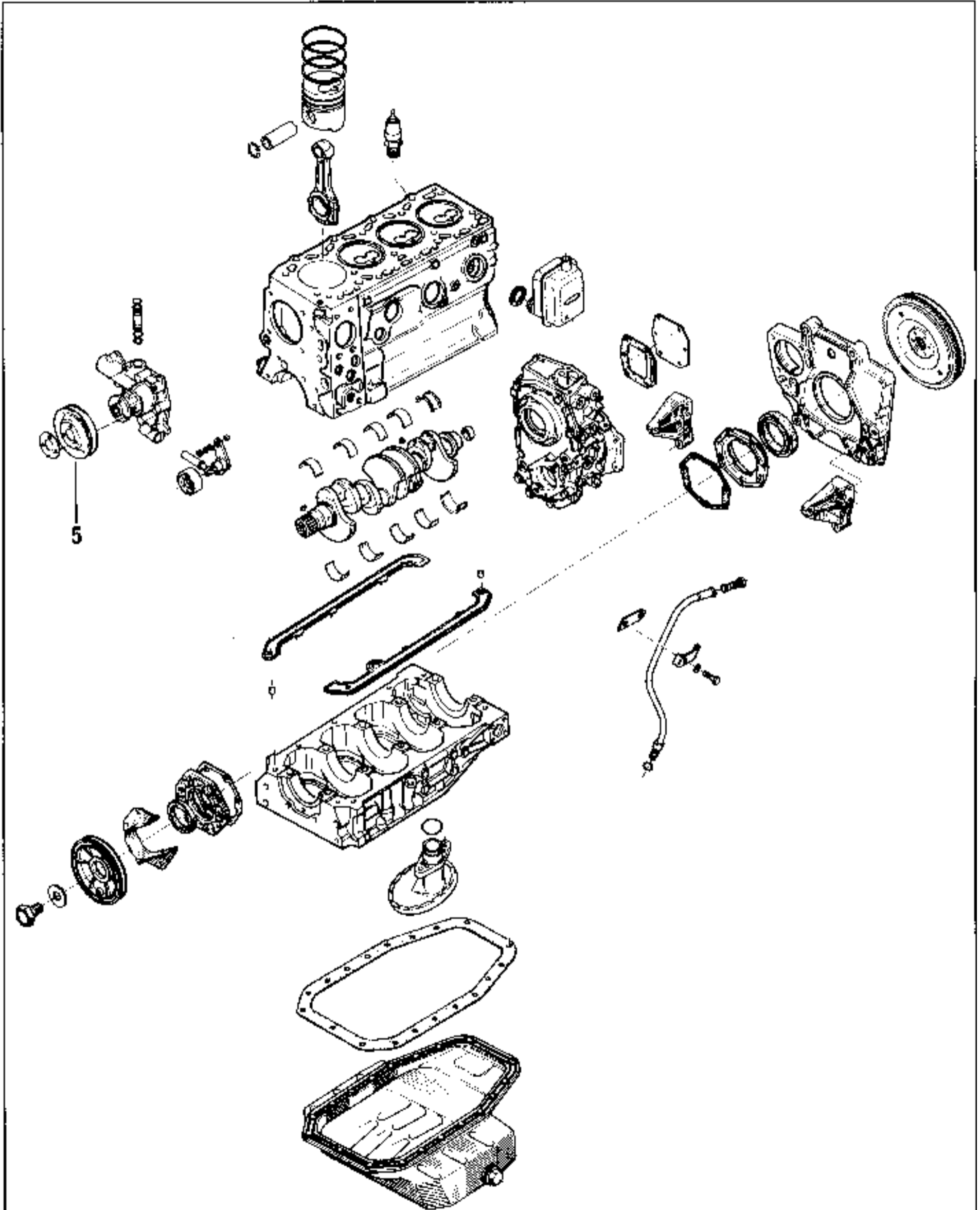


The two ends of the hub are fitted with the same type of splines. When refitting, the correct position of this hub must be checked.



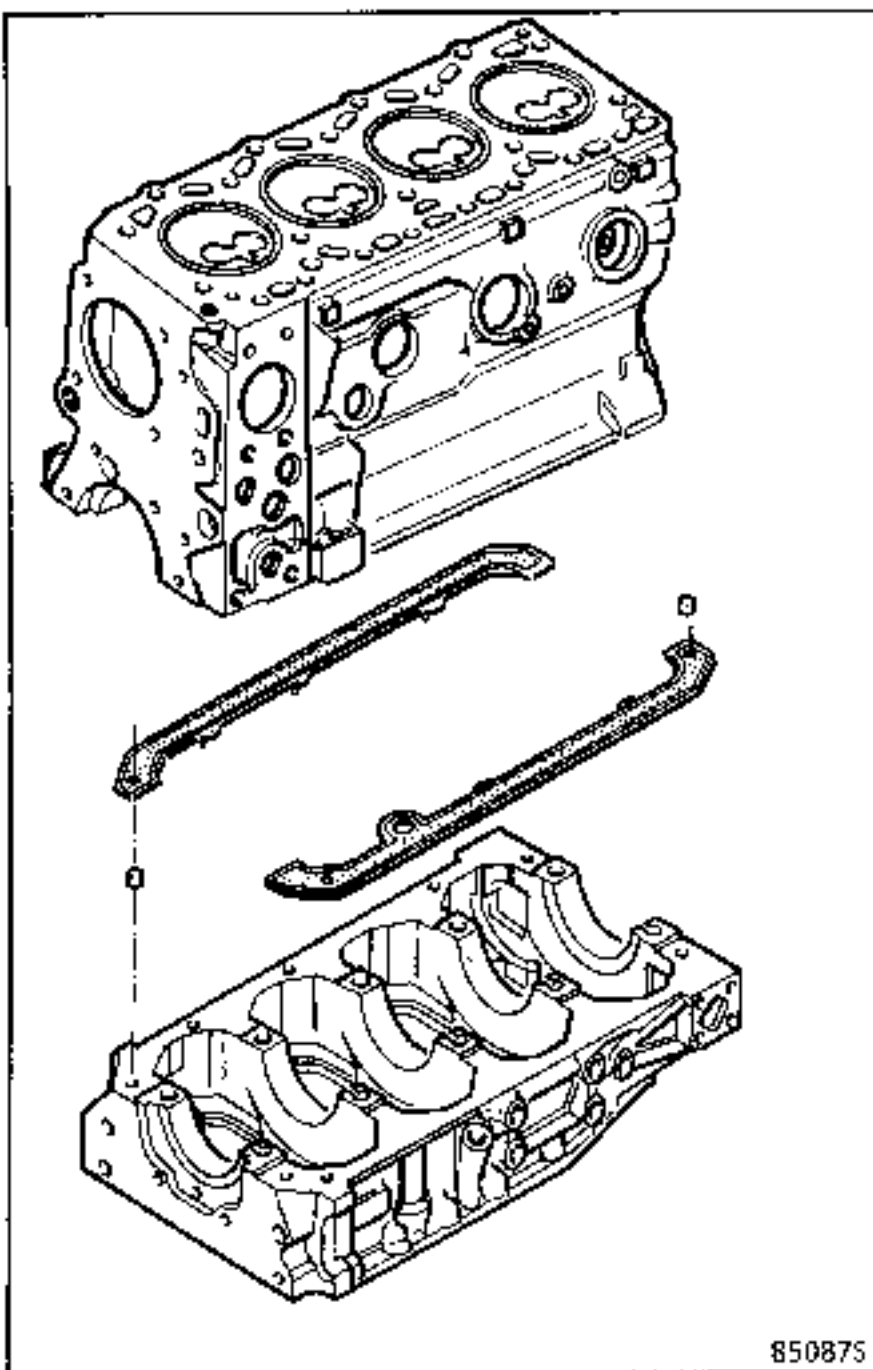
The shortest part must be fitted at the injection end (P) in relation to the stop ring inside the hub.

EXPLODED VIEW OF CYLINDER BLOCK



DISMANTLING THE CYLINDER BLOCK

The cylinder block is cast and consists of **two matched sections which cannot be used separately**. The seal between the two sections is formed either by a gasket with pips moulded into it or by a bead of **LOCTITE 518** (depending on version).



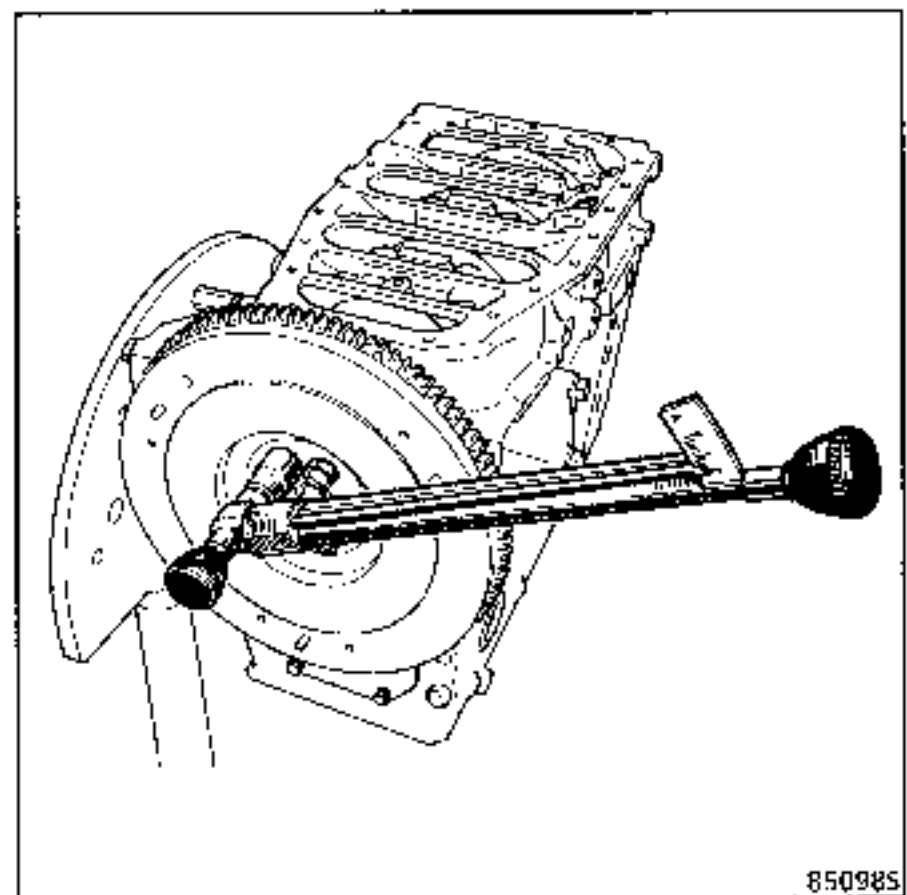
The service cylinder block is supplied with pistons, piston rings and gudgeon pins already fitted

Mark the position of the pistons in the cylinder block.

Remove :

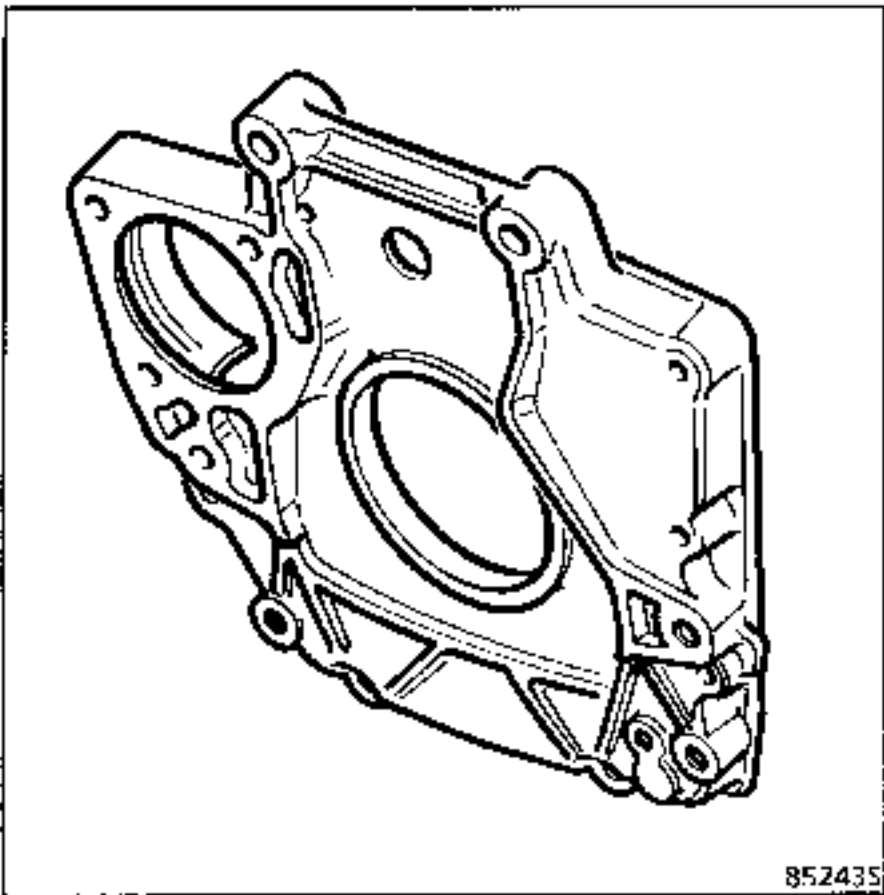
- the crankshaft output pulley,
- the flywheel or the converter drive plate.

Use the flywheel locking tool **Mot. 919**.



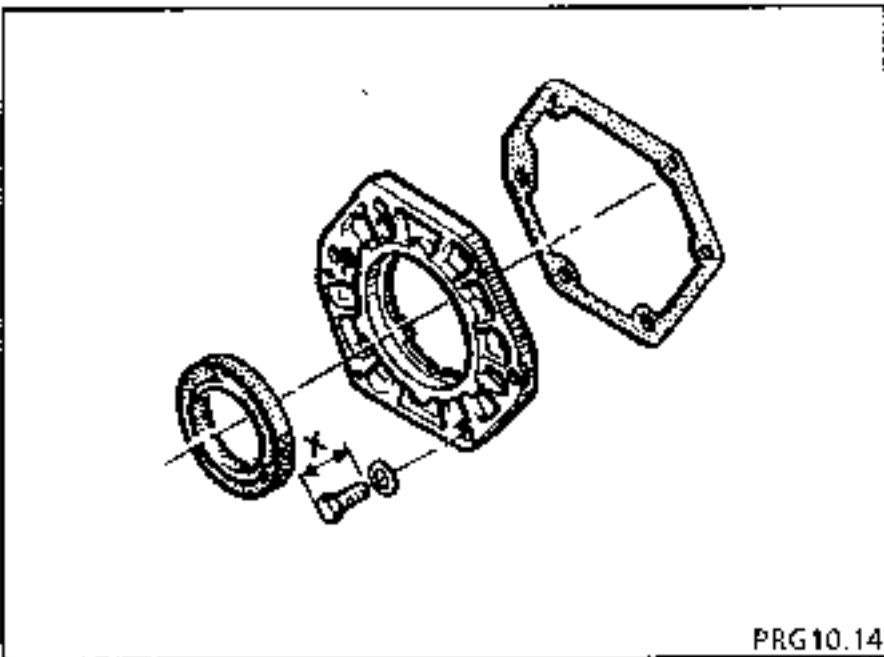
Remove :

- the engine mounting plate on the clutch housing (depending on version),



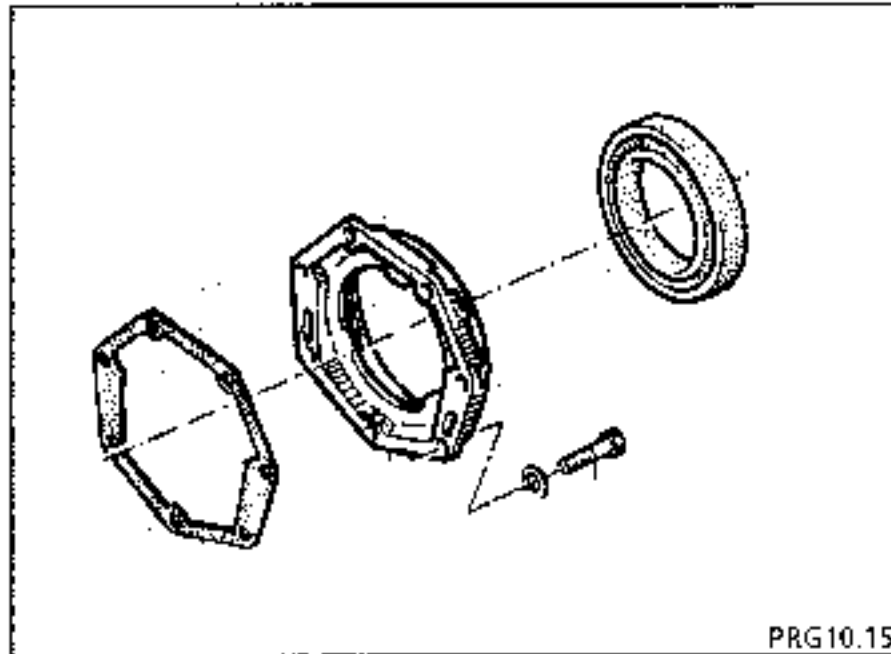
852435

- the crankshaft seal support plate together with the seal (timing gear end),



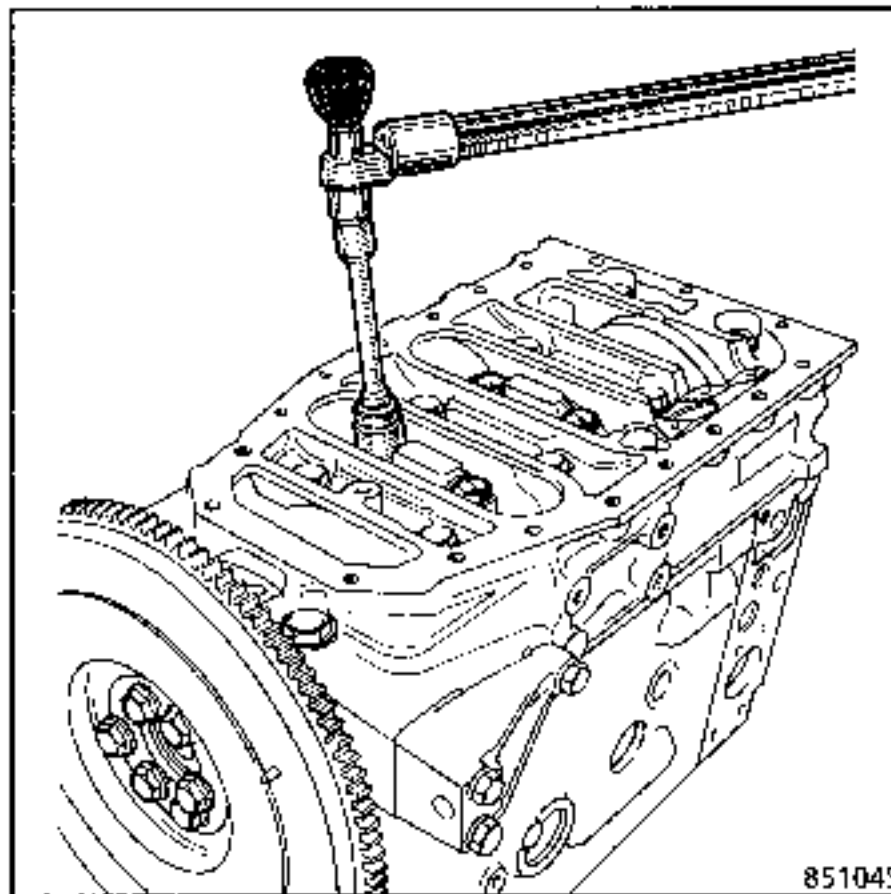
PRG10.14

- the crankshaft seal support plate together with the seal (flywheel end).



PRG10.15

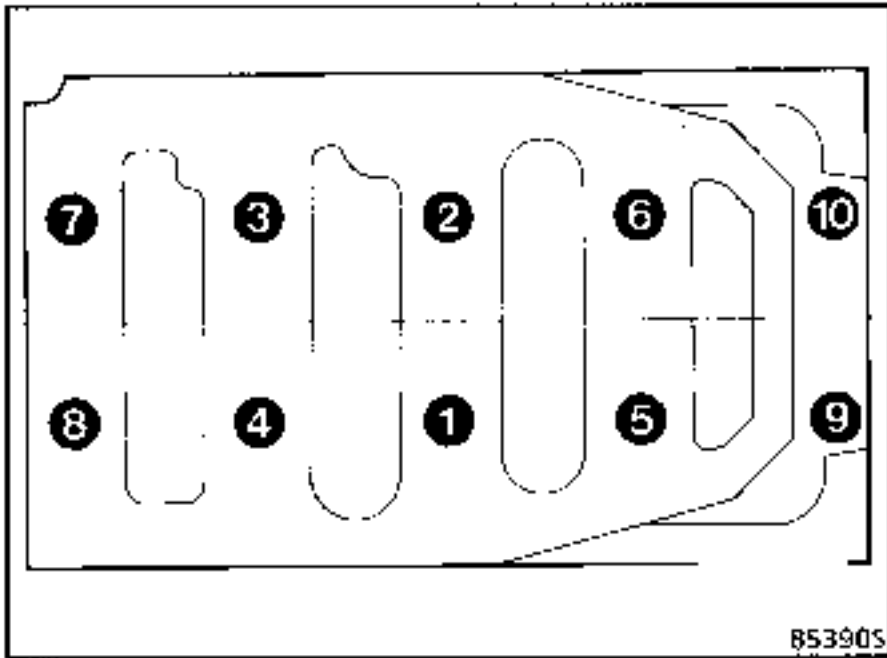
Slacken off the connecting rod bearing shells.



851045

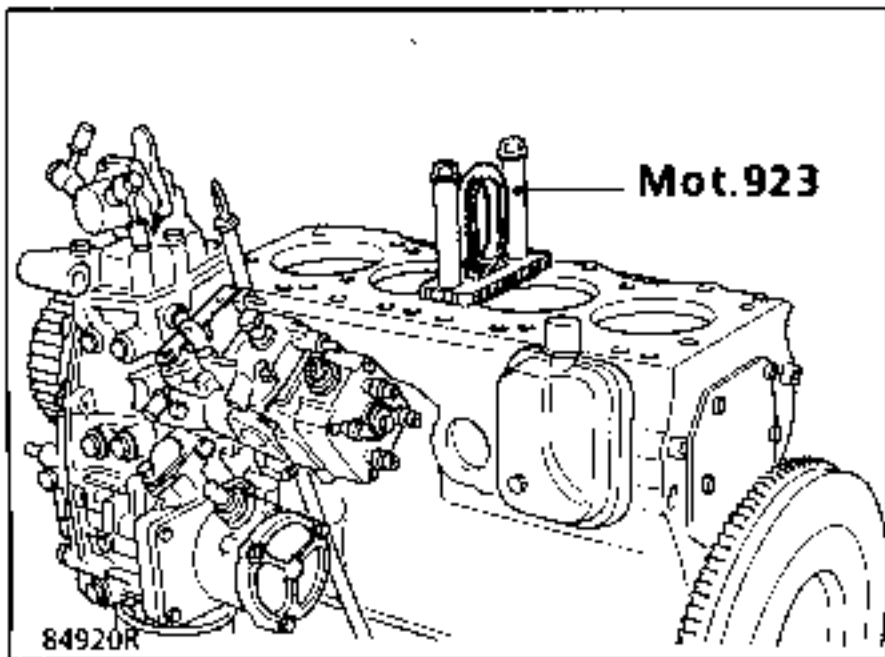
Remove:

- the base mounting bolts,
- the base,



- the connecting rod bearing shells, marking them if necessary (**No. 1 timing gear end**).
- Pull out the piston - connecting rod assembly
- Remove the crankshaft bearings.
- Remove the crankshaft.

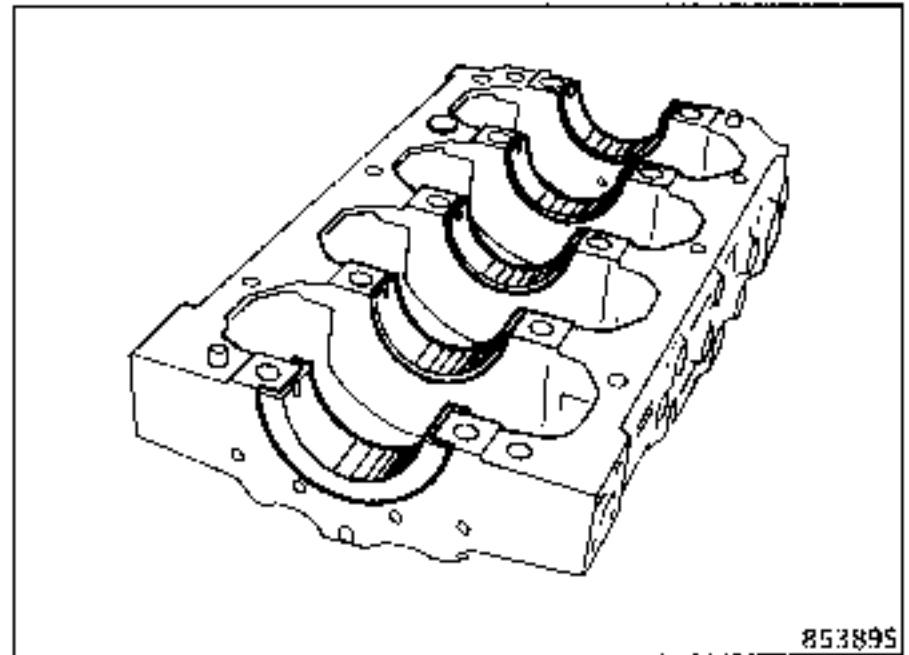
To clean the cylinder block, remove it from support **Mot. 792-03** using tool **Mot. 923**.



REFITTING

Fit the cylinder block to support **Mot. 792-03**.

Insert the bearing shells in the base and the cylinder block.

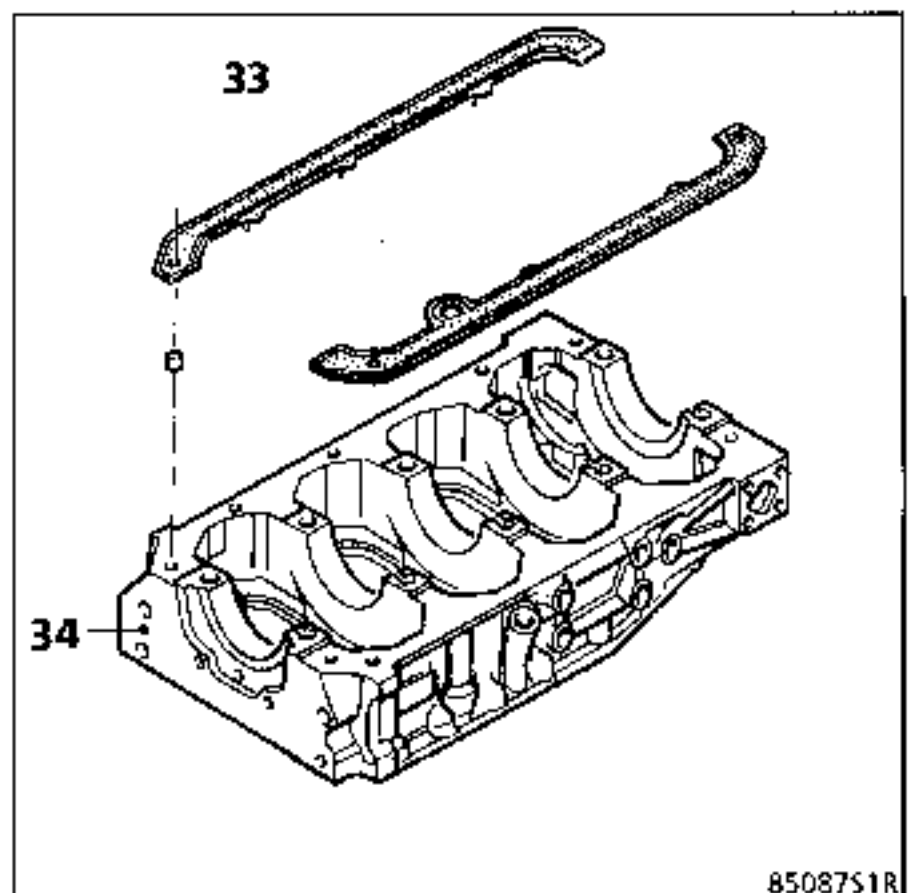


The bearing shells on the cylinder block side have oilways.

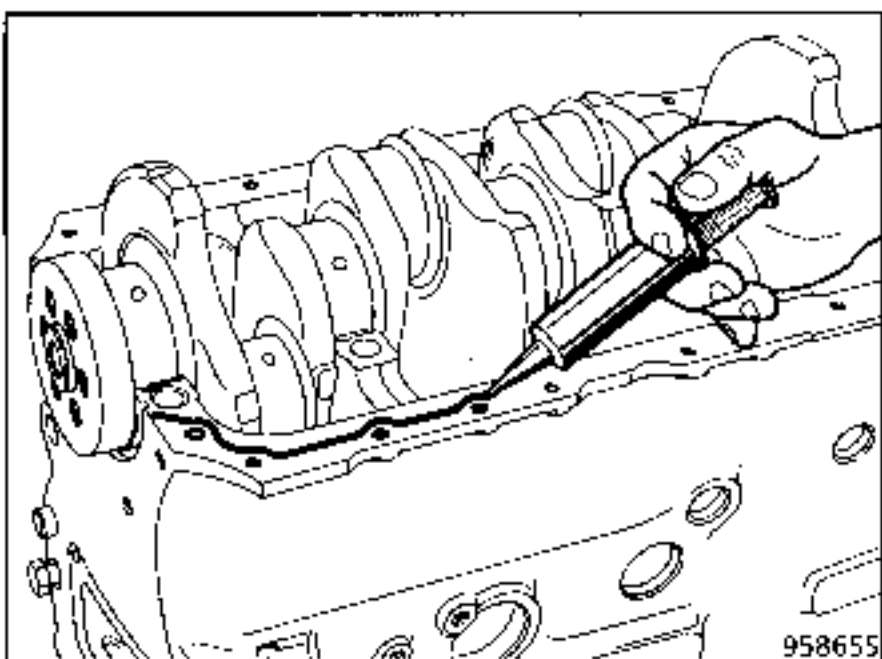
The rear bearing shells on the flywheel end act as end play shims.

Lubricate the main bearing journals and lower the crankshaft into position.

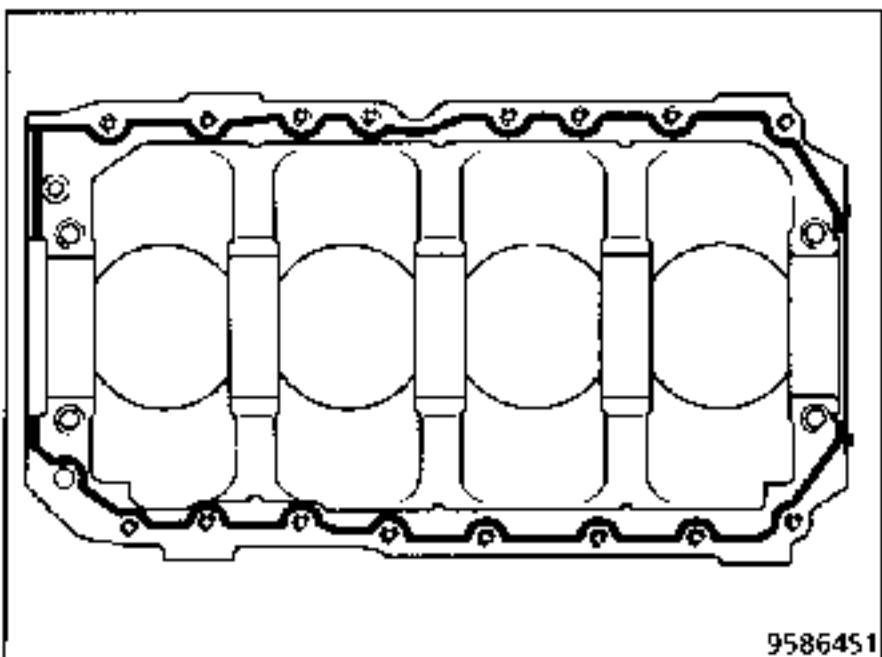
Place the gaskets (33) on base (34) of the cylinder block. These gaskets have pips moulded into them to hold them in position (depending on version).



Alternatively, apply a bead of **LOCTITE 518** to the gasket surface.



Apply the bead to the cylinder block as shown below.

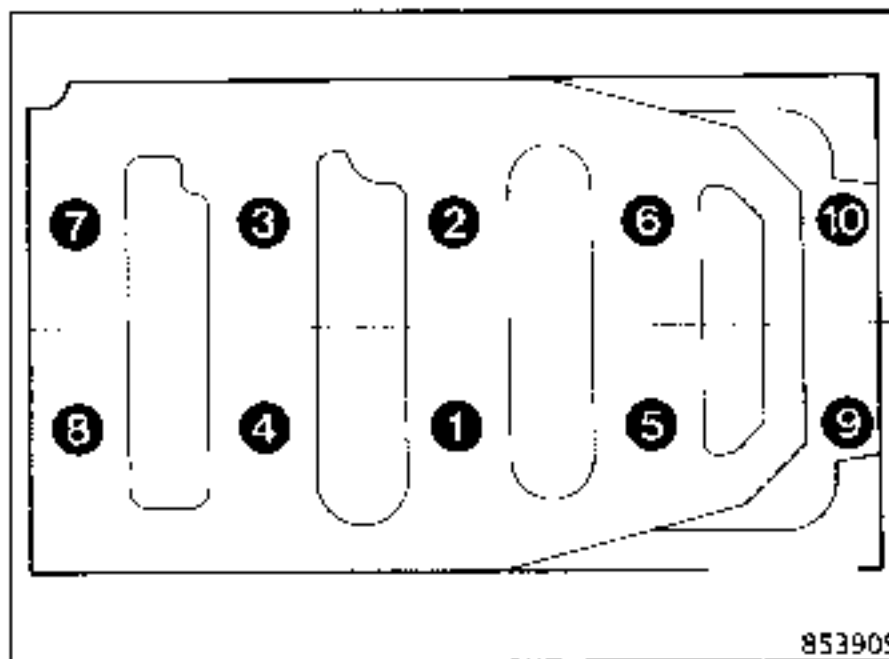


Lubricate bearing shells.

Fit the base to the cylinder block.

Torque tighten bolts in specified sequence:

- pre-tightening : 8 daN.m
- tightening : 16 daN.m

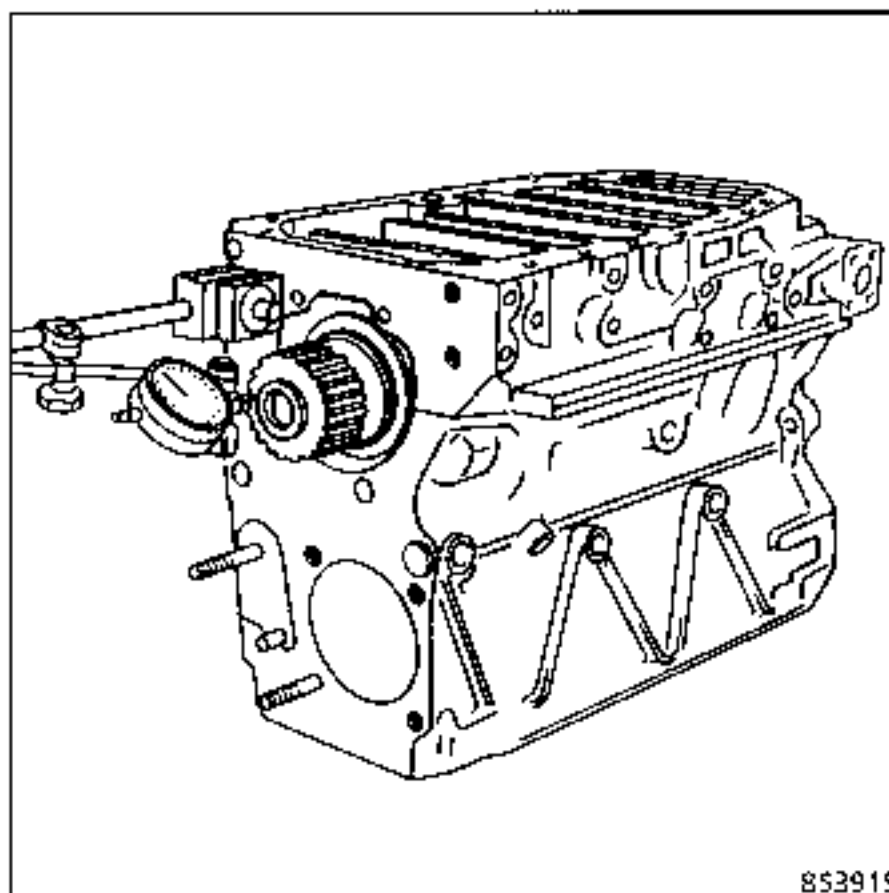


Tighten the outside bolts on the base (8144 engine) :

1.4 daN.m

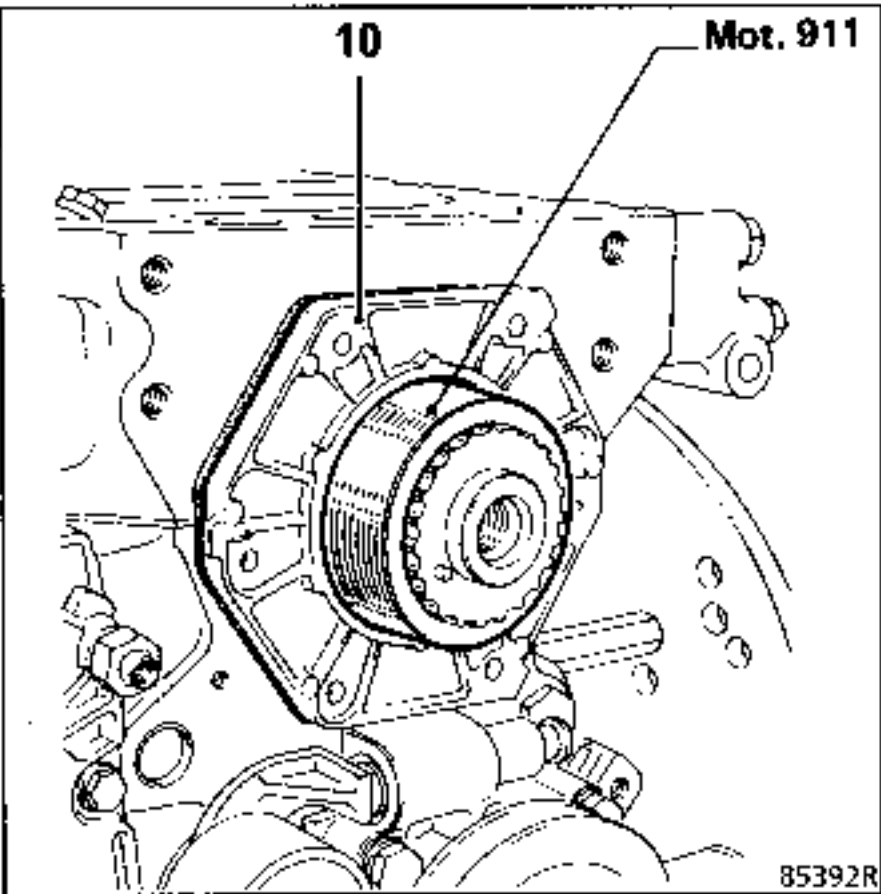
CHECKING CRANKSHAFT END PLAY

Attach a clock gauge with a magnetic base to the cylinder block and place the stem on the end of the crankshaft. Check the amount of end play which should be between **0.045 and 0.320 mm**. Change the rear pair of bearing shells (flywheel end) if the end play is incorrect.

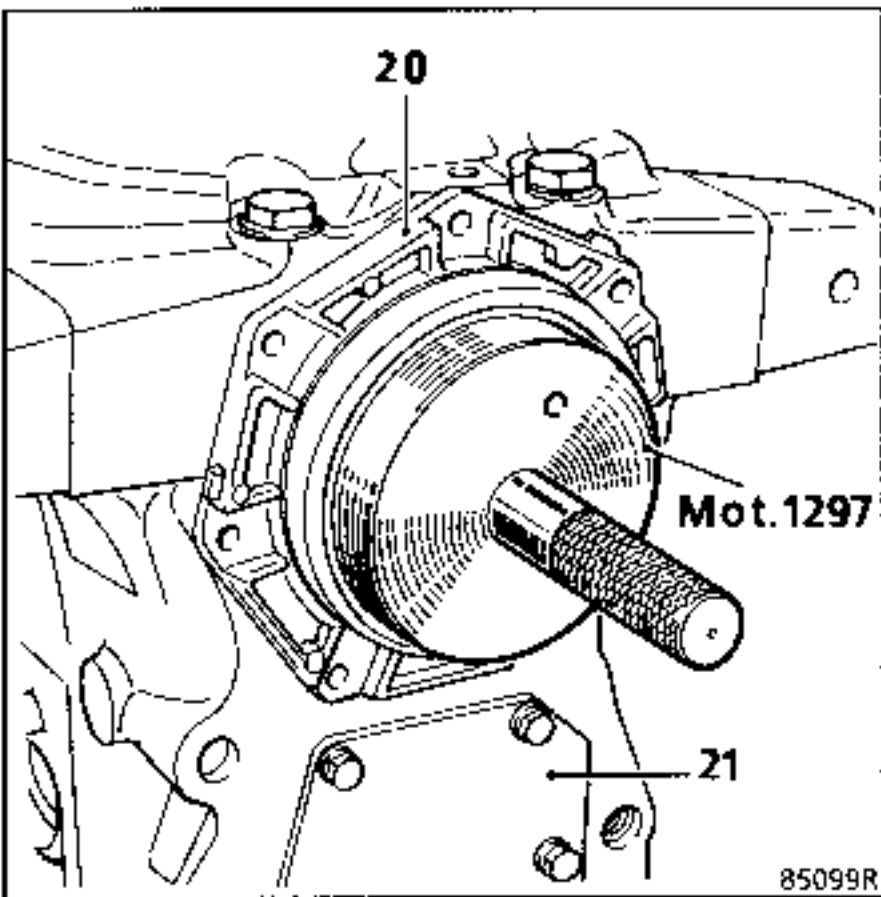


Fit in place and secure :

- Crankshaft oil seal housing (10) (timing gear end) with its oil seal in position using inserting tool **Mot. 911**.



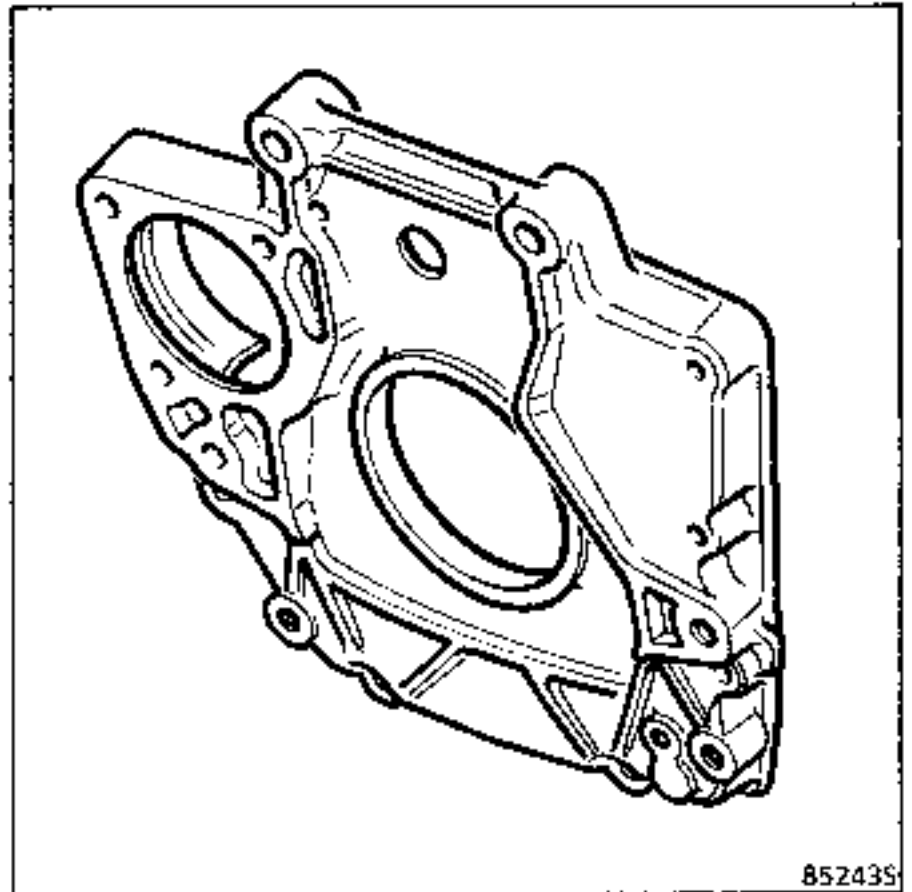
- Fit the crankshaft oil seal housing (20) (flywheel end) with its oil seal in position using tool **Mot. 1297**.
- Fit the plate (21).



Do not use these tools if the seals have a protector - see page 10-46.

Fit :

- plate between the engine and clutch housing (depending on version).

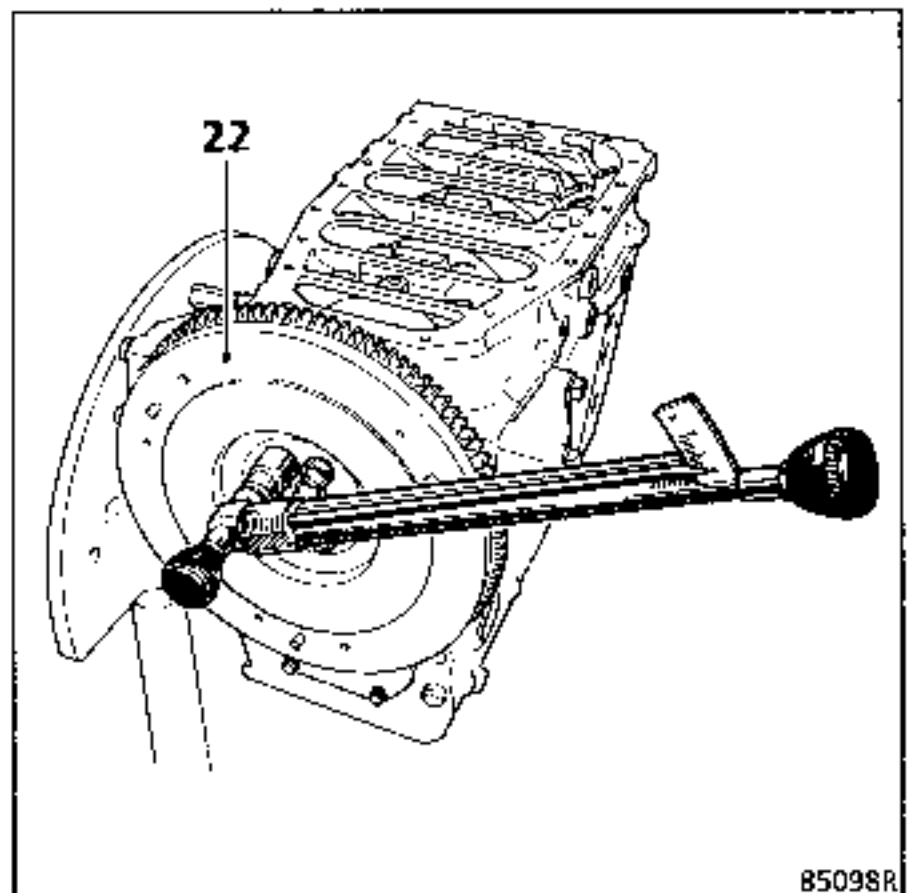


- Fit the flywheel.

All types except engine 8144

Fit the flywheel (22) in position and, using a torque wrench:

Torque tighten the bolts to: **12 daN.m**



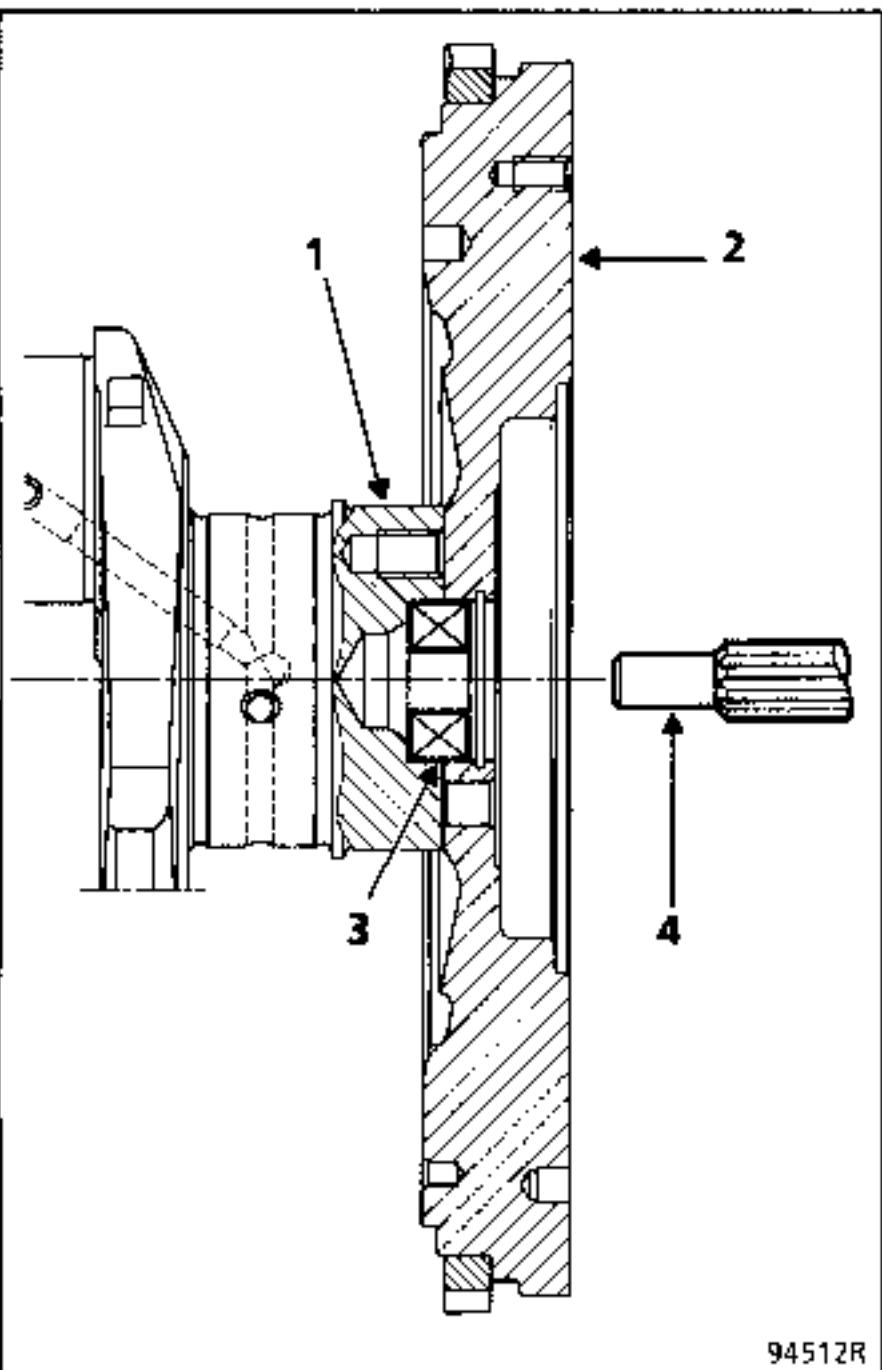
As from model year 1991, the inner diameter of the crankshaft spigot bearing, which used to be 17 mm, has changed to 15 mm.

From now onwards, it is necessary to check that the clutch shaft and bearing diameters are to specification when changing the gearbox or engine.

**Crankshaft spigot bearing
In-production assembly**

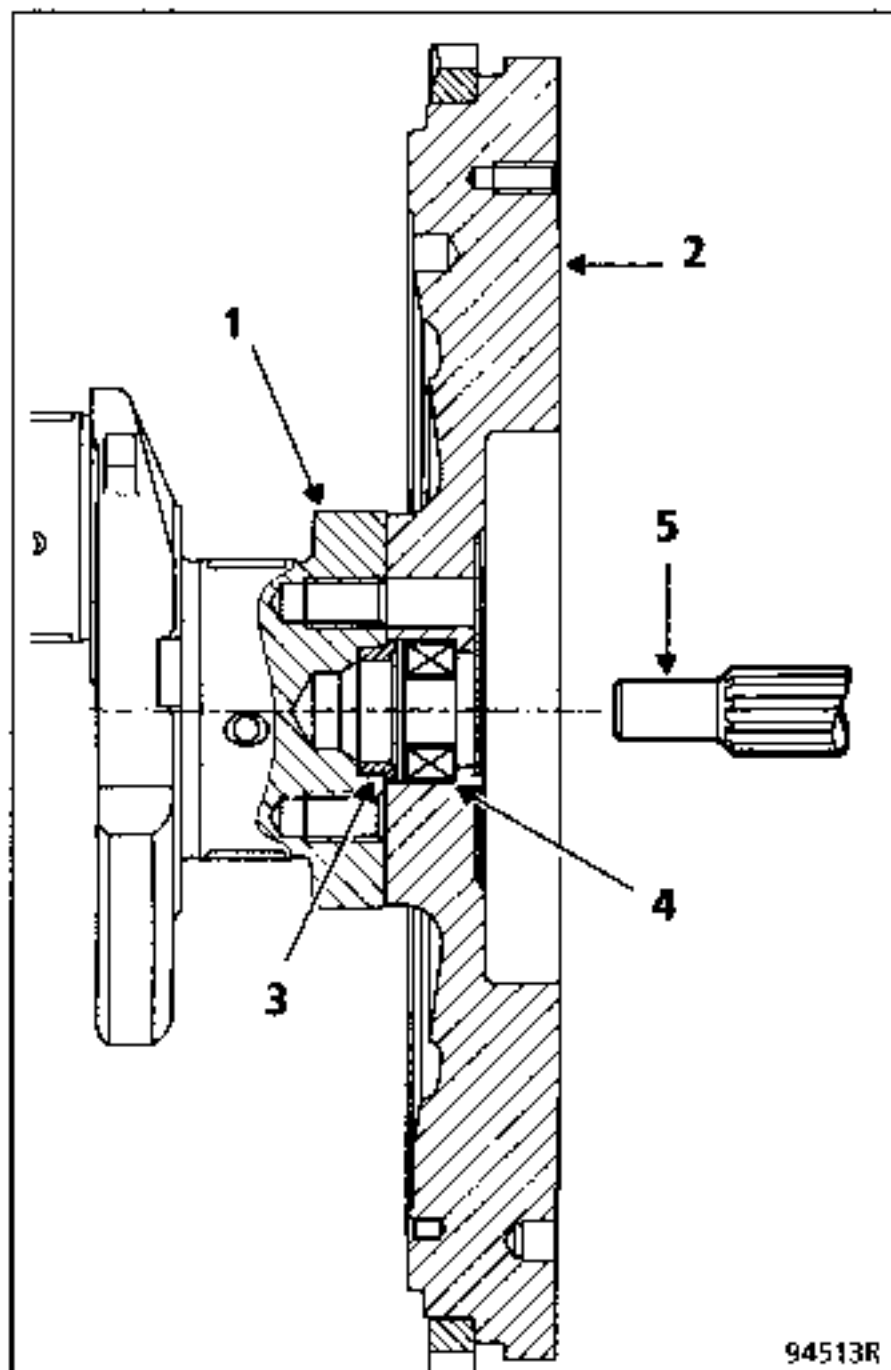
1st type

- 1 - Crankshaft
- 2 - Flywheel
- 3 - 17x42x17 bearing (Part No. : 50 00 404 004)
- 4 - Clutch shaft



2nd type

- 1 - Crankshaft
- 2 - Flywheel
- 3 - Centring bush
- 4 - 15x35x14 bearing (Part No. : 50 00 293 627)
- 5 - Clutch shaft

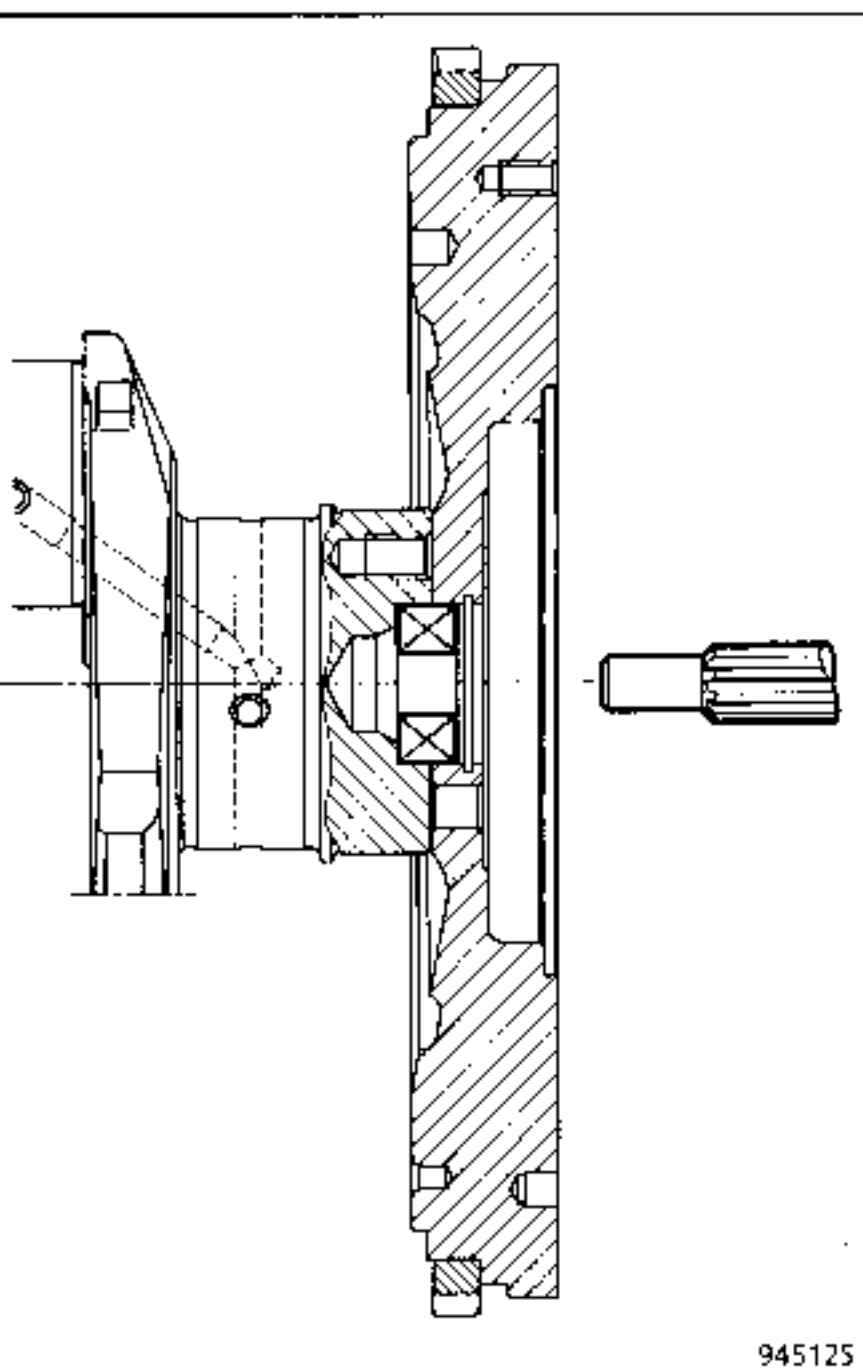


AFTER SALES SOLUTION

When replacing a unit, either engine or gearbox.

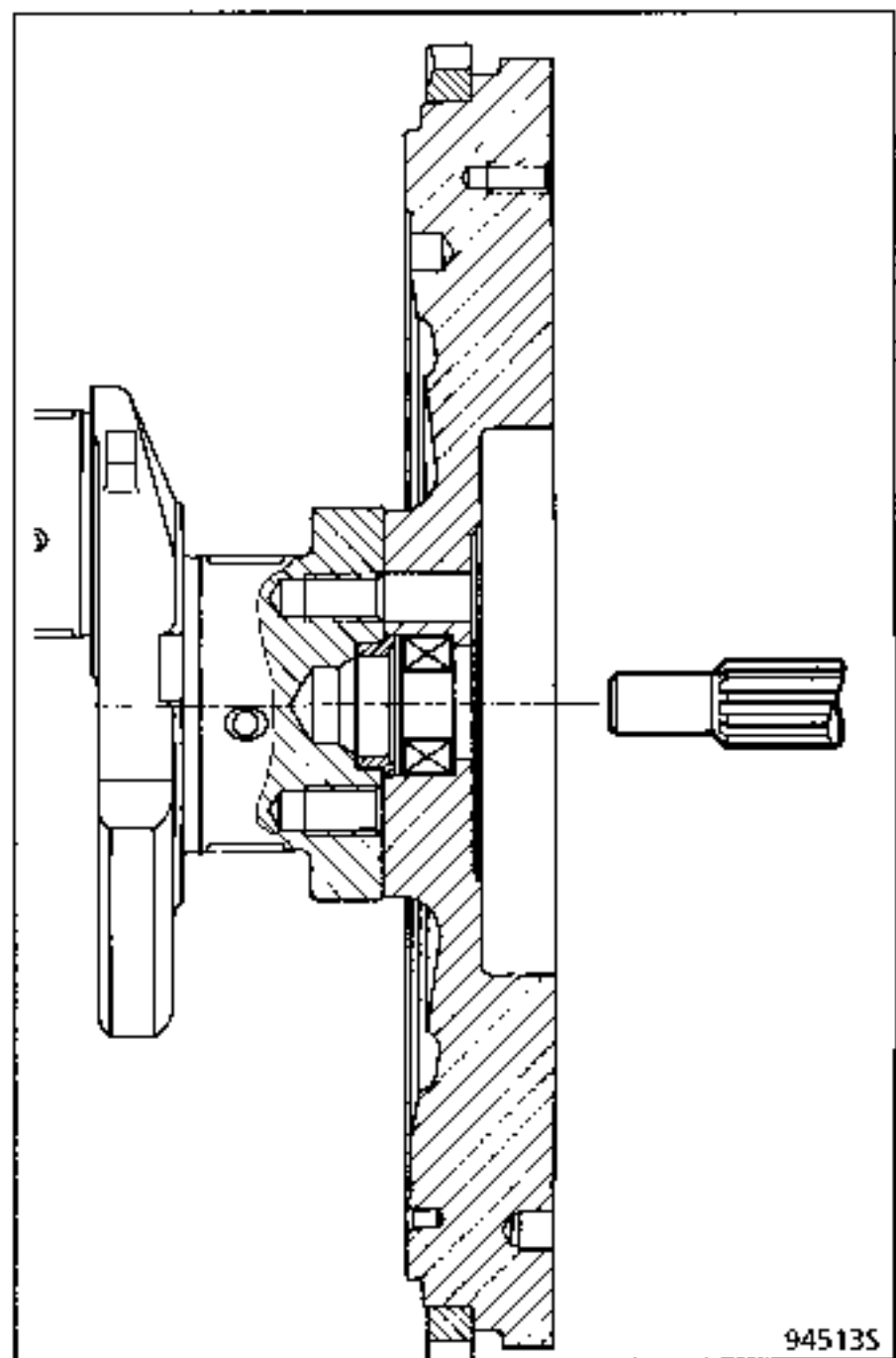
Old engine, new gearbox.

15 mm dia. clutch shaft: fit a 15x42x17 bearing,
Part No. : 50 00 289 330.



New engine, old gearbox.

17 mm dia. clutch shaft: fit a 17x35x14 bearing,
Part No. : 77 01 035 209.

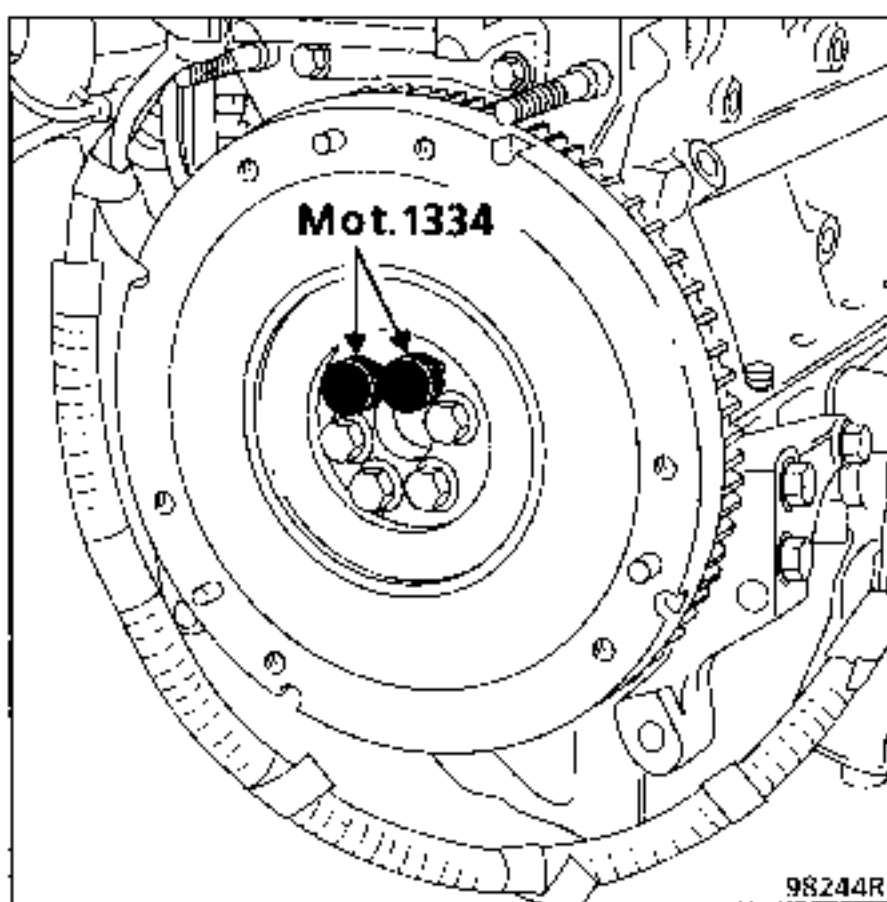


8144 engine

After it has been removed, it is essential to set it using two tapered screws **Mot. 1334**.

Replace the flywheel on the crankshaft.

Tighten the two tapered screws (see drawing).



Fit the other four bolts (in-production version), torque tighten them to **3 daN.m**, and then turn them through a further angle of **90°**.

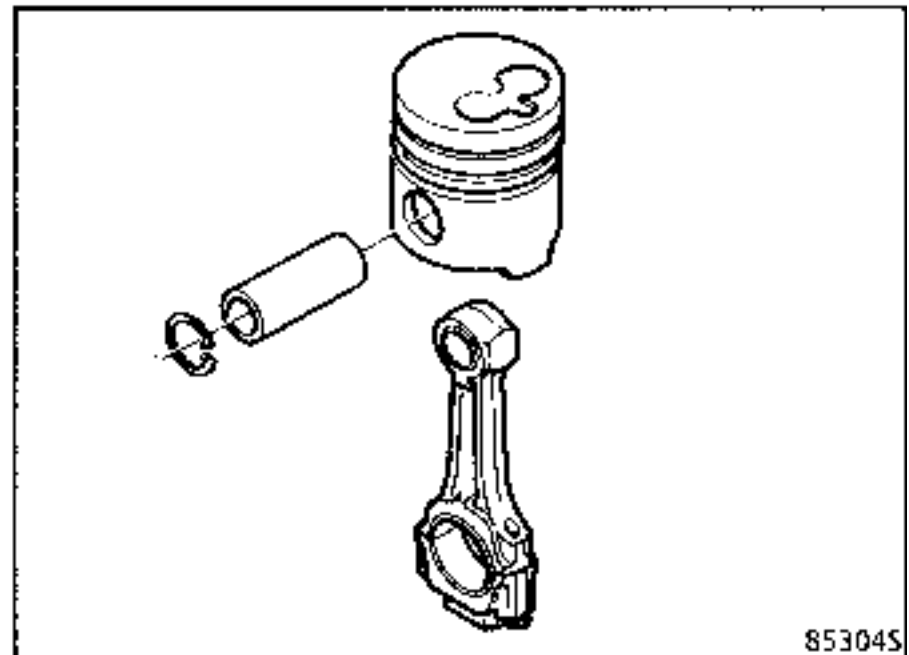
Replaced the tapered screws by bolts (in-production version) and torque tighten them as described above.

Pistons

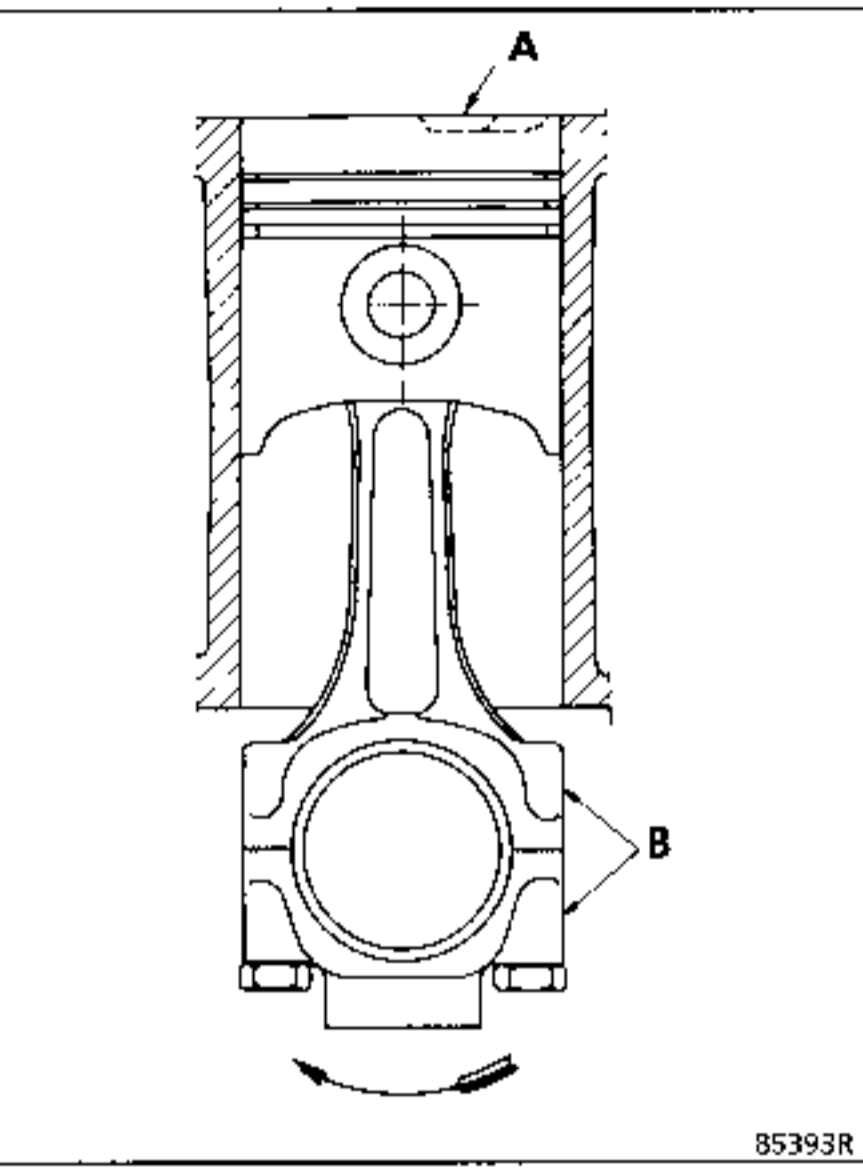
The gudgeon pin is fully floating.

Balance the piston and connecting rod weights (see page 10-16).

Use the appropriate piston and connecting rod.

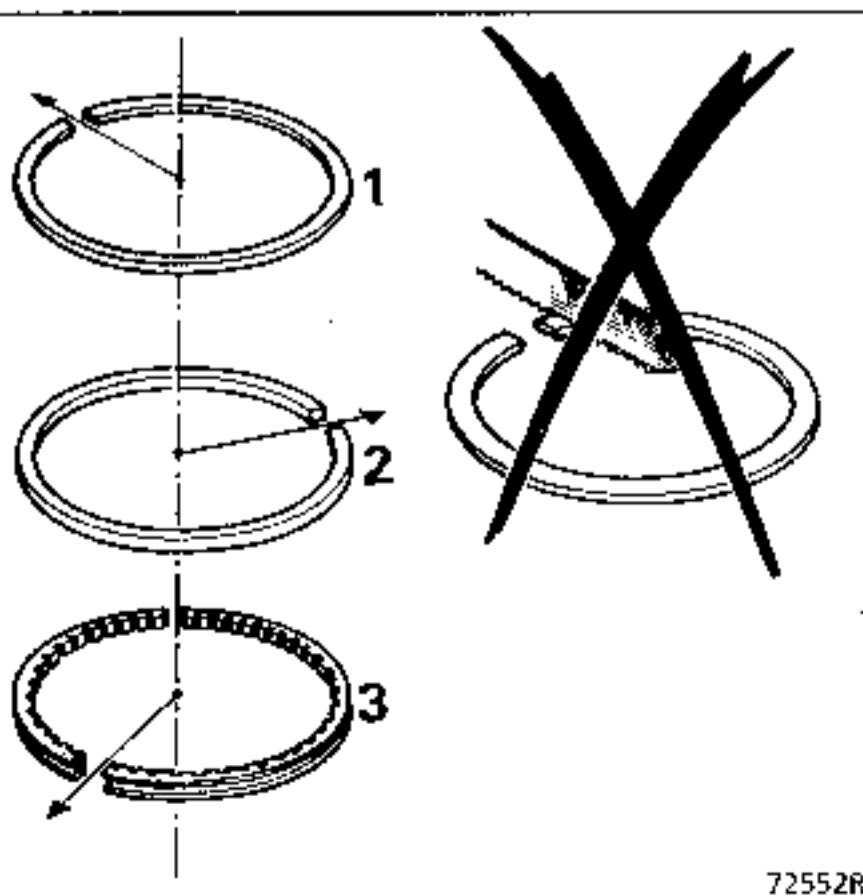


Fit the gudgeon pin so that the turbulence chamber (A) is on the same side as the mark (B) corresponding to the cylinder number engraved on the connecting rod big end when it was dismantled.



85393R

Position the rings as shown below

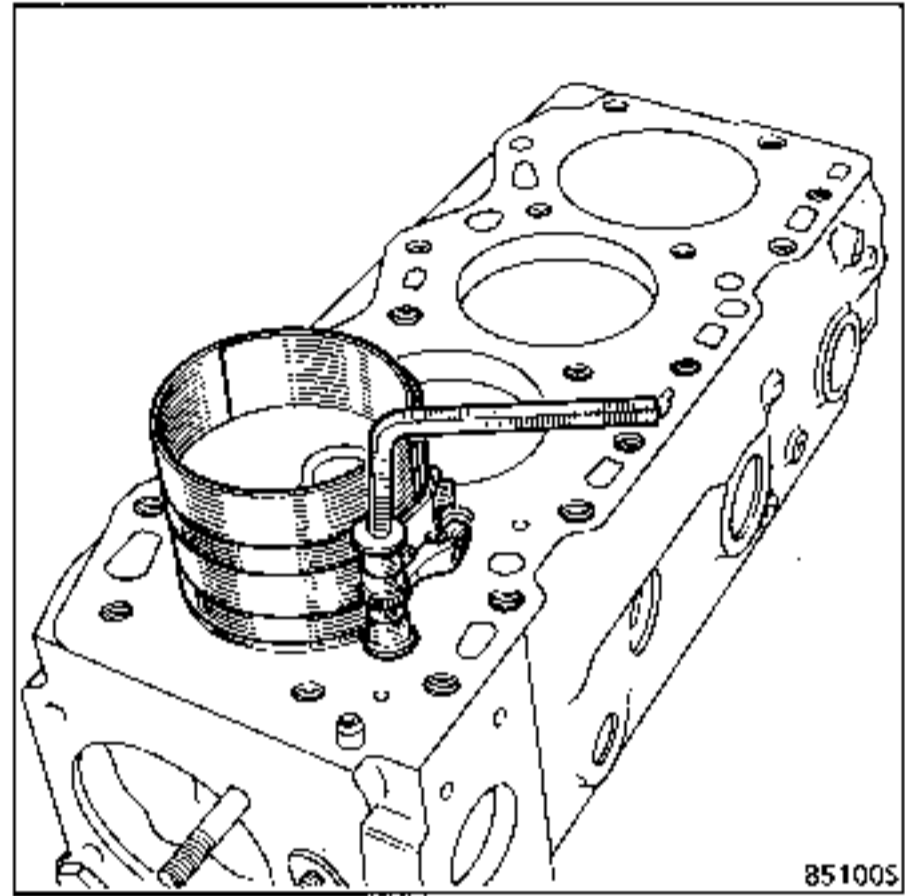


72552R

Fit the piston - connecting rod assemblies in the cylinders.

Use pliers for fitting piston rings.

No. 1 cylinder (timing gear side)

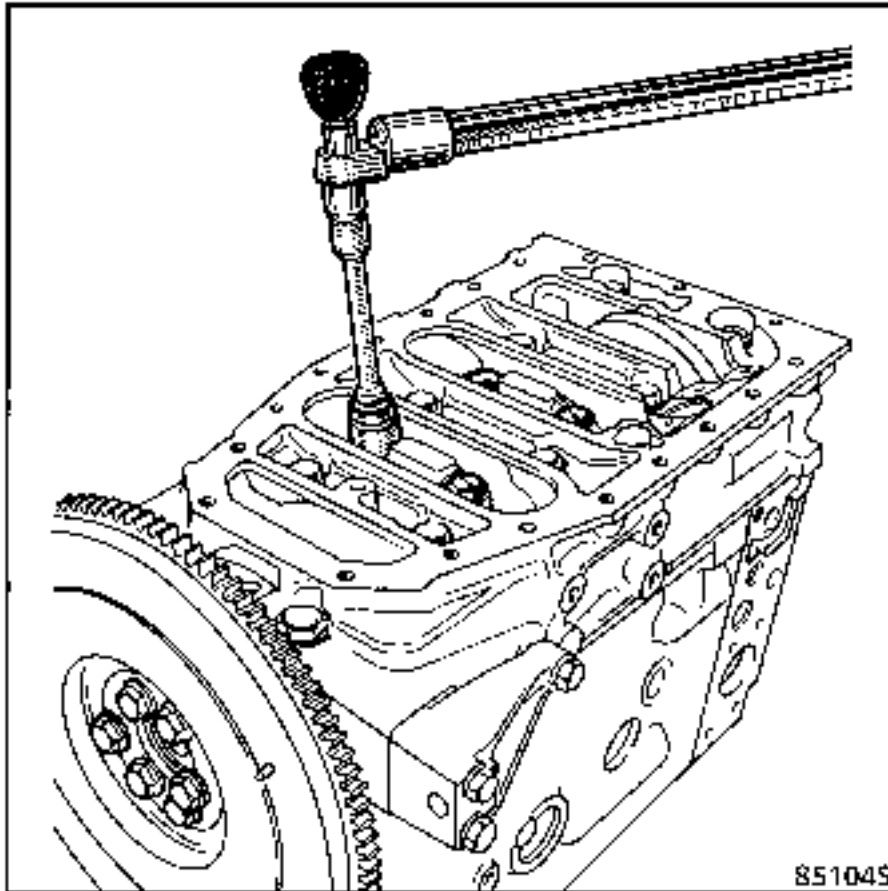


Draw the connecting rods down on to the lubricated crankpins.

Fit the bearing shells, making sure that they are correctly matched to the connecting rods.

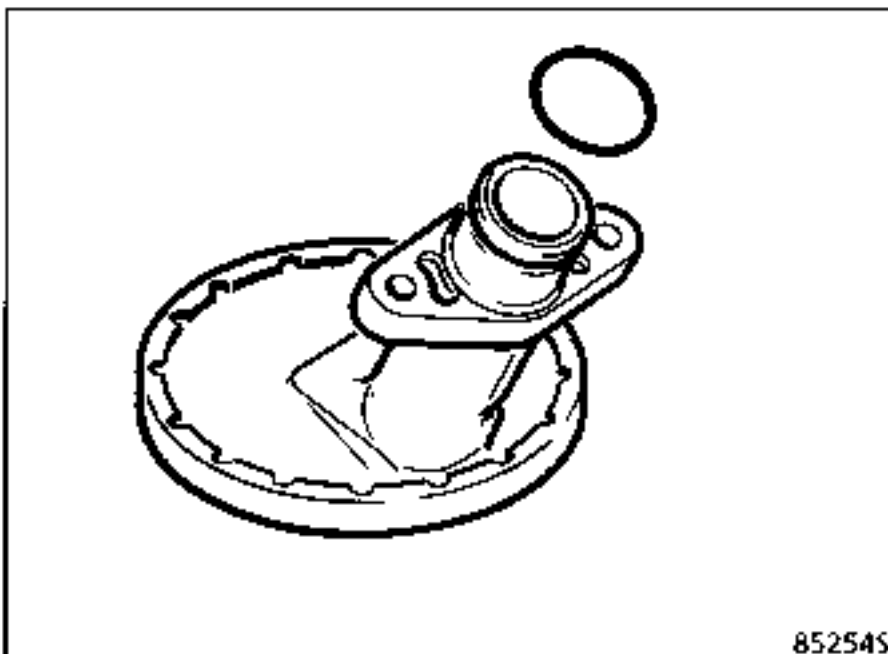
Fit the bearing shells in correct order.

Screw on and torque tighten the big end cap bolts to **11 daN.m**, using a torque wrench.



Fit the oil pump gauze body together with its O-ring.

Fit the sump with its gasket.

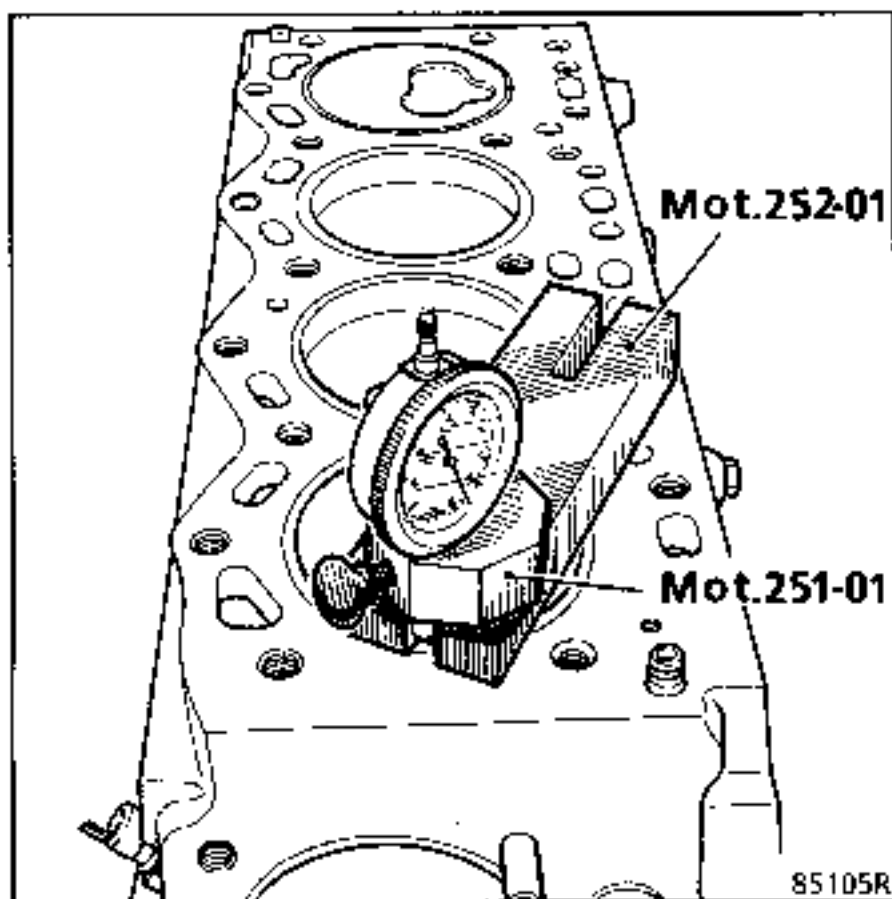


Checking piston protrusion

Clean the piston crowns carefully and rotate the crankshaft one complete turn.

Place tools **Mot. 251-01** and **Mot. 252-01** on the piston with the clock gauge making contact with the cylinder block. Find TDC.

Read off piston protrusion.

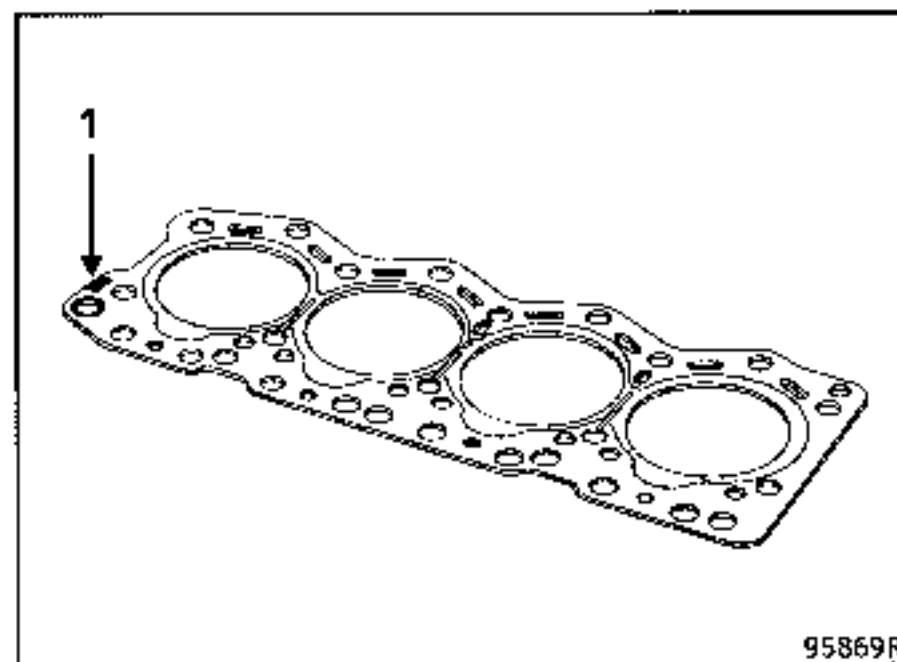


Select the correct cylinder head gasket according to piston protrusion.

ENGINE	GASKET (Number)	THICKNESS (mm)	PISTON PROTRUSION (mm)
S8U 730/731 720/722	1	1.35	-
S8U 742/750 752	1	1.80	-
S9U 700/702 704	1	1.20	-
S8U 748/758	3	1.60 1.70 1.80	≤ 0.85 from 0.85 to 0.95 > 0.95
S9U 714/740	3	1.20 1.35 1.50	≤ 0.55 from 0.55 to 0.70 > 0.70
S8U 762/763	2	1.65 1.80	≤ 0.95 > 0.95

If the cylinder head gasket has to be replaced

Note the thickness (1) written on this.



REFITTING THE CYLINDER HEAD

S8U/S9U/8140 engines

Tightening torque

All the bolts must be renewed after the cylinder head has been dismantled.

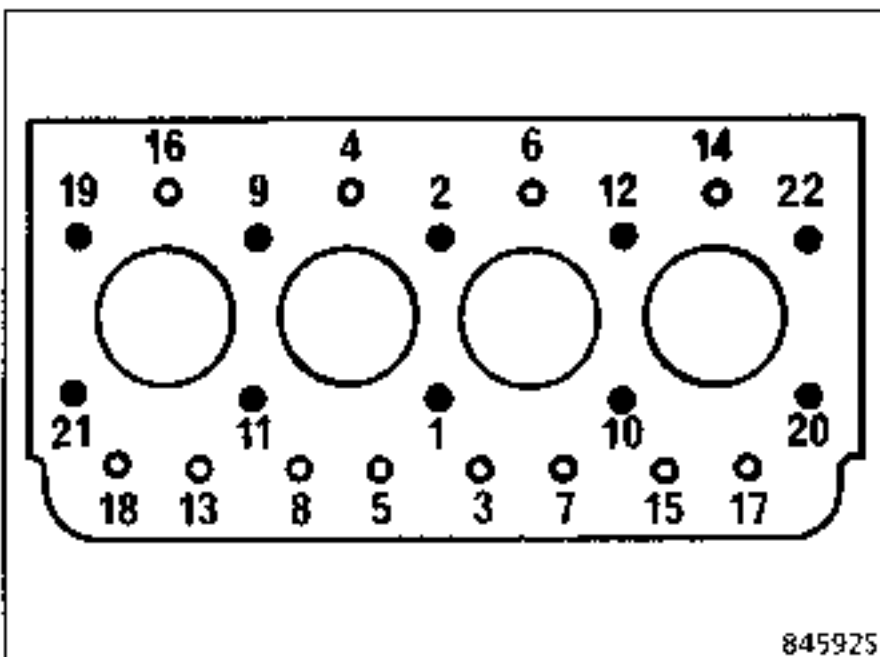
Lubricate the bolt threads and under the heads with engine oil.

Reminder:

In order to tighten the bolts correctly, use a syringe to remove any oil from the cylinder head mounting holes.

Pretightening:	4 daN.m
Checking:	4 daN.m
Tightening (angle) :	180° ± 10°

- Short bolts.
- Long bolts.



Do not retighten the cylinder head bolts.

S8U/8144 engines (Safrane)

Tightening torque

All the bolts must be renewed after the cylinder head has been dismantled.

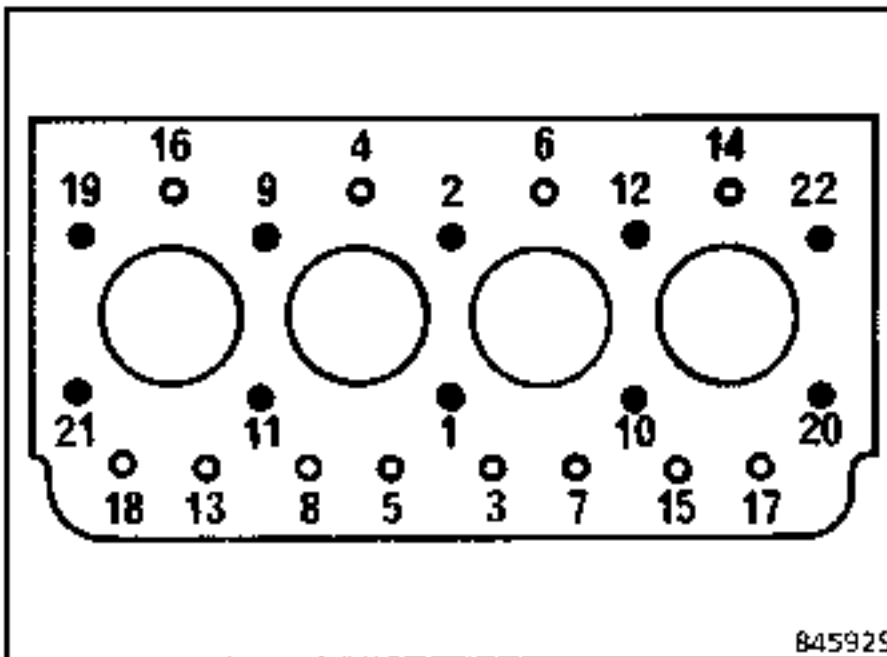
Lubricate the bolt threads and under the heads with engine oil.

Reminder:

In order to tighten the bolts correctly, use a syringe to remove any oil from the cylinder head mounting holes.

Pretightening:	6 daN.m
Checking:	6 daN.m
Tightening (angle) :	180° ± 10°

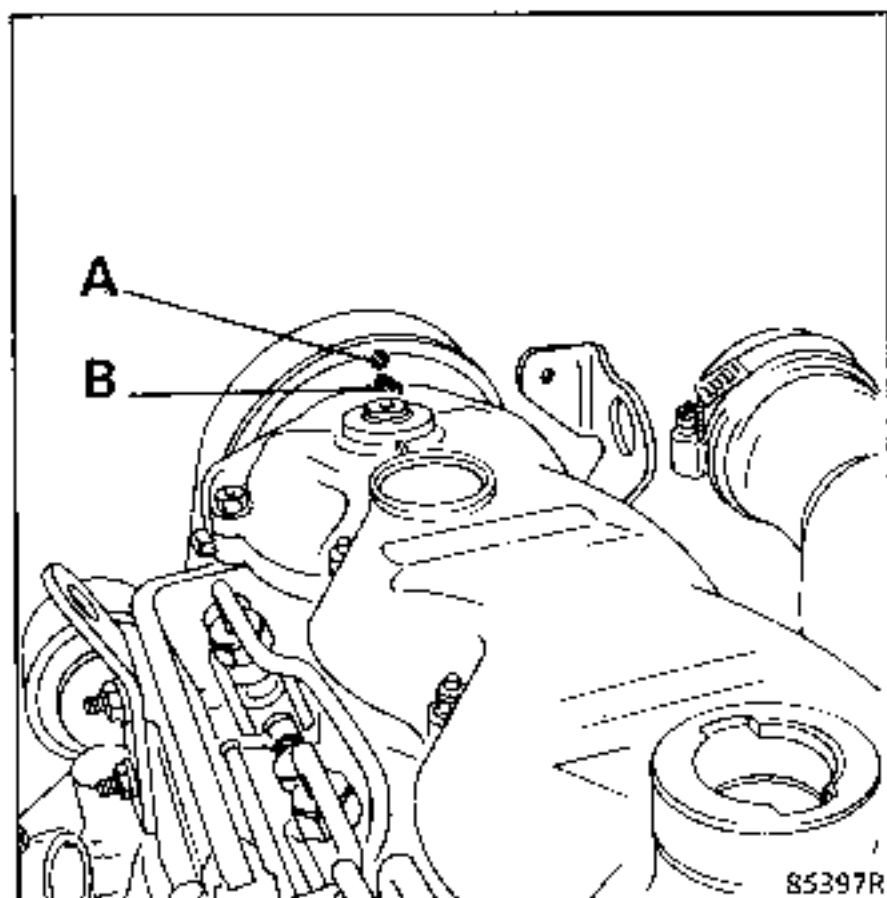
- Short bolts.
- Long bolts.



Do not retighten the cylinder head bolts.

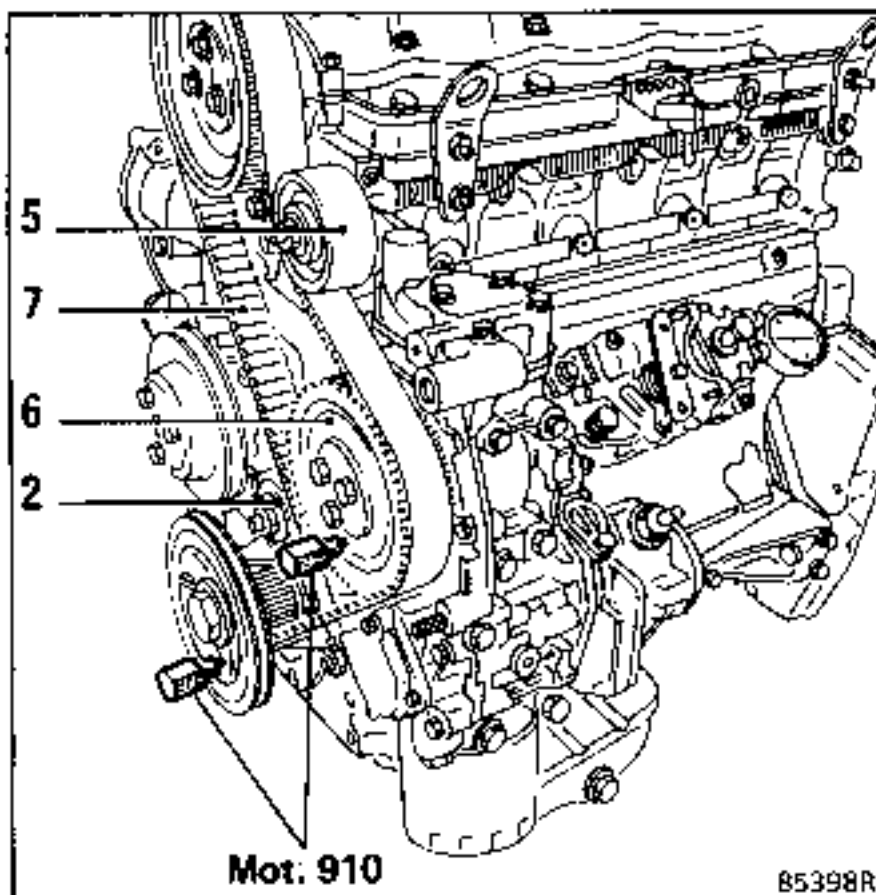
Refit the timing gear.

Line up marks (A) and (B).



- A : Camshaft sprocket timing mark
B : Cylinder head cover timing mark (boss)

Use tool **Mot. 910** to position the injection pump driving sprocket (6).



Align crankshaft pulley (C) with timing mark (D) on the oil seal housing or use tool **Mot. 910**.

Fit:

- The toothed timing belt (7),
- the roller (5).

Release the tensioner roller (2).

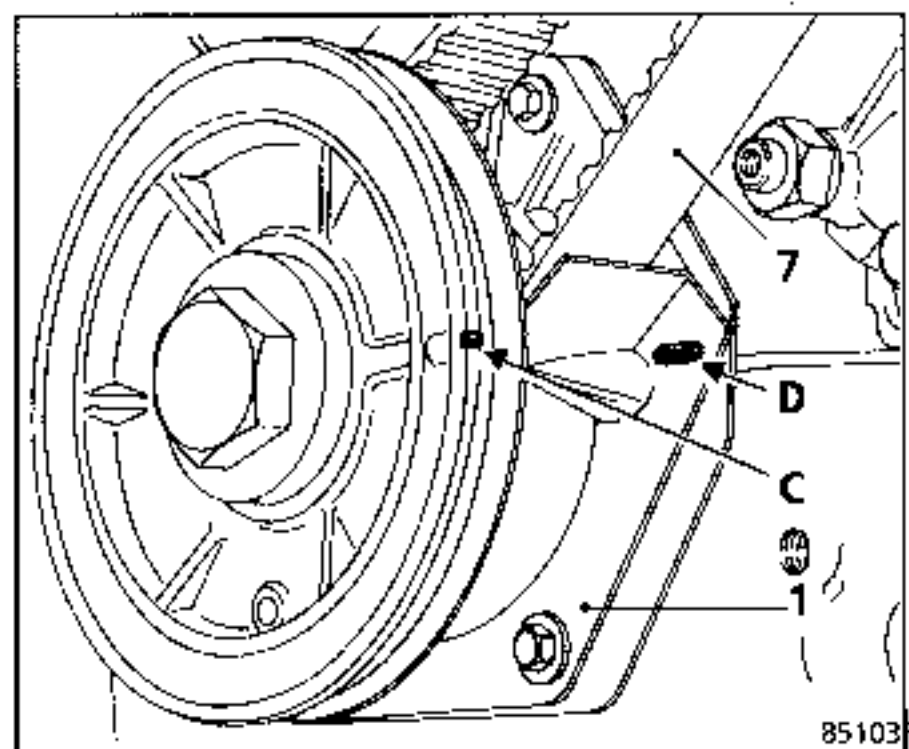
Remove rod **Mot. 910**.

Turn the crankshaft a quarter of a turn.

Tighten the tensioner.

Turn the crankshaft three quarters of a turn.

In this position, adjust the belt tension by releasing and retightening the tensioner roller.



CHECKING

Turn the crankshaft one additional turn in its normal direction of rotation and recheck the three timing marks using rods **Mot. 910**.

NB : The toothed timing belt must not be folded at acute angles nor compressed with tools otherwise the fibres will be irreparably damaged.

The toothed timing belt must be changed automatically once every **55,000 miles (82,500 km)*** or immediately oil stains are noticed on it.

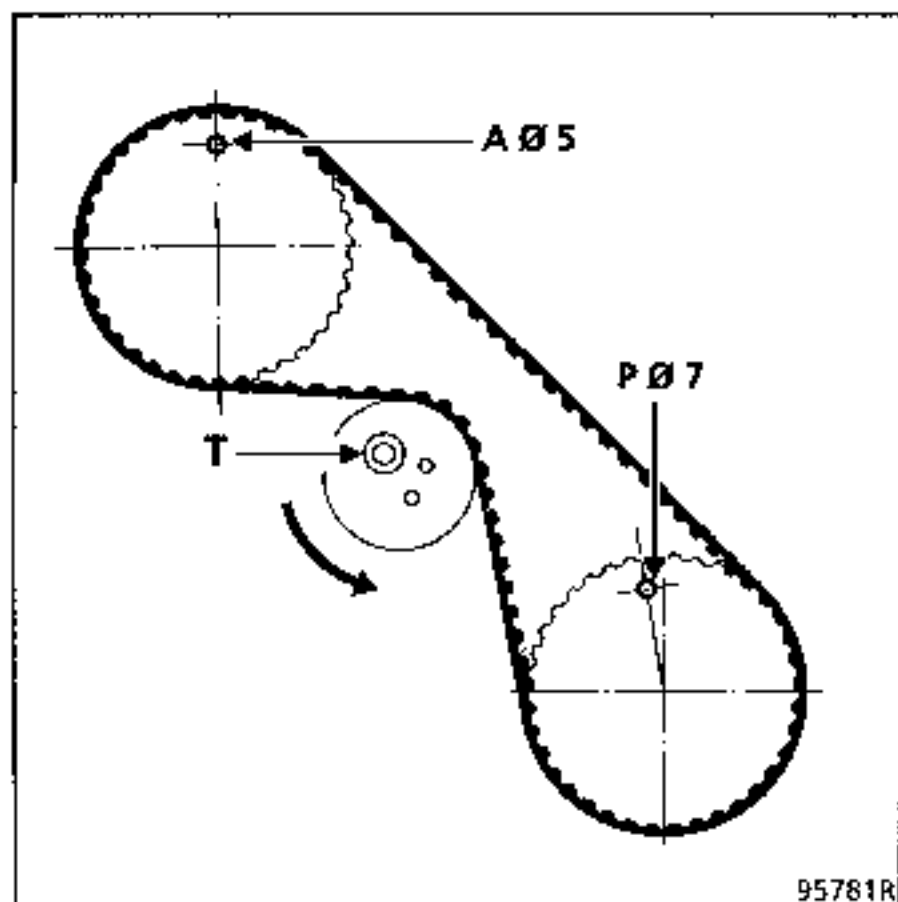
* Taking account of the Renault servicing programme intervals.

Refit the timing gear.

Turn the engine so that No. 1 cylinder is at TDC.

Refit the toothed timing gears.

Secure the two gears in relation to the ancillary units group housing at (A) and (P).



Using the tensioner roller (T), tension the timing belt.

Using tool Mot. 1135-01 turn the tensioner roller in an anti-clockwise direction.

Belt tension

Value : 45 ± 4 US

Torque tighten the tensioner roller. 4.5 daN.m

All Types

CYLINDER HEAD COVER SEAL

Coat the rounded parts (the oil filler cap end) of the cylinder head cover gasket with LOCTITE AUTOJOINT OR AJ66 (oil filling plug end).

