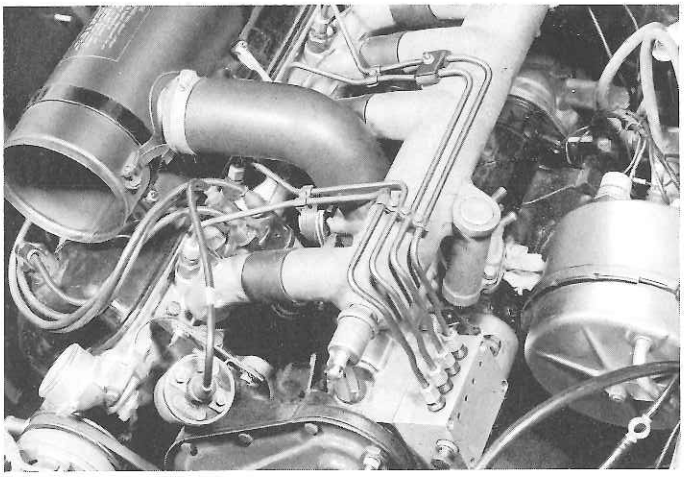
# SUMMARY



## ENGINE REMOVAL

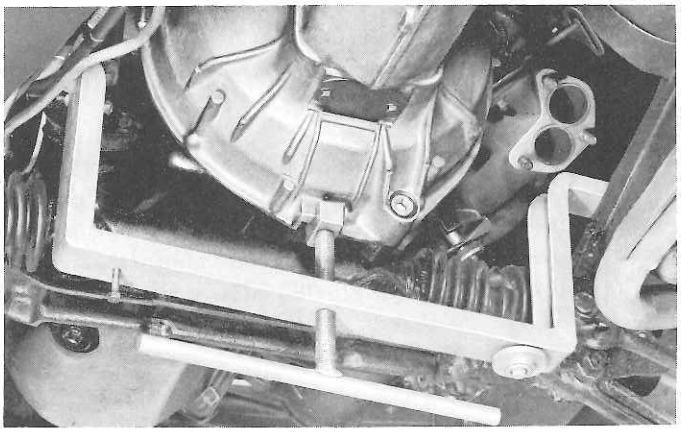
Fit wing protective covers
Drain the cooling system

Remove :

- The windscreen washers jets and jar
- The bonnet
- Hydrovac container (KF 2)
- Winds creen wiper motor
- Front silencer (KF 1)
- Front air filter pipe
- The two fixing nuts on fuel filter
- The battery with bracket
- Breather (KF 2)
- Starter motor
- Radiator and water feed pipes.

Disconnect :

- wires from thermoswitch to disconnectable fan
- heating and preheating tubes
- petrol lines to and from injection pump and electro valve (KF 2).



Unscrew by a few turns to two fixing screws on distributor coil bracket.

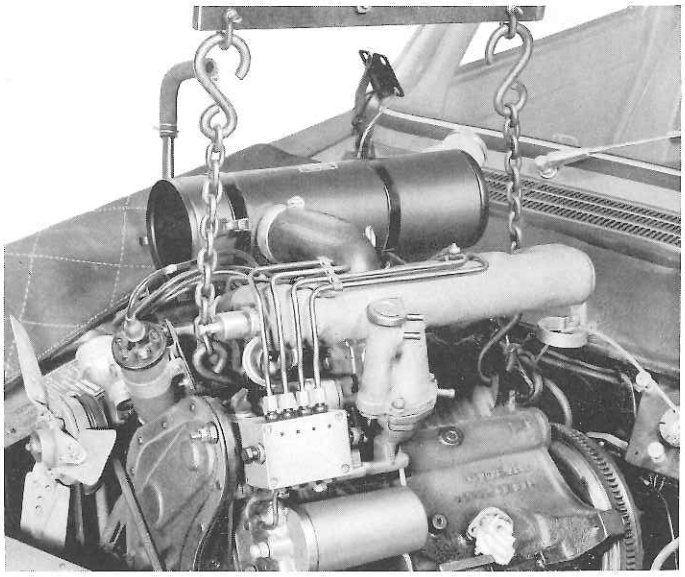
Disconnect :

- accelerator control
- enriching lever (KF 1)
- contacts to thermo-contact on mano-contact, to dynamo and to electro-valve (KF 2).

Remove :

- fixing nuts on feeding pump bracket and horn, positioning units (filter and pump) next to inside of front wing (left side); and fixing nut on exhaust pipe from gear box.

Disconnect exhaust connecting piece
Remove seating plates from gear box housing
Put into place the support jack **8.0103 Z**
Remove the three Allen screws which fix the clutch housing (wrench **8.0202**).



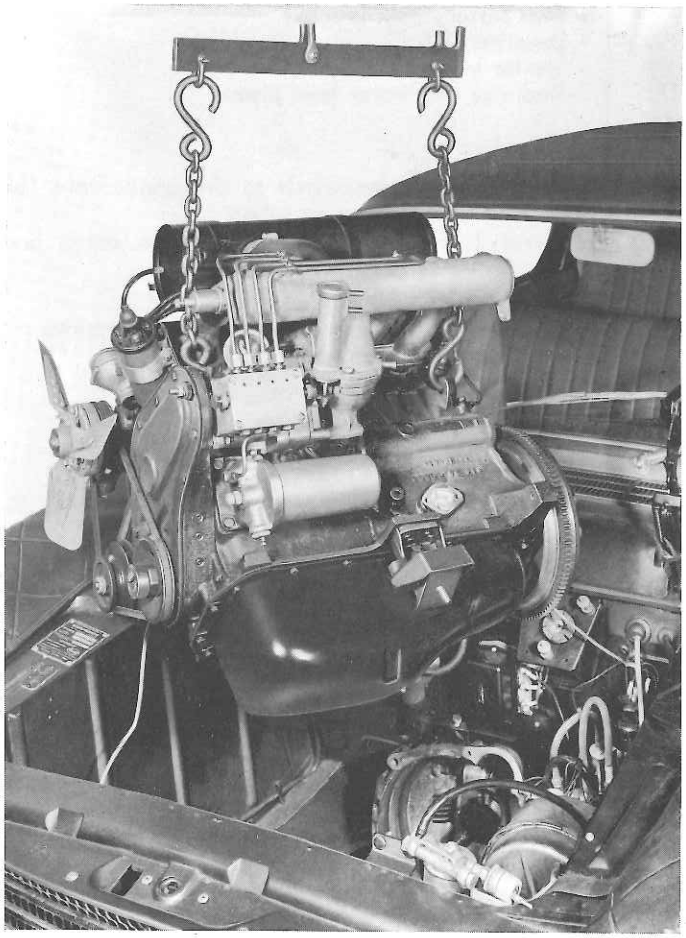
Approach the beam **8.0102 Y** with the hooks in the handling eyes on cylinderblock.

Remove the engine attachment nuts to front supports.

Hoist the engine up while working it forward to clear it from gearbox.

As soon as the drive shaft is clear of bell housing turn engine diagonally to remove it from its position on car.

**CANCELS AND SUPERSEDES SHEET CLASS 1, PAGES 02 01 AND 02 02**



## ENGINE REINSTALLATION

- In case of removal of the breather (KF 1) turn downwards the opening of the pipe which is affixed on the breather spacer.

- Bring the engine in diagonally, as per removal

- Engage 4th gear in order to ease the engine to gear-box connection.

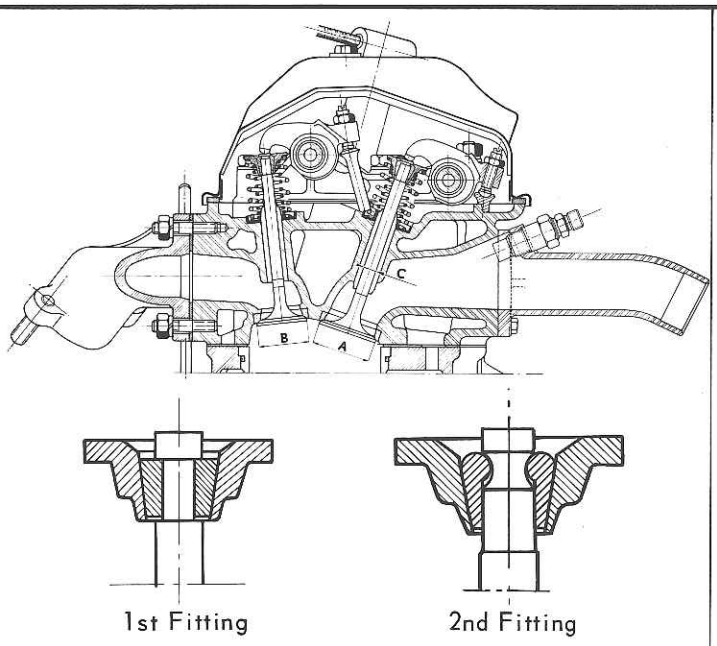
- Act simultaneously on hoist and on jacking support under gearbox, to bring engine and gearbox into proper alignment, until the clutch housing bears neatly against the joint face of the cylinder block, with two closing plates placed between.

- Replace engine on its front supports.

- After removing all accessories, fill up the cooling system, reconnect battery and reset clock.

- Check the oil level

***NOTE** - After reinstallation of engine, check condition of brake pipe on front cross-bar as there is a possibility of damage during engine placing.*






1st Fitting 2nd Fitting

**1 st Fitting**

A = Inlet valve head diameter 39 mm
B = Exhaust valve head diameter 33.5 mm
C = Valve stem diameter 8.5 mm

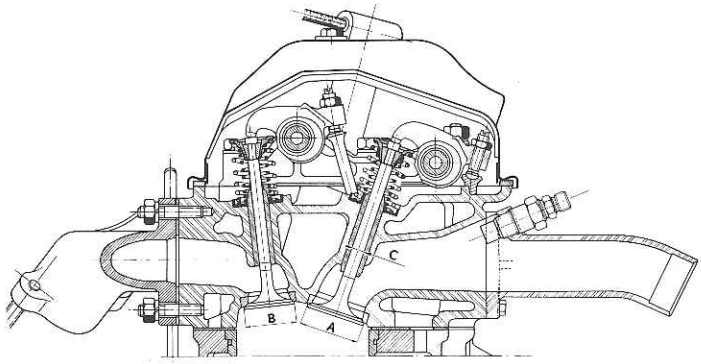
Normal cylinder head height 92.5 ± 0.15 mm
Minimum height after machining 92 mm

***NOTE*** *- As from serial Nos :*

***404 KF*** *- 4 560 832*
***404 C.KF*** *- 4 592 679*

*the valve stems are modified to allow for the adoption of Teves type keying incorporating special valve spring cups and cotters*

*The parts of the two fittings are not interchangeable separately.*



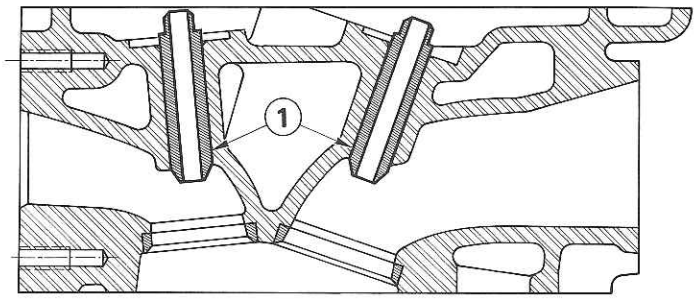

**2nd Fitting**

As from serial Nos :

**404 KF** - 4 570 001
**404 C.KF** - 4 594 001

A = Inlet valve head diameter 41.5 mm
B = Exhaust valve head diameter 35.5 mm
C = Valve stem diameter 8 mm

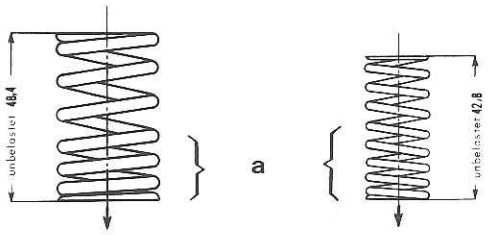
Normal cylinder head height 92.5 ± 0.15 mm
Minimum height after machining 92 mm




As from serial numbers :

**404 KF** - 8 249 880
**404 C.KF** - 6 802 336

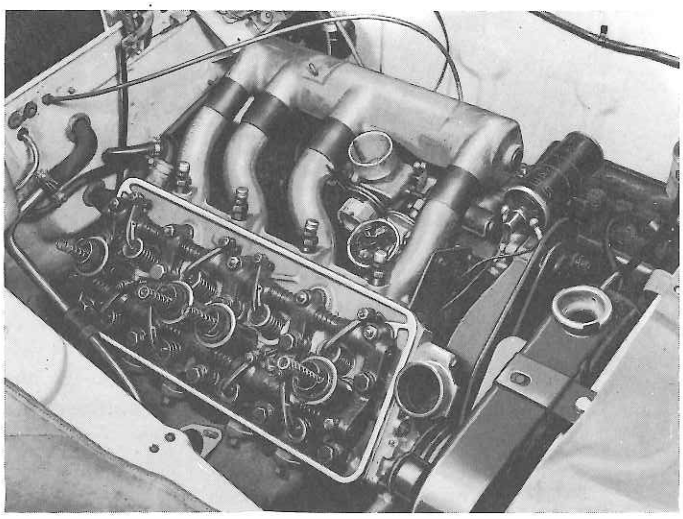
the valve guides are shouldered as shown by letter 1 on the drawing opposite, to allow for the fitting of Perfect Circle seals ensuring perfect sealing between the valve stems and valve guides.




**VALVE SPRINGS**

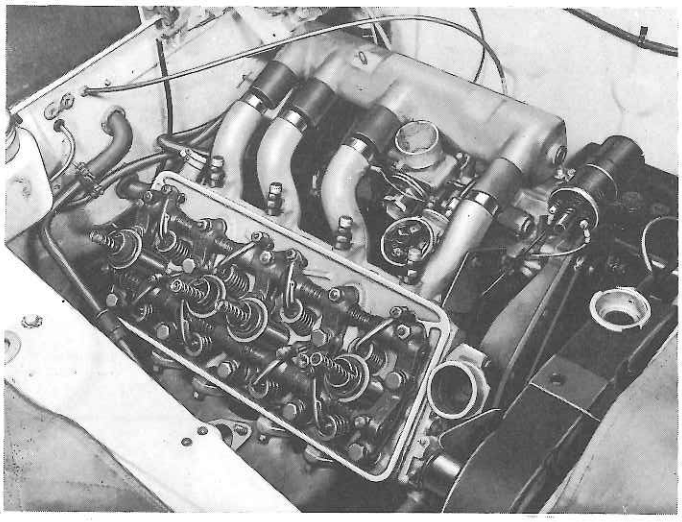
| | Outer P.N. 0952.12 | Inner P.N. 0952.11 |
|---|---|---|
| Free height | 48.4 mm | 42.8 mm |
| Wire diameter | 4 mm | 2.8 mm |
| Height under load | 33.2mm under 45kg | 29.7 mm under 22.3kg |
| Direction of fitment a | Coils with reduced pitch on the cylinder head side | |

# XC KF - KF1 - KF2
## CYLINDER HEAD

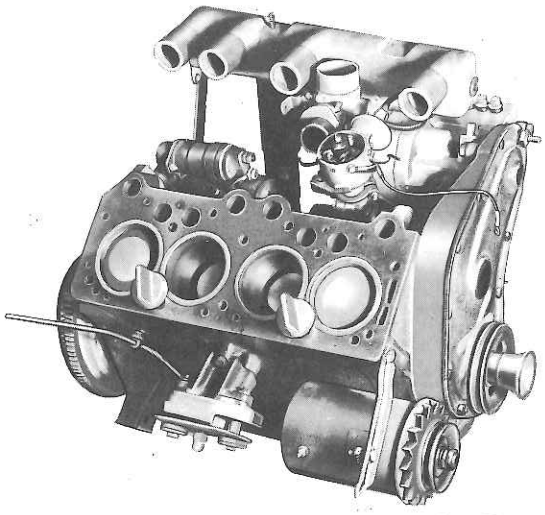


### REMOVAL

- This operation should only be carried out on a COLD ENGINE,
- Fit the wing protective covers
- Disconnect the battery
- Drain the cooling system (recover the anti-freeze if any)
- Remove :
  - the air filter and the rocker cover, the ignition coil and the distributor cap and leads.
* - front silencer
  - the water inlet hose
  - the fan belt
  - the securing clamps and injector pipes
  - the rocker lubrication pipe
* - the accelerator spring



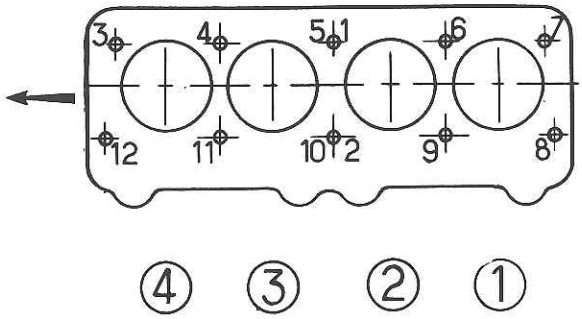
- Disconnect :
  - the bottom hose
  - the heater hoses
  - the vacuum tank pipe
  - the air distribution chamber rear support
  - the thermo switch wire
  - the pump/throttle connecting link
  - the accelerator cable
  - the fuel inlet pipe and the electro valve lead
- Uncouple :
  - the exhaust clamp
  - the air distribution chamber/throttle assembly from the injection pump (pull assembly rearwards without removing it)



- Remove both cylinder head securing bolts **8** and **12** and install the cylinder head guides.
- Remove the other cylinder head bolts and the rocker gear assembly securing nuts
- Disengage the rocker gear assembly and mark the position of the push rods for re-assembly
- Remove the cylinder head, the cylinder head gasket and the guides
- Retain cylinder liners firmly using securing screws **8.0104 D.**

* Particularities of the KF - KF1 engines

TIGHTENING SEQUENCE




④ ③ ② ①

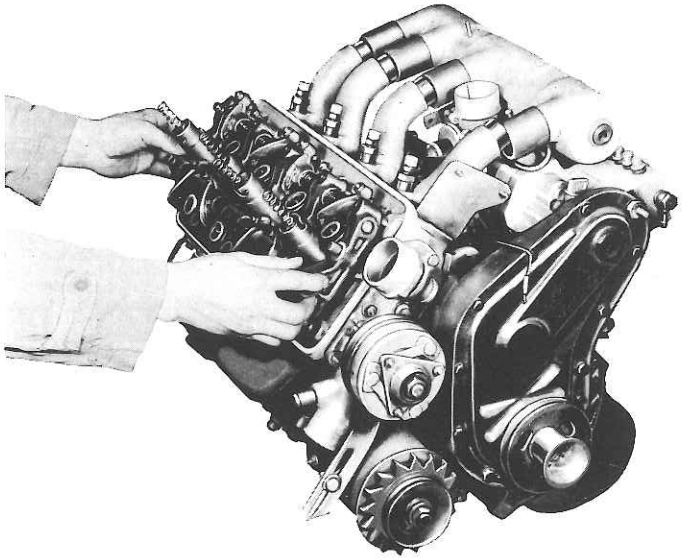
## INSTALLATION

**Preliminary conditions**

1 - Removal conditions

2 - Joint face in proper condition of cleanliness and surface.
Minimum height of the refacing : 92 mm

3 - In case of valve grinding remove the intake manifold and clean carefully the inside of cylinderhead, on the intake side, before refitting manifold with new gasket.



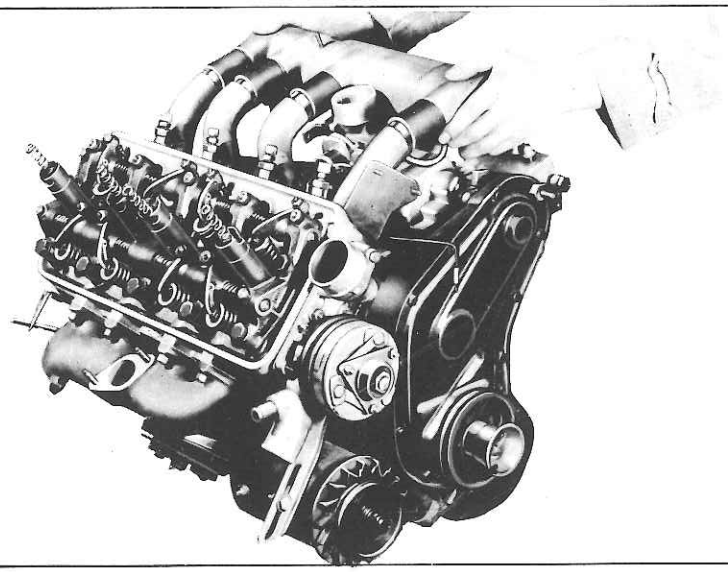
- Remove the cylinder liners locking screws **8.0104 D.**

- Install the new gasket, in the proper direction, smeared with woked linseed oil, guiding it with the screwed guides, without their ends in holes **8** and **12.**

- Install the cylinderhead; engage the draining cock rod in its guide plate.

- Engage the push rods in their guides.

- Install the rocker gear.



- Fix the cylinderhead, screwing the screws in the following sequence : 3. 7. 1. 2. 4. 6. 9. 11, then 8 and 12.

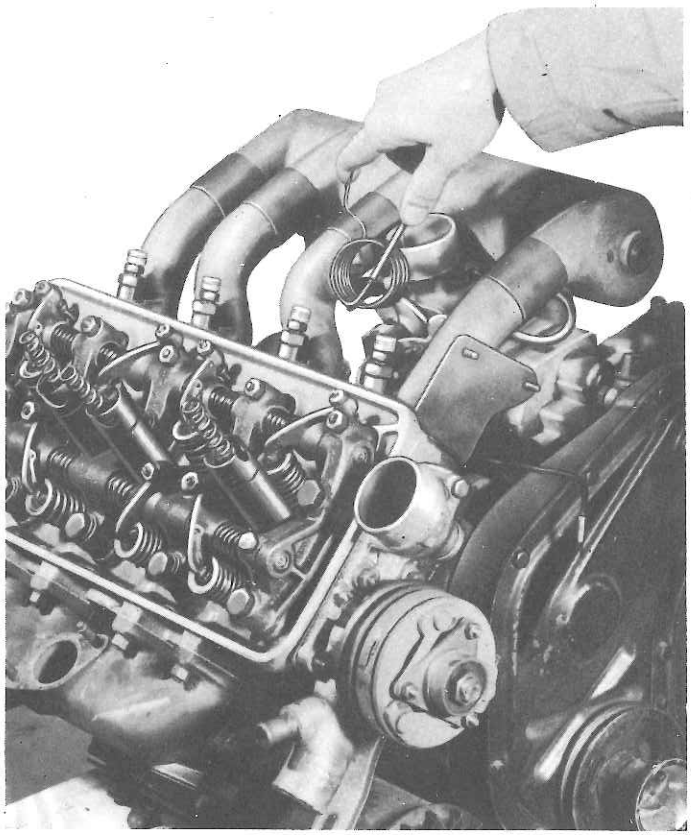
- In the adequate tightening sequence, tighten the screws, first to **4.5 m.kg**; then torque definitely to **7.5 m.kg.**

- Torque the rocker gear to **2 m.kg.**

- Refit the assy : air valve and intake manifold.

- Fit accelerator spring.

**CANCELS AND SUPERSEDES SHEET CLASS 1 PAGES 04 03 AND 04 04**



- Connect :

the exhaust flange
the connecting link
the hoses and unions
the ignition accessories
the electric leads
the rocker gear lubrification line
the injection pipes & their flanges
the fan belt
*the front silencer

| To adjust rockers | | Bring valve to full open position |
|---|---|---|
| $I_3$ | $E_4$ | $E_1$ |
| $I_4$ | $E_2$ | $E_3$ |
| $I_2$ | $E_1$ | $E_4$ |
| $I_1$ | $E_3$ | $E_2$ |

**N.B. - The valves bear the same number as corresponding cylinder.**

Adjust the rockers during first 1.000 kms :

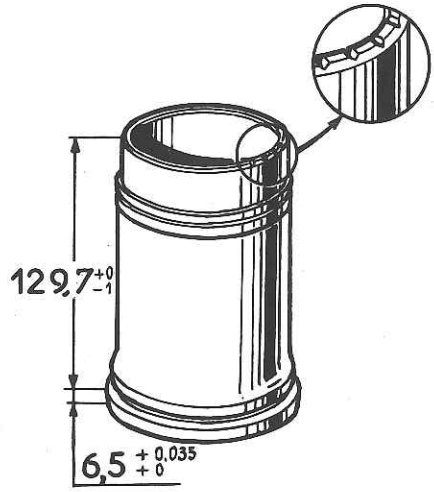
**Intake : 0.15 mm (0.006")**
**Exhaust : 0.30 mm (0.012")**

after retightening :

**Intake : 0.10 mm (0.004")**
**Exhaust : 0.25 mm (0.10")**

- Install the rocker gear cover and air cleaner after checking the air cleaner cartridge for condition.
- Fill up radiator
- Connect battery
- Reset clock
- Remove wing covers

* Special to KF - KF 1.




## SLEEVES

- Removable, cast, complety machined
- Pressure and positioning by top flange
- Sealed off from water spaces by rubber joint on lower guiding flange.

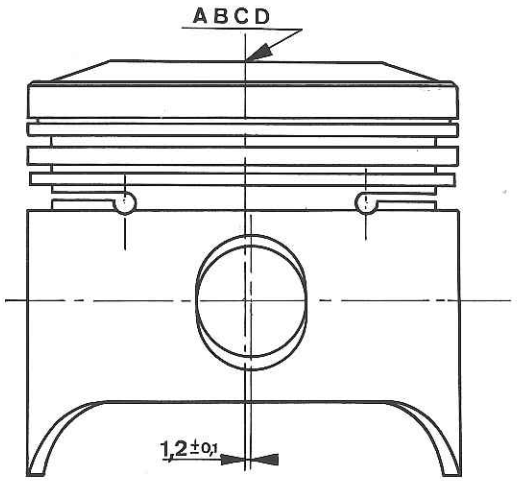
References marked on lower half.

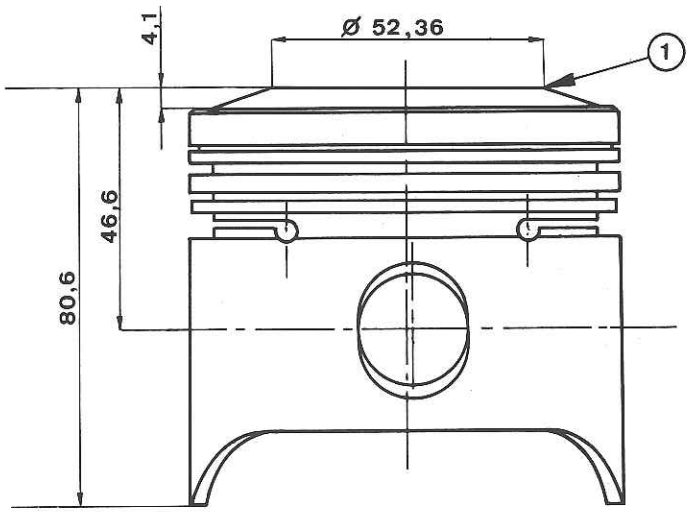
- 1 marking Ø 84.001 to 84.011
- 2 markings Ø 84.012 to 84.022
- 3 markings Ø 84.023 to 84.033
- 4 markings Ø 84.034 to 84.044

Rubber joint seating of sleeve

$72 \times 82 \times 5$

**During assembly position reference on sleeve to ~~crankshaft~~ camshaft side.**




## PISTONS

Inclusing lower segment and seamless section, these embody retaining ring on an aluminium connection which has a very low expansion coefficient.

References embossed on pistonhead.

| Pistons | Diameter in mm |
|---|---|
| A | 83.940 to 83.951 |
| B | 83.951 to 83.962 |
| C | 83.962 to 83.973 |
| D | 83.973.to 83.984 |

Letters **A, B, C, D,** on pistons correspond to references **1, 2, 3, 4,** marked on sleeves.

As far as serial nos :

4.570.000
4.594.000

Pistons embody a collar above the firing section.

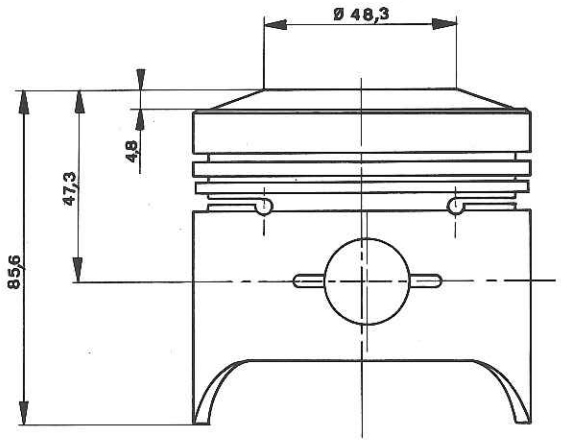
Ceiling 1 over pistons has a diameter of : 52.36 mm and a height of 4.1 mm.

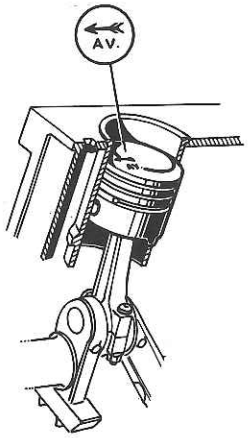
**N° SP - Set : 0111.11.**

PEUGEOT

# XC KF - KF 1 - KF 2

## SLEEVES - PISTONS - RINGS




### PISTONS

Starting with serial nos :

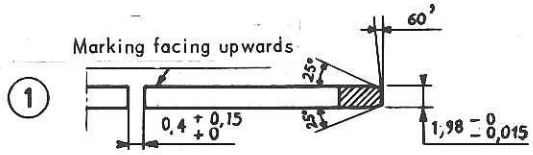
4.570.001
4.594.001

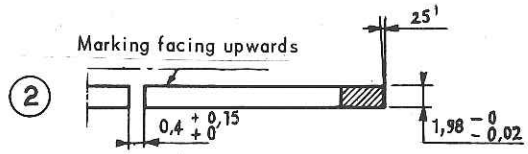
The height of piston head is increased by 0.7 mm in order to compensate for the space created by valve head cavities. As a result the pistons are not interchangeable with the previous type.

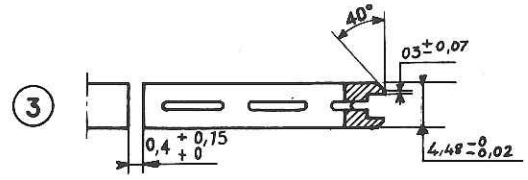
The pistons no longer include a neck above the firing ring.

**N° SP - Set : 0111.15**

On all types the direction of assembly is given by an arrow engraved on the piston head. This must be observed in view of the play in movement of the pin.



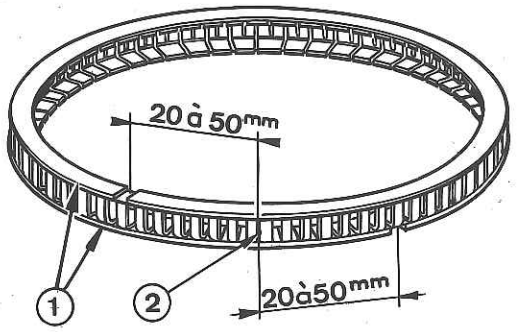

### RINGS

Up to serial nos :

4.557.000
4.592.000

1 - Ring on firing side, in special chrome casting
2 - Sealing ring in special casting
3 - Scraper ring in special casting

for assembly, position marking reference rear firing side towards the ceiling.



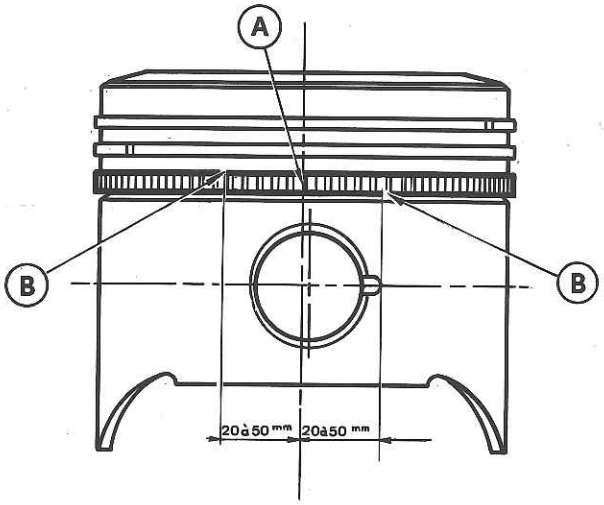

## RINGS

Starting with serial nos :

4.557.001
4.592.001

Scraper ring in casting is displaced by scraper ring of perfect circle type, containing 2 scraper pieces 1 in chrome steel on the working face and an expansion piece 2.

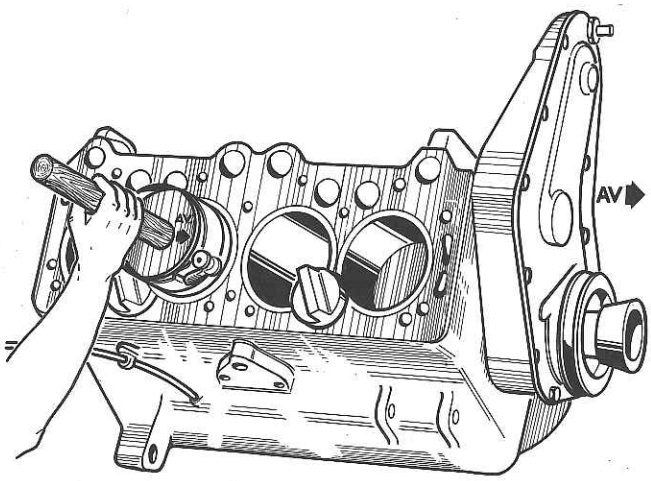
**NB - Never adjust the length of the expansion piece.**




Before assembly, position :

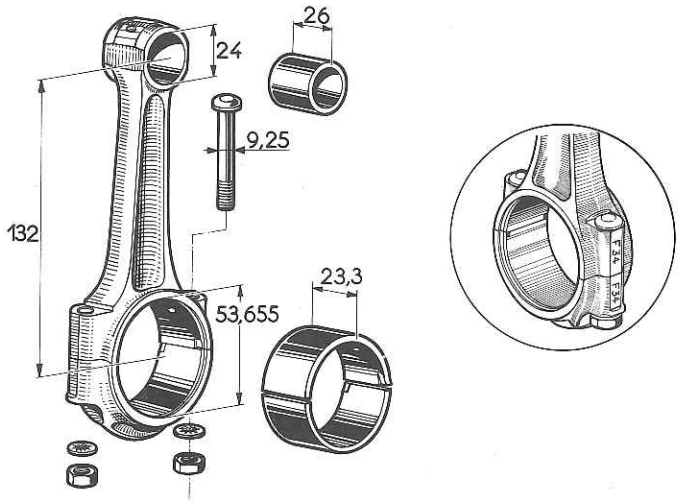
**A** - expansion section
**B** - flexible ring sections

then divide in 3 parts the sealing sections in relation to the position of scraper ring, type «Perfect Circle».




**Positioning of piston in sleeve :**

By means of segment collar type MULLER 582 bis T of 80 mm height, position the notched end towards the top of piston, in order to avoid catching the edge of scraper ring on sleeve bevel.

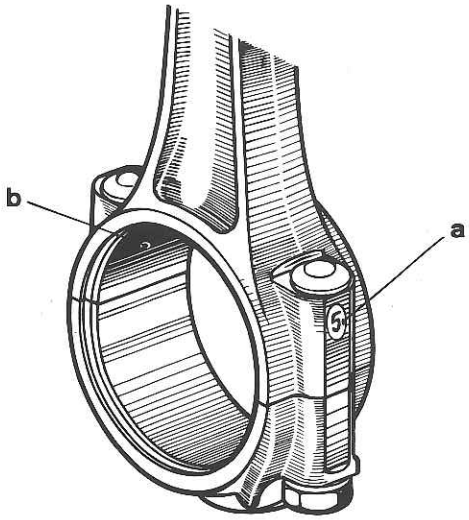



## CONNECTING RODS

In forged steel including :

- at small end : a smooth bush in which the gudgeon pin rotates
- at big end : a set of thin bearings (detachable)

| CONNECTING ROD CHARACTERISTICS | | | | |
|---|---|---|---|---|
| Centre to Centre distance mm | Width at big end mm | Bore or inner diameter at big end mm | Width at small end mm | Bore or inner diameter at small end |
| $132 \pm 0.07$ | $29.93^{-0.05}_{-0}$ | $53.655^{-0.019}_{-0}$ | $26 \pm 0.2$ | $24^{+0.033}_{+0}$ |



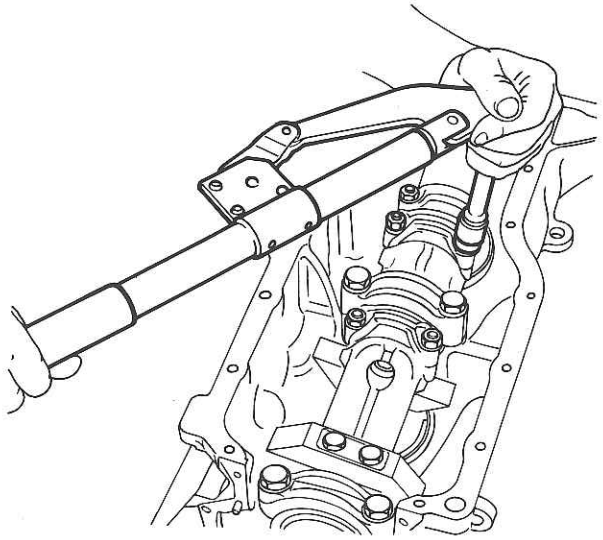

For repair purposes the connecting rods are divided into six different weights, marked from 1 to 6, indicated by letter **a** on the drawing opposite.

| Ref. Mark | Weight in grams | P.N. |
|---|---|---|
| 1 | 591 to 610 | 0601.59 |
| 2 | 611 to 630 | 0601.61 |
| 3 | 631 to 650 | 0601.63 |
| 4 | 651 to 670 | 0601.65 |
| 5 | 671 to 690 | 0601.67 |
| 6 | 691 to 710 | 0601.68 |

These weights are only related to the complete connecting rod without the bearings and the washers.

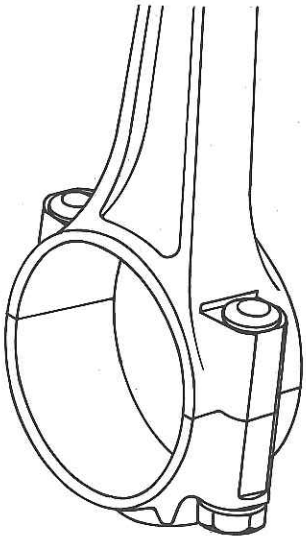
The small end and the big end are marked for assembly.

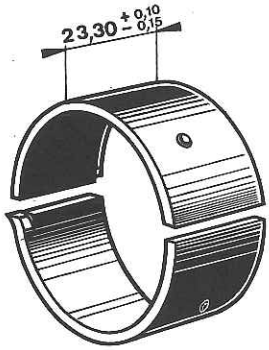
When fitting the connecting rods, position hole **b** (oil thrower hole) **on the side opposite the camshaft.**



***NOTE** - The bolts and washers of the connecting rod big end caps must be replaced at each dismantling operation.*

*Tightening torque of the connecting rod bolts :*
***33 ft lbs** (4.5 m.kg)*






## BEARINGS

### 1st Fitting

The bearings of the first fitting are made of steel and a special lead indium alloy.

### 2nd Fitting

As from serial numbers

**404 KF** - 8 302 717
**404 C.KF** - 6 803 055

The bearings of the second fitting are made of steel and of a tin aluminium alloy.

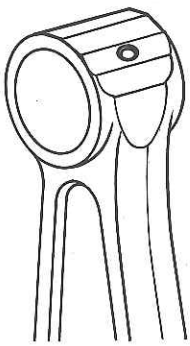
In order to allow for rectification of the crankshaft, two oversize bearings are available :

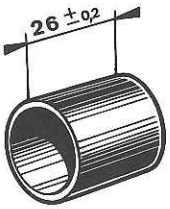
0.30 to 0.50

The bearing thickness should be measured at its centre.

| | Thickness in mm | | Width |
|---|---|---|---|
| | 1st Fitting | 2nd Fitting | |
| Original size | 1.810 to 1.819 | 1.813 to 1.819 | 23.30 +0.10 -0.15 |
| 1st Oversize 0.30 | 1.960 to 1.969 | 1.963 to 1.969 | |
| 2nd Oversize 0.50 | 2.060 to 2.069 | 2.063 to 2.069 | |

Theoretical diametral play :
- 1st Fitting 0.044 to 0.091
- 2nd Fitting 0.038 to 0.091





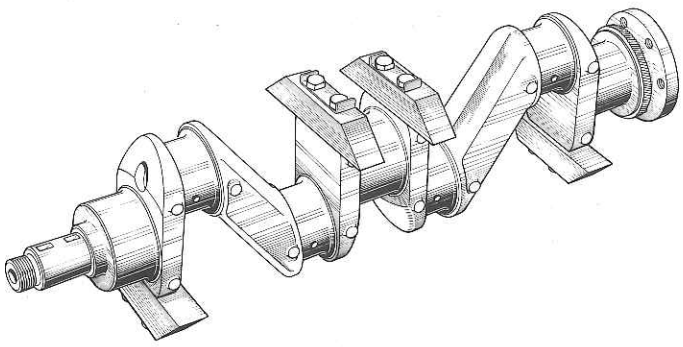

## SMALL END BUSHES

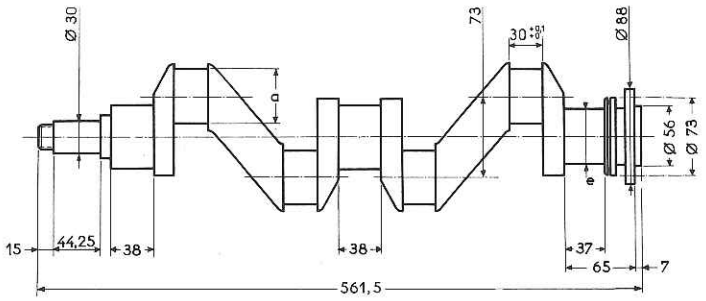
The small end bushes are in treated bronze and their internal diameter after installation is :

22.005 to 22.018

Theoretical diametral play gudgeon pin :

0.005 to 0.026 mm






## CRANKSHAFT

In forged steel, the crankshaft rests on 3 or 5 horizontal bearings and includes 4 detachable counterweights which should carefully be marked when taking apart, as crakshaft is statically and dynamically balanced.

The horizontal motion is limited by two half flange bearings, positioned from one and to the other of the rear bearing.

Up to serial nos :

4.557.000
4.592.000

## CHARACTERISTICS

| | |
|---|---|
| Rear main bearing | Ø 51.166 to 51.181 |
| Middle main bearing | Ø 58.558 to 58.573 |
| Front main bearing | Ø 59.401 to 59.416 |
| Crank pins | Ø 49.975 to 49.991 |

**Adjustment of main bearings :**

Crankshaft bearings can be adjusted to the following specifications :

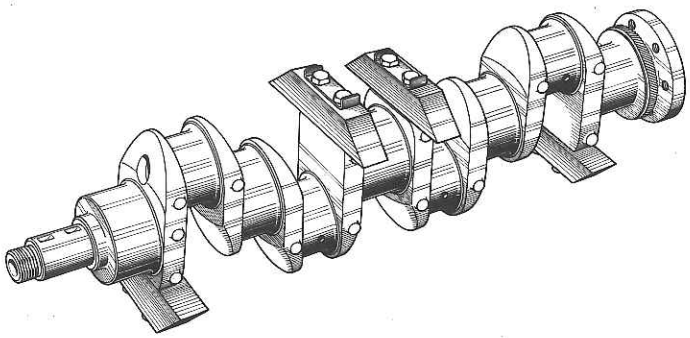
**Repair spec. 0.30 :**

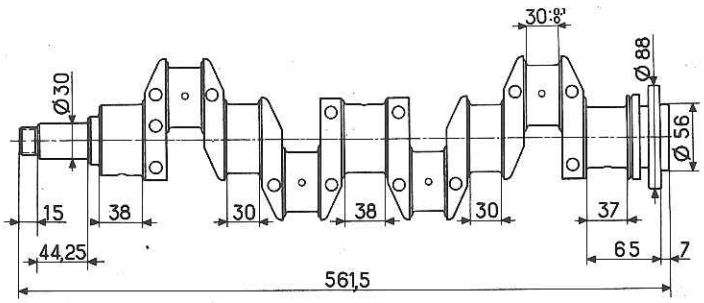
| | |
|---|---|
| Rear main bearing | Ø 50.866 to 50.881 |
| Middle main bearing | Ø 58.258 to 58.273 |
| Front main bearing | Ø 59.101 to 59.116 |
| Crank pins | Ø 49.675 to 49.691 |

**Repair spec. 0.50 :**

| | |
|---|---|
| Repair main bearing | Ø 50.666 to 50.681 |
| Middle main bearing | Ø 58.058 to 58.073 |
| Front main bearing | Ø 58.901 to 58.916 |
| Crank pins | Ø 49.475 to 49.491 |

# XC KF - KF 1 - KF 2
## CRANKSHAFT - FLANGE BEARINGS






### CRANKSHAFT

From serial nos :

4.557.001
4.592.001

Crankshaft rests on five bearings.

### CHARACTERISTICS

| Horizontal bearing | Diameter |
|---|---|
| Rear | 51.166 to 51.181 |
| Interm. rear | 56.150 to 56.165 |
| Middle | 57.174 to 57.189 |
| Interm. front | 58.558 to 58.573 |
| Front | 59.401 to 59.416 |
| Crank pins | 49.975 to 49.991 |

**Repositioning of bearings :**

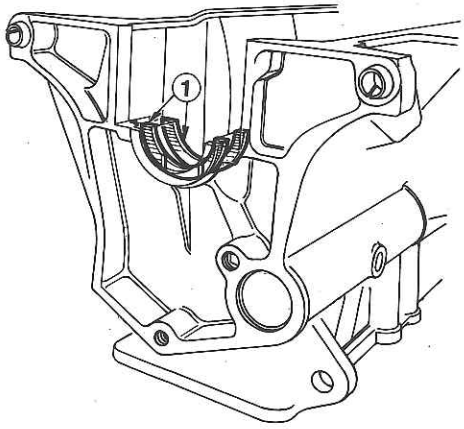
There are 2 working specifications :

**1st spec. 0.30 :**

| | |
|---|---|
| Rear | 50.866 to 50.881 |
| Interm. rear | 55.850 to 55.865 |
| Middle | 56.874 to 56.889 |
| Interm. front | 58.258 to 58.273 |
| Front | 59.101 to 59.116 |
| Crank pins | 49.675 to 49.691 |

**2nd spec. 0.50 :**

| | |
|---|---|
| Rear | 50.666 to 50.681 |
| Interm. rear | 55.650 to 55.665 |
| Middle | 56.674 to 56.689 |
| Interm. front | 58.058 to 58.075 |
| Front | 58.901 to 58.916 |
| Crank pins | 49.475 to 49.491 |

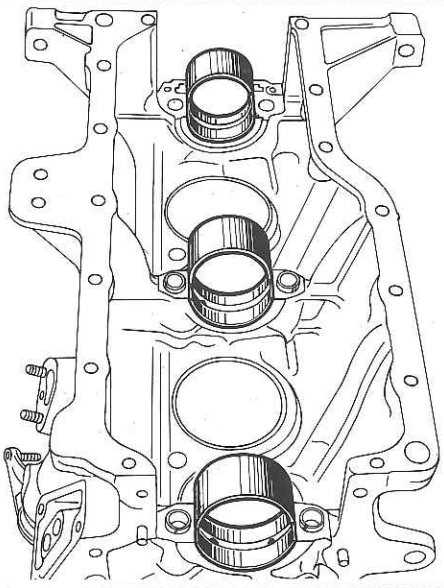



### FLANGE BEARINGS

Flange bearings **1** limit the horizontal movement of crankshaft between 0.08 and 0.20 mm. In order to obtain this tolerances in adjustment, there are the following sizes of flange bearings.

| | |
|---|---|
| Origin | 2.30 N° SP 0118.04 |
| 1st adjustment | 2.40 N° SP 0118.05 |
| 2nd adjustment | 2.45 N° SP 0118.06 |
| 3rd adjustment | 2.50 N° SP 0118.07 |

***NOTE** - On assembling, position bronzed facing edges to crankshaft side.*



## MAIN BEARINGS

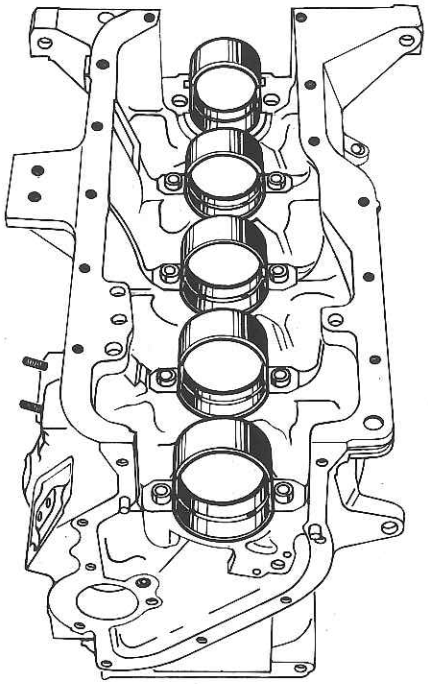
**1st Fitting**

Up to serial numbers :

**404 KF** - 4 557 000
**404 C.KF** - 4 592 000

The main bearings are covered with a special lead indium alloy

| | Thickness, Rear, Middle, Front | P.N. Complete Set |
|---|---|---|
| Original Size | 1.894 to 1.900 | 0115.37 |
| 1st Oversize | 2.044 to 2.050 | 0115.86 |
| 2nd Oversize | 2.144 to 2.150 | 0115.38 |



**2nd Fitting**

As from serial numbers :

**404 KF1** - 4 557 001
**404 C.KF1** - 4 592 001

The main bearings are the same as those fitted on a 404 carburettor engine.

**3rd Fitting**

As from serial numbers :

**404 KF2** - 4 570 001
**404 C.KF2** - 4 594 001

The main bearings are coated with a special lead indium alloy.

**4th Fitting**

As from serial numbers :

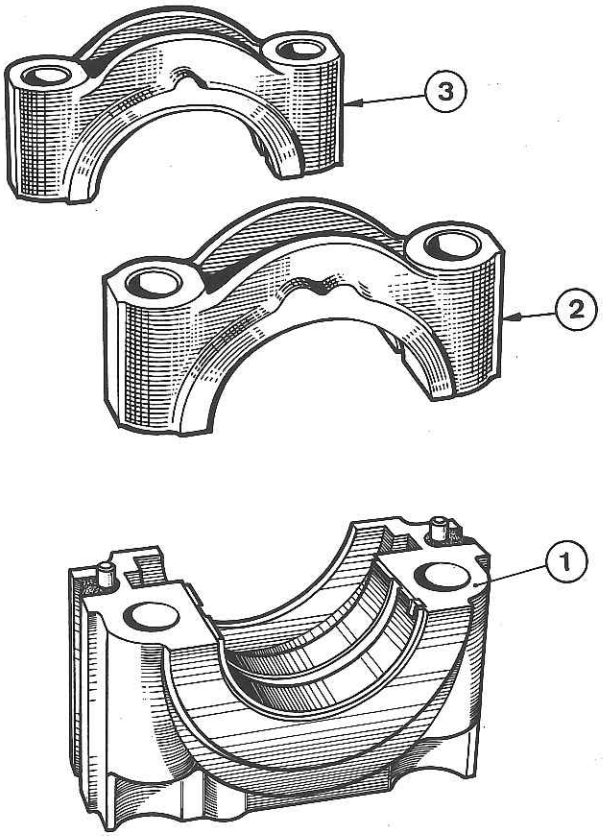
**404 KF2** - 8 302 717
**404 C.KF2** - 6 803 055

The main bearings are made of steel and aluminium tin alloy.

| | Thickness in mm | |
|---|---|---|
| | 3rd Fitting | 4th Fitting |
| Original Size | 1.894 to 1.900 | 1.882 to 1.888 |
| 1st Oversize | 2.044 to 2.050 | 2.032 to 2.038 |
| 2nd Oversize | 2.144 to 2.150 | 2.132 to 2.138 |

Theoretical diametral play

- 3rd Fitting 0.053 to 0.105
- 4th Fitting 0.035 to 0.081




## BIG END BEARING CAPS

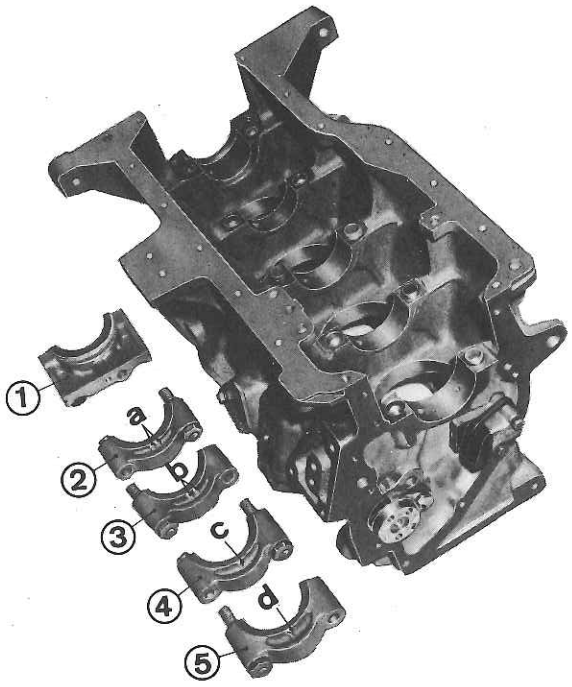
**Three bearing cylinder block**

The front and middle main bearing caps are identified by foundry bosses which should face the engine rear end.

Cap 3 main front bearing 1 boss

Cap 2 main middle bearing 2 bosses

The rear main bearing cap 1 is easily identifiable by its shape (lateral seal recesses).




As from serial numbers :

4 557 001
4 592 001

**Five bearing cylinder block**

All the main bearing caps (except that of the rear bearing) incorporate foundry bosses which should face the engine rear end.

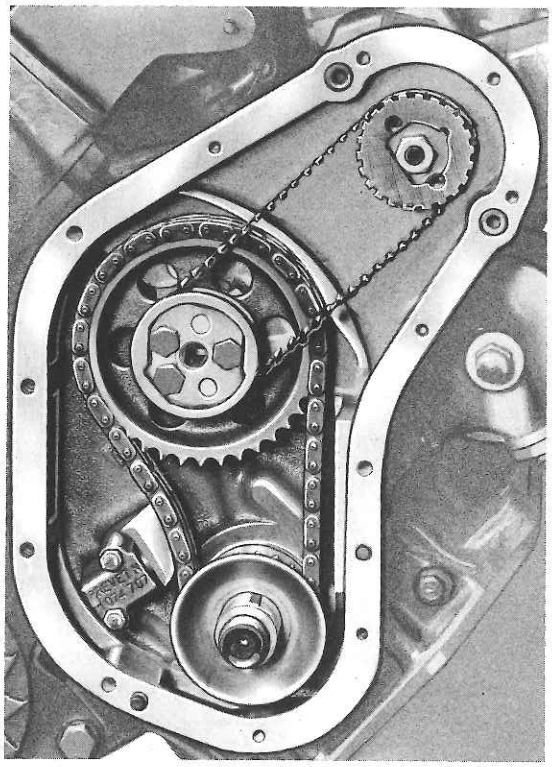
| | | | Width |
|---|---|---|---|
| Front bearing cap 5 | 1 Boss | d | 30 mm |
| Front intermediate cap 4 | 1 Boss | c | 24 mm |
| Middle cap 3 | 2 Bosses | b | 30 mm |
| Rear intermediate cap 2 | 2 Bosses | a | 24 mm |

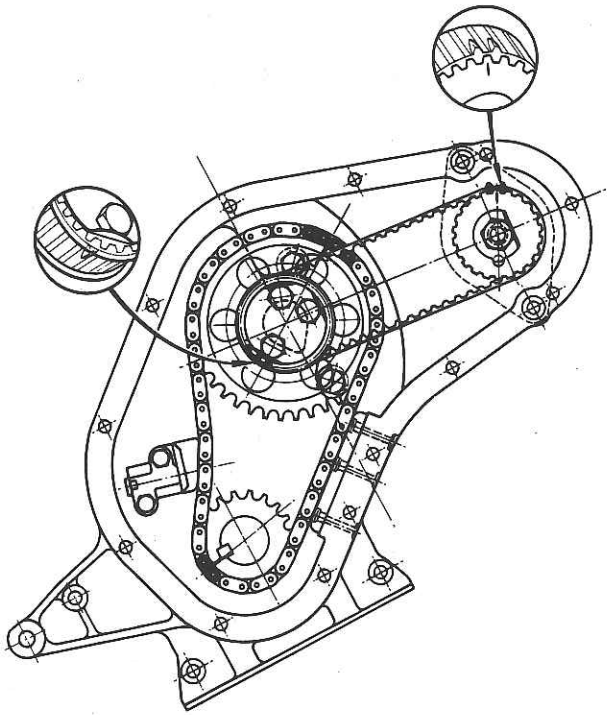
The rear bearing cap 1 is easily identified by its shape (lateral seal recesses)

The main bearing bolt washers must be replaced at each dismantling operation.

Main bearing bolts tightening torque :

**55 ft lbs** (7.5 m.kg)





## DESCRIPTION

**Camshaft driving :**

Conventional chain with RENOLD tensioner and side movement checking sole on housing.

**Injection pump driving :**

Through a SEDIS belt, made of wire-reinforced Rilsan, incorporating thirty-eight 13-mm wide teeth, pitch 8 mm.

- Actuated by a 22-tooth pinion secured to the camshaft chain-wheel and incorporating two positioning flanges.
- Driving a 22-tooth pinion on the injection pump.

Distance between centres of the two above gears : 144 mm.

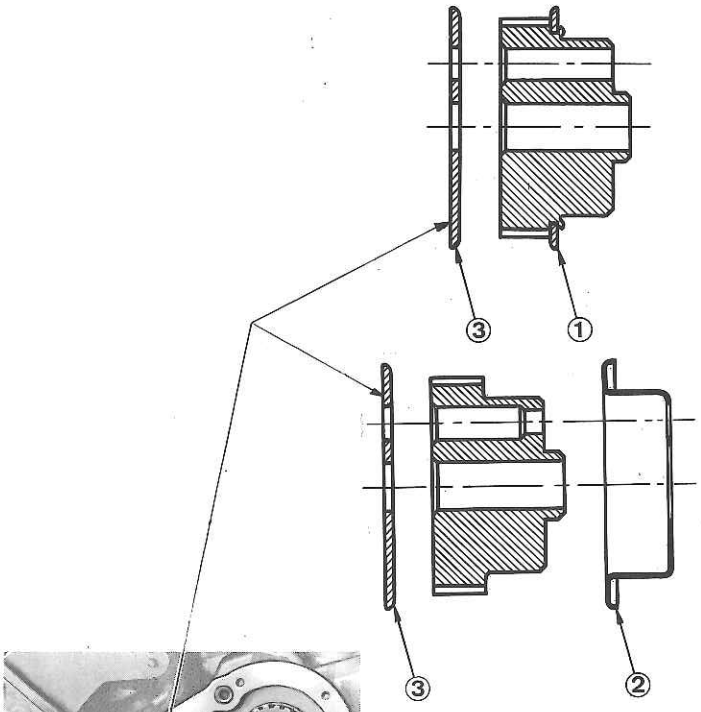
No chain-tensioner is used ; belt-tension is factory-adjusted, and the adjustment should be respected when installing the timing gear housing (see following pages).

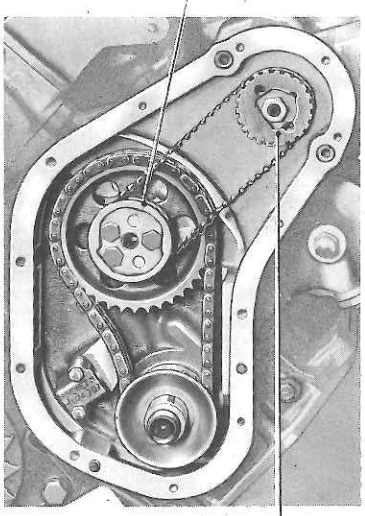
## BELT

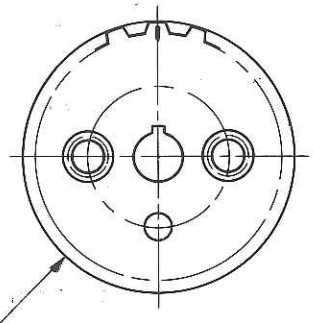
**Installation**

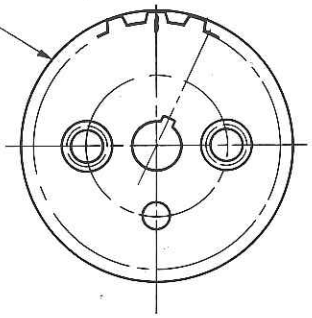
- Notches towards the front.
- Single notch facing reference mark on driving pinion flange (camshaft).
- Double notch facing reference mark on injection pump pinion.

PEUGEOT







## CAMSHAFT-MOUNTED PINION (POSITIONING FLANGES)

**Outer flange**

Chamfer 3 should always face belt.

**Inner flange**

**1st Installation**

Steel pinion, with crimped steel flange 1.

Up to serial numbers :

404 KF - 4 554 125
404 C.KF - 4 591 424

**2nd Installation**

Cast iron pinion, with pressed steel flange 2 secured by the three camshaft chain-wheel attachment screws.

Parts used for both installations are interchangeable, provided the corresponding flanges are used.

## INJECTION PUMP PINION

**1st Installation**

The timing mark is in line with the keyslot.

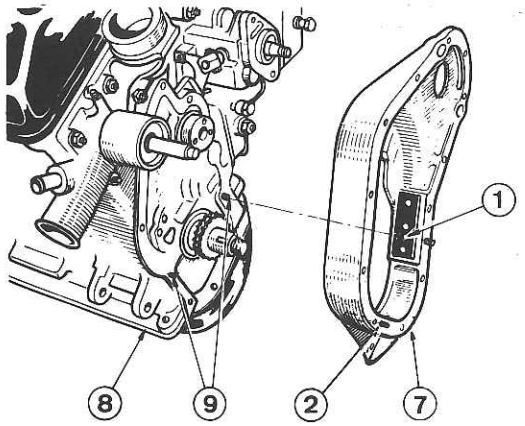
**2nd Installation**

As from serial numbers :

404 KF 2 - 4 574 001
404 C.KF 2 - 4 594 001

the timing mark is offset by 25 deg. to increase injection advance.

Second Installation pinions should preferably be used in all cases when replacement becomes necessary.



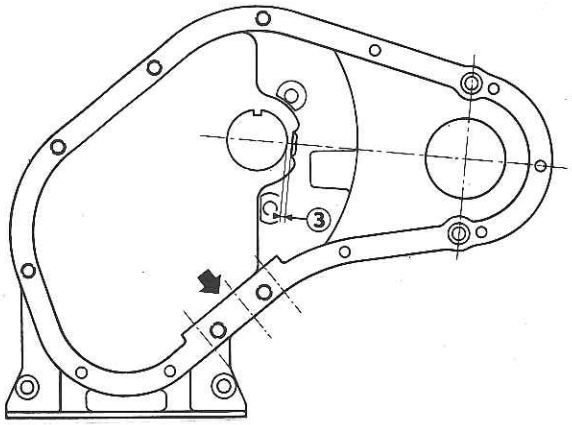

**1st Installation**

Up to serial numbers :

| | |
|---|---|
| **404 KF** | - 4 553 400 |
| **404 Coupe KF** | - 4 591 216 |
| **404 Convertible KF** | - 4 591 233 |

**the timing gear housing is positioned on the cylinder block** by means of two 7-mm dia. studs **9** incorporated in cylinder block **8** and corresponding to the following on timing gear housing **7** :

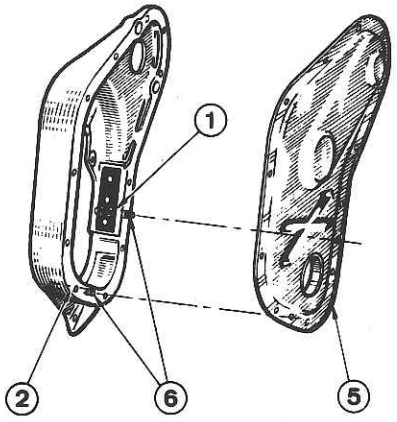
a 7-mm dia. hole on side **1**
an 8-mm dia. hole on side **2**




**Sedis belt tension adjustment**

Dimension **3**, i.e. .05 ± .02 mm between reference pad in housing and camshaft must be obtained during assembly by rotating the housing about point **1**, to obtain normal tension of the SEDIS belt and noiseless operation.

If difficulties are experienced during adjustment, stud **9** corresponding to hole **2** should be removed ; then positioning studs **6** for timing gear cover **5** should also be removed.

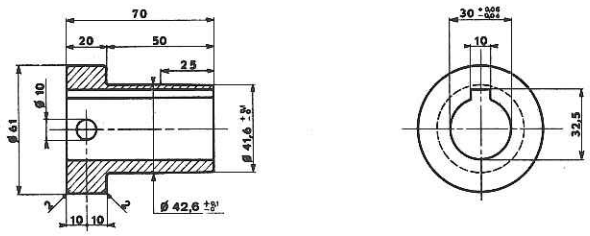



**Positioning of cover 5 on the timing gear housing**

is achieved by means of two 8-mm dia. studs **6** mounted on the front face of the housing at locations **1** and **2**.

These studs fit into two 8.04 mm dia. holes in cover **5**.

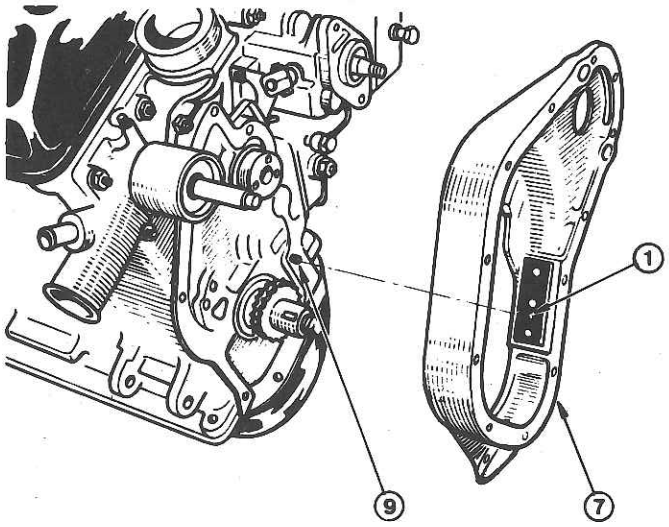
Socket No. **0.0104** should be used to properly position the cover before tightening the bolts, if the positioning studs have been removed previously.




The socket should be fabricated according to drawing opposite.

# XC.KF - KF 1 - KF 2

## TIMING GEAR HOUSING AND COVER



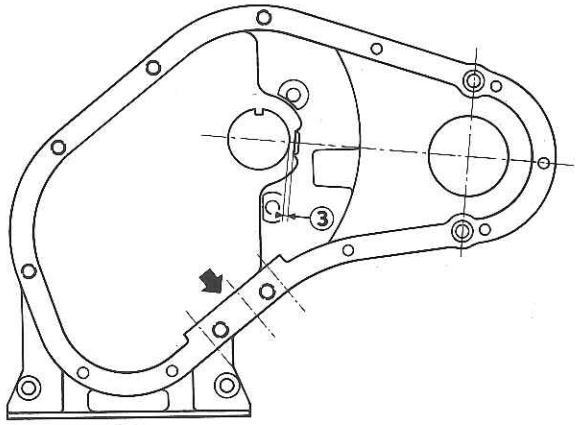

**2nd Installation**

As from serial numbers :

| | |
|---|---|
| 404 KF | - 4 553 401 |
| 404 Coupe KF | - 4 591 217 |
| 404 Convertible KF | - 4 591 234 |

**the timing gear housing is positioned on the cylinder block**

by means of 7-mm dia. stud **9** secured in the cylinder block and corresponding to a 7-mm dia. hole drilled at point **1** in the timing gear housing **7.**



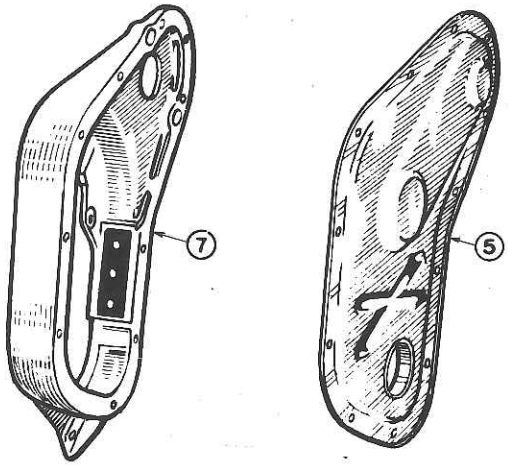

**Sedis belt tension adjustment**

Dimension **3**, i.e. .55 ± .02 mm between reference pad in housing and camshaft must be obtained during assembly by rotating the housing around point **1.**

**Identification**

is made by noting whether the positioning studs and holes are present or not.

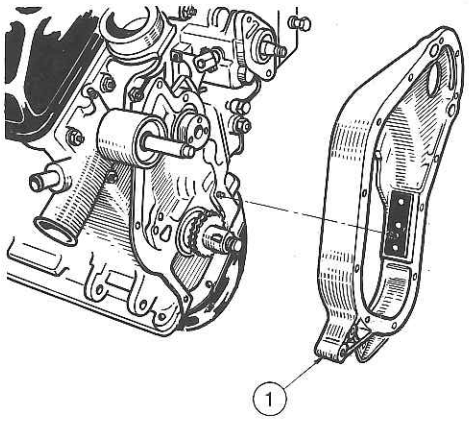
Parts from both sets are interchangeable, provided the interfering studs are removed as required, and provided dimension **3** is adjusted to the prescribed value for the corresponding housing.




**Positioning of cover 5 on the timing gear housing**

The corresponding parts have been deleted, as well as the holes in the gasket.

Socket No. **0.0104** used for both 403 and 404 cars should be used to properly position the cover before the bolts are tightened.



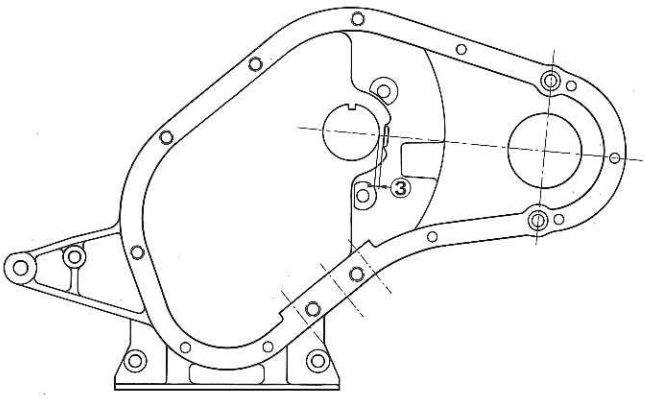

**3rd Installation**

As from serial numbers :

404 KF2 - 4 589 001
404 C.KF2 - 4 597 001

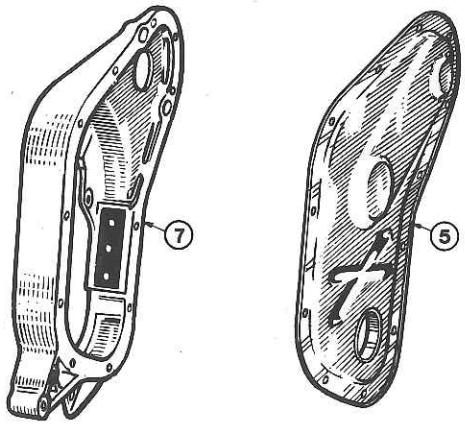
the timing gear housing incorporates a lug used for securing the alternator.

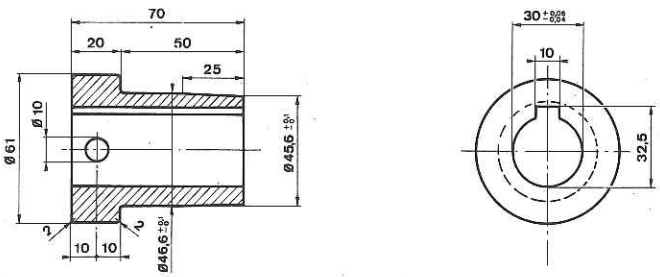
Positioning of the housing on the cylinder block is achieved in the same manner as for the 2nd installation.




**Sedis belt tension adjustment**

Dimension 3, i.e. .55 ± .02 mm between reference pad in housing and camshaft must be obtained during assembly by rotating the housing about point 1, to obtain normal tension of the SEDIS belt and noiseless operation.



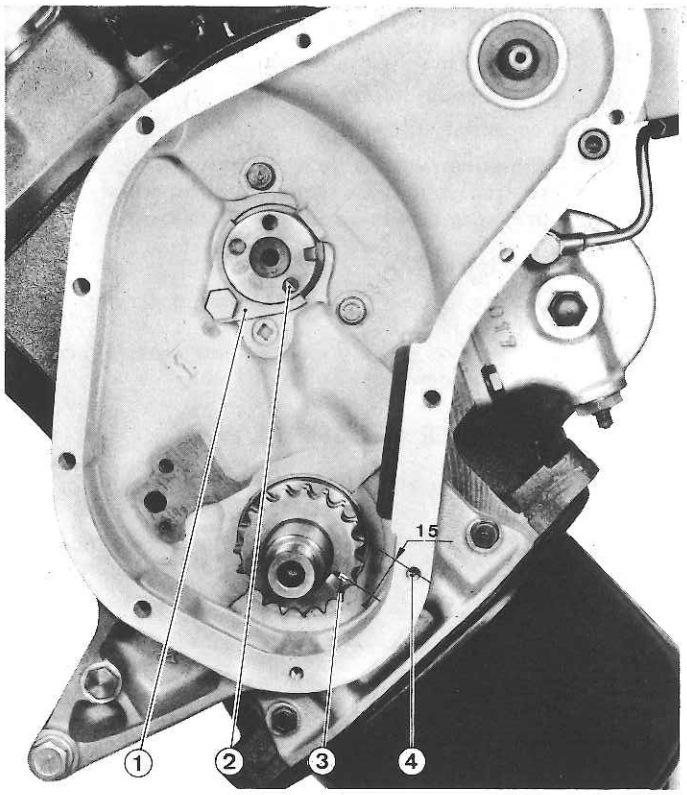




**Timing gear housing cover**

The pulley access hole dia. has been increased from 42 mm to 46 mm.

Properly position the cover using socket No. **0.0128** before tightening the bolts.

The socket should be fabricated locally, according to drawing opposite.

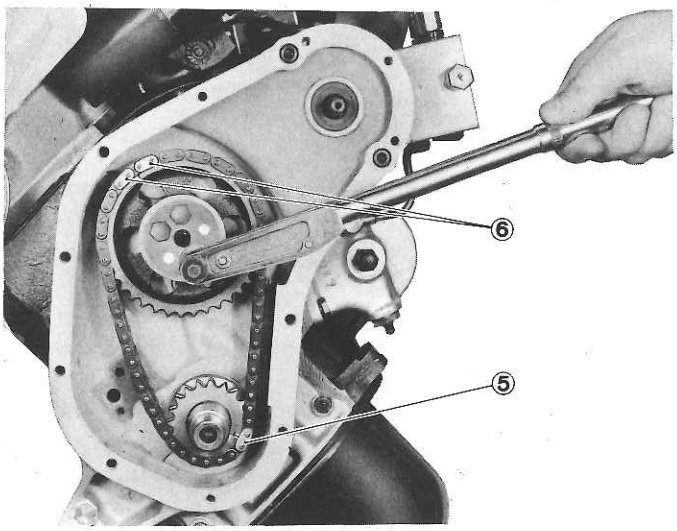



**Timing adjustment**

Make sure the pistons are not at T.D.C.

- Rotate camshaft clockwise until front stop **1** covers one half of camshaft hole **2.**

- Rotate crankshaft until sproket reference mark **3** is about 15 mm from timing gear housing hole **4,** or until key is downwards and alined with engine axis.



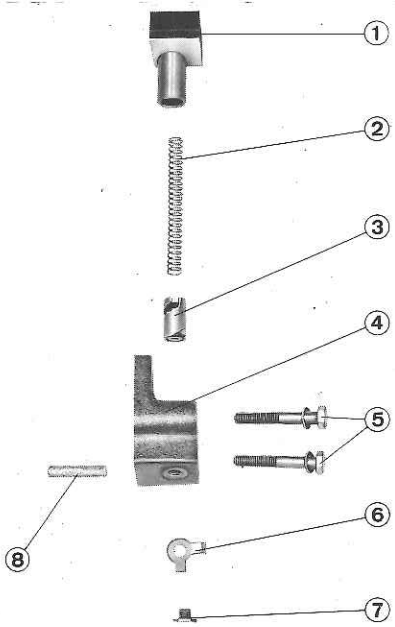

Bring the following into alignment :

- Single mark **5** on chain with mark on crankshaft chain-wheel.

- Twin mark **6** on chain with mark on camshaft chain-wheel.

- Install three screws and tighten to **2.5 m.kg (18.1 ft.lbs).**

- Lock the screws.




## TIMING CHAIN TENSIONER

This hydraulic, automatically-compensated tensioner holds timing chain tension to a constant value.

- A plunger with a notched helical slot is used to limit chain movement and backlash before pressure builds up in the oil system.

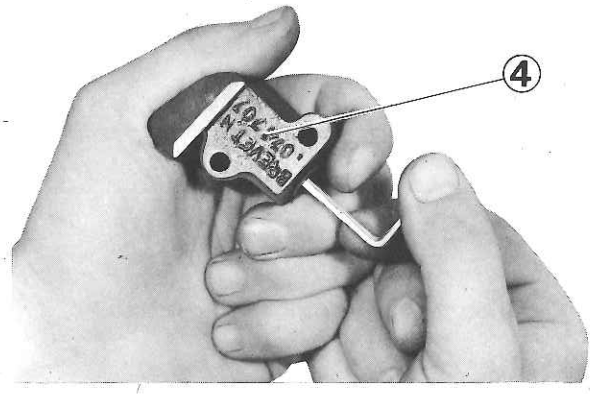
**Description :**

1 - Shoe
2 - Spring
3 - Plunger
4 - Tensioner body
5 - Assembling screws
6 - Lock
7 - Obturating (closure) screw
8 - Oil filter

## TENSIONER RE-ASSEMBLY

- Assemble shoe 1, spring 2 and plunger 3.

- Using a 3-mm «Allen» wrench, lock the plunger into the shoe by turning the wrench clockwise.

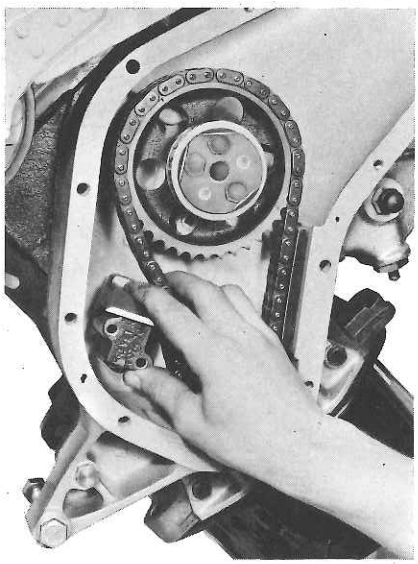



- Position the shoe assembly into tensioner body 4.

- Depress shoe against tensioner body and arm tensioner by rotating the «Allen» wrench clockwise.

- Install lock, obturating screw, tighten screw and bend lock tab.

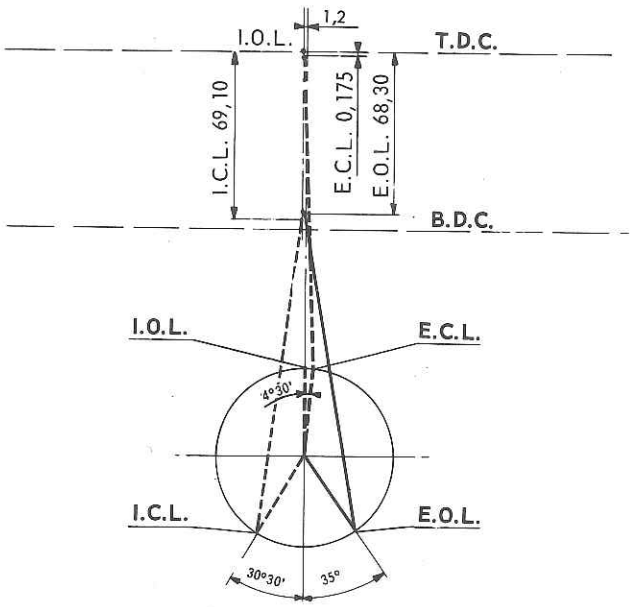
- Insert filter into housing in tensioner body.



- Position the assembly with shoe turned upwards, and install it in the engine by engaging the filter in the cylinder block oil channel.

- Carefully rotate tensioner body around the filter.

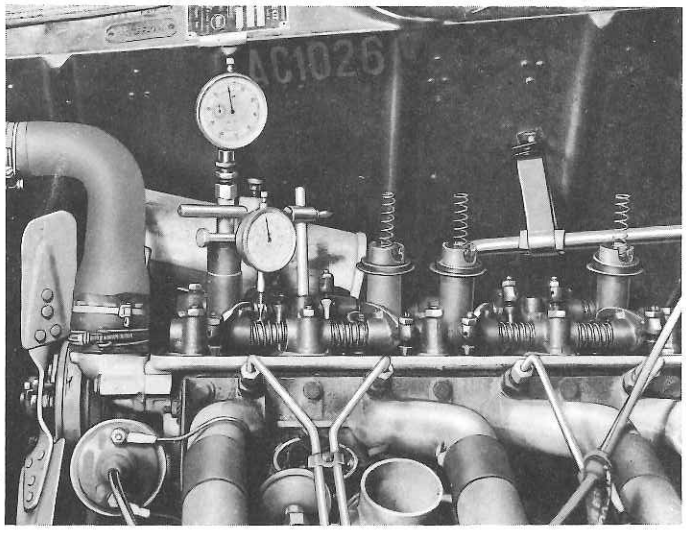
- Install two screws and tighten to **.75 m.kg (5.4 ft.lbs)** ; release shoe ; the tensioner spring acts upon the shoe and automatically adjusts the tension of the timing chain.




**Theoretical adjustment**

Adjustment values are given below for a .70 mm clearance at the intake and exhaust rockers of the corresponding cylinder.

| Reference phase | Angular setting on engine flywheel | Corresponding piston stroke (mm) |
|---|---|---|
| I .O. L | 0 (T.D.C.) | 0 (T.D.C.) |
| I .C. L | 30° 30' | 69.10 mm |
| E.O. L | 35° | 68.30 mm |
| E.C. L | 4° 30' | .175 mm |



**Timing check**

This check should be carried out only at the T.D.C. or about, i.e. :

Intake Opening Lead : 0
Exhaust Closing Lag : .175 mm

alignment errors of one tooth can thus be detected automatically without resorting to other measurements which would necessitate removal of the cylinder head.