CHAPTER B

ENGINE

B

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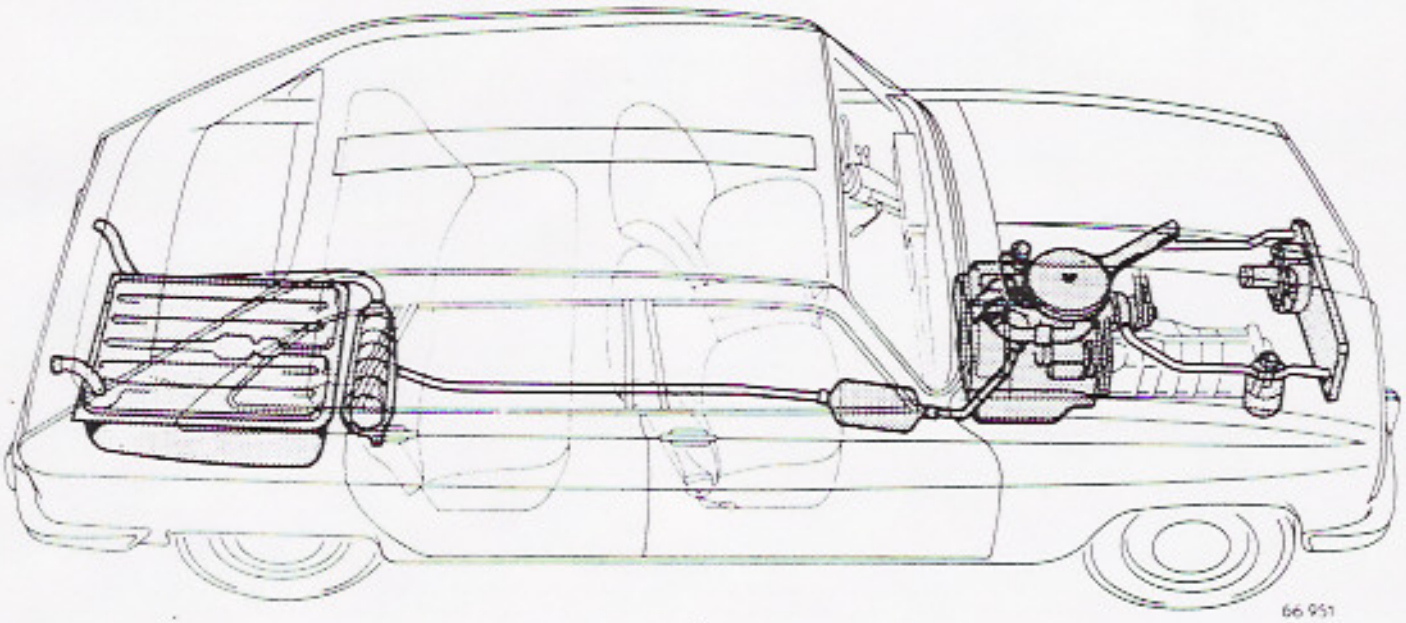
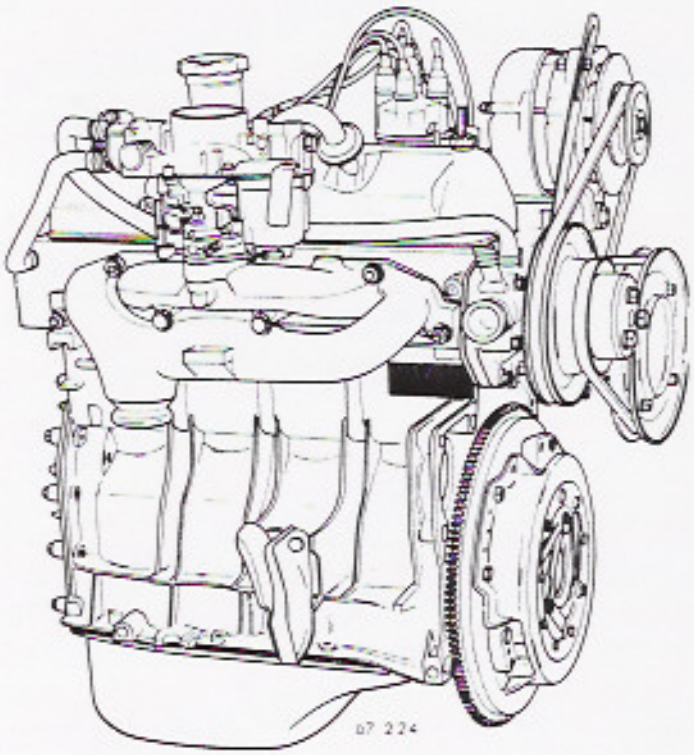


I - IDENTIFICATION



The type, index and manufacturing number are given on a number plate which is riveted to the right-hand side of the engine.

Type 697.

II - SPECIFICATIONS

Four cylinder in line vertical.
Four stroke.
Five bearing crankshaft.

Taxable horse power 8 h.p.

	697-01	697-02	697-03
Compression ratio	8.6	7.6	7.25
Brake horse power (S.A.E. new standards)	63 b.h.p. at 5,000 r.p.m.	60 b.h.p. at 5,000 r.p.m.	
Max. torque (S.A.E. new standards)	10.8 m.da N (76 lb/ft at 2,800 r.p.m.)	10.2 m.da N (72 lb/ft at 2,800 r.p.m.)	
Bore	76 mm (2.992")		
Stroke	81 mm (3.189")		
Cubic capacity	1470 c.c. (90 cu.in)		
Initial timing at the ~~pulley~~ flywheel.	$0^{o} \pm 2$		
Normal operating temperature	84^{o}C (183 F) and 73^{o}C (163 F) for hot countries.		

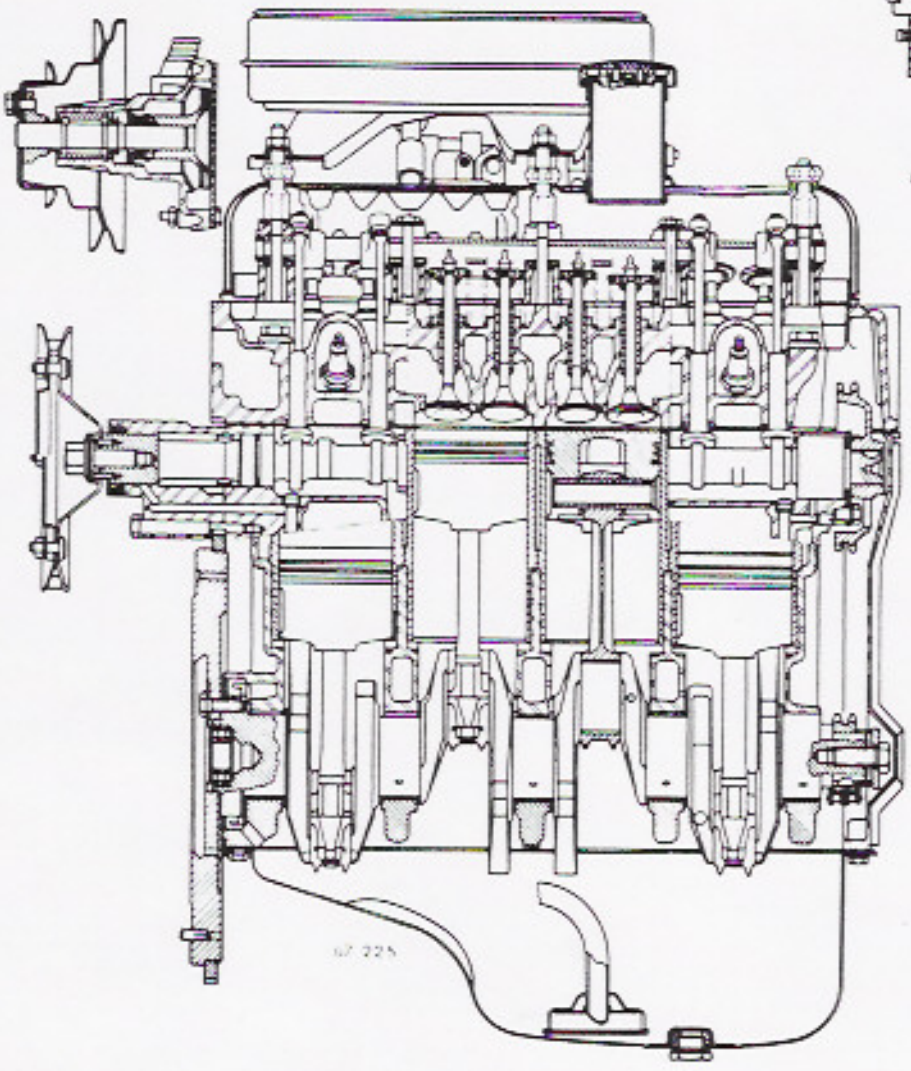
Overhead valves operated by rocker arms.
Chain driven timing gear.
Ignition timing by rotary distributor with centrifugal advance and vacuum correction.
Firing order 1 - 3 - 4 - 2.
14 mm spark plugs, long reach type.
Fuel system with diaphragm pump and carburettor.
Coolong by means of anti-freeze mixture contained in a sealed circuit.
Capacity : 5.8 litres (6 qts. U.S. 5 1/4 qts. Imp.) including the heater.

Centrifugal water pump.
Fin type radiator.
Independent electric fan operated by a temperature switch on the radiator.
Pressure lubrication by means of an excentric rotor pump.
Engine oil capacity :
- Max. : 4 litres (4 1/4 qts. U.S. $3\frac{1}{2}$ qts. Imp.)
- Min. : 3 litres (3 1/4 qts. U.S. $2\frac{3}{4}$ qts. Imp.)

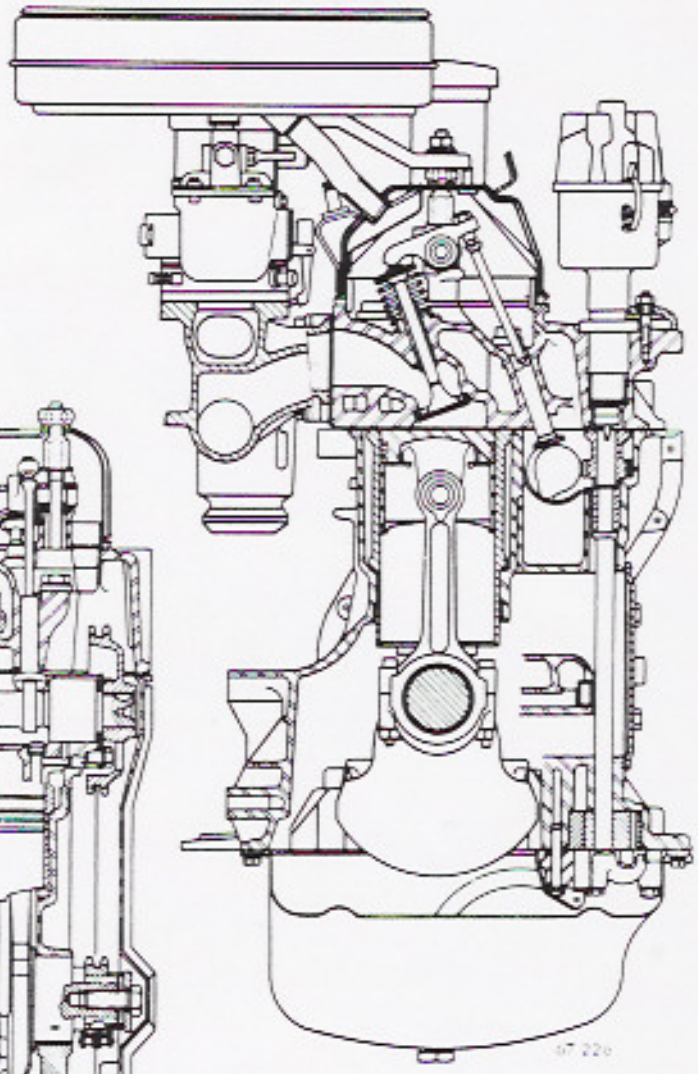
Initially filled with : 4.8 litres (5 qts. U.S. 4 1/4 qts. Imp.)

III - SECTIONS

Longitudinal



Cross



IV - REMOVING AND REFITTING THE ENGINE

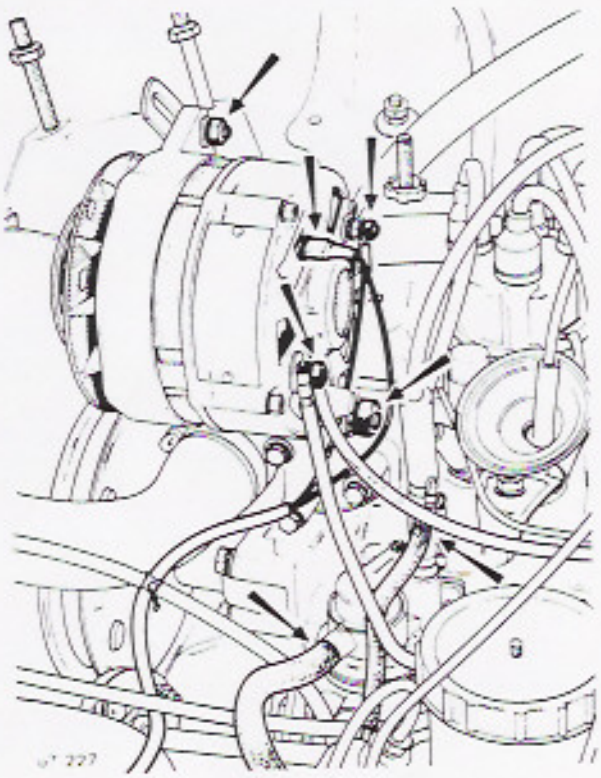
The engine cannot be removed alone.
The engine and gearbox (transmission case) assembly must be removed as one piece.

A/- Removing

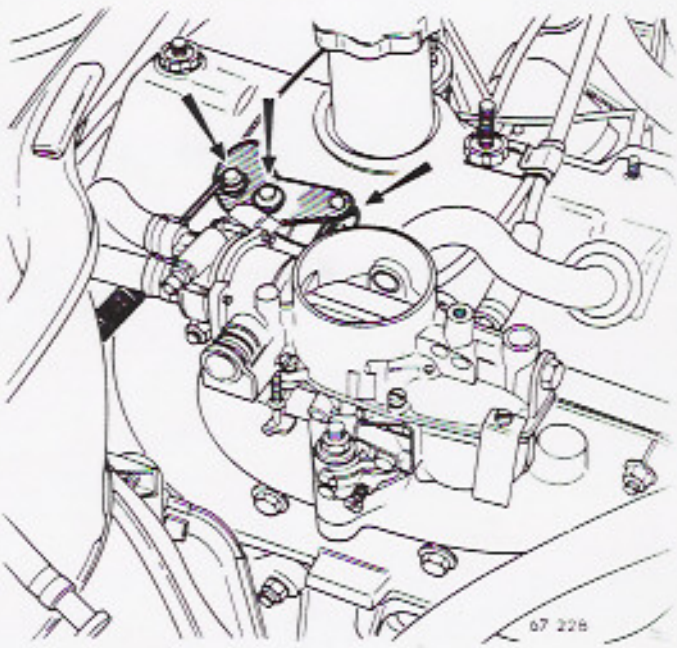
Disconnect the battery.
Remove the spare wheel.
Drain :
- the cooling system.
- the gearbox (transmission case) : wrench B.Vi. 380.

Remove the bonnet (hood) retaining cable and lift it to its maximum extent.

Remove :
- the fan and its casing.
- the air filter.
- the spare wheel carrier cross member.

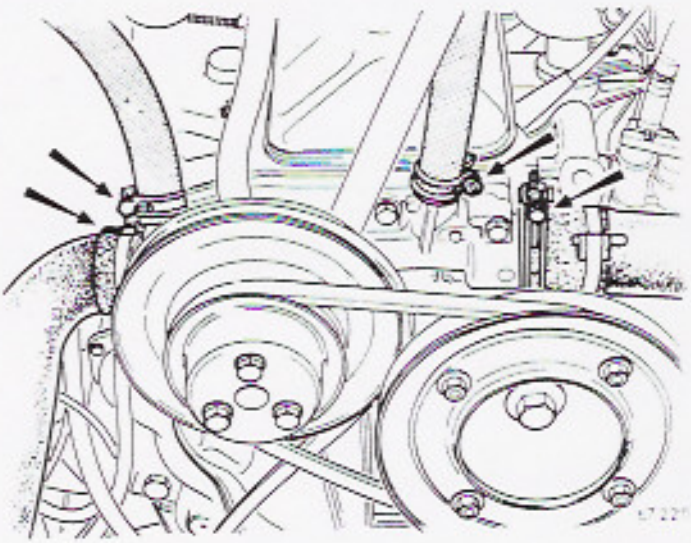


Disconnect the alternator leads.
Disconnect :
- the inlet pipe at the fuel pump.
- the fuel return pipe to the tank.

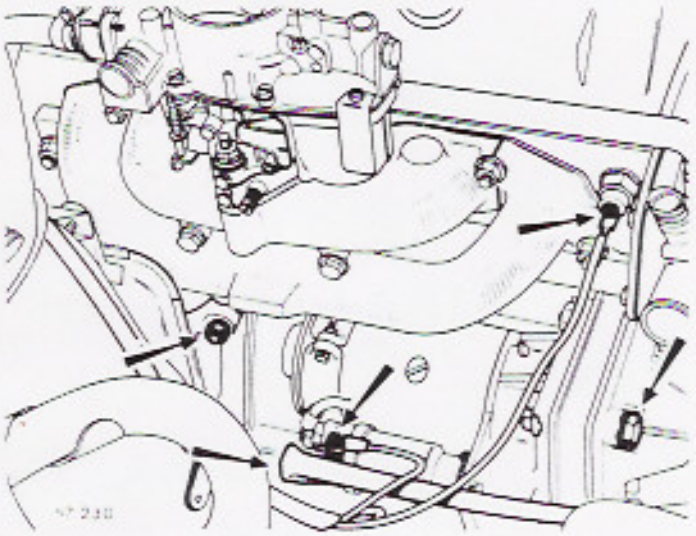


Disconnect :
- the input lead at the ignition coil.
- the accelerator spring.
- the accelerator link.
- check the cable (when applicable).

Remove the accelerator cable idle lever.

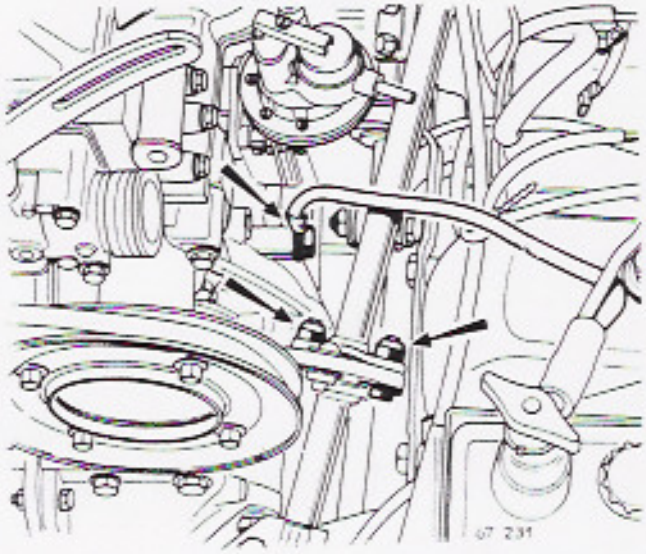


Disconnect the heater radiator hoses at the water pump.

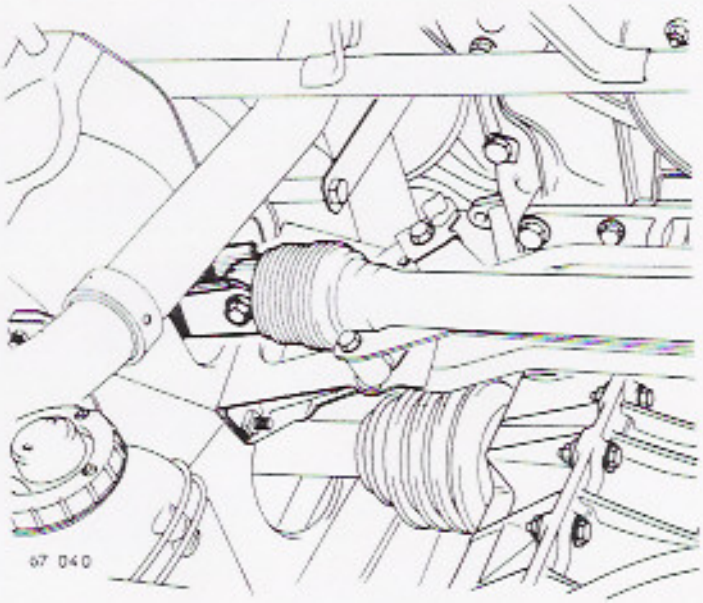


Disconnect :
- the lead from the temperature switch on the cylinder head.
- the starter leads.

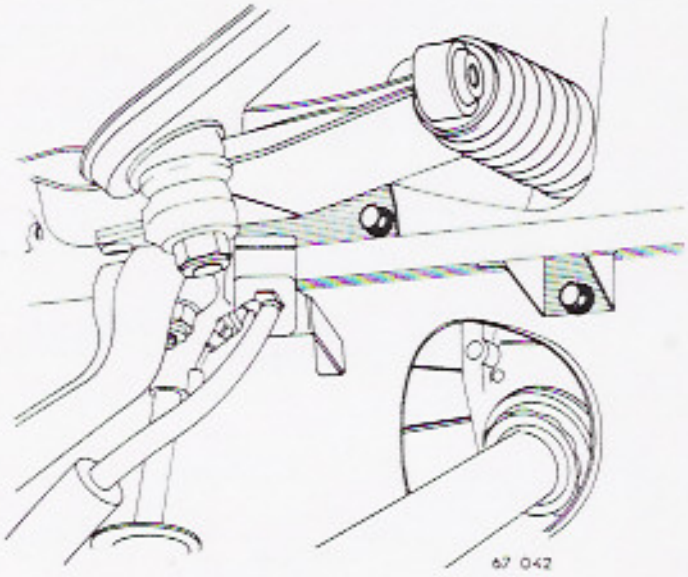
Remove :
- the exhaust pipe clamp.
- the upper bolt on the starter.



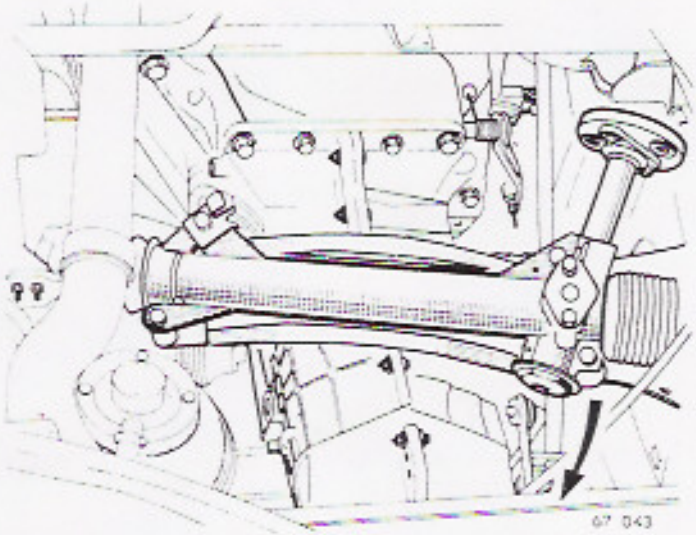
Remove the two bolts which secure the steering flexible coupling to the steering column.
Remove the bolt which secures the earth (ground) lead to the cylinder block.
Disconnect the oil pressure switch lead.

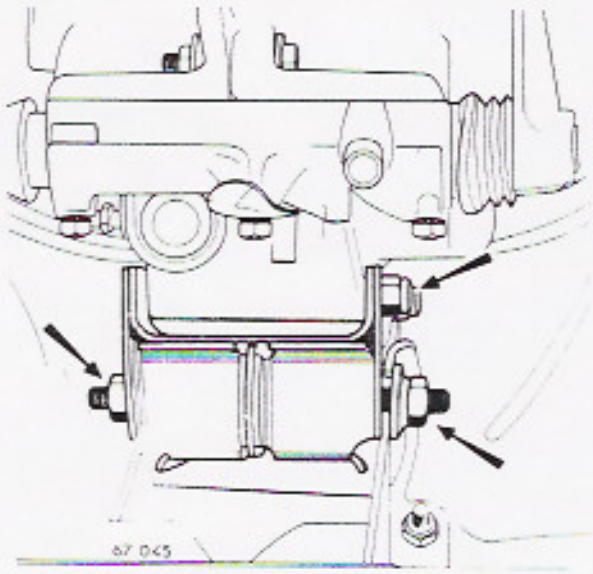


Turn the steering to the left and disconnect the right-hand steering link from the adjustable end fitting.
Turn the steering wheel to the right and disconnect the left-hand link.



Remove the four bolts which secure the steering cross member to the cowl sides.

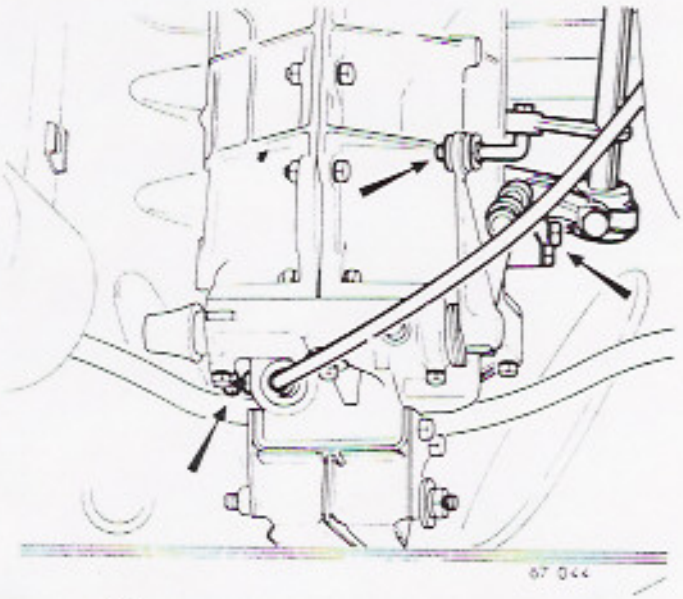


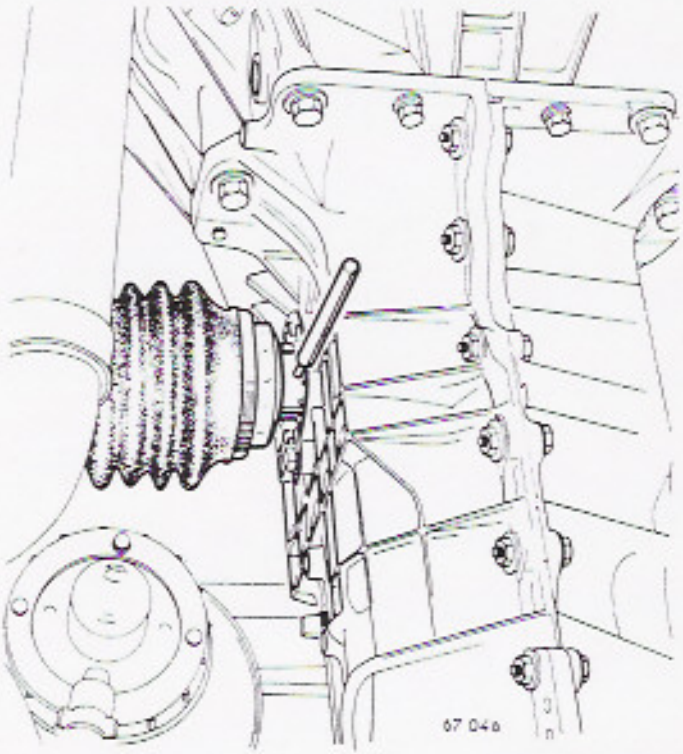


Remove the "steering - cross-member" assembly as follows :

turn the steering through its full lock to the right, free the left-hand end of the assembly towards the front, and remove it.

Unscrew the 2 nuts which secure the front mounting pad in order to free the two anchor washers.
Remove the 2 bolts which secure the mounting pad to the front housing.
Remove the pad and its bracket.

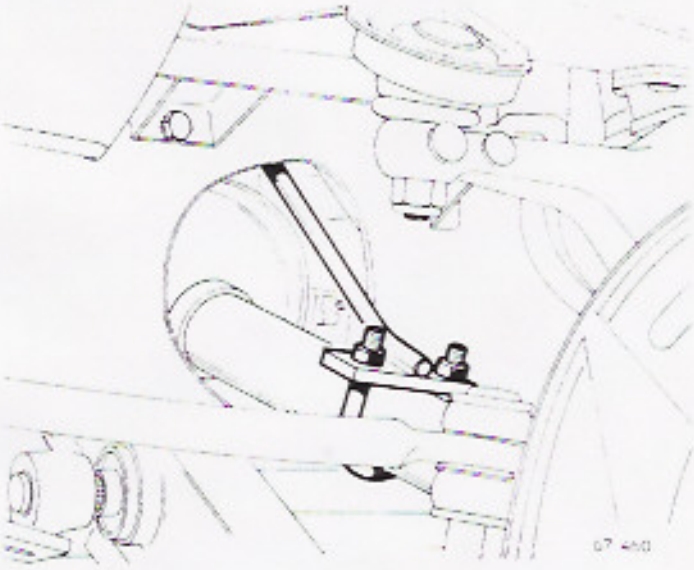




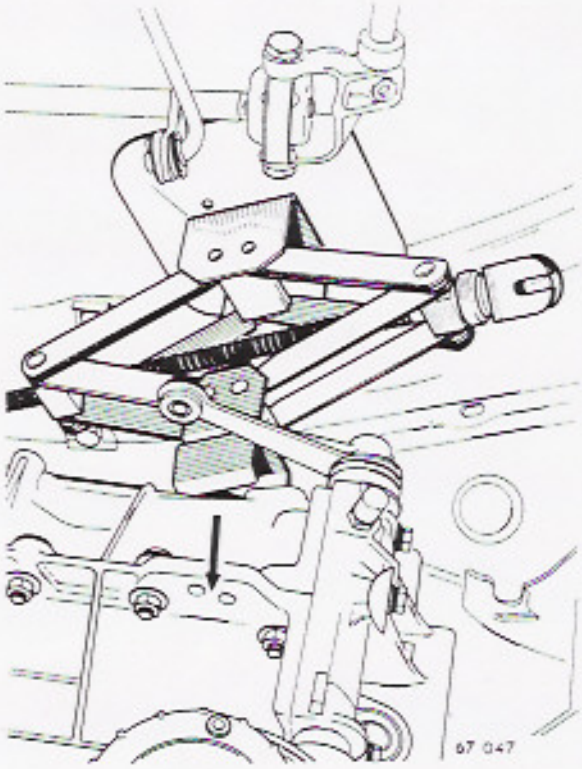
Disconnect :
- the speedometer drive cable.
- the link at the gear shift lever.

Remove the two bolts which secure the gear shift to the gearbox (transmission case) and pull back the control.
Hook it to the battery support.

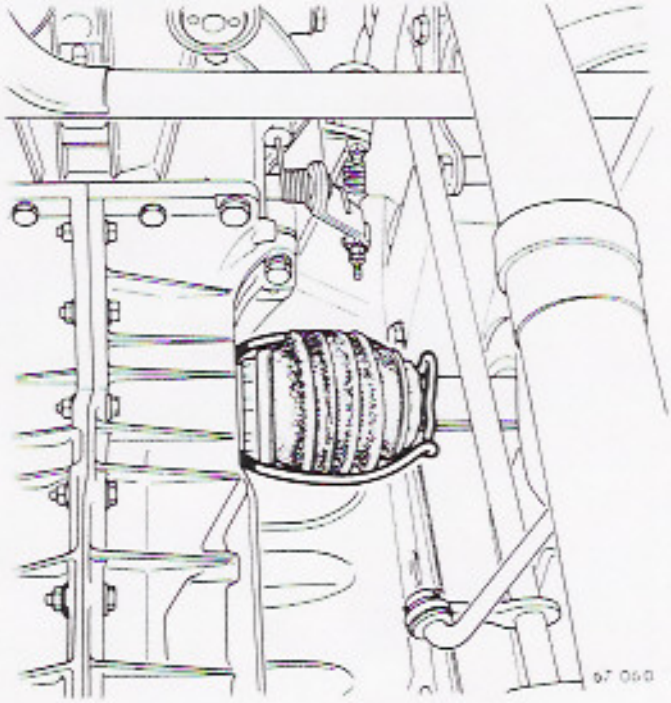
Push the roll pins from the transmission shafts by means of the drift B. Vi. 31 B.



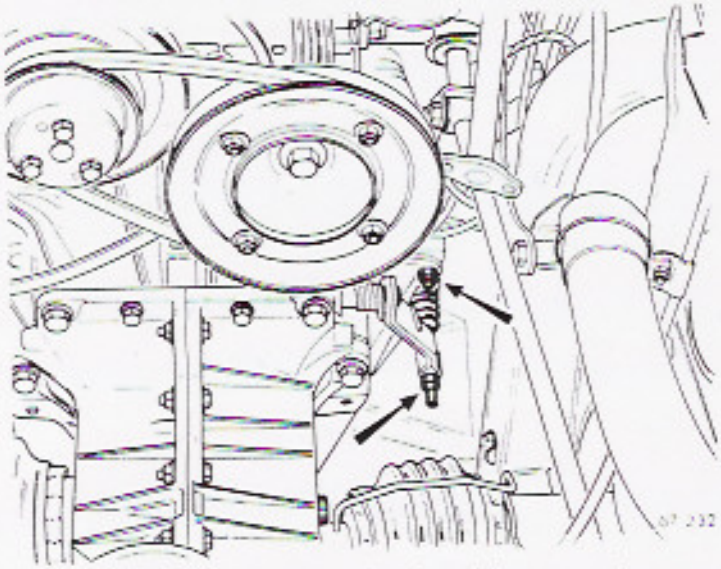
Fit the transmission shaft retaining tool in order to avoid the joint coming out of place.
- T.Av.247 is used for transmissions with a metal covering on the Weiss joint.



Place a jack between the gearbox (transmission case) and the left-hand side member.
Push the gearbox by means of the jack and free the transmission shaft from the sun wheel.



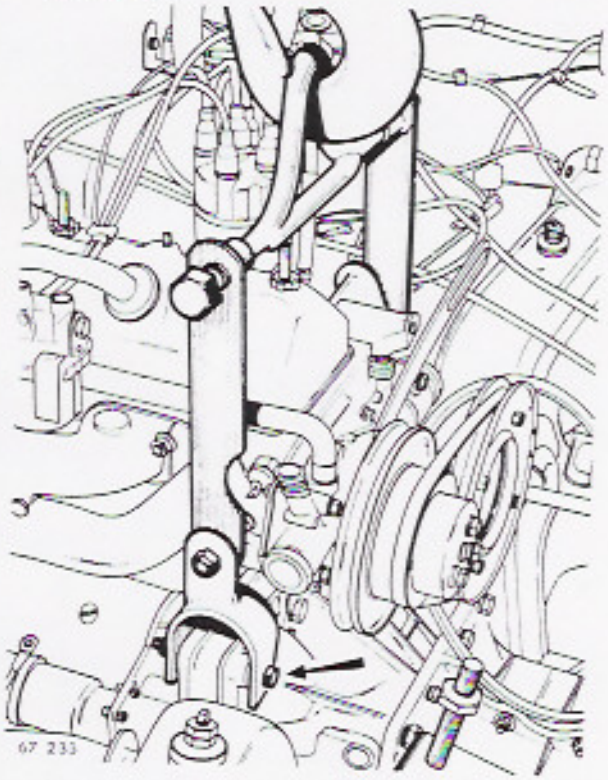
- the tools supplied with the new transmission shaft in the case of those which have rubber bellows on the Weiss joint.



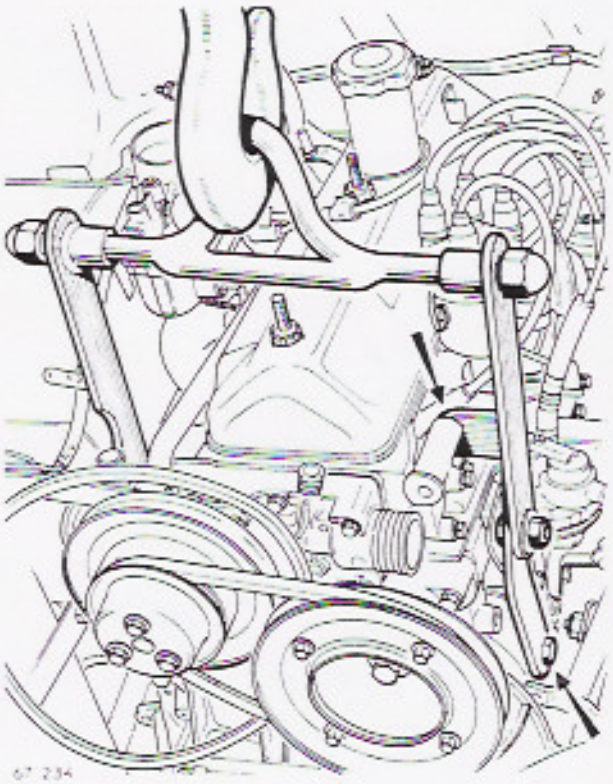
Disconnect the clutch cable, free the bellows and push out the end of the cable from the end stop.
Remove the jack and place it on the right-hand side.
Push the box over and free the transmission shaft from the sun wheel.

IMPORTANT :

IT IS FORBIDDEN TO USE ANY FORM OF LIFTING EQUIPMENT WHICH TAKES THE LOAD UNDER THE MANIFOLD OR WHICH IT IS RETAINED BY THE CYLINDER HEAD BOLTS. USE ONLY SLING Mot. 367.

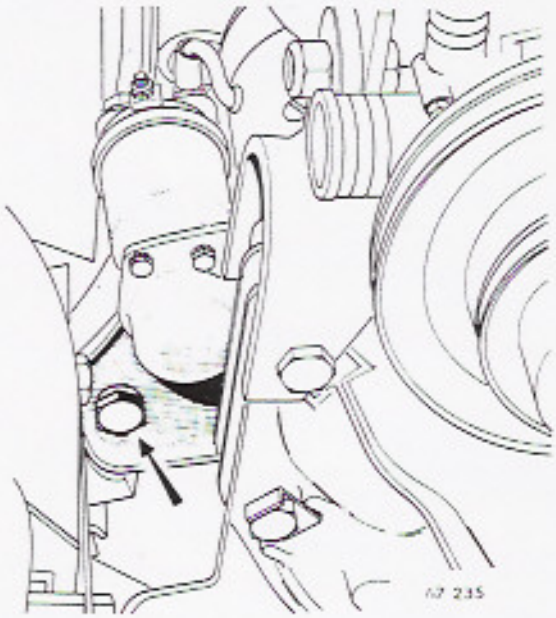


Position the sling Mot. 367 and secure it :
- at the upper starter securing point.

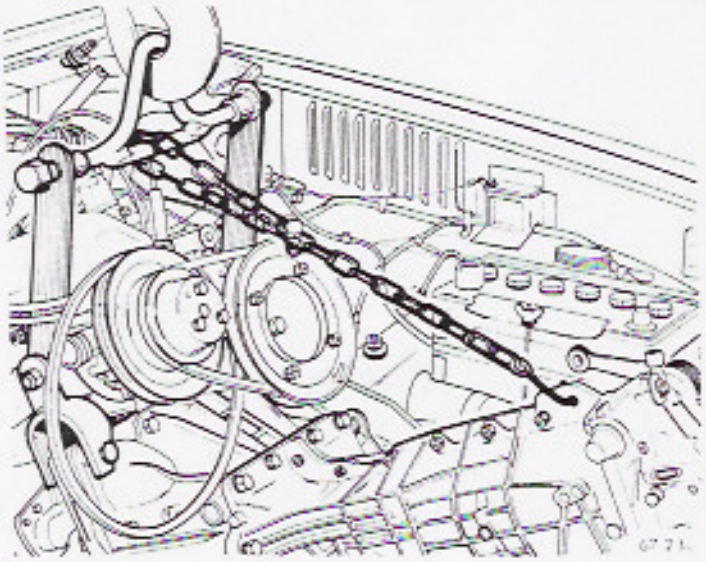


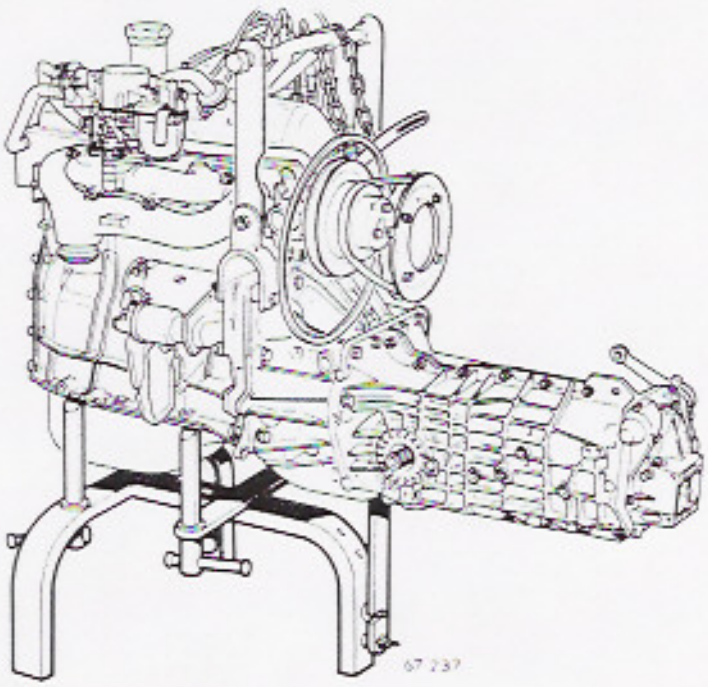
- at the point where the earth (ground) lead is secured to the cylinder block with the hook lug resting against the alternator support on the distributor side.

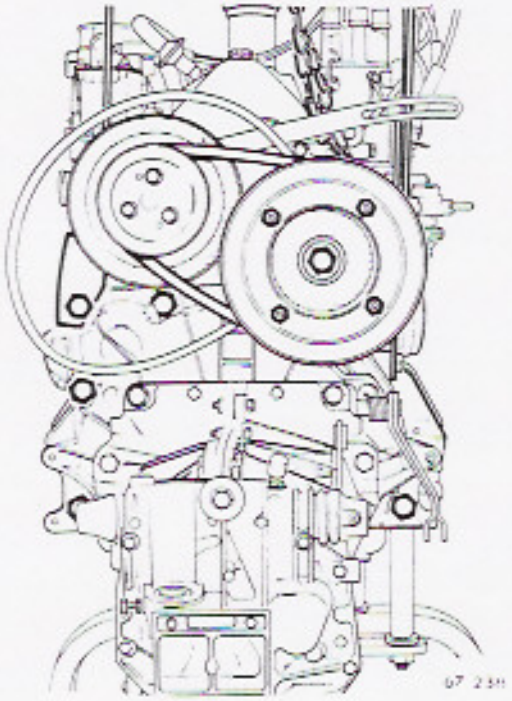
Take the weight of the engine with a hoist, and remove the side mounting pad securing bolt on either side.



Slightly lift the "engine-gearbox" assembly and move it forwards.
Hook the chain to the hole in the front of the gearbox.
Lift the front of the gearbox until the assembly is tilted so that it can be freed from the engine compartment.
Tension the chain by passing it round the hook and secure it in place.
Lift the "engine-gearbox" assembly and remove it : take care not to damage the radiator.







Remove :
- the lifting shackle.
- the starter.
- the outer flange from the camshaft pulley.
- the pulley adjusting shims.
- the belt.
- the pulley.

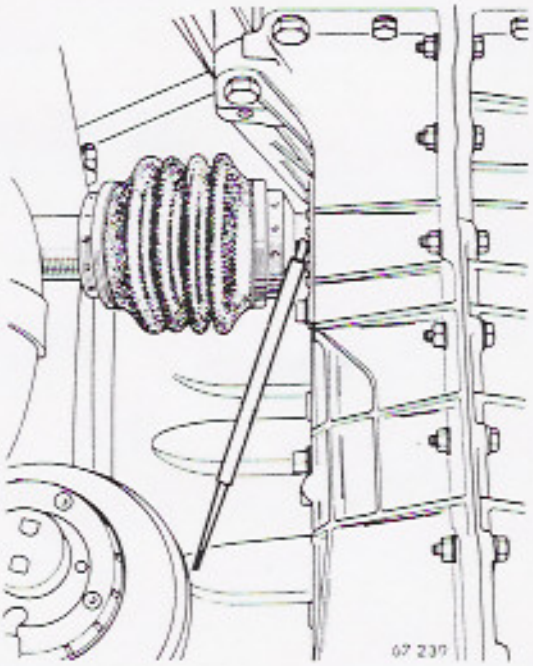
Unlock and remove the 3 clutch housing securing bolts on the engine.
Separate the gearbox from the engine.

Place the "engine-gearbox" assembly on support Mot.369.

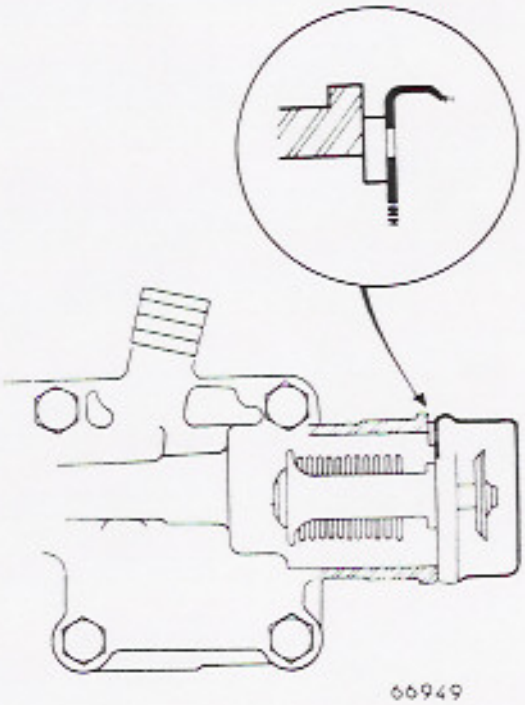
B/- Refitting

Carry out the removing operations in reverse paying attention to the following points :

- Lightly grease the clutch shaft splines.
- Grease the sun wheel splines by means of using Molykote B.R2 (Ref. 806 377). Align the pin hole in one of the splines in the transmission shaft with that on the top of one of the splines of the sun wheel.



- To make fitting the transmission shaft roll pins easier, use the cranked end of drift B.Vi.31 B.



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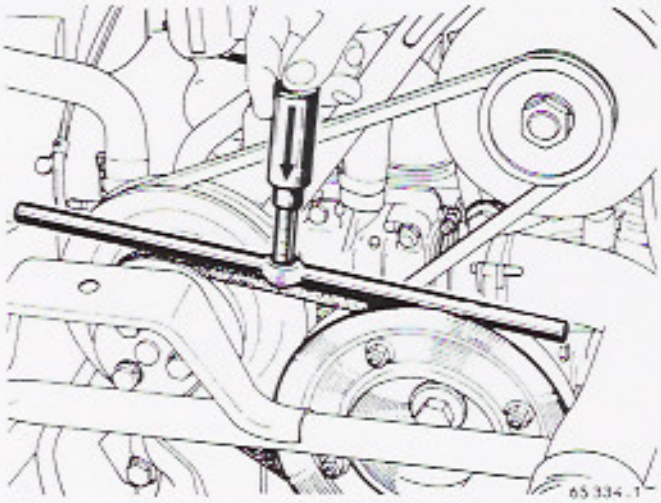
- Check that the leakage hole in the thermostat is towards the top and in line with the slot in the water pump body.

- Tighten the hose clips using key Mot.336.



- Gradually tighten the nuts on the outer flange of the water pump pulley when fitting the belt, while turning the engine, in order to avoid damage to the belt.

NOTE :

Do not use the camshaft securing bolt to turn the engine.

One must therefore :
- raise one side of the car.
- engage 4th gear.
- turn the wheel in a forward drive direction.

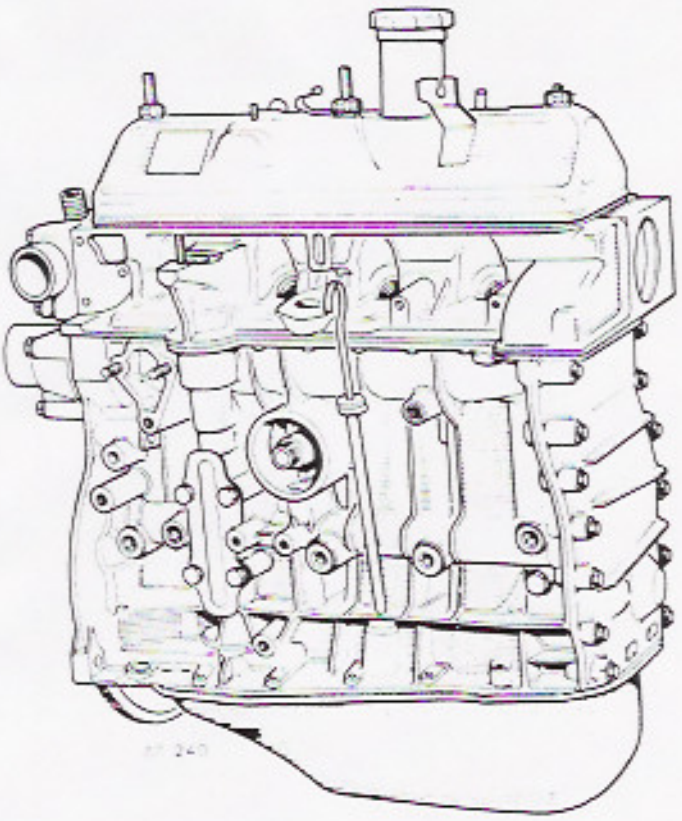
Check the belt deflection by means of tool Ele.346.

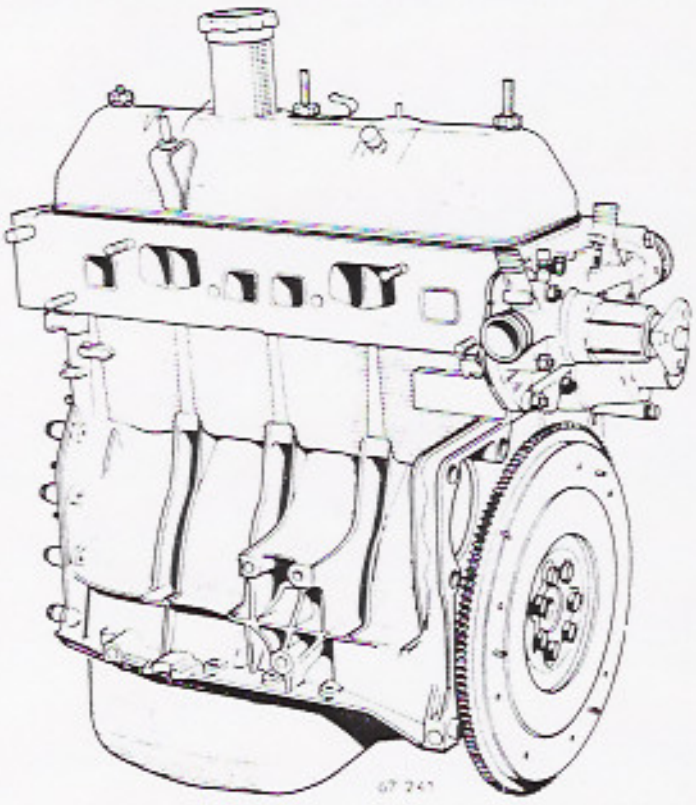
Altemaior : 7 to 9.5 mm (9/32 to 3/8").
Water pump :
2.5 to 4 mm (3/32 to 5/32").

- Adjust the clutch clearance :
It should be 2 to 3 mm (5/64 to 1/8") at the end of the lever.

Fill :
- the gearbox with oil ; grade EP 80.
- the engine with engine oil.
- the cooling system.

V - STANDARD SERVICE EXCHANGE

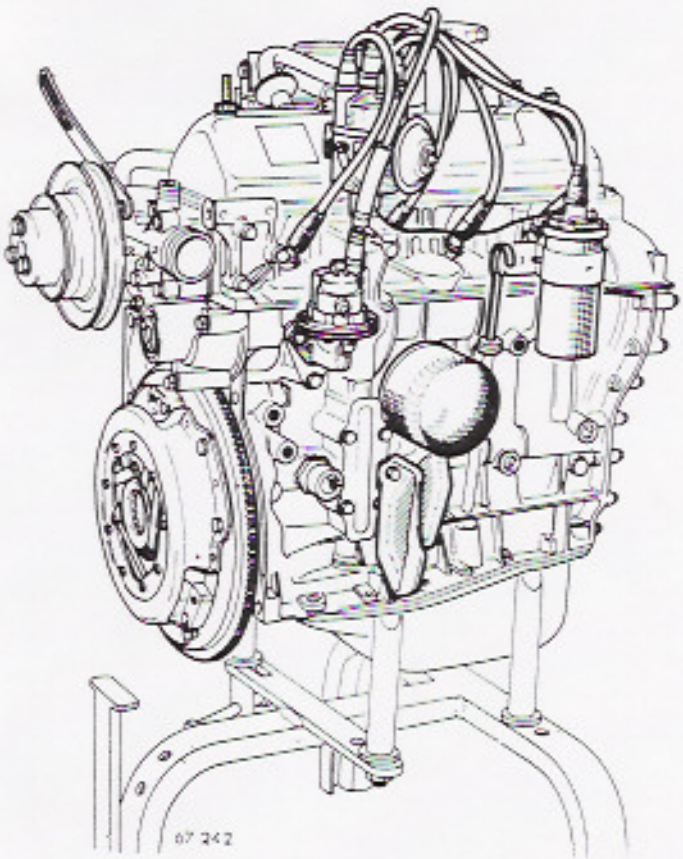


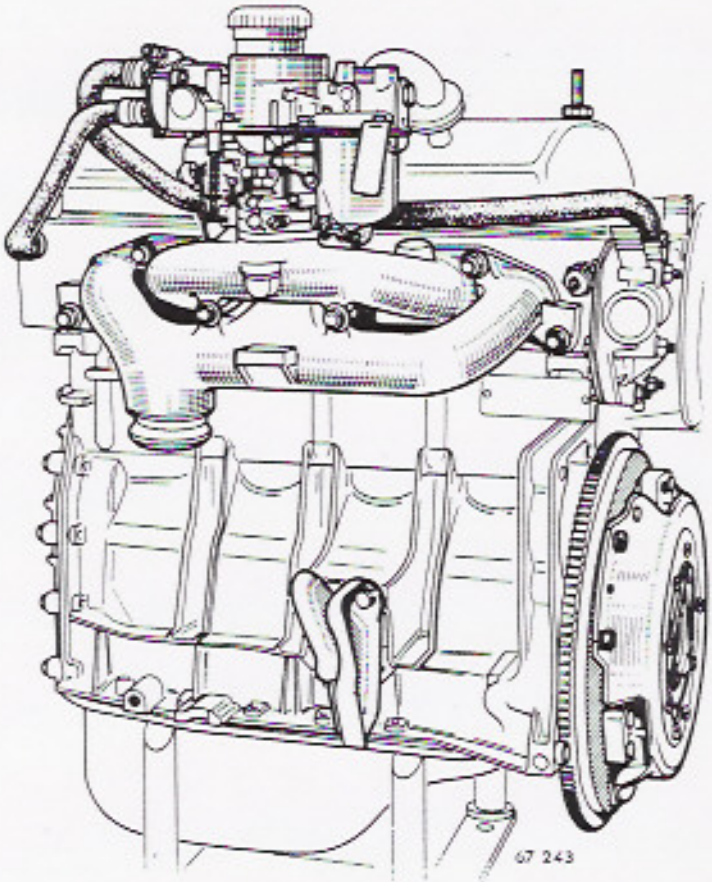


When carrying out a standard service of the engine, remove the following accessories :
Ignition coil - distributor - spark plugs - fuel pump - oil pressure switch - alternator bracket - oil filter.

Temperature switch - inlet "exhaust" manifold assembly - the carburettor with its heating pipes - the water pump pulley - the clutch - the side mounting pads.
Drain the engine oil.

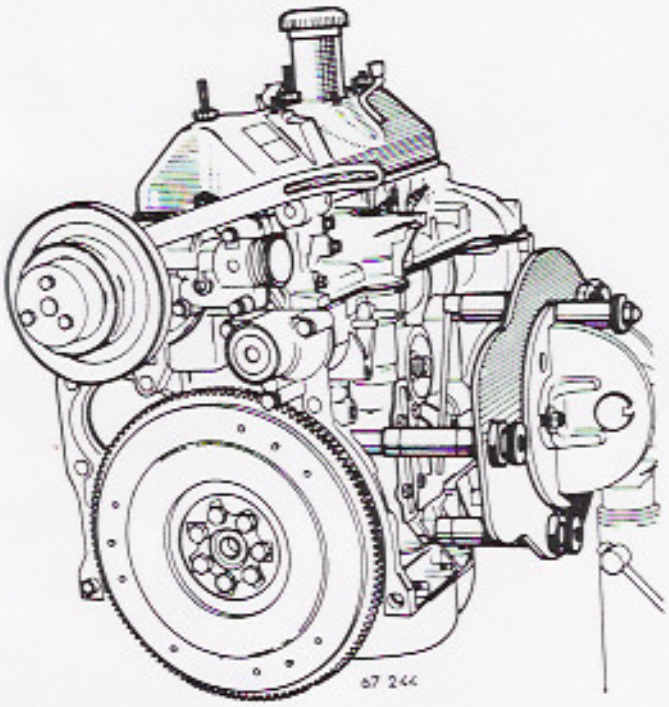
VI - DISMANTLING



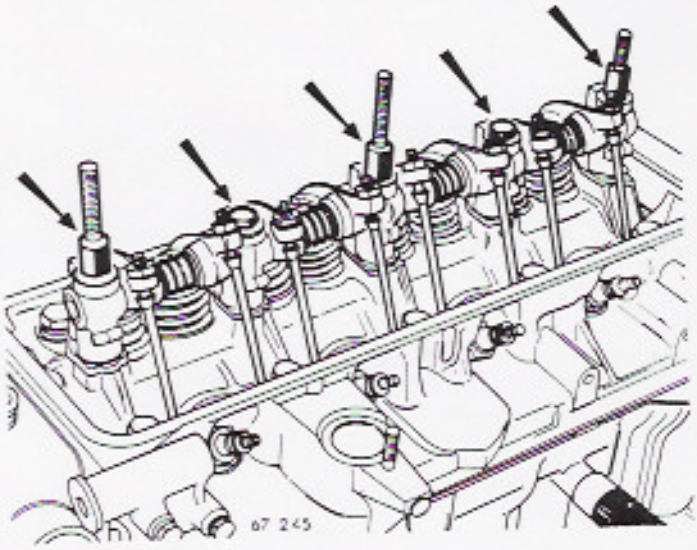


Remove the following components in order to make fitting the engine to the dismantling support easier :
Ignition coil - distributor - fuel pump - oil filter (Tool Mot. 345) - oil pressure switch (Tool Mot. 232-01) - side mounting bracket - dipstick.

The "inlet-exhaust" manifold assembly - the carburettor with its heating pipes - the side mounting pad - the clutch.



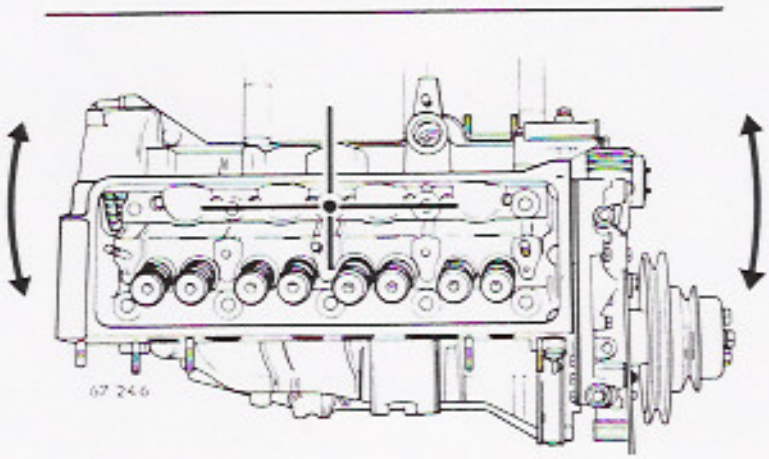
Fit support Mot. 256 to the adjustable stand.
Secure the three fastening rods to the engine.
Mount the engine on support Mot. 256.
Drain the oil when applicable.
Remove the rocker arm cover.



Remove the cylinder head from the cylinder block :

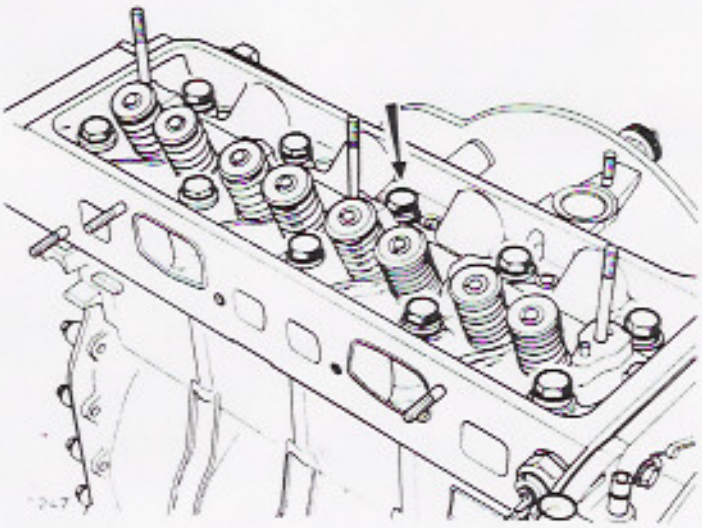
As this operation is a very delicate one we request that you carefully follow the method described below :

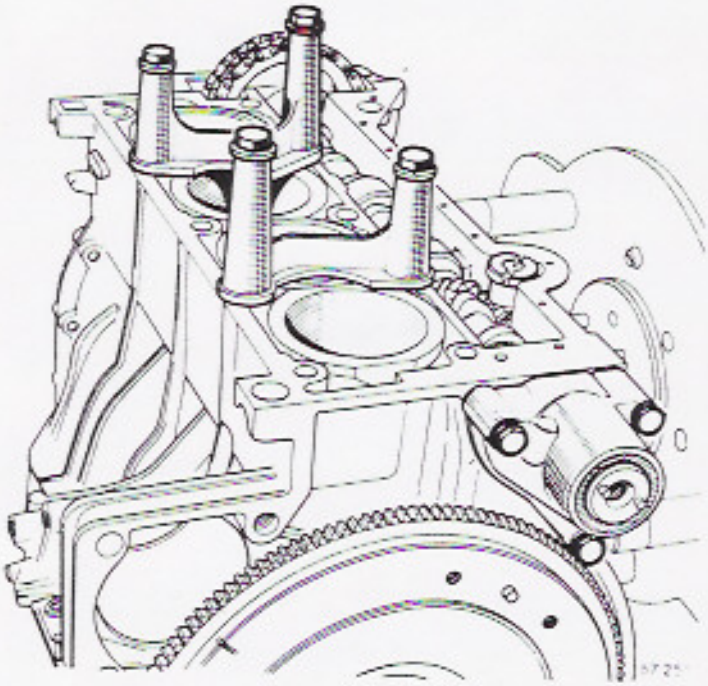
Remove the rocker arm assembly securing nuts and bolts.
Remove the rocker arm and the push rods (put them aside in the correct order).



As the cylinder head gasket is stuck to the cylinder head, the cylinder block and the liners, it is very important not to lift the cylinder head.

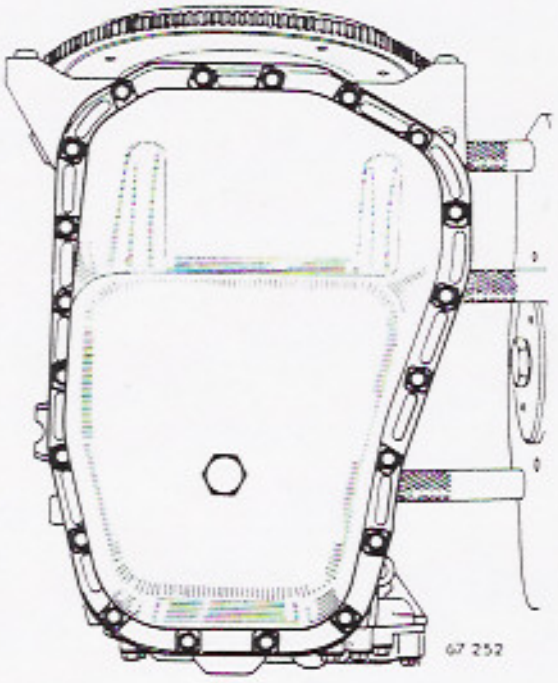
The cylinder head is to be pulled with a turning movement around the locating dowel on the distributor side to free it from the cylinder block.



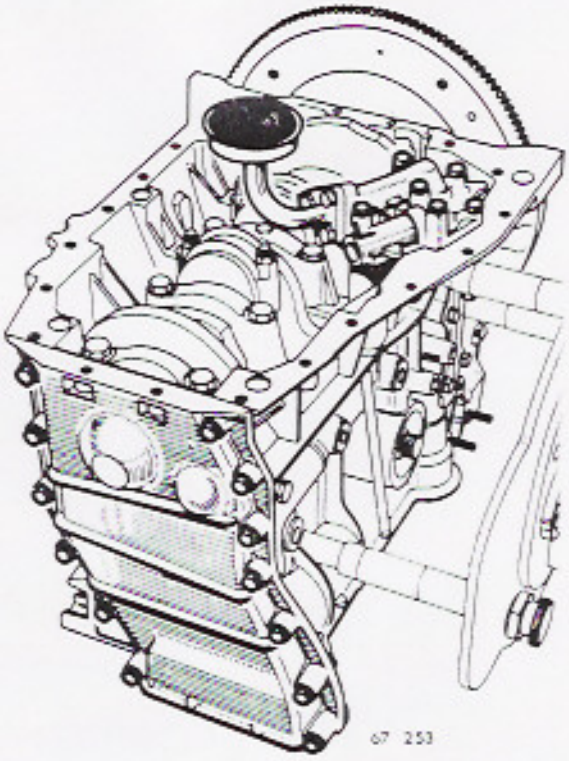


To do this :
- Loosen the securing bolts and remove them except for the one in the centre on the distributor side : this one is used as a pivot pin and also prevents the cylinder head rising.
- Free the cylinder head by tapping its ends horizontally, with a plastic mallet.
- Slightly lift the cylinder head and remove the tappets , (put them aside in the correct order).
- Remove the cylinder head.

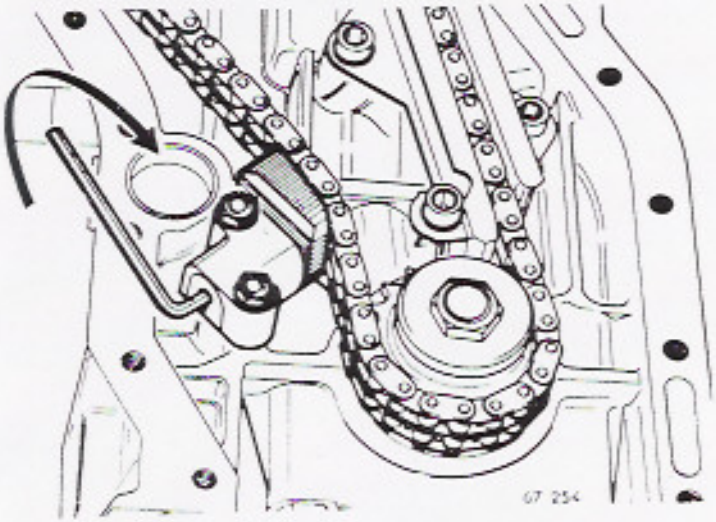
Remove the rubber gasket.
Fit the liner retaining clamps Mot.12.
Remove the oil pump and distributor drive pinion.
Remove the three camshaft front bearing securing bolts.
Remove the bearing.



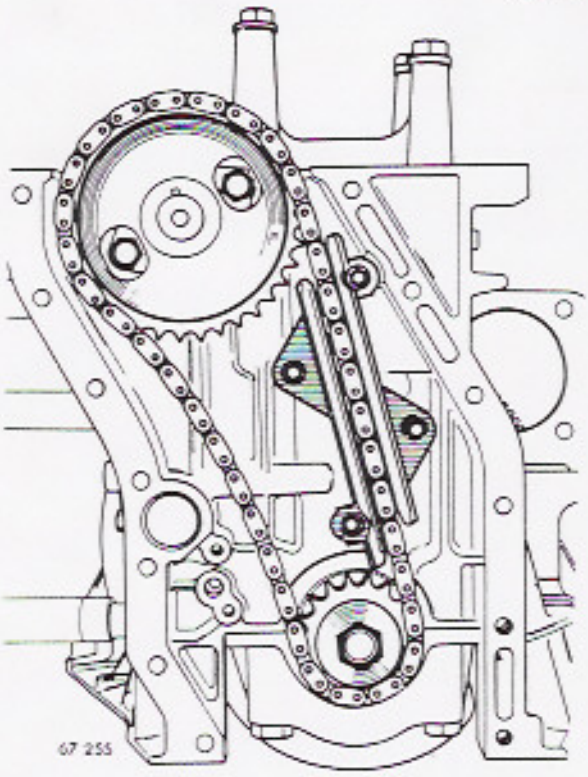
Turn the engine over.
Remove the bolts which secure the sump (oil pan) and remove it.



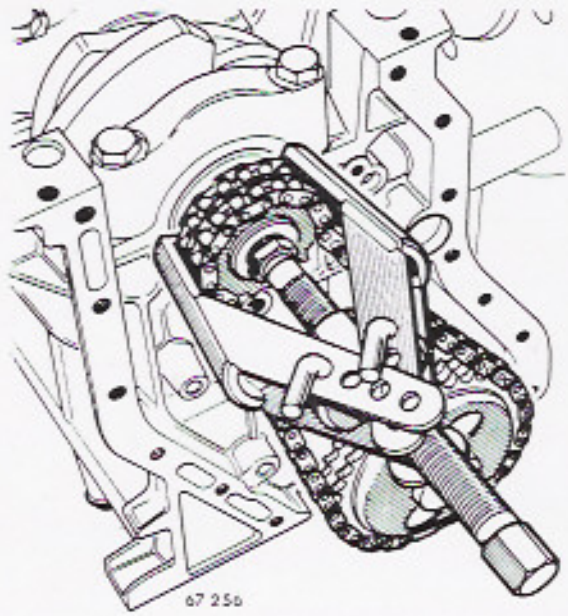
Remove the oil pump cover securing bolts and remove it.
Take out both rotors.
Remove the timing gear casing securing bolts and remove it.



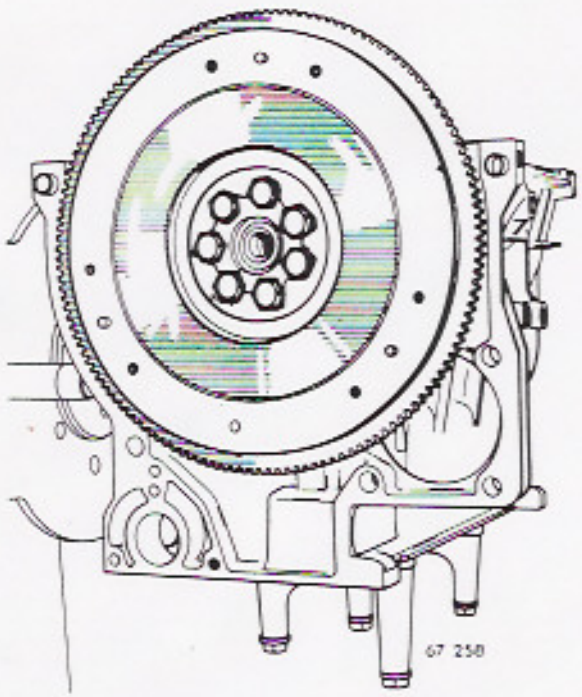
Remove the chain tensioner; to do this :
- unlock and unscrew the retaining cylinder screw.
- insert a 3 mm socket key into the retaining cylinder.
- turn the key in a clockwise direction until tension is removed from the pad carrier assembly.
- remove the tensioner.



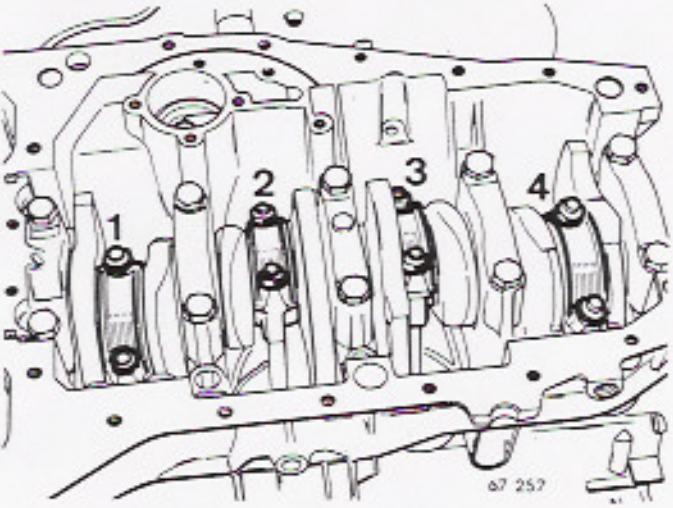
Remove the crankshaft sprocket retaining bolt and the washer and thrust ring.
Remove the lug, or lugs which prevent the chain flailing.
Remove the two bolts which secure the camshaft flange.



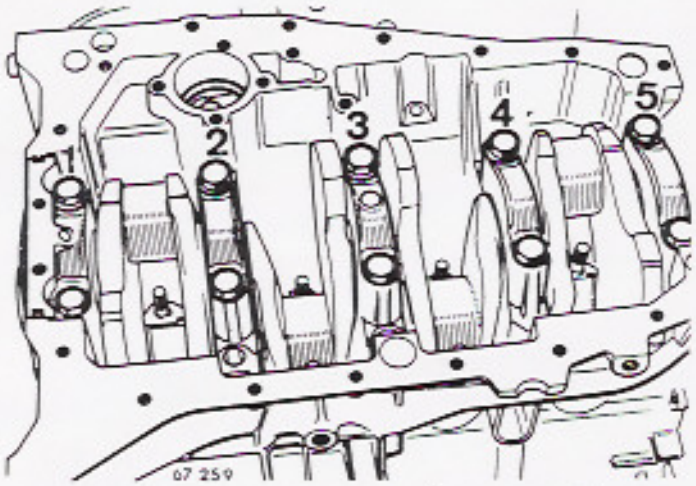
Remove the crankshaft sprocket chain assembly using extractor Mot. 49 whilst pulling back the camshaft.
Remove the camshaft.



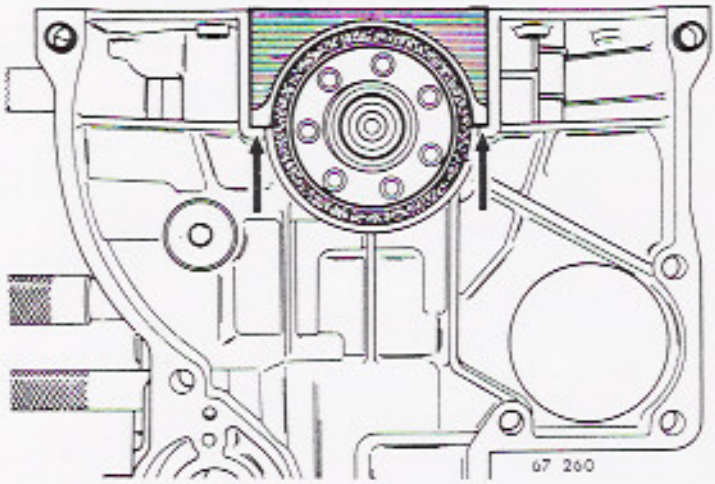
Unlock and unscrew the flywheel securing bolts. Remove it.



Check that the connecting rods are correctly marked : No.1 is at the clutch end and at the opposite side to the camshaft.
Remove the big end nuts.
Remove the caps and the shells.



Mark the crankshaft main bearings with reference to their position on the cylinder block.
Unscrew the main bearing cap bolts.
Remove the bearings with the exception of the front bearing and the bearing shells.



Push out the front bearing in an upward direction by tapping lightly on its two lower ends.
Remove the seal.
Take out the front bearing side seals.

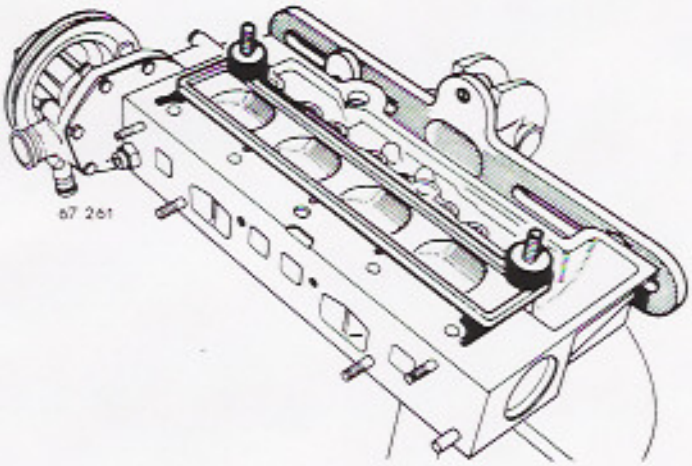
Remove :
- the crankshaft
- the shells
- the end float flanges.

Remove the liner retaining washers.
Take out the "liner - piston - connecting rod" assemblies.
Remove the oil pump drive aperture cover panel.
Remove the cylinder block from its support.

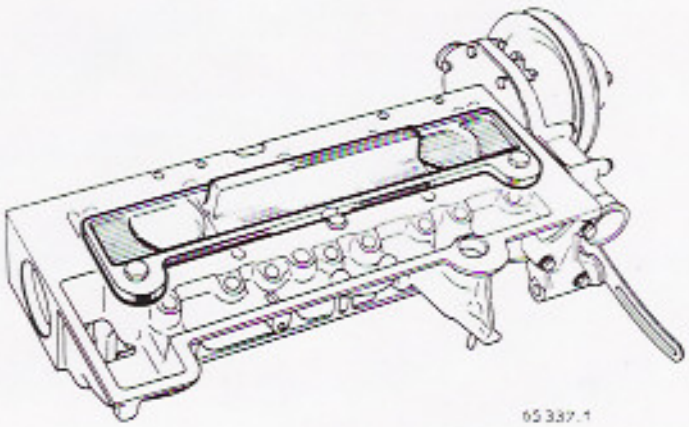
VII -OVERHAULING THE SUB-ASSEMBLIES

A/-Cylinder head.

1) -Dismantling.

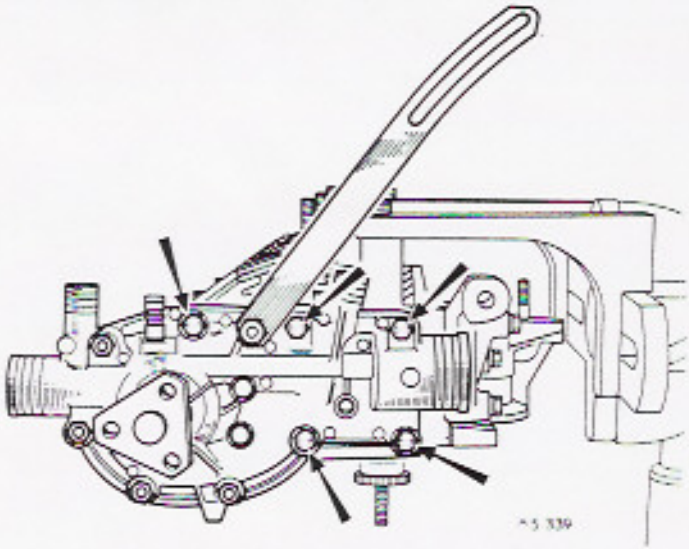


Take out the spark plugs.
Fit the cylinder head :
- either to support Mot.330 which is fitted to the adjustable stand or the bench socket.

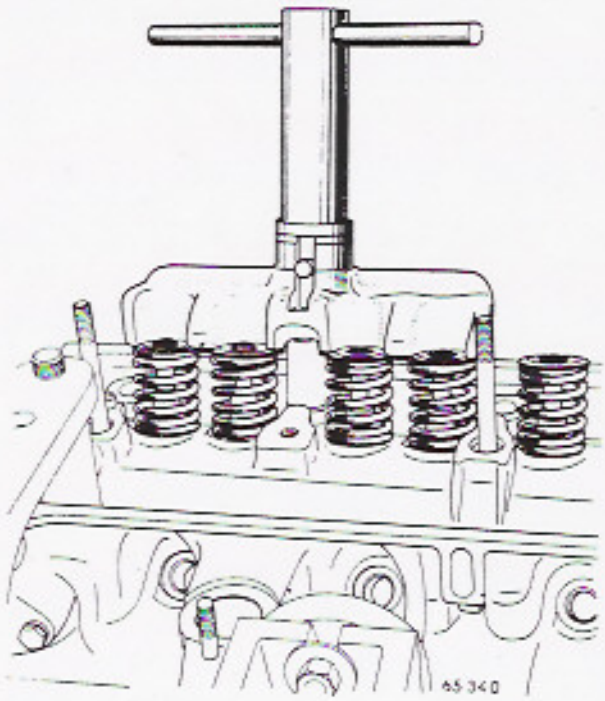


- or to plate Mot.331 which is gripped in a vice.

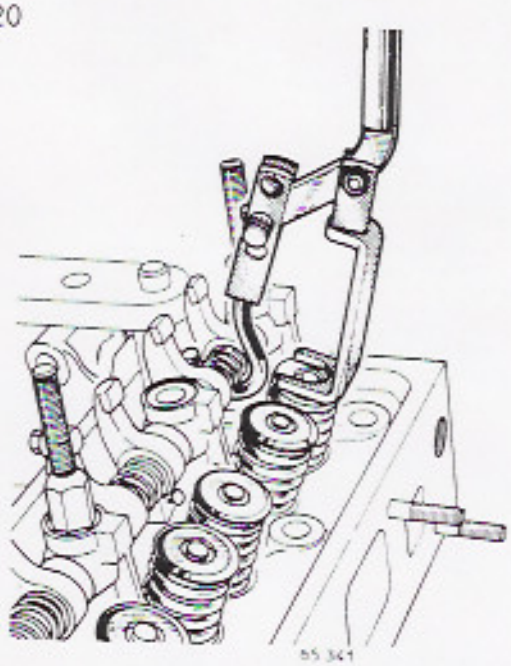
Remove :



- the water pump pulley.
- the water pump and its backplate with the alternator tensioner.
- the alternator bracket.
- the temperature switch.



Compress the valve springs :
- either by means of multiple compressor Mot.383.



- or single compressor Mot.382, after temporarily refitting the rocker arm assembly.
Remove the collets, the springs and the seat washers.
Remove the cylinder head from its support.
Take out the valves and put them aside in the order in which they were removed.

Dismantle all the rocker arm assembly components.
The plugs at the end of the shafts are force fitted and cannot be removed.

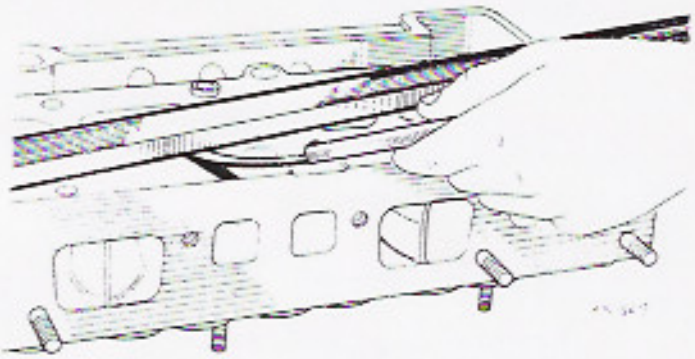
2) - Checking.:

Clean all the parts.

NOTE :
It is very important not to scrape the cylinder head gasket face :
Use only trichlorethylene to dissolve that part of the gasket which remains sticking to the cylinder head.
Check the various parts.

a) - Cylinder head :

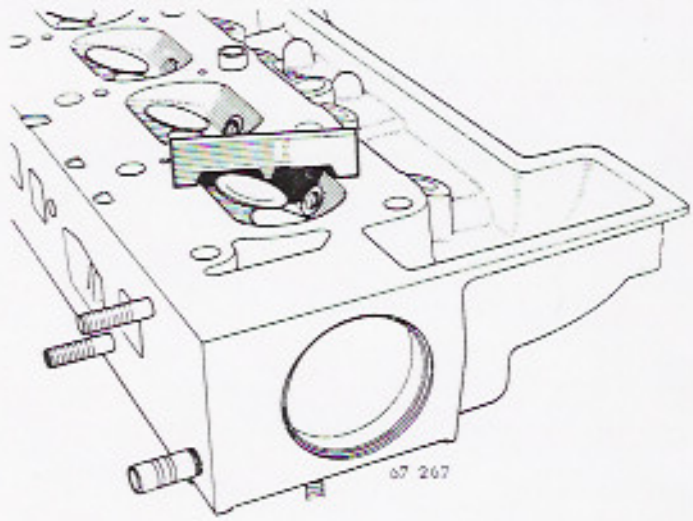
Gasket face:



Check this with a ground straight edge :
Maximum permissible distortion : 0.05 mm (.002")
Reface it if necessary.

Depth :
Standard : 80.65 mm (3.175").
Minimum repair size : 80.35 mm (3.163").
Below this dimension, the cylinder head is to be replaced, the maximum permissible metal removal being 0.3 mm (.012").

Combustion chamber volume:



Check this with a graduated flask and straddle gauge Mot.106, with the valves and spark plugs fitted :
Volume : 40.7 cc (2.483 cu.in.).
This figure is given as an indication only, because the volume cannot be corrected.

Valve springs

Inlet exhaust.
Free length : 48.4 mm (1 29/32").
Length under a load of 45 da. N (99 lb) : 29.2 mm (1 5/32").
Wire diameter : 3.8 mm (.150").
Colour : green.

Recut the valves (if they are not new) : set angle 90°.
Recut the valve seats :
Standard seat width :

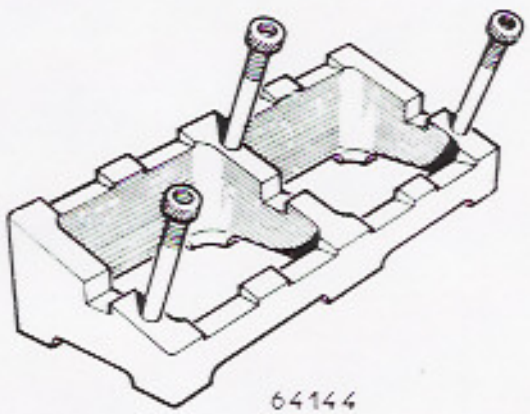
Inlet : $1.3 \begin{smallmatrix} +0.3 \\ +0 \end{smallmatrix}$ mm (.051 to .063")

Exhaust : $1.7 \begin{smallmatrix} +0.3 \\ +0 \end{smallmatrix}$ mm (.067 to .079")

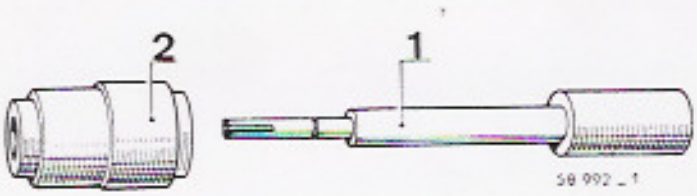
Grind in the valves on their seats.

NOTE :
Carefully clean the cylinder head after recutting the seats and grinding-in valves.

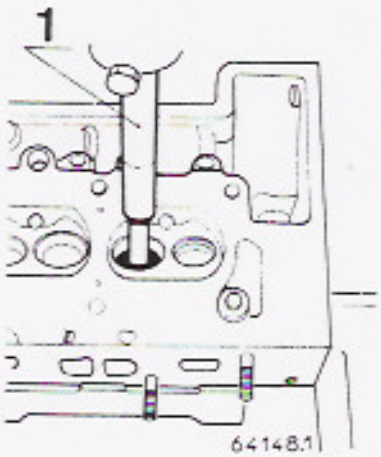
3) - Replacing a valve guide.



This operation is carried out with the following tooling :
- a spacer Mot.355.

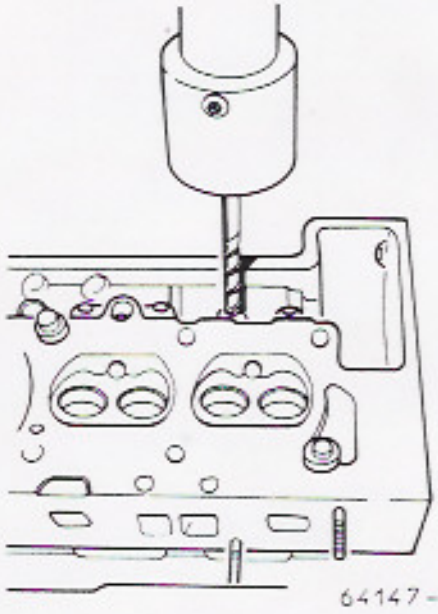


- extracting and inserting tooling Mot.356 which consists of :
- an extracting and inserting mandrel (1).
- a guide stop (2).

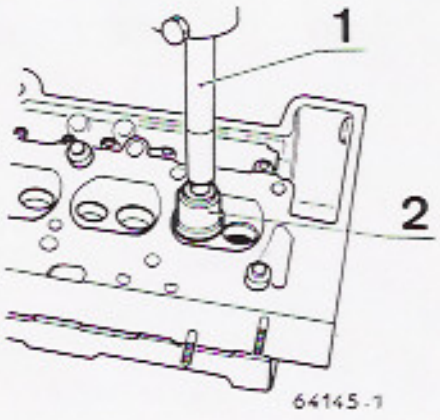


Place the cylinder head on spacer Mot.355.
Push out the guide on the press using mandrel (1).

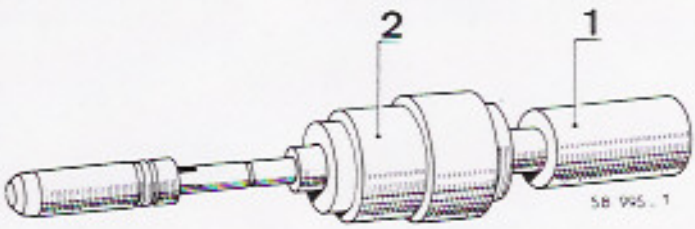
Measure the outside diameter of the guide to check whether it is the original one and whether it has already been replaced.
Normal size 13 mm (.512")
13.25 mm (.522")
The 12.10 diameter guide is identified by one groove.
The 13.25 mm diameter guide is identified by two grooves.
Replace the worn guide by one of the sizes immediately above it.



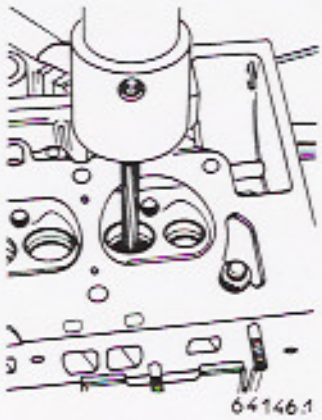
Ream-out the guide locating bore with the reamer Mot.357 which corresponds to the diameter of the new guide.



Place the assembly on the cylinder head and push in the guide on the press;
When the shoulder of the mandrel (1) has almost made contact with the guide stop (2), turn the the guide stop until the shoulder actually touches.



Fit the mandrel (1) into the guide stop (2), ensuring that this is fitted the correct way round depending whether the guide in question is an inlet guide or an exhaust guide.
Place the guide on the end of the mandrel (1), and the chamfer on the guide towards the outside.
Oil the guide.

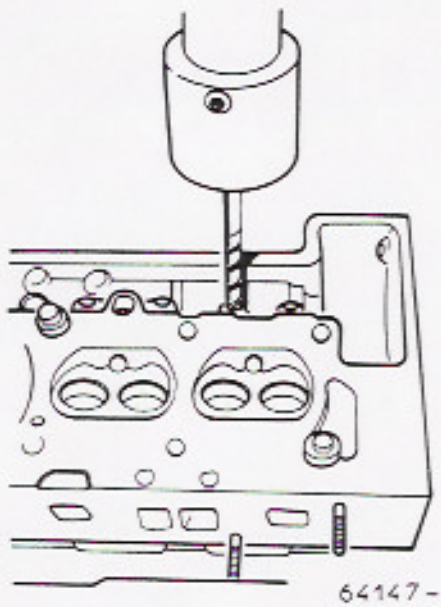


Ream-out the inside of the guide with reamer Mot. 357 (diameter 8 mm (.315").

NOTE :
After replacing a valve guide recut the corresponding valve seat (angle 90°).

4) - Replacing the tappets

Repair size tappets can be obtained.
Normal size : 12 mm (.473").
Repair size : 12.2 mm (.480").
One must therefore ream-out the tappet location in the cylinder head if the tappets are to be replaced.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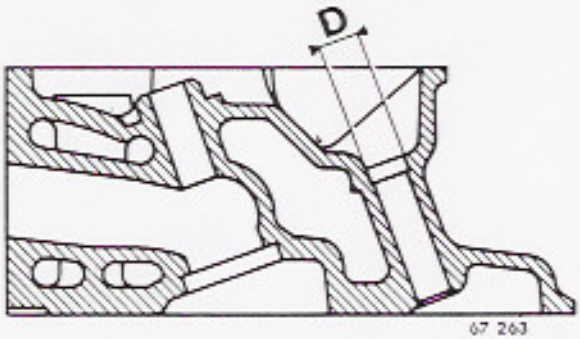
Place the cylinder head on spacer Mot.355.
Ream-out the tappet bore using reamer Mot.366 mounted in a drilling machine.



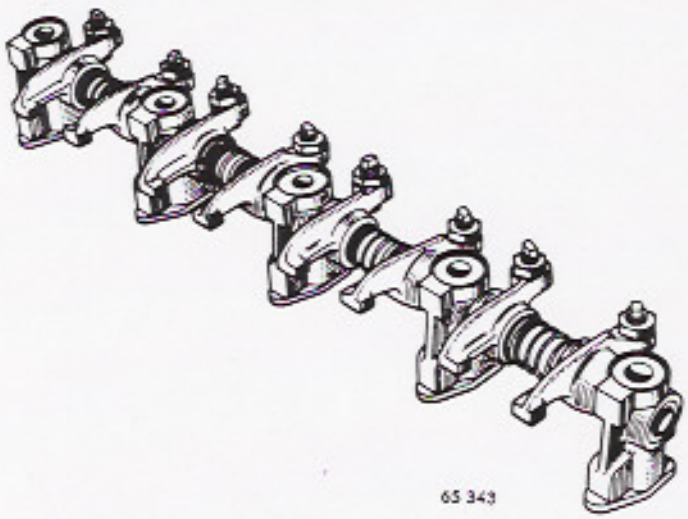
67 263

Check the diameter (d) of the counterbore at the top of the tappet bore : its diameter should be D = 13 mm (.512").
If it is less than this it is to be opened up to 13 mm.

5) - Fitting thread inserts

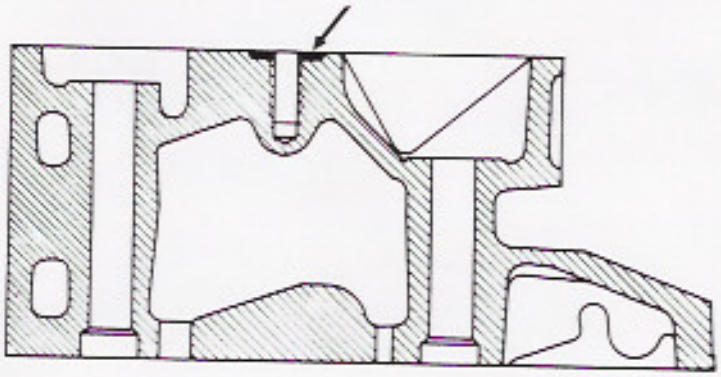
One may have thread inserts in all the tapped holes in the union.
When doing this to the sparking plugs tappings take care to grind off the 2 or 3 threads which project into the combustion chamber.

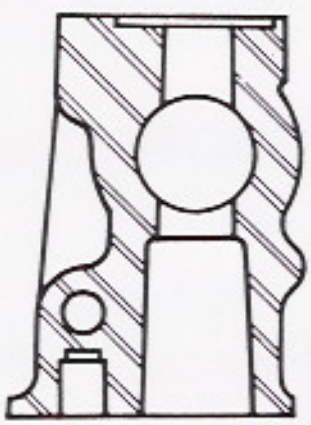
6) - Reassembling


65 343

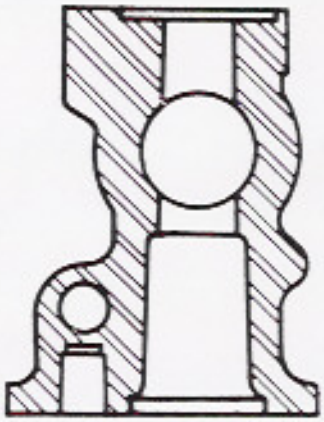
Fit the following to the rocker arm shaft :
- the rocker arm assembly supports.
- the rocker arms.
- the springs.

ensuring that they are in the correct position.
The holes in the supports must be in line with those in the shaft.
The lubrication holes in the shaft must face towards the push rod side.





Old

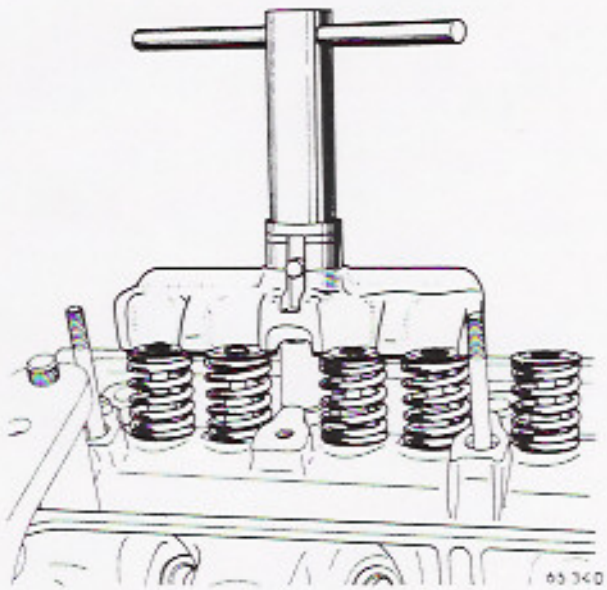


New

NOTE :

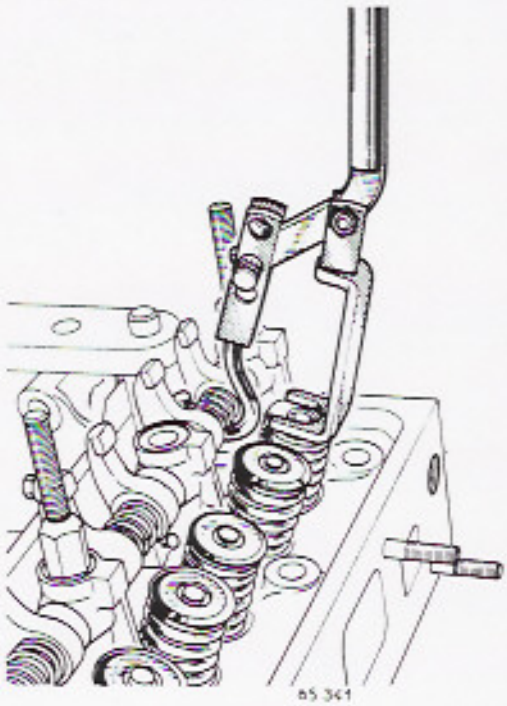
The rocker shaft supports have been modified following the discontinuation of the counter-bores (shown arrowed) around the securing studs.
The screwed length of the studs has also been increased :

the identification groove must be placed on the stud extension side.
The old type supports are not to be fitted to a new cylinder head.
However, the new supports can be fitted to old type cylinder heads.

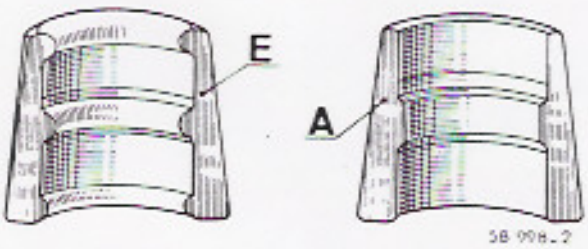


Fit the valves in the correct order and secure the cylinder head :
-either to support Mot.330.
-or to plate Mot.331.

Fit the valves spring seat washers, the valve springs and the collets.
Compress the springs by means of :
-either the multiple compressor Mot.383.



-or single compressor Mot.382 after temporarily refitting the rocker arm assembly.

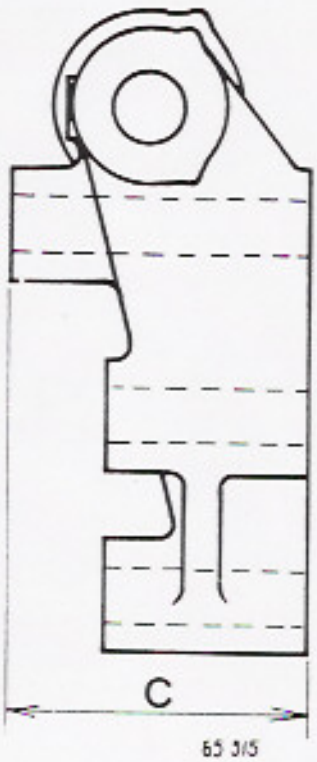


Fit the collets.
Warning : The inlet valves collet (A) and are different from the exhaust valve collets (E).

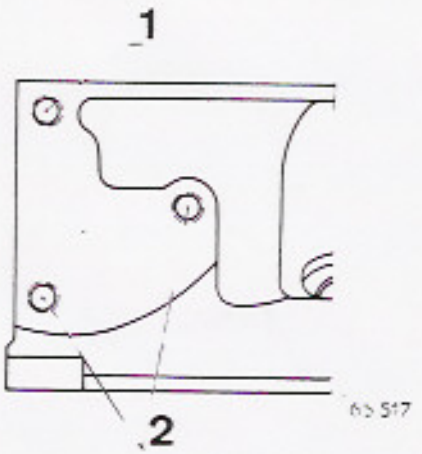
Fit :

- the water pump with its gasket (dry).
- the alternator tensioner.
- the water pump pulley.
- the temperature switch.

Fit the alternator bracket :



- the thickness of this upper securing point has been increased.



Likewise, the tapped depth of the bracket securing holes on the cylinder head has been increased.

- the upper hole (1) : from 13 to 16 mm (33/64 to 5/8") with securing bolts 55 mm (2 5/32") instead of 50 mm (1 31/32").

- the lower holes (2) : from 13 to 18 mm (33/64 to 45/64") with securing bolts of 45 mm (1 25/32") instead of 40 mm (1 9/16").

Check the depth of the tapping in the securing holes and the thickness of the bracket whenever replacing either of these parts :
- the old bracket can be fitted to the new cylinder head by securing it with the new bolts and placing a 2 mm (5/64") washer to the upper securing bolt head.
- the new bracket can be used on the old type cylinder face secured with a new type upper securing bolt :
replace a washer 2 mm(5/64") under the bolt head.
Remove the cylinder head from its support.

B - WATER PUMP

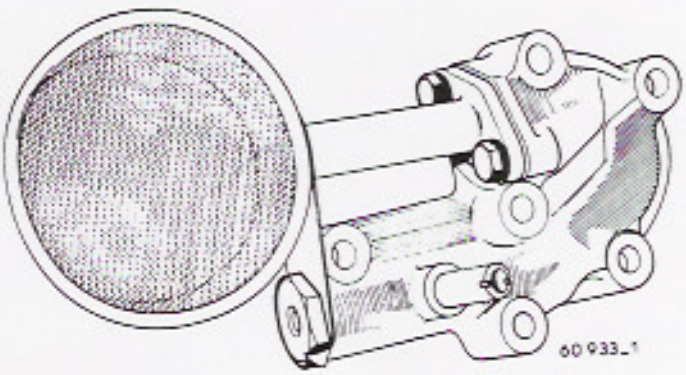
The water pump cannot be overhauled.

C - OVERHAULING THE OIL PUMP

1 - First type

With ball valve and a two point fastening on the strainer flange.

a) - Dismantling



Unlock and unscrew the relief valve cap.
Remove :
- the spring
- the guide
- the ball.

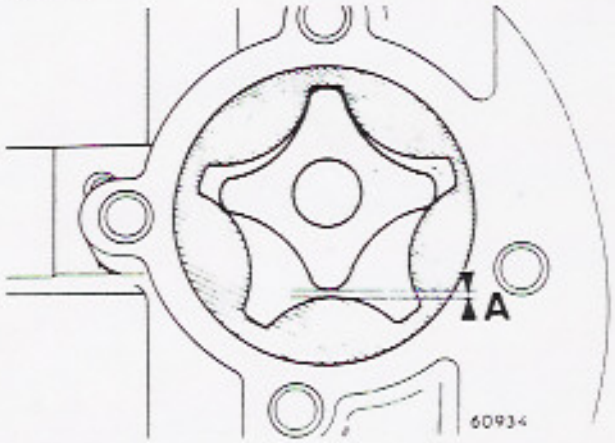
Remove the two strainer pipe securing bolts.

b) - Checking

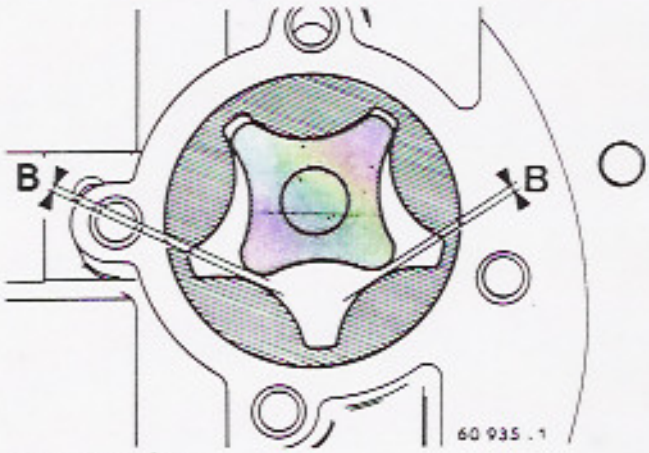
Clean and check all the parts.
Check the inner and outer rotors for wear by placing them in a cylinder block.

Should any of the parts be damaged, it is to be replaced.

Check the clearance in the two positions shown.



Position 1 :
Dimension A : min. 0.04 mm (.002")
max. 0.29 mm (.012")



Position 2 :
Dimension B : min. 0.02 mm (.001")
max. 0.14 mm (.006")

If these dimensions do not fall within the tolerances, replace both rotors (the inner rotor is supplied together with its shaft).

- the condition of the ball seat.
- the strainer flange gasket face to ensure that it is flat : reface it if it is not.
- the pump cover gasket face to ensure that it is flat : replace it if it is not.

c) - Reassembling

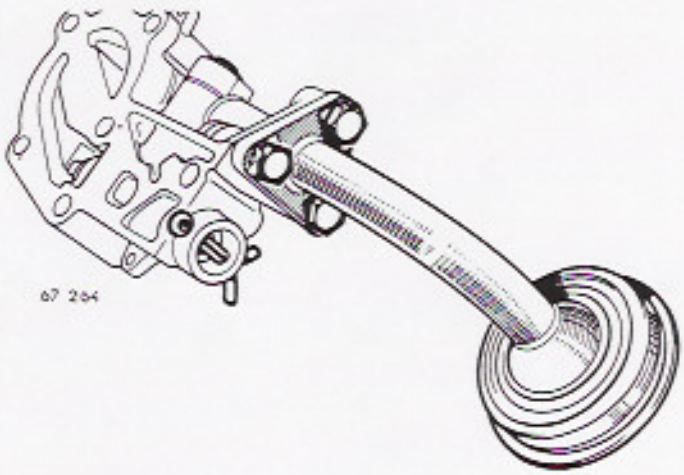
Carry out the dismantling operations in reverse :
- do not tighten the relief valve plug until having tightened the bolts on the strainer assembly flange.

NOTE -
A special repair strainer is available with a depth :
A = 75 mm (2 31/32") in place of the former
A = 70 mm (2 3/4") which was the size of the production strainer assembly.
This is to be fitted to the pump in cases where the original flat bottomed sump (oil pan) has been replaced by a curved bottomed sump.

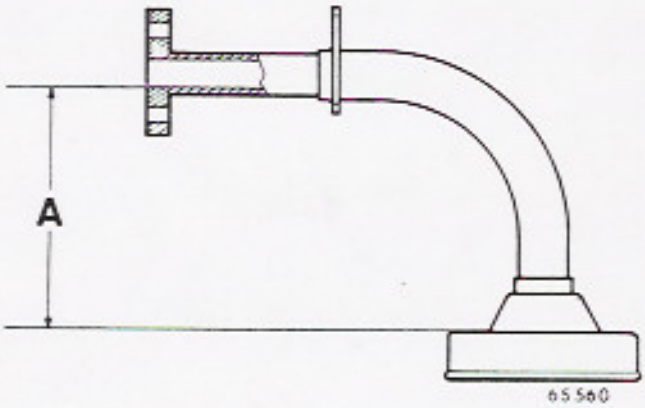
2 - Second type

With a piston type relief valve and a 3 point securing strainer flange.

a) - Dismantling



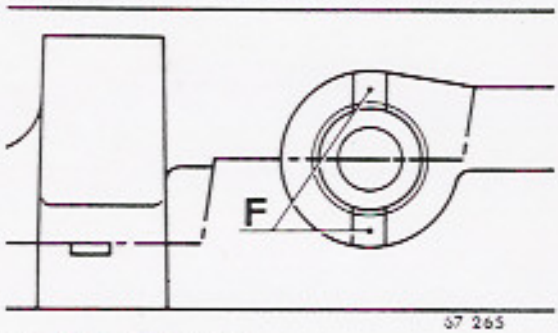
Unlock and unscrew the strainer bolts.
Remove the relief valve retaining pin, and take out :
- the cup
- the spring
- the spring guide
- the piston.



b) - Checking

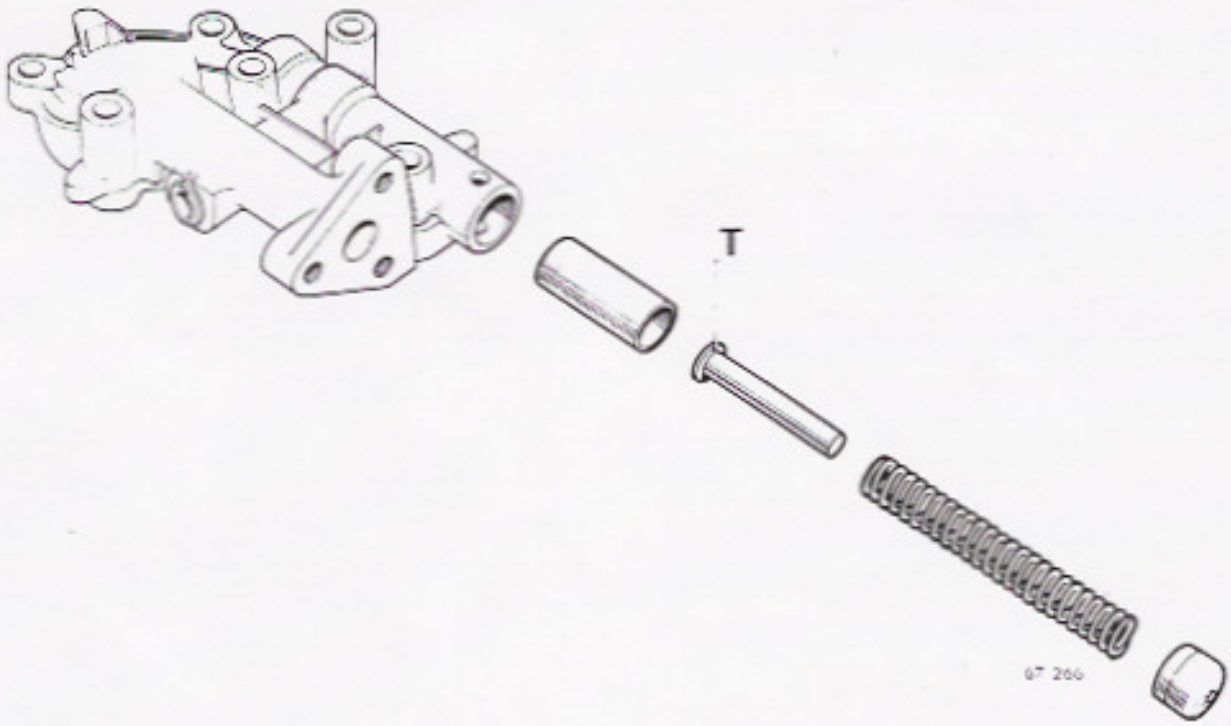
Parts involved are identical to those used in the first type pump.
However, the plug screwed into the cover is to be checked :
- if the plug has a hexagon socket in it, no operation is to be carried out.
- if the plug has no hexagon it is to be replaced.

The operation is carried out as follows :



- unscrew the plug
- make a slot (F) in the cover :
2.5 mm (7/64") wide
2 mm (5/64") deep
- screw in a hexagon socket plug 11.5 mm (29/64") long and tighten it in position.
- Pean the metal of the plug into the slot.

c) - Reassembling



Place the following in the cover :
- the piston
- the spring guide : with the head (T) inside the piston.
- the spring
- the spring cup.

Fit the retaining pin.
Fit the liner flange gasket : fit only the "Reinzolit" type gasket.
Fit the strainer, the single piece locking plate and tighten the bolts to a torque of :
1.25 to 1.75 m.da N
(10 to 15 lb/ft).

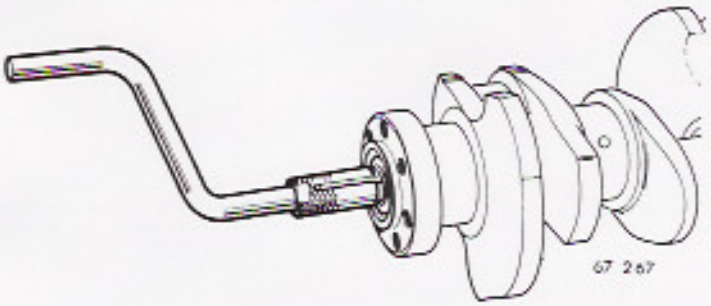
Important -

The strainer flange securing bolts are now 25 mm (63/64") long, instead of 20 mm (51/64"). They are made from grade YF 3 steel.
The tightening torque for these bolts is 2.25 to 2.75 m.da N (15 to 20 lb/ft).
The fitting of longer bolts has involved increasing the length of the thread in the cover. The new bolts are therefore, not to be used in old type pumps.

The new covers are supplied complete with the pressure limiting valve, the 25 mm (63/64") flange bolts, the gasket and locking plate.

NOTE -
New covers can be used to replace the type with ball valves, on condition that a curved bottomed sump (oil pan) is also fitted.

D - CHECKING THE CONDITION OF THE CRANKSHAFT



Remove the clutch shaft locating bearing by means of extractor Mot.11.
Clean the crankshaft and pass a steel wire down the lubrication holes.

Check the crank pin and journal diameters with a micrometer.

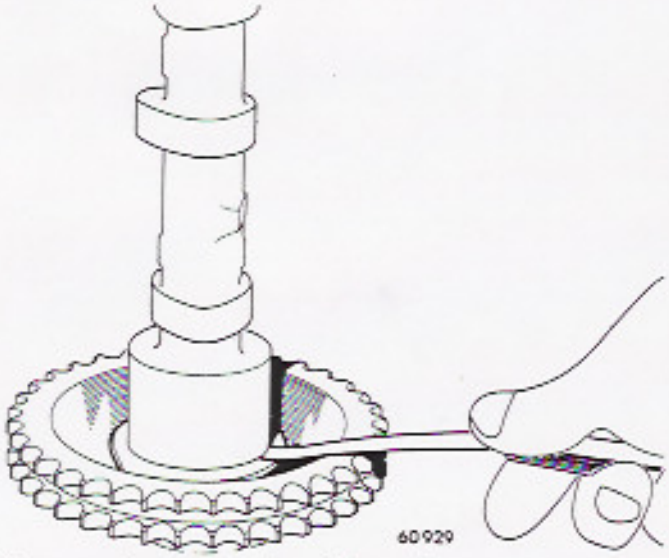
Crank pins
Nominal diameter : 48 mm (1.890")
Regrind diameters for repair size bearing shells :
- 0.025 mm (010")
- 0.50 mm (.020")
Grinding :
+ 0.018 mm (.0007")
+ 0.002 mm (.0001").

Journals
Nominal diameter : 54.8 mm (2.158").
Regrind diameters for repair size bearing shells :
- 0.25 mm (.010")
- 0.50 mm (.020")
Grinding :
+ 0.013 mm (.0005")
- 0.007 mm (.0003").

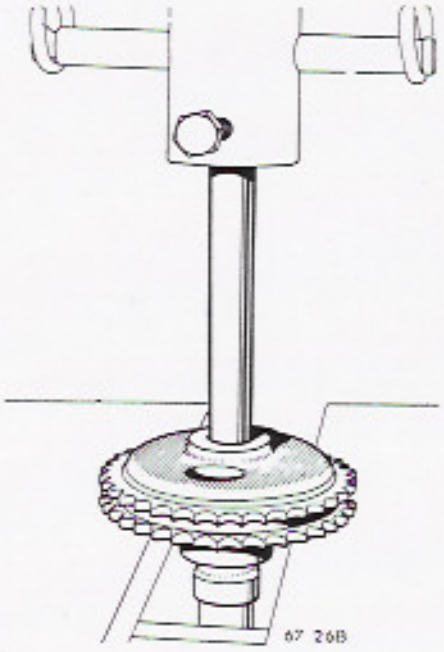
Fit the bearing, with the seal towards the outside.

NOTE -
As the bearing is supplied pre-greased, it is not to be cleaned.

E - CHECKING THE CAMSHAFT



Remove the two pulley drive pins.
Clean it.
Check the clearances at the flange using a set of feeler gauges : 0.05 to 0.12 mm (.002 to .0045").
This clearance cannot be adjusted so if it is not correct replace the flange.



To do this :

Remove the sprocket on the press.
Remove the flange.

Fit the new flange.
Push on a sprocket on the press taking the load on the first camshaft shoulder.
Check the clearance again.

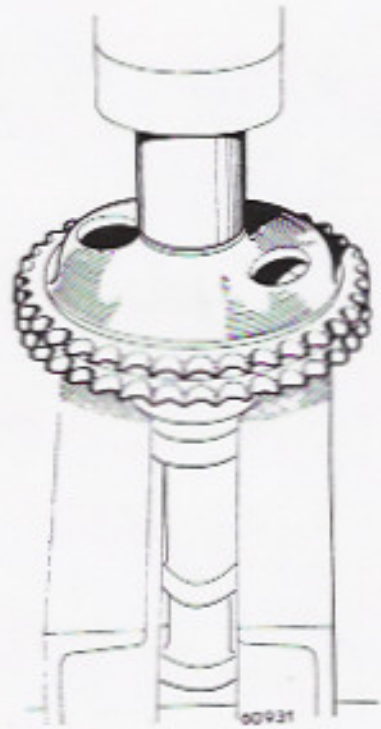
IMPORTANT

The sprocket is to be replaced by a new one each time it is removed.
Do not refit used roll pins.

Important note:

IF THE CAMSHAFT IS REPLACED THE DISTRIBUTOR DRIVE PINION MUST BE REPLACED WITH IT AND THE CONTRARY.

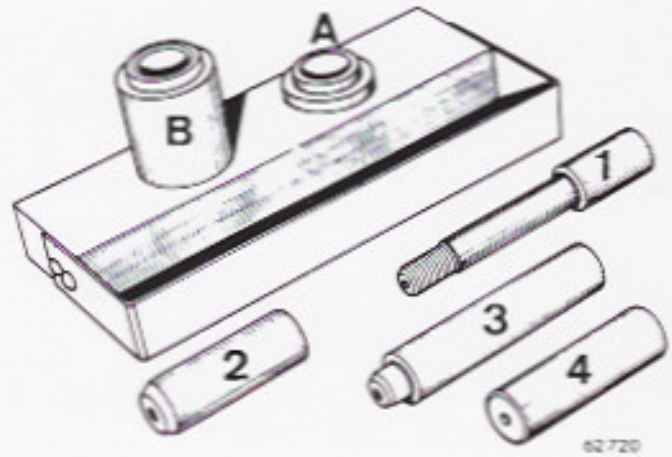
These two parts are sold as a matched kit.



F - "LINER - PISTON - CONNECTING ROD" ASSEMBLY

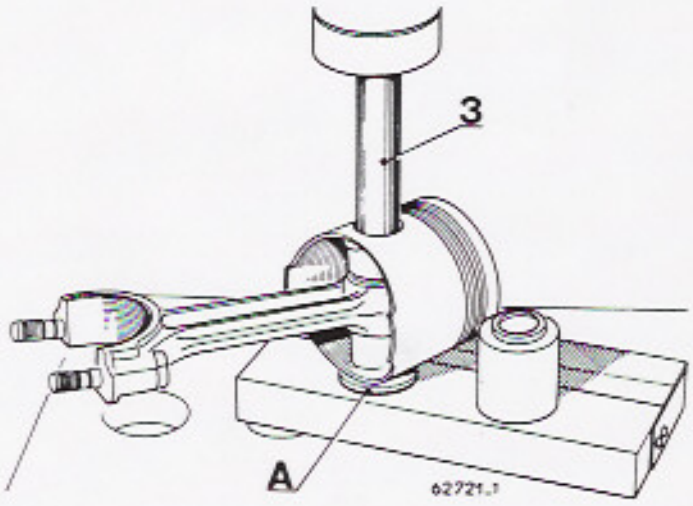
Remove the "Piston - Connecting rod" assembly from the liner.
Remove the piston rings.
The gudgeon pin is a force fit in the connecting rod and a running fit in the piston.

Separate the connecting rod from the piston, using tool Mot.255 which comprises :
- the upport base with 2 guides for extracting (A) and inserting (B).
- an inserting mandrel (1).
- a locating guide (2).
- an extracting mandrel (3).
- a dummy gudgeon pin (4) for checking the connecting rod.



1 - Extracting the gudgeon pin

Remove the pin on a hydraulic press using :
- the short guide (A) on the support base.
- the extracting mandrel (3).



2 - Inserting the new gudgeon pin

a) - Preparing the connecting rod

Check the condition of the connecting rod by means of the dummy gudgeon pin (4).

Straighten the connecting rod and remove any twist when necessary.
Place the connecting rod in a container of water.

Heat the water until it boils.

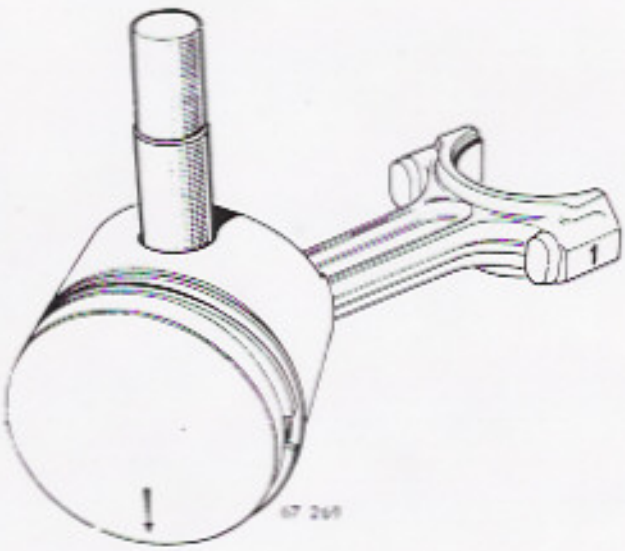
NOTE - Using an electric oven providing temperatures up to 250°C (482 F) is even better than using boiling water.

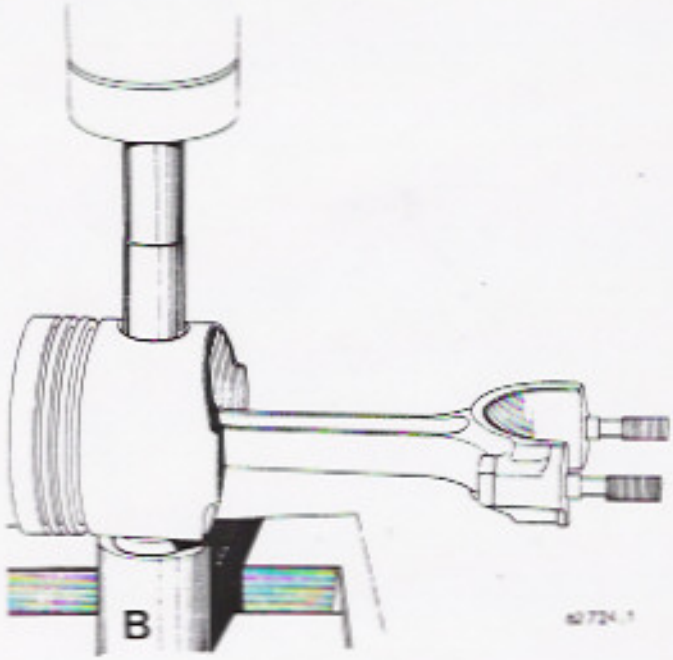
b) - Preparing the gudgeon pin

Ensure that the gudgeon pin turns freely in the corresponding new piston.

Slide the new gudgeon pin onto the inserting mandrel.
Screw locating guide onto mandrel (1) until it makes contact with the gudgeon pin :
Do not tighten it.
Oil the gudgeon pin with Molykote M 55 oil (Ref. 806 584).

C- Inserting the gudgeon pin into the connecting rod





The following operations are to be carried out quickly so that the heat loss is reduced to a minimum (especially when the components have been heated by the boiling water method).

Push in the gudgeon pin - mandrel - guide assembly by hand into the piston and the connecting rod small end, until the gudgeon pin makes contact with the connecting rod.

Important note :

The correct way round for the piston to be fitted is :
- with the arrow of the piston pointing downwards.
- with the number on the connecting rod big end facing towards the right, when the operator is standing facing the crown of the piston.

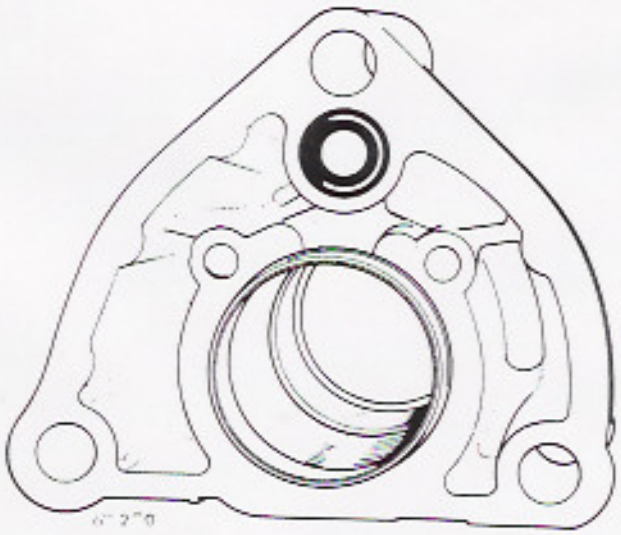
Fit the assembly into the inserting guide (B) on the base, ensuring that the spot-face on the piston is correctly located against the guide collar.
Push in the "mandrel - gudgeon pin - guide" assembly on the press until the locating guide makes contact with the bottom of the inserting guide.

NOTE - The depth of the bore in the guide has been calculated to correctly centralise the connecting rod on the gudgeon pin after insertion.

Fit the following to the piston :
- the U-Flex oil control ring.
- the compression ring.
- the "firing" ring.

IMPORTANT
As the gaps in all the piston rings are pre-prepared they are never to be adjusted.
Oil the piston rings, set them at 120° to each other with the gap in the oil control ring covering an unpierced section of its groove.

G- CAMSHAFT FRONT BEARING



Replace the front seal and the oil ducting seal.

H - CYLINDER BLOCK

As the cylinder block is made from pressure die cast aluminium alloy, the following precautions are to be taken when cleaning it :
- never scrape the upper gasket face.
- dissolve any remaining portion of the cylinder head gasket which is sticking to the cylinder block with trichlorethylene .
- do not scrape the liner locating areas.
- remove any oil which remains in the cylinder block front securing hole on the camshaft side.

Important :

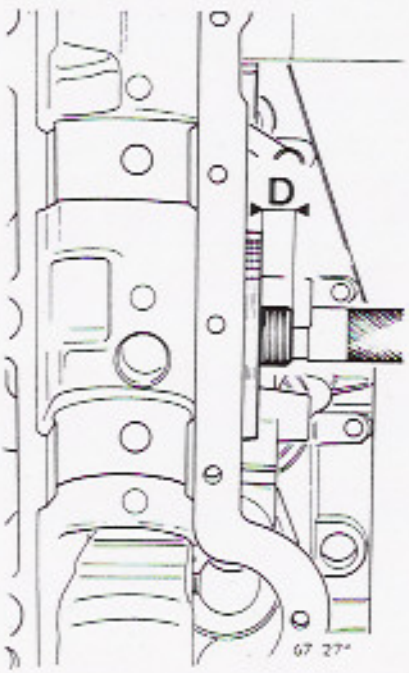
The plug plates are not to be removed.

Check the projection (D) of the stud to which the oil filter is fitted above the sealing face on the cylinder block :

D = 9.5 to 12.5 mm (3/8 to 1/2").

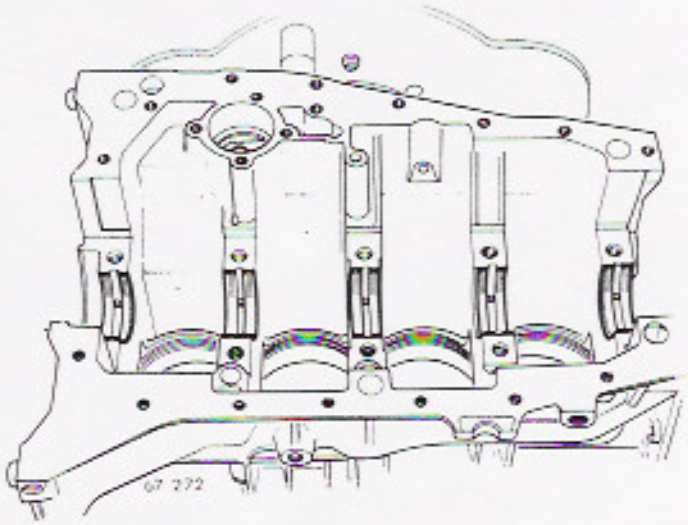
If it is less than 9.5 mm (3/8"), the stud is to be replaced by another repair size stud which is 41 mm (1 5/8") long.

Adjust its length to obtain the correct projection (if necessary).

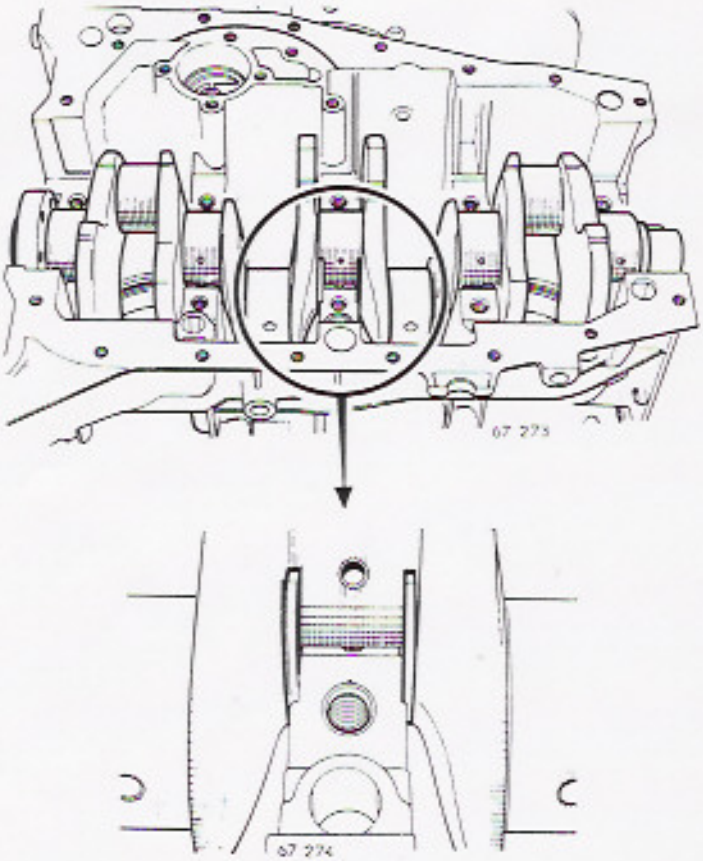


VIII - REASSEMBLING

NOTE - Should it be necessary to replace the cylinder block run-up, the cylinder head securing bolts, in their threads a number of times in order to work in the threads.



Fit the cylinder block to support Mot. 256.
Fit the main bearing shells : they have lubrication holes in them.
Oil the shells.

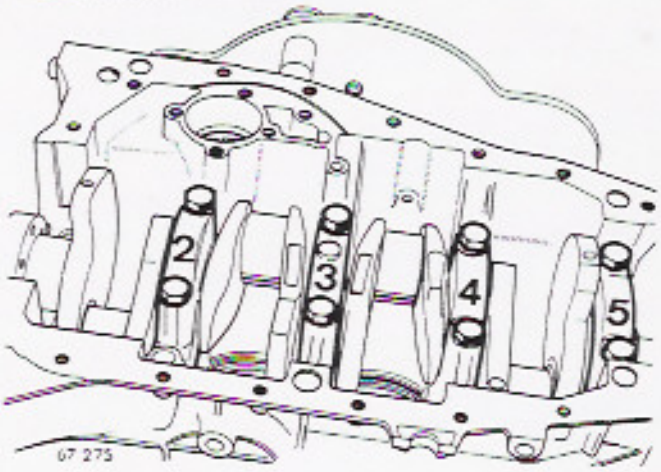


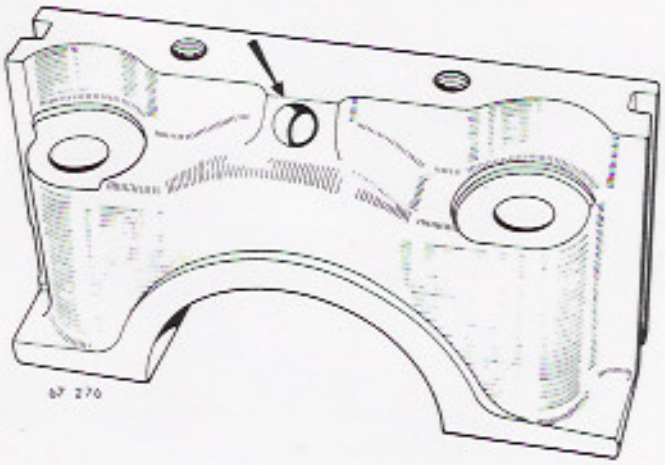
Oil the crankshaft journals and fit it in place.

Fit the end float flanges (with the machined face towards the crankshaft).

Fit the bearing shells to main bearing caps, numbers 2 - 3 - 4 and 5 : they have no lubrication holes in them.

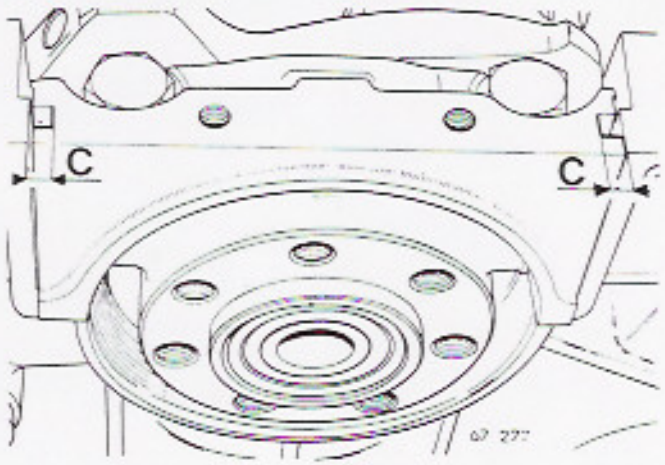
Oil the shells.
Fit the main bearing caps by following the position marks made during dismantling.
Fit the bolts : do not tighten them.





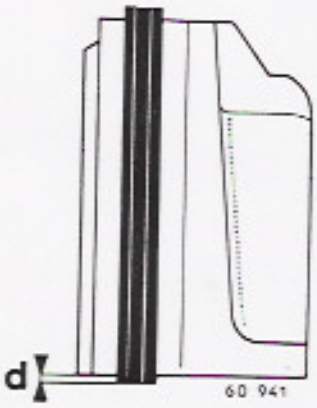
Check the diameter of the oil drain hole in the front main bearing cap.
If this is 8 mm (.315 "), it must be increased in diameter to 12 mm (.472").
Carefully de-burr the edges of the hole.

Fit the shell to the front bearing cap.
Temporarily fit the front bearing cap and tighten the bolts.



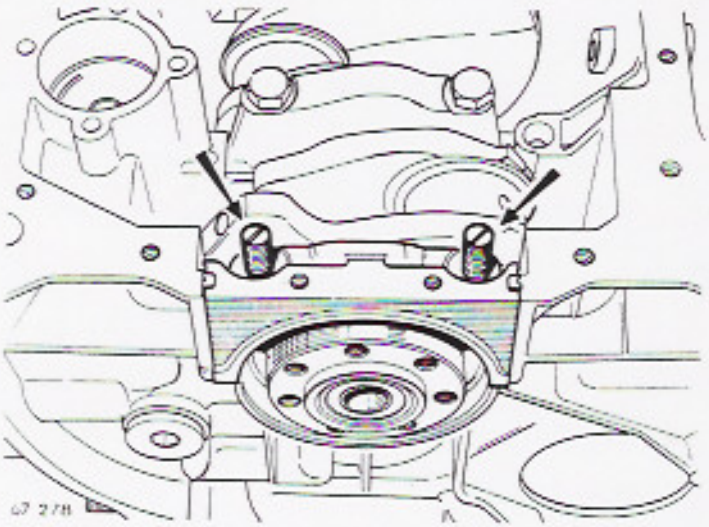
Measure dimension C between the cylinder block and the bottom of the bearing seal locating groove.
- If dimension C is less than 5 mm (.197"), select 2 seals 5.10 mm (.201") thick.
- If dimension C is greater than 5 mm (.197"), select 2 seals 5.35 mm (.211") thick, which have a white colour code.

Remove the bearing cap.



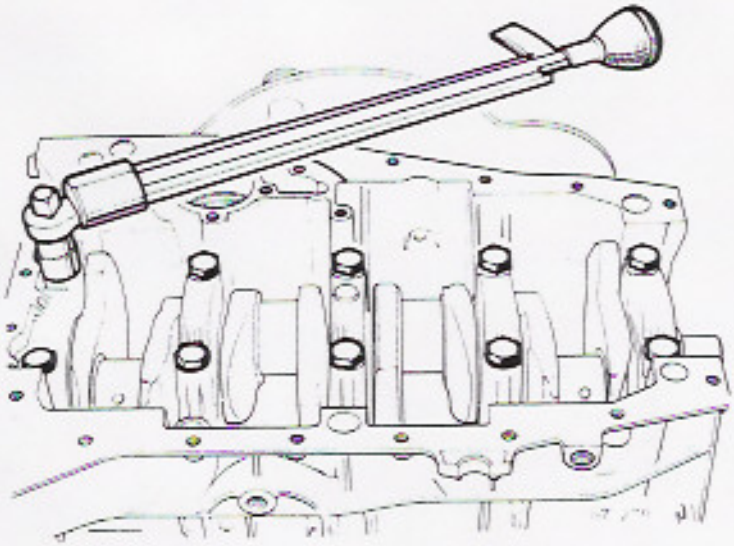
Fit the two side seals to the front bearing cap :
- with the groove in the seal towards the outside,
- the seal projection above the locating faces on the cylinder block side (d = 2/10 mm approximately, (.008")).

Oil the shell and the side seals.

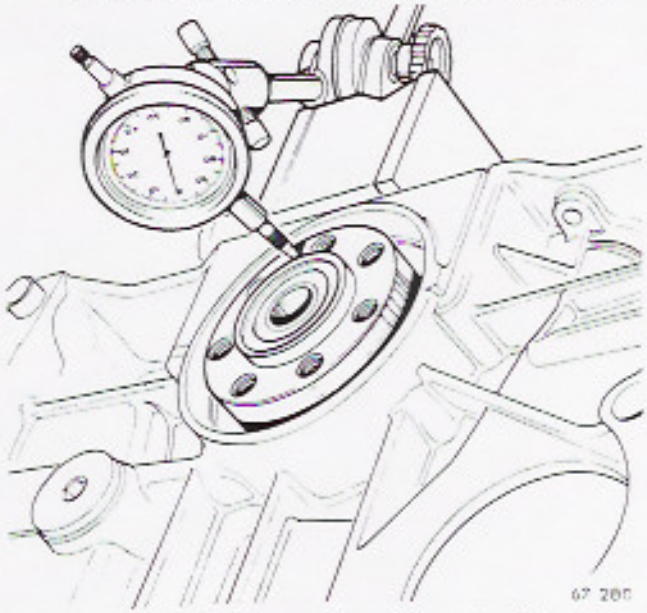


Screw two locating studs (diameter 10 mm, pitch 150), into the cylinder block.
Fit the front bearing caps to the studs :
- Fit two shims between the cylinder block and the seals in order not to damage the seals.

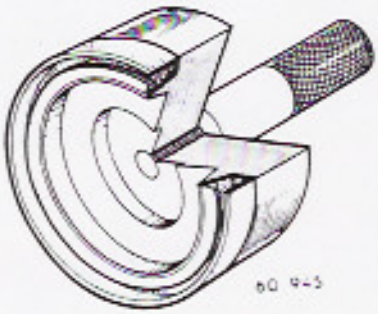
When the cap is almost in position, ensure by means of a rule that the side seals still project slightly.
Remove the shims and the studs and fit the bolts.

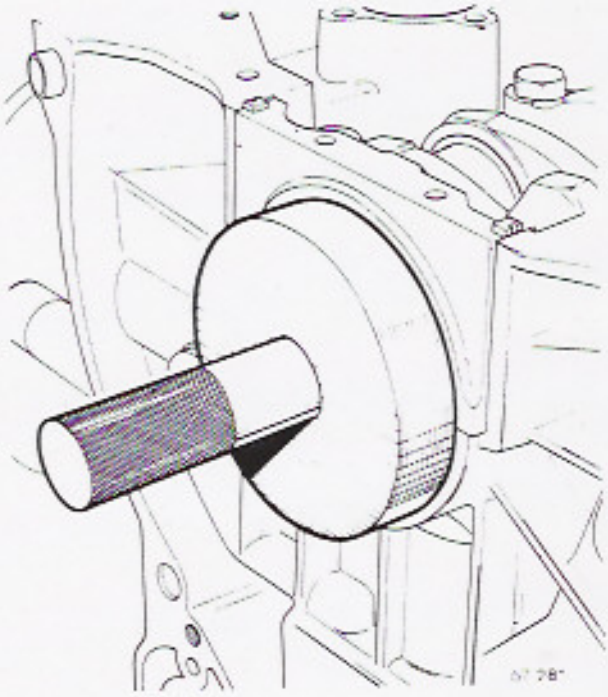


Tighten the bearing cap securing bolts to a torque of 6.5m.da N (45 lb/ft) using torque wrench Mot.50.
Check that the crankshaft turns freely.



Fit a dial indicator at the end of the crankshaft.
Check the crankshaft end float : it should be between 0.05 and 0.23 mm (.002 to .009").
If this play is incorrect, replace the end float adjusting flanges.
These are obtainable in several different thicknesses :
nominal thickness : 2.80 mm (.110")
repair thickness : 2.90 mm (.114")
2.95 mm (.116")



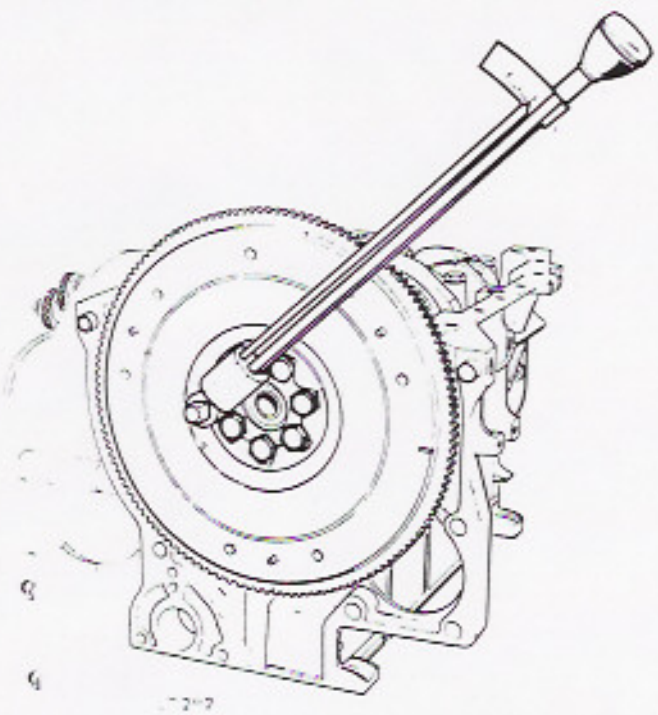


Fit the seal by lightly tapping the end of the tool, until it makes contact with the crankshaft.

NOTE - Tool Mot.259 must be kept in a box and the face on which the seal lip locates should have no ragged edges on it. Protect the tool in storage with a worn out seal.

Fit the flywheel.

Apply a maximum of one or two drops of "Loctite" locking compound on the securing bolt threads.
Fit the locking plate and screw down the bolts. As these bolts are of the self-locking type, they are to be replaced by new ones every time they are removed.
The locking plate is also to be replaced.

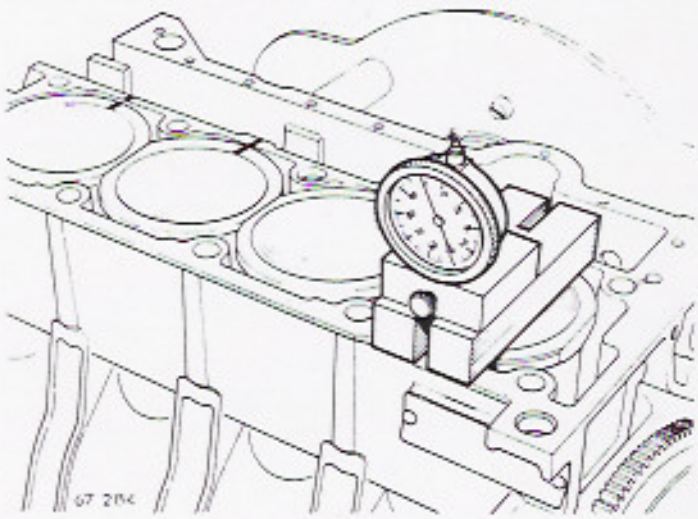


Tighten the bolts to a torque of 5 m.da N (40 lb/ft) using torque wrench Mot.50.
Fold up the locking plate with a pair of pliers : only fold the plate onto one of the hexagon flats on each bolt.

Fit the lower seals to the liners using a thin blade with carefully rounded edges: the seals are to be 0.07 mm (.003") thick, these are identified by a blue colour code.

Fit the liners into the cylinder block.

Press on the liners by hand, to ensure that they locate correctly on the seals.

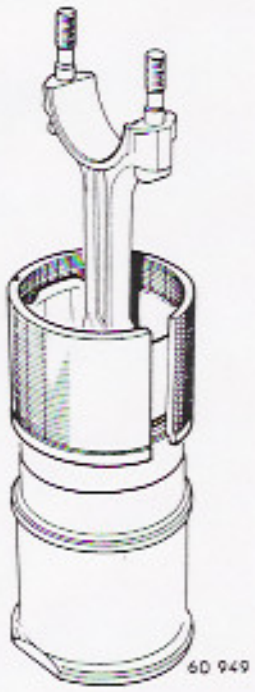


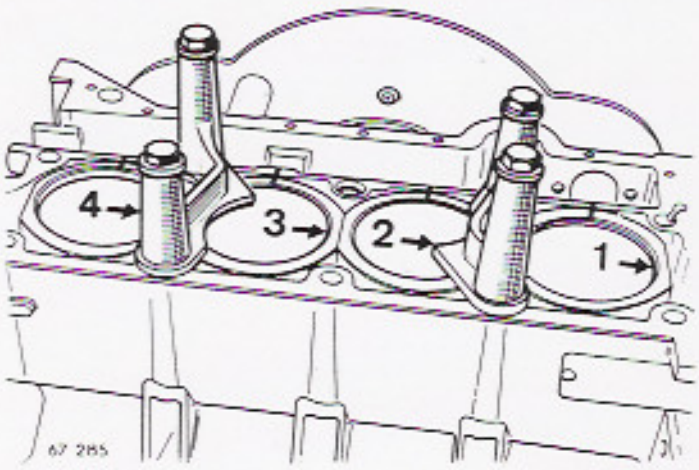
Check the extent to which the liners project above the cylinder block face using thrust plate Mot.252 and the ball indicator support Mot.251 (the ball container must be fitted to extension Mot.368.

The projection should be between 0.14 and 0.19 mm (.0055 to .0075").
Take the reading on two opposite sides of the diameter : if the difference between these two figures is greater than 2/100 mm (.001"), turn the liner half a turn and repeat the operation.
Seals can be obtained in two different thicknesses :

0.07 mm (.003") blue colour code,
0.10 mm (.004") red colour code.

Repeat this operation for the other liners.
Mark the position of the liners with reference to the cylinder block so that they may be re-fitted to the same position on final assembly.
- make the marks on the camshaft side.
Remove the liners.





Oil the pistons.
Fit the "piston-connecting rod" assemblies into the liners using sleeve Mot.227.

Fit them in the correct position.

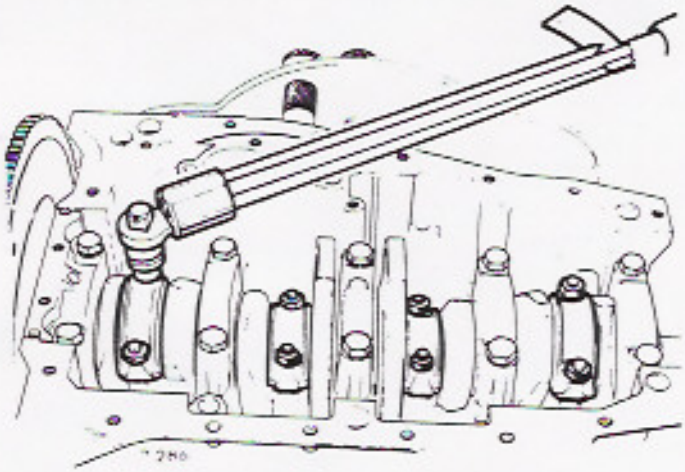
- The number marked on the connection rod big end is to be on the camshaft side, that is to say, on the same side as the reference mark made when checking the liner projection.
- The big end faces on the connecting rods are to be parallel to the flats on the tops of the liners.

Fit the shells to the big ends.
Fit the "connecting rod-piston-liner" assemblies into the cylinder block in the correct positions :

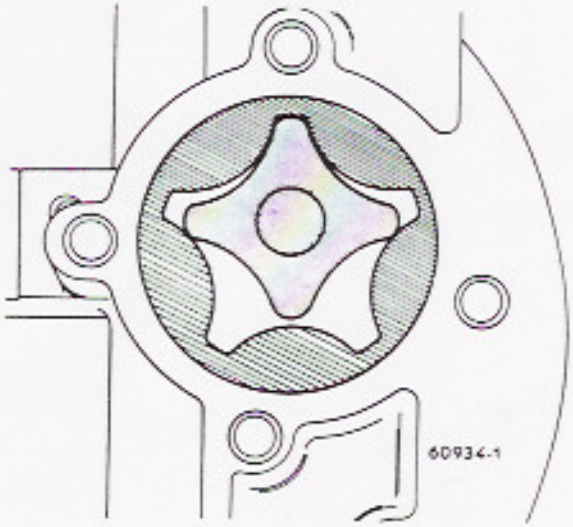
- With number 1 at the clutch end.
- With the arrow on the piston pointing towards the clutch end.
- With the number on the big end on the camshaft side.
- With the mark on the liner in line with that made on the cylinder block.

Fit the liner retaining flanges, Mot.12.
Turn the engine over.

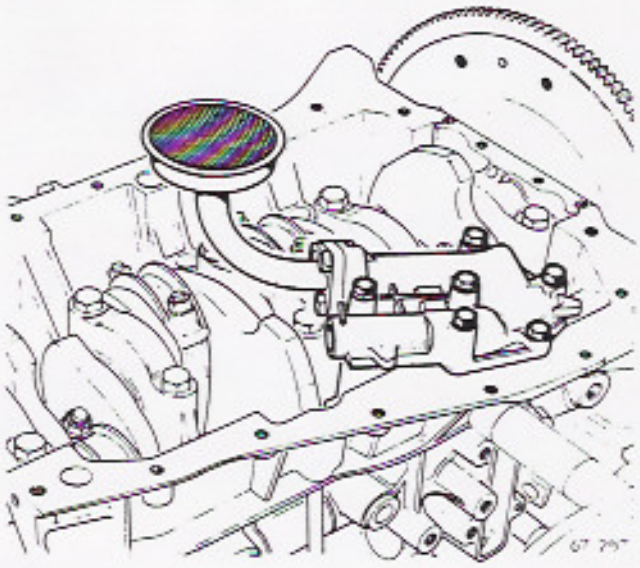
Place the connecting rods on the oiled crank pins.
Fit the big end caps together with their shells, ensuring that they are on the correct connecting rods.
Fit the cap nuts.



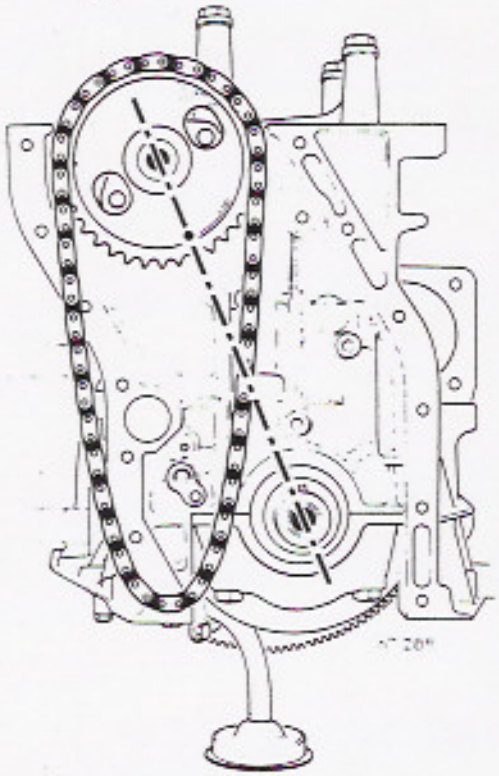
Tighten the nuts to a torque of 4.5 m.da N (30 lb/ft) using torque wrench Mot.50.
Check to ensure that the moving parts rotate freely.



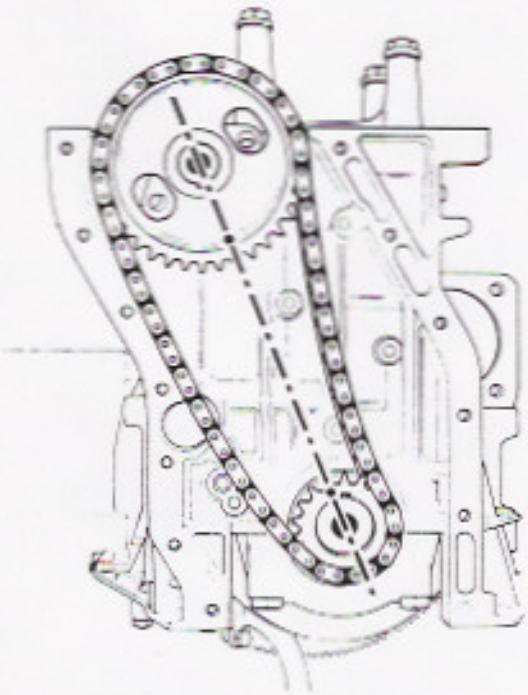
Fit the outer rotor and then the inner rotor to the oil pump.



Fit the oil strainer cover and secure it.
Turn the engine over.

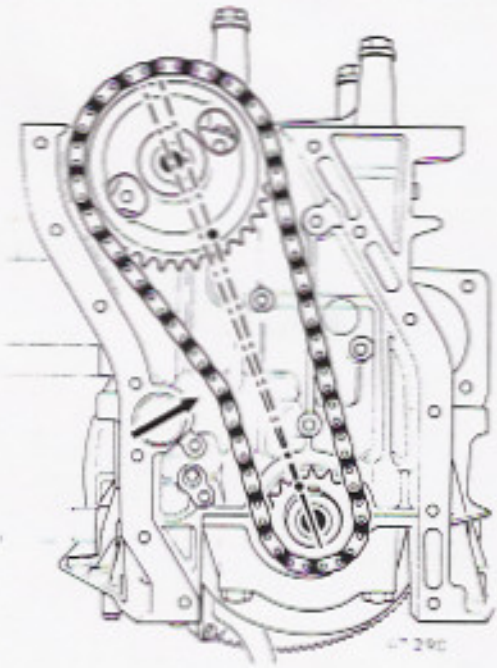


Oil the camshaft bearing areas and fit it in position : do not push it fully home.
Place the chain over the camshaft sprocket : align the mark on the sprocket with the centre of the crankshaft and the centre of the camshaft.

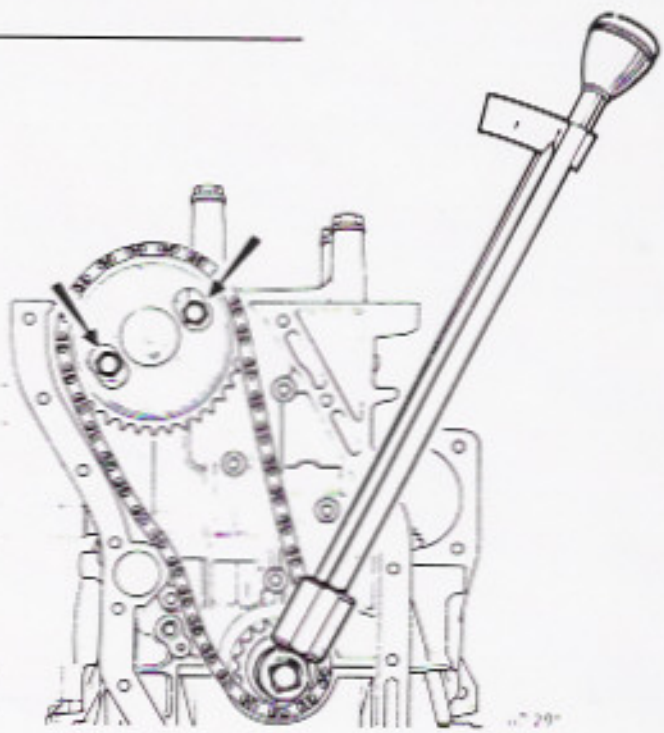


Turn the crankshaft to bring the key to the uppermost position.

Fit the crankshaft sprocket (with the reference mark towards the outside) on the chain : the reference mark is to be in line with that on the camshaft sprocket, and with the camshaft and crankshaft centres.



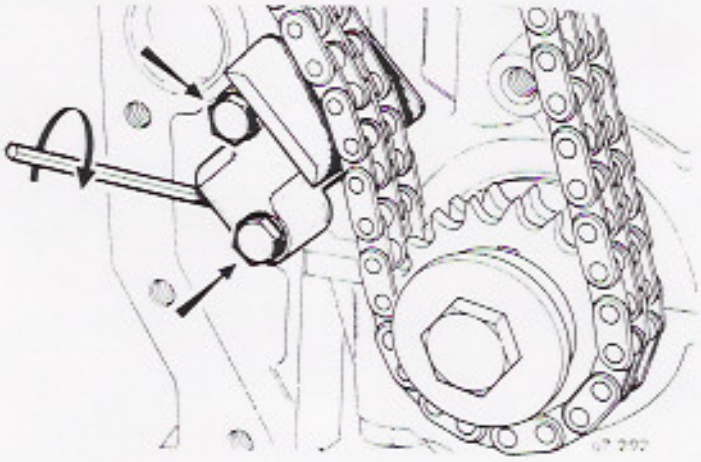
With the references in line, fit the sprocket to the crankshaft : fit it by means of a tube gradually pushing the camshaft into position. When the chain is correctly tensioned, the line between the two reference marks no longer passes through the camshaft centre.



Fit the spacer, the thrust washer and the crankshaft sprocket bolt.

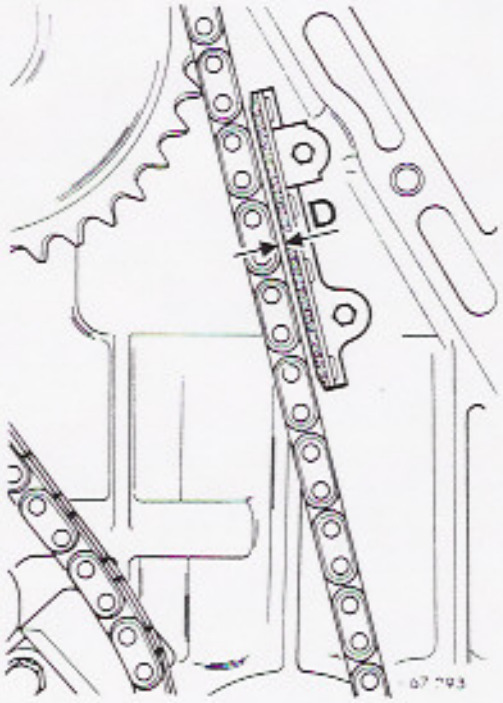
Tighten the bolt to a torque of 6 m.da N (45 lb/ft) using torque wrench Mot.50.

Fit and tighten the two camshaft flange bolts.



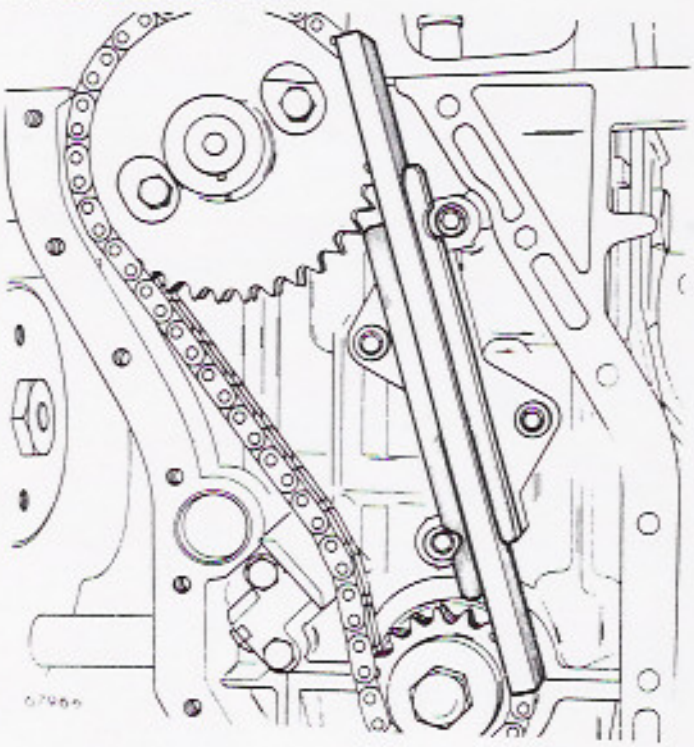
Fit the chain tensioner (together with its filter) and its backplate.
Tighten the two bolts.
Insert a 3 mm (.118") socket key into the retaining cylinder.
Turn the key in a clockwise direction until the pad carrier assembly is projected against the chain.
Tighten and lock the bolt on the retaining cylinder.

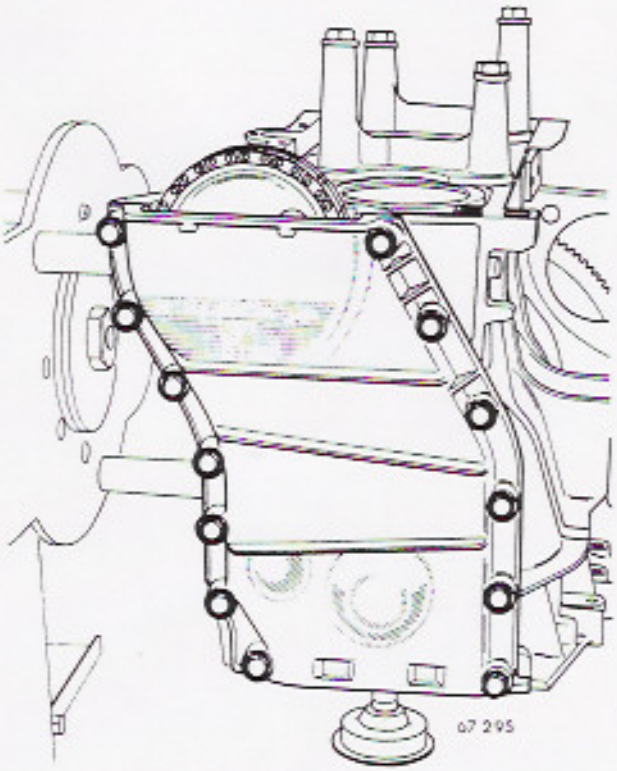
NOTE : The filter is 20.5 mm (13/16") long ; for tensioners with a backplate 2 mm (.079") thick.
- 19.5 mm (49/64") long for tensioners with a backplate 1 mm (.040") thick.

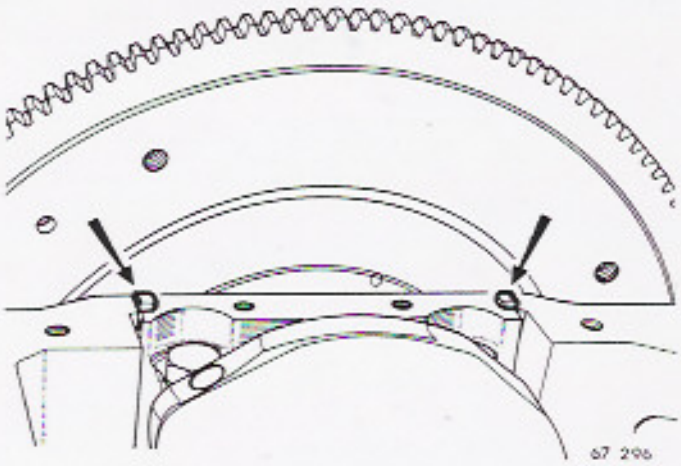


Fit the flail limiting lug or lugs if the engine is fitted with one lug.
Fit the lug so that it is parallel to the chain.
When the chain is correctly tensioned it should be at a distance D = 0.8 mm (.032") from it.

- If the engine is fitted with two lugs :
Fit the two lugs.
Place the gauge Mot.420 on the chain.
Push the two lugs against the gauge and tighten their securing bolts.
Remove the gauge.

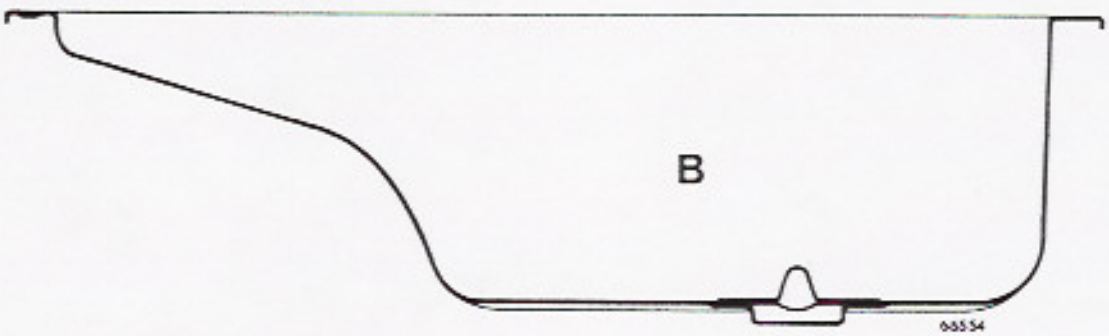




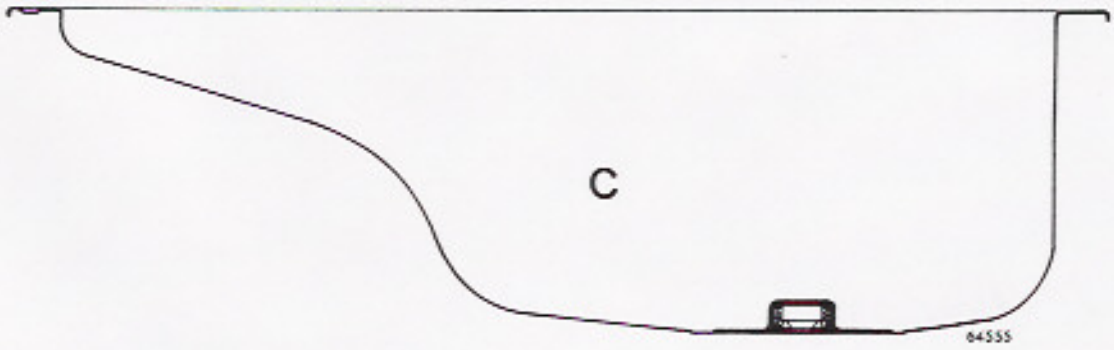


Fit the timing gear casing with its gaskets smeared with jointing compound (Ref. 805 463).
Fit the bolts and align the upper edge of the casing with the upper edge of the cylinder block.
Tighten the bolts.

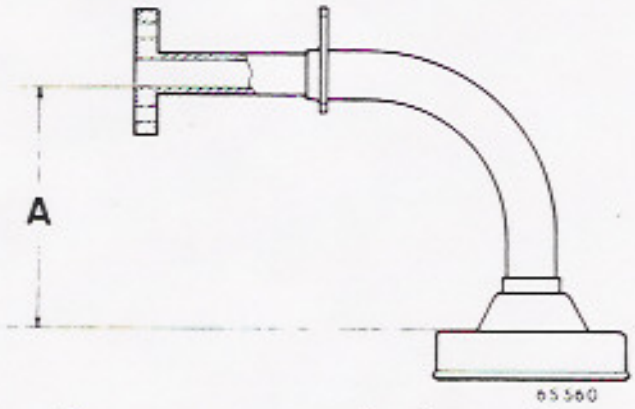
Turn the engine over. Cut off the two front bearing seals flush with the cylinder block.
Fit the sump (oil pan) : the two shortest bolts are screwed into the front bearing.
Turn the engine over.



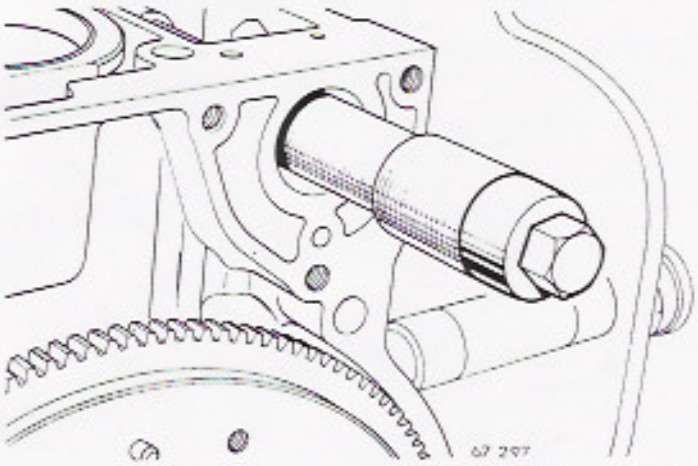
NOTE -
Two different types of sump (oil pan) have been fitted :
- the first type has a flat bottom (B).



- the second type has a curved bottom (C).

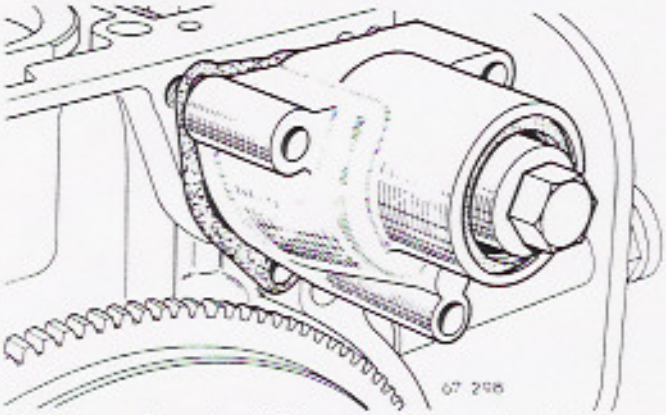


If a new type sump is fitted to an old type engine, the old type oil pump strainer (height A = 70 mm) ($2\frac{3}{4}$") is to be replaced by a special repair size strainer (height A = 75 mm) (2 31/32").

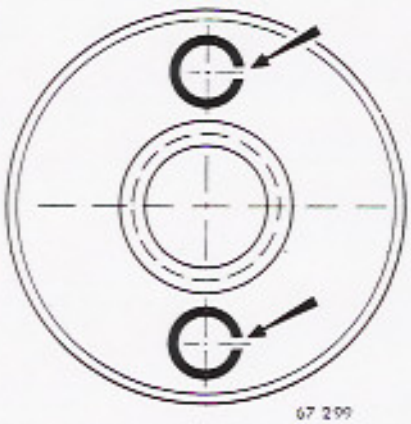


Fit tool Mot. 258 to the end of the camshaft, to lift the lips on the bearing seal.
Secure it in place by means of the camshaft pulley bolt.

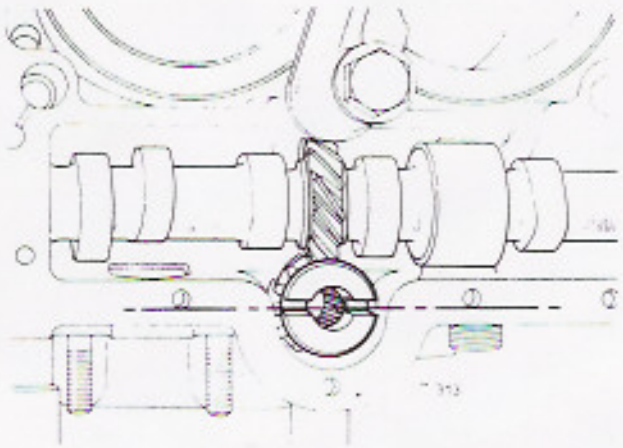
Only the second type is supplied as a spare part.



Ensure that the "O" ring seal on the lubrication ducting is correctly fitted to the bearing casing.
Fit the camshaft bearing casing together with its paper gasket.
Secure it in place by means of three bolts.



Fit the two pins which drive the pulley : push them slightly in, they are finally fitted when the pulley is tightened into place.
Fit the pins as shown in the illustration.

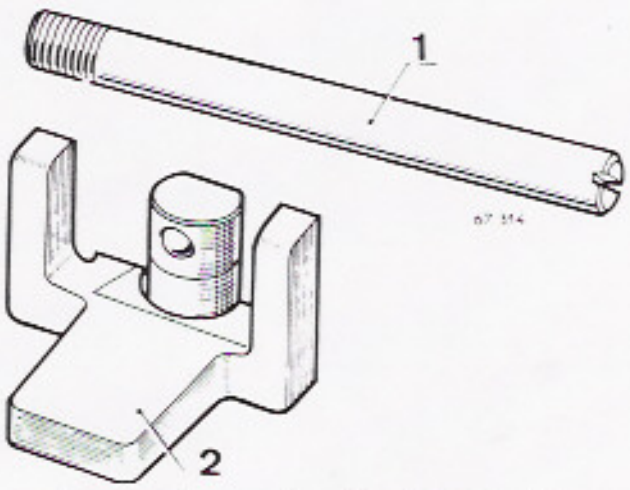


Turn the engine until No. 1 cylinder is in the firing position (the cams on No. 4 cylinder are then in balance).
Fit the oil pump and distributor drive pinion, ensuring that it is correctly positioned :
- with the slot parallel with the engine longitudinal centre line.
- with the largest off-set on the camshaft side.

Fill the cavity in the cylinder block with engine oil.
Remove the liner retaining flanges.

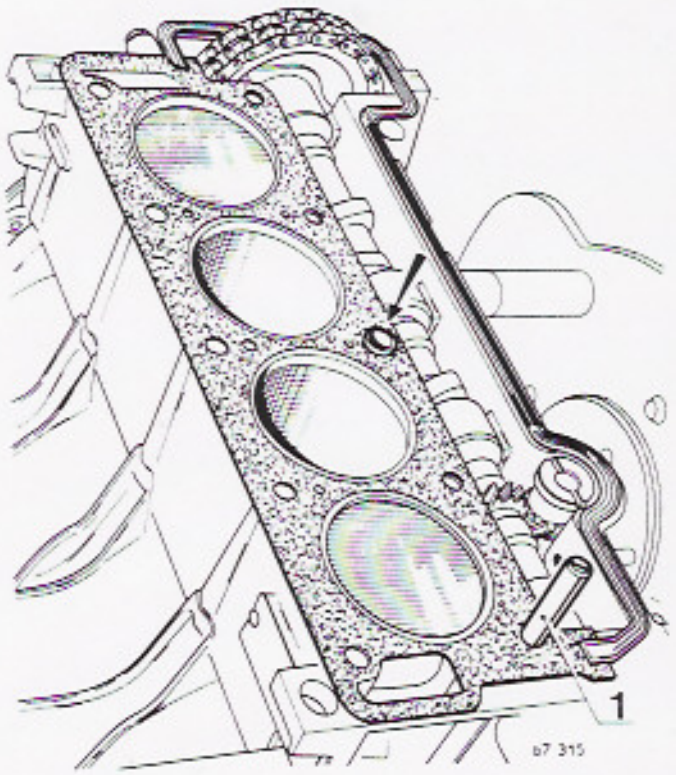
Then refit the cylinder head.

1) - Position the cylinder head gasket



One requires tooling Mot. 412 for this operation, which consisits of :
- 1 gasket locating dowel (1).
- 1 cylinder head locating gauge (2).

The operation of correctly positioning the cylinder head is a very important one: it is this in fact that determines the distributor drive shaft alignment with the drive pinion.



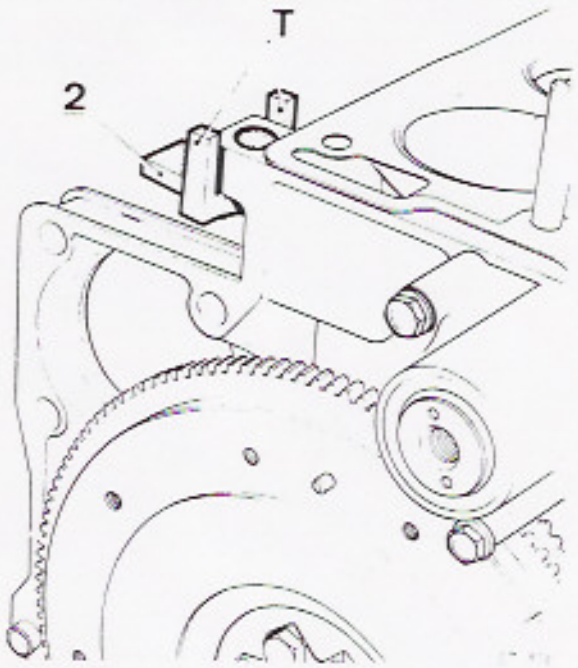
Fit the gasket locating dowel (1) at the front of the cylinder block, at the camshaft side.
Ensure that the cylinder head locating dowel bush is in fact in position in the block.
Fit the gasket : once it is in place, it is not to be removed.

If this should be necessary (as a result of incorrectly positioning the cylinder head, for example), it is not to be used again.
Fit the rubber gasket round the tappet compartment, avoiding overlapping the cylinder head gasket at the ends.

NOTE -
- The cylinder gasket is sold together with the tappet compartment gasket.
- Two different types of tappet compartment gasket are sold as spare parts:

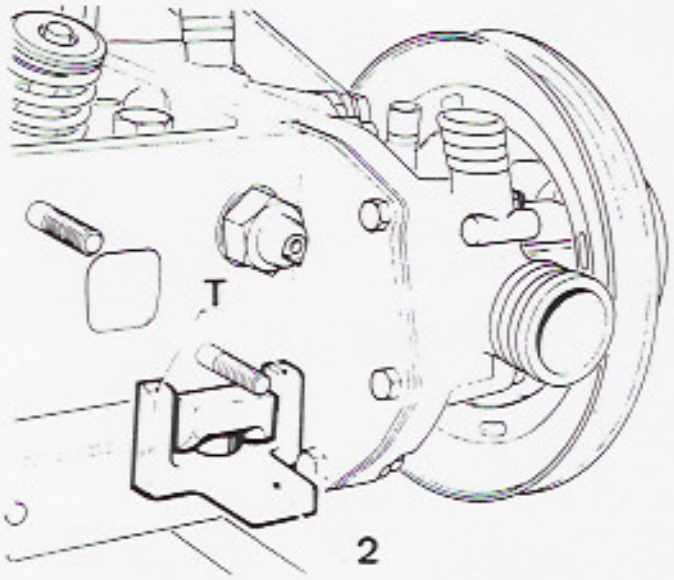
a) - A gasket which has 9 locating studs.
This gasket is only to be fitted to cylinder blocks with 5 holes and timing gear casings with 2 or 4 holes.
If a gasket is fitted to a timing gear casing with 2 holes, cut off the 2 excess studs flush with the gasket.

b) - A gasket which has 13 studs.
This gasket is only to be fitted to cylinder blockswith 9 holes and to timing gear casings with 2 or 4 holes.
If it is fitted to a timing gear casing with 2 holes, cut off the two excess studs flush with the gasket.



Fit the gauge (2) into the upper front hole of the cylinder block with the two lugs (T) parallel with the longitudinal centre line of the engine.

Fit the tappets to the cylinder head in the correct order : lightly tap them so that they stick into their locations.



Position the cylinder head and place it on the cylinder block :
- before it makes contact with the cylinder head, place the manifold locating face against the two lugs (T) on gauge (2).
- take care not to move the tappet compartment gasket.

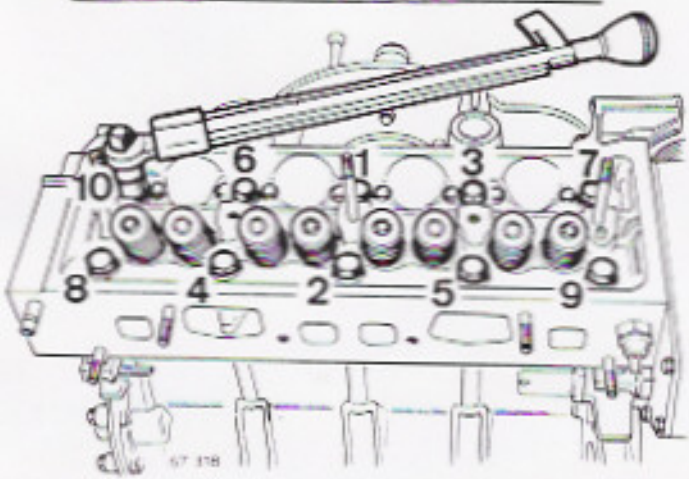
From this point onwards, do not touch the cylinder head.
Remove the locating dowel.
Lubricate the cylinder head bolts with engine oil.
Fit the bolts and screw them slowly in.

2 - Tightening the cylinder head bolts

The operation of tightening the cylinder head bolts is an important one, and there is a risk of leakage if it is incorrectly carried out.
This operation is to be carried out with great accuracy and the torques applied to the bolts are to be applied gradually.

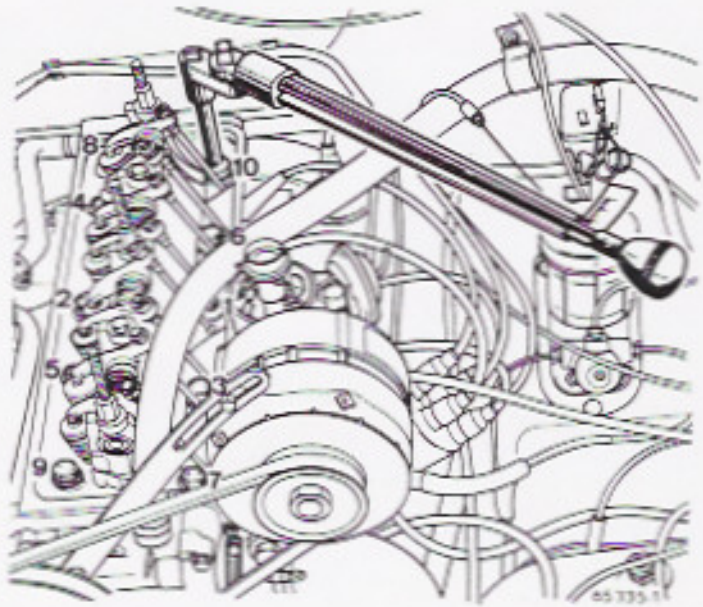
We therefore forbid the use of "break back" release type torque wrenches for this operation.
We request that you should only use direct reading torque wrenches, for example wrench Mot. 50.

The bolts are to be tightened in 3 separate movements



a) - First phase:

Tighten to 4 m.da N (30 lb/ft) in the order shown.



b) - Second phase

Tighten to $7.5^{+0}_{-0.5}$ m.da N (50 to 55 lb/ft) after having loosened the bolts by 1/4 of a turn.
Ensure that the tightening order is followed correctly and that the torque is accurate. Pull the bolts up smoothly without jerking them. If they jerk screw them in and out a number of times.

c) - Third phase

The third operation is to be carried out after the engine is fitted to the vehicle:
In fact the engine is first to be warmed up as follows :
Start the engine, allow it to warm up for 10 minutes, then switch off and allow it to cool for 50 minutes.
Disconnect the battery.
Remove the rocker arm cover.

Loosen the bolts by 1/4 of a turn and retighten them to :
$8.25^{+0}_{-0.5}$ m.da N (55 to 60 lb/ft).

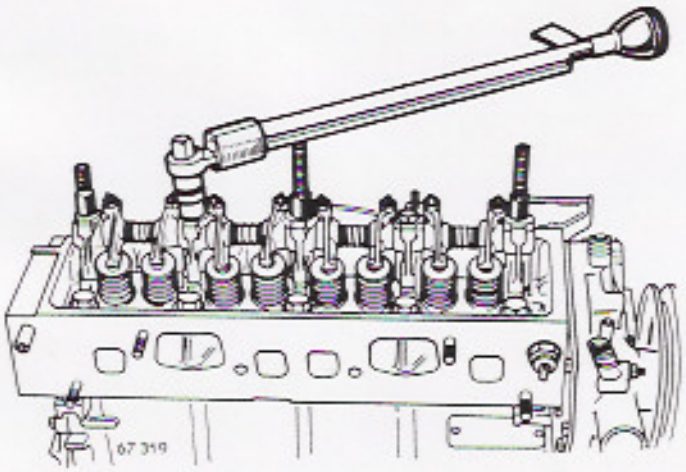
NOTE:-
For the first 8 bolts, use a torque wrench extension (for example Facom S 210 or S 215).
For the last 2 bolts, use wrench Mot. 253 with crank extension piece Facom S 234 :
because of this cranked tool the tightening torque on these bolts is to be reduced by 10%, that is to say :

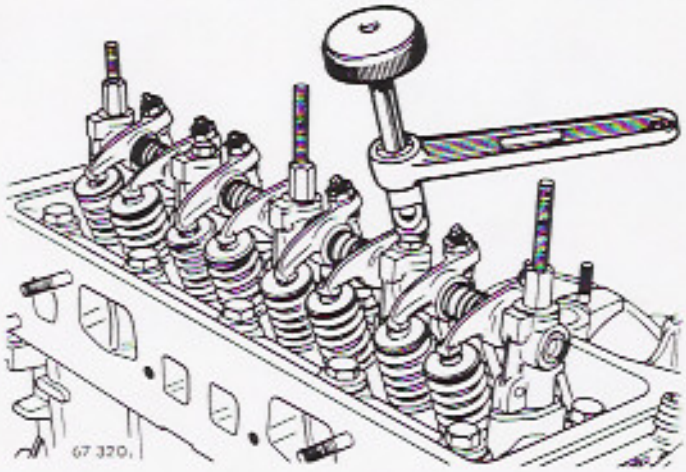
$7.5^{+0}_{-0.5}$ m.da N (50 to 55 lb/ft).

Adjust the rocker arm clearances :
- inlet : 0.20 mm (.008")
- exhaust : 0.25 mm (.010")

Refit the rocker arm cover.

Retighten the manifold fastenings to a torque of between 1.5 to 2.5 m.da N (10 to 20 lb/ft).

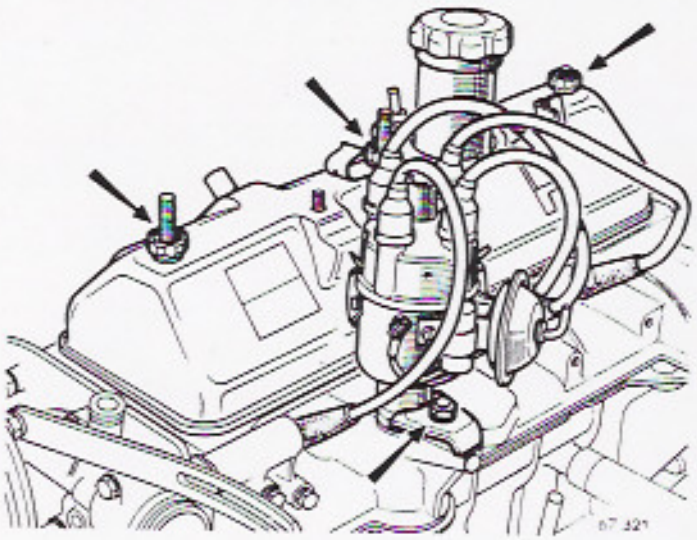




Fit the push rods and the rocker arm assembly : make sure that the two end supports locate correctly on their dowels.
Tighten the rocker arm assembly securing nuts to a torque of 2 to 2.75 m.da N (15 to 20 lb/ft) using torque wrench Mot.50.

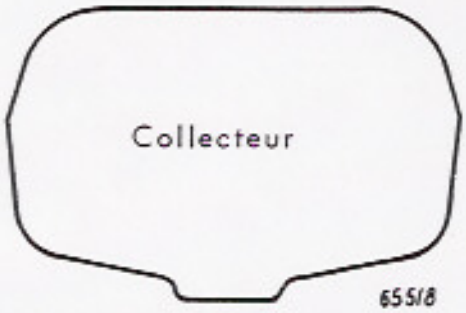
Adjust the rocker arm clearance by means of spanner (wrench) Mot.233 :
- inlet : 0.20 mm (.008")
- exhaust : 0.25 mm (.010")

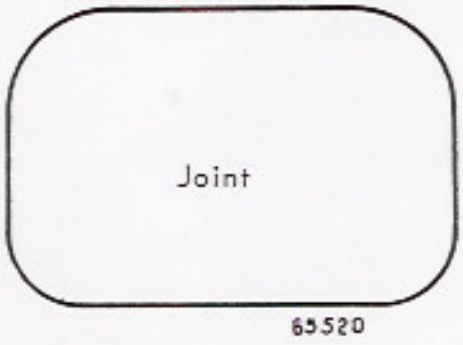
As the tappets are fitted in the cylinder head it is possible that they will stick slightly in their locations.
Before adjusting each rocker arm lightly tap the adjusting screw, to make sure that the tappet is in fact resting on the camshaft.

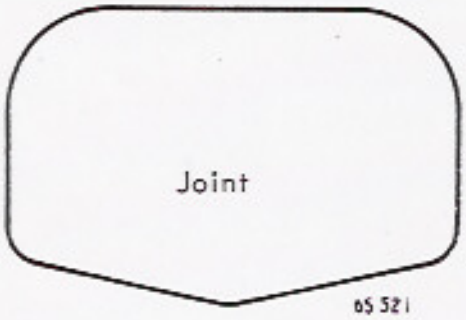


Refit the distributor and temporarily adjust its static timing.
Fit the plugs and connect up the leads.

Refit the rocker arm cover ensuring that the positioning lugs are correctly located inside the cylinder head.







First arrangement

Second arrangement

Fit the manifold gasket with the metal face on the cylinder head side.

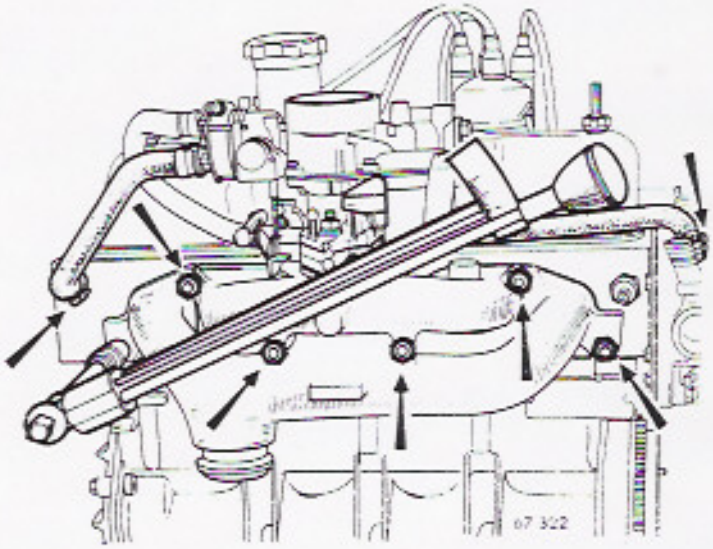
NOTE -
There are two different gasket shapes which correspond to the shapes of the inlet ports in the cylinder head and in the manifold.

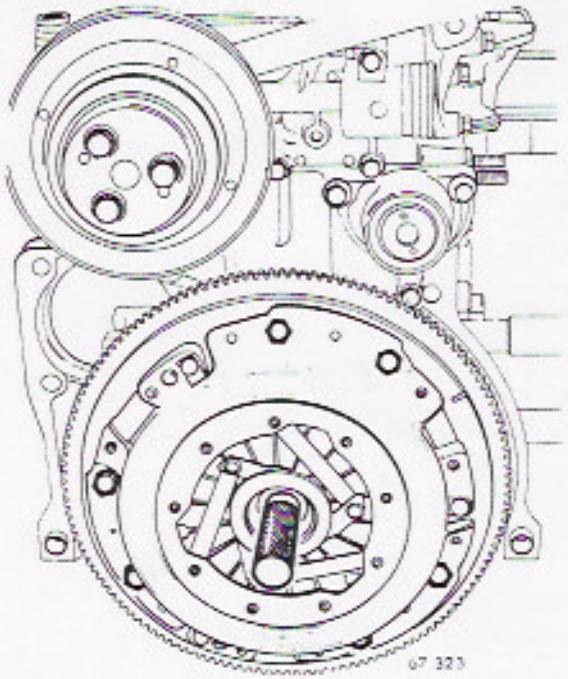
The shape of the gasket to be fitted must correspond to the manifold to which it is fitted.

Only fit the Reinz type gasket to the second arrangement : there is no particular way round for this gasket.
Check that the manifold face is flat : maximum permissible distortion 0.20 mm (.008").

Fit the "manifold-carburettor" assembly : allow it to assume its correct position under its own weight.
Tighten the securing nuts and bolts to a torque of 1.5 to 2.5 m.da N (10 to 20 lb/ft) by means of torque wrench Mot.50.
Connect the heating pipes between the bottom of the carburettor and the cylinder head :
use key Mot.400 to tighten the clips.

NOTE -
In this case where the carburettor has a hot water choke, the pipe from the rear of the cylinder head is to be connected to the lower part of the choke casing.

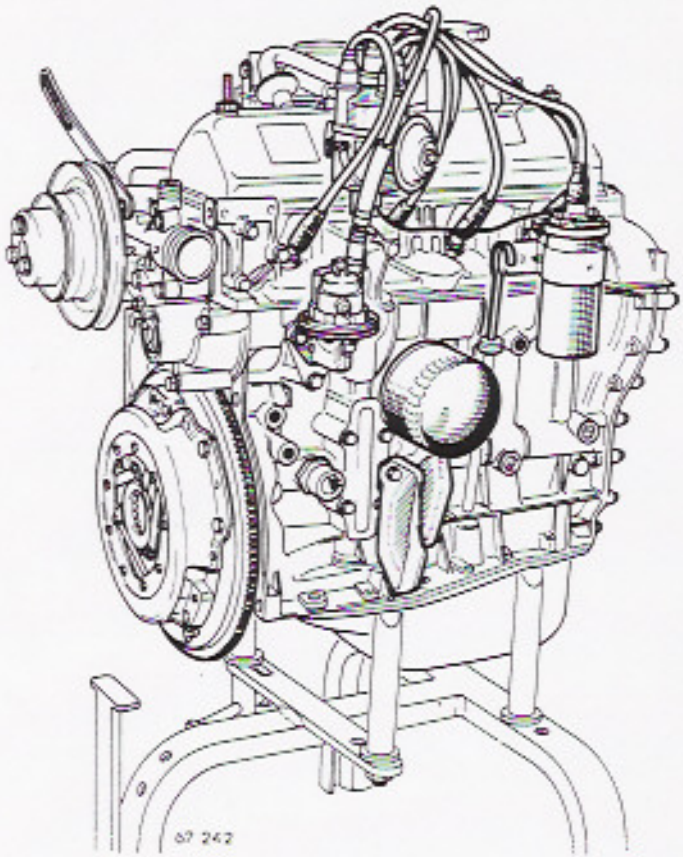




Fit :
- the clutch friction disc with the off-set on the hub towards the gearbox (transmission case).
- the clutch mechanism : when applicable, following the positon mark made during dismantling.

Centralise the friction disc by means of mandrel Emb.257.
Tighten the clutch mechanism securing bolts.

Remove the engine from the dismantling support and place it on support Mot.369.



Fit :
- the ignition coil and connect up the leads.
- the oil pump drive shaft location cover plate.
- the side mountings.
- the oil pressure switch : special tool Mot.232-01.
- the dipstick.
- the oil filter : oil the seal with engine oil.
- screw in the filter until the seal makes contact with the housing.
- tighten the filter, by hand, through 1/4 of a turn. The reference marks 1, 2, 3 and 4 will make this operation easier.
- unscrew it and retighten it by between 1/2 and 3/4 of a turn.

NOTE - Fit only oil filters which have a crimped seal.
- fit the fuel pump :

the 2 point fastening pump has been superseded by a 3 point fastening pump.
This can be fitted as a replacement for a 2 point fastening pump, on vehicles fitted with a return to tank system only.

IX - COOLING SYSTEM

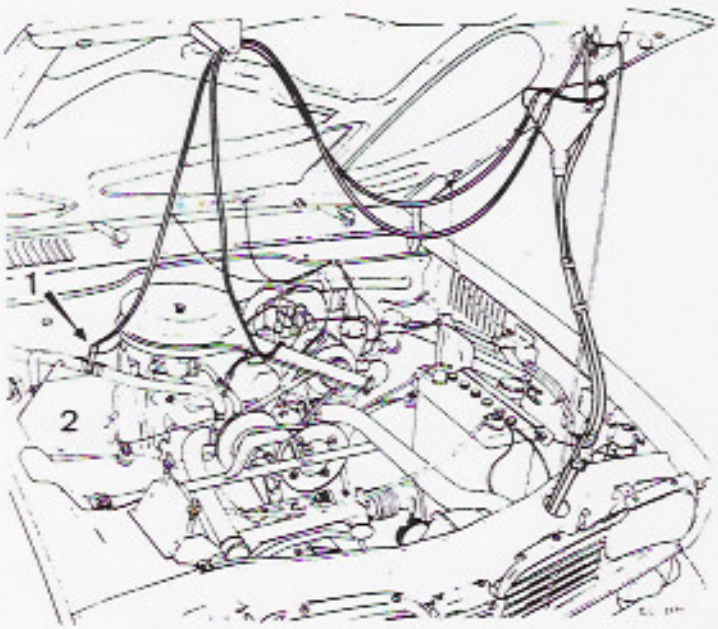
General information on the cooling system is given in section D-001 of MR. 101 EA. Below you will find the special features relative to this vehicle.
System capacity : 5.8 litres (6qts. US 5 1/4 qts. Imp.).

A - DRAINING THE SYSTEM

To be fully emptied, the system must be drained as follows :
- Place the heating control in the heating position.
- Loosen the cap on the expansion chamber valve ("Rapace No.1" wrench).
- Remove the valve.
- Remove the drain plug from the radiator : the fluid will run out slowly to begin with.
When it runs out freely, the expansion chamber is empty.
- Remove the radiator filler cap.
- Open the heater radiator bleed screw, and the bleed screw on the carburettor. This one is positioned :
- on the pipe between the base of the carburettor and the cylinder head of 1965 and 1966 models.
- on the choke casing of 1967 models.
- Remove the engine drain plug which is to the left of the fuel pump.

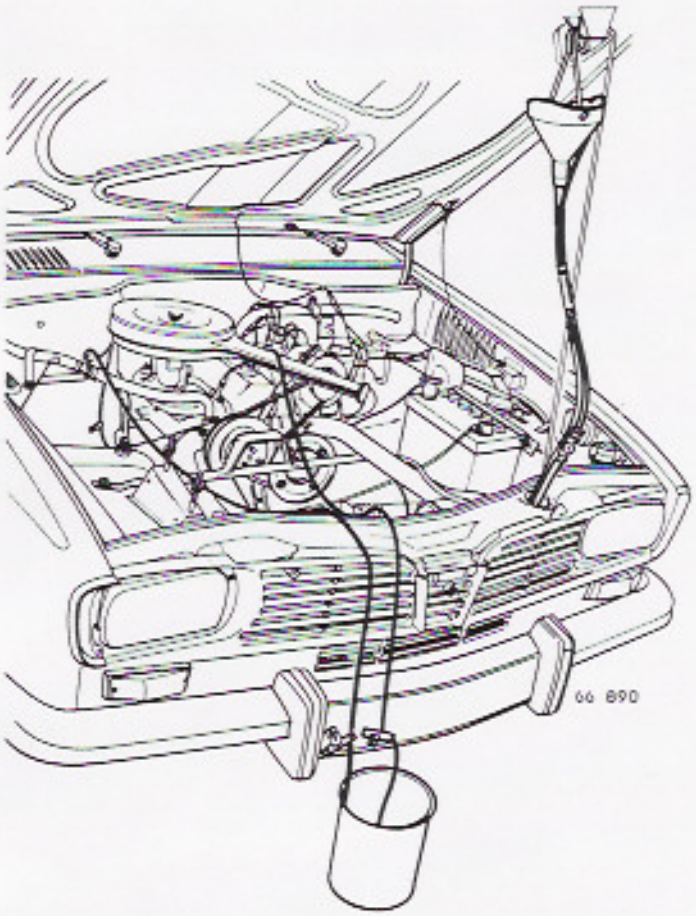
B - FILLING THE SYSTEM

1 - 1965 and 1966 models.



- Fill the expansion chamber until the fluid reaches the maximum mark.
- Fit the valve and screw down the cap.
- Fit the end fitting of tool Mot.401 to the radiator and hook the funnel to the bonnet (hood).
- Place the heater control in the heating position.

Remove the two bleed screws (1) and (2). Screw hoses Mot.413 in place of them, and position them as shown.



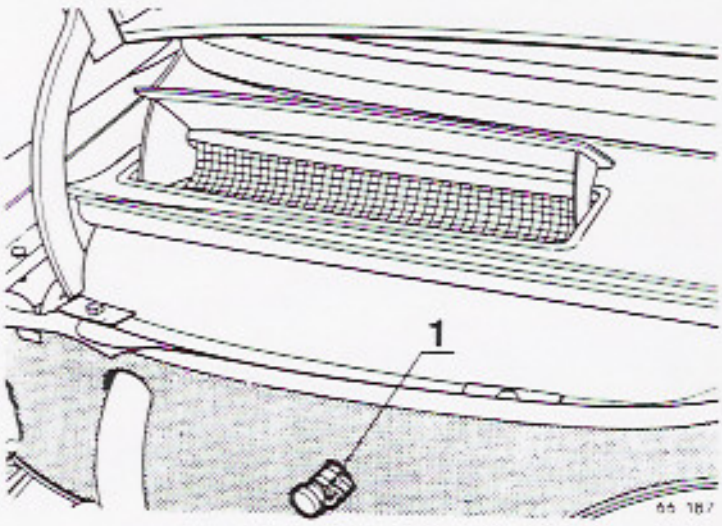
- Fill the funnel with coolant.
- Open the valve on the device.
- Start the engine.
- Top-up the coolant in the funnel as the system fills.
- When the fan starts place the two hoses so that the fluid in them flows into a container placed on the ground.

- When the level in the funnel falls, pinch flat these two hoses and pour the coolant in the container, into which they flow, into the funnel.
Repeat the operation.

IMPORTANT

Never allow the funnel to completely drain to prevent further air entering the system.
- When there is no further air in the hoses, lift them and allow them to flow into the funnel, then switch off the engine.
- Allow the engine to cool.
- Close the valve on the apparatus.
-Disconnect the hoses and refit the bleed screws, without tightening them fully down.
- Open the valve on the apparatus.
- Allow coolant to flow from the bleed screws for a short time then tighten them down.
- Close the valve on the apparatus.
- Remove it and fit the radiator filler cap.

2 - 1967 model vehicles

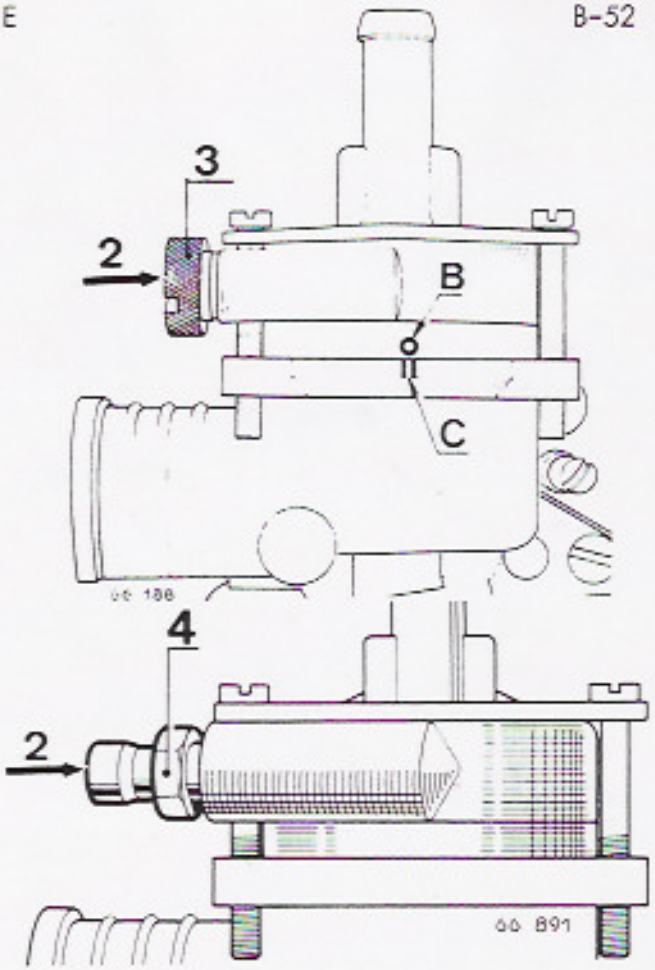


The bleed screw (1) for the radiator is on the scuttle screen panel.

The bleed screw (2) on the carburettor heating system is mounted on the choke casing.
Two types of screw have been fitted :
- screw (3) which is to be removed to fit hose Mot.413.
- needle valve screw (4), which has an end fitting to which the hose can be fitted directly.

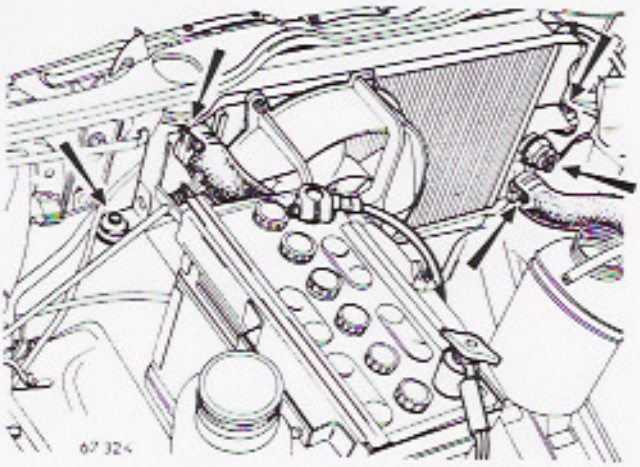
The system is bled in the same way as it is on the 1965 and 1966 models.
There is no need to wait for the coolant to cool down before removing the hoses when the carburettor is fitted with needle valve (4).
Carry out the operations as follows :
- Pinch flat the hose on screw (1).
- Remove the hose and refit the bleed screw.
- Close needle valve (4) and remove the hose.

NOTE -
One can fit the choke casing with needle valve (4) on those carburretors that are equipped with the other type.



X - REMOVING AND REFITTING THE RADIATOR

A - REMOVING



Disconnect the battery.
Remove the spare wheel.
Drain the cooling system.

Disconnect :
- the radiator hose at the radiator.
- the motor-fan unit leads at the relay.
- the temperature switch leads at the radiator.

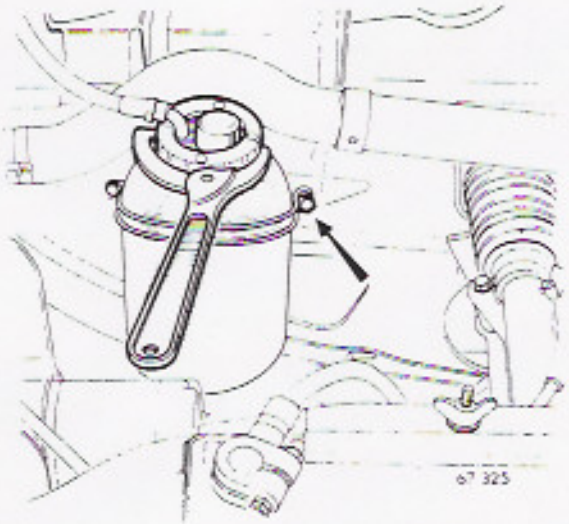
Remove the two radiator securing bolts.
Remove it together with the hose which is connected to the expansion chamber.

B - REFITTING

Carry out the removing operations in reverse.
Use key Mot.336 to tighten the hose clips.
Fill the cooling system.

XI - REMOVING AND REFITTING THE EXPANSION CHAMBER

A - REMOVING



Remove the spare wheel.
Pinch flat the hose which leads to the radiator.
Unscrew the valve cap and remove it : should the cap be found difficult to unscrew, use a pin spanner (wrench) to remove it.
Unscrew the expansion chamber securing bolt and remove it.

B - REFITTING

Fit the chamber.
Tighten the screw until its retaining spring is coil bound, then loosen it by one turn.
Fill the expansion chamber until it reaches the maximum mark.
Fit the valve and screw on the cap.
Free the hose which leads to the radiator.

IMPORTANT

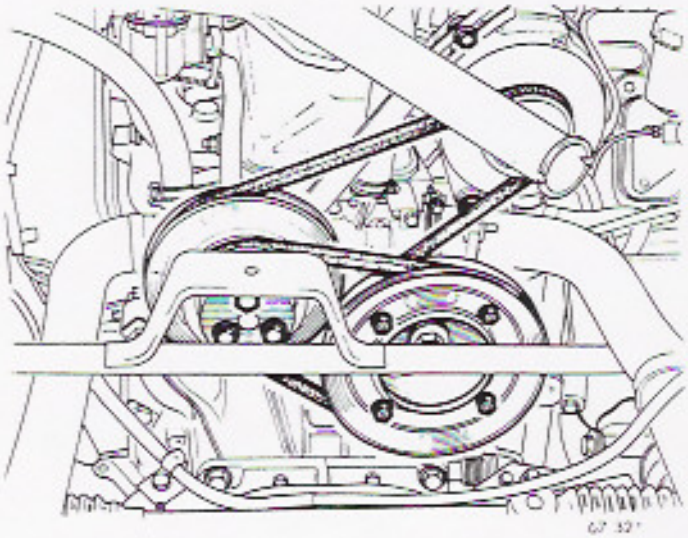
The valve is to be fitted correctly, because any air leakage past its gasket will cause the red warning light on the instrument panel to switch on.

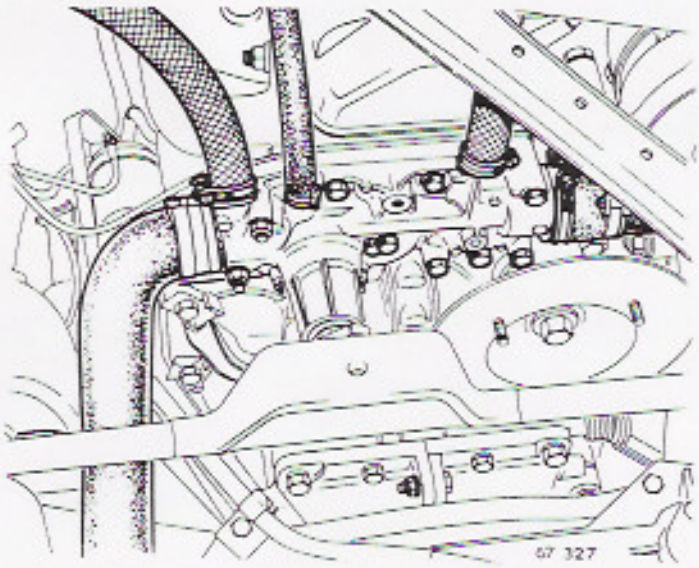
XII - REMOVING AND REFITTING THE WATER PUMP

A - REMOVING

Disconnect the battery.
Remove the spare wheel.
Drain the cooling system.

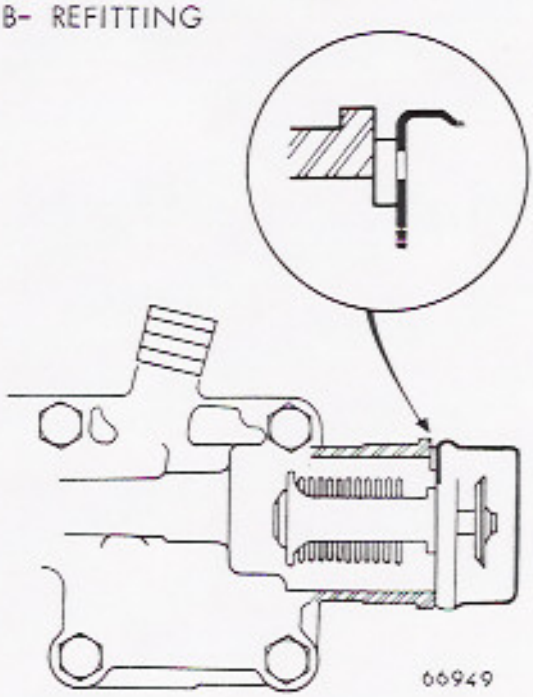
Remove the outer camshaft pulley flange, the shims and the belt.
Loosen the alternator fastenings and remove the belt.
Remove the water pump pulley.
Remove the alternator tensioner bolt on the pump.





Disconnect the hoses from the water pump.
Remove the pump securing bolts.
Free it by means of a plastic mallet and remove it.
Remove the backplate and clean the gasket faces.

B- REFITTING



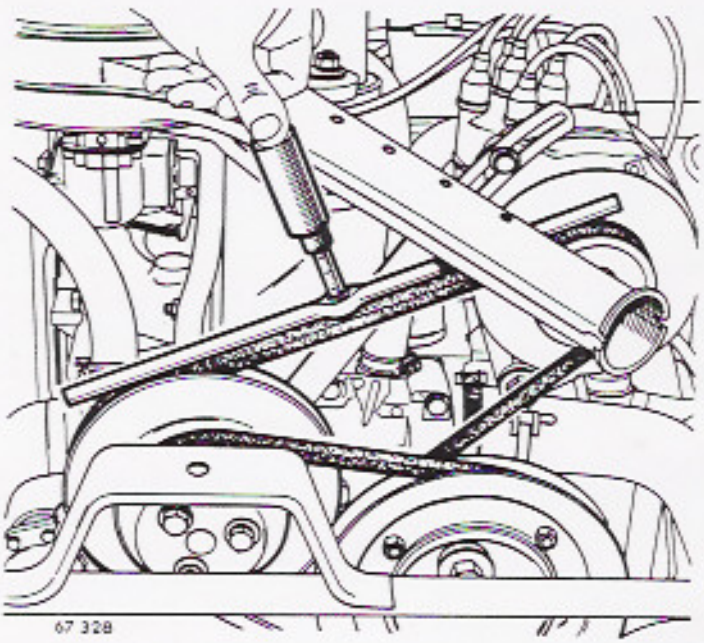
Carry out the removing operations in reverse.
The gaskets are fitted dry.
Check that the thermostat leak hole is upwards, opposite the slot in the pump body.

Tighten the hose clips by means of key Mot.336.
Tighten the heater hose clip by means of key Mot.400.

When fitting the water pump drive belt, slowly tighten the nuts on the outer flange of the camshaft pulley whilst turning the engine.

NOTE -
It is forbidden to use the pulley securing bolts to turn the engine.

One must therefore :
- lift one side of the car.
- engage 4th gear.
- turn the wheel in the forward drive direction.



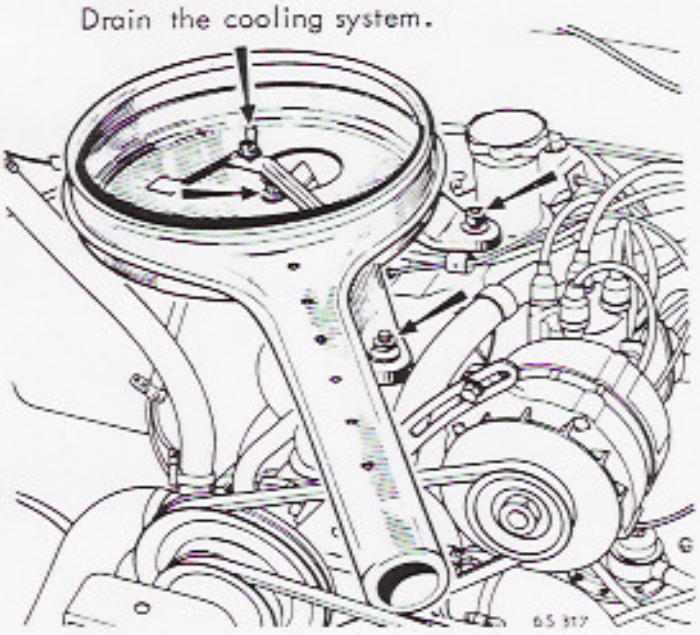
Check the belt deflection by means of tool Ele.346.
- alternator belt : 7 to 9.5 mm (9/32 to 3/8").
- water pump : 2.5 to 4 mm (3/32 to 5/32").

Fill the cooling system.

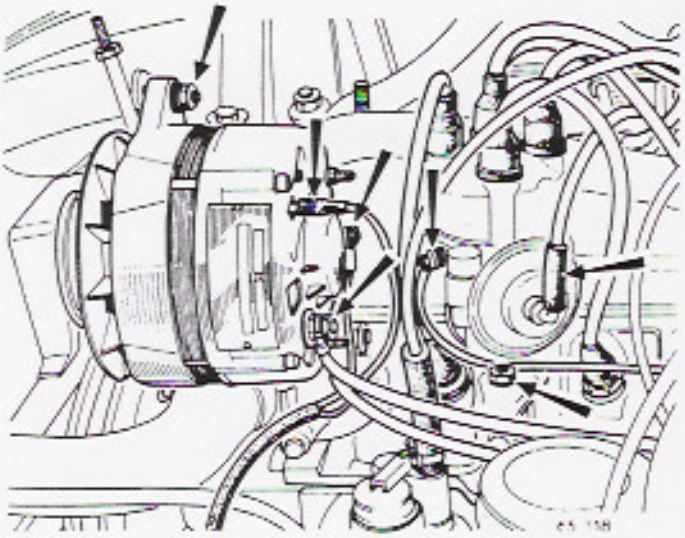
XIII - REMOVING THE CYLINDER HEAD - REPLACING THE GASKET AND REFITTING THE CYLINDER HEAD

A - REMOVING

Disconnect the battery.
Remove the spare wheel.
Drain the cooling system.



Remove the air filter.

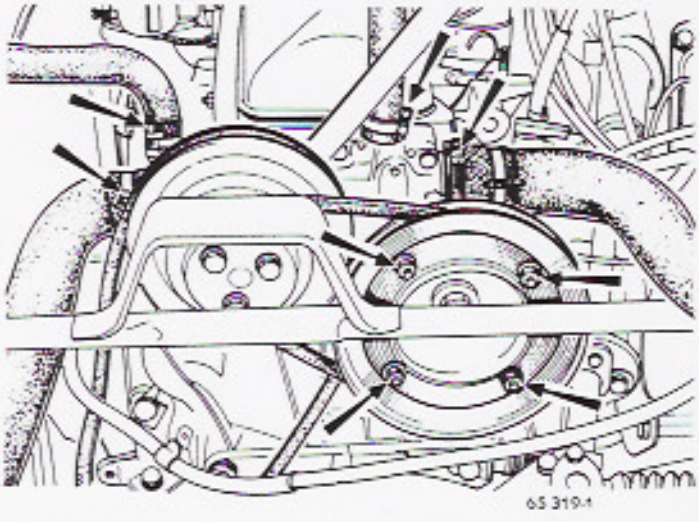


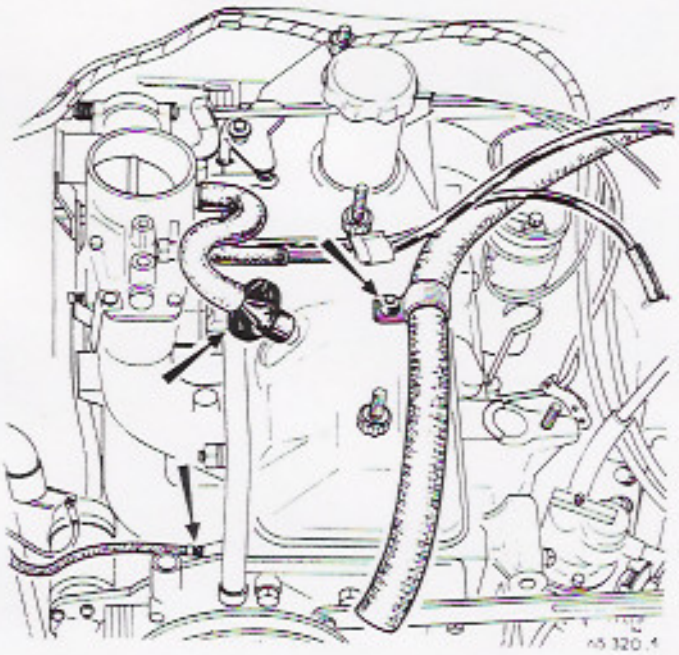
Disconnect :
- the plug leads.
- the distributor input leads.
- the alternator leads.
- the vacuum pipe at the distributor.

Remove the distributor and the alternator.

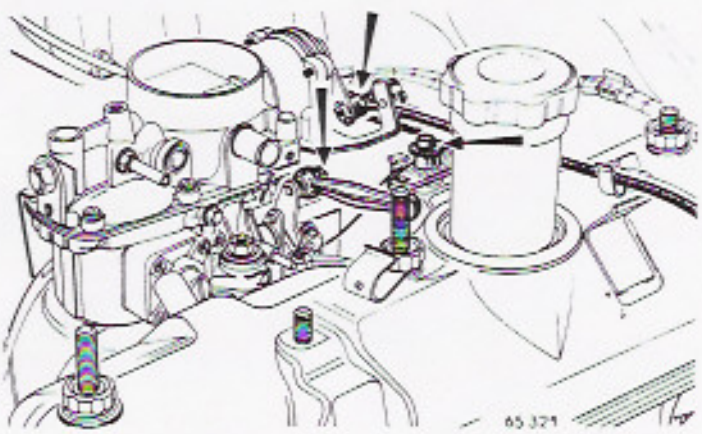
Disconnect the heater hoses and radiator hoses at the water pump.
Remove the nuts which secure the outer flange on the camshaft pulley.

Remove :
- the outer flange.
- the adjusting shims.
- the water pump and alternator drive belts.

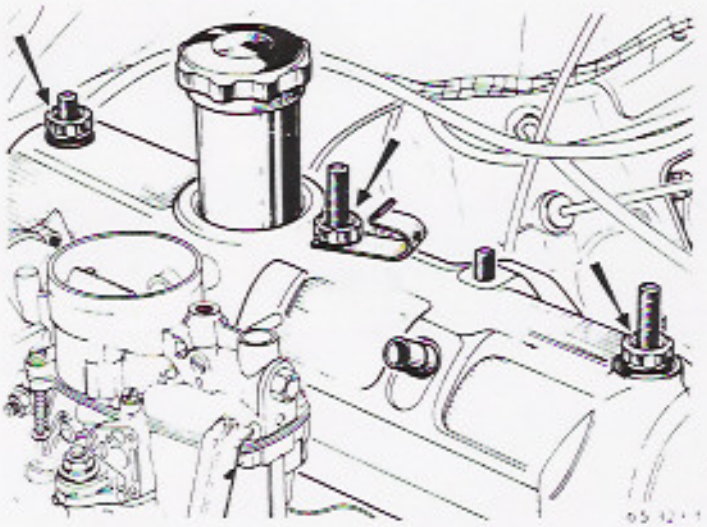




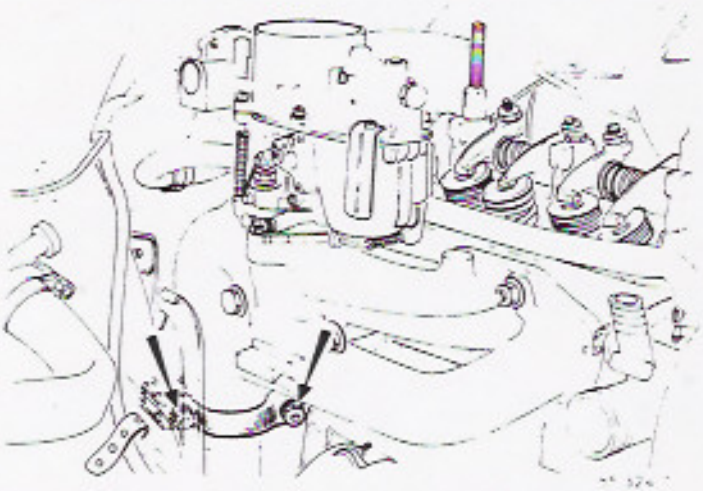
Remove the emission capsule and its hose.
Disconnect :
-the temperature switch lead on the cylinder head.
-the fuel pipe and the vacuum pipe from the carburettor.
Remove the heater hose clip on the rocker arm cover (if there is one).



Disconnect :
- the accelerator link.
- the choke cable (when applicable).
Remove the accelerator idle lever clip and free it from the brackets on the rocker arm cover.

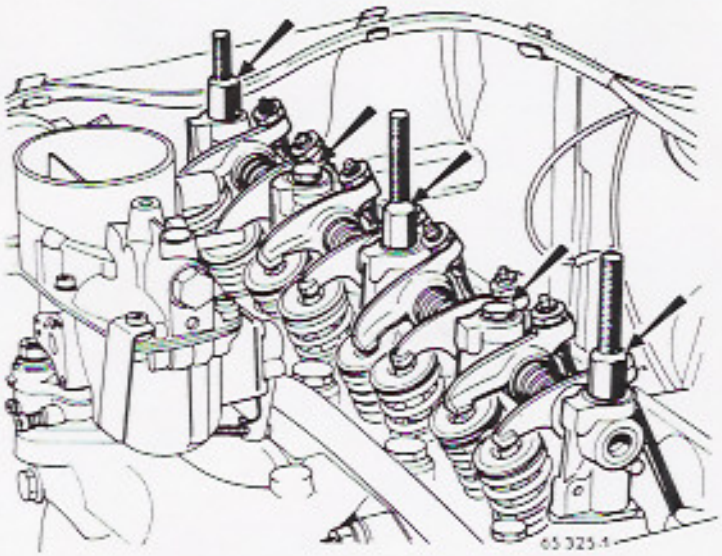


Disconnect the input lead from the coil and remove it.
Remove the rocker arm cover nuts and remove it

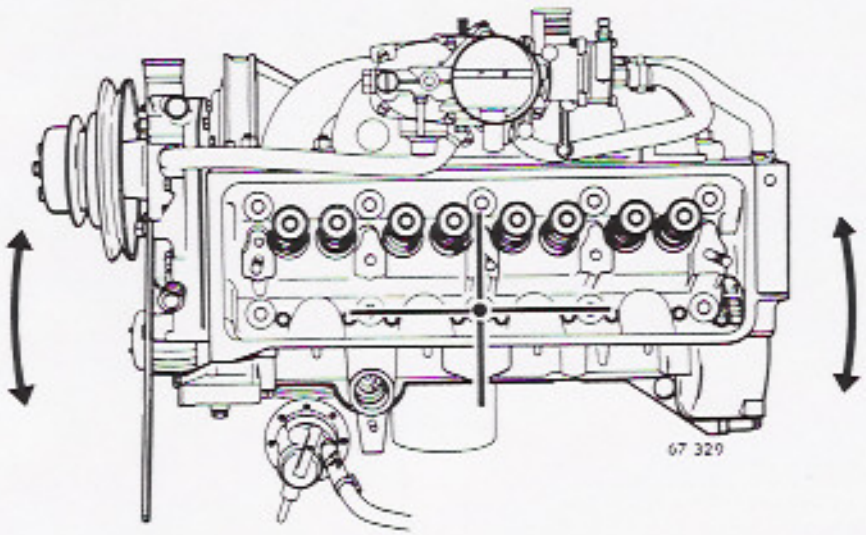


Remove the exhaust pipe securing clamp.

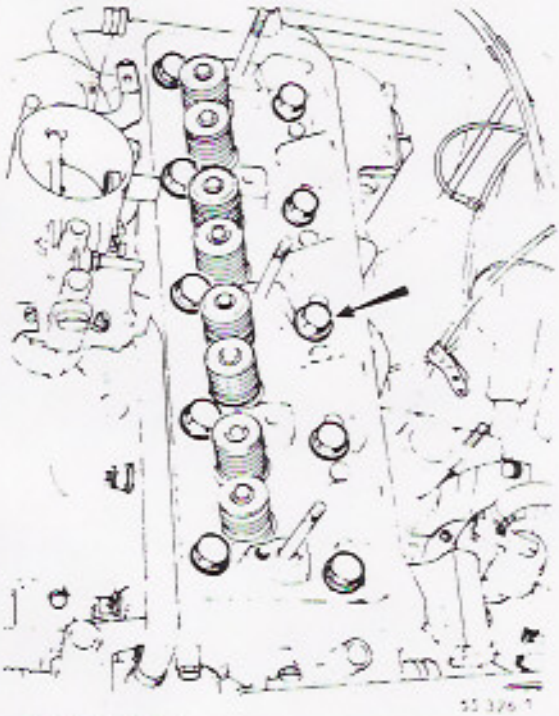
Remove the cylinder head from the cylinder block.
As this operation is a very delicate one, we request you to follow the instructions given on the next page very closely :



Remove the rocker arm assembly securing nuts and bolts.
Remove the rocker arm assembly and the push rods (put them aside in the order in which they are removed).

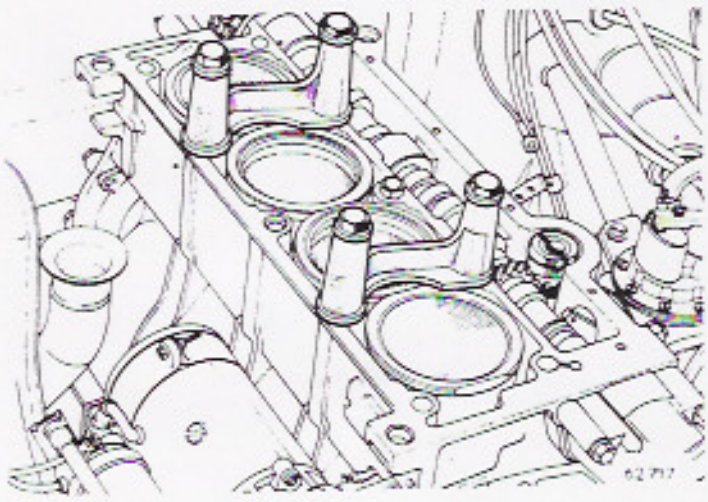


As the cylinder head gasket sticks to the cylinder head, cylinder block and liners, it is very important that you should not lift the cylinder head, which would cause the liners to come unstuck at the bottom, and result in dirt entering and damage to the lower seals.
The cylinder head is to be twisted horizontally around the locating dowel on the distributor side to free it from the cylinder block.



To do this :

Loosen the securing bolts and remove them, except for the centre bolt on the distributor side: this is used as a pivot point and to prevent the cylinder head rising.
- Free the cylinder head by tapping its ends with a plastic mallet to impart a horizontal rotating movement.
- Remove the centre bolt.
- Gently lift the cylinder head, remove the tappets (put them aside in the order in which they are removed).
- Remove the cylinder head.



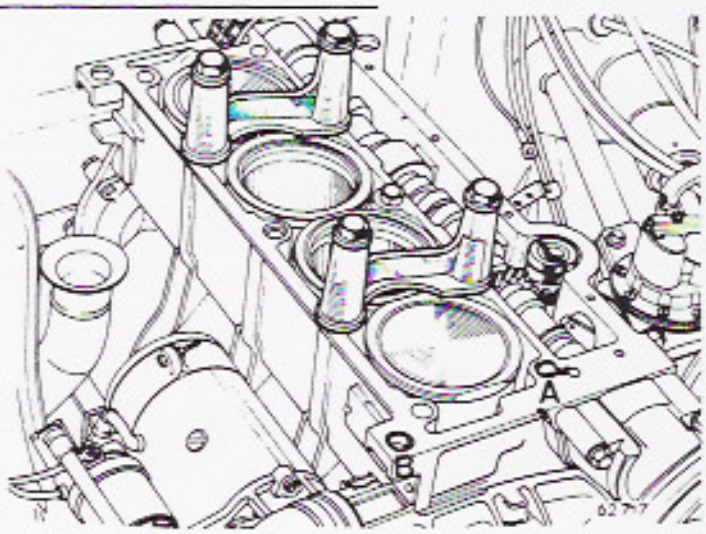
Fit the liner retaining flanges Mot.12.

B - CLEANING THE GASKET FACES

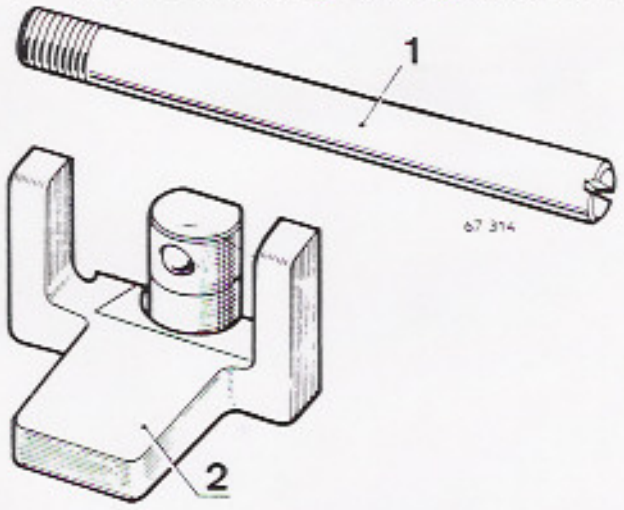
It is very important that the gasket faces on the cylinder block and the cylinder head should not be scraped with a sharp tool.
In fact, any distortion of this face however small, can cause leakage past the cylinder head gasket.
Use only trichlorethylene to remove the part of the gasket which remains sticking to the cylinder head and the cylinder block.
Check the liner projection :
0.12 to 0.19 mm (.005 to .0075).

C - REFITTING

Remove the oil in securing hole (A) at the front on the camshaft side, by means of a syringe : this is necessary to be able to tighten the bolt correctly.
Clean hole (B) in the cylinder block with a rag.
Remove the liner retaining flanges.

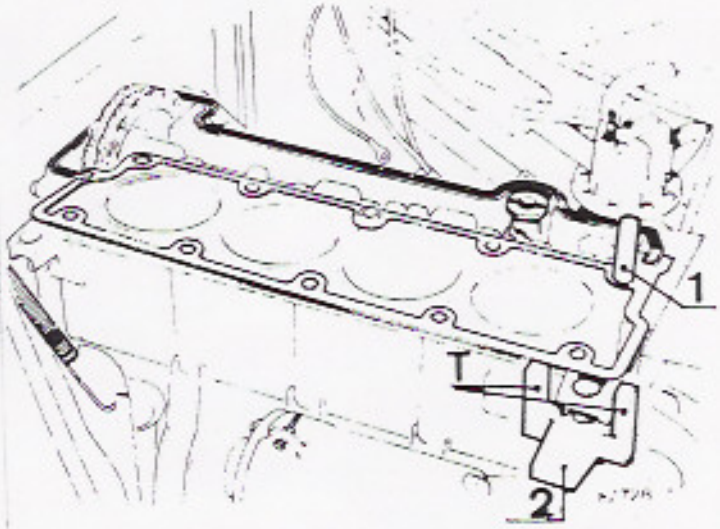


1 - Positioning the gasket and the cylinder head



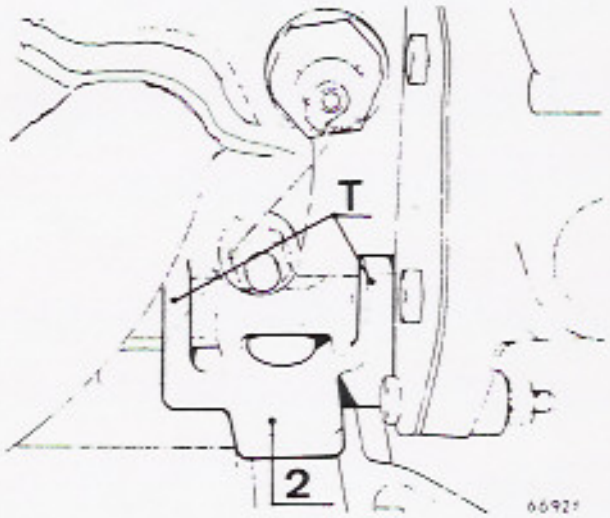
For this operation one requires tool Mot.412 which comprises :
- 1 gasket locating dowel (1).
- 1 cylinder head positioning gauge (2).

This operation of positioning the cylinder head is a very important one, in fact it ensures the alignment of the distributor drive shaft and the distributor drive pinion.



Screw gasket locating dowel (1) into the front of the cylinder block on the camshaft side.
Fit gauge (2) in the front hole of the cylinder block, with the two lugs (T) parallel with the engine longitudinal centre line.

Ensure that the cylinder head locating dowel is in fact in position in the cylinder block.
Fit the cylinder head gaskets :
once this in position, it is not to be removed.
Should it be so (if the cylinder head were incorrectly positioned for example) do not attempt to use it again.
Fit the tappet compartment rubber gasket, avoiding it overlapping the cylinder head at the ends.



Place the tappets in the cylinder head in the correct order and tap them lightly, so that they stick in their locations.
Ensure that the distributor drive pinion is in fact in position.
Position the cylinder head and place it on the cylinder block :

before it touches the cylinder head gasket place its manifold face against the two lugs (T) on gauge (2).
- ensure that you do not move the tappet compartment gasket.

From this point onwards, the cylinder head is not to be touched.
Remove the gasket locating dowel.
Lubricate the cylinder head bolt threads with engine oil.
Fit the bolts and screw them slowly in.

2 - Tightening the cylinder head bolts.

Tightening the cylinder head bolts is an important operation and leakage past the gasket may result if it is carried out incorrectly.

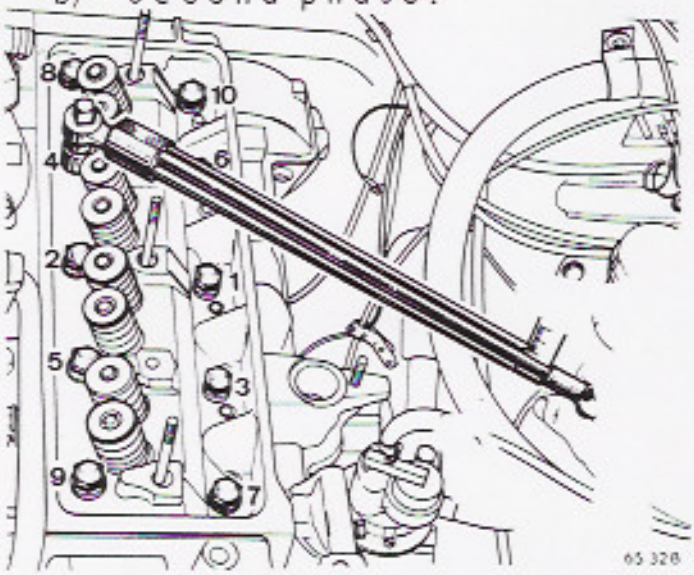
They are to be tightened with the highest possible degree of accuracy and the torque is to be applied to the bolts smoothly, without jerking them.
We therefore forbid tightening these bolts with a "break-back" release type torque wrench.
We request that you should use a direct reading torque wrench only.
The one we recommend, from among French manufactured wrenches, is the Mot. 50.
Furthermore, one must also have the following accessories :
an extension for the first eight bolts.
special wrench Mot. 253 for the last two bolts.

The bolts are to be tightened in three separate movements.

a) - First phase :

Tighten to 4 m.da N (30 lb/ft) in the order shown.

b) - Second phase :



65 328

Tighten to $7.5 \begin{smallmatrix} +0 \\ -0.5 \end{smallmatrix}$ m.da N (50 to 55 lb/ft), after first loosening the bolts by 1/4 of a turn. Ensure that the torque and tightening order are correct.

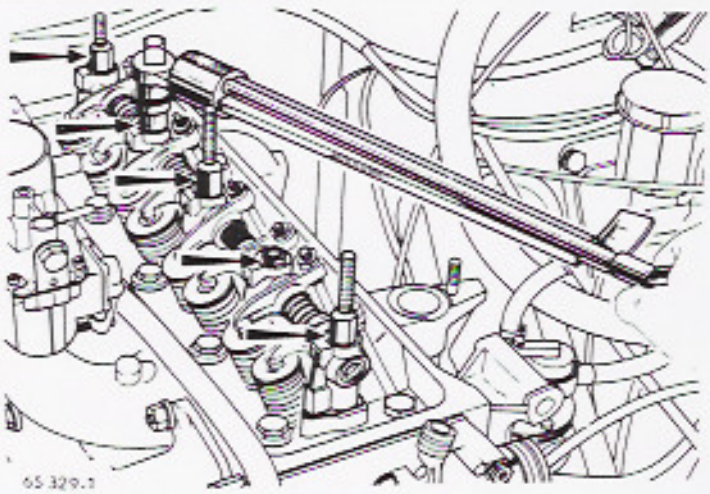
If the bolts "jerk" and will not tighten smoothly and postively, they are to be screwed in and out a number of times.

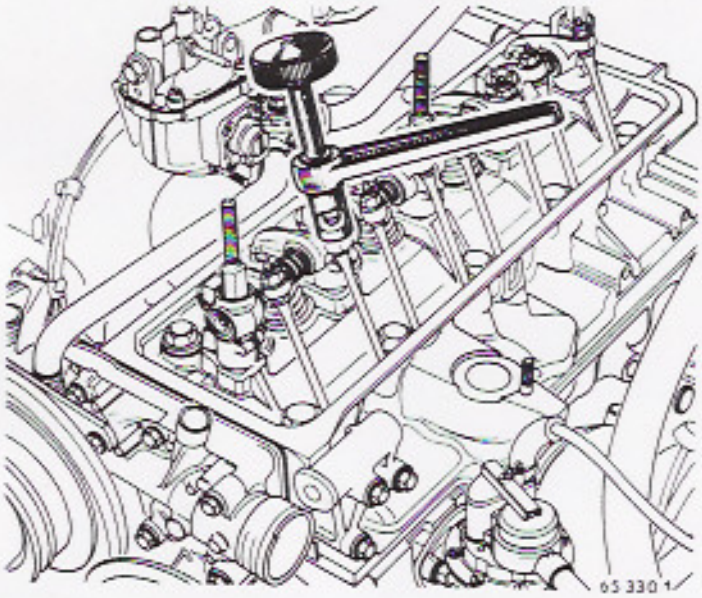
NOTE - Use a 17 mm socket on the end of the wrench.

REMARK :
The third tightening phase is to be carried out after having run the engine, see page 63.

Fit the push rods and the rocker arm assembly.
Make certain that the two end supports engage correctly on their locating studs.

Tighten the rocker arm assembly securing nuts and bolts to : 2 to 2.75 m.da N (15 to 20 lb/ft).


65 329-1



Adjust the rocker arm by means of tool Mot.233 : use the small head to adjust the farthest.
Clearance on a cold engine :
- inlet : 0.20 mm (.008")
- exhaust : 0.25 mm (.010")

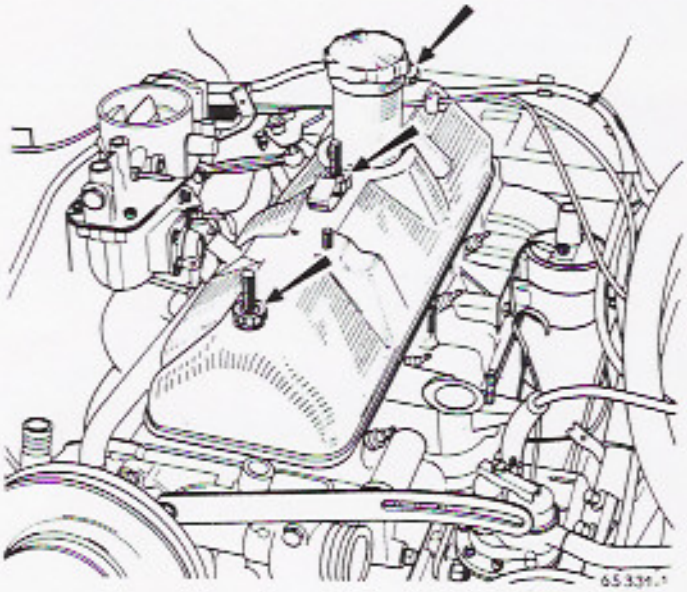
NOTE -

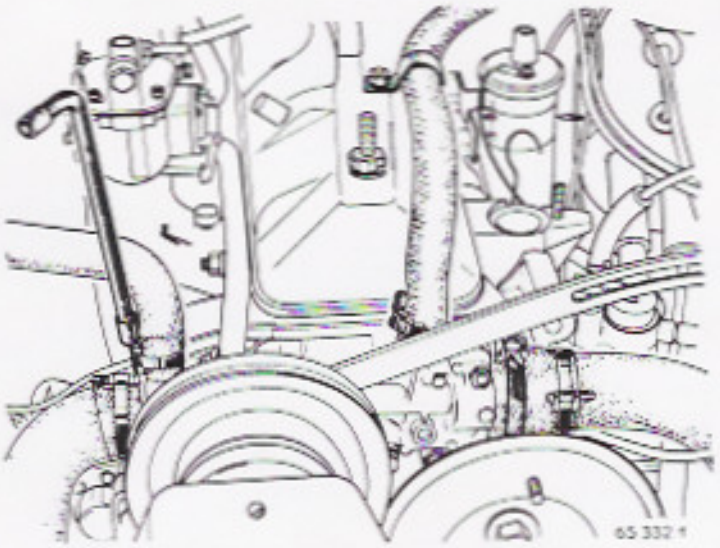
- As the tappets are fitted in the cylinder head it is possible that they will stick slightly in their bores.
Before adjusting each rocker arm, lightly tap the adjusting screw to be sure that the tappet is resting on the cam.

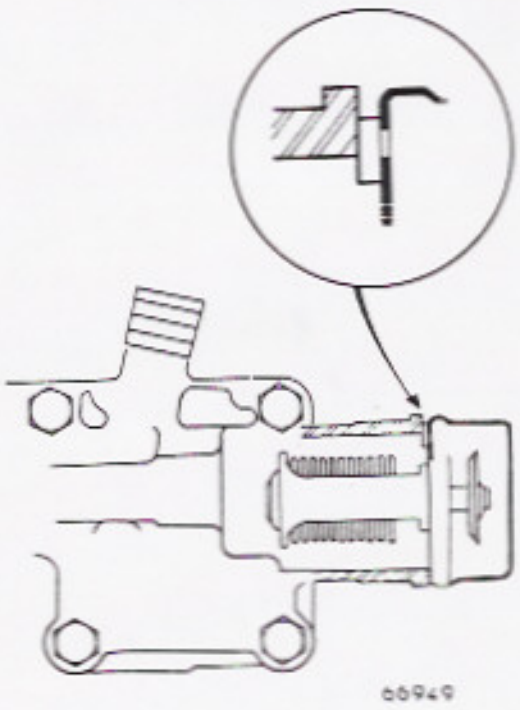
It is forbidden to use the camshaft pulley bolt to turn the engine.
One must therefore :
- lift one side of the car.
- engage 4th gear.
- turn the wheel in the forward drive direction.

Secure the exhaust pipe clamp.
Refit the rocker arm cover and the ignition coil.
Fit the accelerator idle lever.

Connect up :
- the accelerator cable.
- the link.
- the choke cable (when applicable).
- the lead to the temperature switch on the cylinder head.







Connect the heater and the radiator hoses to the water pump.
Check that the thermostat leakage hole is upwards and in line with the slot in the pump body.

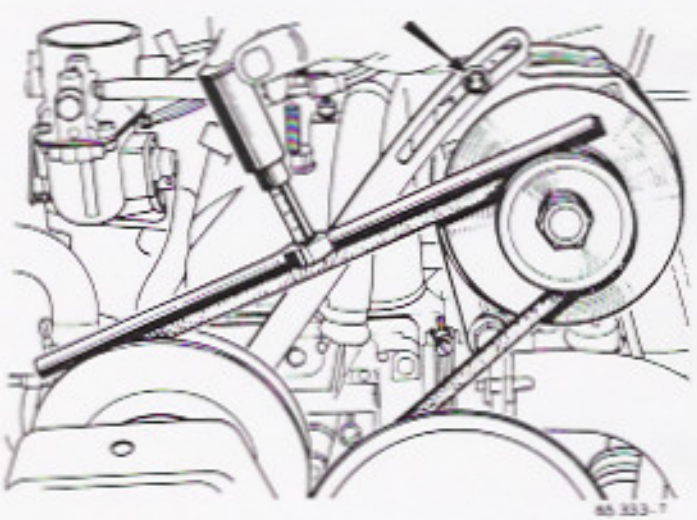
Tighten the clips by means of key Mot.336.
Secure the heater hose clip to the rocker arm cover.

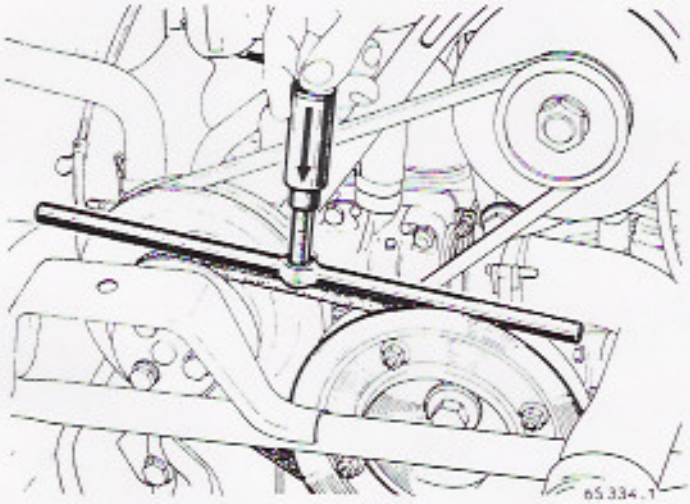
IMPORTANT :

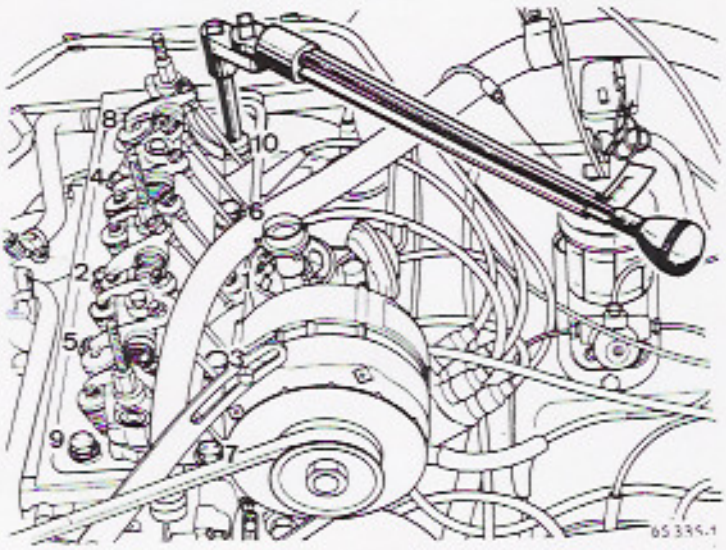
Carefully remove any sharp edges from the ribs on the water pump ends in order to avoid damage to the hoses.

Refit the distributor, connect up the leads and set it to a static timing of $0° \pm 2°$.
Refit the alternator and connect up the leads.

Fit the alternator drive belt and tension it.
Check its tension by means of tool Ele346 :
The deflection should be :
7 to 9.5 mm (9/32 to 3/8").
If the deflection is incorrect adjust the belt tension.







Fit :
- the water pump drive belt adjusting shims.
- the belt.
- the outer pulley flange.

Slowly tighten the outer flange securing bolts while turning the engine, in order to avoid damage to the belt.

NOTE -
It is forbidden to use the camshaft pulley securing bolt to turn the engine.

One must therefore :
- lift one side of the car.
- engage 4th gear.
- turn the wheel in the forward drive direction.

Check the belt deflection by means of tool Ele.346 : it should be between 2.5 and 4 mm (3/32 to 5/32").

If the deflection is not correct, add or remove shims between the two pulley flanges.
Top up the cooling system.
Connect up the battery.

Start the engine and allow it to warm up for 10 minutes, then switch it off and allow to cool for 50 minutes.
Disconnect the battery.
Remove the rocker arm cover.
Loosen the cylinder head bolts by 1/4 of a turn and retighten them to a torque of :

$8.25 \begin{smallmatrix}+0\\-0.5\end{smallmatrix}$ m.da N (55 to 60 lb/ft).

NOTE -
Use tool Mot.253 and the cranked tool (FACOM S.234) for the last two bolts : as a result the tightening torque for these two bolts should be reduced by 10%, that is to say :

$7.5 \begin{smallmatrix}+0\\-0.5\end{smallmatrix}$ m.da N (55 to 60 lb/ft).

Adjust the rocker arm clearances :
- inlet : 0.20 mm (.008")
- exhaust : 0.25mm (.010")

Refit the rocker arm cover :

Before tightening the securing nuts, ensure that the positioning tabs on the cover are correctly located inside the cylinder head and that the gasket is correctly positioned on it.
Fit the emission capsule to the rocker arm cover.
Refit the air filter.

D - IMPORTANT NOTE

Whenever the cylinder head gasket has been replaced one must, after 500 km (300 miles) :
- retighten the rocker arm assembly fastenings.
- retighten the cylinder bolts.
- adjust the rocker arms.

These operations can be carried out whether the engine is warm, or when it is cold.

1 - When the engine is warm, 50 minutes after it has been switched off.

- loosen the cylinder head bolts by 1/4 of a turn
Retighten them to a torque of :

$8.25 \begin{smallmatrix}+0\\-0.5\end{smallmatrix}$ m.da N (55 lb/ft).

NOTE -
Use tool Mot. 253 and cranked tool (FACOM S 234) for the last two bolts. As a result the tightening torque for these two bolts is to be reduced by 10%, that is to say :

$7.5 \begin{smallmatrix}+0\\-0.5\end{smallmatrix}$ m.da N (50 to 55 lb/ft).

Tighten the nuts and bolts which secure the rocker arm assembly to a torque of :
2 to 2.75 m. da N (15 to 20 lb/ft).
Adjust the rocker arm clearances to :
- inlet : 0.20 mm (.008").
- exhaust : 0.25 mm (.010").

2 - When the engine is cold, 2h. 30 after the engine has been switched off.

- loosen the cylinder head bolts by a 1/4 of a turn.
Retighten them to a torque of :

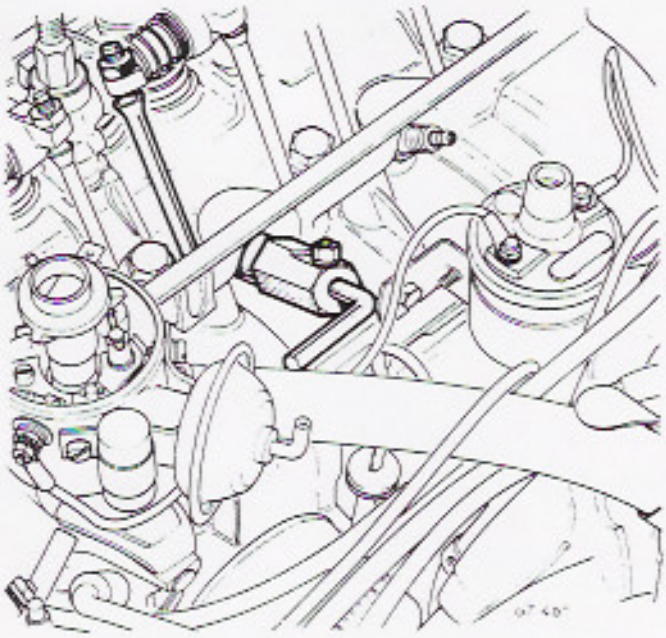
$7.5 \begin{smallmatrix}+0\\-0.5\end{smallmatrix}$ m.da N (50 to 55 lb/ft).

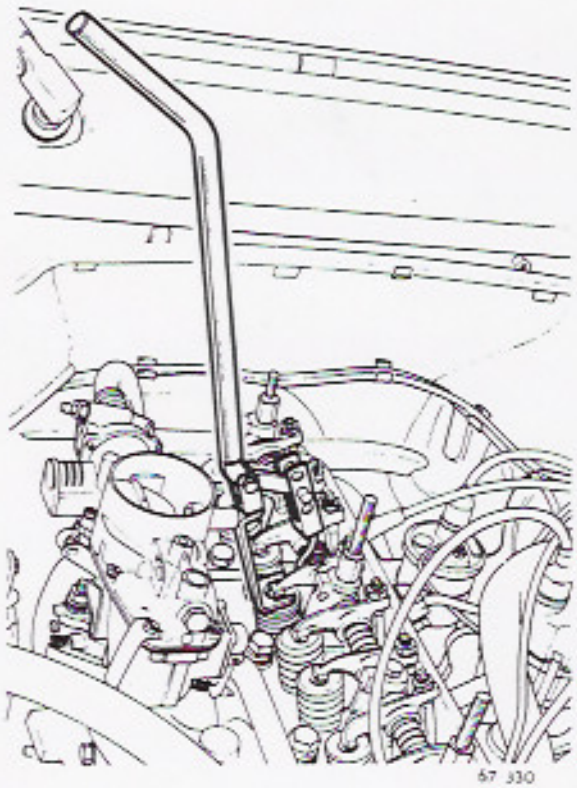
NOTE -
Use tool Mot. 253 and cranked tool (FACOM S 234) for the last two bolts. As a result the tightening torque for these two bolts it is to be reduced by 10%, that is to say :

$6.8 \begin{smallmatrix}+0\\-0.5\end{smallmatrix}$ m.da N (45 to 50 lb/ft).

Tighten the nuts and bolts which secure the rocker arm assembly to a torque of :
2 to 2.75 m.da N (15 to 20 lb/ft).
Adjust the rocker arm clearances to :
- inlet : 0.20 mm (.008")
- exhaust : 0.25 mm (.010")

XIV - REPLACING A VALVE SPRING





Remove the air filter.
Disconnect :
- the fuel pipe and the vacuum pipe from the carburettor.
- the accelerator cable and spring.
- the choke cable, when applicable.

Remove the rocker arm cover.
Remove the spark plug which corresponds to the valve spring which is to be replaced.

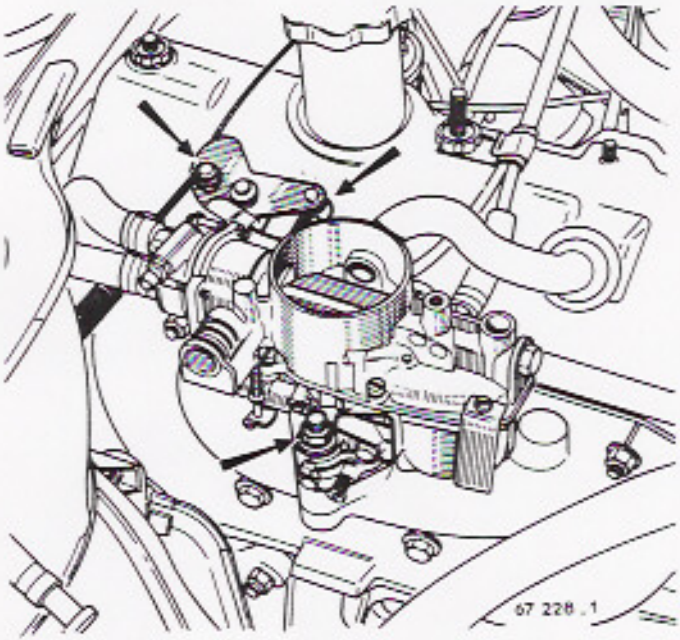
Unscrew the rocker arm screw concerned and remove the push rod.

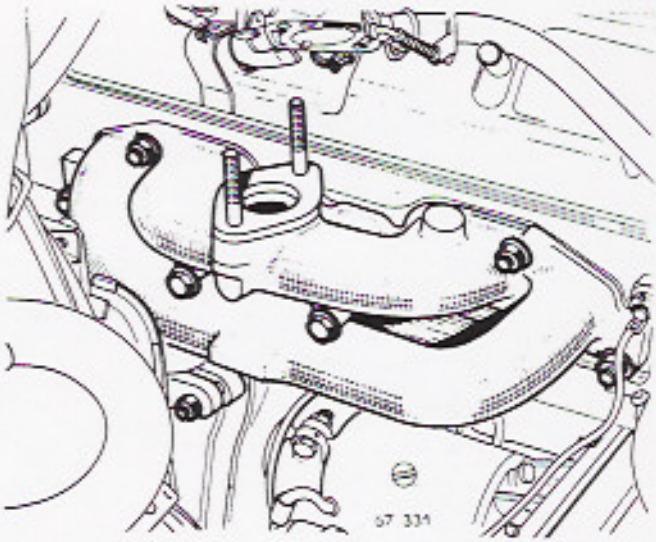
Fit the valve retaining clamp Mot.61 in place of the spark plug.
Move the rod on the clamp so it rests under the valve head and tighten the rod in place.

Compress the spring by means of compressor Mot.382 .
Remove the collets, the upper spring seat and the spring.

Carry out the removing operations in reverse to refit the valve spring.
Adjust the rocker arm by means of tool Mot.233 : use the small head for the end rocker arm .
Clearance :
- inlet : 0.20 mm (.008")
- exhaust : 0.25 mm (.010").

XV - REPLACING THE MANIFOLD GASKET





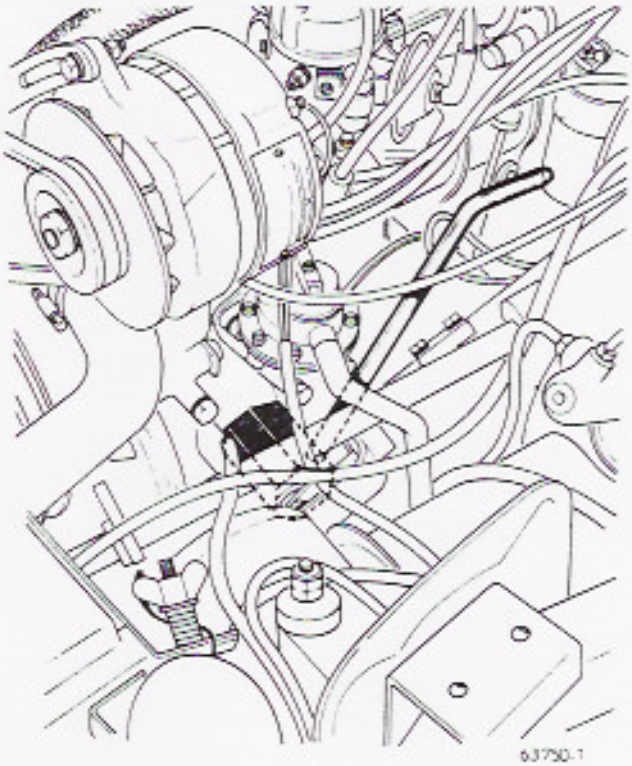
Disconnect the battery.
Disconnect the accelerator link and unhook the spring.
Remove the carburettor securing nuts and lift it.

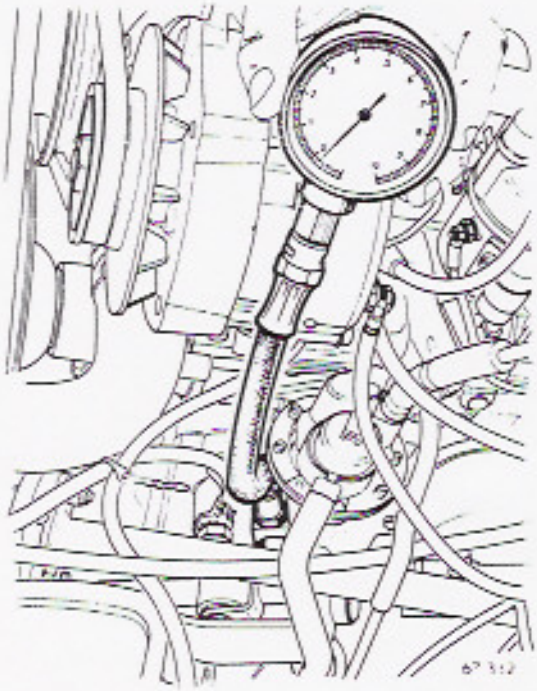
Remove the exhaust pipe screen.
Remove the pipe securing clamp.
Remove the manifold and gasket.
Clean the manifold faces.
Check the manifold gasket face : maximum distortion : 0.20 mm (.008").

Carry out the removing operations in reverse :
- Fit the gasket which corresponds to the inlet ports in the manifold.
- The metal face of the gasket should be against the cylinder head.
- Tighten the manifold nuts and bolts to a torque of :
1.5 to 2.5 m.da N (10 to 20 lb/ft).

- Run the engine for 10 minutes and allow it to cool for 50 minutes.
- Retighten the nuts and bolts to a torque of :
1.5 to 2.5 m.da N (10 to 20 lb/ft).

XVI - CHECKING THE OIL PRESSURE



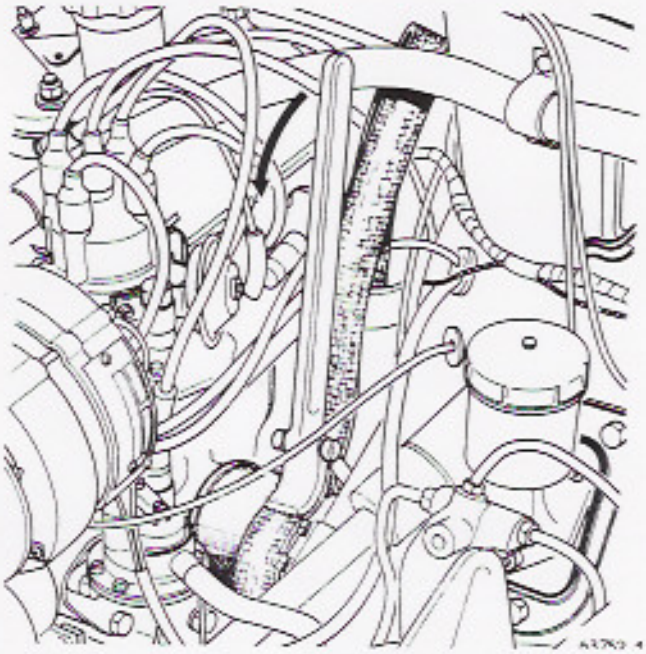


The engine oil pressure is to be checked when the engine is hot.

Remove the oil pressure switch by means of tool Mot.232-01 :
- disconnect the lead.
- place the hexagon wrench on the oil pressure switch.
- loosen and unscrew the oil pressure switch by one end or other of the cranked tommy-bar.

Connect pressure gauge Mot.73 in place of the oil pressure switch.
Start the engine and read the oil pressure :
it should be : 2 to 2.5 bars min. (30 to 35 psi) at 650 r.p.m.
4 to 5.5 bars min. (60 to 80 psi) at 4000 r.p.m.
Remove the oil pressure gauge and refit the oil pressure switch.
Connect up the lead.

XVII - REPLACING THE OIL FILTER



Loosen the filter by means of tool Mot.345 :
- pass the strap round the filter and insert it into the stirrup.
- tension it.
- loosen the filter.
- remove the tool and unscrew the filter by hand.

Check the filter spigot projection above the seal face on the cylinder block. It should be : 9.5 to 12.5 mm (3/8 to 1/2").

If it is less than 9.5 mm (3/8"), replace it by another special repair size spigot.
Correct its length to obtain the correct projection (when applicable).
Oil the new filter seal with engine oil.
Screw in the filter until the seal makes contact with the locating area on the cylinder block.
Then tighten the filter by hand by 1/4 of a turn : the reference marks 1 - 2 - 3 and 4 on the can help one to carry out this operation correctly.

Unscrew the filter, bring it in contact with its locating base and retighten it by 1/2 to 3/4 of a turn.

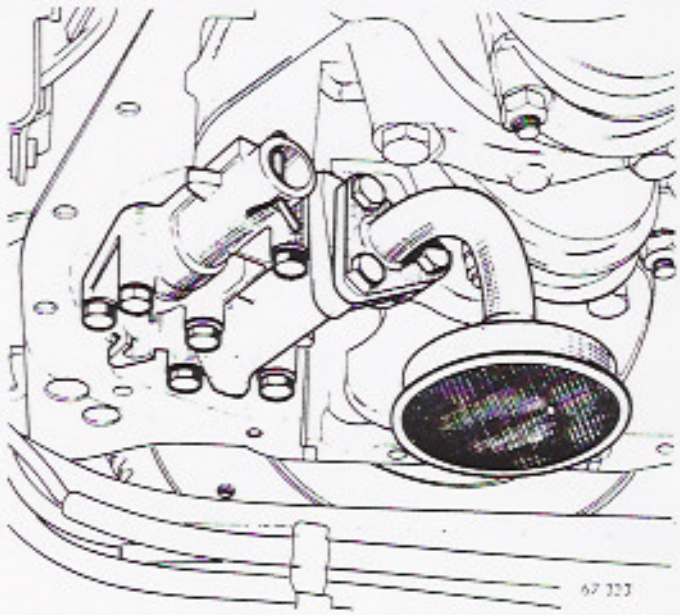
NOTE -

Use only oil filters with crimped seals.

XVIII - REMOVING AND REFITTING THE OIL PUMP STRAINER COVER

A - REMOVING

Place the car on a lift.
Drain the engine oil.
Remove the sump (oil pan).
Remove the pump strainer cover securing bolts and remove it.
Remove the outer rotor.
The inner rotor will not come out entirely : to remove it, one must remove the engine.



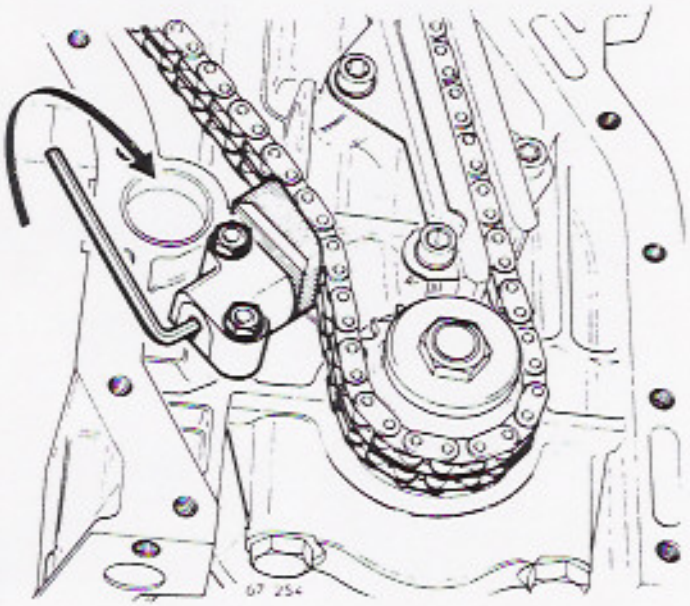
B - REFITTING

Carry out the removing operations in reverse.
Fill the engine with oil.

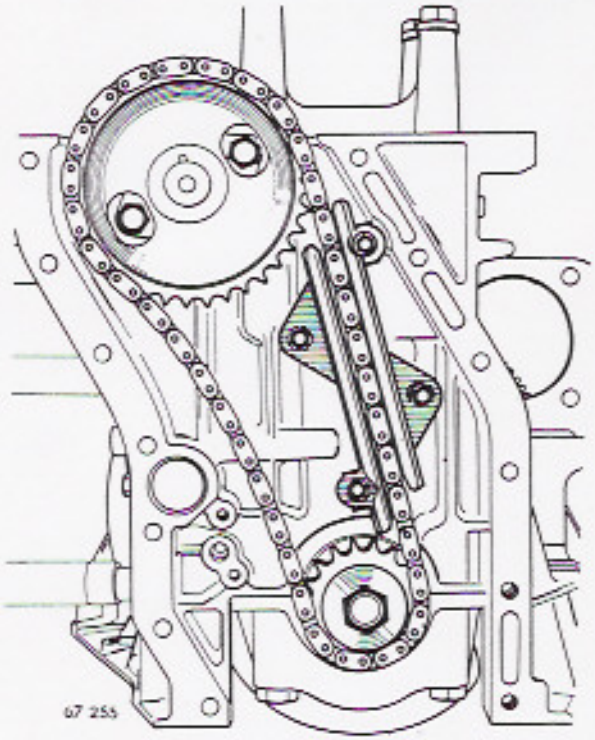
XIX - OVERHAULING THE TIMING GEAR

A - DISMANTLING

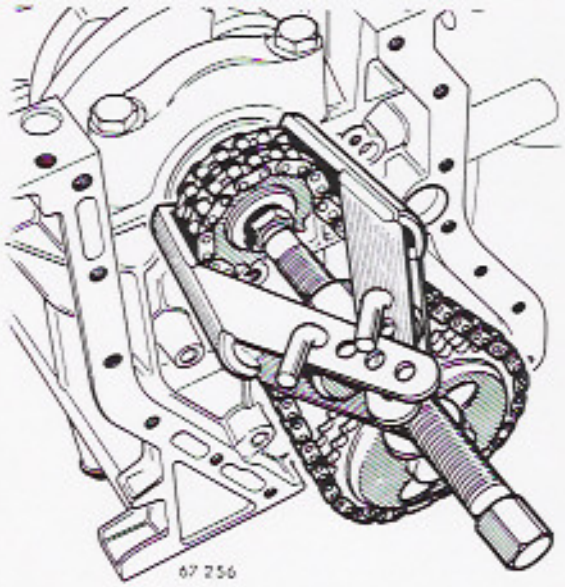
Remove the engine and mount it on support Mot.256.
Remove the :
- cylinder head,
- sump (oil pan),
- timing gear casing,
- camshaft front bearing.



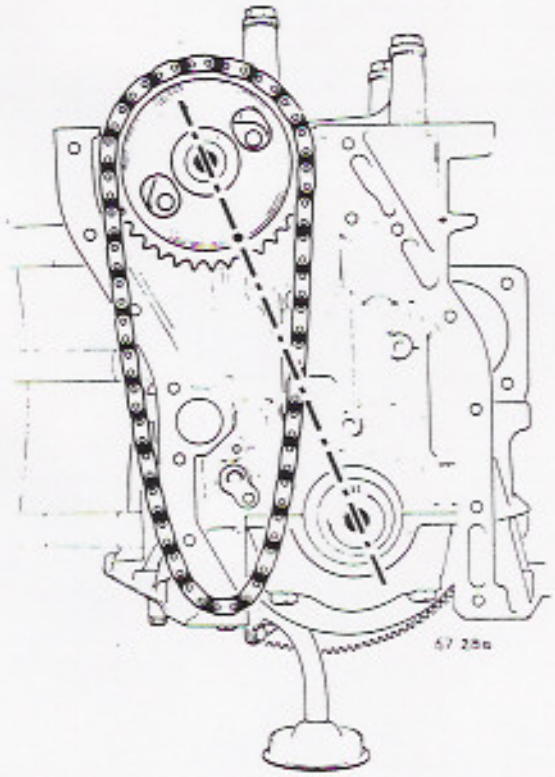
Remove the chain tensioner;to do this :
- unlock and unscrew the bolt on the retaining cylinder.
- insert a 3 mm hexagon socket key.
- turn the key in a clockwise direction until the pad carrier assembly is no longer under tension.
- remove the tensioner.



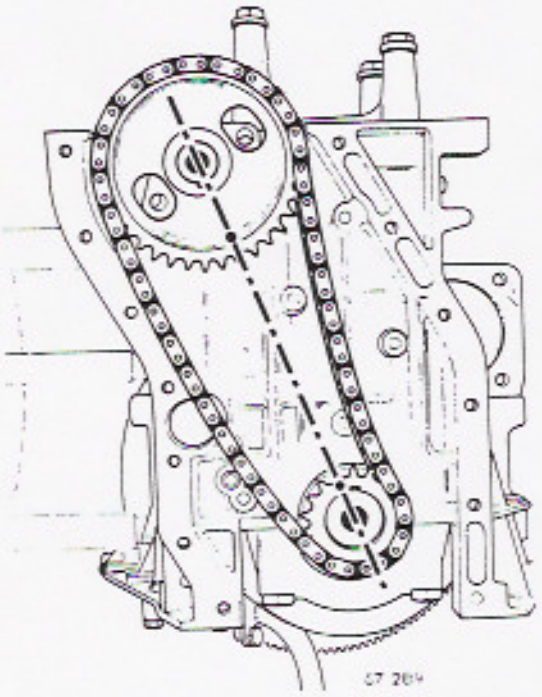
Remove the crankshaft sprocket retaining bolt and the washer and thrust ring.
Remove the anti-flail lug or lugs.
Remove the two bolts which secure the camshaft flange.



Remove the crankshaft sprocket and chain assembly using extractor Mot.49 whilst pulling back the camshaft.
Remove the camshaft.

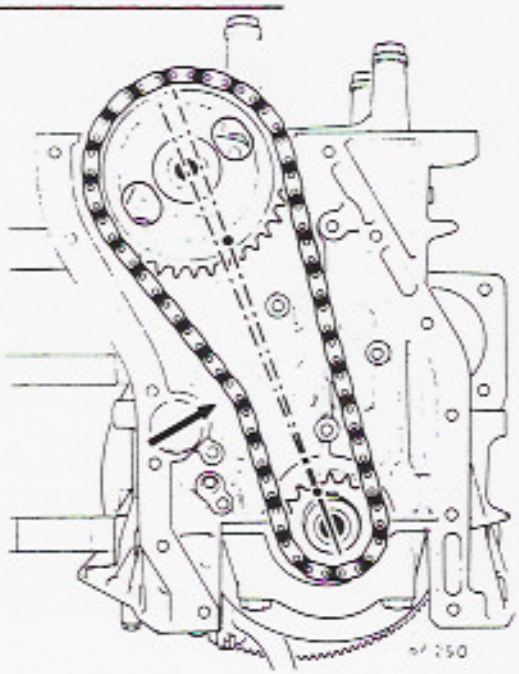


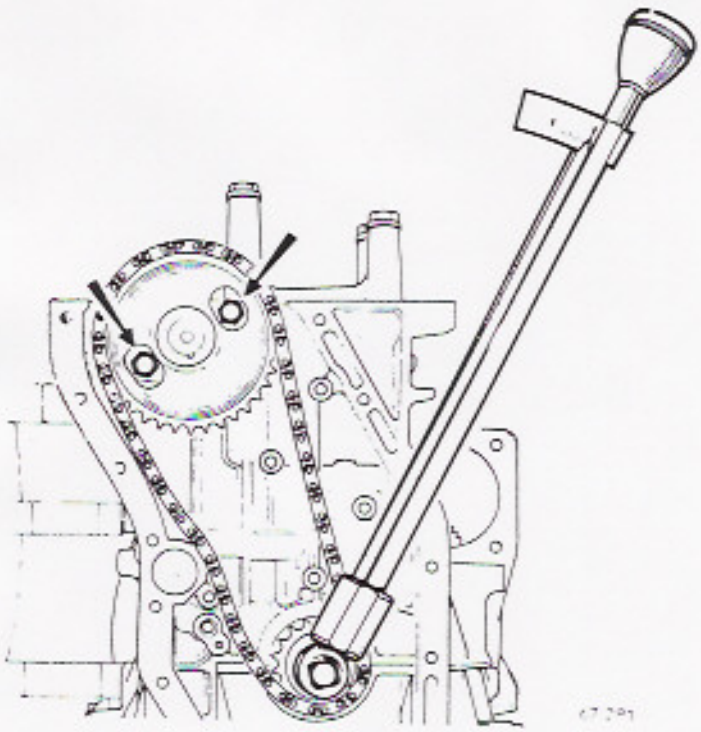
Oil the camshaft bearing areas and insert it ; do not push it fully in.
Place the chain on the camshaft sprocket ; align the reference on the sprocket with the centre of the crankshaft and the centre of the camshaft.



Turn the crankshaft to bring the key uppermost. Fit the crankshaft sprocket (with the reference mark facing towards the outside) on the chain. The reference mark is to be in line with that on the camshaft sprocket and the centre of the crankshaft and the camshaft.

When the reference marks are in line engage the sprocket onto the crankshaft ; fit it by means of a tube while gradually pushing the camshaft into position.
When the chain is correctly tensioned, the line passing through the reference marks is no longer directly in line with the camshaft centre.

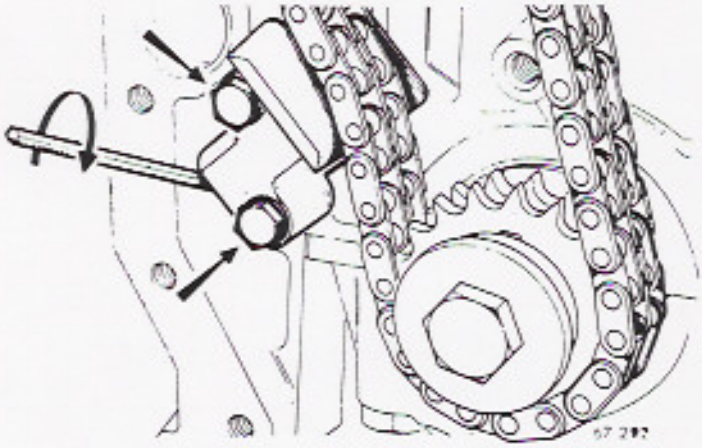




Fit the crankshaft sprocket spacer, thrust washer and bolt.

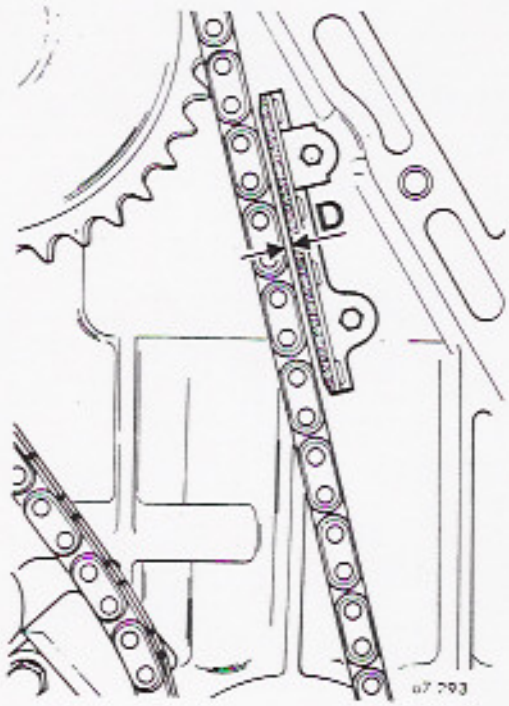
Tighten the bolt to 6 m.da N (45 lb/ft) using torque wrench Mot.50.

Fit and tighten the two camshaft bolts.



Fit the chain tensioner (together with its filter) and its backplate.
Tighten the two bolts.
Insert a 3 mm (.118") hexagon socket into the retaining cylinder.
Turn the key in a clockwise direction until the body carrier assembly is projected against the chain.
Tighten and lock the retaining cylinder bolt.

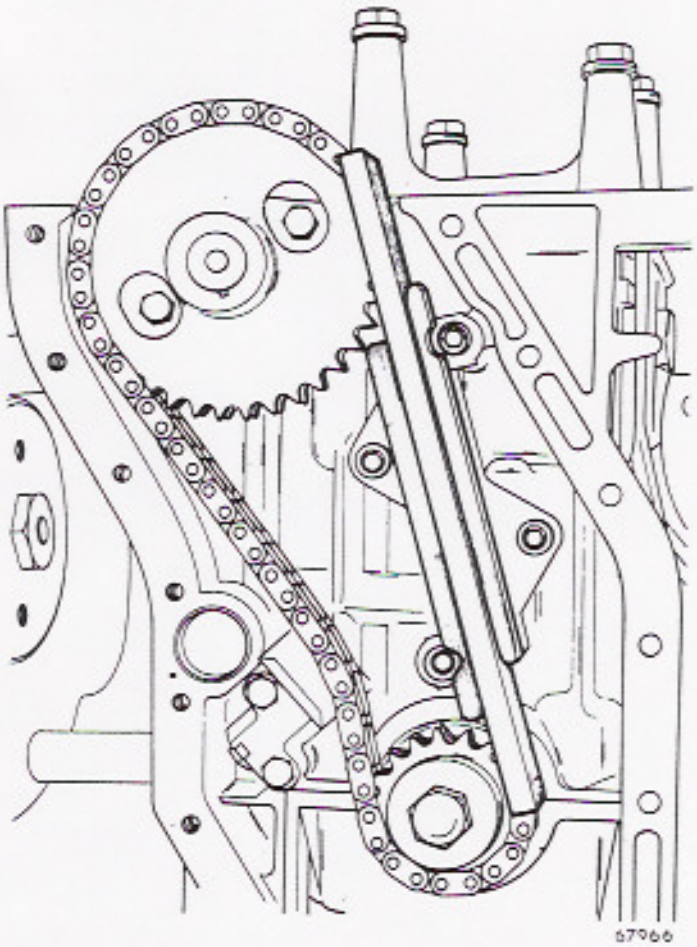
NOTE -
The filter is 20.5 mm (13/16") long, for tensioners on whichthe backplate is 2 mm (.079") thick.
- 19.5 mm (49/64") for tensioners on which the backplate is 1 mm (.040") thick.



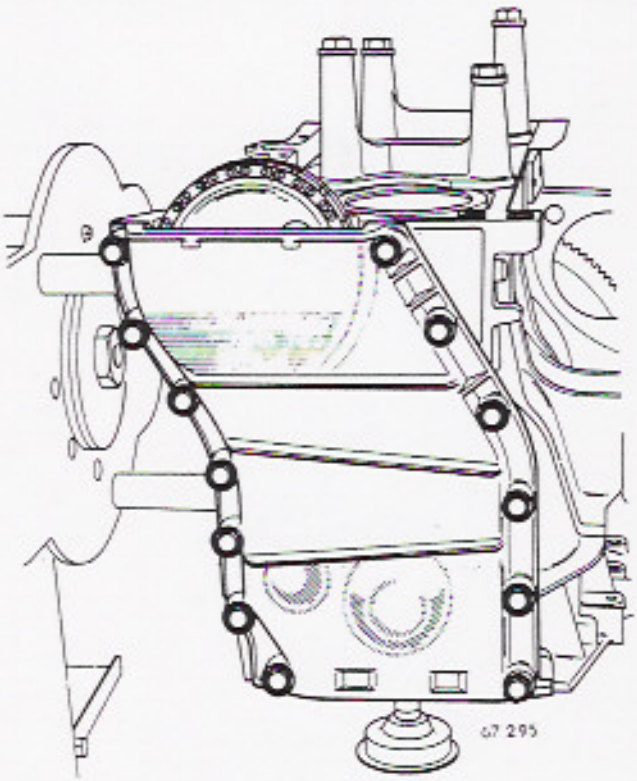
Fit the anti-flail lug or lugs.

If the engine is fitted with one lug only, fit the lug so that it is parallel with the chain, when the chain is tensioned, at a distance :
D = 0.8 mm (.032") from it.

If the engine is fitted with two lugs.



Fit the two lugs.
Fit gauge Mot.420 to the chain.
Place the two lugs against the chain and tighten the securing bolts.
Remove the gauge.



Fit timing gear casing with its gaskets smeared with jointing compound (Ref. 805 463).
Fit the bolts and align the upper face of the casing with the upper face of the cylinder block.
Tighten the bolts.

Refit the :
- camshaft bearing
- sump (oil pan)
- cylinder head
- engine

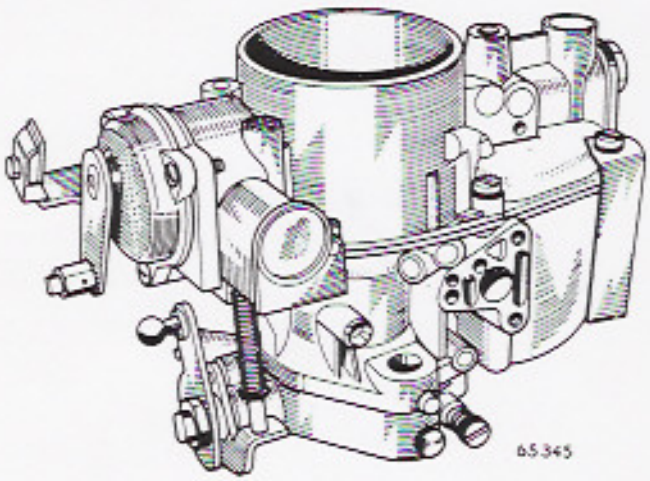
XX - CARBURETTOR

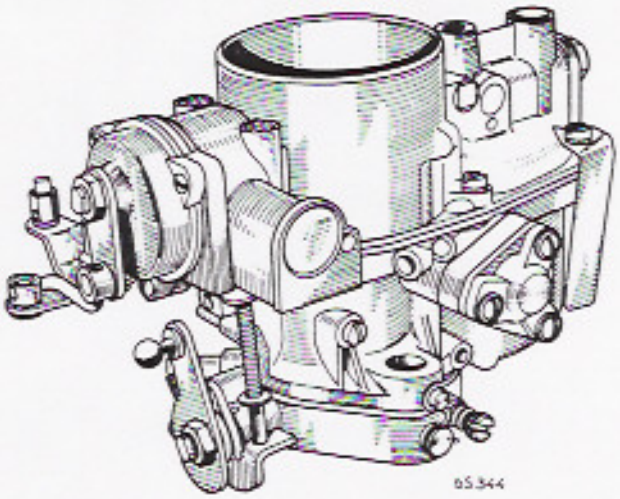
A -SPECIFICATIONS

1 - SOLEX type 35 DISA.

This carburettor was fitted to the 1965 and 1966 models.

Down draught carburettor with a manual choke.
Hot water heating to the base of the carburettor.
The carburettor type and reference are marked on a plate which is secured to one of the float chamber cover screws.
Three different types were fitted.





a) - 35 DISA

Reference 319

Idle lever choke control (metal covered cable).
No oil vapour reintake.

b) - 35 DISA-2

Reference 365

Idle lever choke control (metal covered cable).
Fitted with oil vapour reintake.

Reference 370

Direct choke control (nylon covered cable).
Fitted with oil vapour reintake.

c) - 35 DISA-3

Reference 376

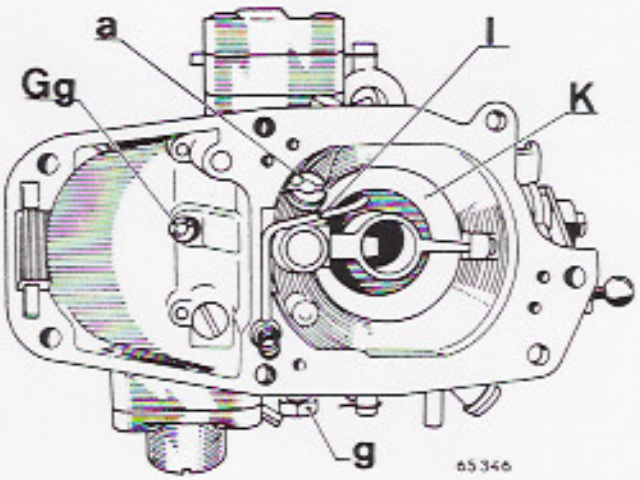
Direct choke control (nylon covered cable).
With oil vapour reintake.
Fitted with a modified diffusion nozzle, which has 4 outlets on the cover.

Reference 366

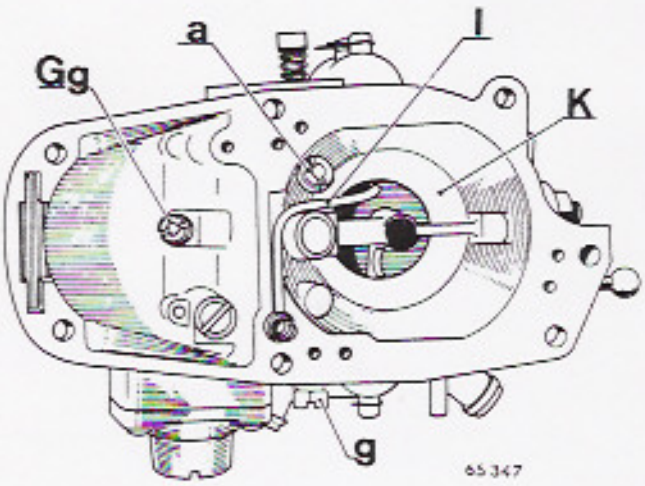
Fitted to high altitude vehicles and equipped with an altitude compensator.

NOTE

The type 35 DISA-3 - reference 376 can be used in place of all the others.
If a metal covered choke cable is fitted it is to be replaced by a nylon covered cable.



References 319-365-370



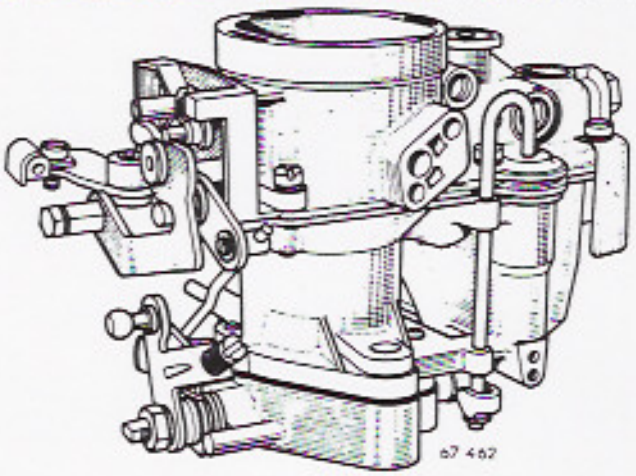
References 376-366

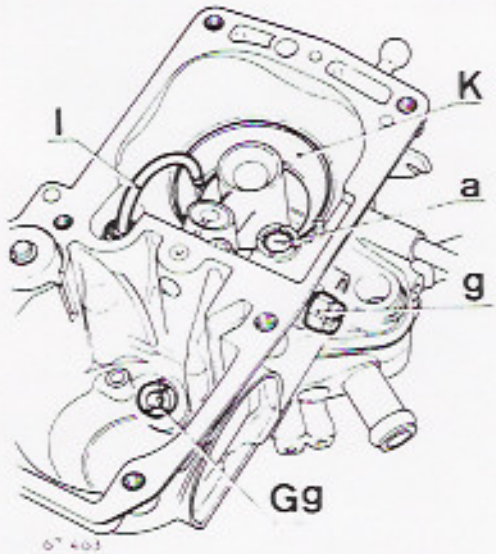
Settings	319 and 319-1	365 and 365-1	370 and 365-2		376 and 376-1	366 (H.A.)
			1st setting	2nd setting		
Choke tube K	27	27	27	27	26.5	26.5
Main jet Gg	140	142.5	142.5	142.5	142.5	142.5
Air compensator a	135	160	160	150	155	145
Idling jet g	50	42.5	42.5	42.5	50	50
Spring loaded needle valve	1.5mm	1.5mm	1.5mm	2mm	1.7mm	1.7mm
Float	7.3 gr.	7.3 gr.	7.3 gr.	7.3 gr.	7.3 gr.	7.3 gr.
Pump injector i	50	40	40	40	50	50
Pump stroke	5mm	3mm	3mm	3mm	3mm	3mm

2 - ZENITH type 36 IF.

This carburettor was only fitted to 1966 models.

Down draught carburettor with manually operated choke.
Carburettor base heated by hot water.
The reference is given on a number plate secured by one of the float chamber cover securing screws.





Settings Reference V 10 003.

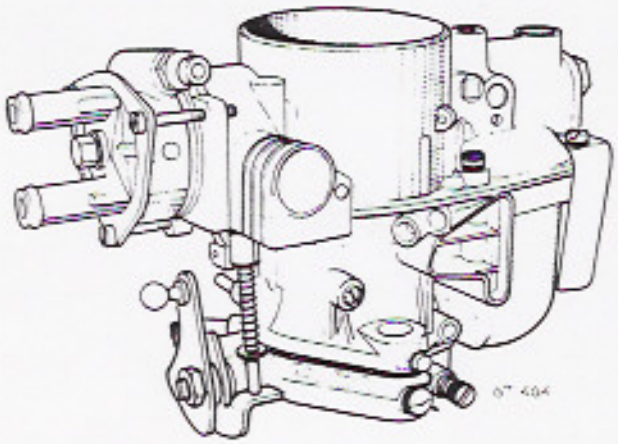
Choke tube K	27
Main jet Gg	135
Air compensator a	100
Idling jet g	40
Needle valve	1.5mm
Pump injector I	40
Pump stroke	3 mm
Throttle butterfly initial opening	0.95mm

3 - SOLEX type 35 DITA

This carburettor is fitted to 1967 models.

Down draught carburettor with the choke flap operated by a thermostat spring heated by water from the cooling system.
The choke casing assembly cannot be repaired. In case of defect it is to be replaced.
On reassembling, place the reference mark on the choke casing in line with that on the float chamber cover.
The base of the carburettor is heated by hot water.
The carburettor type and reference number are marked on a number plate secured by one of the chamber securing screws.

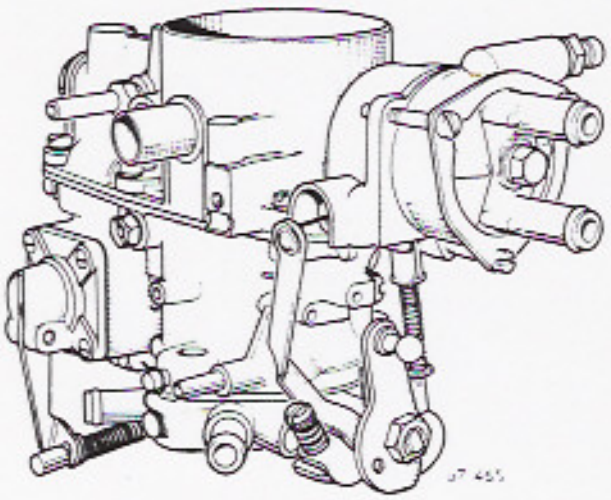
Two different models were fitted.



a) - 35 DITA

- Reference 382 and 387
- Reference 388

For high altitude versions with an altitude compensator.



b) - 35 DITA - 2

- Reference 405

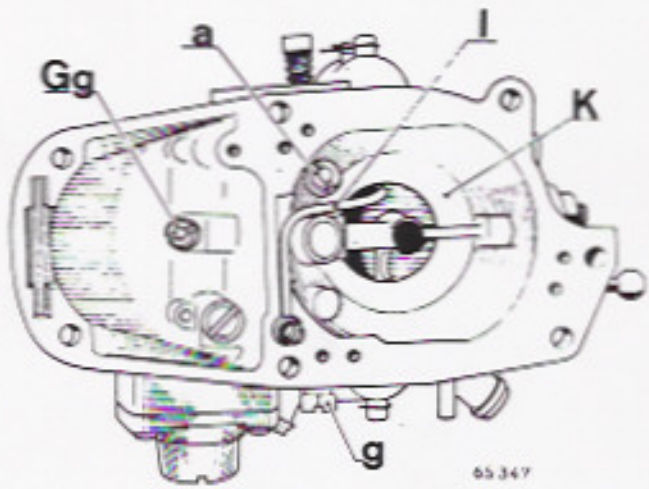
With a lever for opening the choke flap when cold.

- Reference 406

For high altitude versions with an altitude compensator.

NOTE

The new type 35 DITA-2, reference 405 can be used as a replacement for all the others.
In the same way, one can convert carburettors that have no lever for opening the choke flap when cold to turn them into type 405 versions.
One must :
- replace the float chamber cover.
- fit the lever.



Settings	382 and 382-1	388 (H.A.)	387 and 387-1	405 and 405-1	406 (H.A.)
Choke tube K	26.5	26.5	26.5	26.5	26.5
Main jet Gg	140	140	140	140	140
Air compensator a	155	145	155	155	145
Idling jet g	50	50	50	50	50
Spring loaded needle valve	1.7mm	1.7mm	1.7mm	1.7mm	1.7mm
Float	7.3gr.	7.3gr.	7.3gr.	7.3gr.	7.3gr.
Pump injector I	50	50	50	50	50
Pump stroke	3mm	3mm	3mm	3mm	3mm

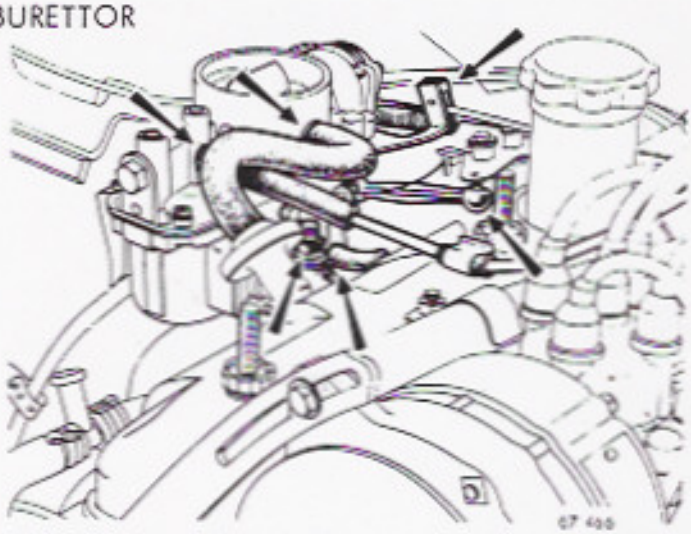
B - REMOVING AND REFITTING THE CARBURETTOR

1 - Type 35 DISA

a) - Removing

Remove the air filter.
Disconnect :
- the fuel pipe.
- the vacuum pipe.
- the accelerator link.
- the capsule pipe.
- the choke cable.
- the accelerating pump lever.

Remove the two carburettor securing nuts.
Free the two hooks which retain the carburettor base and remove the carburettor.



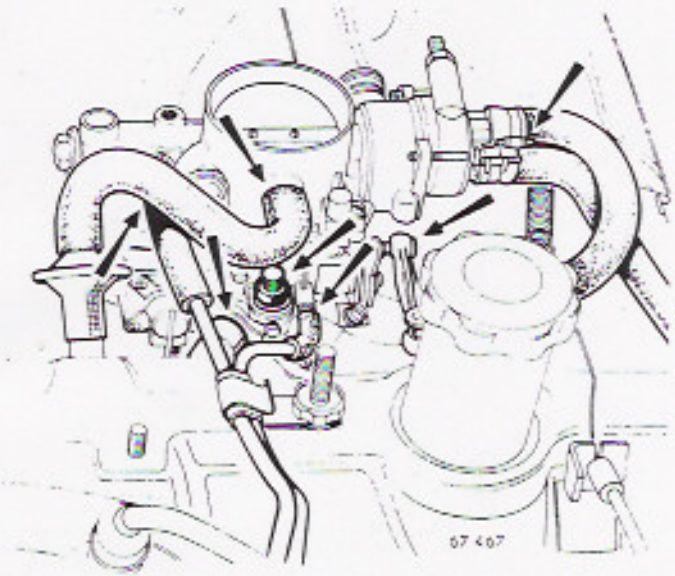
b) - Refitting

Carry out the removing operations in reverse.

2 - Type 35 DITA

a) - Removing

Remove the air filter.
Pinch flat the pipe which enters the choke casing and that which enters the carburettor base.



Disconnect :
- the choke casing input pipe.
- the outlet pipe from the carburettor base.
- the fuel pipe.
- the vacuum pipe.
- the accelerator link.
- the capsule pipe.

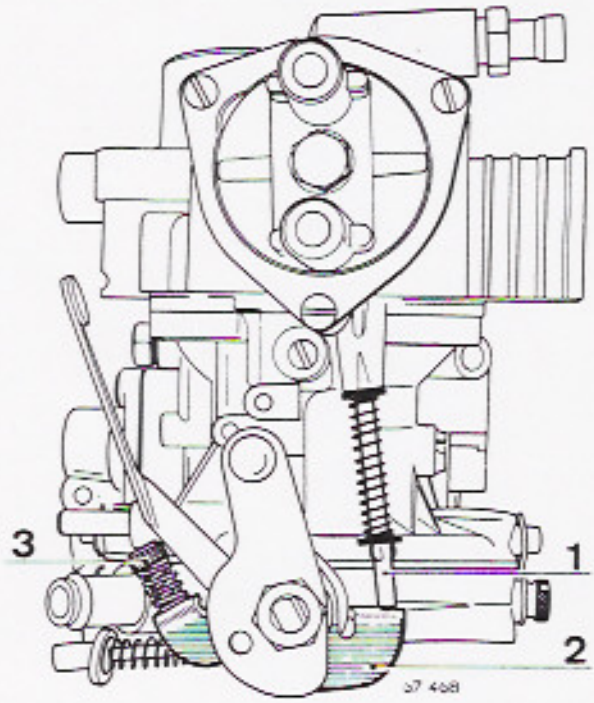
Remove the two carburettor securing nuts and remove it.

b) - Refitting

Carry out the removing operations in reverse.
Use tool Mot.400 to tighten the hose clips.
Check that the cooling system is properly bled by unscrewing the bleed screw on the choke casing.

C - ADJUSTING IDLING SPEED

The Solex 35 DISA or 35 DITA carburettor requires accurate adjustment of the engine idling speed between 600 to 650 r.p.m.



In fact, when the engine is cold, the initial opening of the throttle is obtained by thrust rod(1), through lever (2) against which rests screw (3) which is used to adjusting idling speed.

IMPORTANT

No current consuming service is to be operating when the idling speed is being adjusted.

XXI - SPECIAL FEATURES OF THE 1968 MODELS

Various modifications have been carried out for 1968 models.

A/ - CARBURETTOR

The fitting of a carburettor with a manual choke and a choke warning light on the instrument panel.

For left-hand drive vehicles:

SOLEX type DISA 3, reference 376.
ZENITH type 36 IF, reference V 10 005.

For right-hand drive vehicles:

SOLEX type 35 DISA 3, reference 376-2.

For high altitude versions :

SOLEX type 35 DISA 3, reference 366.

Settings	References		
	376 and 376 - 2	366	V 10 005
Choke tube	26.5	26.5	27
Main jet	142.5	142.5	135
Air compensator	155	145	100
Idling jet	50	50	40
Needle valve	1.7mm	1.7mm	1.5mm
Float	7.3gr.	7.3gr.	
Pump injector	50	50	40
Pump stroke	3mm	3mm	3mm
Throttle butterfly initial opening			0.95mm

B/ - ACCELERATOR CONTROL

The fitting of a new suspended type accelerator pedal and a new cable with an adjustable end fitting on the rocker arm cover.