PEUGEOT

404

Service Manual

FOREWORD

The Peugeot 404 Service Manual has been compiled to provide the service technician with complete maintenance and repair information on the various units of the 404, U. S. Model.

Though primarily designed as a reference for the experienced service man, it also includes step-by-step procedures in many of the overhaul operations. This manual supplements training courses given to mechanics of authorized Peugeot dealerships.

Repair methods are outlined in this book with the use of Peugeot Special Tools, recommended shop equipment, and standard hand tools. Genuine Peugeot parts are employed in the repairs outlined.

Peugeot, Inc. reserves the right to make changes at any time without notice.

All data, illustrations, and specifications contained in this manual are based on the latest information available at the time of publication. Amendments will be made, as necessary, by means of Service Circulars.

PEUGEOT, INC.
R. F. Krieger
Service Manager

Section Index

K3000/5-62

Printed in U.S.A.

ENGINE

Contents — Section 1

Contents (continued)

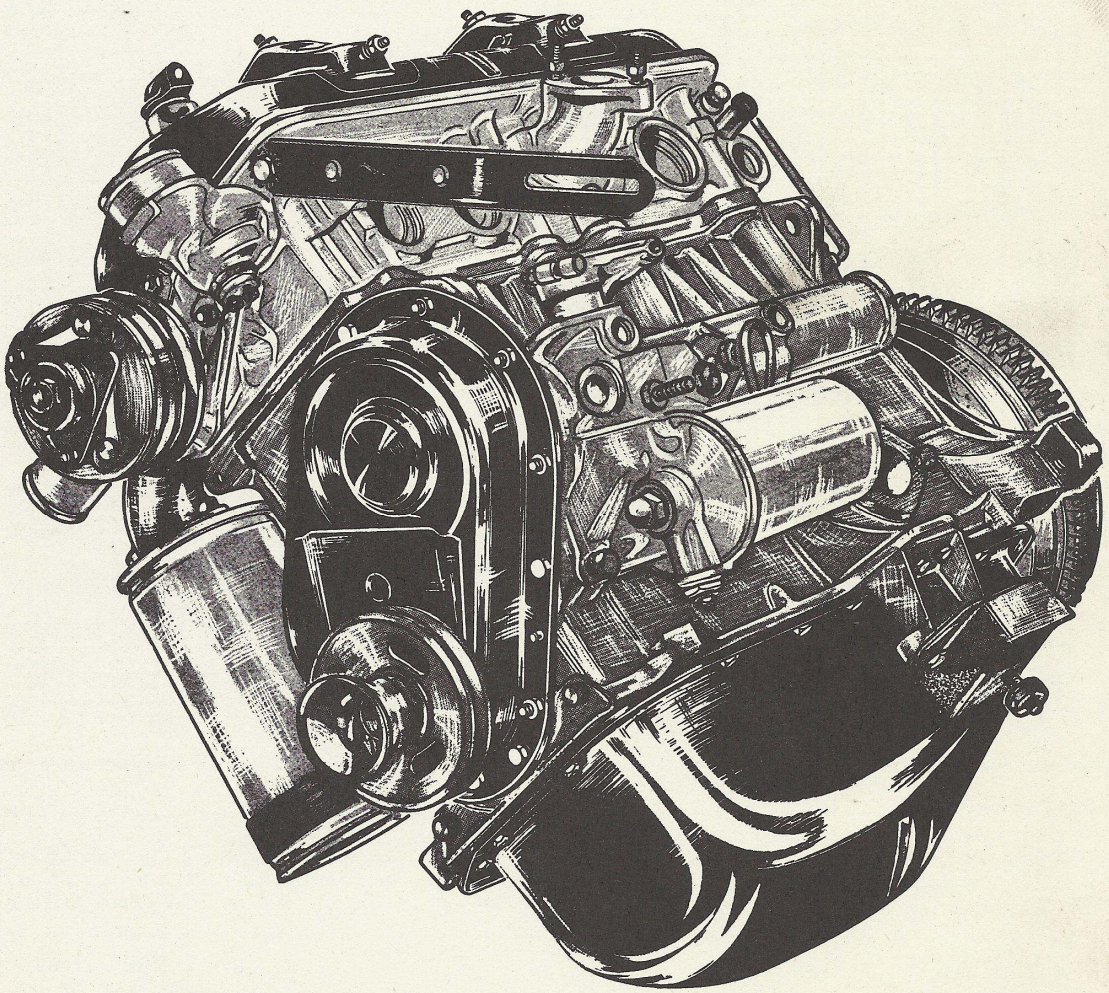
DESCRIPTION

The XC type engine is an all new engine, designed in the fine tradition of the 203 and 403 engines. It retains all of its qualities of strength, ruggedness and durability.

It is an oversquare, in-line, water cooled four-cylinder engine with a displacement of 98.7 cubic inches. This design offers considerably reduced piston travel while minimizing stress on the moving parts.

By tilting the engine at a 45° angle, the following advantages are obtained: lower hood line, lower center of gravity, better weight distribution on the front end and easier accessibility of all engine components.

Some other special features of this engine are its superior breathing spherical offset combustion chambers and its sonically tuned induction system.



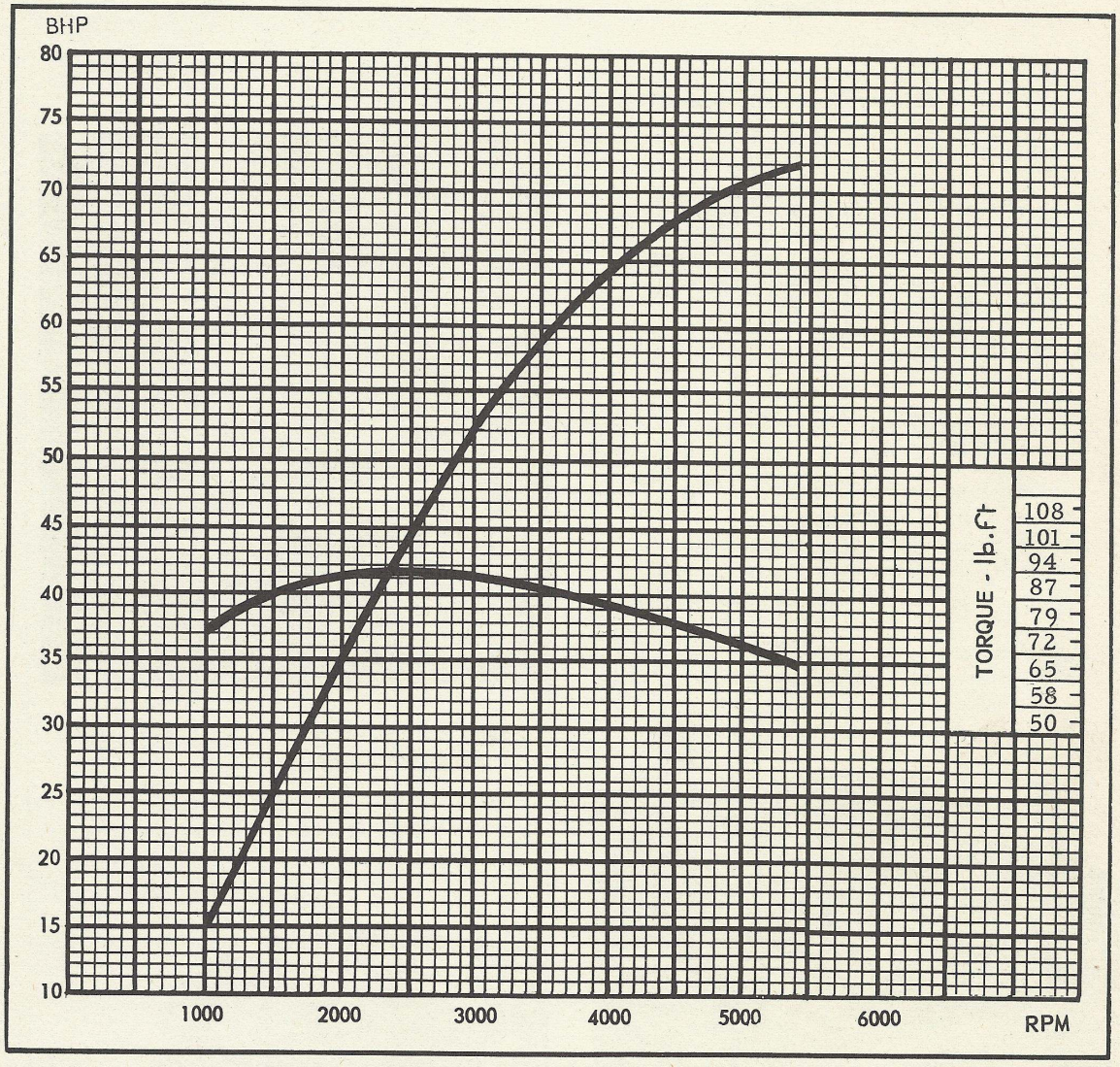
ENGINE

SPECIFICATIONS

Engine Type	XC
Rated Horse Power (SAE)	72 BHP @ 5400 RPM
Taxable Horse Power (USA)	17.5
Number of Cylinders	Four, inclined at 45° to the right
Lay-out	In line
Bore	3.31" (84 m.m.)
Stroke	2.87" (73 m.m.)
Displacement	98.74 cu. in. (1618 c.c.)
Piston Area	34.3 Sq. Inches
Piston Speed at Maximum BHP	2580 feet per minute
Compression Ratio	7.4 : 1
Specific BHP per Liter @ 5400 RPM	44.5 HP
Maximum RPM	5400 RPM
Maximum Torque	94 lb. ft. at 2250 RPM
Cylinders	Wet removable liners
Crankshaft	3 Bearings - Removable Counterweights
Cylinder Head	Hemispheric, Alpax (cold)
Valves	Inclined overhead, push rod operated
Timing	Double link chain, hydraulically controlled tensionner
Fuel Pump	Mechanical
Carburetor	Solex 32 PBICA Downdraft
Ignition Timing Control	Centrifugal and Vacuum
Ignition Timing	11° Before top dead center (static)
Contact Breaker Gap	.020"
Spark Plugs	AC 44F, Autolite AE6, Champion L8, L10
Oil Filter	Full flow, Screen Type
Sump Capacity	4¼ Quarts
Cooling System Capacity	8½ Quarts
Battery	12-volt, 55 Amp. Hour - Autolite 11MS

POWER-TORQUE CURVES

These curves correspond to S.A.E. Testing Procedures with the use of regular grade gasoline, and the recommended adjustments of the engine.



R.P.M.	1000	1500	2000	2250	3000	3500	4000	4500	5400
B.H.P.	15	25.50	35	44.5	52.5	59	64	68	72
Torque—lb-ft	78.1	86.8	91.8	94	91.1	88.2	84.6	79.5	68.7

REMOVAL OF THE ENGINE

1 - Put fender covers in place and disconnect the battery.

2 - Drain the cooling system. Save the coolant which contains permanent antifreeze.

3 - Remove - windshield washer jets
- hood
- crank handle
- windshield washer jar
- carburetor oil bath air cleaner
- carburetor air cleaner and silencer hoses
- ignition coil
- battery
- town horn

4 - Disconnect radiator, heater hoses, and carburator heater hose.

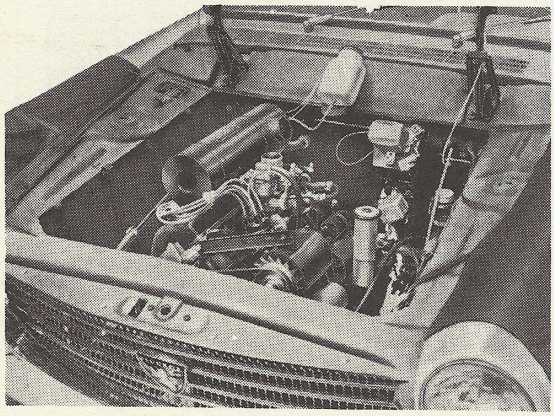
5 - Remove radiator with the return heater hose.

6 - Remove the 2 bolts securing the starter to the bell housing.

7 - Disconnect: the starter cables and wire
the generator wires
the temperature gage wire
the fan thermal contact wire
the oil pressure contact wire

8 - Disconnect: the accelerator cable and the choke cable.

9 - Remove the fuel line from the oil breather.



10 - Remove the baffles from the bell housing.

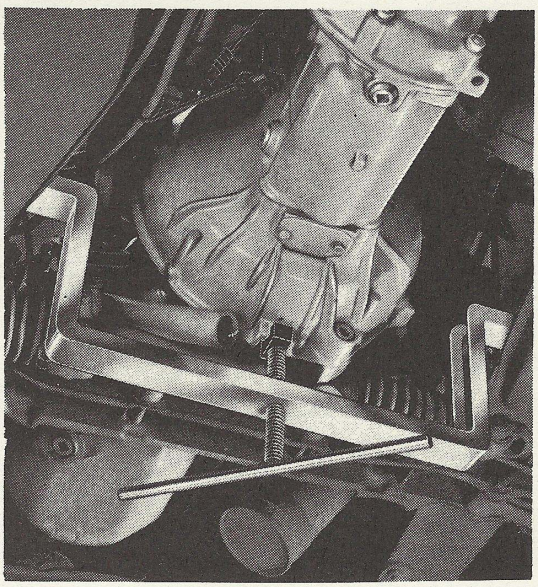
11 - Remove the 2 bolts securing the exhaust pipe to the manifold, and the bolt holding the exhaust pipe clamp on the transmission housing.

12 - Support the bell housing or front of transmission with a sling such as shown or on a stand.

13 - Remove the 3 Allen bolts securing the bell housing to the engine.

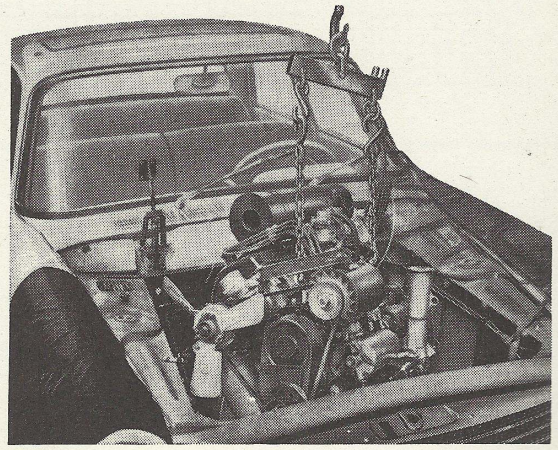
14 - Attach the chain hooks or lifting device to the two lifting eyes of the engine block.

15 - Remove the engine securing nuts from the front mounts.



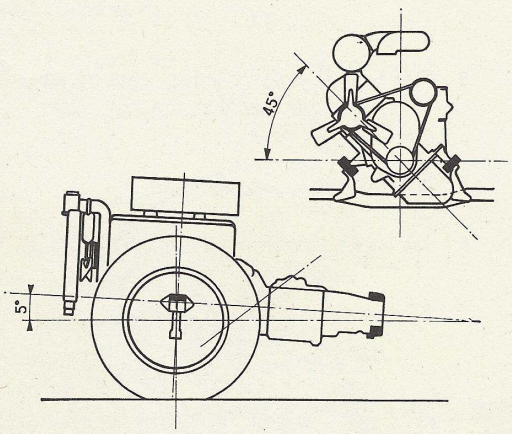
16 - Free the engine from the transmission by pulling it to the front.

17 - When the engine is free, turn it toward the right to remove it safely from the car.



ENGINE MOUNTS

The engine-transmission assembly, mounted at three points, is inclined 5° toward the rear.



Front Engine Mount

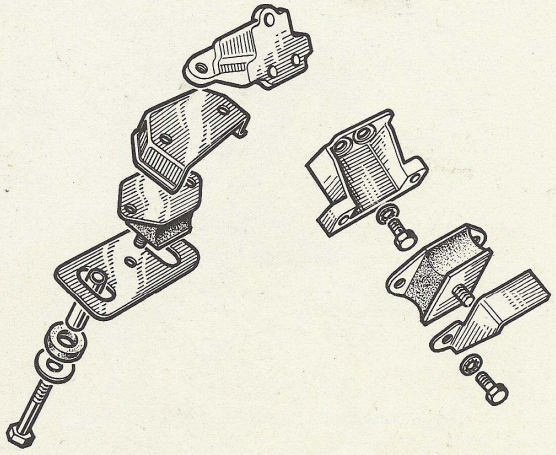
At the front, the engine rests on two rubber blocks at the centerline of the engine.

On the right support, an interlocking cover prevents the rubber mount from excessive stretching.

On the left, a safety plate will keep sufficient clearance if the rubber block is crushed.

The torque of the mount attachment bolts is 15 ft. lbs.

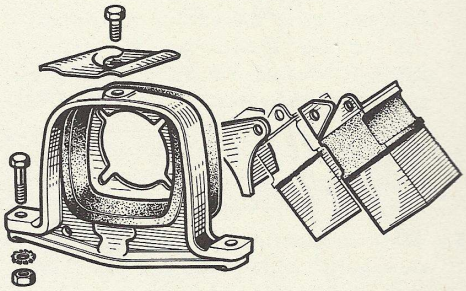
The torque of the center nut is 40 ft. lbs.



Rear Engine Mount

The rear of the transmission is supported in a vulcanized rubber ring.

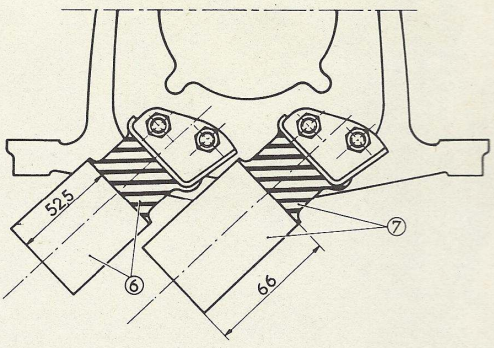
Two dampener weights attached to the rear mount absorb the resonant vibration of the engine crankshaft.



The right weight (7) is the longer, 66 mm., and has a resonant frequency of 115 hertzian waves. The left weight (6) is 52.5 mm. in length with a hertzian frequency of 128.

The two weights must be replaced only as a package, part #1874.01, in order to maintain a difference of 13 hertzian waves between them.

The rear support rubber will be damaged by oil, grease, paint, or trichlorethylene. It is advised to coat each side of the mount with Permatex #3 when installing.



REINSTALLATION OF THE ENGINE

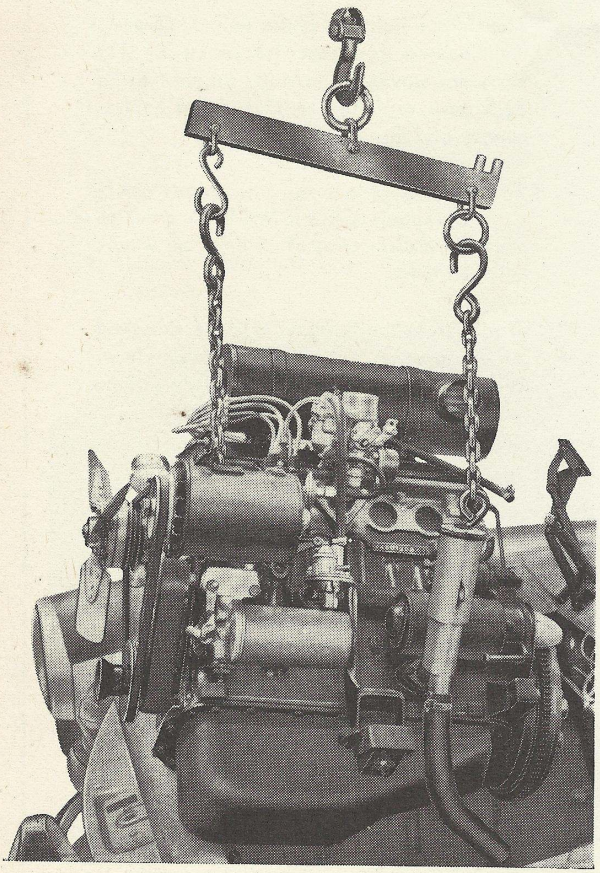
1 - Set the engine into the opening turned as in operation #17 of the removal.

2 - Set the transmission in 4th gear to facilitate the coupling with the engine.

3 - For proper alignment of the engine block and the transmission bell housing, move the engine and adjust the cradle underneath the transmission. Do not forget to place the clutch baffle plates.

4 - Lower the engine onto the front engine mount.

5 - After connecting all the accessories, refill with water and oil. Connect the battery and reset the clock.



COMPLETE DISASSEMBLY OF THE ENGINE

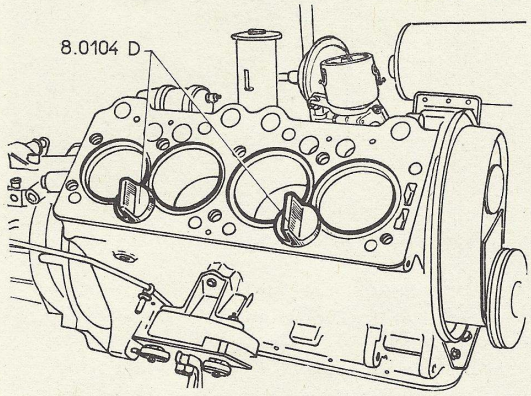
1 - Clean the outside of the engine and place it in a suitable support.

2 - Empty the oil pan.

3 - Remove the distributor, the generator, the fuel pump, the oil filter, the breather pipe.

4 - Remove the cylinder head.

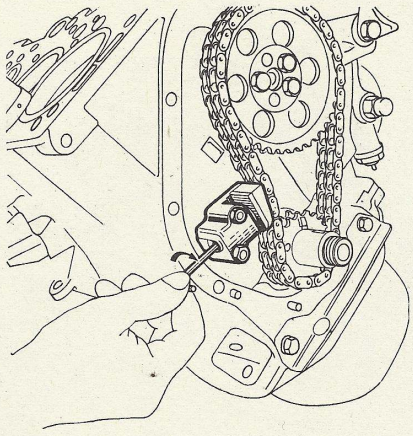
5 - Install cylinder sleeve blocks 8.0104D.



6 - Remove the timing cover.

7 - Disarm the timing chain tensioner by turning the piston to the right with an Allen wrench, after removing the cover screw.

Remove the tensioner, the timing gears, and the chain.

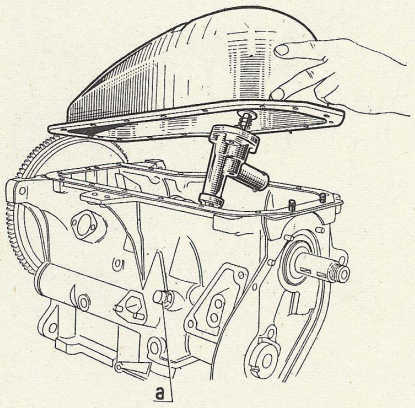


8 - Lean the engine on its side and pull out the valve lifters. Remove oil filter base.

9 - Turn the engine over to rest on the top surface of the block.

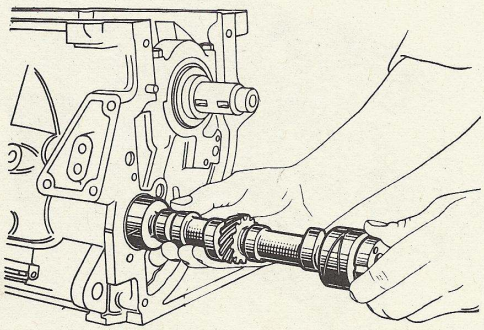
10 - Remove the oil pan.

11 - Remove the oil pump by removing the blind nut (a) and unscrewing the pointed securing bolt.



12 - Remove the front camshaft retainer and pull out the camshaft with caution.

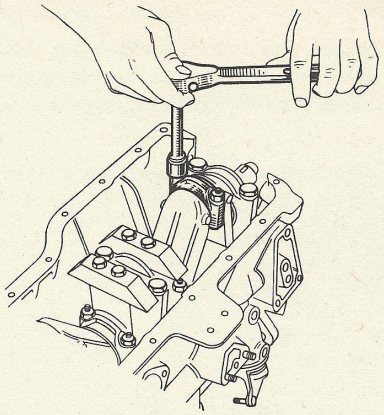
13 - Remove the timing cover support plate and its gasket.



14 - Remove the connecting rod bearing caps by taking off the two nuts.

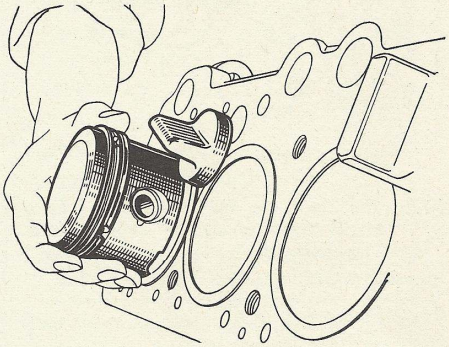
15 - Carefully take out the bearing insert.

16 - Set the caps and bearings on a board in the order of their removal.



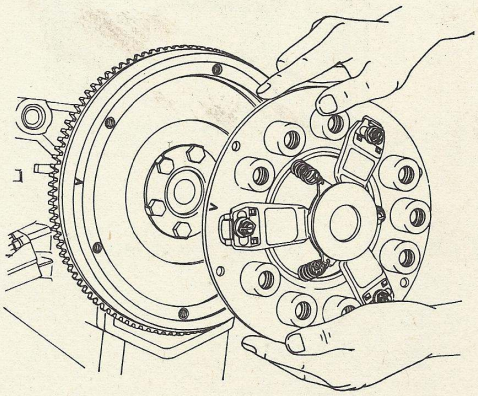
17 - Lay the block on its side and remove the piston-rod assemblies.

18 - Recover the connecting rod inserts and lay out the piston assemblies with their corresponding bearings and caps.



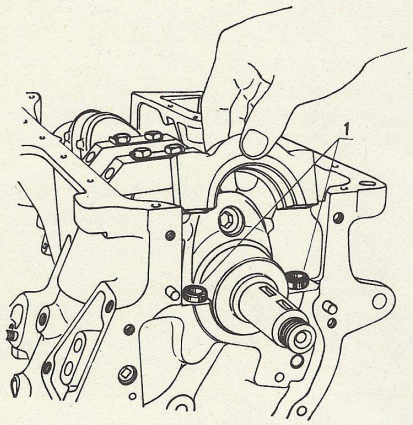
19 - Mark the position of the clutch pressure plate and remove the six attaching bolts of the pressure plate from the flywheel.

20 - Remove the flywheel. Note that the position of the flywheel on the crankshaft is marked.

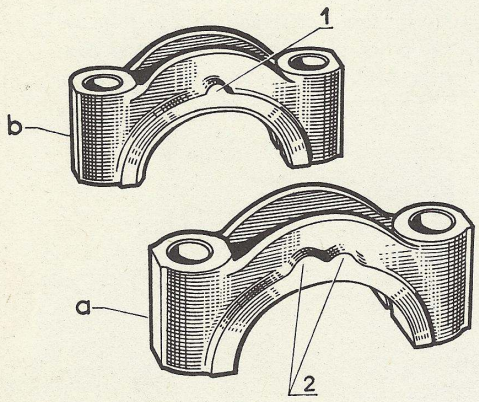


21 - Remove the rear main bearing cap by pulling straight up to disengage it from the two centering dowels.

22 - Remove the center and front main bearing caps, centered by split dowels.

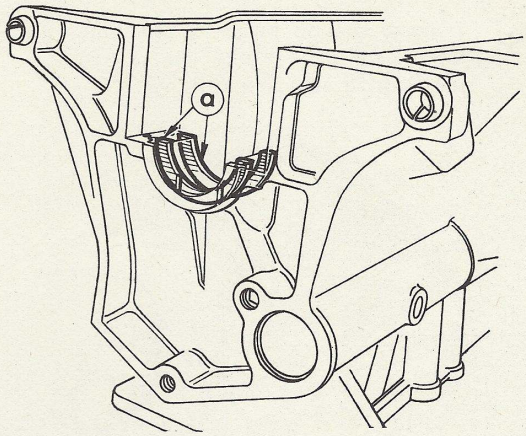


NOTE: The front cap (b) is identified by a single boss along the side surface. The center cap (a) has two bosses.

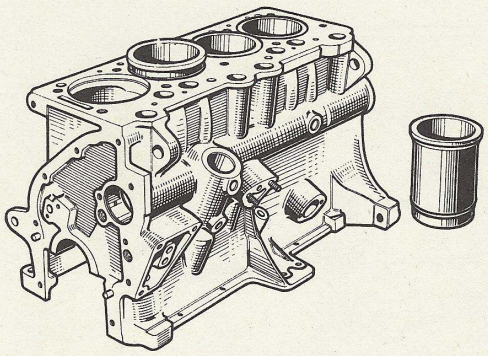


23 - Recover the bearing cap inserts.

24 - Lift out the crankshaft, recovering the inserts and the two end play thrust segments (a).



25 - Turn the engine upright and remove the sleeve holders 8.0104D. Remove the sleeves.

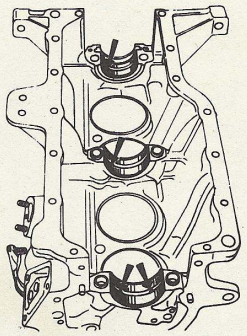


26 - Clean all parts carefully.

INSPECTION AND REASSEMBLY OF THE ENGINE

Parts which show evidence of wear should be replaced with genuine Peugeot parts. New parts are protected with wax or grease coating which must be removed before installation. Coat all parts with motor oil.

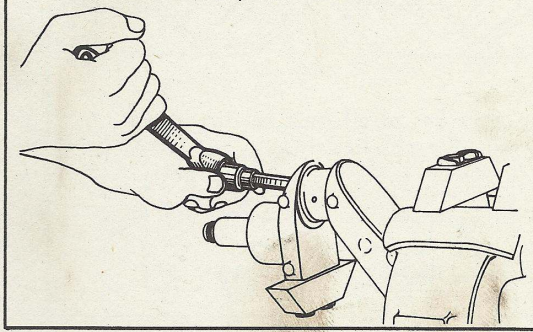
1 - Place the main bearing inserts into position in the block. With a film of oil on the inserts lay the crankshaft into place.



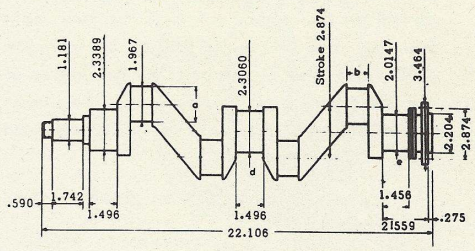
CRANKSHAFT

The crankshaft, in drop forged steel, revolves on three main bearings and carries four removable counterbalance weights. As the crankshaft has been balanced statically and dynamically, the weights must be replaced in their same positions if they are removed.

It is possible to clean the oil passages of the crankshaft by removing the 20 mm. Allen screws. This is not necessary or recommended until the vehicle has been driven at least 50,000 miles.



The rear main journal is smaller than the front and center journals to reduce resonant vibrations of the crankshaft.



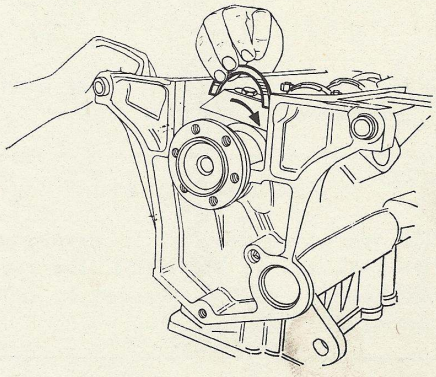
The original dimensions of the crankshaft are as follows:

Main Journals Standard Sizes	Diameter In Inches	Width In Inches
Rear Main Journal	2.014	1.456
Center Main Journal	2.306	1.496
Front Main Journal	2.339	1.496
Connecting rod Journal	1.968	1.181

The journals may be machined down to these dimensions:

Main Journals Repair Sizes	First Repair	Second Repair	Third Repair
Rear Main Journal	2.003	1.995	1.983
Center Main Journal	2.293	2.286	2.274
Front Main Journal	2.326	2.319	2.307
Connecting rod Journals	1.956	1.948	1.936

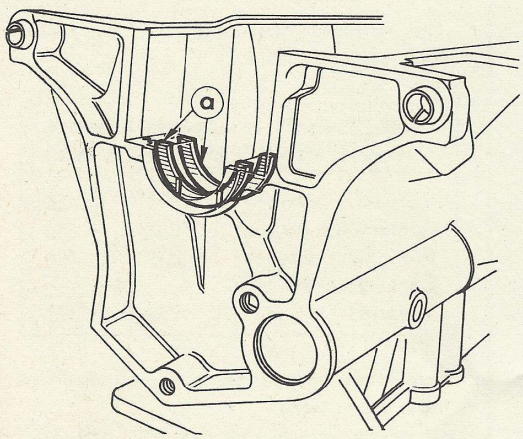
2 - To check the crankshaft end play:
- Position one thrust segment of standard size on each side of the rear bearing journal with the bronze sides against the crankshaft.



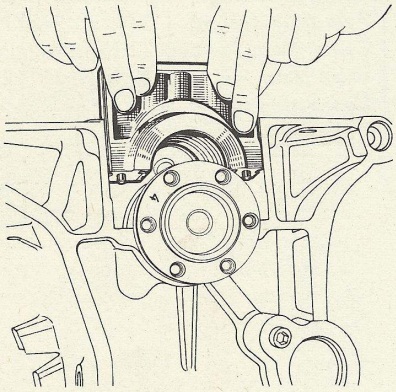
THRUST SEGMENTS

Thrust or end play is limited by two bimetal (bronze and steel) half-ring segments inserted on the upper sides of the rear main bearing. The end play should be between .003'' and .008''. The original thickness of the segment is .090''. Oversize segments for repairs are available in thicknesses of .094'', .096'' and .098''.

The bronze surface must be placed toward the crankshaft.



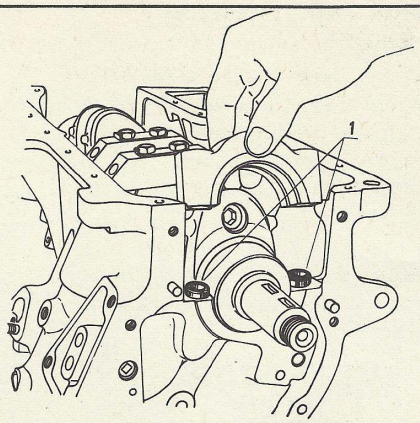
– Install the rear main bearing cap with its insert but without seals.



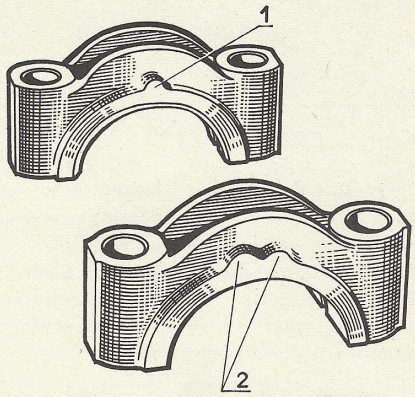
– Install the center and front main bearings with their inserts.

MAIN BEARINGS

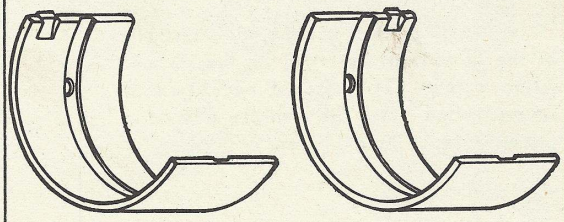
The rear main bearing cap is centered on the block by two dowel pins. The front and center caps are centered by split dowels (1).



The caps of the front main bearing and center main bearing are identified by the bosses on the side surface. The front cap has one boss. The center cap has two bosses.



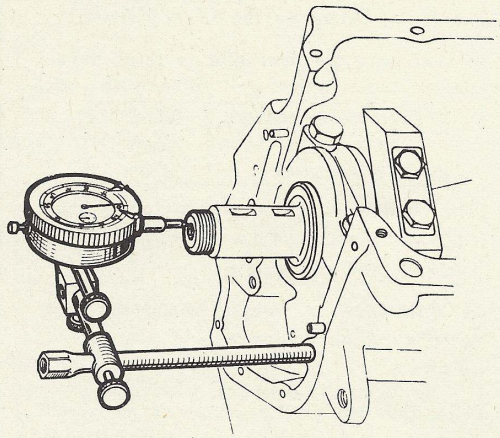
The babbit lined bearing inserts are held in position by tongs.



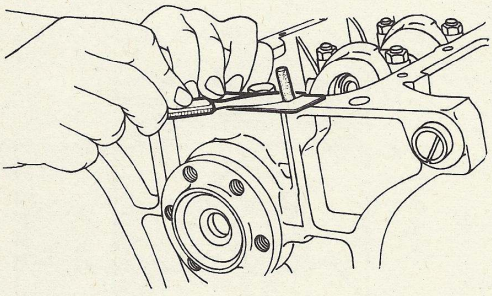
The thickness of all main bearing inserts are available as follows:

Original	.075
1st Repair	.080
2nd Repair	.084
3rd Repair	.090

– Torque all cap bolts to 55 ft. lbs.
– Turn the crankshaft several turns.
– Check the end play by attaching a dial indicator as shown. By moving crankshaft forward and backward, it should read between .003'' and .008''.

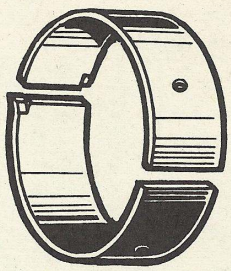


3 - After this check remove the rear main bearing cap to install the side seals as follows: Place the side seals in position and with two oiled pieces of heavy shimstock compress the seals to position the cap. Slide the shimstocks out from the side. Torque the bolts to 55 ft lbs. Check with a .025 feeler gauge that the seals seat the whole length of the grooves. Cut off the excess of the seals, using a .025 feeler gauge as a guide to allow this much to protrude.



CONNECTING ROD BEARINGS

The connecting rod bearing inserts are babbitt lined steel shells. They may be replaced in pairs or as a complete set. The upper and lower inserts are the same.



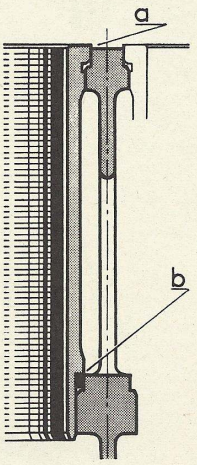
If the crankshaft is machined at the connecting rod bearing, oversize inserts of the following thicknesses may be obtained:

Original thickness	.0717''
1st Oversize	.0776''
2nd Oversize	.0815''
3rd Oversize	.0874''

The connecting rod bearing surfaces of the crankshaft may be machined to correspond to the available inserts.

1st Undersize	1.956''
2nd Undersize	1.948''
3rd Undersize	1.936''

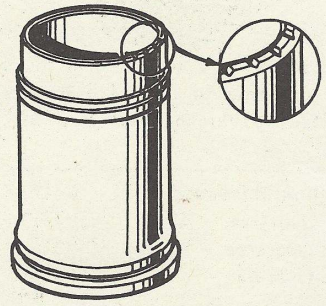
4 - Check the cylinder sleeves for proper fitting by installing them first without rubber rings. The sleeves should protrude from the top plane of the block .0006'' to .003'' (a). Install a new rubber ring (b) on each sleeve and position the sleeves in the block with the file marks facing the camshaft side of the engine. Hold the sleeves in place with the holders 8.0104 D.



CYLINDER SLEEVES

The wet-type sleeves are marked on the bottom edge with 1, 2, 3 or 4 file marks according to their bores.

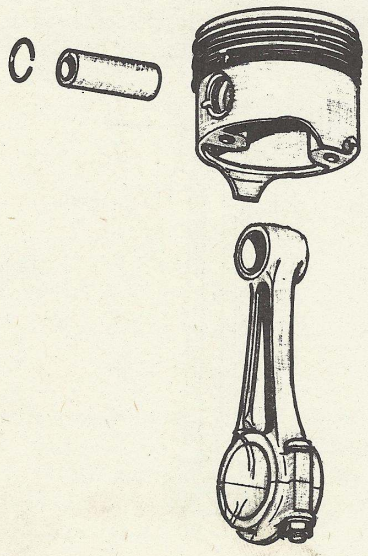
MARK	BORE
1 mark	3.3070 to 3.3075
2 marks	3.3075 to 3.3079
3 marks	3.3079 to 3.3083
4 marks	3.3083 to 3.3088



When the sleeve is installed, the filed marks should face toward the camshaft side of the engine.

The centrifugally cast sleeves are sealed with a .24" rubber ring at the bottom and the head gasket on the top. The sleeve protrudes from the top plane of the block .0006" to .0030".

5 - The piston pin should never bind on the connecting rod or the piston. It is removed by hand. If the piston is replaced the pin should be removed and greased before reassembly with the rod.



PISTONS

The aluminum alloy piston with controlled expansion has an elliptical skirt widely scalloped out at the bottom.

The piston pin bore is .8658" and is offset from the center of the piston .047" to prevent piston chatter. The arrow with the letters AV must point toward the front of the engine because of the offset piston pin.

Piston pins are available in three diameters:

Original diameter	.8663"
1st Oversize	.868"
2nd Oversize	.870"

The nominal weight of the piston without rings and pin is 13.4 oz. and with its three rings and pin 19 oz.

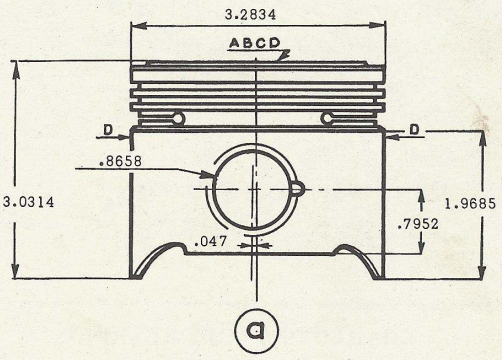
A difference in weight among the four pistons on an engine should not exceed .3 oz.

The diameter of the piston is measured just below the bottom ring perpendicular to the piston pin (D). It should also be checked at the bottom of the skirt.

The pistons are marked on the top according to diameter by the letters A, B, C or D.

MARK	DIAMETER
A	3.3047 to 3.3051
B	3.3051 to 3.3056
C	3.3056 to 3.3060
D	3.3060 to 3.3064

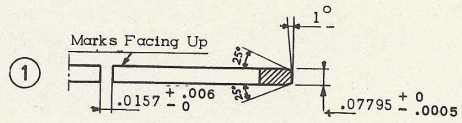
The marks A, B, C and D of the piston correspond respectively to the 1, 2, 3 or 4 filed marks of the cylinder sleeve.



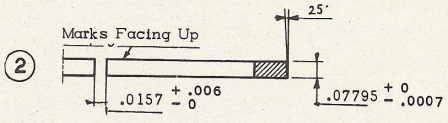
PISTON RINGS

Each piston is equipped with three treated cast iron rings, two compression rings and an oil ring.

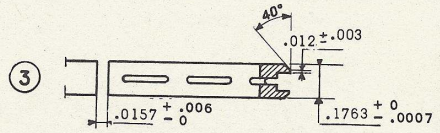
The top compression ring is installed with the engraved mark facing upward. This ring is chromed and has a 1° coned edge.



The second compression ring is also installed with the engraved mark facing upward. This ring has a smaller (25°) coned edge.



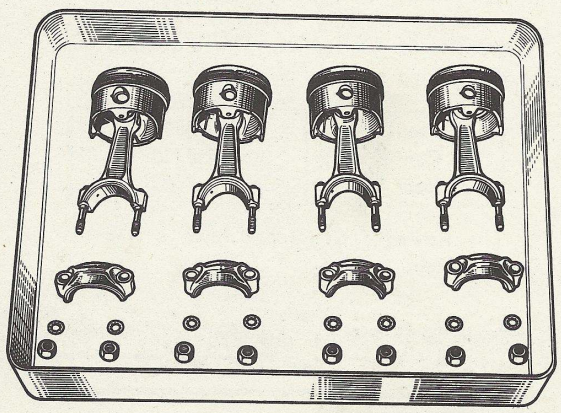
The oil ring may be installed in either direction.



The end clearance of the rings when they are in position in their sleeve should be .016" to .020".

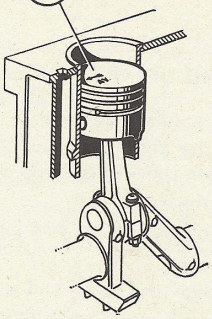
To align piston with the connecting rod:

– As you look at the piston rod assembly through the large end bearing hole with the oil jet hole to the left, the AV arrow on the head of piston should face toward you.

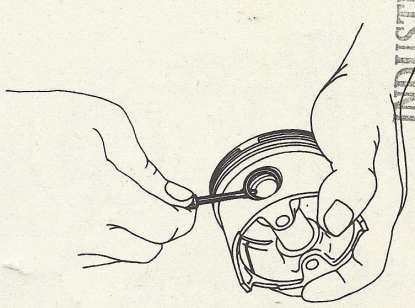


Indicates Front of 

the Engine



– Replace the piston snap rings with care.

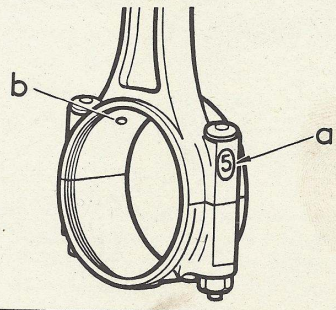


CONNECTING RODS

The forged connecting rods are classified according to weight. The four rods in an engine must be in the same weight range. A number (a) from 1 to 6 etched on the large end indicates the weight, without inserts or bushing.

Number	Weight
1	20.8 to 21.5 oz.
2	21.6 to 22.2 oz.
3	22.3 to 22.9 oz.
4	23.0 to 23.6 oz.
5	23.7 to 24.3 oz.
6	24.4 to 25.0 oz.

In installation, the oil jet hole (b) will face the side of the engine opposite the camshaft.

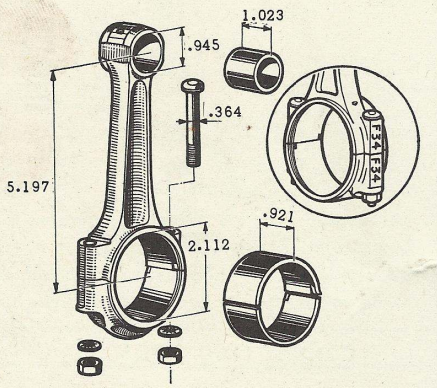


The connecting rod and the bearing cap are matched and will have the same marking.

DIMENSIONS OF THE CONNECTING ROD

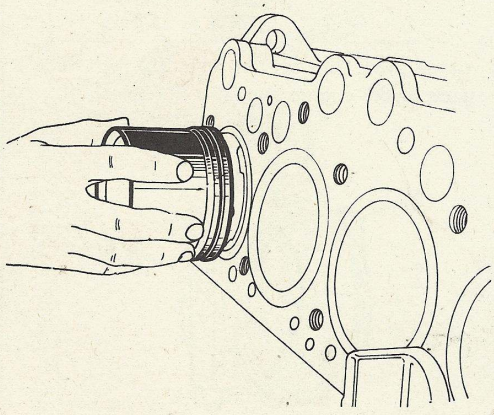
Distance between centers	5.197"
Width of the large end	1.178"
Inside diameter of the large end	2.112"
Width of the small end	1.023"
Inside diameter of the small end	.945"

The bearing cap bolts and nuts must be replaced with new bolts and nuts each time they are removed. The torque on the bearing cap nut is 30 ft. lbs.

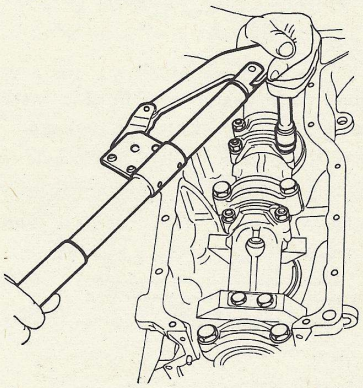


6 - Be sure the ring ends are staggered and oil the piston assemblies well.

7 - With a ring compressor (or a cylinder sleeve cut in half and machined cone shaped) introduce the piston assemblies from the top, the arrows pointing to the front of the engine. They should be reinstalled in the same order as their removal.

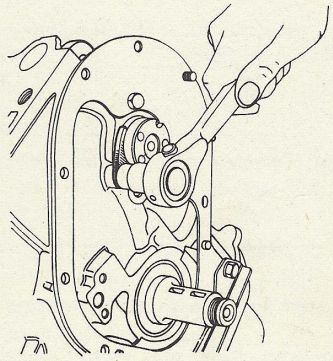


8 - Proceed to assemble each connecting rod with its inserts and its own cap onto the journal. Be careful not to scratch the journals. The connecting rod and cap are marked on the same side. Use new nuts and "Blocfor" lock washers and torque to 30 ft. lbs.



9 - Install the timing cover support plate with a new paper gasket.

Install the camshaft and the retainer held with one bolt.

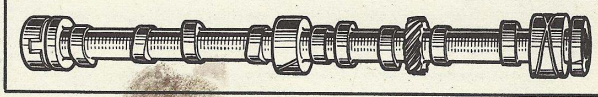


CAMSHAFT

The cast iron camshaft turns on three machined bearing surfaces which are grooved for lubrication. The diameters of the bearing surfaces are:

Front	1.8897"
Center	1.8110"
Rear	1.7322"

The hardened cam lobes have a rise of .256 inch.



10 - Install the camshaft gear which will fit in only one position and turn the screw hand tight. Turn the gear until the mark is on the exterior side of a straight edge held in alignment with the axis of the two shafts.

Remove the camshaft gear.

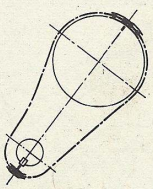
Install the drive gear with its key and thrust washer.

Turn the drive gear until the mark is on the exterior of the line of axis of the two shafts.

Place the chain on the camshaft gear with the two copper links framing the mark. Hold this assembly and place the single copper link at the mark on the drive gear.

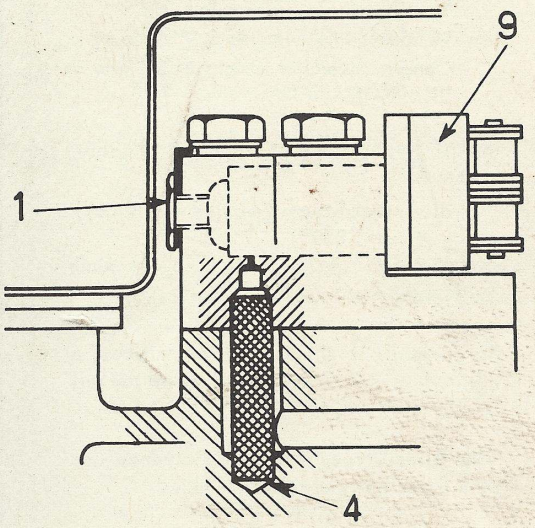
Install the camshaft gear using a new locking plate on the bolt.

Torque to 15 ft. lbs. and lock the bolt.

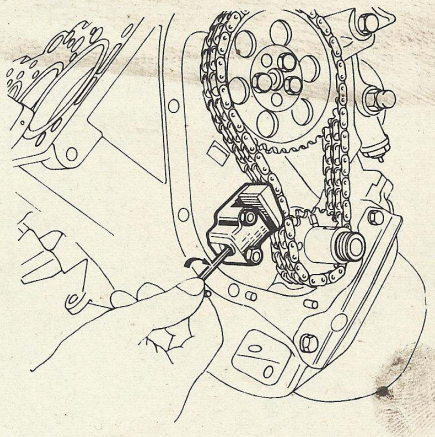


11 - Install the Tensioner

Be sure the piston slides freely in its cylinder and that all oil passages are clean. Insert the spring and piston (9) into the cylinder. With an Allen wrench, "disarm" the piston by turning to the right. Insert this assembly into the tensioner body. Center the filter (4) in the feed port and install the tensioner over the filter. Be sure the tensioner body is flush with the block and torque the two mounting bolts to 5 ft. lbs.



Arm the tensioner by turning the Allen screw slowly to the right just until you hear the piston release under spring tension. Install and lock the cover screw (1).



NOTE: Never attempt to increase the tension of the spring as it is regulated for maximum life of the shoe and for silence in operation.

VALVE TIMING MECHANISM

The valve timing mechanism consists of:

- A double roller chain of 58 links, rollers spaced .375 apart. The chain is marked for timing with copper links (1 & 2).
- Crankshaft gear, 19 teeth, with timing mark (3).
- Camshaft gear, cast iron, 38 teeth, with timing mark (4).
- Automatic chain tensioner.