

# Technical details

<b>ENGINE</b>	2 Stroke aluminium cylinder with chromium plated bore - bore 40 mm stroke 39 mm - capacity 49 cc - compression ratio 7.4 to 1 output 2.2 BHP at 6000 rpm - maximum speed 35 miles per hour - lubrication by petrol mixture - detachable silencer.
<b>CARBURETTOR</b>	Carburettor make GURTNER { D.12.D 621 c - main jet 210 for models with variator. D.10.D 622 - main jet 195 for models without variator. With air cleaner silencer. Throttle control by handlebar twist grip.
<b>CLUTCH</b>	Peugeot automatic multi-plate clutch.
<b>GEARS</b>	On models LV and SV automatic gear change by variator (Peugeot Patent). Rear sprocket 54 teeth for models with variator, rear sprocket 48 teeth for models without variator.
<b>STARTING</b>	By pedalling.
<b>SUSPENSION</b>	Front and rear by swinging arm controlled by NEIMAN rubber suspension units.
<b>WHEELS</b>	Finned light alloy hubs. 15" rims. Tyres 2 1/4 x 15 reinforced. Drum brakes 80 mm diameter. Front and rear brakes controlled by handlebar levers.
<b>SPEEDOMETER</b>	With total mileage indicator.
<b>HORN</b>	Electric.
<b>ANTI-THEFT LOCK FOR STEERING HEAD</b>	NEIMAN.
<b>FRAME</b>	Monocoque pressed steel fabrication with built-in fuel tank of a capacity of 1 1/4 gallons (giving a range of approximately 160 miles).
<b>TOTAL WEIGHT</b>	103 lbs.
<b>TRANSMISSION</b>	Primary by V belt. Secondary by chain.
<b>ELECTRICAL EQUIPMENT</b>	Lighting current from flywheel magneto 8 W. Headlamp 6 volts 15/15 W. Tail lamp 12 volt 0.5 amp.

## PEUGEOT AUTOMATIC MULTI-PLATE CLUTCH

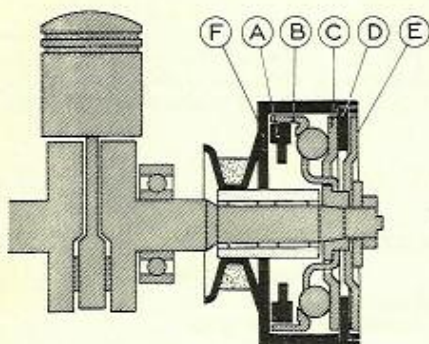
### DESCRIPTION

The clutch consists of two principal parts :

1) **The starting clutch** : consisting of two shoes (A) mounted on the outer drum (F). Under centrifugal force these shoes throw outwards and grip a drum (B) mounted on the crankshaft.

2) **The automatic multi-plate clutch** : consisting of a drum thrust plate (B) supporting six balls, a clutch flange (C), a clutch disc (D), and external thrust plate (E).

The clutch disc (D) is tongued in order to take the drive from the outer drum (F) which is joined to the pulley, and thus drives the belt.



### ACTION

When the rider pedals the drive is transmitted to the rear wheel by the pedalling chain. The rear wheel in turn turns the driving chain which rotates the intermediate pulley, this in turn drives the belt and thus the pulley attached to the starting clutch.

When the speed is approximately 5 miles per hour the starting clutch grips and starts the motor.

When the motor is running, opening the throttle increases its speed, under centrifugal force the balls are thrown outwards. Because of the drum (B) they produce an axial force which clamps the clutch flange (C) on to the clutch disc (D) which in turn is brought in to contact with the outer flange (E).

Thus the clutch disc is held between the two flanges and is rotated by its tongues, so causing the whole clutch to be solid and causing the engine power to be transmitted to the belt and thus to the rear wheel.

### VARIATOR

This consist of two principal parts :

1) **The driving pulley** : this consists of the outer drum (F) which carries the shoes of the starting clutch and of the moving flange (G) which can move sideways.

Between the moving flange (G) and the internal plate (H) are found centrifugal weights which under the effect of centrifugal force can alter the separation of the flanges of the pulley.

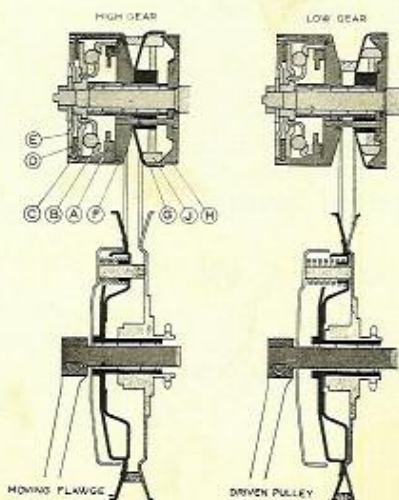
2) **The driven pulley** consists of two flanges held together by six springs.

### ACTION

When starting and in general when speed is low, the gear ratio is large corresponding to a normal bottom gear.

The belt runs at the bottom of the driving pulley and is thus running round the periphery of the driven pulley.

As speed increases centrifugal force throws outwards the small weights (J) contained in the driving pulley, thus pushing against the interior plate (H) and thus the moving flange (G) towards the drum (F) causing the belt to run higher on the driving pulley.



A small reduction is gradually made in the ratio, this is equivalent to a normal 2nd gear, then 3rd gear and then top gear depending upon the conditions.

This variation in gear ratio occurs automatically and requires no action on the part of the driver. Thus it is more than a gear change, it is an automatic gear change. As the driving pulley varies its diameter automatically, so the driven pulley, thanks to the springs, also adjusts its diameter.

## Running repairs

### DIFFICULT STARTING

#### 1) The motor will not start (hot or cold).

Symptom	Defect	Remedy
No spark or poor spark.	<ol style="list-style-type: none"> <li>1) Sparking plug failed or short circuited, or sparking inside.</li> <li>2) Points not opening, cam follower worn or broken.</li> <li>3) Moving point seized on spindle.</li> <li>4) Ignition coil defective or damaged.</li> <li>5) Short circuit in primary.</li> <li>6) Condenser short circuit or open circuit.</li> </ol>	<ol style="list-style-type: none"> <li>1) Fit clean sparking plug.</li> <li>2) Change points.</li> <li>3) Dismantle points and clean the spindle of the moving point with fine emery. Reassemble after lubricating with a little graphite oil. Excessive oil could easily foul the points.</li> <li>4) Check and replace.</li> <li>5) Make sure that there is no short to earth from the ignition points from the primary of the ignition coil or from the condenser terminal.</li> <li>6) Change the condenser.</li> </ol>
Petrol failing to arrive regularly at the carburettor and at the main jet.	<ol style="list-style-type: none"> <li>1) Obstructed tap.</li> <li>2) Tap filter clogged.</li> <li>3) Breather hole in filler cap clogged.</li> <li>4) Blocked main jet.</li> </ol>	<p>Check and clean where necessary.</p> <ol style="list-style-type: none"> <li>4) Unblock jet with compressed air or with tyre pump.</li> </ol>
Petrol supply satisfactory but cold starting difficult.	<ol style="list-style-type: none"> <li>1) Throttle stop badly set.</li> <li>2) Air leak.</li> </ol>	<ol style="list-style-type: none"> <li>1) Check and reset throttle stop.</li> <li>2) Check the joint of the induction stub to the cylinder and also where the carburettor is joined to the induction stub.</li> </ol>
Petrol floods from carburettor and motor will not start.	<ol style="list-style-type: none"> <li>1) Float needle fails to seal petrol.</li> <li>2) Float is punctured.</li> </ol>	<ol style="list-style-type: none"> <li>1) Check that the needle does seal and if not clean.</li> <li>2) Replace float.</li> </ol>

## RUNNING REPAIRS

### 2) The motor starts satisfactorily but runs irregularly.

Symptom	Defect	Remedy
Irregular firing when throttle is opened.	<ol style="list-style-type: none"> <li>1) Plug too hot causing pre-ignition or plug whiskering.</li> <li>2) Defective condenser.</li> <li>3) Onset of seizure of make-and-break point.</li> </ol>	<ol style="list-style-type: none"> <li>1) Fit another sparking plug or clean the existing one.</li> <li>2) Check the running when warm. Check the condenser, eventually change the condenser.</li> <li>3) Dismantle the ignition points and clean the spindle of the moving point with fine emery, reassemble using a little graphite grease. Remember excess can foul the points.</li> </ol>
Difficulty to start engine when lights are on. When running the motor commences to misfire when the lights are turned on.	<ol style="list-style-type: none"> <li>1) Ignition points do not open sufficiently.</li> <li>2) Burnt contact points or points out of alignment.</li> <li>3) Worn plug with dirtied electrodes.</li> <li>4) Dirty points (contact resistance too high).</li> <li>5) Flywheel magneto demagnetised.</li> </ol>	<ol style="list-style-type: none"> <li>1) Reset points.</li> <li>2) File away the cam follower of the points and reset the contacts or better still replace contact set.</li> <li>3) Clean or change the plug if necessary.</li> <li>4) Clean with a special points file or very fine emery.</li> <li>5) Have flywheel magneto remagnetised by a specialist.</li> </ol>
Motor either runs satisfactorily at low revs but will not pick up, or runs irregularly at high revs.	<ol style="list-style-type: none"> <li>1) Insufficient petrol. Tap or carburettor filter partly obstructed.</li> <li>2) Defective ignition coil.</li> <li>3) Crankcase oil seals defective or worn.</li> <li>4) Air filter clogged.</li> <li>5) Choke partially obstructing air intake.</li> </ol>	<ol style="list-style-type: none"> <li>1) Check the rate of flow of petrol through the tap (7 fluid ozs. per minute). Check the rate of flow through the carburettor.</li> <li>2) Check and replace.</li> <li>3) Additional air entering, check replace seals if necessary.</li> <li>4) Clean.</li> <li>5) Slacken off the choke control cable.</li> </ol>
Motor lacks power.	<ol style="list-style-type: none"> <li>1) Cylinder and piston excessively worn.</li> <li>2) Piston rings stuck in ring grooves</li> <li>3) Piston rings worn causing loss of compression.</li> <li>4) Piston rings worn with excessive gap. The piston ring gap when the ring is in the cylinder should be not more than 3/10 th of a mm (.012").</li> <li>5) One or more piston rings broken.</li> <li>6) Belt slip.</li> <li>7) Incorrect ignition timing (retarded).</li> <li>8) Carburettor out of adjustment.</li> </ol>	<ol style="list-style-type: none"> <li>1) Check and change the piston and cylinder (chromium plated cylinders cannot be rebored).</li> <li>2) Carefully decarbonise the ring grooves. The rings should be free in the grooves. Do not over widen the grooves.</li> <li>3) Replace piston rings.</li> <li>4) To check the ring gap carefully take out the piston ring and place it squarely in the cylinder. Replace rings if necessary.</li> <li>5) Check the state of the piston and the cylinder and replace the piston rings. Watch out for possible pieces of piston ring in the crankcase.</li> <li>6) Readjust the belt.</li> <li>7) Reset ignition timing (See page 22).</li> <li>8) Check that the throttle completely opens, if not readjust throttle control.</li> </ol>

## RUNNING REPAIRS

Symptom	Defect	Remedy
The lack of power may be caused by faulty ignition.	<ol style="list-style-type: none"> <li>1) Defective plug.</li> <li>2) Break down of condenser particularly when warm.</li> <li>3) Ignition coil defective.</li> <li>4) Flywheel magneto demagnetised, in this case the lights are dimmer.</li> </ol>	<ol style="list-style-type: none"> <li>1) Clean or replace the plug.</li> <li>2) Replace the condenser.</li> <li>3) Check and replace the ignition coil.</li> <li>4) Have remagnetised by a specialist.</li> </ol>
Motor four strokes.	<ol style="list-style-type: none"> <li>1) Too large a main jet.</li> <li>2) Lack of air (dirty air filter).</li> <li>3) Choke held partly closed.</li> <li>4) Too much oil in petrol.</li> </ol>	<ol style="list-style-type: none"> <li>1) Change the main jet.</li> <li>2) Clean air filter.</li> <li>3) Re-adjust choke control.</li> <li>4) Empty petrol tank and refill with the correct mixture. Remind the owner the correct proportion of oil.</li> </ol>

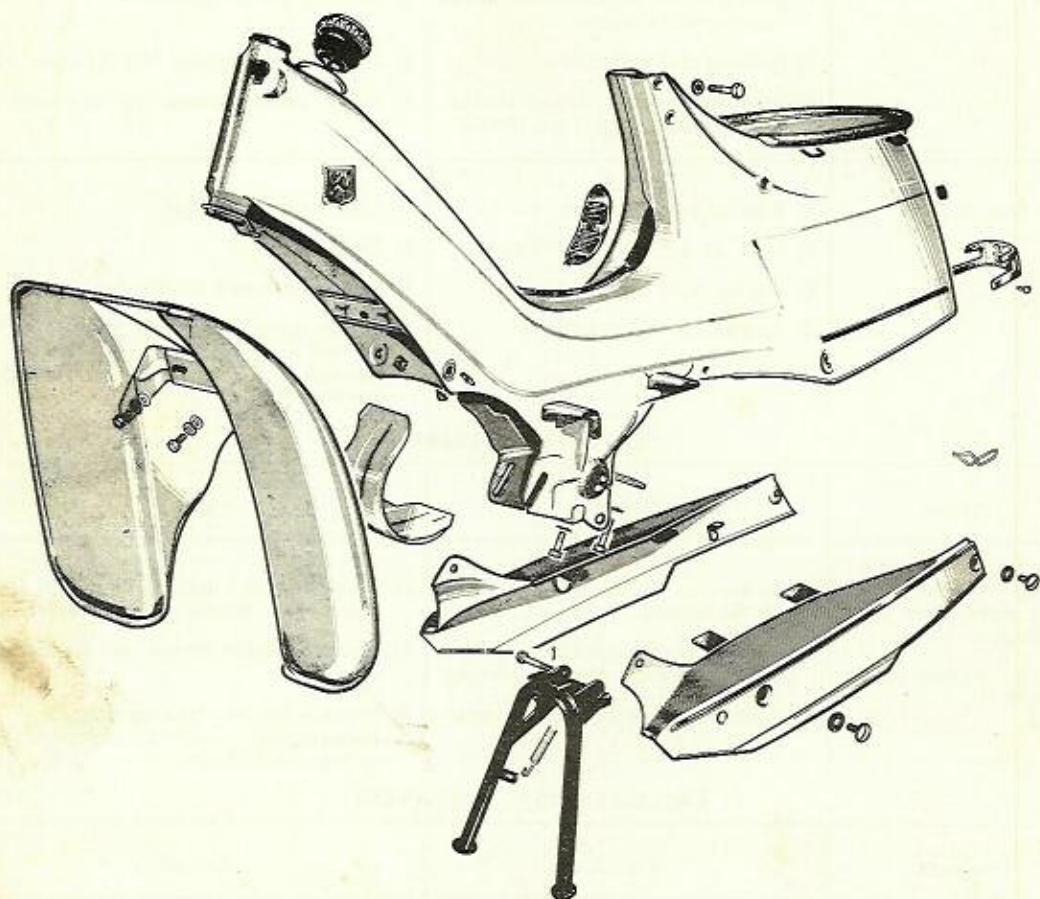
## CLUTCH FAILURE

Symptom	Defect	Remedy
Starting clutch slips. Clutch takes too long to engage.	<ol style="list-style-type: none"> <li>1) Grease or oil on the drum and on the linings.</li> <li>2) Linings of the clutch shoes are or the springs are too strong.</li> <li>3) Clutch springs broken or stretched.</li> </ol>	<ol style="list-style-type: none"> <li>1) Dismantle and clean with petrol (pure petrol <b>not</b> petrol oil mixture).</li> <li>2) Replace clutch shoes or springs.</li> </ol>
Starting clutch does not work.	<ol style="list-style-type: none"> <li>3) Clutch springs broken or stretched.</li> </ol>	<ol style="list-style-type: none"> <li>3) Replace by two new springs. <b>Important.</b> — Check the pivot pins of the clutch shoes.</li> </ol>

## FAILURE OF VARIATOR

Symptom	Defect	Remedy
Performance reduced both on the level and on hills, and the performance of the motor is not in question.	<ol style="list-style-type: none"> <li>1) Insufficient end float on rear pulley.</li> <li>2) Driving chain too taught.</li> <li>3) The moveable flange of the driving pulley does not move freely.</li> </ol>	<ol style="list-style-type: none"> <li>1) Reset the end float of the bottom bracket to 4-6 tenths of a mm (016" to 024") See Page 10.</li> <li>2) Up and down playing chain should be approximately a 1/4".</li> <li>3) Grease the nipple on end of engine main shaft (three pumps of the hand grease gun are sufficient).</li> </ol>
Engine revs climb without speed increasing	<ol style="list-style-type: none"> <li>1) Insufficient belt tension.</li> <li>2) Greasy belt.</li> </ol>	<ol style="list-style-type: none"> <li>1) Reset belt tension.</li> <li>2) Clean the belt.</li> </ol>
Noise from the driven pulley.	<p style="text-align: center;">a) <b>A whistling noise</b></p> <ol style="list-style-type: none"> <li>1) Lack of grease or wear of the bi-metal washer.</li> <li>2) Deterioration of the rubber washers mounted on the driving sprocket.</li> </ol> <p style="text-align: center;">b) <b>A rattling noise</b></p> <ol style="list-style-type: none"> <li>1) Wear of the nylon ring.</li> <li>2) Too much end float on the driven pulley.</li> </ol>	<ol style="list-style-type: none"> <li>1) Grease and if necessary replace bi-metal ring (be careful of the adjustment of the bottom bracket).</li> <li>2) Replace the rubber washers.</li> <li>1) Reset the bottom bracket (See Page 10).</li> <li>2) Reset the bottom bracket.</li> </ol>

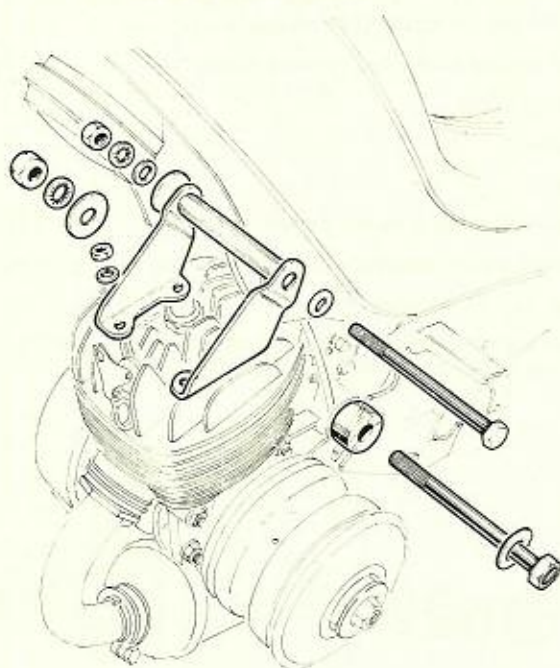
# Cycle parts



## REMOVAL OF MOTOR

- 1) Remove footboards, left and right, (screwdriver) then remove the legshields (12 mm spanner).
- 2) Disconnect the controls :
  - Disconnect connector in lighting lead from flywheel magneto.
  - Disconnect the petrol pipe from the carburettor.
  - Disconnect the decompressor by undoing solderless nipple (6 mm spanner and pliers).
  - Disconnect the choke cable from the carburettor without undoing solderless nipple.
  - Slacken upper engine fixing bolt (14 mm spanner).
  - Unscrew lower engine bolt (17 mm spanner) and partially withdraw bolt.
  - Pivot engine backwards and remove the belt from the driven pulley.
  - Slacken carburettor pinch bolt and turn the carburettor on its stub in order to give access to the screw which holds the bracket on the float chamber top, undo this and remove float chamber top followed by carburettor top and then replace so that it is not lost.
- 3) Hold the motor in one hand unscrew and completely remove the upper engine mounting bolt (the silencer comes away with the motor).

## REPLACEMENT OF ENGINE IN THE CHASSIS



Reverse the proceedings for removing engine putting in the engine mounting bolts from the lefthand side, set the tension of the pulley before tightening bolts.

## ADJUSTING BELT TENSION

### MACHINE NOT FITTED WITH VARIATOR

Increase the belt tension by pivoting the motor forward with the aid of a lever (when the belt is correctly tensioned the play at the centre of the run should be 1/2" maximum).

Retighten the rear mounting bolt first and then the front mounting bolt.

### MACHINE FITTED WITH VARIATOR

Retension the belt by pivoting engine forward with the aid of a lever, tighten the rear engine mounting bolt first then the front one.

## THE SETTING OF THE BELT TENSION WITH A VARIATOR

The belt is correctly set when it is 2 mm (.080") below the outer rim of the driven pulley.

If you wish to measure the depth of the belt below the outer rim of the pulley at the top of the pulley it is necessary to turn the rear wheel at least a half turn in the direction of travel.

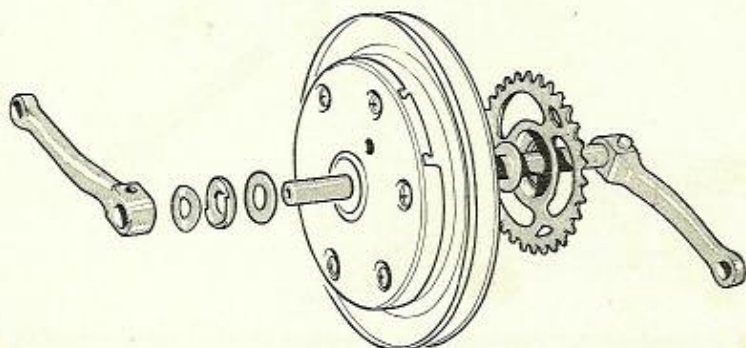
If on the other hand you wish to measure this depth on the bottom half of the pulley it is necessary to turn the rear wheel in the opposite direction.

**N.B.** — This is absolutely essential if the belt is to be correctly positioned in the pulley.

# Bottom bracket

## DISMANTLING THE BOTTOM BRACKET WITH VARIATOR

- Disconnect and remove the left crank (10 mm spanner).
- Detach spring link of driving chain and remove chain.
- Remove in the following order :
  - Belleville washer
  - Nylon washer
  - Bi-metal washer (bronze towards pulley)
  - Complete driven pulley assembly (be careful of the needle rollers)
  - Thrust washer 16 × 32 thickness 1.
- Remove the chain from the Chain wheel and withdraw the spindle complete with crank. (Be careful of the washer between the chain wheel and the bottom bracket).

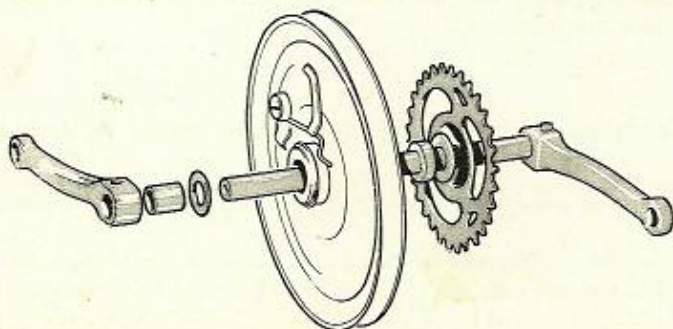


## REASSEMBLY

- Reassemble in the opposite order (be very careful to get the washers in their correct position).

## DISMANTLING BOTTOM BRACKET OF A MODEL WITHOUT VARIATOR

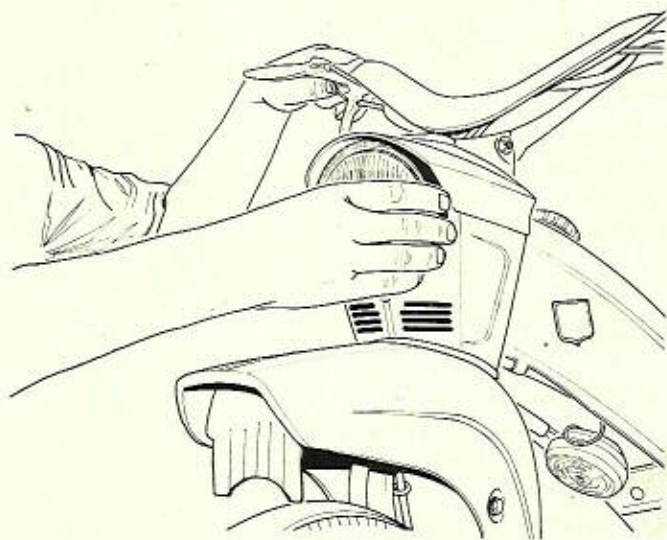
- Disconnect and remove the left crank (10 mm spanner).
- Withdraw distance piece shim and washer.
- Withdraw spring link and remove driving chain.
- Withdraw pulley assembly and thrust washer (be careful of the needle roller bearings).
- Remove chain from chain wheel and withdraw spindle complete with crank (be careful of the washer between the chain wheel and the bottom bracket).



## REASSEMBLY

- Replace in the opposite order (ensure that washers are in their correct position).





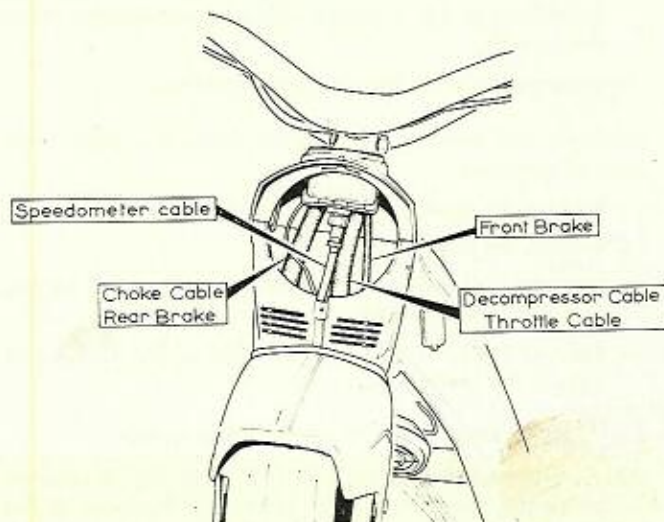
## DISMANTLING

Unscrew the screw at the bottom of the lamp and pivot the light unit to the left or to the right for a 10th of a turn.

## ADJUSTMENT

This is by means of the screw at the light unit above the fixing screw.

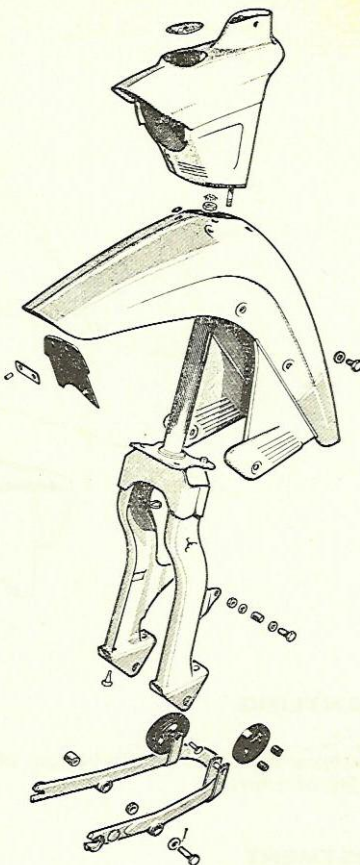
# Controls



**N.B.** — In case of complete dismantling of controls remember that the right harness carries the rear brake the choke cable and the lighting wires (grey and blue), the left one carries the throttle cable the decompressor cable and the horn wires (grey and yellow). The front brake cable is separate.

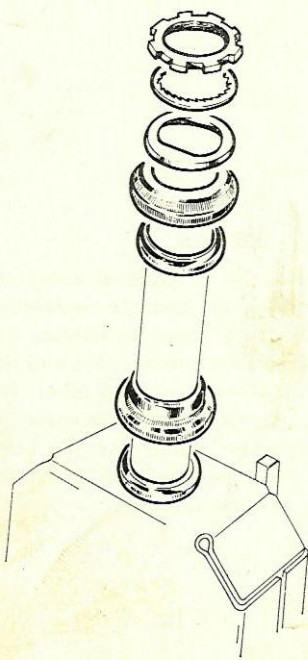
## REMOVAL OF THE SUSPENSION

- 1) Removal of the front wheel :
  - Disconnect the front brake cable by undoing the solderless nipple (6 mm spanner and pliers).
  - Disconnect the speedometer cable (9 mm spanner).
  - Undo spindle nuts (14 mm spanner) and withdraw the wheel.
- 2) Dismantling the suspension :
  - Remove the split pins from the castle nuts and unscrew the pivot bolts of the suspension (14 mm spanner).
  - Unscrew and withdraw the upper spindles from the Neiman suspension units (12 mm spanner).  
When the rubber rings are replaced also replace the rivets.



## WITHDRAWAL OF THE FORK

- 1) Removal of the handlebar :
  - Unscrew and withdraw the handlebar pinch bolt (14 mm spanner).
  - Unscrew the screws which hold the headlamp nacelle to the front mudguard (8 mm spanner).
  - Pivot the handlebar complete with controls and headlamp nacelle forward. (If the cables are disconnected at their other ends they are quite long enough to enable the handlebar to be removed without disconnection from the controls).
  - Unscrew the cable from the speedometer.
- 2) Unscrew and remove the lock nut from the upper head race (C spanner).
  - Remove the grower washer.
  - Remove the distance piece.
  - Unscrew and remove the upper head race (be careful of the 25 balls 5.5 mm).
  - Remove the fork (be equally careful of the 25 5.5 mm balls in the lower race).



## REMOVAL OF THE MUDGUARD

After having withdrawn the fork it is necessary to unscrew and withdraw the two fixing screws situated at the sides of the mudguard. (10 mm spanner).

## REPLACING MUDGUARD

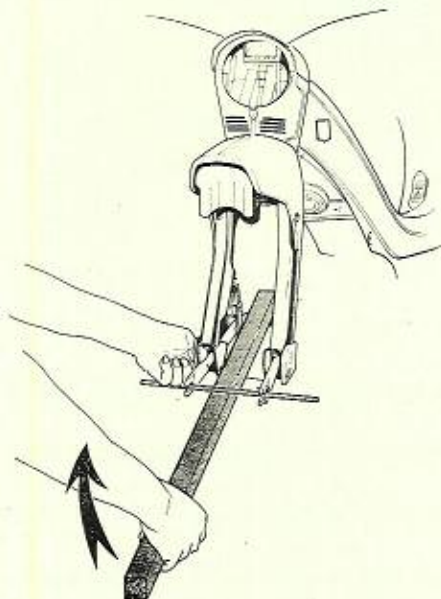
- Replace mudguard on the fork and tighten the two fixing screws (10 mm spanner and do not forget the washer under the head of each screw).

## REPLACEMENT OF THE FORK

- Put 25 5.5 mm balls into each of the head races with grease, fit the lower race to the head stem and draw upwards into the head stock, screw on the upper race.
- Refit the distance piece the grower washer and adjust the race and lock nut ("C" spanner).
- Replace the headlamp nacelle and handlebar assembly.
- Screw the nuts on to the fixing bolts joining the nacelle to the front mudguard (8 mm spanner and spring washer under the nut).
- Align the handlebars and insert from the righthand side the clamping bolt with its plain washer, and from the left the distance piece, the spring washer and the nut, tighten (14 mm spanner).
- Replace speedometer cable.
- Reconnect the lighting wire (green) and replace light unit into headlamp.

## REPLACEMENT OF THE SUSPENSION

**WARNING.** — This operation is very important because of the risk of damaging the silentbloc bushes, in order to avoid this carefully follow the details of refitting the rubber suspension units and be most careful about tightening the pivot pins.



- Place swinging arm in front fork.
- Insert upper fixing bolts through the suspension rings, the screws are fitted from the outside with the plain washer under the head and a spring washer under the nut. Tighten these bolts (12 mm spanner).
- With the help of a lever and a bar (see diagram), pivot the swinging arm in order to engage the pivot pins from the outside of the mudguard, place a plain washer under the heads.
- Fit the castle nuts but do not tighten. Turn the suspension by means of the lever to the middle position (distance between the spindles in the suspension units 93 mm). Tighten the spindles in this position.
- Tighten the castle nuts and replace the split pins.

# Rear suspension

## REMOVAL OF SWINGING ARM

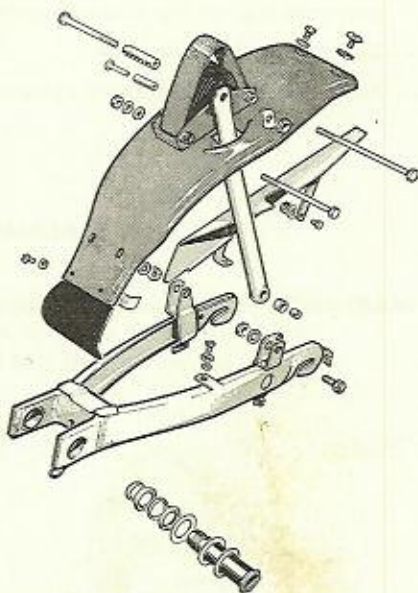
- Remove the rear wheel without altering the position of the chain tensioners, after having disconnected the rear brake cable and removed the starting chain.
- Unscrew and withdraw the lock nut from the pivot tube (righthand side 32 mm spanner).
- Unscrew and withdraw the nut.
- Withdraw the serrated washer.
- Unhook the stand spring.
- Disconnect the brake cable and remove from fork.
- Unscrew and withdraw the pinch bolts from the bottom bracket (14 mm spanner).
- Unscrew and withdraw the pivot pins of the suspension stay (14 mm spanner).
- Drive pivot tube from chassis with the aid of a plastic mallet.

## REMOVAL OF THE SUSPENSION

- Unscrew and withdraw the screw situated on the luggage carrier (hexagon headed 10 mm spanner for the dual seat model slotted for the single seat model)
- Undo and partly withdraw the two fixing bolts of the suspension (12 mm spanner).
- Unscrew and withdraw the two lower fixing screws of the mudguard (10 mm spanner).
- Withdraw completely the two large screws and remove the complete mudguard and suspension unit.
- The rubber rings are rivetted and can only be removed if they are to be replaced.

## REPLACING THE SUSPENSION

- Replace mudguard into rear body and engage the two bolts from the left side, the longest at the rear.
- With a plain washer and a spring washer under the nut tighten.
- Tighten the two screws fixing the mudguard to the lower part (with a spring washer under each head).
- Replace the two screws on the luggage carrier ; for the single seat slot headed screws and washers ; for the dual seat model, hexagon headed bolts spring washers.

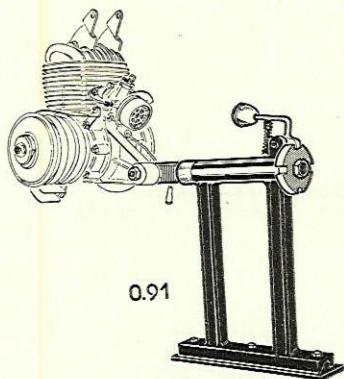


## REPLACING SWINGING ARM

- Engage the rear fork in the chassis.
- Place a serrated washer between the fork and the frame on the left and on the same side engage the suspension tube half way.
- On the righthand side between the frame and the fork place a second serrated washer and drive home the pivot tube.
- Turn the axle and engage from below the chassis the two pinch bolts (each with a spring washer) and tighten (14 mm spanner).
- Replace on the suspension tube a serrated washer, nut, a plain washer and a lock nut, tighten and tighten lock nut (32 mm spanner).
- Replace the suspension stays on the fork, the screws enter from the outside and each has a spring washer. Tighten (14 mm spanner).

# Engine

## mounting jig



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We illustrate opposite a robust and practical mounting jig usable for all moped engines.

The motor is fixed on an axis which may be rotated to four different positions, thus one can gain access to all parts of the motor.

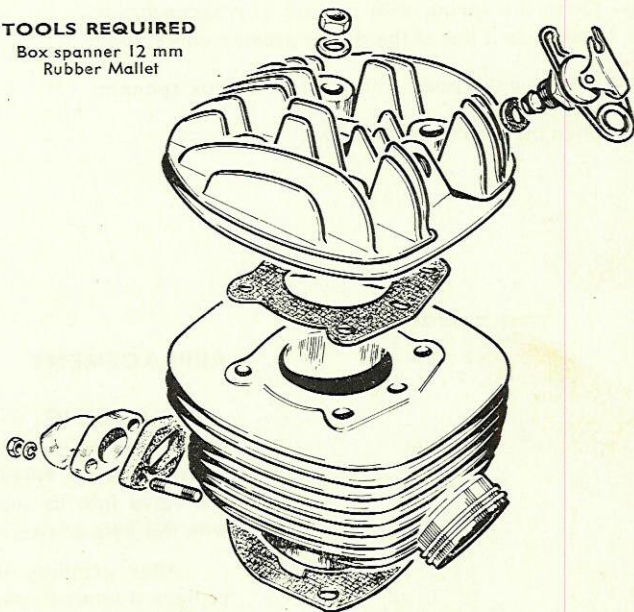
## Cylinder head

### REMOVAL

- 1) Unscrew the four head nuts, turning each a short way in turn in order to avoid distortion (12 mm box spanner). Remove the washers and the two brackets which mount the engine in the frame. Remove the cylinder head and gasket.
- 2) If the cylinder is stuck place the piston at bottom dead centre, and hit lightly with the rubber mallet on the induction stub and the exhaust port (never hit the fins as they break easily). Be careful of the gasket when removing the cylinder.

### TOOLS REQUIRED

Box spanner 12 mm  
Rubber Mallet



### REPLACEMENT OF CYLINDER

In order to make this task easier we advise you to make a wooden jig (A) as in diagram below.

- Replace the gasket dry.
- Replace the piston on the wooden jig described above.

**IMPORTANT.** — Make sure that the piston ring gaps are correct.

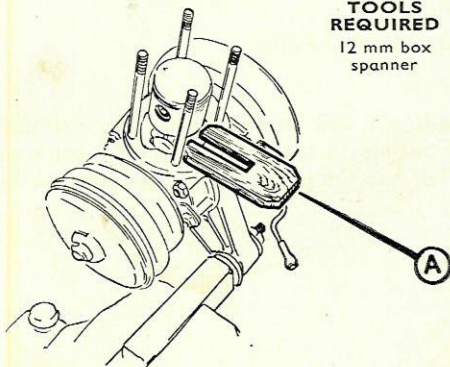
- Carefully engage the piston in the cylinder, the chamfer machined at the base of the cylinder will ensure the entry of the piston rings. Withdraw the wooden jig and lower the cylinder completely.

### REPLACEMENT OF THE CYLINDER HEAD

- Replace the cylinder head gasket making sure that it is in the correct position and that the hole for the decompressor is in line with the hole on the cylinder barrel.
- Replace cylinder head also being careful that it is in the correct position.
- Replace the engine mounting brackets pointing fore and aft, replace the spring washers and the nuts which should be screwed up in order and finally tightened carefully.
- Never over tighten the cylinder head nuts when the motor is warm.
- Make sure that the nuts are re-tightened after a short period of use.

### TOOLS REQUIRED

12 mm box  
spanner



# Decompressor

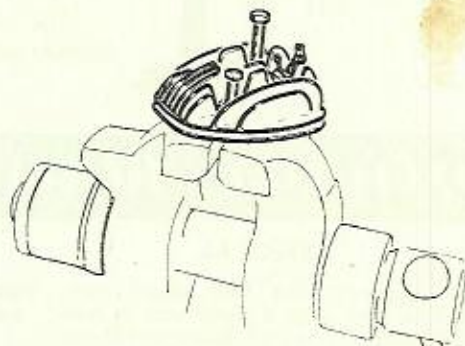
## REMOVAL OF THE VALVE

- Hold the cylinder head in a vice using two bolts.
- Cut the end of the split pin compress the spring and withdraw the split pin.
- Remove the valve.

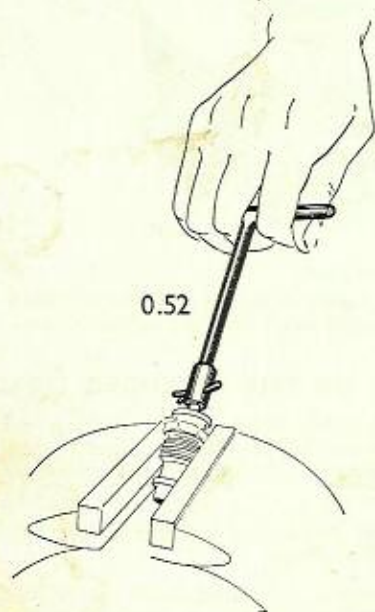
## REMOVAL OF THE DECOMPRESSOR VALVE BODY

- Hold the cylinder head as previously (See diagram).
- Open the spring with the aid of a screwdriver, and slide it out of the decompressor valve body.
- Unscrew the body with the 19 mm box spanner.
- Slide off the copper washer.

**TOOLS REQUIRED**  
Side cutters, screwdriver, 19 mm box spanner.



**TOOLS REQUIRED**  
Special tool 0.52  
19 mm box spanner



## REPLACEMENT

**WARNING.** — The seal of the valve is most important for the correct running of the engine. Carefully examine the seating and the valve before replacement. If necessary grind the valve into its seat with a little carborundum paste and with the help of special tool 0.52.

After grinding if the valve still fails to seat correctly replace it immediately.

- Do not forget the copper washer.
- Smear the thread of the body of the decompressor with jointing compound.
- Tighten the body of the decompressor into the head extremely well.
- Replace the valve into its seating.
- Replace the spring.
- Replace the split pin and carefully rivet the extremity (do not forget because if the split pin should come out the valve will fall into the cylinder, perhaps with serious consequences).

## DISMANTLING

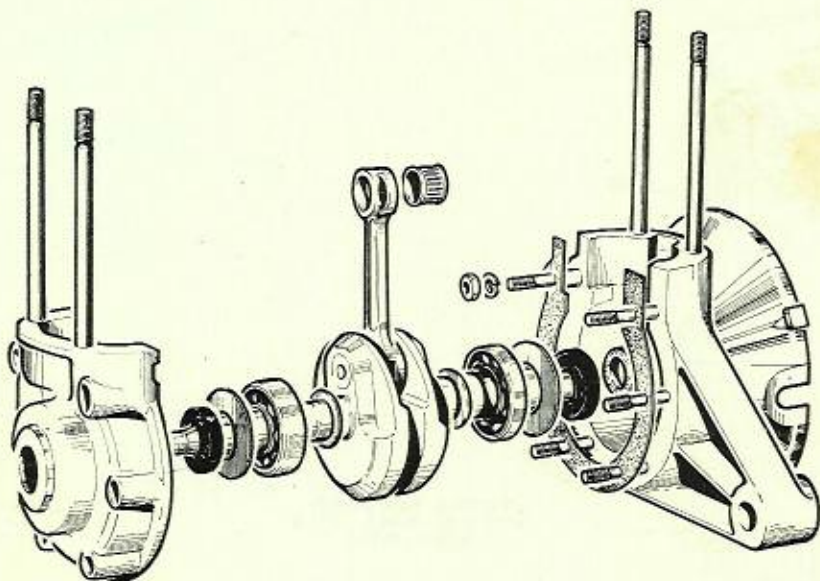
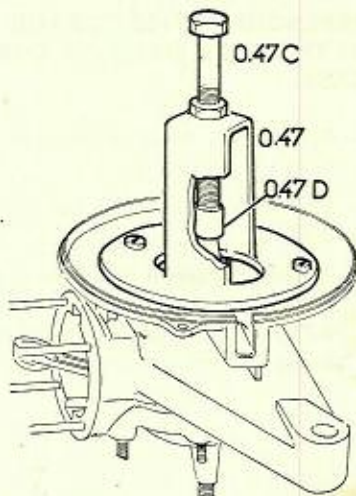
TOOLS REQUIRED  
10mm box spanner, special  
tool 0.47 - 0.47 F.

- Unscrew the nuts (10 mm box spanner) and thus uncouple the halves of the crank case.

### Righthand Crank case.

Fix tool 0.47 on to the bosses which support the flywheel magneto back plate with two screws H-15.

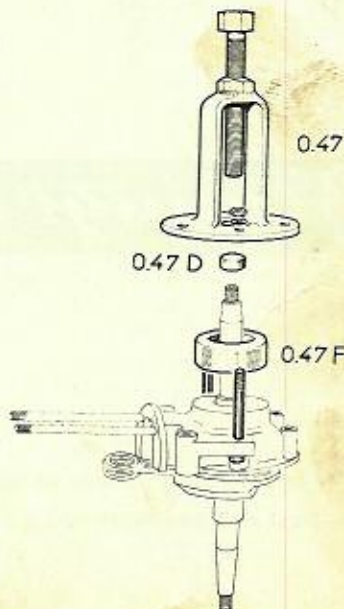
- Fit tool 0.47 D on the end of the main shaft.
- Turn extractor screw until crank case is removed completely from the shaft.



### Left-hand Crank case. - REMOVAL OF THE CRANK SHAFT

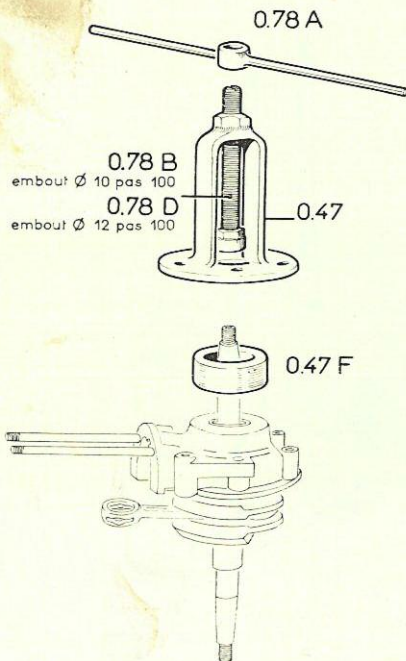
Special tool 0.47 is used in this case together with the distance piece 0.47 F placed between the crank case and the tool before bolting the latter on to the two crank case mounting bosses.

Screw the extractor until crank shaft is completely removed.



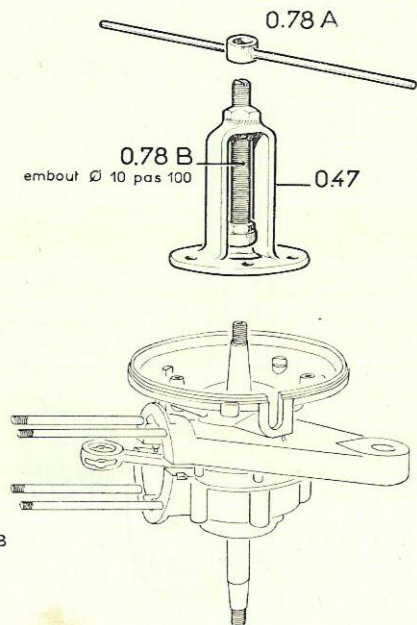
## REPLACING THE CRANK SHAFT IN THE LEFT HALF OF THE CRANK CASE.

- Replace the thrust washer on the crank shaft.
- Bolt on tool 0.47 with the distance piece 0.47 F.
- Tighten the screw 0.78 B or D on the end of the crank shaft and screw on the nut 0.78 A until the crank shaft is drawn fully home into the crank case.



## REPLACEMENT OF THE RIGHTHAND HALF OF THE CRANK CASE ON TO THE LEFTHAND HALF COMPLETE WITH CRANK SHAFT.

- Replace the thrust washer on the crank shaft.
- Bolt tool 0.47 on to the flywheel magneto stator bosses.
- Tighten screw 0.78 B on the end of the crank shaft and tighten screw 0.78 A until the crank shaft is drawn fully home into the crank case.



**TOOLS REQUIRED**  
Tccl : 0.47 - 0.78 A - 0.78 B  
0.78 D - 0.47 F

# Bearings and oil seals

## REMOVAL

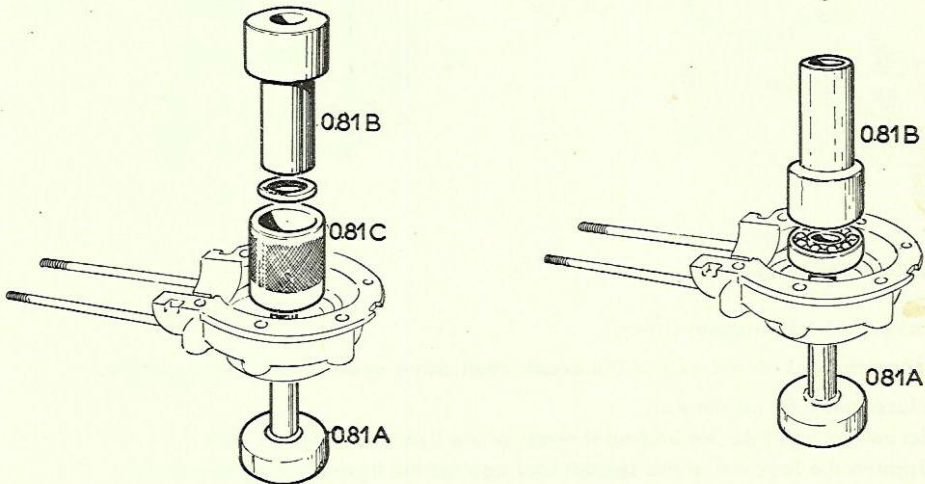
- Place the crank case on its face.
- Heat and then lightly tap the crank case until the bearing falls from it.



## REPLACEMENT OF THE BEARING AND THE OIL SEAL IN THE LEFT CRANK CASE

- Heat the crank case to 80 or 90 degrees centigrade.
- Place the crank case on guide 0.81 A.
- Now enter the oil seal guide 0.81 C into the bearing housing (with the knurled side away from the crank case).
- The seal may now be replaced through the guide using tool 0.81 B (the smaller diameter) remember the spring side of the seal should be towards the inside of the crank case.
- Withdraw the special tool used.
- Replace the washer.
- The bearing is now replaced using the guide 0.81 A and the special tool 0.81 B (in this case use the larger diameter).

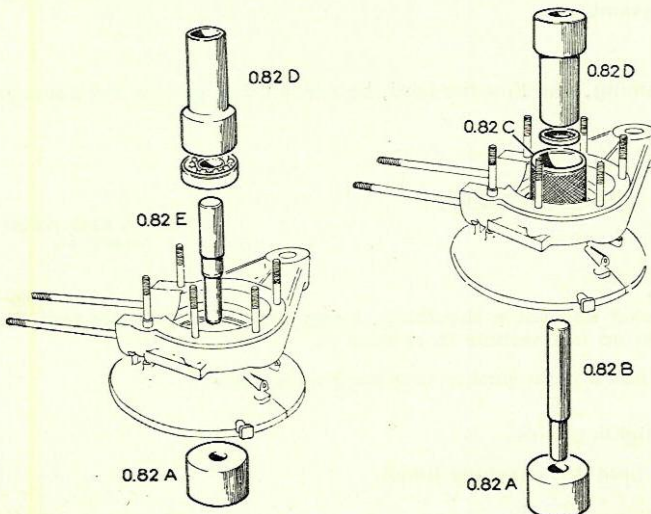
**TOOLS REQUIRED**  
Tool : 0.81 A - 0.81 B - 0.81 C



## REPLACEMENT OF THE BEARING AND THE OIL SEAL IN THE RIGHTHAND CRANK CASE

- Heat the crank case to 80 or 90 degrees centigrade, screw the guide 0.82 B into the foot 0.82 A.
- Place the crank case half on the tool with crank case side upwards.
- Replace the felt in the crank case.
- Put the oil seal guide 0.82 C into the bearing housing with the knurled side away from the crank case.

**TOOLS REQUIRED**  
Tool : 0.82 A - 0.82 B - 0.82 C - 0.82 D - 0.82 E.



- Enter the oil seal on guide 0.82 B the spring upwards push home the seal with tool 0.82 B using the smaller diameter.

- Remove the special tools 0.82 D and 0.82 C.

- Without lifting the crank case from the foot 0.82 A unscrew upwards the guide 0.82 B and slide in its place - Guide 0.82 E.

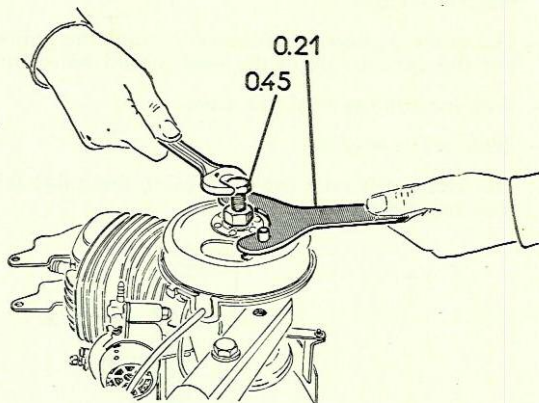
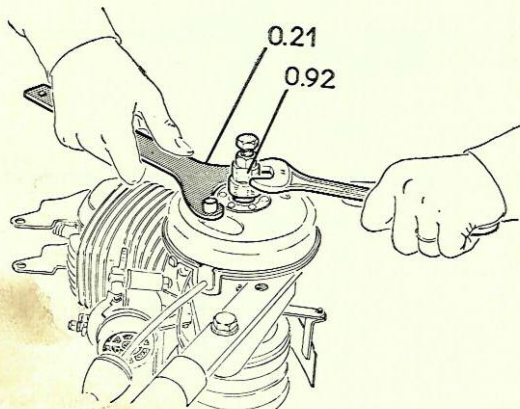
- Replace in the crank case the bearing thrust washer.

- Engage the bearing on guide 0.82 E and push home using 0.82 D (the larger diameter).

# flywheel magneto

## DISMANTLING

**TOOLS REQUIRED**  
0.21 - 0.45 - Screwdriver - 0.92 - Open  
ended spanner 17 - 18 mm.



### Removal of flywheel

- Remove flywheel magneto cover.
- Unscrew the nut on the end of the crank shaft using special tool 0.92 as follows :
  - Place tool 0.92 on the nut.
  - Screw the bolt into the unused threads of the flywheel magneto nut.
  - Tighten the lock nut of the special tool against the flywheel magneto nut.
  - With an 18 mm spanner on the body of tool 0.92 unscrew the screw while holding the flywheel with tool 0.21.
- Unscrew but do not withdraw the extractor screw from extractor 0.45 then tighten the extractor into the flywheel.
- Again hold the flywheel with tool 0.21 and tighten the screw of the extractor until the flywheel is removed (17 mm spanner).

### Removal of back plate

- Unscrew the two cheese headed screws (screwdriver) ; do not confuse with those screws which hold in place the contact breaker assembly.
- Pull away the back plate.
- Draw inward the lighting lead sheathing, and thus the lead, be careful that you do not damage the connector.

## REPLACEMENT

**TOOLS REQUIRED**  
Screwdriver

- Replace the back plate on the crank case.
- Carefully replace the rubber grommet and cable sheathing, being careful it does not foul the flywheel. If it is in anyway damaged do not hesitate to replace it.
- Tighten the two fixing screws, each has a plain washer and a spring washer.

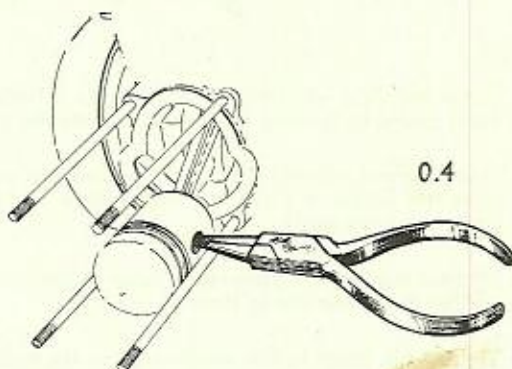
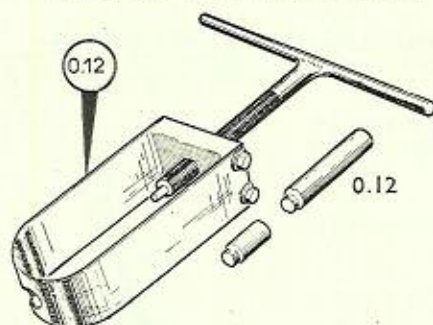
**WARNING.** — Do not pinch the lighting wire.

- Replace the flywheel, do not tighten until it is carefully timed.

# Piston

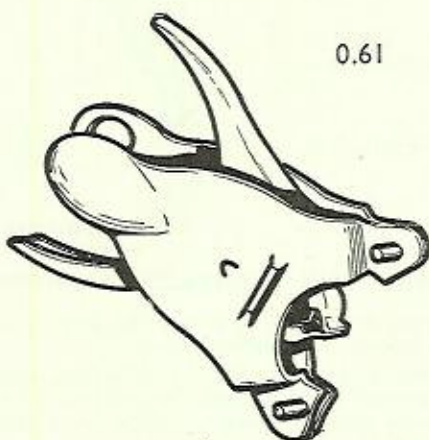
## REMOVAL

- 1) Remove the two circlips with the special pliers 0.4.
- 2) Press out the gudgeon pin using tool 0.12. Be careful of the needle rollers.



## REPLACEMENT

**TOOLS REQUIRED**  
Centring tool 0.93 - Extractor 0.12 - pliers 0.4.



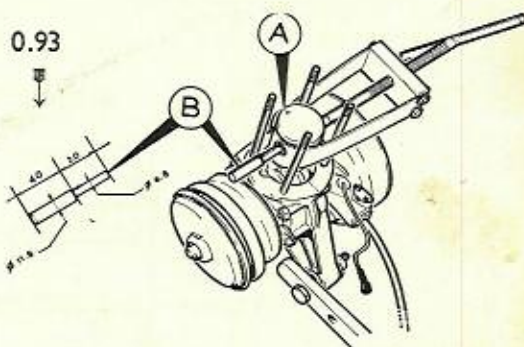
- Before replacing the piston rings it is necessary to clean carefully the piston ring grooves. For this you may use a broken piece of piston ring. Also check that the gap of the piston rings does not exceed  $3/10$ th of a mm maximum, for this put the piston rings squarely into the barrel and measure the gap with a feeler gauge.
- Clean if necessary the circlip grooves in the gudgeon pin bosses.
- Engage the gudgeon pin into the piston and push in until it is level with the inside of the boss.
- Dip the needle roller cage in thin oil then place in small end.

- Replace the piston on the small end letter A towards the front of the motor (towards the exhaust port). Now using the special centring tool 0.93 to make sure that the needles are in line partially enter the gudgeon pin.

## IMPORTANT

The special centring tool 0.93 (B) is absolutely necessary to carry out this operation correctly.

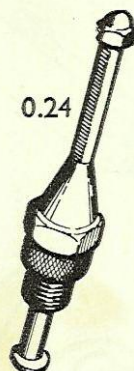
- Using tool 0.12 together with end piece 11 mm diameter and 62 mm long screw the gudgeon pin approximately  $3/4$  of the way home.
- Then remove centring piece 0.93 and replace circlip.
- Push home the gudgeon pin until it butts against the first circlip.
- Remove tool 0.12 and replace the second circlip.
- Make sure that the circlips are properly seated in their grooves.



# Ignition timing

- Screw tool 0.24 into the plug hole in the cylinder head and find top dead centre by turning the flywheel ; note the position on the scale.
- Slowly turn the flywheel once in the direction of running in order to raise the piston to 2 1/2 to 3 mm before top dead centre. Hold it there using the scale.
- Without moving the piston turn rotor in order that the arrows on it and on the stator are in line.
- Tighten the rotor in this position using the tools 0.21 and 0.92.

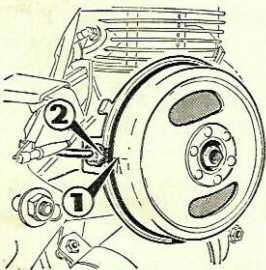
**TOOLS REQUIRED**  
Box spanner 14 mm - Dummy plug number 0.24 - Tool 0.40.



## WARNING :

In order to tighten the rotor using tool 0.92 take the following precaution :

- Screw to the end the bolt then unscrew a half turn before screwing on the lock nut.



- 1-SLACKEN THE SCREW B
- 2-INSERT A SCREWDRIVER BETWEEN THE NOTCHES R AND ADJUST
- 3-RETIGHTEN THE SCREW B

**TOOLS REQUIRED**  
Screwdriver

## ADJUSTING THE CONTACT BREAKER

Align the arrows on the flywheel and back plate and loosen the contact breaker.

With the screwdriver in the adjusting slots adjust the contact breaker until the points are just opening in this position. Then retighten the contact breaker screw.

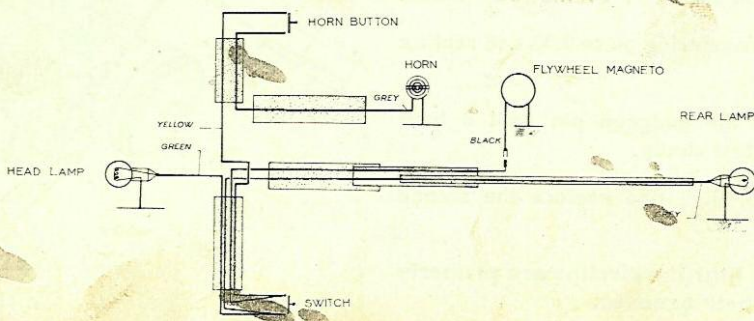
**VERY IMPORTANT.** — When the ignition timing is correct the maximum gap of contacts will be approximately 4/10ths of a mm (.016").

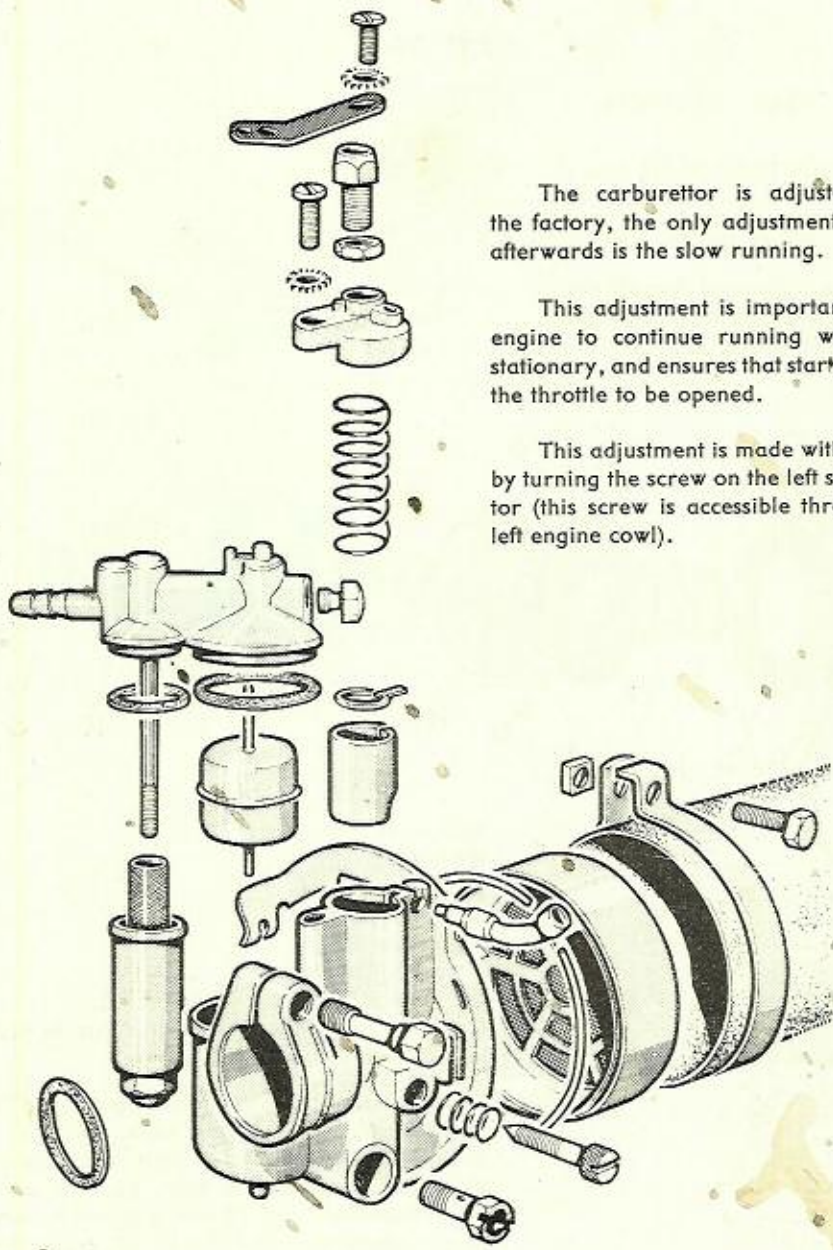
This gap may safely be between 3/10th and 5/10th of a mm (.012" - .020").

Do not simply set the ignition gap to a predetermined gap, but remember good running of the flywheel magneto depends on the points opening at precisely the moment of maximum magnetic flux change indicated by the alignment of the arrows on the flywheel and the back plate.

We recommend for setting the ignition timing you use the « Precip-Point » sold by our spare parts organisation under the number 0.98.

## WIRING DIAGRAM





The carburettor is adjusted before leaving the factory, the only adjustment that can be made afterwards is the slow running.

This adjustment is important as it enables the engine to continue running when the vehicle is stationary, and ensures that starting merely requires the throttle to be opened.

This adjustment is made with the engine warm, by turning the screw on the left side of the carburettor (this screw is accessible through a hole in the left engine cowl).

## ADJUSTMENT

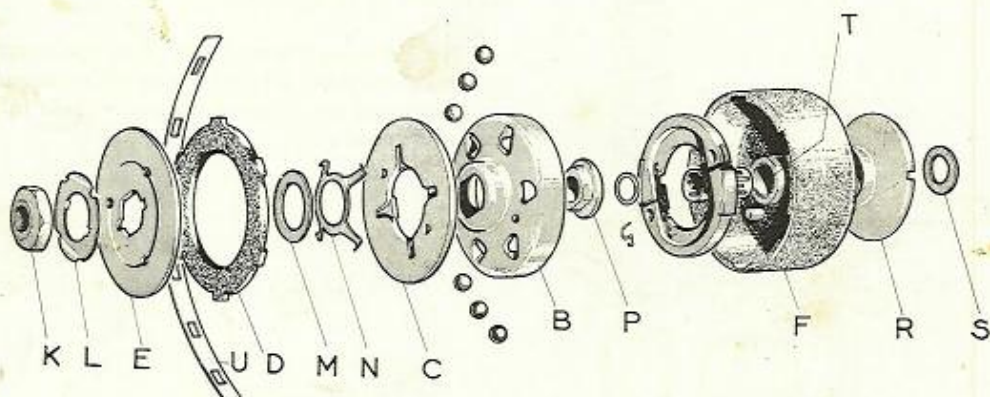
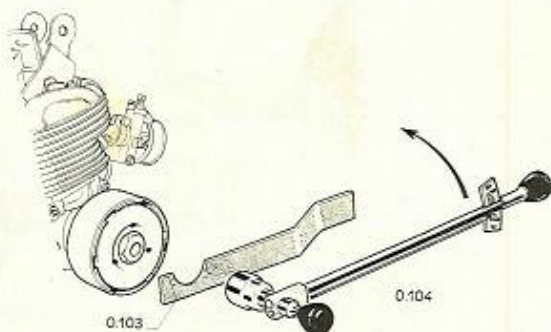
- Completely close the throttle control.
- Screw home the adjusting screw.
- Slowly unscrew until the engine is running as slowly as possible with the rear wheel locked with the brake.
- When the engine is running sufficiently slowly, sit astride the machine with the wheels on the ground, the engine should not stall and at the same time you should have no difficulty in holding the machine back, although there should be a slight tendency to start.

To dismantle the air filter loosen and slide back the clip, and pull the air hose off the carburettor. On replacement make sure that the end of the hose is firmly against the carburettor.

# The automatic multi-plate clutch

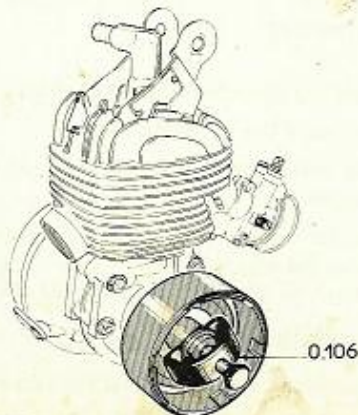
## DISMANTLING THE CLUTCH

- Remove the grease nipple at the end of the shaft.
- Bend back the tab of the tab washer.
- Unscrew the nut (righthand thread) with a box spanner while holding the outer plate with a special tool 0.103.



- Remove in this order :  
the nut (K).  
the lock washer (L).  
the outer plate (E).  
the washer (M).  
the spring (N).  
the clutch disc (D) and its circlip (U).  
Mark the outer face of the clutch disc in order to replace it the same way round.
- Remove complete, the clutch flange (C) the ball thrust drum (B) and the balls.  
In order to keep this assembly in one piece and in order not to lose the balls, use two screws 4 mm diameter  $\times$  70, 15 mm length in the holes (5 mm diameter) of the flange (C), screw them into the drum (B).

- Extract the driving spline (P) from the crankshaft.  
To carry this out use the puller 0.106.  
In the case of a machine not equipped with variator, remove the complete outer drum assembly (F) taking care to retain the needle cage, in order that these latter do not get lost.

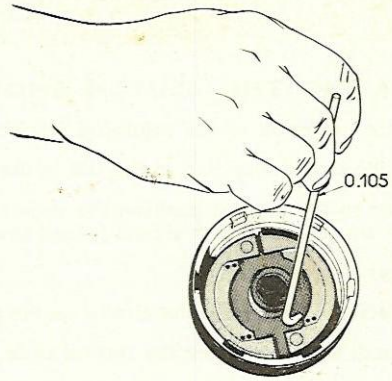


## REMOVING THE CLUTCH SHOES

The whole assembly should be stood with the drum facing downwards.

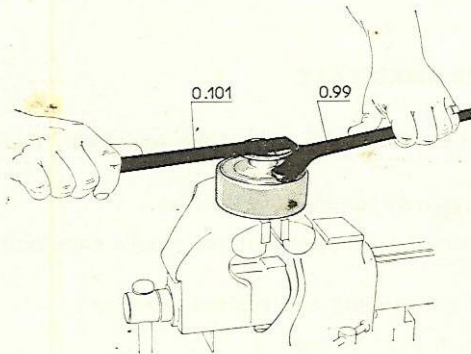
- Remove using pliers the shoe springs, noticing carefully how they are hooked on. Mark the position of the shoes (outer faces) before removing the first shoe. Lever the shoes upwards close to the pivots, if necessary using special lever O. 105.

Repeat this operation for the second shoe.



## REMOVAL OF THE SMALL OUTER FLANGE (R) AND THUS OF THE PULLEY HUB (T) (For models not fitted with variator)

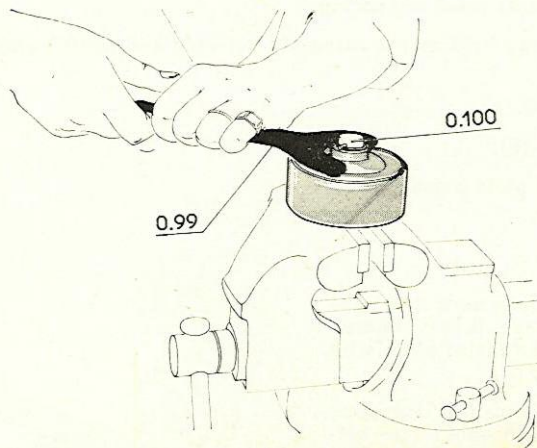
- Lift out the needle cage and the armoured seal which are mounted in the pulley hub. In order to slide the pulley off its hub, use the tool 0.100. Position the pins in the corresponding depressions of the hub. Hold in a vice by the other end of the tool.



- Holding the tool 0.99 in the hand insert the 5 mm pegs in the holes in the outer drum (F). Hold the tool in this position.

- Take the tool 0.101 in the other hand, hook on to the edge of the small outer flange while engaging the pegs in the corresponding holes. Unscrew this flange turning clockwise (L.H. thread).

- Unscrew again, always in the same direction as the outer drum.



## RE-ASSEMBLY

### REPLACING THE CLUTCH SHOES ON THE OUTER DRUM

- Place the hook of the retaining ring from underneath into the longer hole in the shoe.
- Position retaining ring in the slot in the shoe.
- Turn to the correct position the shoe so that the marks made while dismantling are in line, it will be obvious which side is turned inwards.
- Press on vertically.
- Check the seating of the circlip on the pivots and the free pivoting of the shoe.
- Repeat the process for the second shoe.
- Replace springs in the positions which were marked on dismantling.
- Check that it functions satisfactorily.

### REPLACEMENT OF THE SMALL FLANGE (R) AND THUS OF THE PULLEY HUB

This is opposite to dismantling and requires tools 0.99 - 0.100 and 0.101.

**WARNING.** — Tighten the pulley hub and the flange by turning anti-clockwise (lefthand thread).

### MOUNTING THE ASSEMBLY ON THE CRANKSHAFT

Check :

- That the thrust washer (S) is in place (thickness 2 mm for the model without the variator, 1 mm for the model with variator).
- Grease the thrust face on the back of the pulley hub, grease towards the bearing.
- The outer drum assembly (or variator and drum assembly) complete with the needle cage and nylon seal in their place on the crankshaft.
- Carefully clean with pure petrol the male taper of the crankshaft and replace in order :
  - The spline of the drum (P), the interior cone which must be perfectly clean and free from grease.
  - The drum thrust plate (B).
  - The balls 12 mm diameter very lightly greased with lithium or graphite grease (Belleville grease). The use of any other grease is prohibited for this particular purpose.
  - Clutch flange (C).
  - Clutch disc (D) and its retaining spring.
- Withdraw the two screws holding the assembly together and continue to replace the spring (N).

Previously assembled  
by the use of 2 screws  
4 mm diameter  
70 thread  
length 15 mm

The spacer washer (M).

The outer thrust plate (E).

And against the thrust plate place :

The lock washer (L).

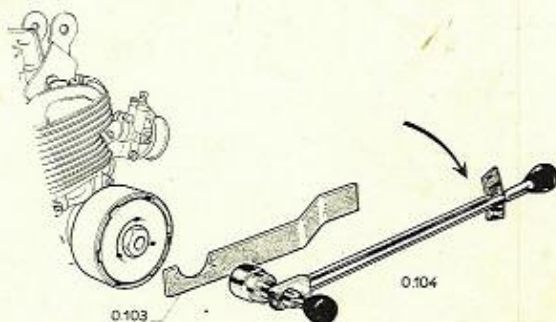
Nut (K).

Tighten the nut and make sure it is tightened with torque spanner 0.104, tighten to 3 mkg while holding the thrust plate with the special spanner 0.103.

Check the end float of the complete assembly on its shaft which should be between 4/10ths and 6/10ths of mm.

Turn up the tab of the locking washer.

Replace the grease nipple, lightly grease with B.P. Energrease L.2. multi-purpose.





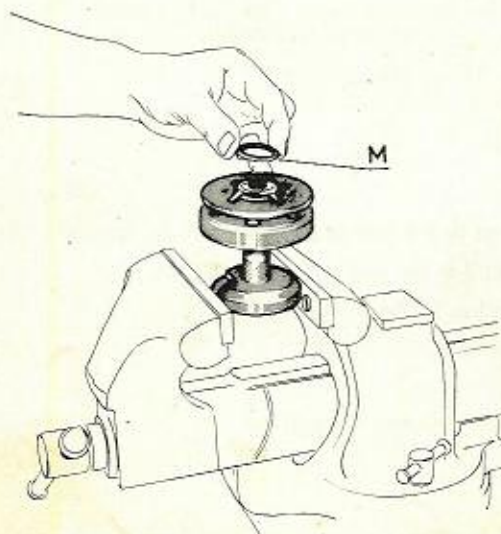
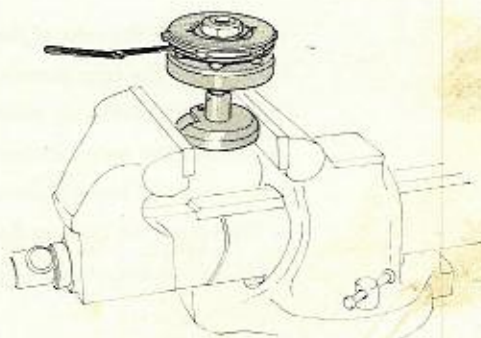
## ADJUSTMENT OF THE AUTOMATIC MULTI-PLATE CLUTCH

Should the clutch cease to work correctly, after having checked that the bakelite drum is free on the crankshaft (end float in the region of  $4/10$ ths -  $6/10$ ths of a mm), it is necessary to check also the running end float between the clutch disc (D) and the clutch flange (C).

To measure this proceed as follows :

— On a shaft gripped vertically between the jaws of a vice (for this use a clutch side main shaft), and in this order place on the following :

- The spline of the drum (P).
- The drum thrust plate (B).
- Six balls.
- Clutch flange (C).
- Clutch disc (D).
- Spring (N).
- The distance piece (M).
- The outer thrust plate (E).
- The tab washer (L).
- Nut (K).

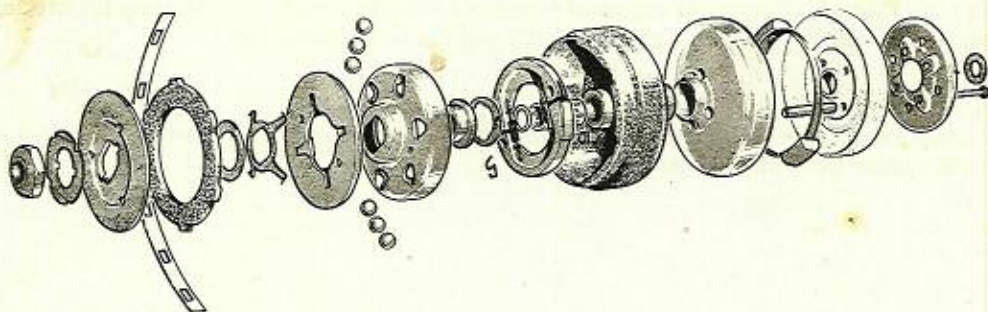


Check that the assembly is tightened with the torque spanner 0.104 to a torque of 3 mkg.

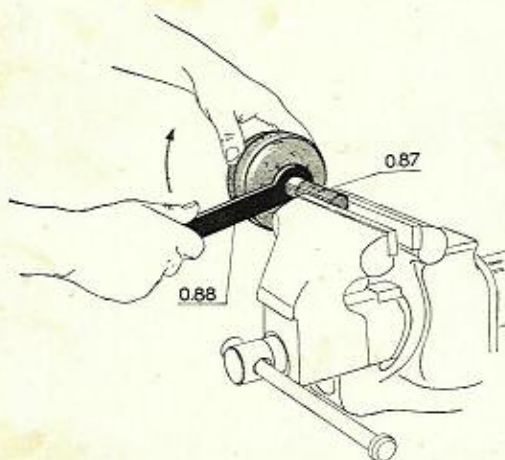
With a feeler gauge check the running play between the clutch (D) and the clutch flange (C) which should be between  $5/10$ th and  $7/10$ th of a mm.

If this play does not exist, replace the distance piece (M) with another one with a satisfactory thickness. (This washer can be supplied in the following thicknesses : 1.2, 1.4, 1.6 and 1.8 mm respectively numbers 4201 A, B, C and D.

## DISMANTLING THE VARIATOR



- Turn back the tabs of the lock washers of the four fixing screws.
- Unscrew the four screws (8 mm spanner) and withdraw.
- Lift off the stiffening plate.
- Remove the nylon deflector plate.
- Remove the four columns.
- Withdraw the moving flange.
- Withdraw the needle cage.



## DISMANTLING THE PULLEY HUB

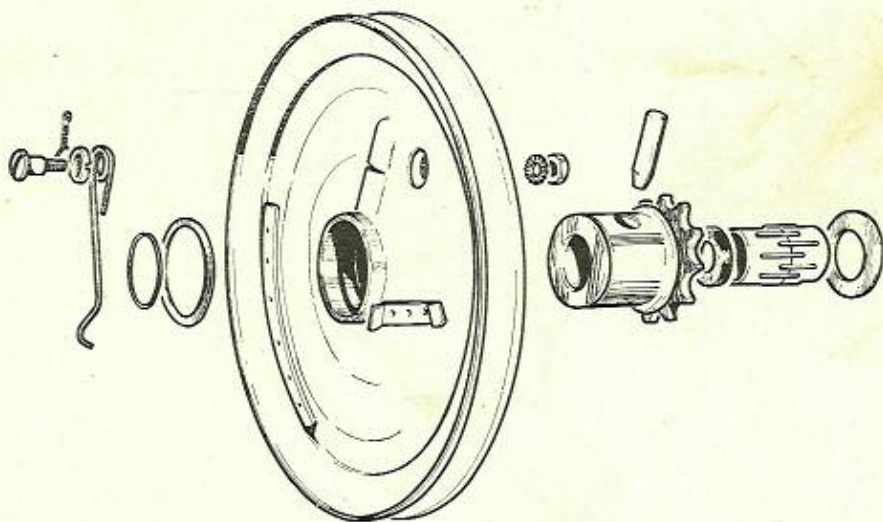
- Engage the hub on the tool C. 87 previously fixed in a vice.
- Engage the peg spanner 0.88 in the unthreaded holes of the plate.
- Place the pin in the greasing hole.
- Unscrew with the peg spanner 0.88 clockwise (L.H. thread).

## REPLACEMENT OF THE VARIATOR

- Screw the outer drum holding the starting clutch on to the hub of the pulley (L.H. thread).
- Tighten with the aid of tool 0.87 spindle and pin, and of the peg spanner 0.88.
- Grease and replace the needle cages in their housing in the following order :
  - Nylon seal.
  - The needle cages previously assembled.
  - Removing flange.
  - The balls (be careful of the shape of the side of the moving flange).
  - The short pillars.
  - Nylon deflector plate.
  - Stiffening plate.
- Replace the screws tighten and turnup tabs of locking washer (if the locking washers are damaged, do not hesitate to replace the stiffening plate).

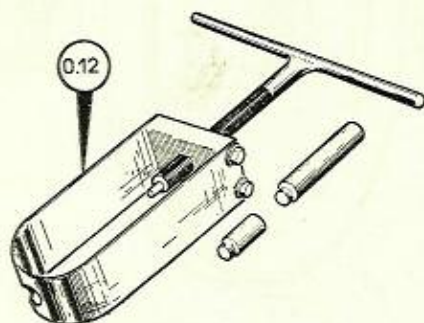
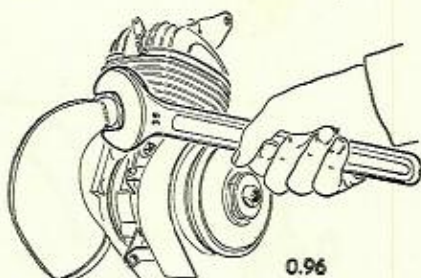
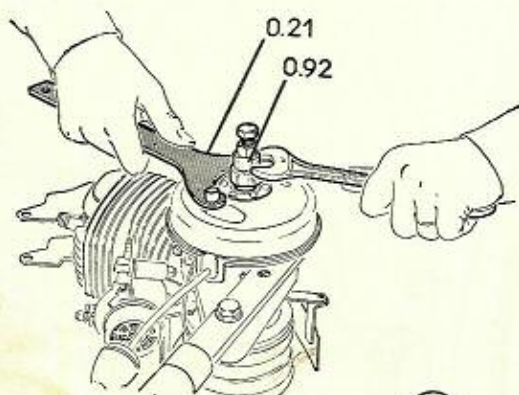
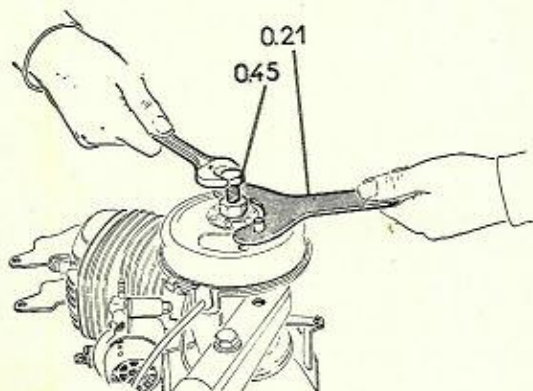
## REMOVAL OF DRIVING SPROCKET

- Remove the driven pulley (See Page 10).
- Remove clip and washer.
- Remove sprocket.
- Remove felt (being careful of the needle cages which can be pulled apart).
- Remove washer.

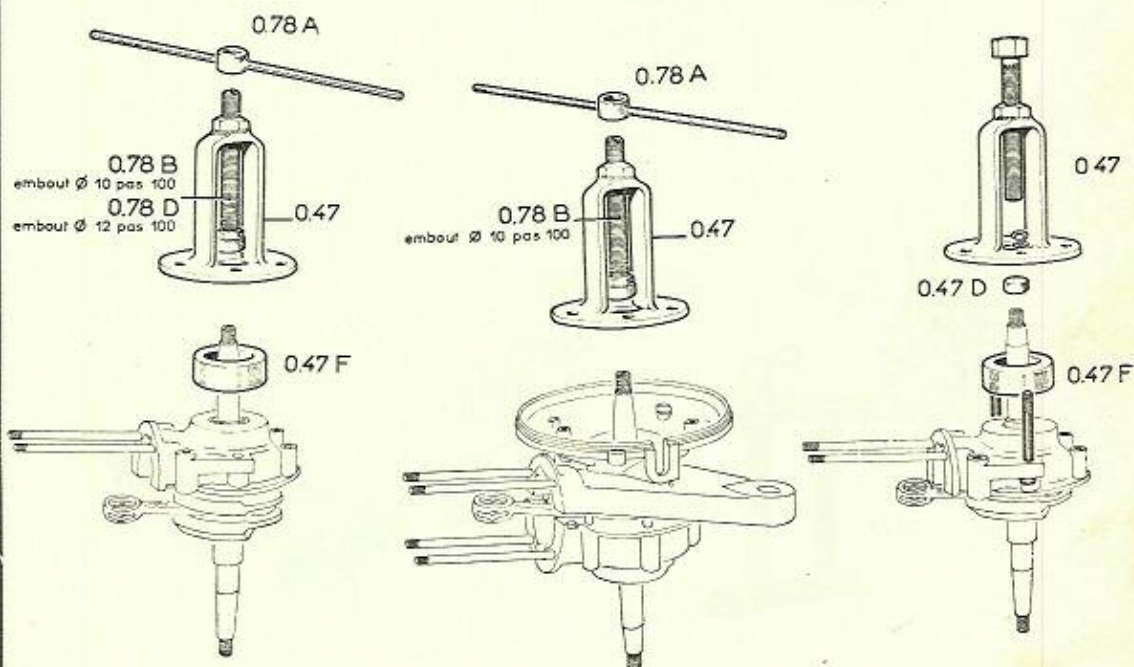
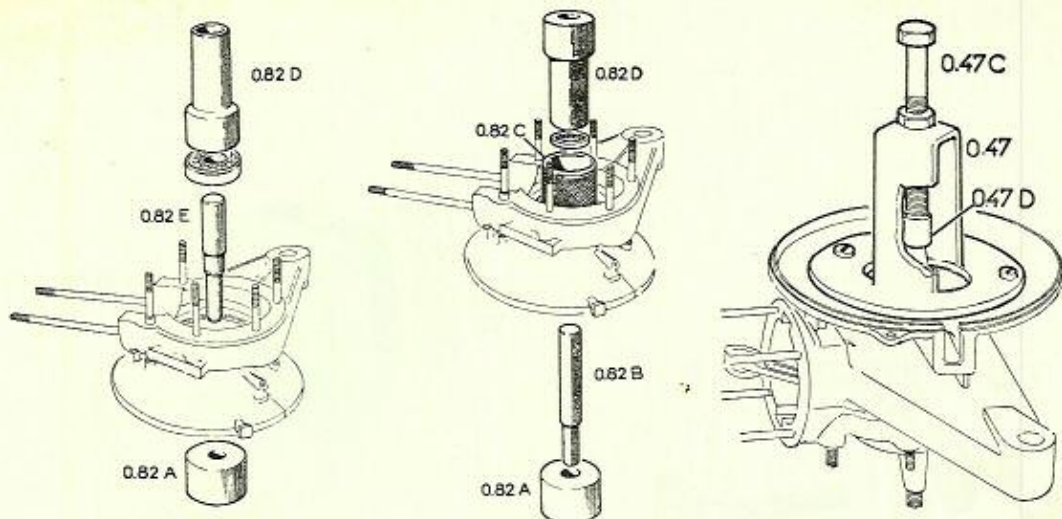


## REPLACEMENT

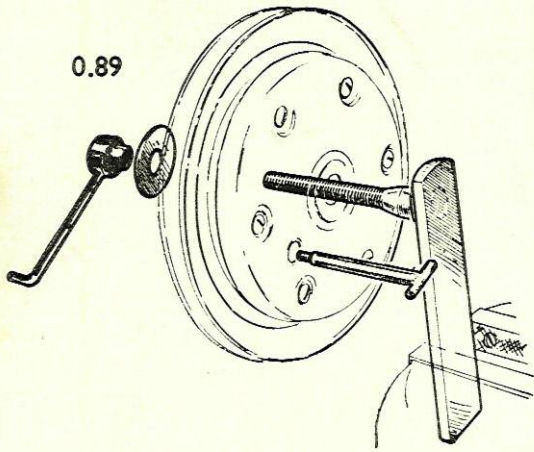
Assemble in the opposite order of dismantling, take the precaution of greasing the two needle roller cages.



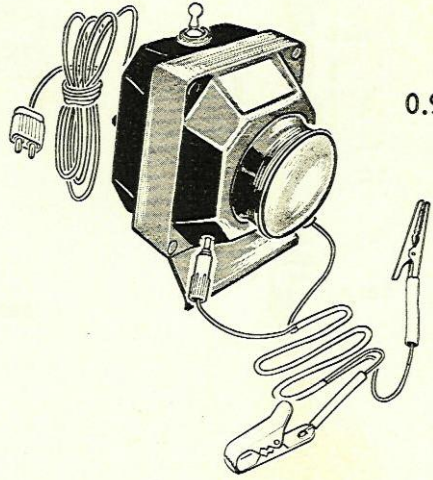
- |      |                                  |
|------|----------------------------------|
| 0.21 | Flywheel holding spanner.        |
| 0.92 | Tool for loosening flywheel nut. |
| 0.45 | Flywheel puller.                 |
| 0.12 | Gudgeon pin extractor.           |
| 0.96 | Open ended spanner 35 mm.        |
| 0.24 | Dummy plug.                      |



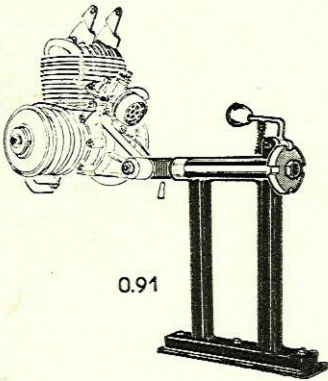
- |        |  |
|--------|--|
| 0.78 A | Nut with tommy bar.  |
| 0.78 B | Bolt for drawing crank shaft into crank case 10 mm diameter 100 mm length. |
| 0.78 D | Bolt for drawing crank shaft into crank case 12 mm diameter 100 mm length. |
| 0.47   | Tool for extracting and replacing crank shaft.                             |
| 0.47 F | Distance piece.  |
| 0.47 D | End Piece.   |
| 0.82 A | Foot.  |
| 0.82 B | Guide  |
| 0.82 C | Oil Seal Guide   |
| 0.82 D | Dolly.   |
| 0.82 E | Guide.   |
- } All of these for mounting oil seals and bearings in the righthand crank case.



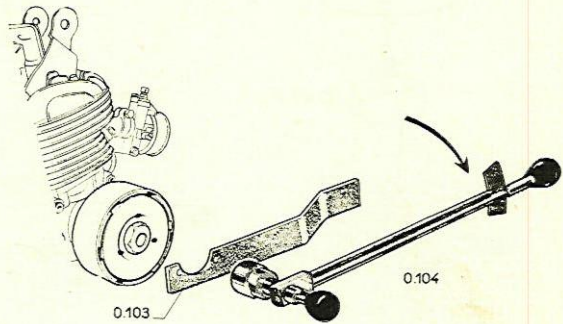
0.89



0.98



0.91



0.103

0.104

0.98

“Precis Point” - Timing device.

0.91

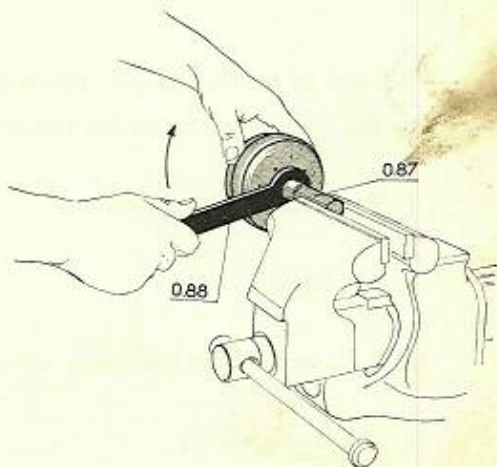
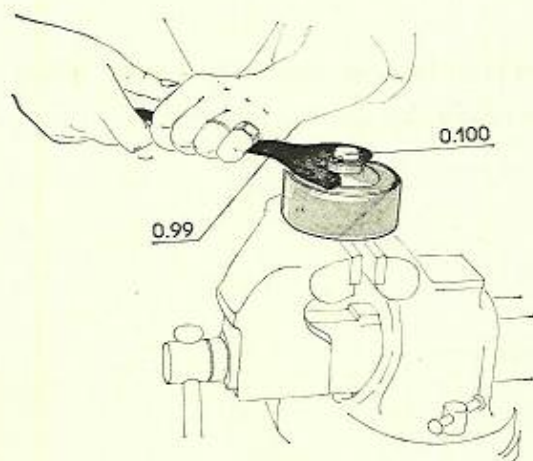
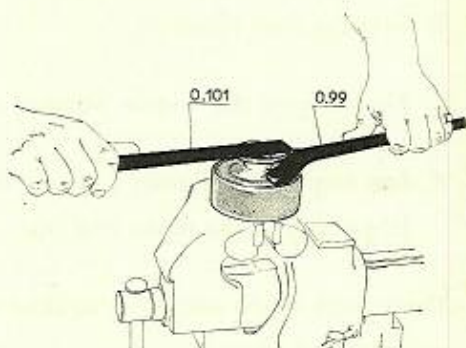
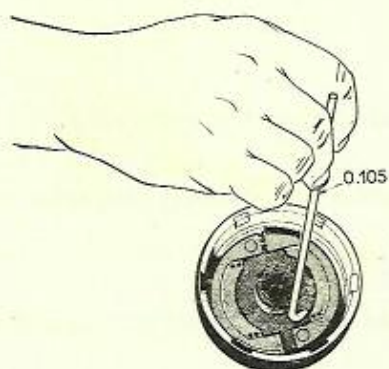
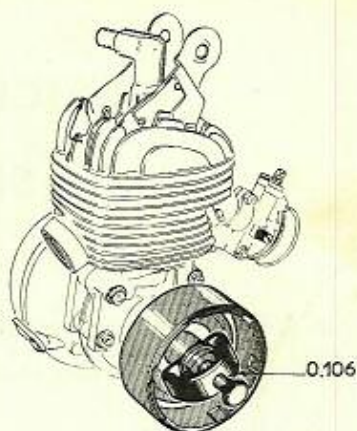
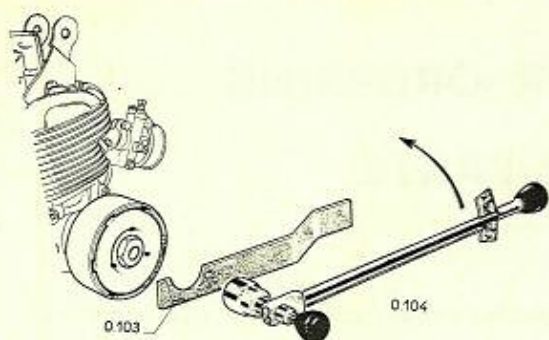
Engine mounting jig.

0.89

Complete tool for assembly and dismantling of the variable driven pulley.

0.104

Torque spanner.



- |       |   |
|-------|---|
| 0.103 | Thrust plate locking spanner.           |
| 0.106 | Clutch spline extractor.                |
| 0.105 | Clutch shoe extractor.                  |
| 0.100 | Pulley hub locking tool.                |
| 0.99  | Peg spanner for large flange.           |
| 0.101 | Peg spanner for small flange.           |
| 0.87  | Pulley hub locking tool (for variator). |
| 0.88  | Peg spanner.                            |

## ADVICE FOR ORDERING SPARE PARTS

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— In order that your orders shall be executed rapidly and without risk of mistake, it is necessary that they should be sent in a clear and precise manner.

1. Only use our standard order forms.
2. Give the Part Number.
3. Always give the engine number even when ordering cycle parts.
4. For engine accessories such as carburettors and flywheel magnetos do not forget to give the make and type.

— These facts would enable us to send modified or replacement parts about which you may not know.

— **Return of parts** : Every returned part must be accompanied by a letter telling us the type of part and the reason for return, we can receive parts :

1. For guarantee application.
2. For repair.
3. As a pattern for replacing with similar parts.
4. Which do not fit.

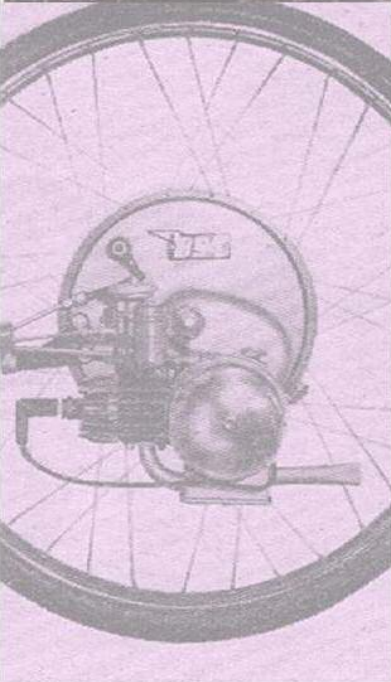
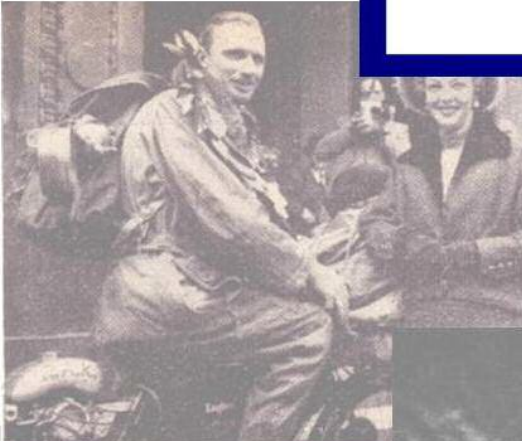
— Credit cannot be passed unless both numbers of the invoice are quoted.

— **Service Exchange** : Avoid immobilising your customers machine by obtaining from us a service exchange motor in advance. In order to do this let us know the engine number of the engine to be replaced.

— On receipt of the new motor return to us the used motor.



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