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MAIN TECHNICAL DATA

- 2 stroke engine with flap valve and pre-compression in the crankcase
- Bore and stroke : 40 x 39 mm
- Cubic capacity : 49 cc
- Compression ratio : 8,4 to 1
- Ignition advance : 1,5 mm
- Primary transmission : V belt with automatic tightening
- Fuel consumption : from 2,3 to 2,6 liters per 100 km
(90 - 100 MPG on open road)
- Tank capacity : 3,7 liters (1,05 gal.)
- Driving pulley : automatic plate clutch
variable speed transmission unit (Patent Cycles Peugeot)
- Spark plug : for normal use in town - Champion L89A, AC 430 Z - Marchal 35-36D
on open road - Marchal 35
on long trips or mountain roads - Marchal 34 S

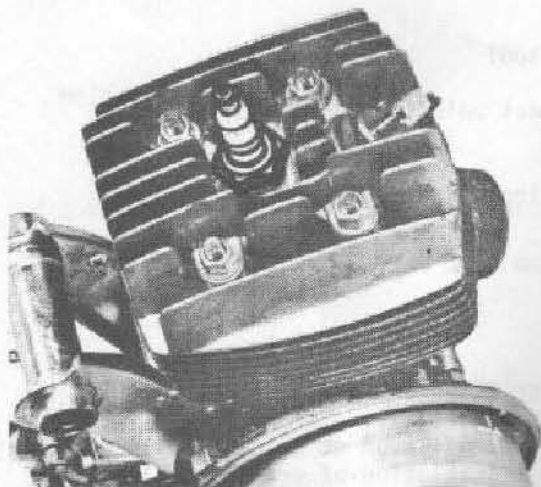
TOOLS REQUIRED

No	DESCRIPTION
68048	Decompressor pin rivetting tool
68049	1,5 mm feeler gauge
68457	Test light for setting contact points and continuity of wires (PEUGEOTEST)
68460	Clutch drum holding strap
68467	Tool for mounting and removing wrist pin
69079	10 mm socket
69083	16 mm socket
69084	17 mm socket
69085	21 mm socket
69092	Snap ring pliers
69097	Crankshaft extractor
69098	Crankshaft end protector (for the crankshaft extractor 69097)
69104	Torque handle for extended nut (installing crankshaft)
69105	Extended nut attachment for installation of crankshaft 10mmX100
69106	Extended nut attachment for installation of crankshaft 11mmX100
69108	L.H. crankcase guide
69109	L.H. crankcase drift
69110	L.H. crankcase seal ring guide sleeve
69111	R.H. crankcase base
69112	R.H. crankcase guide for the oil seal
69113	R.H. crankcase guide sleeve
69114	R.H. crankcase drift
69115	R.H. crankcase guide for the bearing
69137	Lever spacer for *R and R the crankshaft at the proper angle
69140	Cutaway clutch drum for testing lining clearance
69141	Clutch assembling stand for testing lining clearance
69142	Knurled nut for holding clutch assembly in place while removing the pulley assembly
69143	Tapered sleeve for resetting the crankshaft into the clutch side of the crankcase without damaging the seal
69145	Special grease for clutch balls
69151	Base for holding oil seal sleeve - 69110 in place while replacing oil seal on clutch side from outside of crankcase
69153	32 mm socket
69158	Gas tank sealant (to repair small leaks - 103)
69254	Flywheel magneto extractor
69255	Bench mounted engine support
69256	Wrist pin centering tool for installation of pin
69258	Ignition advance timing tool
69259	Driving pulley holding tool for *R and R the variator holding nut
69260	Engine support spring compressor rod
69646	Rotor holding wrench for *R and R flywheel magneto
69802	Torque wrench with reducer and lengthener

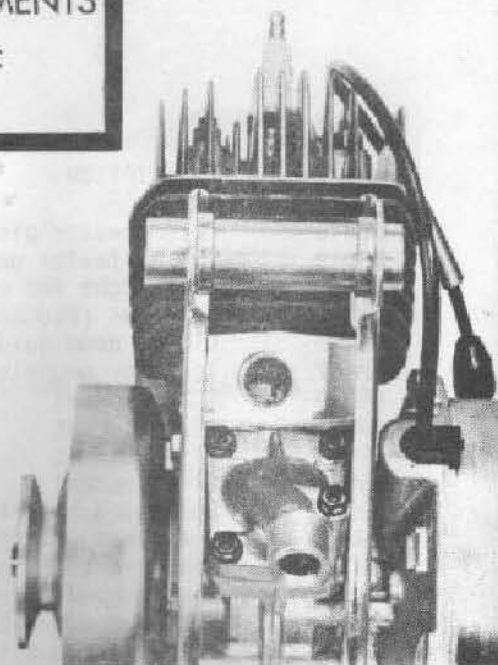
* R and R means remove and replace

TORQUE SPECIFICATIONS & METRIC ADJUSTMENTS

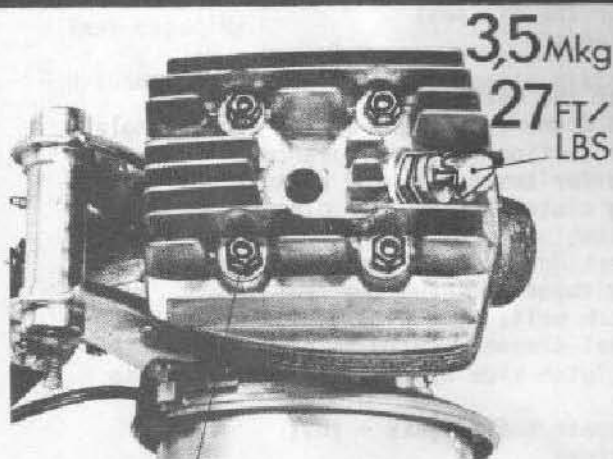
(Nuts which must be tightened to a specific torque are outlined in black.)



2,5 Mkg 18 FT/LBS



0,45 Mkg 4 FT/LBS



1,1 Mkg 8 FT/LBS

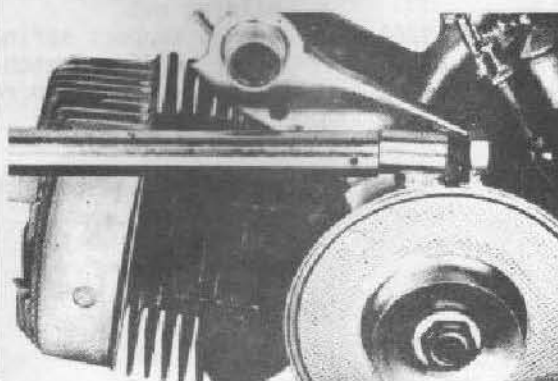
**3,5 Mkg
27 FT/LBS**



2,5 Mkg 18 FT/LBS

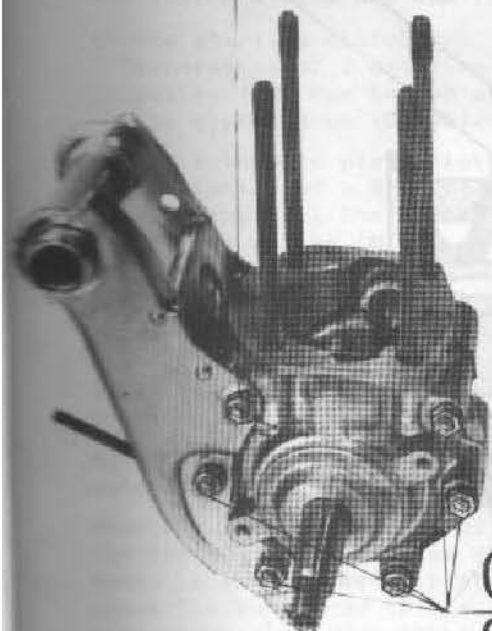
IGNITION ADVANCE

1,5 m/m

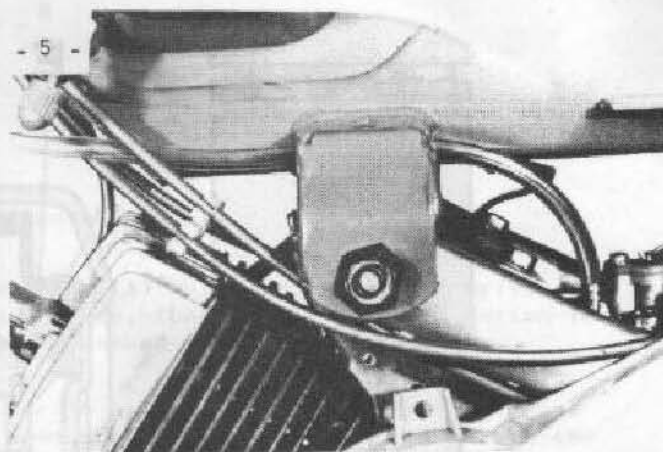


4 à 4,5 Mkg 30.34 FT/LBS

1,2 Mkg
9 FT/LBS



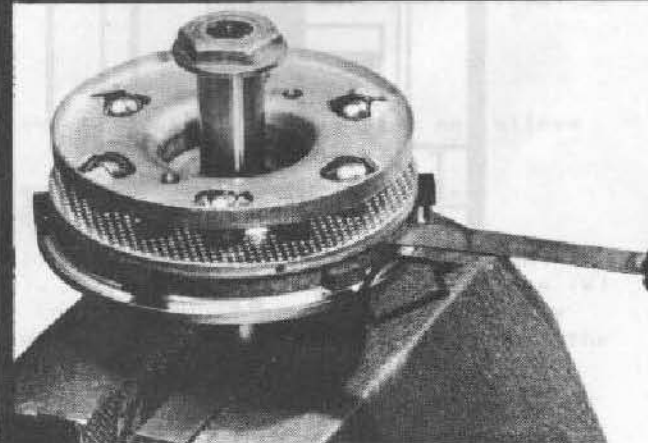
0,9 Mkg
6 FT/LBS



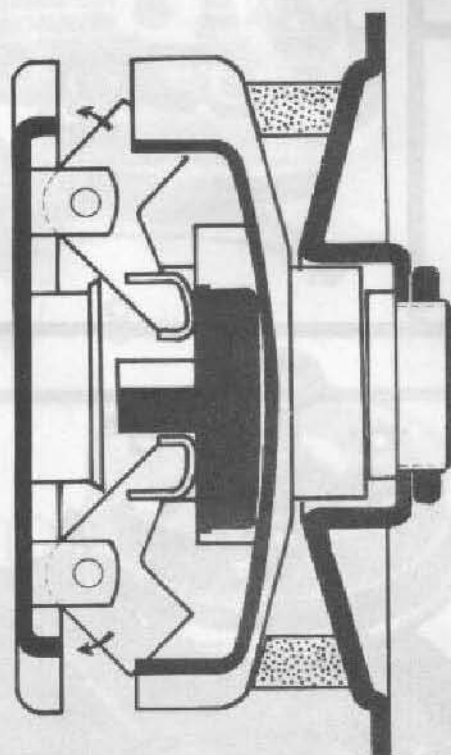
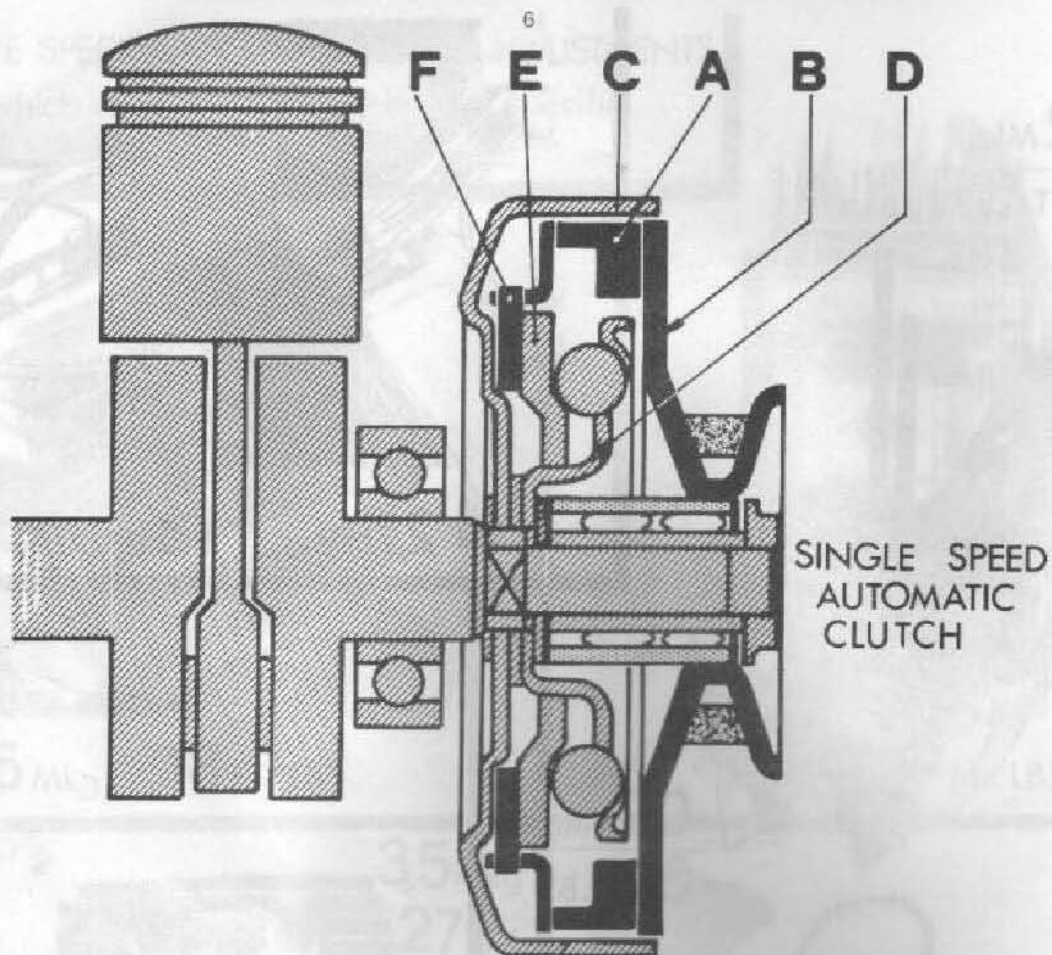
2,5 Mkg 18 FT/LBS



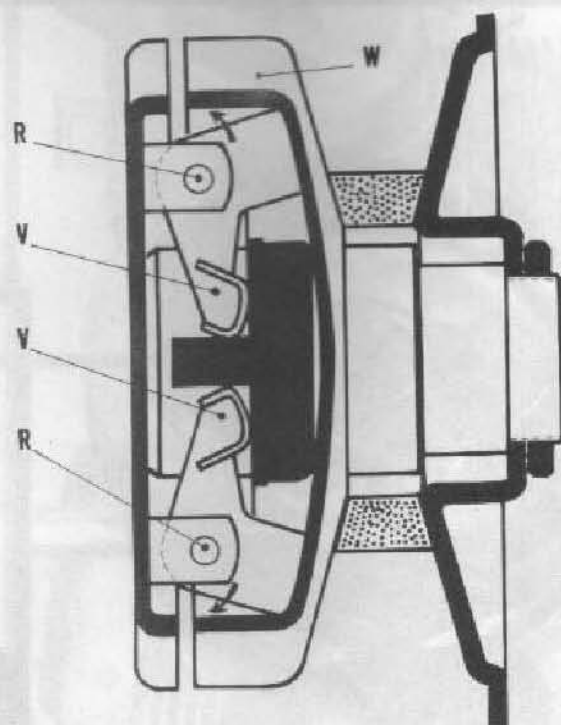
5 à 6 Mkg 36.45 FT/LBS



6/10 à 8/10 mm



Large Diameter Belt Position
(High Gear)



Small Diameter Belt Position
(Low Gear)

AUTOMATIC PLATE CLUTCH

Description

The clutch system has the following two main parts :

- 1) The starting clutch :
consisting of 2 cranking shoes primary (A) which attach to the driving pulley (B). Due to the centrifugal force, these shoes transmit motion to the clutch drum (C) which is rigidly locked with the crankshaft.
- 2) The automatic plate-clutch :
consisting of a drum (D) which bears 6 balls, a pressure plate (E), and a lining (F). The lining (F) is notched so it is rigidly locked with the driving pulley (B).

Operation : starting clutch and automatic plate clutch

The driver's pedaling action first transfers motion to the rear wheel through the right-side crankgear chain. As the rear wheel turns, the attached drive chain transfers motion to the large, intermediate pulley and finally to the starting clutch by a V belt to the drive pulley.

As soon as the speed reaches 8 km per hour (about 5 mph), the starting clutch engages and turns the engine over to produce ignition and engine start.

Once the engine is running, its speed can be controlled and increased with the throttle. When engine speed and centrifugal force increase, the steel balls in the automatic plate clutch are forced outwards from the center. Because the ball drum (D) is a fixed support, the outward movement of the steel balls forces pressure plate (E) against the lining (F), which contacts and is driven by drum (C). The lining (F), which is thus rigidly locked with both the pressure plate (E) and the drum (C), transfers motion to the pulley by means of its notches. Engine power is thereafter transmitted to the rear wheel over the pulley belt and drive chain.

DRIVE PULLEY - VARIABLE TRANSMISSION WITH OSCILLATING BLOCKS

Description

The drive pulley is basically composed of 2 oscillating blocks (V) which fulfill the following two functions :

- 1) Displacement of the movable plate (W) by centrifugal force.
- 2) Rotary drive of the movable plate, without friction.

An automatic tension on the pulley belt is obtained by a compression spring which pushes the engine towards the front of the vehicle. The displacement of the movable plate (W) forces the belt to move up the drive pulley from the base of the groove to the outside.

Operation

To begin with, when engine speed is low, the drive ratio is high and allows satisfactory acceleration.

The belt is at the bottom of the groove in the variable drive pulley.

When engine speed increases, centrifugal force acts on the blocks (V) and makes them pivot around their axes (R). The blocks push the movable plate (W) inward, thus forcing the belt to rise towards the edge of the drive pulley to a position of balance between engine power (RPM) and the resistance of the vehicle to thrust.

REMOVAL AND REPLACEMENT OF THE ENGINE

Tools required

- One 8 mm socket wrench
- One 11 mm socket wrench
- Screwdriver
- One 17 mm socket wrench
- One engine support spring compressor rod 69260
- One pin \varnothing 9,5
- One torque wrench 69802
- One 17 mm socket 69084

Removal of the engine

Proceed as follows for removal of the engine :

- 1 - Remove engine fairings.
- 2 - Remove belt protector and the decompressor cable, by unscrewing the cable grip.
- 3 - Undo the locking bolt of the carburator collar ring.
- 4 - Remove carburator from coupling, drawing it towards the rear of the vehicle.
- 5 - Unhook the magneto wires and remove spark plug lead from its clamp.
- 6 - Remove flywheel cover and turn right pedal crank towards the rear of the vehicle.
- 7 - Insert tool 69260 between the rotor locking screw and the teeth of the crank sprocket wheel (see illustration).
- 8 - Push down on the right pedal crank so as to tip the engine towards the rear of the vehicle, then remove the belt.
- 9 - Perform the opposite movement to tip the engine gently towards the front, so as to slacken the engine support spring.
- 10 - Remove the spring compressing rod, 69260.
- 11 - Unscrew alternately the support plate fixing bolts, so as to completely slacken off the compressing spring.
- 12 - Remove spring.
- 13 - Undo and remove engine connecting bolt by pushing it out with a 9,5 mm rod to prevent the suspension arm from dropping.
- 14 - Now pull the pin back out slowly to release the engine. When the engine is loose then push the pin back through to hold arm in place again. (See illustration).

Remounting engine on frame

Reverse the instructions given for removal.

- Tighten the engine mounting shaft bolt with the torque wrench 69802 fitted with the reducer and the 17 mm socket no. 69084 (torque load 2,5 m/kg - 18 ft/lbs.) We advise you paint the end of the bolt after torquing so you know it has been done and not tampered with.

Placing the engine on support unit 69255

The figure shows an engine support unit which is very handy and can be used for all our moped engines.

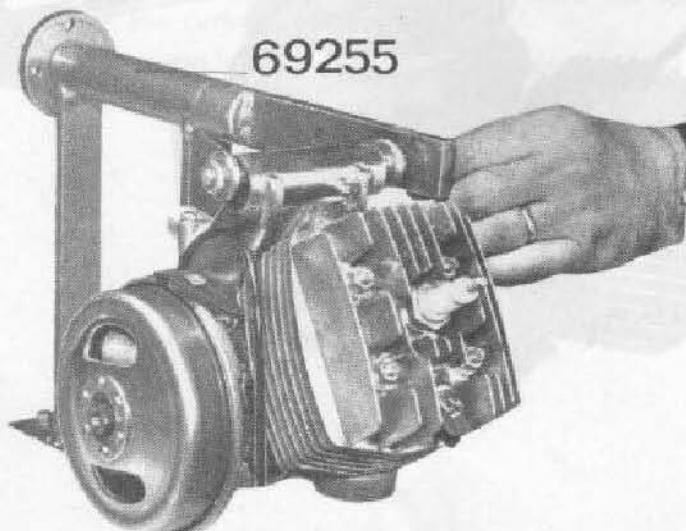
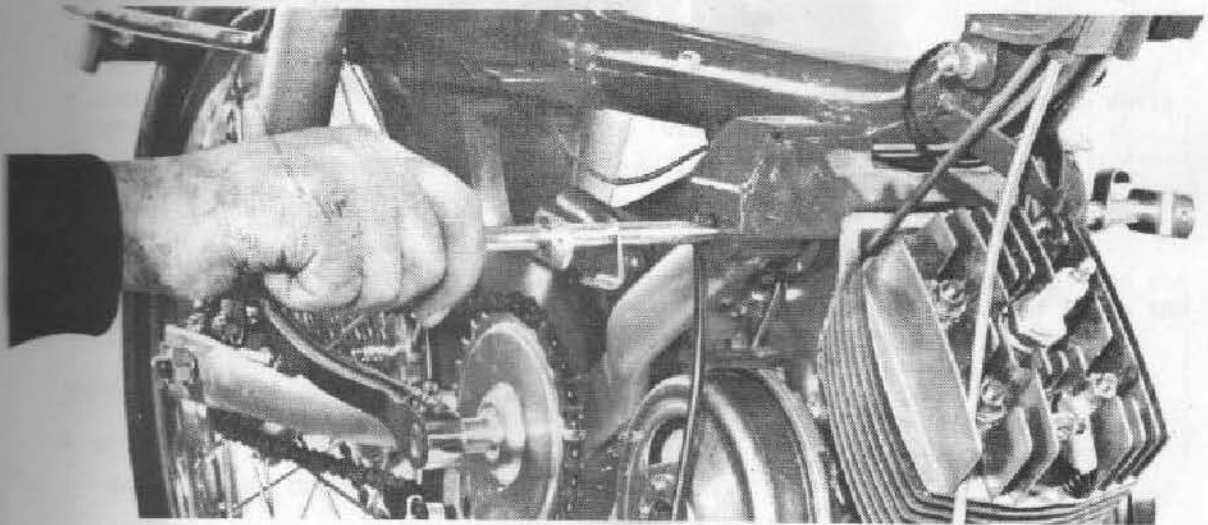
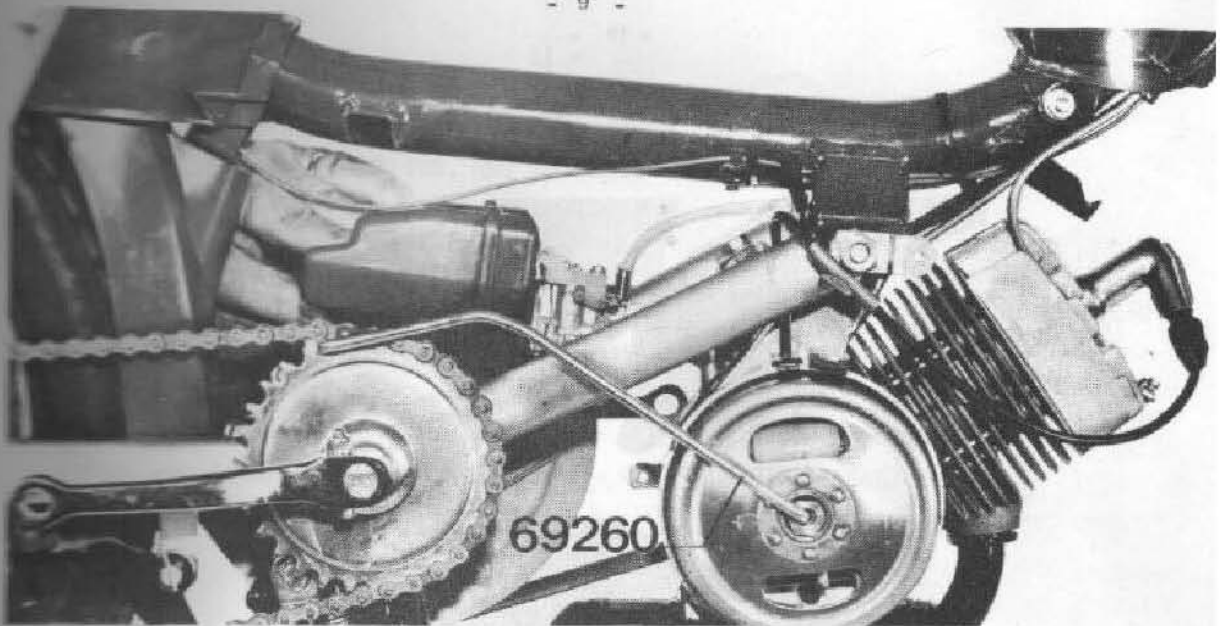
The engine is mounted on a rotating shaft and can be locked in any of four positions. All parts become easily accessible this way.

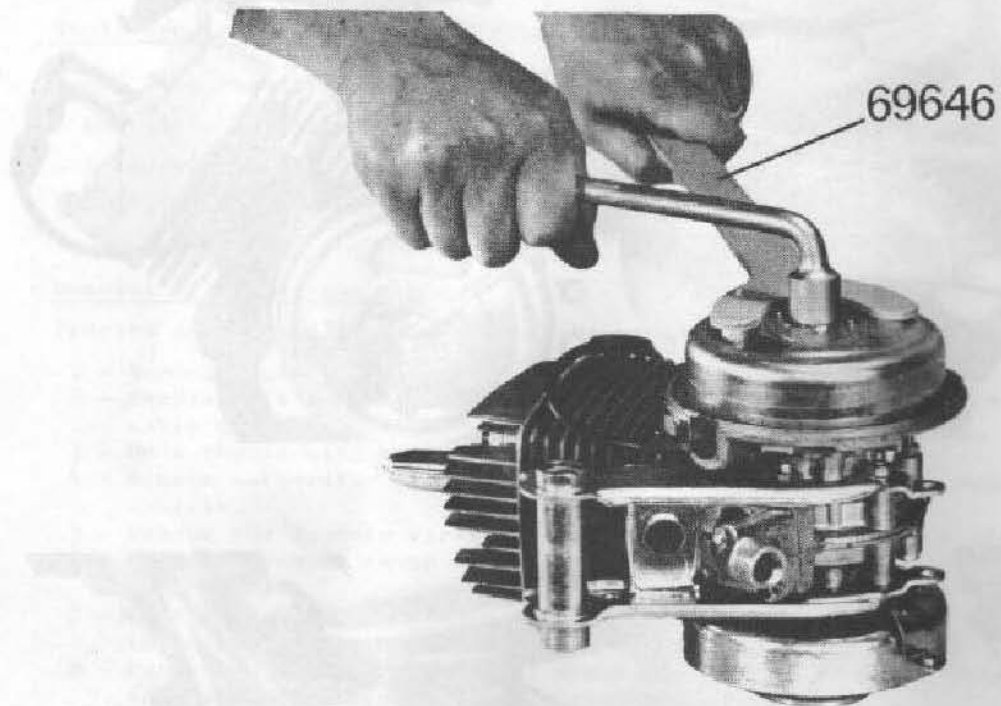
This engine support is supplied by our spare parts department under part no. 69255.

To place engine on the support, use a threaded rod, \varnothing 8 mm, length 110 mm (front bicycle wheel axle) and 2 no. 45465 shouldered washers to protect the support race.

Large Diameter Bolt Position
(High Gear)

Small Diameter Bolt Position
(Low Gear)





DISASSEMBLING, RE-ASSEMBLING, AND ADJUSTMENT OF THE FLYWHEEL MAGNETO

Tools required

- One 16 mm pipe wrench
- One rotor holding lever 69646
- One 21 mm spanner
- One 17 mm spanner
- Flywheel magneto extractor 69254
- Screw driver
- One ignition advance timing tool 69258
- One 1,5 mm feeler gauge
- One torque wrench 69802
- One 16 mm socket 69083
- One PEUGEOTEST 68457

Disassembling the flywheel magneto

Removal of the rotor :

- Take off the magneto flywheel cover
- Unscrew the nut at the end of the crankshaft using a 16 mm socket wrench while immobilizing the rotor with the holding lever 69646 (see illustration)
- Screw the flywheel magneto extractor body into the rotor
- Screw the thrust bolt of the extractor 69254 into the body until it bottoms out
- Hold the body of the tool using a 21 mm wrench, screw in the thrust bolt of the extractor using a 17 mm wrench until the rotor disengages. Instead of using the 21 mm wrench, you can also hold the rotor with the holding lever

Removal of the stator :

- Unscrew the two cylindrical head screws
- Take off the stator

Reassembly of the stator :

- Put the stator in position on the crankcase, making sure the spark plug lead is pointed in the area of the carburator
- Screw in the two fixing screws with a lock-washer under the head of each screw.

Timing of the ignition advance

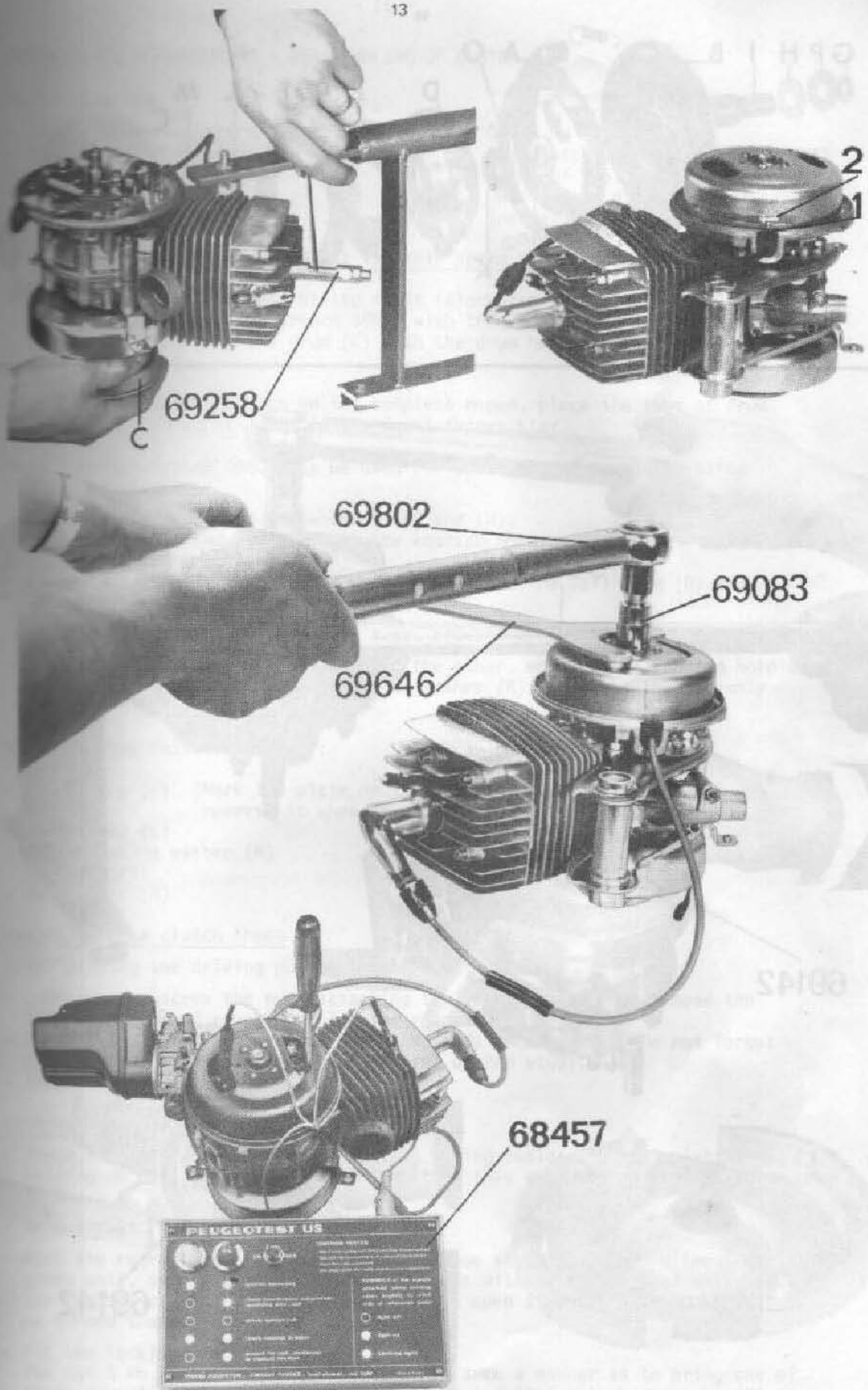
- Screw the ignition advance timing tool 69258 into the spark plug hole. (see fig.)
- Screw in the locking screw of the upper sliding rod, but do not tighten it.
- Find the top dead center of the piston by rotating the clutch drum (C) in the direction of normal engine operation (see the arrow on the rotor).
- Tighten the screw firmly in order to lock the upper sliding rod at its highest point.
- Rotate the clutch drum (C) slightly in the opposite direction of normal engine operation in order to let the lower sliding rod go down.
- Insert a 1,5 mm feeler gauge between the ends of the two sliding rod. Continue to rotate the drum (C) slowly in the direction of the normal engine operation until there is no gap between the sliding rod ends and the feeler gauge.
- Without moving the crankshaft, turn the rotor in your hands until its timing mark "2" matches the timing mark "1" of the stator (see fig.)
- Set the rotor in place and tighten the rotor securely in that position using the rotor holding lever 69646 and the torque wrench 69802 with reducer and 16 mm socket No 69083 (the applied torque should be 2,5 m/kg). 18 ft/lbs (see fig.)
- Recheck the timing to make sure the rotor was put in place correctly.

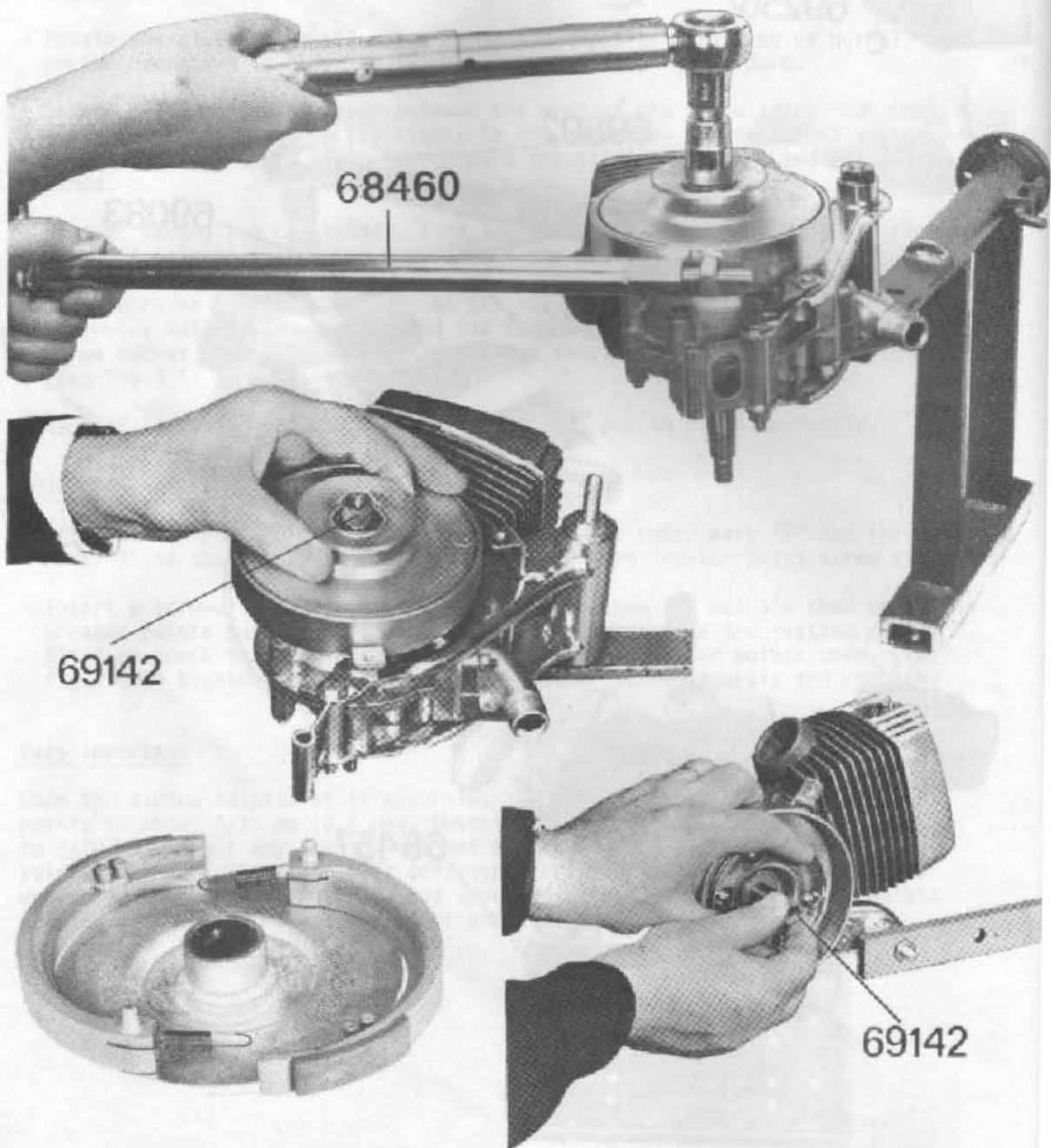
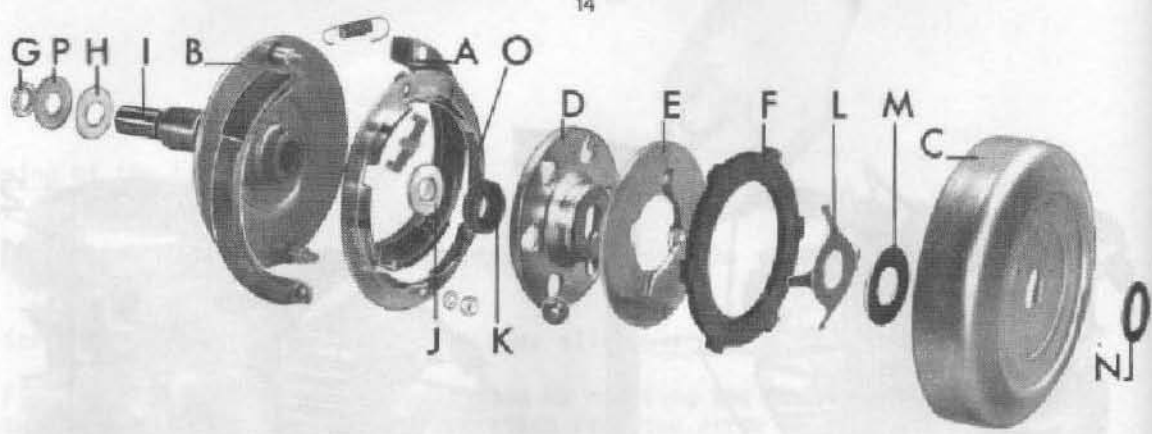
Adjustment of the breaker

- After timing procedures are completed, place the rotor mark "2" and the stator mark "1" so that they face each other. Loosen the breaker point screw slightly.
- Insert a screwdriver between the adjusting notches and actuate them until the breaker points just start to open in that position (use the testing device 68457 to check this operation). The light will go off as points open, (see fig.) then tighten the breaker points holding- screw securely and recheck.

Very important

When the timing adjustment is accurate, the maximum gap between the breaker points is about 4/10 mm (0.4 mm). Nevertheless, that gap can vary from 3/10 to 5/10 mm without any problem. Do not adjust the gap between the breaker points to a definite width. The efficiency of the flywheel magneto does not depend on the gap width itself, but upon the precision of the breaker points opening at the very moment the rotor and stator marks face each other.





DISMANTLING - ADJUSTMENT - REASSEMBLING OF CLUTCH

Tools required

- One 17 mm socket wrench
- One torque wrench 69802
- One 17 mm socket 69084
- Plate strap 68460
- Knurled holding nut 69142
- One 8 mm spanner
- One clutch assembling shaft 69141
- A set of feeler gauges
- One support disc 69140
- Special grease 69145

Dismantling of the clutch without variable speed transmission unit

- Loosen the nut at the end of the shaft (clockwise thread) using a 17 mm socket wrench or torque wrench 69802 with the reducer and the 17 mm socket 69084, while holding the drum (C) with the drum holding strap 68460 (see fig.)

When dismantling the clutch on the complete moped, place the tube of drum strap 68460 so that it leans on the front fender stay.

Note : torque wrench 69802 may be used for the tightening and loosening operations.

- Remove the nut (G) and the washers (P) and (H).
- Screw on to the end of the shaft the knurled holding nut 69142.
- Remove the drive pulley (B).
- Remove as a single unit the pressure plate (E), the ball drum (D) and the balls (see fig.)

To prevent the balls from slipping away, proceed as follows :

- Hold the unit with one hand and with the other, unscrew the knurled holding nut 69142, remove the spacer (I), the washer (K), and take the assembly out (see fig.)

Remove in the following order :

- The lining (F) (Mark the plate on the drum side so that you do not reverse it when re-assembling the unit.)
- The spring (L)
- The adjusting washer (M)
- The drum (C)
- The washer (N)

Removal of the clutch shoes

After placing the driving pulley assembly on a bench :

- Loosen and unscrew the nuts attaching the locking ring (O), remove the lock-washers, and remove the locking ring.
- Unhook the retracting springs from the studs of the shoes. Do not forget to mark the way they were hooked on (1st or 2nd stud).
- Take the shoes off (see fig.)

Fitting of the clutch shoes

- Place the large hook of the retracting spring inside the articulation milling on one of the shoes. Then position this assembly on the anchor pin.
- Repeat this fitting onto the other shoe.
- Hook the retracting spring onto the 1st shoe stud for Mopeds without variable speed unit, or onto the 2nd stud for Mopeds with variable speed unit. When the springs are in the right position, the open side of their hooks must be turned towards the center of the plate.
- Fit the locking ring (O).
The two 5 mm nuts have to be tightened in such a manner as to bring one of their flanks parallel to the outer edge of the lining locking stops (F).

Clutch adjustment

In case the clutch works badly, either by slipping or grabbing too sharply, make sure that the pulley slides freely on the crankshaft (axial clearance about 4/10 to 6/10 mm), then check the clearance between the lining (F) and the pressure plate (E).

This check should be made as follows :

Place the clutch assembling shaft 69141 vertically in the jaws of a vise and assemble in the following order :

- the washer (N)
- the adjusting plate 69140
- the adjusting washer (M)
- the spring (L)
- the lining (F)
- the pressure plate (E)
- the balls
- the drum (D)
- the washer (K)
- the spacer (I)
- the nut (G)

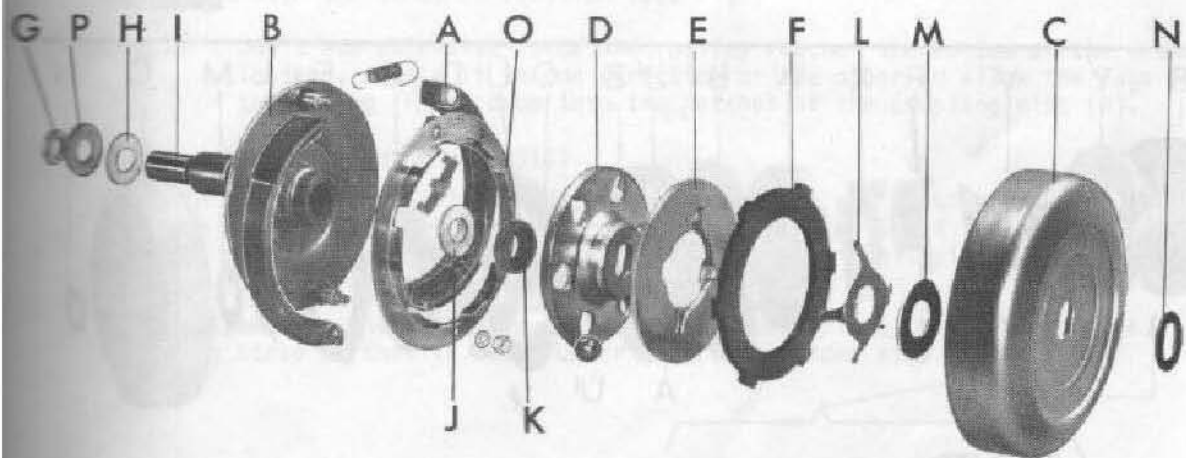
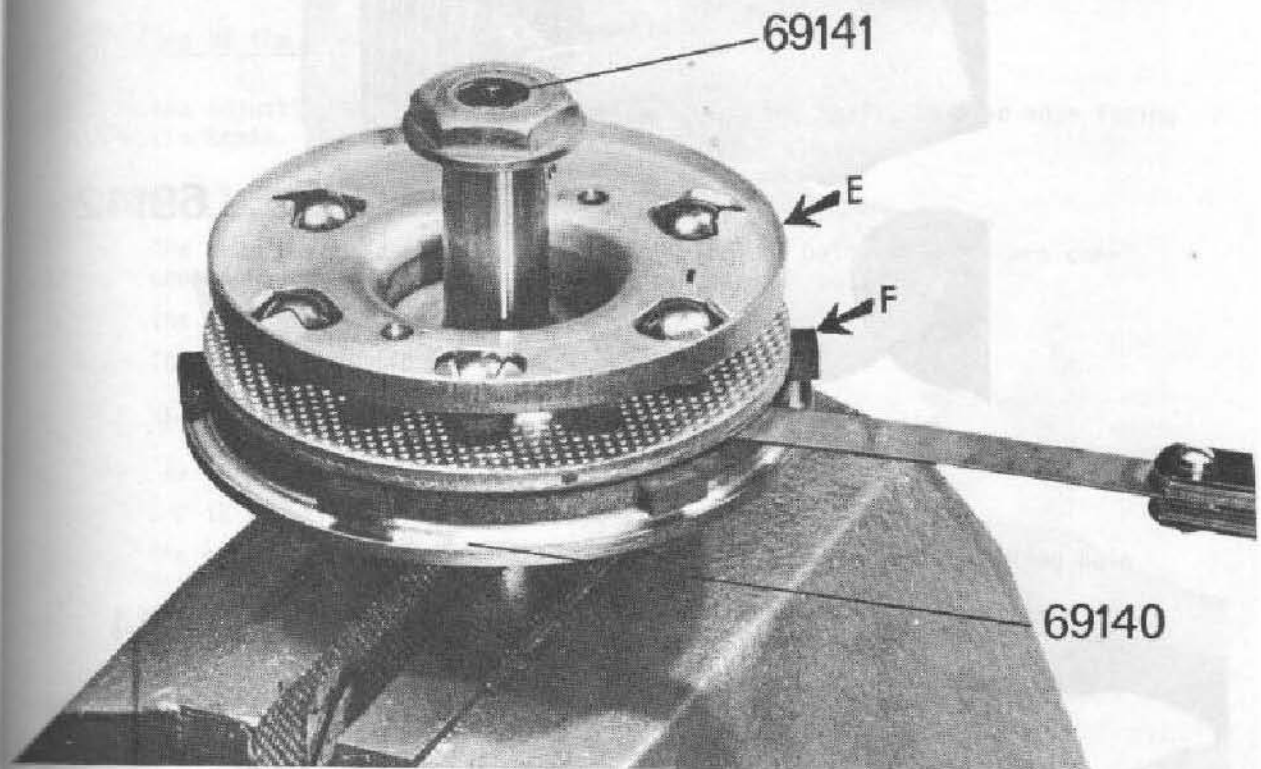
Firmly tighten the assembly using the torque wrench 69802 with the reducer and the 17 mm socket 69884, the applied torque being 4.0 m/kg or 30 ft/lbs.

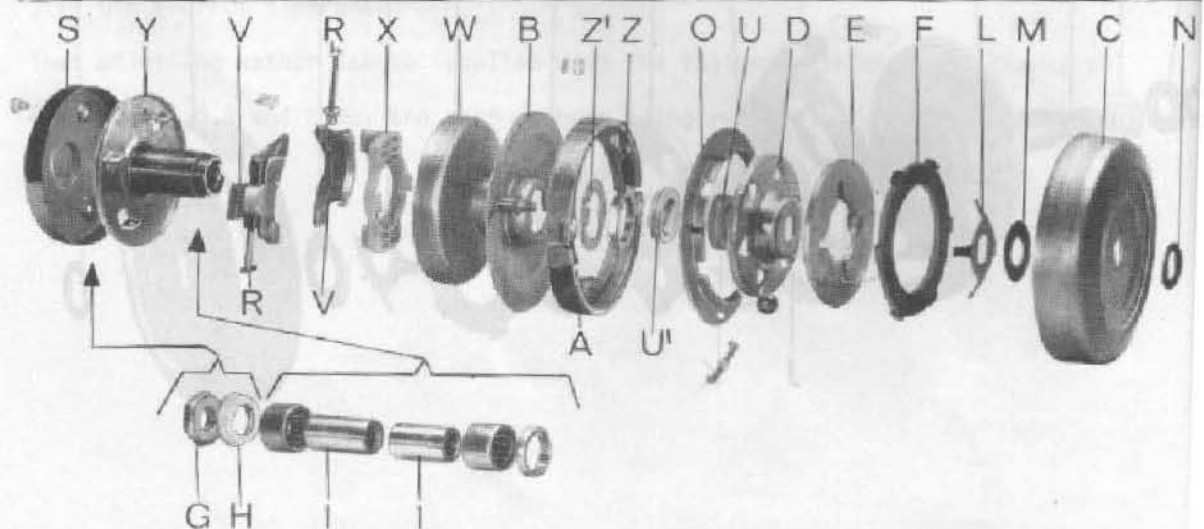
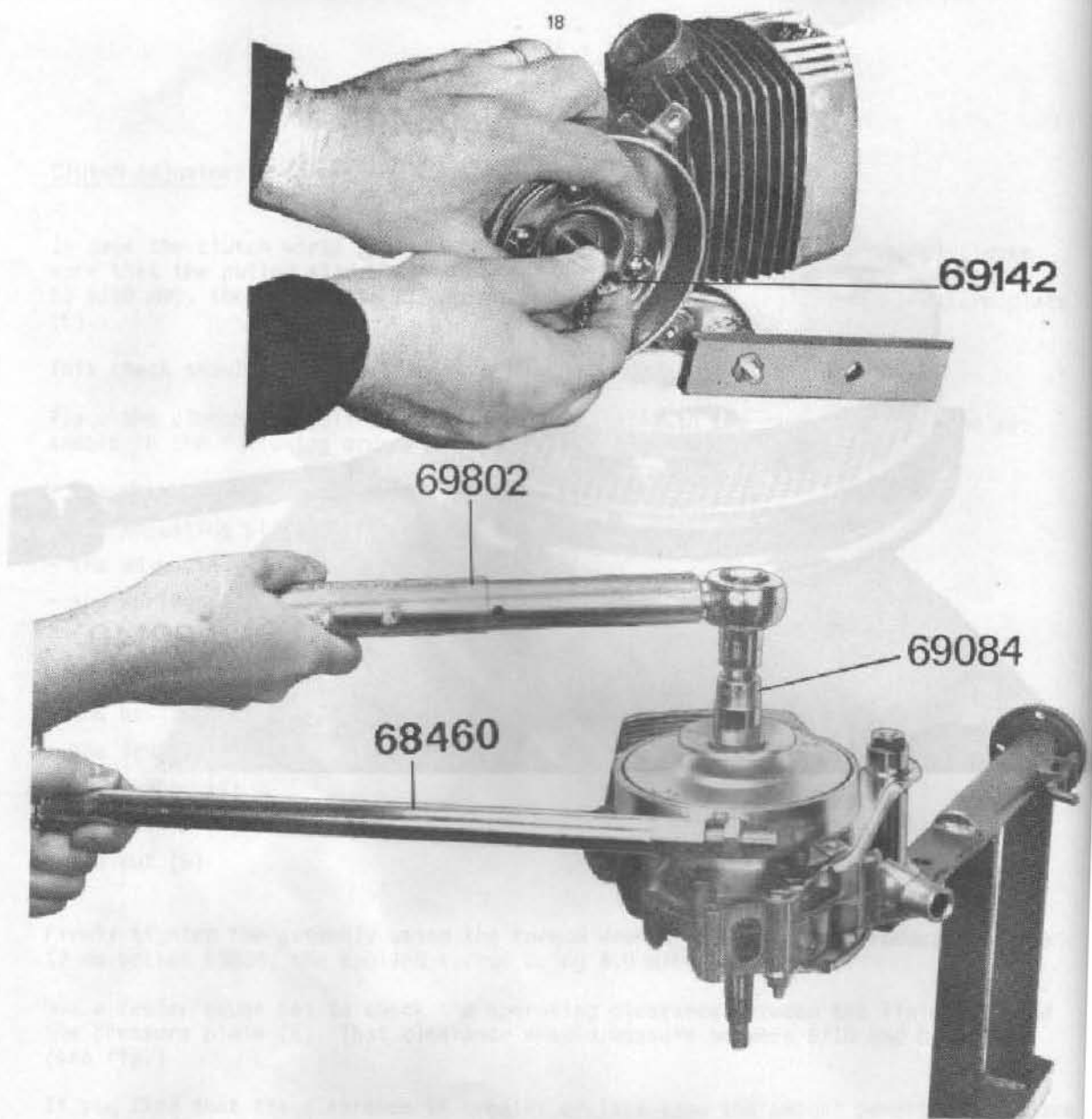
Use a feeler gauge set to check the operating clearance between the lining (F) and the pressure plate (E). That clearance should measure between 6/10 and 8/10 mm (see fig.)

If you find that the clearance is greater or less than the amount permitted, replace the adjusting washer (M) with another one whose thickness, when properly chosen, will give the correct clearance.

That adjusting washer can be supplied with the following thickness measures :

0,4 - 0,6 - 0,8 and 1 mm, the part numbers being respectively 45818, 45819, 45820 and 45821.





Fitting of the clutch to the shaft

Put the adjusting washer (N) in its position on the shaft, beveled edge facing the crankcase.

Assemble in the following order :

- 1 - The drum (C) and, immediately after, place the belt cover holders concentric to the drum and tighten the two holding bolts.
- 2 - The adjusting washer (M)
- 3 - The spring (L) with the fingers up

Then assemble on your bench :

- 1 - The drum (D)
- 2 - 6 \varnothing 12 mm balls, slightly greased with special grease 69145
- 3 - The pressure plate (E) with 2 indentations in line with the oblong hole

Turn this assembly upside down on the lining (F) and, while holding the assembly, fit it on the shaft, placing the plates of the drum (D) correctly.

Continue the assembly as follows :

For clutch without variable speed unit.

- washer (U)
- spacer (I)
- washer (J)

For clutch with variable speed unit

- washer (U)
- 2 spacers (I)

Screw on the end of the shaft the knurled holding nut 69142, put fixed plate (B) fitted with the shoes in position (see fig.)

Caution : Don't use excessive force when pulley reaches the bottom of the drum. Instead, rotate it in one direction or the other to allow the lugs of the lining (F) to drop into the notches of the coupling disc (O).

- Remove knurled holding nut 69142
- Set in place washers (P) and (H), screw up nut (G) and tighten it using the torque wrench 69802 with the reducer and the sprocket 69084 (the applied torque being 4,0 m/kg 30 ft/Lbs) (see fig.) while immobilizing the drum (C) with holding strap 68460.
- When assembling the clutch on the complete Moped, place the handle of the holding strap so that it rests under the front fender stay.

DISMANTLING AND REASSEMBLY OF CLUTCH WITH VARIABLE TRANSMISSION

Tools required :

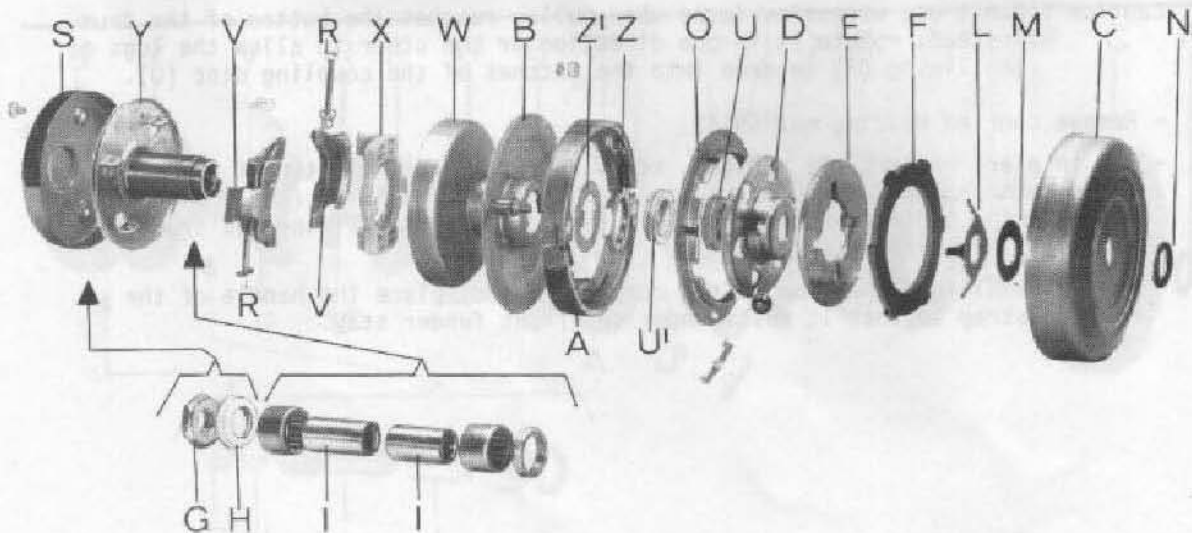
- Screwdriver
- One holding strap 68460
- One knurled holding nut 69412
- Driving pulley hub fixing tool 69259
- Torque wrench 69802
- One 32 mm socket 69153
- One 32 mm socket wrench

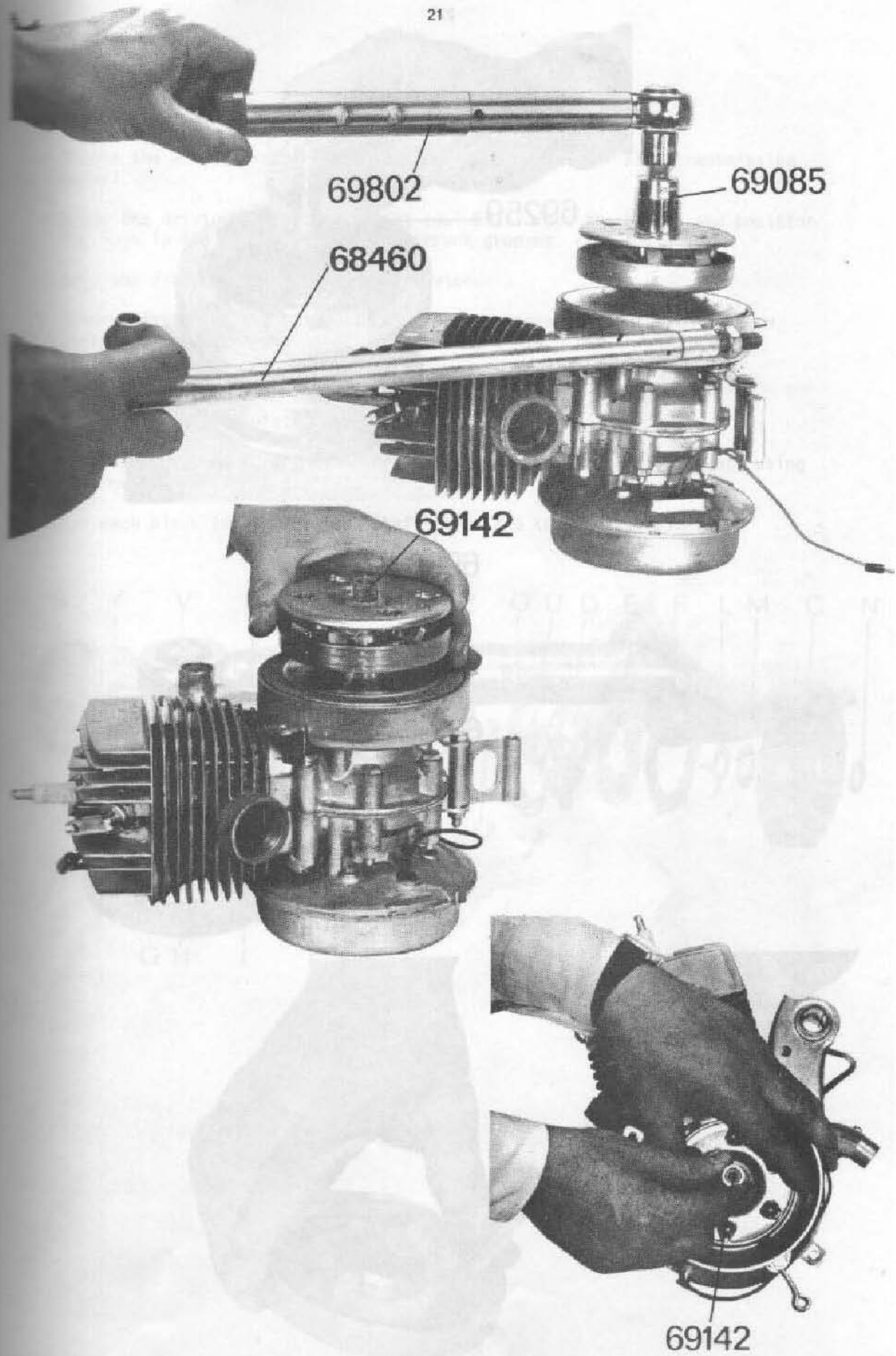
Dismantling of clutch and variable transmission

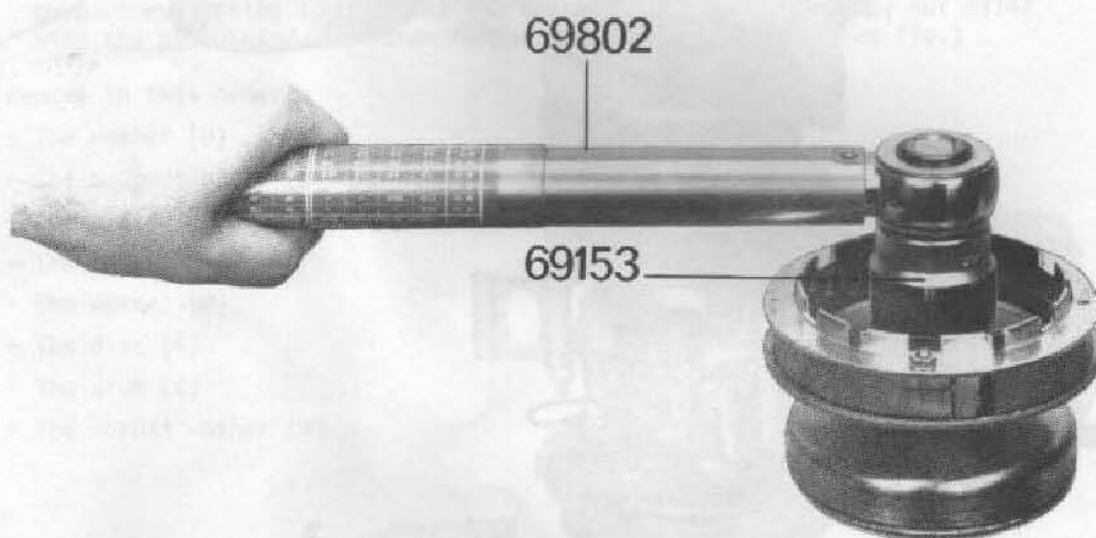
- Undo and remove the 3 fixing screws (S) of the cap.
- Unclamp the nut (G), using tool 68460 to hold the clutch drum (see fig.)
- Lift off nut (G), and screw knurled holding nut 68460 to the end of the crankshaft.
- Remove the variable drive pulley (see fig.)
- In order to dismantle the clutch and prevent the balls from escaping, support everything in one hand and unscrew the knurled holding nut 69142 with the other hand, and then remove the two spacers (I) (see fig.)

Remove in this order :

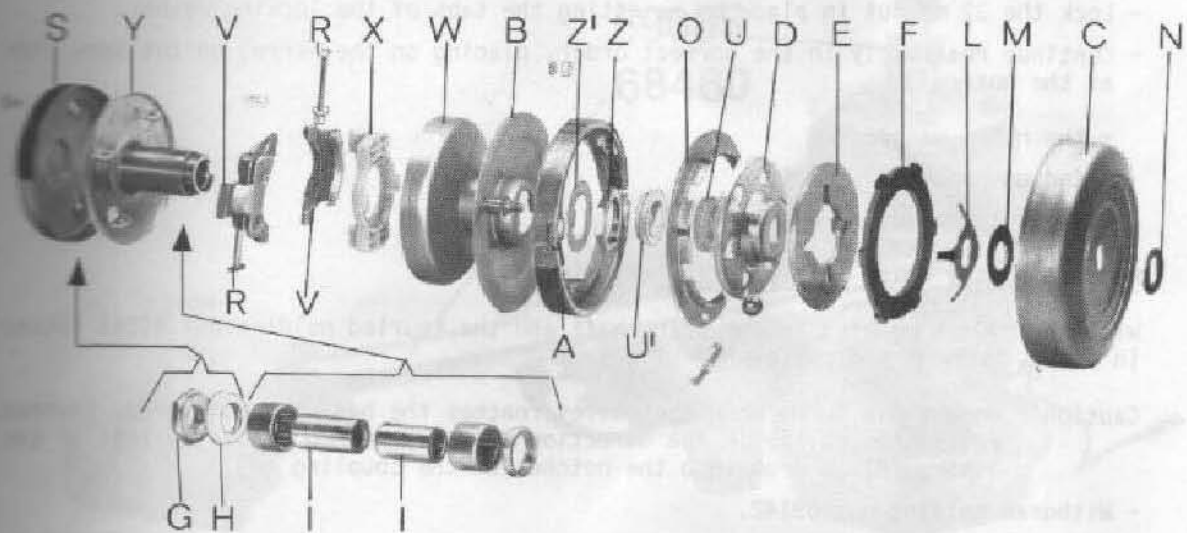
- The washer (U)
- The support plate (D)
- The plate (E)
- The spring (L)
- The washer (M)
- The disc (F)
- The drum (C)
- The thrust washer (N)







- Remove the 2 nylon spacers found at each end of the variable transmission barrel.
- Slide the driving pulley hub fixing tool 69259 into the barrel and position its lugs in the corresponding countersunk grooves. (see fig.)
- Grip the flat end of the tool in the vise.
- After unfastening the washer locking tabs, unscrew the nut with a 32 mm socket wrench. (see fig.)
- Remove the fixed pulley plate (B).
- Remove the movable plate (W).
- If necessary, remove the nylon drive piece with a levering movement, using a screwdriver. (see fig.)
- For each block (V), remove the shaft-clips and the shafts (R).



Reassembly of the variable transmission

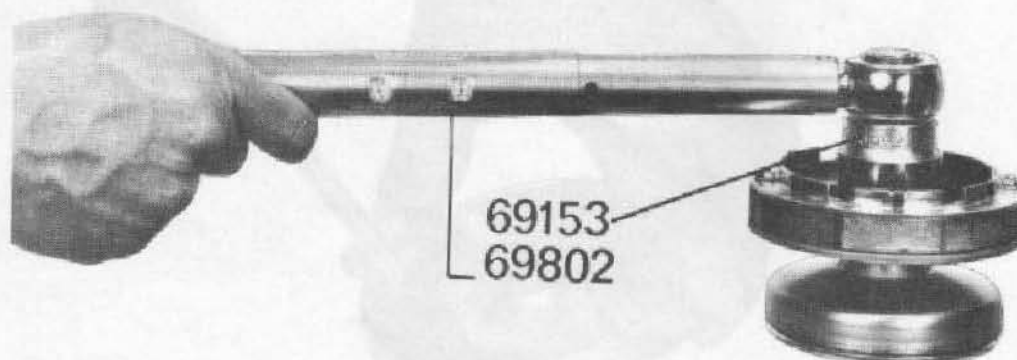
- Put drive piece (X) into position in the movable plate (W).
- Put blocks (V) into position on variable transmission plate (Y).
- Insert shafts (R), these being in opposite directions to hold the centrifugal weights.
- Set the clips on the shafts.
- Place the following parts on the variable transmission plate (Y), in this order :
 - 1 - Movable plate (W)
 - 2 - Fixed plate (B)
 - 3 - The tab-washer (ZI)
 - 4 - Locking nut (Z)
- Slide the driving pulley hub fixing tool 69259 into the barrel the side where the nut (Z) is to be found.
- Position the lugs of the tool in the corresponding countersunk grooves.
- Grip the flat end of the tool in the vise.
- Tighten the 32 mm nut (Z) right-hand thread with the torque wrench 69802, fitted with the 32 mm socket 69153 (torque load 5.0 to 6.0 m/kg, about 36 to 45 ft/Lbs).
- Lock the 32 mm nut in place by resetting the tabs of the locking washer.
- Continue reassembly in the correct order, placing on the barrel on the same side as the nut :
 - the nylon washer
 - and on opposite side :
 - the external nylon washer (H).

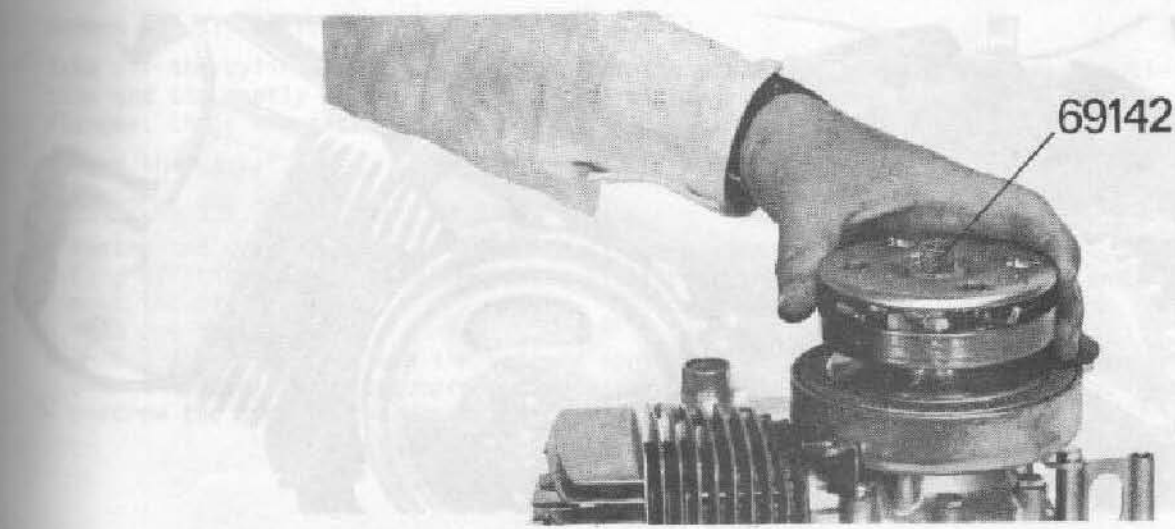
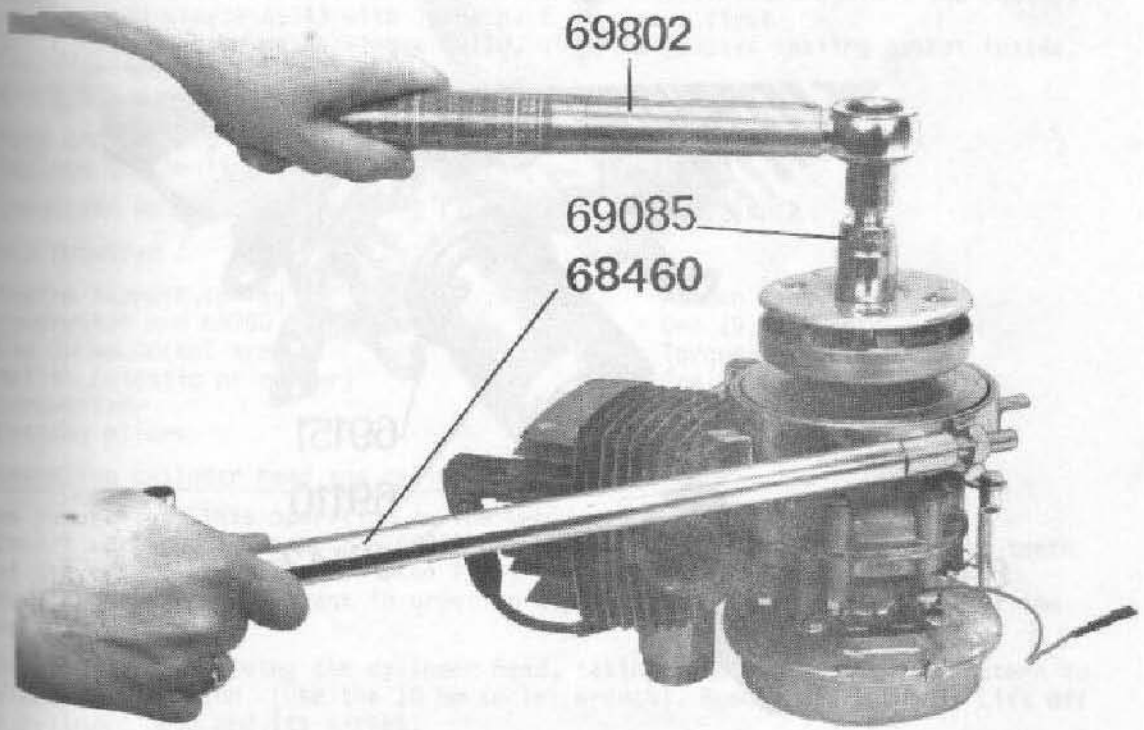
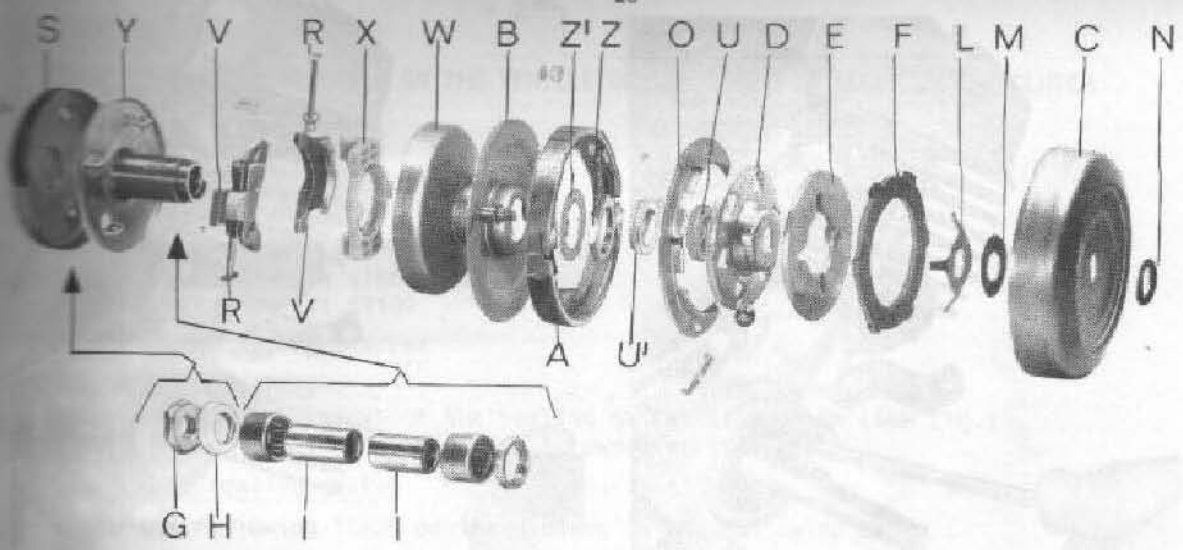
Remounting the drive pulley on the crankshaft

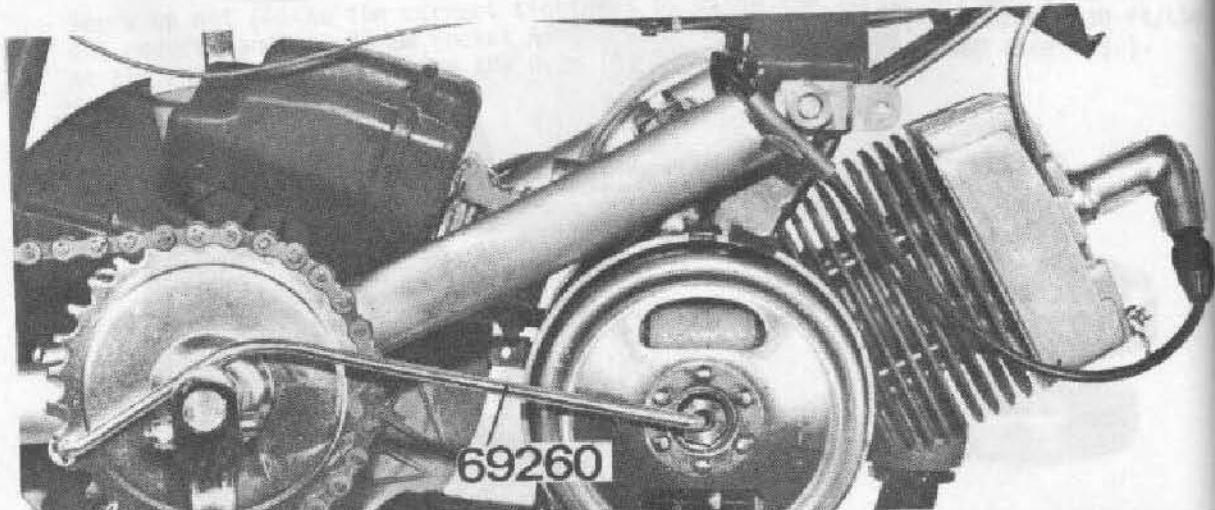
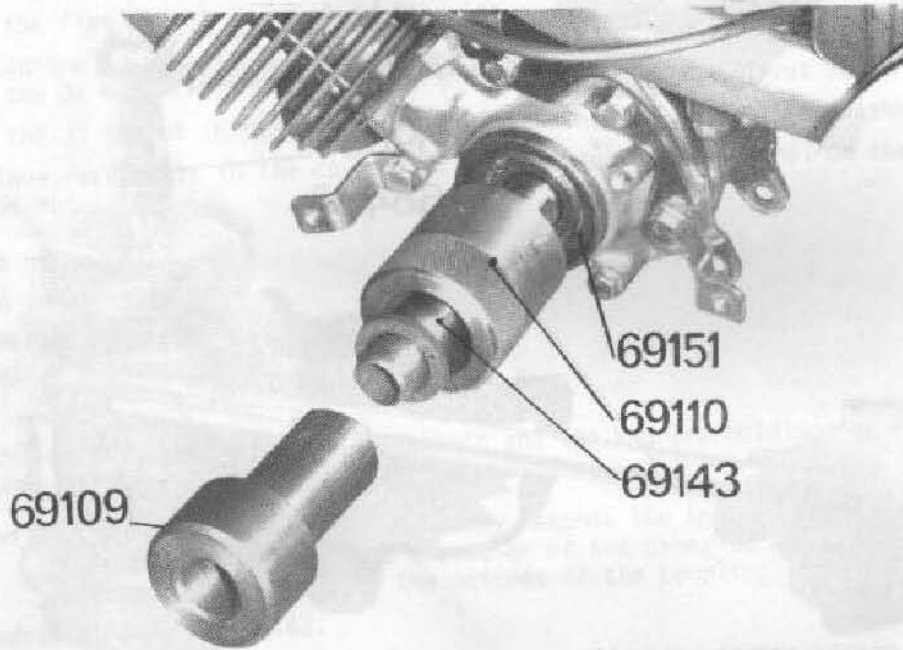
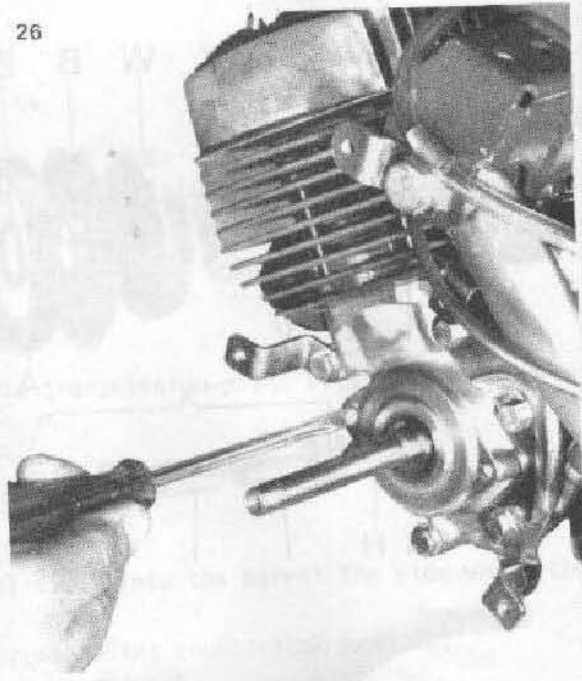
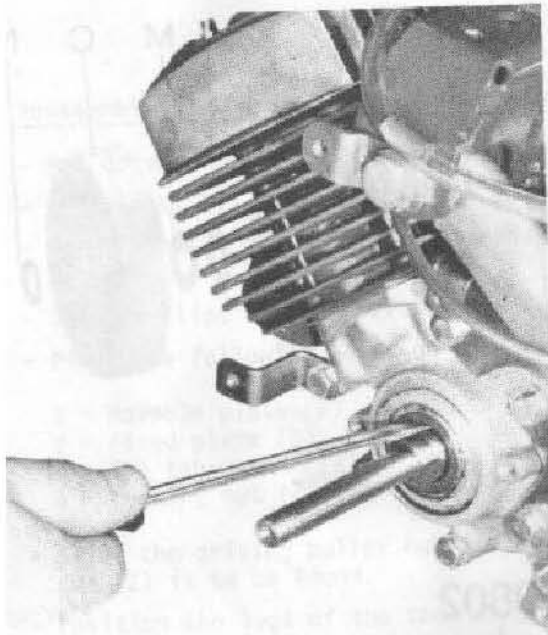
With the clutch mounted on the crankshaft and the knurled holding nut 69142 fitted in place, remount the pulley (see fig.)

Caution : Do not use force when the pulley reaches the bottom of the drum. Instead rotate the pulley in one direction or the other to allow the lugs of the lining (F) to drop into the notches of the coupling (O).

- Withdraw holding nut 69142.
- Screw up nut (G) to the correct tightness by using the torque wrench 69802 with the reducer and the 21 mm socket 69085, with a torque load of 4,0 m/kg - 30 ft/. At the same time, immobilize the drum (C) with holding strap 68460 (see fig.).







DISMANTLING AND REASSEMBLY ON THE VEHICLE OF THE SEALING GASKET ON THE CLUTCH SIDE

Tools required :

- Screwdriver
- Centering tool 69151
- Tapered sleeve for setting seal on crankshaft 69143
- L.H. crankcase guide sleeve 69110
- L.H. crankcase drift 69109

Removal of the sealing gasket

- Remove drive pulley
- Undo the 2 fixing screws of the sealing gasket stop plate (see fig.)
- Remove the defective gasket with a screwdriver (see fig.)

Insertion of sealing gasket

- Place the following items on the housing in the following order :
 - 1 - Centering tool 69151, the \varnothing 35 centering tool directed against the housing
 - 2 - Tapered sleeve 69143 with large part of sleeve first
 - 3 - L.H. crankcase guide sleeve 69110, with the greased sealing gasket inside, lips towards the engine
 - 4 - L.H. crankcase drift 69109
- Push the sealing gasket home into its seating
- Replace the sealing gasket stop plate (see fig.)

DISMANTLING AND REASSEMBLY OF THE CYLINDER HEAD AND CYLINDER

Tools required :

- | | |
|--|--------------------------|
| - Engine support spring compressor rod 69260 | - Wooden wedge |
| - One 10 mm socket wrench | - One 19 mm wrench |
| - Mallet (plastic or rubber) | - Torque wrench 69802 |
| - Screwdriver | - One 10 mm socket 69079 |
| - Cutting pliers | |

Dismantling cylinder head and cylinder

When you perform this operation on the vehicle :

- Insert spring compressor rod 69260 between the rotor locking nut and the teeth of the crank sprocket-wheel (see fig.)
- Move the right pedal-crank in order to tip the engine towards the rear of the vehicle.

Undo the 4 bolts holding the cylinder head, taking them in a crosswise pattern to avoid any distortion. (Use the 10 mm socket wrench). Remove the washers. Lift off the cylinder head and its gasket.

Remove the silencer.

Take off the cylinder. If it is stuck, put the piston to the bottom neutral position and tap gently on the exhaust outlet with a rubber mallet (do not touch the flanges, these are extremely fragile).

Remove the gasket.

Removal of the decompressor valve

- Fasten the cylinder head using two bolts in a vise
- Clip off the end of the decompressor pivot pin, then compress the spring and remove the pin
- Take out the valve
- Insert a screwdriver into the hairpin spring and open it until it can be slipped over the head of the decompressor body
- Unscrew the body of the decompressor with a 19 mm socket wrench.

Reassembly of the decompressor

CAUTION : the tightness of the valve has a vital effect on engine operation. Check the valve seat and the valve thoroughly before refitting the valve.

If the valve face shows any kind of defect, do not hesitate to replace the complete decompressor unit.

- Make sure that the copper gasket is fitted in place.
- Mount the cylinder head in a vise by means of two bolts.
- Tighten the decompressor body tightly on the cylinder head using a 19 mm socket wrench.
- Insert the valve stem into the decompressor body.
- Put the valve spring in place.
- Put in the pivot pin and secure it by flattening its end. If this pin comes loose, the valve will fall into the cylinder and damage it, possibly causing an accident if the engine seizes (use the decompressor pin rivetting tool n° 68048).

Fitting of the cylinder.

In order to make this operation easy, we recommend that you use the wooden shim (see fig.)

- Clean the mounting surface and cut the projecting part of the gasket.
- Make sure that the gasket and its seal are completely dry.
- Set the piston down to rest on the wooden shim.

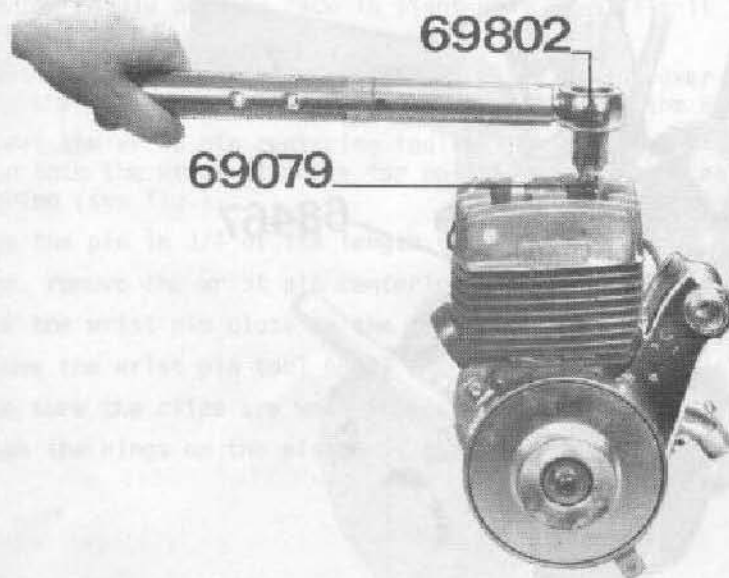
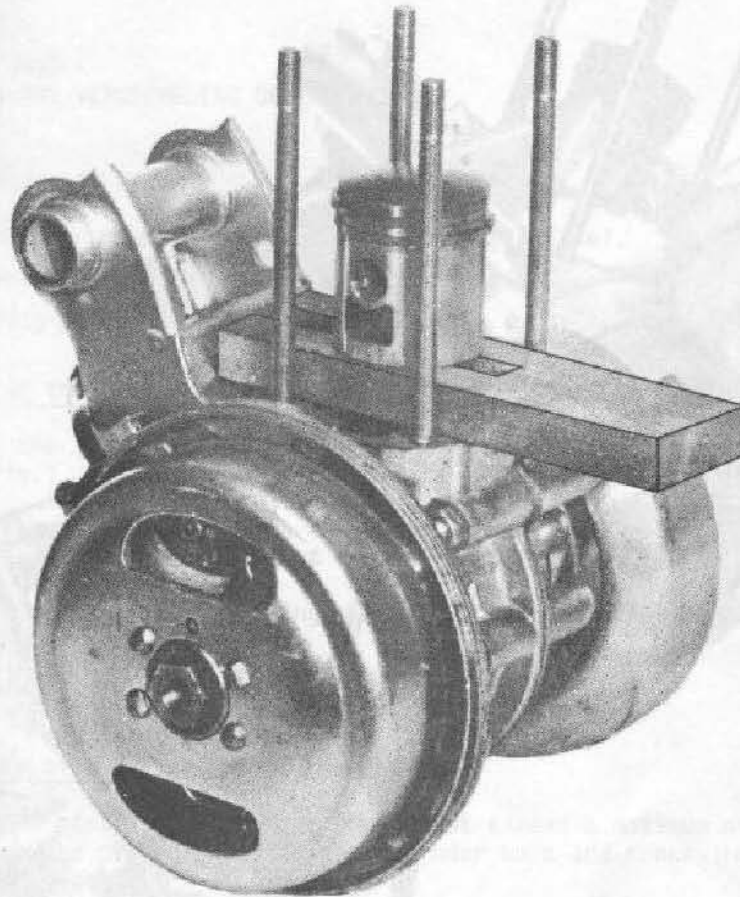
IMPORTANT : Make sure that the gaps of the piston ring are accurately facing the stops which are located in the grooves of the piston.

Push the cylinder, well down over the piston by hand only. Do not use any hammer. Remove the wooden tool and push the cylinder down until it is completely bottomed.

CAUTION : Make sure the rings are compressing as the cylinder slides over the piston.

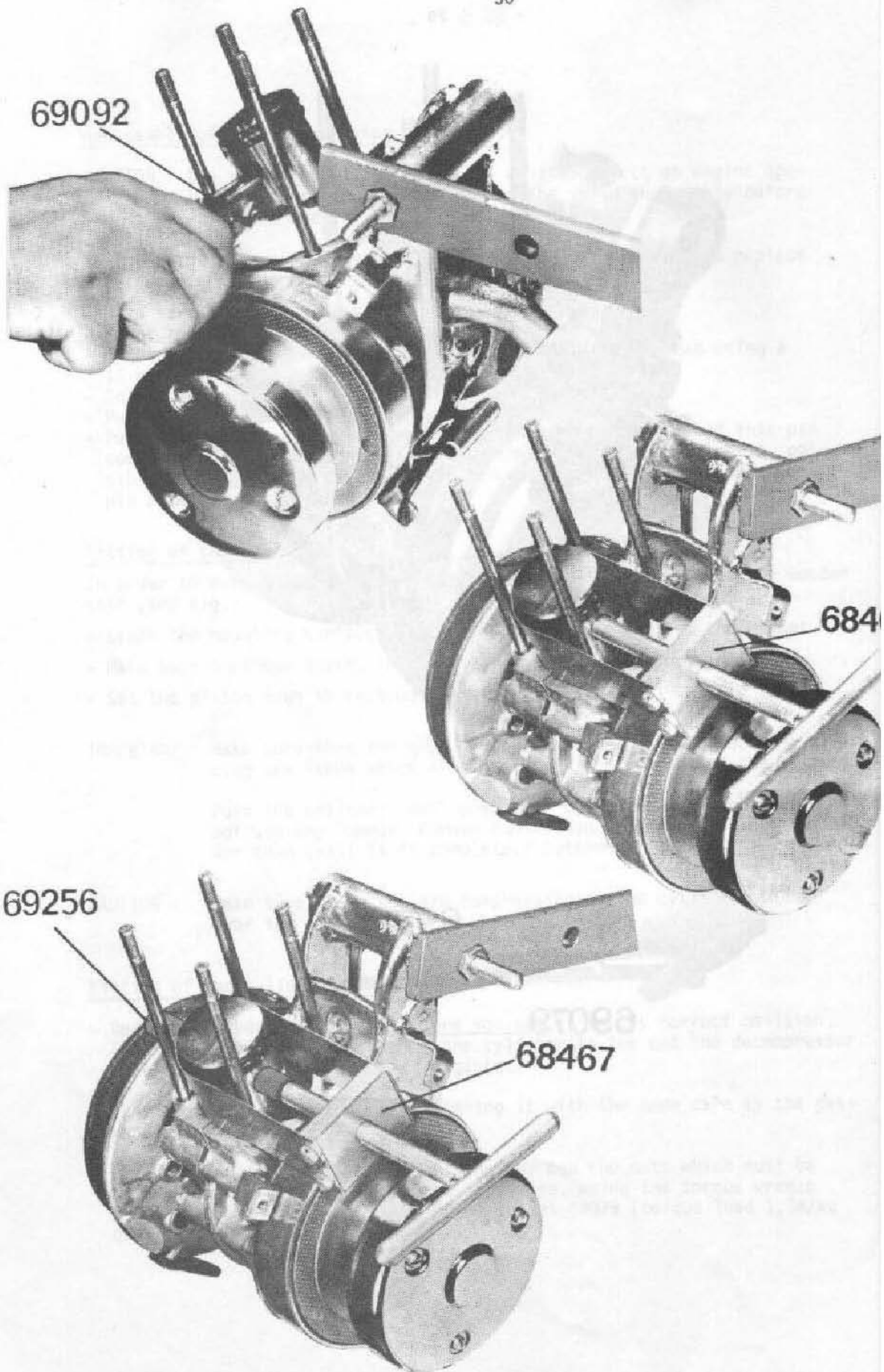
Fitting of the cylinder head.

- Replace the head gasket. Make sure you put it in its correct position. The hole provided in the top of the cylinder to let out the decompressor gases must match the hole in the gasket.
- Install the cylinder head, positioning it with the same care as the gasket.
- Place the washers with the serrations up, and the nuts which must be screwed in and securely tightened crosswise, using the torque wrench 69802 with the reducer and the 10 mm socket 69079 (torque load 1,1m/kg or 8 ft/lbs). (See fig.)



69802

69079



REMOVING AND REASSEMBLING OF THE PISTON

Tools required

- One tool for mounting and removing wrist pin 68467.
- One centering pin for replacing wrist pin 69256
- Snap ring pliers 69092.

Removal of the piston

- Remove the two wrist pin circlips using the snap ring pliers 69092 (see fig.)
- Align the piston rings with the stops in the grooves to keep from breaking them. You should not remove the piston rings.
- Drive out the wrist pin using the wrist pin tool 68467 but don't drive it out completely (see fig.)
- Remove the needle bearing race with care.

Reassembly of the piston

- Check the piston ring gap. It should not exceed a maximum of 3/10 mm. Position the piston rings in the cylinder bore and check the gap with a feeler gauge.
- If necessary, clean out the wrist pin circlip grooves.
- Place in the piston inside the wrist pin tool 68467 (making sure rings are in line with the stops).
- Insert the wrist pin in its bore until it is flush with the inner bossing.
- Dip the needle bearing race in light oil. Then, fit it into the connecting rod bore.
- Position the wrist pin tool 68467 with the piston over the connecting rod, the reference letter being directed towards the exhaust port.
- Insert the wrist pin centering tool 69256 through the needle bearing race into the wrist pin hole for positioning in the center of the needle bearing (see fig.)
- Push the pin in 3/4 of its length.
- Then, remove the wrist pin centering tool 69256.
- Push the wrist pin close to the groove of the circlip.
- Remove the wrist pin tool 68467 and put on the clips (pliers 69092).
- Make sure the clips are well inside the grooves.
- Mount the rings on the piston if this is a new piston.

DISMANTLING AND REASSEMBLY OF THE VALVE SYSTEM

Tool required :

- One 8 mm socket wrench

Dismantling of the flap valve system.

- Undo the 4 nuts holding the carburetor intake manifold (8 mm socket wrench)
- Remove in this order :
 - 1- the lockwashers
 - 2- the intake manifold
 - 3- the first gasket
 - 4- the flap valve assembly
 - 5- the second gasket

Precaution to be taken for the flap valve assembly : do not bend the 2 thrust prongs on the flap valve (see fig.)

Reassembly of valve system.

- Before replacing the flap valve, check the thrust prongs to make sure they have not been bent or buckled. If necessary, correct their opening, which should be 5,5 mm. This measurement must never be altered.
- Assemble, in this order : (see fig.)
 - 1- the first gasket
 - 2- the flap valve assembly
 - 3- the second gasket
 - 4- the intake manifold
 - 5- the 4 lockwashers and 4 nuts

DISASSEMBLY OF THE CRANKCASES

REMOVAL OF THE CRANKSHAFT ASSEMBLY AND BEARINGS

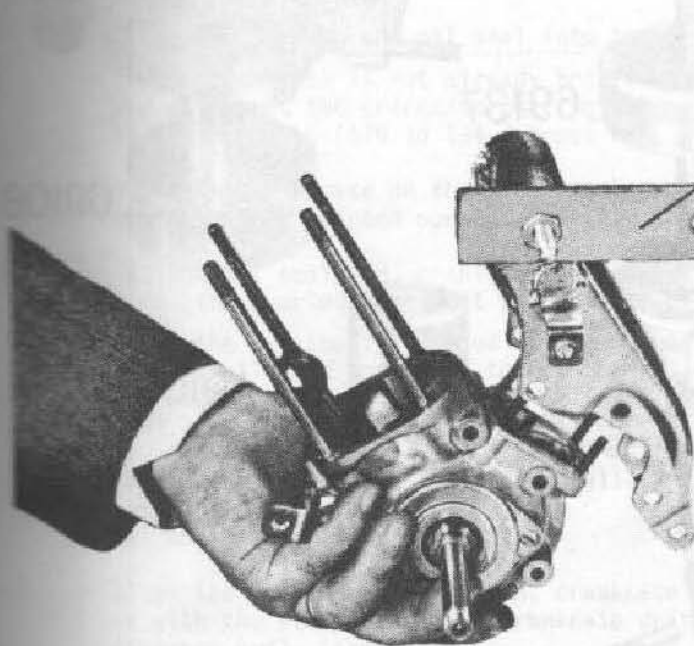
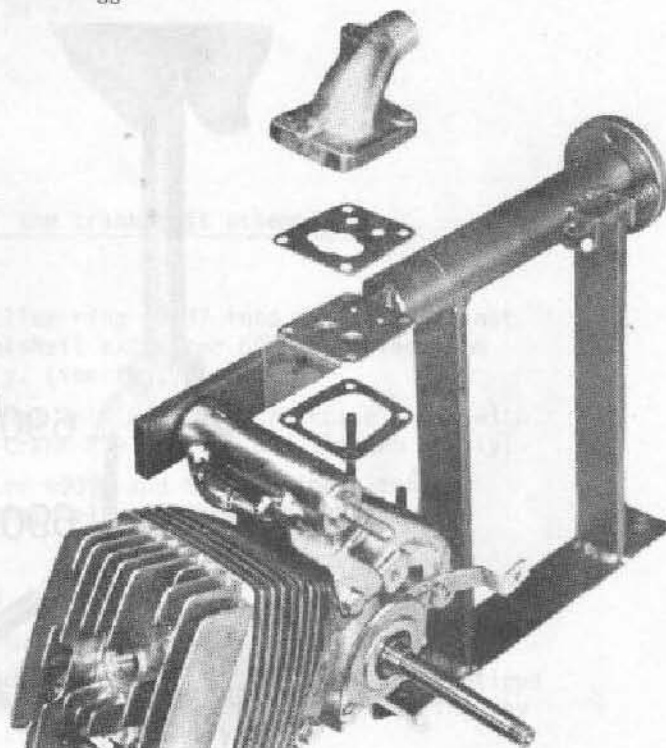
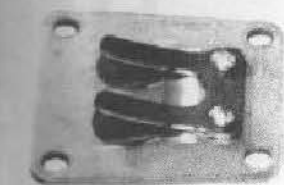
REASSEMBLY

Tools required :

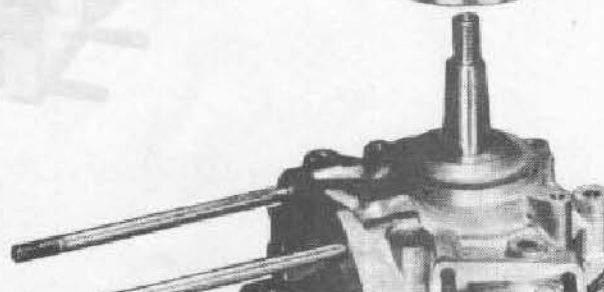
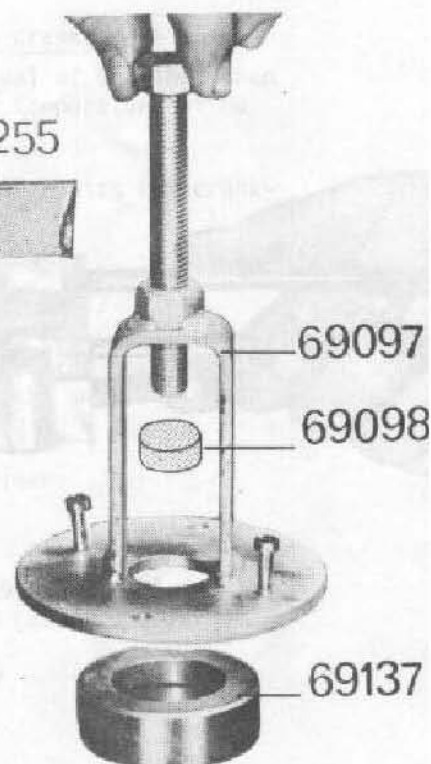
- | | |
|--|--|
| - One 10 mm spanner | - One L.H. crankcase drift 69109 |
| - One leveler ring for setting the crankshaft 69137 | - One R.H. crankcase guide 69112 |
| - One crankshaft extractor 69097 | - One R.H. crankcase guide base 69111 |
| - One crankcase end protector 69098 (for crankshaft extractor) | - One R.H. seal ring guide sleeve 69110 |
| - One L.H. crankcase guide 69108 | - One R.H. crankcase drift 69114 |
| - One L.H. crankcase oil seal guide sleeve 69110 | - One R.H. crankcase bearing guide 69115 |

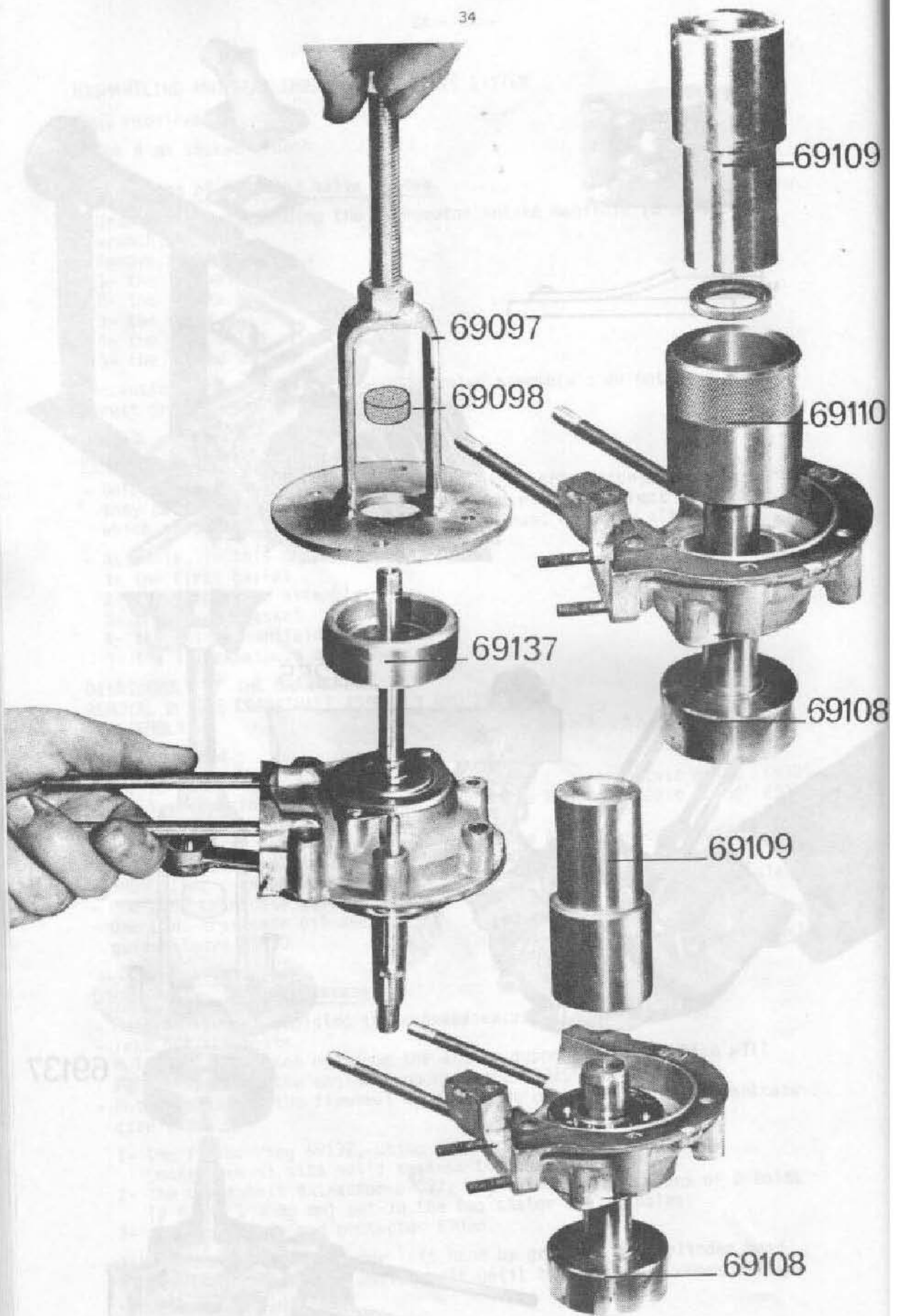
Disassembly of the crankcase :

- Unscrew the nuts holding the crankcases, using a 10 mm wrench.
- Take out the bolts.
- Pull the crankcases out from the engine support bracket which will remain fixed to the engine support stand 69225 (see fig.)
- Put in place on the flywheel magneto side or the right hand crankcase : (see fig.)
 - 1- the filler ring 69137, using the 48 mm \varnothing part of the ring. (make sure it sits solid against the crankcase).
 - 2- the crankshaft extractor 69097, tightened well by means of 2 bolts (\varnothing 5 mm, L = 35 mm) set in the two stator fixing holes.
 - 3- the crankshaft end protector 69098.
- Take the motor unit in your left hand by gripping the cylinder head studs. Tighten down the puller bolt until the crankcase comes off the crankshaft completely.



69255





Left hand crankcase - Removal of the crankshaft assembly

- Remove the crankcase gasket.
- Put the 37 mm \varnothing ring of the filler ring 69137 into position against the crankcase and put the crankshaft extractor 69097 in place and screw down the 2 nuts correctly. (see fig.)
- Place 2 bolts (\varnothing 6 mm, L = 70 mm) into 2 of the crankcase holes with the heads pointed towards the crankcase surface and tighten softly.
- Use the crankshaft end protector 69098 and tighten the extractor body until the crankcase is completely off the crankshaft.

Removal and refitting of bearing

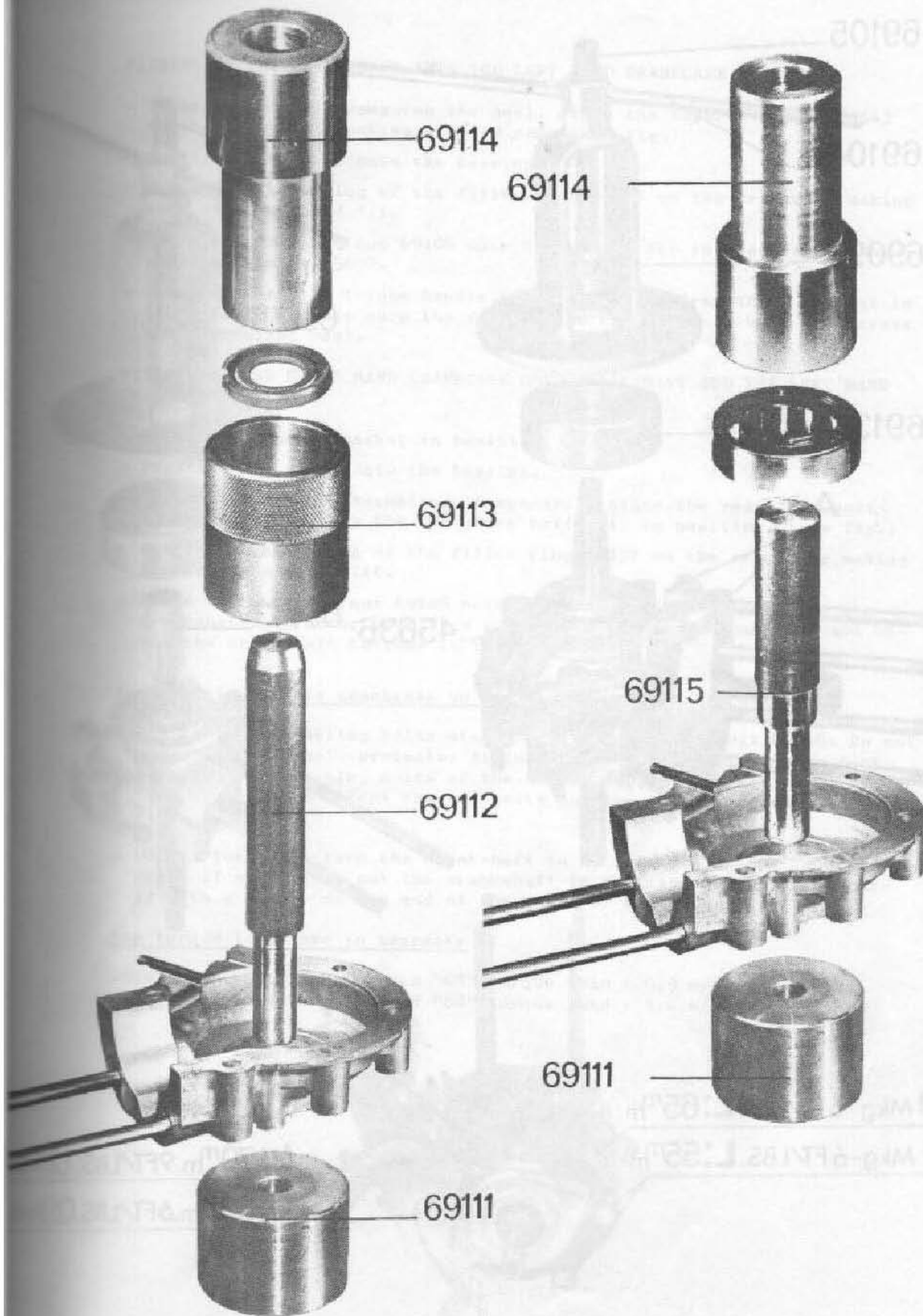
- Put the crankcase down on its mounting surface.
- Heat the crankcase until the bearing falls out by itself and continue to heat for about 15 seconds so the refitting of the new bearing may be accomplished with only 1 heating process.

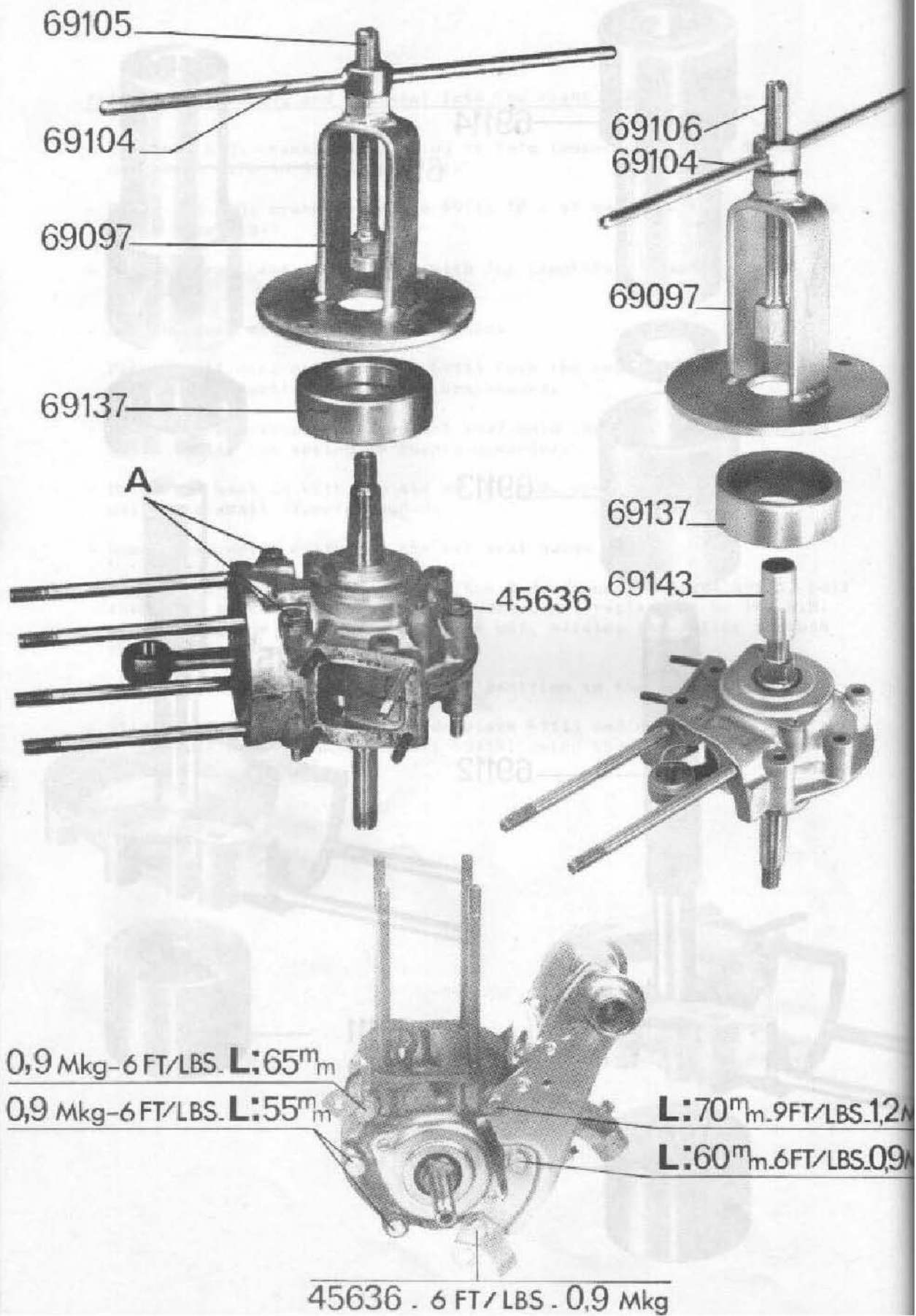
Fitting the bearing and oil seal into the left hand crankcase.

- If the crankcase is not already hot from the removal of bearing, then you must heat the crankcase-half to bring it to a temperature of 80 to 90 degrees C (176 to 194 degrees F).
- Place the crankcase on the L.H. crankcase guide 69108 with the crankshaft chamber pointed upwards (see fig.)
- Fit the oil seal L.H. crankcase guide sleeve 69110 into the bearing bore (the knurled part must project out of the crankcase).
Slide the previously greased oil seal onto the L.H. crankcase guide 69108, while the spring is turned upward, then drive the seal in with the aid of the L.H. crankshaft drift 69109 (using the small diameter end).
- Remove the oil seal guide sleeve 69110 and the driver.
- Put the washer into position.
- Slide the bearing onto the L.H. crankcase guide 69108, then drive it in with the aid of the L.H. crankcase drift 69109 (using the large diameter end). (see fig.)

Fitting the bearing and oil seal into the right hand crankcase

- Heat the R.H. crankcase to bring it to a temperature of 80 to 90 degrees C (176 to 194 degrees F).
- Place the R.H. crankcase guide 69112 ($\phi = 16$ mm) into the guide base, 69111 (see fig.)
- Put the crankcase on the tool with the crankshaft chamber turned upwards.
- Put the felt seal into the crankcase.
- Fit the oil seal guide sleeve 69113 into the bearing bore (the knurled part projecting out of the crankcase).
- Slide the previously greased oil seal onto the R.H. crankcase guide 69112 (while the spring is turned upwards).
- Drive the seal in with the aid of the R.H. crankcase drift 69114, using the small diameter end.
- Remove the drift 69114 and the oil seal guide 69113.
- Without taking the crankcase off the R.H. crankcase guide 69111, pull the guide piece 69112 ($\phi 16$ mm) upwards, and replace it by the R.H. crankcase guide 69115 ($\phi = 17$ by 16 mm), sliding the latter through the oil seal (see fig.)
- Put the bearing thrust washer into position in the crankcase.
- Slide the bearing onto the guide piece 69115 and drive it in with the aid of the R.H. crankcase drift 69114, using the large diameter end.





FITTING OF THE CRANKSHAFT INTO THE LEFT HAND CRANKCASE

- In order to avoid damaging the seal, place the tapered sleeve 69143 on the crankshaft making a solid cone (see fig.)
- Position the shaft onto the bearing.
- Put the 37 mm \varnothing ring of the filler ring 69137 on the crankcase, making sure it is a solid fit.
- Screw the extended nut 69106 onto the shaft. Set in place the crankshaft extractor 69097.
- Screw down on the torque handle 69104 until the crankshaft bottoms in the crankcase (make sure the face of the crankcase is half way across the connecting rod).

FITTING OF THE RIGHT HAND CRANKCASE ONTO CRANKSHAFT AND THE LEFT HAND CRANKCASE ASSEMBLY

- Put the crankcase gasket in position.
- Position the shaft onto the bearing.
- To facilitate the assembling, temporarily place the rectified bolt no. 45636 as well as the two other bolts (A) in position. (see fig.)
- Put the 48 mm \varnothing ring of the filler ring 69137 on the crankcase, making sure it is a solid fit.
- Screw the extended nut 69105 onto the crankshaft end. Position the crankshaft extractor 69097 and screw down the torque handle 69104 until the crankshaft bottoms in the crankcase.

Installation of the crankcase on the engine support brackets.

- Put in the assembling bolts starting with rectified bolt 45636. Do not forget the two belt-protector fixing brackets and position the lock washers on the fixing bolts of the engine support bracket only. Tighten up all bolts except the two bolts holding the belt protector (see fig.)
- Do not forget to turn the crankshaft to be sure its motion is quite free. If necessary, put the crankshaft in position by tapping lightly with a hammer on one end of the shaft or the other.

The torque loads are in brackets

NOTE : For bolt heads marked "68" torque load : 0,9 m/kg - 6 ft/lbs
For bolt heads marked "88" torque load : 1,2 m/kg - 9 ft/lbs

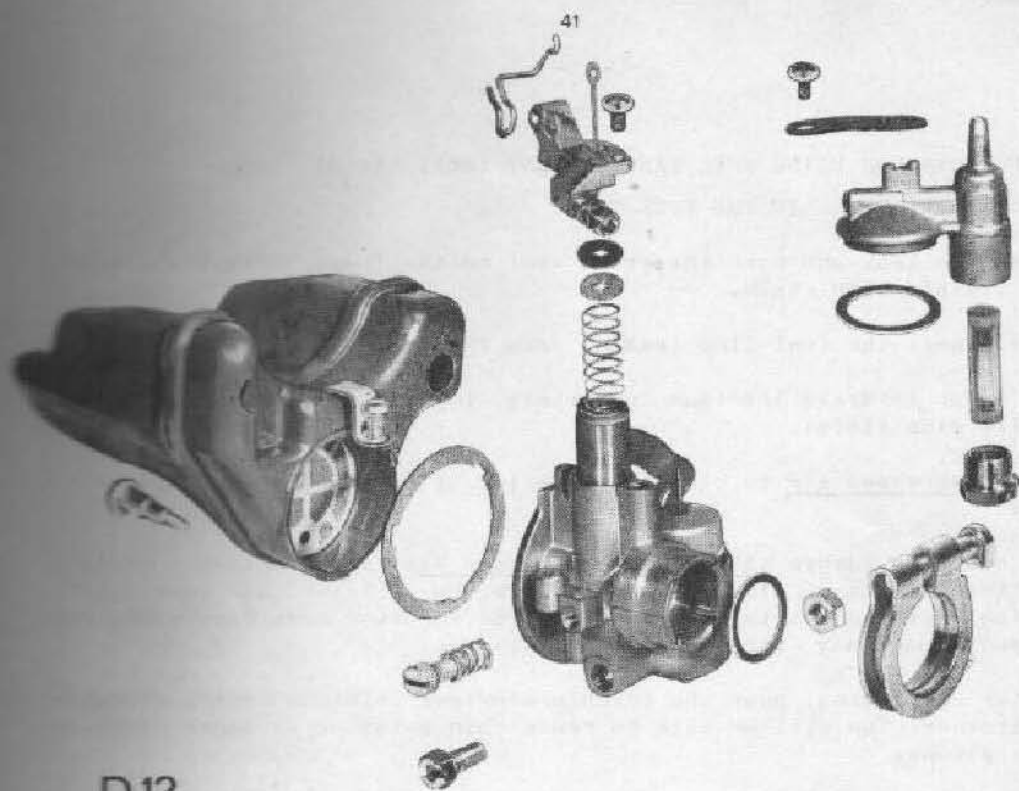
CARBURATOR

Description : see your spare parts catalogue

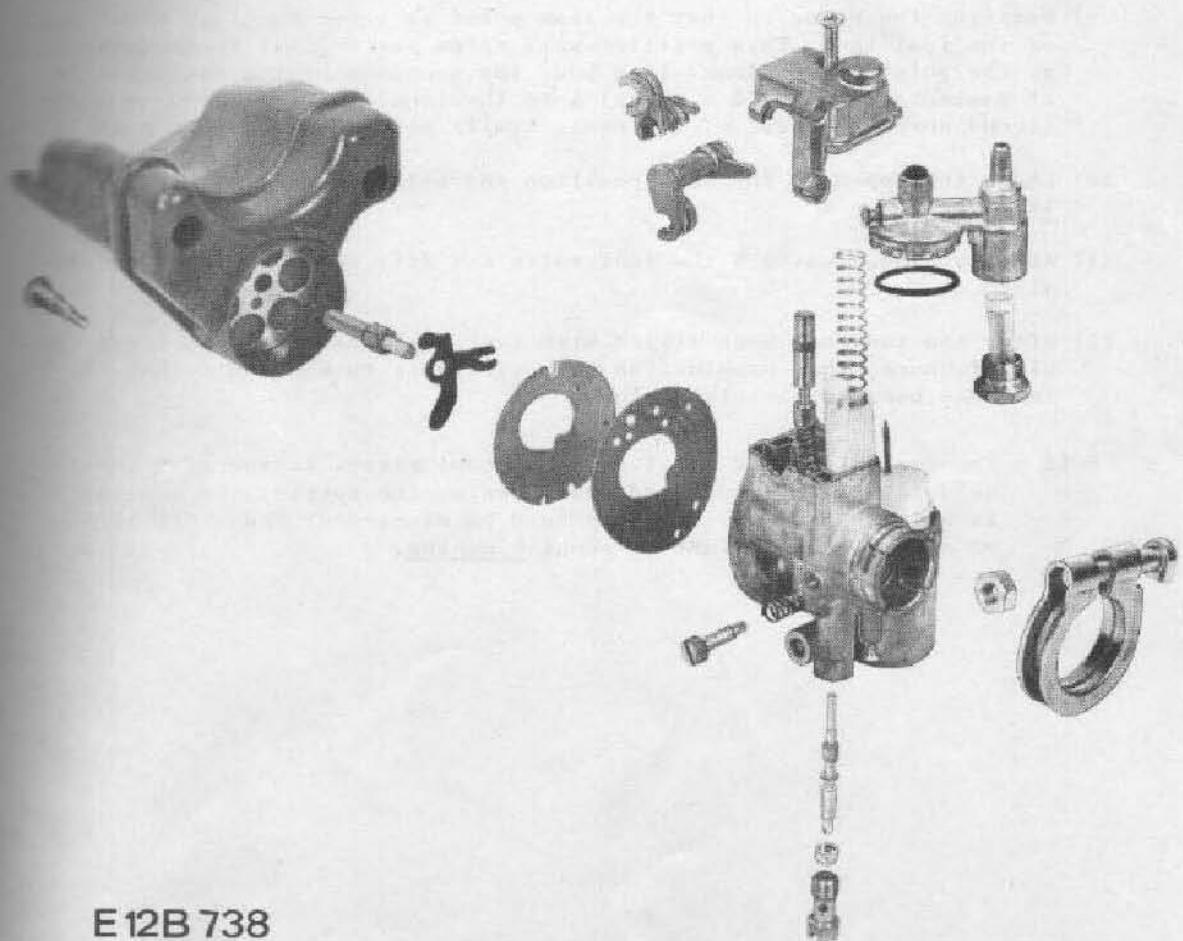
The Gurtner carburator is set before it leaves the factory, and only the adjustment of its "idle" can be modified. However, this adjustment is important because maintaining the correct idle speed allows the engine to run while the vehicle is stationery and insures smooth acceleration from a simple movement of the throttle control. Make this carburator adjustment when the engine is warm by means of the "silver" screw to be found on the right-hand side of the carburator.

Adjustment :

- Remove the engine fairings.
- Start the engine (vehicle on stand).
- Put the throttle control to a "closed" position.
- Completely close the adjusting screw.
- When the engine is warm, slowly loosen the adjusting screw to reduce the engine speed as much as possible so that the rear wheel does not turn.
- When the running speed is slow enough, put the vehicle on its wheels and sit on the seat. The engine should not stall when the rear wheel is grounded in this manner.



D12



E12B 738

INSTRUCTIONS FOR USING FUEL TANK SEALANT (REF. 69158)
TO PLUG SMALL LEAKS IN THE FUEL TANK

- 1) Find the leak and mark the exact spot on the frame or tank where it is visible with chalk.
- 2) Disconnect the fuel line leading from the fuel valve to the carburator.
- 3) In order to drain the tank completely, tip the Moped over on its fuel valve side (left).
- 4) Use compressed air to blow the interior of the fuel tank completely dry.
- 5) In order to remove all excess grease and oil from the inside walls of the fuel tank, close the fuel valve, pour 1 liter (one quart) of trichlorethylene into the tank, replace the fuel tank cap, shake the Moped vigorously for one to two minutes.
- 6) After degreasing, pour the trichlorethylene solution into a storable container. You will be able to reuse this solution in other cleaning operations.
- 7) Remove the fuel valve.
- 8) Use compressed air again to blow the fuel tank interior completely dry.
- 9) Position the Moped so that the leak point is lower than any other part of the fuel tank. This position will allow the sealant to accumulate at the point of the leak. Then pour the contents of the small bottle of sealant (réf. 69158 + 30 cc) into the tank. (If the Moped is positioned correctly, all of the sealant will settle at the leak point).
- 10) Leave the Moped in the same position and allow the sealant to dry for 48 hours.
- 11) After drying, reattach the fuel valve and fill the tank with your fuel mixture.
- 12) After the tank has been filled with fuel, let the Moped sit for a couple of hours, then examine the tank carefully to make sure that the leak has been completely sealed.

NOTE : The sealant should be stored in a cool place. If you find the liquid partially evaporated upon opening the bottle, the sealant is no longer effective and should be discarded. The shelf life of a bottle of sealant is about 6 months.