KREIDLER

Mo-Ped

Assembly
Disassembly
Instructions

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KREIDLER FAHRZEUGE
GMBH & Co. KG
7014 KORNWESTHEIM

Nothing ventured . . .

nothing gained. However, you should work as rationally as possible but take no risks. This manual contains so many illustrations because we know that an illustration normally explains things much better than may words can.
It is not absolutely necessary to follow the instructions contained in this booklet through all phases described. Using your own sound mind may sometimes save unnecessary operations; for instance, the engine need not be removed if you only have to exchange the automatic centrifugal clutch.
By the way, you work much easier if you keep neat order. Small boxes or cans are always useful for depositing small parts. Clean rags, properly dimensioned tools, and the necessary "feel" ensure quick and orderly work performance.
Remember please that only genuine Kreidler spare parts fit correctly, and that you save a lot of time and work if you get the decompression valve bowden cable from the spare parts store rather than attempting to make a cable of your own. A quick repair job permits to charge a reasonable price to the customer, which he will appreciate and thank you by coming again.
Do not forget to specify engine and frame number when ordering spare parts!

Yours very truly,

KREIDLER FAHRZEUGE
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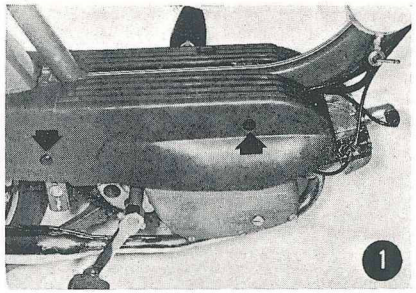
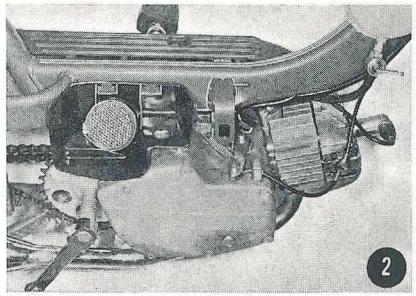


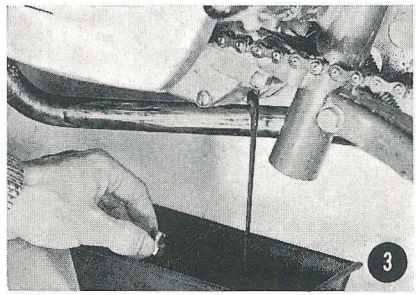
Removing Engine

The engine must be removed only if work must be performed on the crankshaft. For all other work the engine may remain in its mounted position. All screws and nuts of the vehicle have RH threads!

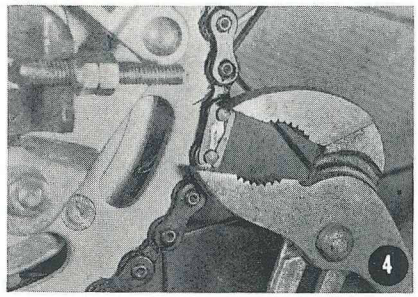


Sequence of Operations:

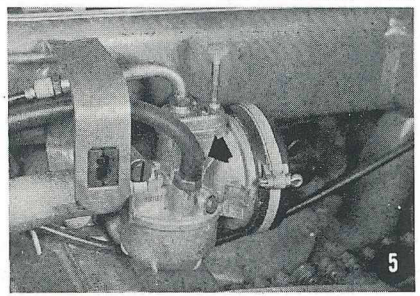
First remove lateral cowling by turning the two plastic screw heads 90° using a screwdriver (Fig. 1). Then drain the oil from the transmission casing while it is warm. Use a 17 mm socket wrench if available (as always, for reducing the wear rate on screw heads) (Fig. 3).



Oil filling capacity 330 cc automatic transmission oil, item No. 215.09.11 K-K 131.

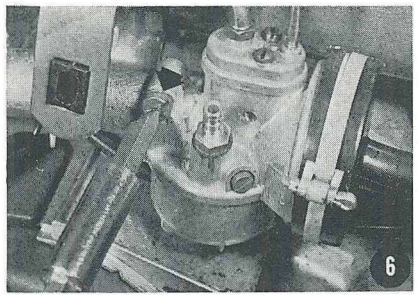


Move the chain connecting engine with rear wheel so that the chain lock rests against the rear sprocket and remove retaining clip using universal pliers (Fig. 4).

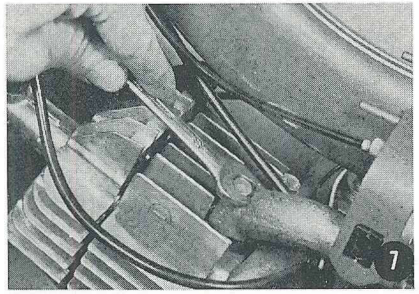


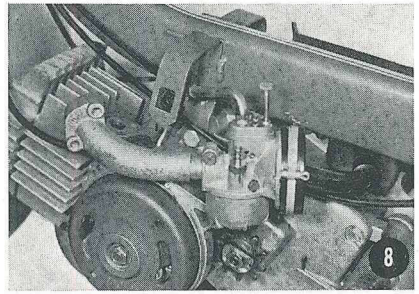
Close fuel valve, if you have not done this before. Pull fuel hose from carburetor simultaneously checking for cracks in the hose (particularly in the area marked by arrow in Fig. 5).

Loosen carburetor binding screw (do not remove) (Fig. 6). Pull carburetor off (by turning). The intake manifold may remain screwed to the cylinder; access to the fastening screws is easier with the engine removed.

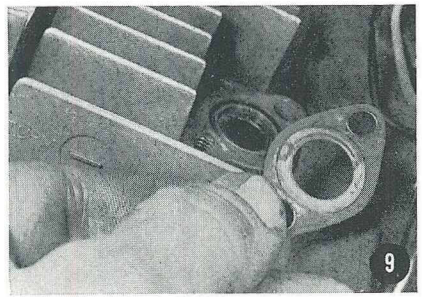


If the intake manifold is disconnected (Figs. 7/8), watch the gasket between manifold and cylinder.

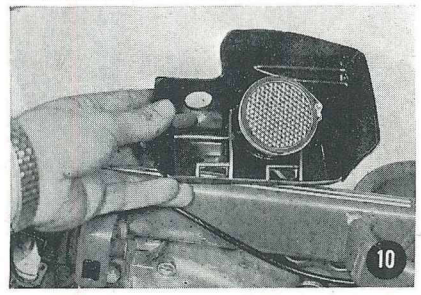


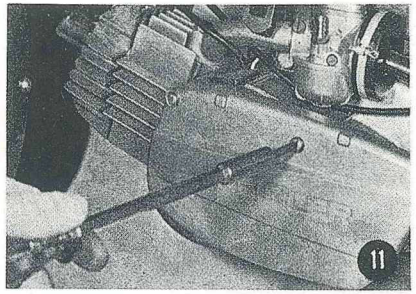


This gasket must be renewed once it has been removed (Fig. 9).

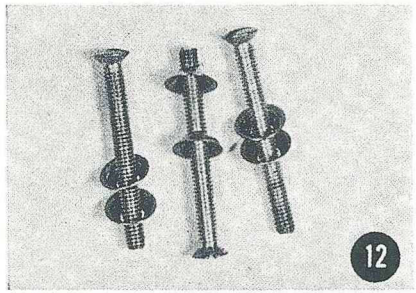


Wrap the carburetor in a clean rag (if it requires no work) and hang it up (e. g. fasten it to the fuel cap using a piece of cord).
The air filter insert housing may be removed without tool. Remove and wash out filter (Fig. 10).

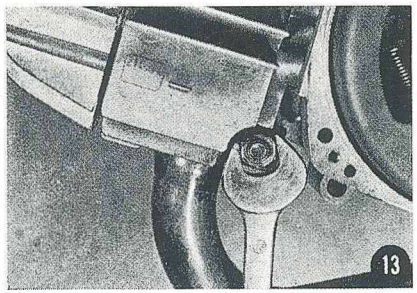




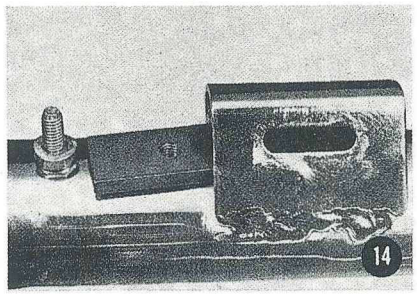
The plastic cover on the left engine side over the flywheel magneto may be unscrewed (Fig. 11).

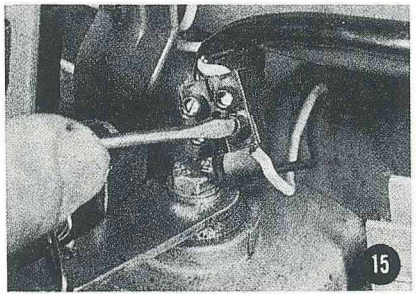


These three bolts are equipped with bell-shaped washers; do not fit standard washers (Fig. 12).



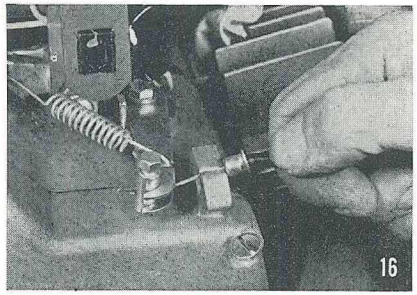
Disconnect exhaust pipe from cylinder (13 mm wrench size, Fig. 13) and unscrew rear muffler mount completely. Caution: Do not lose the flat steel nut piece (Fig. 14). Now, the entire exhaust system may be removed.



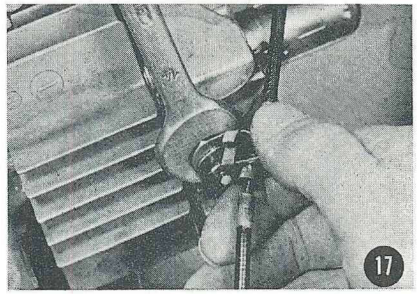


The lustre terminal connects wires of identical colour. Yellow is the line to the headlight; black is the switch-off line leading from the magneto to the short-circuit button (Fig. 15). The lines must be disconnected.

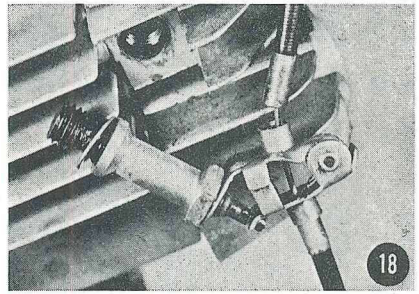
Disconnect the decompression valve cable. The same cable operates also the clutch for flying start, i. e. when the engine is stopped and is to be started by the motion of the vehicle. Cable setting must not be changed! Disconnect from clutch lever on transmission casing (Fig. 16).



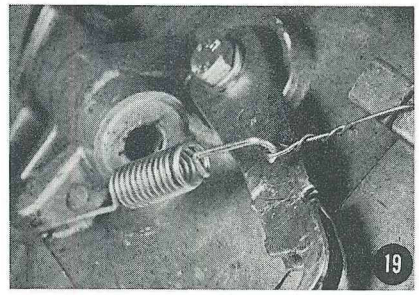
Unscrew decompression valve; turn valve body by its hexagonal portion (14 mm wrench size) only, while holding the cable abutment in your hand (Fig. 17).



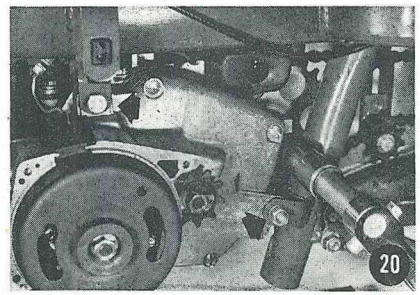
Hang away decompression valve with cable (Fig. 18).

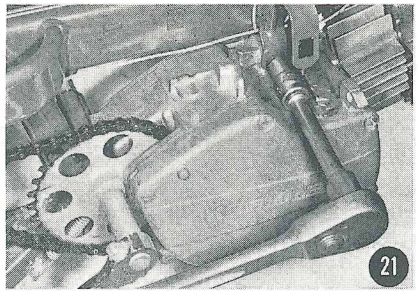


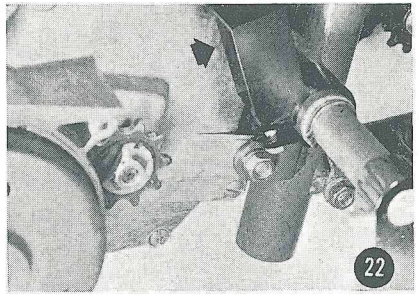
The return spring of the clutch lever on the transmission casing requires disconnection only if the lever bearing on top leaks so that the lever must be removed. Normally the spring is left in its place. With the assistance of the wire loop (Fig. 19) the spring is easily removed and reinstalled.



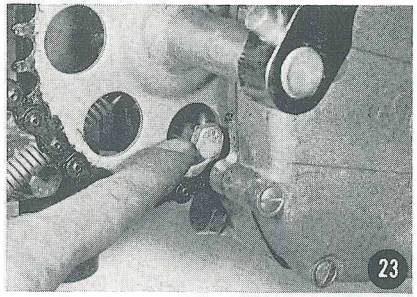
Last the engine mounting bolts (two arrows on Fig. 20) are removed. The wrench size for the bolts and nuts is 13 mm. The rear mount is removed from the left and the front mount from the right side of the vehicle. Ensure the bolts are fitted in their respective locations when the engine is mounted again.





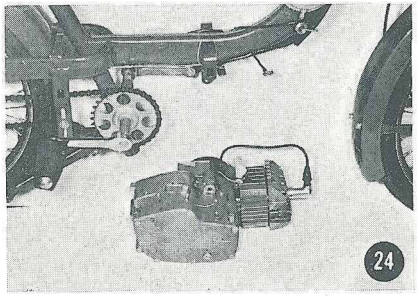


While the upper mounting bolt may be removed without any difficulties (Fig. 21), access to the nut of the lower bolt frequently necessitates the chain guide being loosened and swung upward (Fig. 22).



Finally the bolt is pushed through one of the sprocket holes from the left to the right (Fig. 23).

Prior to pulling the bolts out completely, please hold one hand under the engine and lift it slightly; now the bolts are easily moving (engine weight is only approx. 7.5 kg).

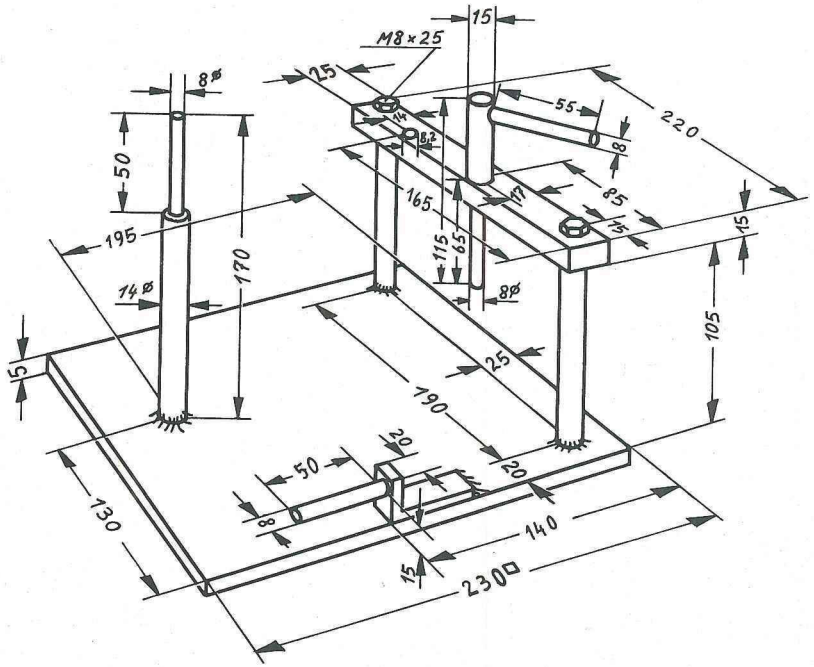


Engine removed (Fig. 24).

Disassembling Engine

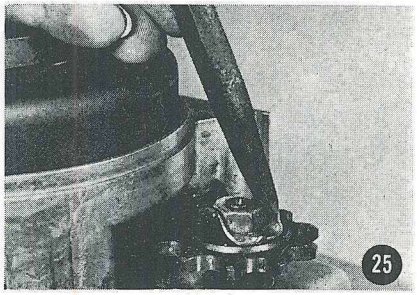
For the work now to be performed we recommend the use of an assembling trestle (selfmade tool as per below drawing). It gives the engine a perfect seat, and you can work with both hands.

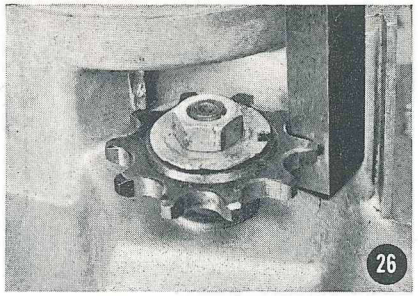
The Assembling Trestle



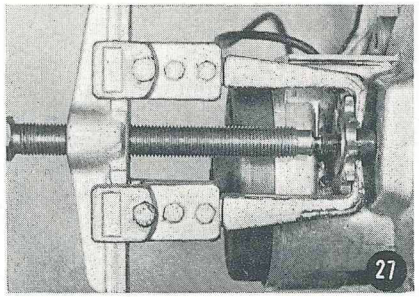
Sequence of Operation: Removing Driving Sprocket

First the driving sprocket is removed. The lock plate underneath the sprocket holding nut must be bent straight (Fig. 25); it will not be fitted again for reassembly!

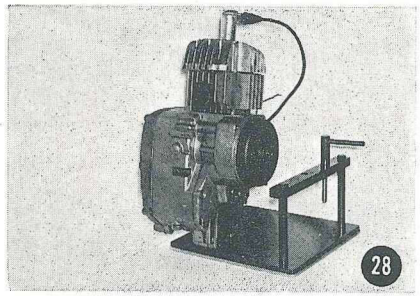




The sprocket wheel must be locked when the nut is to be loosened. This is achieved through various means such as a piece of flat iron material, approx. 16 x 6 x 40 mm in size, which is placed between one of the sprockets and the corner of the housing wall (Fig. 26). However, we recommend the use of the arresting chain (Pt. No. 09.30.42-02/109, Figs. 84 and 77).

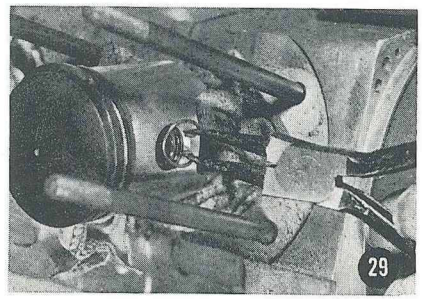


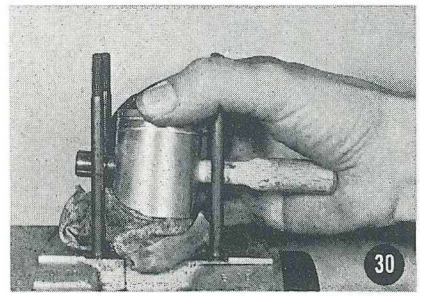
Usually the sprocket wheel is easily removed by placing two screwdrivers underneath and exerting lever action on it. If this does not work, use a universal two-lever puller (Fig. 27).



Disassembling Cylinder and Piston

Place engine on trestle as shown in Fig. 28.
Pull plug connector and remove spark plug.
Together with the cylinder head the cylinder is held by long draw in bolts. Head and cylinder can be removed after the four M 6 nuts (10 mm wrench size, slim socket wrench) have been removed. Do not reuse cylinder head gasket! Watch the four washers underneath the cylinder mounting nuts.
Use snap ring pliers to lift out the two gudgeon pin lock rings after the crankcase has been carefully covered with clean rags (Fig. 29).

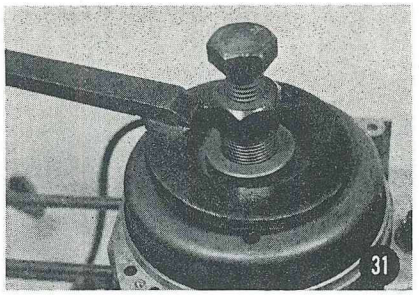




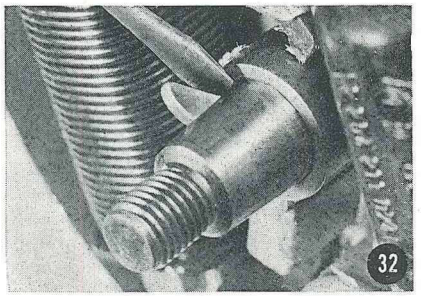
Use a hardwood drift for forcing the gudgeon pin out of the cold piston. If excessive force has to be applied, please check the lock ring groove for burrs which may have built up there (Fig. 30).
(Removal of the piston may be done as the last operation. This, however, necessitates continuous support of the piston by the wooden fork, Pt. No. 09.30.30-02/346, during all operations performed prior).

Removing Ignition System

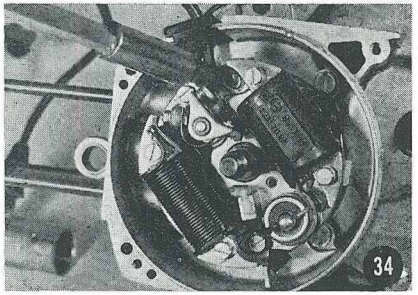
For unscrewing the central mounting nut (M 8 x 1 fine thread, wrench size 13) the flywheel is held via the holding wrench, Pt. No. 09.30.43-02/110. Fit the magnet wheel puller (special tool, Pt. No. 08.12.98-04/21). Then the flywheel is pulled off its crankshaft seat by screwing in the pressure screw, wrench size 22, simultaneously counteracting via the holder (Fig. 31).

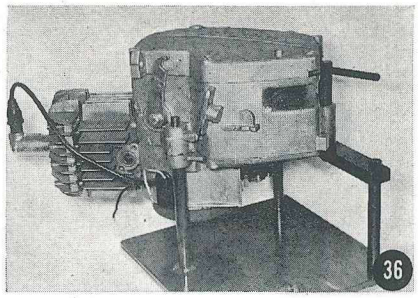


Do not lose the Woodruff key which locates the flywheel on the crankshaft. If it sticks, apply pressure using a screwdriver for levering it out of its seat (Fig. 32).



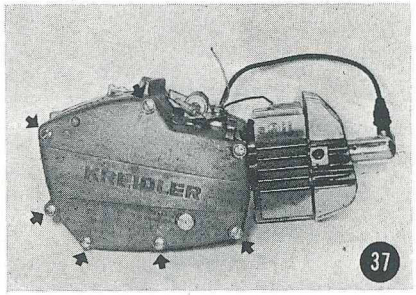
Now unscrew ignition base plate. You may mark its position prior to removal and after having checked firing point and adjusted if necessary. However, it is better to adjust following completion of the repair work (Fig. 34).



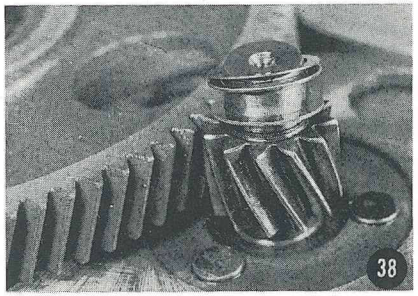


Disassembling Transmission

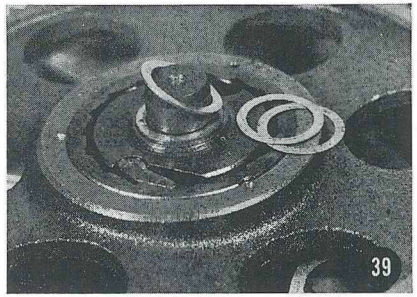
The mounting trestle is an ideal device for this job. Unscrew the housing cover on the right side of the engine. It is fastened with seven M 6 oval slotted head countersunk screws of different lengths. Do not get them mixed up for refitting! (Fig. 37).



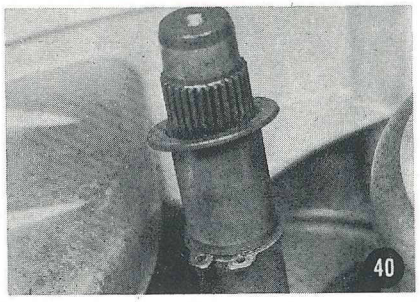
The cover may be easily lifted via three recesses. Place screwdrivers in the recesses (two at a time oppositely arranged) and depress screwdrivers for lifting action.



Watch the compensating washers located on the crankshaft journal as well as on the output shaft (Fig. 38 = crankshaft with clutch housing).

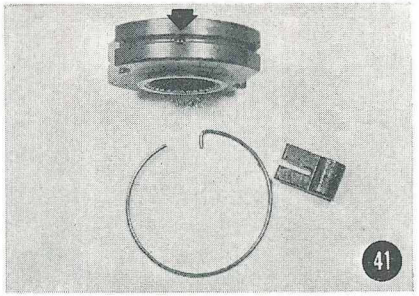


Make sure the washers are not mixed up, because they may be reused for assembly if no shaft or other part must be renewed that influences the length. The exchange of bearings requires no readjustment of the shaft end play since bearings are made to very close tolerances. (Fig. 39 shows the washers on the output shaft; you can also recognize the free wheeling lock).

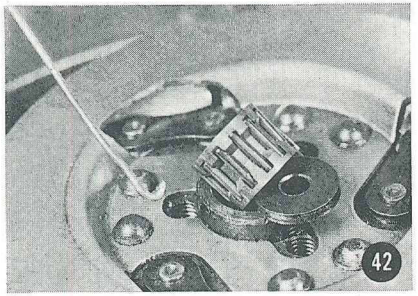


Remove the large gear with free wheeling mechanism; underneath you find a thrust washer (1.0 mm thick) which never needs replacement and supports the gear in the direction of the snap ring (Fig. 40). The snap ring is never removed.

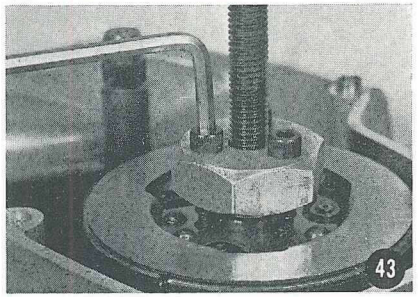
Fig. 41 gives the details of the free wheeling mechanism: the free wheeling lock carrier on top, and on the bottom the circular spring which presses the lock outward. Note for assembly: The circular wire is inserted into the bore marked by the arrow so that the lock actually spreads outwardly! The bore is located off-center between the two recesses!



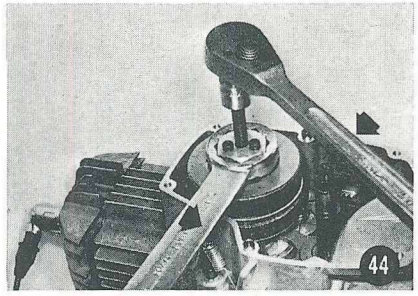
The clutch housing (spare part nomenclature: "Pinion, 12 teeth, complete") is removed manually. Its inner journal holds a small needle bearing, which sometimes sticks in the bore of the clutch body. Remove it as well as the thick thrust washer underneath using a wire hook (Fig. 42).



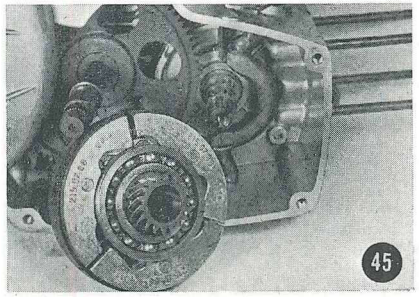
Now fasten the special puller, Pt. No. 09.11.12-04/42 (hexagonal socket head bolts for Allen wrench, size 4, Fig. 43).

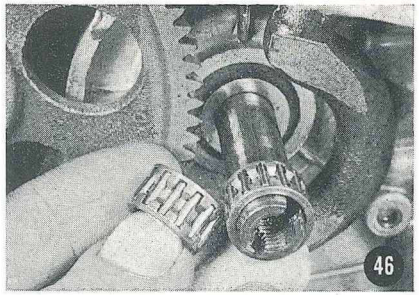


Hold the tool (and thus the crankshaft) with a 36 mm wrench and apply vigorous pressure on the central pressure screw by turning same via a 17 mm wrench. Locate the 36 mm wrench against the work bench so that you have one hand free to support the engine (Fig. 44).



When the top part of the clutch is removed, the internal part with thrust bearing can be removed by hand. The ball bearing is loosely fitted rather than pressed on its seat (Fig. 45).





The free crankshaft journal now still holds two needle bearings and a thrust washer (Fig. 46) which must be fitted in exactly the same location with assembly. Worn clutch parts should be renewed rather than repaired.

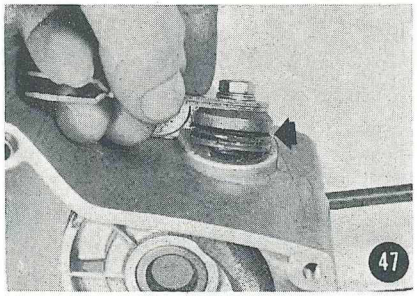
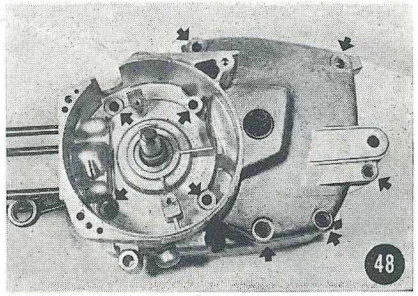
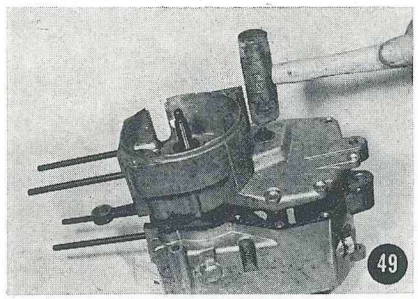


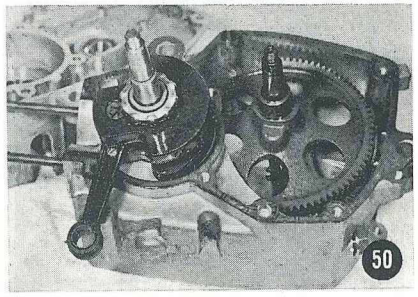
Fig. 47: The clutch control shaft is manually disassembled. The arrow points to the O-ring installed as a seal.



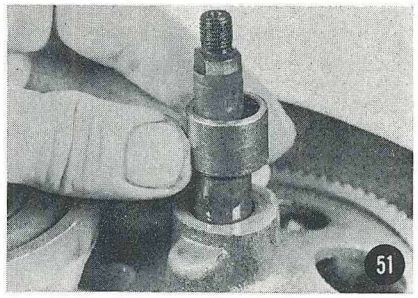
The two crankcase halves are held together by nine screws. The four screws inside the magneto housing are M 6 x 45 with fillister head; the remaining five are oval head countersunk screws M 6 x 30 (Fig. 48).

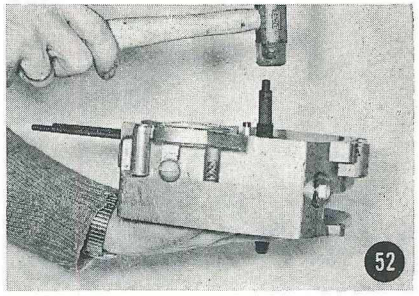


The crankcase halves may be separated without applying force. Just make sure the output shaft does not stick in the bearing, which would cause tilting. Light (very light) blows with a plastic hammer may be helpful (Figs. 49 and 50).



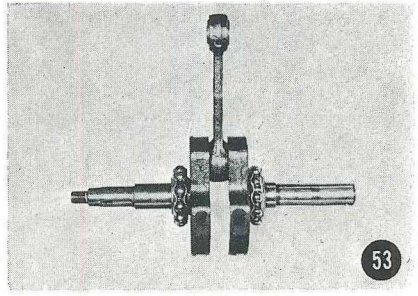
Make sure the spacer on the output shaft does not get lost (Fig. 51), and do not forget to refit it!
Now the large gear on the output shaft must be removed because shaft and gear cannot be removed from the housing as a unit. Hold the gear from underneath with one hand (and support the crankcase) and knock the shaft out by blows with a plastic hammer on the top. Never use a steel hammer; it would damage the thread on the shaft journal without fail. Let the shaft fall on something soft; you can hardly catch it with your hands (Fig. 52) (The mounting trestle solves this problem).
Do not lose the Woodruff key fitted on the shaft.
Remove transmission output shaft only if the bearing behind the pinion is damaged. For all other repairs shaft and gear may be left in mounted position, even if, for instance, the crankshaft must be exchanged.
Therefore, it does not make any difference if you first disassemble the two crankcase halves and then knock the shaft out of the gear, or if you knock out the shaft first and then disassemble the case. However, in both cases the gear should be carefully supported. Do not just place it against the case wall (or against the pinion bearing for assembly).

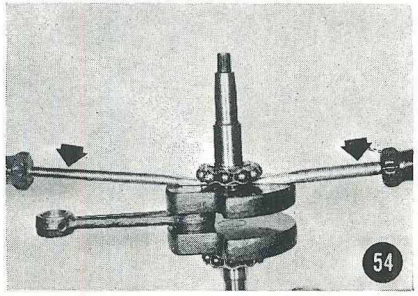




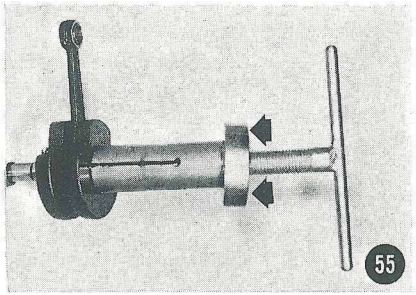
Repairing the Crankshaft

If the crankshaft bearings are worn or show excessive play, they must be exchanged. Apply two screwdrivers for forcing the cage with the balls off the inner race (Fig. 54).

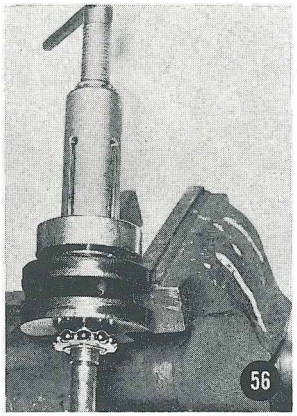




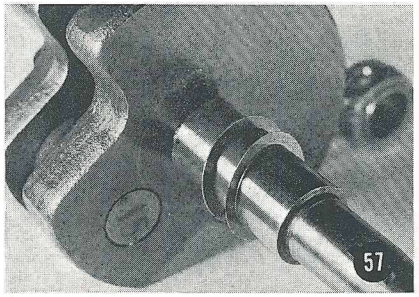
The inner races can be removed from the shaft journal only with a special tool, Pt. No. 09.11.11-26/12. The tool is positioned with the pressure ring in its upper position; then the ring is forced down so that it closes the collet which grips the race in the ball groove. Ensure that only the upper crankshaft web is held during the blows against the ring so that no pressure is exerted upon the crankpin (Fig. 55). Do not clamp in a vise for mounting the puller because the hammer blows would cause the shaft to slip out of the vise.



The inner race is now unseated by vigorously turning the tool pressure screw. Only now it proves advantageous to clamp the small diameter portion of the upper lifting disc in a vise because otherwise you are unable to apply sufficient torque. Clamp the disc somewhat inclined to ensure that only one web is caught and no pressure (or twist) is transferred via the crankpin, since this would bend the crankshaft (Fig. 56).

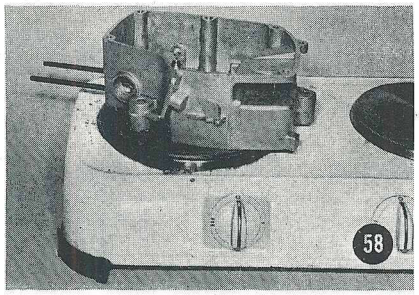


Below the bearing races you find the washers for axial crankshaft play compensation. Normally, the position of these spacers requires no change if new bearings are seated because the inner bearing races are made to very close tolerances. Accordingly, the washers must be marked and kept separate (Fig. 57). If it is found later on that another washer must be added, it must be fitted on the magneto side of the crankshaft.



Removing Bearings from the case halves

Now only the shaft seals and bearings are left in the case halves. As a matter of principle the halves must be heated when the bearings are to be removed. At 100° C sprayed on water would fizz, however, this is much too low. You need about 150° C, which exist when the oil left on the case starts developing smoke. At that temperature the bearings usually fall out by themselves; however, if necessary, you may gently



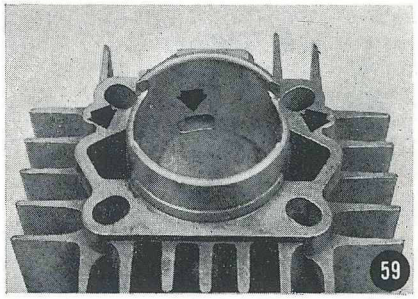
hit the case ribs with a plastic hammer (do not hit on the sealing surfaces). If a bearing should be unexpectedly tight in its seat, you may use an angular screwdriver for a lever arm. Do not use a welding torch. One accidental movement with the torch may melt the aluminium within seconds (particularly in thin places). Propane gas is risky, too. The least risk offers a hot plate (Fig. 58).

Universally applicable tools are readily available on the market for pulling bearings from housing seats; however, their economical employment is only warranted in large repair shops. Even if you use such bearing pullers you must always heat the housing since repeated bearing exchange in cold condition will damage the bearing seat in the housing so that a tight fit is no longer ensured.

When fitting new bearings in the housing parts make sure the bearings are pressed in all the way against the stop in the seat. Shaft seals should be pressed into their seat until they are flush with the edge of the seat bore.

Preparation for Assembly

In addition to thoroughly cleaning all components, some special tasks should be performed prior to starting assembling work. For instance, the parts should be checked for signs of wear with particular attention to the bearing surfaces of the shaft seals. If these surfaces show ridges, the shaft seals (even new ones) can not be expected to function properly. In this case the shafts must be reground, i. e. they must be exchanged. Ridges on the crankshaft journals are undesirable because insufficient sealing causes not only loss of oil but also intake of air through the defective shaft seal, which in turn results in engine overheating!
Gaskets are installed between the two crankcase halves and under the clutch case cover. These paper gaskets are always installed without sealing compound. Instead, some grease is applied to the metal bearing surface to make it stick and prevent displacement during assembly. The cylinder bottom end gasket is applied in the same way. Ascertain that the crankcase gasket does not protrude over the partition so that the bottom end gasket will be arched.
It is a standing rule to renew all gaskets and seals when the engine has been disassembled. Under no circumstances may the cylinder-head gasket (soft aluminium) be reused.
Component cleaning includes cleaning of the cylinder ports as well as the removal of oil carbon in the cylinder head and on the piston head (Figs. 59/60). Use only soft (copper or aluminium) scrapers.
Remove the oil carbon also from the piston ring grooves. The best-suitable tool for this is a piece of an old piston ring or a special piston ring groove cleaning tool.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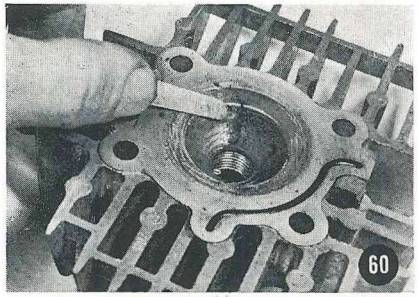
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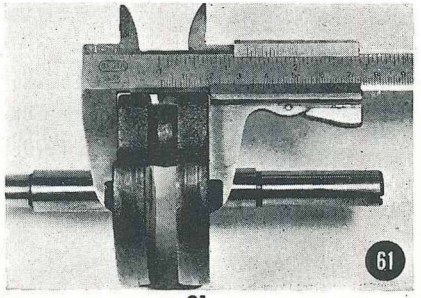
Assembling Engine

Actually the engine is assembled in the reverse sequence given for disassembly. Of course, you should ascertain that all of the parts removed are refitted and none forgotten. This is why we show you pictures of all locations equipped with thrust washers and spacers.
In the event of extensive repair work requiring exchange of the crankshaft or output shaft or gears or pawl carrier of the free wheel mechanism the float of the respective shaft must be adjusted. By the way the dial gauge holder provided for the FLORETT engines is also suitable for this type engine.
For the below described measurements we recommend a depth gauge with an approximate bridge length of 150 mm.

Measuring Crankshaft End Play

The crankshaft should have 0 to 0.5 mm end play in the shoulder bearings. Play is adjusted via the compensation washers under the bearing inner races of the shaft. Therefore, you should measure the crankshaft width before pressing the bearing races on their seats (Fig. 61).
Measure the depth of the two crankshaft halves by inserting the bearing inner race with ball cage into the bearing outer race in the case. Measure distance between case sealing surface and bearing inner race (Fig. 62) using a depth gauge having a minimum bridge length of 150 mm (You may also bridge the distance between the two supporting points on the sealing surface with a rule).
Example for measuring: Crankshaft thickness (as per Fig. 61) = 32.0 mm; depth of both crankcase halves = 30.4 and 2.5 = 32.9 mm.
Add gasket thickness estimated to be approx. 0.15 mm when compressed; thus the free internal case width is 33.05 mm; deduct crankshaft thickness: 33.05 minus 32.0 = 1.05 mm. In order to obtain 0.05 mm play, 1.0 mm must be compensated via the compensation washers by placing them under the bearing inner races. Washers of the same thickness should be grouped under both inner races, i. e. each 0.5 mm in our example.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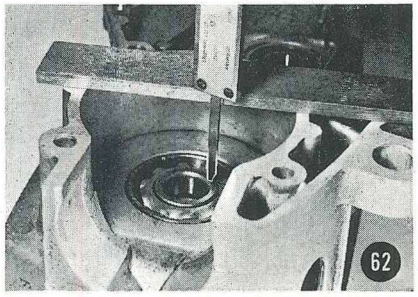
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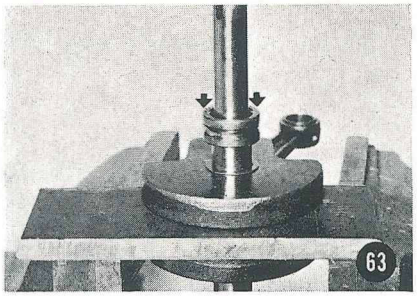
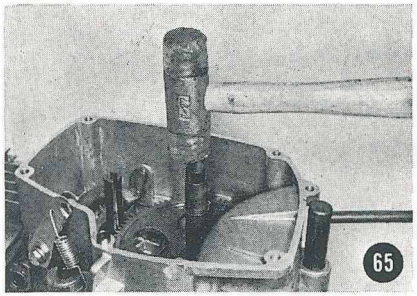
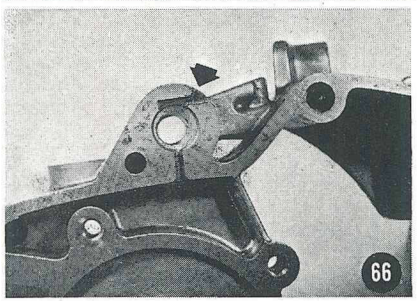


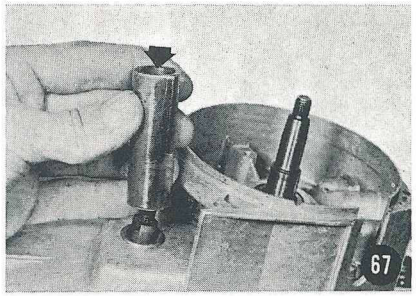
If an additional compensation washer is required for the crankshaft of an engine in which no essential parts were exchanged, the washer is always placed on the magneto side of the crankshaft. After measuring the inner races are pressed on the crankshaft journals. It is a good idea to support the crankshaft by a piece of flat iron (as shown in Fig. 63). CAUTION: Never apply any blows in a way that pressure is exerted on the crankpin. We recommend to use a pipe of approx. 20 mm I. D. for pressing the bearing races on their seats.

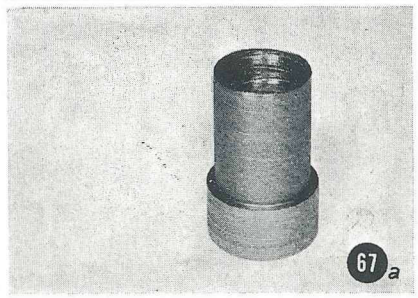


Prior to assembling the two crankcase halves make sure the labyrinth-type vent ports are not clogged (Fig. 66).



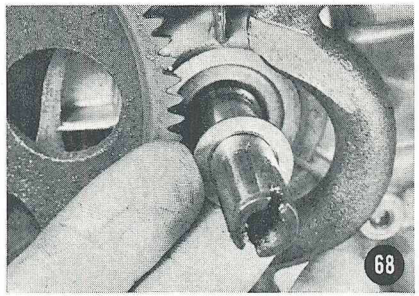
For shaft seal protection, the protective sleeves (Fig. 67 a) (same as with FLORETT engines) are fitted before the journals are inserted into the shaft seals. The seal of the output shaft may be pressed on its seat with a piece of pipe from the outside even after the shaft has been fitted, by carefully sliding it over the drive shaft shoulders; the shaft can thus be pressed into its seat using "less care". In any case the shaft seal metal liner points to the outside, i. e. the sealing lip points inward (as shown on Figs. 67/68). The seals are pressed onto their seats so that the metal liner is flush with the case (Fig. 68). Finally the crankcase halves are mounted via the four slotted fillister-head and five oval-head countersunk screws. Watch the lengths of the screws! (cf also page 16, Fig. 48).



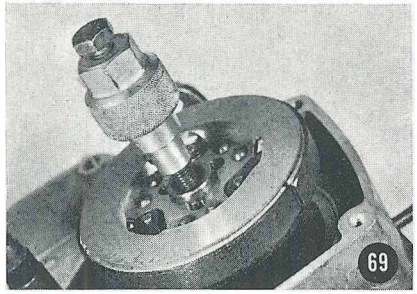


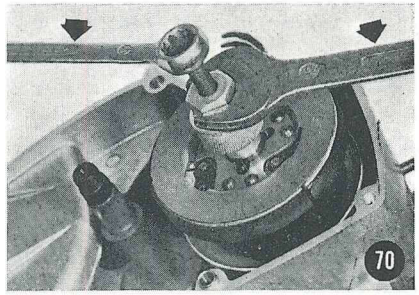
Now we place the spacer and the large gear in the transmission case and press the output shaft into the gear. Ascertain that the keyway of the gear aligns with the Woodruff key of the shaft. Now insert shaft with gear into the bearing, watching the spacer; if necessary, use a plastic hammer for applying gentle blows (Fig. 65).

Now we place the thrust washer (Fig. 68) on the crankshaft journal, then the two needle bearings, and then the clutch body with the ball bearing. The outer clutch body is fitted to the shaft with an interference fit, for which the assembly tool Pt. No. 09.11.13-04/17 (Fig. 69) is required.



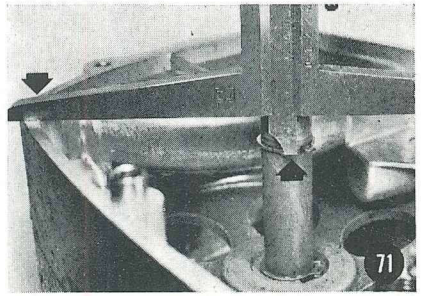
The pressure bolt (M 8) is screwed into the crankshaft thread (Fig. 69); via the pressure piece the clutch body is tightened against the stop, which can clearly be felt (Fig. 70). The pressure bolt is held with a size 13 mm wrench while the pressure piece is tightened via its hexagonal portion. Ensure that the clutch body is actually pushed against the stop. Advance motion should be hard, sometimes even jerky and producing sqeaks; this indicates correct tightness of the fit, which is no longer ensured if the clutch body can easily be pressed on its seat.

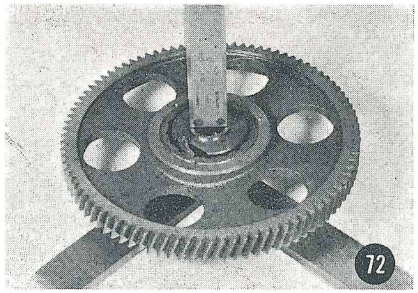




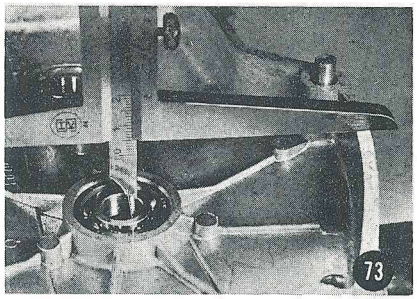
Measuring Transmission Shaft Float

Press the output shaft securely against the LH bearing. Then measure the distance between case sealing surface and top snap ring on shaft, e. g. 12 mm. The 1.0 mm thick washer still must be fitted so that this dimension is reduced to 11 mm. (Measure without washer because it tilts and falsifies the dimension measured) (Fig. 71).

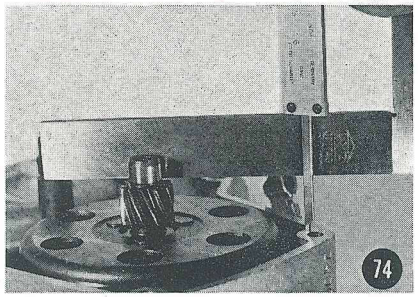




Measure the thickness of the large gear (Fig. 72) and then the depth between the bearing in the cover and cover sealing surface (Fig. 73).
For an example we assume this dimension to be 20.0 mm; this gives us a distance of 31 mm between the thrust washer on the snap ring and the bearing inner race in the cover.



Let's assume the gear is 29.3 mm thick, i. e. the difference between the two dimensions is 1.7 mm. Since the float of this shaft is to be 0.1 to 0.20 mm and the gasket with 0.15 mm must be considered, we may fill all of the 1.7 mm with washers placed on the large gear.



The distance between the fitted clutch case (spare parts list nomenclature: pinion, 12 teeth, complete) and bearing inner race in the cover must also be measured. Here it is difficult to position the depth gauge; two-step measuring (Figs. 75/76) is recommended.

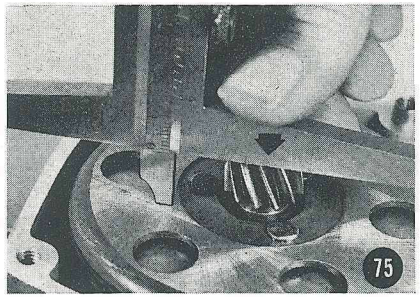
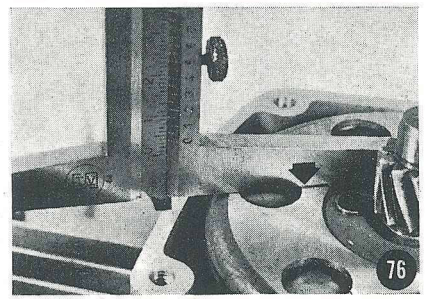


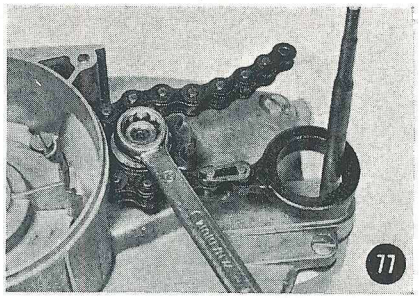
Fig. 74 illustrates a measuring method requiring excessive "feel". The measured distance is pinion – case sealing surface. Also here the lateral play of the clutch case must be 0.1 to 0.20 mm, and the compensating washers on the pinion 12 teeth, must be measured for obtaining the correct value.



Do not forget to position the thrust washer and needle bearing in the pressed on clutch part prior to fitting the clutch case with pinion, 12 teeth.

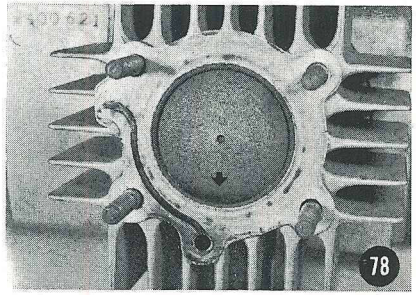
Following float compensation for the shafts, the paper gasket is applied using grease, and the case cover screwed on. Watch screw lengths.

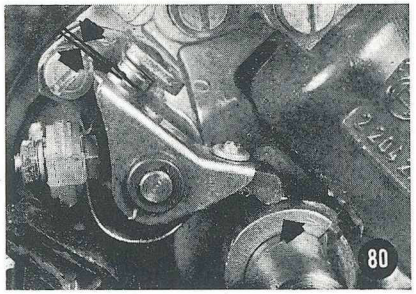
The further assembly steps again are reversals of the disassembly such as fitting the sprocket wheel. Again the wheel must be held, the nut well tightened and secured by bending the locking plate against the flats of the hex nut. Always use a new locking plate. Locate plate nose in the wheel bore. Mount the wheel with its small lug pointing upward or in direction of rotation. Fig. 77 illustrates the application of the arresting chain Pt. No. 09.30.42-02/109.



Assembling Piston, Cylinder and Cylinder Head

Ascertain that the piston is mounted with the arrow on the piston head pointing in exhaust direction (Fig. 78) and make sure the crankcase is covered by rags while the wire lock rings for the gudgeon pin are fitted. The gudgeon pin must slide into the piston by the pressure of the palm (if necessary, use a hardwood drift as recommended for disassembly). The piston must be easily moving in the connecting rod and show no essential play when tilted.
If the gudgeon pin is not perfectly seating in the connecting rod, do not ream the small end bush, but select a different gudgeon pin (always together with its piston!). If a new small end bush must be fitted (due to excessive wear or oval wear, for instance), do not attempt to ream the bush by hand. If you have no suitable equipment for this job, send the crankshaft to the manufacturer for repair!
Mount the cylinder after cylinder bottom end gasket. Ensure proper seating of the piston rings in the piston grooves. The ring gap (both ring ends) must rest against the safety pin in the groove. Both safety pins are visible from top (engine in mounting position).
Do not rotate the piston when mounting, press piston rings with your finger nails so that the cylinder will easily slide over the piston. Also here the wooden fork offers valuable assistance. Piston and cylinder barrel should be lightly oiled prior to assembly.
Fit cylinder head gasket, position cylinder head, and tighten the four M 6 nuts crosswise using a slim socket wrench. Tighten equally one after the other in steps rather than one all the way until all show 1 mkp torque.



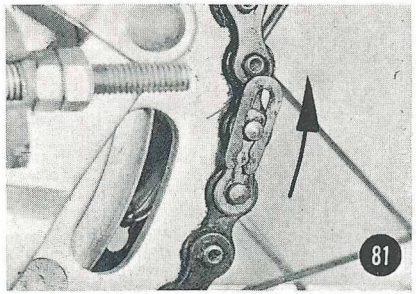


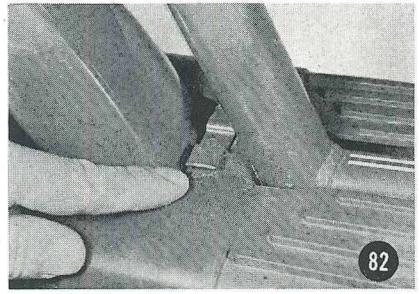
Reinstalling Ignition

The ignition should be installed also following completion of the repair work. Fit ignition base plate using the scratch marks applied prior to removal for orientation. However, normally the ignition requires complete readjustment.
Set breaker point gap to exactly 0.4 mm. Fit magnet wheel and rotate until the highest point of the cam opposes the sliding shoe of the breaker. Determine the firing point through the spark plug bore using a gage. The breaker must commence lifting motion exactly 1.2–1.4 mm before the TDC of the piston. If not, loosen ignition base plate (2 cylinder head screws M 4 x 15) and adjust to correct lifting position by adjusting the base plate accordingly. Firing point should be 6 to 9 mm.
Measuring buzzers (Bosch Pt. No. 0 681 169 016 EFAW 87) make the firing point clearly visible.

Mounting Engine

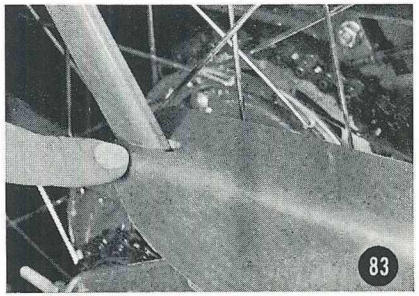
Now the engine is ready to be mounted to the frame. Insert the two mounting bolts in proper direction and tighten nuts. Connect electric wiring to lustre terminal (yellow to yellow, black to black); screw in decompression valve and fit cable to the clutch lever and adjust, if required, according to operator's manual. Fit intake manifold and carburetor (it is easier to fit the intake manifold before, but do not forget to fit a new gasket!); fit filter housing with air filter; fit fuel hose. Swing rear wheel chain guide into correct position mounting of chain ensuring that the closed end of the chain lock retaining clip shows in direction of chain travel (Fig. 81).
Fill oil into transmission!
Loosely fasten exhaust pipe and muffler in front and rear, seat pipe properly and tighten first in front and then in the rear. Fasten plastic cover to the engine case on magneto side and apply the two lateral plastic cowlings utilizing the cowling arrests for perfect seating. In the height of the carburetor a round pin snaps into the cowling while two fixed points are provided on the rear frame pipe and by the luggage carrier brace (Fig. 82/83).





Final Inspection

You should make it your standard operating procedure to carefully recheck all items before you start the engine for a trial run: Is oil in the transmission? Is the ignition adjusted? Are all screws and nuts tightened? Is the contact breaker secured? Is the decompression valve fitted and tight? Is the clutch lever properly adjusted and its return spring fitted? Of course, the brake function and setting must be checked before you make a road test.



Technical data

Engine	
Type	horizontally installed single cylinder two stroke engine
Bore stroke	1.58 x 1.55 in. = 40 x 39.7 mm
Piston displacement	3.045 cub. in = 49 cc
Continuous output	2 HP
with rpm	4,250
Compression ratio	1:10
Cooling	air stream
Cylinder with piston	aluminium hard chrome plated
Cylinder head nuts	torque 0.9–1.1 kpm
Power transmission (gearbox)	
	2-speed automatic
Oil capacity	330 cc (1/3 quart) KREIDLER-Special-Automatiköl or Mobiloil ATF 210 resp. Ford Specification 2 P-630 822 (M 2 C – 33 F)
Primary drive	1st gear 1:7.67 2nd gear 1:23
Final drive	1st gear 1:4.83 2nd gear 1:14.5
Drive chain	1/2" x 3/16", 102 links including connecting link
Front sprocket	12 teeth
Rear sprocket	36 teeth
Ignition system	
Type	BOSCH fly wheel magneto
Capacity	6 V 27/10 W (SAE N 70)
Firing point	1.2 – 1.4 mm before TDC = 18–19° crank angle
Sparkplug	Bosch W 175 T 1, Beru 175/4, Champion L 86
Electrode gap	0.4 mm to 0.5 mm
Carburetor	
Type	Bing 1/12/260
Main jet	68
Needle jet	2.17
Jet needle	46–042/pos. 2
Throttle slide	22-140-10

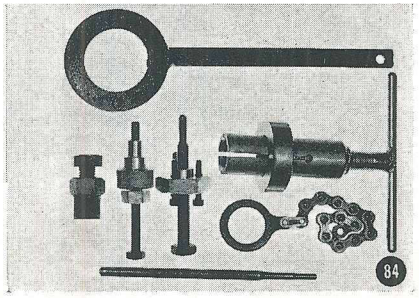
End play	
crankshaft in housing	0–0.05 mm
between crankshaft and sproket 18 teeth	0.1–0.6 mm
between sproket 12 teeth and ball bearing 6001/C 3	0.1–0.2 mm
between shaft and ball bearing 6001/C 3	0.1–0.2 mm

Special Tools

Fig. 84 shows the special tools available from KREIDLER Aftersales-Service or any KREIDLER spare parts depot.

In addition, you need a size 36 mm open-mouth or socket wrench for arresting the puller for the centrifugal clutch as well as a wooden fork for holding the piston during disassembly, which is available under Pt. No. 09.30.30-02/346.

The special tools on Fig. 84 have the following nomenclatures and Pt. Nos.:
Top: Wrench for holding magnet wheel, Pt. No. 09.30.43-02/110
2nd row from left: Magnet wheel puller, Pt. No. 08.12.98-04/21
Mounting tool for centrifugal clutch, Pt. No. 09.11.13-04/17
Puller for centrifugal clutch, Pt. No. 09.11.12-04/42
Puller for bearing race crankshaft, Pt. No. 09.11.11-26/12
Bottom: Arresting chain for output sprocket wheel, Pt. No. 09.30-42-02/109.



Clustr. No.	Nomenclature
—	engine, complete, 2-speed-automatic
1	oval head countersunk screw
2	washer
3	ignition cover
4	hex. unit
5	lock washer
6	revolving field
8	lock washer
9	hex. head screw
10	hex. unit
11	set of contacts
12	cable
13	cable
—	magneto generator 6 V 27/10 W
14	wire support
15	stud bold
16	ignition cable
17	protective cap
18	partially shielded suppressing socket
19	spark splug
20	hex. nut
21	washer
22	cylinder head
23	cylinder head gasket
24	cylinder
25	cylinder gasket
26	decompression valve
27	ring seal
28	hex. head screw
29	lock washer
30	intake socket
31	intake socket gasket
32	piston ring
33	piston
—	bolt
—	wire snap ring
34	hex. head screw
35	lock washer
36	washer
37	clutch lever
38	spacer
39	O-ring
40	return spring
41	clutch shaft
42	carburator
43	compensating disc
44	ball bearing
45	needle cage
46	pinion
47	clutch II
48	disengaging spring
49	supporting disc
50	circlip
51	clutch I
52	spacer disc
53	needle cage
54	pinion
55	compensating disc 0.5 mm
55	compensating disc 0.3 mm
55	compensating disc 0.1 mm
56	ball bearing
57	housing left
58	oval head countersunk screw
59	sealring
60	locking screw
61	hex. head screw
62	hex. head screw
63	lock washer
64	lock washer
65	generator armature
66	hex. head screw
67	lube wick
68	cable
69	capacitor
70	hex. head screw
71	generator armature
72	armature plate
73	protective cap
74	sealring
75	hex. nut
76	lock plate
77	pinion
78	oval head countersunk screw
79	housing left
80	housing gasket
81	key
82	crankshaft complete with piston
—	bush
83	ball bearing BO 15
—	space disc
—	compensating disc 0.1 mm
—	compensating disc 0.15 mm
—	compensating disc 0.2 mm
84	sealring
85	ball bearing
86	fitting busting
87	sealring
88	housing center part
89	sealring
90	locking screw
91	housing gasket right
92	spacer bush
93	gear 87 teeth
94	snap ring
95	shaft
96	key
97	snap ring
98	thrust washer
99	gear 98 teeth
100	annual wire spring
101	pawl carrier
102	compensating disc 0.1 mm
102	compensating disc 0.3 mm
102	compensating disc 0.5 mm
103	pawl
104	fitting busting
105	oval head countersunk screw