

**ANDREAS STIHL - MASCHINENFABRIK - 705 WAIBLINGEN - NEUSTADT**



**Service Shop Manual**  
**for Power Chain Saw** **1106**

# **Service Shop Manual for Power Chain Saw 1106**

This Service Shop Manual relates to power chain saws 1106 of December 1963 construction starting with Machine No. 275000.

Our technical bulletins you got up to now will help you when repairing power chain saws of the same model but with a lower Machine No. In future, you will be informed on all important changes by supplementary sheets, on top of which you will find the letters "a — b — c" etc. in addition to the page number of the original.

This guide book should be used only for the instruction of our dealers and our authorized service shops. It is prohibited to hand over or to lend this manual to other persons.

| <b>CONTENTS</b>                 | <b>Page</b> |
|---------------------------------|-------------|
| Saw chain drive                 | 1— 2        |
| Bar and chain tensioning device | 3— 4        |
| Chain oil tank with oil pump    | 5— 6        |
| Carburetor                      | 7— 9        |
| Recoil starter                  | 10          |
| Speed governor                  | 11          |
| Ignition and spark plug         | 12—15       |
| Cylinder, piston and crankshaft | 16—18       |

## **Andreas Stihl**

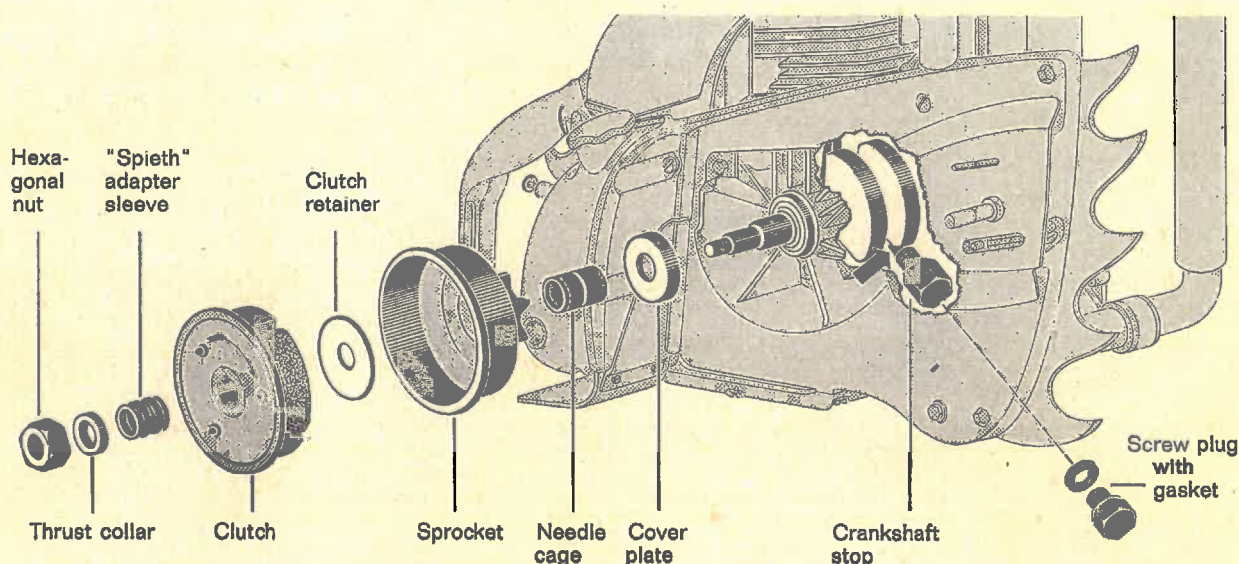
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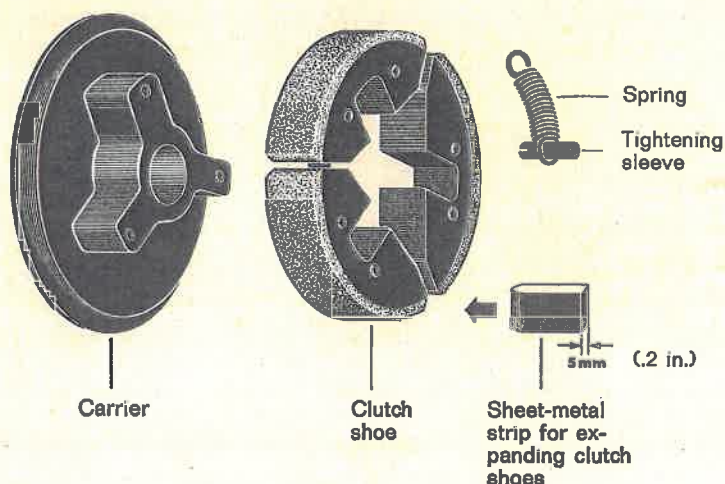
## Saw Chain Drive:

The chipper chain of the power chain saw 1106 is driven by the crankshaft via a centrifugal clutch. The saw chain drive is composed of the clutch and the sprocket with clutch drum.



The crankshaft has a left-hand thread at the clutch side. Therefore, loosen hexagonal nut only by turning it clockwise. You will find a screw plug in the crankcase under the muffler. Unscrew this plug and screw in crankshaft stop from tool kit by hand. When screwing in crankshaft stop turn crankshaft slowly until you feel the throw of the peg of the crankshaft stop. If you first remove spark plug, you can turn crankshaft more easily. After reassembling unscrew crankshaft stop and replace the plug and touching gasket. Don't force it in.

After unscrewing hexagonal nut, the saw chain drive can be easily removed from the crankshaft. If nut has been fastened too tightly or rust has formed between bore in clutch, adapter sleeve and crankshaft, you can pry off the chain drive with 2 screwdrivers by exerting a uniform pressure on the chain sprocket.



The clutch consists of 3 clutch shoes, 3 clutch springs, 6 tightening sleeves and the clutch carrier.

If clutch shoes are badly worn or, the springs are stretched, exchange complete set of clutch shoes and springs. You can pry off clutch shoes from carrier with a screwdriver. For exchanging set of clutch shoes insert springs into the holes in the clutch shoes in such a way that the tightening sleeves can be hammered in through the eyelets at the ends of the clutch springs.

You can spread the closed clutch shoe ring for mounting on the clutch carrier with 3 slightly sharpened sheet-metal strips of 5 mm (.2 in.) thickness of any width until it can be slid over the clutch carrier, or by spreading the shoes by manual pressure using the clutch carrier as a fulcrum.



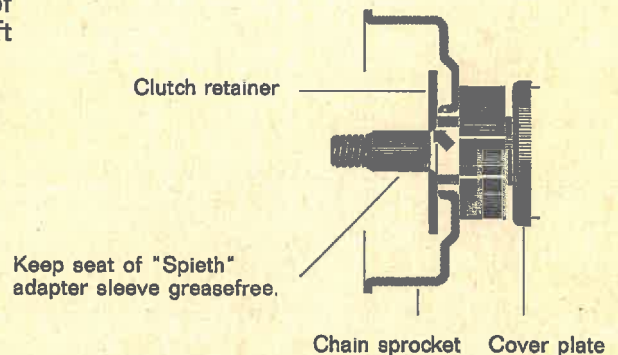
# Power Chain Saw 1106

Design of Dec. 31, 1963  
Machine No. 275000  
Supplement for page

Page  
**2**

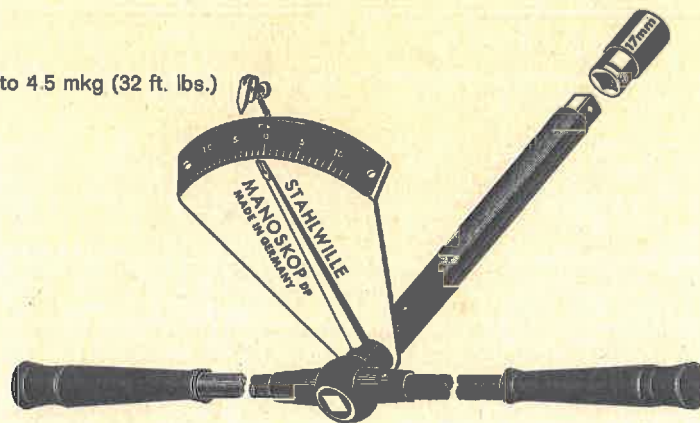
Wash all other parts, especially the sprocket's needle bearings in gasoline and check them for proper condition before reassembling them. The carrier bore, the adapter sleeve and the seat of the adapter sleeve must be absolutely greasefree before replacing on crankshaft. Grease needle bearing and seat with clean bearing grease.

Mount clutch retainer with chamfered side of bore resting against larger diameter of crankshaft (needle bearing seat).



Tighten hexagonal nut with torque wrench set to 4.5 to 5 mkg (32—36 ft. lbs.). When tightening nut the crankthrow should not knock against the crankshaft stop, but rest on it.

Set pointer to 4.5 mkg (32 ft. lbs.) and tighten.



Exchange chain sprocket only together with clutch drum. Badly worn sprockets must be replaced immediately.

For the power chain saw 1106 you can get sprockets of .404 and 1/2" pitch. The installation of chain sprockets of other makes and other pitches cannot be recommended.

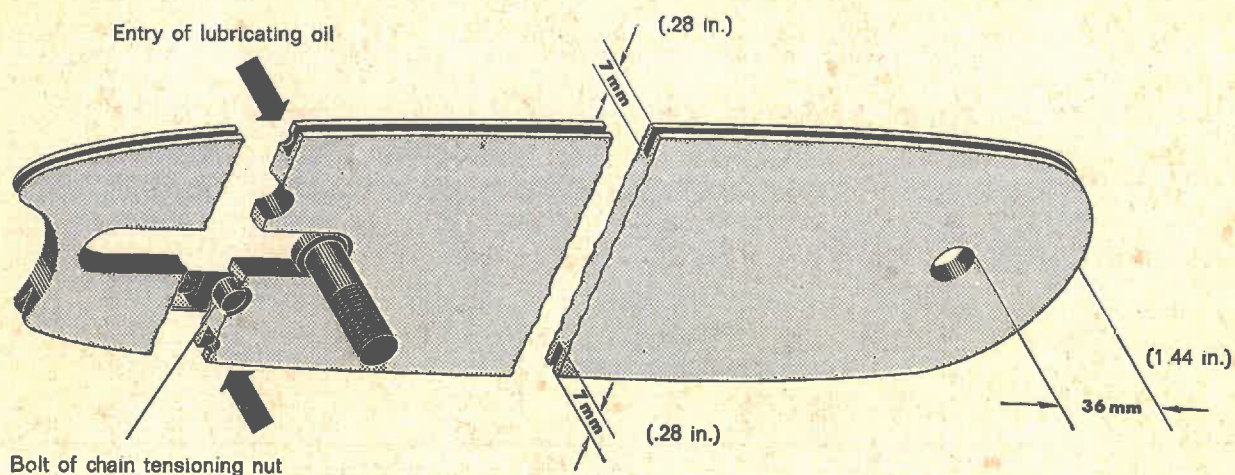


## Bar and Chain Tensioning Device

The purpose of the guide bar is to carry, tension and guide the saw chain. It is adjustable positioned between the two guide plates at the bar connecting side of the crankcase with its long slot resting on the collar of the two studs.

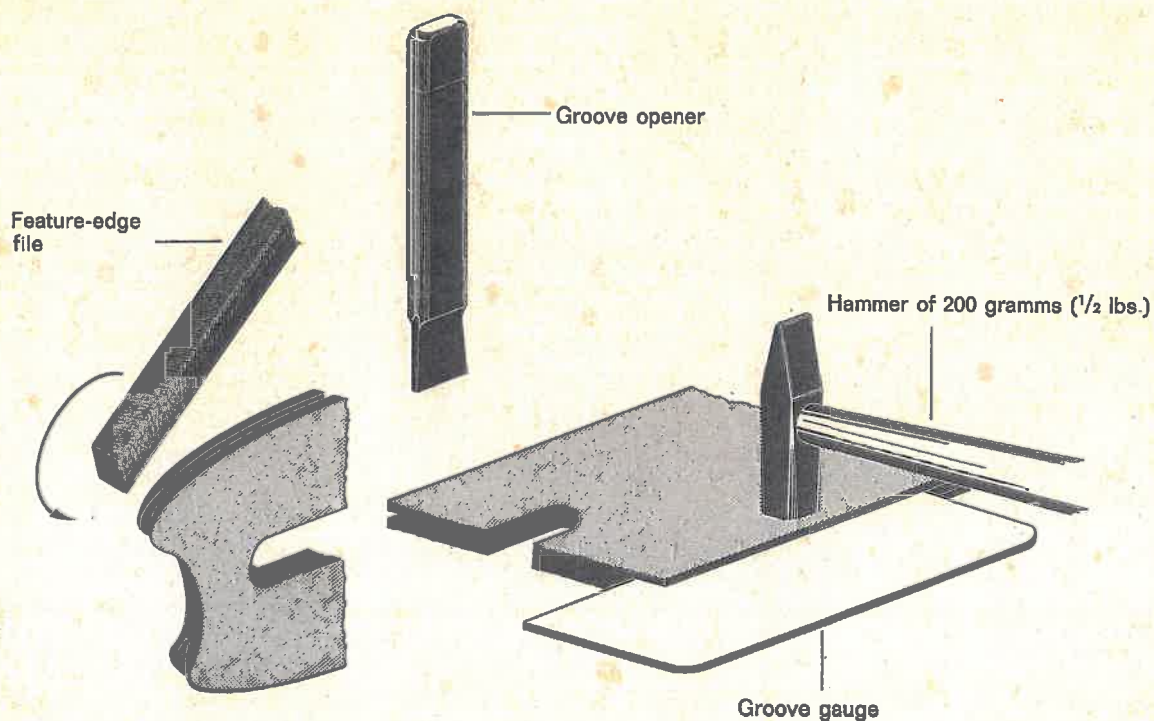
Depending on which side the bar is mounted, one of the two bar holes of 7 mm (.28 in.) diameter beside the long slot receives the bolt of the chain tensioning nut. Two smaller holes of 4 mm (.16 in.) diameter are bored through into the groove of the guide bar either at the right side or at the left side.

The chain oil is pumped into the bar groove and to the chain through the hole which is on top.

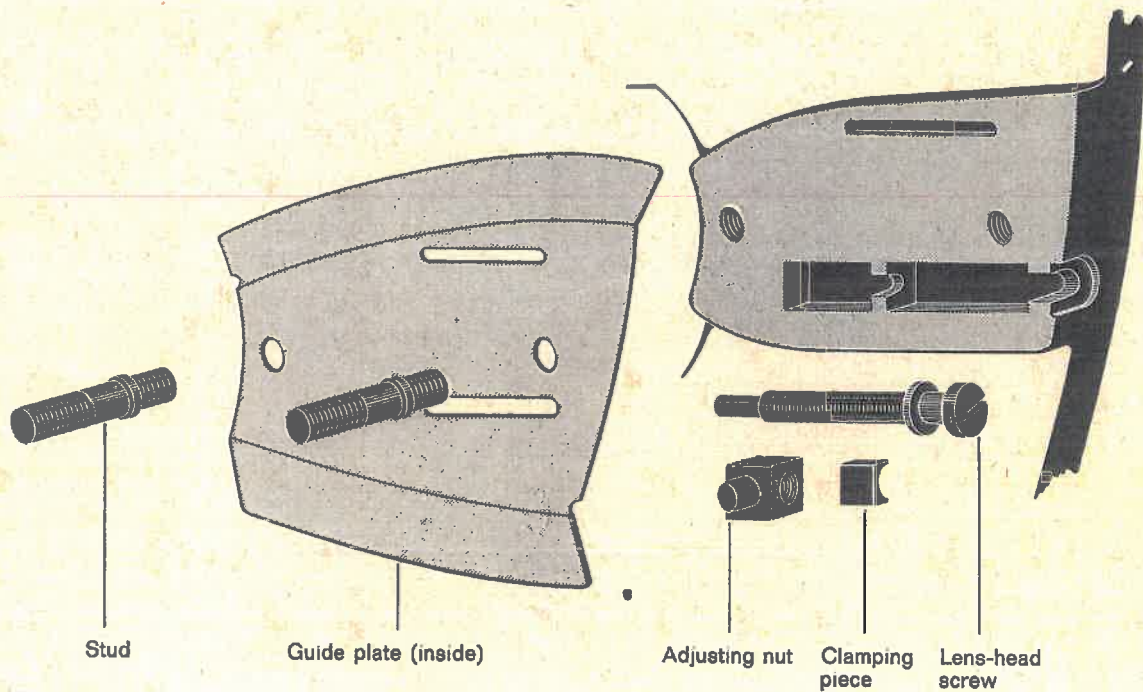


If bar wear exceeds the limit of 36 mm (1.44 in.) and 7 mm (.28 in.) respectively the bar must be reconditioned.

When reconditioning or repairing a guide bar check depth and width of groove and bar shape. Close expanded groove walls to correct width by inserting groove gauge into groove and hammering or rolling the walls down. Open narrow groove sections with groove opener. Smooth chain entry with a feature-edge file.



The chain tensioning device is positioned in a housing groove behind the inner guide plate. It consists of the lens-head screw and the adjusting nut. The individual parts can only be exchanged when the two studs have been removed after heating the housing slightly and the guide plate removed.







# Power Chain Saw 1106

Design of Dec. 31, 1963

Machine No. 275 000

Supplement for page .....

Page

5

## Chain oil tank with oil pump

The chain oil tank with oil pump and manual oiler is positioned outside the crankcase (bar connecting side). The oil tank cover is fastened to the crankcase by 6 cylindrical screws. You will find a guard plate at the chain sprocket side, which prevents the tank wall from being damaged by broken chains.

The oil pump is fastened to the housing wall inside the oil tank by 3 cylindrical screws.

Before disassembling the oil pump, please check to see if only a damaged or stretched diaphragm, swelling of rubber parts or clogging of the air strainer in the oil pick-up body have caused the failure. Apart from the diaphragm pay special attention to the washer, the rubber cap on top of the stop plate and the stop plate itself. The stop plate can be torn off by incorrect adjustment of the quantity control adjusting screw.

To exchange the plunger with diaphragm remove pin from hole with a magnet. Slide pump piston forward until cam of the annular lever release the plunger.

Only after all the above parts are found to be in working order should you disassemble the pump.

If the power saw is not used for a long period of time, lubricating oils of poor quality may gum up and glue all moving parts of the oil pump. After a careful cleaning make sure the pump piston has a fit free from play in its bore.

Blow out airstrainer in oil pick-up body with compressed air.

Keep sealing surfaces of oil tank cover as well as the housing absolutely clean.

Smooth uneven spots carefully with a smooth cut file or even better with a scraper. Don't damage the gasket. Tighten all cylindrical screws uniformly.

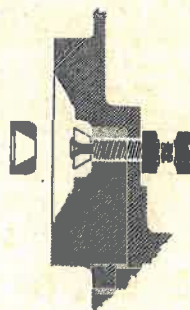
After having reassembled the pump, cleaned the oil pipe and the oil outlet hole in the housing, check oil quantity delivered by the pump and readjust if necessary.

The pump should deliver 15 ccm (.92 cu. in.) at a speed of 5000 RPM under load. This oil quantity is sufficient for lubricating a chain for a bar length of 50 cm (20 in.). By turning the hex-head screw counterclockwise by  $\frac{1}{3}$  of a turn, the oil quantity will be increased and will then be sufficient for the use of a bar length of 60 cm (24 in.). By turning the screw clockwise, you will decrease the oil quantity.

Oil tank side

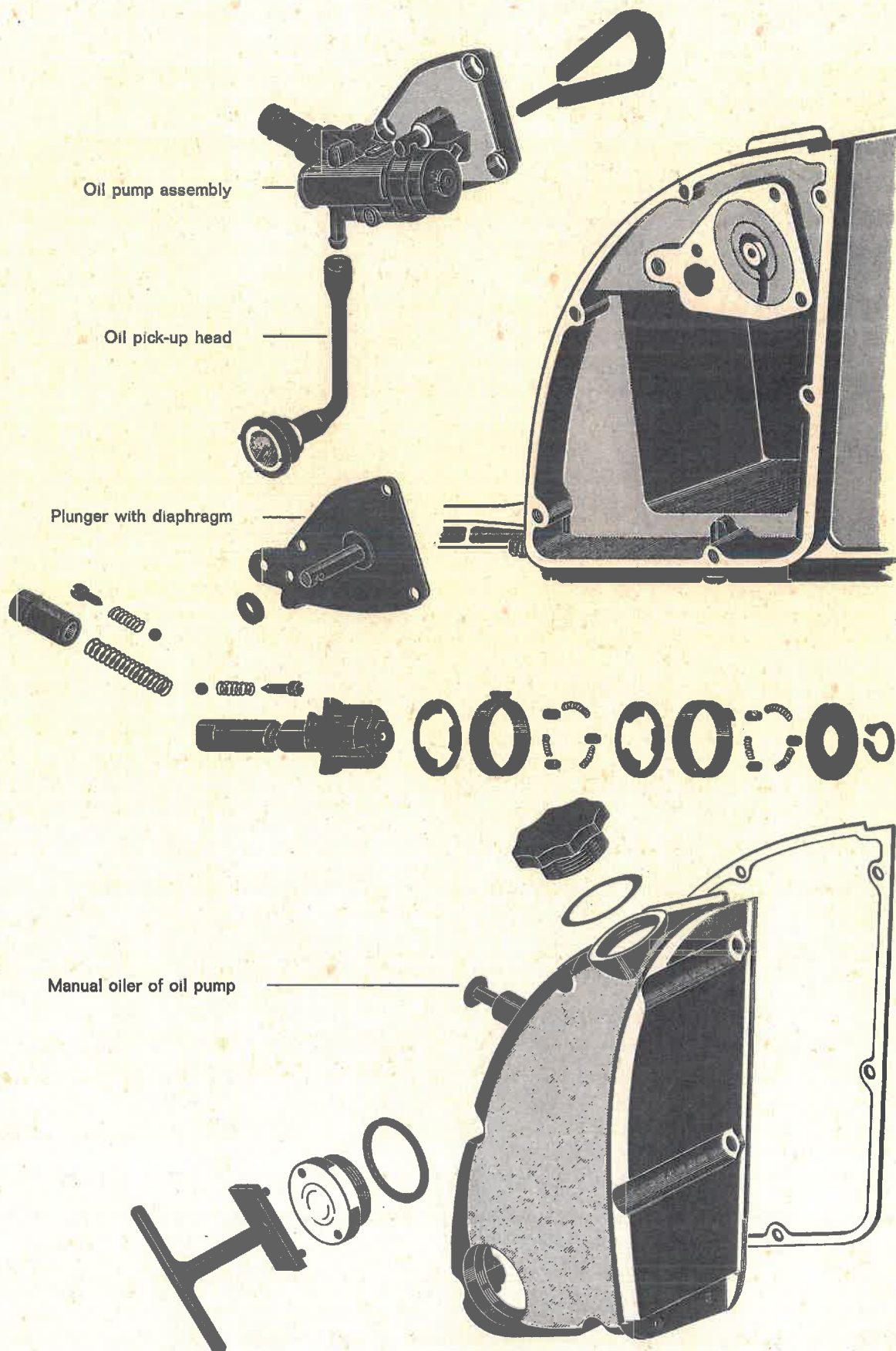
Housing side (at the right side of the carburetor)

Rubber cap



Hex-head screw with hexagonal nut and stop plate connected by a rivet

For disassembling of the oil pump, remove pin at flange side of oil pump with a magnet.







## Carburetor

The 1106 Power Chain Saw is equipped with an all position diaphragm carburetor. This type of carburetor enables quick changing of working position without the time consuming turning of a tilting gear.

A fuel pump, which is a part of this carburetor, ensures an uninterrupted fuel feed in every position of the power chain saw. The air needed for combustion is sucked in through the filter flange with a two-plate air filter which cleans it.

Before removing and disassembling the carburetor for cleaning or repair, flush carburetor and its surroundings carefully with gasoline. Don't blow out the assembled carburetor with compressed air. You may damage the diaphragm by the compressed air which enters through the vent hole or the fuel strainer cover.

Unscrew filter flange from carburetor. Unhook cable of speed governor only at lever of choke shaft. On the other side of the carburetor you can detach the throttle rod only together with the throttle shaft clip from the throttle shaft. Don't bend governor cable and throttle rod. Remove fuel line only from the flange of the fuel strainer cover. Unscrew both hexagonal nuts from carburetor adapter with a 10 mm (4 in.) wrench. Now the carburetor can easily be removed from the studs. Use only clean containers and gasoline for a thorough flushing of the carburetor. Cleaning rags, scribes and brushes are not suitable for cleaning the carburetor.

Start the disassembling of the carburetor by unscrewing the lens-head screw of the fuel strainer cover and the 6 lens-head screws at the fuel pump body.

The diaphragm cover and the fuel pump body are provided with a cam. Only at that point can you insert the screwdriver to pry off the parts. For the further disassembly use only your hand in order to avoid tearing the diaphragms and gaskets.

Remove idle adjustment screw, main adjustment screw and the inlet control lever pinion screw with inlet control lever, inlet tension spring and inlet needle valve from carburetor body. Be careful not to change the shape or the spring tension of the inlet control lever and the inlet tension spring.

Place all individual parts on a sheet of paper in the same sequence as they have to be reassembled. Owing to their woolen fibres, cleaning rags are not suitable for this job. Wash all parts in a clean container and only with clean gasoline. If you have available compressed air, blow out channels and nozzle bores of carburetor and of fuel tank body. Check gaskets and diaphragms for proper condition, especially the valve flaps of the pump diaphragm and the control diaphragm. Reassemble carburetor in the reverse sequence of disassembly. Tighten lens-head screws at fuel tank body crosswise and uniformly. Provide each screw with a lock washer. The two screws for the choke spring clip get two extra washers. You can distinguish the two adjusting screws by their different lengths. The shaft of the idle adjustment screw which is positioned at the left side of the carburetor body is considerably longer than that of the main adjustment screw at the right side of the carburetor body.

Be very careful when screwing in the two adjustment screws. If you continue screwing after you have felt the limit stop, the needle point may act like a key and may damage the nozzle holes in the carburetor body, or may break off.

Remove fuel line with complete fuel pick-up body from fuel tank before remounting the carburetor. Clean fuel line and check for imperviousness. Disassemble fuel pick-up body and clean its individual parts thoroughly. Check hose for proper condition. By its age and by resin, the hose may become brittle and stiff. Rinse fuel tank with clean gasoline and check sealing at fuel tank cover. Clean hose and connections of tank venting system.

Disassemble filter flange, wash it thoroughly and blow out air filter with compressed air. Check for smooth contact surfaces at flange and carburetor body.

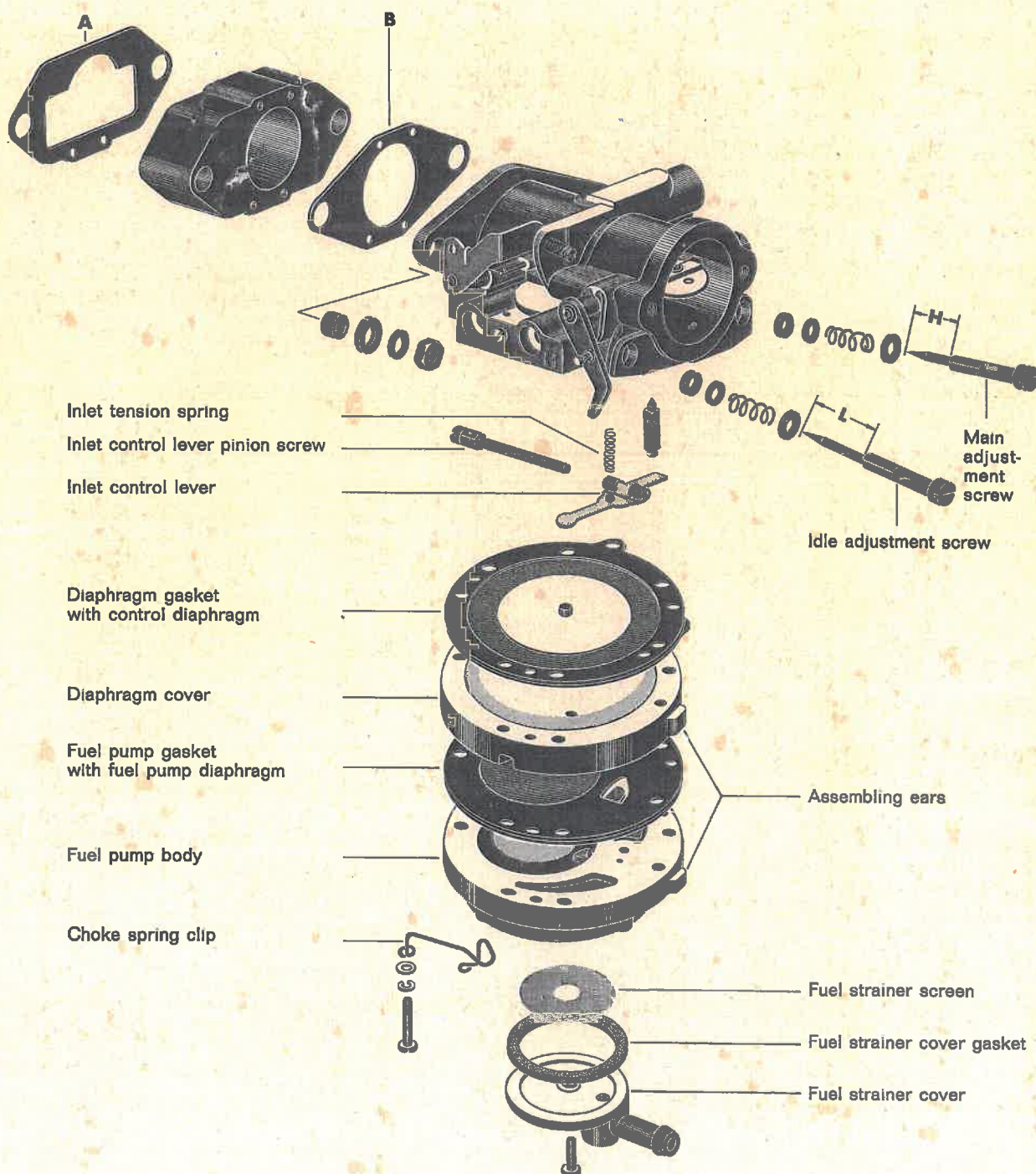
Make sure the sealing surfaces at cylinder and carburetor, the gaskets and the carburetor adapter are not damaged. Replace damaged gaskets.

One bushing (for heat insulation of plastic material) is needed at each side of the carburetor adapter, also a washer, a lock washer and a hexagonal nut. Tighten hexagonal nut firmly and uniformly.

After having reassembled governor cable and throttle rod, make sure they can be moved easily. Press fuel pick-up body with elbow into tank hole and slip fuel line over the flanges at the elbow and the carburetor.



Don't interchange the gaskets A and B when reassembling. According to their shape the gasket A must be placed against the carburetor flange of the cylinder.



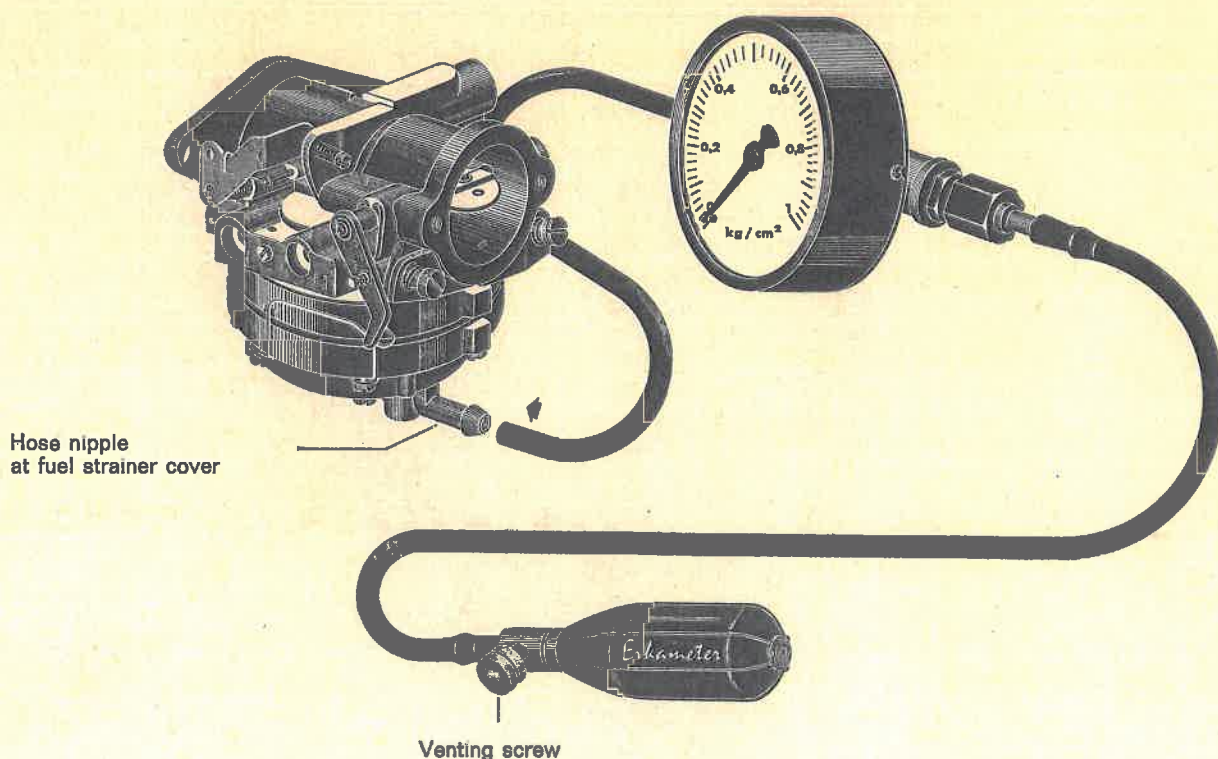


The carburetor adjustment depends on the local atmospheric conditions. The basic adjustment is as follows:

**Turn in both adjustment screws carefully until you feel a slight resistance.**  
**Open idle adjustment screw counterclockwise by  $\frac{3}{4}$  of a turn.**  
**Open main adjustment screw counterclockwise by about  $1\frac{1}{8}$  to  $1\frac{1}{4}$  turns.**

This means, that, when turning both adjustment screws counterclockwise, the carburetor gets more fuel. Start engine at this basic adjustment. Adjust idle speed with idle speed regulating screw so that chain sprocket does not yet rotate. Let engine warm up at this adjustment. Tilt saw into different positions. Thereby the idle speed must be constant at every position. If engine speed changes, you must open or close the adjustment screws depending on whether the engine needs more or less fuel.

You can check carburetor on tightness with a testing instrument illustrated below. However you get an exact result only if you check with wet carburetor (with sucked-in fuel). Slip open hose end of testing instrument over hose nipple of fuel strainer cover at carburetor. Leave venting screw at pressure ball closed. When pressing the ball firmly once, the pointer of the testing instrument will indicate a value of 0,8 to 1 kg/cm<sup>2</sup> (11—14 lbs./sq. in.). If this pressure does not decrease, the sealing of the carburetor is alright. Then open venting screw again.



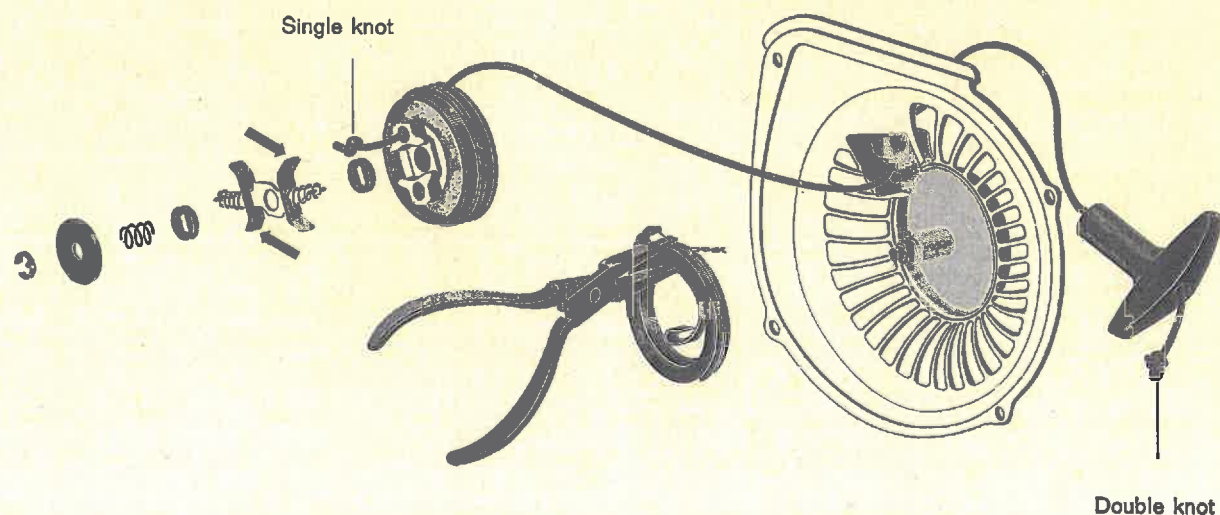
## Recoil Starter

The recoil starter is positioned on a shaft inside the fan cover. The fan cover is connected with the crankcase by 4 cylindrical screws. For replacing the rewind spring or the starter rope, remove recoil starter from fan cover. Pry off retainer ring from shaft with a screwdriver. The brake retainer washer is under spring tension. Therefore, you must hold it when prying off the retainer ring. If the rewind spring or the starter rope is broken, you can remove the individual parts from the shaft in the same sequence as when mounting them. Lift rope rotor only slightly until you can retain the rewind spring in the fan cover with a small screwdriver. Only then can you remove the rope rotor completely.

A new rewind spring is secured with a wire against rebounding. Hold rewind spring firmly with flat-nose pliers behind the outer loop and the inner winding and cut wire. If you hold spring in such a way, you can easily place the outer loop over the holding cam inside the fan cover. Before re-assembling the rewind starter, lubricate steel plate at bottom of fan cover and spring with engine oil.

Thread new starter rope through hole in fan cover. Thread it through the hole in the rope rotor and secure the free end with a single, but firm knot. The rope or the knot should not project out of the bore. If necessary, press knot into the bore with a light blow of a hammer. Thread other end of the rope through the handle and secure it with a double knot. Place rope rotor on the shaft in such a way that the inner spring hook can slide into the recess at the collar of the rope rotor. Slide all other individual parts on the shaft in the correct sequence and secure them with a retainer ring. The brake lever of the friction shoe must be between the fibre washers. Exchange worn out or distorted washers. Check correct position of friction shoe before tensioning the rope rotor. When slightly pulling the untensioned rope, the ends of the friction shoe plate marked with a line, should angle outwardly. Otherwise, reverse friction shoe assembly on the shaft. Sharpen worn and blunt ends of friction shoe plates with a flat file thereby keeping the original angle of 60 degrees.

For tensioning rewind spring, a recess is provided in the outer edge of the rope rotor. Make a loop with the rope and rotate rope rotor against spring tension until rope with a grip is drawn back tightly to the limit stop in the fan cover. The tension is correct if the rope rotor can still make a further turn with fully pulled out rope until maximum spring tension is reached.



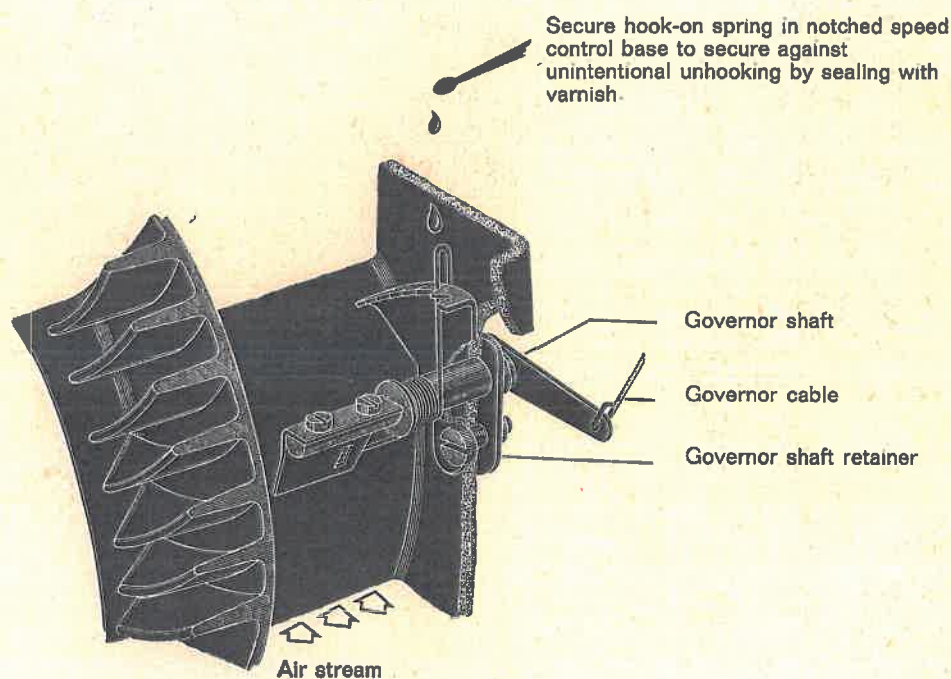
Resharpen ends of friction shoe plates marked with a line only in direction of arrow.



## Speed Governor

The speed governor is a safeguard which is intended to help those customers who have not yet enough experience in handling an engine, to get a maximum of service life out of their power saw. A wind vane, which is actuated by the stream of cooling air, governs the engine speed by changing the position of the choke shutter without decreasing the required output.

After repair or assembly check initial tension of hook-on spring in notched speed control base and readjust if necessary. Check or adjust tension only with warm engine. Measure engine speed at crankshaft with a tachometer at full throttle and change position of hook-on spring in notched speed control base until engine speed is not higher than 7500 RPM and not lower than 7200 RPM. After you have the correct adjustment, secure hooked-in spring with varnish seal.

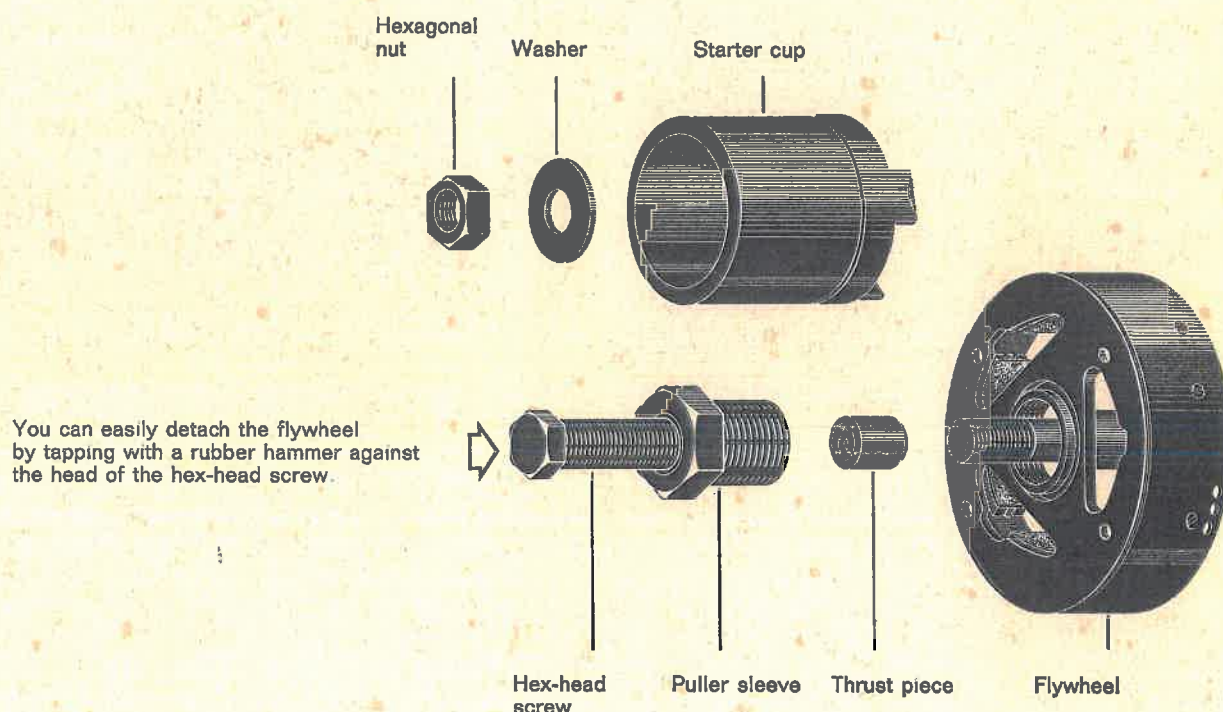


For protecting governor shaft, governor shaft retainer and coils of hook-on spring against ice and resin apply a few drops of kerosene on all parts.

## Ignition system and spark plug

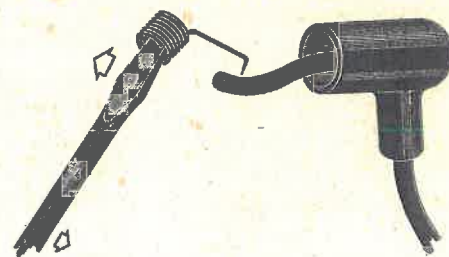
The BOSCH flywheel magneto is positioned inside the crankcase at starter side. It consists of the rotating part, the flywheel, and the stator plate which is attached to the crankcase by screws.

Unscrew fan cover and fan wheel with a screwdriver. Lock crankshaft with crankshaft stop as when mounting the clutch. The hexagonal nut of the crankshaft has a normal thread. Therefore, unscrew it counterclockwise with a 17 mm (.67 in.) socket wrench. Now you can easily detach the starter cup. The flywheel is firmly fixed to the crankshaft by a woodruff key, and can be removed with a fly wheel puller.



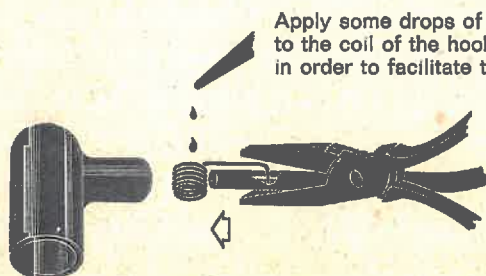
Place thrust piece on crankshaft. Unscrew hex-head screw until puller sleeve can be slid over the thrust piece, and screwed into the flywheel until it reaches the limit stop. Screw in hex-head screw with a 17 mm (.67 in.) socket wrench with a sufficiently long handle until flywheel snaps off. The stator plate is attached to the crankcase by two cylindrical screws. Remove ground wire from toggle switch.

The high tension lead connector is connected to the ignition wire by a hook-on spring. Pry off hook-on spring with cable from connecting hole with a screwdriver and unhook the spring. Then you can remove the wire from the high tension lead connector. Turn out wire from stator plate.



When attaching a new ignition wire to the stator plate, don't forget to slide the guard socket over the connection. Apply ignition grease to guard socket and wire end. Thread other wire end through grommet and crankcase hole to carburetor side.





Apply some drops of thin engine oil to the coil of the hook-on spring in order to facilitate the insertion of the spring.

Press right angled end of hook-on spring through the wire insulation into the core of the wire at a distance corresponding to the length of the spring hook.

Slide hook-on spring and ignition wire through the wire guide into the high tension lead connector with a pair of flatnose pliers so that the spring can be pressed over the connecting nut of the spark plug later on.

When checking the stator plate, pay special attention to the point and the slider at the breaker arm, the contact bank and the wick on the flatspring. Replace badly worn parts. When exchanging the breaker arm and the contact bank make sure, that the points are parallel to each other. Otherwise bend contact bank slightly with a pair of flatnose pliers.

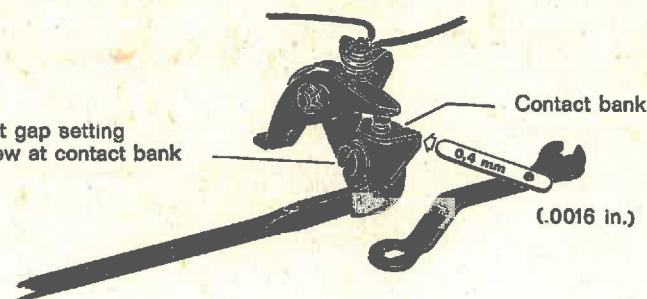
Tighten stator plate lightly to the crankcase by the two cylindrical screws. The stator must be on the bottom side.

Slip flywheel on crankshaft, but don't forget the Woodruff key and don't damage the wick and the breaker arm. The tapered bore of the flywheel and the cone under the crankshaft must be absolutely greasefree. In reassembling the stator plate, the wick and the breaker arm may have greased the cone. Clean cone thoroughly from grease with a fibrefree rag soaked in gasoline. Mount starter cup in such a way that the 3 pegs are engaged in the corresponding recesses of the flywheel. Place washer on shaft and screw on hexagonal nut and tighten it with the torque wrench by 4 mkg (30 ft. lbs.).

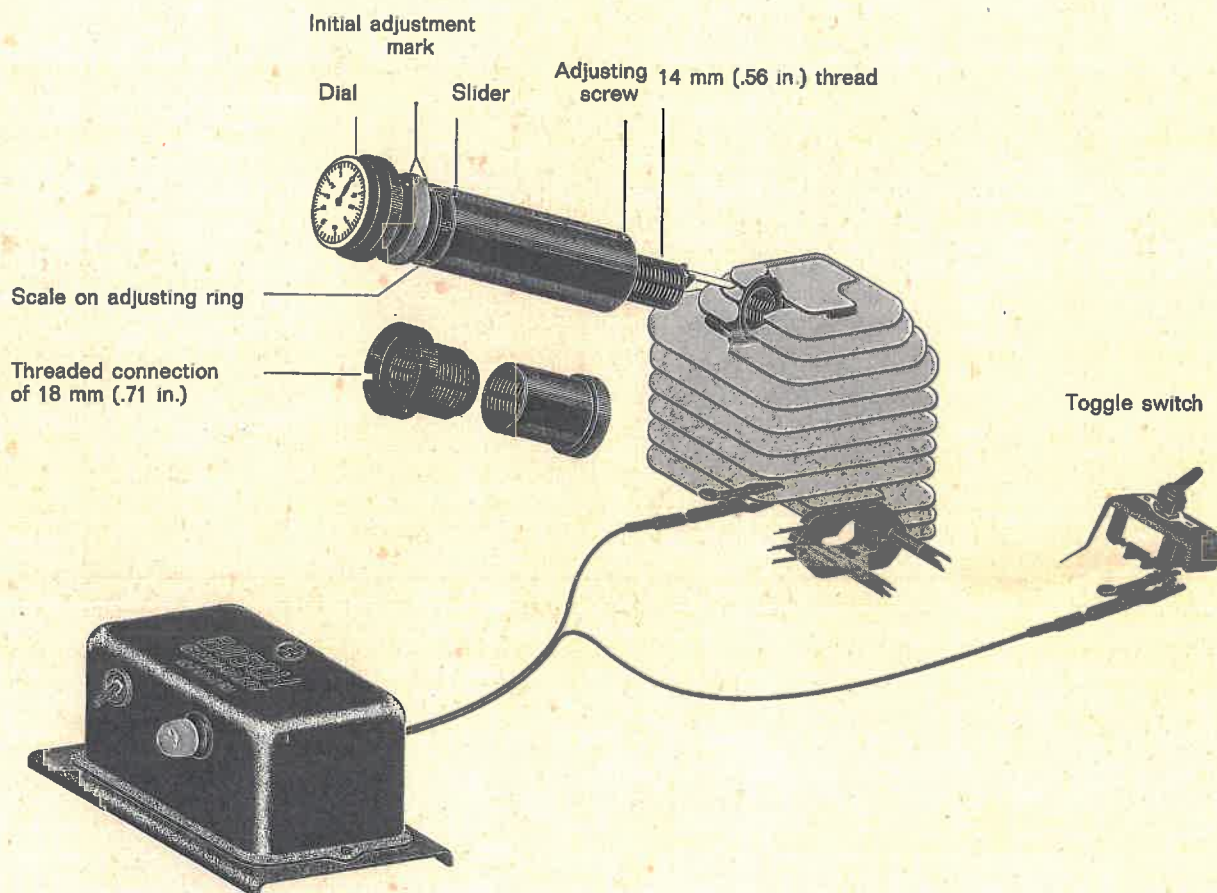
Remove crankshaft stop from crankcase and screw in plug with washer.

Check the point gap setting at the breaker arm. Adjust the gap to 0,4—0,5 mm (.0016 to .002 in.) by turning the flywheel and measuring the gap with a feeler gauge.

For adjusting the point gap setting loosen cylindrical screw at contact bank slightly.



Check ignition timing with a timing gauge and an ignition timing device. The timing gauge is a very sensitive position gauge. Therefore, handle it carefully for getting exact results. The timing gauge is provided with two threaded connections. For the power saw 1106 you need a threaded connection of 14 mm (.56 in.).



Before installing or removing timing gauge from spark plug hole, make it a rule to put adjusting ring and slider to -0- position.

Screw thread of timing gauge into spark plug hole in such a way, that slot of slider is in an exact vertical position. Don't change this position when checking or adjusting the ignition timing. If necessary, clamp a piece of paper or cardboard between timing gauge and cylinder. Turn piston back with the flywheel until you can see through the exhaust port into the cylinder.

The adjusting ring is provided with a scale of 0°—90°. We need a timing of 75°. Turn adjusting ring clockwise until marks are exactly between 60° and 90°.

Push slider forward to the bottom limit stop (red adjusting screw). Rotate flywheel slowly in direction of rotation of engine. Thereby, check the pointer on the dial. When pointer does not move any more, the top dead center has been reached. Turn piston back to initial position. Turn dial until pointer points to the -0- mark. Slide slider forward again.

Connect one clamp of ignition timing gauge with ground (cylinder fin) and other clamp with ground wire (connection with ignition stop switch). Switch toggle switch of ignition timing gauge to on-position.





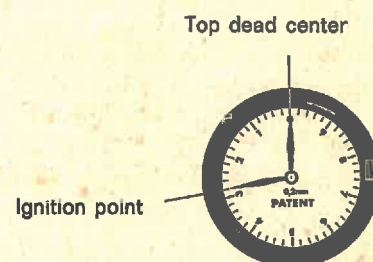
# Power Chain Saw 1106

Design of Dec. 31, 1963  
Machine No. 275000  
Supplement for page .....

Page  
**15**

The correct ignition timing is  $2,8 \pm 0,2$  mm ( $.11 \pm .008$  in.) before top dead center. Turn flywheel slowly in direction of rotation until red pilot lamp of ignition timing gauge lights up. If pointer points to 2,8 mm (.11 in.), the timing is correct and the stator plate can be fastened. If pilot lamp lights up before or after the 2,8 mm (.11 in.) graduation, the stator plate must be turned to the right or the left by the measure the timing has to be advanced or retarded.

Recheck timing until pilot lamp lights up and contact points just begin to open at a pointer setting of 2,8 mm (.11 in.) before -0-.



After having got the correct timing, tighten stator plate firmly. Remove ignition timing gauge only in the way as is prescribed before. Turn adjusting ring counterclockwise and slide slider to -0- position.

## Spark Plug

Ignition troubles are more often caused by faulty spark plugs than by failures in the magneto. Our spark plug must have a heat value of 175. The correct spark gap is 0.5 mm (.020 in.). The spark plug has a thread of 14 mm (.55 in.). Check spark gap only at warm engine. As the electrodes burn off in the course of time, the spark gap will be increased. Therefore, it should be measured with a gauge and readjusted if necessary.

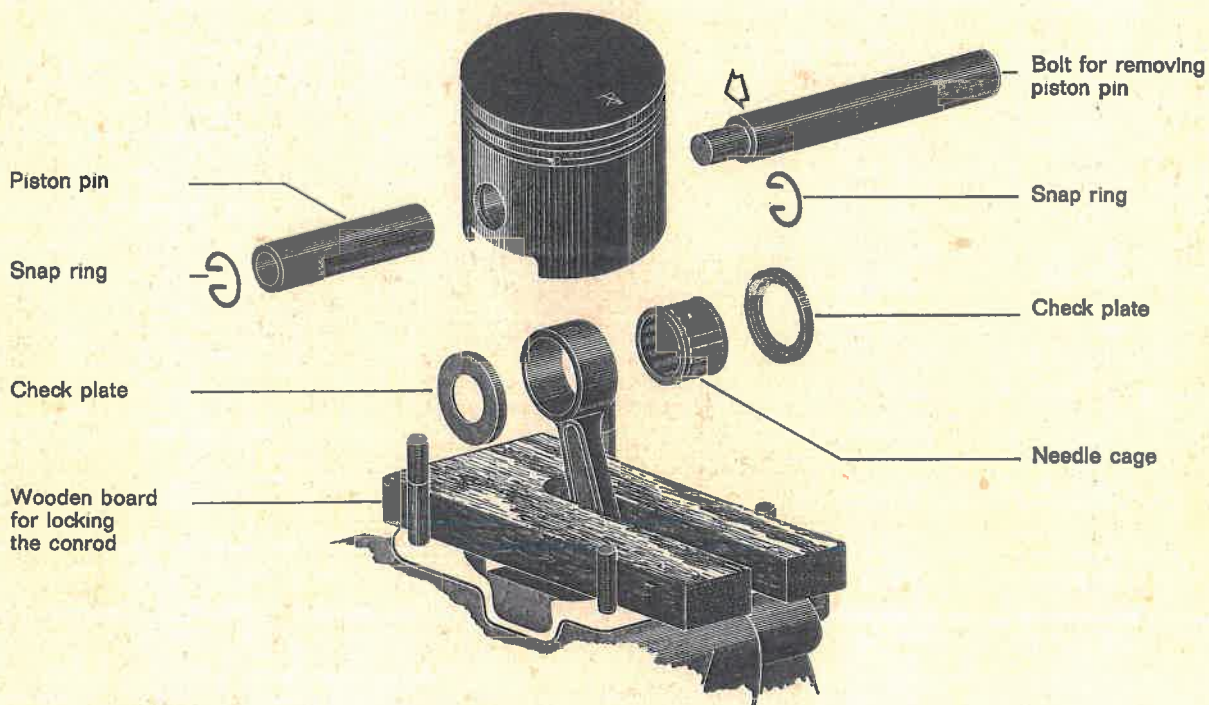
Fouled spark plugs will cause ignition troubles, loss of power and higher fuel consumption. Don't use brass brushes or soft steel brushes for cleaning the spark plug. In an emergency case, you may clean heavily fouled spark plugs with gasoline. In this case, it is advisable to blow out the spark plug with compressed air. The spark plug cleaning apparatus of Messrs. BOSCH is a reliable means for cleaning spark plugs and we recommend it for every service shop.

The service life of a spark plug depends to a high degree on the fuel mixture ratio and the carburetor adjustment.

If the carburetor adjustment is correct, the insulating body of the spark plug will get a light brown or beige colour. The spark plug housing gets a dark grey colour with a thin and dry carbon film.

## Cylinder, Piston and Crankshaft

For removing the crankshaft you must first get access to the cylinder. Remove carburetor, muffler and spark plug. The cylinder is fastened to the crankcase by 4 hexagonal screws. Before removing the cylinder, bring piston with crankshaft down to its lowest position. Loosen cylinder gasket carefully with a knife and remove it.



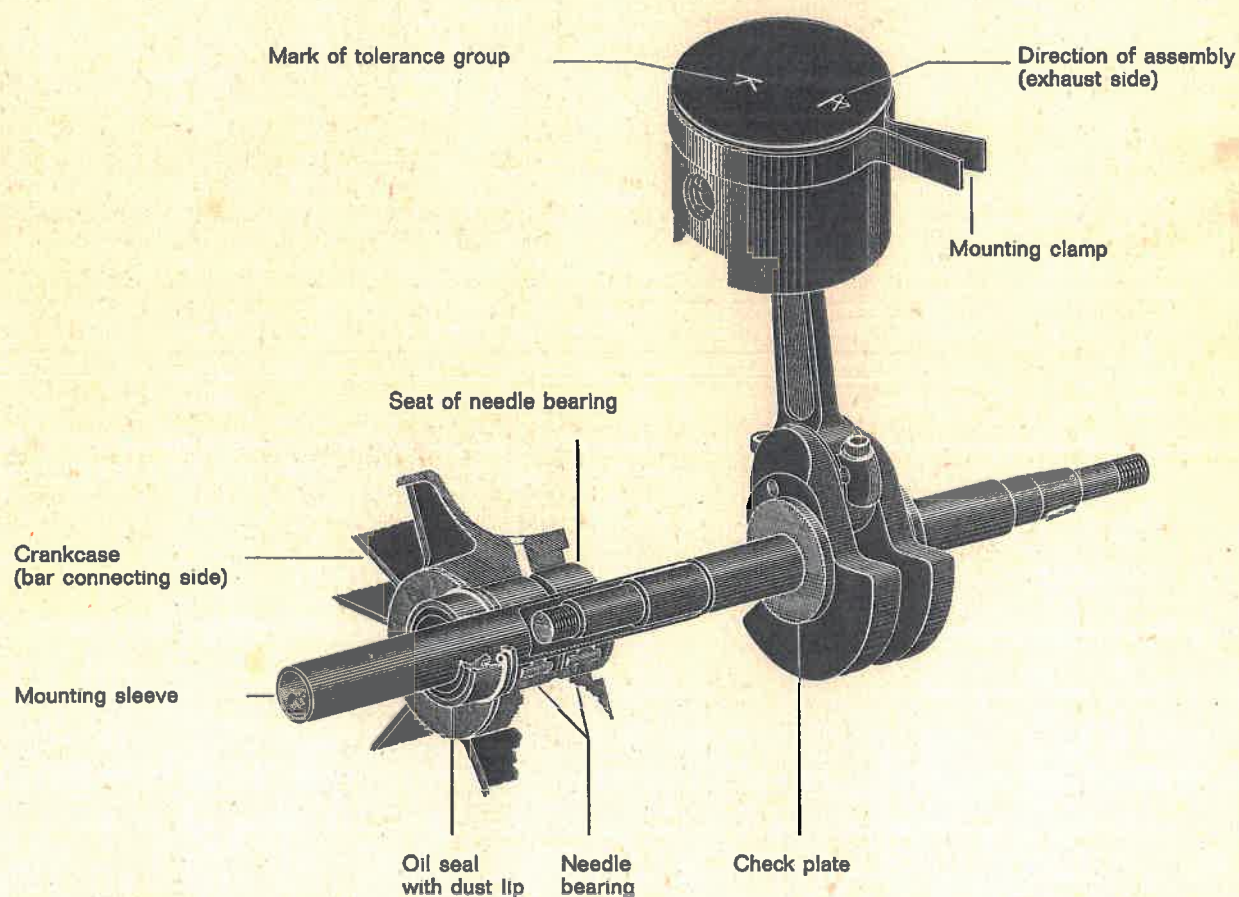
For disassembling the piston, you need the wooden board for locking the conrod and a bolt for removing the piston pin. Slide wooden board between bottom edge of piston and crankcase. The piston pin is secured on each side by a snap ring. Remove snap rings and push out piston pin with a bolt. If the piston pin should be stuck in its hole, apply only light hammer blows on the mounting bolt while holding the piston at its opposite side. Remove the two check plates and the needle cage from the conrod.

Before separating the two crankcase halves, remove ground wire from toggle switch and unscrew front handle from crankcase (fan side). Remove clutch, fan cover and flywheel in the usual way. Disconnect the two crankcase halves by unscrewing the 5 hex-head nuts at the bar connecting side. Separate the two halves by light blows with a rubber or plastic hammer on the crankshaft end. Protect thread against damage by screwing on the crankshaft hexagonal nut. If necessary, remove the two opposed cylindrical pins with a punch.



Don't exchange the two needle bearings on the two crankshaft sides. The conrod is firmly screwed to the crankshaft. Don't remove it from the crankshaft. If you note that the conrod bearing is damaged, you must exchange the complete crankshaft together with the conrod. Check the two screws at the conrod bearing for tightness, for which purpose you may use the torque wrench with the 4 mm (1.9 in.) insert. Both screws should have a torque of 100 cmkg (87 in. lbs.) each. Needle bearing and seat in crankcase can be exchanged only together. For drawing in the bearing bushings, the crankcase should be heated to 90°—100° C (191°—212° F). For removing them, you must heat the crankcase to the same degree.

The end play of the crankshaft should not be less than 0,2 mm (.008 in.) and not more than 0,3 mm (.012 in.). For correcting the end play, you can get two shims of 2,5 mm (.1 in.) and 3,0 mm (.118 in.) thickness. If necessary, you may grind off the thicker shim to the required thickness.



For protecting the oil seals against damage, use the mounting sleeve when mounting the crankshaft. Make sure, that the sealing surfaces at the crankcase half and the gaskets are not damaged. Don't use cementing material, otherwise the crankcase may be contaminated.

Don't forget to put the heat insulating bar and the heat insulating packing between fuel tank and crankcase. Mount filling piece at bar connecting side.

Tighten the hexagonal nuts together with the lock washers evenly and firmly. Tighten hexagonal nuts at flywheel and clutch side with a torque wrench by 4 mkg and 4.5 mkg (29—33 ft. lbs.) respectively.

Piston and piston pin are distinguished by black or white marks. Do not mount a piston pin with a black mark in a piston with a white mark. Only pistons and piston pins with the same colour are matched.

When reassembling the piston make sure that the piston is positioned on the conrod in such a way, that the arrow of the letter A points into direction of exhaust. Grease piston pin and needle cage lightly. Insert needle cage into big end of conrod and mount the two check plates. Insert snap ring into one end of piston hole. Install piston pin and secure it at the other side with a second snap ring.



Grease the two compression rings lightly and reinstall them in correct position into the ring grooves of the piston.

Make sure that the cylinder sealing surfaces are absolutely clean. You don't need cementing material for sealing. The cylinder gasket must be in good condition and its shape must exactly fit on the crankcase.

There are different tolerance groups of cylinder and piston which are marked by the letters A—K. Mount only cylinders and pistons of the same tolerance group. If you don't have cylinders and pistons of the same tolerance group at hand, you may install pistons for instance of group A into cylinders of group A, B, C or pistons C into cylinders of group D, E, F etc. However, you should do this only if you cannot get pistons of the required tolerance group in due time.

The letters of the tolerance groups are stamped into the piston crown and into the bottom of the cylinder.

For mounting the cylinder you need a piston clamp and the wooden board for locking the conrod. Compress piston rings with the mounting clamp while the piston rests firmly on the wooden board.

Install cylinder in such a way that intake slot is in direction of carburetor. Don't turn cylinder during installation, this would hook the compression rings into the slots and break them.

Tighten the 4 hexagonal nuts with a lockwasher crosswise. Connect ground wire and fasten front handle. Don't forget to exchange the crankshaft stop with the drain plug with washer.