Workshop Manual
Petrol power cutters

Contents

General recommendations .................................................. 2
1. Starter unit ......................................................................... 3
2. Ignition system ............................................................... 11
3. Fuel system ..................................................................... 19
4. Centrifugal clutch ........................................................... 41
5. Cylinder and piston ....................................................... 47
6. Crankshaft and crankcase .................................................. 59
7. Cutting equipment ........................................................... 77
8. Tools ................................................................................. 85
9. Technical data ................................................................. 93

This manual covers models:
K 650/700 Active
K 950/1250 Active

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General recommendations

Keep this in mind:

⚠️ Do not start the engine unless the clutch and clutch drum are fitted.
⚠️ Do not touch hot parts, e.g. silencer and clutch, before they have cooled sufficiently to avoid burn injuries.
⚠️ Avoid getting petrol or oil on the skin or in the mouth. Use protective cream on the hands. This reduces the risk of infection and makes it easier to wash off dirt. Prolonged exposure to engine oil can be hazardous to health.
⚠️ Never start the engine indoors. The exhaust fumes are toxic.!
⚠️ Wipe up spilled oil immediately from the floor to avoid slipping.
⚠️ Do not use tools which are worn or have a poor fit, e.g. nuts and screws.

+ Always work on a clean work bench.
+ Always work in a logical way to make sure that all parts are correctly fitted and that screws and nuts are tightened.
+ Use special tools where so recommended in order to do the work correctly.

Fire hazard
Handle petrol with respect since it is highly inflammable.
Do not smoke, and make sure that there are no naked flames or sparks in the vicinity.
Make sure that there is a functioning fire extinguisher in the vicinity.
Do not try to extinguish a petrol fire with water.
Use an anti-spill fuel can.

Toxic fumes
Read the instructions carefully when using cleaning liquids.
Make sure that there is adequate ventilation when handling petrol and other viscous liquids.
The engine exhaust fumes are toxic. Test run the engine outdoors.

Special tools
Some work procedures in this Workshop Manual require the use of special tools. In each section where this is appropriate the tool and order number are illustrated.
We recommend the use of special tools partly to avoid personal injury and partly to eliminate expensive damage to the components in question.

Sealing surfaces and gaskets
Make sure that all sealing surfaces are clean and free from the residue of old gaskets. Use a tool which will not damage the sealing surface when cleaning it. Scratches and irregularities are removed with a fine, float cut file.

Sealing rings
Always replace a sealing ring which has been dismantled. The sensitive sealing lip can easily be damaged and result in poor sealing capacity. The surface which the seal seals must also be completely undamaged. Lubricate the sealing lip with grease before it is fitted and make sure that it is not damaged, e.g. by the shoulder and splines on a shaft. Use tape or a conical sleeve as protection. It is important that the sealing ring is correctly turned for it to function as intended.

⚠️ WARNING
The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.
Starter unit

1.

Contents
Dismantling of the starter unit .............................................. 4
Replacing the starter cord without dismantling the pulley ... 5
Dismantling ........................................................................... 7
Assembly ............................................................................... 8
When working on the starter unit wear protective glasses to avoid eye injuries in the event that the return spring flies out.

**Dismantling of the starter unit**  
**Mod. 650, 700**

Dismantle the air filter cover, intermediate wall and cylinder cover.

Dismantle the starter unit from the engine body.

Untighten all the screws and lift off the starter unit.

Release the spring tension.

Release the spring tension.  
Pull out the starter rope approx. 30 cm (12 in).  
Hold the pulley with your thumb and place the cord in one of the recesses in the pulley.
Anchor the rope round the hub on the pulley as shown in the illustration. Pull the rope tight and make sure that the free end is as short as possible.

Cord lengths
Models 650, 700, 950: 1150 mm.
Models 1250: 1250 mm.
These lengths apply to Ø 4 mm cord.

NOTE!
The air filter and cylinder covers do not need to be dismantled.

The next stage in the dismantling work follows mod. 650/700.
Starter unit

Anchor the starter rope in the starter handle with a double knot.

Insert the rope through the rope guide in the starter housing and anchor it in the starter handle with a double knot.

Tension the return spring.
Check that the spring tension is completely released, and lift the starter cord up into the cut-out in the pulley.

Tension the return spring.
1. Check that spring tension is completely released.
2. Lift the starter cord up into the cut-out in the pulley.

Wind the pulley 7 turns clockwise.

3. Wind the pulley 7 turns clockwise. Be careful and brake the pulley with your thumb.

Pull the cord out completely and check that the pulley can be turned at least a further half turn.

4. Pull the cord out completely and check that the pulley can be turned at least a further half turn.
**Dismantling**

**Mod. 650, 700, 950**

Remove the screw in the centre of the pulley and lift off the pulley.

Dismantle the spring cassette.

⚠️ **WARNING!**
The return spring in the spring cassette is pre-tensioned and can if not handled carefully during dismantling/fitting fly out and cause personal injury.

**Mod. 1250**

Remove the screw in the centre of the pulley and lift off the pulley. Make sure that the return spring is completely released, and dismantle the pulley.

⚠️ **WARNING!**
The return spring is not placed in a separate cassette but is placed directly in the starter unit cover. Observe care during dismantling/assembly, the spring can fly out and cause personal injury.

**Dismantling**

**Mod. 650, 700, 950**

Remove the screw in the centre of the pulley. Lift off the pulley.

Remove the screws and lift off the spring cassette.

⚠️ **WARNING!**
The return spring in the spring cassette is pre-tensioned and can if not handled carefully during dismantling/fitting fly out and cause personal injury.

**Mod. 1250**

Remove the screw in the centre of the pulley and lift off the pulley. Make sure that the return spring is completely released. Remove the screw and washer in the centre of the pulley. Carefully lift off the pulley.
Assembly
Mod. 650, 700, 950
Clean the starter unit components and fit the spring cassette.

Anchor the cord in the pulley.
Push the pulley on the shaft stem.

Anchor the starter cord in the starter handle with a double knot.

Assembly
Mod. 650, 700, 950
Clean the different starter unit parts.
Lubricate the return spring with oil and place the spring cassette in the starter unit housing.
Make sure that the spring end is not clenched.
Tighten the screws.

Anchor the cord round the pulley hub as shown in the illustration.
Push the cord down on the shaft journal in the starter unit housing.
Make sure that the return spring grips in the pulley.
Lubricate the starter housing stem and pulley with a few drops of oil.

Fit the other parts in the pulley hub.

NOTE!
Turn the metal sleeve (B) correctly.
Check that the O-ring (C) is undamaged.
Lubricate it with a few drops of oil.

Tighten the centre screw and check that the pulley can turn freely.

Enter the cord through the cord guide in the starter unit and anchor it in the starter handle with a double knot.
Tension the return spring.
Check that the spring tension is completely released, and lift the starter cord up into the cut-out in the pulley.

Wind the pulley 7 turns clockwise.

Pull the cord out completely and check that the pulley can be turned at least a further half turn.

Tension the return spring.
1. Check that spring tension is completely released.
2. Lift the starter cord up into the cut-out in the pulley.
3. Wind the pulley 7 turns clockwise. Be careful and brake the pulley with your thumb.
4. Pull the cord out completely and check that the pulley can be turned at least a further half turn.

Mod. 1250
Press down a new return spring in the starter unit cover.

NOTE!
Do not remove the lock round the spring, but push down the spring all round by using your thumbs.
Lubricate the spring with a few drops of oil.
Anchor the starter cord round the hub of the pulley as shown in the diagram.
Push the cord wheel down on the shaft journal in the starter unit housing.
Make sure that the spring grips the cord wheel.
Lubricate the bearing with a few drops of oil.

Mod. 1250
Press a new return spring down in the starter unit cover.
Lubricate the spring with a few drops of oil.
Anchor the cord in the pulley.
Push the pulley down onto the shaft journal.
Fit the starter unit and other parts in the reverse order to dismantling.

Anchor the starter cord in the starter handle with a double knot.

Enter the cord through the cord guide in the starter unit and anchor it in the starter handle with a double knot.

Fit the starter unit. Pull out the starter cord a little. Place the starter unit in position. Release the starter cord and check that the pawls engage the pulley.

Tighten the screws.

Anchor the starter cord in the starter handle with a double knot.
Ignition system

2.

Contents
The principle of the ignition system......................... 12
Checking the ignition spark ...................................... 13
Replacing the spark plug protection ......................... 15
Dismantling ................................................................. 15
Starter pawls .............................................................. 17
Assembly ................................................................. 17
**The engine is fitted with an electronic ignition system consisting of flywheel, ignition coil and trigger unit.**

The ignition system has no moving parts. A defective component cannot be repaired but must be replaced with a new one.

The ignition spark in an electronic ignition system has a very short burn time and may therefore be experienced as weak, and sometimes be difficult to see during trouble shooting.

**NOTE!**
During all test running of the cutting saw the clutch and clutch cover must be fitted before the engine is started!

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**Principle of the ignition system**

The ignition system is completely enclosed and no after-adjustment of the ignition point is possible or necessary.

The ignition module is built up of an iron core (C). Round this lies the primary coil (A) which consists of a small number of turns of thick copper wire. Outside this lies the secondary coil (B) which has a very large number of turns of copper wire.

The trigger unit (F) is fitted on the secondary coil and has the purpose of breaking the current (D) in the primary winding at exactly the right time, i.e. just before the piston reaches the top dead centre.

When the permanent magnet (1) on the flywheel passes the ignition module’s iron core, an electric current is generated in the primary coil (A). At the breaking moment the current in the primary coil rises from 5 volts to approx. 200 volts by means of induction.

In the secondary coil (B) a high voltage (approx. 20 000 volts) is simultaneously transformed to the spark plug.

Models K650, K700, K950 and K1250 have a built-in overspeeding protection in the electronic unit which limits the unloaded speed of the engine to about 9750 rpm.

The ignition module components are completely enclosed to protect them from moisture and dirt.

In the event of a failure in the ignition module it must be replaced with a new one.

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**Diagram notes:***

- **E** = Ignition point
- **F** = Trigger unit
- **G** = Stop switch

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**Legend:**

- A = Primary coil
- B = Secondary coil
- C = Iron core
- F = Trigger unit
Checking ignition spark
Clean the electrodes and check the electrode gap.

If the electrodes are worn down more than 50% the plug should be replaced.

Check if there is a spark by pulling the engine over with the starter.
Try with test plug No. 502 71 13-01 if there is no spark.

Check if there is a spark by pulling the engine over with the starter.
Ground the plug to the cylinder and briskly pull the starter handle.
Make sure that the stop switch is in the start position.
There should be a spark between the electrodes.
If there is no spark try with test plug No. 502 71 13-01!
If there is a spark the fault lies in the plug.
Replace the plug.

Try with a new plug.
If there is no spark disconnect the stop switch wire.
If necessary replace the switch.

Try with a new plug.
If there is still no spark remove the short circuiting cable from either the ignition module or the stop switch.
If there is now a spark the fault lies in the stop switch.
Replace the switch.

Checking ignition spark
Dismantle the plug and clean it from soot by means of a wire brush.
Check the electrode gap. It should be 0.5 mm (.020 in).
Adjust the gap to the correct distance with the side electrode.

If the electrodes are worn down more than 50% the plug should be replaced.
If the gap is too wide this results in strain on the ignition module and the risk of short circuiting.

Check if there is a spark by pulling the engine over with the starter.
Try with test plug No. 502 71 13-01 if there is no spark.

Check if there is a spark by pulling the engine over with the starter.
Ground the plug to the cylinder and briskly pull the starter handle.
Make sure that the stop switch is in the start position.
There should be a spark between the electrodes.
If there is no spark try with test plug No. 502 71 13-01!
If there is a spark the fault lies in the plug.
Replace the plug.

Try with a new plug.
If there is still no spark remove the short circuiting cable from either the ignition module or the stop switch.
If there is now a spark the fault lies in the stop switch.
Replace the switch.
Ignition system

Check the ignition cable’s connections.

Still no spark?
Check the plug connection. Pull off the rubber protection at the plug (A) and ignition module (B) and check that the ignition cable is undamaged. If necessary cut off a piece of the cable to ensure good contact.

Grease the cable ends before fitting.

Grease the cable ends to simplify fitting and to prevent moisture penetrating into the connections.

Check the other cables and connections.

Still no spark?
Check the other cables and connections for poor contact (dirt, corrosion, cable break and damaged insulation).

Tips!
Use an Ohm meter to check if there is a cable break, e.g. as a result of pinching.

Check the air gap.

Still no spark?
Check the air gap between the flywheel magnet and ignition module. The gap should be 0.3 – 0.5 mm (0.012 – 0.020 in). Use air gap measure 502 51 34-06.
Adjust the air gap.

Ignition system

Adjust where appropriate the air gap to the correct distance.
• Release the screws holding the ignition module.
• Position the feeler gauge on the magnets of the flywheel and press the ignition module against flywheel.
• Tighten the screws and check the air gap again.
If there is still no spark then the ignition system should be replaced.

Replacing spark plug protection
1. Take the ignition cable through the plug protection.
2. Fit the contact spiral on the ignition cable.

Replacing spark plug protection
1. Grease the ignition cable with a little grease and take it through the plug protection.
2. Cut off a piece of the ignition cable (approx. 5 mm, 3/16") to obtain full contact with the spark plug protection.
3. Fit the contact spiral on the ignition cable and make sure that the wire is folded along the cable.
4. Pull the contact spiral in the plug protection.

NOTE!
It is important that the point on the contact spiral meets the middle of the ignition cable to prevent sparking.

Dismantling
Mod. 650, 700
Dismantle the cylinder cover, plug, starter unit, and air conductor.
Dismantle the ignition module and release the other cable connections.

Dismantling
Mod. 650, 700
Dismantle the plug, cylinder cover, starter unit, and air conductor.
Dismantle the ignition module by removing the two screws.
Release the other cable connections and lift off the ignition module.

Mod. 950, 1250
Dismantle the starter unit, air filter cover, air filter and cylinder cover.
Remove the air conductor.
Note the position of the cables so that they can be replaced in the same way.
**Ignition system**

Fit piston stop No. 502 54 15-01 in the spark plug hole.

Insert piston stop No. 502 54 15-01 in the sparking plug hole. Make sure that the piston stop does not come out through the exhaust port, it must rest against the front of the cylinder wall when the piston approaches Top Dead Centre.

Mod. 650, 700, 950, 1250
Dismantle the starter pawls.

Mod. 650, 700, 950, 1250
Dismantle the starter pawls by releasing the screws. Make sure the small washer which lies next to the flywheel is not lost.

Remove the flywheel nut.

Remove the flywheel nut by means of a suitable box spanner.

Pull off the flywheel.

Remove the flywheel by means of flywheel puller 502 51 49-02, which is screwed tight in the holes for the pawls.

**NOTE!**
Centre the flywheel puller over the shaft centre. Select suitable screws and tighten the withdrawing tool.
**Ignition system**

**Tips!**
Tap the flywheel puller screw sharply with a hammer if the flywheel sits tight.

**Tips!**
The flywheel may sit very tightly on the shaft. To simplify dismantling - tap the flywheel pullers screw sharply a few times. Hold the engine in the air with the handle on the flywheel puller.

**Starter pawls**
Mod. 650, 700, 950, 1250
Check the starter pawls for wear and damage.
Replace damaged parts.
The pawls are mounted on the flywheel with a contact screw.
Pay attention to the spacer washer (A) during dismantling and assembly.

**Starter pawls**
Mod. 650, 700, 950, 1250
Check the starter pawls for wear and damage.
Replace damaged parts.
The pawls are mounted on the flywheel with contact screw and spacer washer (A).
It is important not to forget the washer during assembly.
Check that the pawls move freely.

**Assembly**
Check that the keyway and key in the crankshaft are undamaged. (Mod. 650, 700, 1250)

Fit where appropriate a new key and make sure that it is positioned correctly in the keyway.

Check that the keyway and the cast key (mod. 950) in the flywheel are undamaged.
Fit the flywheel.

Check that the keyway and the cast key (mod. 950) in the flywheel are undamaged.
Fit the flywheel and check that the key and keyway are correctly positioned before the flywheel nut is tightened.
Tighten the nut with tightening torque 25–35 Nm.
Fit the ignition module.  
Adjust the air gap (0.3 – 0.5 mm/0.012–0.020").  
Fit the other cables.  
Fit the other parts in the reverse order to dismantling.
Fuel system

3.

Contents

Air filter ......................................................................... 20
Centrifugal cleaning (Active) ....................................... 21
Fuel filter ...................................................................... 22
Carburettor, dismantling/assembly .............................. 23
Carburettor design ....................................................... 25
Jets .............................................................................. 25
Speed limiter ................................................................. 26
Compensation device for blocked air filter ............... 26
Disassembly of the carburettor ................................ 27
Assembly of the carburettor ....................................... 30
Carburettor setting ....................................................... 32
Tank air vent ................................................................. 34
Throttle control ............................................................. 35
Trouble shooting .......................................................... 40
Fuel system

In addition to the fuel tank and carburettor, the fuel system also includes the air filter, fuel filter and tank vent.
All these components interact to ensure that the engine will have the optimum mixture of fuel and air to make it as efficient as possible. Very small deviations in the carburettor setting, or fouling of the air filter, have a great effect on the running and efficiency of the engine.
There are different makes of carburettors on our different models, but the function and repair techniques are basically the same.

⚠️ WARNING!
Do not clean the air filter in petrol. Health hazard!

Air filter
Mod. 650, 700, 950, 1250
Release the screws and lift off the air filter cover with the main filter, intermediate wall and protective filter.

Clean the protective filter by tapping it against your hand.

Clean the main filter carefully in lukewarm soapy water.
Soak it in air filter oil (Partner) and squeeze out the excess before refitting.

The protective filter is made of paper and therefore must not be cleaned in water or any other liquid, and neither with compressed air.
Clean the filter by tapping it against your hand.

Clean the main foam plastic filter in lukewarm soapy water. Air dry the filter and soak it in air filter oil and squeeze out the excess before refitting.
If the filter is damaged it should be replaced with a new one.
When the filter and covers are fitted it is very important to make sure that all the seals are undamaged and correctly positioned.
Seals which do not seal properly result in less efficient centrifugal cleaning and rapid blockage of the air filter.
Increased wear on the piston and cylinder barrel as a result of inferior air cleaning shortens the engine's service-life.

For centrifugal cleaning to be as efficient as possible it is important that:
1. The centrifugal cleaning nozzle is clean from deposits.
2. The connection of the nozzle to the carburettor chamber is tight.
3. The nozzle attachments are not broken.
4. The fan spiral and air conductor are clean.

The centrifugal cleaning nozzle is accessible for cleaning or replacement after dismantling the starter unit and air conductor.
Fuel system

Fuel filter
Mod. 650, 700
The fuel filter can be taken out through the tank’s filler hole.

Clean the filter externally if it is not too severely fouled.
Replace the filter if necessary.

Mod. 650, 700
On the fuel pipe in the tank there is a fuel filter. This is accessible through the filler hole. Pull out the filter with your fingers or by means of tool 502 50 83-01. Remove the tank cap completely.

If the filter is not too severely fouled it can be cleaned externally by means of a brush. Otherwise it must be replaced. Check the fuel pipe for cracking and leakage.

NOTE!
Make sure that the filter’s connecting collar is pressed as far as possible in the fuel pipe.

Mod. 950, 1250
The fuel filter is located on the hose in the fuel tank. It is accessible through the refill hole. Remove the tank fuel cap completely. Pull out the filter with tool 502 50 03-01. Pull the metal ring (A) from the filter connection and then pull the filter off the hose to either clean it or replace it.

Mod. 950, 1250
The easiest way to take the fuel filter out through the fuel tank refill hole is with tool 502 50 83-01.

Fuel hose
All models
Remove the fuel filter and connect pressure tester No. 501 56 27-01. Pump up the pressure to about 100 kPa and observe whether any bubbles are formed.

501 56 27-01

Fuel hose
All models
Remove the fuel filter and connect pressure tester No. 501 56 27-01. Pump up the pressure to about 100 kPa. Leakage and cracks in the hose are easy to detect if any bubbles are formed.
**Carburettor**

**Dismantling, all models**

Dismantle all covers and air filters so that the carburettor becomes accessible. Blow clean the carburettor chamber with compressed air.

**Mod. 650, 700**

Remove the fuel hose from the carburettor. Remove the screw guide and lock washer which holds the throttle push rod at the lever.

NOTE!

EPA-models have fixed jets and consequently do not have screwdriver guides.

Remove the screw guide from the carburettor’s adjusting screws. Bend away the lock washer which holds the throttle push rod at the lever by means of a screwdriver.

3. Remove the fuel hose from the carburettor.

4. Unscrew the carburettor screws. Insert hex key 502 50 18-01 through the hole in the stop control when the left screw is to be unscrewed.

5. Lift off the carburettor together with the choke control, air filter connection and middle piece.

For service procedures see “Disassembly of carburettor”.

**Carburettor**

**Mod. 950**

Blow clean the carburettor area with compressed air before the carburettor is removed. Dismantle the following:

1. Impulse hose
2. Fuel hose
3. Choke lever
4. Throttle lever (from throttle control)
Fuel system

Dismantle the screw (A) and then the two carburettor screws.
Lift off the carburettor.

Mod. 1250
Press off the rubber support from the carburettor intake.

NOTE!
Do not pull off the support from the crankcase since it is difficult to refit without separating the crankcase and tank part.

Dismantle the fuel hose.
Unscrew the carburettor screws, remove the choke lever and hook off the throttle wire.
Fit in reverse order to dismantling.

Assembly
Mod. 650, 700
Fit the carburettor in the reverse order to dismantling.

Remove the screw (A) and then the two carburettor screws.
Insert key 502 50 18-01 through the hole in the crankcase and tank part.
Lift off the carburettor together with the air filter connection and throttle lever.
Fit in the reverse order to dismantling.

Mod. 1250
Press off the rubber support from the carburettor intake with a screwdriver.

1. Dismantle the fuel hose.
2. Unscrew the carburettor screws.
3. Remove the choke lever from the lever on the carburettor.
4. Hook off the throttle wire

Lift off the carburettor together with the intake neck.
Fit in the reverse order to dismantling.

Assembly
Mod. 650, 700
Fit the carburettor to the cylinder in the reverse order to dismantling.
Use new seals.
Place the air filter connection (with screws), choke control and middle piece on the carburettor.
Hold the complete carburettor unit against the cylinder. Press down the choke control in its guide and tighten the screws. Check that the seal closest to the cylinder is correctly positioned! Connect the throttle push rod and fit the screw guide over the carburettor’s adjusting screws.
**Fuel system**

**Carburettor design**
The carburettor can be divided into three different functional units: the metering section, mixing section, and pumping section.

**Metering section**
The nozzles and control function for the fuel are placed here.

**The mixing section**
The fuel and air are mixed here.

**Pumping section**
This pumps fuel from the tank to the carburettor.

**Jets**
EPA-models have fixed carburettor jets, which means that the fuel/air mixture can not be adjusted manually.
The right-hand carburettor in the illustration has fixed jets (A).
The nozzles can be cleaned and possibly changed once the sealing plugs have been removed.
Fuel system

Speed limiter
Mod. 650, 700
A speed limiter is fitted on the side of the carburettor housing.
The speed limiter is fixed with Loctite and should not be released during servicing of the carburettor.

When the engine speed is less than 9,200 rpm the ball seals the extra fuel channel (A). The pressure of the spring presses the ball against the seat with a precise proven pressure.

When the engine speed exceeds the speed limit (9,600 ± 400 rpm) the spring-loaded ball opens the extra fuel channel (A). The engine thereby receives extra fuel, begins to putter and stops overspeeding.

Compensation insert for blocked air filter
The carburettor has been fitted with a compensation insert to prevent the engine receiving an increasing amount of fuel as the air filter becomes blocked. This transfers the underpressure in the carburettor’s inlet to the top of the metering diaphragm, as opposed to the atmospheric pressure in a standard carburettor. The pressure difference between the top and bottom of the diaphragm therefore remains constant and does not increase as the air filter becomes blocked. The fuel supply to the carburettor’s main jet nozzle is therefore always maintained at the correct level.

Check that the small O-ring (A) is in place when the air filter union is installed.
It is important for correct function of the compensation device that the O-ring is neither damaged or missing.
There are different sizes and versions of carburettors on the different models, but in terms of servicing they are all treated in the same way.

### Dismantling of the carburettor

Remove the screw driver guide and cover for the metering diaphragm.
Check the diaphragm for damage.
Replace if necessary.

Pressure test the metering system.

### Dismantling of the carburettor

Remove the screw driver guide over the adjusting screws.
Remove the 4 screws for the metering diaphragm cover.
Lift off the compensation insert and the diaphragm.
Check the diaphragm for holes and wear.
Replace the diaphragm if necessary.

Connect pressure tester 501 56 27-01 to the fuel pipe nipple.
Submerge the carburettor in a basin with petrol to simplify inspection for leaks.
Pressure test with 0.5 bar.
No leakage is permissible.
In the event of leakage - dismantle the needle valve.

Check the needle valve and lever for wear.
Replace damaged parts with new ones.

Remove the pump diaphragm.
Check the diaphragm for damage.

Remove the fuel strainer.

Carefully remove the fuel strainer, e.g. by using a needle.

Check the needle valve and lever for wear.
Replace damaged parts with new ones.

Remove the screws which hold the cover over the pump diaphragm.
Lift off the cover, gasket and diaphragm.
Check the diaphragm for damage on the valve tongues. Hold it up to a lamp to inspect for holes in the material.

Check the needle valve for damage at the point and the groove for the lever.
Check the lever for wear in the grooves for the needle valve and the diaphragm.
Replace damaged parts with new ones.
If the new needle valve also leaks the fault may be that the seat for the valve is damaged.

In the event of leakage dismantle the needle valve.
Release the screw and lift off the lever, shaft, needle valve and spring.
Unscrew the nozzle needles.

**NOTE!**
Notice the two types of needles and how they are positioned (e.g., the H-needle is slightly shorter than the L-needle).

Unscrew the nozzle needles.

On EPA models which have fixed nozzles, the nozzles can be cleaned or changed once the seal plugs have been removed. Carefully drill a small hole (Ø 2 mm) in the plug and prise it away with a pointed tool.

**NOTE!**
Use a suitable-sized drift when the plug is installed, to give correct sealing.

Dismantle the welch plug (1) and main jet nozzle (2).

Drill a small hole in the welch plug (1) and carefully remove it with a pointed tool. Press out the main jet nozzle (2) with a suitable mandrel.

Check the valves and valve shafts for wear. Replace if necessary.

Dismantle valves and valve shafts. If these parts are worn the engine will pink. Always replace the valve and valve shafts at the same time.
Assembly of the carburettor
Blow clean the carburettor housing.
Fit a new welch plug.
Fit a new main jet nozzle.

Fit the valves and valve shafts.

**NOTE!**
Use Loctite on the valve screws.

Fit the pump unit parts in the reverse order to dismantling.

Fit the different parts in the metering unit in the reverse order to dismantling.

**NOTE!**
The H-needle is slightly shorter than the L-needle.
Check that the lever is level with the carburettor housing.
High setting = too much fuel.
Low setting = too little fuel
Check that the carburettor is tight. No leakage is permissible at 50 kPa pressure.

Fit the metering diaphragm and compensation insert for air filter blocking.

Connect pressure tester No. 501 56 27-01 to the fuel inlet in the carburettor. Pump up to 50 kPa pressure. Submerge the carburettor in a jar with petrol to simplify inspection for leakage. No leakage is permissible.

Place the gasket on the carburettor housing and then the metering diaphragm.

**NOTE!**
Make sure that the pin on the diaphragm goes into the groove on the lever.

Fit the blue compensation insert and then the cover.

**Mod. 950**
The carburettor is of Tillotson (HS 282A) manufacture, and has in principle the same design as the carburettor for mod. 650, 700.
The speed limiter, however, has been replaced by an electronic limit via the ignition system.
The adjustable jets have been replaced by fixed jets.

A = Main jet (high speed)
B = Low speed jet (behind washer plug)
C = Idle screw
D = Main nozzle
E = Part throttle jet
F = Fuel screen

The service method for this carburettor is the same as for mod. 650, 700.
The main jet (A) can be dismantled for cleaning or replacement.
To gain access to the low speed jet (B) the welch plug must be removed.
The purpose of the carburettor is to supply a combustible mixture of air and fuel to the cylinder.

The volume of this mixture is regulated with the throttle control.

The composition of the mixture of air and fuel is regulated with the adjustable nozzles "H" and "L".

The carburettor should be adjusted if:
- The cutting disc rotates when the engine is idling.
- The engine speed does not go down to idle from full throttle within 3-5 seconds.
- The engine does not run on idle.
- The engine does not respond quickly to the throttle.
- The engine seems to lack power.

NOTE!
EPA models have carburettors with fixed jets "H" and "L". This means that they can not be adjusted.
Fuel system

The adjustment of the carburettor may vary somewhat depending on the humidity, temperature and air pressure.

L = Low speed nozzle
H = High speed nozzle
T = Adjuster screw for idling

With the L and H nozzles the fuel volume is adjusted to the air flow which the opening of the throttle control permits. If they are screwed clockwise the air/fuel mixture becomes lean (less fuel) and if they are screwed anti-clockwise the air/fuel mixture will become rich (more fuel).

A lean mixture gives higher revs and a rich mixture gives lower revs.

The T-screw regulates the position of the throttle control during idling. If the T-screw is screwed clockwise a higher idling speed will be obtained, and if it is screwed anti-clockwise a lower idling speed will be obtained.

Basic setting (not EPA models)
The carburettor is given a basic setting when tested at the factory. This basic setting is slightly “richer” than the optimum setting and should be maintained during the first few hours the engine is used, after which it should be fine adjusted. The basic setting can vary between:

H = 7/8 to 1 turn
L = 1 to 1 1/4 turn

The basic setting should be made when the engine is switched off.

Check that the air filters are clean.

Screw the nozzle needles (H) and (L) carefully to the bottom (clockwise). Then unscrew them to the recommended basic setting.

Start the engine and run until warm, for about 5 minutes.

If the engine’s idling speed is too high or too low adjust it with the idling adjuster screw (T) until the cutting disc just stops/begins to rotate (approx. 2,500 rpm). Check with tachometer 502 71 14-01.

Low speed nozzle (L) (not EPA models)
Run at full throttle a few times and check that the engine accelerates without delay. If an adjustment is necessary try to achieve maximum idling speed by slowly turning the low speed nozzle (L) clockwise until the engine hesitates from lack of fuel, and then open the nozzle (anti-clockwise) 1/8 of a turn.

Check the acceleration of the engine.

NOTE!
If the low speed nozzle is set too lean (L-needle screwed in too far) this will result in difficulty starting the engine. After a correct adjustment of the low speed nozzle (L) the high speed nozzle (H) can be adjusted.

High speed nozzle (H) (not EPA models)
The engine has a carburettor with built-in speed limiter.

At maximum revs the engine receives an extra volume of fuel which prevents the engine overspeeding. The speed limiter has a fixed setting and cannot be adjusted.

Screw in the H-needle to the limiting position where the engine begins to falter during acceleration. Use short, rapid bursts from idling speed.

From this position the H-needle is then opened less than 1/8 of a turn (45°), which gives the carburettor setting for maximum engine power.

Check with a tachometer that the engine does not overspeed the permissible maximum speed (9,600 ± 400 rpm).

WARNING!
If the high speed nozzle is set too lean (screwed in too far clockwise) this will reduce the power of the engine and can result in overheating and subsequent damage to the engine.

The high speed nozzle (H) should be adjusted for maximum power and not maximum speed.
Fuel system

Fine adjustment of the idling screw (T)
Adjust the idling speed with the adjuster screw (T).
The idling speed should be adjusted after the high and low speed nozzles have been adjusted.
If it is necessary to adjust the idling screw turn the screw (T) first clockwise until the cutting disc begins to rotate, and then anti-clockwise until the cutting disc stops rotating.
The idling speed is correctly adjusted when the engine speed (approx. 2,500 rpm) is stable in all working positions.

There should be a good margin between the idling speed and the speed at which the cutting disc begins to rotate.

**WARNING!**
Do not use the machine if the idling speed cannot be adjusted so that the cutting disc stops rotating.

Correctly adjusted carburettor
A correctly adjusted carburettor implies that the engine accelerates without hesitation and does not putter at full throttle.
- If the L-nozzle is set too lean it can be difficult to start the engine and will result in poor acceleration.
- If the H-nozzle is set too lean this will result in reduced power, poor acceleration and/or engine damage.
- If the L- and H-nozzles are set too rich this will result in acceleration problems or low working speed.

Tank air vent
All models
The tank air vent has a great influence on the function of the carburettor. If it is not working properly then either overpressure or underpressure will develop in the fuel tank.
Overpressure results in flooding the carburettor.
Underpressure implies a reduction of the fuel flow to the carburettor, or no fuel flow at all.
The purpose of the tank air vent is to ensure that there is atmospheric pressure in the fuel tank during all operating conditions.

Mod. 650, 700
The tank air vent consists of a nonreturn valve (A) which opens at a certain pressure in both directions.
In one end of the valve (the smooth connection) a sintered metal filter (B) is connected to prevent dirt from penetrating into the fuel tank.

Mod. 950
The tank vent valve (B) is accessible when the tank part and crankcase have been separated. It cannot be repaired and must be replaced if it is defective.
Remember to clean the small metal filter (A) in the end of the hose.

Mod. 950
The fuel tank venting is conducted via a non return valve of the same design as on the other machine models.
It is accessible when the tank unit and crankcase are separated.
Remember when servicing to clean the small metal filter (A) placed in the end of the hose.
The non return valve (B) cannot be repaired and must be replaced if it is defective.
Fuel system

Function check
Empty the fuel tank and screw on the tank cap. Connect a pressure gauge to the fuel hose.

Overpressure
Pump up a pressure of 50 kPa (0.5 kp/cm²). The pressure should fall to 20 kPa (0.2 kp/cm²) within 60 seconds.

Underpressure
Reduce the pressure to –50 kPa (0.5 kp/cm²). The pressure should increase to 20 kPa (0.2 kp/cm²) within 30 seconds.

If the tank air vent is not working it must be replaced with a new one. It cannot be cleaned or repaired.

Throttle control
Dismantling, assembly
Mod. 650, 700
Remove the four screws which hold the left-hand half of the grip.

Throttle control
Dismantling, assembly
Mod. 650, 700
Remove the four screws which hold the left-hand half of the rear grip. Note that they have different lengths.
Lift off the half of the grip. Note the washer under the throttle control and the sleeve inside the control.

**NOTE!**

One end of the return spring for the throttle control catch goes in the hole on the throttle control.

Lift off the throttle control. Note the washer under the throttle control and the sleeve inside the control so that they are not lost during cleaning.

Fit in the reverse order to dismantling. Replace damaged or worn parts. Fit all parts in the left-hand half of the grip.

1. Place the spring for the throttle control catch in position round the pin with the hole in it.
2. Place the throttle control catch in position.
3. Push the sleeve in the throttle control from underneath.
4. Hold the sleeve in position with your forefinger and hook the spring in the hole in the throttle control.
5. Move the throttle control to the correct position opposite the screw hole.
6. Press in the start throttle catch and lock the throttle control in start position.
7. Insert the screw in the throttle control’s supporting sleeve.
8. Place the spacer washer in position on the right-hand grip. Fix it with a little grease.
9. Hook the throttle lever in the throttle control and place the grip half in position.

**NOTE!**
Check that the spacer washer has not moved.

10. Screw tight the screws and check the function of the throttle control.

---

**Mod. 950**
Separate the tank unit and crankcase. Press out the bearing pins (1) and (3) and dismantle the safety catch and throttle control.

1. Press out the bearing pin (1) with an appropriate punch (Ø 2.5 mm) far enough so that the safety catch (2) can be removed.
2. Press out the bearing pin (3) far enough so that the throttle control can be removed, where appropriate by bending it with a screwdriver.

Fit the throttle control in the reverse order to dismantling.

1. Place the spring on the throttle control and push in into the rear grip.
2. Press in the bearing pin and check that the throttle control moves easily.

---

Fit the safety catch.
The spring should be to the right of the catch (seen from behind). Press in the bearing pin and check the function of the catch.

3. Make sure that the throttle control spring is on the right-hand side of the catch (seen from behind) and that it goes into the recess.
4. Press down the catch throttle lock in the grip and press in the pin.
Check that the throttle lock functions properly.
Fuel system

Mod. 1250
Separate the tank unit and crankcase, and press off the three bearing pins.

Press the safety catches forwards/downwards and lift them up at the back edge.

Pull the throttle control forwards and out of the rear grip.

Inspect the different parts and replace those which are damaged or worn.

Mod. 1250
Separate the tank unit and crankcase. (Where appropriate see chapter on vibration damper.)
Press off the three bearing pins with a suitable punch (Ø 2.5 mm).

Press down the safety catch, and press it forwards (where appropriate with a small screwdriver) so that it can be lifted up at the back edge.

Pull the throttle control forwards, out from the rear grip. To simplify dismantling, press with a small screwdriver on the lever which the throttle wire is attached to.

Inspect the different parts and replace damaged or worn parts with new ones.

TIP!
Bend the end of the spring to a closed loop. This simplifies fitting and prevents the spring from being pressed out from the recess at the hole where the spring should slide freely.
1. Push the throttle control with attached throttle wire into the rear grip.
2. Enter the back edge of the safety catch into the grip.
3. Check that the spring goes into the hole in the throttle control.
4. Press down the safety catch until it clicks into the throttle control.
5. Press in the three bearing pins and check that the throttle control and safety catch function as intended.

Fit the throttle control and safety catch in the reverse order to dismantling. Check that the spring on the catch goes into the hole in the throttle control.
### Fuel system

#### Trouble-shooting chart

| Start | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
|-------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| A     | ⬤ |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| B     |   | ⬤ |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| C     |   |   | ⬤ |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

#### Idle (Low speed)

| Idle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
|------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| D    | ⬤ |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| E    |   | ⬤ |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| F    |   |   | ⬤ |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| G    |   |   |   | ⬤ |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| H    |   |   |   |   | ⬤ |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| J    |   |   |   |   |   | ⬤ |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

#### Acceleration, deceleration

| Acceleration and deceleration | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
|-------------------------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| K                             | ⬤ |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| L                             |   | ⬤ |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| M                             |   |   | ⬤ |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

#### High speed

| High speed | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
|------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| N          | ⬤ |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| O          |   | ⬤ |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| P          |   |   | ⬤ |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

#### Fuel system

- 3. Plugged tank vent
- 4. Plugged tank filter
- 5. Restricted fuel line
- 6. Dirt in fuel passage
- 7. Loose, damaged fuel line
- 8. Leak in pulse system
- 9. Restricted pulse channel
- 10. Loose pump cover screws
- 11. Defective pump diaphragm
- 12. Plugged air filter
- 13. Defective manifold gasket
- 14. Loose carburettor mounting screws
- 15. Worn throttle assembly
- 16. Incorrect throttle assembly
- 17. Loose throttle valve screw
- 18. Throttle shaft too tight
- 20. Defective throttle spring
- 21. Bent throttle stop lever
- 22. Choke not functioning properly
- 23. Worn choke shaft
- 24. Worn choke valve
- 25. Worn throttle valve

#### Air system

#### Metering system

- 26. Worn lever
- 27. Set too high
- 28. Set too low
- 29. Not free
- 30. Distorted
- 31. Improperly installed
- 32. Leaking (air/fuel)
- 33. Worn button
- 34. Improper assembly
- 35. Defective gasket
- 36. Loose diaphragm rivet
- 37. Hole in diaphragm
- 38. Loose cover screws
- 39. Foreign matter
- 40. Binding
- 41. Worn needle body or tip

#### Adjustments

- 1. Low speed needle (L)
- 2. High speed needle (H)
Centrifugal clutch

4.

Contents
Dismantling, all models .............................................. 42
Dismantling, mod. 650, 700 ........................................ 42
Dismantling, mod. 950, 1250 ...................................... 44
Assembly, mod. 650, 700 ........................................... 45
Assembly, mod 950, 1250 .......................................... 46
The centrifugal clutch has the purpose of transferring the power between the engine and the cutting equipment. As the name implies it works according to the centrifugal principle. This principle implies that the clutch’s friction shoes are slung outwards towards the clutch drum at a specific engine speed. When the friction against the drum becomes sufficient it is driven round at the same speed as the engine. There is a certain degree of slip between the clutch and the clutch drum during acceleration, but also in the reverse case if the cutting equipment should stick. This avoids irregular load alternations on the crankshaft. The engagement speed is carefully tested to that the engine can run at idling speed without the cutting equipment rotating.

**WARNING!**
Never start or test run the engine if the clutch cover is removed. The clutch can come loose and cause personal injury.

---

### Dismantling

**All models**
Dismantle the complete cutting equipment and unscrew the plug.

**Mod. 650, 700**
Fit piston stop No. 502 54 15-01 in the sparking plug hole.
Dismantle the clutch clockwise by means of a suitable box spanner.

Take the clutch apart.
Use pliers No. 502 50 49-01 and press out the one clutch shoe.

---

**Mod. 650, 700**
Fit piston stop No. 502 54 15-01 in the sparking plug hole.
Dismantle the clutch clockwise by means of a suitable box spanner.

**NOTE!**
Do not drop the washer which lies behind the clutch drum.

Press out the one clutch shoe with pliers No. 502 50 49-01 as shown in the illustration.
Centrifugal clutch

Place an object which is approx. 5.5 mm (0.22") thick between the clutch shoe and the spoke.
Bend away the clutch spring.

Clean and inspect the clutch parts for damage and wear.

Inspect the wear on the clutch drum, the pulley and the inner diameter.
It must not exceed 75.5 mm (2.97").

Replace the needle bearing if the clutch drum is loose on the shaft.

Place an object (e.g. a nut) which is approx. 5.5 mm (0.22") thick between the clutch shoe and the spoke on the clutch hub on the back of the clutch.
Bend away the clutch spring with a screwdriver.

Clean and inspect the clutch hub’s spokes and the clutch shoes for wear.
There must be material thickness of at least 1 mm (0.04") left at the most worn point on the clutch shoes.
All the shoes must be replaced at the same time.

Check the wear on clutch drum’s inner diameter. It must not exceed 75.5 mm (2.97"). If so, replace the clutch drum.
Check also the wear on the pulley. If the side surfaces are heavily worn and/or damaged the clutch drum must be replaced.

If the needle bearing in the clutch drum is worn (the drum is loose on the shaft) it should be replaced with a new one.
Press out the bearing with a vice and a suitable sleeve (Ø 17.5 mm, 0.69").

There must be material thickness of at least 1 mm (0.04") left at the most worn point on the clutch shoes.
All the shoes must be replaced at the same time.

Replace the needle bearing if the clutch drum is loose on the shaft.
Mod. 950, 1250
Dismantle all the cutting equipment and unscrew the plug.
Fit piston stop No. 502 54 15-01 and dismantle the clutch clockwise.

Remove the clutch springs with a small screwdriver.

Clean and inspect the clutch parts for damage and wear.

Inspect the clutch drum for wear on the mating surfaces for the centrifugal clutch and drive belt.

Min. 1 mm

Mod. 950, 1250
Dismantle the front and rear belt covers, cutter arm with cutter disc and drive belt.
Remove the air filter covers and air filter, and remove the plug.
Fit the piston stop No. 502 54 15-01 in the plug hole and dismantle the clutch clockwise.

Remove the clutch springs with a small screwdriver.

Clean and inspect the clutch hub spokes and the clutch shoes for wear.
There must be at least 1 mm of material left at the most worn part of the clutch shoes.
All the shoes must be replaced at the same time.

Inspect the clutch drum for wear on the mating surfaces for the centrifugal clutch and drive belt.

The inner diameter of the clutch drum must not exceed 79.8 mm.
Replace worn parts.
Assembly
Mod. 650, 700
Press in the new needle bearing until it is flush with the outer edge of the clutch drum’s hub.

Fit together the centrifugal clutch. Place two clutch shoes and the spring on the clutch hub.

Fit the remaining clutch shoe.

Check that the lubrication hole in the crankshaft is not blocked.
If necessary clean with a steel wire.

NOTE!
The spring’s coupling point should lie opposite one of the hub’s spokes.

Assembly
Mod. 650, 700
Press in the new needle bearing with a vice and a suitable sleeve until it is flush with the outer edge of the clutch drum’s hub.

Fit together the centrifugal clutch. Place two clutch shoes and the spring on the clutch hub.

Fit the remaining clutch shoe. Use pliers No. 502 50 49-01 and a screwdriver.

Check that the lubrication hole in the crankshaft is not blocked.
If necessary clean with a steel wire.
The clutch drum’s bearing is lubricated automatically with the oil in the fuel mixture which is pressed out through the channel in the crankshaft.

The clutch drum’s bearing is lubricated automatically with the oil in the fuel mixture.

When the piston moves down in the cylinder the fuel mixture in the crankcase is compressed. A small part of this mixture is pressed out through the channel in the crankshaft and provides the needle bearing with sufficient lubrication.

Lubricate the clutch drum’s needle bearing with a little grease and fit the clutch drum on the crankshaft.

Fit the spacer washer and centrifugal clutch.

Mod. 950, 1250
Fit the clutch shoes.
Fit the springs from the back of the clutch.
Check that the lubrication hole in the crankshaft is open.
Clean it with a piece of wire if necessary.

Mod. 950, 1250
Fit the clutch shoes on the hub.
Fit the springs from the back of the clutch by pressing them in place with your thumbs or with a screwdriver.
Check that the lubrication hole in the crankshaft is open.
Clean it with a piece of wire if necessary.

NOTE!
Remember the spacer sleeve (A) behind the clutch drum when the clutch is refitted on the crankshaft.
Cylinder and piston

Contents
Dismantling ................................................................. 48
Cleaning, inspection ................................................... 50
Analysis and procedures ............................................ 51
Service tips ................................................................. 55
Wear tolerances .......................................................... 55
Assembly ..................................................................... 55
Decompression valve ................................................. 57
Compression test ......................................................... 58
The cylinder and piston are two of the components which are exposed to the greatest tensions in the engine. They must, for example, withstand high revs, large heat variations, and high pressure. They must also be resistant to wear. Despite these severe working conditions it is relatively unusual for serious piston and cylinder malfunctions to occur. A contributory factor to this is the new lining materials in the cylinder bore, new types of lubricating oils, and refined technology during manufacturing.

During service work on these components cleanliness is of extreme importance. It is therefore recommended that the cylinder and the area around it are well cleaned before it is dismantled from the crankcase.

Dismantling

General

The dismantling work is basically the same for all models. In the event that the work methodology differs for any particular model this is reported separately.

Dismantle the following:
Cylinder cover, carburettor cover, starter unit, plug, air filter, carburettor, inlet manifold, muffler with heat shield, and on certain models also heat cover, ignition module, flywheel and Active nozzle.
See respective sections in the Workshop Manual for detailed instructions.

Mod. 650, 700

Dismantle the decompression valve.
Dismantle the cylinder.

Dismantle the piston from the connecting rod.

Mod. 650, 700

Dismantle the decompression valve before the cylinder screws are unscrewed.
Unscrew the cylinder screws and lift the cylinder straight up.

NOTE!
Place a cloth in the crankcase opening to prevent dirt from dropping down in the crankcase when the cylinder is lifted off.

Dismantle the piston from the connecting rod.
Remove the circlip by means of a pair of flat pliers.
Press the gudgeon pin out, using drift No. 505 38 17-05.
Mod. 950
Dismantle all components so that the cylinder becomes accessible. Dismantle the carburettor and screws that hold the spacing piece to the crankcase.

Remove the screw which holds the vibration damper to the grip. Dismantle the damper from the cylinder.

Unscrew the cylinder screws and lift off the cylinder. Dismantle the intake pipe and impulse hose. If there are signs of cracking replace with new parts.

Mod. 1250
Dismantle all the necessary parts to gain access to the cylinder, including the cutting equipment.

Mod. 950
Dismantle all components so that the cylinder becomes accessible. Remove the start valve, blue centrifugal nozzle and muffler. Note the nut in the nut recess on the crankcase at the lower muffler screws, and make sure it is not dropped. Dismantle the carburettor and the two screws that hold the spacing piece to the crankcase.

Remove the screw which holds the vibration damper to the grip. Insert key 502 50 18-01 in the centre of the vibration damper and unscrew the screw which holds the damper to the cylinder.

Unscrew the cylinder screws with key 502 50 64-01. Lift the cylinder straight up and place a clean cloth in the crankcase opening to prevent dirt from dropping down into the crankcase. Dismantle the intake pipe and impulse hose. Inspect the parts and replace them if they show signs of cracking.

Mod. 1250
Dismantle all the necessary parts to gain access to the cylinder. Use the universal tool 501 69 17-02 to dismantle the start valve.

All the cutting equipment must be dismantled in order to be able to dismantle the muffler. Dismantle the cutter arm attachment by removing the nut (A) and the screws (B) with key 502 50 18-01.
Cylinder and piston

Cleaning, inspection

The different parts are cleaned after dismantling:
1. Scrape off soot deposits on the piston crown.
2. Scrape off soot deposits in the cylinder’s combustion chamber.
3. Scrape off soot deposits in the cylinder’s exhaust port.

**NOTE!**
Scrape carefully with an object which is not too sharp so that the soft aluminium parts are not damaged.
4. Clean the decompression passage in the cylinder wall.
5. Wash all parts clean.
6. Inspect the different parts for damage and wear.
7. Check the middle piece and inlet pipe for cracking and to see if leakage has occurred, etc.

See also the chapter "Analysis and procedure".
Check the piston and cylinder for seizing damage and wear.
See also the chapter "Analysis and procedure".
Check the piston ring for damage or fracture.
See also the chapter "Analysis and procedure".
Check the gudgeon pin.
– If it shows signs of bluing it should be replaced.
– If it runs too easily in the piston both the piston and piston bolt should be replaced.
Check the needle bearing. If it is discoloured or damaged it should be replaced.
Check the circlips. If they show signs of cracking or are discoloured they should be replaced.

Unscrew the cylinder screws and lift off the cylinder.
Dismantle the spacing piece from the cylinder.

Inspect the spacing piece and intake pipe for signs of cracking and other damage.
Check that the impulse channel is open.

Unscrew the cylinder screws with key No. 502 50 57-01 (3/16”) and lift the cylinder at an angle forwards/upwards
Place a clean cloth in the crankcase opening to prevent dirt from dropping down into the crankcase.
Work off the throttle wire guide and remove the screws that hold the spacing piece to the cylinder.

**TIP!**
The spacer can also be removed without first removing the throttle cable guide.
Insert the T-spanner (502 50 18-01) into the tapped holes for the carburettor screws and undo the screws which hold the spacer to the cylinder.

Inspect the spacing piece and intake pipe for signs of cracking and damage on the sealing surfaces to the cylinder and carburettor.
Check that the impulse channel is open.
Replace damaged parts.
Cylinder and piston

New piston. Inlet side.

New piston. Exhaust side.

Analysis and procedures

The two adjacent illustrations show what a new piston looks like, on the inlet side and on the exhaust side. Note that the milling lines from manufacturing are clearly visible.

Use these illustrations as reference for the evaluation of wear and damage.

Experience shows that piston or cylinder malfunction as a result of manufacturing faults are unusual.

There are other reasons which dominate instead, as can be seen from the following.

Note the reasons for the malfunction, repair the damage and take the necessary corrective action to prevent repetition.

Insufficient lubrication

The piston displays small to medium sized scratches usually opposite the exhaust port. In severe cases the heat development can be so great that material from the piston adheres along the piston skirt and also in the cylinder bore.

The piston ring is as a rule undamaged and can move freely in the piston ring groove.

Scratches may also be found on the piston’s inlet side.

Reasons:

- Incorrect carburettor setting. Recommended max. revs has been exceeded.
- Incorrect oil mixture in the fuel.
- Too low octane rating in the fuel.

Procedures:

- Check and change the carburettor setting.
- Change fuel.
- Change to petrol with high octane rating.

The piston ring has begun to stick, or is completely stuck in its groove and has therefore not been able to seal to the cylinder wall, which has resulted in an additional powerful increase in heat in the piston.

Seizure scratches can be seen along the full piston skirt both on the exhaust side and inlet side.

Reasons:

- Incorrect oil mixture in the fuel.
- Too low octane rating in the petrol.
- Air leaks.
  - Cracked fuel pipe.
  - Untight inlet gaskets.
  - Cracked middle piece or inlet pipe.
- Air leaks in engine body.
  - Untight crankshaft seals.
  - Untight cylinder- and crankcase gaskets.
- Unsatisfactory maintenance.
  - Dirty cooling fins on the cylinder.
  - Blocked air inlet on starter.
  - Blocked spark extinguishing net in muffler.

Measures:

- Change to fuel with correct oil mixture.
- Change to petrol with higher octane rating.
- Replace damaged parts.
- Replace untight gaskets and shaft seals.
- Clean cooling fins and air intake.

For best results Partner two-stroke oil is recommended, which is specially developed for air-cooled two-stroke engines.

Mixing ratio: 1:50 (2 %).

If Partner two-stroke oil is not available another high quality two-stroke oil can be used.

Mixing ratio: 1:33 (3 %) or 1:25 (4 %).
Cylinder and piston

Piston seizures resulting from severe carbon deposits
Excessive carbon deposits can result in damage similar to that caused by insufficient lubrication. The piston skirt, however, is darker in colour as a result of the hot combustion gases which are pressed past the piston ring. This type of piston damage begins at the exhaust port where carbon deposits can loosen and stick between the piston and cylinder wall.

![Medium to deep scratches on the exhaust side. The piston ring has stuck in its groove. Black discoloring under the piston ring resulting from so-called "blow through".](image)

Typical for this type of piston damage is the brown and black discoloring of the piston skirt.

**Reasons:**
- Incorrect type of two-stroke oil and/or petrol.
- Incorrect oil mixture in the petrol.
- Incorrect carburettor setting.

**Measures:**
- Change the fuel.
- Change to fuel with correct oil mixture.
- Correct the carburettor setting.

![Inlet side. The piston ring has stuck in its groove. Black discolouring under the piston ring resulting from so-called "blow through".](image)

**Piston damage resulting from excessively high engine revs.**
 Typical damage resulting from excessively high engine revs include fracture of the piston ring, broken circlip for the piston bolt, defective bearings or the loosening of the guide pin for the piston ring.

**Piston ring fracture**
A too "lean" carburettor setting results in both higher revs and higher piston temperatures. If the piston temperature rises over the normal working temperature the piston ring can seize in its groove, which in turn can imply that it fails to go sufficiently deep in the groove. The edge of the piston ring may therefore hit the head edge of the exhaust port and become broken, also resulting in damage to the piston.

Excessive engine revs can also result in rapid wearing of the piston ring and play in the piston ring groove, primarily opposite the exhaust port. The ring is weakened by the wear and can stick in the port, resulting in serious damage to the piston.

![The exhaust side damaged by a broken piston ring. The piston ring parts damage the head part of the piston and result in scratch marks.](image)
Loose vibrated guide pin for piston ring
Excessively high engine revs can result in the piston ring ends hammering against the guide pin when the piston ring moves in its groove. The intensive hammering can drive out the pin through the head part of the piston and also result in serious damage to the cylinder.

Damage on circlips for the piston bolt
Excessively high engine revs can cause the circlips for the piston bolt to vibrate. The vibrations cause the circlip grooves to wear out, which in turn results in a reduction of the tensioning of circlips. The circlips can therefore loosen and cause damage to the piston.

Bearing malfunction
Malfunctioning of the crank shaft or connecting rod bearings is usually the result of excessively high engine revs, which result in overloading or overheating of the bearing. This in turn can imply that the bearing needles or balls slip instead of rotating, which can result in the bearing cage breaking up.

The broken parts can become jammed between the piston and the cylinder wall and result in damage to the piston skirt.

Damaged parts can also pass up through the cylinder’s transfer ports and result in damage to the piston sides and head, and the cylinder’s combustion chamber.

Foreign objects
Everything that enters the engine through the inlet port, apart from clean air and clean fuel, results in some form of irregular wear or damage to the piston and cylinder.

This type of increased wear can be noticed on the piston’s inlet side, beginning at the lower edge on the piston skirt.

The wear is caused by poorly filtered air which passes through the carburettor and into the engine.
Cylinder and piston

**Reasons:**
- Defective air filter. Small dust particles pass through the filter.
- The filter is worn out as a result of overcleaning, whereby small holes have been made in the filter material.
- Insufficient maintenance of the filter, e.g. the use of incorrect method or incorrect solvent.
- Flocculation material releases and holes are made in the air filter.
- The air filter is incorrectly fitted.
- The air filter is damaged or missing.

**Procedure:**
- Fit a fine-mesh filter.
- Check the filter carefully for holes and damage each time it is cleaned. Change the filter if necessary.
- Carefully clean and use the correct solvent (e.g. lukewarm soapy water).
- Change filter.
- Fit the filter correctly.
- Fit a new air filter.

---

Dust and dirt particles from carbon deposits on the head of the piston and in the piston ring groove. The piston ring is stuck in the groove. Piston material is worn off.
The lower part of the piston skirt on the inlet side is thinner than on the exhaust side.

---

The piston is worn and scratched from the piston ring and downwards on the inlet side.

---

Large, softer particles which have entered the engine result in damage to the piston skirt under the piston ring as shown in the illustration.

**Reasons:**
- The air filter is incorrectly fitted.
- The air filter is damaged or missing.

**Procedure:**
- Fit the air filter correctly.
- Fit a new air filter.

---

The piston is worn and scratched from the piston ring and downwards on the inlet side.

---

Large, hard particles which enter the engine result in more severe damage to the lower part of the piston skirt.

**Reasons:**
- The air filter is damaged or missing.
- Parts from the carburettor or inlet system have released and entered the engine.

**Procedure:**
- Fit a new air filter.
- Regular service and control.

---

Severe damages to the lower part of the piston on the inlet side.
Service tips

Defect:
Broken cooling fins, damaged threads or broken screw at exhaust port.
Seizure marks in the cylinder bore (especially at the exhaust port).

The surface lining in the cylinder bore is worn (primarily at the head of the cylinder).
The piston displays seizure scratches.

The piston ring is stucked in its groove.

Procedure:
In severe cases - replace the cylinder.
Repair the thread with Heli-Coil.
Rub the damaged part with fine emery cloth to remove adhered aluminium.
With deeper seizure scratches the cylinder and piston should be replaced.
Replace cylinder and piston.

Rub the damaged part carefully with a fine file or emery cloth. Before the piston is fitted the cylinder should be rubbed as above. With deeper scratches the piston and where necessary also the cylinder should be replaced.
Carefully loosen the piston ring and clean the groove very carefully before assembly. Check the wear on the piston ring by placing it in the lower part of the cylinder.

Wear tolerances

Cylinder bore

The surface finish is worn away revealing the aluminium.

Piston ring gap

Max. 1.0 mm (0.04”) with the piston ring pushed into the lower part of the cylinder.

Piston ring groove

Max. 1.6 mm (0.06”). Clean the groove carefully before checking the measurement.

Piston ring play

Max. 0.15 mm (0.006”). Clean the groove carefully before checking the measurement.

Assembly

All models
Fit the piston on the connecting rod.
Make sure that the arrow on the piston top is turned to the exhaust port.

Assembly

All models
Before fitting the piston and cylinder see the section “Cleaning, inspection” and “Analysis and procedures”.
Lubricate the piston bolt’s needle bearing with a few drops of engine oil.
Align the arrow on the piston top with the exhaust port.
Press in the piston bolt by means of the mandrel 505 38 17-05 and fit the circlips by means of a pair of flat pliers. Check that they sit correctly in their grooves by turning them with the pliers.
Cylinder and piston

Fit a new cylinder base gasket.

Carefully scrape off old gasket residue from the cylinder and cylinder base surface on the crankcase. Place a new gasket in position on the crankcase. Gasket paste is recommended!

Lubricate the cylinder bore with a few drops of oil and push down the cylinder over the piston. Screw tight the cylinder.

Lubricate the cylinder bore with a few drops of oil and push down the cylinder over the piston. Use tool 502 50 70-01 to simplify the work.

NOTE!
Do not turn the cylinder. There is a risk of breaking the piston ring.

Screw tight the screws for the cylinder crosswise.

Mod. 650, 700
Fit the cylinder in the same way as described above.
Check the middle piece for cracking or other damage before fitting it.
Replace if necessary the middle piece.

Mod. 650, 700
Fit the cylinder in the same way as described above.
Check the middle piece for cracking or other damage before fitting it.
Replace the middle piece if necessary.
Fit the carburettor and other parts in the reverse order to dismantling.

Mod. 950
Follow the instructions for "Cleaning, inspection", "Assembly" and "Decompression valve" before fitting the piston and cylinder.

TIP!
Fit the intake pipe and impulse hose on the cylinder before fitting it on the crankcase.
Fit the other parts in the reverse order to dismantling.

Mod. 950
Fit the cylinder in the same way as described above.
Fit the other parts in the reverse order to dismantling.

Fit the cylinder in the same way as described above.
Check the middle piece for cracking or other damage before fitting it.
Replace it necessary the middle piece.
Cylinder and piston

Mod. 1250
Fit the cylinder and piston in the same way as described above.

Mod. 1250
Follow the instructions for "Cleaning, inspection", "Assembly" and "Decompression valve" before fitting the piston cylinder.

NOTE!
Fit the spacing piece and throttle wire guide on the cylinder before fitting it on the crankcase.

Decompression valve
Check that the valve disc is undamaged and seals tightly. Where appropriate rub down with grinding paste.

Check that the valve is tight with pressure gauge 502 50 38-01.

Decompression valve
It is important that this is tight for the engine to work at full power.
Rub down the valve disc with fine grinding paste if it is not tight.
Wash the valve carefully to remove all the grinding paste.

Check the tightness of the valve as follows:
1. Connect pressure gauge 502 50 38-01 to the valves thread.
2. Pump up the pressure to 80 kPa (0.8 bar).
3. Check the pressure after 30 sec. It must not be less than 60 kPa (0.6 bar). If so, rub down the valve disc again.

NOTE!
Fit the other parts in the reverse order to dismantling.

NOTE!
When the muffler is fitted the gasket should lie between the muffler and overheating plate.

Fit the cylinder and piston in the same way as described above.

Fit the other parts in the reverse order to dismantling.

Fit the other parts in the reverse order to dismantling.

NOTE!
When the muffler is fitted the gasket should lie between the muffler and overheating plate.
Cylinder and piston

Check that the outlet hole in the valve is open, in similarity with the hole in the cylinder wall. Clean if necessary.

Compression test

The engine will only achieve maximum power and perfect functioning if the mechanical components such as cylinder, piston, circlips, and gaskets, are in satisfactory condition.

A simple way of checking the condition of the engine is to measure the pressure in the cylinder with a compression gauge when the engine is turned over with the starter.

1. Run the engine warm for a few minutes.
2. Replace the plug with the compression gauge. Make sure that it is tight between the cylinder and gauge.
3. Move the stop switch to the stop position.
4. Firmly pull the engine over 5–6 times.
5. Read off the pressure on the gauge. Release the pressure by pressing in the valve cone on the side of the gauge connection. Repeat this procedure twice and calculate a mean value from the tests.

NOTE!

If the engine has been disassembled it should be "run in" first in order to achieve a correct result.

Compression pressure

Average value for new engine: K650, 700 = ca 150 psi, K950 = app. 130 psi, K1250 = app. 110 psi.

Engine renovation is recommended if the pressure is more than 30 psi below the values specified above.

If a low pressure value is obtained, repeat the test procedure after pouring a teaspoon of engine oil (SAE 30) in the cylinder through the plug hole. If the pressure increases it is very likely that the piston, circlips and cylinder are severely worn and need replacing.
Crankshaft and crankcase

Contents
Replacing the seal on flywheel side ...................... 60
Replacing the seal on clutch side .......................... 61
Vibration dampers ................................................. 62
Dismantling, assembly ........................................... 66
Repair bushing ....................................................... 69
Inspection of crankshaft ........................................ 71
Pressure test .......................................................... 72
Crankshaft and crankcase

The purpose of the crankshaft in the engine is to convert the forward and return strokes of the piston to rotation. A stable construction is required to accomplish this in order to withstand high pressure, torsional and flexural stress, and also high rotation speeds. The connecting rod is also exposed to high acceleration and retardation speeds when it moves between the top and bottom dead centres. This sets special requirements on the bearings, which must withstand rapid load alternations. The bearing cage must also withstand high temperatures and friction. During servicing it is therefore important to check the cage for cracking, wear on the sides, and discolouring as a result of overheating.

The crankshaft is housed in the crankcase with heavy-duty ball bearings. In addition to acting as the bearing point for the crankshaft, the crankcase also functions as scavenging pump for the fuel/air mixture when this is induced from the carburettor and pressed up in the cylinder’s combustion chamber. The crankcase must be completely tight in order not to interfere with the pump function. There must be no leakage at the crankshaft, between the crankcase halves, or between cylinder and crankcase.

Replacing the seal on the flywheel side

Mod. 650, 700

Screw down the seal extractor as far as possible in the seal and pull off the seal.

Lubricate the shaft with oil and fit a new seal.

Mod. 950, 1250

Remove all parts so that the seal becomes accessible.

Screw down the seal extractor and pull off the seal.

Replacing the seal on the flywheel side

Mod. 500, 540Mod. 650, 700

Dismantle all parts on the flywheel side so that the seal is accessible.

Remove the draw key for the flywheel by means of diagonal cutting pliers.

Screw down the seal extractor as far as possible in the seal and pull off the seal.

Lubricate the shaft with a few drops of oil and place a new seal in position with the shell plate facing outwards.

Press down the seal with a suitable drift to the correct position in the crankcase, 1 mm (.04") below the crankcase plane.

Fit the other parts in the reverse order to dismantling.

Mod. 950, 1250

Dismantle all parts on the flywheel side so that the seal becomes accessible.

Screw down the seal extractor as far as it goes in the seal, and pull off the seal.
Lubricate the shaft with engine oil and fit a new seal.

Replacing the seal on the clutch side

Mod. 650, 700
Dismantle the washer protecting the crankshaft seal. Use two screwdrivers first, and then an extractor.

Dismantle the seal with an extractor 504 91 40-01. Fit the new seal by means of drift 502 50 82-01.

Replacing the seal on the clutch side

Mod. 650, 700
In order to gain access to the seal the washer which lies inside the clutch drum must also be dismantled. This has a forced fit on the shaft and may be difficult to dismantle without being damaged. Use two screwdrivers first to bend out the washer far enough so that extractor 504 90 90-02 can be used.

Remove and install the seal ring in the same way as described for changing the seal ring on the flywheel side.

NOTE!
Press the seal in the crankcase until the plate shell is flush with crankcase.

Check that the lubrication hole in the crankshaft is open. Lubricate the seal and fit the washer.

Check that the hole in crankshaft for lubrication of the clutch bearing is not blocked. If so, clean with compressed air. Lubricate the seal with a few drops of oil and press down the washer all the way. Use a new washer if the old one is deformed during dismantling.
Crankshaft and crankcase

Mod. 950

Pull off the seal with an extractor.

Lubricate the shaft with a few drops of oil and fit a new seal. Fit the other parts in the reverse order to dismantling.

NOTE!

Remember the spacer sleeve between the clutch drum and crankcase.

Vibration dampers

Mod. 650, 700

Remove the screws and separate the grip from the attachment in the crankcase. Remove the damper. Assembly is conducted in reverse order to dismantling.

The vibration damper at the cylinder can be dismantled for replacement after the screws (A) and (B) have been dismantled.

NOTE!

Remember the spacer sleeve between the clutch drum and crankcase.

Vibration dampers

Mod. 650, 700

Remove the two screws (A) and separate the grip from the attachment in the crankcase. Remove the damper (B). It may have to be rotated to aid removal. Fit a new damper in the reverse order to dismantling.

The vibration damper at the cylinder can be dismantled for replacement after the screws (A) and (B) have been dismantled.

Mod. 950

Dismantle all parts on the clutch side so that the seal becomes accessible. Screw in the seal extractor as far as it goes in the seal, and pull off the seal.

Lubricate the shaft with a few drops of oil and fit a new seal in place with the plate cover turned outwards. Press the seal in the crankcase with a suitable drift until it is flush with the crankcase. Check that the hole in the crankshaft for lubrication of the clutch bearing is not blocked. If so, clean with compressed air. Fit the other parts in the reverse order to dismantling.

NOTE!
Mod. 950
Vibration damper at cylinder
Remove the screw which holds the vibration damper to the grip.
Dismantle the damper from the cylinder.

Mod. 950
Front vibration damper
Dismantle covers, air filter and muffler.
Remove the screws which hold the damper to the grip and crankcase.

In order to dismantle the vibration damper in the rear handle the screws (A) must be dismantled and the handle half (B) removed.

Remove the screw (C) and release the screws (D)
Dismantle and then replace the vibration damper (E).

Mod. 950
Vibration damper at cylinder
1. Dismantle covers and air filter to simplify access.
2. Remove the screw which holds the vibration damper to the grip.
3. Insert key 502 50 18-01 in the centre of the vibration damper and unscrew the screw which holds the damper to the cylinder.

Remove the screw (C) and release the screws (D) enough to dismantle the vibration damper (E) for replacement.
Assembly is conducted in the reverse order to dismantling.

Mod. 950
Front vibration damper
1. Dismantle covers, air filter and muffler.
2. Remove the screw which holds the vibration damper to the grip (at the cylinder).
3. Remove the screw which holds the damper to the crankcase.
Crankshaft and crankcase

Remove the screws which hold the grip to the tank unit, and the screw which holds the vibration damper.
Separate the tank unit and crankcase, and remove the vibration damper.
Fit in the reverse order to dismantling.

NOTE!
Make sure that the rubber stops are in position in the recess in the crankcase.

Mod. 950
Rear, lower vibration damper
Remove the starter unit and the screws which hold the damper.

Mod. 950 – Rear, upper vibration damper
Unhook the throttle lever at the throttle control and remove the screw which holds the grip to the vibration damper on the cylinder.
Dismantle the rear, lower vibration damper.
Remove the screw which holds the vibration damper.

Mod. 950 – Rear, upper vibration damper
1. Remove covers and air filter, and unhook the throttle lever at the throttle control.
2. Remove the screw which holds the grip to the vibration damper on the cylinder.
3. Dismantle the starter unit and the rear, lower vibration damper.
4. Insert key No. 502 50 18-01 through the hole in the tank unit and remove the screw which holds the vibration damper.

5. Insert key 502 50 18-01 through the hole in the tank unit and through the vibration damper
6. Unscrew the screw and dismantle the vibration damper from the tank unit.
Fit in the reverse order to dismantling.
Crankshaft and crankcase

**Mod. 1250**

Vibration damper at cylinder
Remove the screws (A) and (B).

1. Remove the screw (A) which holds the damper to the grip.
2. Remove the screws (B) which hold the grip to the tank unit.

Mod. 1250

Vibration damper at cylinder
3. Turn the grip so that the vibration damper can be unscrewed with tool 502 50 66-02.

**NOTE!**

Make sure that the tool grips both the vibration damper’s metal plates.

Fit new vibration damper in the reverse order to dismantling.

**Mod. 1250**

Front vibration damper
Remove the screws (A) and (B).

1. Remove screws (A) and (B).

2. Separate crankcase and tank unit sufficiently to allow the screw which holds the vibration damper to be removed.

Fit in the reverse order to dismantling.

Unscrew the vibration damper.

Separate crankcase and tank unit and remove the screw which holds the vibration damper.
Crankshaft and crankcase

**Mod. 1250**

**Rear vibration damper**
Dismantle the starter unit and the two screws which hold the rear, upper vibration dampers.
Remove also the screw which holds the vibration damper at the grip.

1. Dismantle the starter unit.
2. Remove the two screws which hold the rear, upper vibration dampers.
3. Remove also the screw which holds the vibration damper at the grip to simplify separation of the engine and tank unit.

Remove the screw which holds the lower vibration damper and separate crankcase and tank unit so that the damper can be unscrewed with tool 502 50 66-02.

4. Remove the screw which holds the lower vibration damper.
5. Separate crankcase and tank unit sufficiently to allow tool 502 50 66-02 to be placed over the vibration damper.
6. Unscrew the damper and replace it with a new one.

**NOTE!**
The tool should grip the damper's two metal plates.

7. Dismantle the two upper vibration dampers.
Insert key No. 502 50 18-01 in the damper and unscrew the screw.
Lift off the damper.

Fit in the reverse order to dismantling.

**Dismantling, assembly**

**Mod. 650, 700**
Remove the washer which lies inside the clutch drum and the screws (A).

**Dismantling, assembly**

**Mod. 650, 700**
Dismantle all parts, including the fuel tank, so that only the handle unit and crankcase remain.
Remove the washer which lies inside the clutch drum (see chapter "Replacing the seal on the clutch side").
Remove the screws (A).
Crankshaft and crankcase

Remove the screws (B).
Lift off the crankcase.

Remove all crankcase screws.

Separate the crankcase halves.

Press out the crankshaft from the crankcase half.

Remove all the screws (7 pcs) which hold the crankcase halves together.

Separate the crankcase halves by means of tool 502 51 61-01.
Start with the clutch side half.

Use the same tool as above and press out the crankshaft from the crankcase half.
Inspect the crankshaft according to the chapter "Inspection of crankshaft".
Heat up the crankcase halves to 150° – 200° C.
Dismantle the ball bearings.
Press off the seal.

Clean the crankcase halves.
Replace if necessary the screws for the cutter arm.

Fit new ball bearings and seals.
Pull the crankshaft into the flywheel side’s crankcase half.

Check that the guide pins are in position in the flywheel side’s crankcase half.
Place a new gasket on the sealing surface.

Heat up the crankcase halves to 150° – 200° C with a hot air gun.
Tap the crankcase half against a block of wood so that the ball bearing drops out.
Press off the seal with a suitable drift.

Clean both crankcase halves. Make sure that the two guide pins are not misplaced.
Carefully scrape off residual gasket from the sealing surfaces.
Take the opportunity to replace the screws for the cutter arm if they are worn or damaged.
Press them out with a hammer and drift.

Fit new ball bearings and seals.
Heat up the crankcase half to 150° – 200° C and place the ball bearing in position.
Pull the crankshaft into the flywheel side’s crankcase half with tool 502 50 30-10.
Make sure that the connecting rod is not clenched against the crankcase.

Check that the guide pins are in position in the flywheel side’s crankcase half.
Apply grease to the sealing surface and place a new gasket over the guide pins.
Crankshaft and crankcase

Push the crankcase halves together and tighten the crankcase screws.

Place the clutch side’s crankcase half over the crankshaft.
Position the crankcase screws to prevent the gasket from sliding out of position.
Push the crankcase halves together with tool 502 50 30-10.
Tighten all the crankcase screws.

Check that the crankshaft rotates easily.
Lubricate the shaft journals with a few drops of oil and fit the seals.

Check that the crankshaft rotates easily.
If not, tap the shaft journals a few times with a plastic mallet to release any tension.
Lubricate the shaft journals with a few drops of oil and fit the seals.
The casing should face outwards.
Use assembly sleeve 505 38 17-23 on the clutch side.

Fit the handle unit.
Start with the rear handle. Make sure that the throttle push rod and stop wire are correctly positioned.
Note the different lengths of the screws.

Fit the handle unit.
Start with the rear handle. Make sure that the throttle push rod and stop wire are correctly positioned.
Note the different lengths of the screws.

Repair bushing
Models 650, 700
On old model crankcases, the cylinder cover screw is screwed directly into the casting. The threads may be damaged as time passes. Repair bushing No. 503 27 35-99 can then be installed instead of replacing the entire crankcase.
Drill out the hole in 3 stages, using drills of Ø 7 mm, Ø 8 mm and Ø 9 mm.
Crankshaft and crankcase

Separate and assemble the crankcase halves in the same way as described for mod. 650, 700.

**NOTE!**
Align the bushing correctly, so that the chamfered section faces the cylinder plane.

**Mod. 950**
Remove all screws which hold the crankcase halves together.

**Mod. 950**
Dismantle all parts so that only the crankcase and crankshaft remain.
Remove all screws (9 items) which hold the two crankcase halves together.

**Mod. 1250**
Dismantle the cutter arm.

**Separate and fit the crankcase halves in same way as described for mod. 650, 700.**

**Mod. 1250**
Dismantle all parts so that only the crankcase with crankshaft remain.
Dismantle the cutter arm by removing the nut (A) and screws (B).

Pull the repair bushing into place with an M5 screw and washer as shown in the illustration.

**NOTE!**
Align the bushing correctly, so that the chamfered section faces the cylinder plane.
Crankshaft and crankcase

Remove all screws which hold the crankcase halves together.

Separate and assemble the crankcase halves in the same way as described for mod. 650, 700.

Inspect the crankshaft (see chapter "Inspection of the crankshaft").

NOTE!
The tool 502 51 61-01 cannot be used on the flywheel side. Heat instead the crankcase half with a hot air gun to approx. 110°C, and press off the crankshaft.

Use tool 502 50 30-08 to assemble.

Inspection of crankshaft

Check the connecting rod’s big end.

Check the connecting rod’s small end.

Check the connecting rod’s small end. If seizure marks or discolouring in the bearing race are discovered then the crankshaft should be replaced.

The crankshaft cannot be renovated and must be replaced by a new one if it is worn or damaged.

Check the connecting rod’s big end. If seizure marks or discolouring in the bearing race are discovered then the crankshaft should be replaced.
Crankshaft and crankcase

Check the big end bearing.

Check the big end bearing. There should be no radial play (upwards and downwards) on the connecting rod. It should, however, have an axial play to ensure good lubrication of the big end bearing.

Blow clean the channel for the automatic lubrication of the clutch drum’s bearing.

Mod. 650 and 700 have automatic lubrication of the clutch drum’s bearing. Check with compressed air that the lubrication channel is open.

---

**Pressure test**

**All models**

Install blanking plates on the induction and exhaust sides of the cylinder.

Connect the pressure gauge 502 50 38-01 to the nipple and pump up a pressure of 50 kPa (0.5 kp/cm²) in the crankcase.

Maximum permissible leakage: 20 kPa (0.2 kp/cm²) per 30 seconds.

---

**Models 650, 700 – Muffler side**

Remove the cutting equipment, muffler, exhaust gasket and cooling plate.

Fix cover washer No. 502 54 02-01 to the cylinder with an M5x15 screw.
Models 650, 700 – Carburettor side
Remove the carburettor from the cylinder.
Fix cover washer No. 506 34 45-01 to the cylinder with an M5x15 screw.

Models 650, 700 – Crankcase lubrication hole
Remove the centrifugal clutch and seal the lubrication hole with tape.

Model 950 – Muffler side
Remove the cutting equipment, silencer and heat shield plate.
Put cover washer No. 502 71 39-01 between the silencer and the cylinder.
Tighten the muffler screws.

Model 950 – Carburettor side
Remove the carburettor from the cylinder.
Fix cover washer No. 506 34 45-01 to the inlet pipe with an M5x15 screw.
Model 950 – Crankcase lubrication hole
Remove the centrifugal clutch and seal the lubrication hole with tape.

Model 1250 – Muffler side
Remove all the cutting equipment, including the rear cutting arm.
Remove the muffler and heat shield plate.
Install cover washer No. 502 71 39-01 over the exhaust port. Use the muffler attachment screws and nuts, together with two spacer sleeves No. 502 71 40-01.

Model 1250 – Carburettor side
Remove the carburettor.
Remove the spacer from the cylinder.

NOTE!
Do not force off the plastic component which guides the throttle cable. Insert Allen key No. 502 50 18-01 through the tapped holes and undo the screws which hold the spacer to the cylinder.

Fold the spacer to one side, hanging from the throttle cable.
Fix seal washer No. 502 71 38-01 with two M5x15 mm screws.
Model 1250 – Crankcase lubrication hole
Remove the centrifugal clutch and seal the lubrication hole in the crankshaft with tape.
Cutting equipment

7.

Contents
Dismantling, mod. 650, 700 ........................................ 78
Assembly, mod. 650, 700 ........................................... 80
Dismantling, mod. 950, 1250 ..................................... 83
Assembly, mod. 950, 1250 ......................................... 83
The cutter disc is driven by a V-belt which during its entire service-life is given the correct tension by means of a powerful compression spring, on the assumption that the belt tensioning screw is correctly set.

The belt is exposed to hard and irregular loading. The pulley also has a relatively small radius which sets special quality requirements on the belt. For this reason when changing the belt always use a Partner Genuine Belt, which is carefully tested to comply with these special requirements.

During servicing and repairs to the cutter equipment it is also important to make a visual inspection of the disc guard with respect to cracking and wear, and to make sure that the locking mechanism functions in all positions.

Rectify all faults as soon as they are discovered in order not to compromise user safety.

---

**Dismantling**

**Mod. 650, 700**

Dismantle the cutter disc.

Lock the cutter disc by placing a suitable locking pin in the hole in the cutter arm.

Unscrew and remove the screw, support washer and cutter disc.

---

Remove hose (A) if the water accessory has been installed.

---

Remove hose (A) from the T-piece if the water accessory has been installed on the power cutter.

---

**TIP!**

If only the space sleeve and the inner support washer are to be removed, this can be done by prising with two open-end spanners located between the spacer and the support washer.

**TIP!**

If only the space sleeve and the inner support washer are to be removed, this can be done by prising with two open-end spanners located between the spacer and the support washer.
Release the belt tension and dismantle the front belt guard and cutter arm.

Unscrew the nuts (A).
Screw out the tensioning screw (B) so that the belt tension releases.
Remove the belt guard and cutter arm.

Dismantle the belt guard and cutter arm.

Unscrew the nuts (C) and screw (D).

Dismantle the clutch cover and drive belt.

Lift off clutch cover and drivebelt.

Dismantle the pulley from the cutter arm.

Lock the pulley with a suitable locking pin and unscrew the screw which holds the pulley.
Lift off the pulley and washer which lies between the ball bearings and pulley.

Press out the shaft by means of a mandrel and hammer.

NOTE!
If only the arbor bush and flange are to be dismantled this can be done by levering with two screwdrivers placed between the flange and guard.

Press a suitable sleeve under the cutter arm and press out the shaft by means of a drift and hammer.
Lift off the spacer sleeve and support washer.

NOTE!
If only the spacer sleeve and support washer are to be dismantled this can be done by bending with two screwdrivers placed between the washer and guard. Thereafter bend away the support washer and sleeve.
Cutting equipment

Remove spacer sleeve (A), the screws, plastic cover, cover washer, plastic washer, rubber washer and a further plastic washer. Lift the protective cover away.

Dismantle the cutter arm’s ball bearings.

Assembly

Mod. 650, 700
Clean and check the different parts. Heat the cutter arm and fit new ball bearings. Do not forget the spacer ring between the ball bearings! If necessary fit new retaining screws.

Apply a little grease on the indicating washer and put it on the guard. Place the thick rubber washer on the indicating washer.

Heat the cutter arm with a hot air gun to approx. 150°C and dismantle the ball bearings. If necessary use a suitable drift (502 50 82-01) and hammer.

Assembly

Mod. 650, 700
Clean and check the different parts. Replace the cutter arm’s retaining screws if the threads are damaged. Tap out the screws with a hammer. Heat the cutter arm with a hot air gun to approx. 150°C and fit a new ball bearing. Do not forget the spacer ring between the ball bearings and make sure that they are pressed down well against the shoulder. If necessary fit new retaining screws while the cutter arm is hot.

Apply a little grease on the indicating washer (A) and put it on the guard. Thereafter place the thick rubber washer (B) on the indicating washer and then put on the guard.
Cutting equipment

Turn the guard while the other parts are held in place.
Then install a plastic washer (C), the thin rubber washer (D), plastic washer (E), cover plate (F) and plastic cover (G).
Tighten the three screws and check that the guard can be turned.

Press the shaft in through the ball bearings until it projects 5.5 mm from the ball bearing on the other side.
Fit the belt wheel (reinforcement washer turned inwards). Do not forget the spacer ring against the ball bearings. Tighten the screw.

Drive the shaft in through the ball bearings, using a plastic-faced hammer, until it projects 5.5 mm from the ball bearing on the other side.
Fit the pulley.
Place the spacer ring on the ball bearings and then put on the pulley with the welded reinforcement washer turned inwards towards the cutter arm. Tighten the screw.

Fit the spacer sleeves and support washer as shown in the illustration.
Heat the spacer sleeve outside the support washer with a hot air gun to approx. 150°C to simplify fitting it on the shaft.
Press it down with a suitable drift (502 50 82-01).
Cutting equipment

Place a new drive belt round the clutch drum and fit the clutch cover.

Inspect the drive belt for wear and damage before it is fitted.

Fig. A. Normal condition of a belt after prolonged use.

Fig. B. Replace the belt if after a short period of use it shows signs of cracking across the belt, even if there is only slight wear on the sides.

Fig. C. Worn, rough edges on the belt are the result of incorrect contact with the pulley or loose nuts on the cutter arm.

Fig. D. Irregular wear resulting from loose belt or high idling speed.

Fig. E. Worn off strips of belt, worn reinforcement, resulting from poor contact, oil on the pulley, or incorrect belt quality. Use Partner Genuine Belts.

Place a new drive belt round the clutch drum.

Fit the clutch cover. Do not forget the screw in the lower edge of the guard.
Lift the cutter arm in position and fit the front belt guard and belt tensioning device. Tension the drive belt and tighten the nuts. Tension the drive belt at the same time as the cutting disc is rotated, then tighten the nuts.

TIP!
Install a diamond cutting disk and wash the circular saw up for about 2 minutes. Check the belt tension and re-tension the belt if necessary.

Dismantling
Mod. 950, 1250
Dismantle the cutter disc, belt covers, drive belt, belt disc, support washers and spacer sleeve in the usual way.

TIP!
If only the spacer sleeve and the inner support washer are to be dismantled this can be done by bending with two spanners placed between the spacer sleeve and the support washer.

Assembly
Mod. 950, 1250
Follow the instructions for mod. 650, and 700.
Note that the attachment of the burst protection to the cutter arm has a different design to the one shown in the illustration.

Fit the drive belt and the rear belt cover in the same way as for mod. 650, 700.

Tension the belt correctly and tighten the screws which hold the front belt cover.
Fit the cutter arm
Tension as the drive belt at the same time as the cutting disc is rotated, and tighten the two nuts.

Lift the cutter arm in place.
Fit the drive belt over the front pulley.
Push the front belt cover in place and screw down the attachment screws half way.
Tension the drive belt in the same way as for mod. 650, and 700, and then tighten the two screws.

**TIP!**
Install a diamond cutting disc and warm the circular saw up for about 2 minutes.
Check the belt tension and re-tension the belt if necessary.
Contents
Clutch ................................................................. 86
Crankshaft ............................................................ 86
Ball bearing ......................................................... 86
Vibration damping ............................................... 86
Sealing ring ......................................................... 87
Ignition system .................................................... 88
Pressure testing ................................................... 88
Cylinder and piston ............................................. 90
Crankcase ........................................................... 90
Fuel system ......................................................... 90
Workshop equipment ......................................... 91
<table>
<thead>
<tr>
<th>Model</th>
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- 3 mm
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## Workshop equipment

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Technical data

Contents
Technical data .............................................................. 94
Tightening torque ......................................................... 94
## Technical data

<table>
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<th>K650</th>
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