

# ***PARTNER***



# ***Workshop Manual***

**PARTNER<sup>®</sup>**

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# 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

**PARTNER®**

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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.

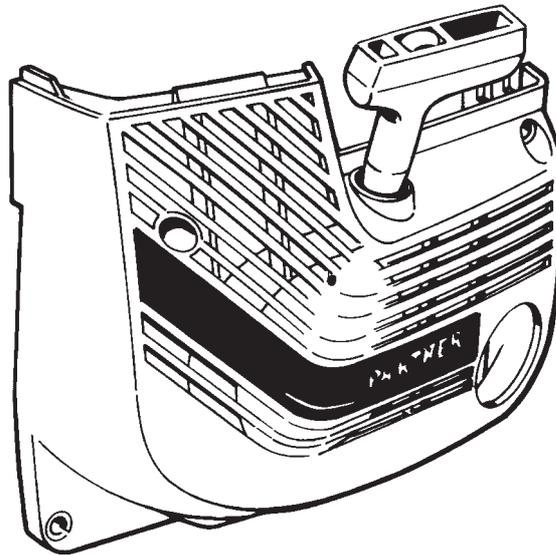


## WARNING

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



**! WARNING!**

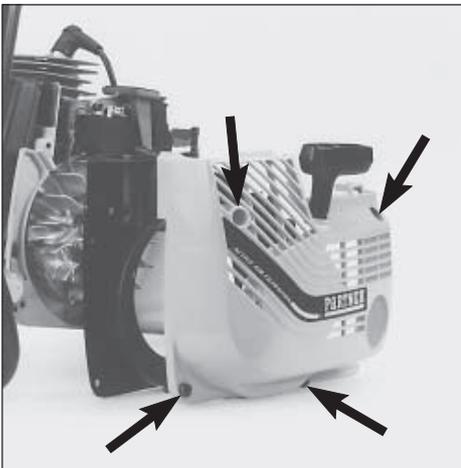
When working on the starter unit wear protective glasses to avoid eye injuries in the event that the return spring flies out.



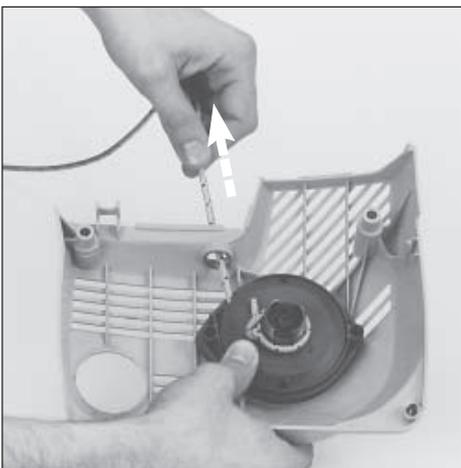
## Dismantling of the starter unit

**Mod. 650, 700**

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



Dismantle the starter unit from the engine body.



Release the spring tension.

## Dismantling of the starter unit

**Mod. 650, 700**

Untighten the screws for the air filter cover.

Lift off the cover and intermediate wall.

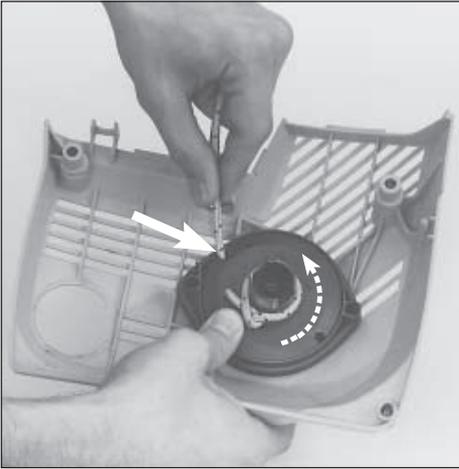
Release the screw (A) and lift off the cylinder cover.

Untighten all the screws and lift off the starter unit.

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.



Allow the pulley to slowly rotate backwards.  
Remove the starter handle.

Allow the pulley to slowly rotate backwards.

**NOTE!**

Brake the rotation with the thumb.

Untie the knot on the starter rope and remove the starter handle.

**Tips!**

The knot may be difficult to untie. It is easier if it first is tapped with a hammer while placed on a hard surface.



**Mod. 950, 1250**

Remove the screws which hold the starter unit, and lift off the starter unit.

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

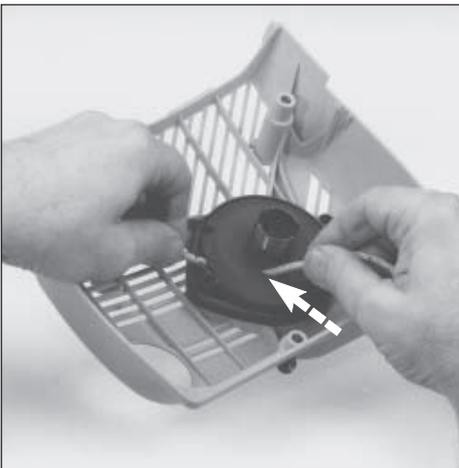
**Mod. 950, 1250**

Remove the screws which hold the starter unit, and lift off the starter unit.

**NOTE!**

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

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



**Replacing the starter cord without dismantling the pulley**

**Mod. 650, 700, 950, 1250**

Remove any remaining rope from the pulley and check that the return spring recoils.

Insert the new starter rope through the hole in the pulley.

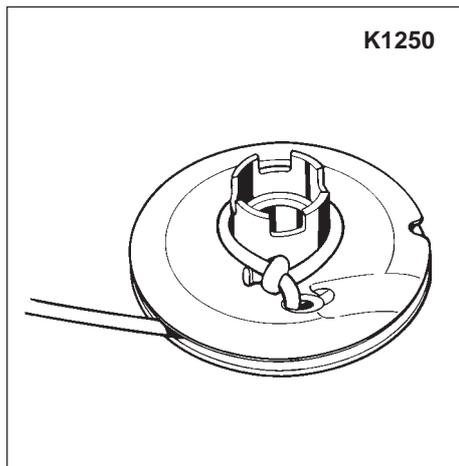
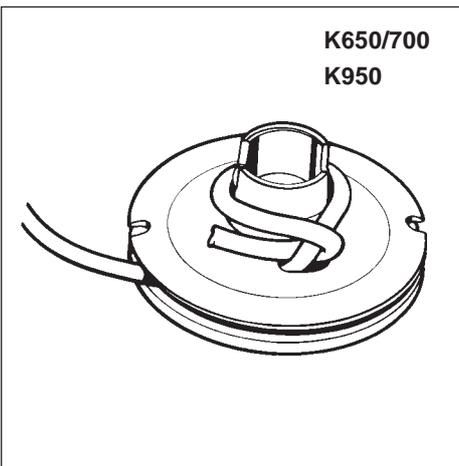
**Replacing the starter cord without dismantling the pulley**

**Mod. 650, 700, 950, 1250**

Remove any remaining rope from the pulley.

Check that the return spring and its attachment in the pulley has not been damaged by turning the pulley clockwise.

Enter the new starter rope through the hole in the pulley as shown in the illustration.



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**

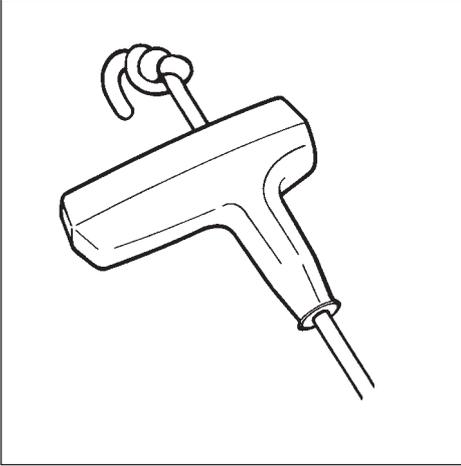
Models 650, 700, 950: 1150 mm.

Models 1250: 1250 mm.

These lengths apply to Ø 4 mm cord.

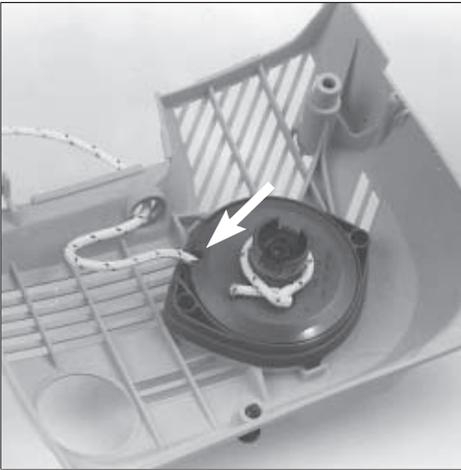
# 1

## 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.

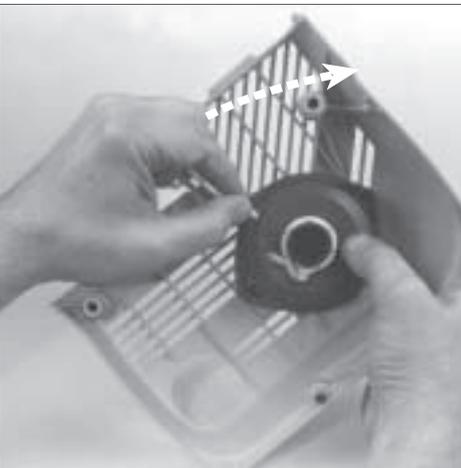


Tension the return spring.

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

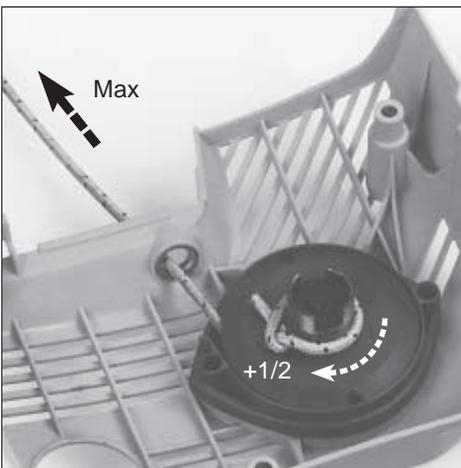
Tension the return spring.

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



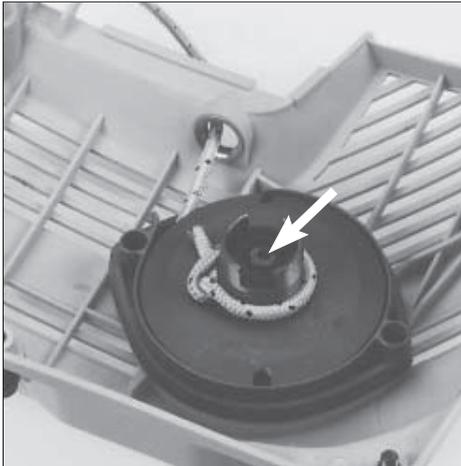
Wind the pulley 7 turns *clockwise*.

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.

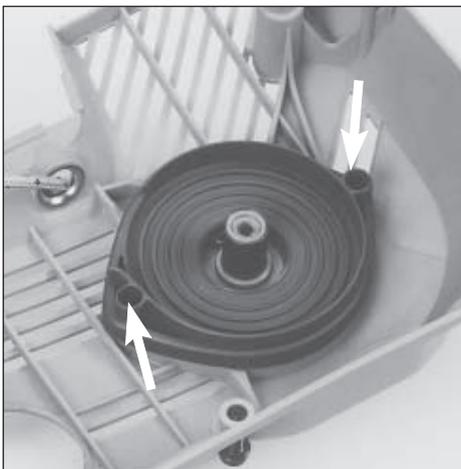
4. Pull the cord out completely and check that the pulley can be turned at least a further half turn.



## Dismantling

**Mod. 650, 700, 950**

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



Dismantle the spring cassette.

### **WARNING!**

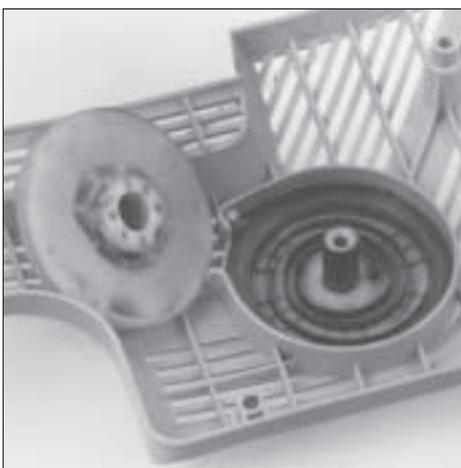
The return spring in the spring cassette is pre-tensioned and can if not handled carefully during dismantling/fitting fly out and cause personal injury.



**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.

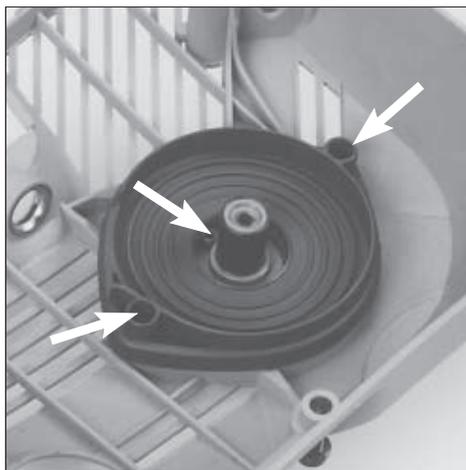
**Mod. 1250**

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.

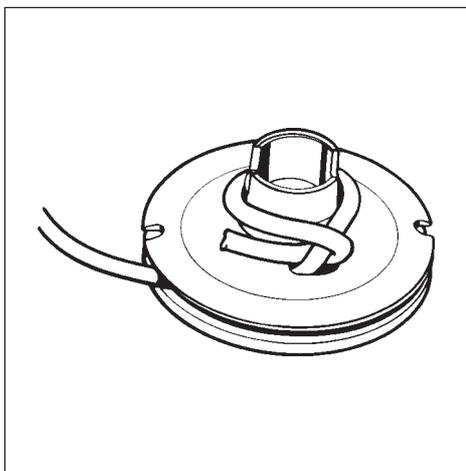
Carefully lift off the pulley.



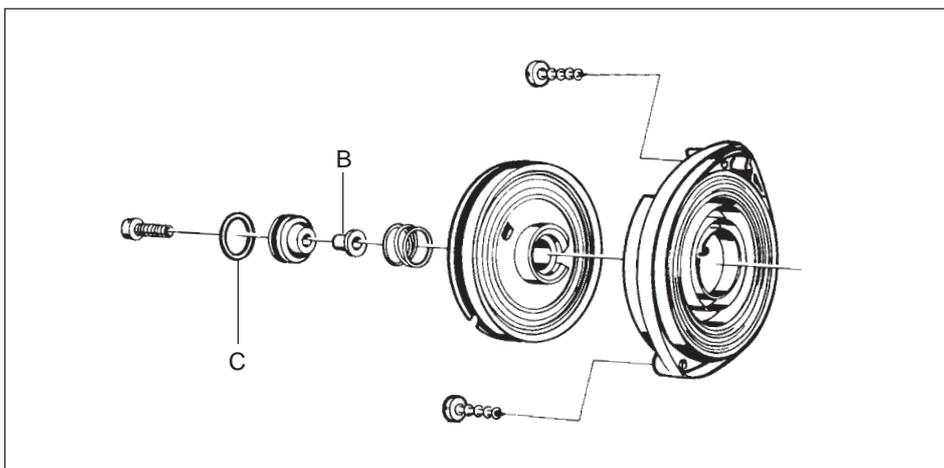
## Assembly

Mod. 650, 700, 950

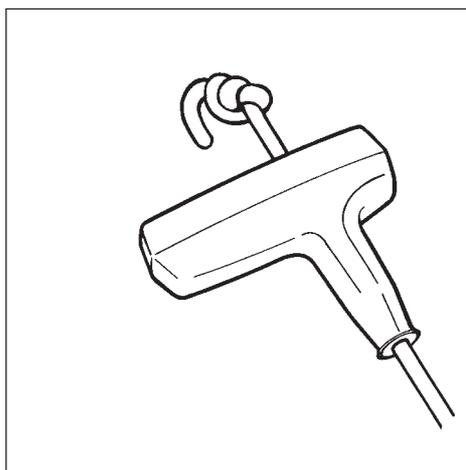
Clean the starter unit components and fit the spring cassette.



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.

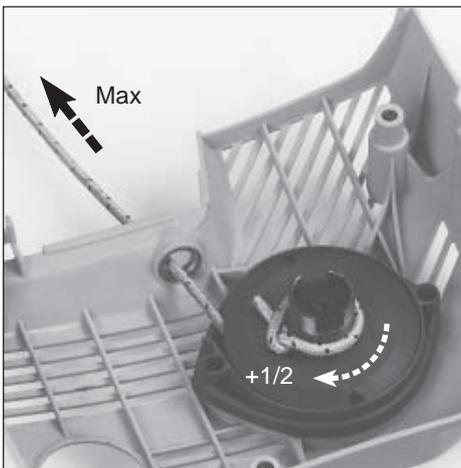
Enter the cord through the cord guide in the starter unit and anchor it in the starter handle with a double knot.



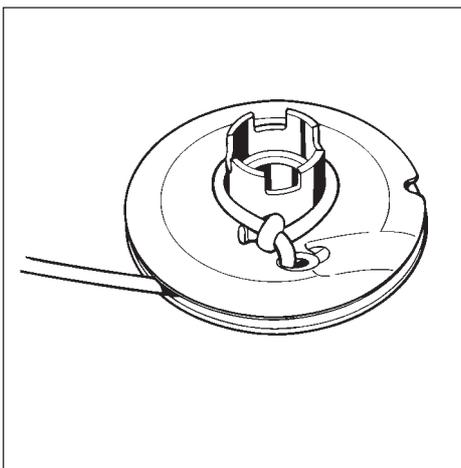
Tension the return spring.  
Check that the spring tension is completely released, and lift the starter cord up into the cut-out in the pulley.



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.



**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.

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.

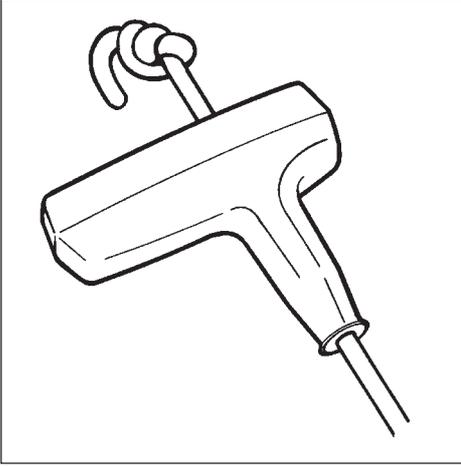
Anchor the starter cord round the hub of the pulley as shown in the diagram.

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.

# 1



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 and other parts in the reverse order to dismantling.

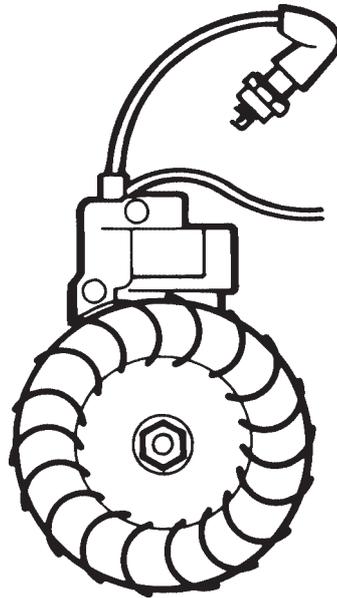
Fit the starter unit.

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.

# 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

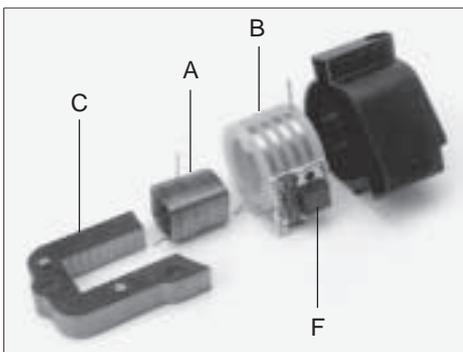
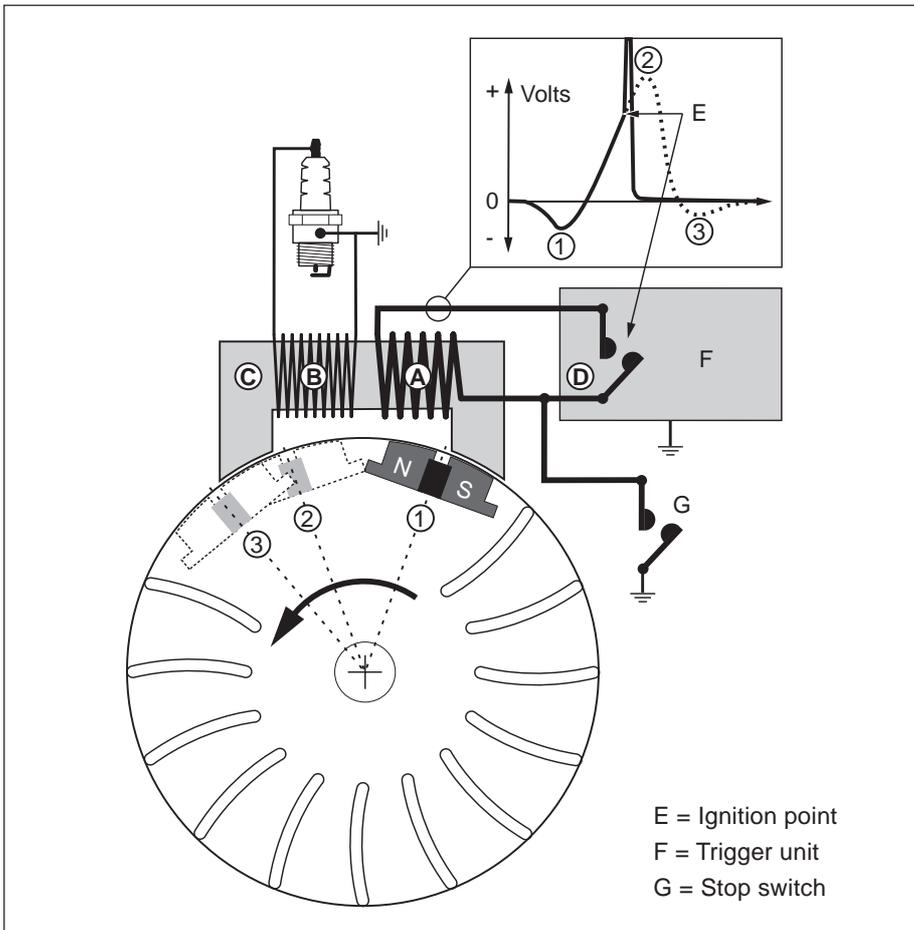
The engine is fitted with an electronic ignition system consisting of flywheel, ignition coil and trigger unit.

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!



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.

**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.

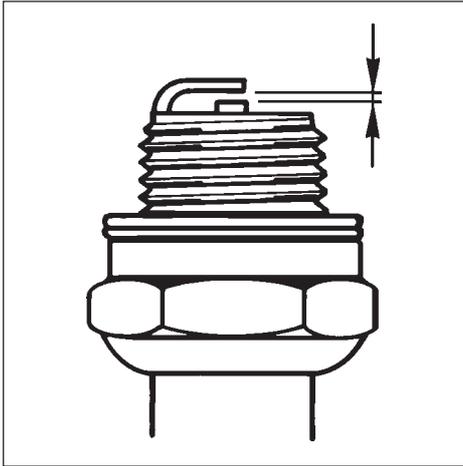
In the secondary coil (B) a high voltage (approx. 20 000 volts) is simultaneously transformed to the spark plug.

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 9 750 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.

- A = Primary coil
- B = Secondary coil
- C = Iron core
- F = Trigger unit



## Checking ignition spark

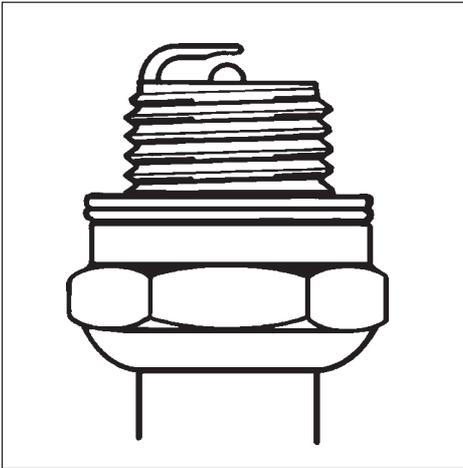
Clean the electrodes and check the electrode gap.

## 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).

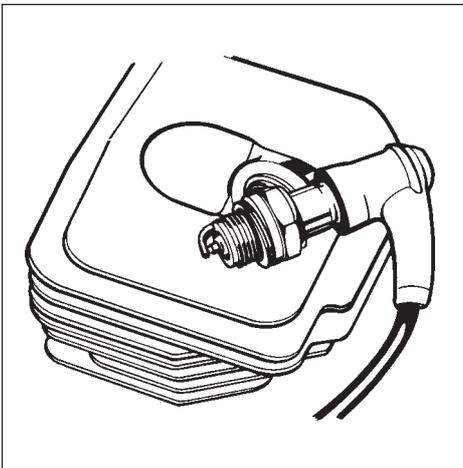
Adjust the gap to the correct distance with the side electrode.



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

If the 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.

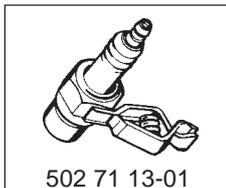
Ground the plug to the cylinder and briskly pull the starter handle.

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 no spark disconnect the stop switch wire.

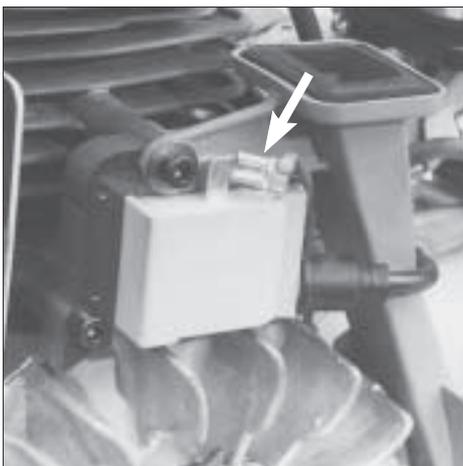
If necessary replace the switch.

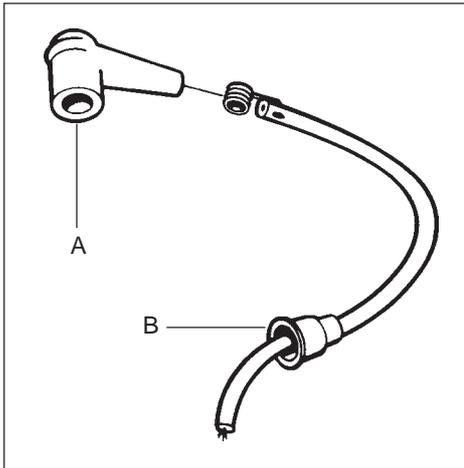
Try with a new plug.

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.



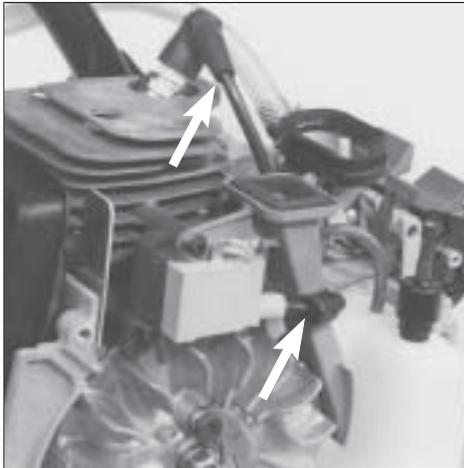


Check the ignition cable's connections.

Still no spark?

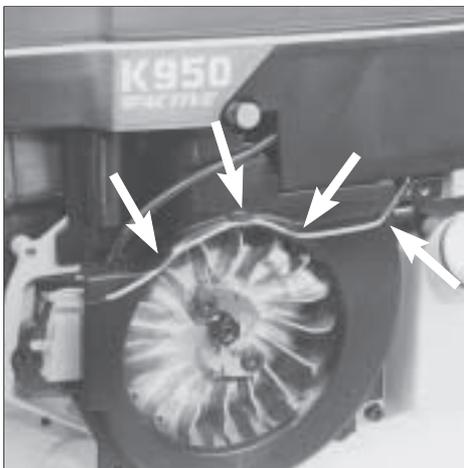
Check the plug connection.

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.



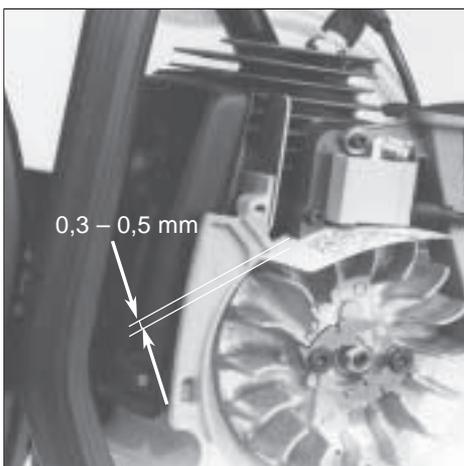
Check the other cables and connections.

Still no spark?

Check the other cables and connections for poor contact (dirt, corrosion, cable break and damaged insulation).

#### Tips!

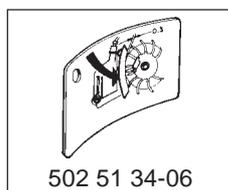
Use an Ohm meter to check if there is a cable break, e.g. as a result of pinching.



Check the air gap.

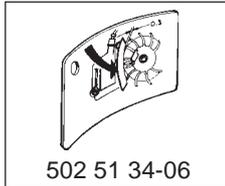
Still no spark?

Check the air gap between the flywheel magnet and ignition module. The gap should be 0.3 – 0.5 mm (0.012–0.020"). Use air gap measure 502 51 34-06.





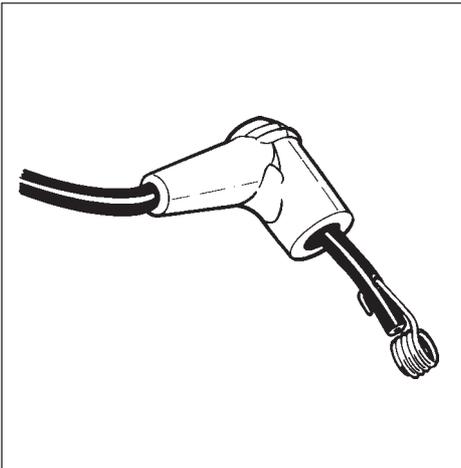
Adjust the air gap.



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

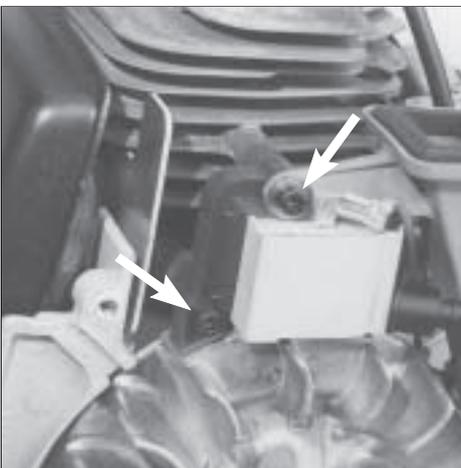
1. Take the ignition cable through the plug protection.
2. Fit the contact spiral on the ignition cable.

## 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.

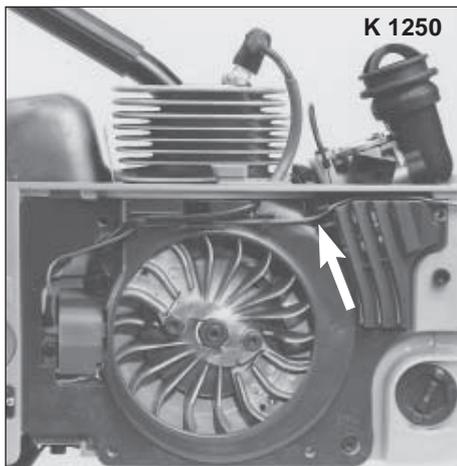
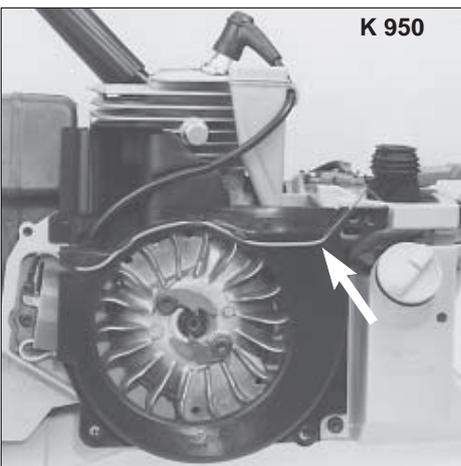
## Dismantling

### 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

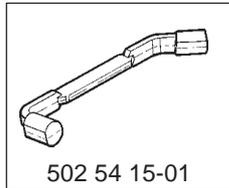
Dismantle the starter unit, air filter cover, air filter and cylinder cover.

Remove the air conductor.

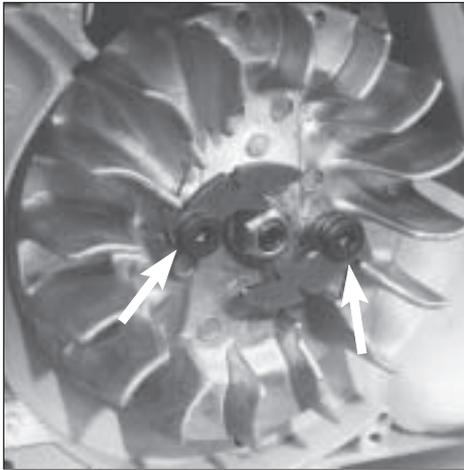
Note the position of the cables so that they can be replaced in the same way.



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



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



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.

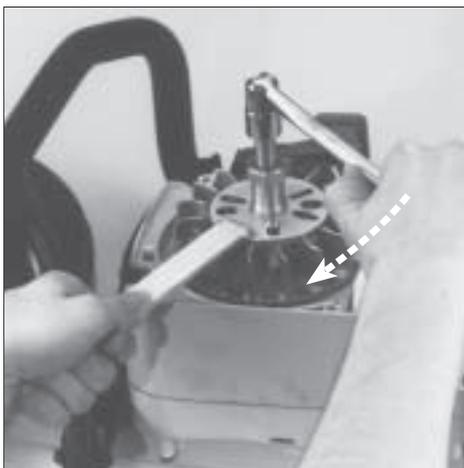
**Mod. 650, 700, 950, 1250**

Dismantle the starter pawls 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.



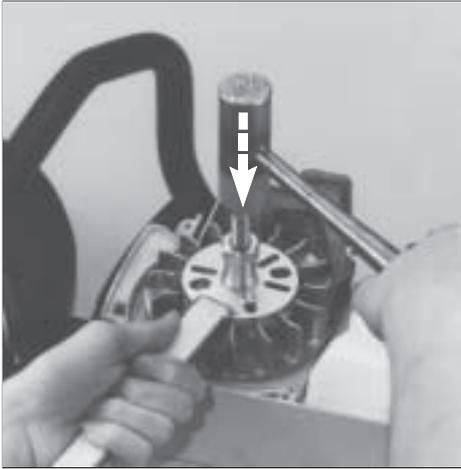
Pull off the flywheel.

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.



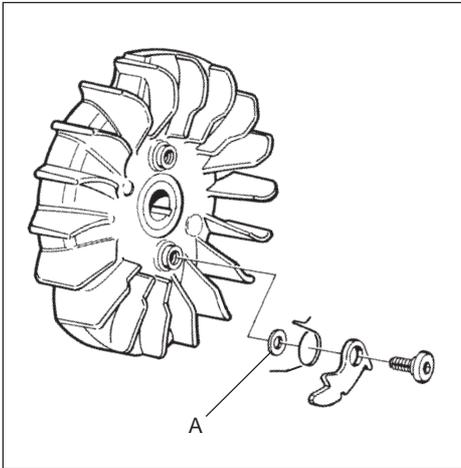


**Tips!**

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**

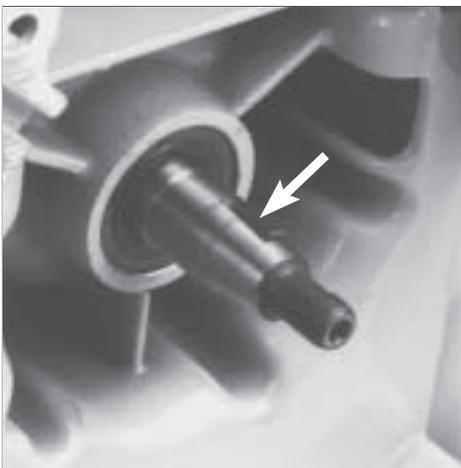
Check the starter pawls for wear and damage.

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.



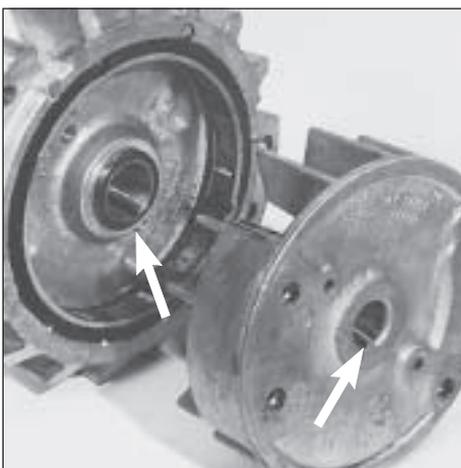
**Assembly**

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

**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.

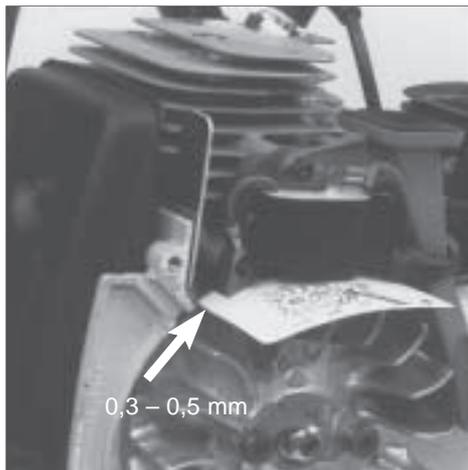
Check that the keyway and the cast key (mod. 950) in the flywheel are undamaged.

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.

# 2

## Ignition system

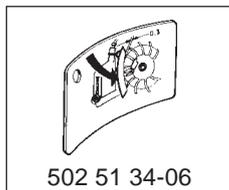


Fit the ignition module.

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.



Fit the ignition module.

Adjust the air gap to the correct size (0.3 –0.5 mm/0.012–0.020").

See also page 14–15.

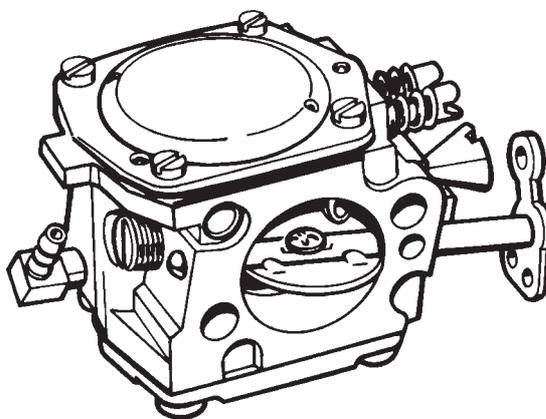
Fit the other cables and make sure that they are correctly positioned in the cable grooves etc. so that they cannot be damaged.

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

*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

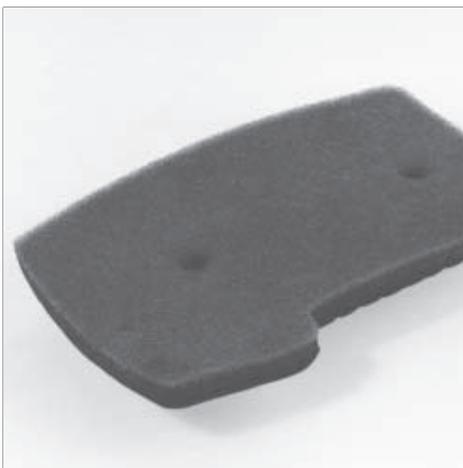
**Mod. 650, 700, 950, 1250**

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.



## Air filter

**Mod. 650, 700, 950, 1250**

Release the two screws which hold the air filter cover (mod. 1250 three screws).

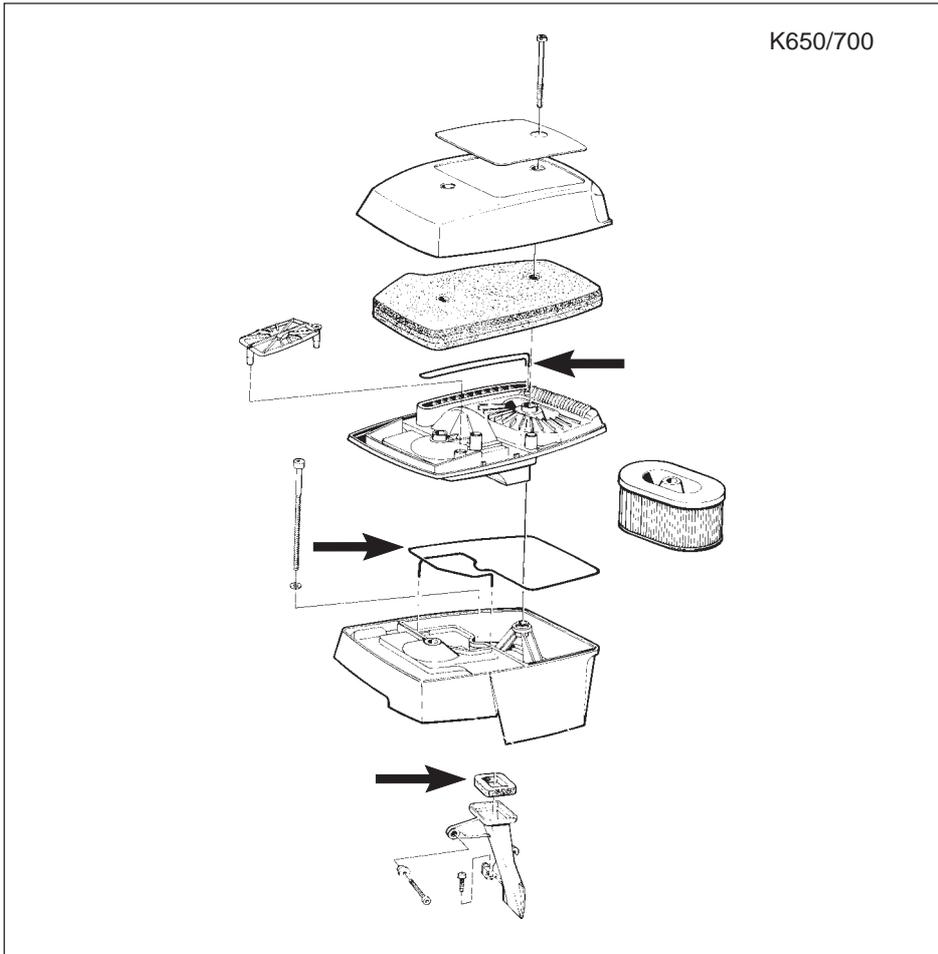
Lift off the cover with main filter, intermediate wall and protective filter.

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.

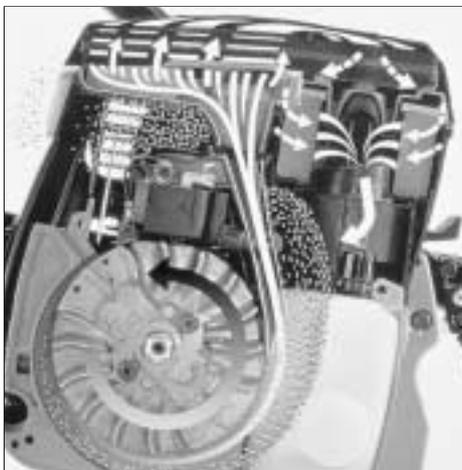
If the filter is damaged it should be replaced with a new one.



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.



## Centrifugal cleaning (Active)

Mod. 650, 700

Considerably longer cleaning intervals for the air filter are achieved by using the centrifugal force during the filtering of the intake air to the carburettor.

By means of using the centrifugal force the heavier impurities are thrown out towards the periphery of the air spiral and on past the cylinder.

The air to the carburettor is taken up by the centrifugal cleaning nozzle and the finer impurities are effectively captured in air filter.



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.

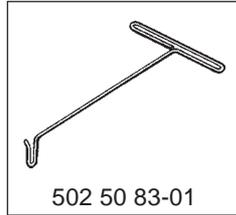
The centrifugal cleaning nozzle is accessible for cleaning or replacement after dismantling the starter unit and air conductor.



### Fuel 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. 950, 1250

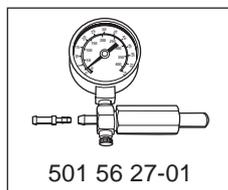
The easiest way to take the fuel filter out through the fuel tank refill hole is with tool 502 50 83-01.



### 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.



### Fuel filter

#### 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.

### 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.

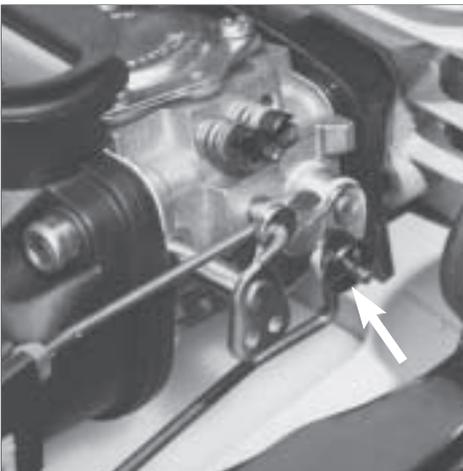


## Carburettor

### Dismantling, all models

Dismantle all covers and air filters so that the carburettor becomes accessible.

Blow clean the carburettor chamber with compressed air.



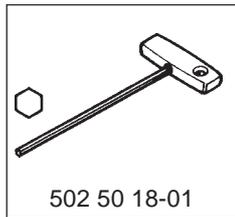
### Mod. 650, 700

Remove the screw guide and lock washer which holds the throttle push rod at the lever.



Remove the fuel hose.

Release the carburettor screws and lift off the carburettor together with the choke control, air filter connection, and middle piece.

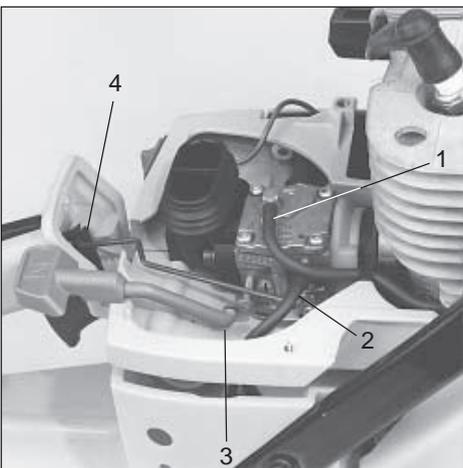


502 50 18-01

## Carburettor

### Mod. 950

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



## Carburettor

### Dismantling, all models

Dismantle all covers and air filters so that the carburettor becomes accessible.

Close the choke flap to prevent dirt penetrating into the engine.

Blow clean the carburettor chamber with compressed air.

### Mod. 650, 700

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

### NOTE!

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

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".

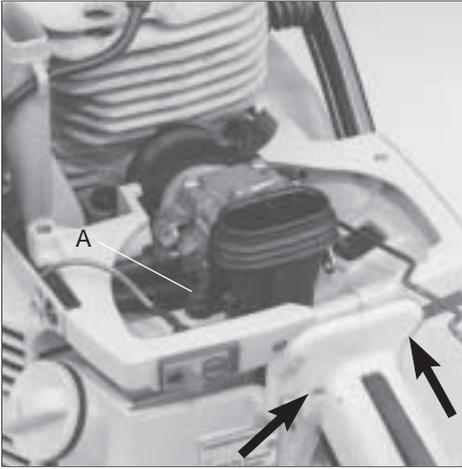
## Carburettor

### Mod. 950

Dismantle all covers and air filter. Blow clean the carburettor area with compressed air.

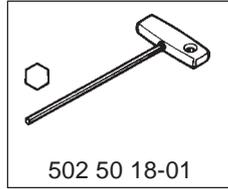
Dismantle the following:

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



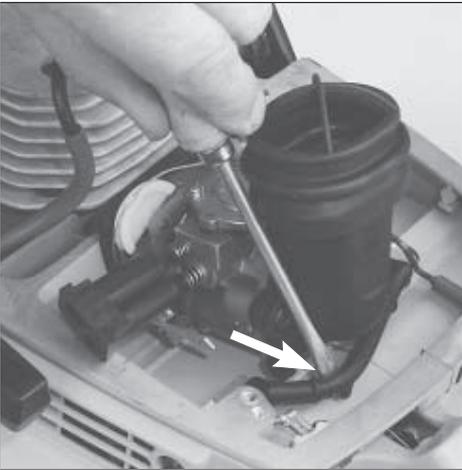
Dismantle the screw (A) and then the two carburettor screws.

Lift off the carburettor.



#### Mod. 1250

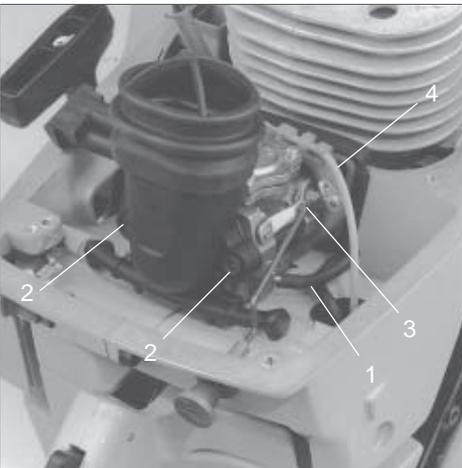
Press off the rubber support from the carburettor intake.



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.

#### NOTE!

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

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

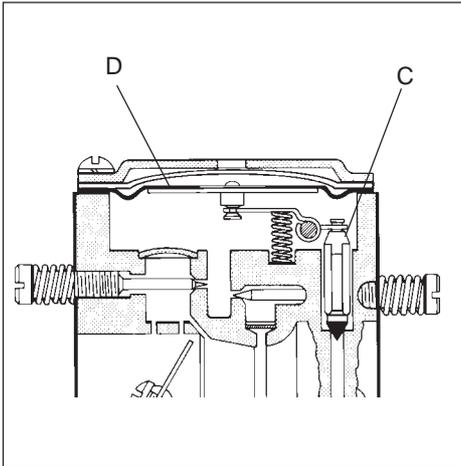
##### Mod. 650, 700

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.



## 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.

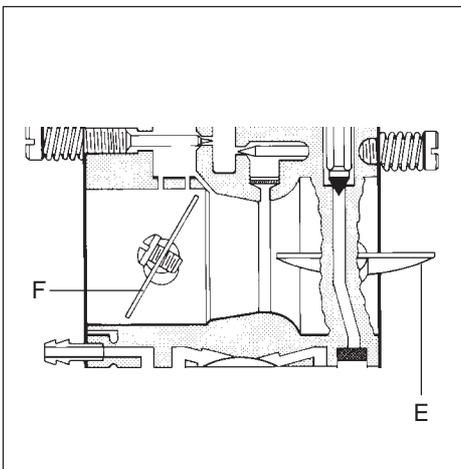
## Carburettor design

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 needle valve (C) and metering diaphragm (D) are vital parts for the functioning of the carburettor.



### The mixing section

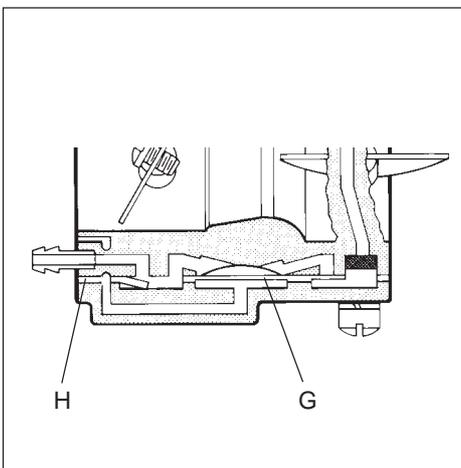
The fuel and air are mixed here.

### The mixing section

The fuel and air are mixed to the correct proportions in this part of the carburettor.

The choke (E) and throttle valves (F) are placed here.

The main jet nozzle is located in the middle of the venturi (the narrowest point on the inlet).



### Pumping section

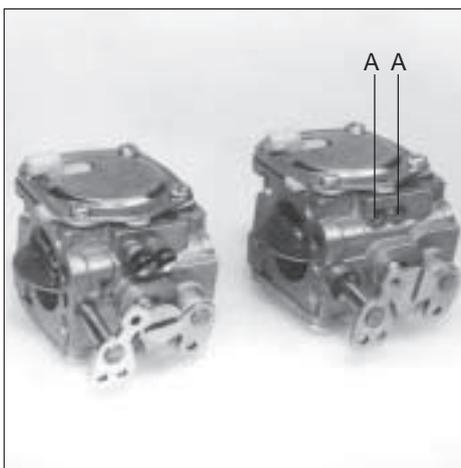
This pumps fuel from the tank to the carburettor.

### Pumping section

The pump diaphragm (G) which pumps fuel from the tank to the carburettor's metering unit is located here.

The membrane is activated by pressure variations in the engine crankcase via an impulse channel (H).

If the channel is blocked, e.g. by grease or an incorrectly turned gasket, the pump will not function and the engine will not start.



## 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.

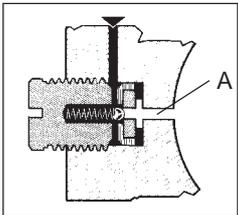


### Speed limiter

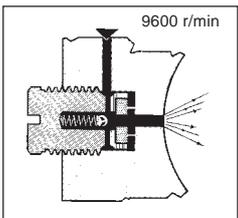
Mod. 650, 700

A speed limiter is fitted on the side of the carburettor housing.

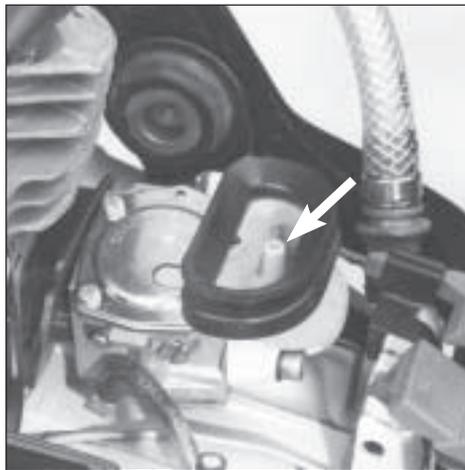
The speed limiter is fixed with Loctite and should not be released during servicing of the carburettor.



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.

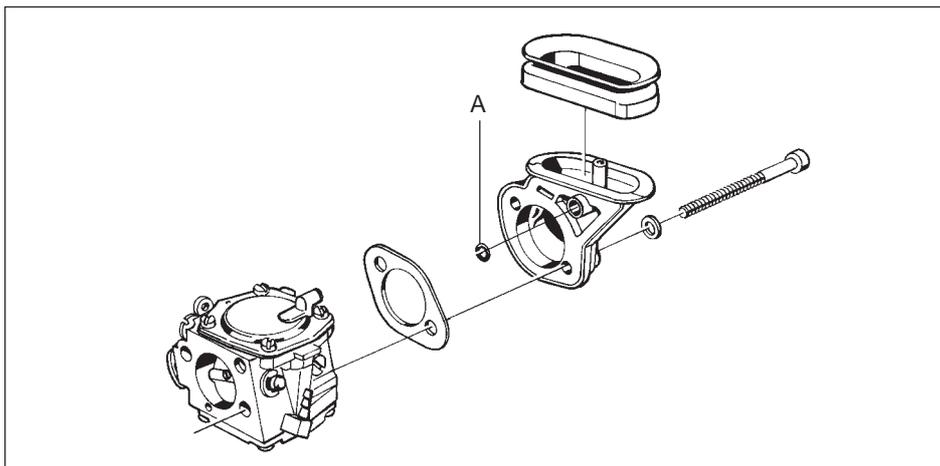


When the engine speed exceeds the speed limit ( $9,600 \pm 400$  rpm) the spring-loaded ball opens the extra fuel channel (A). The engine thereby receives extra fuel, begins to putter and stops overspeeding.



### 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.



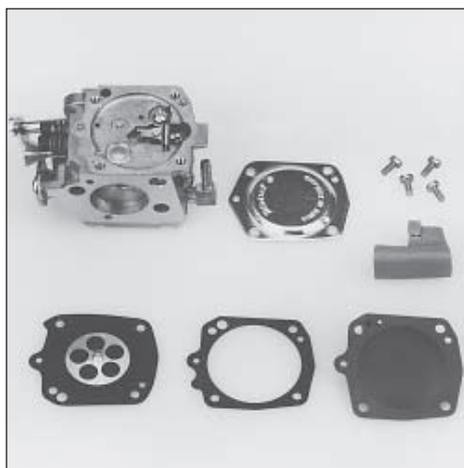
Check that the small O-ring (A) is in place when the air filter union is installed.

It is important for correct function of the compensation device that the O-ring is neither damaged or missing.

## Combinations of carburettors, induction pipe, seals, screwdriver guides

K650 Active, K700 Active				
Carburettor	Induct. pipe	Seal	Insert, seal	Screwdriver guide
HS175E 503 28 03-20 Not compensated	506 21 41-01 Black	506 22 65-01 Rubber foam, bonded to cyl. housing		Black

K650 Active II, K700 Active II				
Carburettor	Induct. pipe	Seal	Insert, seal	Screwdriver guide
HS175F 503 28 04-03 Compensated, blue insert	506 21 41-01 Black	506 25 34-01 Moulded	506 25 33-01 Blue	Blue
HS175G 503 28 04-04 Compensated, blue insert Small needle valve	506 21 41-01 Black	506 25 34-01 Moulded	506 25 33-01 Blue	Blue
HS175G 503 28 04-08 Comp., green insert, EPA	506 26 72-01 Blue	506 26 85-01 Moulded		–
HS175L 503 28 04-15 Comp., yellow insert, EPA	506 31 16-01 Yellow Tower model	506 26 85-01 Moulded		–
HS175L, 503 28 04-16 Comp., grey insert, EPA	506 31 16-01 Grey Tower model	506 26 85-01 Moulded		Grey



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

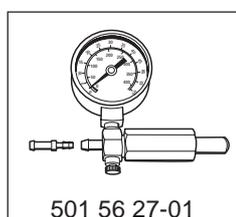
Remove the screw driver guide and cover for the metering diaphragm.  
Check the diaphragm for damage.  
Replace if necessary.

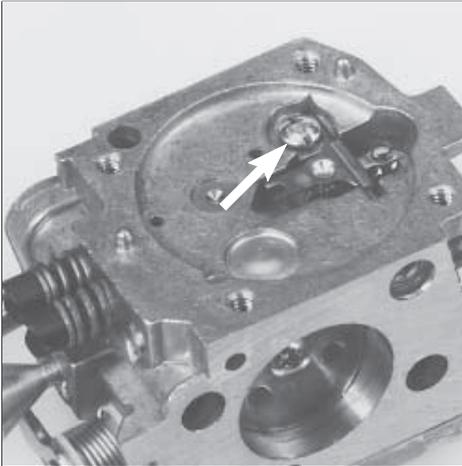
Pressure test the metering system.

### 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.

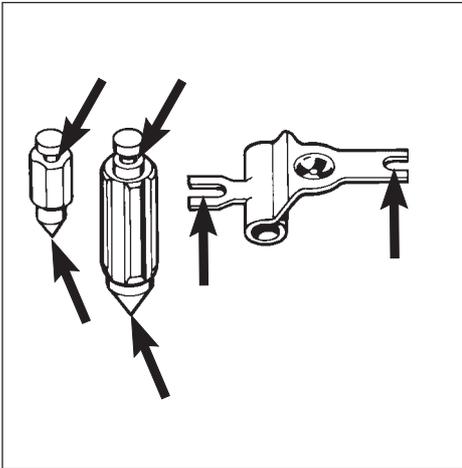




In the event of leakage - dismantle the needle valve.

In the event of leakage dismantle the needle valve.

Release the screw and lift off the lever, shaft, needle valve and spring.



Check the needle valve and lever for wear.

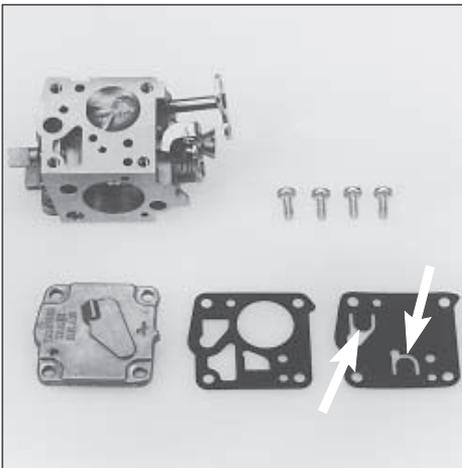
Replace damaged parts with new ones.

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.

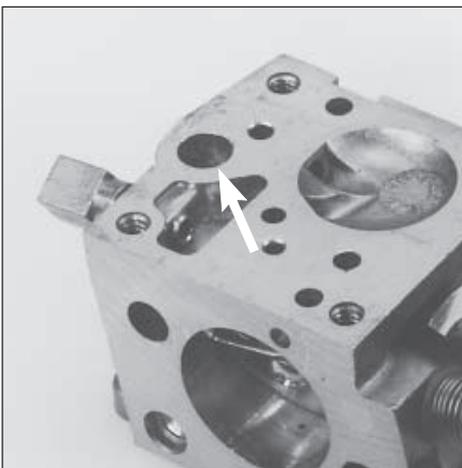


Remove the pump diaphragm.  
Check the diaphragm for damage.

Remove the screws which hold the cover over the pump diaphragm.

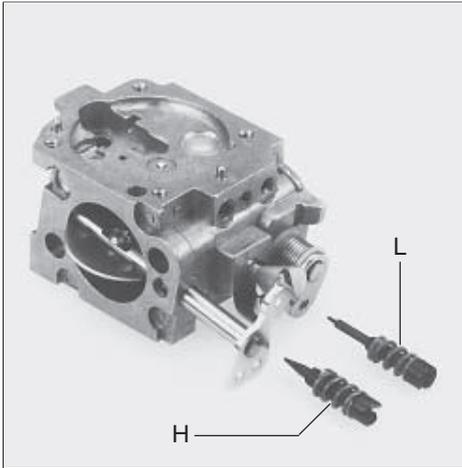
Lift off the cover, gasket and diaphragm.

Check the diaphragm for damage on the valve tongues. Hold it up to a lamp to inspect for holes in the material.



Remove the fuel strainer.

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

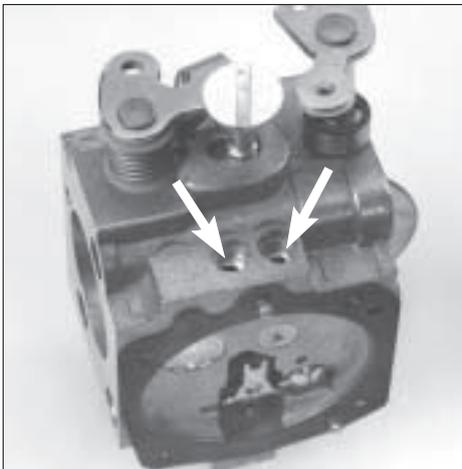


Unscrew the nozzle needles.

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).

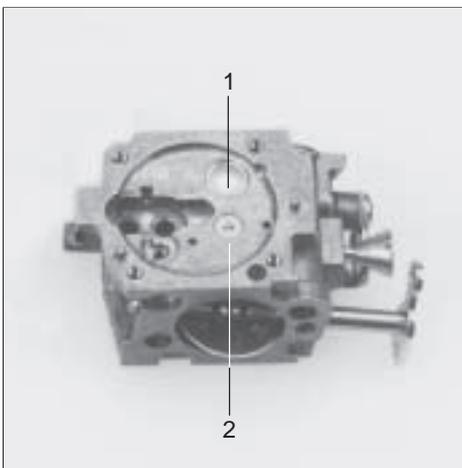


On EPA models which have fixed nozzles, the nozzles can be cleaned or changed once the seal plugs have been removed.

Carefully drill a small hole ( $\varnothing$  2 mm) in the plug and prise it away with a pointed tool.

**NOTE!**

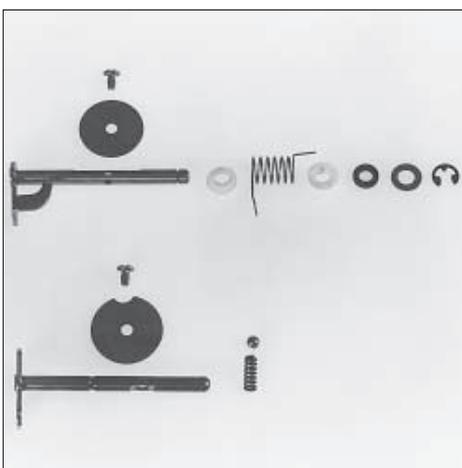
Use a suitable-sized drift when the plug is installed, to give correct sealing.



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.

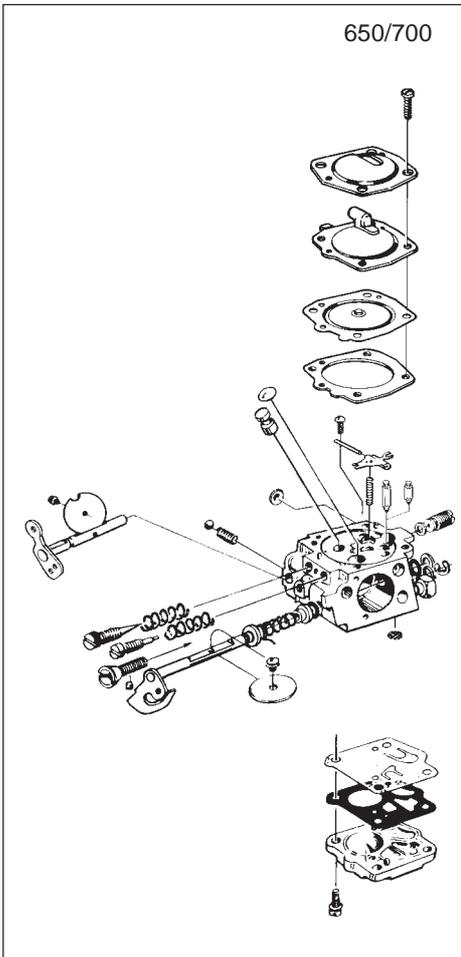


### Assembly of the carburettor

Blow clean the carburettor housing.

Fit a new welch plug.

Fit a new main jet nozzle.

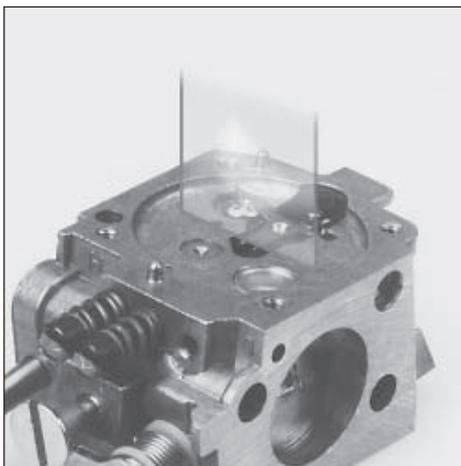


Fit the valves and valve shafts.

#### 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.

### Assembly of the carburettor

Blow clean the carburettor housing.

Fit a new welch plug.

Use a suitable mandrel to achieve complete tightness.

Press in a new main jet nozzle. It should lie flush with the carburettor housing.

Fit the valves and valve shafts.

#### NOTE!

Check that the valves are correctly turned and that they seal completely in closed position.

Use Loctite on the valve screws.

#### Tips!

Number designations on the valves should be able to be read from outside.

Replace the fuel strainer if it is damaged or cannot be cleaned.

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

Place the pump diaphragm closest to the carburettor housing, followed by the gasket and cover.

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.

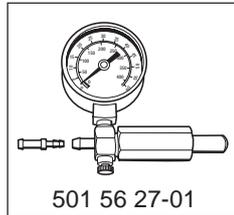
Check that the lever is level with the carburettor housing.

High setting = too much fuel.

Low setting = too little fuel

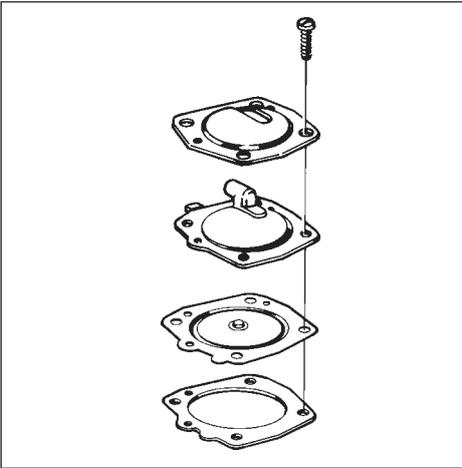


Check that the carburettor is tight.  
No leakage is permissible at 50 kPa pressure.



501 56 27-01

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 re-placed by fixed jets.

A = Main jet (high speed)

B = Low speed jet (behind washer plug)

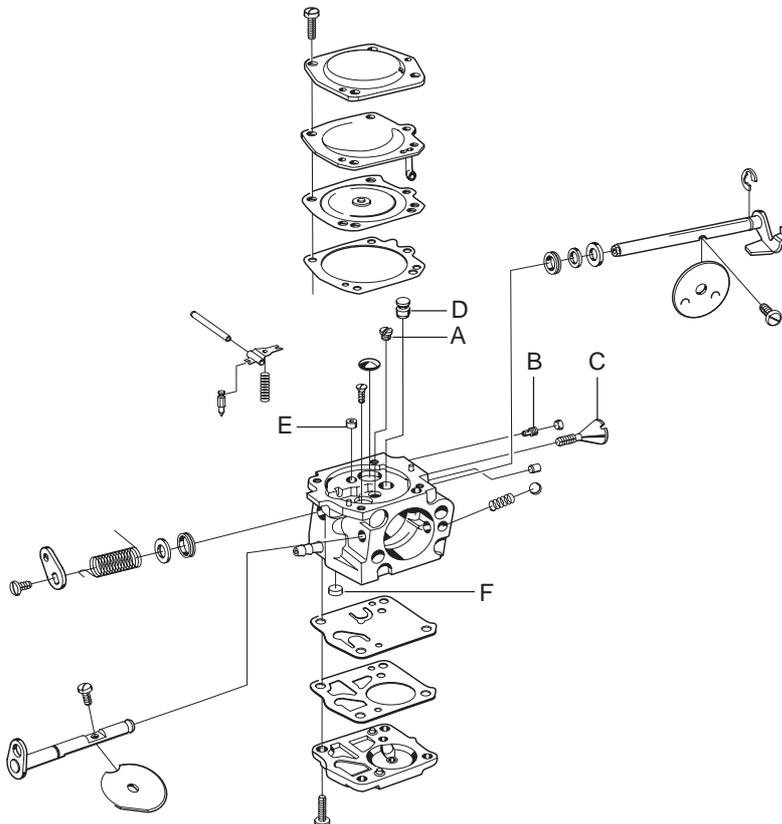
C = Idle screw

D = Main nozzle

E = Part throttle jet

F = Fuel screen

Tillotson HS

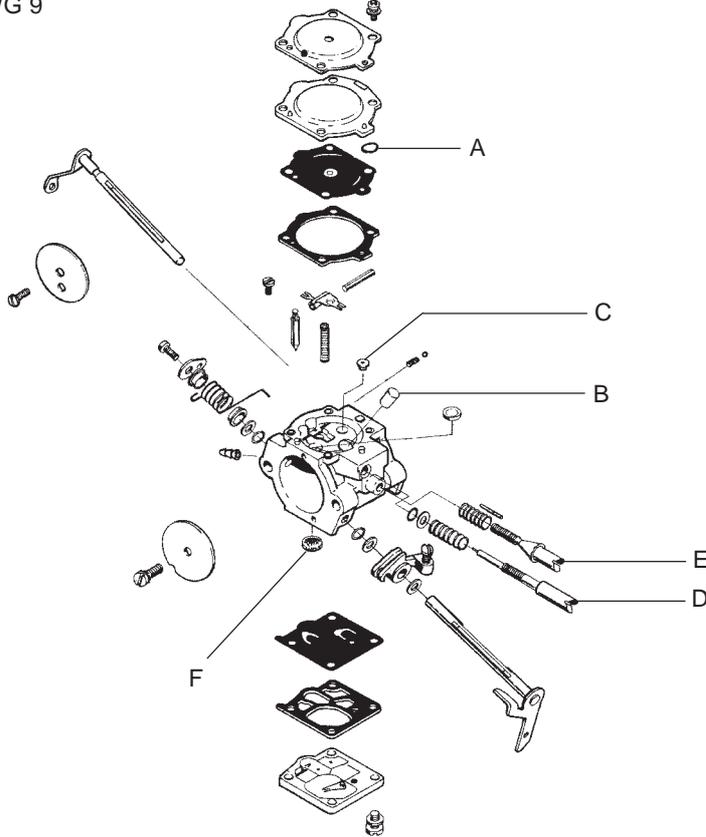


The service method for this carburettor is the same as for mod. 650, 700.

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.

Walbro WG 9

**Mod. 1250**

The carburettor on this model is of Walbro manufacture.

The service method is the same as for the Tillotson carburettor. Note the small O-ring (A) placed on the compensation device.

This carburettor does not have a speed limiter either.

A = O-ring

B = Main nozzle

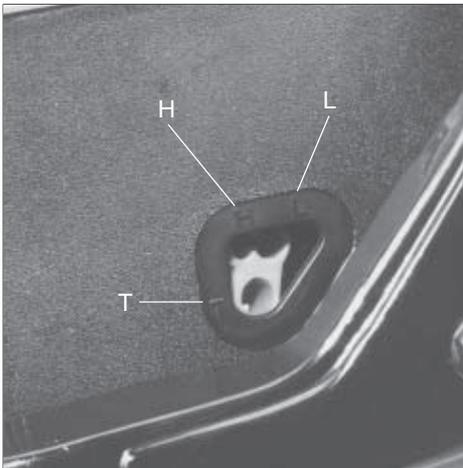
C = Main jet (high speed)

D = Low speed needle

E = Adjuster screw for idle speed

F = Fuel screen

The main jet (C) can be dismantled for cleaning or replacement.



Fit the carburettor on the engine in the reverse order to dismantling. Use new gaskets. Check that the gaskets are turned the right way round so that the impulse channel is not blocked.

**Carburettor setting (not EPA models)****⚠ WARNING!**

When test running the engine in connection with the adjustment of the carburettor the clutch, cutting arm and cutting disc must always be fitted.

Otherwise there is a risk that the clutch may release and cause serious personal injury.

**Function**

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.

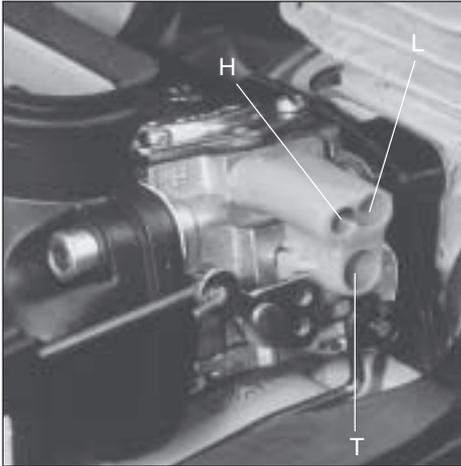
**The composition of the mixture** of air and fuel is regulated with the adjustable nozzles "H" and "L".

**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



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.

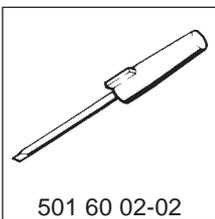
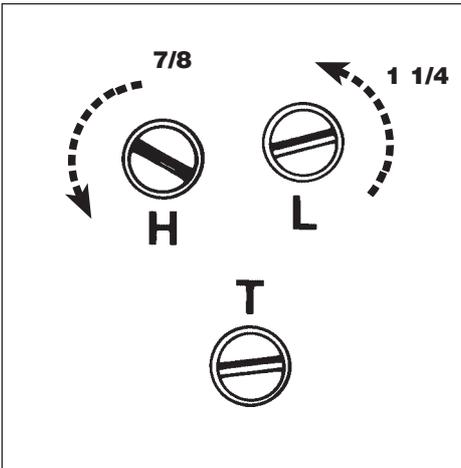
Screw the nozzle needles (H) and (L) carefully to the bottom (clockwise).

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)

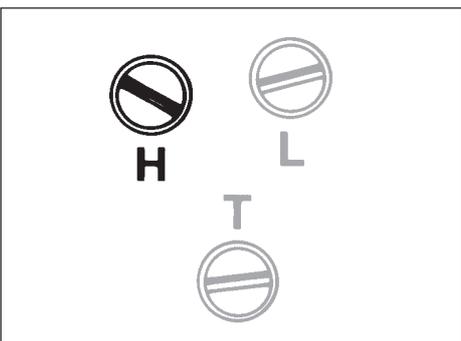
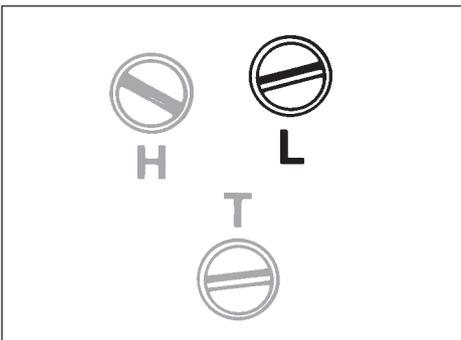
The engine has a carburettor with built-in speed limiter.

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.

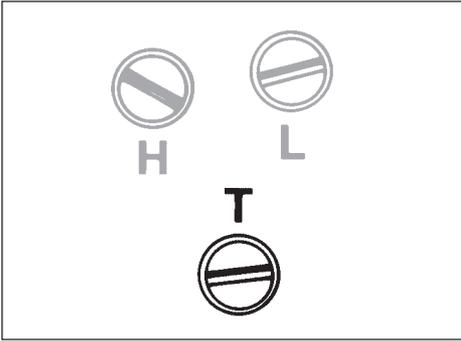
Check with a tachometer that the engine does not overspeed the permissible maximum speed (9,600 ± 400 rpm).



### ⚠ 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.

**Mod. 650/700**

L = 1 1/4

H = 7/8

**Mod. 950**

L = fast / fixed / Fest / fixé

H = fast / fixed / Fest / fixé

**Mod. 1250**

L = 1 1/4

H = fast / fixed / Fest / fixé

**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.

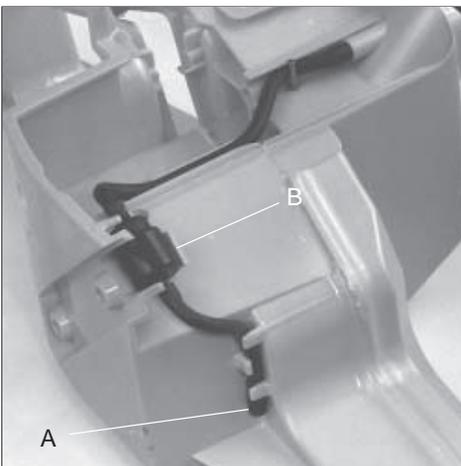
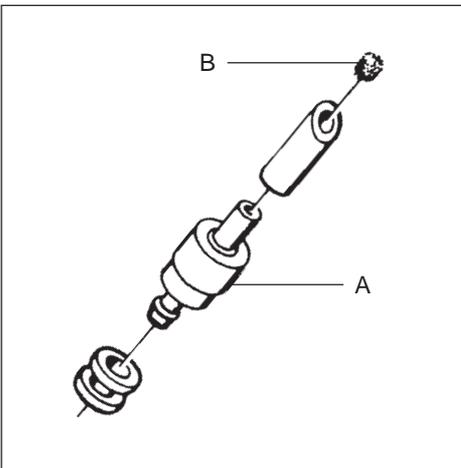
**Mod. 950**

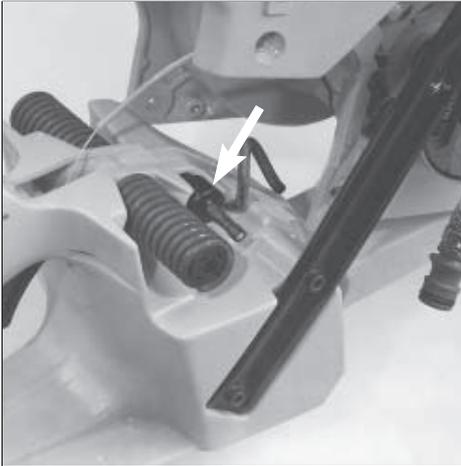
The fuel tank venting is conducted via a non return valve of the same design as on the other machine models.

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.



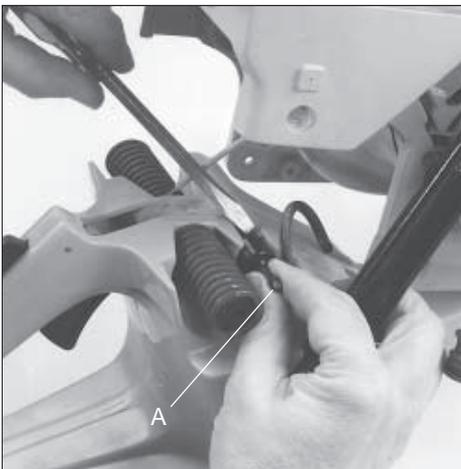


### Mod. 1250

Separate the tank unit and crankcase.

### Mod. 1250

Separate the tank unit and crankcase just enough to gain access to the tank vent.



Prise away the non-return valve with a screwdriver.

Install new components in reverse order. Do not forget to clean the metal filter (A).

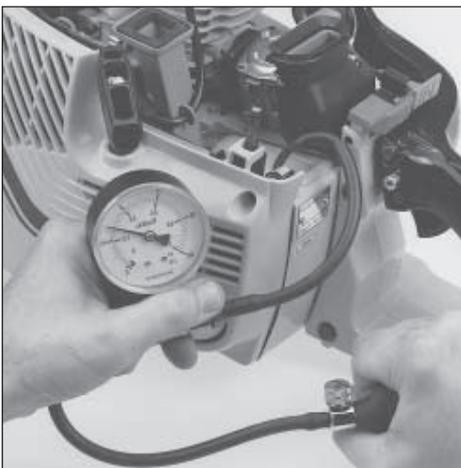
Put a screwdriver between the fueltank and the non-return valve.

Press the valve straight out from the fueltank.

Install new components in reverse order from removal.

The non-return valve can not be cleaned, it must be replaced by a new one during service.

Do not forget to clean the small metal filter (A).



### 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/cm<sup>2</sup>).

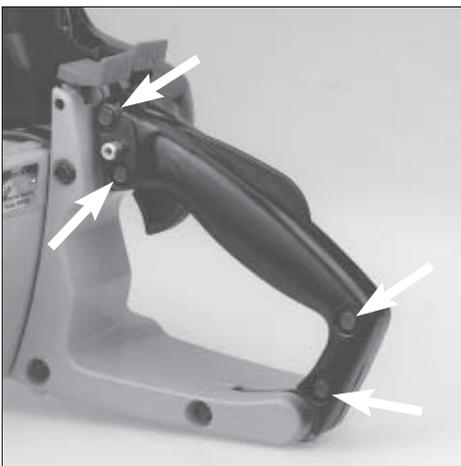
The pressure should fall to 20 kPa (0.2 kp/cm<sup>2</sup>) within 60 seconds.

### Underpressure

Reduce the pressure to -50 kPa (0.5 kp/cm<sup>2</sup>).

The pressure should increase to 20 kPa (0.2 kp/cm<sup>2</sup>) 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.



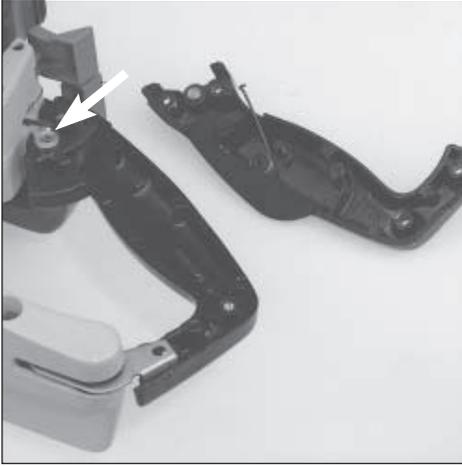
505 38 13-08

### 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 and the throttle control.

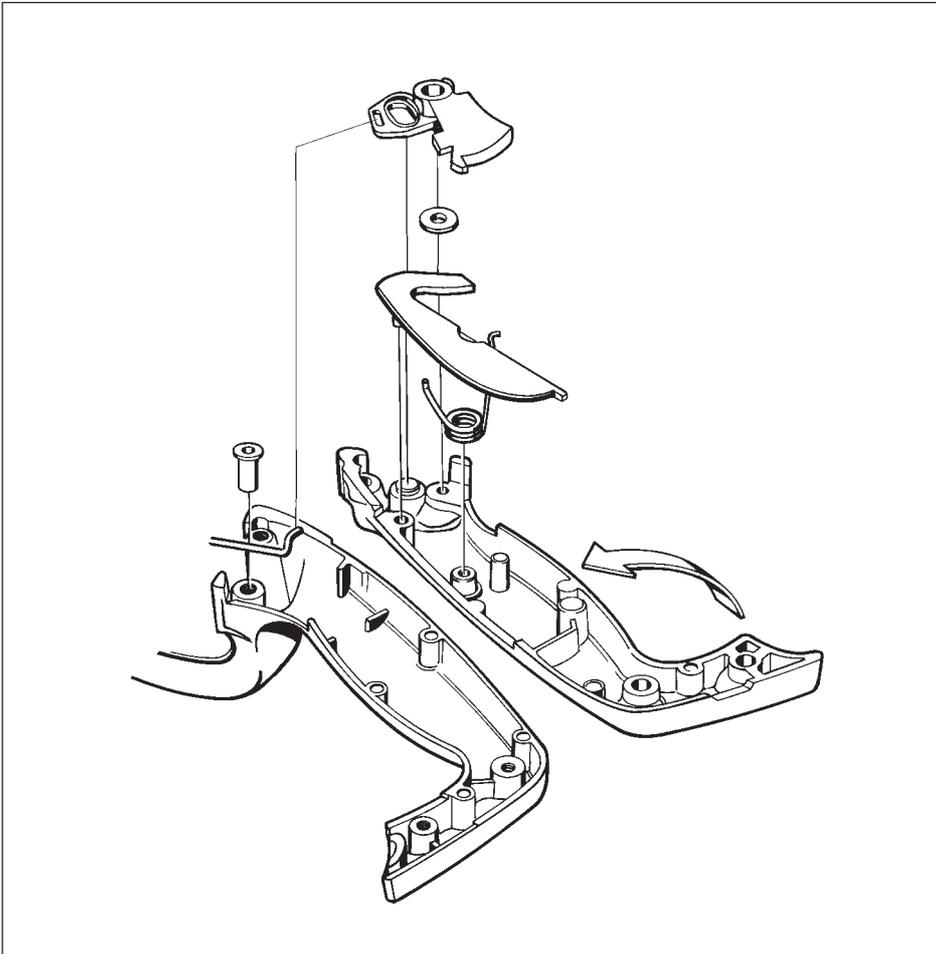
Note the washer under the throttle control and the sleeve inside the control.

Lift off the half of the grip.

**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.

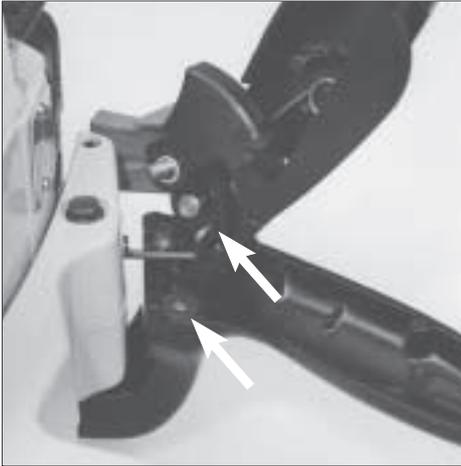
1. Place the spring for the throttle control catch in position round the pin with the hole in it.
2. Place the throttle control catch in position.



Hook in the spring in the hole in the throttle control and move it to the correct position opposite the screw hole.

Lock the throttle control with the catch and insert the screw in the throttle control's supporting sleeve.

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.



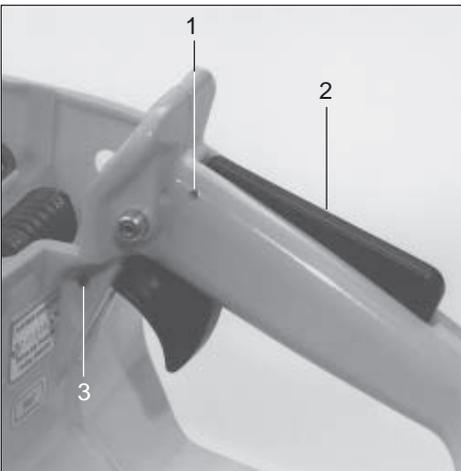
Fix the spacer washer with a little grease on the right-hand grip half.  
Hook the throttle lever in the throttle control and place the grip half in position.  
Screw tight the screws and check the function of the throttle control.

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.



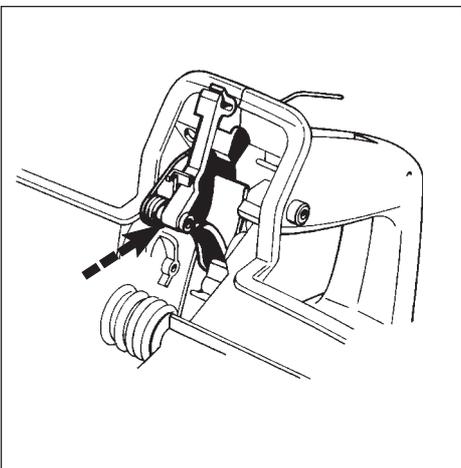
**Mod. 950**

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

**Mod. 950**

Separate the tank unit and crankcase. (Where appropriate see chapter on vibration damper.)

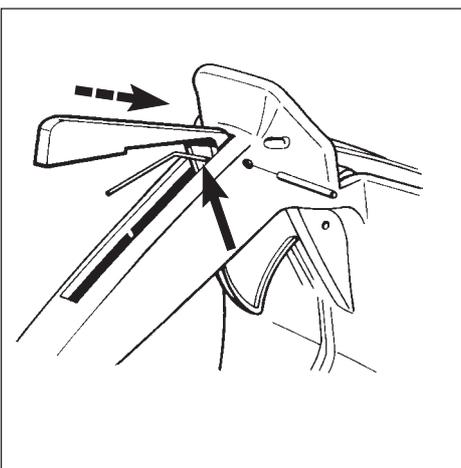
1. Press out the bearing pin (1) with an appropriate punch ( $\varnothing$  2.5 mm) far enough so that the safety catch (2) can be removed.
2. Press out the bearing pin (3) far enough so that the throttle control can be removed, where appropriate by bending it with a screwdriver.



Fit the throttle control in the reverse order to dismantling.

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.

Fit the safety 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.

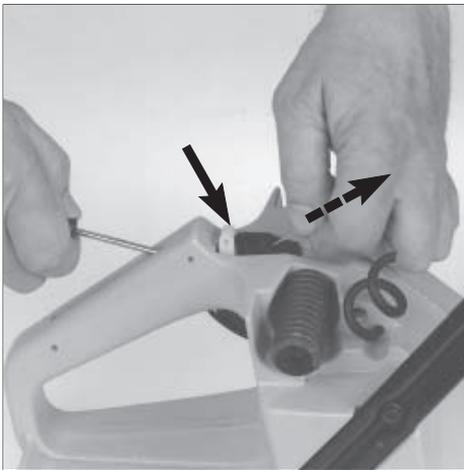
Check that the throttle lock functions properly.

**Mod. 1250**

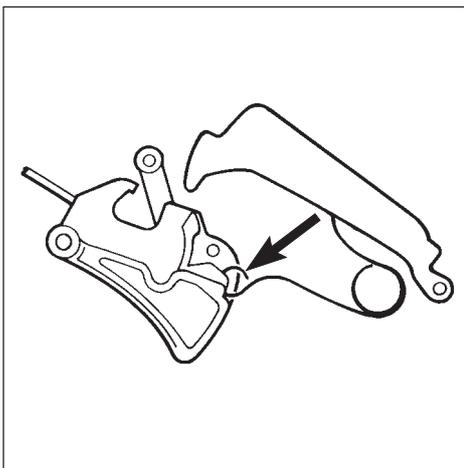
Separate the tank unit and crankcase, and press off the three bearing pins.



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 ( $\varnothing$  2.5 mm).

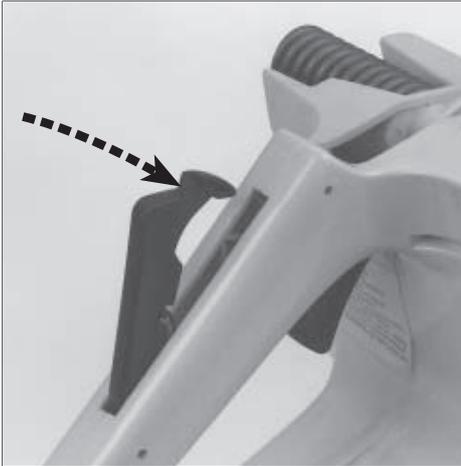
Press down the safety catch, and press it forwards (where appropriate with a small screwdriver) so that it can be lifted up at the back edge.

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.



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.

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.

## 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. Hard starting	•																																												
B. Fuel dripping from carburettor				•								•																																	
C. Floods when engine is not running							•																																						

Idle	D	E	F	G	H	J
D. Will not idle	•					
E. Rich idle		•				
F. Idles with L-needle closed						
G. Irregular idle				•		
H. "L"-needle needs frequent adjustment						
J. Loads up while idling						

Acceleration, deceleration	K	L	M
K. Will not accelerate	•		
L. Engine stops when closing throttle		•	
M. Over-rich acceleration			•

High speed	N	O	P
N. Will not run at full throttle	•		
O. Low power		•	
P. Will not 4 cycle			•

- A. Hard starting
- B. Fuel dripping from carburettor
- C. Floods when engine is not running

- D. Will not idle
- E. Rich idle
- F. Idles with L-needle closed
- G. Irregular idle
- H. "L"-needle needs frequent adjustment
- J. Loads up while idling

- K. Will not accelerate
- L. Engine stops when closing throttle
- M. Over-rich acceleration

- N. Will not run at full throttle
- O. Low power
- P. Will not 4 cycle

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

### 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

### Air system

- 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
- 19. Bent throttle linkage
- 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

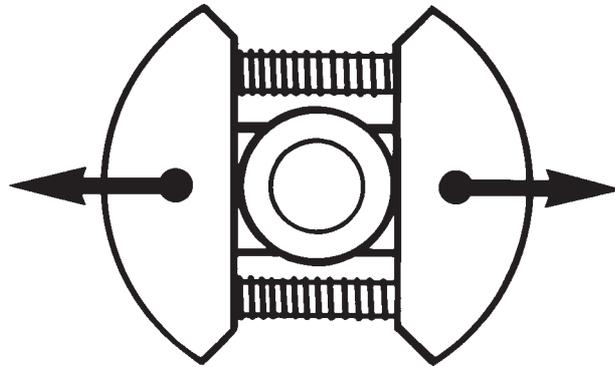
### Fuel system

- 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

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# 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

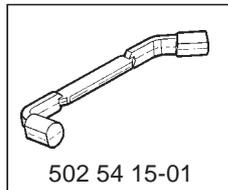
Dismantle the complete cutting equipment and unscrew the plug.



### Mod. 650, 700

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

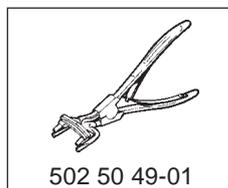
Dismantle the clutch clockwise by means of a suitable box spanner.



502 54 15-01

Take the clutch apart.

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



502 50 49-01

## Dismantling

### All models

Dismantle the front and rear belt cover, cutting arm with cutting disc, and drive belt.

Remove the air filter cover and air filter, 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.

### NOTE!

Do not drop the washer which lies behind the clutch drum.

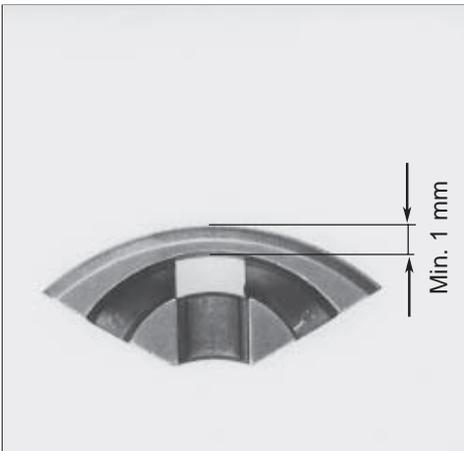
Press out the one clutch shoe with pliers No. 502 50 49-01 as shown in the illustration.



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

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.

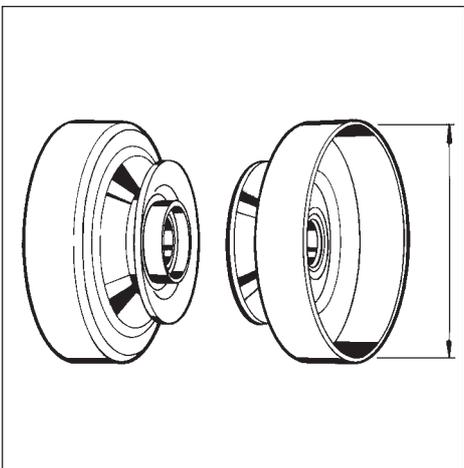


Clean and inspect the clutch parts for damage and wear.

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.

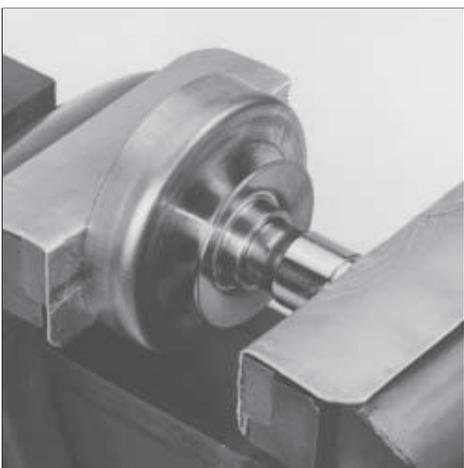
All the shoes must be replaced at the same time.



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

Check the wear on clutch drum's inner diameter. It must not exceed 75.5 mm (2.97"). If so, replace the clutch drum.

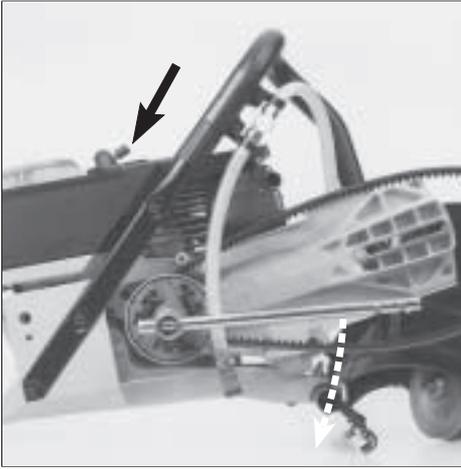
Check also the wear on the pulley. If the side surfaces are heavily worn and/or damaged the clutch drum must be replaced.



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

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.

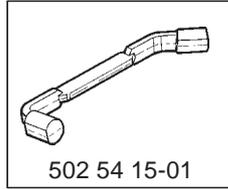
Press out the bearing with a vice and a suitable sleeve ( $\varnothing$  17.5 mm, 0.69").



### Mod. 950, 1250

Dismantle all the cutting equipment and unscrew the plug.

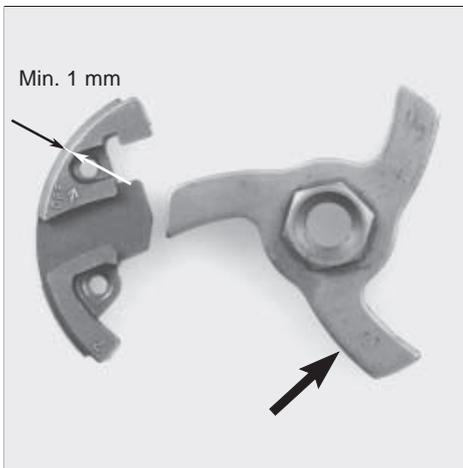
Fit piston stop No. 502 54 15-01 and dismantle the clutch clockwise.



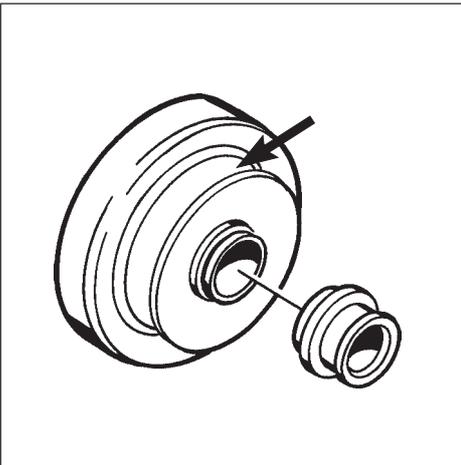
Remove the clutch springs with a small screwdriver.



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.



### 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.

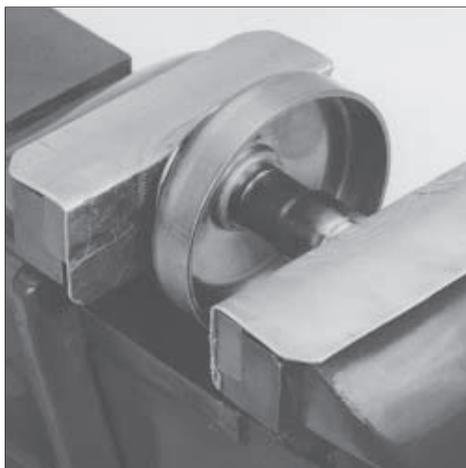
There must be at least 1 mm of material left at the most worn part of the clutch shoes.

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.

## 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 together the centrifugal clutch.

Place two clutch shoes and the spring on the clutch hub.

### NOTE!

The spring's coupling point should lie opposite one of the hub's spokes.



Fit the remaining clutch shoe.

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



502 50 49-01

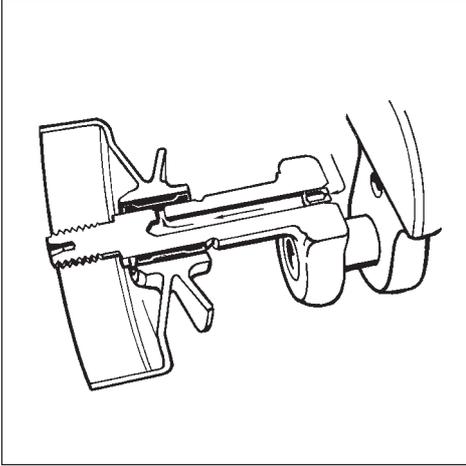


Check that the lubrication hole in the crankshaft is not blocked.

If necessary clean with a steel wire.

Check that the lubrication hole in the crankshaft is not blocked.

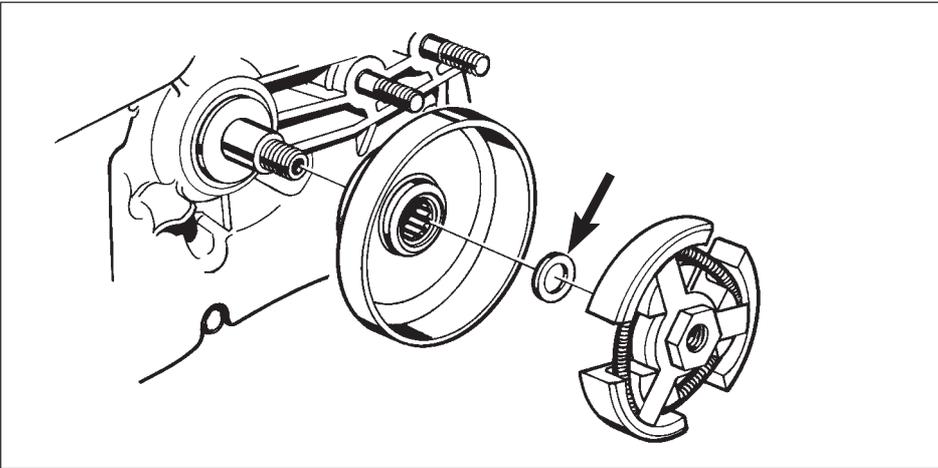
If necessary clean with a steel wire.



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.

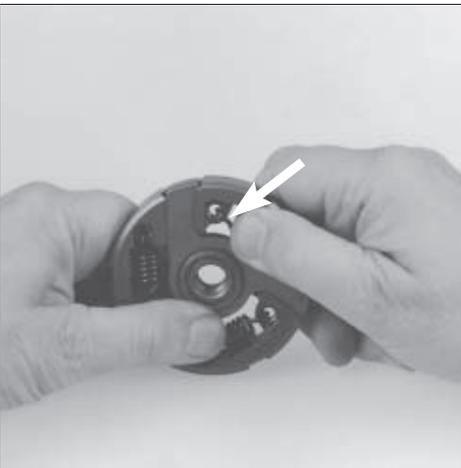
The clutch drum's bearing is lubricated automatically with the oil in the fuel mixture.

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.

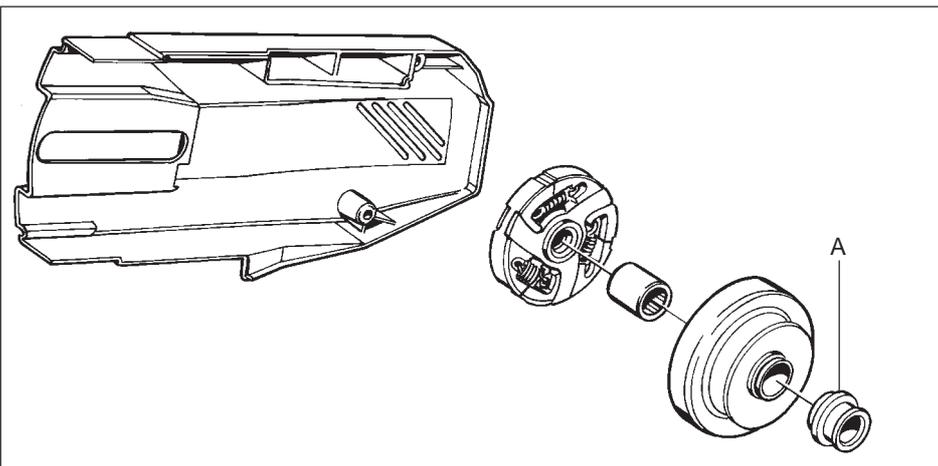


### Mod. 950, 1250

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.



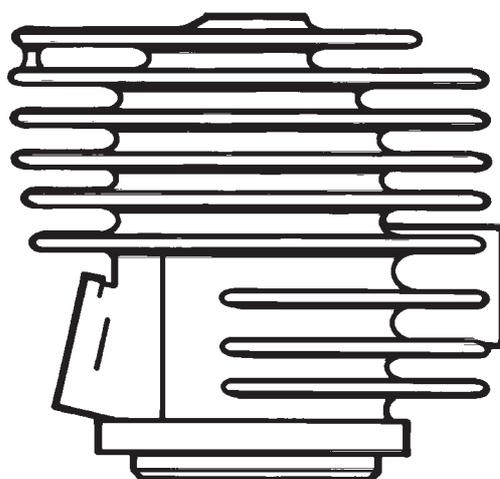
### NOTE!

Remember the spacer sleeve (A) behind the clutch drum when the clutch is refitted on the crankshaft.

---

# Cylinder and piston

## 5.



### Contents

Dismantling .....	48
Cleaning, inspection .....	50
Analysis and procedures .....	51
Service tips .....	55
Wear tolerances .....	55
Assembly .....	55
Decompression valve .....	57
Compression test .....	58

# 5 Cylinder and piston

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.



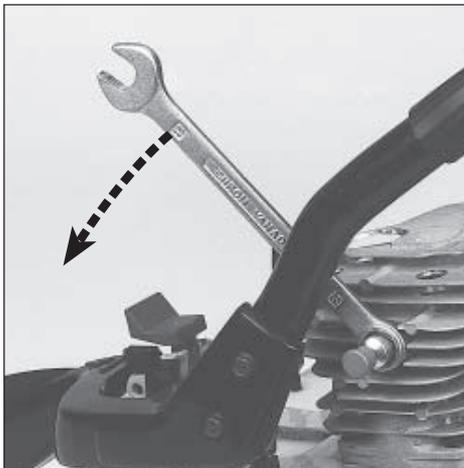
## Dismantling General

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.

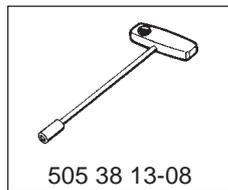
See respective sections in the Workshop Manual for detailed instructions.



### Mod. 650, 700

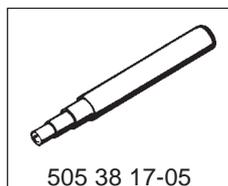
Dismantle the decompression valve.

Dismantle the cylinder.



505 38 13-08

Dismantle the piston from the connecting rod.



505 38 17-05

### Mod. 650, 700

Dismantle the decompression valve before the cylinder screws are unscrewed.

Unscrew the cylinder screws and lift the cylinder straight up.

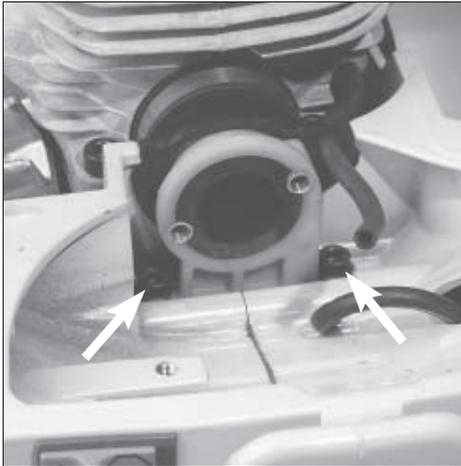
### NOTE!

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.

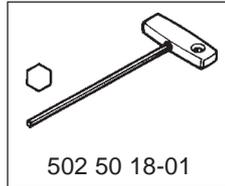
Press the gudgeon pin out, using drift No. 505 38 17-05.



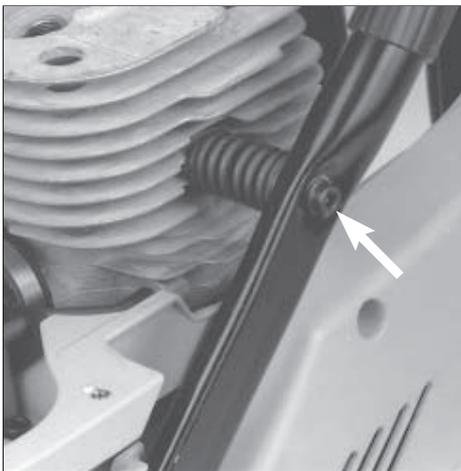
### Mod. 950

Dismantle all components so that the cylinder becomes accessible.

Dismantle the carburettor and screws that hold the spacing piece to the crankcase.

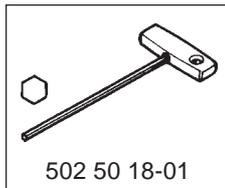


502 50 18-01

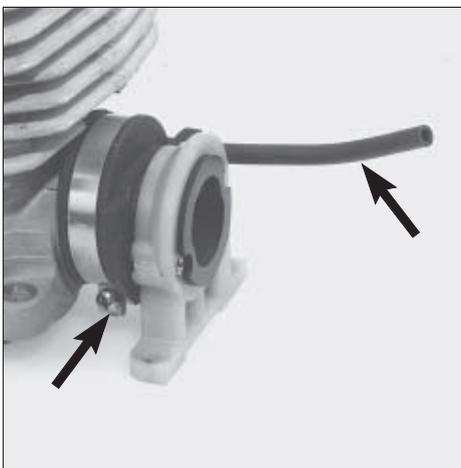


Remove the screw which holds the vibration damper to the grip.

Dismantle the damper from the cylinder.

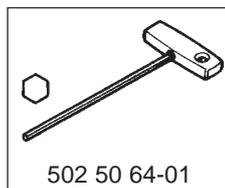


502 50 18-01

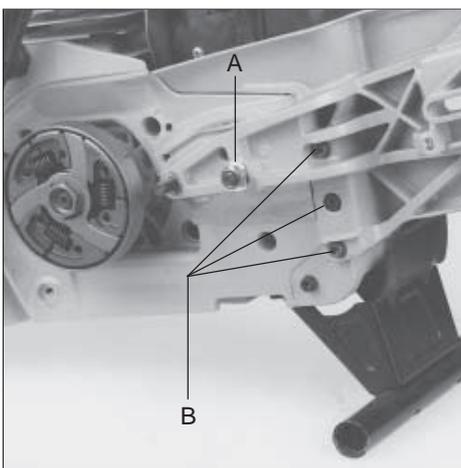


Unscrew the cylinder screws and lift off the cylinder

Dismantle the intake pipe and impulse hose. If there are signs of cracking replace with new parts.

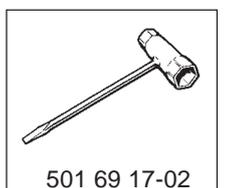


502 50 64-01

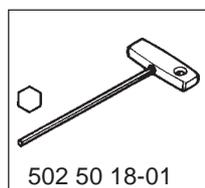


### Mod. 1250

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



501 69 17-02



502 50 18-01

### 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.

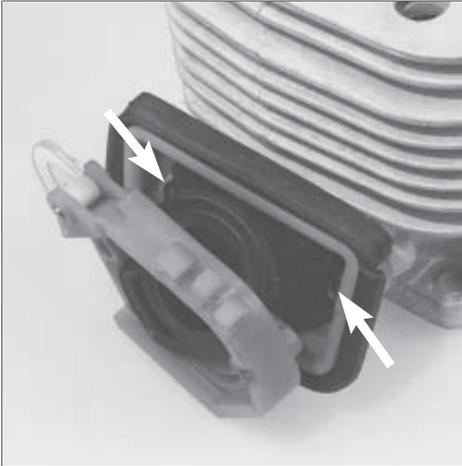
### Mod. 1250

Dismantle all the necessary parts to gain access to the cylinder.

Use the universal tool 501 69 17-02 to dismantle the start valve.

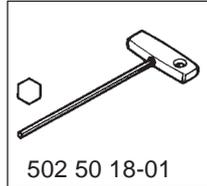
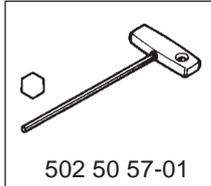
All the cutting equipment must be dismantled in order to be able to dismantle the muffler.

Dismantle the cutter arm attachment by removing the nut (A) and the screws (B) with key 502 50 18-01.



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.



## 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 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.



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.



Small to medium sized scratches mainly opposite exhaust port.

## 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.



Medium sized to deep scratches along full piston skirt on exhaust side.

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:

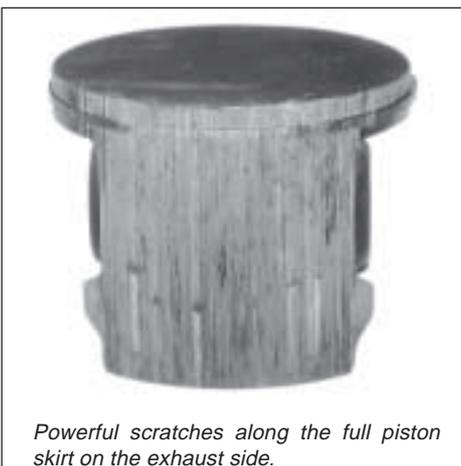
Change to fuel with correct oil mixture.

Change to petrol with higher octane rating.

Replace damaged parts.

Replace untight gaskets and shaft seals.

Clean cooling fins and air intake.



Powerful scratches along the full piston skirt on the exhaust side.

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 %).



Medium to deep scratches on the exhaust side. The piston ring has stuck in its groove. Black discolouring under the piston ring resulting from so-called "blow through".



Inlet side. The piston ring has stuck in its groove. Black discolouring under the piston ring resulting from so-called "blow through".



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.

### 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.

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

### 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 guide pin for the piston ring has been pressed up through the piston head.*



*Deep and irregular grooves caused by a loose circlip. Here on the piston's inlet side.*



*Irregular grooves on the piston's inlet side caused by a broken bearing cage.*

### **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.



*Small scratches and a dull, grey surface on the piston's inlet side resulting from fine dust particles.*

### **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.



*Inlet side.*

*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.*

**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.



*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.



*Severe damages to the lower part of the piston 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.

## 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 stuck 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.

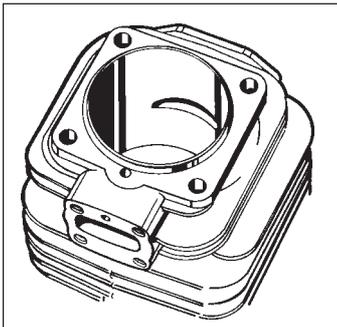
Replace cylinder and piston.

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.

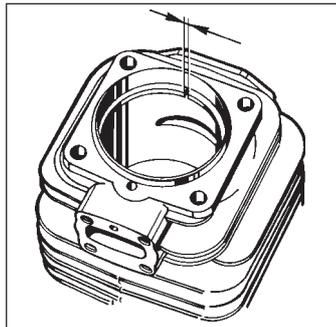
## Wear tolerances

### Cylinder bore



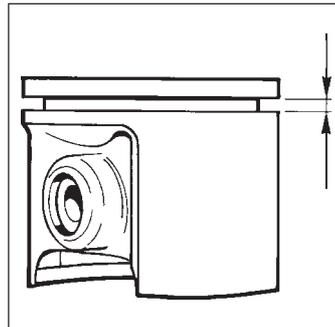
The surface finish is worn away revealing the aluminium.

### Piston ring gap



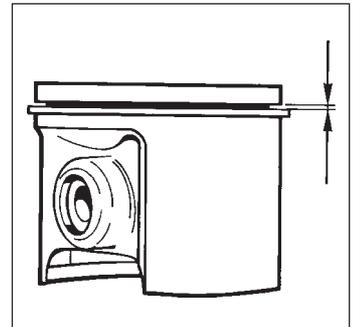
Max. 1.0 mm (0.04") with the piston ring pushed into the lower part of the cylinder.

### 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.

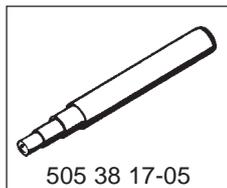


## Assembly

### All models

Fit the piston on the connecting rod.

Make sure that the arrow on the piston top is turned to the exhaust port.



505 38 17-05

## 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.

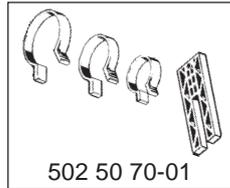


Fit a new cylinder base gasket.



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

Screw tight the cylinder.



502 50 70-01

#### 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. 950

Fit the cylinder in the same way as described above.

Fit the other parts in the reverse order to dismantling.

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. 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 the middle piece if necessary.

Fit the carburettor and other parts in the reverse order to dismantling.

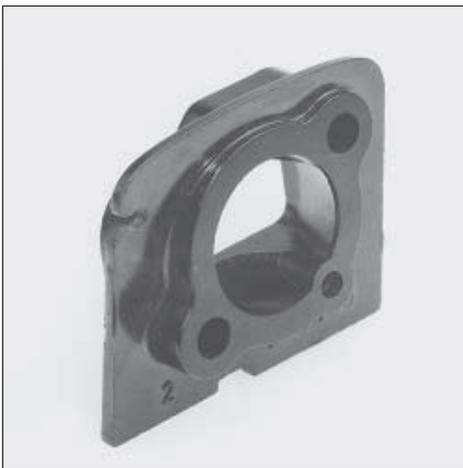
#### Mod. 950

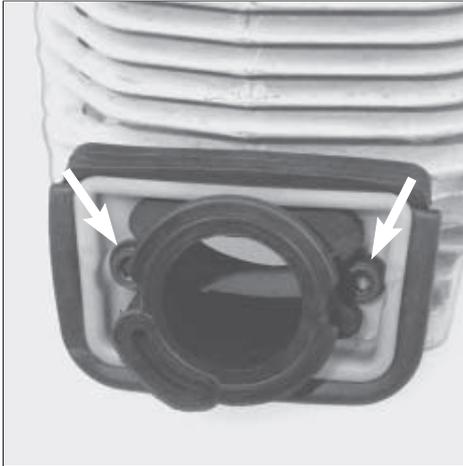
Follow the instructions for "Cleaning, inspection", "Assembly" and "Decompression valve" before fitting the piston and cylinder.

#### TIP!

Fit the intake pipe and impulse hose on the cylinder before fitting it on the crankcase.

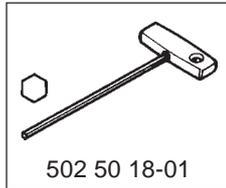
Fit the other parts in the reverse order to dismantling.





### Mod. 1250

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



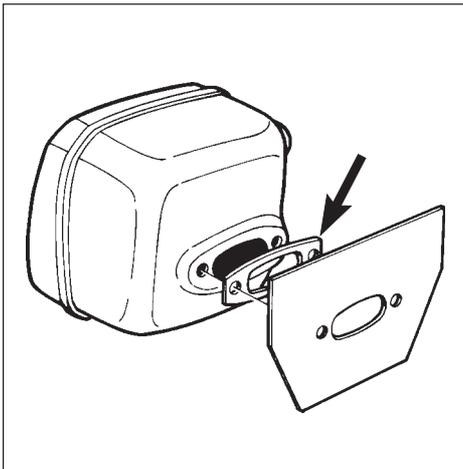
502 50 18-01

### 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.



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.



### Decompression valve

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

### 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.

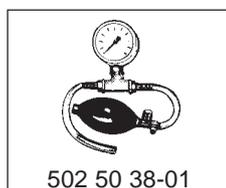
Wash the valve carefully to remove all the grinding paste.



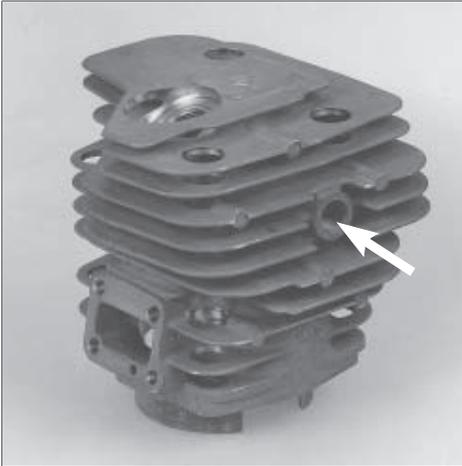
Check that the valve is tight with pressure gauge 502 50 38-01.

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.



502 50 38-01



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

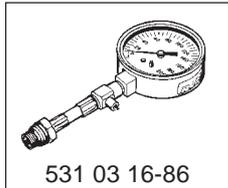
Check that the outlet hole in the valve is open, in similarity with the hole in the cylinder wall.

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.



531 03 16-86

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!

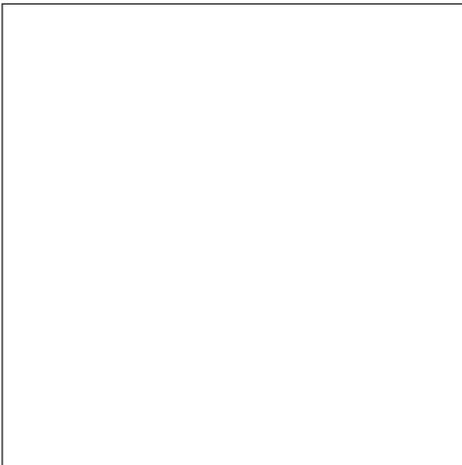
If the engine has been disassembled it should be "run in" first in order to achieve a correct result.

### 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.

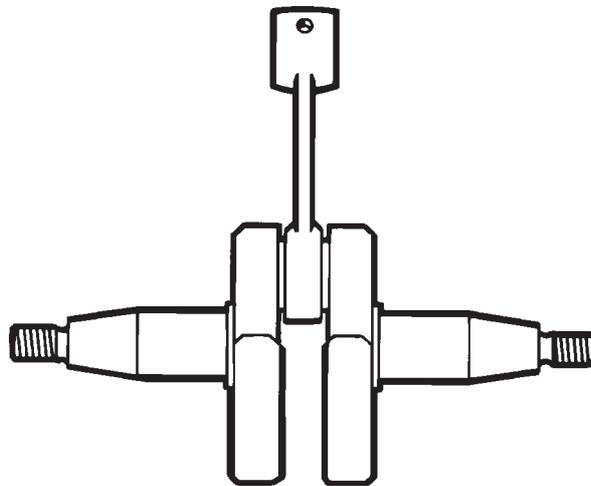
If a low pressure value is obtained, repeat the test procedure after pouring a teaspoon of engine oil (SAE 30) in the cylinder through the plug hole. If the pressure increases it is very likely that the piston, circlips and cylinder are severely worn and need replacing.



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# Crankshaft and crankcase

## 6.

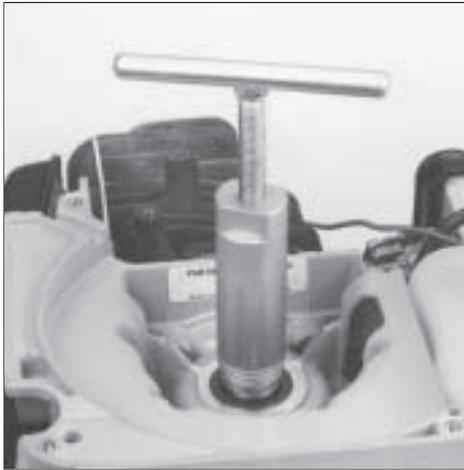


### Contents

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

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.

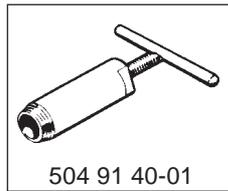
The crankshaft is housed in the crankcase with heavy-duty ball bearings. In addition to acting as the bearing point for the crankshaft, the crankcase also functions as scavenging pump for the fuel/air mixture when this is induced from the carburettor and pressed up in the cylinder's combustion chamber. 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

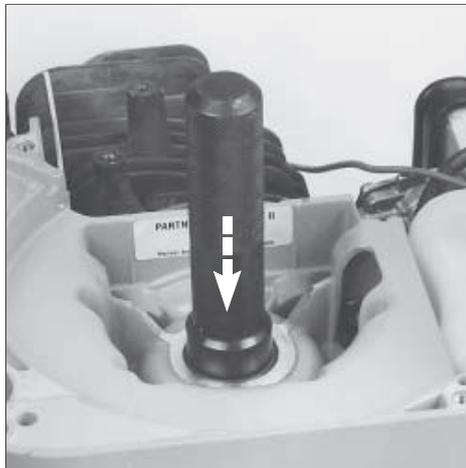
**Mod. 650, 700**

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



504 91 40-01

Lubricate the shaft with oil and fit a new seal.

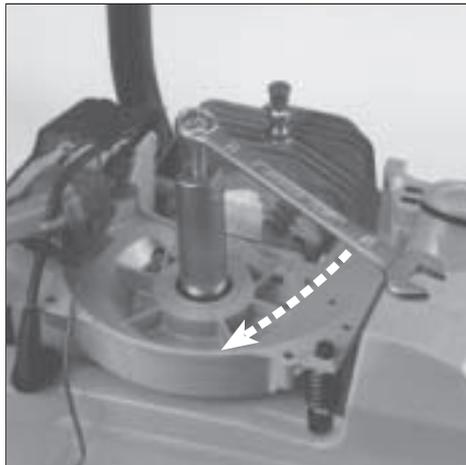


502 50 82-01

**Mod. 950, 1250**

Remove all parts so that the seal becomes accessible.

Screw down the seal extractor and pull off the seal.



502 50 55-01

### Replacing the seal on the flywheel side

**Mod. 500, 540 Mod. 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.

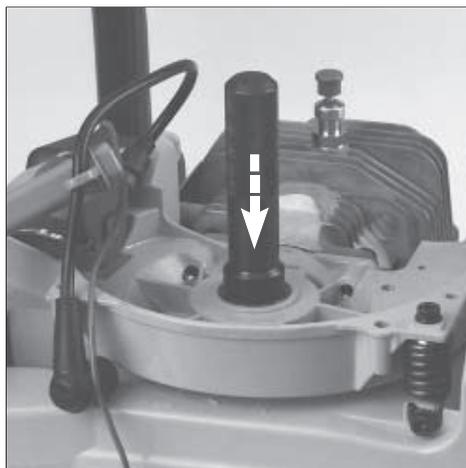
Press down the seal with a suitable drift to the correct position in the crankcase, 1 mm (.04") below the crankcase plane.

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.



Lubricate the shaft with engine oil and put a new seal in place with the plate cover facing outwards.

Press the seal in the crankcase with a suitable drift until it lies flush with crankcase.

Fit the other parts in the reverse order to dismantling.

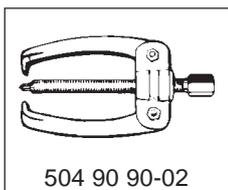


## Replacing the seal on the clutch side

Mod. 650, 700

Dismantle the washer protecting the crankshaft seal.

Use two screwdrivers first, and then an extractor.



## 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.

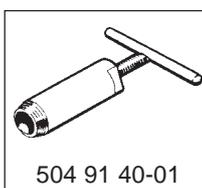
This has a forced fit on the shaft and may be difficult to dismantle without being damaged.

Use two screwdrivers first to bend out the washer far enough so that extractor 504 90 90-02 can be used.



Dismantle the seal with an extractor 504 91 40-01.

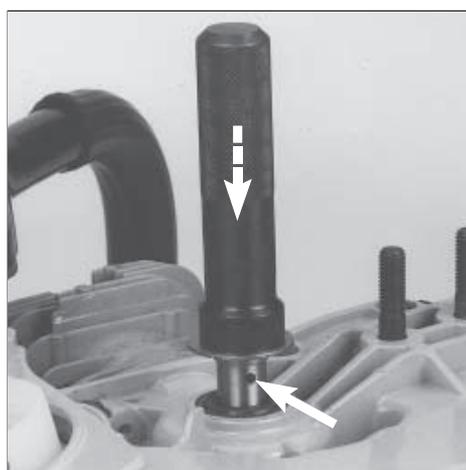
Fit the new seal by means of drift 502 50 82-01.



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.

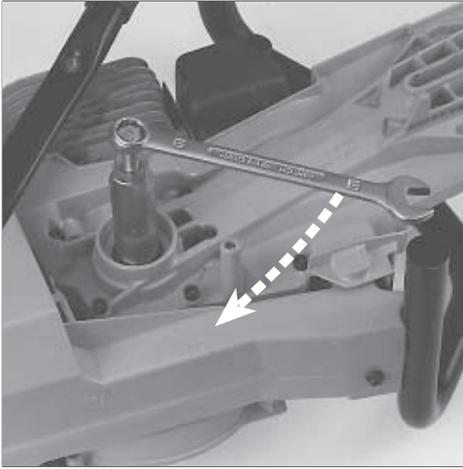
Lubricate the seal and fit the washer.

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.





**Mod. 950**

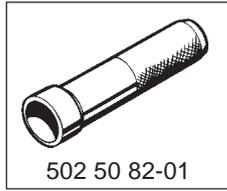
Pull off the seal with an extractor.



502 50 55-01

Lubricate the shaft with a few drops of oil and fit a new seal.

Fit the other parts in the reverse order to dismantling.



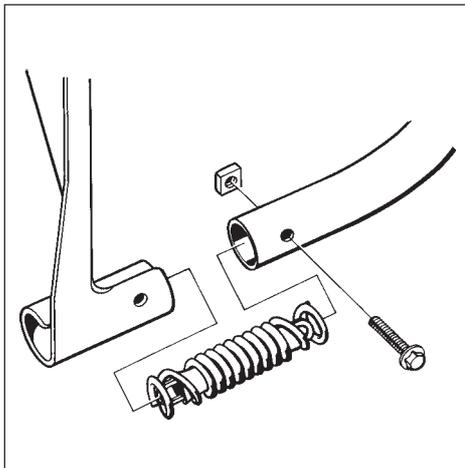
502 50 82-01

**Vibration dampers**

**Mod. 650, 700**

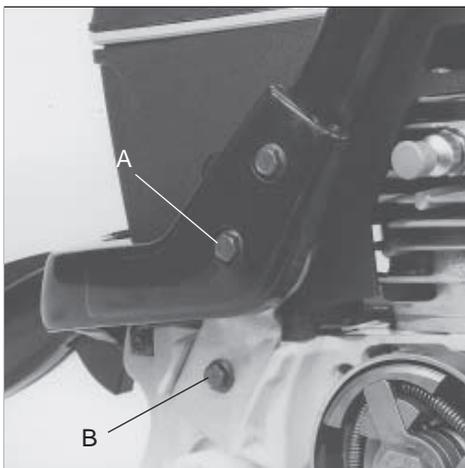
Remove the screws and separate the grip from the attachment in the crankcase. Remove the damper.

Assembly is conducted in reverse order to dismantling.



505 38 13-08

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



505 38 13-08

**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!**

Remember the spacer sleeve between the clutch drum and crankcase.

**Vibration dampers**

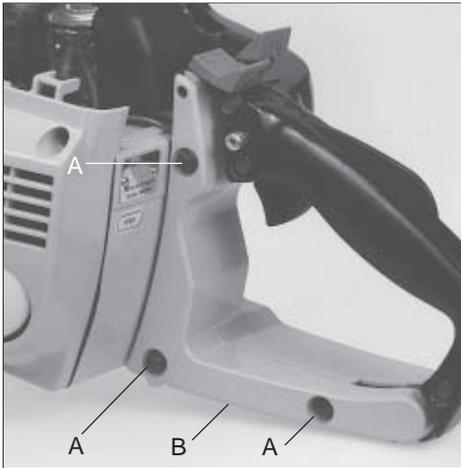
**Mod. 650, 700**

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.

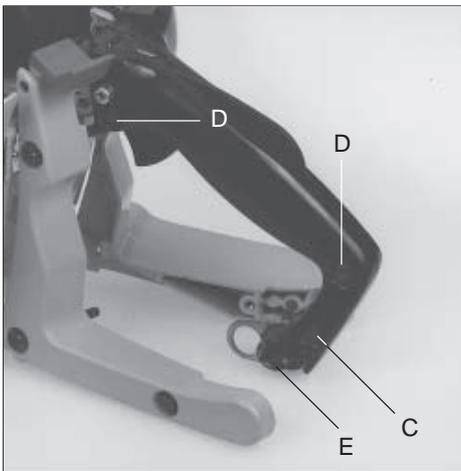
The vibration damper at the cylinder can be dismantled for replacement after the screws (A) and (B) have been dismantled.



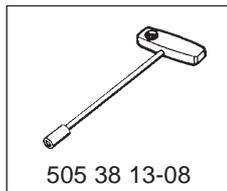
Remove the vibration damper by the rear handle by removing screws (A) and one half of the handle (B).



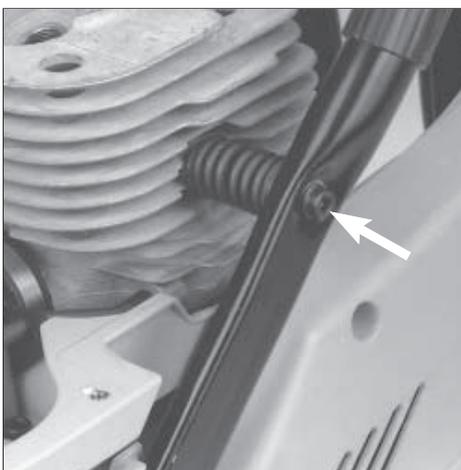
In order to dismantle the vibration damper in the rear handle the screws (A) must be dismantled and the handle half (B) removed.



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



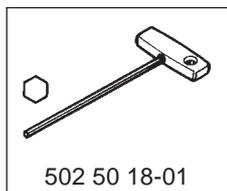
Remove the screw (C) and release the screws (D) enough to dismantle the vibration damper (E) for replacement.  
Assembly is conducted in the reverse order to dismantling.



### Mod. 950

#### Vibration damper at cylinder

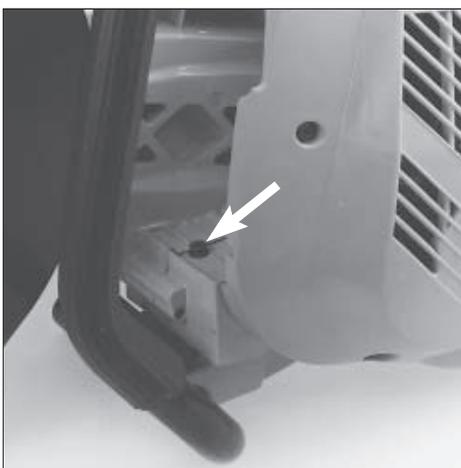
Remove the screw which holds the vibration damper to the grip.  
Dismantle the damper from the cylinder.



### Mod. 950

#### Vibration damper at cylinder

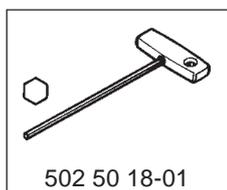
1. Dismantle covers and air filter to simplify access.
2. Remove the screw which holds the vibration damper to the grip.
3. Insert key 502 50 18-01 in the centre of the vibration damper and unscrew the screw which holds the damper to the cylinder.



### Mod. 950

#### Front vibration damper

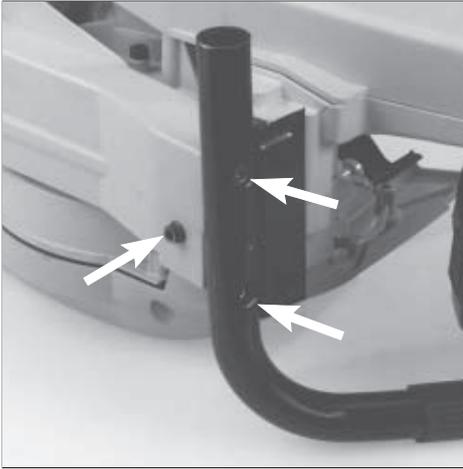
Dismantle covers, air filter and muffler.  
Remove the screws which hold the damper to the grip and crankcase.



### Mod. 950

#### Front vibration damper

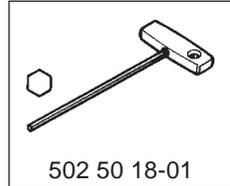
1. Dismantle covers, air filter and muffler.
2. Remove the screw which holds the vibration damper to the grip (at the cylinder).
3. Remove the screw which holds the damper to the crankcase.



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.

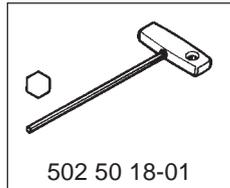
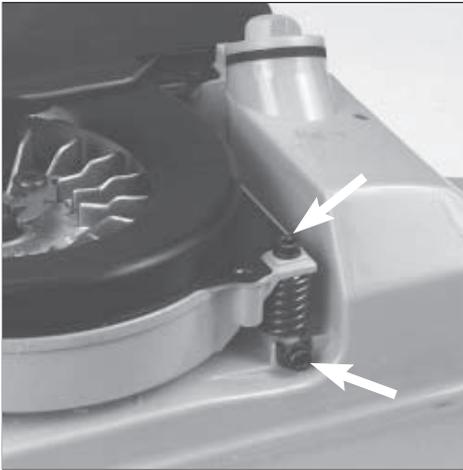
Fit in the reverse order to dismantling.



#### Mod. 950

##### Rear, lower vibration damper

Remove the starter unit and the screws which hold the damper.

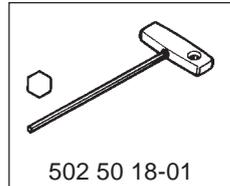


##### Mod. 950 – Rear, upper vibration damper

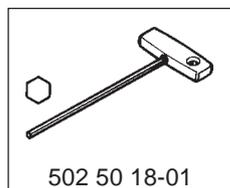
Unhook the throttle lever at the throttle control and remove the screw which holds the grip to the vibration damper on the cylinder.

Dismantle the rear, lower vibration damper.

Remove the screw which holds the vibration damper.



Dismantle the vibration damper from the tank unit.



4. Remove the screws which hold the grip to the tank unit.
5. Remove the screw which holds the vibration damper.
6. Separate the tank unit and crankcase, and remove the vibration damper.

Fit a new vibration damper 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

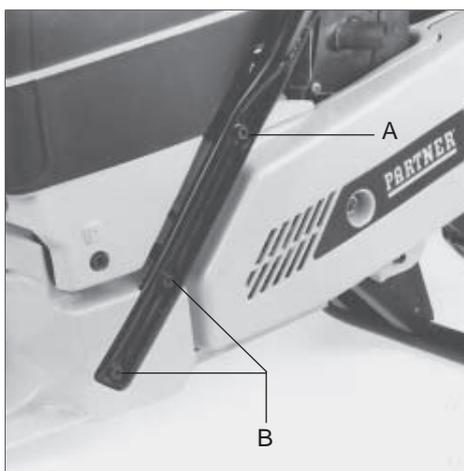
Remove the starter unit and the two screws which hold the damper.

Replace the vibration damper and fit in the reverse order to dismantling.

##### 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.

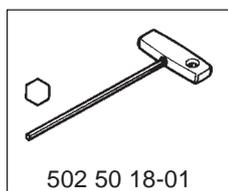
Fit in the reverse order to dismantling



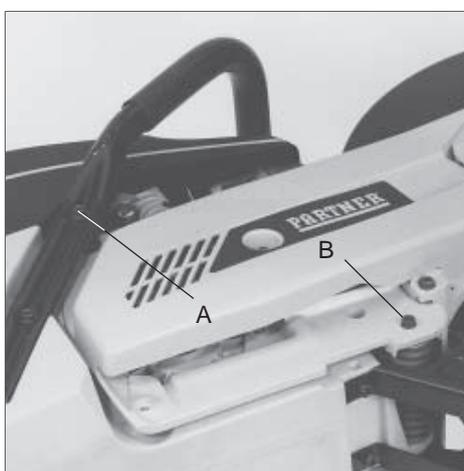
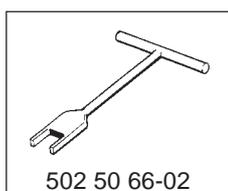
### Mod. 1250

#### Vibration damper at cylinder

Remove the screws (A) and (B).



Unscrew the vibration damper.



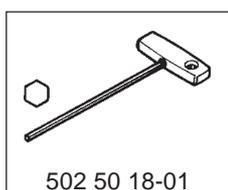
### Mod. 1250

#### Front vibration damper

Remove the screws (A) and (B).



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



### Mod. 1250

#### Vibration damper at cylinder

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.

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

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.

**Mod. 1250****Rear vibration damper**

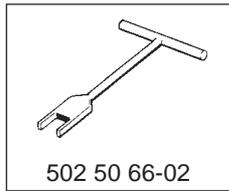
Dismantle the starter unit and the two screws which hold the rear, upper vibration dampers.

Remove also the screw which holds the vibration damper at the grip.



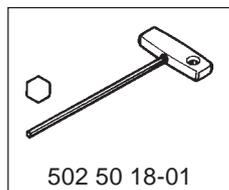
502 50 64-01

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.



502 50 66-02

Dismantle the two upper vibration dampers.



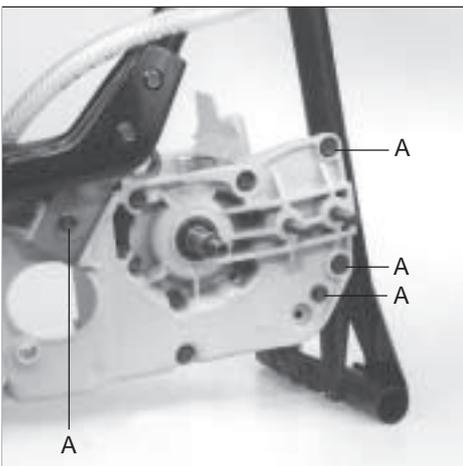
502 50 18-01

**Dismantling, assembly****Mod. 650, 700**

Remove the washer which lies inside the clutch drum and the screws (A).



505 38 13-08

**Mod. 1250****Rear vibration damper**

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

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.

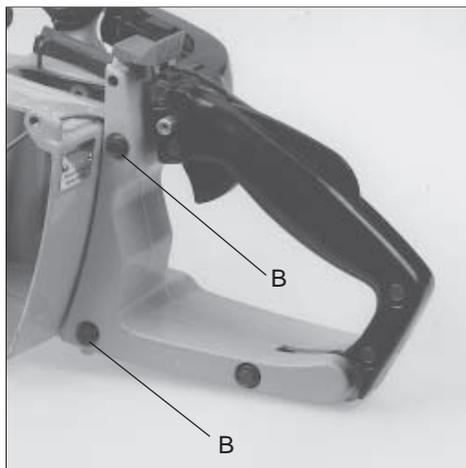
Fit in the reverse order to dismantling.

**Dismantling, assembly****Mod. 650, 700**

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").

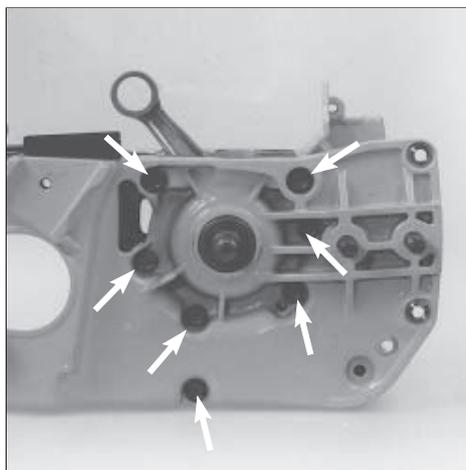
Remove the screws (A).



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



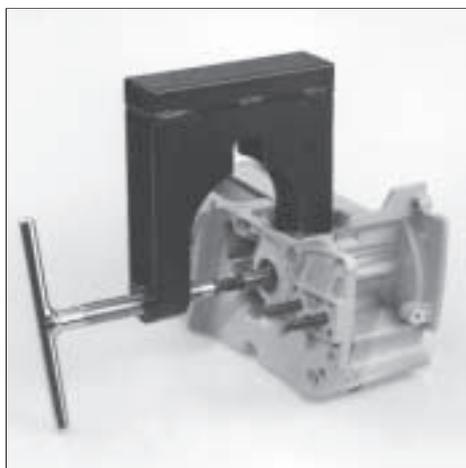
Remove the screws (B).  
Lift off the crankcase.



Remove all crankcase screws.



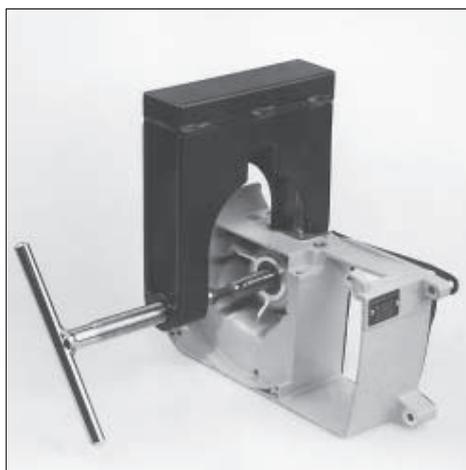
Remove all the screws (7 pcs) which hold the crankcase halves together.



Separate the crankcase halves.



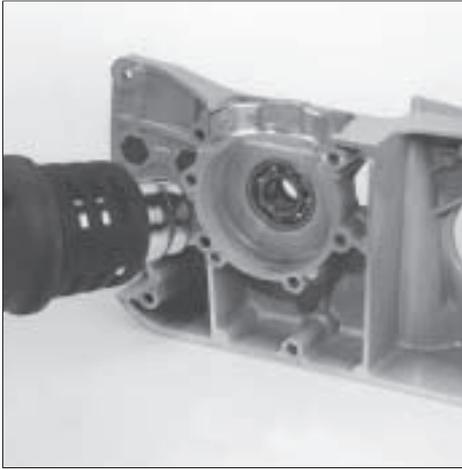
Separate the crankcase halves by means of tool 502 51 61-01.  
Start with the clutch side half.



Press out the crankshaft from the crankcase half.



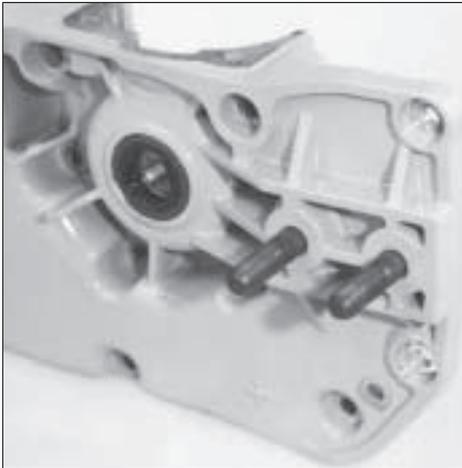
Use the same tool as above and press out the crankshaft from the crankcase half.  
Inspect the crankshaft according to the chapter "Inspection of crankshaft".



Heat up the crankcase halves to 150° – 200° C.

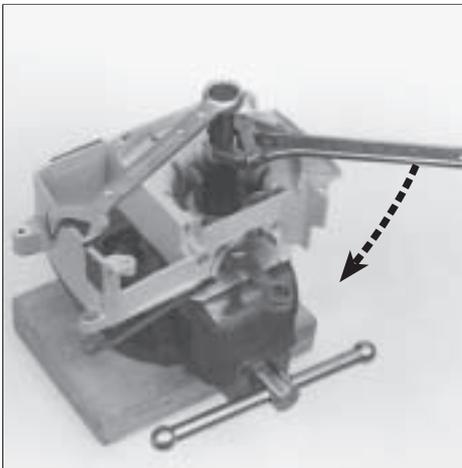
Dismantle the ball bearings.

Press off the seal.



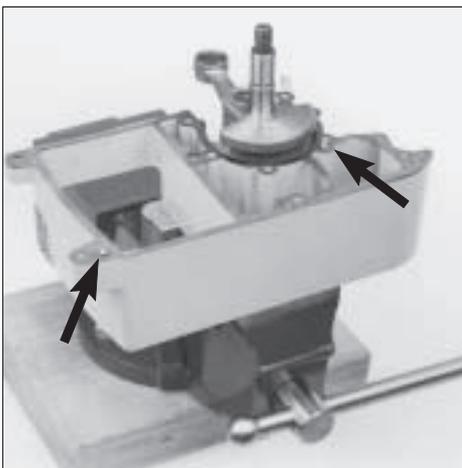
Clean the crankcase halves.

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.

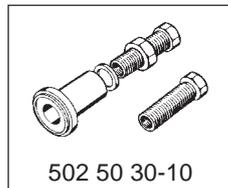
Press them out with a hammer and drift.

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.

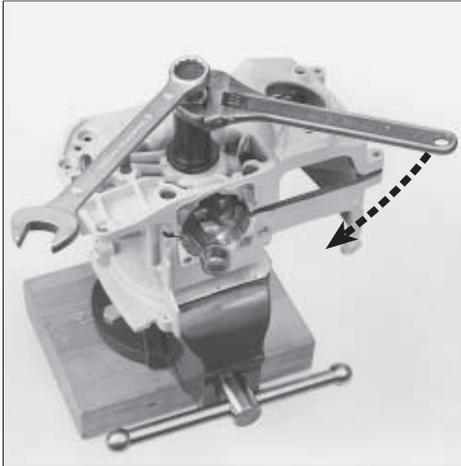
Make sure that the connecting rod is not clenched against the crankcase.



502 50 30-10

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.



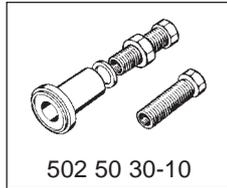
Push the crankcase halves together and tighten the crankcase screws.

Place the clutch side's crankcase half over the crankshaft.

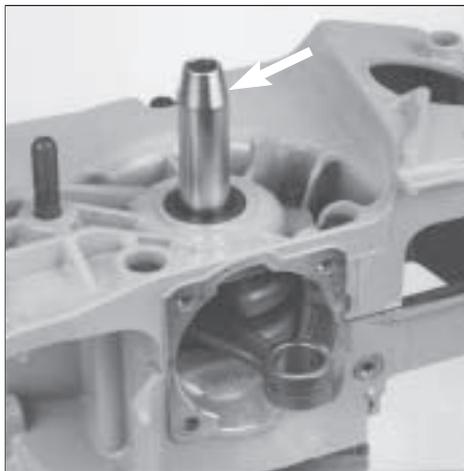
Position the crankcase screws to prevent the gasket from sliding out of position.

Push the crankcase halves together with tool 502 50 30-10.

Tighten all the crankcase screws.



502 50 30-10



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.

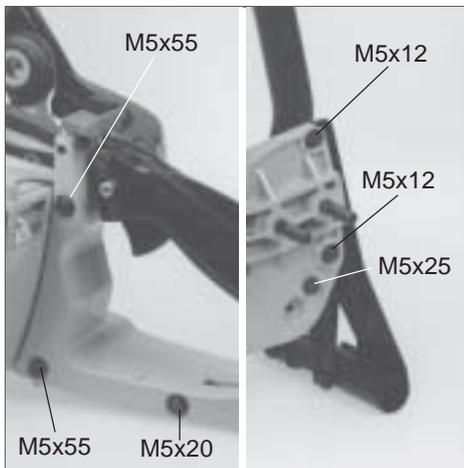
Lubricate the shaft journals with a few drops of oil and fit the seals.

The casing should face outwards.

Use assembly sleeve 505 38 17-23 on the clutch side.



505 38 17-23



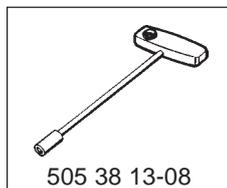
Fit the handle unit. Start with the rear handle. Make sure that the throttle push rod and stop wire are correctly positioned.

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.

Note the different lengths of the screws.



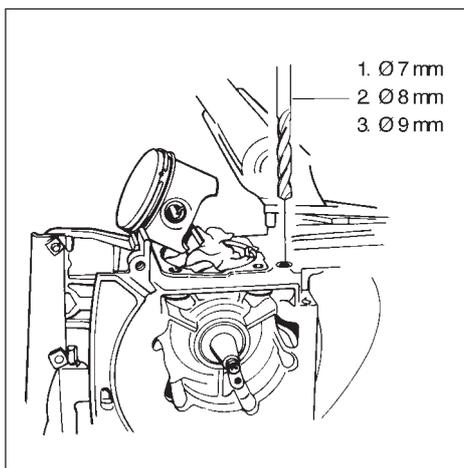
505 38 13-08

## Repair bushing

### Models 650, 700

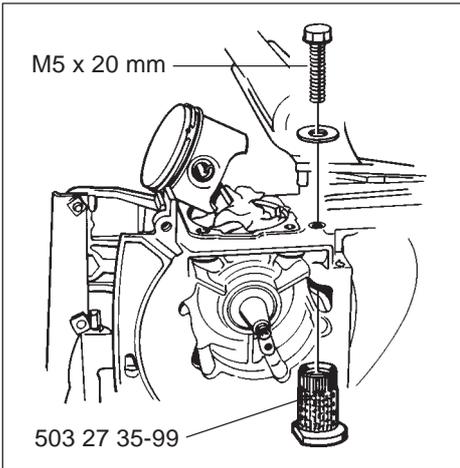
On old model crankcases, the cylinder cover screw is screwed directly into the casting. The threads may be damaged as time passes. Repair bushing No. 503 27 35-99 can then be installed instead of replacing the entire crankcase.

Drill out the hole in 3 stages, using drills of  $\varnothing 7$  mm,  $\varnothing 8$  mm and  $\varnothing 9$  mm.



# 6

## Crankshaft and crankcase



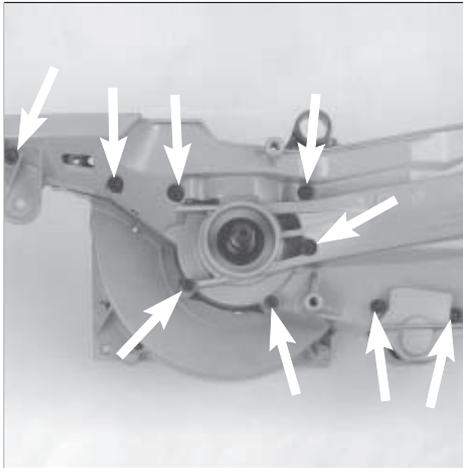
Pull the repair bushing into place with an M5 screw and washer as shown in the illustration.

**NOTE!**

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

**Mod. 950**

Remove all screws which hold the crankcase halves together.

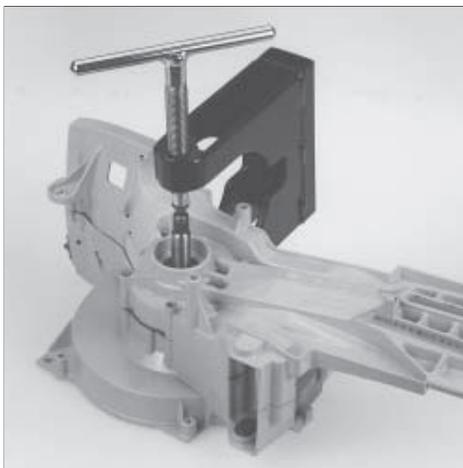


**Mod. 950**

Dismantle all parts so that only the crankcase and crankshaft remain.

Remove all screws (9 items) which hold the two crankcase halves together.

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

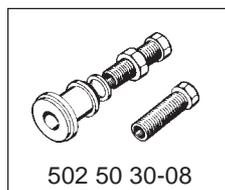


Separate and assemble the crankcase halves in the same way as described for mod. 650, 700.

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

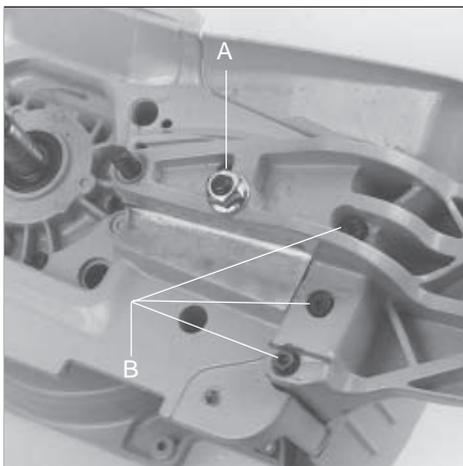
Use tool 502 50 30-08 to assemble.

Use protective sleeve No. 502 50 52-01 when the seal ring on the clutch side is installed.



**Mod. 1250**

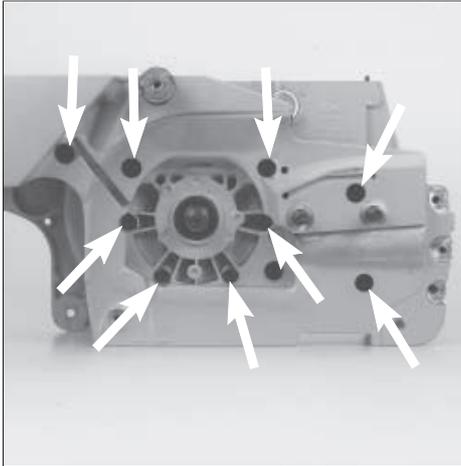
Dismantle the cutter arm.



**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).



Remove all screws which hold the crankcase halves together.

Remove all screws (9 items) which hold the two crankcase halves together.



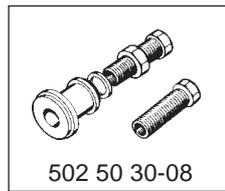
Separate and assemble the crankcase halves in the same way as described for mod. 650, 700.

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").



502 51 61-01



502 50 30-08

**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.

**Inspection of crankshaft**

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.



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.



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/cm<sup>2</sup>) in the crankcase.

Maximum permissible leakage: 20 kPa (0.2 kp/cm<sup>2</sup>) per 30 seconds.

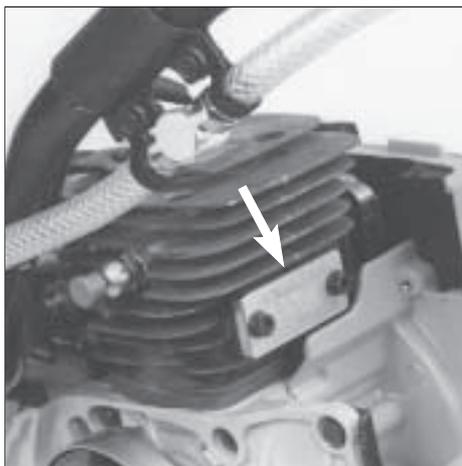


502 50 38-01

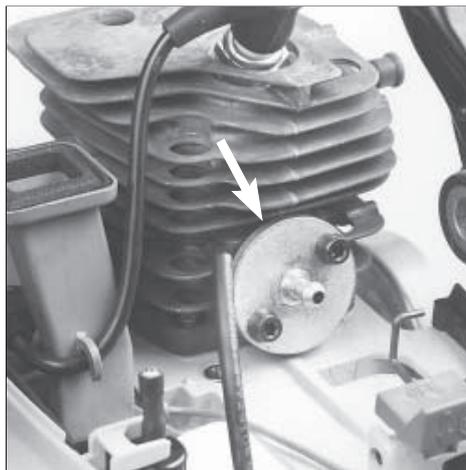
#### Models 650, 700 – Muffler side

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.



502 54 02-01



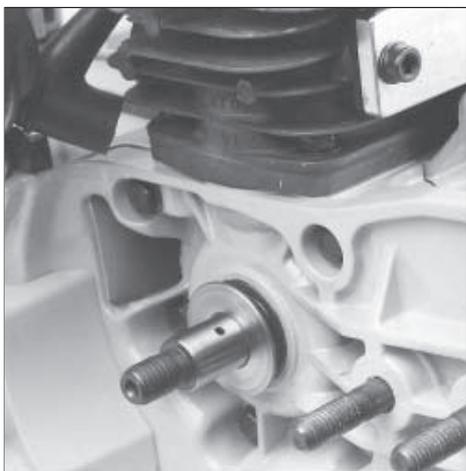
### Models 650, 700 – Carburettor side

Remove the carburettor from the cylinder.

Fix cover washer No. 506 34 45-01 to the cylinder with an M5x15 screw.

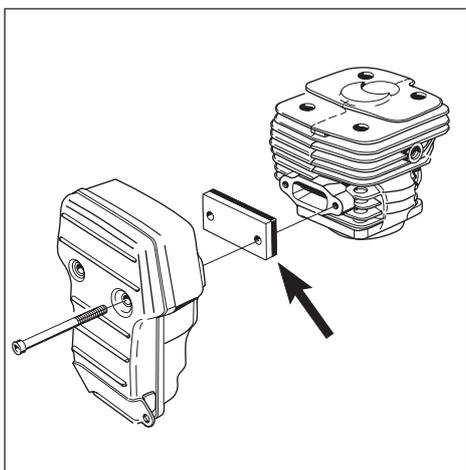


506 34 45-01



### Models 650, 700 – Crankcase lubrication hole

Remove the centrifugal clutch and seal the lubrication hole with tape.



### Model 950 – Muffler side

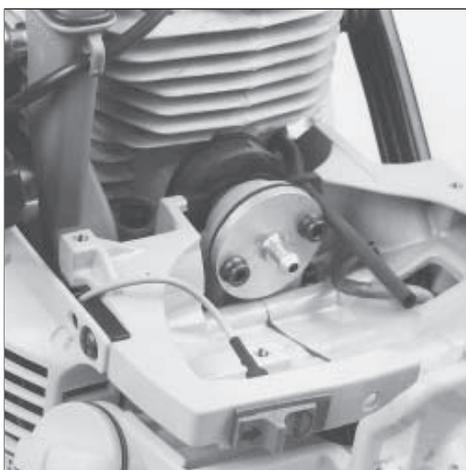
Remove the cutting equipment, silencer and heat shield plate.

Put cover washer No. 502 71 39-01 between the silencer and the cylinder.

Tighten the muffler screws.



502 71 39-01



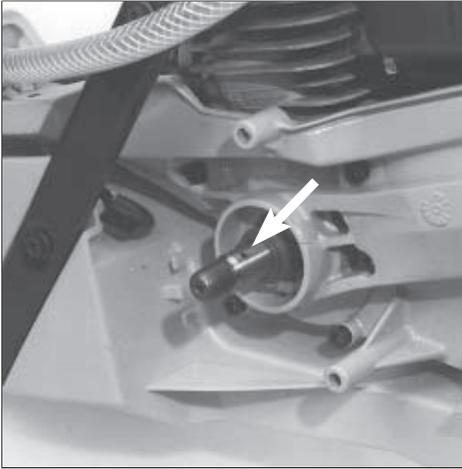
### Model 950 – Carburettor side

Remove the carburettor from the cylinder.

Fix cover washer No. 506 34 45-01 to the inlet pipe with an M5x15 screw.

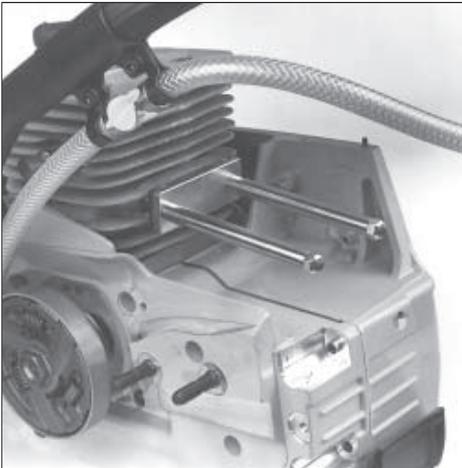


506 34 45-01



### Model 950 – Crankcase lubrication hole

Remove the centrifugal clutch and seal the lubrication hole with tape.

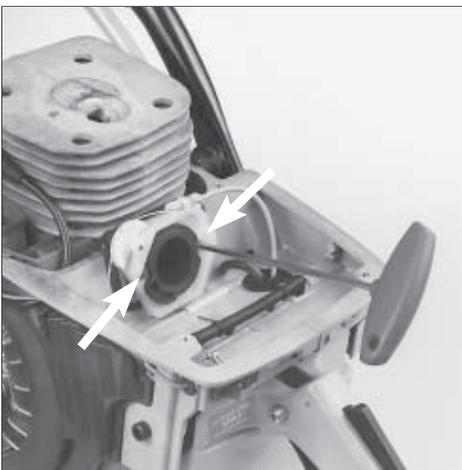
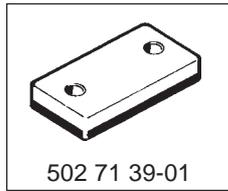


### Model 1250 – Muffler side

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.



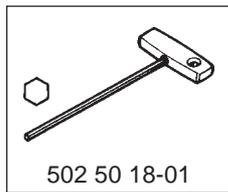
### Model 1250 – Carburettor side

Remove the carburettor.

Remove the spacer from the cylinder.

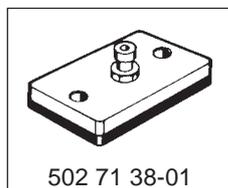
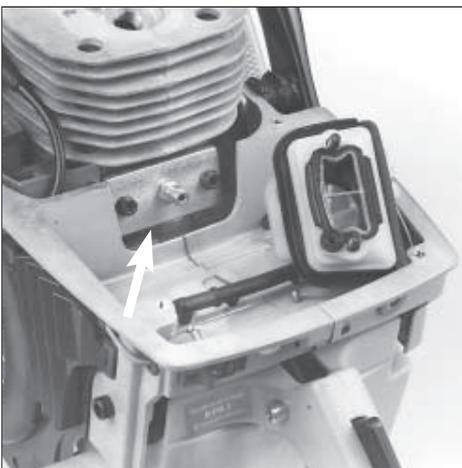
#### NOTE!

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.

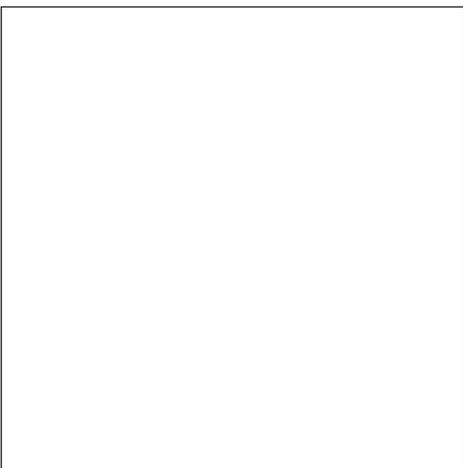
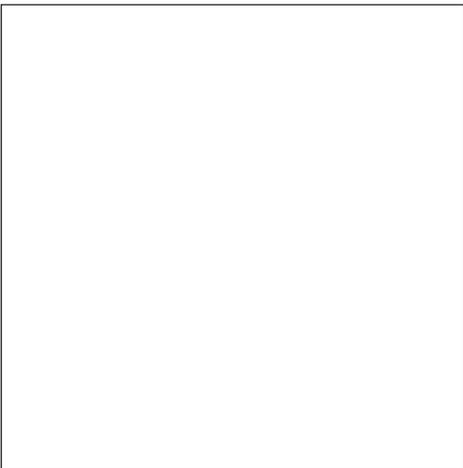
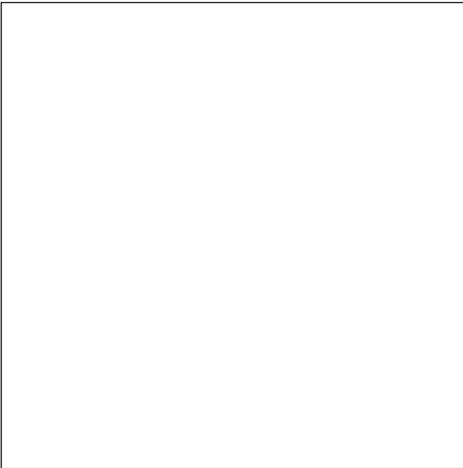
Fix seal washer No. 502 71 38-01 with two M5x15 mm screws.





**Model 1250 – Crankcase lubrication hole**

Remove the centrifugal clutch and seal the lubrication hole in the crankshaft with tape.

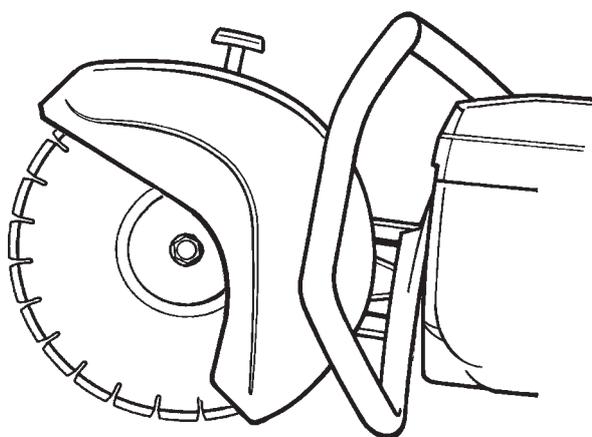




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# Cutting equipment

## 7.



### Contents

Dismantling, mod. 650, 700 .....	78
Assembly, mod. 650, 700 .....	80
Dismantling, mod. 950, 1250 .....	83
Assembly, mod. 950, 1250 .....	83

# 7 Cutting equipment

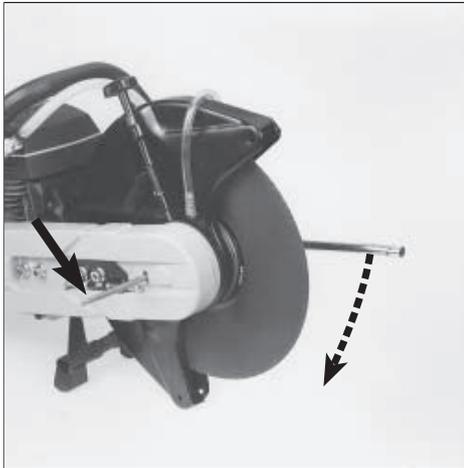
The cutter disc is driven by a V -belt which during its entire service-life is given the correct tension by means of a powerful compression spring, on the assumption that the belt tensioning screw is correctly set.

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.



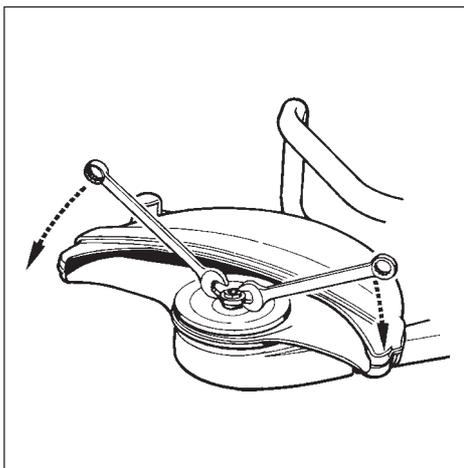
## Dismantling

Mod. 650, 700

Dismantle the cutter disc.



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



### 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.

## Dismantling

Mod. 650, 700

Dismantle the cutter disc.

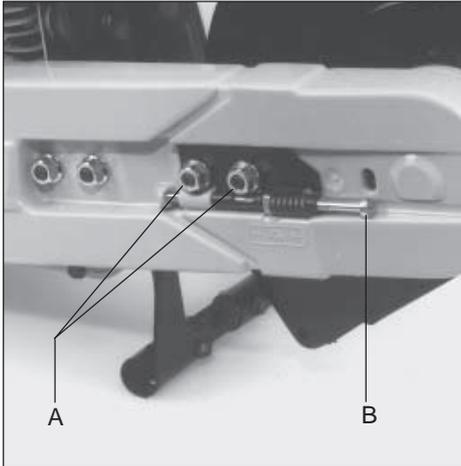
Lock the cutter disc by placing a suitable locking pin in the hole in the cutter arm.

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

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

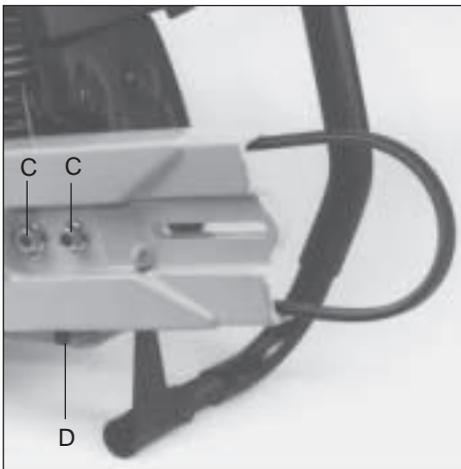
### TIP!

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.



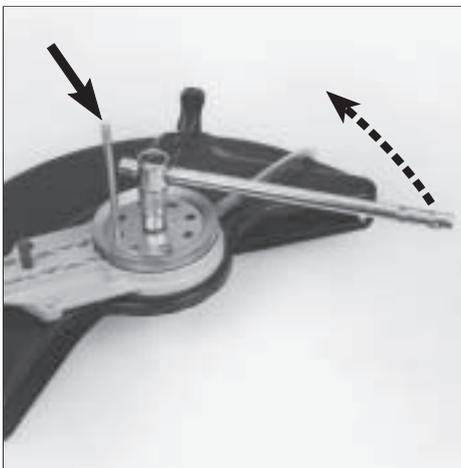
Release the belt tension and dismantle the front belt guard and cutter arm.

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 clutch cover and drive belt.

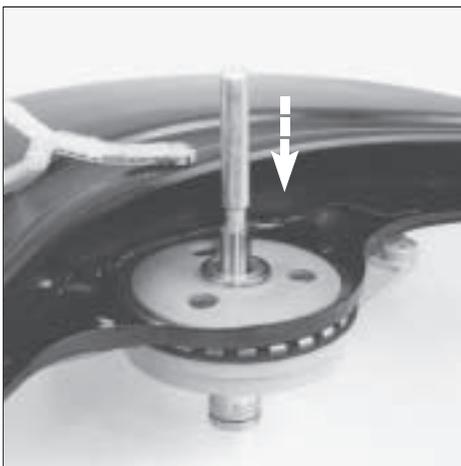
Remove the nuts (C) and screw (D).  
Lift off clutch cover and drivebelt.



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!**

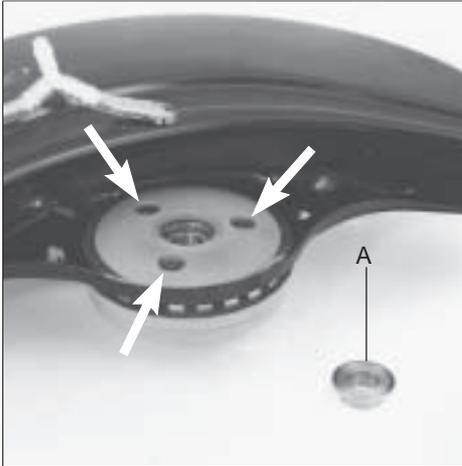
If only the arbor bush and flange are to be dismantled this can be done by levering with two screw drivers placed between the flange and guard.

Place 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.

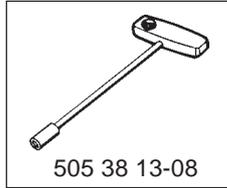
**NOTE!**

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.



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

Lift the protective cover away.



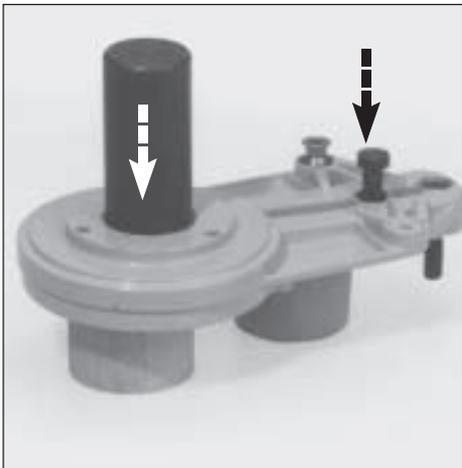
Dismantle the cutter arm's ball bearings.



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

Lift the protective cover away.

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.

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.



### Assembly

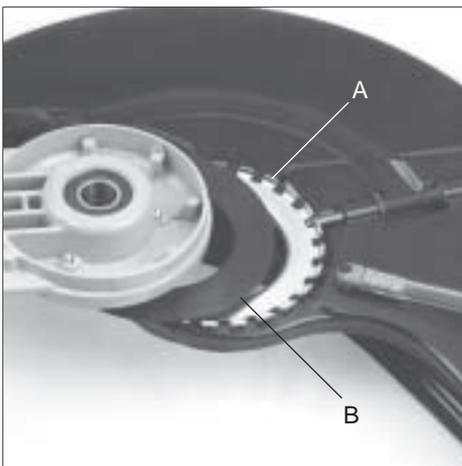
Mod. 650, 700

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.

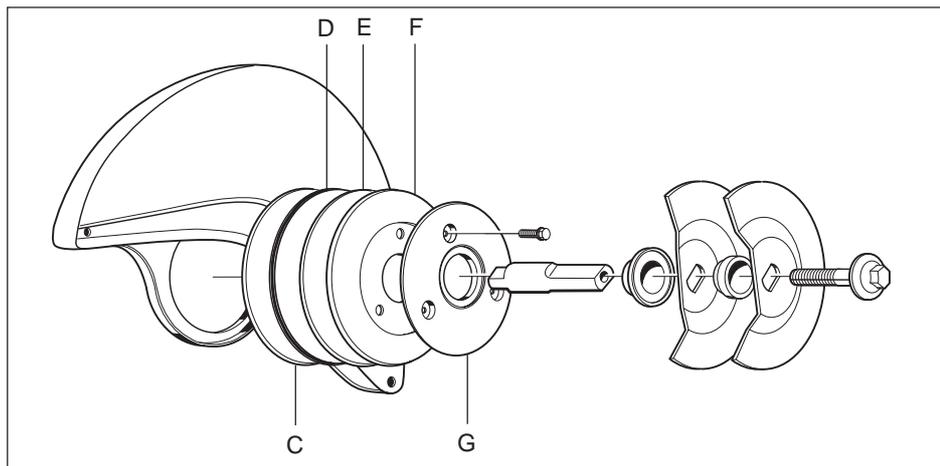
Heat the cutter arm with a hot air gun to approx. 150°C and fit a new ball bearing. Do not forget the spacer ring between the ball bearings and make sure that they are pressed down well against the shoulder.

If necessary fit new retaining screws while the cutter arm is hot.



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

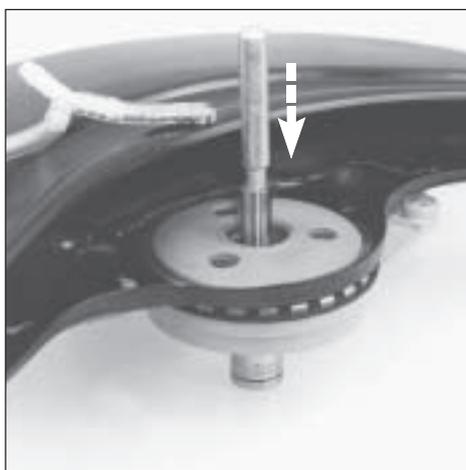
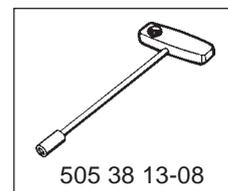
Apply a little grease on the indicating washer (A) and put in on the guard. Thereafter place the thick rubber washer (B) on the indicating washer and then put on the guard.



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.

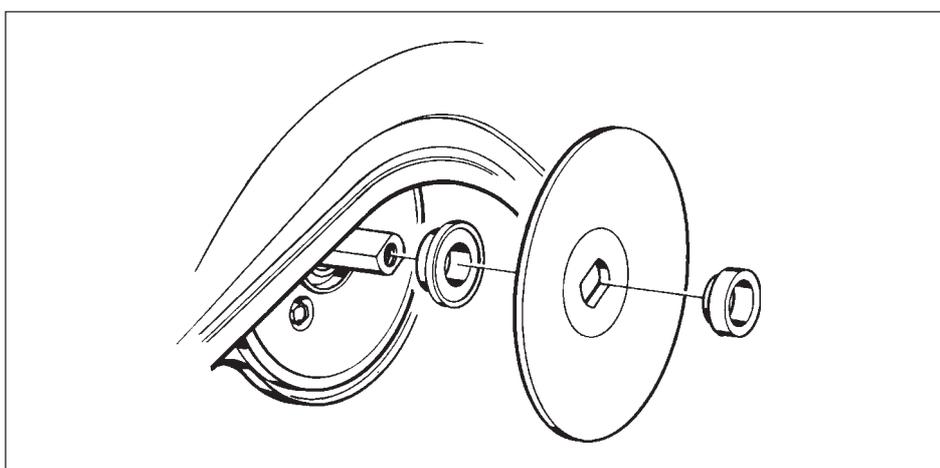
Tighten the screw.

Drive the shaft 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.



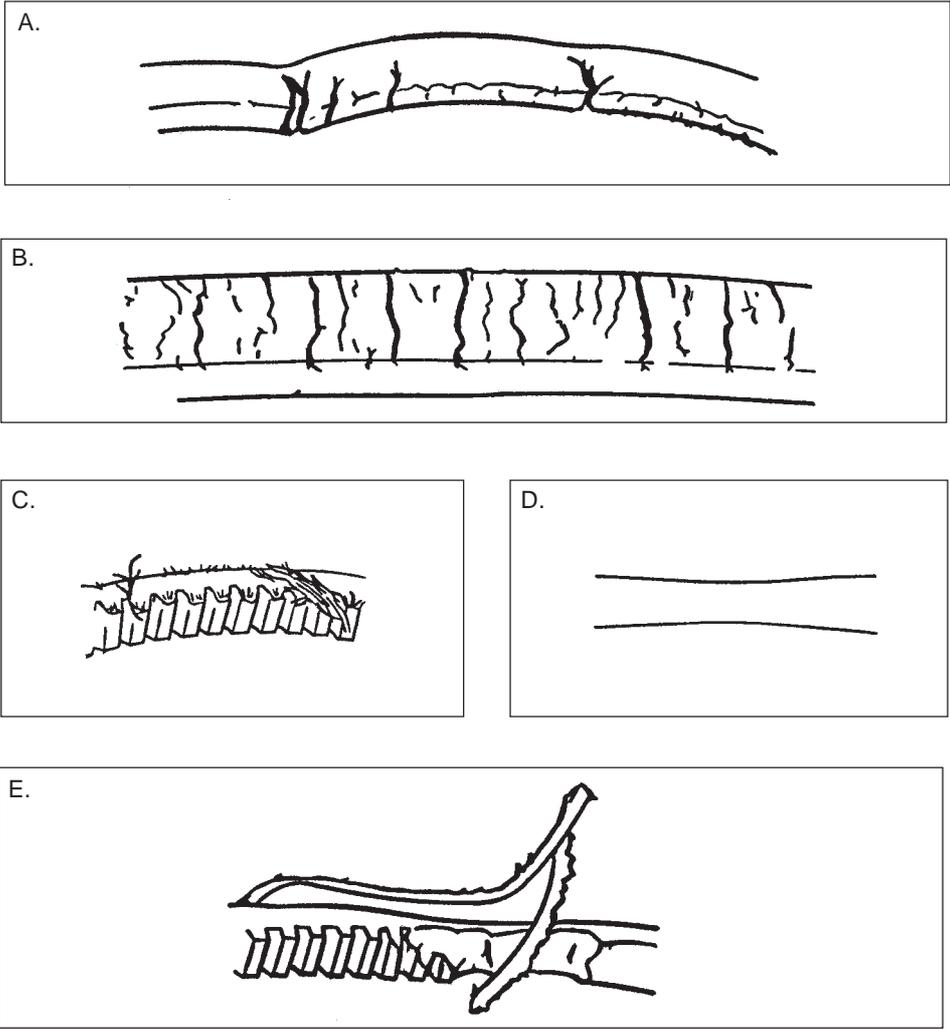
Fit the spacer sleeves and support washer as shown in the illustration.

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).



# 7 Cutting equipment



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

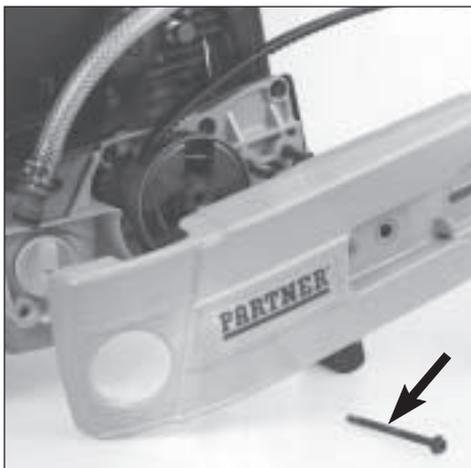
Fig. A. Normal condition of a belt after prolonged use.

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.

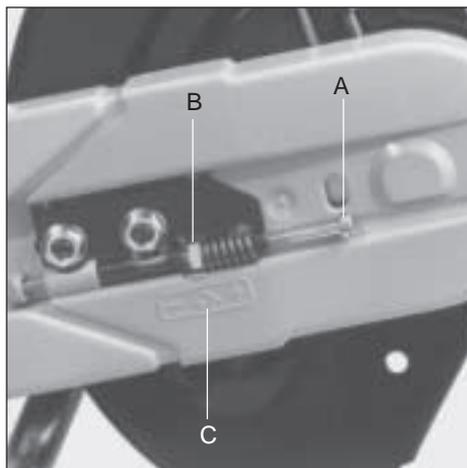
Fig. E. Worn off strips of belt, worn reinforcement, resulting from poor contact, oil on the pulley, or incorrect belt quality. Use Partner Genuine Belts.



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

Place a new drive belt round the clutch drum.

Ffit 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.

Lift the cutter arm in position. Place the front guard and belt tensioning device in position.

Tighten the nuts loosely.

Tension the drive belt by screwing in the tensioning screw (A) far enough so that the square nut (B) comes opposite the arrow (C).

Rotate the cutting disc at the same time as the drive belt is tensioned.

Thereafter tighten the nuts.

**TIP!**

Install a diamond cutting disc 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, and pulley in the same way as for mod. 650, 700.

**TIP!**

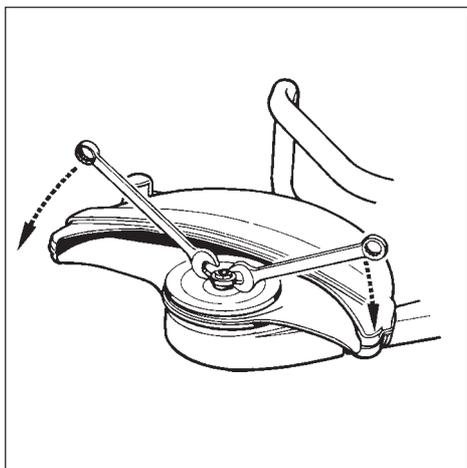
If only the spacer sleeve and the inner support washer are to be dismantled this can be done by bending with two spanners placed between the spacer sleeve and the support washer.

**Assembly**

**Mod. 950, 1250**

Follow the instructions for mod. 650, and 700.

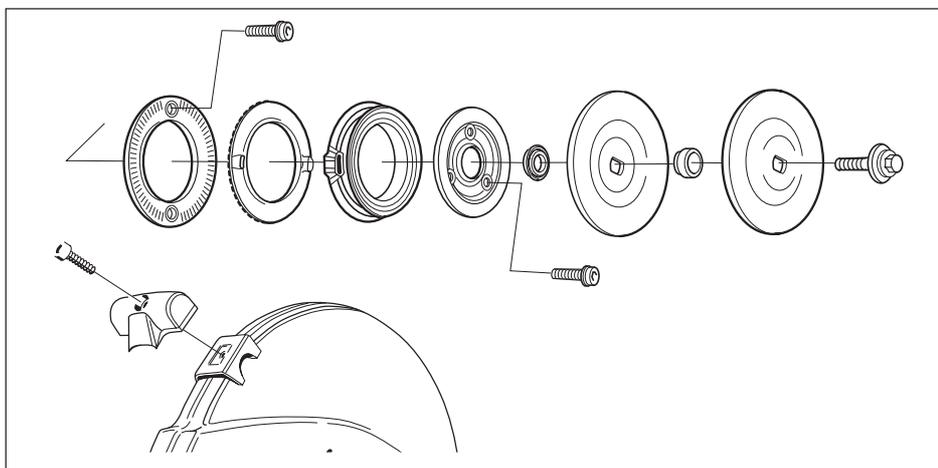
Note that the attachment of the burst protection to the cutter arm has a different design to the one shown in the illustration.



**Dismantling**

**Mod. 950, 1250**

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



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

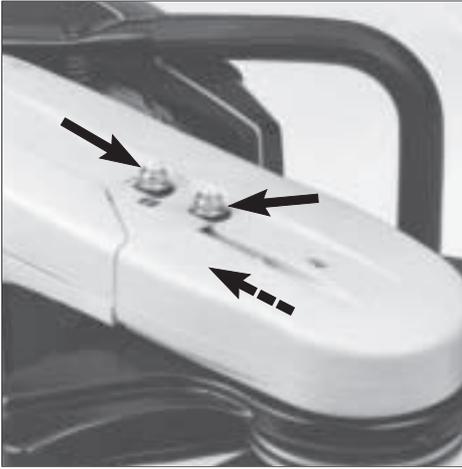
Fit the drive belt and the rear belt cover in the same way as for mod. 650, and 700.

Tension the belt correctly and tighten the screws which hold the front belt cover.

# 7

## Cutting equipment

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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.













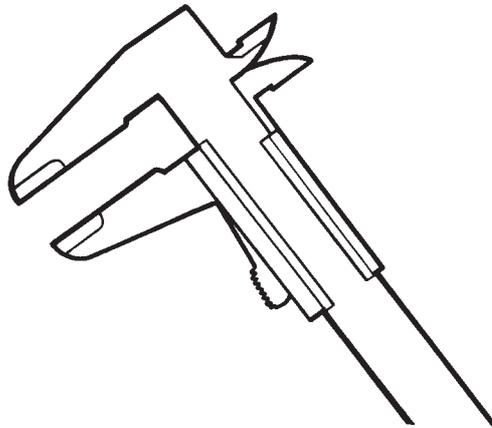




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# Technical data

## 9.



### Contents

Technical data .....	94
Tightening torque .....	94

Specification	K650	K700	K950	K1250
Displacement, cm <sup>3</sup>	71	71	94	119
Cylinder diameter, mm	50	50	56	60
Stroke, mm	36	36	38	42
Compression ratio	9:1	9:1	10.0:1	10.0:1
Power, kW	3.5	3.5	4.5	5.8
Max power, rpm	10 000	9 400	9 600	9 600
Idling speed, rpm	2 500	2 500	2 500	2 500
Clutch engagement speed, rpm	3 200	3 200	3 200	3 200
Ignition system, type	CD	CD	CD	CD
Ignition system, manufacture	EM	EM	EM	EM
Plug, Champion	RCJ 7Y	RCJ 7Y	RCJ 7Y	RCJ 7Y
Plug, NGK	BPMR 7A	BPMR 7A	BPMR 7A	BPMR 7A
Electrode gap, mm	0,5	0,5	0,5	0,5
Distance flywheel/ignition module, mm	0.3 – 0.5	0.3 – 0.5	0.3 – 0.5	0.3 – 0.5
Carburettor, manufacture	Tillotson	Tillotson	Tillotson	Walbro
Carburettor, type	HS175F	HS175F	HS282A	WG9
Carburettor setting, L	1 1/4	1 1/4	1 1/4	1 1/4
Carburettor setting, H	7/8	7/8	3/4	–
Fuel tank, litres	0.7	0.7	1.0	1.25
Weight, kg	9.4/300 mm	10.0/350 mm	9.9/300 mm	13.7/350 mm
Sound level, dBA	101	101	103	103
Disc diameter, mm	300	350	300/350/400	350/400
Spindle speed, rpm	5 100	4 800	5400/5400/4700	5400/4700

Tightening torque	Nm	in.lb
Crankcase screws	10	85
Cylinder screws	10	85
Plug	20	170
Ignition module	3	25
Flywheel	20	170
Starter device	7	65
Silencer	10	85
Carburettor	5	45
Front handle	10	85
Rear handle	10	85
Clutch	50	435
Cutting arm cover	10	85
Decompression valve	12	96

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