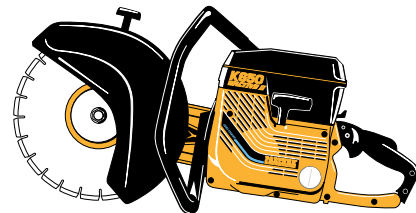


PARTNER



Workshop Manual

PARTNER®

Workshop Manual

Petrol power cutters

Contents

General recommendations	2
1. Starter unit	3
2. Ignition system	11
3. Fuel system	19
4. Centrifugal clutch	39
5. Cylinder and piston	49
6. Crankshaft and crankcase	61
7. Cutting equipment	75
8. Tools	83
9. Technical data	91

This manual covers models:

K 500/540

K 650/700

K 850/1200

PARTNER®

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.



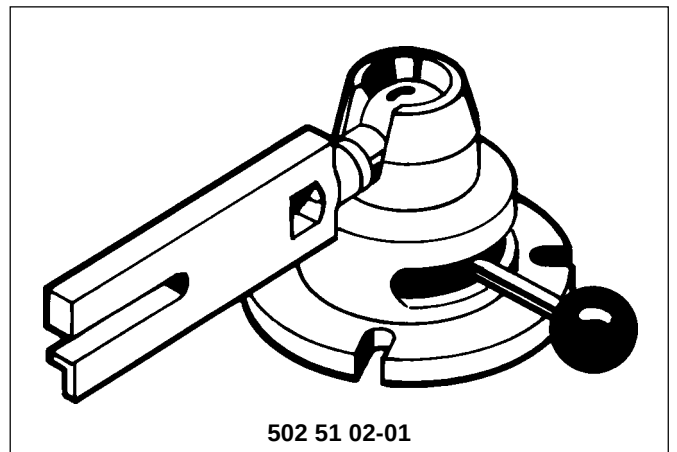
WARNING

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

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

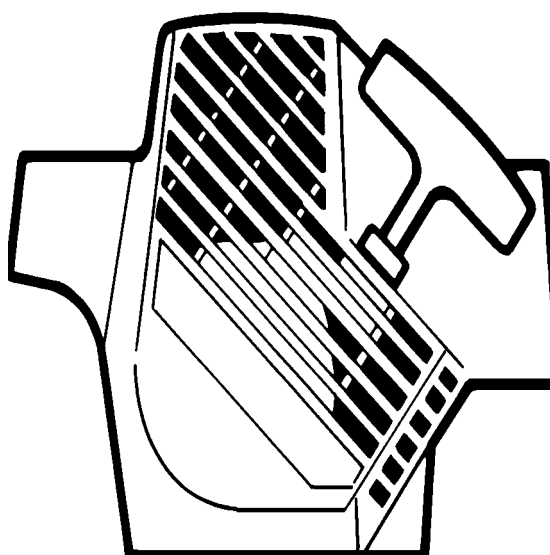
Make sure that all sealing surfaces are clean and free from the residue of old gaskets. Use a tool which will not damage the sealing surface when cleaning it. Scratches and irregularities are removed with a fine, float cut file.

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.

Starter unit

1.



Contents

Dismantling of the starter unit	4
Replacing the starter cord without dismantling the pulley ...	5
Dismantling	6
Assembly	7



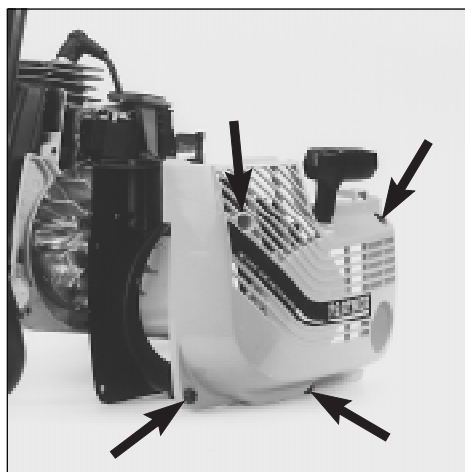
WARNING!

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

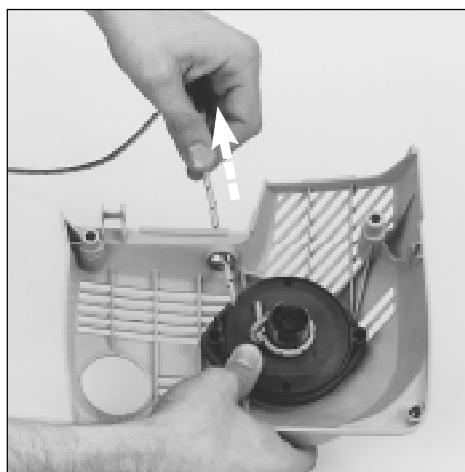


Dismantling of the starter unit

Dismantle the air filter cover, intermediate wall and cylinder cover (mod. 650/700).



Dismantle the starter unit from the engine body.



Release the spring tension.

Dismantling of the starter unit

Untighten the screws for the air filter cover (mod. 650/700).

Lift off the cover and intermediate wall (mod. 650/700).

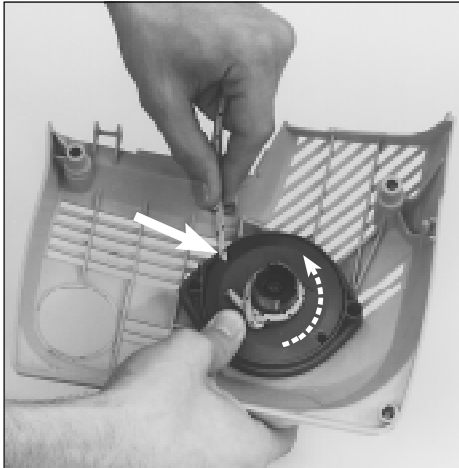
Release the screw (A) and lift off the cylinder cover (mod. 650/700).

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.

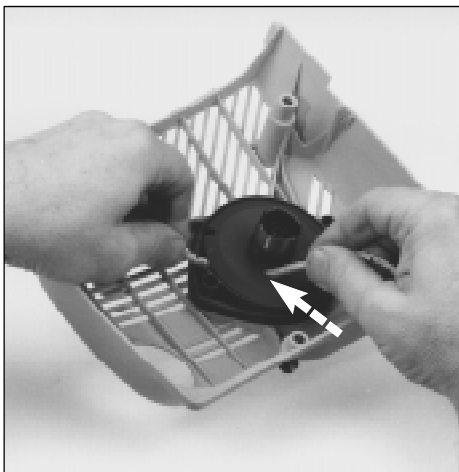
NOTE!

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.



Replacing the starter cord without dismantling the pulley

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

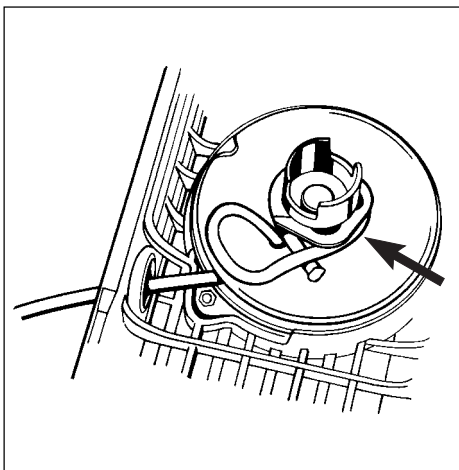
Insert the new starter rope through the hole in the pulley.

Replacing the starter cord without dismantling the pulley

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.



Mod. 500, 540, 850, 1200

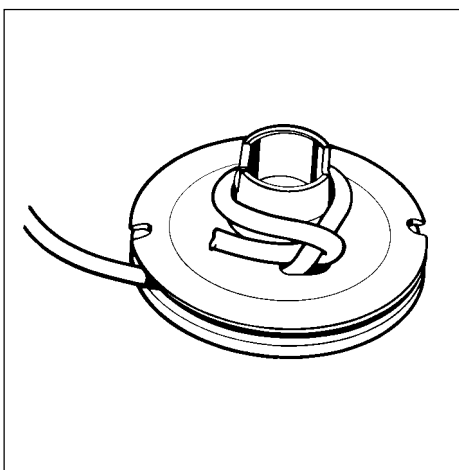
Anchor the rope round the hub on the pulley

Mod. 500, 540, 850, 1200

Anchor the rope round the hub on the pulley as shown in the illustration.

Make sure that the rope lies under the lock spring.

Pull the rope tight and make sure that the free end is as short as possible.



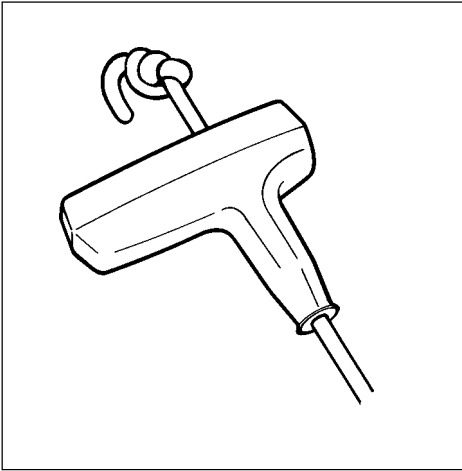
Mod. 650, 700

Anchor the rope round the hub on the pulley

Mod. 650, 700

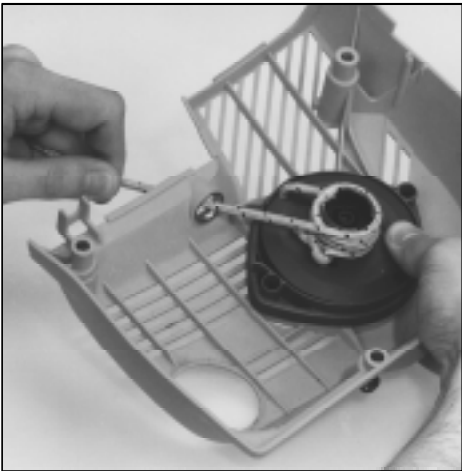
Anchor the rope round the hub on the pulley as shown in the illustration.

Pull the rope tight and make sure that the free end is as short as possible.



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.

Repeat the spring tensioning.

Check that the pulley can be turned at least an additional half turn with the rope fully pulled out.

Tension the return spring as follows:

1. Lift up the rope in one of the recesses in the pulley and wind it 3 turns clockwise round the pulley hub.
2. Pull out the rope fully and hold the pulley with your thumb.
3. Lift up the rope again in one of the recesses in the pulley and wind the rope clockwise 4 turns (mod. 500, 540, 3 turns) round the pulley hub.
4. Pull out the rope fully and check that the pulley can be turned at least an additional half turn.



Dismantling

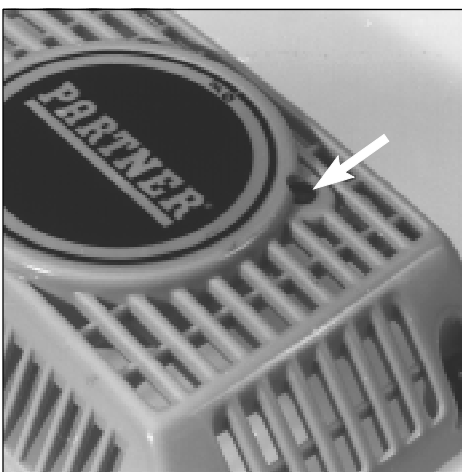
Mod. 500, 540, 850, 1200

Remove the E-clip and lift off the pulley.

Dismantling

Mod. 500, 540, 850, 1200

Remove the lock spring holding the pulley on the shaft journal by means of a screw driver.



Remove the screw holding the spring cassette and lift off the 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.

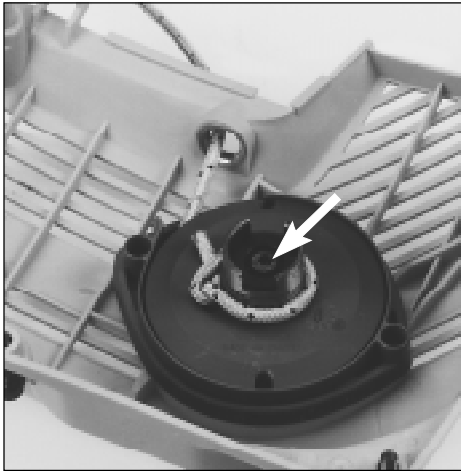
Remove the screw holding the spring cassette from the outside of the starter unit.

Lift off the spring cassette and make sure that the nut in the recesses is not lost.



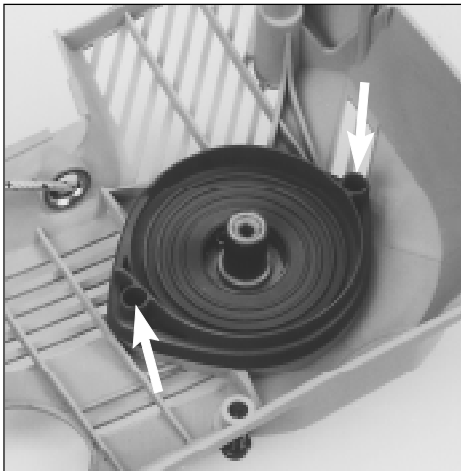
WARNING!

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. 650, 700

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

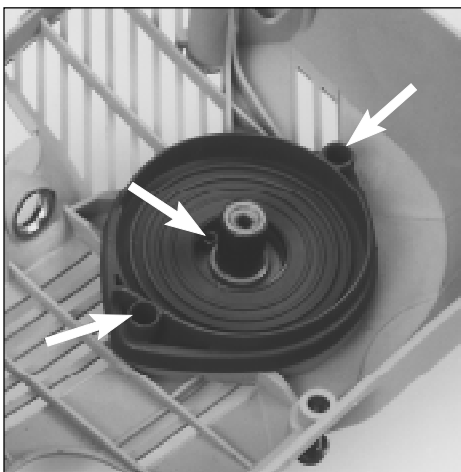


Dismantle the spring cassette.



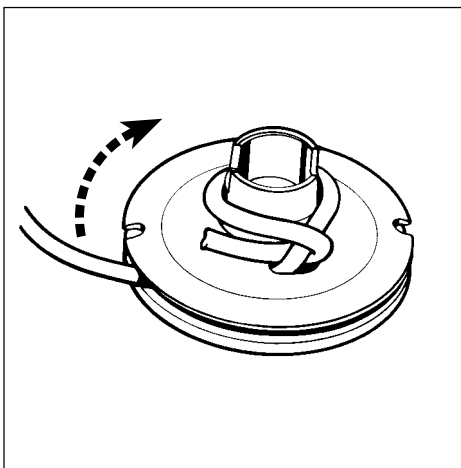
WARNING!

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.



Assembly

Clean the starter unit components and fit the spring cassette.



Anchor the cord in the pulley and wind it 4 turns *clockwise* round the pulley.
Push the pulley on the shaft stem.

Mod. 650, 700

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.

Assembly

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.

Wind the cord 4 turns *clockwise* round the pulley and push it down on the shaft journal in the starter unit housing.

Make sure that the return spring grips in the pulley.

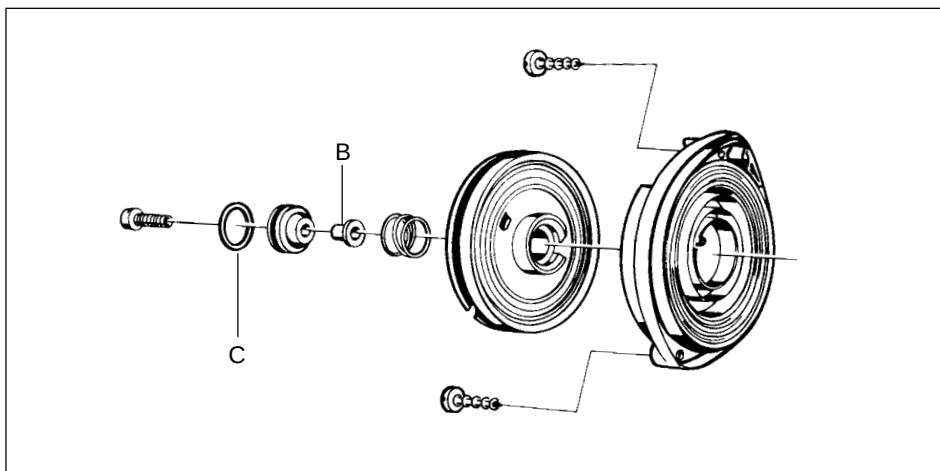
Lubricate the starter housing stem and pulley with a few drops of oil.



Mod. 500, 540, 850, 1200
Fit the E-clip.

Mod. 500, 540, 850, 1200

Fit the pulley's E-clip and make sure that the starter cord lies under the clip and that the free end of the knot is as short as possible.



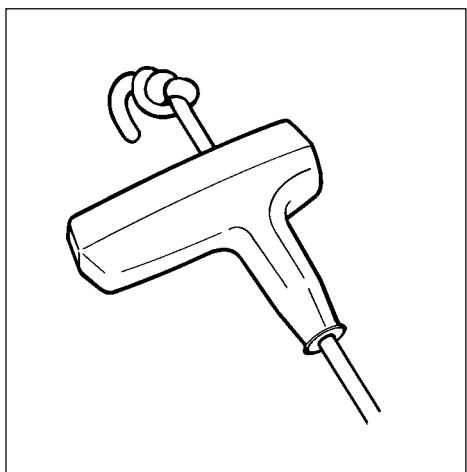
Mod. 650, 700

Fit the other parts in the pulley hub.

NOTE!

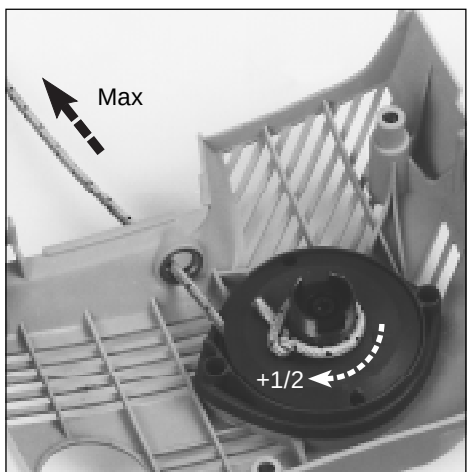
Turn the metal sleeve (B) correctly. Check that the O-ring (C) is undamaged. Lubricate it with a few drops of oil.

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



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.

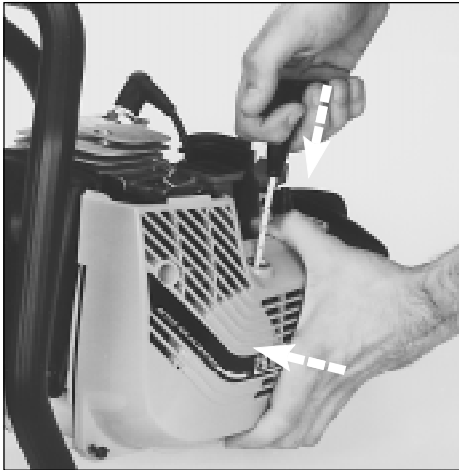


Lift up the cord in the first recess which passes the cord guide and turn the pulley 3 turns *clockwise*.

Check the spring tension.

Lift up the cord in the first recess which passes the cord guide and turn the pulley 3 turns *clockwise*.

Check the spring tension. With a fully withdrawn cord the pulley should be able to be turned *at least an additional half turn*.



Fit the starter unit and other parts in the reverse order to dismantling.

Fit the air conductor and 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.

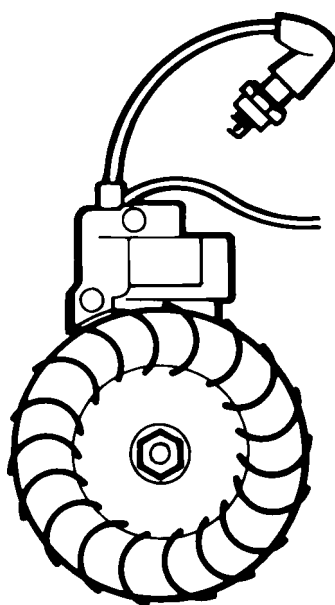
Tighten the screws.

Fit the cylinder cover, intermediate wall and air filter cover (mod. 650/700).

Make sure that the cover seals are undamaged and correctly positioned.

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	18

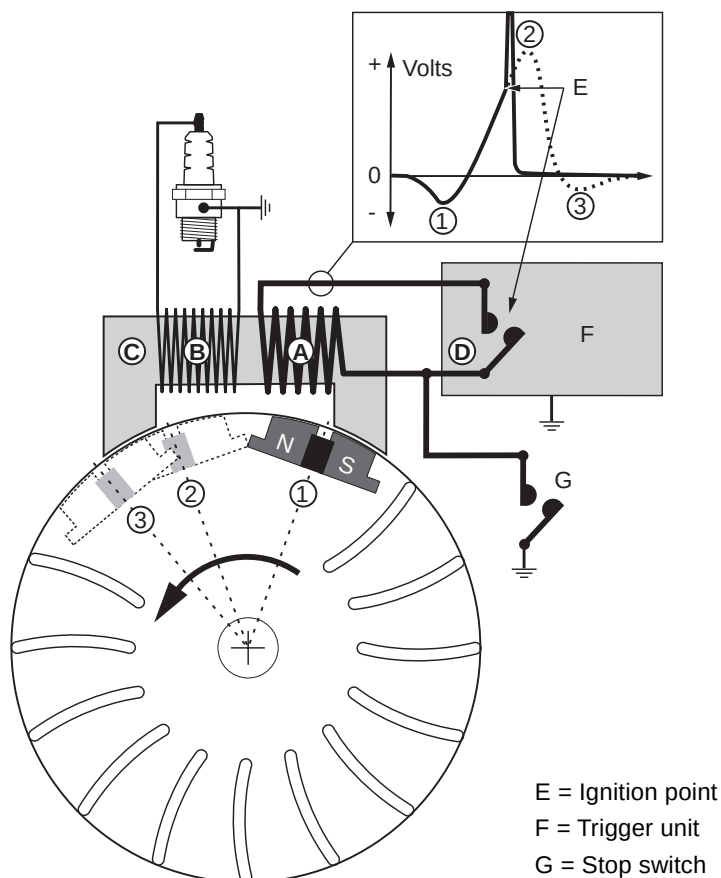
The engine is fitted with an electronic ignition system consisting of flywheel, ignition coil and trigger unit.

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!



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.

Model K700Active II has a built-in over-speeding protection in the electronic unit which limits the engine speed to approx. 9 750 rpm.

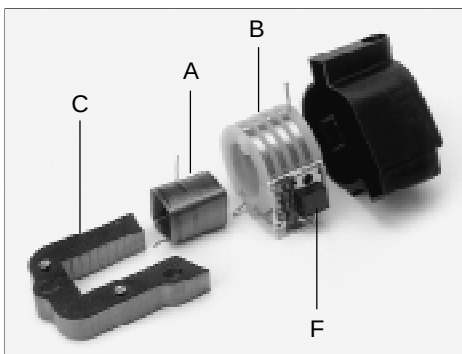
The ignition module components are completely enclosed to protect them from moisture and dirt.

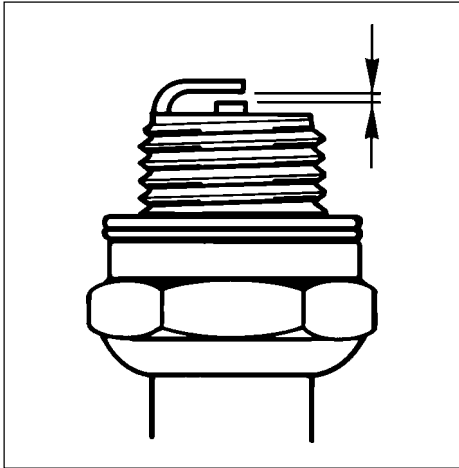
In the event of a failure in the ignition module it must be replaced with a new one.

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.

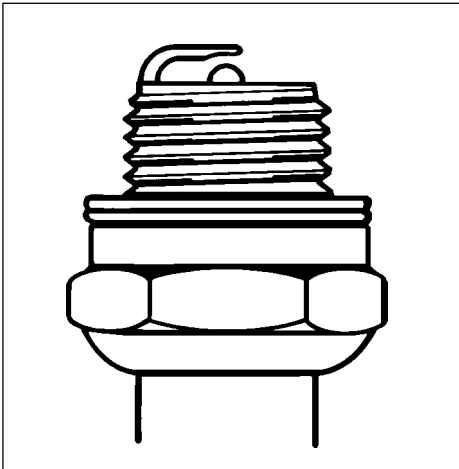
- A = Primary coil
- B = Secondary coil
- C = Iron core
- F = Trigger unit



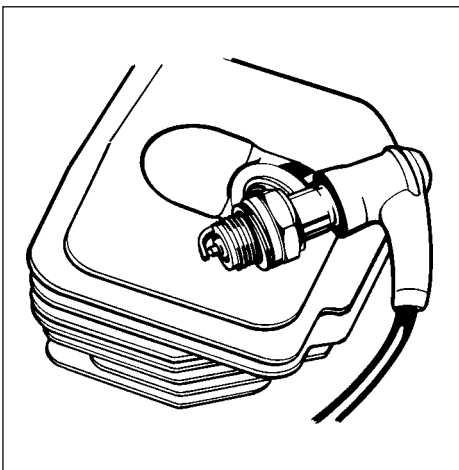


Checking ignition spark

Clean the electrodes and check the electrode gap.

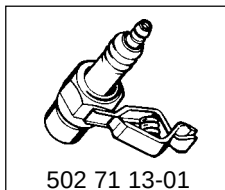


If the electrodes are worn down more than 50% the plug should be replaced.



Check if there is a spark by pulling the engine over with the starter.

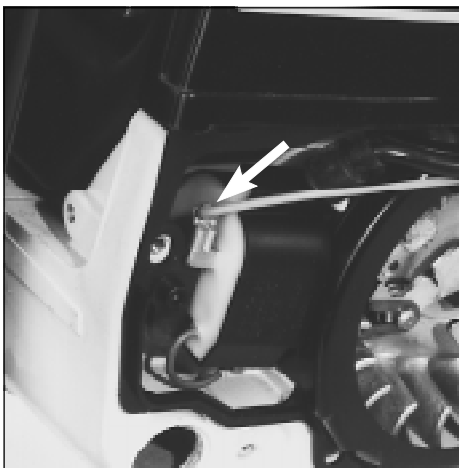
Try with test plug No. 502 71 13-01 if there is no spark.



Try with a new plug.

If there is no spark disconnect the stop switch wire.

If necessary replace the switch.



Checking ignition spark

Dismantle the plug and clean it from soot by means of a wire brush.

Check the electrode gap. It should be 0.5 mm (.020 in).

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

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

If the gap is too wide this results in strain on the ignition module and the risk of short circuiting.

Check if there is a spark by pulling the engine over with the starter.

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

Make sure that the stop switch is in the start position.

There should be a spark between the electrodes.

If there is no spark try with test plug No. 502 71 13-01!

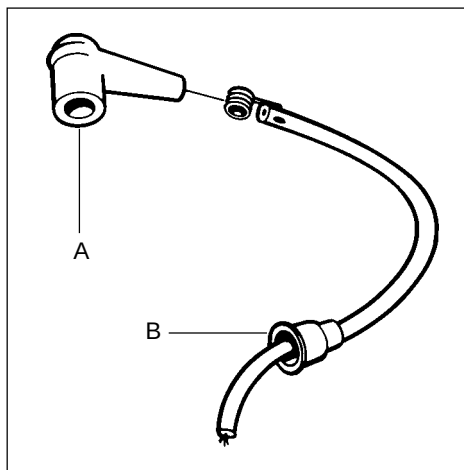
If there is a spark the fault lies in the plug. Replace the plug.

Try with a new plug.

If there is still no spark remove the short circuiting cable from either the ignition module or the stop switch.

If there is now a spark the fault lies in the stop switch.

Replace the switch.

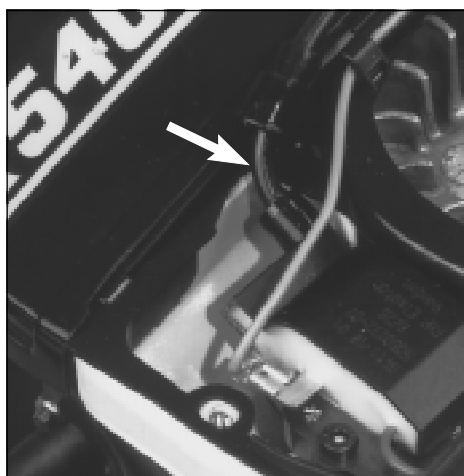


Check the ignition cable's connections.

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.



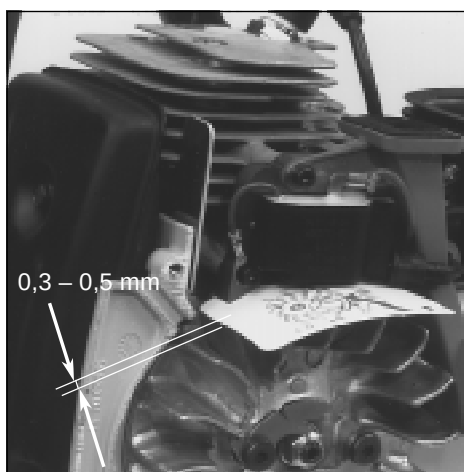
Check the other cables and connections.

Still no spark?

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

Tips!

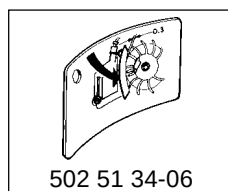
Use an Ohm meter to check if there is a cable break, e.g. as a result of pinching.



Check the air gap.

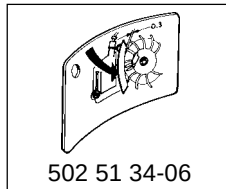
Still no spark?

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.





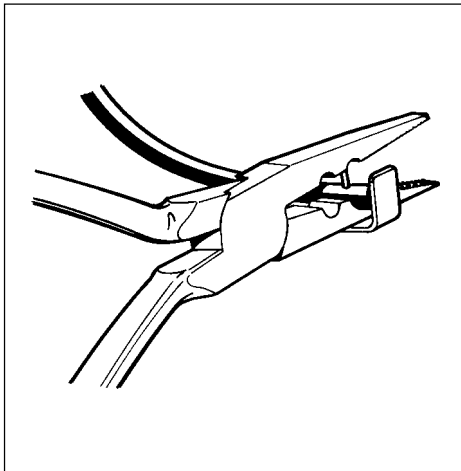
Adjust the air gap.



Adjust where appropriate the air gap to the correct distance.

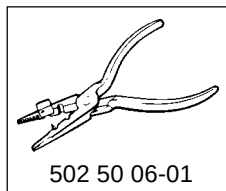
- Release the screws holding the ignition module.
- Position the feeler gauge on the magnets of the flywheel and press the ignition module against flywheel.
- Tighten the screws and check the air gap again.

If there is still no spark then the ignition system should be replaced.



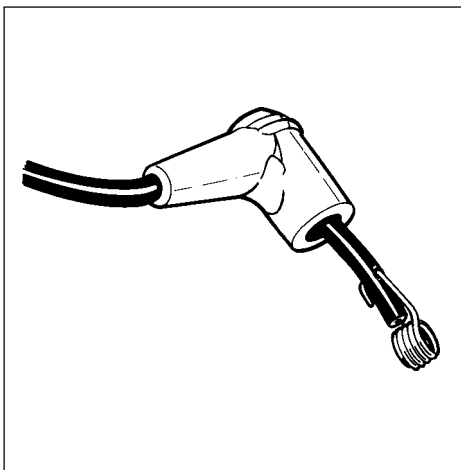
Replacing spark plug protection

1. Take the ignition cable through the plug protection.
2. Make a hole in the ignition cable for the contact spiral.



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 cable (approx. 5 mm, 0.2") and make a hole in the cable for the contact spiral by means of pliers No. 502 50 06-01.

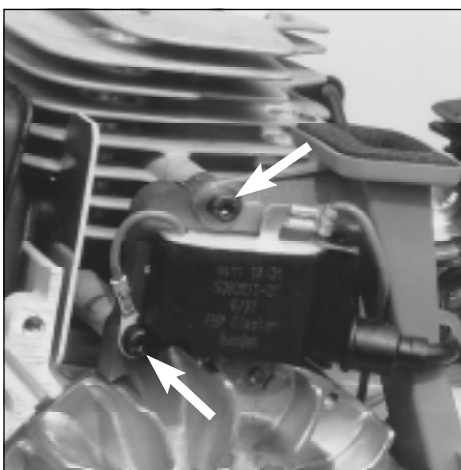


3. Fit the contact spiral on the ignition cable.

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

Dismantle the cylinder cover, plug, starter unit, and air conductor.

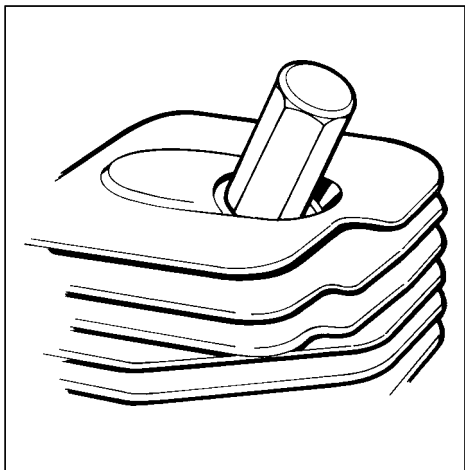
Dismantle the ignition module and release the other cable connections.

Dismantling

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.

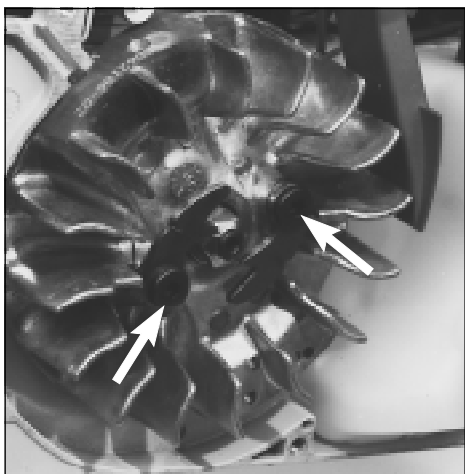


Fit piston stop No. 504 91 06-05 in the spark plug hole.

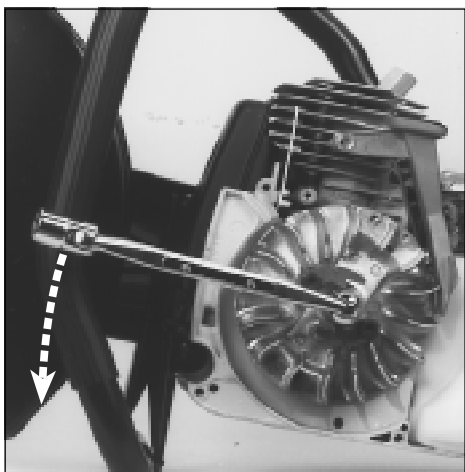


Mod. 650, 700, 850, 1200

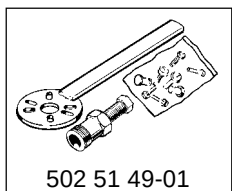
Dismantle the starter pawls.



Remove the flywheel nut.



Pull off the flywheel.



Fit piston stop No. 504 91 06-05 in the sparking plug hole.

Make sure that the piston stop is screwed down to the bottom.

Mod. 650, 700, 850, 1200

Dismantle the starter pawls by releasing the screws. Make sure the small washer which lies next to the flywheel is not lost.

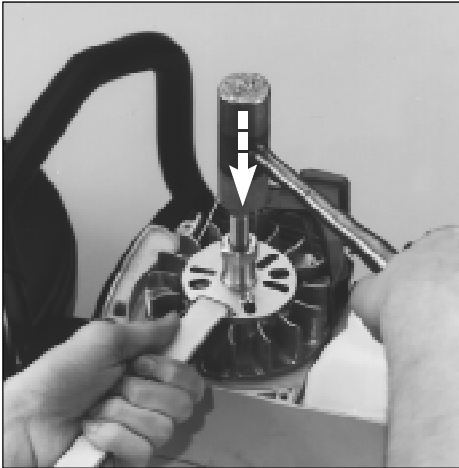
Mod. 1200 has loose bearing sleeves for the starter pawls.

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

Remove the flywheel by means of flywheel puller 502 51 49-01, 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!

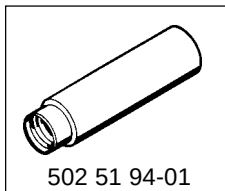
Tap the flywheel puller screw sharply with a hammer if the flywheel sits tight.



Mod. 500, 540

Remove the flywheel nut.

Dismantle the flywheel by means of a hammer and pressure sleeve.



502 51 94-01



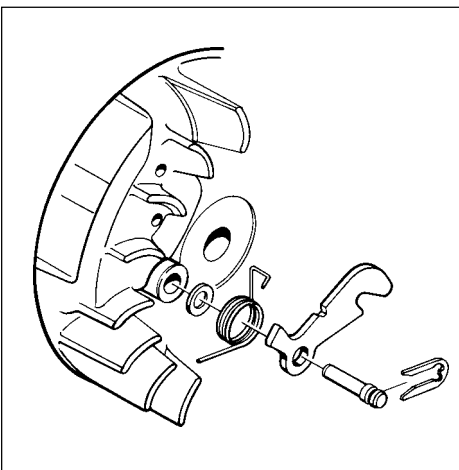
Starter pawls

Check the starter pawls for wear and damage.

Replace damaged parts.

Mod. 500, 540

Press off the spring clip and lift off pawl and spring.



The pawl's bearing journal can be replaced.

Heat the flywheel and pull out the bearing journal with a pair of pliers.

Do not forget the steel washer when the new journal is pressed into the flywheel.

Fit the spring, pawl and spring clip.

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.

Mod. 500, 540

Remove the flywheel nut in the same way as described above.

Screw down pressure sleeve 502 51 94-01 on the shaft until the distance to the flywheel is approx. 2 mm (0.08").

Grip the flywheel and lift up the engine.

Sharply tap the pressure sleeve with a hammer until the flywheel releases from the shaft.

Starter pawls

Check the pawls for wear and damage.

Replace damaged parts.

Mod. 500, 540

Press off the spring clip by means of a screwdriver.

Lift off pawl and spring.

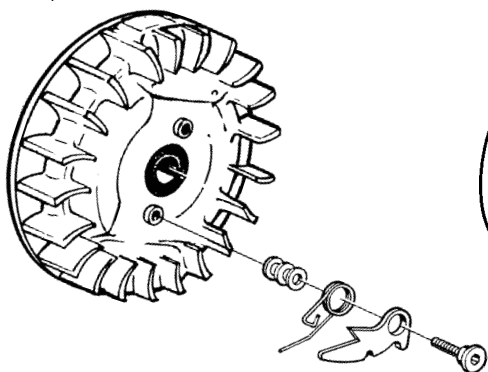
If the bearing journal for the pawl is damaged or heavily worn it can be replaced with a new one.

Heat the flywheel with a hot-air gun to approx. 150°C and pull out the bearing journal with a pair of pliers.

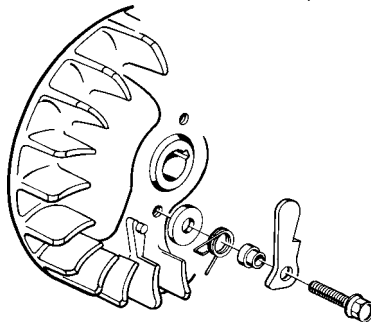
Press a new journal in the flywheel. Do not forget the steel washer!

Fit the spring, pawl, and spring clip. Make sure that the clip's shackles are placed on each side of the fan wing.

Mod. 650, 700



Mod. 850, 1200

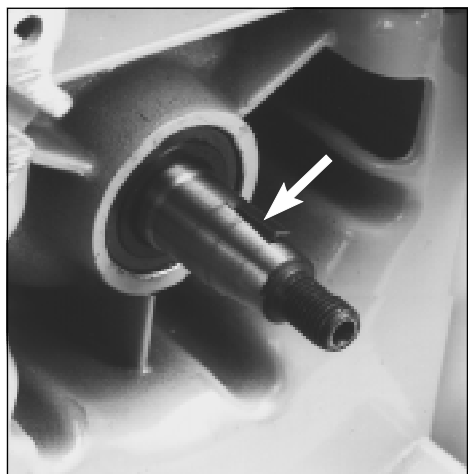
**Mod. 650, 700, 850, 1200**

When fitting the starter pawls check:

- Washer between flywheel and starter pawl (mod. 650, 700).
- Bearing sleeve (mod. 850, 1200).
- That the spring is not clenched.
- That the pawl can move freely.
- Use Loctite on the screw.

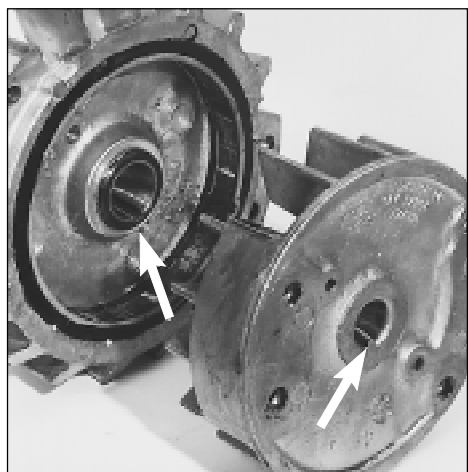
Assembly

Check that the keyway and key in the crankshaft are undamaged. (Mod. 650, 700, 850, 1200)



Check that the keyway and the cast key in the flywheel are undamaged.

Fit the flywheel.

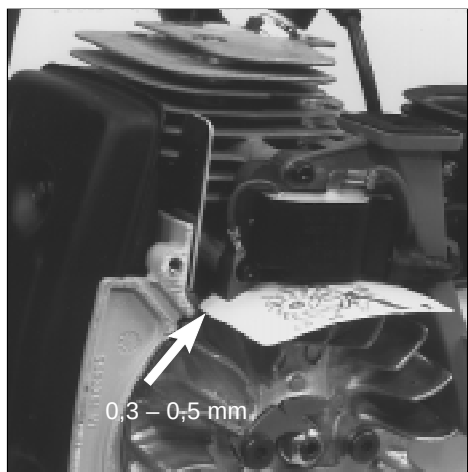


Fit the ignition module.

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.

**Assembly**

Check that the keyway and key in the crankshaft are undamaged. (Mod. 650, 700, 850, 1200)

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 in the flywheel are undamaged.

Fit the flywheel and check that the key and keyway are correctly positioned before the flywheel nut is tightened.

Tighten the nut with tightening torque 25–35 Nm.

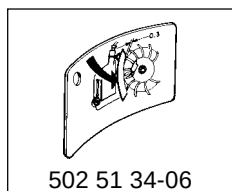
Fit the ignition module.

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

See also page 14–15.

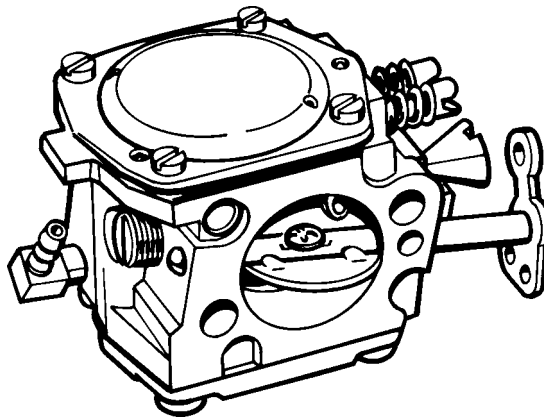
Fit the other cables and make sure that they are correctly positioned in the cable grooves etc. so that they cannot be damaged.

Fit the other parts in the reverse order to dismantling.



Fuel system

3.



Contents

Air filter	20
Centrifugal cleaning (Active)	23
Fuel filter	23
Carburettor, dismantling/assembly	24
Carburettor design	26
Speed limiter	27
Compensation device for blocked air filter	28
Disassembly of the carburettor	28
Assembly of the carburettor	30
Carburettor setting	32
Tank air vent	34
Throttle control	35
Trouble shooting	37

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

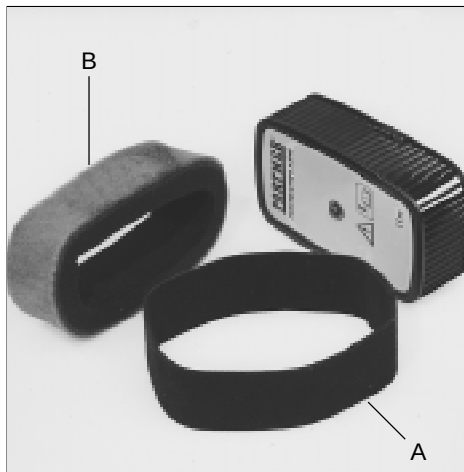
the air filter, have a great effect on the running and efficiency of the engine.

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!

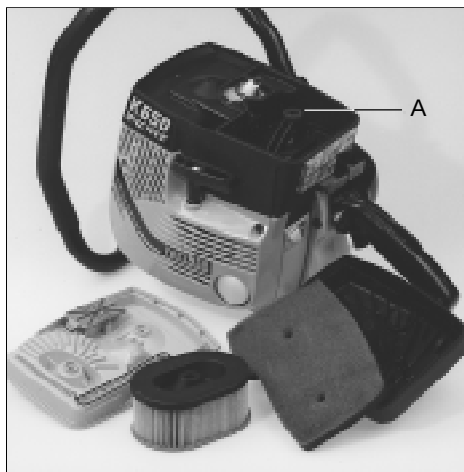


Air filter

Mod. 500, 540

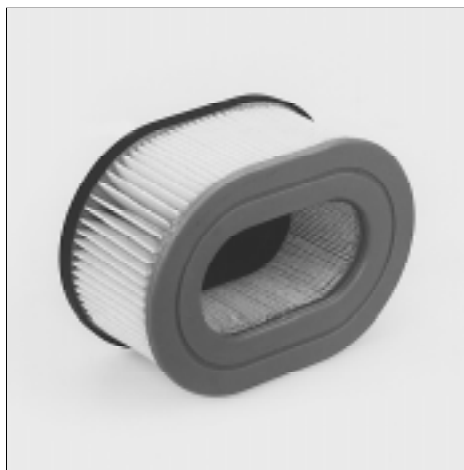
Clean the pre-filter (A) with compressed air and the main filter (B) in lukewarm soapy water.

If the filter is damaged it should be replaced.



Mod. 650, 700

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.

Air filter

Mod. 500, 540

Release the screw in the centre of the air filter cover and take it out together with the filter.

Clean the pre-filter (A) with compressed air by blowing from inside and out.

Clean the main filter (B) carefully in lukewarm soapy water. Air dry the filter and drench it in air filter oil.

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

When fitting the filter make sure that it seals tightly to the cylinder cover.

Mod. 650, 700

Release the two screws which hold the air filter cover.

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

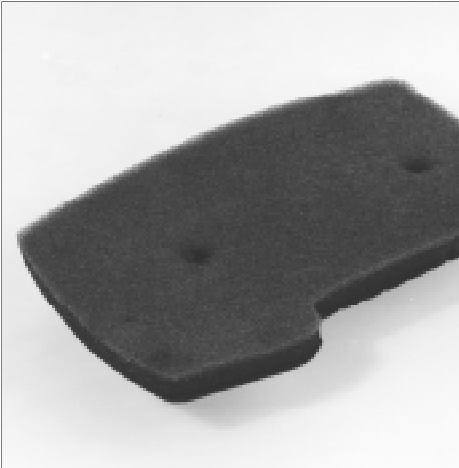
NOTE!

Make sure that the small foam plastic seal (A) is not lost.

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

The protective filter is made of paper and therefore must not be cleaned in water or any other liquid, and neither with compressed air.

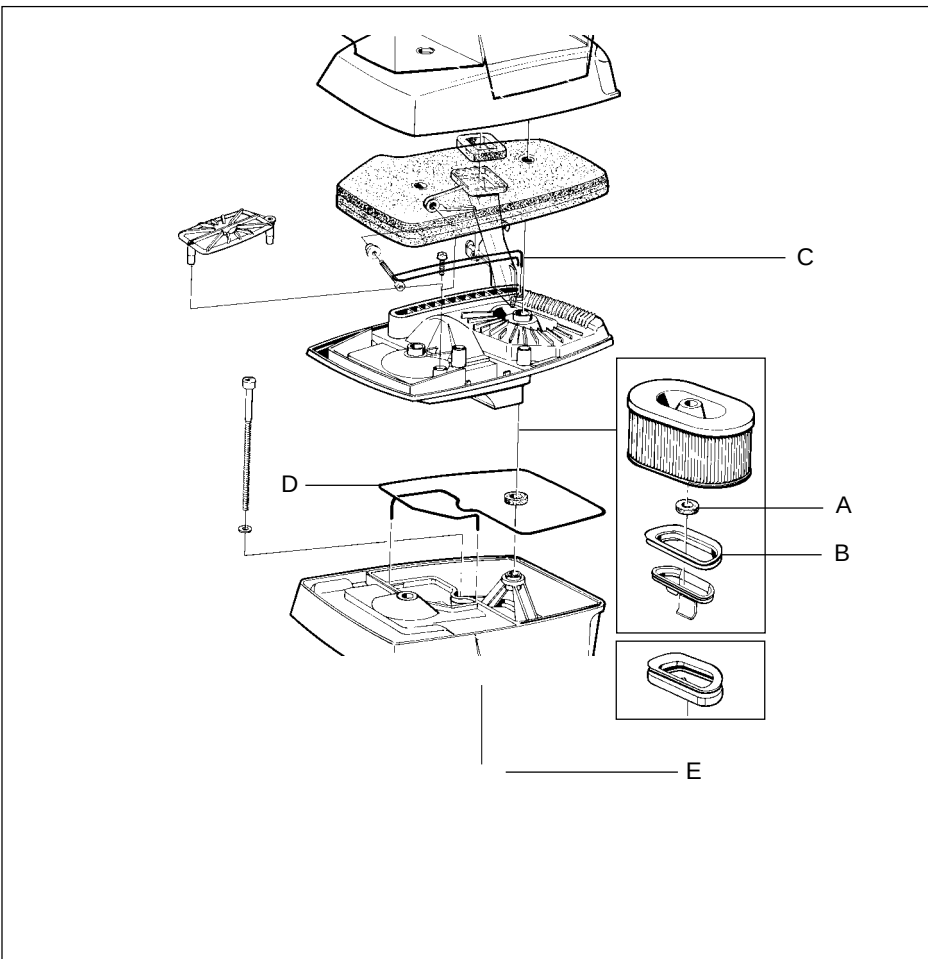
Clean the filter by tapping it against your hand.



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

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.

The seals (A) and (B) are especially important to ensure satisfactory sealing between the pre-filter and engine. Together with seals (C), (D) and (E) their function is important for the centrifugal cleaning of the intake air.

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.



Mod. 850, 1200

Work off the rubber sleeve and lift off the pre-filter.

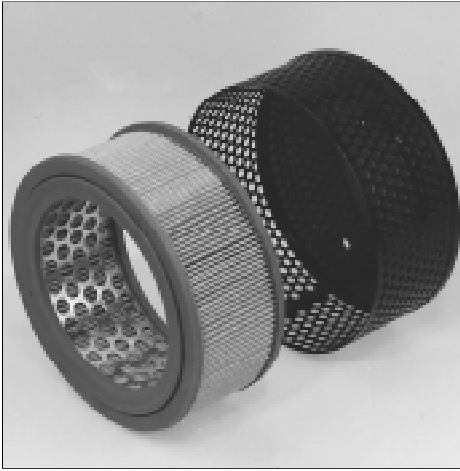
Blow clean the filter with compressed air.

Mod. 850, 1200

Work off the rubber sleeve over the pre-filter.

Lift off the pre-filter and clean it with compressed air.

Blow clean the filter from inside and out.



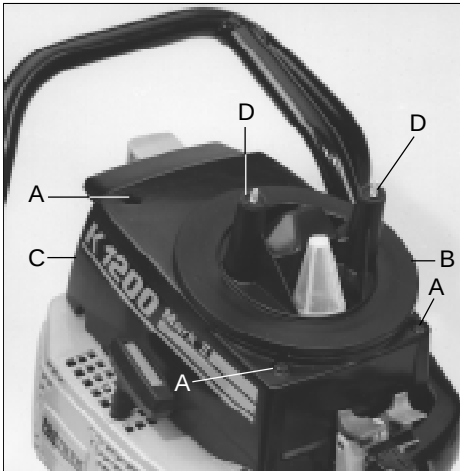
Unscrew the two wing-nuts and lift off the main filter.

Clean the main filter by tapping it against your hand.

Unscrew the two wing-nuts and lift off the main filter.

The 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.

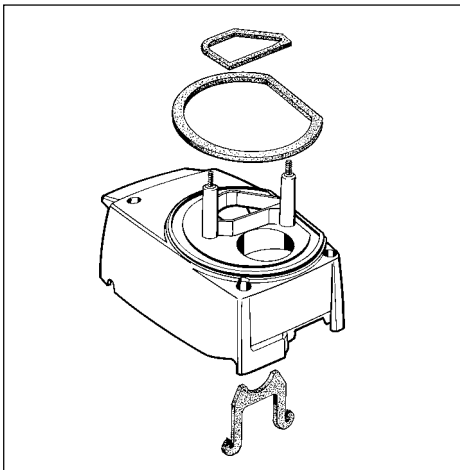


Remove the air filter holder and cylinder cover.

Make sure that the seals (D) are not lost.

Remove the screws (A) and lift off the air filter holder (B) and cylinder cover (C).

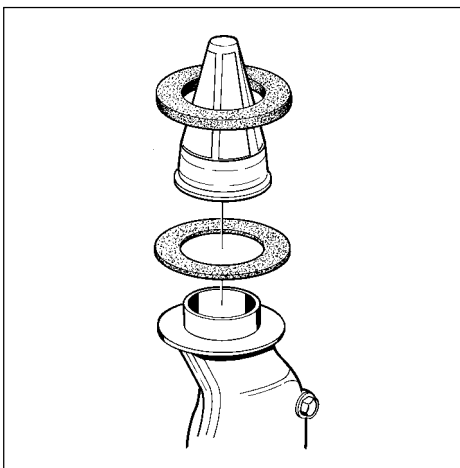
Make sure that the two small seals (D) are not lost when cleaning the holder.



Check the seals between the air filter holder and cylinder cover, and also the seal between the carburettor chamber and cylinder.

Check that both seals between the air filter holder and cylinder cover are in position and undamaged.

The same applies to the seal between the carburettor chamber and cylinder.



Clean the overflow filter.

Clean the overflow filter.

Bend off the filter carefully with a screwdriver.

Brush and wash clean the filter in luke-warm soapy water.

Check that the seals are undamaged before fitting the filter. If they are damaged they should be replaced with new ones.



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:

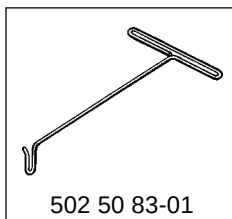
1. The centrifugal cleaning nozzle is clean from deposits.
2. The connection of the nozzle to the carburettor chamber is tight.
3. The nozzle attachments are not broken.
4. The fan spiral and air conductor are clean.

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



Fuel filter

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.



Fuel filter

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.



Carburettor

Dismantling, all models

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

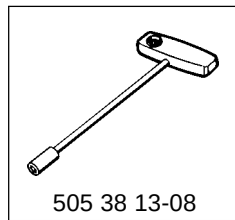
Blow clean the carburettor chamber with compressed air.

Dismantling

Mod. 500, 540

Remove the nuts, connecting pipe to the air filter, and the fuel hose.

Bend away the throttle lever and lift off the carburettor.



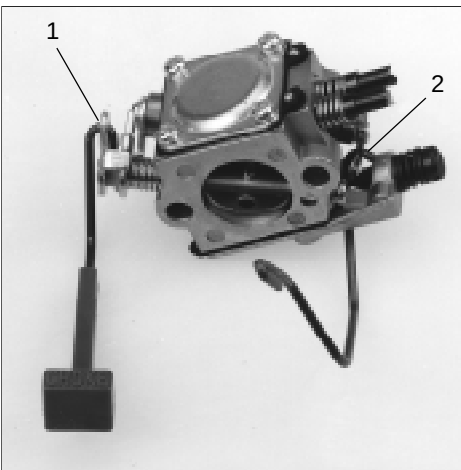
Assembly

Mod. 500, 540

First hook the choke control and throttle push rod in the respective levers.

Fit the screw guide.

Move the throttle lever to the left of the rear grip and push the carburettor in place.



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.

Dismantling

Mod. 500, 540

1. Remove the two nuts.
2. Lift off the connecting pipe to the air filter.
3. Remove the fuel hose with a screwdriver.
4. Bend away the throttle lever from the throttle control and let it hang down to the left of the rear grip.
5. Pull off the carburettor.

Tip!

Press together with one hand the rear part of the tank unit and the grip so that the carburettor can be more easily dismantled.

For service procedures see "Disassembly of carburettor".

Assembly

Mod. 500, 540

Assembly is simplified if the following sequence is observed:

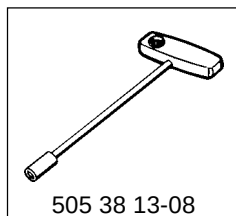
1. Hook in the choke control (from outside and in) in the lever (1).
2. Hook the throttle push rod (from inside and out) in the lever (2).
3. Fit the screw guide over the carburettor's adjusting screws.
4. Move the throttle push rod to the left of the rear grip and push the carburettor in position against the cylinder.

Tip!

Press together with one hand the rear part of the tank unit and the grip so that the carburettor can be more easily assembled.



Connect the fuel hose and press down the throttle push rod to the throttle control. Place the intake pipe in position and screw tight the carburettor.



Dismantling

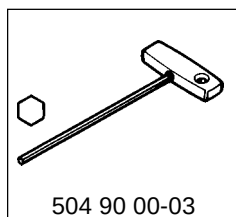
Mod. 650, 700

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.



Assembly

Mod. 650, 700

Fit the carburettor in the reverse order to dismantling.



5. Connect the fuel hose.

6. Press down the throttle push rod so that it goes against the throttle control.

7. Place the intake pipe in position and screw tight the carburettor nuts.

Dismantling

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.

3. Remove the fuel hose from the carburettor.

4. Unscrew the carburettor screws. Insert hex key 504 90 00-03 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".

Assembly

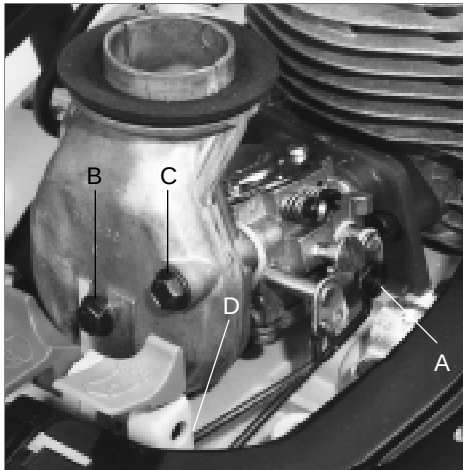
Mod. 650, 700

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.



Dismantling

Mod. 850, 1200

Remove the throttle push rod's lock washer (A) and unscrew the screws (B) and (C).

Bend loose the choke lever from the choke control (D) and lift off the carburettor.



Dismantle the inlet manifold and inspect it for cracking.

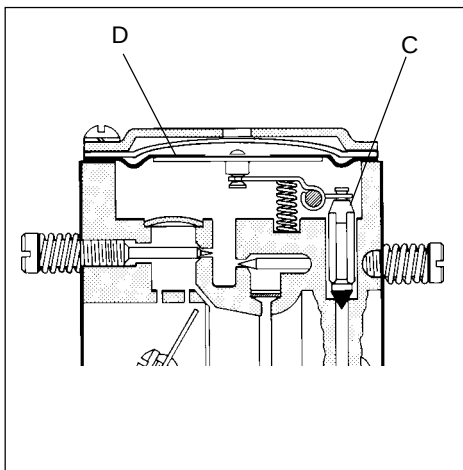
Check that the seal is undamaged.



Assembly

Mod. 850, 1200

Fit the carburettor in the reverse order to dismantling.



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.

Dismantling

Mod. 850, 1200

1. Remove the lock washer (A) which holds the throttle push rod to the lever on the carburettor by means of a screw-driver.
2. Unscrew the screw (B) and (C).
3. Bend off the choke lever from the choke control (D) by means of a screw-driver.
4. Lift off the carburettor and remove the fuel hose.
5. Remove the screws which hold the inlet manifold to the cylinder.

Check that that it is not cracked and that the gasket is undamaged and seals tightly.

For service procedures see "Dismantling of carburettor".

Assembly

Mod. 850, 1200

Fit the carburettor in the reverse order to dismantling.

1. First fit the inlet manifold to the cylinder. Use a new gasket.
2. Fit the choke control's push rod on the lever on the carburettor and place the air filter connection on the carburettor.
3. Fit the complete carburettor unit to the cylinder.

NOTE!

Make sure that the small hole in the gasket comes opposite the impulse channel!

Connect the choke control's push rod to the control lever *before* the carburettor is placed in the correct position.

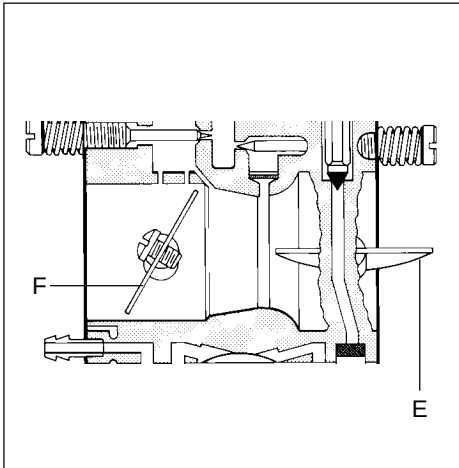
Carburettor design

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.



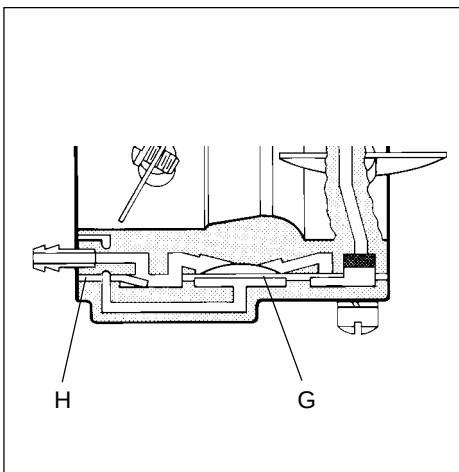
The mixing section

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).

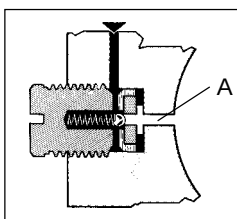
If the channel is blocked, e.g. by grease or an incorrectly turned gasket, the pump will not function and the engine will not start.



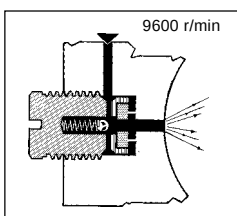
Speed limiter (except mod. 500, 540)

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

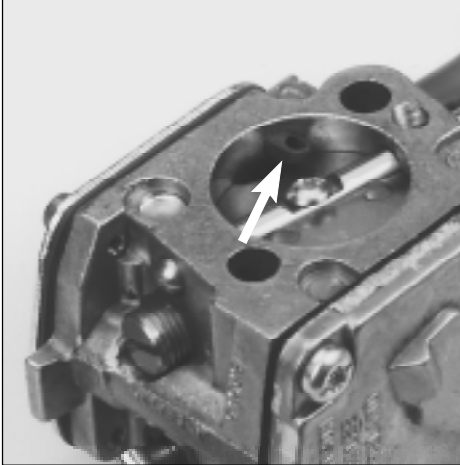
The speed limiter is fixed with Loctite and should not be released during servicing of the carburettor.



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

(mod. 650, 700)

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.

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.

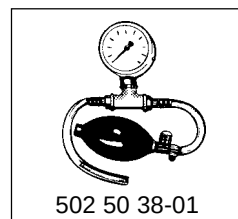
Dismantling of the carburettor

Remove the screw driver guide and cover for the metering diaphragm.

Check the diaphragm for damage.

Replace if necessary.

Pressure test the metering system.



In the event of leakage - dismantle the needle valve.

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 502 50 38-01 to the fuel pipe nipple.

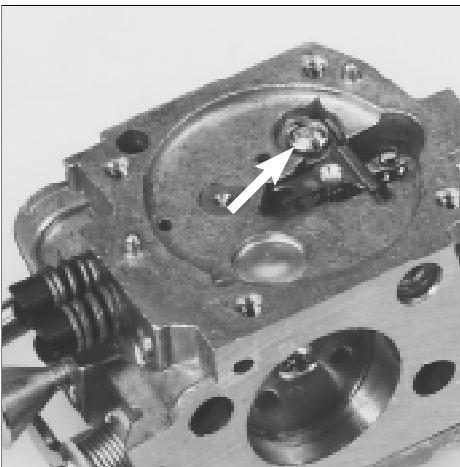
Submerge the carburettor in a basin with petrol to simplify inspection for leaks.

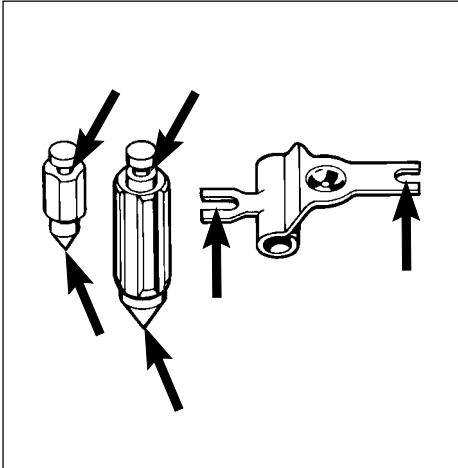
Pressure test with 0.5 bar.

No leakage is permissible.

In the event of leakage dismantle the needle valve.

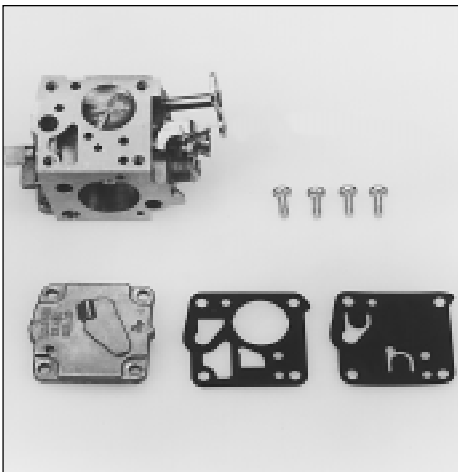
Release the screw and lift off the lever, shaft, needle valve and spring.





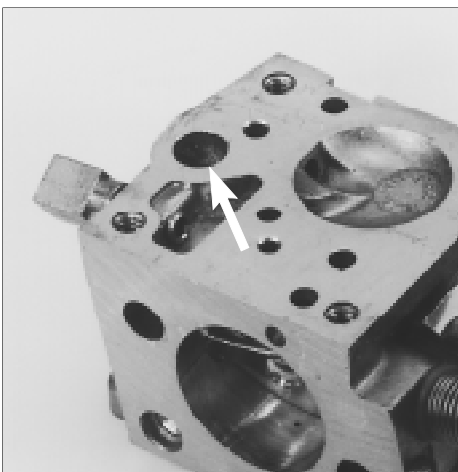
Check the needle valve and lever for wear.
Replace damaged parts with new ones.

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.



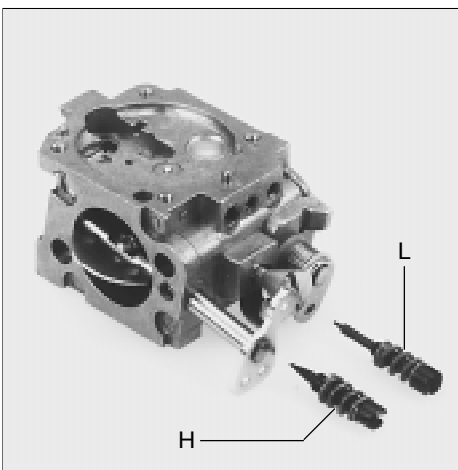
Remove the pump diaphragm.
Check the diaphragm for damage.

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.

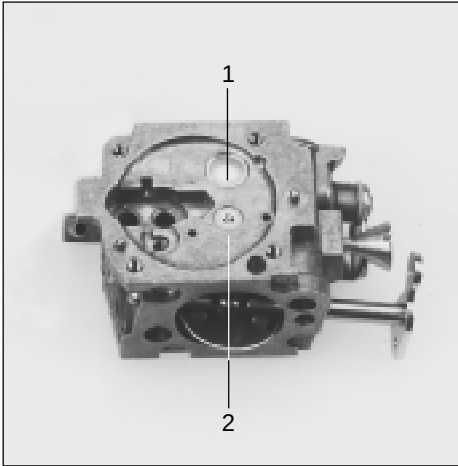


Unscrew the nozzle needles.

Unscrew the nozzle needles.

NOTE!

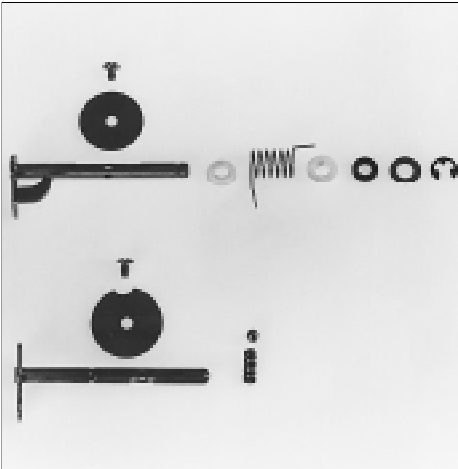
Notice the two types of needles and how they are positioned (e.g. the H-needle is slightly shorter than the L-needle).



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.

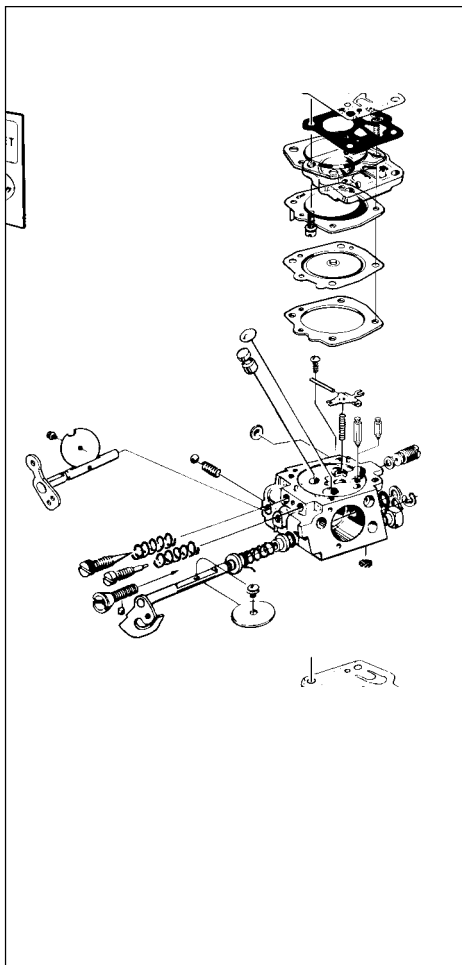
Assembly of the carburettor

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!

Use Loctite on the valve screws.

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

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.

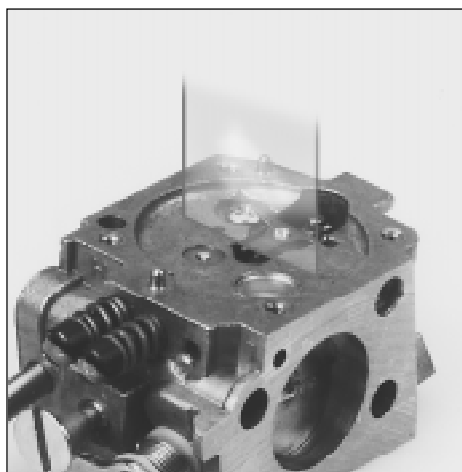
Tips!

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.

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.

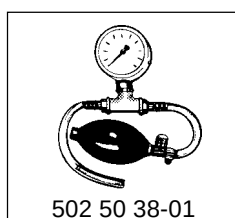
Connect pressure tester

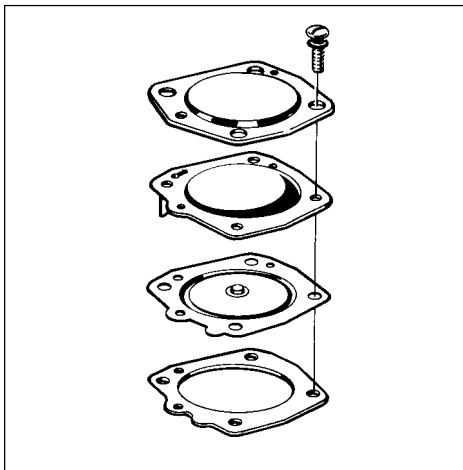
No. 502 50 38-01 to the fuel inlet in the carburettor.

Pump up to 50 kPa pressure.

Submerge the carburettor in a jar with petrol to simplify inspection for leakage.

No leakage is permissible.





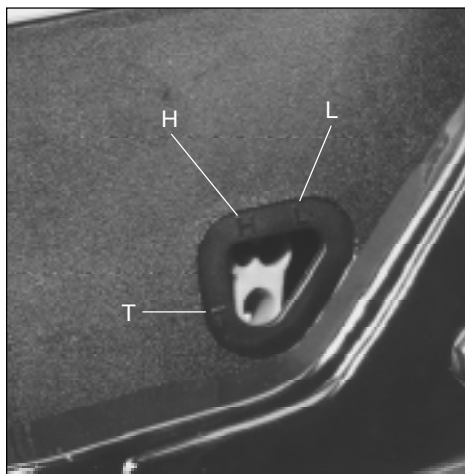
Fit the metering diaphragm and compensation insert for air filter blocking.

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.



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

⚠ 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.

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

L = Low speed nozzle

H = High speed nozzle

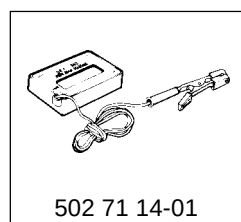
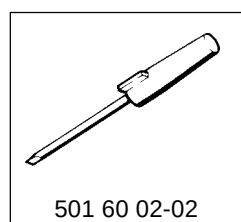
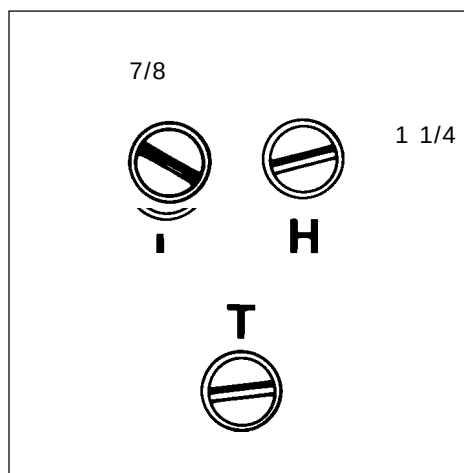
T = Adjuster screw for idling

- 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

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.

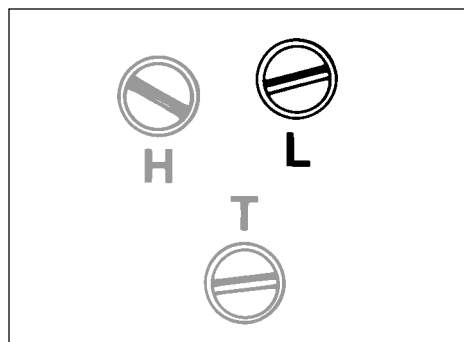
Screw the nozzle needles (H) and (L) carefully to the bottom (clockwise).

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.



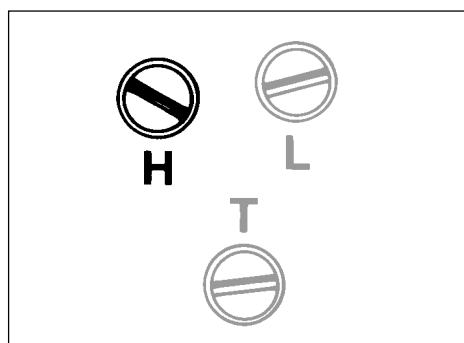
Low speed nozzle (L)

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)

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.

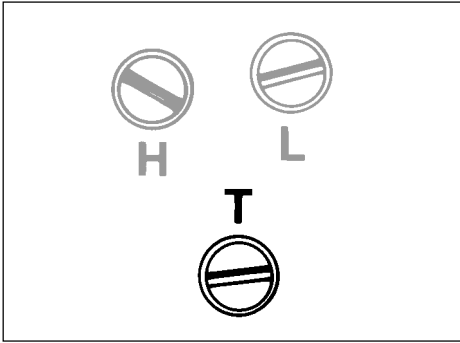
From this position the H-needle is then opened less than 1/8 of a turn (45°), which gives the carburettor setting for maximum engine power.

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.



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.

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.

Function check

Empty the fuel tank and screw on the tank cap.

Connect a pressure gauge to the fuel hose.

Overpressure

Pump up a pressure of 50 kPa (0.5 kp/cm²).

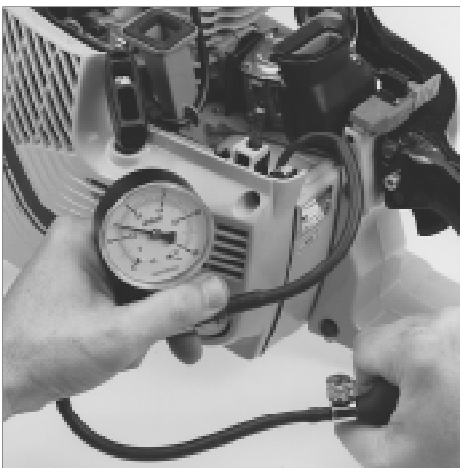
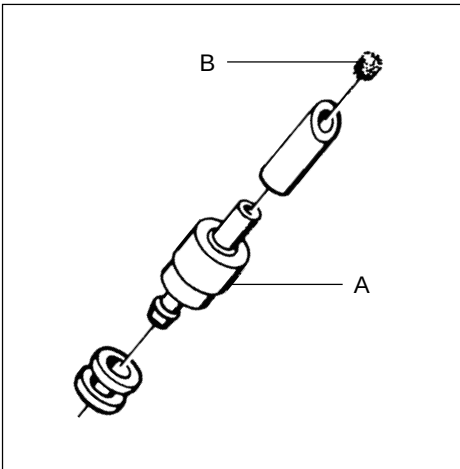
The pressure should fall to 20 kPa (0.2 kp/cm²) within 60 seconds.

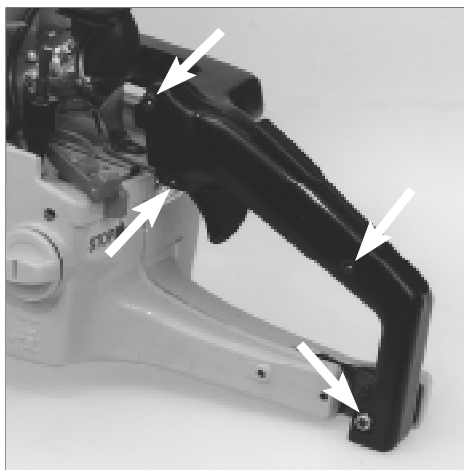
Underpressure

Reduce the pressure to -50 kPa (0.5 kp/cm²).

The pressure should increase to 20 kPa (0.2 kp/cm²) within 30 seconds.

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





Throttle control

Dismantling, assembly

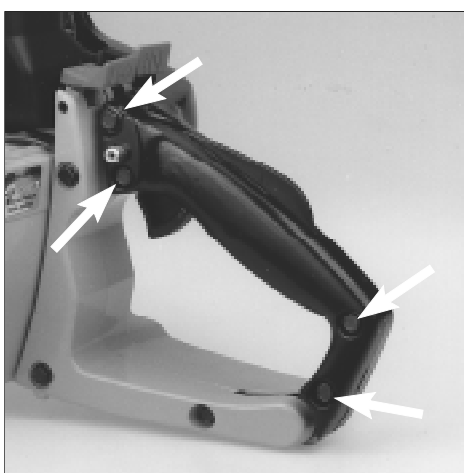
Mod. 500, 540

Remove the three screws and the nut.



Lift off the throttle control catch and throttle control.

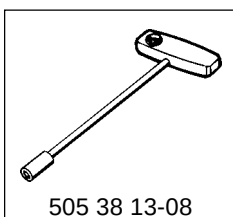
Clean and replace damaged or worn parts with new ones, and fit in the reverse order to dismantling.



Dismantling, assembly

Mod. 650, 700, 850, 1200

Remove the four screws which hold the left-hand half of the grip.



Lift off the half of the grip and the throttle control.

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



Throttle control

Dismantling, assembly

Mod. 500, 540

Remove the three screws and the nut which hold the left-hand half of the grip.

Lift off the throttle control catch and throttle control.

Clean and replace damaged or worn parts with new ones, and fit in the reverse order to dismantling.

Dismantling, assembly

Mod. 650, 700, 850, 1200

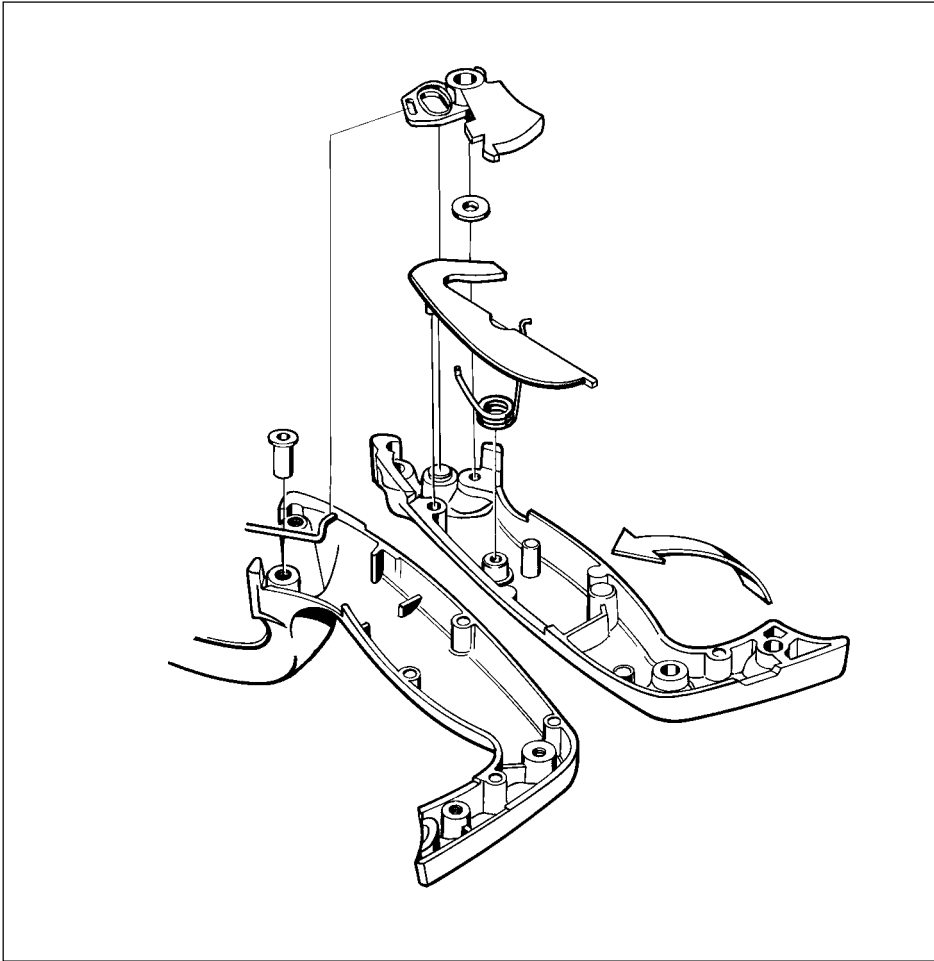
Remove the four screws which hold the left-hand half of the rear grip. Note that they have different lengths.

Lift off the half of the grip.

NOTE!

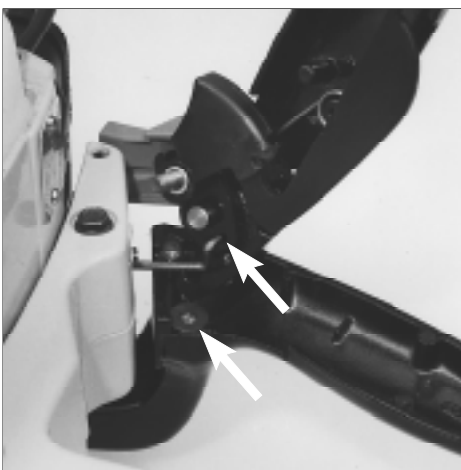
One end of the return spring for the throttle control catch goes in the hole on the throttle control.

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.



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.



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.

Fit in the reverse order to dismantling.

Replace damaged or worn parts.

Fit all parts in the left-hand half of the grip.

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

3. Push the sleeve in the throttle control from underneath.
4. Hold the sleeve in position with your forefinger and hook the spring in the hole in the throttle control.
5. Move the throttle control to the correct position opposite the screw hole.
6. Press in the start throttle catch and lock the throttle control in start position.
7. Insert the screw in the throttle control's supporting sleeve.

8. Place the spacer washer in position on the right-hand grip. Fix it with a little grease.
9. Hook the throttle lever in the throttle control and place the grip half in position.

NOTE!

Check that the spacer washer has not moved.

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

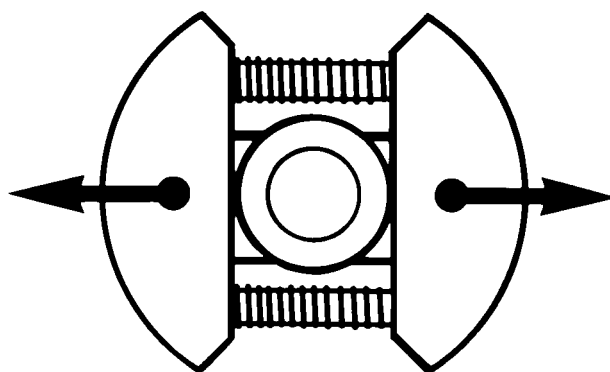
Trouble-shooting chart

[illegible]

- | | | | |
|----------------------------------|------------------------------|---------------------------------------|-----------------------------|
| High speed | Fuel system | Air system | Metering system |
| N. Will not run at full throttle | 3. Plugged tank vent | 12. Plugged air filter | 26. Worn lever |
| O. Low power | 4. Plugged tank filter | 13. Defective manifold gasket | 27. Set too high |
| P. Will not 4 cycle | 5. Restricted fuel line | 14. Loose carburettor mounting screws | 28. Set too low |
| | 6. Dirt in fuel passage | 15. Worn throttle assembly | 29. Not free |
| | 7. Loose, damaged fuel line | 16. Incorrect throttle assembly | 30. Distorted |
| Adjustments | 8. Leak in pulse system | 17. Loose throttle valve screw | 31. Improperly installed |
| 1. Low speed needle (L) | 9. Restricted pulse channel | 18. Throttle shaft too tight | 32. Leaking (air/fuel) |
| 2. High speed needle (H) | 10. Loose pump cover screws | 19. Bent throttle linkage | 33. Worn button |
| | 11. Defective pump diaphragm | 20. Defective throttle spring | 34. Improper assembly |
| | | 21. Bent throttle stop lever | 35. Defective gasket |
| | | 22. Choke not functioning properly | 36. Loose diaphragm rivet |
| | | 23. Worn choke shaft | 37. Hole in diaphragm |
| | | 24. Worn choke valve | 38. Loose cover screws |
| | | 25. Worn throttle valve | 39. Foreign matter |
| | | | 40. Binding |
| | | | 41. Worn needle body or tip |

Centrifugal clutch

4.



Contents

Dismantling, all models	40
Dismantling, mod. 500, 540	40
Assembly, mod. 500, 540	42
Dismantling, mod. 650, 700	43
Assembly, mod. 650, 700	44
Dismantling, mod. 850, 1200	46
Assembly, mod. 850, 1200	47

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!

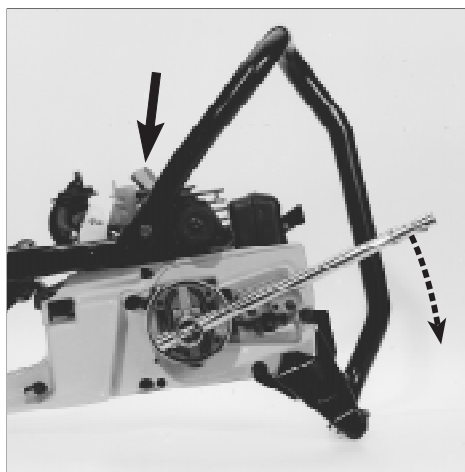
Never start or test run the engine if the clutch cover is removed. The clutch can come loose and cause personal injury.



Dismantling

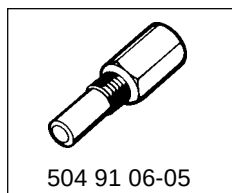
All models

Dismantle the complete cutting equipment and unscrew the plug.

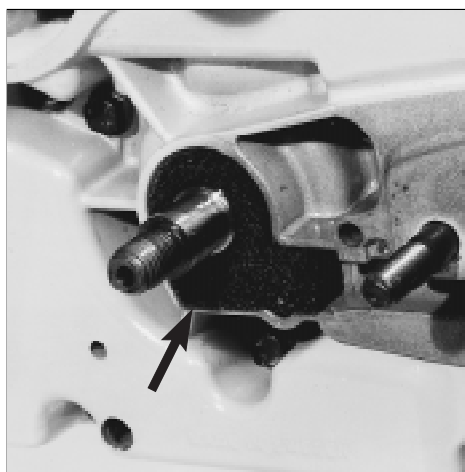


Mod. 500, 540

Fit piston stop No. 504 91 06-05 and dismantle the clutch.



Remove the oil drenched foam plastic seal and clean it carefully from all the dust.



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. 500, 540

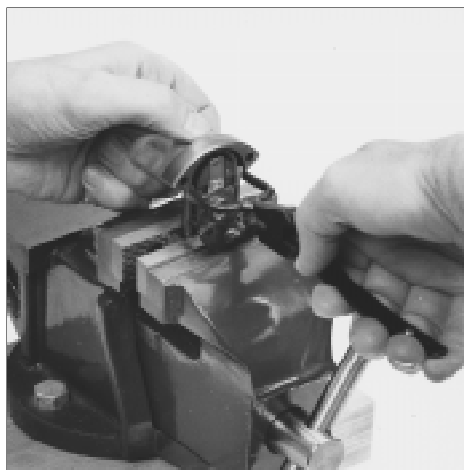
Fit piston stop No. 504 91 06-05 in the plug hole.

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

NOTE!

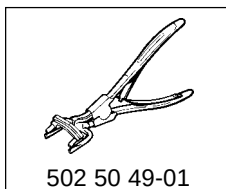
Do not drop the washer which lies behind the clutch drum.

Remove the oil drenched foam plastic seal and clean it carefully from all the dust.



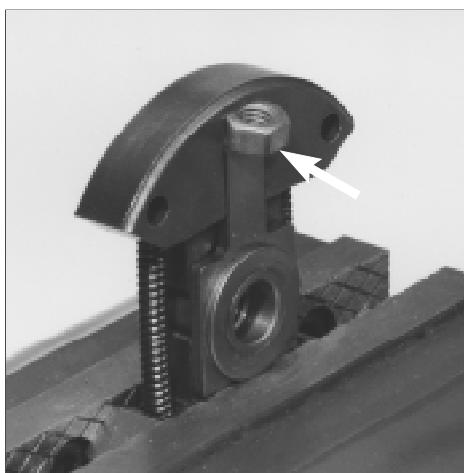
Take the clutch apart.

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



Take apart the clutch.

Brace the clutch in a vice and press out the one clutch shoe by means of pliers No. 502 50 49-01 as shown in the illustration.

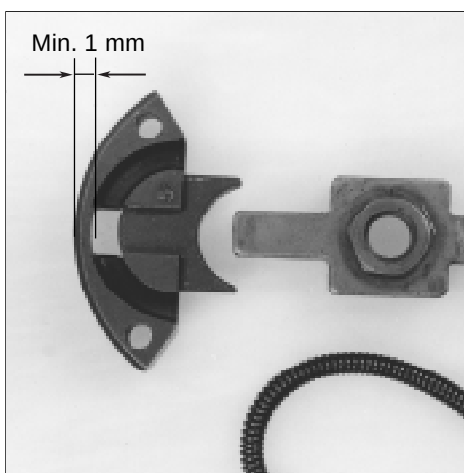


Place an object which is approx. 5 mm (0.20") thick between the clutch shoe and the spoke.

Bend away the clutch spring.

Place an object (e.g. a nut) which is approx. 5 mm (0.20") thick between the clutch shoe and the spoke on the clutch hub on the back of the clutch.

Bend away the clutch spring by means of a screwdriver.

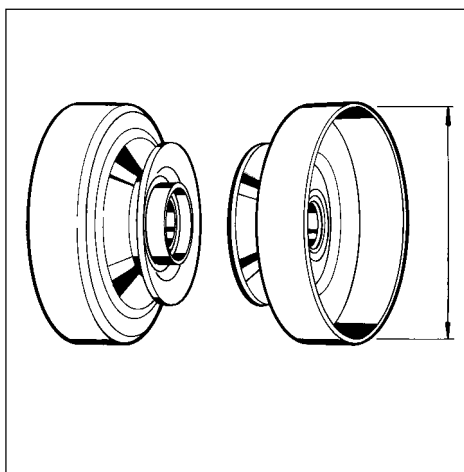


Check the wear on the clutch.

The clutch shoes must have at least a material thickness of 1 mm (0.04") left at the most worn point.

Clean and inspect the different parts for wear. The clutch shoes must have a minimum material thickness of 1 mm (0.04") at the most worn point.

If the degree of wear exceeds this the entire clutch must be replaced.

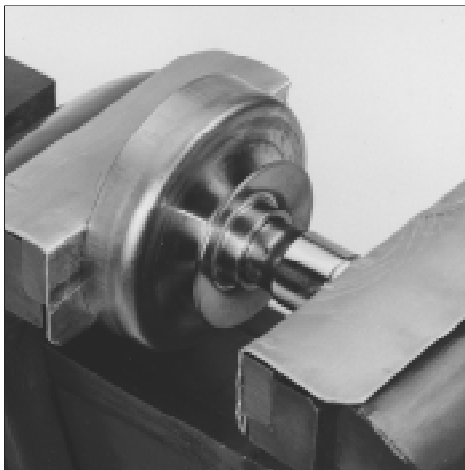


Inspect the wear on the clutch drum, on the pulley, and on the inner diameter. This must not exceed 70.5 mm (2.8").

Check the wear on the clutch drum's inner diameter. This must not exceed 70.5 mm (2.8").

If so, replace the clutch drum.

Check also the wear on the pulley. If the side surfaces are heavily worn and/or display damage the clutch drum should 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 (drum loose on the shaft) it should be replaced with a new one.

Press out the bearing with a vice and a suitable sleeve ($\varnothing$ 16 mm, 0.6").



Assembly

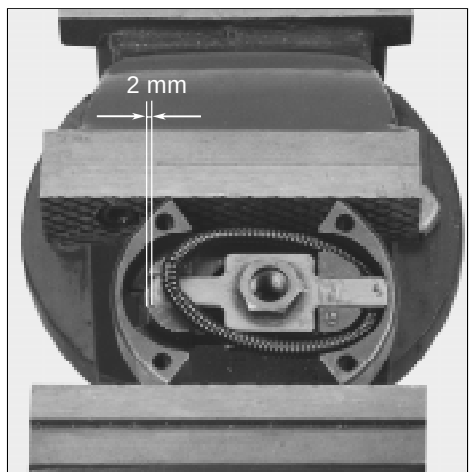
Mod. 500, 540

Press in the new needle bearing until it lies flush with the *inside* of the clutch drum.

Assembly

Mod. 500, 540

Press in the new needle bearing, by using a vice and a suitable sleeve, until it is flush with the *inside* of the clutch drum.



Fit the centrifugal clutch together.

Place the clutch in a vice as shown in the illustration.

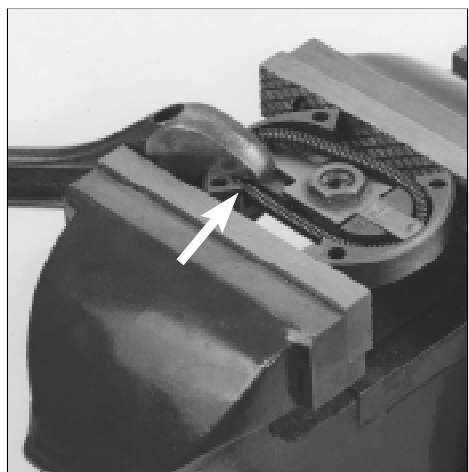
Fit the centrifugal clutch together.

Place the spring in the one clutch shoe so that the spring's coupling point comes in the middle of the shoe.

Place the clutch in a vice as shown in the illustration.

NOTE!

It is important that the marked distance is 2 mm (0.08") to leave space for the screwdriver when the spring is tensioned.



Tension the spring by means of a screwdriver and press down the spring in the groove.

Screw an adjustable spanner over the clutch shoe and spring to hold it in place.

Tension the spring with a screwdriver.

Press down the spring in the groove in the clutch shoe with your thumb.

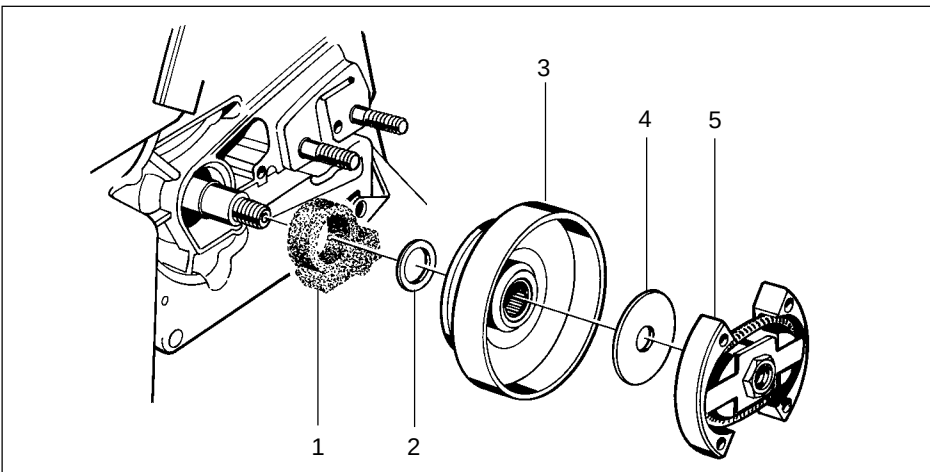
Screw an adjustable spanner over the clutch shoe and spring to hold it in position when the screwdriver is moved to get a new grip.



Take a new grip with the screw driver and press the spring down in the groove.

Take a new grip with the screwdriver so that the remaining part of the spring can be pressed down in the groove in the clutch shoe.

Press down the spring to the bottom of the groove.

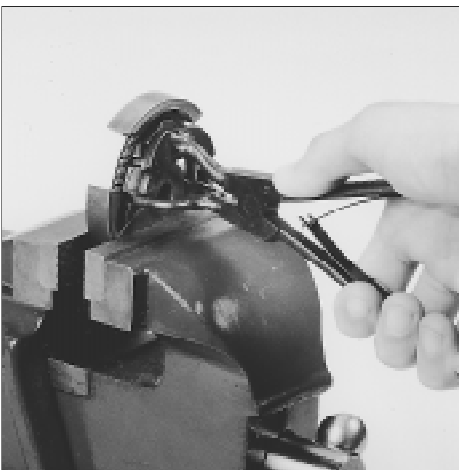


Drench the dust cover (1) in oil and place it in position round the crank shaft.

Place the washer (2) in position over the dust cover.

Grease the needle bearing in the clutch drum.

Fit the clutch drum (3), washer (4) and centrifugal clutch (5).



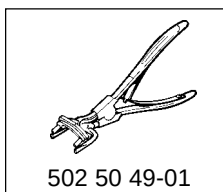
Dismantling

Mod. 650, 700

Dismantle the clutch from the engine.

Take the clutch apart.

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



Dismantling

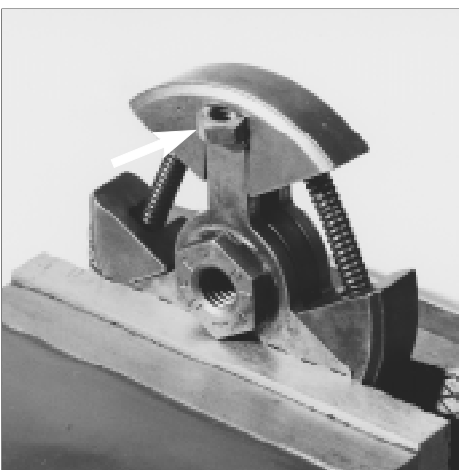
Mod. 650, 700

Dismantle the clutch from the engine according to the same principle as for mod. 500, 540.

The clutch has left-hand threads!

Note the small washer between the clutch drum's needle bearing and the clutch hub so that it is not lost.

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

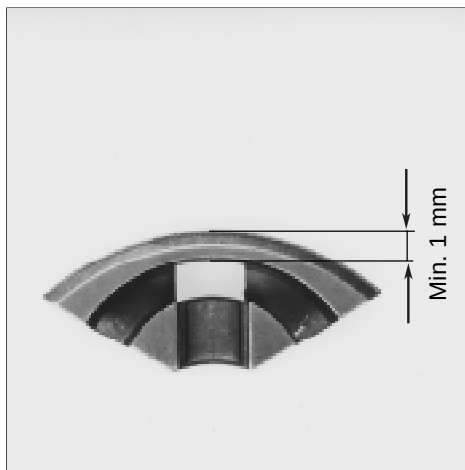


Place an object which is approx. 5.5 mm (0.22") thick between the clutch shoe and the spoke.

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 back of the clutch.

Bend away the clutch spring with a screwdriver.

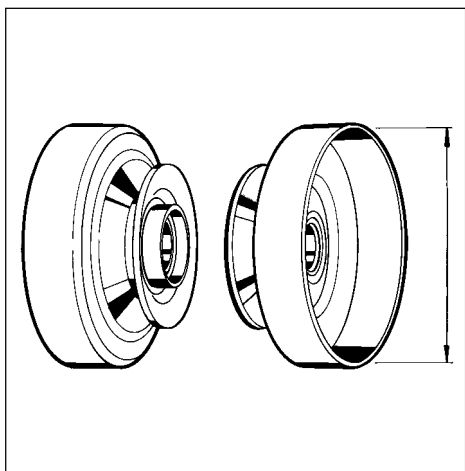


Clean and inspect the clutch parts for damage and wear.

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.

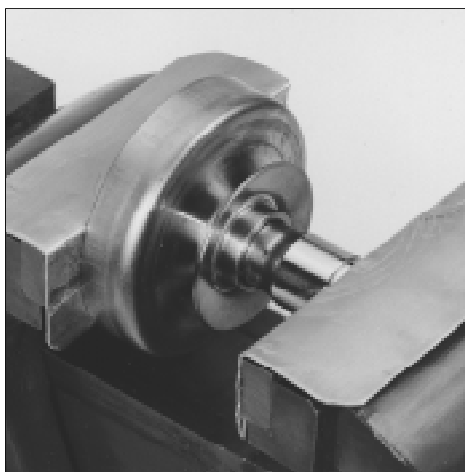
All the shoes must be replaced at the same time.



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 (Ø 17.5 mm, 0.69").



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.

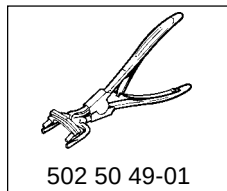
NOTE!

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.

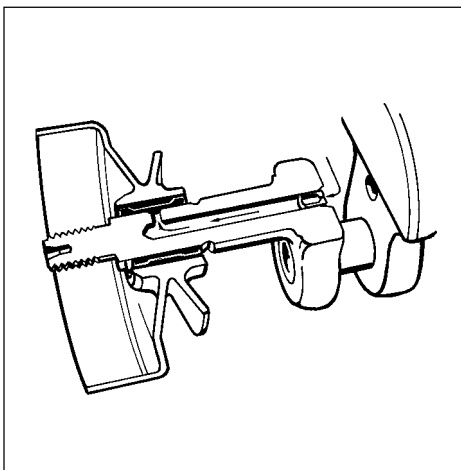


502 50 49-01



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

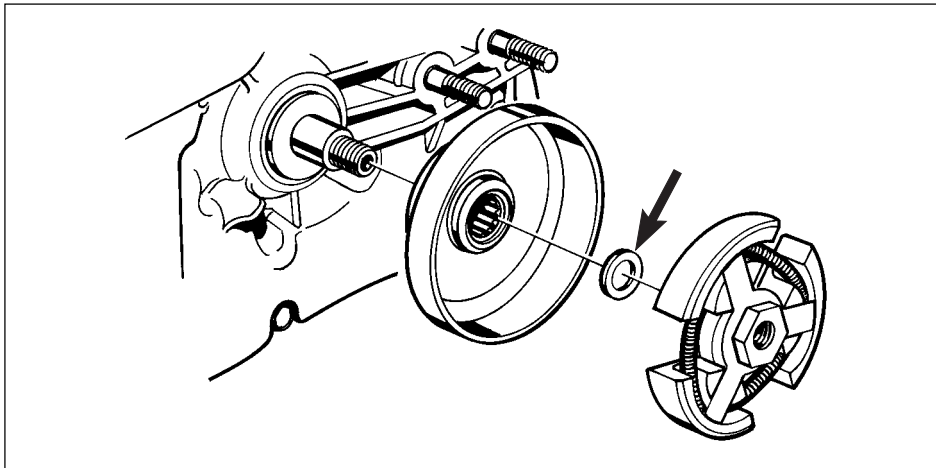
Check that the lubrication hole in the crankshaft is not blocked.
If necessary clean with a steel wire.



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.

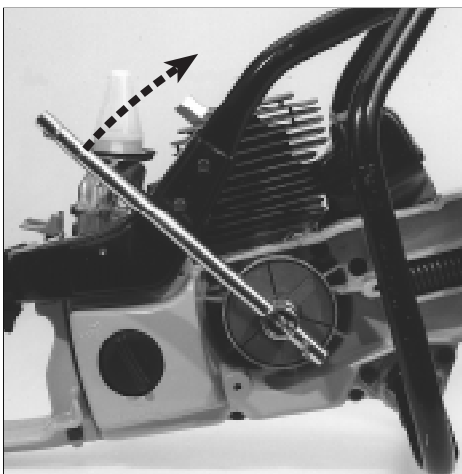
The clutch drum's bearing is lubricated automatically with the oil in the fuel mixture.

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.



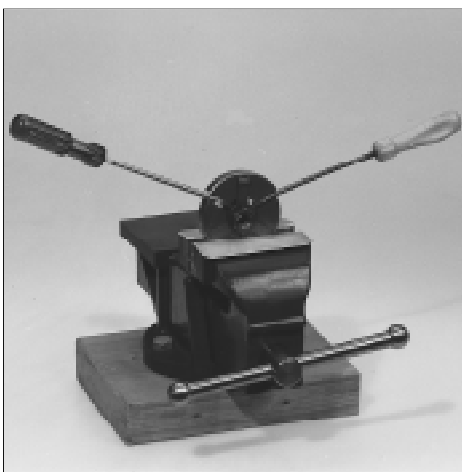
Dismantling

Mod. 850, 1200

Dismantle the centrifugal clutch from the engine.



Remove the lock halves which hold the clutch drum in place.
Lift off the clutch drum.



Press out the one clutch shoe and place a 5.5 mm (0.22") thick object between the clutch hub's spokes and the clutch shoe on the back of the clutch.

Bend away the clutch spring.

Dismantling

Mod. 850, 1200

Dismantle the centrifugal clutch from the engine according to the same principle as for mod. 500, 540.

NOTE!

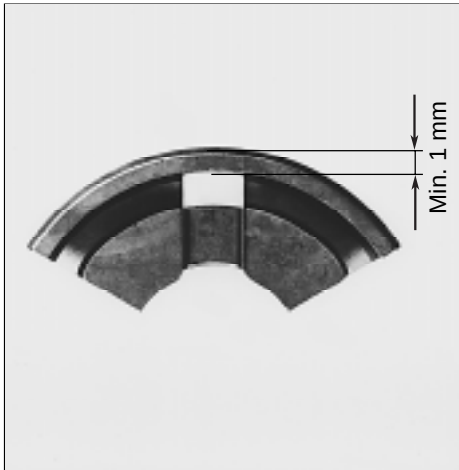
The clutch has left-hand threads.

Remove the two spring-loaded lock halves which hold the clutch drum in place. Use a pointed object. Insert it between the halves and press out the lock spring.
Lift off the clutch drum.

Instead of a pointed object it is also possible to use a pair of lock ring pliers with curved and pointed jaws.

Press out the one clutch shoe with two screwdrivers and place an object (e.g. a nut) which is 5.5 mm (0.22") thick between the clutch shoe and the clutch hub's spokes on the back of the clutch.

Bend away the clutch spring with a screwdriver.

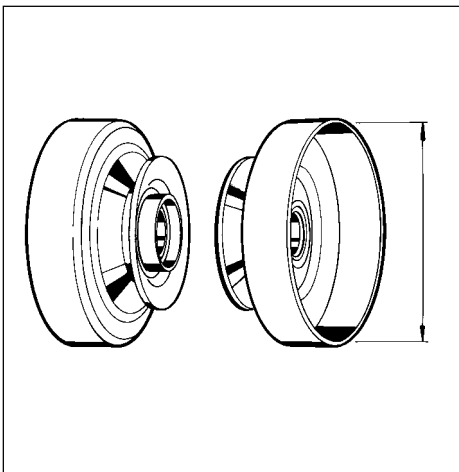


Clean and inspect the clutch parts for wear and damage.

Clean and inspect the clutch hub's spokes and clutch shoes for wear.

There must be a minimum material thickness of 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 75.0 mm (2.95").

If necessary replace the needle bearing.

Check the wear on the clutch drum's inner diameter. It must not exceed 75.0 mm (2.95"). 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 should be replaced.

If necessary replace the needle bearing, in the same way as for mod. 650,700.



Assembly

Mod. 850, 1200

Fit the centrifugal clutch together.

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

Assembly

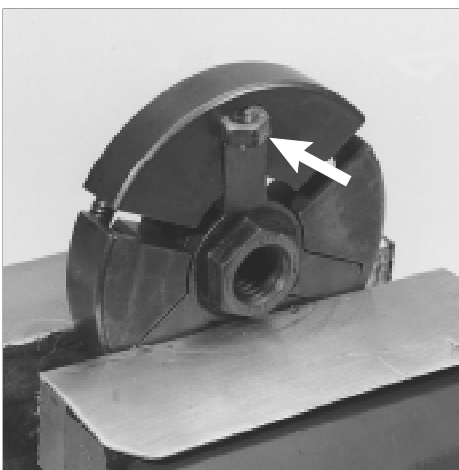
Mod. 850, 1200

Fit together the centrifugal clutch.

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

NOTE!

Make sure that the spring's coupling point comes opposite one of the hub's spokes.



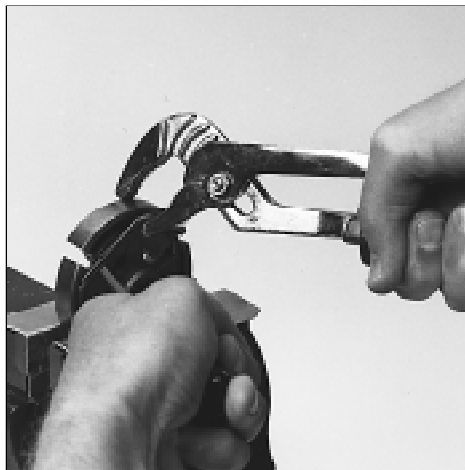
Place the remaining clutch shoe in position.

Place a 5 – 5.5 mm (0.20–0.22") thick spacer between the hub's springs and the clutch shoe to simplify fitting the spring.

Place the remaining clutch shoe in position with a 5 – 5.5 mm (0.20–0.22") thick spacer between the hub's spoke and the shoe on the back of the clutch.

The spring must be able to easily be pushed in its groove without being obstructed by the clutch's spoke.

4 Centrifugal clutch

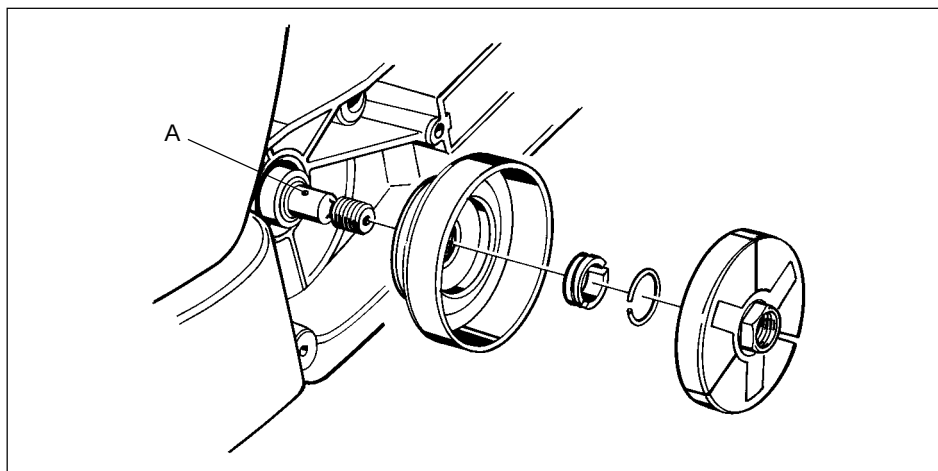


Tension the spring with a pair of universal pliers and bend the spring in place with a screwdriver.

Tension the spring with a pair of universal pliers and bend the spring in place with a screwdriver.

NOTE!

Make sure the spring is not damaged by the screwdriver.



The clutch drum's bearing is lubricated automatically in the same way as described for mod. 650, 700.

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

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

Fit the lock device. First place the one half together with the spring in position, and then the other half. Use a small screwdriver to bend out the one shank on the spring.

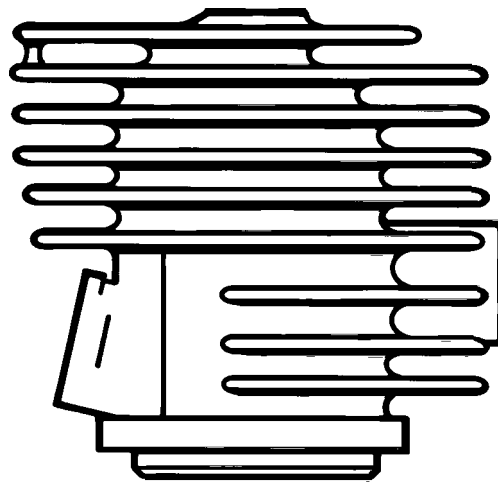
Another method is to fix the lock halves to the crankshaft with a little grease and then fit the lock spring with a pair of lock ring pliers with pointed and curved jaws.

Check that the spring is correctly positioned in the groove.

Fit the centrifugal clutch.

Cylinder and piston

5.



Contents

Dismantling	50
Cleaning, inspection	51
Analysis and procedures	52
Assembly	56
Decompression valve	58
Compression test	59

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.

NOTE!

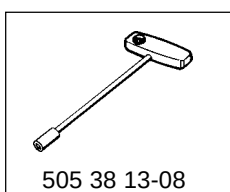
Place a cloth in the crankcase opening to prevent dirt from dropping down in the crankcase when the cylinder is lifted off.



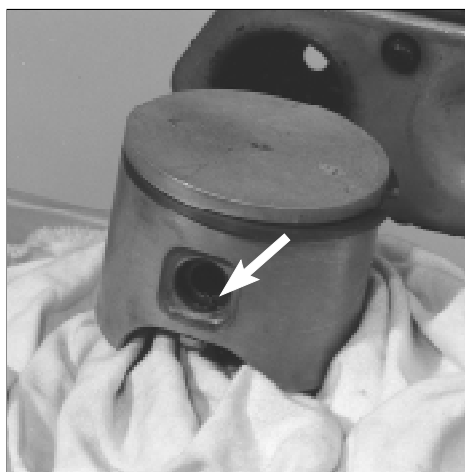
Mod. 500, 540

Remove the screw and spacer sleeve between the cylinder and vibration damper.

Unscrew the cylinder screws and dismantle the cylinder.



Dismantle the piston from the connecting rod.



Mod. 500, 540

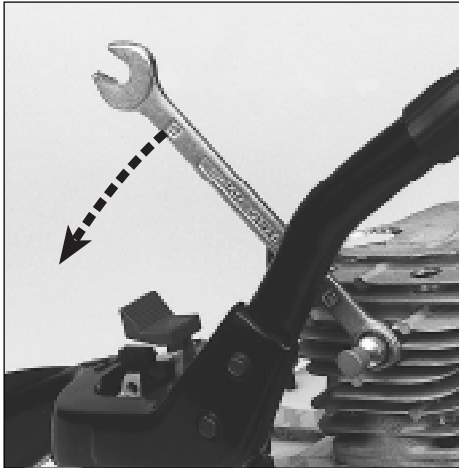
Remove the screw and spacer sleeve between the cylinder and vibration damper.

Unscrew the screws which hold the cylinder and pull the cylinder with attendant heat shield straight up.

Dismantle the piston from the connecting rod.

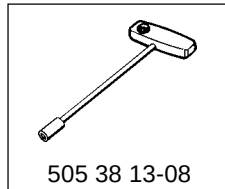
Remove the circlip by means of a pair of flat pliers.

Place a rag in the crankcase opening to prevent the gudgeon pin's circlip from falling down if it is dropped.



Mod. 650, 700

Dismantle the decompression valve.
Dismantle the cylinder.



Mod. 650, 700

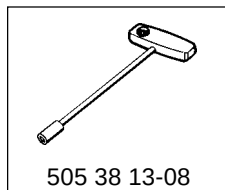
Dismantle the decompression valve before the cylinder screws are unscrewed.
Unscrew the cylinder screws and lift the cylinder straight up.

Dismantle the piston in the same way as described for mod. 500, 540.



Mod. 850, 1200

Dismantle the cylinder and inlet manifold.



Mod. 850, 1200

Unscrew the screws with tool 505 38 13-08 and lift the cylinder straight up.

Remove the screws which hold the inlet manifold, and lift off.

Dismantle the piston in the same way as described for mod. 500, 540.



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.





New piston. Inlet side.



New piston. Exhaust side.

Analysis and procedures

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

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

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

There are other reasons which dominate instead, as can be seen from the following. Note the reasons for the malfunction, repair the damage and take the necessary corrective action to prevent repetition.

Insufficient lubrication

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

The piston ring is as a rule undamaged and can move freely in the piston ring groove. Scratches may also be found on the piston's inlet side.

Reasons:

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

Procedures:

Check and change the carburettor setting.

Change fuel.

Change to petrol with high octane rating.



Small to medium sized scratches mainly opposite exhaust port.

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:

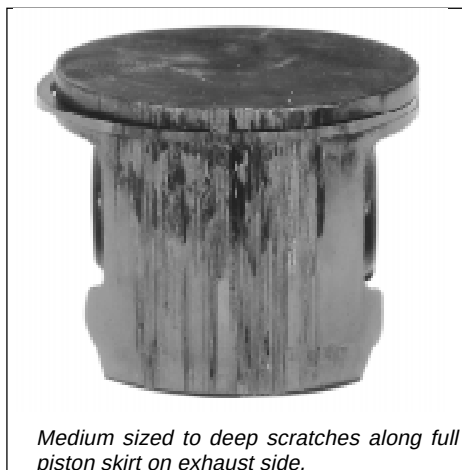
Change to fuel with correct oil mixture.

Change to petrol with higher octane rating.

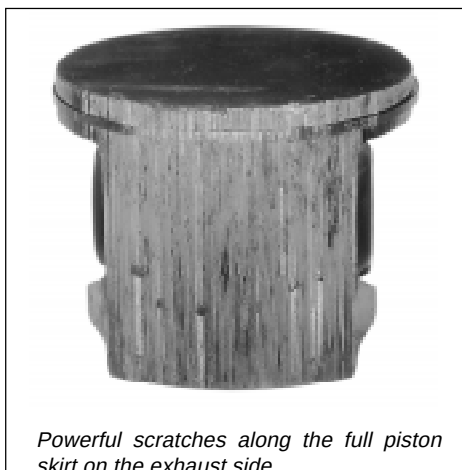
Replace damaged parts.

Replace untight gaskets and shaft seals.

Clean cooling fins and air intake.



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

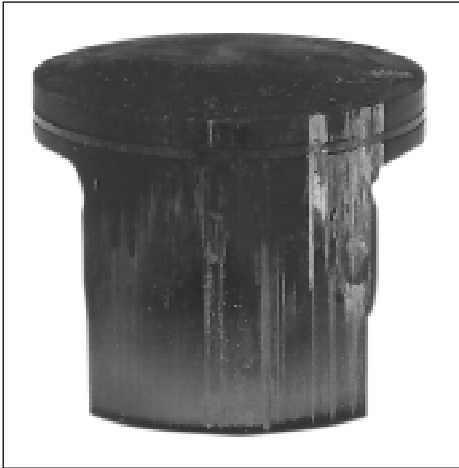


Powerful scratches along the full piston skirt on the exhaust side.

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.

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.



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

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.



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

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.

5 Cylinder and piston

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.

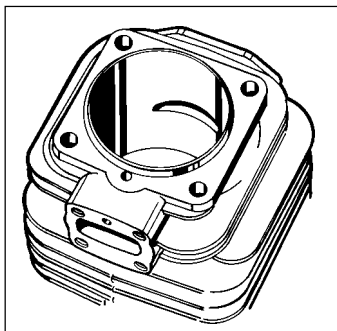
Replace cylinder and piston.

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.

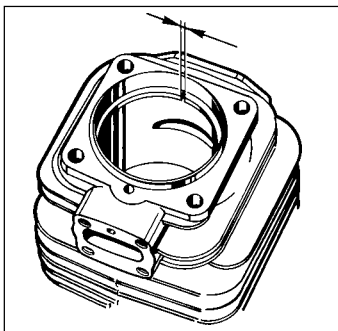
Wear tolerances

Cylinder bore



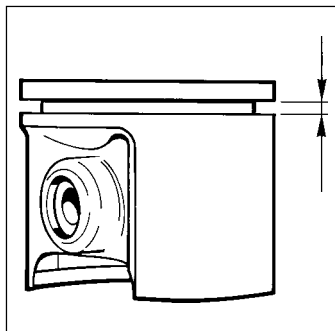
The surface finish is worn away revealing the aluminium.

Piston ring gap



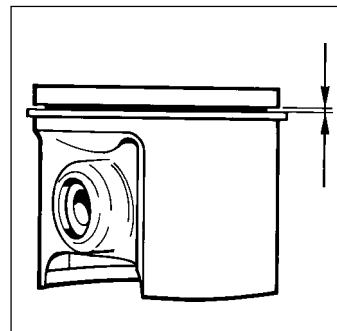
Max. 1.0 mm (0.04") with the piston ring pushed into the lower part of the cylinder.

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.

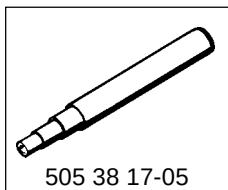


Assembly

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.

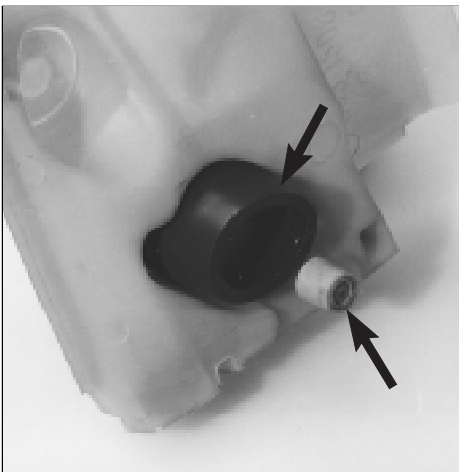
Align the arrow on the piston top with the exhaust port.

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.



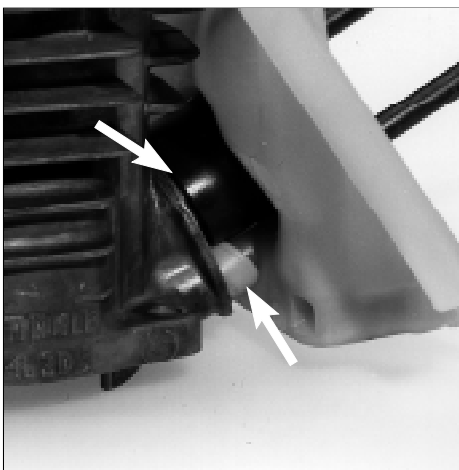
Mod. 500, 540

Fit a new cylinder base gasket.

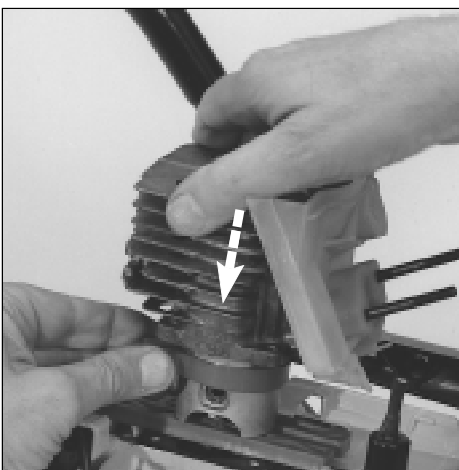


Check the intake pipe and seal for the impulse channel.

Replace damaged parts.

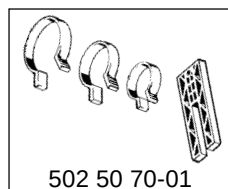


Lubricate the connections to the cylinder with a few drops of oil and fit the heat shield on the cylinder.



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. 500, 540

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 and note that the sealing surface at the back of the crankcase is very narrow. Gasket paste is recommended!

Fit if necessary a new intake pipe and new seal for the impulse channel on the heat shield.

Lubricate the connections to the cylinder with a few drops of oil and fit the heat shield on the cylinder.

Check that the connections on the intake pipe and impulse channel are tight all round.

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.



Screw tight the heat shield to the crankcase and the vibration damper to the cylinder.

Screw tight the heat shield to the crankcase.

Screw tight the vibration damper to the cylinder.

Make sure the spacer sleeve is correctly positioned in relation to the cylinder.

Fit the carburettor and other parts.

See respective section.



Mod. 650, 700

Fit the cylinder in the same way as described for mod. 500, 540.

Check the middle piece for cracking or other damage before fitting it.

Replace if necessary the middle piece.

Mod. 650, 700

Fit the cylinder in the same way as described for mod. 500, 540.

Check the middle piece for cracking or other damage before fitting it.

Replace the middle piece if necessary.



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.

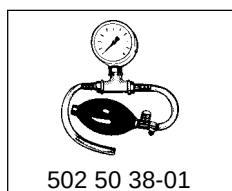
Wash the valve carefully to remove all the grinding paste.

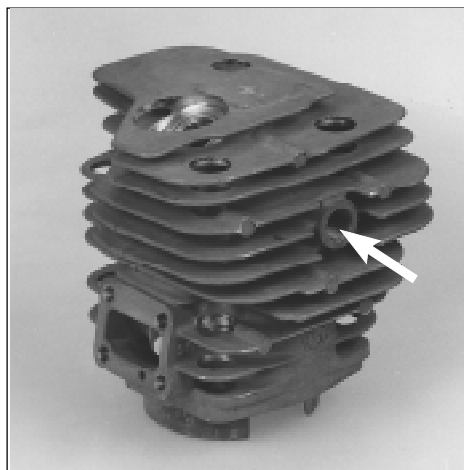


Check that the valve is tight with pressure gauge 502 50 38-01.

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.





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.



Mod. 850, 1200

Fit the cylinder in the same way as described for mod. 500, 540.

Mod. 850, 1200

Fit the cylinder in the same way as described for mod. 500, 540.

Check the middle piece for cracking or other damage before screwing it tight on the cylinder.

If necessary replace the middle piece.

NOTE!

Fit the attachment for the ignition module on the cylinder before it is pushed down over the piston.

Check the middle piece for cracking or other damage before it is screwed tight on the cylinder.

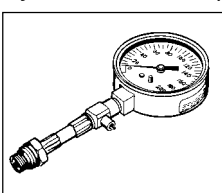
If necessary replace the middle piece.



Compression test

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

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



1. Run the engine warm for a few minutes.
2. Replace the plug with the compression gauge. Make sure that it is tight between the cylinder and gauge.
3. Move the stop switch to the stop position.
4. Firmly pull the engine over 5–6 times.

5. Read off the pressure on the gauge. Release the pressure by pressing in the valve cone on the side of the gauge connection. Repeat this procedure twice and calculate a mean value from the tests.

NOTE!

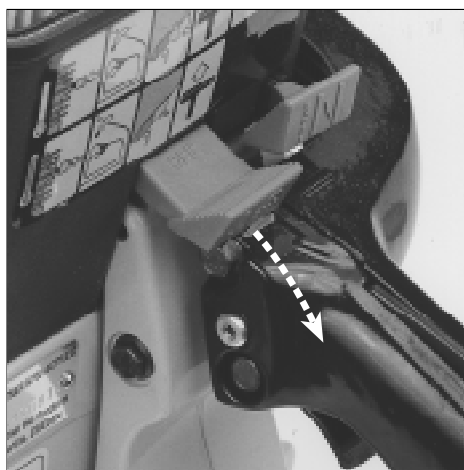
If the engine has been disassembled it should be "run in" first in order to achieve a correct result.

Compression pressure

Mean value for new engine: 115 – 130 psi.

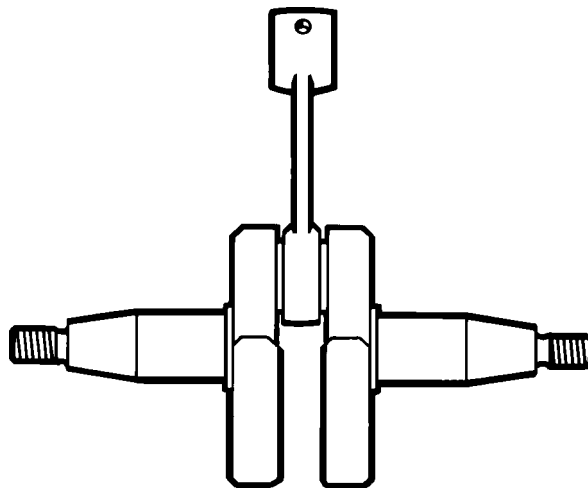
It is generally recommended to check the condition of the cylinder and piston if the compression is lower than 115 psi.

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



Crankshaft and crankcase

6.



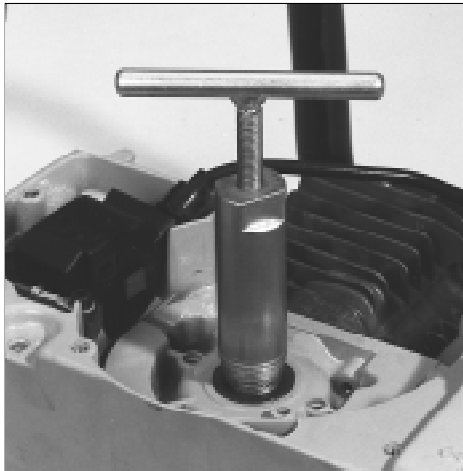
Contents

Replacing the seal on flywheel side	62
Replacing the seal on clutch side	62
Vibration dampers	64
Dismantling, assembly	66
Inspection of crankshaft	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.

For this reason always use new gaskets and seals during service work on the crankcase.



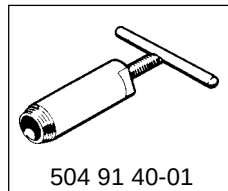
Replacing the seal on the flywheel side

Mod. 500, 540

Mod. 650, 700

Mod. 850, 1200

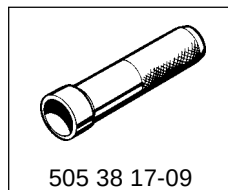
Screw down the seal extractor as far as possible in the seal and pull off the seal.



504 91 40-01



Lubricate the shaft with oil and fit a new seal.

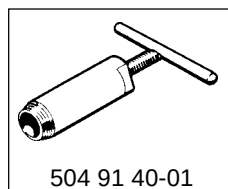


505 38 17-09

Replacing the seal on the clutch side

Mod. 500, 540

Remove the seal by means of an extractor.



504 91 40-01

Replacing the seal on the flywheel side

Mod. 500, 540

Mod. 650, 700

Mod. 850, 1200

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

Remove the draw key for the flywheel (mod. 650, 700, 850, 1200) 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.

Mod. 500, 540: flush with the crankcase.

Mod. 650, 700: 1 mm (.04") below the crankcase plane.

Mod. 850, 1200: 1 mm (.04") over the crankcase plane.

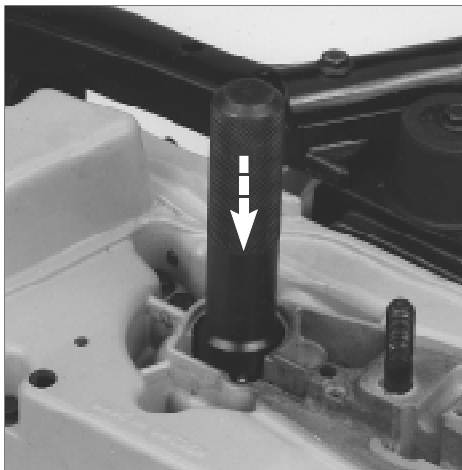
Fit the other parts in the reverse order to dismantling.

Replacing the seal on the clutch side

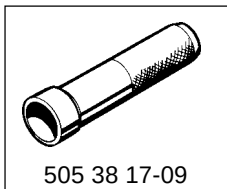
Mod. 500, 540

Pull off the seal by means of an extractor. Make sure that it is screwed into the seal as far as possible before pulling it out.

Use extractor 504 91 40-01.



Fit a new seal with the shell facing outwards.



505 38 17-09

Lubricate the crankshaft with a few drops of oil and place the new seal in position. The shell should face outwards.

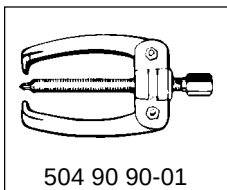
Press in the seal by means of drift 505 38 17-09 until the seal lies 1 mm (.04") below the crankcase plane.



Mod. 650, 700

Dismantle the washer protecting the crankshaft seal.

Use two screwdrivers first, and then an extractor.



504 90 90-01

Mod. 650, 700

In order to gain access to the seal the washer which lies inside the clutch drum must also be dismantled.

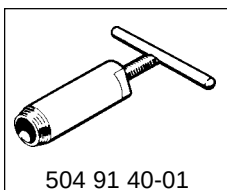
This has a forced fit on the shaft and may be difficult to dismantle without being damaged.

Use two screwdrivers first to bend out the washer far enough so that extractor 504 90 90-01 can be used.



Dismantle the seal with an extractor.

Fit the new seal by means of drift 505 38 17-09.

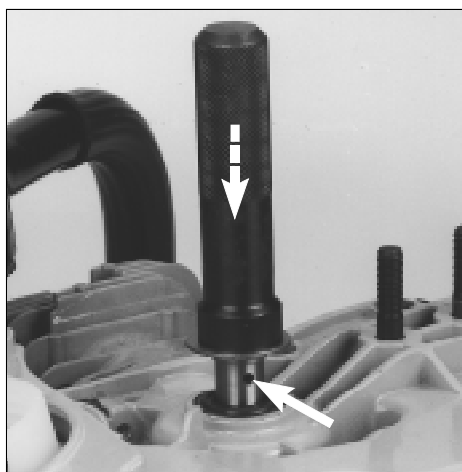


504 91 40-01

Dismantle and fit the seal in the same way as described for mod. 500, 540. Use assembly sleeve 502 50 53-01 on the clutch 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.

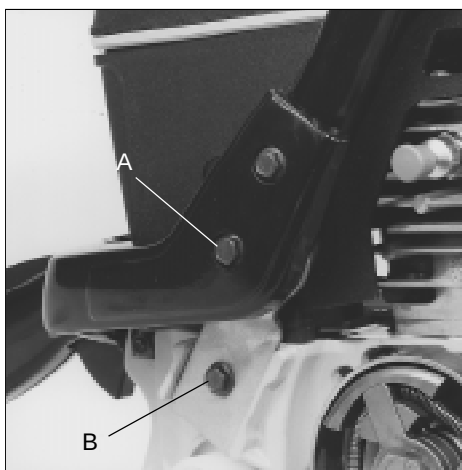
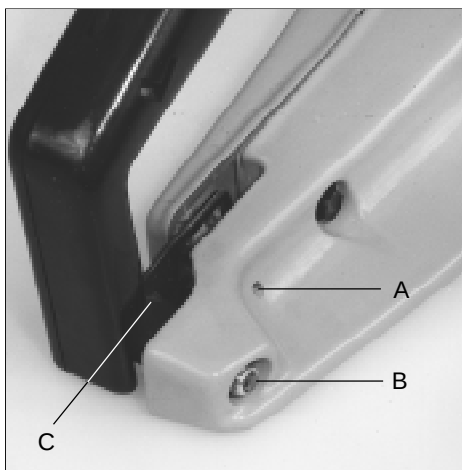
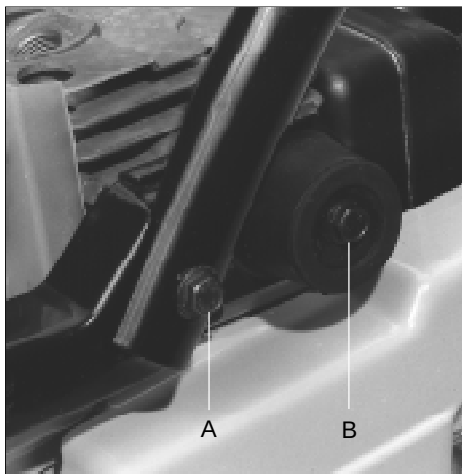
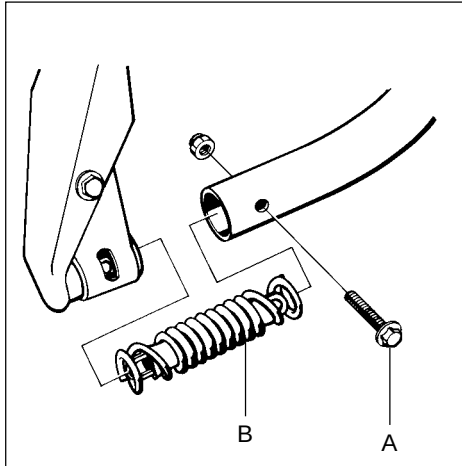


505 38 17-09

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.

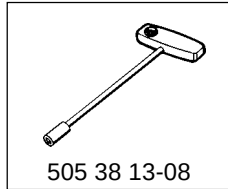


Vibration dampers

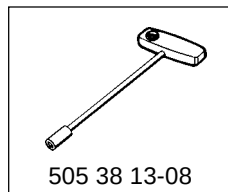
Mod. 500, 540

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

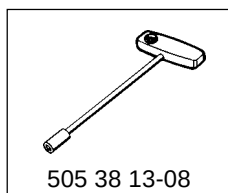
Assembly is conducted in reverse order to dismantling.



The damper unit at the cylinder can be replaced after the screws (A) and (B) have been removed.



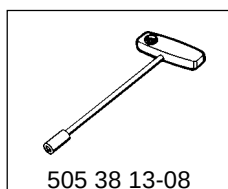
Press out the sprung tubular pin (A). Remove the nuts (B). Dismantle the vibration damper for replacement.



Mod. 650, 700

The front vibration damper is dismantled and replaced in the same way as described for mod. 500, 540.

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



Vibration dampers

Mod. 500, 540

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.

Remove the screws (A) and (B). Note the square nut at screw (A) and the spacer between the cylinder and vibration damper at screw (B).

Remove the damper unit and fit a new one.

Press out the sprung tubular pin (A) approx. 10 mm (.4 in).

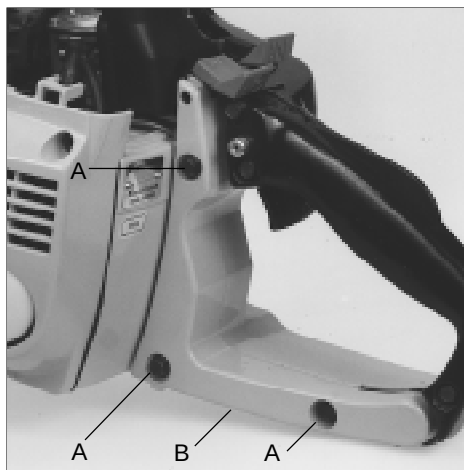
Remove the two nuts (B). The vibration damper (C) can now be dismantled.

Assembly is conducted in the reverse order to dismantling.

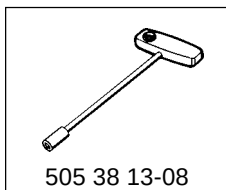
Mod. 650, 700

The front vibration damper is dismantled and replaced in the same order as described for mod. 500, 540.

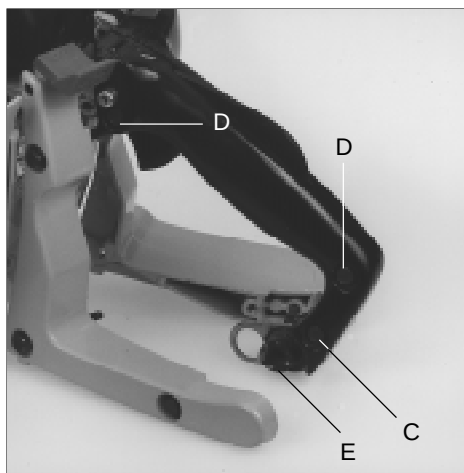
The vibration damper at the cylinder can be dismantled for replacement after the screws (A) and (B) have been dismantled.



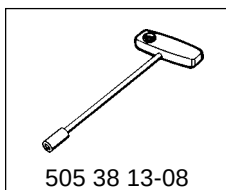
Dismantle the screws (A) and the handle half (B).



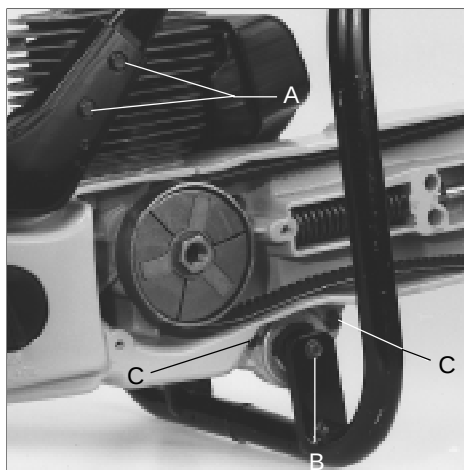
In order to dismantle the vibration damper in the rear handle the screws (A) must be dismantled and the handle half (B) removed.



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

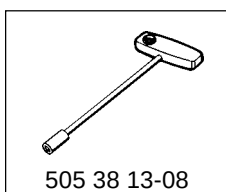


Remove the screw (C) and release the screws (D) enough to dismantle the vibration damper (E) for replacement.
Assembly is conducted in the reverse order to dismantling.



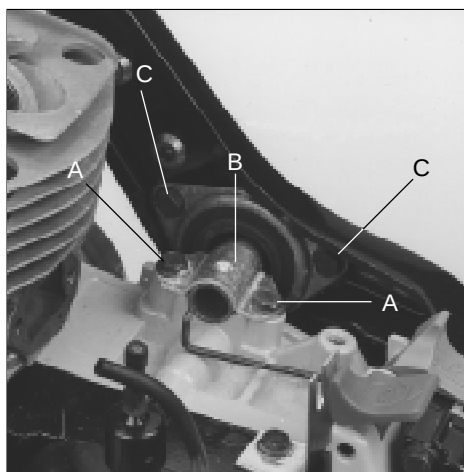
Mod. 850, 1200

Remove the front handle and the screws (C).
Lift off the vibration dampers for replacement.



Mod. 850, 1200

Remove the screws (A) and the screws (B) (one on each side) and lift off the handle.
Remove the screws (C) and lift off the vibration dampers.
Replace both dampers.



The carburettor is dismantled first before the vibration damper by the cylinder can be replaced.

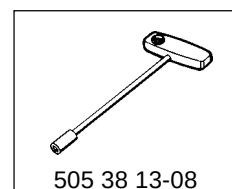
Remove the screws (A) and the clamp (B). Remove the screws (C).

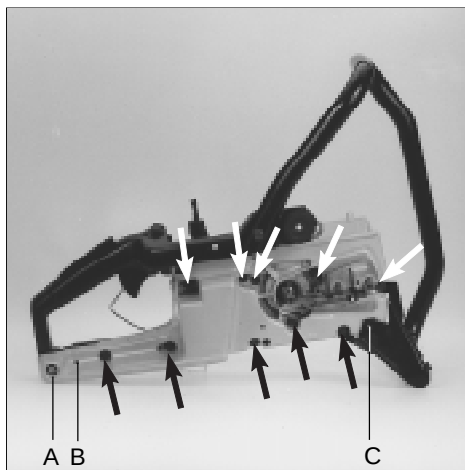
Bend apart the crankcase and handle with a screwdriver and lift off the vibration damper. Note the plastic washer which lies inside the damper.

Assembly is conducted in the reverse order to dismantling.

Make sure that the clamp is turned correctly so that the protrusion goes in the hole on the vibration damper's shaft!

The rear vibration damper is dismantled and assembled in the same way as described for mod. 650, 700.



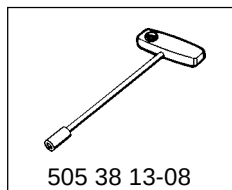


Dismantling, assembly

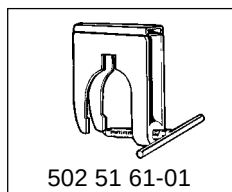
Mod. 500, 540

Remove all the crankcase screws and the nut (A).

Press out the sprung tubular pin (B) and lift off the handle unit.



Separate the crankcase halves.



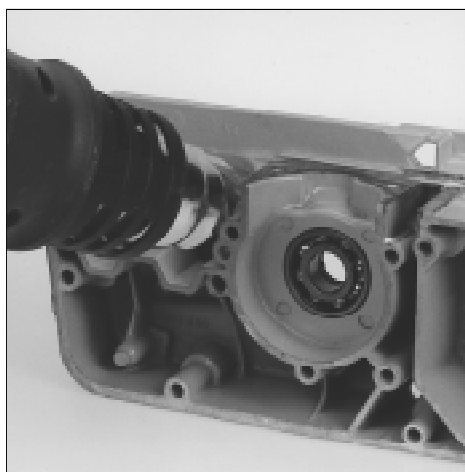
Press out the crankshaft from the crankcase half.



Remove the rubber seal and heat up the crankcase halves to 150° – 200° C.

Dismantle the ball bearings.

Press off the seal.



Dismantling, assembly

Mod. 500, 540

Dismantle all the parts on the power cutter so that only the crankcase and handle unit remain.

Remove all the crankcase screws (10 pcs) and the nut (A).

Press out the sprung tubular pin (B) approx. 10 mm (.4") and lift off the handle unit.

Note the sleeve (C) so that it is not misplaced.

Separate the crankcase halves by means of tool 502 51 61-01.

Use the same tool as above and press out the crankshaft from the crankcase half.

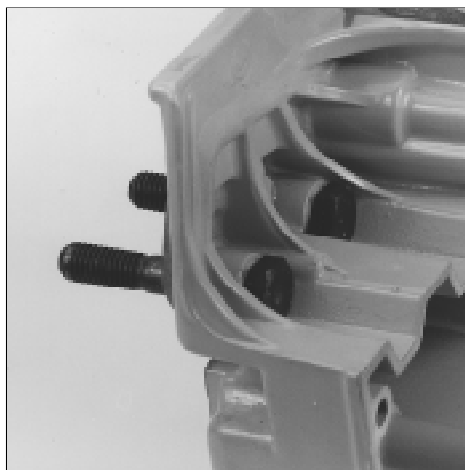
Inspect the crankshaft according to the chapter "Inspection of crankshaft".

Remove the rubber seal placed between the crankcase halves under the cylinder flange face.

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.

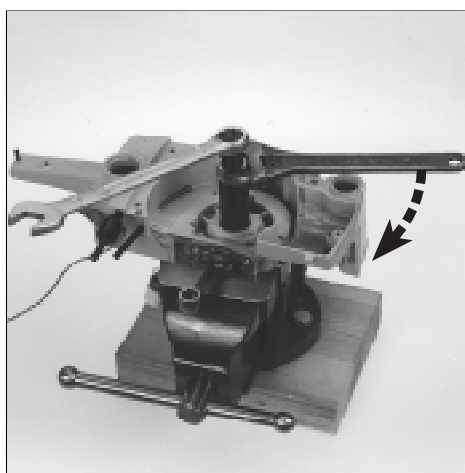


Clean the crankcase halves.
Replace if necessary the screws for the cutter arm.

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.



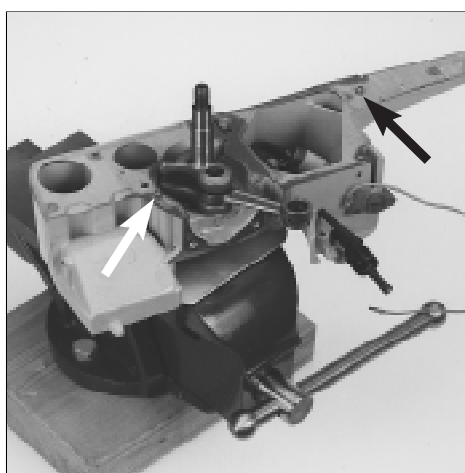
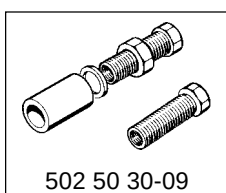
Fit new ball bearings and seals.
Pull the crankshaft into the flywheel side's crankcase half.

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 30-09.

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

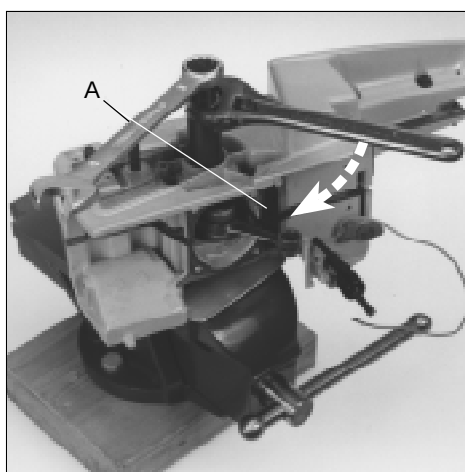


Check that the guide pins are in position in the flywheel side's crankcase half.

Place a new gasket on the sealing surface.

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.

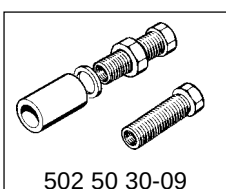
NOTE!
Do not forget the rubber seal (A)!

Push the rubber seal (A) in position and 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 30-09.

Tighten all the crankcase screws.



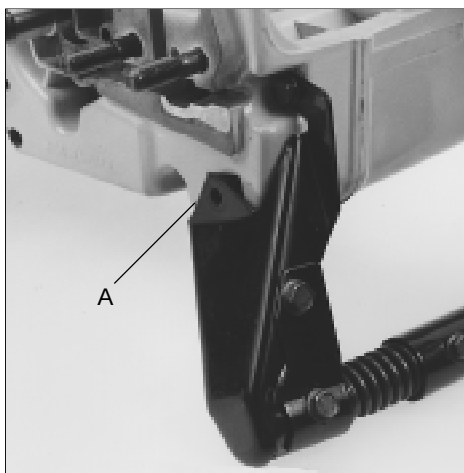
6 Crankshaft and crankcase



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

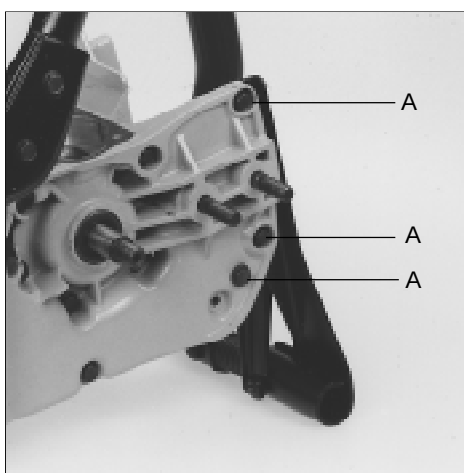


Fit the handle unit.

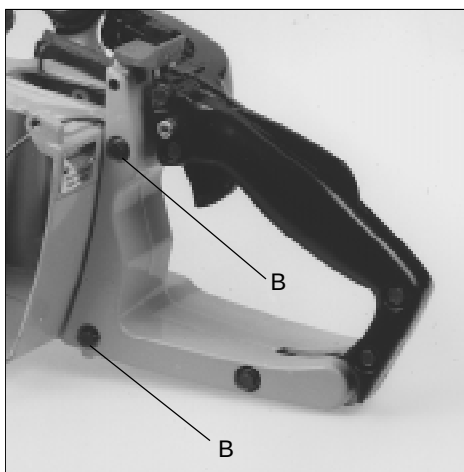


Mod. 650, 700

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



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



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 502 50 53-01 on the clutch side.

Fit the handle unit.

Start with the vibration damper at the rear handle.

Do not forget the spacer sleeve (A) at the front attachment.

Press in the sprung tubular pin at the rear handle.

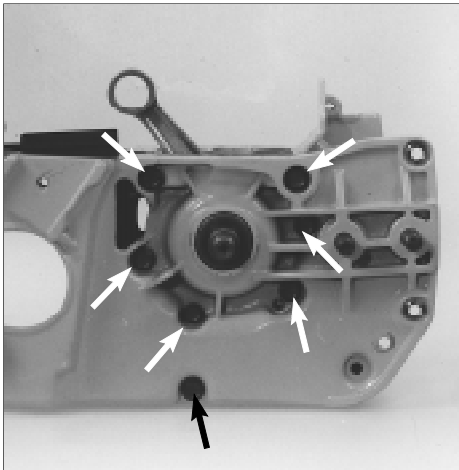
Mod. 650, 700

Dismantle all parts, including the fuel tank, so that only the handle unit and crankcase remain.

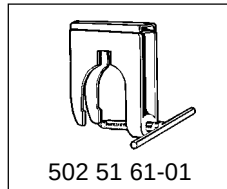
Remove the washer which lies inside the clutch drum (see chapter "Replacing the seal on the clutch side").

Remove the screws (A).

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



Separate and fit the crankcase halves in the same way as described for mod. 500, 540.



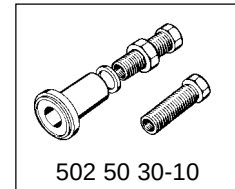
Fit the handle unit. Start with the rear handle. Make sure that the throttle push rod and stop wire are correctly positioned.

Note the different lengths of the screws.

Separate and fit the crankcase halves in the same way as described for mod. 500, 540.

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

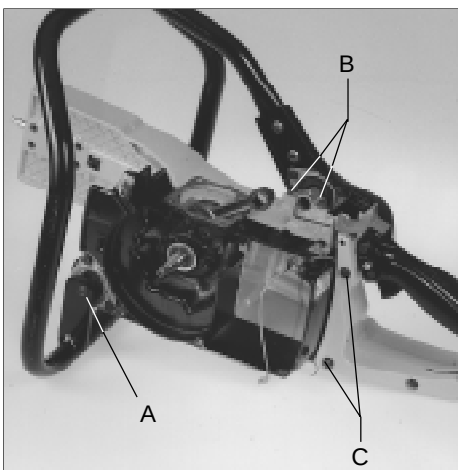
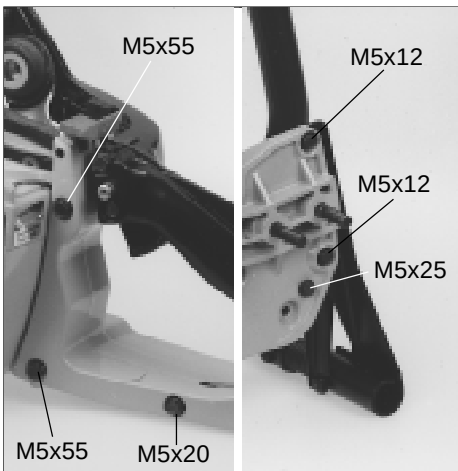
Use tool 502 50 30-10 during the assembly.



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.



Mod. 850, 1200

Dismantle all parts, including the fuel tank, so that only the handle unit and crankcase remain.

Remove the screws (A), (B), and (C), and separate the handle unit and crankcase.

Mod. 850, 1200

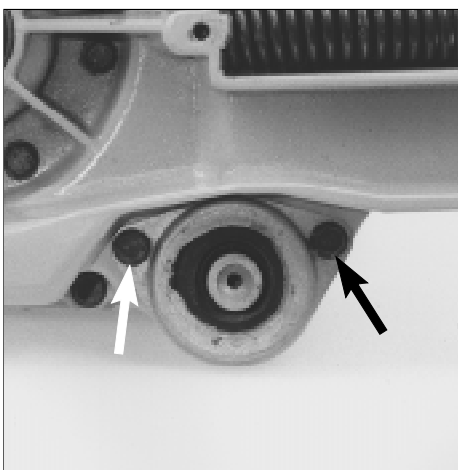
Dismantle all parts, including the fuel tank, so that only the handle unit and crankcase remain.

Remove the screws (A) at the front vibration dampers.

Remove the screws (B).

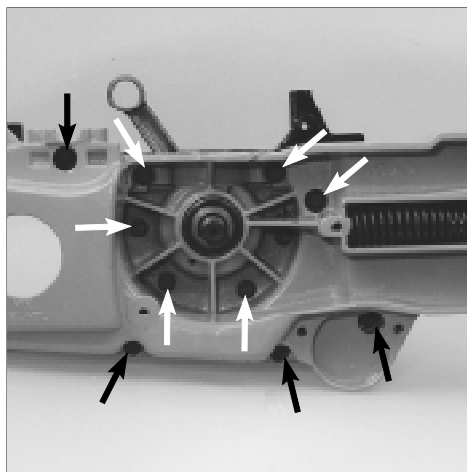
Remove the screws (C). They may sit very tight. If so, heat up the screws with a hot air gun so that the paint layer under the screw heads softens.

Separate the handle unit and crankcase.



Dismantle the vibration damper on the clutch side.

Dismantle the vibration damper on the clutch side.

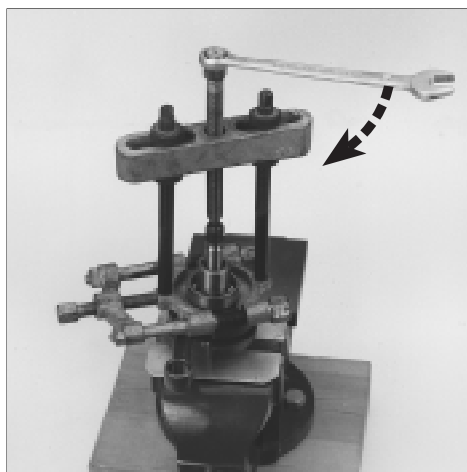
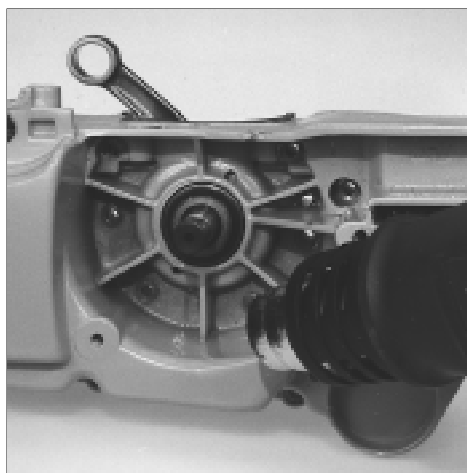


Remove all the crankcase screws.



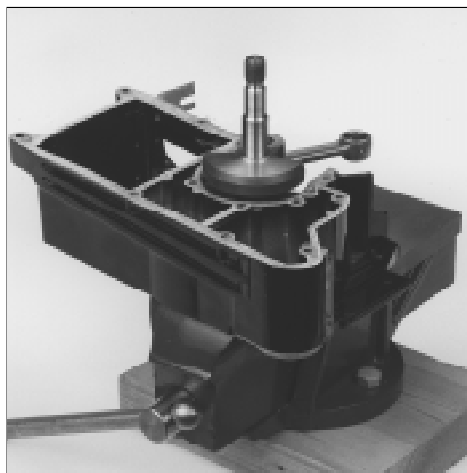
Dismantle the crankshaft from the clutch side's crankcase half.

Heat up with a hot air gun.



Pull out the ball bearing and spacer sleeve with a ball bearing extractor.

Press out the seal from the crankcase half.



Inspect the crankshaft according to the chapter "Inspection of crankshaft".

Fit the ball bearings in the crankcase halves.

Fit the crankshaft in the flywheel side's crankcase half.

Remove all the screws which hold the crankcase halves together. Note that the screws at the cylinder pedestal are 5 mm (.2") longer (M5 x 45) than the others.

Pull out the flywheel side's crankcase half with tool 502 51 61-01.

Dismantle the ball bearing and seal in the same way as described for mod. 500, 540.

Heat up the clutch side's crankcase half (150° – 200° C) with a hot air gun.

Dismantle the crankshaft from the crankcase half.

Pull out the ball bearing and spacer sleeve with a ball bearing extractor.

The sleeve may sit very tightly on the shaft. If necessary heat up with a hot air gun to simplify dismantling.

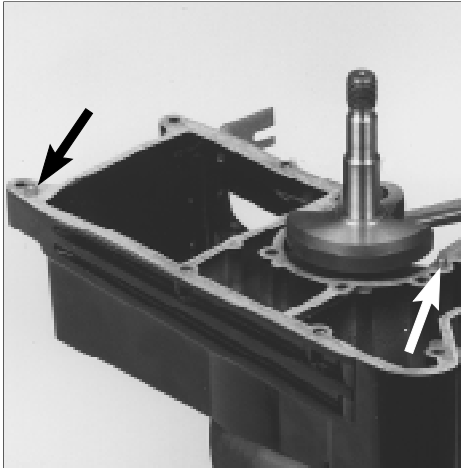
Press out the seal from the crankcase half.

Inspect the crankshaft according to the chapter "Inspection of crankshaft".

Heat up the crankcase halves (150° – 200° C) with a hot air gun and place the ball bearings in position.

Fit the crankshaft in the flywheel side's crankcase half while the ball bearing is still hot.

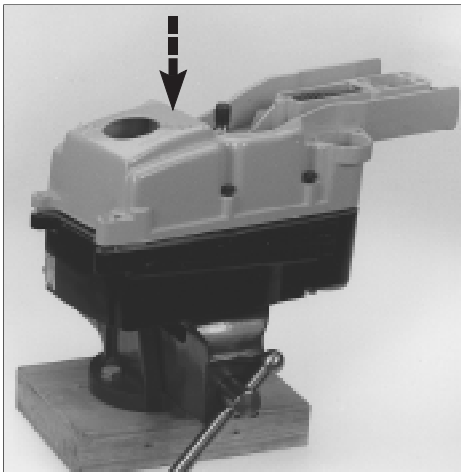
Heat up the ball bearing's inner ring again if necessary.



Place a new gasket on the flywheel side's crankcase half.

Place a new gasket on the flywheel side's crankcase half.

Check that the guide pins are in position.
Fix the gasket with grease.



Heat up the inner ring on the ball bearing in the clutch side's crankcase half.
Pull the crankcase half down over the crankshaft.

Tighten the crankcase screws diagonally starting closest to the crankshaft.

Heat up the inner ring on the ball bearing in the clutch side's crankcase half with a hot air gun.

Pull the crankcase half down over the crankshaft.

Make sure that the connecting rod is not trapped and that the guide pins go into their holes in the crankcase half.

Tighten the screws closest to the crankshaft diagonally.

NOTE!

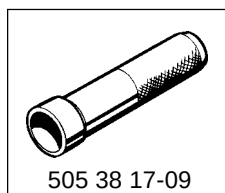
The two long screws should be placed at the cylinder pedestal plane.



Heat up the spacer sleeve and push it down over the crankshaft to the ball bearing

Heat up the spacer sleeve to 150° – 200° C with a hot air gun and push it down over the crankshaft to the ball bearing with drift No. 505 38 17-09.

Check that the crankshaft can rotate easily. If not, tap the shaft journals a few times with a plastic mallet to centre the crankshaft in the crankcase.



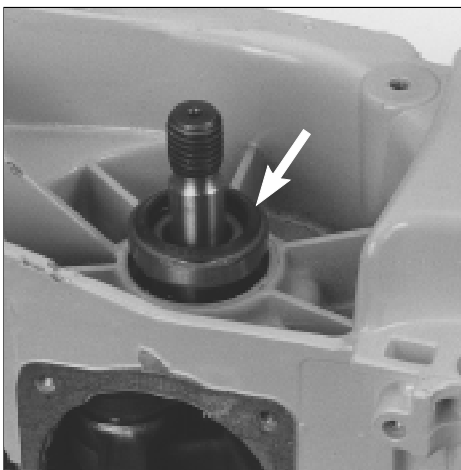
Lubricate the spacer sleeve and fit the seal.

Fit the front vibration damper and the handle unit.

Lubricate the spacer sleeve with a few drops of oil and press down the seal until the shell plate comes flush with the crankcase.

Fit the front vibration damper and the handle unit in the reverse order to dismantling.

Make sure the throttle push rod and stop wire are correctly positioned and that the clamp for the vibration damper at the cylinder is fitted correctly.





Inspection of crankshaft

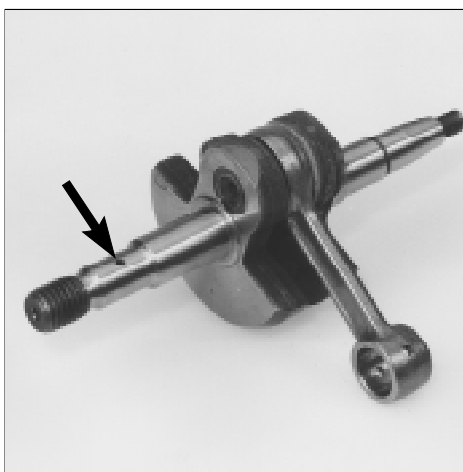
Check the connecting rod's big end.



Check the connecting rod's small end.



Check the big end bearing.



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

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.

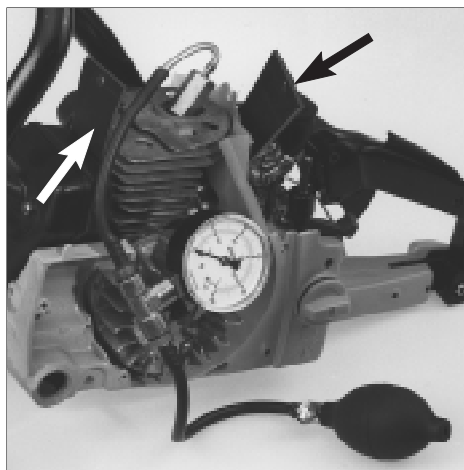
If seizure marks or discolouring in the bearing race are discovered then the crankshaft should be replaced.

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.

Mod. 650, 700, and 850, 1200 have automatic lubrication of the clutch drum's bearing.

Check with compressed air that the lubrication channel is open.



Tightness testing

Mod. 500, 540 - Muffler side

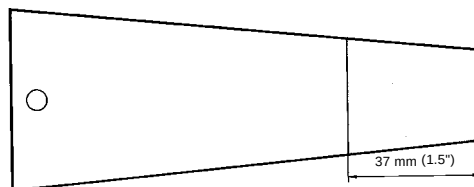
Shorten the sealing plate 502 54 11-01 according to the diagram.

Release the muffler's nuts as far as possible without releasing the muffler.

Press down the sealing plate between the cylinder and muffler.

If the rubber is greased the sealing plate will slide into position more easily.

Screw tight the muffler's nuts.



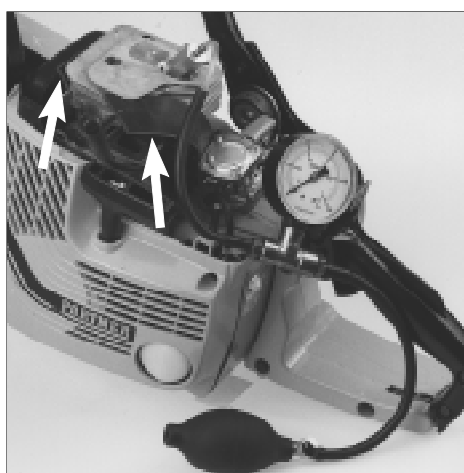
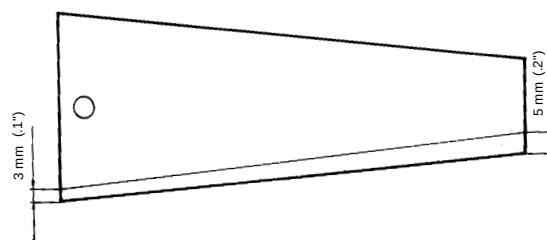
Mod. 500, 540 - Carburettor side

Cut the sealing plate 502 54 11-01 according to the diagram.

Release the carburettor's nuts as far as possible without releasing the carburettor.

Press down the sealing plate between the carburettor and the heat guard diagonally upwards from the left.

Screw tight the carburettor's nuts.



Mod. 650, 700 - Muffler side

Release the muffler's screws and remove the exhaust gasket and cooler plate.

Press down the sealing plate 502 54 11-01 between the muffler's screws.

Screw tight the muffler on the cylinder.

Mod. 650, 700 - Carburettor side

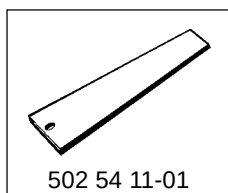
Remove the screws which hold the carburettor and the air intake box. Replace the standard carburettor screws with 65 mm (2.6 inches) long screws.

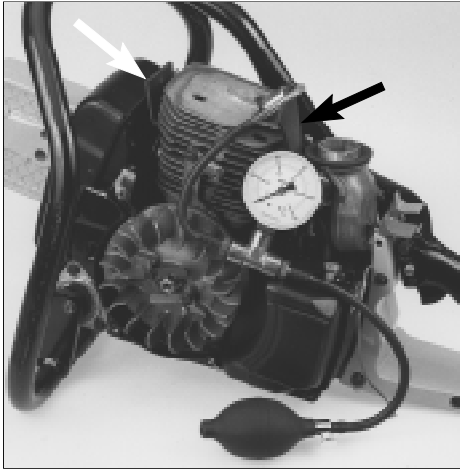
Place the sealing plate 502 54 11-01 between the carburettor and the intermediate piece.

Screw tight the carburettor's screws.

Crankshaft's lubrication hole

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





Mod. 850, 1200 - Muffler side

Remove the lower screw which holds the muffler and screw out the two top screws as far as possible without the muffler releasing from the cylinder.

Press down the sealing plate 502 54 11-01 as far as possible between the cylinder and the muffler.

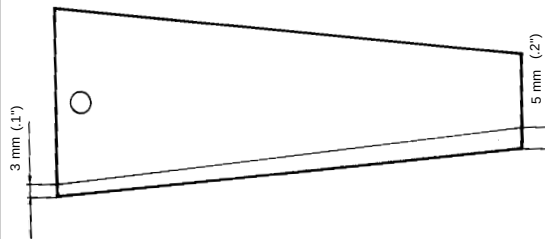
Tighten the muffler's screws.

Mod. 850, 1200 - Carburettor side

Cut the sealing plate 502 54 11-01 according to the drawing.

Release the carburettor's screws and press down the rubber plate between the carburettor and the intermediate piece. Check that it is pressed down far enough to block the impulse channel.

Tighten the carburettor's screws.



Crankshaft's lubrication hole

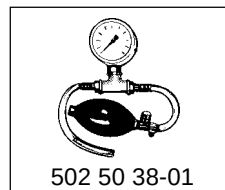
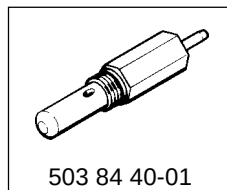
Dismantle the centrifugal clutch and seal the lubrication hole in the crankshaft with tape.

All models

Fit the pressure test nipple 503 84 40-01 in the spark plug hole.

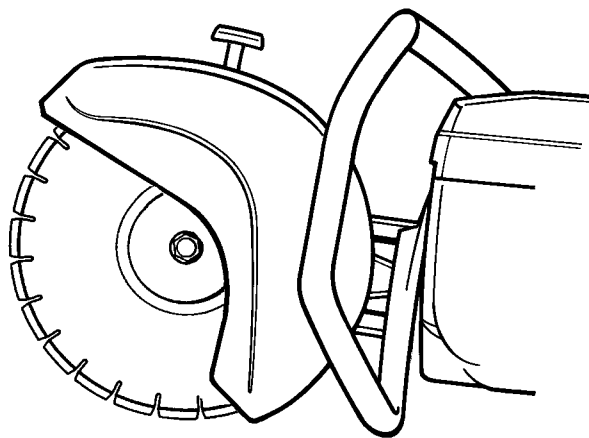
Connect the pressure gauge 502 50 38-01 to the nipple and pump up a pressure of 50 kPa (0.5 kp/cm²) in the crankcase.

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



Cutting equipment

7.



Contents

Dismantling, mod. 500, 540, 650, 700	76
Assembly, mod. 500, 540, 650, 700	78
Dismantling, mod. 850, 1200	79
Assembly, mod. 850, 1200	81

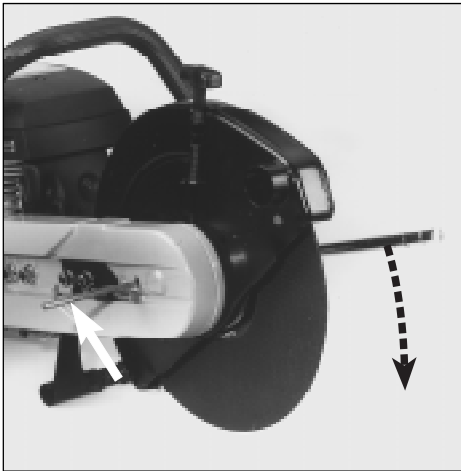
The cutter disc is driven by a V-belt which during its entire service-life is given the correct tension by means of a powerful compression spring, on the assumption that the belt tensioning screw is correctly set.

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. 500, 540, 650, 700

Dismantle the cutter disc.

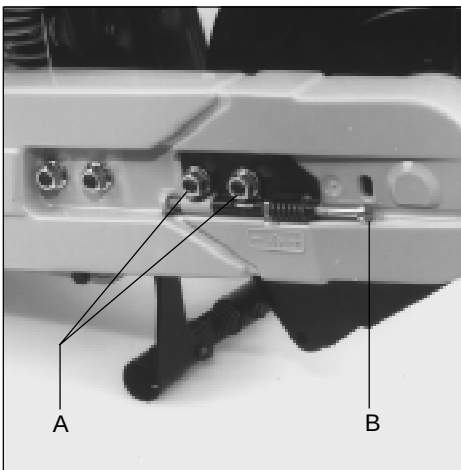
Dismantling

Mod. 500, 540, 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.

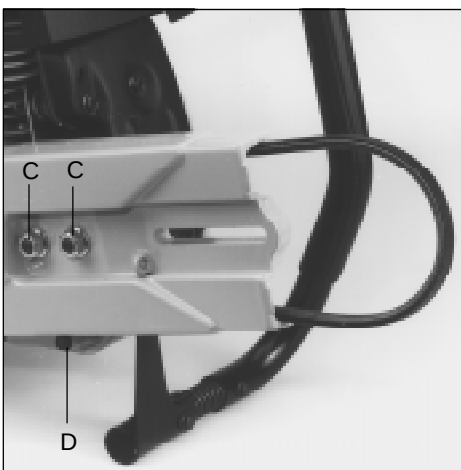


Release the belt tension and dismantle the front belt guard and cutter arm.

Unscrew the nuts (A).

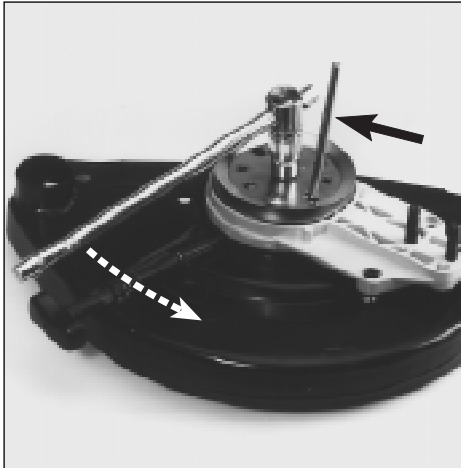
Screw out the tensioning screw (B) so that the belt tension releases.

Remove the belt guard and cutter arm.



Dismantle the clutch cover and drive belt.

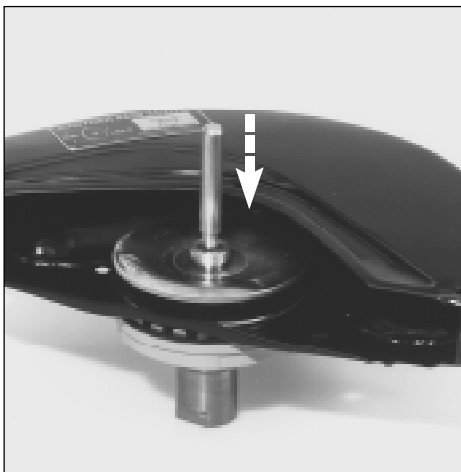
Remove the nuts (C) and screw (D).
Lift off clutch cover and drivebelt.



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!

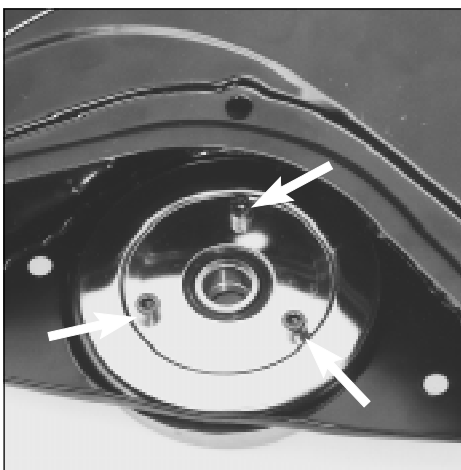
If only the arbor bush and flange are to be dismantled this can be done by levering with two screw drivers placed between the flange and guard.

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.

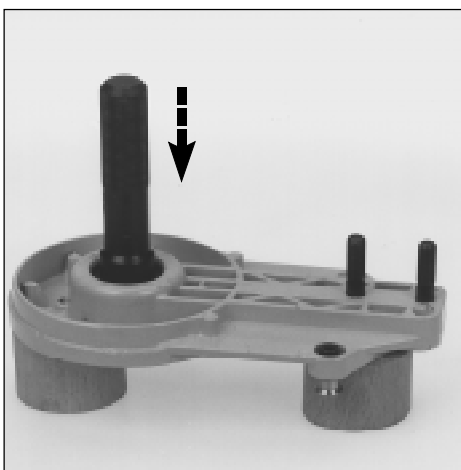
NOTE!

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.



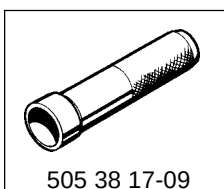
Remove the screws, cover plate, friction washers, and guard.

Remove the three screws and cover plate, plastic washer, rubber washer, and guard.

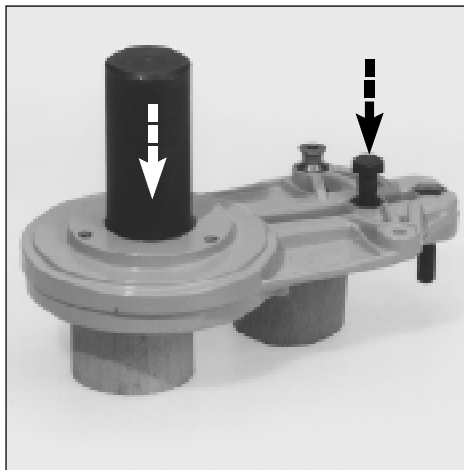


Dismantle the cutter arm's ball bearings.

Heat the cutter arm with a hot air gun to approx. 150°C and dismantle the ball bearings. If necessary use a suitable drift (505 38 17-09) and hammer.



505 38 17-09



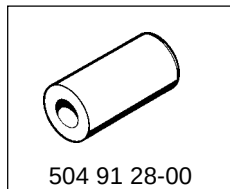
Assembly

Mod. 500, 540, 650, 700

Clean and check the different parts.

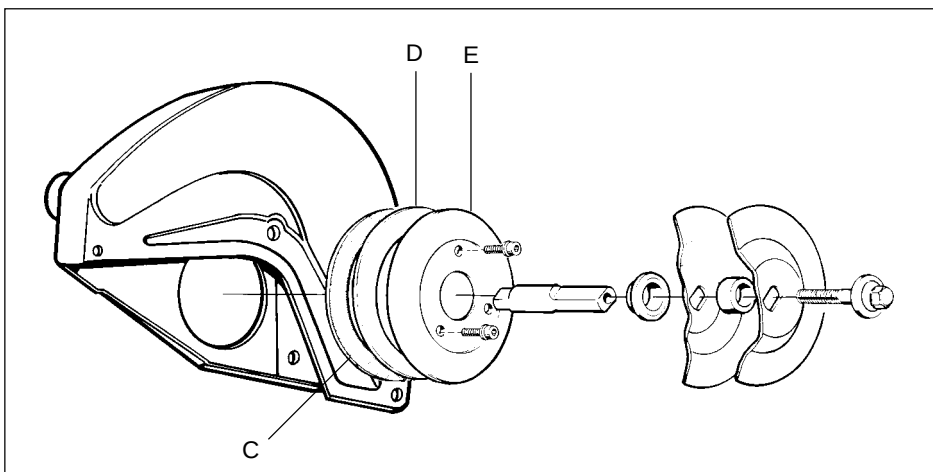
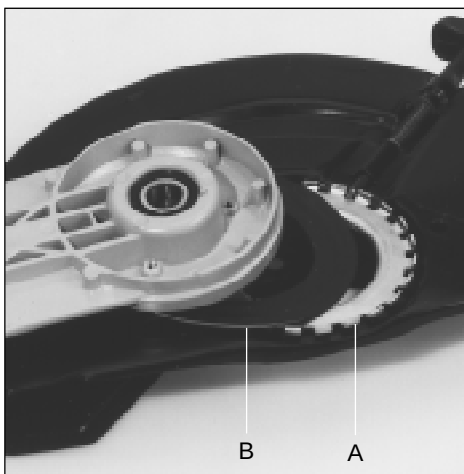
Heat the cutter arm and fit new ball bearings. Do not forget the spacer ring between the ball bearings!

If necessary fit new retaining screws.



504 91 28-00

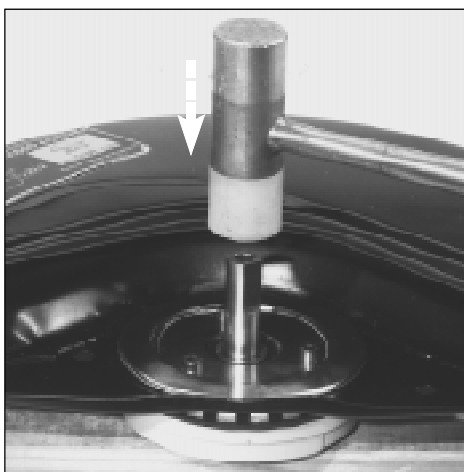
Apply a little grease on the indicating washer and put it on the guard. Place the thick rubber washer on the indicating washer.



Press in the shaft through the ball bearings until it extends approx. 5.5. mm 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.



Assembly

Mod. 500, 540, 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 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.

Thereafter place the thin rubber washer (C) closest to the guard, plastic washer (D), and cover plate (E).

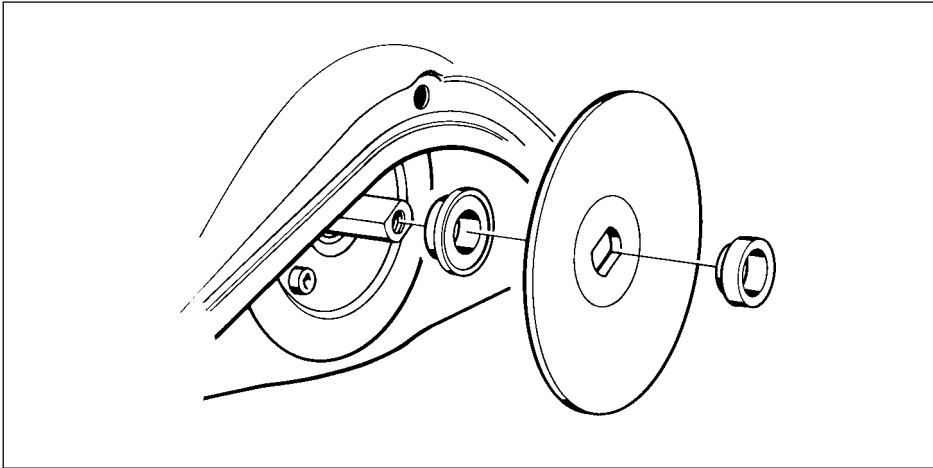
Tighten the three screws and check that the guard can be turned.

Press in the shaft by with a plastic hammer so that it goes through the ball bearings and out approx. 5.5 mm 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.

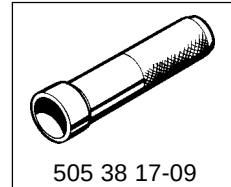
Tighten the screw.



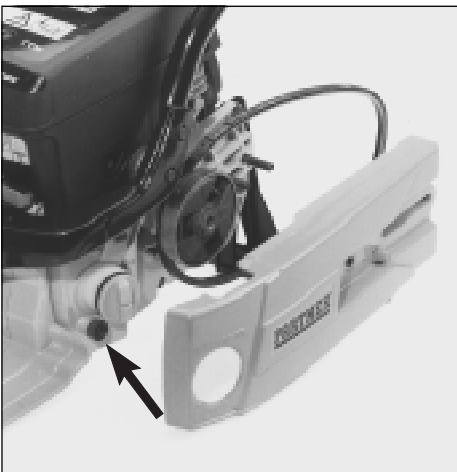
Fit the spacer sleeves and support washer as shown in the illustration.

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 (505 38 17-09).



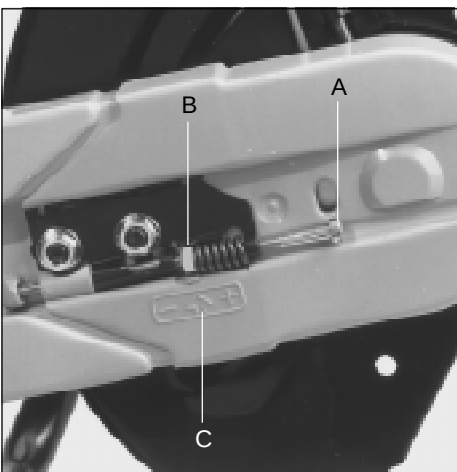
505 38 17-09



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

Place a new drive belt round the clutch drum.

Check that the rubber bushing is in position and fit the clutch cover. Do not forget the screw in the lower edge of the guard.



Lift the cutter arm in position and fit the front belt guard and belt tensioning device. Tension the drive belt and tighten the nuts.

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).

Thereafter tighten the nuts.



Dismantling

Mod. 850, 1200

Dismantle the cutter disc and clutch cover and front belt guards.

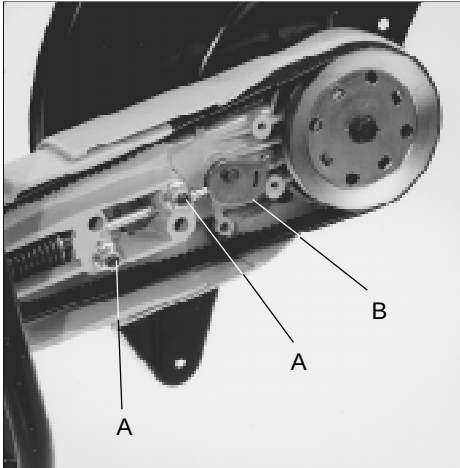
Dismantling

Mod. 850, 1200

Dismantle the cutter disc in the same way as described above.

Remove the screws which hold the clutch cover and front belt guard.

Lift off the guard and the clutch cover.

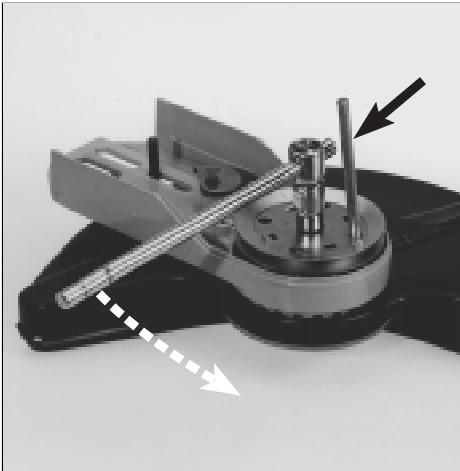


Unscrew the cutter arm's nuts and release the belt tension.
Lift off the cutter arm.

Unscrew the nuts (A) which hold the cutter arm.

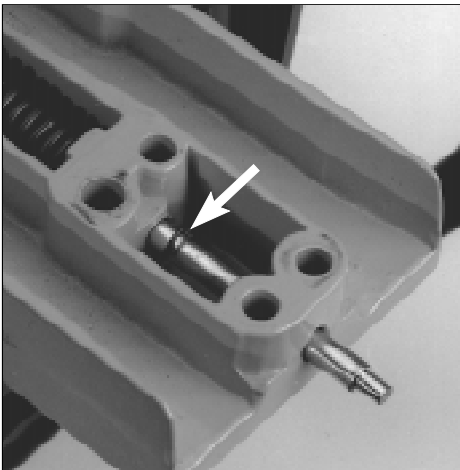
Reduce the belt tension completely by turning the eccentric disc (B) anti-clockwise by placing a screwdriver in the oval hole.

Lift off the cutter arm.



Dismantle the pulley and other parts from the cutter arm.

1. Dismantle the pulley (see page 77).
2. Dismantle the spacer sleeve and support washer (see page 77).
3. Dismantle the cover plate, friction washers, and guard (see page 77).
4. Dismantle the ball bearings (see page 77).



Dismantle the drive belt's tensioning device.

Remove the clip and pressure rod.

Dismantle the drive belt's tensioning device.

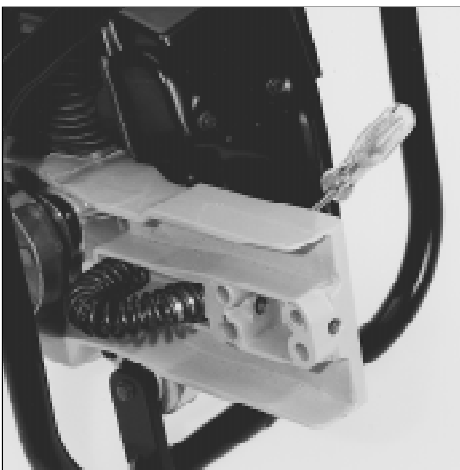


WARNING!

Observe great care when lifting up the spring from its seat. It is powerfully pre-tensioned and can cause serious injury if it flies out.

Wear protective goggles and gloves.

Remove the clip with a screw driver and lift off the pressure rod.

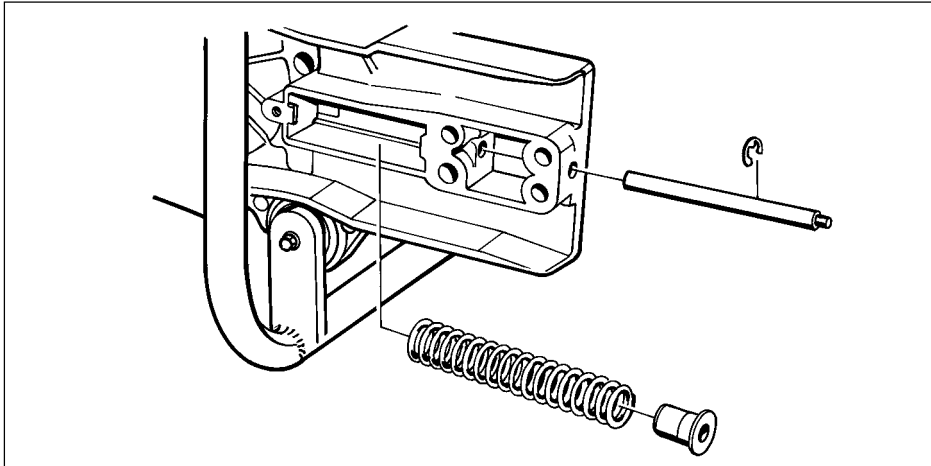


Bend and press out the spring from the back of the crankcase.

Hold a hand over spring.

Bend and press out the spring from the back of the crankcase.

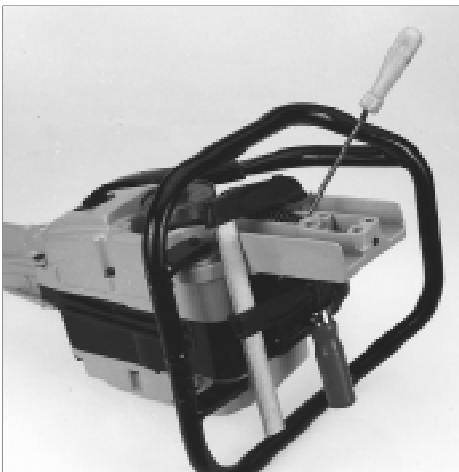
Hold a hand over the spring.



Assembly

Mod. 850, 1200

Clean and replace damaged or worn parts in the belt tensioning device prior to assembly.



Fit the belt tensioning device in the reverse order to dismantling.



WARNING!

Wear protective goggles and gloves when fitting the compression spring. The compression force is powerful enough to cause serious injury if the spring flies out.

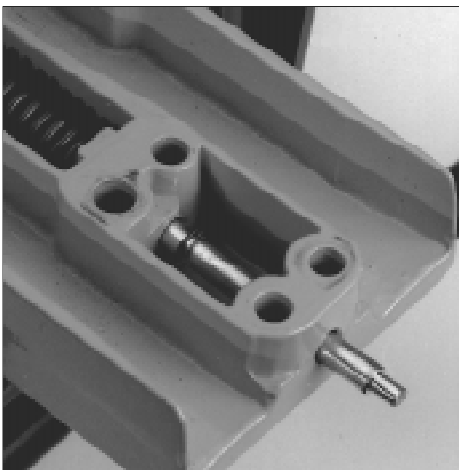


WARNING!

Wear protective goggles and gloves when fitting the compression spring. The compression force is powerful enough to cause serious injury if the spring flies out.

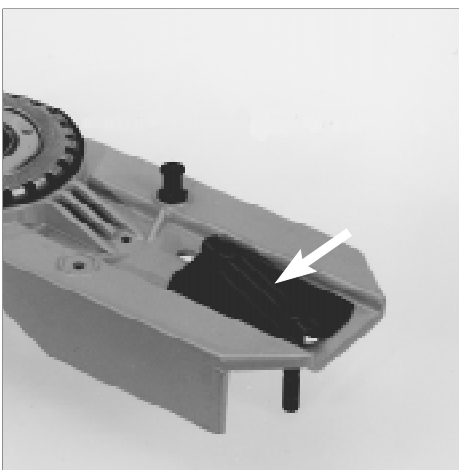
Put the sleeve inside the spring. Place the rear end of the spring under the pin on the spring housing and then bend down the other end of the spring.

Press down the spring with a clamp and bend up the spring ends with a screwdriver so that the spring is correctly positioned in the spring housing.



Fit the pressure rod and clip.

Put the compression spring through the crankcase and the sleeve in the spring. Fit the clip.

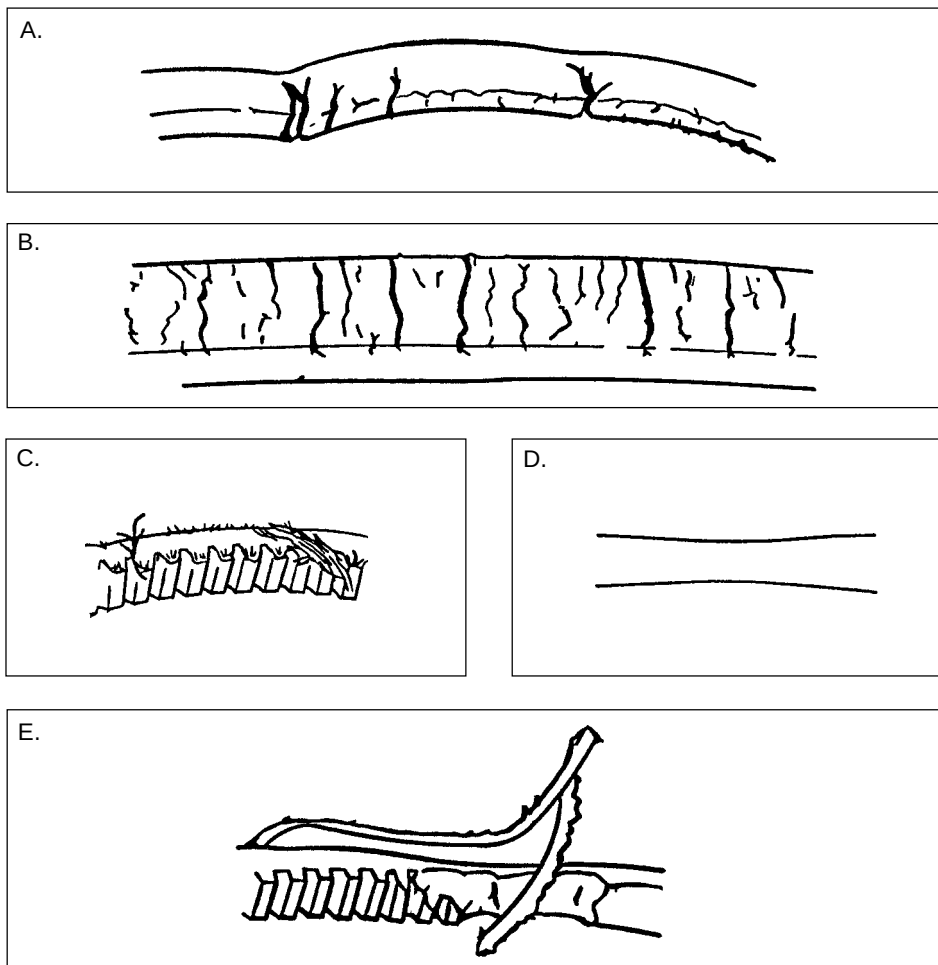


Fit the cutter arm and its different parts in the same way as described earlier (see page 78).

Fit the cutter arm and its different parts in the same order as described earlier (see page 78).

NOTE!

Do not forget to place the cutter arm's retaining screws and fixing plate in position *before* fitting the guard.



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

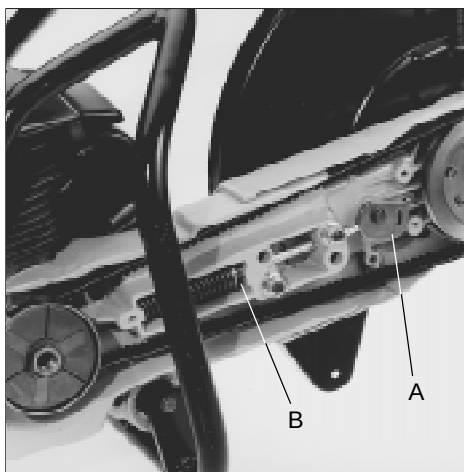
Fig. A. Normal condition of a belt after prolonged use.

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 fit the cutter arm in its rear position.

Work the drive belt over the front pulley and tension the belts.

Tighten the cutter arm's nuts and fit the clutch cover and belt guard.

Place a new drive belt round the clutch drum.

Fit the cutter arm but only tighten the nuts loosely.

Work the drive belt over the front pulley.

Tension the belt by turning the eccentric disc (A) clockwise with a screwdriver inserted in the oval hole. Turn it far enough so that the spring lies approx. 5 mm from the end of the spring housing (B) so that the automatic belt tensioning will function.

Tighten the cutter arm's nuts and fit the clutch cover and belt guard.

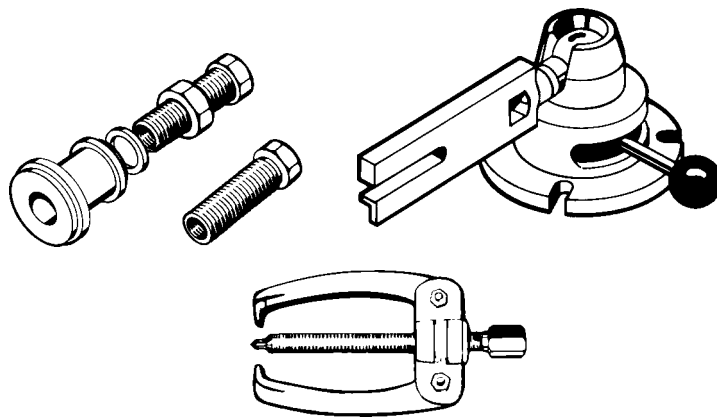


Check that the pulley does not go against the front guard. If so, fit the cutter disc and screw tight the centre screw. This pulls over the drive shaft and pulley far enough to prevent the pulley catching on the guard.

Check that the pulley does not go against the front guard. If this is the case, fit the cutter disc and screw tight the centre screw. This pulls over the drive shaft and pulley far enough to prevent the pulley catching on the guard.

Tools

8.



Contents

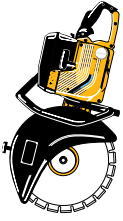
Clutch	84
Crankshaft	84
Ball bearing	84
Sealing ring	84
Cylinder and piston	85
Ignition system	85
Crankcase	86
Tightness testing	86
Fuel pick-up	87
Workshop equipment	87

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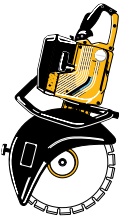
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Workshop equipment

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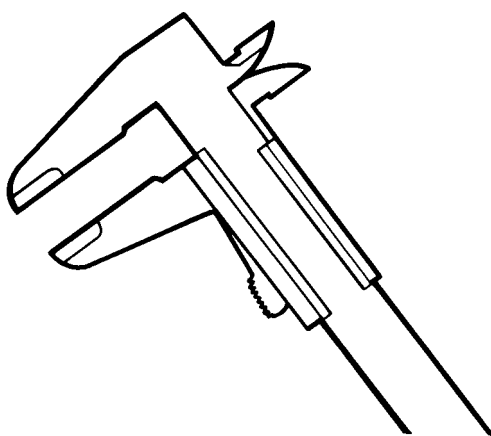
Workshop equipment

[illegible]

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Technical data

9.



Contents

Technical data	92
Tightening torque	92

Specification	K 500	K 540	K 650	K 700	K 850	K 1200
Displacement, cm ³	49	53	71	71	85	100
Cylinder diameter, mm	44	46	50	50	52	56
Stroke, mm	32	32	36	36	40	40
Compression ratio	10:1	10:1	9:1	9:1	9.7:1	9.7:1
Power, kW	2.1	2.3	3.5	3.5	3.8	4.4
Max power, rpm	10 500	10 200	10 000	9 400	9 600	9 600
Idling speed, rpm	2 500	2 500	2 500	2 500	2 500	2 500
Clutch engagement speed, rpm	3 900	3 900	3 200	3 200	3 200	3 200
Ignition system, type	CD	CD	CD	CD	CD	CD
Ignition system, manufacture	EM	EM	EM	EM	EM	EM
Plug, Champion	RCJ 7Y	RCJ 7Y	RCJ 7Y	RCJ 7Y	RCJ 7Y	RCJ 7Y
Plug, NGK	BPMR 7A	BPMR 7A	BPMR 7A	BPMR 7A	BPMR 7A	BPMR 7A
Electrode gap, mm	0.5	0.5	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	0.3 – 0.5	0.3 – 0.5
Carburettor, manufacture	Walbro	Walbro	Tillotson	Tillotson	Tillotson	Tillotson
Carburettor, type	WT353	WT353	HS175F	HS175F	HS175D	HS175D
Carburettor setting, L	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Carburettor setting, H	7/8	7/8	7/8	7/8	3/4	3/4
Fuel tank, litres	0.7	0.7	0.7	0.7	1.0	1.0
Weight, kg	7.8/300 mm	8.1/300 mm	9.4/300 mm	10.0/350 mm	12.6/300 mm	12.7/300 mm
Sound level, dBA	107	103	101	101	103	103
Disc diameter, mm	300	300	300	350	300/350	300/350/400
Spindle speed, rpm	5 100	5 100	5 100	4 800	4 900	4 900/4 900/ 4 300
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				