Brush Cutters, Trimmers, Pruners, Hedge Trimmers

Workshop Manual

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Workshop Manual
Brush cutters, Trimmers, Pruners, Hedge trimmers

List of Contents

The Manual covers the models:

265

250

240/245

225 / 232 / 235 / 240 RBD

122

32

Mondo

235 P

225 H 60 / 225 H 75

Husqvarna

General recommendations

Bear in mind:

⚠ Do not start the engine without the clutch drum and driveline fitted as the clutch can become detached and cause severe personal injury.

⚠ Do not touch hot components, e.g. the muffler and clutch before they have cooled sufficiently to avoid burns.

⚠ Avoid getting fuel or oil on your skin or in your mouth. Use a barrier cream on your hands. This reduces the risk of infection and makes dirt easier to wash away. Long term contact with engine oil can represent a health hazard.

⚠ Never start the engine indoors. Exhaust fumes are poisonous!

– Wipe up oil spills from the floor immediately to avoid slipping.

– Do not use tools that are worn or fit badly, for example on nuts and bolts.

\+ Always work on a clean bench.

\+ Always work logically to ensure all parts are fitted correctly and that nuts and bolts are tightened.

\+ Use the special tools where recommended to be able to carry out the work correctly and efficiently.

Fire risk

Handle fuel with respect as it is extremely inflammable.

Do not smoke and ensure there are no open flames or sparks in the vicinity.

Make sure there is a working fire extinguisher close at hand.

Do not try to extinguish a petrol fire with water.

Poisonous fumes

When using cleaning agents read the instructions carefully.

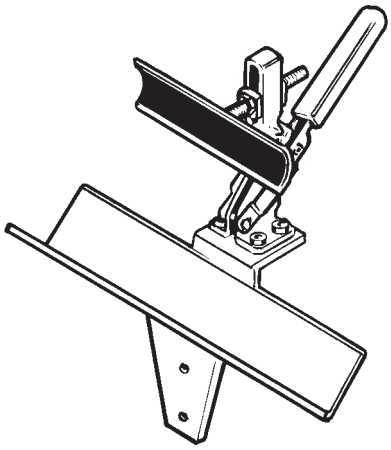
Ensure there is good ventilation when handling petrol and other volatile fluids.

The engine's exhaust fumes are poisonous. Test run the engine outdoors.

Special tools

Some of the work described in the Workshop Manual requires special tools. In each section where this is necessary there is a picture of the tool and an order number.

We recommend the use of special tools in order to avoid expensive damage to parts in question and personal injury and to provide an efficient repair procedure.



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Contact faces and gaskets

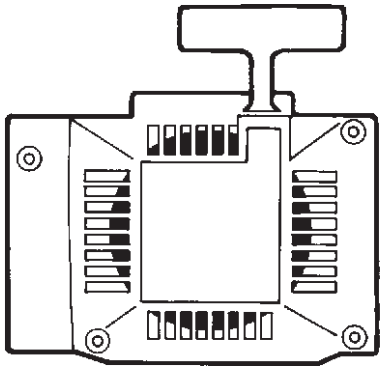
Ensure all surfaces are clean and free from gasket residue, etc. When cleaning use a tool that will not damage the contact face. Any scratches or unevenness should be removed using a flat fine cut file.

Sealing rings

Always replace a sealing ring that has been dismantled. The sensitive sealing lip can easily be damaged resulting in inferior sealing capacity. Surfaces which the seal shall seal against must also be completely undamaged. Lubricate the sealing lip with grease before it is fitted and ensure that it is not damaged e.g. by shoulders and splines on a shaft. Use tape or a conical sleeve as protection. It is important that the sealing ring faces in the right direction for it to act as it is intended.

Starter

1



Contents

1 Starter

WARNING!

Protective glasses should be worn when working on the starter to avoid injury to the eyes if, for some reason, the return spring should fly out.

Dismantling

General

Dismantle the starter from the engine body.

Dismantling

General

Remove all bolts and lift off the starter.

On some models the cylinder cover and tank filler cap must be removed.

Model 265

Dismantling

Release the spring pressure.

Model 265

Dismantling

Release the spring pressure. Pull out the starter cord approx. 30 cm.

Hold the starter pulley with your thumb and place the cord in the cut-out on the starter pulley rim.

Let the starter pulley slowly recoil.

NOTE!

Stop the spring with your thumb.

WARNING!

Take care not to injure your thumb on the screw at the cord's fastening.

Remove the screw and washer in the centre of the starter pulley and bearing sleeve.

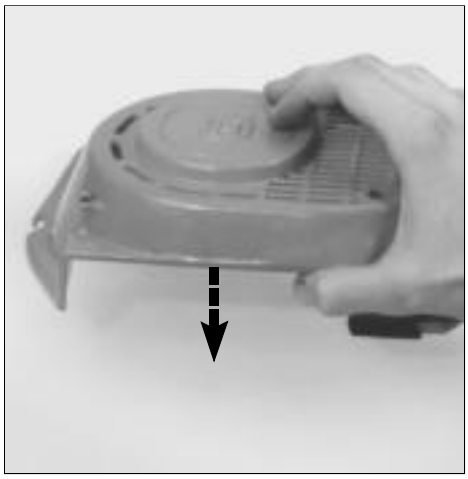
Lift out the starter pulley.

Remove the screw and washer in the centre of the starter pulley and bearing sleeve.

Lift out the starter pulley carefully so that the spring does not follow and fly out.

WARNING!

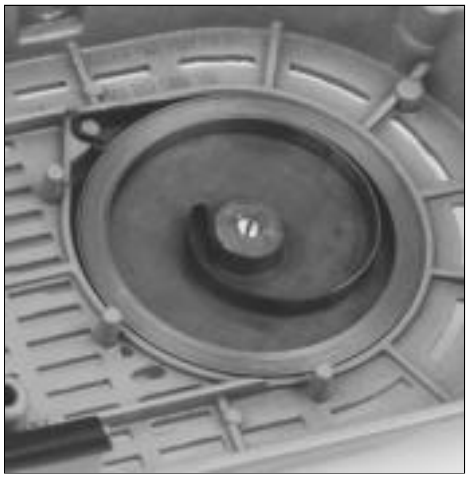
Wear protective glasses. The return spring can fly out and cause personal injury.



Remove the spring from the starter housing.

Remove the spring from the starter housing by knocking it against a bench with the spring facing downwards.

WARNING!
Wear protective glasses.



Assembly

Insert a new spring in the starter housing.

Assembly

Fit a new return spring if necessary.

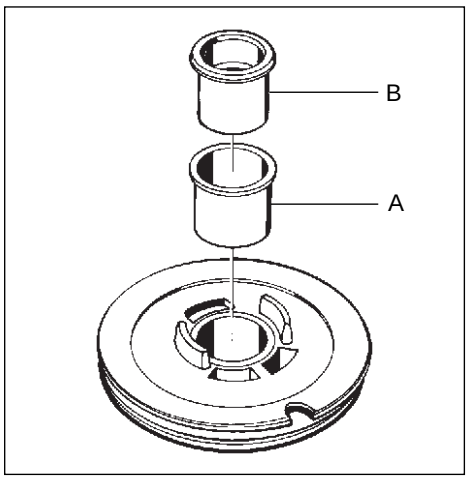
Let the spring retainer ring remain in place.

1. Place the spring over its seating in the starter housing
2. Push the spring into its right position using your thumb and let the retainer ring slide off the spring.
3. Lubricate the spring with a few drops of oil.

NOTE!

Do not forget the Pertinax disc between the spring and starter housing.

WARNING!
Wear protective glasses.



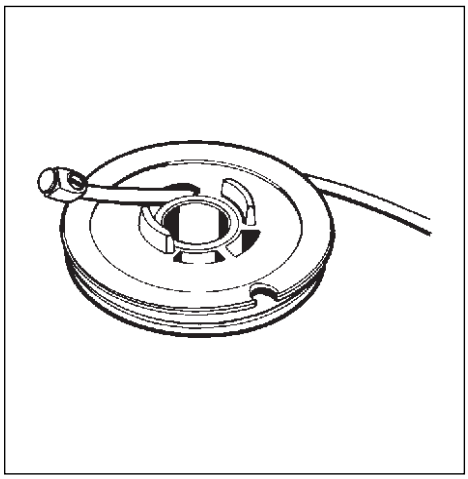
Check the starter pulley's bearing.

If necessary replace the sleeves (A) and (B).

Check the starter pulley's bearing. If it is heavily worn the bearing sleeve (A) can be replaced.

Cut out the sleeve and press in a new sleeve.

If there is still too much play on the bearing a new metal sleeve (B) should also be fitted.



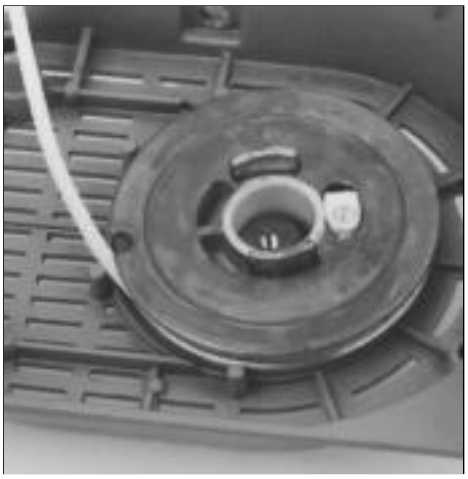
If necessary replace the starter cord.

If necessary replace the starter cord. Use Husqvarna original pre-cut cord or cord cut to the same length from a reel.

Thread the new cord through the hole in the starter pulley as shown in the illustration and screw the plastic cube on the end of the cord. Let it protrude approx. 3 mm and melt it using a soldering iron to ensure a secure fastening is obtained.

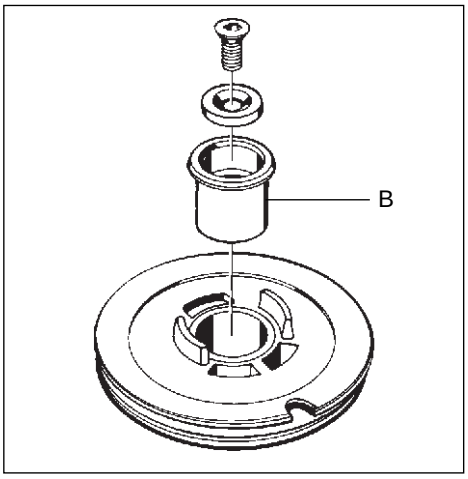
Tip!

The knot on the starter cord in the handle can be difficult to undo. It is easier if you place the knot on a hard surface and hit it with a hammer.



Wind the cord around the starter pulley about 3 turns *clockwise* and position the pulley in the starter housing.

Wind the cord around the starter pulley about 3 turns *clockwise* and position the pulley in the starter housing.



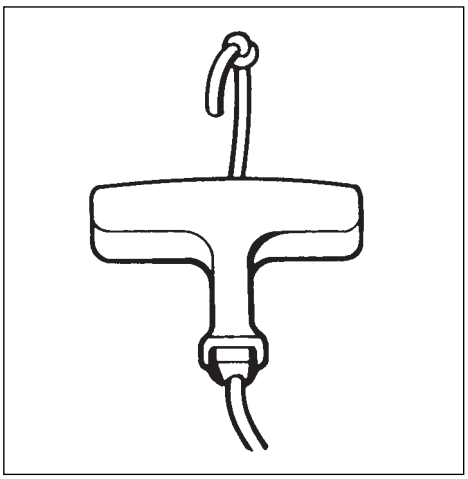
Fit the washer and screw that hold the starter pulley.

Check that the return spring grips the starter pulley hub correctly.

Lubricate the bearing sleeve (B) with a few drops of oil and insert the starter pulley.

Fit the washer and screw.

Use Loctite on the screw.



Fit the starter handle on the cord.

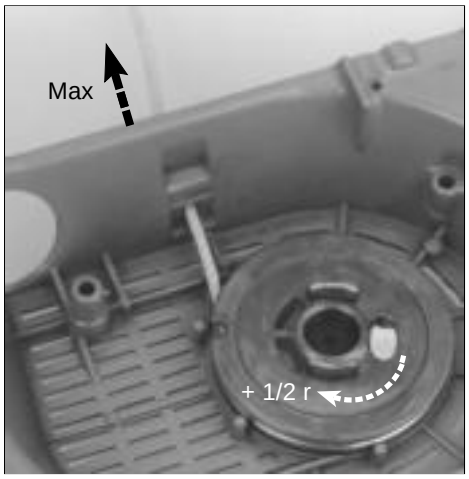
Insert the cord through the cord guide in the starter housing and anchor it in the starter handle by tying a knot.

Fold down the free ends and pull the knot fully into the starter handle.

Tension the return spring.

To tension the return spring pull out the starter cord fully and lift it into the cut-out in the starter pulley.

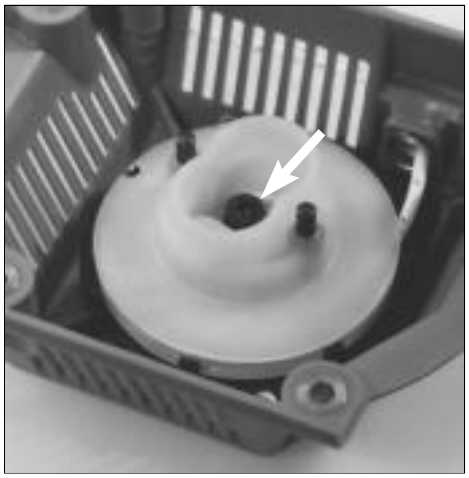
Hold the pulley using your thumb then tension the spring by turning the starter pulley *clockwise* approx. 2 turns.



Check the spring tension.

Check the spring tension.

It should be possible to turn the starter pulley *at least a further half turn* with the starter cord fully extended.



Model 250

Dismantling

Release the spring tension.

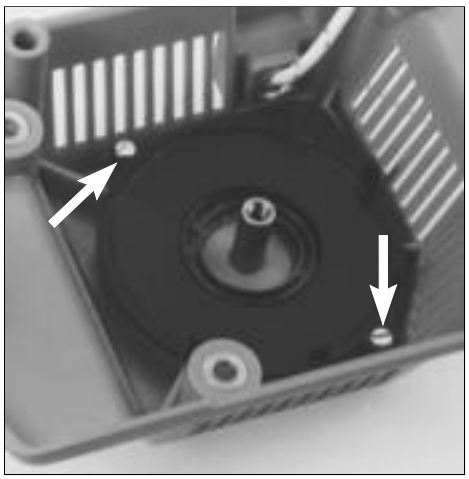
Remove the starter pulley.

Model 250

Dismantling

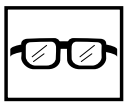
Release the spring tension in the same way as described for model 265.

Remove the screw in the centre of the starter pulley and lift out the pulley.



Carefully remove the spring cassette so that the spring does not fly out.

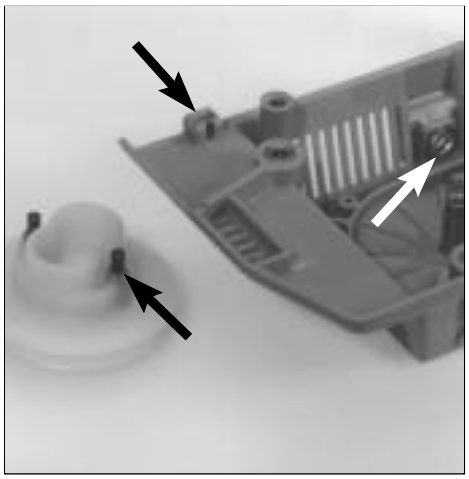
Remove the screws and lift out the spring cassette.



WARNING!

Wear protective glasses.

Despite the spring sitting in a cassette it can still fly out when the cassette is pried from the guide pin when inserting the cord in the starter housing.



Check the starter pulley and starter housing for wear and damage.

Check the following:

1. Wear on the drive pins on the starter pulley.

   If necessary replace the starter cord as for 265RX and cord spec.
2. Nut in the nut pocket is in position and the thread is undamaged.
3. Cord entry in the starter housing. If worn the housing should be replaced.

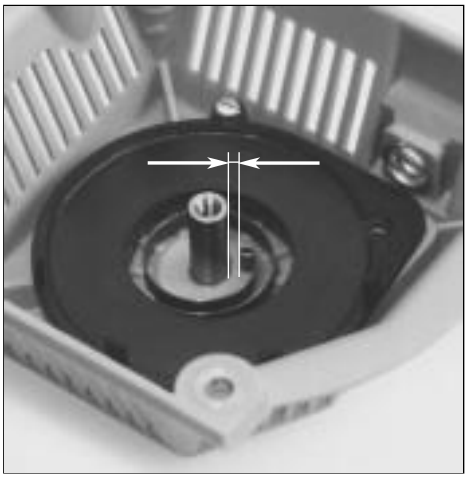
Assembly

Fit a new spring cassette if necessary.

Assembly

Lubricate the return spring with a few drops of oil or a cold resistant grease.

Ensure the spring has been pressed down to the bottom of the cassette especially at the fastening points.

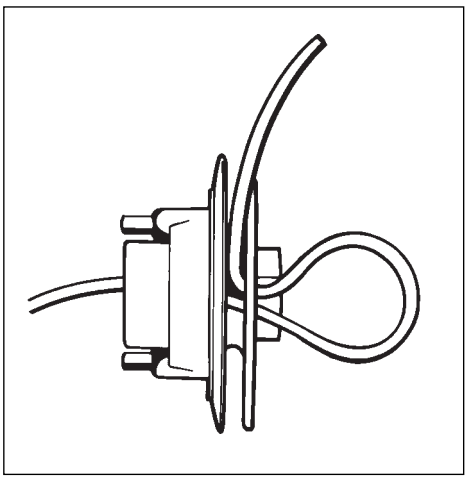


Fit the spring cassette in the starter housing.

Press the spring cassette into the starter housing and tighten the screws.

Check that the end of the spring is approx. 3 mm from the spindle to help assembly of the starter pulley.

Lubricate the surface of the cassette with oil or cold resistant grease.



Fit a new starter cord.

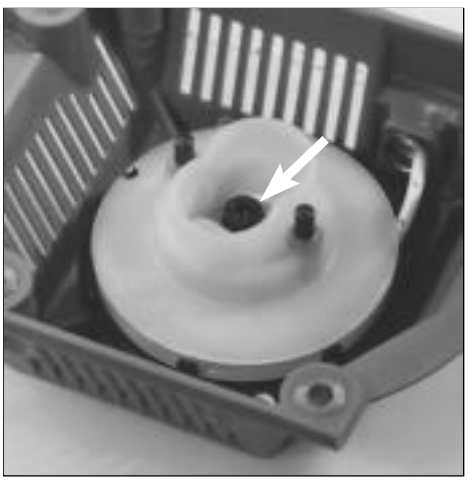
Fit a new starter cord.

Tie a small knot on the cord and melt the ends of the cord so that is does not fray.

Wind the cord approx. 3 turns *anticlockwise* on the starter pulley.

Tip!

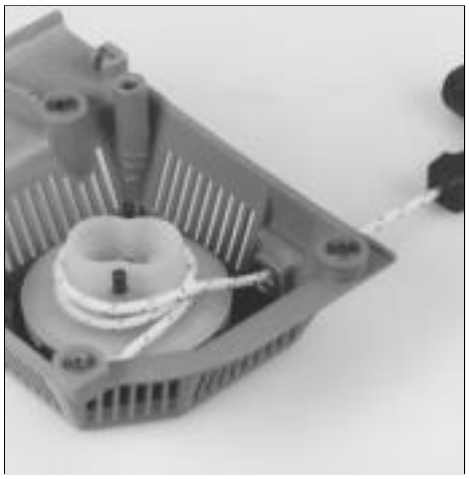
First thread the cord straight through the hole in the starter pulley and then back again and out through the slot.



Fit the starter pulley.

Lubricate the spindle in the starter housing with a few drops of oil and position the starter pulley and tighten the screw.

Fit the starter handle as described for model 265, but tie a double knot as the cord is lighter.

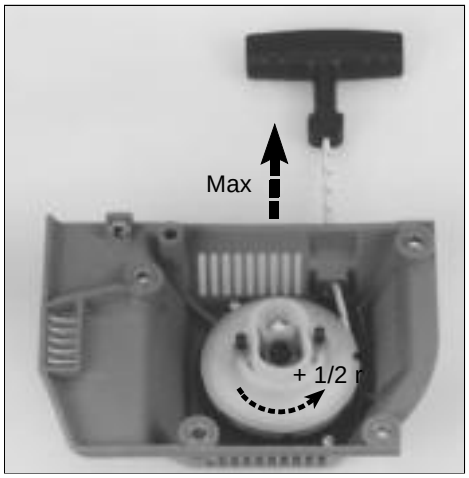


Tension the return spring.

To tension the return spring.

Wind the cord 2 turns *anticlockwise* around the hub on the starter pulley and pull out the starter handle until the cord is extended.

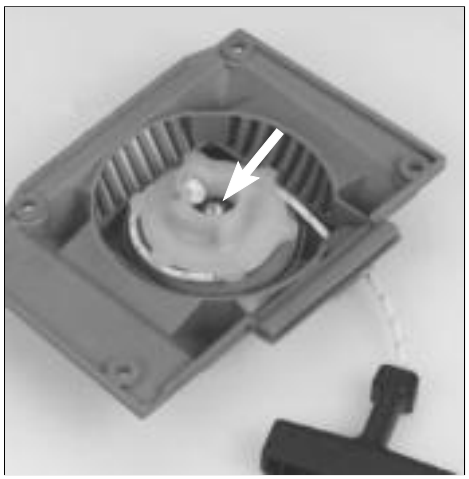
Repeat the procedure once more.



Check the spring tension.

NOTE!

With the starter cord fully extended it must still be possible to turn the starter pulley *at least a further half turn*.



Models 240/245

Dismantling

Release the spring.

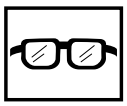
Remove the starter pulley.

Models 240/245

Dismantling

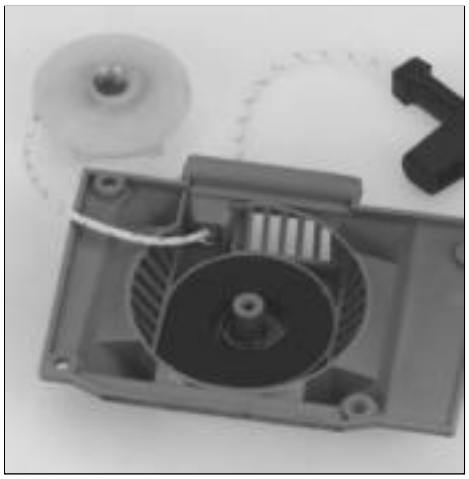
Release the spring tension as described for model 265.

Remove the screw and washer and lift out the starter pulley.



WARNING!

Wear protective glasses.



Lift out the spring cassette.

The spring cassette sits freely in the starter housing and can easily be lifted out to be replaced.

Starter

Assembly

Check the starter housing for wear and damage.

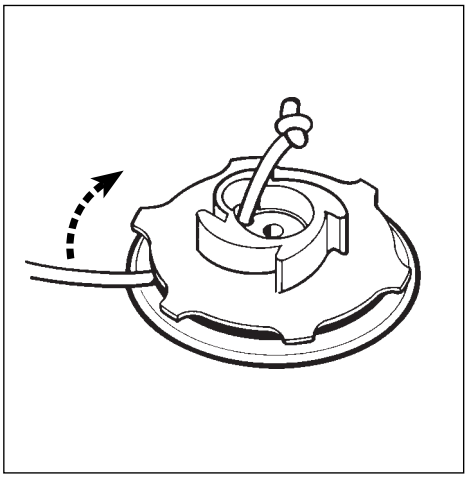
Fit the spring cassette.

Assembly

Check the cord guide in the housing. If it is worn the starter housing must be replaced.

Lubricate the spring with a few drops of oil and position the spring cassette in the starter housing.

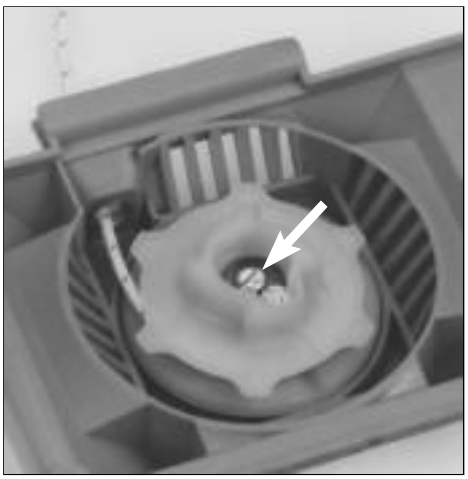
Tie a small knot on the cord and seal the ends by melting the cord ends, e.g. with a soldering iron.



Anchor the starter cord in the starter pulley and wind it approx. 4 turns *clockwise* onto the pulley.

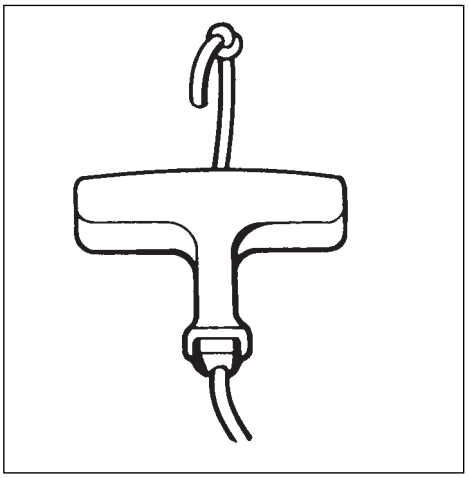
Anchor the starter cord in the starter pulley and wind it about 4 turns *clockwise* around the pulley.

Lubricate the bearing spindle with a few drops of oil and fit the starter pulley in the starter housing.



Fit the starter pulley in the starter housing.

Position the washer and tighten the screw.



Fit the starter handle on the cord.

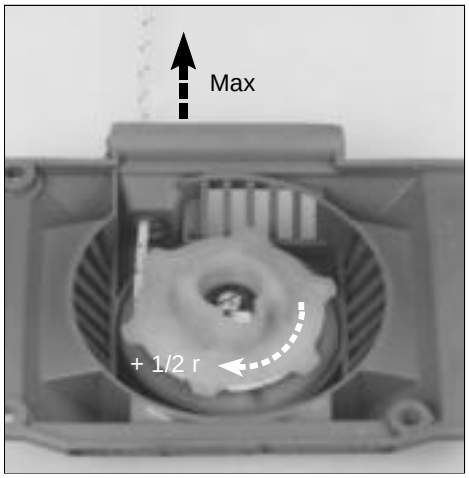
Fit the starter handle as described for model 265, but tie a double knot as the cord is lighter.

Tension the return spring.

To tension the return spring

Wind the cord 2 turns clockwise around the hub on the starter pulley and pull out the starter handle until the cord is fully extended.

Repeat the procedure once more, but only wind the cord 1 turn around the hub.

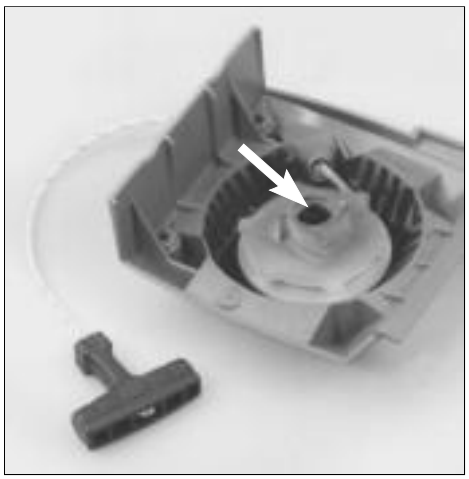


Check the spring tension.

Check the spring tension.

NOTE!

With the starter cord fully extended it must still be possible to turn the starter pulley *at least a further half turn.*



Models 225, 232, 235, 240

Dismantling

Release the spring tension and dismantle the starter pulley.

Models 225, 232, 235, 240

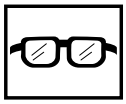
Dismantling

Release the spring tension as described for model 265.

Remove the screw and washer and lift out the starter pulley.

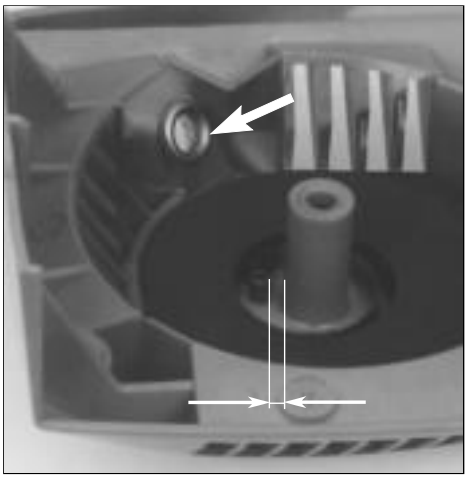
Remove the spring cassette.

Remove the screw and lift out the spring cassette from the starter housing.



WARNING!

Wear protective glasses.



Assembly

Check the starter housing for wear and damage.

Fit a new spring cassette if necessary.

Assembly

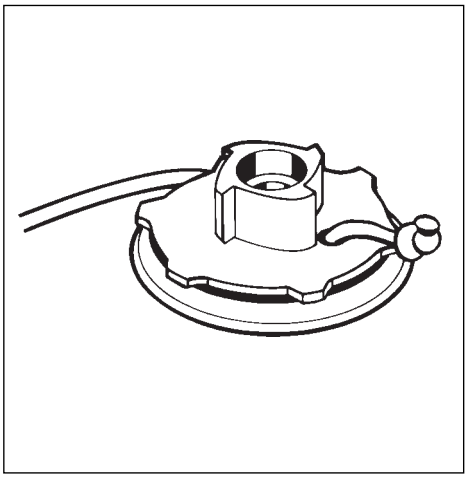
Check the cord entry.

If it is worn the starter housing must be replaced.

Lubricate the return spring with a few drops of oil and fit the cassette in the starter housing.

NOTE!

The end of the spring should be 3–4 mm from the spindle to help assembly of the starter pulley.



Fit a new starter cord. Specs as before.

Fit a new starter cord. Tie the smallest knot possible on the cord and melt the ends to stop it from fraying.

Wind the cord about 3 turns *anticlockwise* on the starter pulley.

Position the starter pulley in the starter housing and fit the washer and screw.

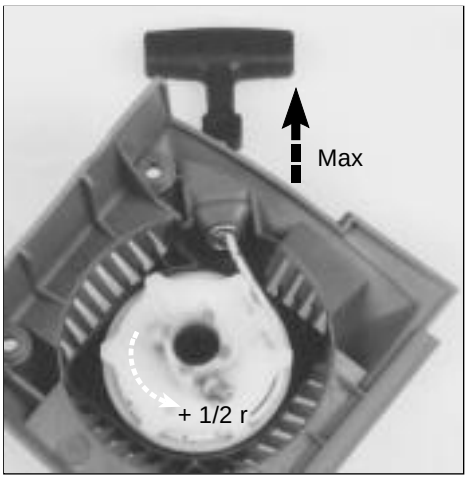
Fit the starter handle.

Tension the return spring.

Fit the starter handle as described for model 265.

Tension the return spring by winding the starter cord 2 turns anticlockwise around the hub on the starter pulley.

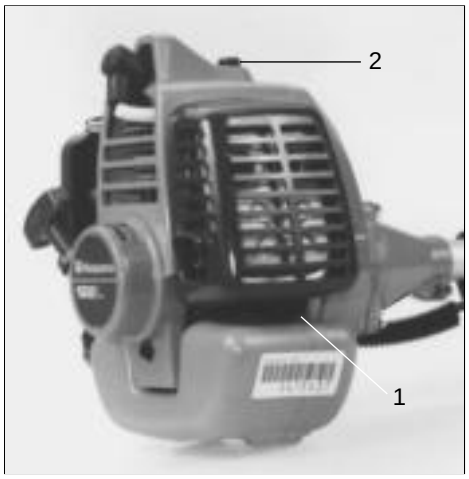
Repeat the procedure once more, but with the cord only wound once around the hub.



Check the spring tension.

NOTE!

With the starter cord fully extended it must still be possible to turn the starter pulley *at least a further half turn.*



Model 122

Dismantling

Remove the covers from the muffler and cylinder.

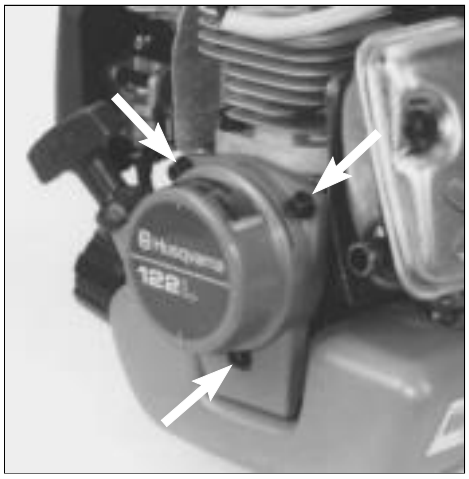
Model 122

Dismantling

You must first remove the covers over the muffler and cylinder to be able to dismantle the starter.

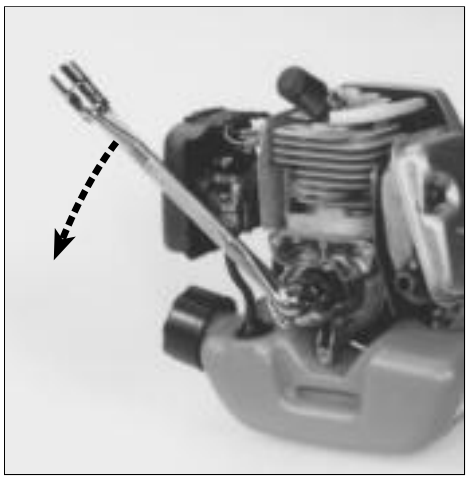
Remove the screw (1), pull out the lower edge of the cover and lift it off.

Remove the screw (2) and lift off the cylinder cover.



Dismantle the starter from the engine body.

Remove the screws and lift off the starter from the engine body.



Remove the starter hub from the crankshaft.

Unscrew the hub from the crankshaft.

Use a hammer and punch to loosen the hub if necessary.

NOTE!

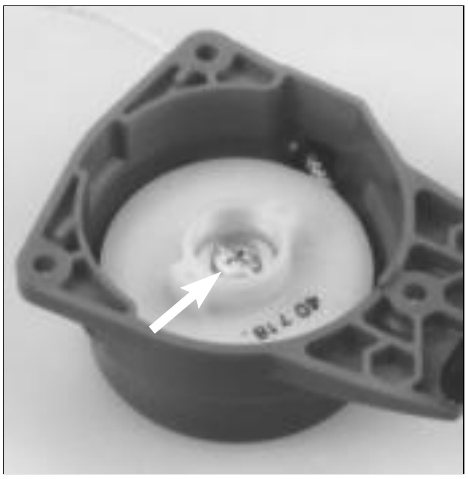
The nut is brazed on the drive.

Replace the drive dog if it is damaged or worn.

The drive dog and its spring can easily be replaced if damaged or worn.

Squeeze together the drive dog's axle stud with pliers when dismantling.

1 Starter

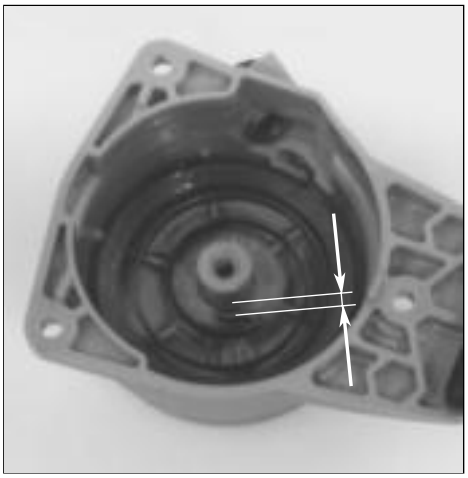


Release the spring tension and dismantle starter pulley.

Release the spring tension as described for model 265.

Remove the screw and washer and carefully lift out the starter pulley so that the return spring does not fly out.

WARNING!
Wear protective glasses.



Assembly

Fit a new return spring in the starter unit.

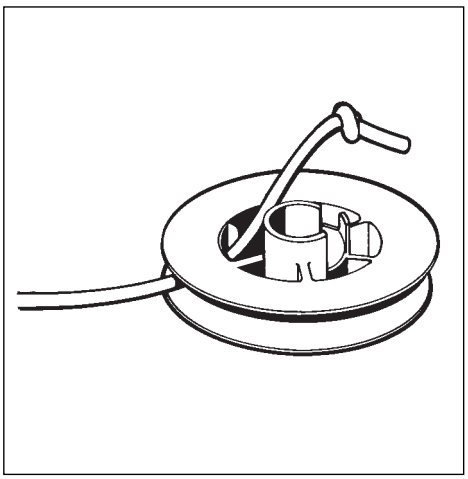
Assembly

Fit a new return spring in the starter unit.

Press the spring down correctly on the fastener and lubricate with a few drops of oil or cold resistant grease.

Ensure the ends of the spring are 2-3 mm from the spindle.

WARNING!
Wear protective glasses.



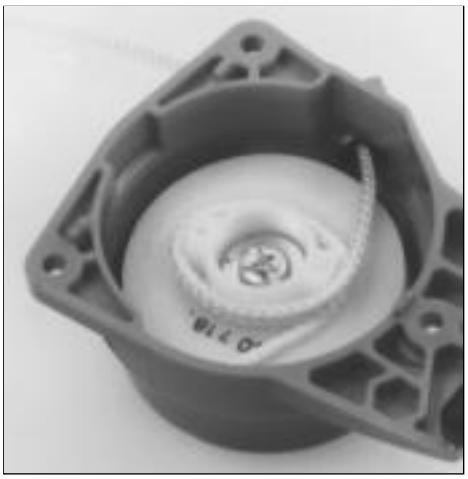
Fit a new starter cord and position the starter pulley in the starter housing. Cord specs as before

Fit a new starter cord. Tie the smallest knot possible on the cord but leave free an end of approx. 10 mm.

Press the free end into the cut-out in the pulley hub reinforcement.

Wind the cord about 4 turns *clockwise* (seen from the rear) on to starter pulley.

Position the starter pulley in the starter housing and fit the washer and screw.



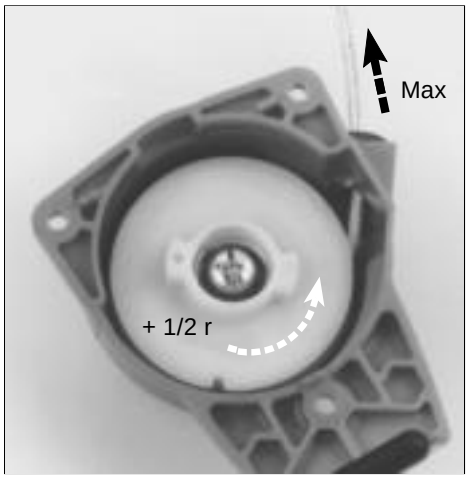
Fit the starter handle.

Tension the return spring.

Fit the starter handle as described for model 265, but tie a double knot on the cord.

Lift up the starter cord from the cut-out and wind it 2 turns *anticlockwise* around the hub on the starter pulley. Pull out the starter handle until the cord is fully extended.

Repeat the procedure once again.



Check the spring tension.

NOTE!

With the starter cord fully extended it must still be possible to turn the starter pulley *at least a further half turn.*

Fit the hub, starter and covers in the reverse order set out for dismantling.

Models 32, Mondo

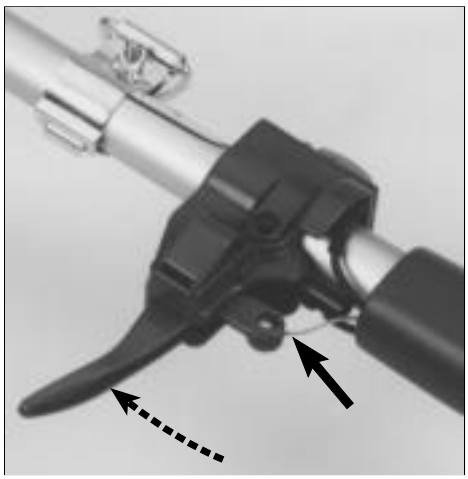
Dismantling

Remove the screws that hold the throttle trigger.

Models 32, Mondo

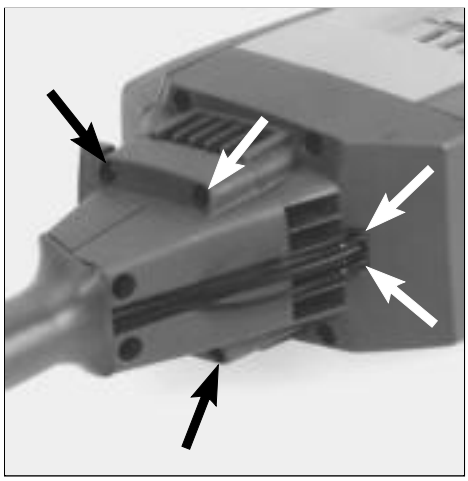
Dismantling

Remove the screws that hold the throttle trigger and slide it along the shaft as far as the throttle cable and electrical cables will allow.



Lift out the throttle cable.

Move the throttle trigger forward and lift the throttle cable out of the trigger.



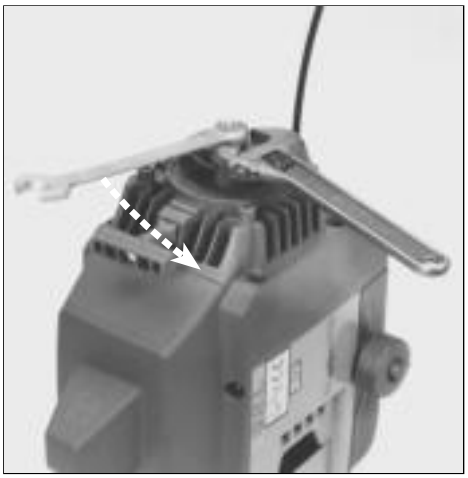
Disconnect the electrical cables.

Remove the shaft complete with handles.

Disconnect the electrical cables from the engine body, remove the 4 screws that hold the shaft and handles on the starter housing.

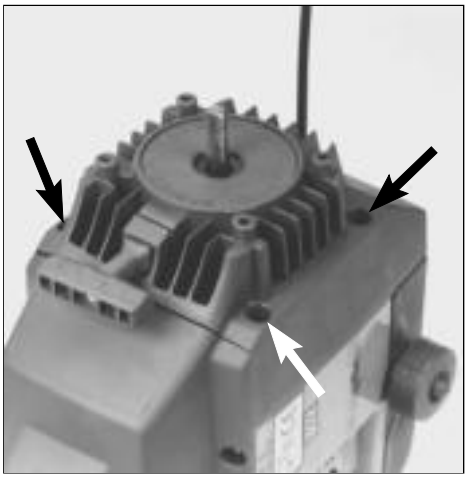
Lift off the shaft.

1 Starter



Dismantle the centrifugal clutch

Undo the nuts holding the centrifugal clutch and lift off the clutch and the large washer.

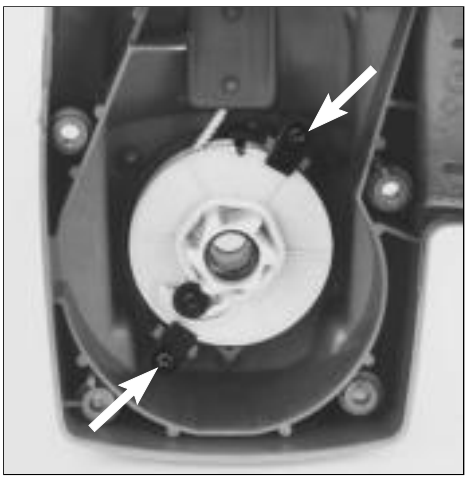


Dismantle the starter.

Remove the 4 screws and lift off the starter.

Model Mondo
Also remove the screw by the spark plug.

Model 32
Pull out the electrical cables from the starter housing using a pair of pliers.



Remove the two locking plates that hold the starter pulley axially.

Remove the two locking plates that hold the starter pulley axially.

Release the spring tension.

Release the spring tension.

Pull out the starter cord about 30 cm and place the cord in the cut-out on the edge of the starter pulley

Let the starter pulley slowly rotate backwards.

Lift off the starter pulley.

Let the starter pulley slowly rotate backwards (anticlockwise) and then lift off the pulley.

NOTE!

Stop the rotation using your thumb.

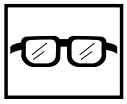
⚠ **WARNING!**

Take care so that your thumb is not injured by the cord's fastening screw.

Remove the return spring from the starter housing.

Exercise great care when removing the starter spring.

The spring is tensioned inside a sheet cassette, nevertheless it can still easily fly out when dismantled.



⚠ **WARNING!**

Wear protective glasses.

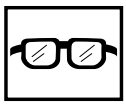
Assembly

Insert a new spring cassette in position in the starter housing.

Assembly

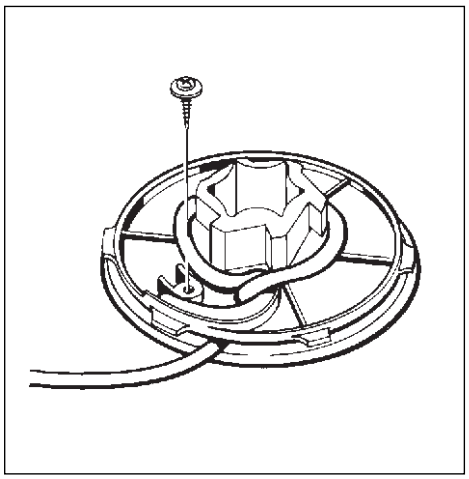
Lubricate the return spring with a few drops of oil and position the new spring cassette in the starter housing.

If the spring, despite your being careful, has flown out reposition it again in the cassette with the end turned as shown in the picture.



⚠ **WARNING!**

Wear protective glasses.



Replace the starter cord and attach it as shown in the diagram.

Attach the new starter cord to the starter pulley and wind it about 3 turns *clockwise* around the pulley.

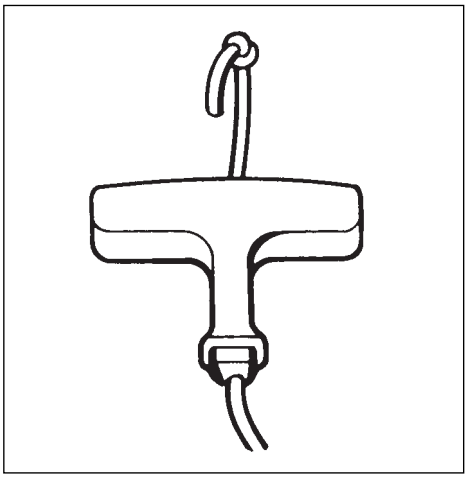
Fit the starter pulley.

Lubricate the pulley spindle with a few drops of oil.

Ensure the end of the spring is about 2–3 mm from the spindle and position the starter pulley.

NOTE!

Do *not* tighten the locking plates that hold the starter pulley axially.



Fit the starter handle.

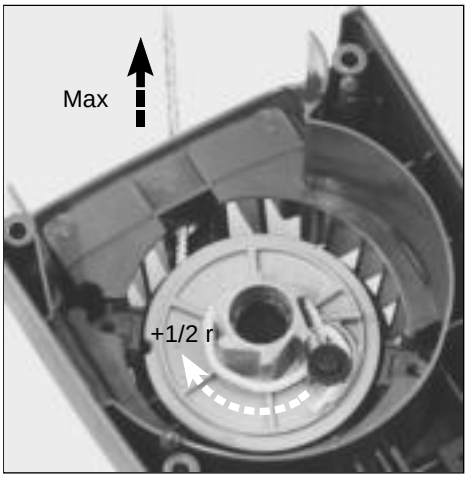
Fit the starter handle as described for model 265.

Tie a double knot on Mondo model.

Tension the return spring.

Tension the return spring.

- Pull out the cord approx. 30 cm and stop the starter pulley with your thumb.
- Lift the cord up from one of the cut-outs on the starter pulley.
- Wind the cord 2 turns *clockwise* around the hub on the starter pulley.
- Pull out the starter cord fully.



Repeat the spring tensioning and fit the locking plates.

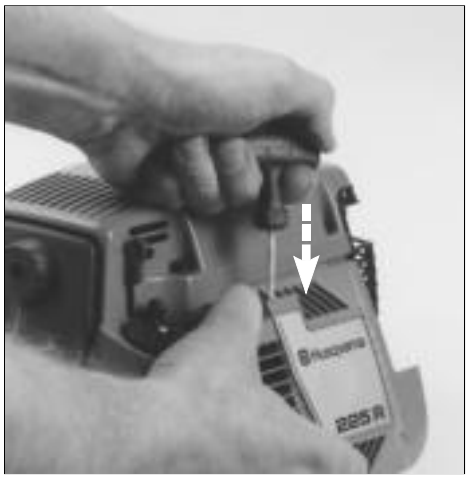
Repeat the spring tensioning once more.

Ensure the starter pulley can still be turned *at least a further half turn* with the cord fully extended.

Tighten the locking plates that hold the starter pulley axially.

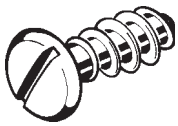
NOTE!

Model 32 has a thin spacer under the plates.



Assembly, general

Assemble the starter following the reverse order set out for dismantling.



503 21 22-01

Replacing the drive dogs

See chapter 2 "Ignition system, flywheel".

Assembly, general

Assemble the starter.

Pull out the starter cord a little. Position the starter. Release the starter cord and ensure that the drive dogs grip in the starter pulley.

Tighten the screws.

NOTE!

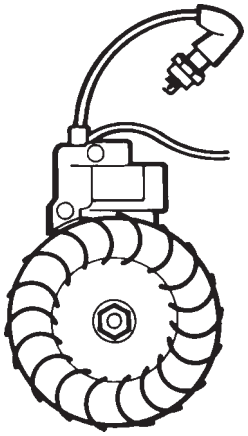
If the plastic threads in the crankcase have, for some reason, been damaged it is recommended to use an over dimensioned screw (no 503 21 22-01).

Replacing the drive dogs.

See chapter 2 "Ignition system, flywheel".

Ignition system

2.

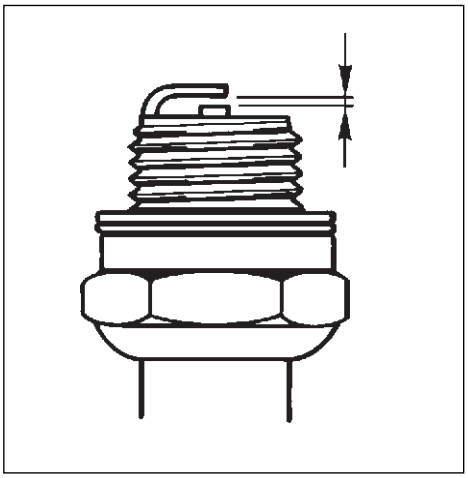


Contents

Ignition system

The engine is equipped with an electronic ignition system with no moving parts. Consequently, a faulty 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 can be judged to be weak and is at times difficult to see when trouble shooting.



Checking the spark

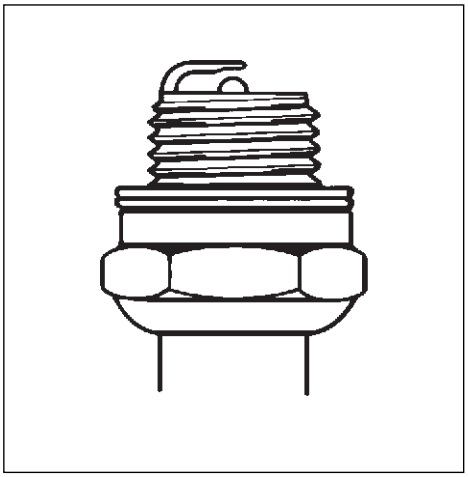
Clean the electrodes and check the electrode gap.

Checking the spark

Remove the spark plug and clean off any carbon deposits using a wire brush.

Check the electrode gap, it should be 0.5 mm.

Adjust the gap to the correct size using the side electrode.

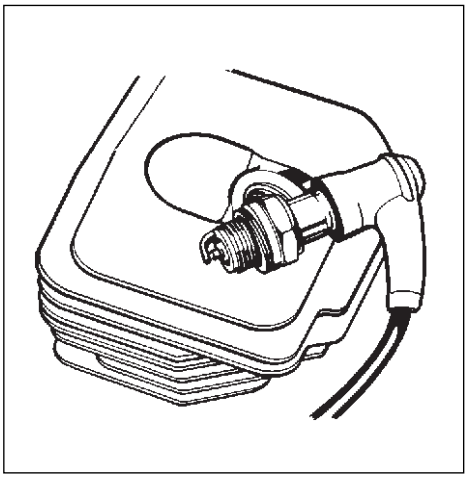


If the electrodes are worn by more than 50% the spark plug should be replaced.

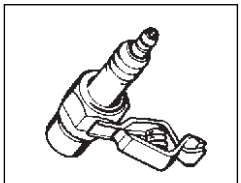
If the electrodes are worn by more than 50% the spark plug should be replaced.

An excessive spark gap can overload the ignition module and risk short circuiting.

Ensure the stop switch is in the 'start' position.



Check whether there is a spark when attempting to start, if not test using spark plug no. 502 71 13-01.



502 71 13-01

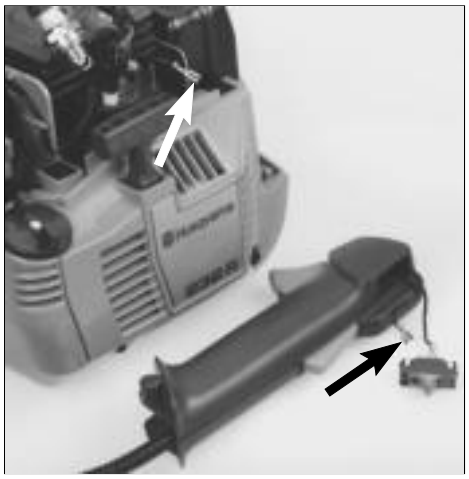
Earth the spark plug against the cylinder and pull the starter handle sharply.

There should now be a spark between the electrodes.

If there is no spark try using the test spark plug no. 502 71 13-01.

If there is spark now the spark plug is faulty.

Fit a new spark plug.



Fit a new spark plug.

If there is no spark disconnect the stop switch.

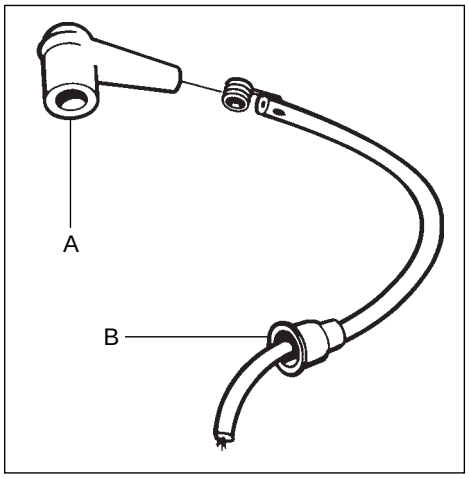
Replace the switch if necessary.

Fit a new spark plug.

If the procedure does not produce a spark remove the short circuit cable from either the ignition module or the stop switch.

If there is now a spark the stop switch is faulty.

Replace the switch.

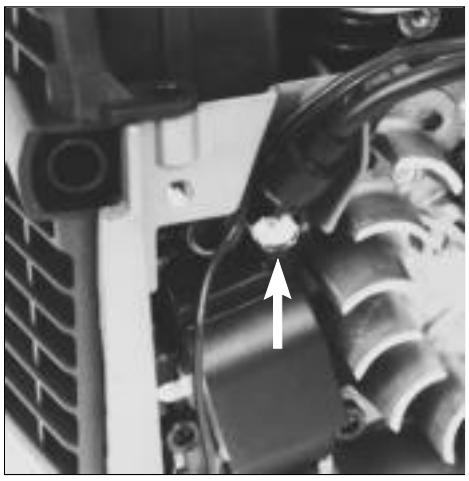


Check the ignition lead's connections.

Still no spark?

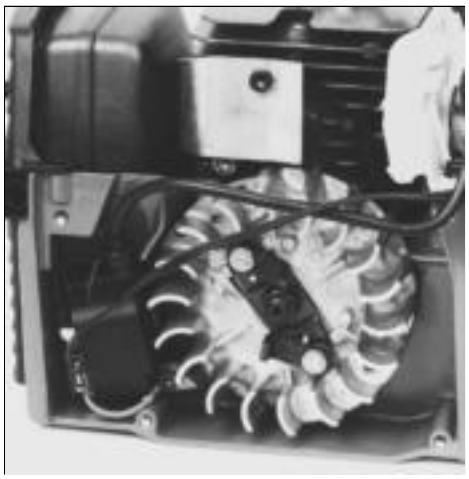
Check the spark plug connections.

Pull back the rubber covers by the spark plug (A) and the ignition module (B) and check that the ignition cable is not damaged. Cut off a piece of the cable to give a good connection if required.



Lubricate the cable ends with grease.

Lubricate the cable ends with a little grease to facilitate assembly and to prevent dampness from entering the connections.



Check other cables and connections.

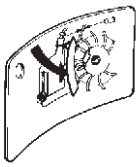
Still no spark?

Check other cables and connections for bad contact (dirt corrosion, cable breaks and damaged insulation).

Tip!

Use an ohmmeter to check whether there is a broken cable caused by crushing, for example.

Check the air gap.



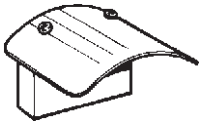
502 51 34-02

Still no spark?

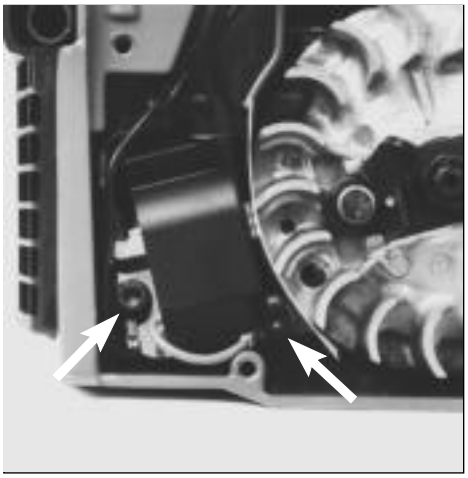
Check the air gap between the flywheel's magnet and the ignition module. The gap should be 0.3 mm.

Use air gap gauge 502 51 34-02.

Model 122 should have a 0.38 mm gap. Use air gap gauge 531 00 48-61



531 00 48-61 **Mod. 122**

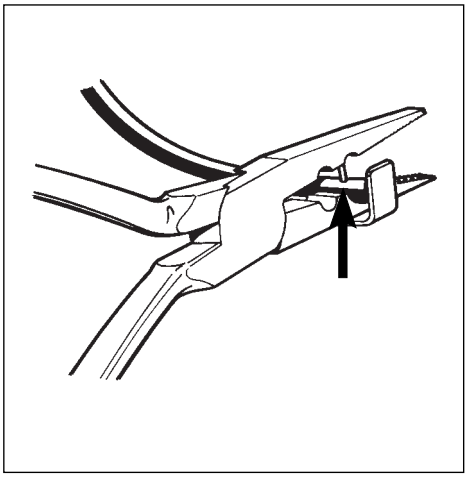


Adjust the air gap.

Adjust the air gap to the right measurement.

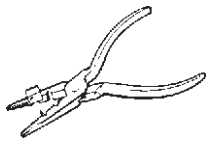
- Loosen the screws.
- Insert the gauge and press the ignition module against the flywheel.
- Tighten the screws and check the air gap once again.

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



Changing the spark plug cover

1. Push the ignition cable through the spark plug cover.
2. Make a hole in the ignition cable for the contact spiral.

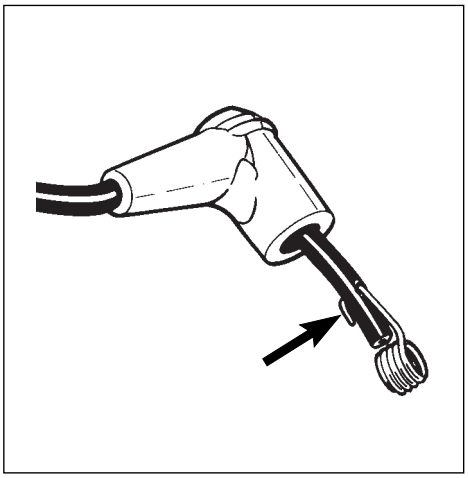


502 50 06-01

3. Fit the contact spiral on the ignition cable.

Changing the spark plug cover

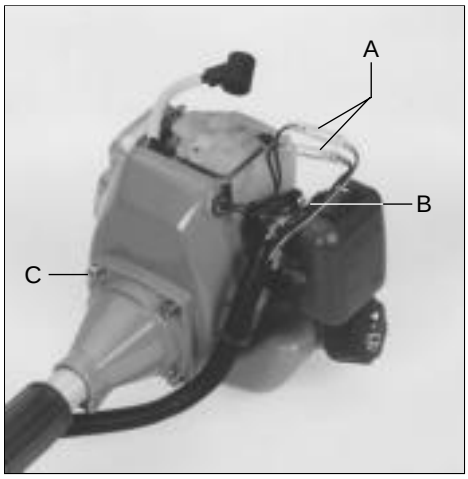
1. Lubricate the ignition cable using a little grease and push it through the spark plug cover.
2. Cut off a piece of the ignition cable (about 5 mm) and make a hole in the cable for the contact spiral using the pliers no. 502 50 06-01.



3. Fit the contact spiral on the ignition cable, taking care to form the wire along the cable.
4. Pull the contact spiral into the spark plug cover.

NOTE!

It is important that the point of the contact spiral is positioned so that it's unable to pierce the spark plug cover.



Dismantling

General

Remove all components necessary to gain access to the flywheel and ignition module.

Dismantling

General

Remove the cylinder cover, spark plug, starter and air pipe support.

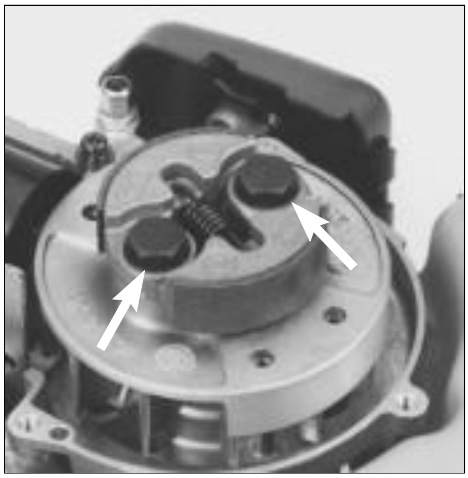
Model 32. Model Mondo

Remove the starter. See chap. 1 "Starter."

Model 122

Pull apart the connector on the electrical cables (A) and remove the throttle cable from the carburettor lever (B).

Remove the screws (C) and lift off the shaft.



Dismantle the fan cover and the centrifugal clutch.

Remove the screws and lift off the fan cover.

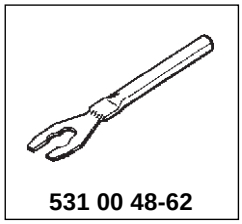
Dismantle the centrifugal clutch by loosening the two bolts.

NOTE!

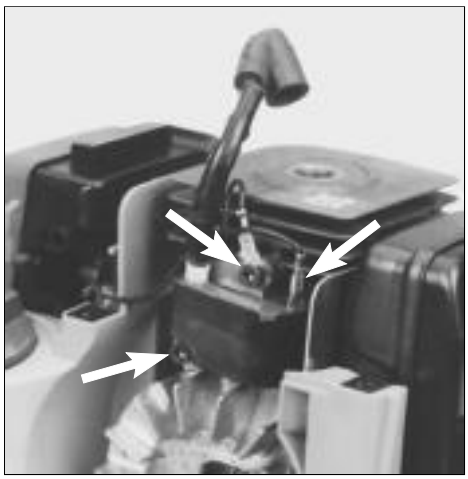
Hold the clutch carefully using a pipe grip so that the soft clutch linings are not damaged.

We recommend the use of tool no. 531 00 48-62.

Notice which way the clutch faces. The "L"-markings on the clutch shoes face outwards.



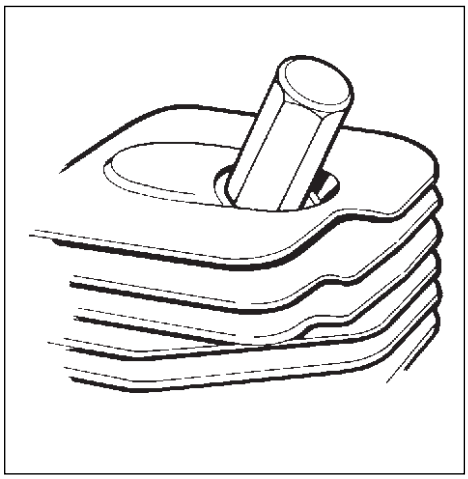
531 00 48-62



Dismantle the ignition module and loosen other cable connections.

Dismantle the ignition module by unscrewing the two bolts.

Loosen the other cable connections and lift out the ignition module.



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

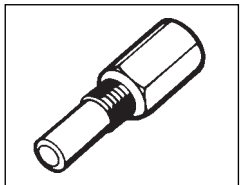
Fit the piston stop, no. 504 91 06-05 in the spark plug hole.

Make sure the piston stop is screwed in fully.

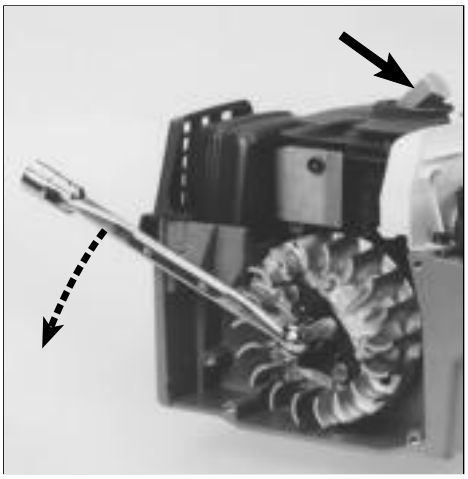
Carefully bring the piston into contact with the stop before applying pressure on the flywheel nut.

NOTE!

The piston stop cannot be used on model 122.



504 91 06-05

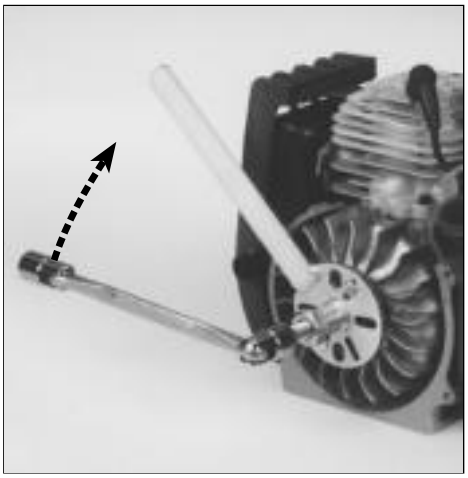


Model 240/245

Undo the flywheel nuts and the drive pawls.

Model 240/245

Undo the flywheel nuts and the drive pawls.



Dismantle the flywheel.

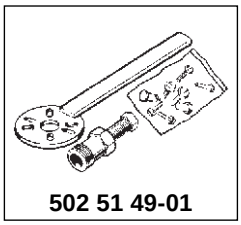
Remove the flywheel from the crankshaft.

Model 265

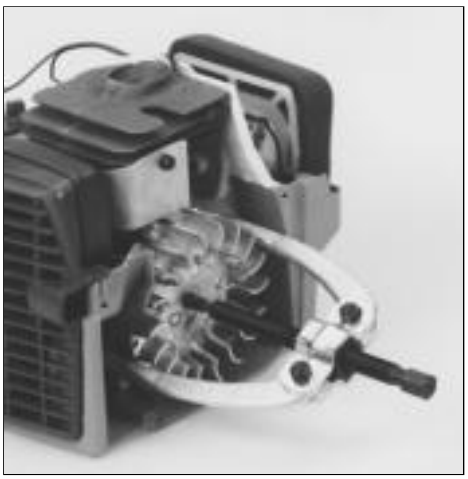
Use the flywheel puller 502 51 49-01.

Model 265

Fit the flywheel puller 502 51 49-01 on the flywheel. Select suitable bolts and position the puller so that it pulls straight.



502 51 49-01



Model 240/245

Pull off the flywheel using the bearing puller.

Model 240/245

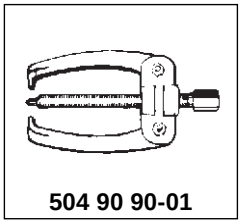
Pull off the flywheel using the bearing puller no. 504 90 90-01.

NOTE!

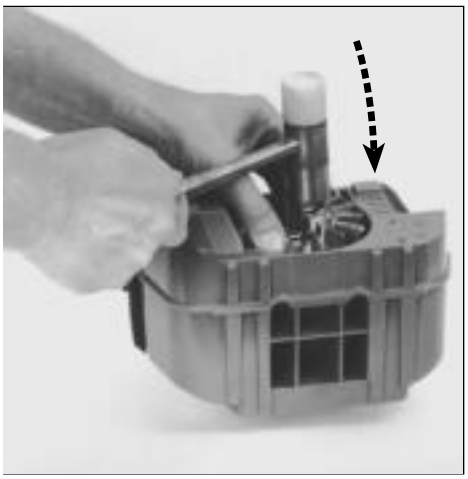
The arms on the puller should be placed by and opposite the magnet on the flywheel to avoid damaging it.

Is the flywheel really tight?

Lift up the engine body by holding the puller and knock the puller screw a few times with a hammer.



504 90 90-01



Model 225/232/235

Dismantle the flywheel by knocking with a hammer.

Model 225/232/235

Screw the nut on the axle to protect the thread.

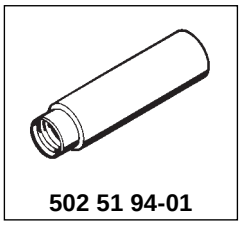
Unhook the springs and fold back the drive dogs to give a little room for the hammer. Grip the flywheel and lift up the engine body.

Apply a few sharp blows with a hammer on the flywheel nut until the flywheel frees itself from the axel.

Tip!

Use the push bar to protect the tread at the same time as it is easier to use the hammer.

Do not screw the push bar completely up to the flywheel – leave about 2 mm.



502 51 94-01

Drive pawls

Check the drive pawls with regard to wear and cracking.

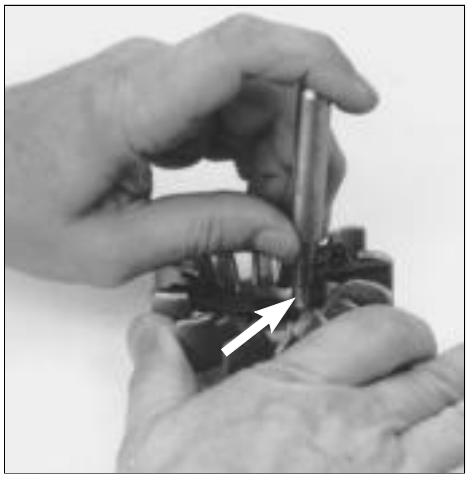
Replace damaged components.

Drive pawls

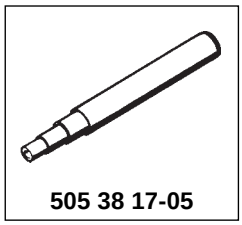
Check the drive pawls with regard to wear and cracking.

Replace damaged components.

The entire unit must replaced if the drive dogs are fitted on a separate bridge.



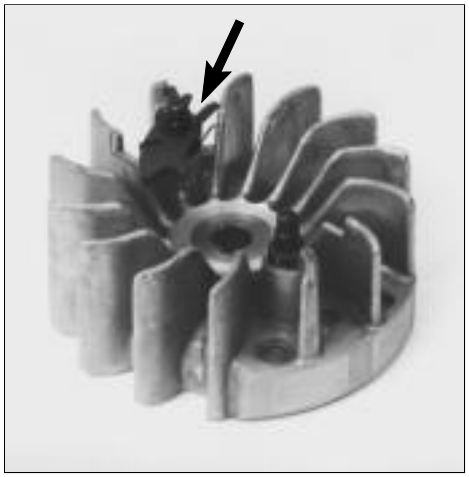
Dismantle the locking clip.



505 38 17-05

Turn the locking clip so that the opening aligns with the centre of the flywheel.

Use, e.g. punch no. 505 38 17-05 and press off the clip.



Dismantle the drive pawls and the return spring.

Unscrew the bearing pin.

Replace any damaged parts.

Dismantle the drive pawls and the return spring.

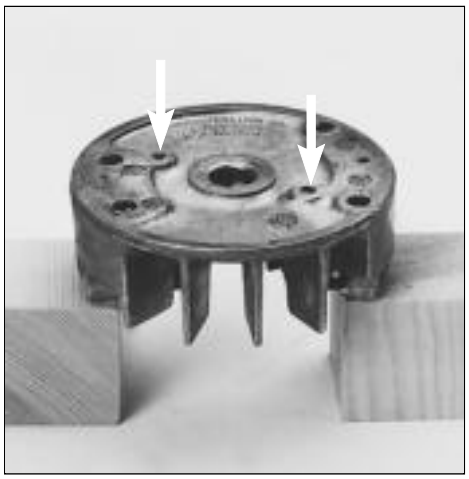
Unscrew the bearing pin.

Replace any damaged parts.

Check that the drive pawls move easily.

NOTE!

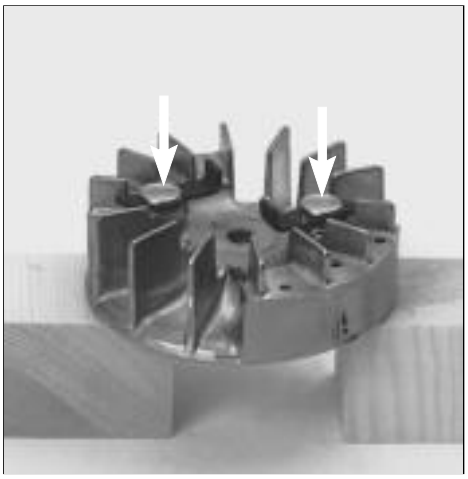
The spring clip's opening should be turned outwards between the fan fins.



Press out the bearing studs using a suitable punch.

Replace the drive pawls and springs as follows if they are journalled on a stud pressed into the flywheel:

Place the flywheel on support blocks and press out the studs using a suitable punch.



Replace damaged parts.

Replace damaged parts.

Ensure the springs are not crushed when the stud is pressed into the flywheel.

Check that the drive pawls move easily.

Model Mondo

The drive pawls can be dismantled once the screws on the opposite side of the flywheel have been removed.

Model Mondo

On these models the drive pawls are held in place by screws, tightened from the opposite side of the flywheel.

Dismantle the bolts and lift off the drive pawls.

Assembly

Check that the keyway and key on the crankshaft are not damaged.

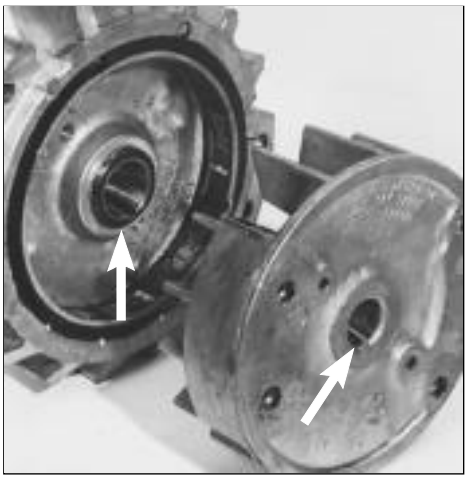
Assembly

Check that the keyway and key on the crankshaft are not damaged.

Fit a new key if necessary and ensure it sits correctly in the keyway.

NOTE!

If the crankshaft has two keyways it is the keyway that is open all the way out to the thread which is used if the flywheel has a cast key.



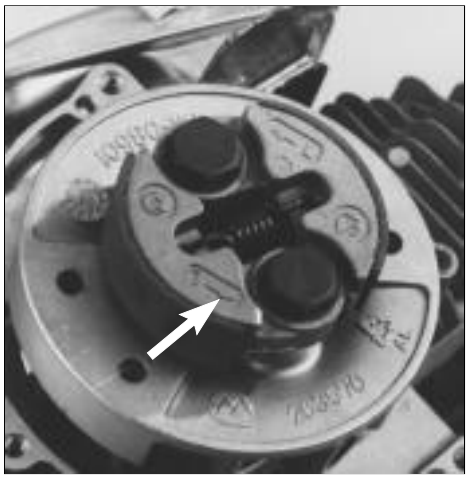
Check that the keyway and cast key on the flywheel are not damaged.

Fit the flywheel.

Check that the keyway and cast key on the flywheel are not damaged.

Fit the flywheel on the crankshaft and check that key and keyway are correctly aligned before the flywheel nut is tightened.

Tighten the nut to a torque of 25–35 Nm.



Model 122

Turn the centrifugal clutch so that the "L-marking on the clutch shoes is facing *outwards.*

Model 122

As the centrifugal clutch is fitted on the flywheel it is important that it is positioned so that the "L-marking" on the shoes faces *outwards.*

"L" means left rotation.

Fit the ignition module.

Adjust the air gap (0.3 mm).

Fit the other cables.

Fit the remaining components in the reverse order set out for dismantling.

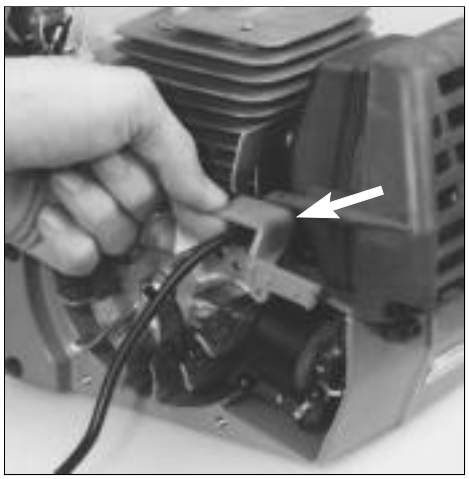
Fit the ignition module.

Adjust the air gap (0.3 mm).

Also see page 24.

Fit the other cables and ensure they sit correctly in the cable channels, etc. so that they cannot be damaged.

Fit the remaining components in the reverse order set out for dismantling.



Model 250

Do not forget to fit the heat guard for the ignition cable.

Model 250

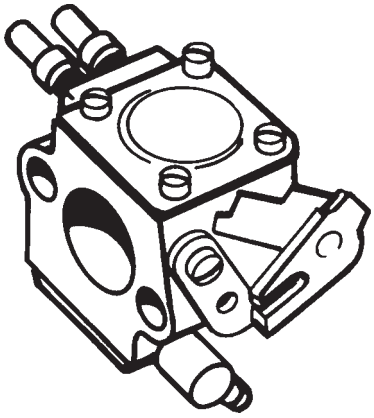
Fit the earth cable using the AMP connector on the ignition module before it is screwed onto the crankcase.

NOTE!

Do not forget the plastic components that protect the ignition cable from the radiant heat from the muffler.

Fuel system

3.



Contents

3 Fuel system

The fuel system comprises, in addition to the fuel tank and the carburettor, the air filter, fuel filter and tank venting.

All these components interact so that the engine receives the optimum mixture of fuel and to make it as efficient as possible. Extremely small adjustments to the carburettor setting or air filter blockage have a great effect on how the engine runs and its efficiency.

The carburettor on our models can come from several manufacturers, but the operation and repair techniques are essentially the same.

Air filter

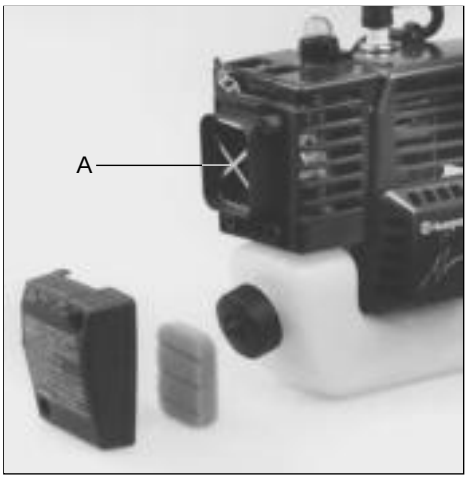
Dismantle the cylinder cover and air filter cover so that the filter is accessible.

The air filter material can either be of foam or of fine mesh nylon weave.

Both types are cleaned in tepid, soapy water.

Damaged filters shall be replaced with a new filter.

505 69 85-70



Model Mondo

Dismantle the air filter cover and lift out the air filter for cleaning.

Air filter

Dismantle the cylinder cover and air filter cover so that the filter is accessible.

The air filter material can either be of foam or of fine mesh nylon weave.

Both types are cleaned in tepid, soapy water.

Damaged filters shall be replaced with a new filter.

⚠ **WARNING!**
Do not clean the filter in petrol. Hazardous!

NOTE!

The filter must be dry when its refitted.

Tip!
Use Husqvarna's cleaning agent Active Cleaning no. 505 69 85-70.

Model Mondo

Dismantle the air filter cover and lift out the air filter for cleaning.

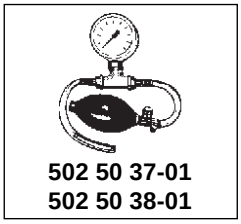
NOTE!

It is important when refitting that the filter support (A) is not forgotten. Otherwise particles from the air filter can be drawn into the carburettor.

Tank venting

Check that the tank venting valve functions.

Change the tank cap on most models if the valve is faulty.

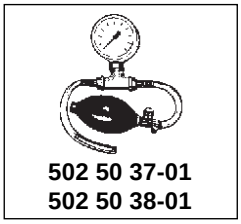


502 50 37-01
502 50 38-01

Model 122

Dismantle the valve complete with hose by pulling it upwards.

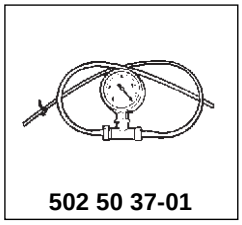
Pressure test the valve using pressure and vacuum.



502 50 37-01
502 50 38-01

Model 32

The venting valve is located in the tank. Check that it functions using the vacuum tester 502 50 37-01.



502 50 37-01

Tank venting

On most models the tank venting is located in the fuel cap. It is important for the operation of the engine that it works.

- Remove the fuel pipe from the carburettor and empty the fuel from the tank.
- Connect the fuel pipe to the pressure tester no. 502 50 38-01 resp. vacuum tester no. 502 50 37-01.
- Pump a pressure resp. underpressure of 50 kPa (0.5 bar) in the tank.
- The pressure should drop to 20 kPa (0.2 bar) resp. return to normal pressure within 45 seconds.

Model 122

The valve is located on this model by the carburettor and can easily be dismantled from the tank for inspection. If necessary pull it up with the help of a screwdriver.

Pressure test the valve using pressure and vacuum.

The valve should open at:

Pressure: 25–30 kPa (0.25–0.30 bar)
Vacuum: 25–30 kPa (0.25–0.30 bar)

Replace the complete valve and hose if it is faulty.

Apply a small amount of grease on the hose connection to facilitate fitting the valve in the tank.

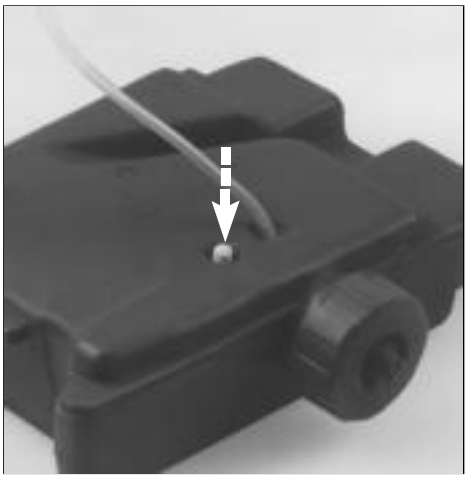
Model 32

The venting valve is inserted in the tank.

To gain access for inspection or replacement it is necessary to dismantle the cylinder cover and the starter.

Remove the fuel pipe from the carburettor using a pair of flat pliers and connect the pipe to the vacuum tester 502 50 37-01.

Lower the pressure to –50 kPa (0.5 bar).



Replace the valve if it does not open for vacuum in the tank.

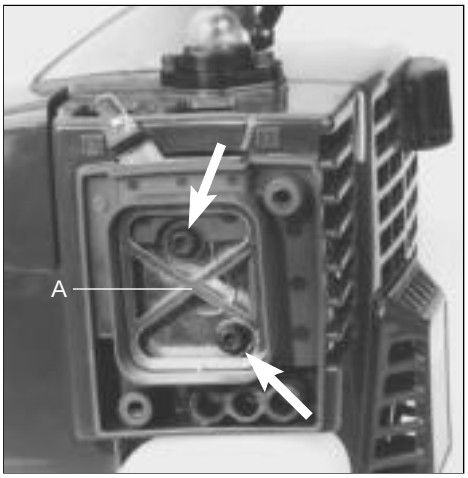
The pressure should normally drop after 20 seconds.

If this is not the case the valve should be replaced.

Press the down valve in the tank using a suitable punch and press in a new valve.

NOTE!

The valve only opens for vacuum in the tank.



Model Mondo

The venting valve sits in the tank cap.

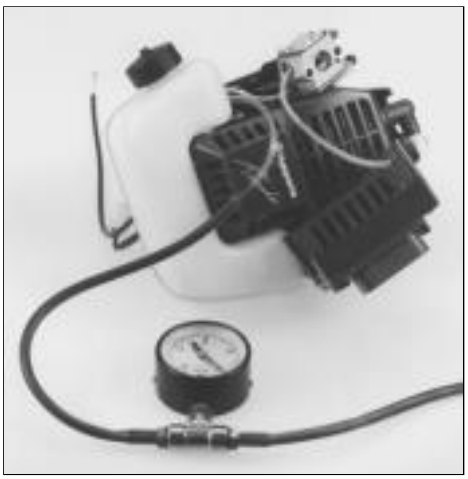
Model Mondo

The venting valve sits in the tank cap.

To pressure test it and gain access to the fuel pipe the carburettor cover must be loosened and swung to the side.

Remove the air filter support (A) and both bolts that hold the carburettor cover and the carburettor.

Note where the bolts are positioned so that they can be repositioned correctly when assembling.



Empty the fuel from the tank.

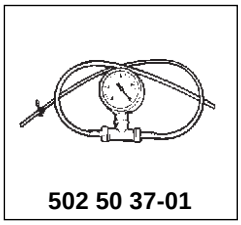
Check the valve using the vacuum tester 502 50 37-01.

Empty the fuel from the tank.

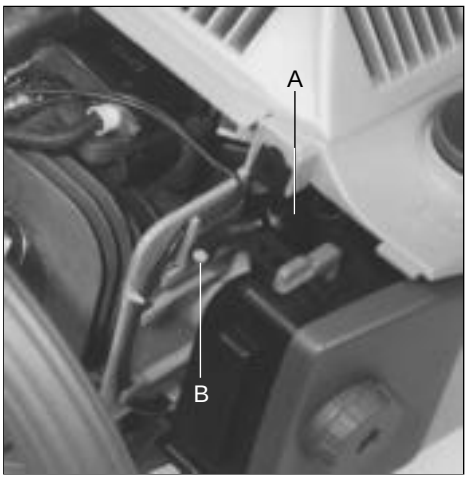
Dismantle the pipe, which runs from the fuel tank to the primer pump, from the pipe connection.

Connect the vacuum tester 502 50 37-01. Reduce the pressure to –50 kPa (0.5 bar). The pressure should return to the normal pressure within 20 seconds.

Clean or replace the fuel cap if necessary.



502 50 37-01



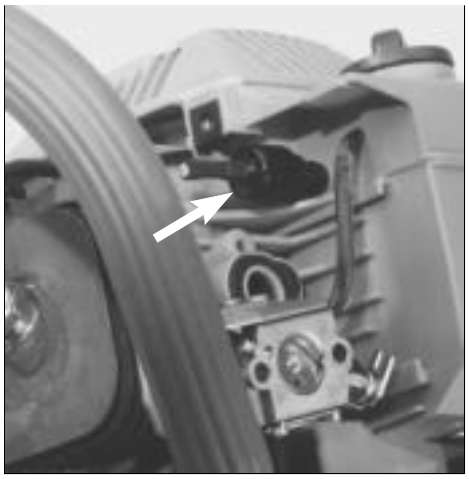
Models 225 H60, 225 H75

Tank ventilation consists of a non-return valve (A) that opens for vacuum and pressure. It is located in the carburettor housing.

- Empty the fuel tank and tighten the fuel cap.
- Clean the filter (B).
- Remove the fuel pipe from the carburettor and connect the pressure tester 502 50 38-01 resp. vacuum tester 502 50 37-01 to the pipe.

Pressure: Pump a pressure of 50 kPa (0.5 bar), the pressure should drop to 20 kPa (0.2 bar) within 60 seconds.

Vacuum: Reduce the pressure to –50 kPa (0.5 bar). The pressure should rise again to –20 kPa (0.2 bar) within 30 seconds.



Replace the valve if its performance is not satisfactory.

If the valve does not work as intended it should be replaced.

Dismantle the air filter holder and swing out the carburettor.

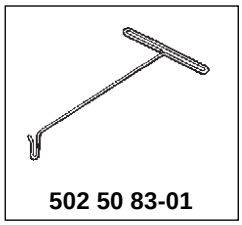
Pry up the non-return valve from the fuel tank using a screwdriver.

NOTE!

Fit the new valve with the *short* shoulder towards the fuel tank.

Fuel filter

The fuel filter can be removed through the tank's filler hole.



502 50 83-01

Fuel filter

A fuel filter is located on the fuel pipe. It is accessible through the filler hole. Pull out the filter using your fingers or using tool 502 50 83-01.

Clean the outside of the filter if it is too heavily contaminated.

Replace the filter if necessary.

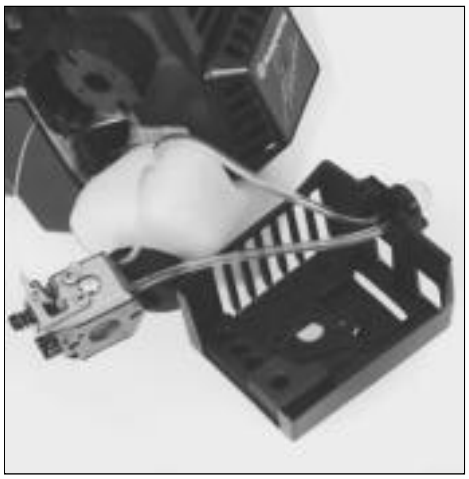
If it is too heavily contaminated it can be cleaned on the outside using a brush.

In all other cases it should be replaced.

Check the fuel pipe with regard to cracking and leakage.

NOTE!

Ensure that the filter's connection shoulder is press into the fuel pipe as far as possible.



Primer pump

Model Mondo is equipped with a primer pump to facilitate cold starts.

The pump cannot be repaired, but must be replaced if it does not function correctly.

Note how the fuel pipes are connected to simplify assembly.

Primer pump

Model Mondo is equipped with a primer pump that has the task of making a cold start easier. The pump is used to fill the carburettor with fuel before the engine is started. This also prevents vapour bubbles from blocking the tight fuel channels.

The pump cannot be repaired, but must be replaced if it does not function correctly.

Note how the fuel pipes are connected to simplify assembly.

Carburettor

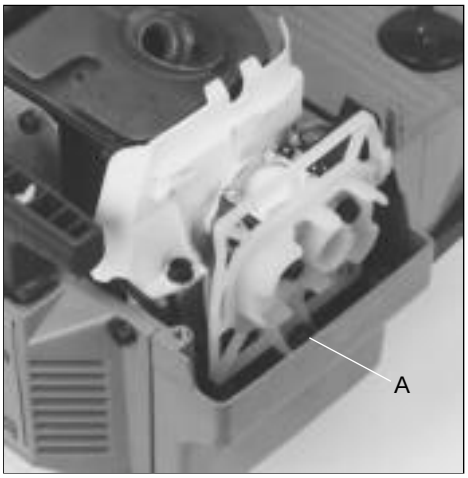
Dismantling all models

Dismantle the cylinder cover and blow out the carburettor compartment with compressed air.

Carburettor

Dismantling all models

- Dismantle the cylinder cover.
- Close the choke damper to prevent dirt from entering the engine.
- Blow out the carburettor compartment with compressed air.



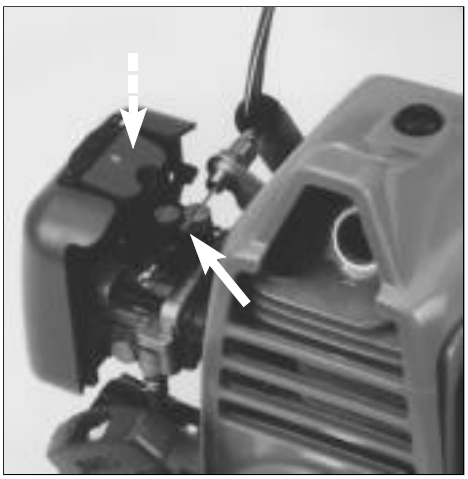
Dismantle the carburettor

Dismantle the air filter and air filter holder, fuel pipe, throttle cable and choke lever.

Lift out the carburettor.

Tip!

Let the lower screw (A model 245) remain in the crankcase. This simplifies subsequent assembly.



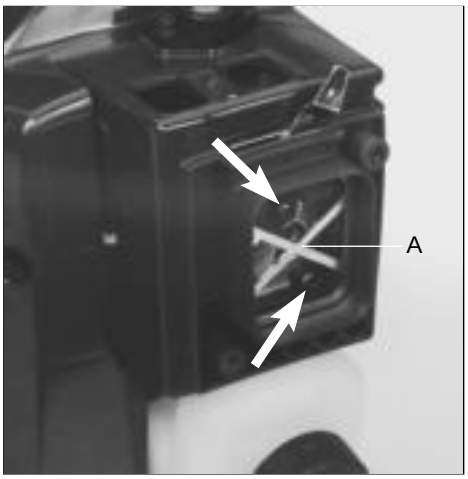
Model 122

Disconnect the throttle cable from the carburettor. Fold down the air filter cover and dismantle the carburettor.

Model 122

Disconnect the throttle cable from the lever arm on the carburettor.

Press down the snap-lock and swing down the air filter so that the screws holding the carburettor are accessible.



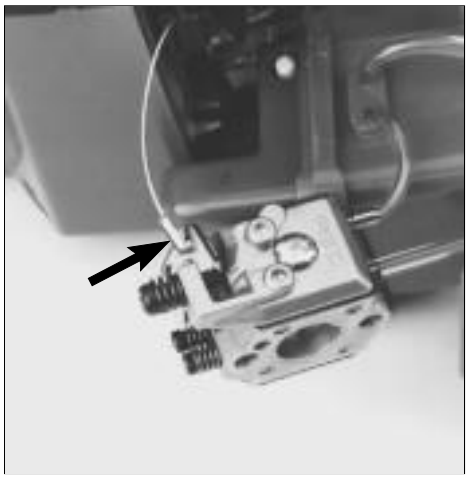
Model Mondo

Loosen and turn the carburettor to the side.

Model Mondo

Remove the filter support (A) and both screws that hold the carburettor cover and the carburettor.

Note where the screws are placed so that they can be positioned correctly when assembling.



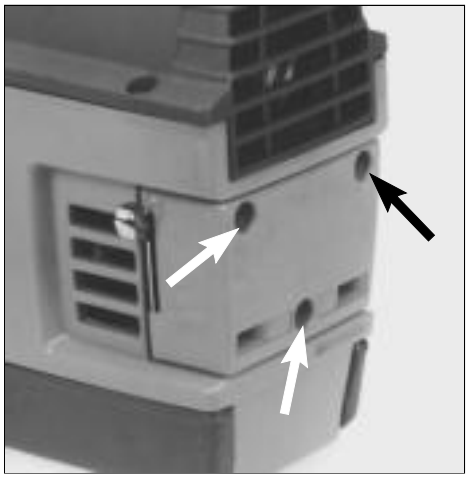
Bend out the throttle cable.

Remove the fuel pipes.

Bend out the throttle cable.

Remove the fuel pipes. If they are hard to remove, use a screwdriver to press them off.

Note how the hoses are fitted so they can be correctly reassembled.

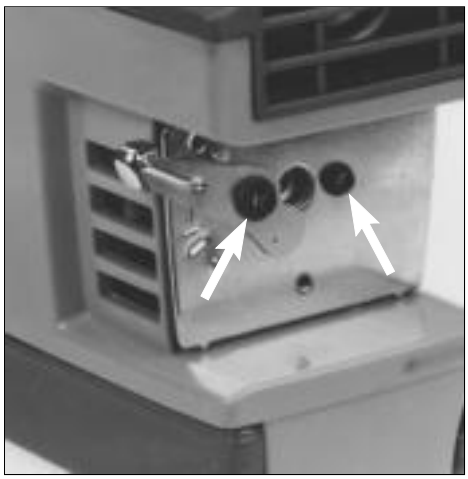


Model 32

Dismantle the air filter cover with filter.

Model 32

The carburettor is located on the crankcase and becomes accessible when the 3 screws and the air filter cover and air filter are removed.

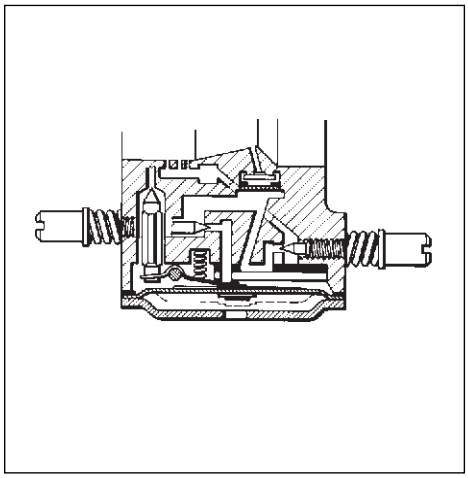


Dismantle the carburettor screws and lift out the carburettor.

Remove the carburettor screws, choke lever and cover plate.

Note how the washers on the choke lever screws sit.

Now lift out the carburettor.



Design of the carburettor

The carburettor can be divided in three different sub-systems: metering unit, mixing venturi and pump unit.

Metering unit

The unit houses the jets and fuel control functions.

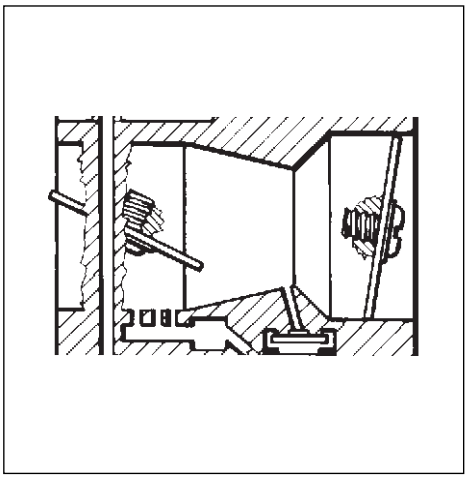
Design of the carburettor

The carburettor can be divided in three different sub-systems: metering unit, mixing venturi and pump unit.

Metering unit

The unit houses the jets and fuel control functions.

The needle valves and control diaphragm are vital to the operation of the carburettor.



Mixing venturi

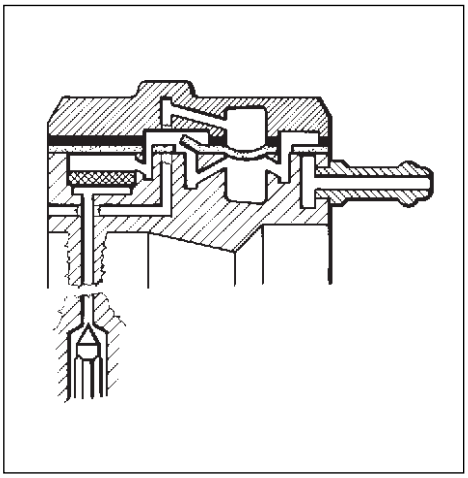
Fuel and air are mixed here.

Mixing venturi

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

The choke and throttle valve are placed here.

In the centre of the venturi (narrowest part of the flow area) is the main jet.



Pump unit

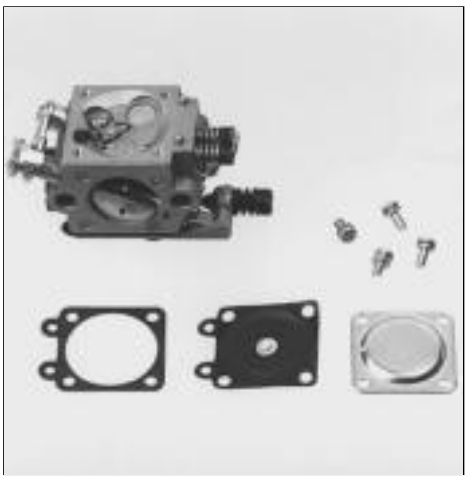
Pumps fuel from the tank to the carburettor.

Pump unit

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

The diaphragm is actuated by the pressure variations in the engine's crankcase via a pulse channel.

If the channel is blocked, e.g. by grease, a gasket turned the wrong way or carbon deposits the pump unit will not work and the engine cannot be started.



Stripping the carburettor

Remove the control diaphragm and check for damage.

Replace if necessary.

Stripping the carburettor

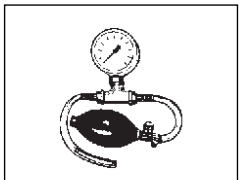
Remove the 4 screws holding the control diaphragm cover and lift off the cover.

Carefully remove the control diaphragm and the gasket.

Check the diaphragm for holes and wear on the pin.

Replace the diaphragm if necessary.

Pressure test the metering unit.



502 50 38-01

Connect pressure tester 502 50 38-01 to the fuel pipe nipple.

Lower the carburettor into a bowl of petrol to make it easier to discover any leakage.

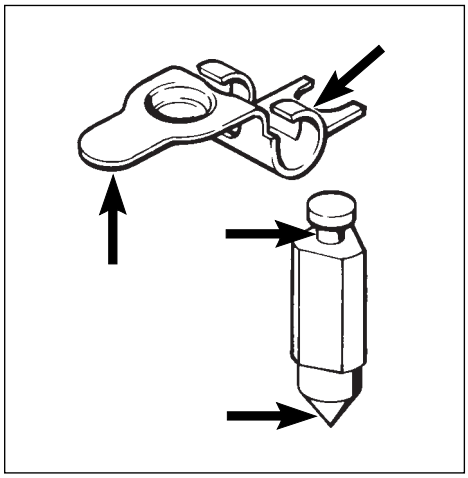
Test with 50 kPa.

No leakage is permitted.

With leakage – dismantle the needle valve.

In the event of leakage dismantle the needle valve.

Loosen the screw and lift out the lever arm, shaft, needle valve and spring.



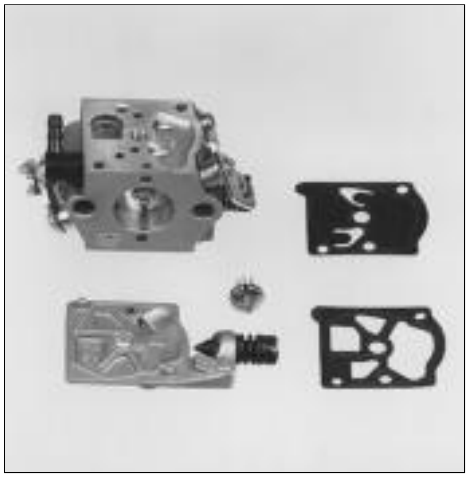
Check the needle valve and lever arm for wear.

Replace damaged parts.

Check the needle valve for wear to the tip and groove for the lever arm.

Check the lever arm for wear to the lever arm groove and wear to the contact point with the control diaphragm.

Replace damaged parts.



Remove the pump diaphragm.

Check the diaphragm for wear.

Remove the screw that holds the cover over the pump membrane.

Lift off the cover, gasket and diaphragm.

Check the diaphragm for wear to the valve flaps. If the valve flaps are bent the pump will not work satisfactorily.

Also hold it up to a light to see if there are any holes in the material.

Remove the fuel screen.

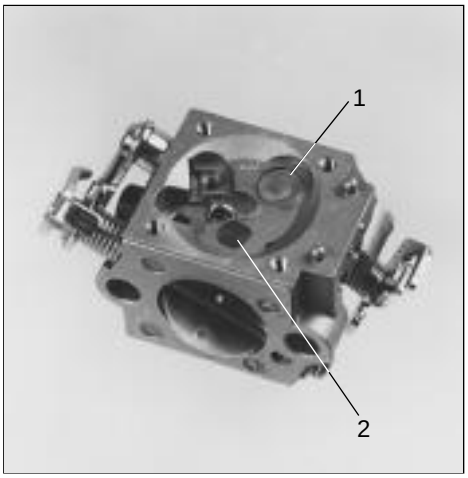
Carefully remove the fuel screen by using, e.g. a needle.

Unscrew the jet needles.

Unscrew the jet needles.

NOTE!

Remember how the needles were placed. (E.g. H needle a little shorter than the L needle).



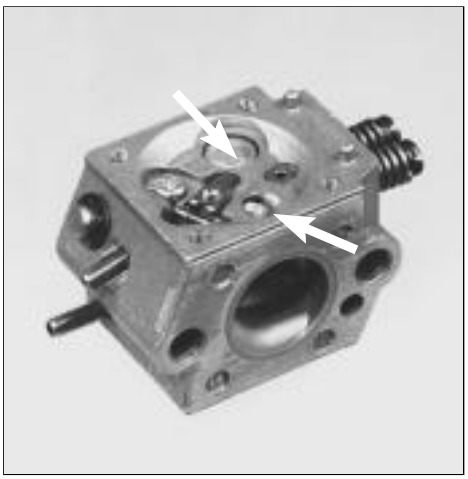
Walbro

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

Walbro

Drill a small hole in the plug (1) and carefully pry it out using a pointed object.

Press out the main jet (2) using a suitable punch.

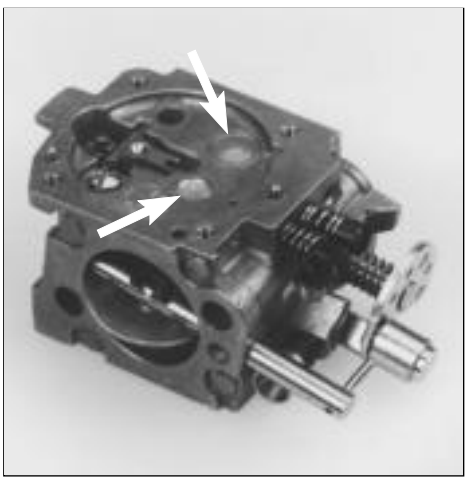


Model Mondo and model 32 have a version of the previously described carburettor with 2 plugs.

Dismantle the plugs.

Model Mondo and model 32 have a version of the previously described carburettor with 2 plugs.

Drill a small hole in the plugs and carefully pry them out using a pointed object.



Tillotson

Dismantle the plugs.

Tillotson

Drill a small hole in the plugs and carefully pry them out using a pointed object.

Check the plates and spindles for wear.

Replace damaged parts.

Dismantle the plates and spindles. If these parts are worn this will cause idling to be disruptive.

Always replace the plate and spindles at the same time.

Reassembling the carburettor

Blow out the carburettor housing.

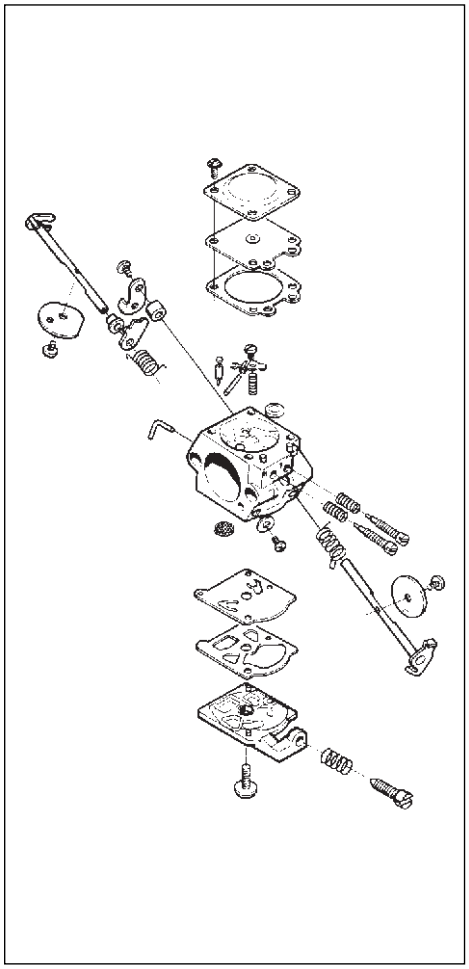
Fit a new plug.

Fit a new main jet.

Reassembling the carburettor

- Blow out all the channels in the carburettor housing.
- Fit a new plug.

  Use a suitable punch to attain complete tightness.
- Press in a new main jet. This should be flush with the carburettor housing.



Fit the plates and spindles.

NOTE!

Use Loctite on the plate screws.

Fit the pump unit's components in the reverse order set out for dismantling.

- Fit the plates and spindles.

NOTE!

Check that the plate is facing the right way and that it seals correctly in the closed position.

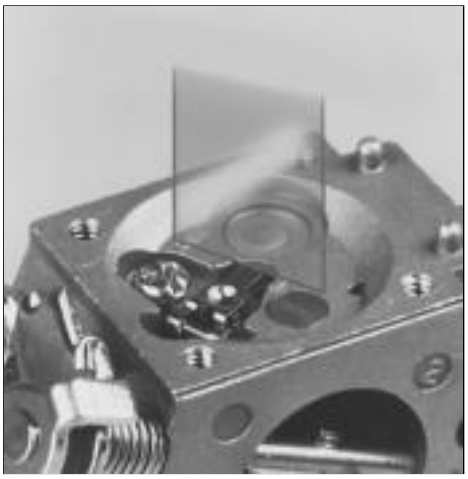
Use Loctite on the plate screws.

Tips!

Any number designation on the plate should be possible to read from the outside.

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

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



Assemble the components in the mixing venturi in the reverse order set out for dismantling.

Assemble the components in the mixing venturi in the reverse order set out for dismantling.

NOTE!

The H needle is a little shorter than the L needle.

Check that the lever arm is level with the carburettor housing (Walbro) or level with the gasket face (Tillotson).

Too high setting = too much fuel.

Too low setting = too little fuel.

Check that the carburettor does not leak.

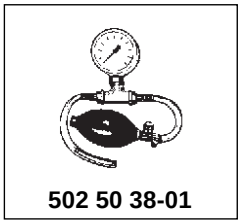
No leakage is permitted at a pressure of 50 kPa.

Connect the pressure tester no. 502 50 38-01 to the fuel inlet on the carburettor.

Pump up to a 50 kPa pressure.

Lower the carburettor into a bowl of petrol to discover any leakage.

No leakage is permitted.



502 50 38-01

Fit the control diaphragm.

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

Check that the air hole in the cover is open and screw the cover in position.

Model 122

Dismantle the control diaphragm.

Model 122

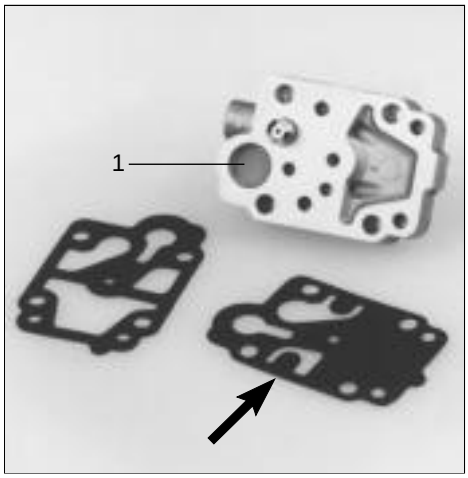
This model has a special Walbro carburettor where the pump and metering unit are placed on the same side as the venturi.

Remove the 4 screws and lift off the cover and control diaphragm.

Dismantle the pump and metering unit.

Separate the pump and metering unit from the carburettor body.

Pry carefully using a screwdriver.



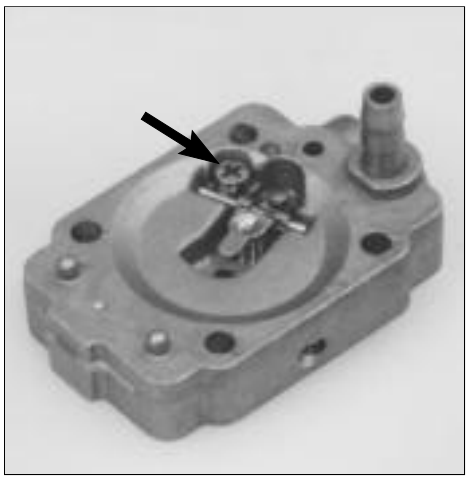
Remove the pump diaphragm and inspect for wear and damage.

Clean or replace the fuel screen (1).

Carefully remove the pump diaphragm and its gasket.

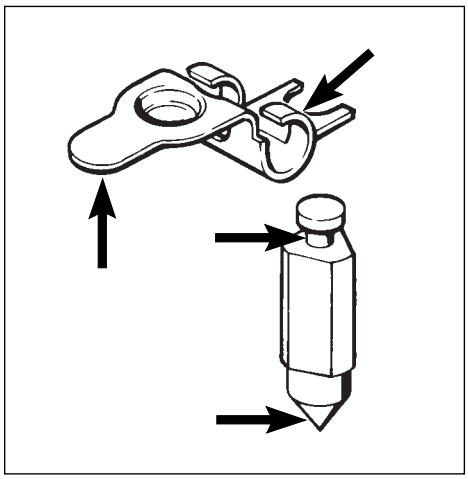
Check the pump diaphragm for wear to the valve flaps. Also hold it up to a light to check the material for holes.

Clean the fuel screen (1). Remove using a needle for replacement.



Dismantle the lever arm and needle valve to check for wear, replace if necessary.

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



Check the lever arm and needle valve for wear.

Replace damaged components.

Check for wear to the lever arm on the points of contact on the control diaphragm and on the cut-out for the needle valve.

Also check for wear to the needle valve on the tip and groove for the lever arm.

Replace damaged components.

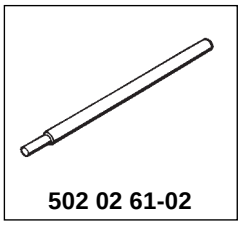
Replacing the needle valve seat.

Press out the needle valve seat for replacement.

NOTE!

Replace the seat, needle valve and lever arm at the same time.

The needle valve seats should be level with the carburettor housing. Use a vice with soft jaw guards to avoid damaging the needle valve seat.



502 02 61-02

Check the position of the lever arm.

Assemble the components in the reverse order set out dismantling.

Check that the lever arm is level with the diaphragm housing.

Too high setting = too much fuel.

Too low setting = too little fuel.

Replace the entire throttle valve mechanism if the throttle pivot is worn.

The entire throttle vale mechanism can be lifted off for replacement once the two screws have been removed.

Note which way, e.g. the idling screw is facing so the new mechanism is positioned correctly.

Dismantle the main jet by prying it out of the carburettor housing using a small screwdriver.

The carburettor's main jet can be removed for replacement.

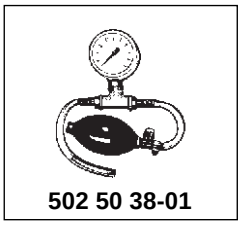
Use a small screwdriver to pry the main jet out of the carburettor housing.

Take care not to lose the small O-ring under the main jet.

NOTE!

Do not dismantle the plastic pipe in the throttle housing.

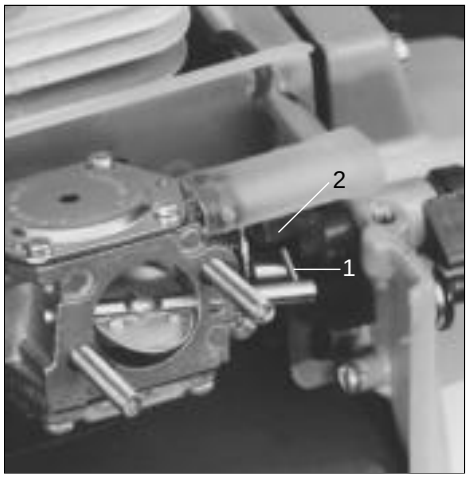
Assemble the carburettor and pressure test it.



502 50 38-01

Assemble the carburettor in the reverse order set out for dismantling.

Check that the carburettor does not leak following the procedure described on page 42.



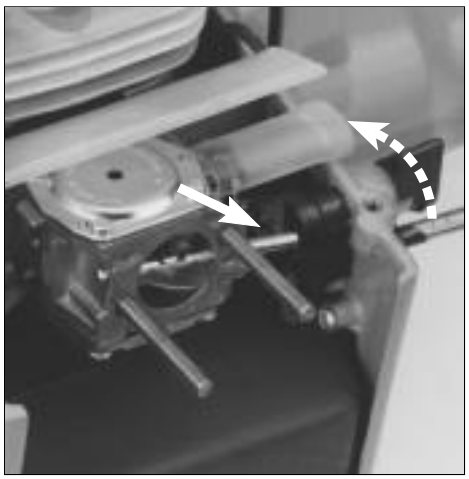
Assembly
Model 265

Fit the screwdriver guide over the jet screws and slide the carburettor in position over the studs.

Assembly
Model 265

Before the carburettor can be fitted on the cylinder the screwdriver guide should be placed over the jet screws.

Turn the choke lever to "CHOKE" and close the choke valve about 1/4. No more than so the pin (1) on the choke shaft can just bypass the choke lever's connector (2).

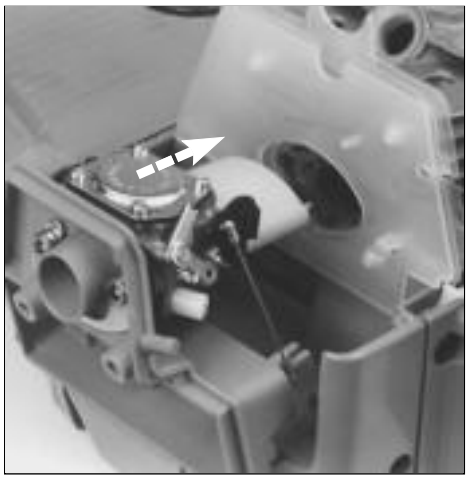


Check that the pin on the choke shaft goes in the groove on the choke lever's connector.

Connect the fuel pipe and fit the remaining components.

Slide the carburettor towards the cylinder at the same time as the choke lever is moved to the open position. Make sure the pin on the choke shaft goes in the groove on the choke lever's connector.

Connect the fuel pipe, fit the filter holder and the remaining components

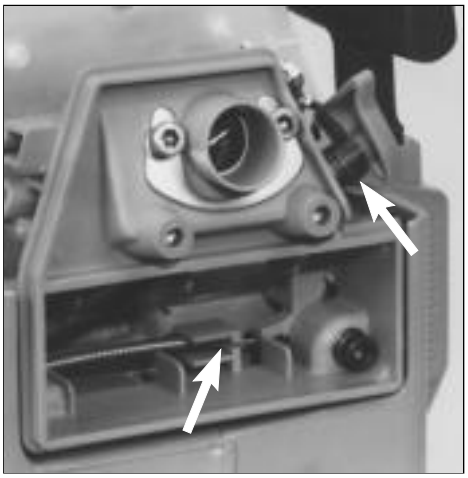


Model 250

Assembly sequence:

1. Secure the intake gasket on the cylinder.
2. Place the radiant heat guard on the crankcase.
3. Place the carburettor in the air filter holder and slide in the carburettor screws.
   Do not forget the U-shaped reinforcement plate.
4. Connect the throttle cable and fuel pipe.
5 Place the gasket in position on the carburettor. Check that it faces the right way so the pulse channel is not blocked.
6. Place the distance piece against the carburettor.
7. Fit the carburettor on the cylinder.

8. Press the carburettor against the cylinder using your thumb and carefully tighten the screws so that they do not cross thread.
9. Place the remaining two screws in the air filter holder.
10. Tighten all four screws.



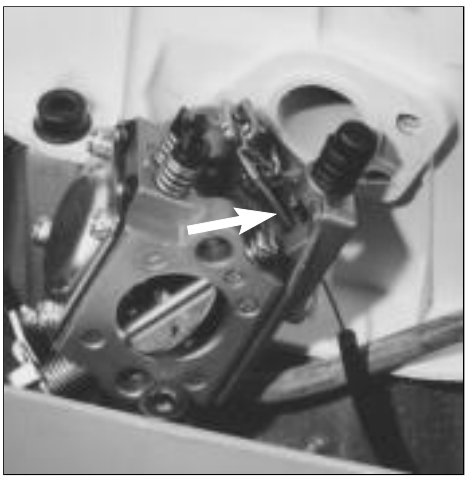
Check that the throttle cable seats correctly in the air filter cover.

Fit the choke lever.

Check that the throttle cable seats correctly in the air filter cover.

Apply a little grease to the bearing stud. Position the spring and fit the choke lever.

Check that the spring is capable of moving the valve back.



Model 240/245

Connect the fuel pipe and throttle cable.

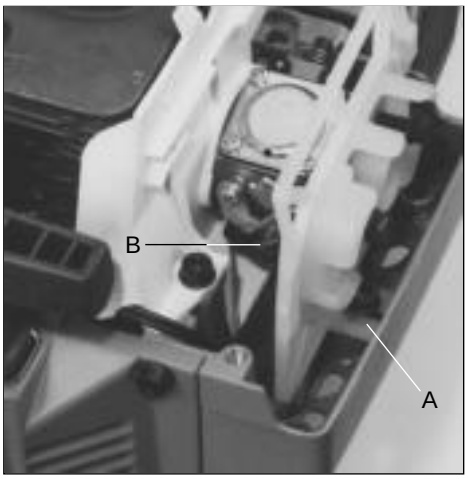
Model 240/245

First connect the fuel pipe to the carburettor and then fit the throttle cable.

Note the routing of the cable between the carburettor housing and the idling screw likewise the connection to the lever arm on the carburettor.

Secure the gasket on the carburettor with grease.

Check that it faces the right way; not blocking the pulse channel.



Position the choke lever in the air filter holder and fit the carburettor with the holder on to the cylinder.

Position the choke lever in the air filter holder and slide the carburettor screws through holes and the carburettor housing.

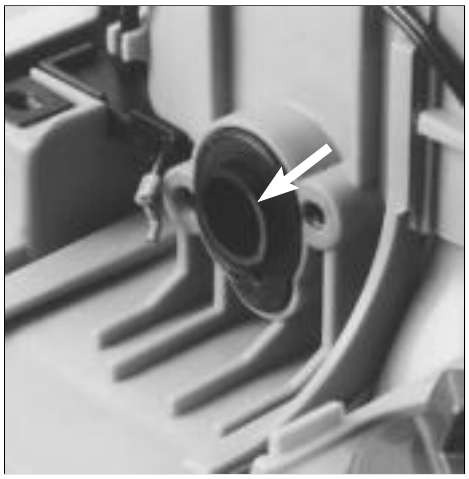
Position the slot in the air filter housing (A) under the screw in the crankcase.

NOTE!

The washer should be placed between the crankcase and the air filter holder.

Now tighten the screws.

Check that the choke lever grips in the groove (B) on the carburettor's choke lever arm.



Model 225/232/235

Check that the plastic ring is in position in the inlet pipe.

Model 225/232/235

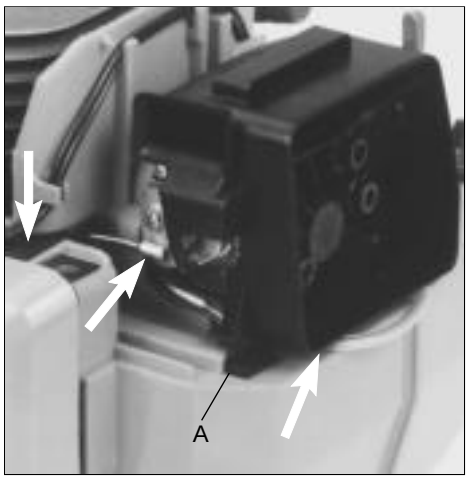
Check that the small plastic ring is in position in the elastic inlet pipe. This prevents the pipe from deforming.

Place the choke lever and carburettor in position in the air filter cover.

Connect the fuel pipe.

Position the choke lever in the air filter cover and then the carburettor. Check that the choke lever enters the groove on the carburettor's lever arm.

Connect the fuel pipe.



Connect the throttle cable and bolt on the carburettor.

Make sure the cable sits correctly in the cable guides.

Slide the carburettor screws through the air filter holder and the carburettor.

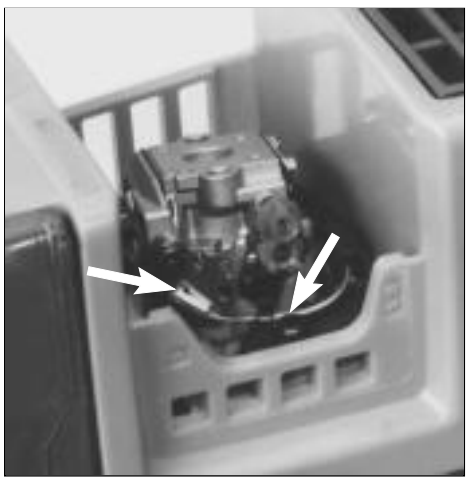
Then connect the throttle cable and bolt the carburettor onto the cylinder. No gasket or gasket sealant is needed.

Make sure the cable sits correctly in the cable guides.

Make sure the fuel pipe is not crushed between the crankcase and air filter holder.

NOTE!

The air filter holder should be inserted into the guide (A) on the crankcase.



Model 32

Position the carburettor gasket and connect the fuel pipe and throttle cable.

Model 32

Position the carburettor gasket on the crankcase.

Connect the fuel pipe and throttle cable to the carburettor.

NOTE!

Connect the cable in the right hole on the lever arm and ensure it pulls correctly.

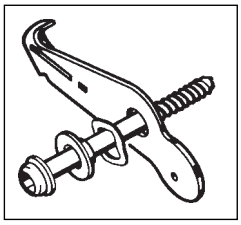
Position the carburettor and cover plate.

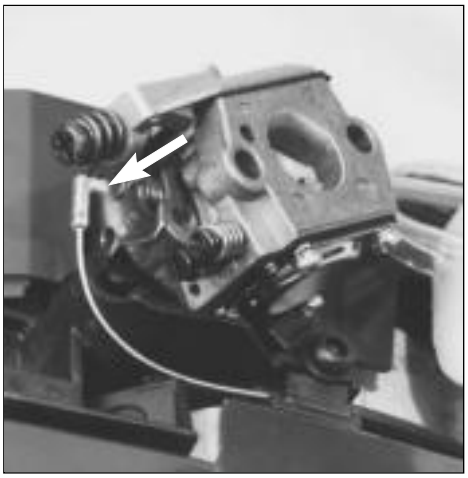
Fit the choke valve and tighten the carburettor screws.

Align the carburettor over the securing holes and position the cover plate.

Fit the carburettor screws, bear in mind the position of the curved washer and stop shoulder by choke valve. Turn the choke valve the right way!

Tighten the carburettor screws and fit the air filter.





Model Mondo

Connect the throttle cable.

Connect the fuel pipes.

Position the carburettor.

Model Mondo

- Connect the throttle cable to the throttle valve's lever arm.
- Connect the fuel pipes.

NOTE!

Select the right hole. See photo.

Make sure the fuel pipes are not mixed up. See photo on page 35.

Check that the intake gasket is placed correctly and position the carburettor.

Watch the routing of the throttle cable.

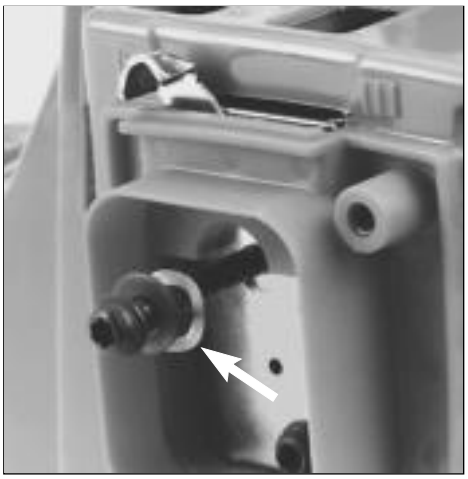
Hold the carburettor in place and fit the air filter holder and support plate with the lower screw.

Hold the carburettor in place.

Position the air filter holder with its support plate on the carburettor.

Guide the holder and carburettor by using the lower screw.

Check that the gasket has not moved.



Fit the choke valve.

Place the choke valve in the air filter holder and tighten the screw.

NOTE!

The curved washer should rest against the valve.

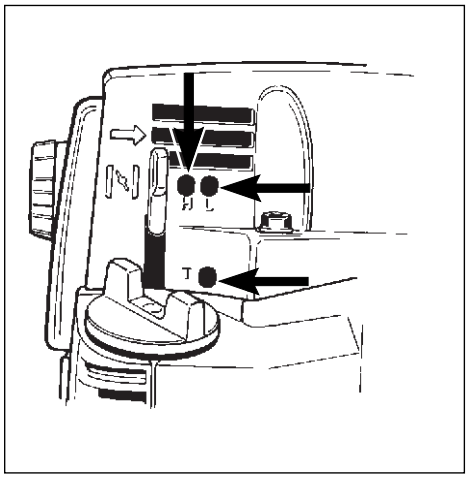
Check that the stop sleeve is seated correctly in the hole in the valve and that it can be opened and closed without jamming.

Fit the filter support (A), air filter and filter cover.

Clean/replace the air filter if necessary.

Fit the filter support (A). This must be used to prevent particles from the air filter being drawn into the carburettor.

Now fit the air filter (clean first in tepid, soapy water if necessary) and air filter cover.



Carburettor settings

⚠ WARNING!

The clutch drum and driveline must, under all circumstances, be fitted when testing running the engine after adjusting the carburettor.

Otherwise there is a risk that the clutch can become detached and cause serious personal injury.

Function

The carburettor has the task of delivering a combustible air/fuel mixture to the cylinder.

The amount of mixture is controlled by the throttle.

The mixture's composition of petrol and air is controlled by using the adjustable needles ”H” and ”L”.

The needles must be correctly adjusted so that the engine can give maximum power at different speed, run smoothly when idling and react quickly when accelerating.

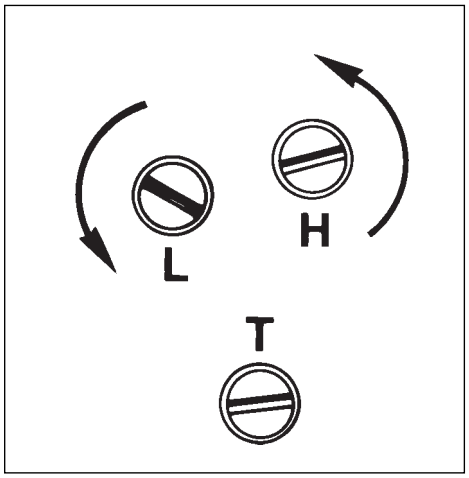
The carburettor setting can vary a little depending on the humidity, temperature and air pressure.

L = Low speed needle

H = High speed needle

T = Idle speed adjuster screw

- The fuel quantity in relation to the air flow permitted by the throttle opening is adjusted by the L and H needles. Turning the needles clockwise gives a leaner fuel mixture (less fuel) and turning them anticlockwise gives a richer fuel mixture (more fuel). A *leaner* mixture gives *higher* revs while a *richer* mixture gives *less* revs.
- The T-screw regulates the position of the throttle while the engine is idling. Turning the screw clockwise gives a higher idling speed while turning it anticlockwise gives a lower idling speed.



Basic setting

The carburettor is set to its basic setting when test run at the factory. The basic setting is ”richer” than the optimal setting (the max speed is 600–800 rpm under the recommended max. speed) and should be kept during the engine's first working hours. Thereafter the carburettor should be finely adjusted. The basic setting can vary between:

H = 1 to 1 1/4 turns (model 235 P: 3/4 – 1 turns)

L = 1 to 1 1/4 turns (model 235 P: 3/4 – 1 turns)

Basic setting model 235 P

The pruner's engine can not be revved to the max speed as the cutting head's blades go against the stop and the engine slows. Consequently, the engine revs at max under load. The high speed needle H should not be changed from the basic settings (3/4 – 1 turns open). If the muffler smokes heavily, at the same time as the engine 4 strokes a great deal the setting is too rich. Turn the H needle clockwise until you find the setting that sounds right.

Fine adjustment

Fine adjustment of the carburettor should be carried out after the engine has been ”run-in”.

- The air filter should be clean and the cylinder cover fitted when adjustments are made.

  First adjust the L needle, then the H needle and finally the idling speed's T-screw.

  The following speed recommendations apply:

  Idling speed = 2.500 rpm.

Max speed

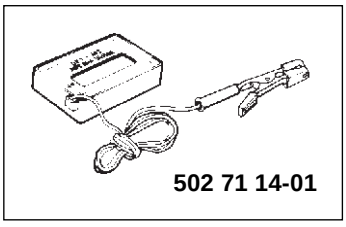
Model	During running in	After running in
265	10,900	11,500
250 RX (R)	12,900 (11,900)	13,500 (12,500)
240	11,900	12,500
245	11,900	12,500
225	10,500	11,000
232	10,300	10,800
235	10,500	11,000
240 RBD	10,500	11,000
122		10,800
32		7,000
Mondo		9,000
235 P	—	—
225 H 60	10,500	11,000
225 H 75	10,500	11,000

NOTE!

The max. recommended speed must not be exceeded.

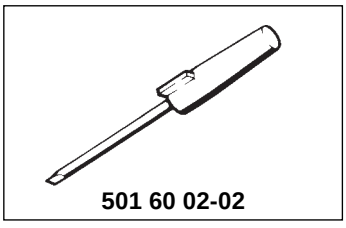
When checking the speed on a trimmer no part of the cord should be extended.

Check the speed using the tachometer 502 71 14-01.



502 71 14-01

- Carefully screw in (clockwise) the L and H needles until they bottom. Screw out (anticlockwise) the needle 1 turn. The carburettor is now set H = 1 and L = 1.



501 60 02-02

Use the special screwdriver 501 60 02-02.

- Start the engine and run warm for 10 minutes.

NOTE!

If the cutting equipment rotates while idling the T-screw should be turned anticlockwise until it stops.

Low speed needle L

Find the highest idling speed by slowly turning the low speed needle clockwise and anticlockwise. When the highest speed has been found, turn the L needle 1/4 turn anticlockwise.

High speed needle H

The high speed needle H affects the engine's power and speed. A too lean H needle setting (H needle screwed in too far) gives too little fuel to the engine resulting in damage to the engine.

Run the engine at full throttle for about 10 seconds. The H needle is set correctly when the engine ”splatters” a little.

If the muffler smokes heavily, at the same time as the engine splatters a great deal the setting is too rich. Turn the H needle clockwise until you find the setting that sounds right.

NOTE!

A tachometer should always be used to find the optimal setting.

The recommended max. speed must not be exceeded.

Idling speed T-screw

Let the engine idle for about 30 seconds or until the speed has stabilised. Adjust the idling speed T-screw until the engine idles without stopping.

- Turn the screw clockwise if the engine stops.
- Turn the speed anticlockwise to lower the speed.

Correctly adjusted carburettor

A correctly adjusted carburettor means that the engine accelerates without hesitation and it 4 strokes a little at full throttle.

- A too lean adjusted L needle can cause starting difficulties and bad acceleration.
- A too lean adjusted H needle results in lower power, bad acceleration and/or damage to the engine.
- A too rich setting of the "L" and "H" needles give acceleration problems or a too low working speed.

CARB-EPA designed carburettor

On this type of carburettor the H and L needles can be adjusted within extremely tight limits to, among others, comply with stringent demands with regard to the hydrocarbon and nitrogen oxide content in the exhaust fumes.

Adjustment must be carried out according to the instructions below after replacing the needles or the entire carburettor on a CARB-EPA approved engine.

After replacing the complete carburettor

1. Check that the plastic sleeve on the H needle is turned as far as possible anticlockwise (richest fuel mixture). The sleeve sits freely on the needle and can be turned without affecting the needle's setting.

   Do not change the L needle setting. This is adjusted at the factory and the plastic sleeve is already fixed on the needle.
2. Fit four trimmer cords Ø 3.3 mm on a Trimmy Fix.

   (Trimmy Fix M10, 531 00 38-69 for models 225 and 232. Trimmy Fix M12, 502 13 87-02 for model 235).

   Maybe the hole needs to be enlarged a little to make fitting the trimmer cords easier.

   (Does not apply to model 225H60/H75).
3. Cut the trimmer cord to the right length (measure the length to the edge of the Trimmy Fix).

   Model 225: 145 mm

   Model 232: 155 mm

   Model 235: 170 mm

   Fit the Trimmy Fix on the machine.

   (Does not apply to model 225H60/H75).

   NOTE!

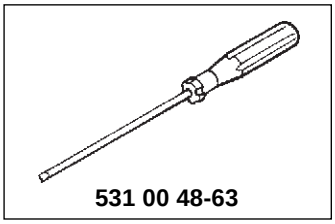
   The spray guard must be removed from model 235. Exercise care when the trimmer cord is rotating.

4. Start the engine. Adjust the idling speed T screw if necessary.
5. Use screwdriver 531 00 48-63 to adjust the H needle. The blade is 2 mm wide and goes through the plastic sleeve and only adjusts the needle.

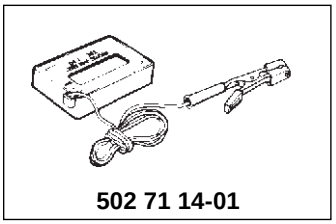
   Adjust the H needle so that the max. speed 8400 ± 200 rpm is set.

   Use the tachometer 502 71 14-01 to check the speed.

   (Does not apply to model 225H60/H75).



531 00 48-63



502 71 14-01

6. Run the engine warm for 2–3 minutes.
7. Check that the max speed is still 8400 ± 200 rpm. Adjust the H needle if necessary.
8. Check that the plastic sleeve on the H needle is still turned as far as possible anticlockwise (richest fuel mixture).
9. Press in the plastic sleeve using a punch (Ø 5 mm).

The basic setting of the carburettor is now complete. Further fine adjustment, within the limits that the plastic sleeves on the needles permit, can be necessary.

Deviations for models 225H60/H75:

5A. Adjust the H needle until the max speed is reached.

   Then turn the needle anticlockwise until the speed drops by 500 rpm.

6A. Run the engine warm at full throttle for 2–3 min.

7A. Check the idling speed and that the engine reacts quickly when accelerating.

7B. Adjust the H needle so that the max. speed is reached. Then turn the needle anticlockwise until the speed drops by 500 rpm.

After replacing only the H needle

1. Turn the L needle as far as possible anticlockwise (richest fuel mixture).
2. Remove the plastic sleeve on the H needle and unscrew the needle.
3. Carefully screw in the new H needle to the bottom and then loosen it a 1/2 turn.
4. Press a new plastic sleeve on the H needle down to the first stop. The sleeve can now be turned without turning the needle.
5. Turn the plastic sleeve as far as possible anticlockwise (richest fuel mixture) without turning the needle.
6. Fit four trimmer cords Ø 3.3 mm on a Trimmy Fix.

   (Trimmy Fix M10, 531 00 38-69 for models 225 and 232. Trimmy Fix M12, 502 13 87-02 for model 235).

   Maybe the hole needs to be enlarged a little to make fitting the trimmer cords easier.

   (Does not apply to model 225H60/H75).
7. Cut the trimmer cord to the right length (measure the length to the edge of the Trimmy Fix).

   Model 225: 145 mm

   Model 232: 155 mm

   Model 235: 170 mm

   Fit the Trimmy Fix on the machine.

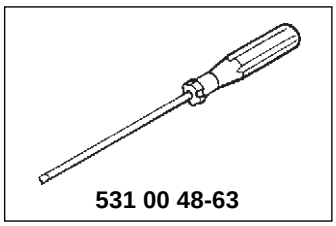
   (Does not apply to model 225H60/H75).

   NOTE!

   The spray guard must be removed from model 235. Exercise care when the trimmer cord is rotating.

8. Start the engine. Adjust the idling speed T screw if necessary.
9. Use screwdriver 531 00 48-63 to adjust the H needle. The blade is 2 mm wide and goes through the plastic sleeve and only adjusts the needle.

   Adjust the H needle so that the max. speed 8400 ± 200 rpm is set.



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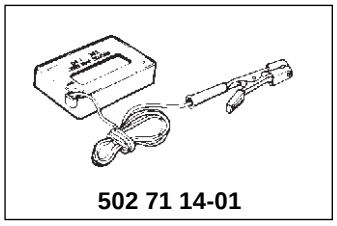


502 71 14-01

   Use the tachometer 502 71 14-01 to check the speed.

   (Does not apply to model 225H60/H75).
10. Run the engine warm for 2–3 minutes.
11. Check that the max speed is still 8400 ± 200 rpm. Adjust the H needle if necessary.
12. Check that the plastic sleeve on the H needle is still turned as far as possible anticlockwise (richest fuel mixture).
13. Press in the plastic sleeve using a punch (Ø 5 mm).

The basic setting of the carburettor is now complete. Further fine adjustment, within the limits that the plastic sleeves on the needles permit, can be necessary.

Deviations for models 225H60/H75:

9A. Adjust the H needle until the max speed is reached.

   Then turn the needle anticlockwise until the speed drops by 500 rpm.

10A. Run the engine warm at full throttle for 2–3 min.

11A. Check the idling speed and that the engine reacts quickly when accelerating.

11B. Adjust the H needle so that the max. speed is reached. Then turn the needle anticlockwise until the speed drops by 500 rpm.

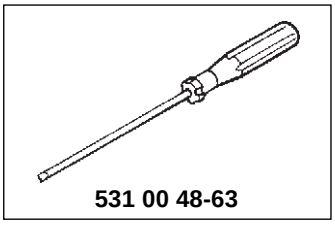
After replacing the H and L needles

1. Remove the plastic sleeves from both needles and screw out the needles.
2. Carefully screw the new needles in until they bottom.

   Screw out the L needle 2 turns

   Screw out the H needle 1/2 turn
3. Press the new plastic sleeves on the needles until the first stop. The sleeves can still be turned without the needles turning.
4. Turn the plastic sleeve on the L needle as far as possible clockwise (leanest fuel mixture).
5. Start the engine and let it idle.
6. Use the screwdriver 531 00 48-63 to adjust the L needle. The blade is 2 mm wide and goes through the plastic sleeve and only adjusts the needle.

   Adjust the L needle so that the highest idling speed is obtained.



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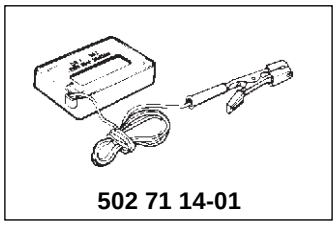


502 71 14-01

   Use the tachometer 502 71 14-01 to check the speed.
7. Check that the plastic sleeve on the L needle is still turned as far as possible clockwise (leanest fuel mixture).
8. Press the plastic sleeve on the L needle using a punch (Ø 5 mm).

   Now turn the L needle as far as possible anticlockwise (richest fuel mixture).
9. Turn the plastic sleeve on the H needle as far as possible anticlockwise (richest fuel mixture).
10. Fit four trimmer cords Ø 3.3 mm on a Trimmy Fix.

    (Trimmy Fix M10, 531 00 38-69 for models 225 and 232. Trimmy Fix M12, 502 13 87-02 for model 235).

    Maybe the hole needs to be enlarged a little to make fitting the trimmer cords easier.

    (Does not apply to model 225H60/H75).
11. Cut the trimmer cord to the right length (measure the length to the edge of the Trimmy Fix).

    Model 225: 145 mm

    Model 232: 155 mm

    Model 235: 170 mm

    Fit the Trimmy Fix on the machine.

    (Does not apply to model 225H60/H75).

    NOTE!

    The spray guard must be removed from model 235. Exercise care when the trimmer cord is rotating.
12. Start the engine. Adjust the idling speed T screw if necessary.
13. Use screwdriver 531 00 48-63 to adjust the H needle. The blade is 2 mm wide and goes through the plastic sleeve and only adjusts the needle.

    Adjust the H needle so that the max. speed 8400 ± 200 rpm is set.

    Use the tachometer 502 71 14-01 to check the speed.

    (Does not apply to model 225H60/H75).
14. Run the engine warm for 2–3 minutes.
15. Check that the max speed is still 8400 ± 200 rpm. Adjust the H needle if necessary.
16. Check that the plastic sleeve on the H needle is still turned anticlockwise as far as possible (richest fuel mixture).
17. Press in the plastic sleeve using a punch (Ø 5 mm).

The basic setting of the carburettor is now complete. Further fine adjustment, within the limits that the plastic sleeves on the needles permit, can be necessary.

Deviations for models 225H60/H75:

13A. Adjust the H needle until the max speed is reached.

   Then turn the needle anticlockwise until the speed drops by 500 rpm.

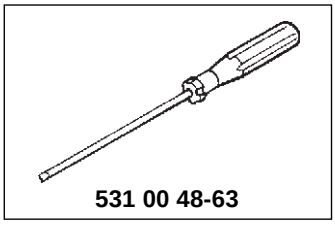
14A. Run the engine warm at full throttle for 2–3 min.

15A. Check the idling speed and that the engine reacts quickly when accelerating.

15B. Adjust the H needle so that the max. speed is reached. Then turn the needle anticlockwise until the speed drops by 500 rpm.

Replacing only the L needle

1. Turn the H needle as far as possible clockwise (leanest fuel mixture).
2. Remove the plastic sleeve on the L needle and unscrew the needle.
3. Carefully screw in the new L needle to the bottom and then loosen it 2 turns.
4. Press a new plastic sleeve on the L needle down to the first stop. The sleeve can now be turned without turning the needle.
5. Turn the plastic sleeve as far as possible clockwise (leanest fuel mixture).
6. Start the engine and let it idle.
7. Use the screwdriver 531 00 48-63 to adjust the L needle. The blade is 2 mm wide and goes through the plastic sleeve and only adjusts the needle.



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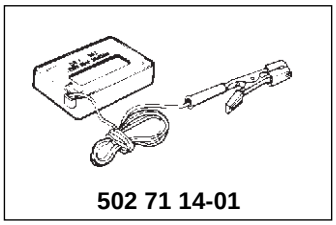


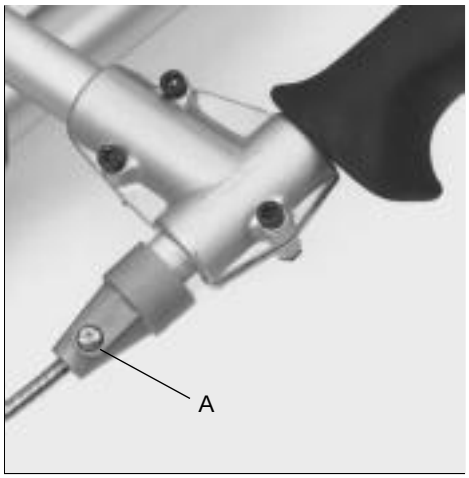
502 71 14-01

Adjust the L needle so that the highest idling speed is obtained.

Use the tachometer 502 71 14-01 to check the speed.

8. Check that the plastic sleeve on the L needle is still turned as far as possible clockwise (leanest fuel mixture).
9. Press the plastic sleeve on the L needle using a punch (Ø 5 mm).

The basic setting of the carburettor is now complete. Further fine adjustment, within the limits that the plastic sleeves on the needles permit, can be necessary.



Throttle

Model 265

Dismantle the throttle cable.

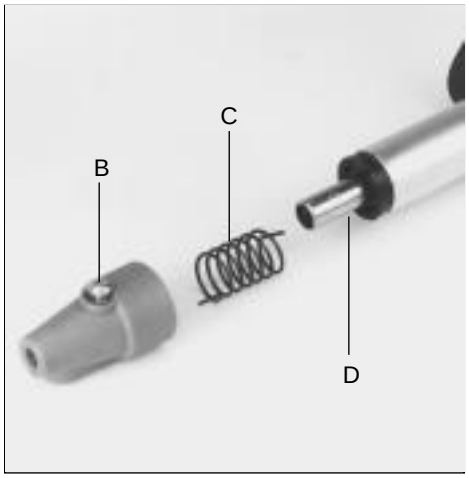
Lift off the throttle.

Throttle

Model 265

Loosen the locking screw (A) and pull out the throttle cable.

Remove the three screws that hold the throttle on the handle and lift off the grip and the two clamp halves.



Loosen the locking screw (B) and dismantle the throttle.

Loosen the locking screw (B).

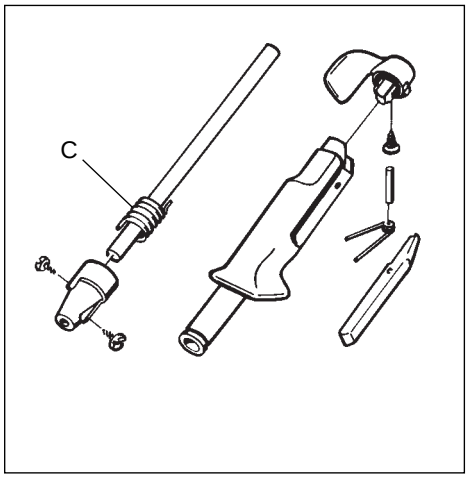
The return spring (C) is now accessible and the throttle control (D) with its shaft can be pulled from the throttle.

Press out the bearing pin from the throttle lock using a punch.

Replace damaged parts and reassemble in the reverse order set out for dismantling.

Fold back the rubber handle and press out the bearing pin using a punch.

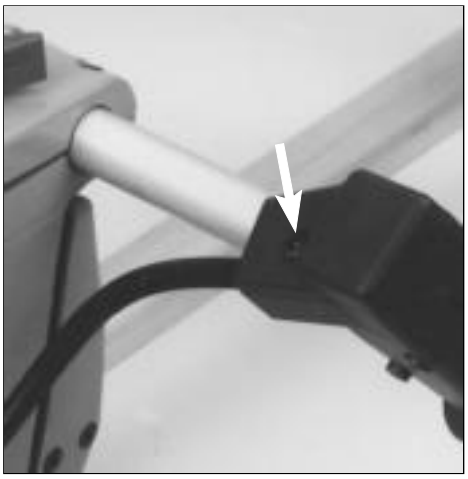
The spring and throttle lock are now accessible for replacement.



Reassembly of the throttle takes place in the reverse order set out for dismantling.

Reassembly of the throttle takes place in the reverse order set out for dismantling.

Tension the spring (C) about 1/4 – 1/2 turn.



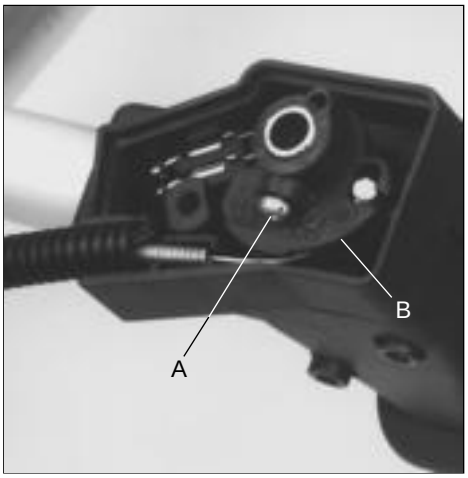
Model 250

Remove the screw and cover.

Model 250

Fold down the handle for better accessibility.

Remove the screw and cover over the throttle cable's and the short circuit cable's connection in the handle.



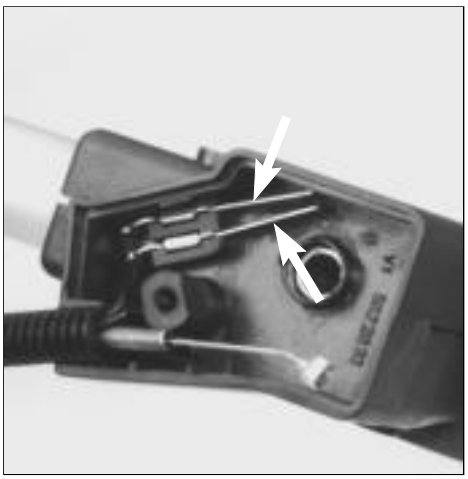
Loosen the screw (A) and lift out the connection piece (B) and the return spring.

Loosen the screw (A) and lift out the throttle cable's connection piece (B) and the return spring.

NOTE!

There is some tension on the spring.

The throttle's shaft can now be removed for replacement.



Dismantle the short circuit cable's contact strips for inspection and possible replacement.

Lift out the short circuit cable's contact strips using flat nose pliers.

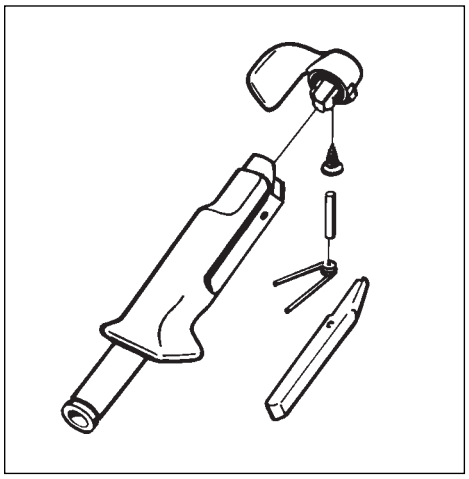
Check the contact surface on the strips replace or clean them if they are corroded or burnt.

Press out the bearing pin from the throttle lock using a punch.

Replace damaged parts and reassemble in the reverse order set out for dismantling.

Fold back the rubber handle and press out the bearing pin using a punch.

The spring and throttle lock are now accessible for replacement.



Reassembly of the throttle takes place in the reverse order set out for dismantling.

Reassembly of the throttle takes place in the reverse order set out for dismantling.

Lubricate with a little grease, preferably cold resistant.

- Lubricate the throttle control shaft with a little grease and slide it in the bearing housing.
- Position the return spring and check that it enters the hole in the bearing housing.
- Place the throttle cable's connection piece in position and also check here that the spring enters the hole.
- Connect the throttle cable.
- Press the throttle cable's connection piece down over the shaft.
- Make sure the throttle is in the idling position.
- Tension the throttle cable by turning the connection piece to the position when the throttle valve just starts to move.
- Tighten the screw and check that the throttle also functions as intended in the stop position.

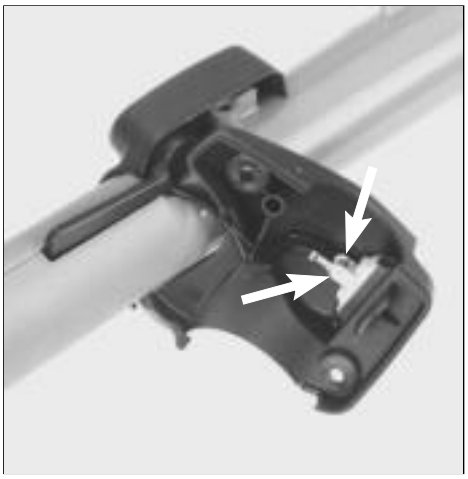
Models 225 R/232 R/235 R.
245 R, 250 R

Dismantle the throttle from the handle and remove the screws that hold together the two halves of the throttle grip.

Carefully separate the two halves.

Replace any damaged parts.

Check when reassembling that the guide pin (A) enters the hole in the throttle lock (B), and that the lock functions without jamming when both throttle halves have been screwed together.



Models 225 L, E, 232 L

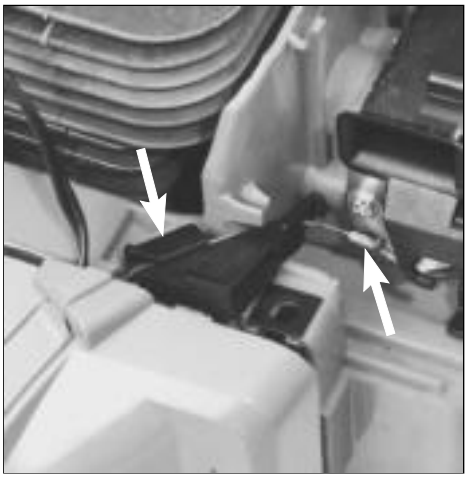
Remove the screws.

Disconnect the cables from the stop switch.

Models 225 L, E, 232 L

Remove both the screws that hold the throttle halves together.

Fold back the right half and disconnect the cables from the stop switch.



Unhook the throttle cable from the carburettor.

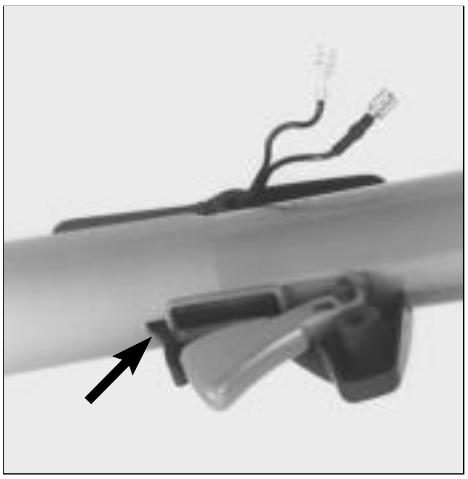
Lift up the plastic guide and unhook the throttle cable from the carburettor.

Inspect the different parts with regard to wear and damage.

Replace damaged components.

Fold back the left half of the throttle.

The different parts are now easily accessible for service or replacement.



Reassemble the throttle in the reverse order set out for dismantling.

Check that it functions, especially the throttle lock.

Reassemble the throttle in the reverse order set out for dismantling.

Note the following:

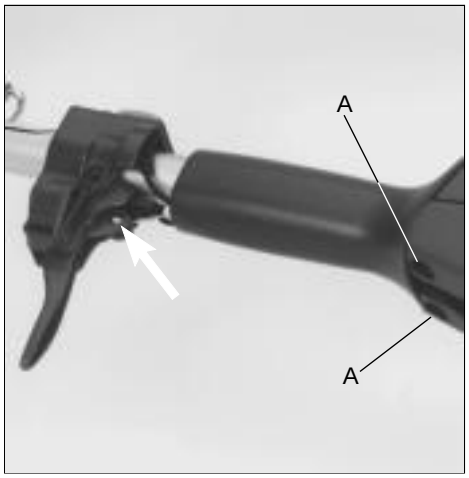
- Check that the throttle cable and short circuit cable are not crushed.
- The cable rail should be under the throttle control.
- The pin in the throttle control's left half goes in the hole on the under side of the shaft.

Models 122/32/Mondo

Remove the screw and slide the throttle forward until the throttle cable is accessible.

Models 122/32/Mondo

Remove the screw that holds throttle on the shaft and slide the throttle forward until the throttle cable is accessible.



Remove the throttle cable.

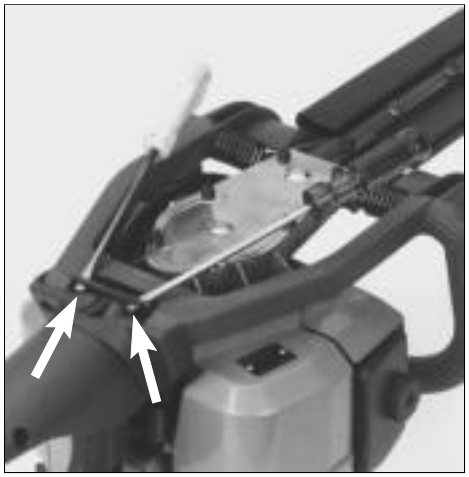
The shaft and engine body must be separated to replace the throttle.

Remove the throttle cable, replace if necessary.

The shaft and engine body must be separated if the entire throttle is to be replaced.

Loosen the screw/screws (A) and remove the short circuit cable.

Remove the handle. It is easier if soap is used as a slip agent.



Models 225 H 60, 225 H 75

Remove the locking plate and pull out the rear handle from the handlebars.

Models 225 H 60, 225 H 75

Remove the locking plate by prising it upwards using two screwdrivers.

Pull out the rear handle from the handlebars.

Separate the two handle halves and inspect the different components for wear, replace if necessary.

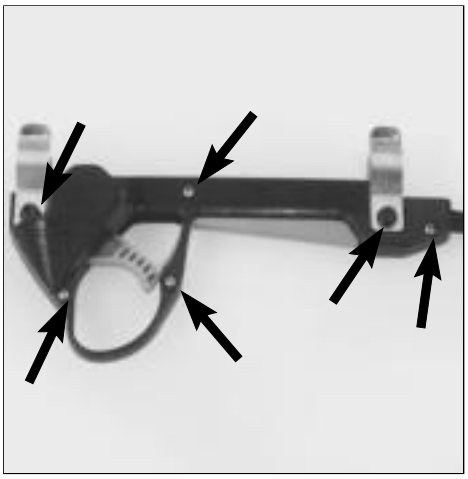
Reassemble in the reverse order set out for dismantling.

Remove the screws and carefully separate the two handle halves. All components are now easily accessible for possible replacement.

Reassemble in the reverse order set out for dismantling.

NOTE!

Ensure that the throttle cable enters the cut-out (A) correctly so that it is not crushed when the other handle half is fitted. Lubricate the O-ring with grease.

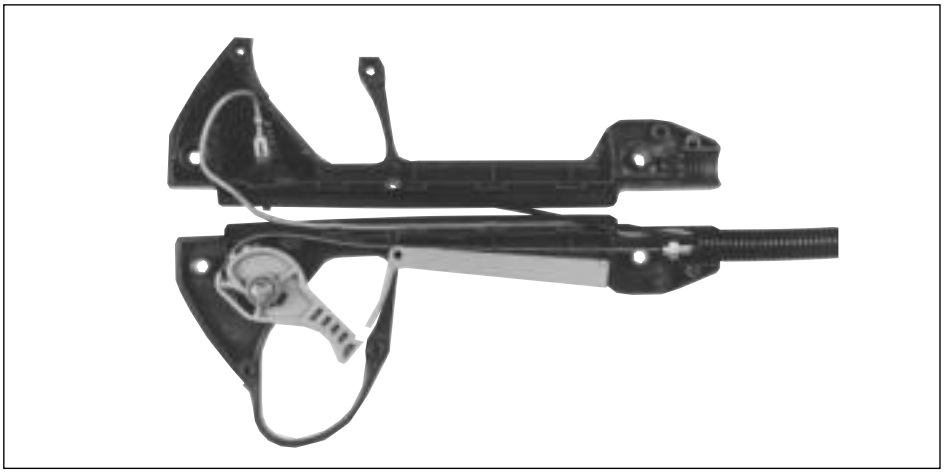


Model 235 P

Remove the screws and separate the handle halves.

Model 235 P

Remove all the screws and carefully separate the handle halves.



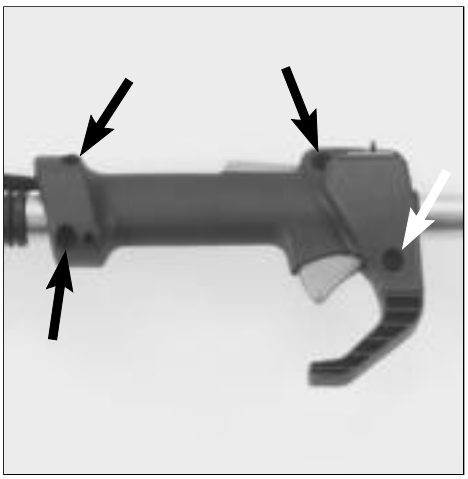
Inspect all parts with regard to wear and damage. Replace damaged parts.

Reassemble in the reverse order set out for dismantling.

NOTE!

Check that the short circuit cables and throttle cable are not crushed.

The short circuit cables should be routed outside of the handle except at the rear and front sections.

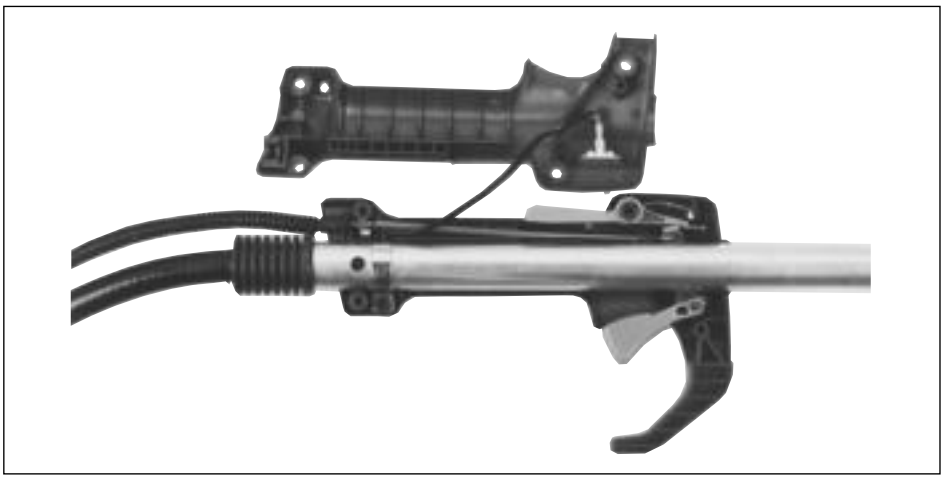


Models 232 RBD, 240 RBD

Remove the screws and separate the handle halves.

Models 232 RBD, 240 RBD

Remove the screws and separate the handle halves.



Inspect all parts with regard to wear and damage. Replace damaged parts.

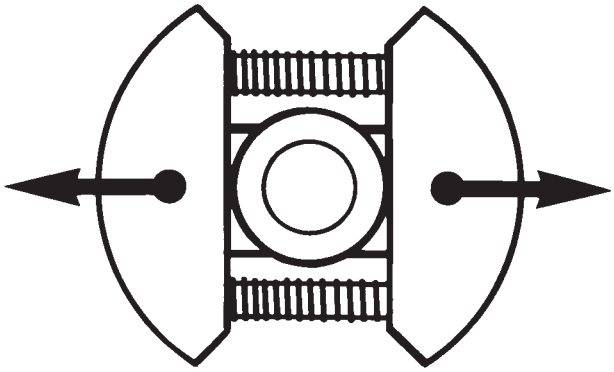
Reassemble in the reverse order set out for dismantling.

NOTE!

Check that the short circuit cable is *under* the throttle cable's casing to prevent it from being crushed.

Centrifugal clutch

4.



Contents

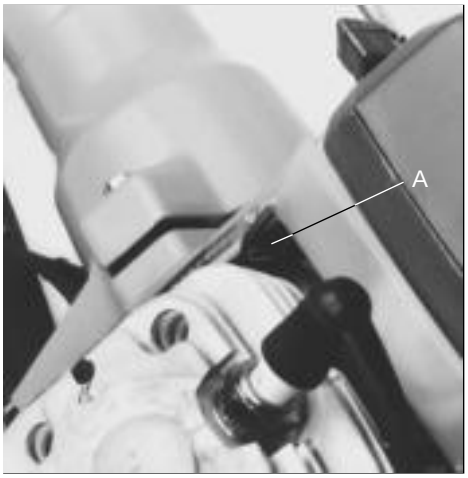
Centrifugal clutch

The centrifugal clutch has the task of transferring the power from the engine to the cutting equipment. As the name implies, it works according to a centrifugal principle.

This means the clutch's friction shoes are thrown outwards towards the clutch drum at a certain engine speed. When the friction against the drum is sufficiently great it drives the drive shaft at the same speed as the engine.

Some slipping occurs between the clutch and the clutch drum when accelerating as well as in the reversed situation when the cutting equipment jams. Thereby preventing abnormal load changes on the crankshaft.

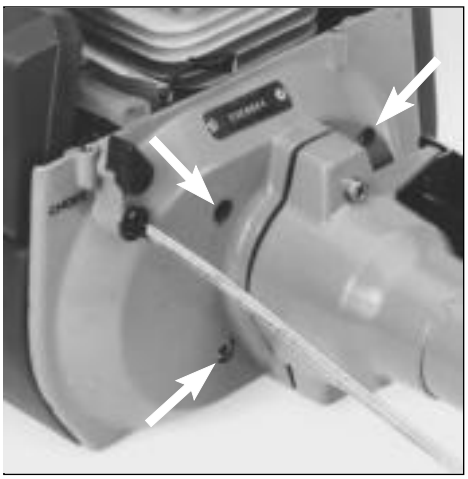
The engagement speed has been carefully tested so that the engine can idle without the cutting equipment's drive shaft rotating.



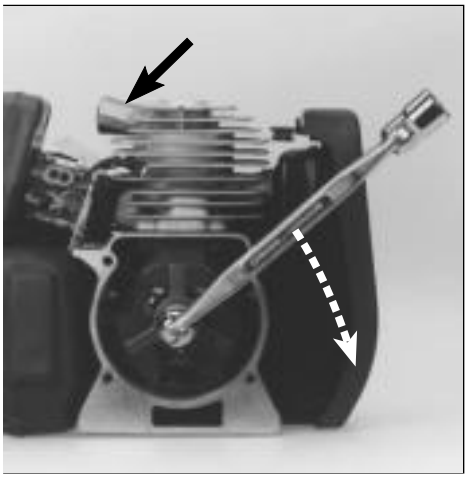
Clutch model 265

Dismantling

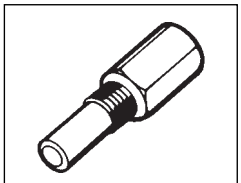
Remove the cylinder cover and the earth cable (A).



Undo the screws and lift off the clutch cover complete with the shaft.



Dismantle the centrifugal clutch from the crankshaft.



504 91 06-05

Clutch model 265

Dismantling

Remove the cylinder cover and the earth cable (A).

Undo the 4 bolts that hold the clutch cover on the engine body.

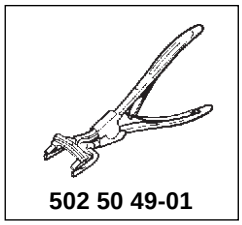
Lift off the complete unit with shaft and clutch cover.

Replace the spark plug with the piston stop no. 504 91 06-05. Unscrew the clutch from the crankshaft.

NOTE!

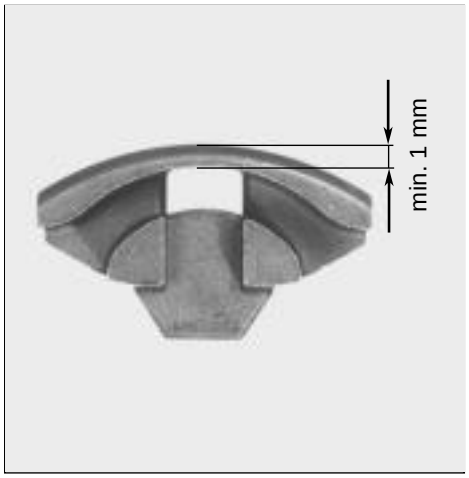
Left-hand thread!

Remove the clutch springs.



502 50 49-01

Remove the clutch springs using pliers no. 502 50 49-01 and a screwdriver.



Clean and inspect the clutch parts with regard to damage and wear.

Clean and inspect the clutch hub's arms and the clutch shoes with regard to wear.

There must be at least 1 mm of material remaining on the most worn area on the clutch shoes.

All shoes must be replaced at the same time.

Assembly

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

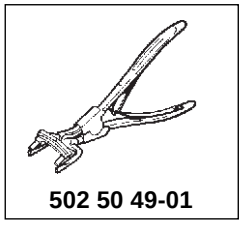
Assembly

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

NOTE!

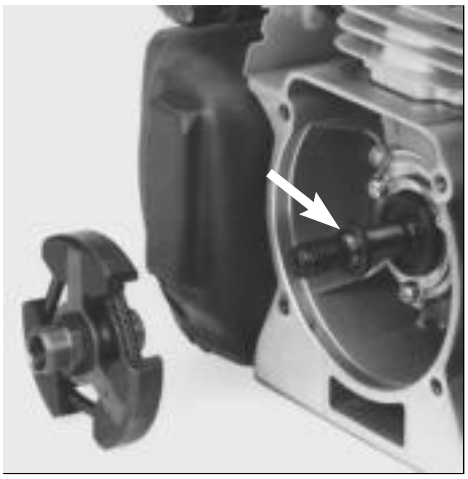
The spring's connection point should come in the centre of one of the hub's arms.

Fit the remaining clutch shoe.



502 50 49-01

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

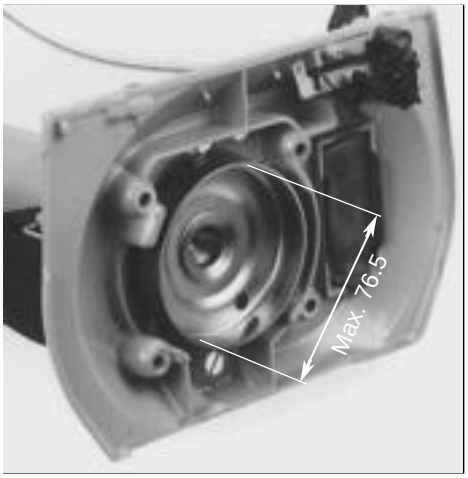


Fit the clutch on the crankshaft.

Fit the clutch on the crankshaft.

Do not forget the thick spacer inside the clutch.

Tighten the clutch.



Clutch drum

Model 265

Check the clutch drum for damage and wear.

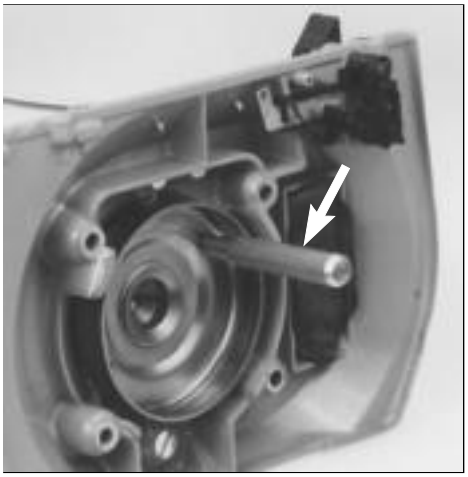
Replace the clutch drum if necessary.

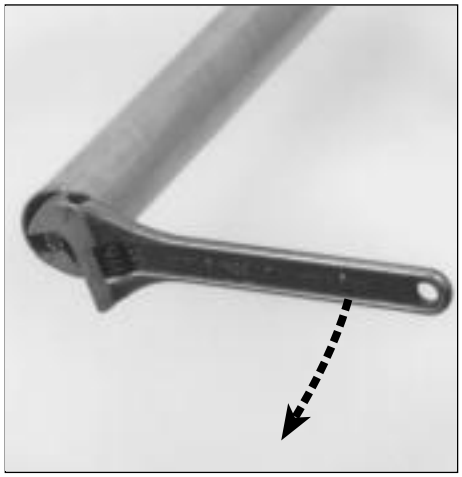
Clutch drum

Model 265

Check the clutch drum for damage and wear.

Measure the inside diameter of the drum. It must not be greater than 76.5 mm. Replace with a new drum if this is the case.





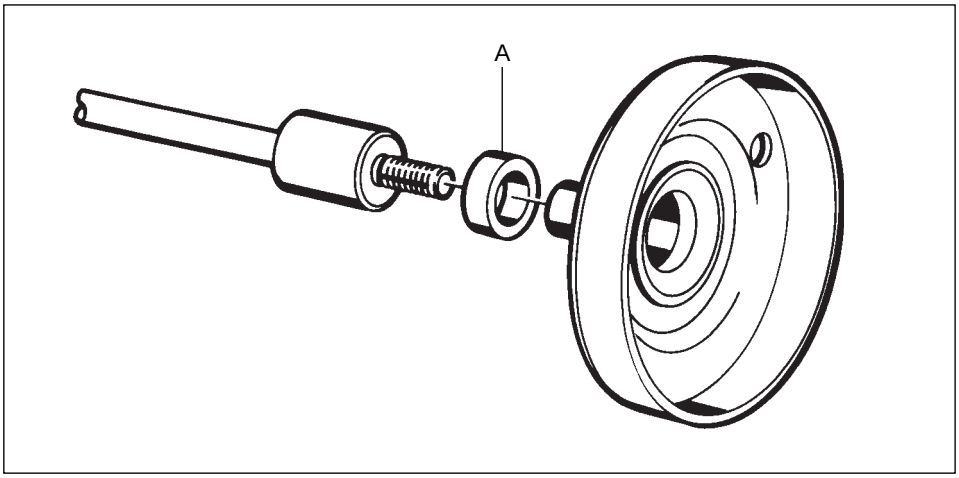
Dismantle the angle gear so that the end of the drive shaft is accessible.

Lock the clutch drum by inserting a suitable punch through one of the holes so that it rests against one of the reinforcement ribs in the clutch cover. (See photo).

Undo the drive axle.

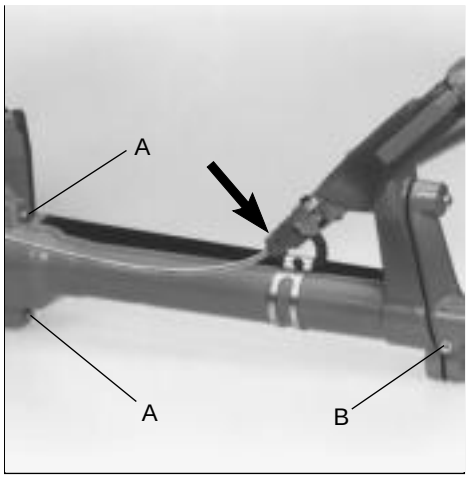
NOTE!

Left-hand thread. Clutch drum can be extremely tight.



It is far easier when fitting the clutch drum to keep the shaft vertical with the clutch drum facong upwards. This is so the spacer (A) can be centred around the drive shaft when the clutch drum is screwed in position.

Fit all other parts in the reverse order set out for dismantling.



Drive shaft

Model 265

Replace the drive shaft if the splines are worn.

Loosen the throttle and remove the screws (A).

Loosen the screw (B).

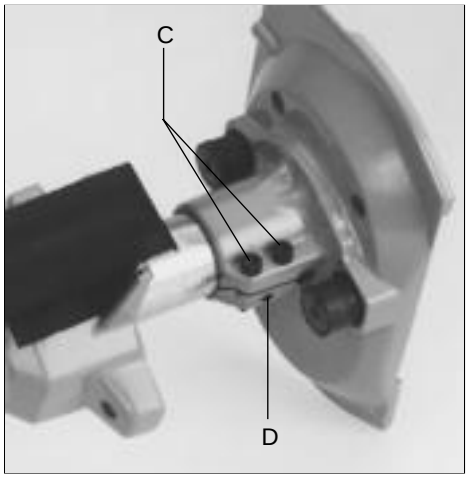
Drive shaft

Model 265

Check the drive shaft. If the splines where the shaft meshes with the angle gear are worn it should be replaced.

Loosen the throttle from the handle and remove the screws (A).

Loosen the screw (B).

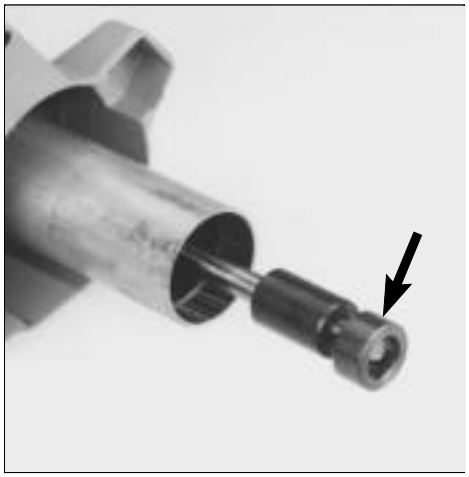


Pull off the clutch cover from the tube and pull out the drive shaft.

Separate the clutch cover and the outer support so the screws (C) and the stop screw (D) are accessible.

Loosen the screws and pull off the clutch cover from the tube.

Pull out the drive shaft and check it. If it is bent it must be replaced under all circumstances.



Replace the vibration dampers if necessary.

Assemble the drive shaft and the remaining parts in the reverse order set out for dismantling.

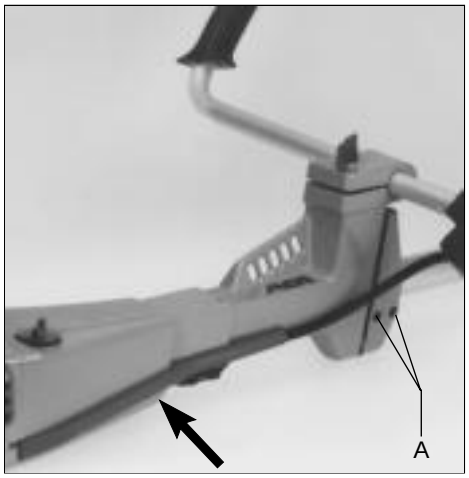
It is now appropriate to replace the vibration dampers if damaged.

Assembly takes place in the reverse order set out for dismantling.

NOTE!

Lubricate the drive shaft using engine oil before assembling and do not forget the spacer before the shaft is slid into the clutch cover.

The tube should be slid into the clutch cover as far as possible so that it rests against the bearing.



Clutch

Model 250

Dismantle the cover strip and loosen the screws (A).

Clutch

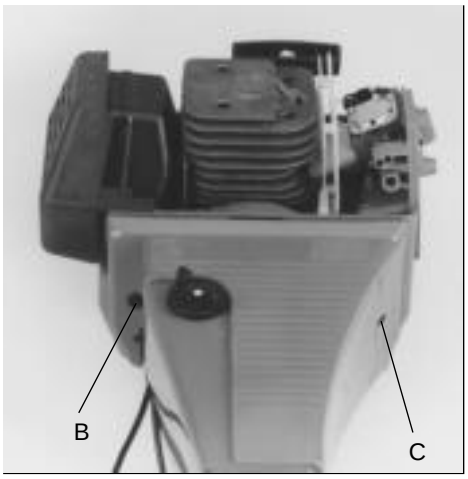
Model 250

Dismantle the following:

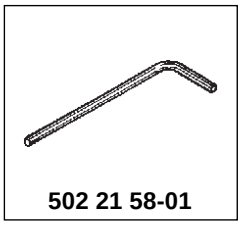
Cylinder cover, fuel pipe on the carburettor and the cover strip over the throttle cable and short-circuit cable.

Loosen the screws (A).

Centrifugal clutch



Remove the screws (B) and (C).



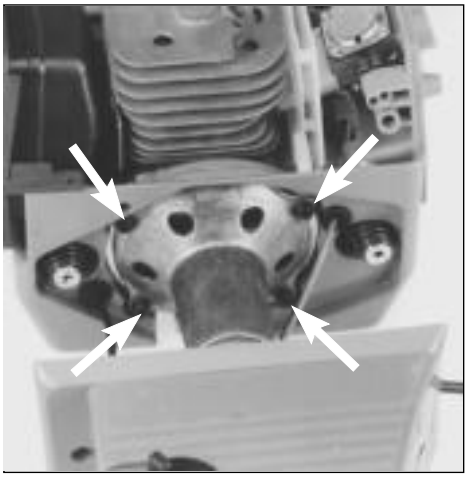
Remove the screws (B) and (C). Use tool no. 502 21 58-01 to access the screws (C).

Slide the tank unit forwards on the shaft.

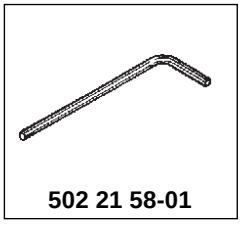
Remove the throttle from the handles.

Thread the throttle cable and the short circuit cable through the slot in the fuel tank.

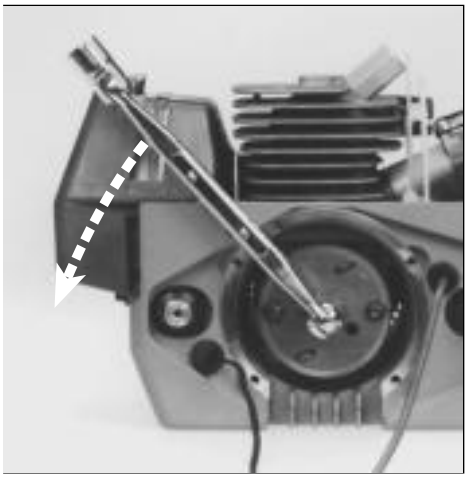
Slide the tank unit forwards on the shaft.



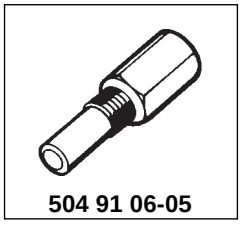
Remove the screws holding the clutch housing and separate the shaft from the engine.



Remove the screws holding the clutch housing on the engine body and pull away the entire shaft unit.



Dismantle the clutch nut.



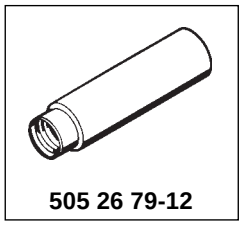
Replace the spark plug with piston stop no. 504 91 06-05.

Remove the nut holding the clutch.

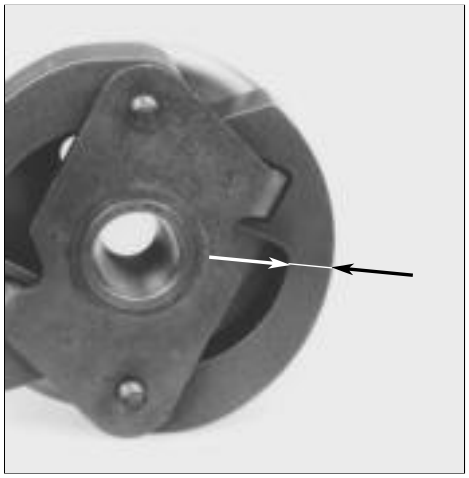
Dismantle the clutch from the crankshaft.

Fit the drift no 505 26 79-12 on the crankshaft. Do not screw it down fully against the clutch.

Lift the engine body by the clutch and apply a few sharp blows with a hammer to the drift until the clutch becomes loose.

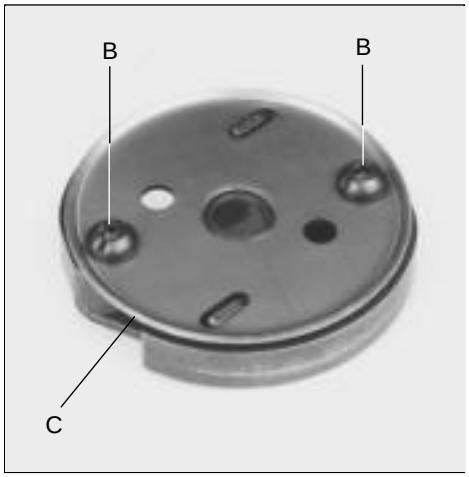


505 26 79-12



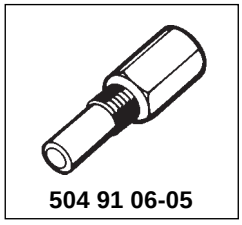
Check the clutch shoes for wear. Replace if necessary.

Check the clutch shoes for wear by measuring the distance (A). It must not be below 3 mm. If this is the case replace both shoes.



Remove the screws (B) and cover washers (C).

Strip the clutch by first removing the screws (B) and then lift off the cover washers (C).

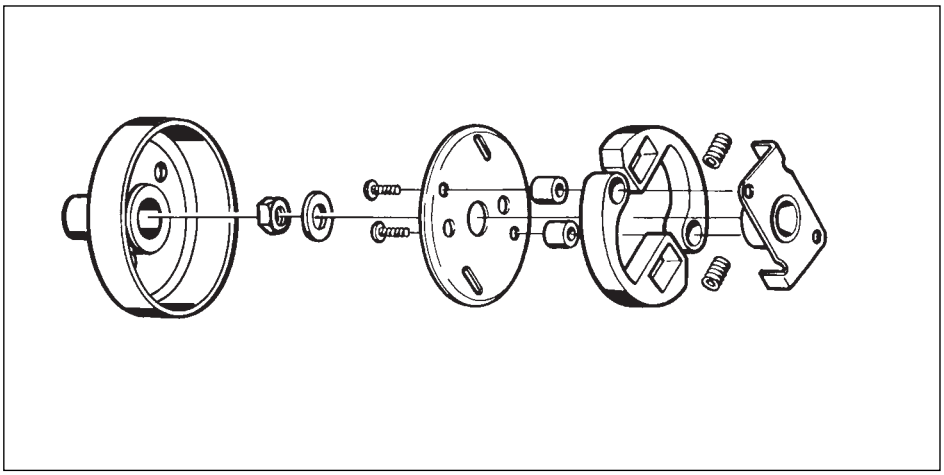


504 91 06-05

Remove the clutch shoes from the hub.

Pry off the clutch shoes from the hub using a screwdriver. Keep your thumb over the spring as shown in the photo.

Centrifugal clutch



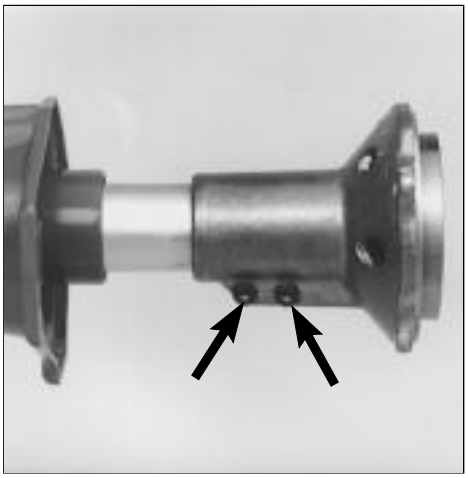
Check all the parts with regard to wear and damage. Replace faulty parts.

Assemble in the reverse order set out for dismantling.

Compress the spring using a pair of flat nose pliers and insert it in the cut-out in the clutch shoes.

NOTE!

Use Loctite on the screws.



Clutch drum

Model 250

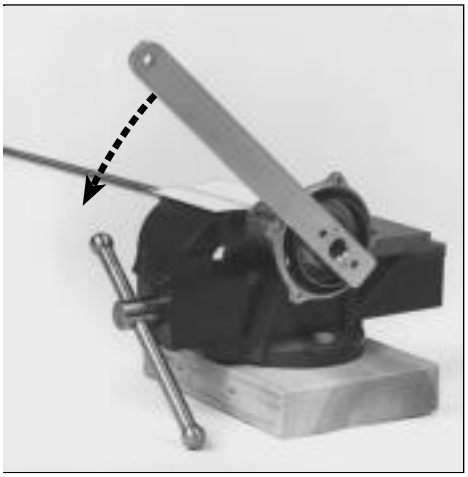
Dismantle the clutch housing complete.

Clutch drum

Model 250

Loosen the screws holding the clutch housing on the shaft.

Pull off the clutch housing complete with the clutch drum and the drive shaft from the tube.



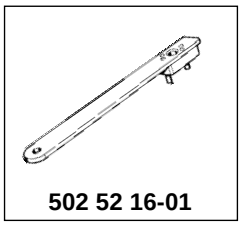
Undo the clutch drum from the drive shaft.

Clamp the drive shaft in a vice and undo the clutch drum.

NOTE!

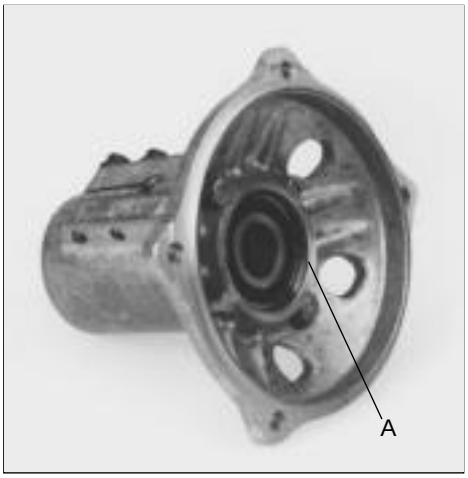
Use vice guards on the vice so not to damage the drive shaft.

Use tool no. 502 52 16-01 to undo the clutch drum.



502 52 16-01

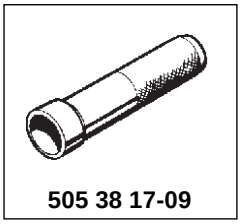
Check the clutch drum for wear. The inside diameter must not exceed 70.5 mm.



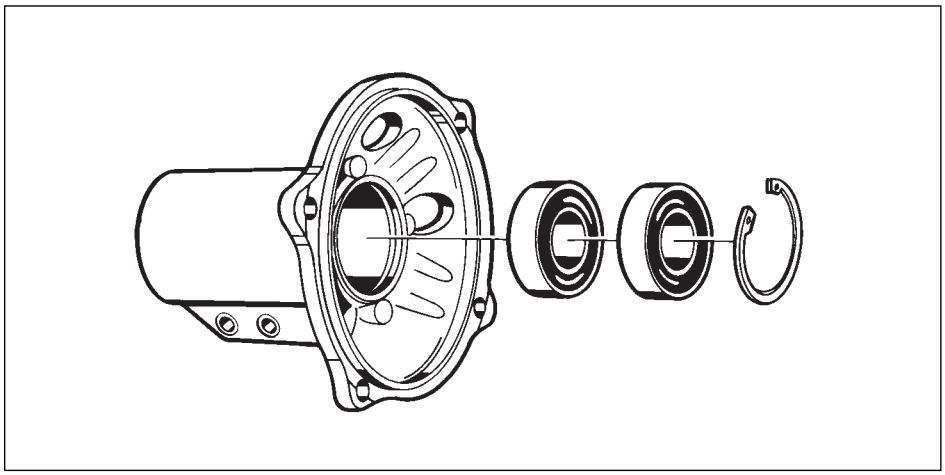
Remove the circlip and bearing from the clutch housing.

Remove the circlip (A).

Carefully heat the clutch housing (approx. 150°C) and press out the bearing using the punch no. 505 38 17-09



505 38 17-09

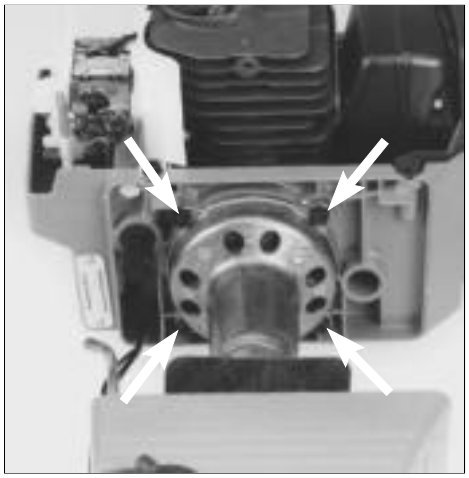


Replace faulty parts and assemble in the reverse order set out for dismantling.

NOTE!

Use Loctite on the clutch drum's threads.

The bearing is easier to fit if the clutch housing is hot (approx. 150°C).



Clutch

Models 240/245

Separate the engine body and tank unit.

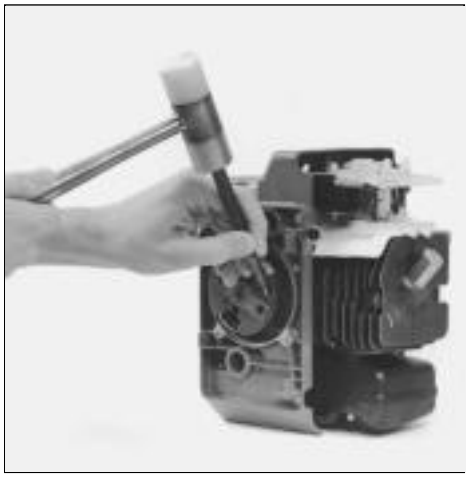
Remove the screws by the clutch housing and remove the shaft.

Clutch

Models 240/245

Separate the engine body and the tank unit in the same way as described for model 250.

Remove the screws that hold the clutch housing against the engine body and lift off the entire shaft unit.

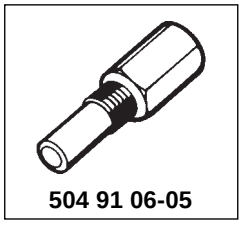


Dismantle the clutch using a punch and hammer.

Replace the spark plug with piston stop no 504 91 06-05. Loosen the clutch shoes from the crankshaft.

One of the clutch shoes is countersunk to give a purchase for a punch.

Loosen the clutch with a few heavy blows from a hammer.



504 91 06-05

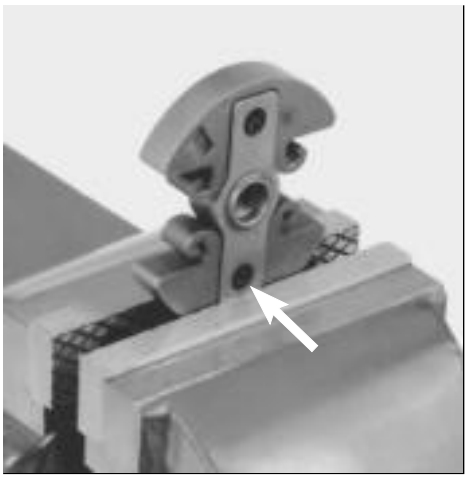
NOTE!

The clutch has a left-hand thread.

Remove the leaf springs.

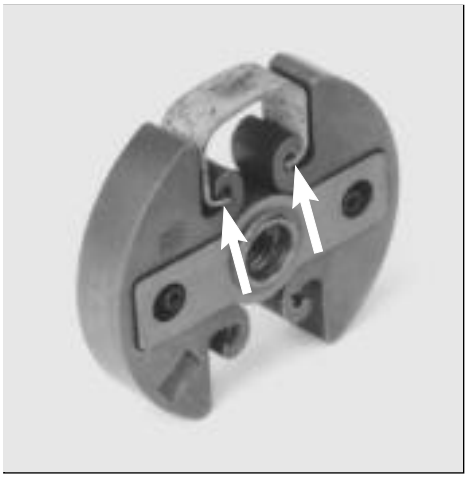
Remove the leaf springs by pressing apart the ends using a pair of circlip pliers.

Centrifugal clutch

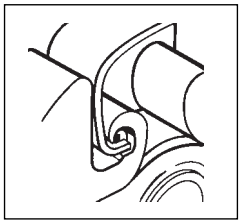


Press out the tubular pin.

Use a suitable punch to remove the tubular pin so that the clutch shoes can be replaced.



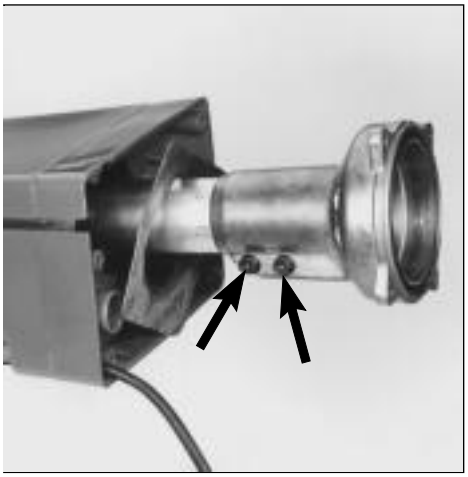
Replace any worn or damaged parts and ensure the clutch springs are fitted correctly.



Replace any worn or damaged parts. Both clutch shoes should be replaced at the same time.

NOTE!

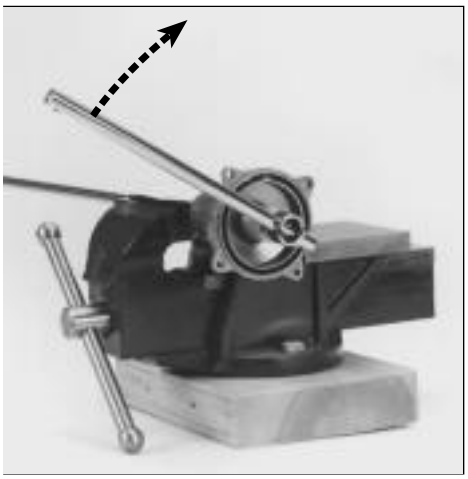
Check when fitting the clutch springs that the small pins are on each side of the clutch shoes.



Pull off the clutch housing complete from the tube.

Loosen the screws that hold the clutch housing on the tube.

Pull off the clutch housing complete with clutch drum and drive shaft from the tube.



Clutch drum

Models 240/245

Undo the clutch drum.

Clutch drum

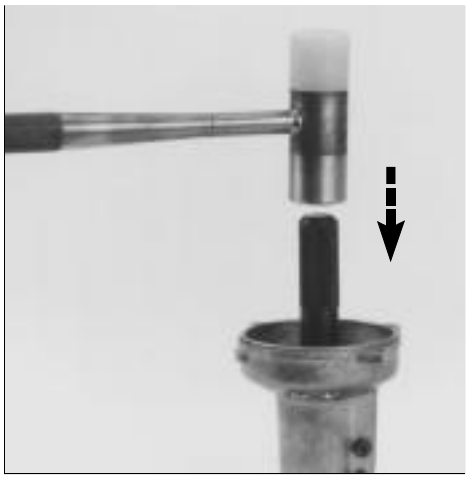
Models 240/245

Clamp the drive shaft in a vice and undo the clutch drum. 19 mm spanner.

Use vice guards so that the drive shaft is not damaged.

NOTE!

The clutch drum has a left-hand thread.

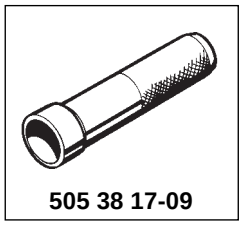


Heat the clutch housing and press out the bearing.

Carefully heat the clutch housing to about 150°C and press out the bearing using a suitable punch, e.g. 505 38 17-09.

Replace any damaged parts and assemble in the reverse order set out for dismantling.

The bearing is easier to fit if the clutch housing is hot (approx. 150°C).

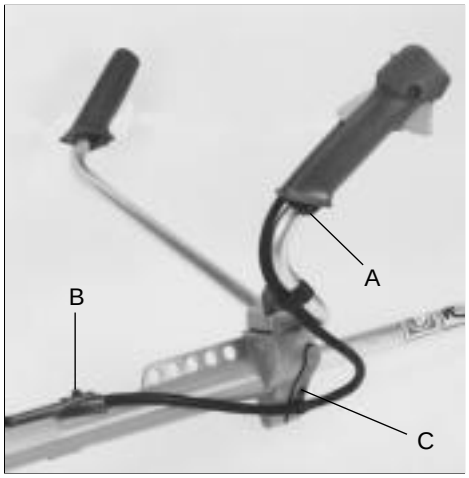


505 38 17-09

NOTE!

Use Loctite on the clutch drum's threads.

Do not forget the heat shield between the clutch housing and the fuel tank.



Clutch

Models 225 R/232 R

Dismantle the throttle and cable channel.

Models 225 L/232 L

Remove the cylinder cover.

Loosen the throttle cable from the carburettor and lift off the cable guide from the crankcase.

Clutch

Models 225 R/232 R

Dismantle the screw (A) that holds the throttle and screw (B) on the cable channel.

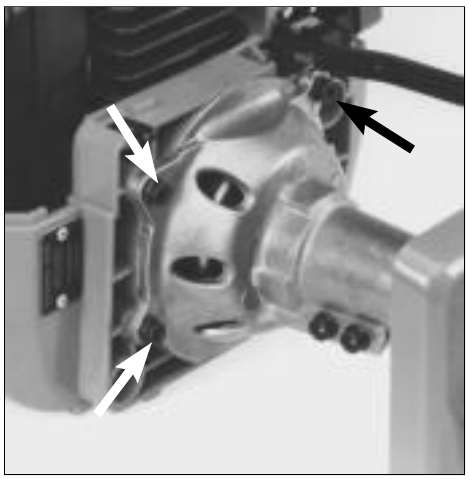
Loosen the screw (C) and slide the handle clamp forwards on the shaft.

Dismantle the cylinder cover.

Models 225 L/232 L

Remove the cylinder cover.

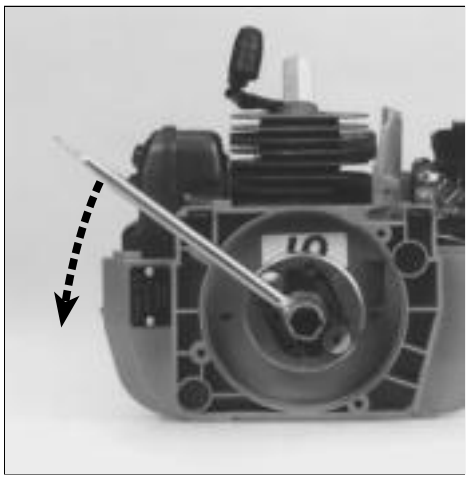
Loosen the throttle on the carburettor and lift off the cable guide from the crankcase.



Separate the shaft unit from the engine body.

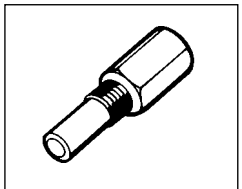
Remove the 4 screws that hold the clutch cover on the crankcase.

Now remove the entire shaft unit from the engine body.



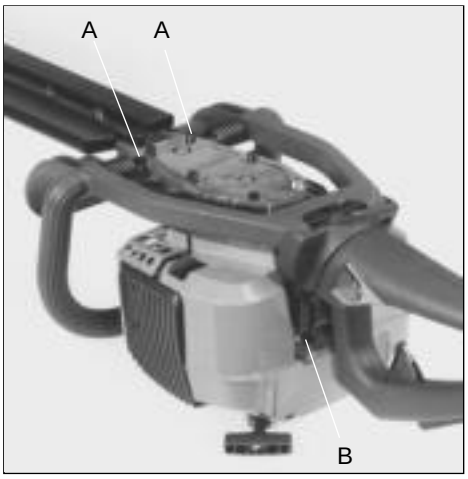
Dismantle the clutch from the crankshaft.

Replace the spark plug with piston stop no. 504 91 06-05 and dismantle the clutch from the crankshaft.



504 91 06-05

Centrifugal clutch



Models 225 H60/H75

Separate the engine body and cutting equipment.

Models 225 H60/H75

Separate the engine body and cutting equipment as follows:

Remove the 4 screws (A) and (B) by the vibration dampers to remove the handle assembly.

⚠ WARNING!

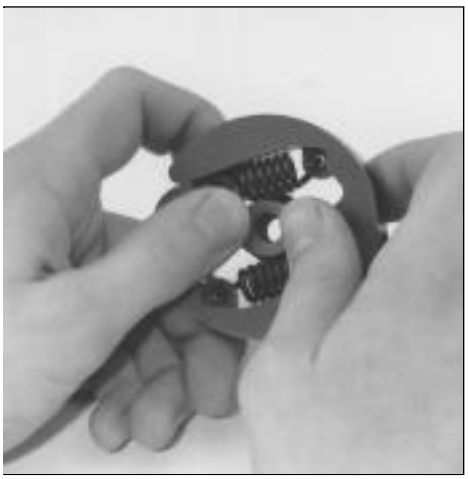
The transport guard should always be fitted when working on the cutting equipment to avoid cuts to the hands.

Dismantle the cutting equipment and clutch from the engine.

Remove the screws that hold the clutch cover on the crankcase.

Lift off the clutch cover complete with the cutting equipment.

Dismantle the clutch from the crankshaft in the same way as described above.



Press out the clutch hub.

Strip this type of clutch by pressing out the clutch hub from the back using your thumbs.

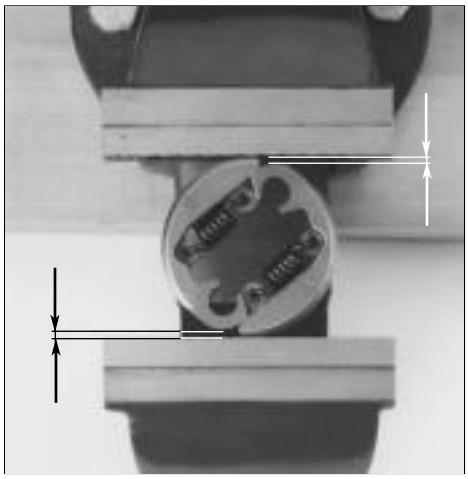
Inspect the parts of the clutch with regard to wear and damage.

Inspect the clutch shoes with regard to wear on the bearing points and the springs for crack formation or breakage.

NOTE!

The shoes and springs should always be replaced in pairs.

Also check the clutch centre's shoe bearings.



Hook on the springs and place the clutch in a vice.

Start to assemble the clutch by hooking the springs in the clutch shoes.

Then place the clutch in a vice as shown.

NOTE!

The bevel on the clutch shoes should face upwards.

Tighten the vice carefully and position the centre.

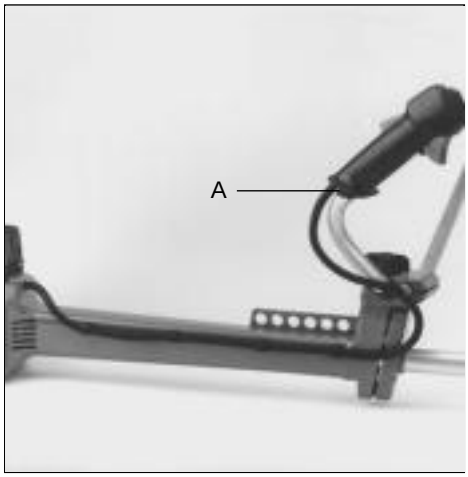
Tighten the vice sufficiently so that the clutch centre can be positioned.

Fit the clutch on the crankshaft.

NOTE!

Do not forget the large flat washer between the clutch and the crankcase.

The washer acts as a support for the clutch shoes. If the washer is missing the shoes can be forced out of the hub when the engine is run causing damage to the crankcase.



Clutch

Model 235

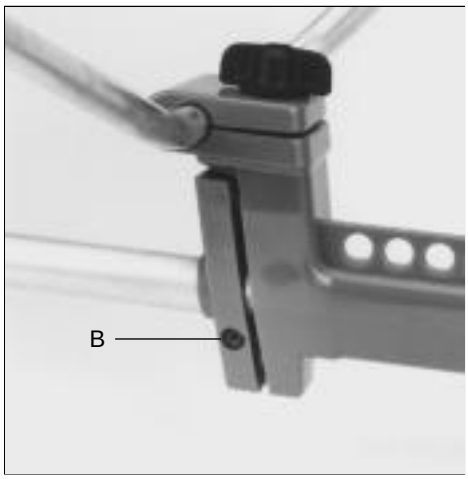
Dismantle the throttle. Snap off the protective casing.

Clutch

Model 235

Dismantle the throttle by removing screw (A).

Snap off the protective casing for the throttle cable and the short circuit cable.

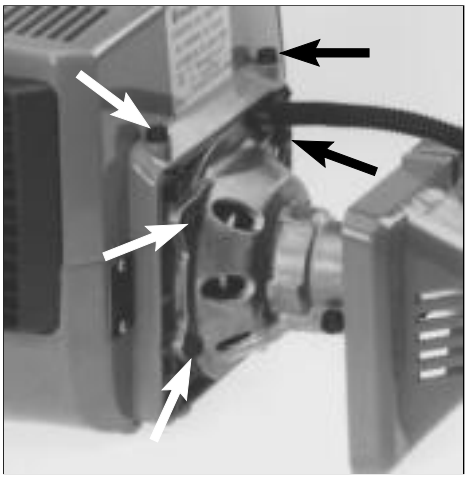


Loosen screw (B).

Slide the plastic cover complete with handle forwards on the shaft.

Loosen screw (B) and slide the plastic cover complete with handle forwards on the shaft so that the screws holding the clutch housing become accessible.

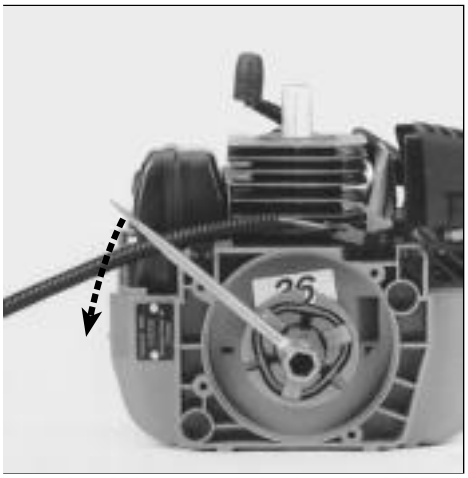
4 Centrifugal clutch



Dismantle the clutch cover and the cylinder cover.

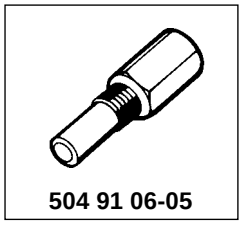
Remove the four screws holding the clutch cover on the crankcase.

Remove the cylinder cover.



Dismantle the clutch from the crankshaft.

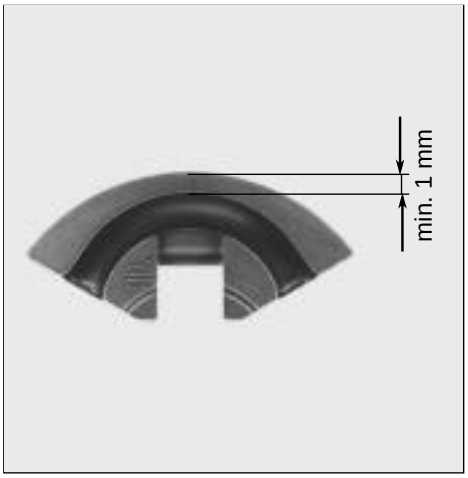
Replace the spark plug with piston stop no. 504 91 06-05 and dismantle the clutch from the crankshaft.



504 91 06-05

Strip the clutch.

Strip the clutch by pressing the clutch shoes from behind using your thumbs.



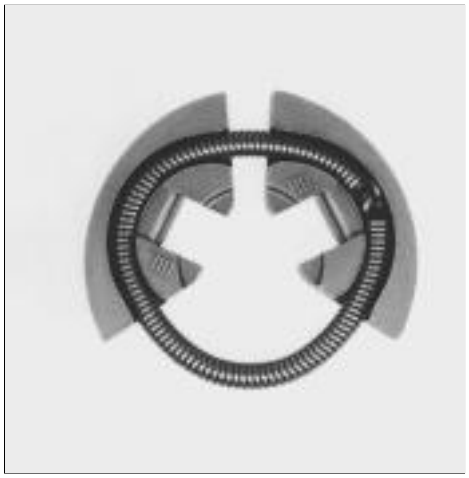
The clutch shoes must have at least 1 mm of material remaining.

Check that the shoes have at least 1 mm of material remaining where they are worn the most.

When replacing all three shoes should be replaced at the same time to avoid imbalance.

Check the arms on the clutch centre and the guide slots for wear.

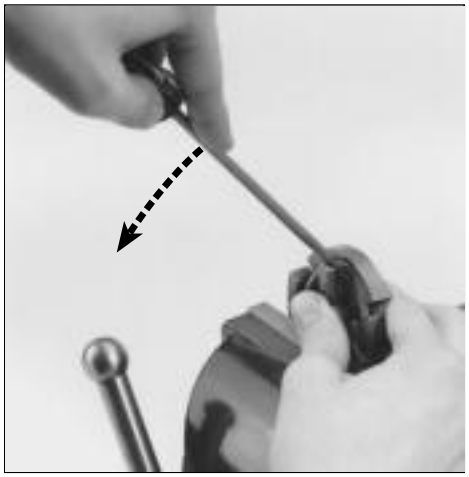
Check that the arms on the clutch centre are not heavily worn or show signs of cracking and that the clutch shoe guide slots are not elongated. When replacing all shoes the clutch centre should be replaced at the same time.



The spring's connection point should be positioned in the centre of the slot for the clutch centre's arm.

When assembling the clutch the spring is first positioned in one clutch shoe so that the spring's connection point comes in the centre of the slot for the clutch centre's arm.

Then place the spring in one more shoe.



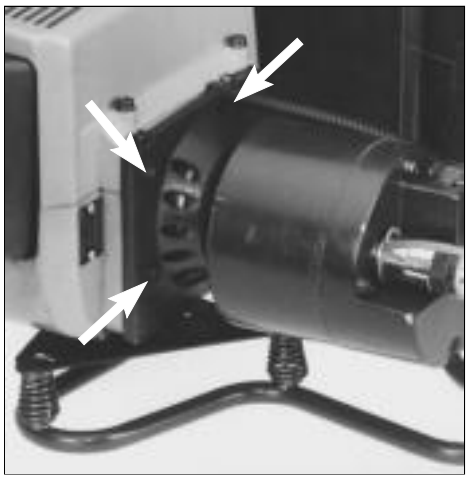
Position the clutch hub.

Clamp the clutch in a vice and bend out the spring using a screwdriver so that the third clutch shoe can be fitted.

Now position the clutch hub and then clamp the clutch in a vice.

Use a screwdriver to bend out the spring so that the third clutch shoe can be pressed into place.

Use a pair of flat nose pliers to locate the spring if necessary.



On model 235 P the clutch is accessible when the hydraulic unit has been dismantled.

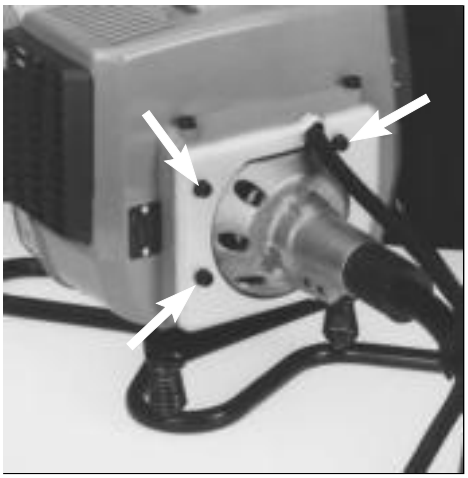
Dismantle the clutch from the crankshaft.

On model 235 P the clutch is accessible when the hydraulic unit has been dismantled.

Remove the 4 screws and lift off the hydraulic unit.

Dismantle the clutch from the crankshaft in the same way as set out for models 225/232.

The clutch has the same design as models 225/232.



Clutch
Model 240 RBD

Dismantle the cover plate and the clutch housing.

Unscrew the clutch from the crankshaft.

Clutch
Model 240 RBD

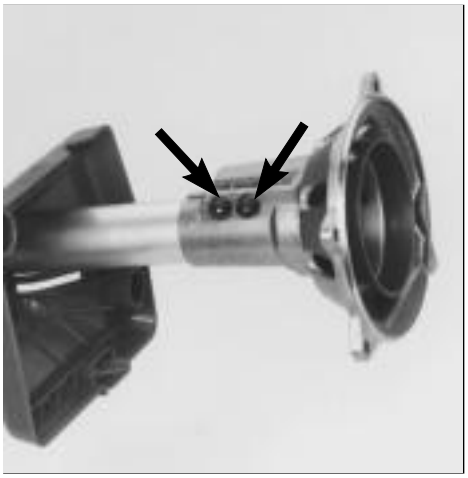
Remove the 4 screws holding the cover plate and clutch housing on the crankcase.

Dismantle the clutch from the crankshaft as explained for models 225/232.

The clutch has the same design as models 225/232.

NOTE!
Do not forget the large flat washer between the clutch and the crankcase.

The washer acts as a support for the shoes, and if missing the shoes can be forced out of the hub when the engine is run causing damage to the crankcase.



Clutch drum
Models 225/232/235

Dismantle resp. assemble the clutch housing and its bearing in the same way as described for model 250.

Clutch drum
Models 225/232/235

Loosen the two screws holding the clutch housing on the shaft.

Pull off the clutch housing complete with the clutch drum and drive shaft from the tube.

Dismantle resp. assemble the clutch housing and its bearing in the same way as described for model 250.

Clutch drum
Model 240 RBD

Loosen the screws so that the drive shaft can be pulled out of the clutch housing.

Clutch drum
Model 240 RBD

Loosen the screws so that the drive shaft can be pulled out of the clutch housing.

Dismantle and assemble the clutch housing and its parts in the same way as described for model 250.

NOTE!

The screw that holds the drive shaft in place should be screwed in the clutch housing from the threaded side (not through the free hole) so that the drive shaft can be turned freely in the clutch housing.

Clutch drum
Model 225 H 60/H 75

See chapter, "Cutting equipment".

Clutch drum
Model 235 P

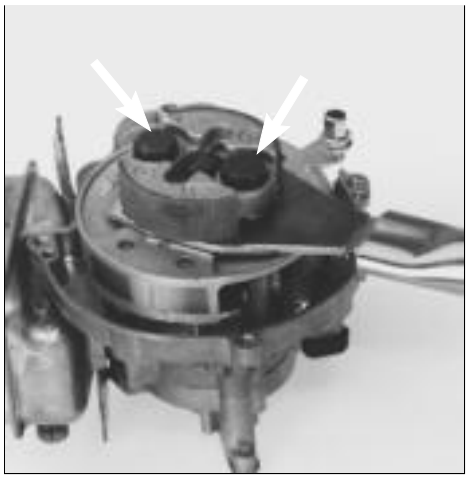
See chapter, "Hydraulic unit".

Clutch drum
Model 225 H 60/H 75

See chapter, "Cutting equipment".

Clutch drum
Model 235 P

See chapter, "Hydraulic unit".

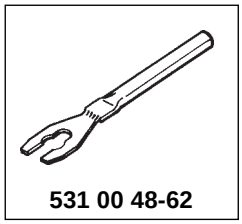


Clutch

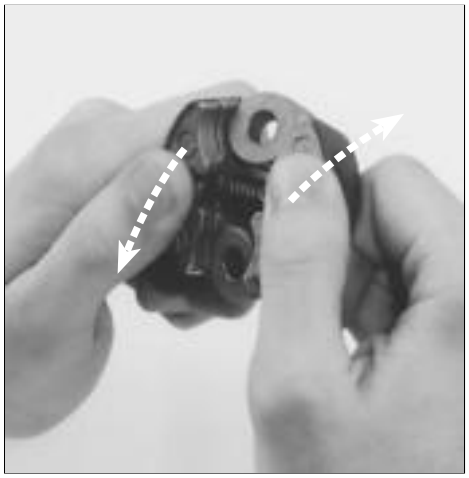
Model 122

Dismantle all components so that the clutch is accessible.

Remove the screws and lift out the clutch.



531 00 48-62



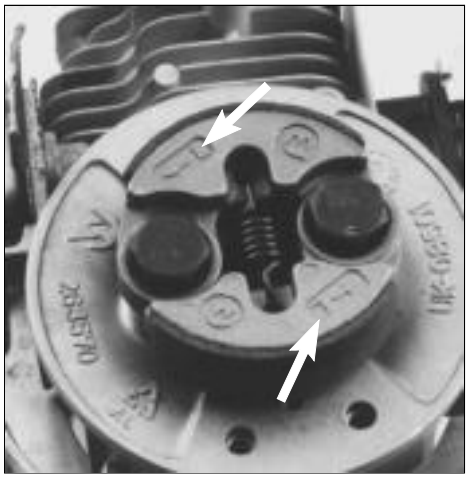
Clean the clutch using compressed air and a brush. Do not use solvents as this can affect the linings.

Twist open the clutch.

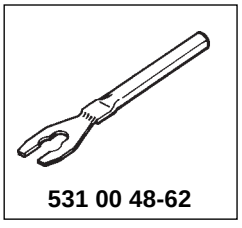
Check the clutch shoes and replace them if:

- The lining is cracked or if bits are missing.
- The lining is worn down to the metal (new lining is approx. 2 mm thick).
- The lining is oily and feels soft.
- The bearing hole is worn.

Check the springs for wear to the ends.



Assemble the clutch in the reverse order set out for dismantling and screw on the flywheel.



531 00 48-62

Clutch

Model 122

Dismantle all components so that the clutch is accessible. Also refer to chapter, "Ignition system".

Remove the 2 screws that hold the clutch on the flywheel.

NOTE!

Use the tool no. 531 00 48-62 to avoid damage to the soft clutch linings.

Clean the clutch using compressed air and a brush. Do not use any form of solvent as this can affect the linings.

Twist open the clutch.

Assemble the clutch in the reverse order set out for dismantling.

Watch the following:

- Turn the clutch so that the L-markings face outwards.
- The flat washer should be positioned between the flywheel and the clutch shoes.
- Use Loctite on the screws and tighten to a torque of 10 Nm.

Clutch drum

Model 122

Separate the engine and clutch housing.

Clutch drum

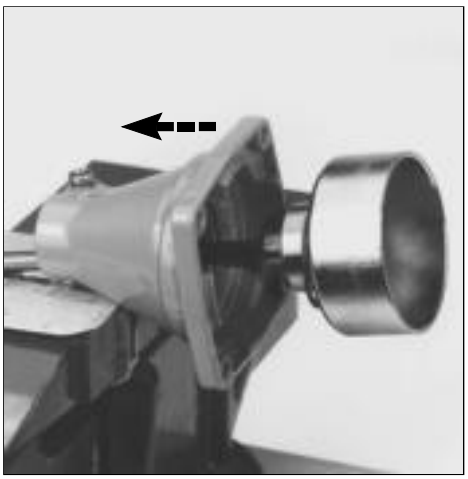
Model 122

Separate the engine and clutch housing (see page 25).

Loosen the screw and pull off the clutch housing complete with drive line.

Remove the circlip and heat the clutch housing.

Remove the circlip and heat the clutch housing using a hot air gun to approx. 150 – 200°C.



Pull the clutch drum complete with bearing and drive axle out of the clutch housing.

Pull the clutch drum complete with bearing and drive shaft out of the clutch housing.

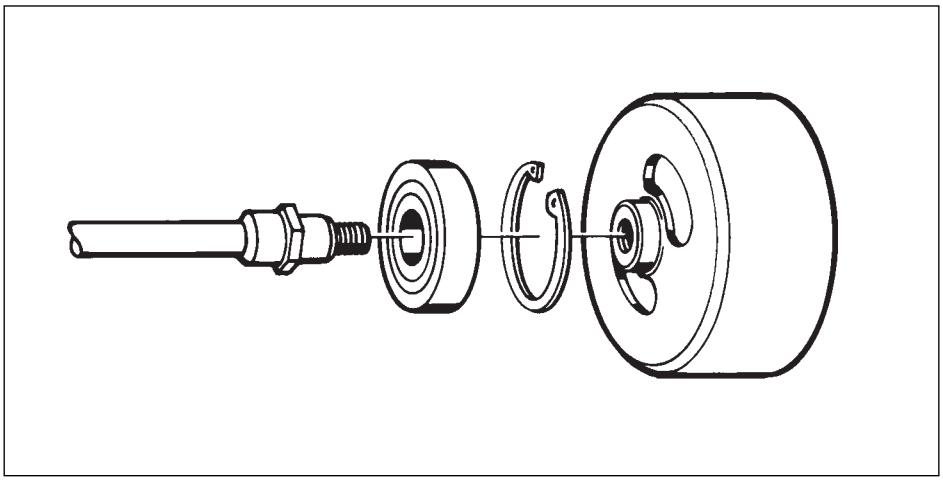
Carefully knock the clutch housing's mounting flange with a plastic mallet.

Clamp the drive shaft's hexagonal section in a vice and tap off the clutch drum using a hammer and brass punch.

Clamp the drive shaft's hexagonal section in a vice and tap off the clutch drum using a hammer and brass punch so that the clutch drum is not damaged.

NOTE!

The clutch drum can be extremely tight.



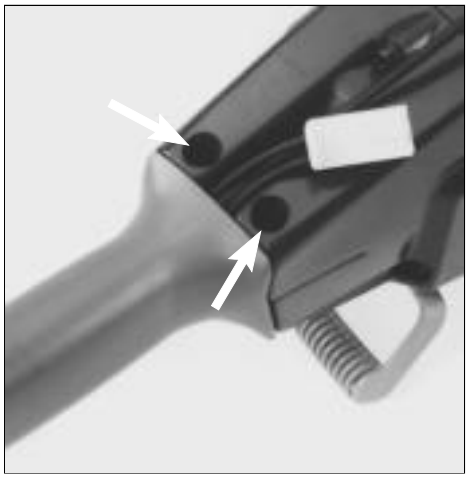
Check the clutch drum with regard to wear (inner diameter must not exceed 58 mm) and crack formation by the hub on the drum.

Fit a new clutch drum if necessary.

Assembly takes place in the reverse order set out for dismantling.

NOTE!

Do not forget the circlip between the clutch drum and the bearing.



Clutch

Model 32 and Mondo

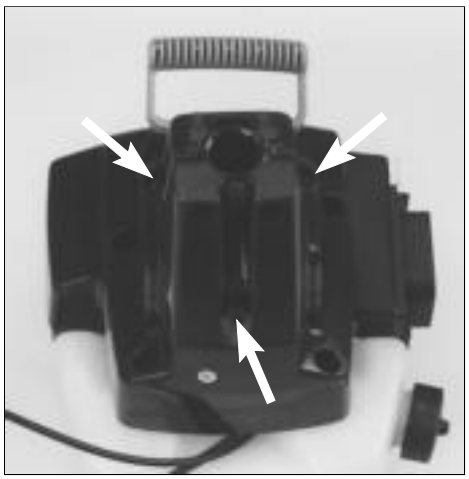
Disconnect the throttle cable and short circuit cables and dismantle the shaft from the clutch cover.

Clutch

Model 32 and Mondo

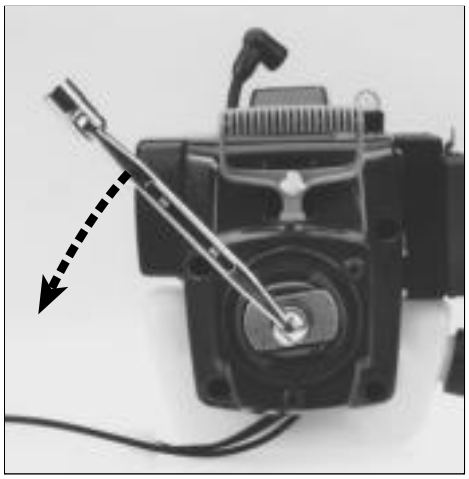
Disconnect the throttle cable and short circuit cables (see page 54).

Loosen the screws that hold the shaft and dismantle it from the clutch cover.

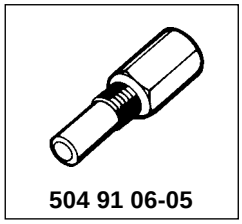


Remove the screws and lift off the clutch cover.

Remove the screws that hold the clutch cover on the starter and then lift off the clutch cover.



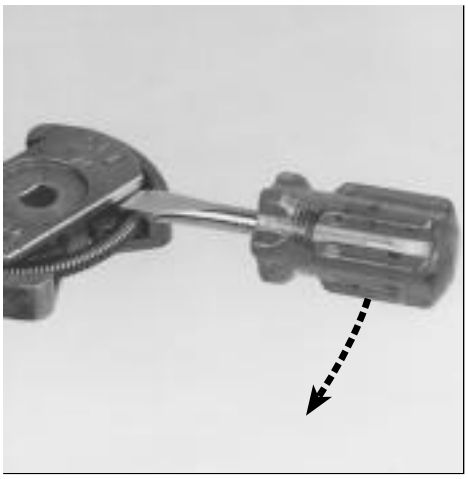
Dismantle the clutch.



504 91 06-05

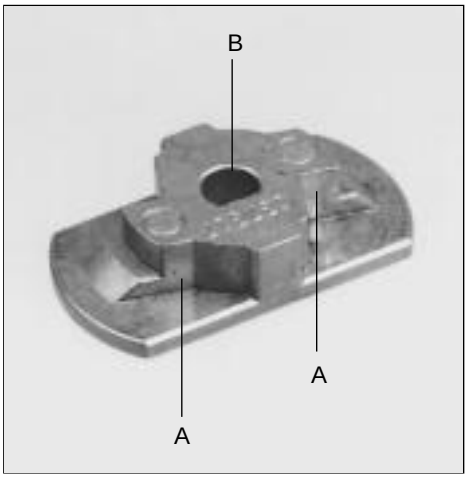
Replace the spark plug with the piston stop (504 91 06-05) and remove the nuts holding the clutch. (1/2" spanner.)

Centrifugal clutch



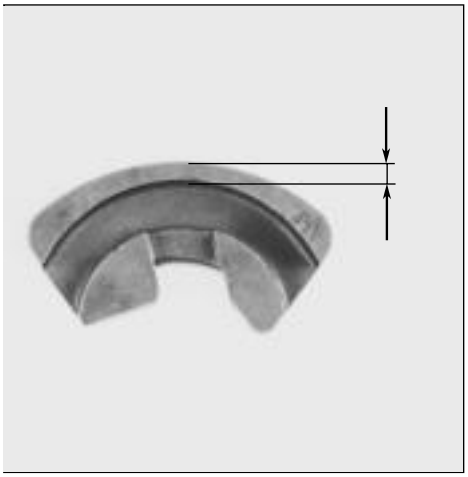
Strip the clutch.

Strip the clutch using a screwdriver if necessary.



Check the clutch hub for wear.

Check the clutch hub for wear to the guide arms (A) and play on the axle hole (B).



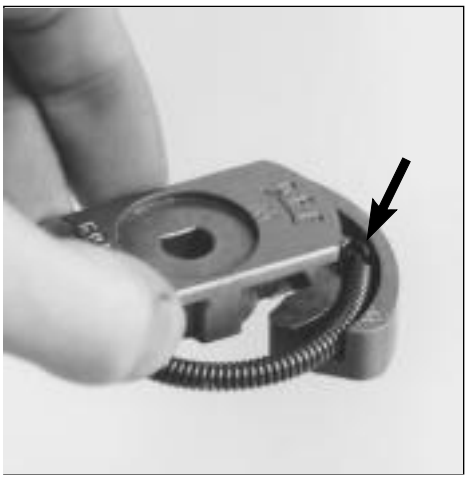
Check the clutch shoes for wear.

Check the clutch shoes for wear. There must be at least 1 mm of material remaining at the most worn spot.

Also check the guide slot for wear.

NOTE!

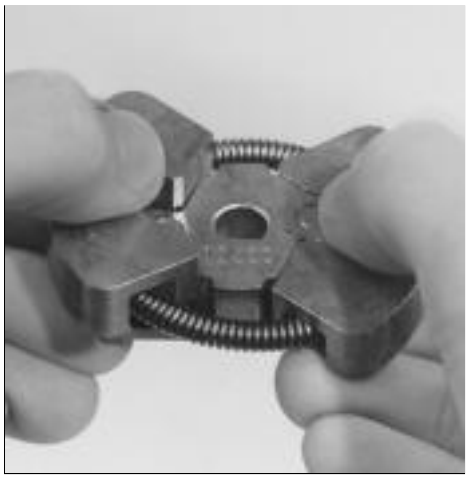
When replacing both shoes must be replaced.



First position the spring in one of the clutch shoes and then the clutch hub.

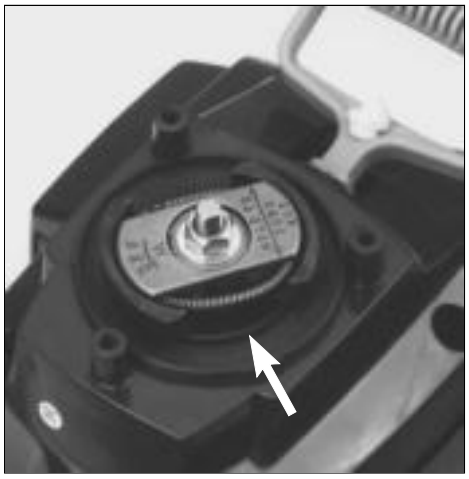
When assembling the clutch the spring joining point should be positioned in the centre of one of the clutch shoes.

Then position the hub over the clutch shoe.



Fit the remaining clutch shoe.

Turn the clutch and position the remaining clutch shoe over the spring and press onto the hub using your thumbs.



Assemble the clutch and the other parts in the reverse order.

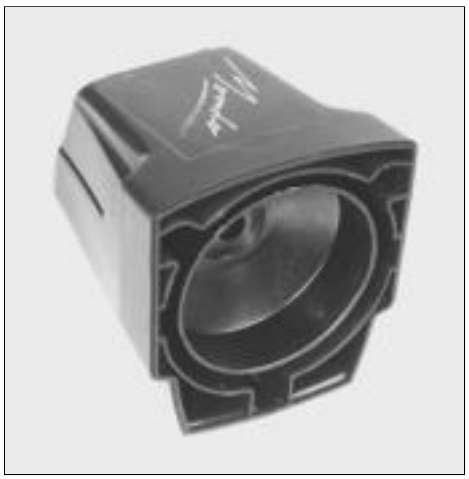
Assemble the clutch and the other parts in the reverse order set out for dismantling.

NOTE!

Do not forget the large flat washer between the clutch and the crankcase.

The washer acts as a support for the clutch shoes, and if missing the shoes can be forced out of the hub when the engine is run causing damage to the crankcase.

Turn the clutch so that the text on the hub faces outwards.



Clutch drum

Model 32 and Mondo

Replace the clutch drum, bearing and clutch housing as a complete unit.

Clutch drum

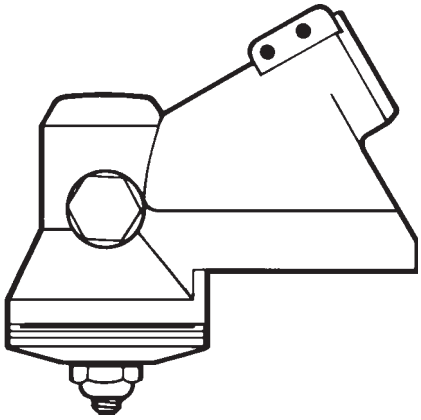
Model 32 and Mondo

If the clutch drum and/or its bearing are damaged they must be replaced as a complete unit with the clutch housing.

Assembly takes place in the reverse order set out for dismantling.

Angle gear

5.



Contents

Angle gear

The angle gear has two purposes:

The first is to gear down the engine's high speed to better suit the lower speed a blade or trimmer requires to work efficiently.

Secondly, the angle gear contributes towards the operator's working stance so that it is comfortable and at the same time efficient. In other words, the power from the engine via the drive shaft shall be angled so that the cutting equipment works parallel with the ground.

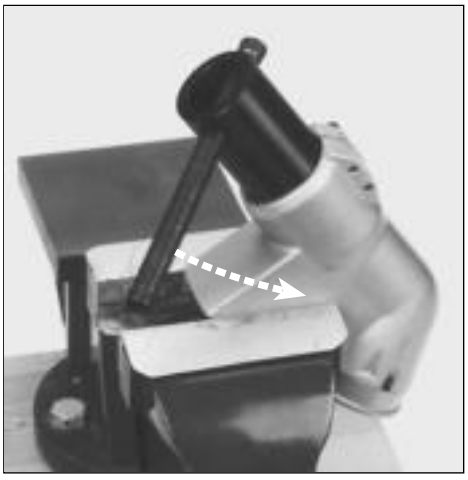
All models

Dismantle the cutting equipment (blade, trimmer, etc.) with its guard.

Now loosen the screws/screw that hold the angle gear on the tube.

Remove the angle gear from the tube.

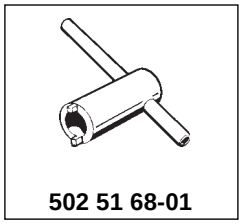
Use a screwdriver if necessary to split the clamping bracket.



Dismantling

Model 265

Dismantle the stop sleeve/seal holder.



502 51 68-01

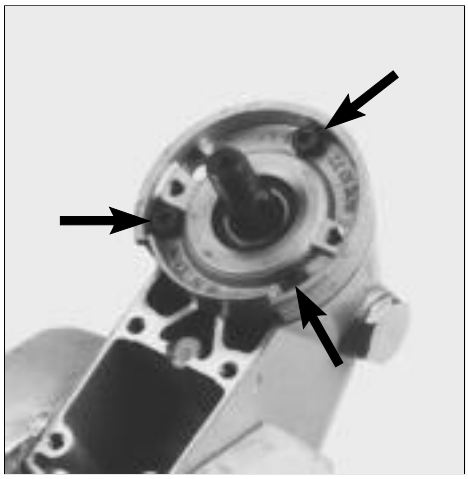
Dismantling

Model 265

Dismantle the combined stop sleeve and seal holder for the input shaft using the tool 502 51 68-01.

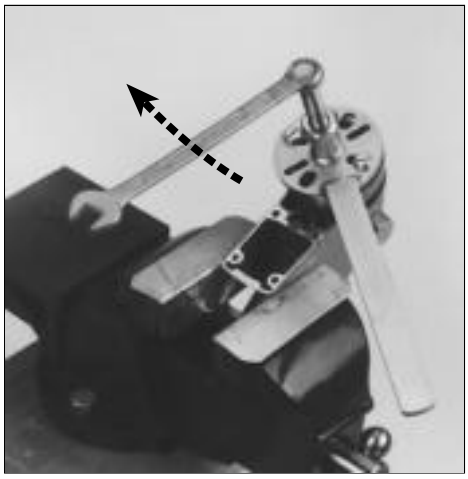
NOTE!

Press the tool firmly in the stop sleeve so that the slot is not damaged when dismantling.



Remove the screws.

Remove the 3 screws that hold the seal holder cover on the gear housing.

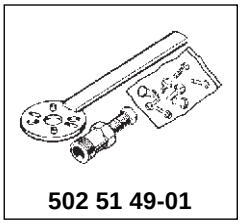


Dismantle the seal holder cover.

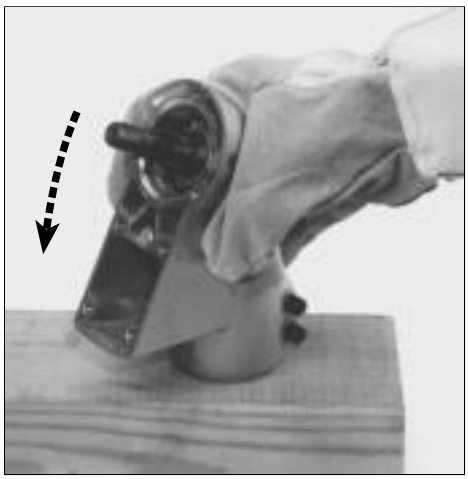
Dismantle the seal holder cover using puller no. 502 51 49-01. Bearing puller no. 504 90 90-01 can also be used.

Tip!

Clamp the puller arms in a vice if the cover is really tight and the puller loses its grip.



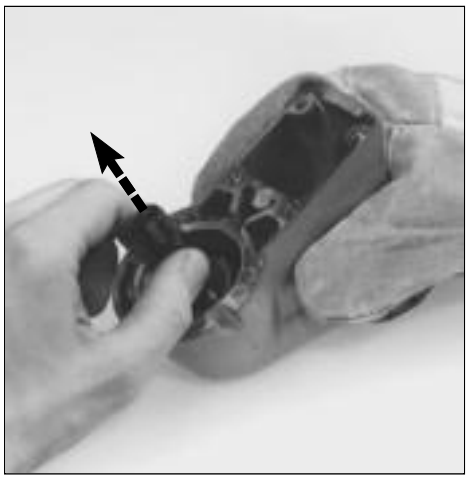
502 51 49-01



Heat the gear housing and knock it with a wooden block so that the input shaft falls out.

Clean all grease from the gear housing and heat the housing to approx. 150°C.

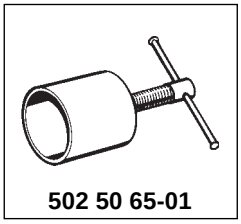
Knock the gear housing with a wooden block so that the input shaft with bearing falls out.



Lift out the output shaft.

Now dismantle the output shaft and bearing, while the gear housing is still warm.

Use puller no. 502 50 65-01 if necessary on older versions of the angle gear.

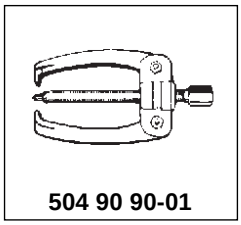


502 50 65-01

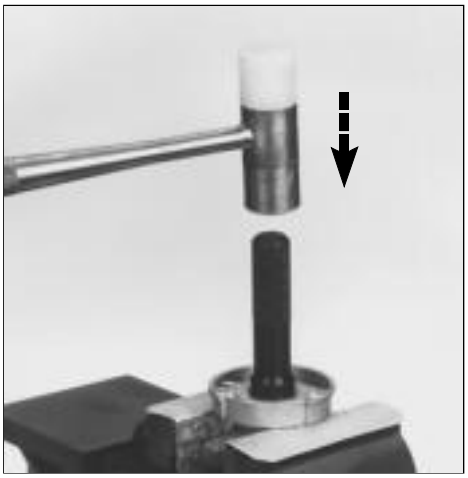
Remove the bearings from the input and output shafts.

Remove the circlip on the input shaft and remove the bearing using puller no. 504 90 90-01.

Dismantle the bearing on the output shaft in the same way.

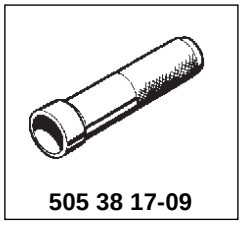


504 90 90-01



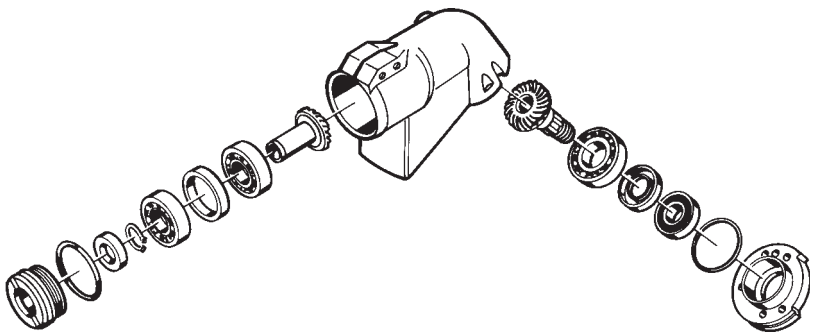
Remove the bearing and sealing ring from the seal holder cover.

Heat the seal holder cover and remove the bearing and sealing ring at the same time using punch no. 505 38 17-09.



505 38 17-09

Model 265



Assembling

Model 265

Fit the bearings on resp. shafts. It's easier if the bearing is heated to approx. 100°C.

NOTE!

Do not forget the circlip that holds the bearing on the input shaft.

Heat the gear housing to approx. 150°C and insert the output shaft first and then the input shaft.

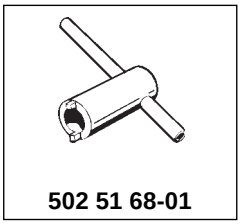
Make sure the bearing bottoms in its seating.

Change the sealing ring in the stop sleeve and change the O-ring if necessary.

Fit a new sealing ring in the stop sleeve. Position the seal so that the scraper edge faces in towards the gear!

Use a suitable punch so that the sealing ring is not damaged.

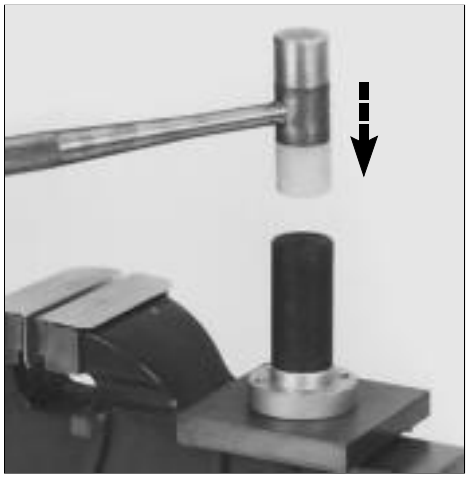
Screw in the stop sleeve.



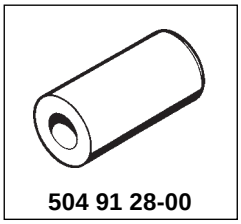
502 51 68-01

Screw in the stop sleeve using tool no. 502 51 68-01. Make sure the lugs on the tool are pressed well into the slots in the stop sleeve when tightening so that the slots are not damaged.

Tightening torque: 45 Nm.



Fit a new bearing and new sealing ring in the seal holder cover.

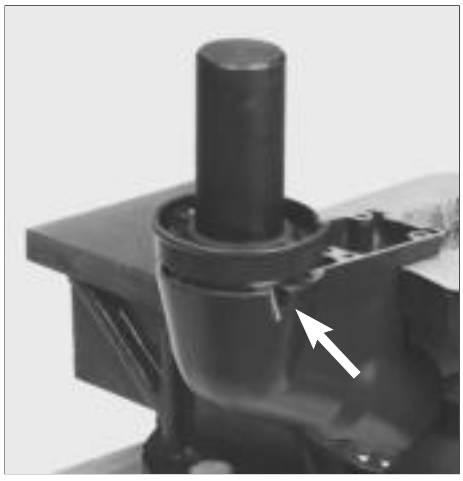


504 91 28-00

Heat the seal holder cover to approx. 150°C and insert a new bearing in the bearing seating.

Fit a new sealing ring using punch no. 504 91 28-00.

Turn the sealing ring so that the scraper edge faces the gear.

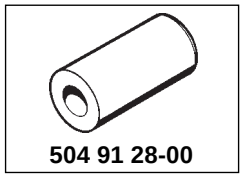


Change the seal//O-ring if necessary and assemble the seal holder cover on the gear housing using a suitable punch.

NOTE!

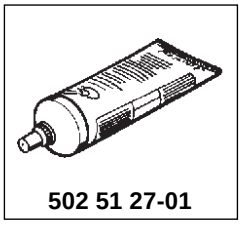
Turn the cover so the holes for the locking pin are correctly positioned.

Use Loctite on the screws and tighten to a torque of 9 Nm.



504 91 28-00

Fill the gear housing 3/4 full using special grease.



502 51 27-01

Remove the plug and fill the gear housing 3/4 full with special grease no. 502 51 27-01.

WARNING!

Too much grease can mean it is forced passed the sealing rings.

The temperature in the gear can also be too high.

Always leave space for grease expansion.

Check the sealing ring in the tube (later models).

Replace if necessary.

Before the angle gear is fitted check that the sealing ring on the tube is undamaged. When replacing pry the seal holder out using a screwdriver.

Fit a new sealing ring with the scraper edge facing the angle gear.

Dismantling, assembling

Models 250, 240/245

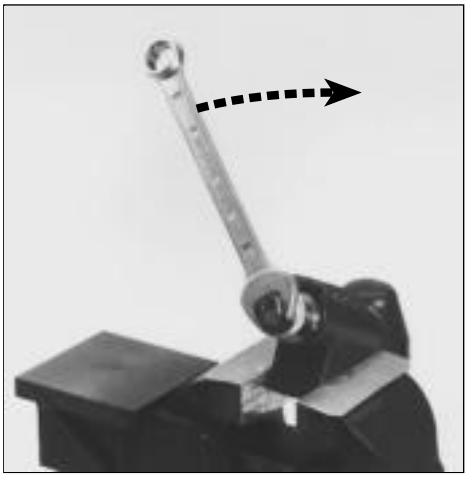
Remove the cover, O-ring and washer.

Dismantling, assembling

Models 250, 240/245

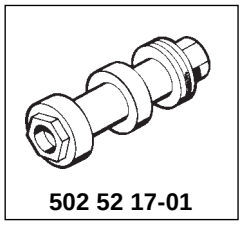
Remove the 3 screws holding the cover.

Lift off the cover, O-ring (240/245) and washer positioned against the bearing.



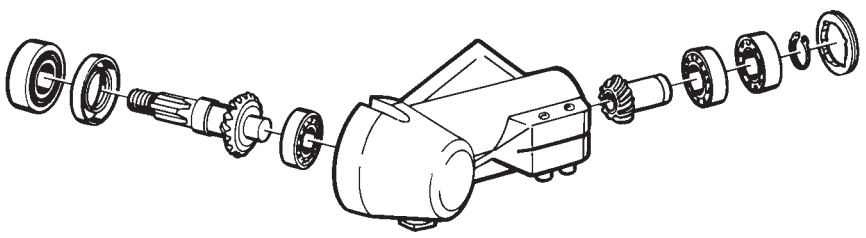
Undo the ring nut.

Undo the ring nut holding the input shaft in position using tool no. 502 52 17-01.



502 52 17-01

Model 250



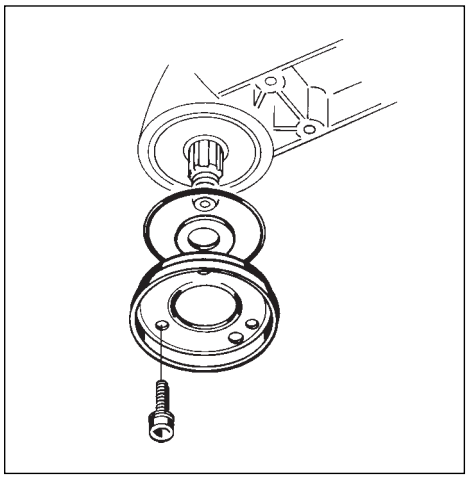
Heat the gear housing and dismantle the input and output shafts in the same way as described for Model 265.

NOTE!

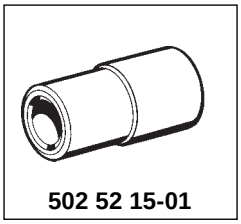
The input shaft with drive gear must be dismantled first. Use puller no. 502 50 65-01 when the output shaft is dismantled.

Replace damaged parts.

Assemble the angle gear in the reverse order set out for dismantling.



Fit the cover.

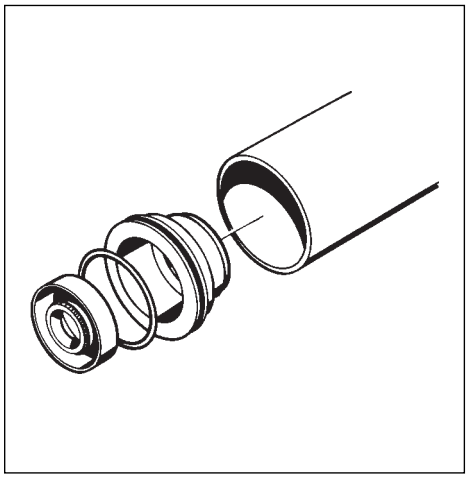


502 52 15-01

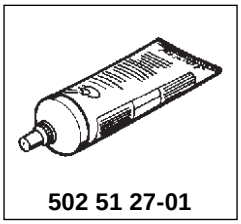
NOTE!

Use the centring sleeve no. 502 52 15-01 to centre the cover on the gear housing.

Use Loctite on the screws.



Inspect the sealing ring and O-ring on the end of the tube and replace if necessary.



502 51 27-01

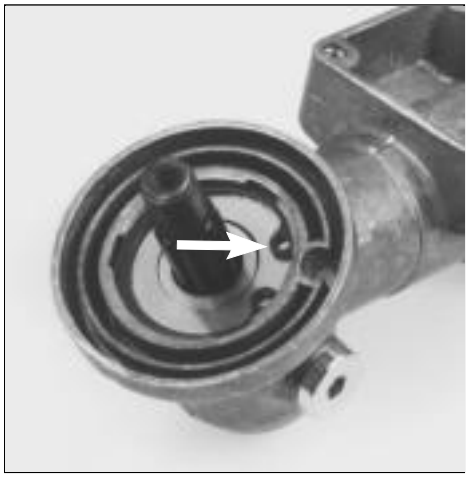
Before the shaft is fitted check the sealing ring on the end of the tube for damage.

Also check the O-ring.

Do not forget to fill the gear housing 3/4 full using special grease. 502 51 27-01.

WARNING!

Too much grease can mean it is forced passed the sealing rings. The temperature in the gear can also be too high.



Dismantling, assembling

Models 225/232

Remove the circlip and washer on the output shaft.

Dismantling, assembling

Models 225/232

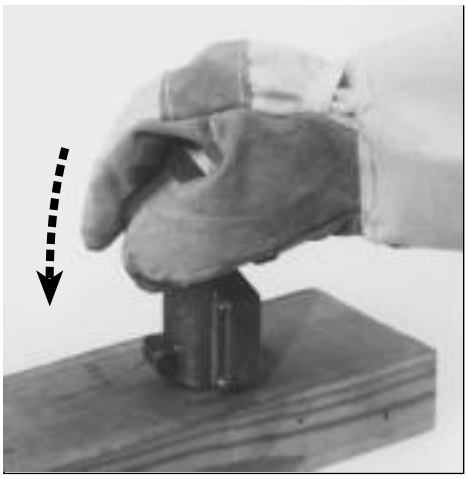
Dismantle the angle gear from the shaft.

Remove the circlip and washer on the output shaft.

Remove the plastic washer and circlip on the input shaft.

Remove the plastic seal on the input shaft using a suitable screw (M8).

Now remove the large locking ring holding the bearing in position in the gear housing.



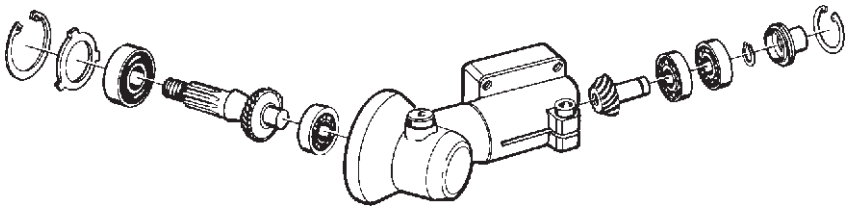
Heat the gear housing and first dismantle the input shaft and then the output shaft.

Heat the entire gear housing using a hot air gun to about 150–200°C.

First dismantle the input shaft by knocking the gear housing with a wooden block until the shaft and bearing fall out.

Then dismantle the output shaft in the same way.

Model 225/232



Replace worn or damaged parts and assemble the angle gear in the reverse order set out for dismantling.

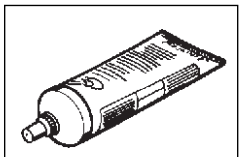
Heat the gear housing to about 150–200°C and start by fitting the output shaft.

Fill the gear housing with grease.

Do not forget to fill the gear housing 3/4 full using special grease. 502 51 27-01.

WARNING!

Too much grease can mean it is forced passed the sealing rings. The temperature in the gear can also be too high.



502 51 27-01

Dismantling, assembling

Models 122, 32, 235

Remove the circlips from the input and output shafts.

Heat the gear housing.

Dismantling, assembling

Models 122, 32, 235

Remove the circlips holding the bearings on the input and output shafts.

Heat the entire gear housing using a hot air gun to about 150–200°C.

First dismantle the input shaft and then the output shaft.

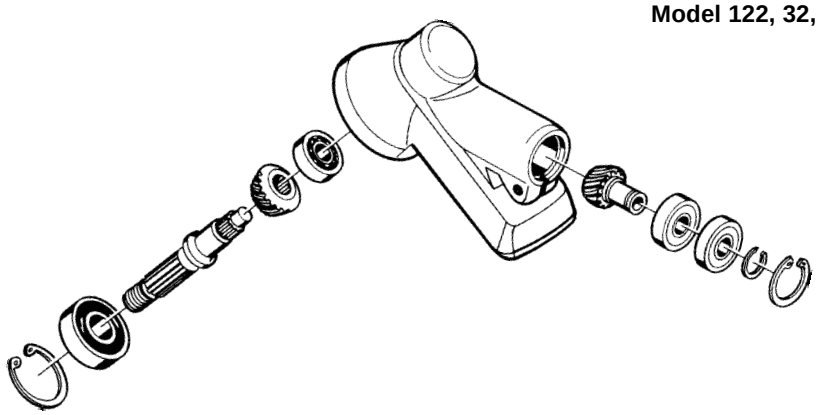
First dismantle the input shaft by knocking the gear housing with a wooden block until the shaft and bearing fall out.

Then dismantle the output shaft in the same way.

NOTE!

Unscrew the stop screw enough so that it does not prevent the shaft from sliding out.

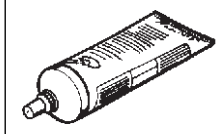
Model 122, 32, 235



Replace damaged parts.

Assemble the angle gear in the reverse order set out for dismantling.

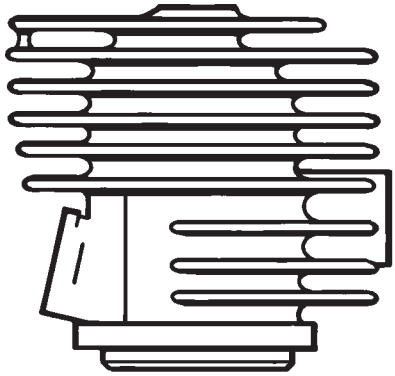
Fill the gear housing 3/4 full using special grease. 502 51 27-01.



502 51 27-01

Cylinder and piston

6.



Content

Cylinder and piston

The cylinder and piston are two components that are exposed to the most strain in the engine. For example, they should withstand high speed, large changes in heat and high pressure. In addition, they should withstand wear. Despite the hard working conditions serious cylinder and piston failures are quite unusual. Some of the reasons behind this are the new coating materials in the cylinder bore, new lubricants and improved manufacturing techniques.

Cleanliness is extremely important when servicing these components. We therefore recommend that the cylinder and the area around it is cleaned thoroughly before it is dismantled from the crankcase.

Dismantling

General

The dismantling routines are basically the same for all models. However, in those cases where the procedure deviates for a particular model, this is specially described.

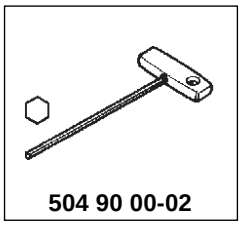
Dismantle the following:

Cylinder cover, air filter, carburettor, muffler, starter and on some models the ignition module and flywheel.

See respective sections in the Workshop Manual for detailed instructions.

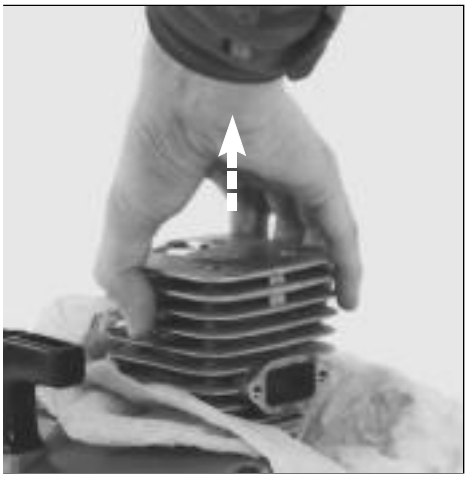
Models 250, 265

Loosen the 4 screws holding the cylinder on the crankcase.



504 90 00-02

Lift off the cylinder.



Models 250, 265

Dismantle all the components around the cylinder and loosen the 4 screws holding the cylinder on the crankcase. Use the allen key 504 90 00-02.

Lift up the cylinder a little and place a cloth in the crankcase opening to prevent dirt from falling into the crankcase.

Lift off the cylinder from the piston.

Remove the circlips on the gudgeon pin.

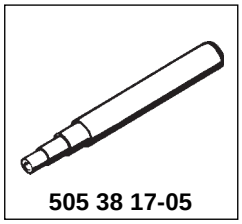
Use flat nose pliers to remove the circlips on the gudgeon pin.

Keep your thumb over the circlip to stop it from flying away.

Dismantle the piston.

Press out the gudgeon pin from the piston using punch 505 38 17-05.

If the gudgeon pin is difficult to remove the piston can be carefully heated.



505 38 17-05

Cleaning, inspection models 250, 265

After dismantling clean the different parts:

1. Scrape off the carbon deposit from the crown of the piston.
2. Scrape off the carbon deposit in the cylinder's combustion chamber.
3. Scrape off the carbon deposit in the cylinder's exhaust port.

NOTE!

Scrape carefully with a tool that is not too sharp so that the soft aluminium parts are not damaged.

4. Wash all parts.
5. Inspect all the parts for wear or damage.
6. Check the manifold with regard to crack formation, whether leakage has occurred, etc. Refer to the section "Analysis and actions".

Check the piston and cylinder for signs of seizing damage and wear.

Refer to the section "Analysis and actions".

Check the piston rings for signs of wear or breakage.

Refer to the section "Analysis and actions".

Check the gudgeon pins.

– If they are blued they should be replaced.

– If it runs too easily in the piston then the piston and gudgeon pin should be replaced.

Check the needle bearing. If it is miscoloured it should be replaced.

Always replace the circlips on the gudgeon pin.

Assembling

Models 250, 265

Lubricate the gudgeon pin's needle bearing with a few drops of engine oil and fit the piston.

Assembling

Models 250, 265

Lubricate the gudgeon pin's needle bearing with a few drops of engine oil.

Point the arrow on top of the piston towards the exhaust port.

Press in the gudgeon pin and fit the circlips.

NOTE!

Place a cloth in the crankcase opening to prevent the circlips from falling into the crankcase if they should fly off.

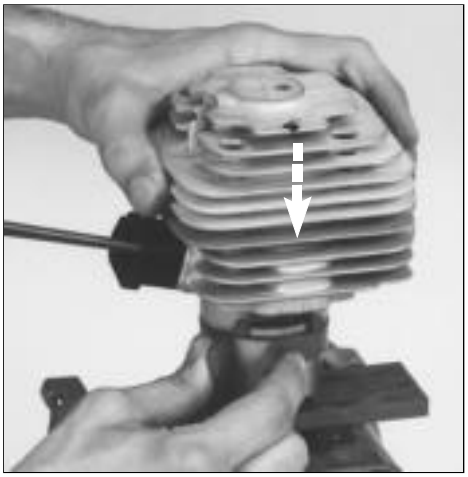
Check that the circlips are sitting in the grooves correctly by turning the circlip using a pair of pliers.

Check that the piston and cylinder have the right classification to fit together.

There is a classification letter punched on top of the piston so that it can be paired with the right cylinder:

A piston punched with the same letter or a previous letter in the alphabet will fit the cylinder.

A piston stamped AB fits a cylinder stamped B.



Fit the manifold on the cylinder.

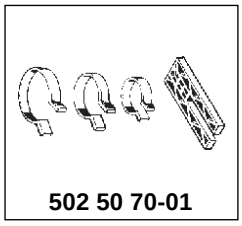
Use a new gasket and fit the cylinder.

Place a new cylinder bottom gasket on the crankcase.

Fit the manifold on the cylinder. Make sure the gaskets are facing the right way so that the pulse channels to the carburettor are not blocked.

Lubricate the piston with a few drops of engine oil and fit the cylinder using assembly kit 502 50 70-01.

Tighten the cylinder base bolts.



502 50 70-01

Dismantling

Models 240/245

Dismantle all parts surrounding the cylinder.

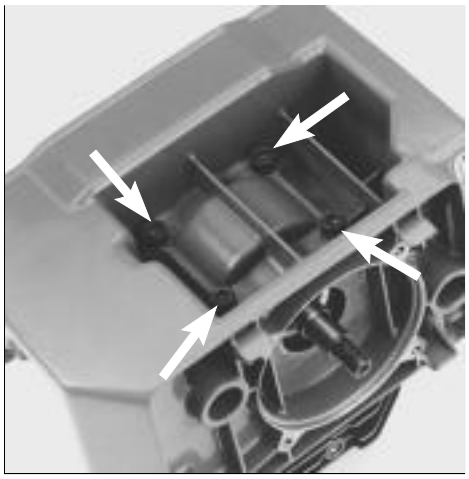
Dismantling

Models 240/245

Dismantle the following components:

Cylinder cover, spark plug, starter, air filter, carburettor, heat guard, inlet manifold, muffler, heat shield, ignition module, flywheel.

See respective sections in the Manual.



Remove the cylinder bolts.

Lift off the cylinder and dismantle the piston.

Remove the four bolts at the bottom of the crankcase.

Lift off the cylinder.

Dismantle the circlips on the gudgeon pins. (See models 250, 265).

Remove the piston. (See models 250, 265).

Cleaning, inspection

Models 240/245

Clean and inspect the cylinder and piston and associated parts.

Cleaning, inspection

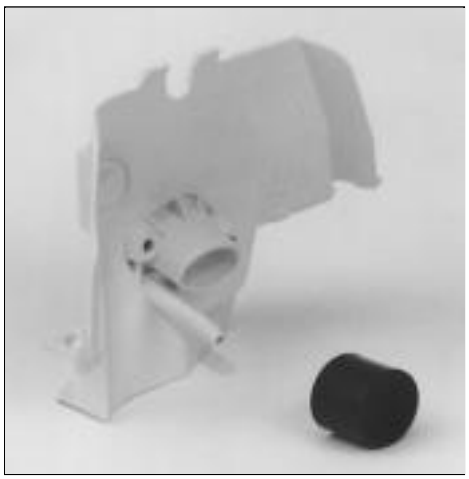
Models 240/245

Clean and inspect the cylinder, piston, piston rings, gudgeon pins and needle bearings as described for models 250, 265.

Also see section "Analysis and actions".

NOTE!

Make sure when cleaning the cylinder that the plastic sleeve by the pulse channel is not lost.



Check the inlet manifold and the heat guard.

Check the inlet manifold and the heat guard for crack formation in the material and on the threads.

Replace damaged parts if necessary.

Assembling

Models 240/245

Fit the piston.

Assembling

Models 240/245

Lubricate the gudgeon pin's needle bearing with a few drops of engine oil.

Point the arrow on top of the piston towards the exhaust port.

Press in the gudgeon pin and fit the circlips.

NOTE!

Place a cloth over the big-end bearing.

Check that the circlips are sitting in the grooves correctly by turning the circlip using a pair of pliers.

Cylinder and piston

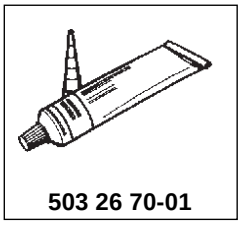
Cleaning the contact face and the bearing seat and apply a string of sealant.

Clean the contact face on the bottom of the cylinder and bearing seat so that there are no signs of grease.

Apply a thin string (1–1.5 mm) of sealant no. 503 26 70-01 on the contact face.

NOTE!

Only this type of sealant must be used.



503 26 70-01

Fit the cylinder.

Lubricate the piston, piston ring and bearing with engine oil.

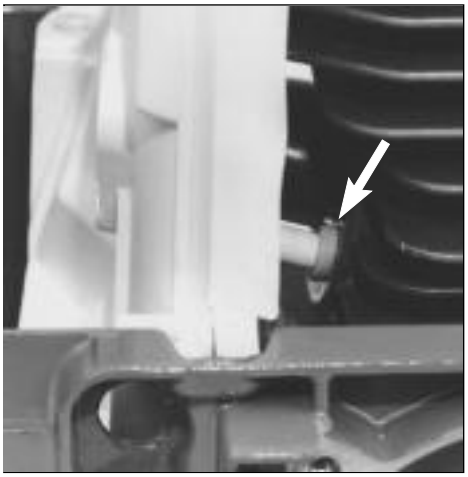
Guide the cylinder over the piston and carefully press it down towards the crankcase.

Tip!

Move the cylinder gently from side-to-side at the same time as you press it down.

NOTE!

Do not turn the cylinder. The piston rings can break.



Tighten the cylinder bolts.

Tighten the cylinder bolts crosswise to a torque 11 Nm.

Fit the heat guard on the cylinder.

Check that the inlet manifold and pulse manifold are positioned correctly and do not leak.

NOTE!

The cylinder bolts should be retightened.

Run the engine warm for 2–3 min and let it cool.

Retighten the cylinder bolts crosswise to a tightening torque of 11 Nm.

Dismantling

Models 225/232/235/240RBD

Dismantle all the parts surrounding the cylinder.

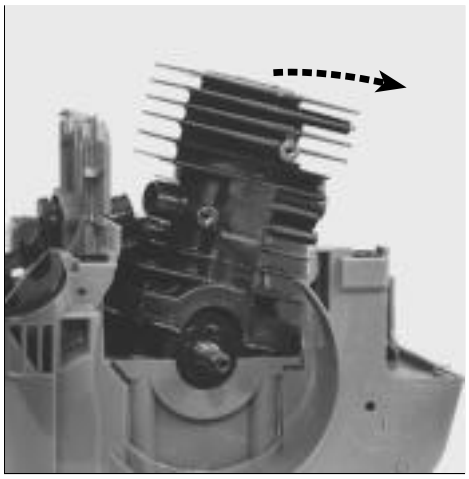
Dismantling

Models 225/232/235/240RBD

Dismantle the following parts:

Cylinder cover, spark plug, starter, air filter, carburettor, ignition module, muffler, heat guard, flywheel.

See respective sections in the Manual.



Dismantle the cylinder.

Remove the four bolts at the bottom of the cylinder.

Pull the cylinder forwards so the inlet manifold releases from the connection on the cylinder.

Lift off the cylinder and at the same time press down the crankshaft in its position inside the crankcase so that it does not follow the cylinder.

Place a cloth over the crankshaft and dismantle the piston.

Place a cloth over the crankshaft.

Dismantle the circlips on the gudgeon pin. (See models 250, 265).

Dismantle the piston. (See models 250, 265).

Cleaning, inspection

Models 225/232/235/240RBD

Clean and inspect the cylinder and piston and associated parts

Cleaning, inspection

Models 225/232/235/240RBD

Clean and inspect the cylinder, piston, piston rings, gudgeon pins and needle bearings as described for models 250, 265.

Also see section "Analysis and actions".

Carefully remove old gasket residue from the contact face at bottom of the cylinder!

Check the inlet manifold.

Check the inlet manifold for crack formation and damage to the contact faces to the carburettor and cylinder.

NOTE!

Pay attention to the small plastic ring on the carburettor connection so that it is not lost during cleaning.

Assembling

Models 225/232/235/240RBD

Fit the piston.

Assembling

Models 225/232/235/240RBD

Lubricate the gudgeon pin's needle bearing with a few drops of engine oil.

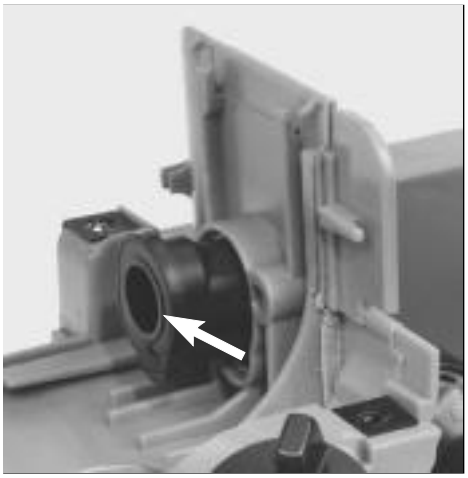
Point the arrow on top of the piston towards the exhaust port.

Press in the gudgeon pin and fit the circlips.

NOTE!

Place a cloth over the big-end bearing.

Check that the circlips are sitting in the grooves correctly by turning the circlip using a pair of pliers.



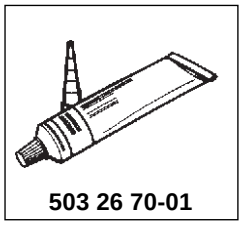
Fit the inlet manifold.

Lubricate the outside of the inlet manifold with a few drops of engine oil and fit it to the insulation wall on the crankcase.

NOTE!

Do not forget to position the small plastic ring in the inlet manifold.

Check that the contact face at the bottom of the cylinder is clean and free of grease. Apply a narrow string of sealant.



503 26 70-01

Check that the contact faces on the crankcase and at the bottom of the cylinder are clean and free of grease and sealant.

Apply a thin string (1–1.5 mm) of sealant no. 503 26 70-01 on the contact face.

NOTE!

Only this type of sealant must be used.

Lubricate the inlet manifold's connection on the cylinder with a few drops of engine oil.

Lubricate the piston, piston ring and bearing with engine oil.

Lubricate the inlet manifold's connection on the cylinder with a few drops of engine oil.

Lubricate the piston, piston ring and bearing with engine oil.

Fit the cylinder.

Check the connection of the inlet manifold on the cylinder.

Guide the cylinder over the piston and carefully press it down towards the crankcase.

Tip!

Move the cylinder gently from side-to-side at the same time as you press it down.

NOTE!

Do not turn the cylinder. The piston rings can break.

Make sure the inlet manifold is connected correctly on the cylinder.

Tighten the cylinder bolts crosswise to a tightening torque of 11 Nm.

Retighten the bolts.

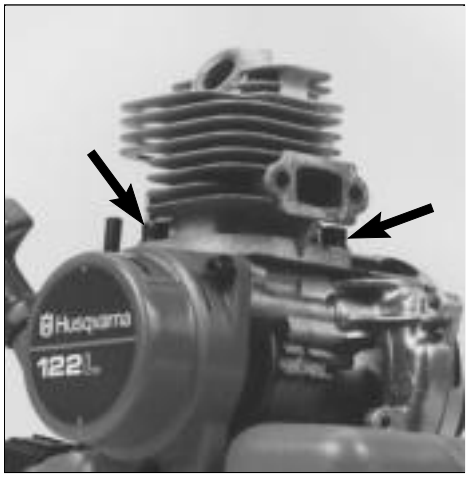
Tighten the cylinder bolts crosswise to a tightening torque of 11 Nm.

NOTE!

The cylinder bolts should be retightened.

Run the engine warm for 2–3 min and let it cool.

Retighten the cylinder bolts crosswise to a tightening torque of 11 Nm.



Dismantling

Model 122

Dismantle all the parts surrounding the cylinder. Remove the two cylinder bolts.

Dismantling

Model 122

Dismantle the spark plug, cylinder cover, muffler, air filter, carburettor, fan cover, ignition module and carburettor manifold.

Remove the two bolts holding the cylinder on the crankcase.

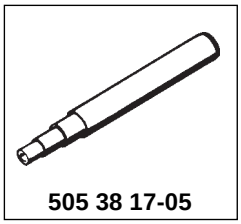
Lift off the cylinder.

Lift up the cylinder a little and place a cloth in the crankcase opening to prevent dirt from falling into the crankcase.

Lift off the cylinder from the piston.

Cylinder and piston

Dismantle the piston.



505 38 17-05

Use a pair of pliers to remove the gudgeon pin's circlip as described for models 250, 265.

Press out the gudgeon pin using the punch no. 505 38 17-05.

If the gudgeon pin is difficult to remove the piston can be carefully heated.

Cleaning, inspection

Model 122

Clean and inspect the cylinder and piston and associated parts.

Cleaning, inspection

Model 122

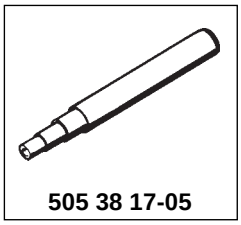
Clean and inspect the cylinder, piston, piston rings, gudgeon pins and needle bearings as described for models 250, 265.

Also see section "Analysis and actions".

Assembling

Model 122

Fit the piston on the connecting rod.



505 38 17-05

Assembling

Model 122

Lubricate the gudgeon pin's needle bearing with a few drops of engine oil.

Point the arrow on top of the piston towards the exhaust port.

Use the punch no. 505 38 17-05 to push in the gudgeon pin.

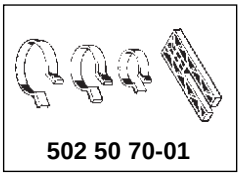
Press in the gudgeon pin and fit the circlips.

NOTE!

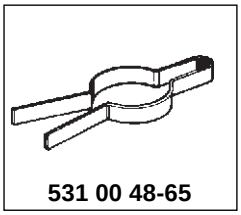
Place a cloth over the big-end bearing.

Check that the circlips are sitting in the grooves correctly by turning the circlip using a pair of pliers.

Use a new bottom gasket on the cylinder and fit the cylinder.



502 50 70-01



531 00 48-65

Fix a new bottom gasket using a little grease on to the cylinder and lubricate the piston with a few drops of oil.

Place the support plate from the assembly kit no. 502 50 70-01 under the piston.

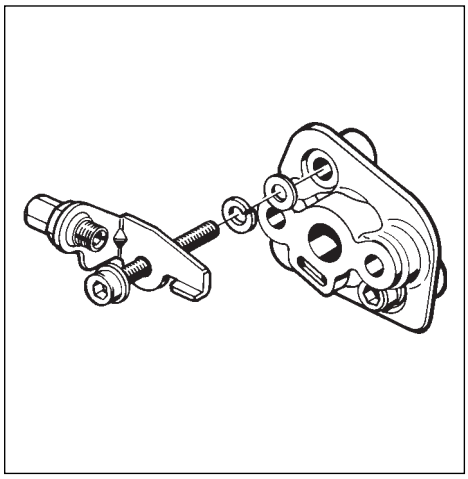
Press together the piston rings using tool 531 00 48-65.

Carefully slide the cylinder down over the piston. Check that the cylinder is positioned correctly.

NOTE!

Do not turn the cylinder. The piston rings can break.

Tighten the bolts holding the cylinder.



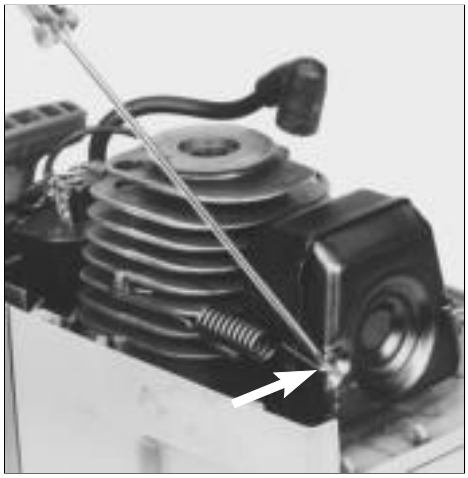
Fit the manifold on the cylinder and the carburettor and the other parts in the reverse order set out for dismantling.

Place the combined gasket and heat guard between the cylinder and manifold. Do not forget to fit the throttle cable's tensioning unit on the upper, left-hand screw.

NOTE!

The spring washer and flat washer shall sit between the sheet angle and the manifold.

Fit the carburettor and the other components in the reverse order set out for dismantling.



Dismantling

Model 32

Dismantle the cylinder cover, spark plug and muffler.

Dismantling

Model 32

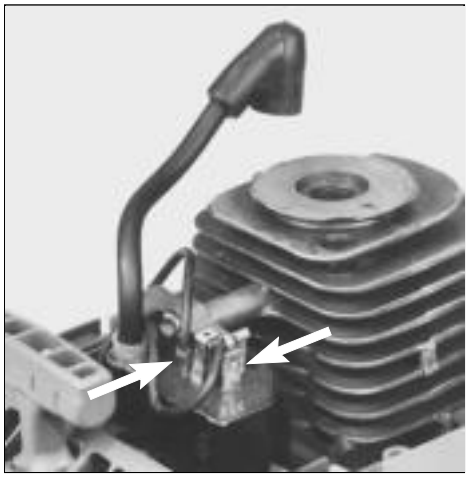
Dismantle the cylinder cover and spark plug.

Remove the muffler.

Use a narrow blade screwdriver and pry out the springs.

WARNING!

The springs are heavily tensioned and can fly out when loosened. Wear protective glasses and protect your hands.

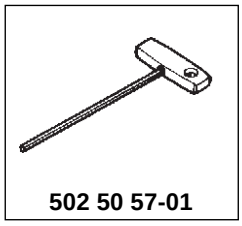


Remove both the cables from the ignition module and dismantle the cylinder.

Remove both the cables from the ignition module and undo the cylinder bolts.

Now lift the cylinder straight up.

Place a cloth in the crankcase opening to prevent dirt from falling into the crankcase.



502 50 57-01

Dismantle the piston.

Dismantle the piston as described for models 250, 265.

NOTE!

Exercise care when the gudgeon pin is pressed out. There is a risk that the pin's needle bearing can fall out and be lost.

Cleaning, inspection

Model 32

Clean and inspect the cylinder and piston and associated parts.

Cleaning, inspection

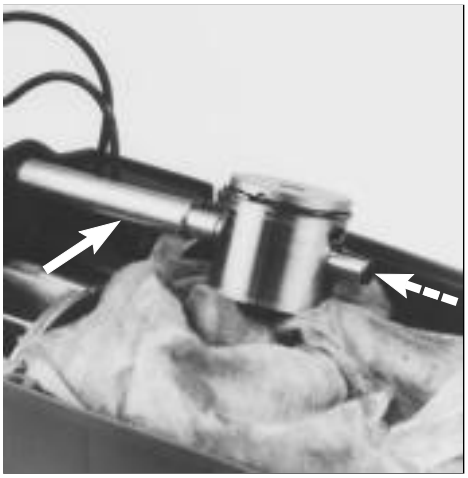
Model 32

Clean and inspect the cylinder, piston, piston rings, gudgeon pins and needle bearings as described for models 250, 265.

Also see section "Analysis and actions".

NOTE!

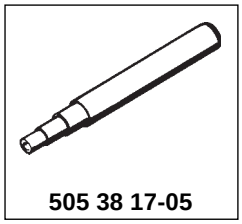
The gudgeon pin's bearing is pressed into the connecting rod. These parts should be replaced at the same time if any of them are damaged.



Assembling

Model 32

Lubricate the gudgeon pin's needle bearing with a little grease.



505 38 17-05

Assembling

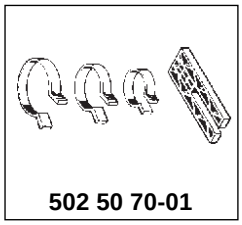
Model 32

Lubricate the gudgeon pin's needle bearing with a little grease to keep the needles in place.

Align the piston and gudgeon pin using punch no. 505 38 17-05. Carefully press in the gudgeon pin.

Fit the circlips and check that they sit correctly in the groove by turning with a pair of pliers.

Use a new bottom gasket on the cylinder and fit the cylinder.



502 50 70-01

Place a new bottom gasket on the crankcase.

Lubricate the piston and piston ring with a few drops of oil.

Fit the cylinder using assembly kit no. 502 50 70-01.

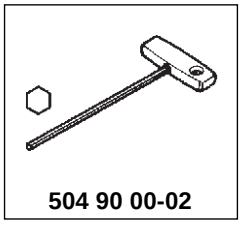
Use Loctite on the bolts and tighten.

Fit the remaining parts in the reverse order set out for dismantling.

Dismantling

Model Mondo

Make a hole in the decal. Loosen the screw and remove the cover.



504 90 00-02

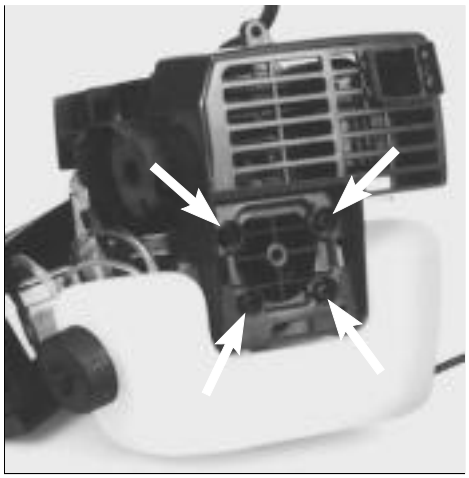
Dismantling

Model Mondo

Dismantle the engine from the shaft unit and then remove the following parts:

Clutch, starter cover, spark plug, air filter, carburettor.

Make a hole in the decal and loosen the screw that holds the cover.

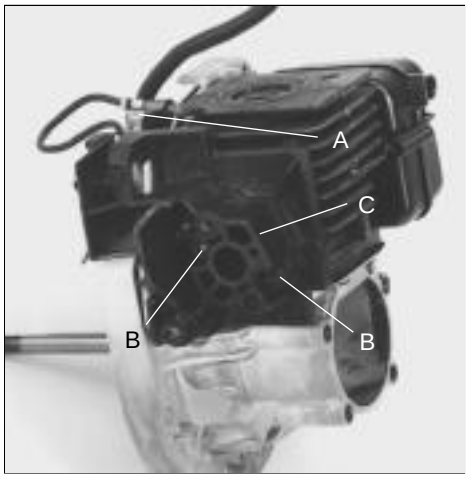


Dismantle the cylinder cover and fuel tank.

Remove the four bolts that hold the cylinder cover.

Pry off the cover using a screwdriver placed in between the fuel tank and cover.

Lift off the fuel tank.

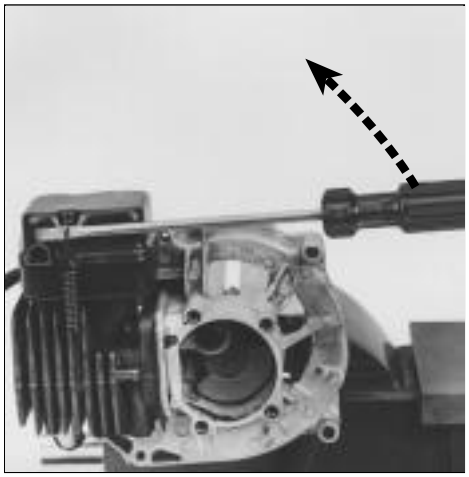


Dismantle the short circuit cable and manifold.

Dismantle the short circuit cable from the ignition module (A).

Remove the bolts (B) holding the manifold (C).

Lift off the manifold.

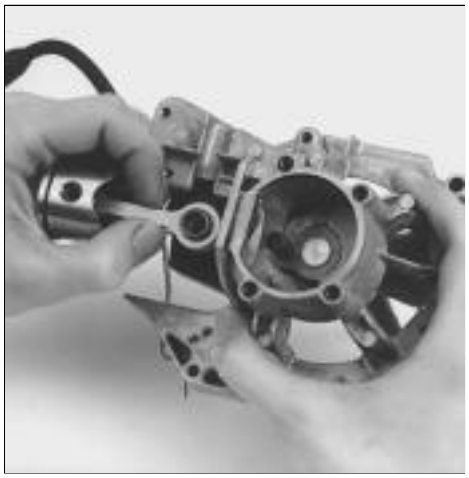


Dismantle the muffler.

Dismantle the muffler.

Use, a screwdriver, for example, as a lever to stretch out one of the springs as illustrated.

Lift off the muffler.

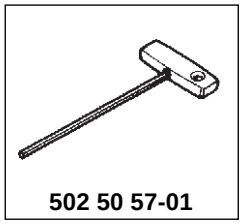


Dismantle the cylinder and connecting rod and the piston.

Remove the two bolts holding the cylinder using an allen key with a 3/16" key handle (502 50 57-01).

Lift off the cylinder.

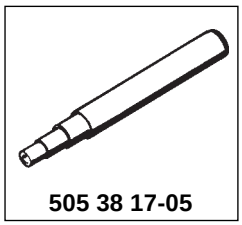
Now lift off the piston and connecting rod in one piece from the crankshaft.



502 50 57-01

Dismantle the piston from the connecting rod.

Remove the two circlips on the gudgeon pin and press the pin out of the piston using the punch no. 505 38 17-05.



505 38 17-05

Cleaning, inspection

Model Mondo

Clean and inspect the different cylinder and piston parts.

Cleaning, inspection

Model Mondo

Clean and inspect the cylinder, piston, piston rings, gudgeon pins and needle bearings as described for models 250, 265.

Also see section "Analysis and actions".

Scrape off any gasket residue from the cylinder and crankcase as well as from the manifold face on the carburettor side.

Replace the connecting rod complete with bearings if any of the parts have faults.

The needle bearings at both ends of the connecting rod are pressed into place. If they are heavily blued or show signs of breakage or wear the connecting rod complete with bearings should be replaced.

Assembling

Model Mondo

Fit the piston on the connecting rod.

Assembling – Model Mondo

Lubricate the connecting rod's bearings with a few drops of engine oil.

Fit the piston on the connecting rod (end with the smallest bearing).

Fit one of the circlips for the gudgeon pin in the piston.

Align the piston on the connecting bolt and press in the gudgeon pin.

Fit the other circlip.

NOTE!

Check that the circlips are sitting in the grooves correctly by turning the circlip using a pair of pliers.

Slide the piston a little way into the cylinder.

Lubricate the piston and piston ring with a few drops of engine oil.

Slide the piston in so the ring just passes the chamfer.

NOTE!

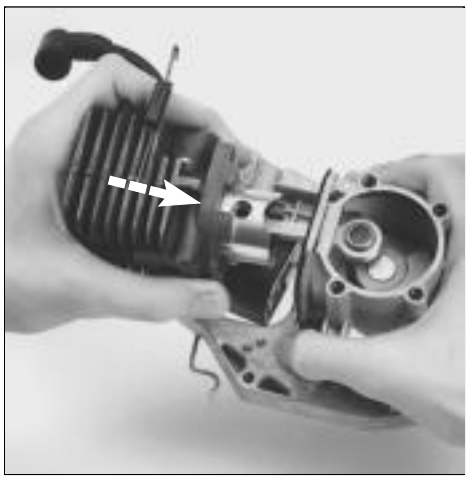
The guide pin for the piston ring should face the inlet port in the cylinder.

Use a new bottom gasket and make sure it is turned the right way.

Place a new gasket on the crankcase's contact face.

Attach with a little grease if necessary.

Check that the cut-out in the gasket corresponds with the cut-out in the crankcase.



Place the connecting rod over the crank pin and slide down the cylinder.

Tighten the cylinder.

Place the connecting rod over the crank pin and slide down the cylinder over the piston towards the crankcase contact face.

Tighten the cylinder with the two bolts.

Use Loctite on the bolts.

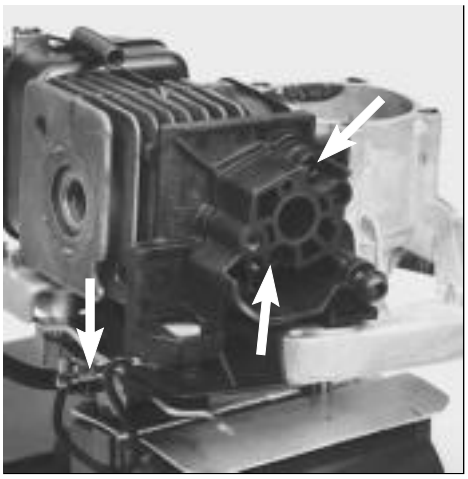
Fit the muffler.

Fit the muffler.

First hook on the spring closest to the ignition module.

Move the muffler down towards the cylinder so the guides pins enter the corresponding cut-outs in the muffler.

Finally hook on the last spring using a screwdriver in the same way as described under dismantling.



Fit the manifold on the cylinder.

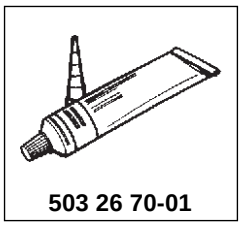
Connect the short circuit cable.

Fit the manifold on the cylinder. Use a new gasket.

Use Loctite on the bolts.

Connect the short circuit cable on the ignition module.

Fit the combined crankcase half/cylinder cover.



503 26 70-01

Apply a narrow string (1–1.5 mm) of sealant no. 503 26 70-01 of crankcase.

Position a new gasket.

Also apply a narrow string of sealant on the contact face on the combined crankcase half/cylinder cover and put it in position.

Tighten the four bolts.

Assemble the remaining parts in the reverse order set out for dismantling.

New piston, inlet side.

New piston, exhaust side.

Analysis and actions

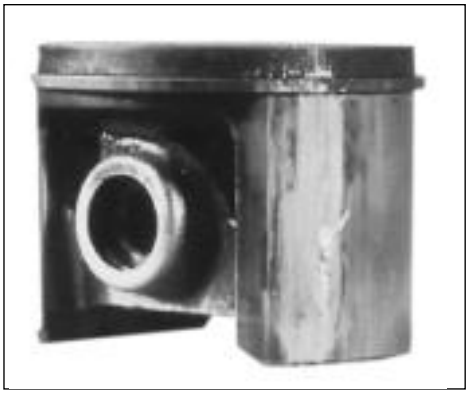
The two pictures to the left show what a new piston looks like, one on the inlet side the other on the exhaust side. Note that the machining marks from manufacturing are clearly visible.

Use these pictures as a reference when determining damage and wear.

Experience tells us that piston or cylinder failures due to manufacturing errors are extremely rare.

The reason is usually due to other factors, which is evident from the following.

Note the reasons for the breakdown, repair the damage and take the actions to prevent the same thing happening again.



Small and medium size scores primarily in front of the exhaust port.

Insufficient lubrication

The piston has small to medium size score marks usually in front of the exhaust port. In extreme case heat development can be so great that material from the piston smears along the piston skirt and even in the cylinder bore.

Generally the piston ring is undamaged and moves freely in the ring groove.

There can also be scores on the inlet side of the piston.

Reason:	**Action:**
● Incorrect carburettor setting. Recommended max. speed exceeded.	Check and change the carburettor setting.
● Incorrect oil mixture in the fuel.	Change the fuel.
● Fuel has too low octane value.	Change to a higher octane petrol.
● Incorrect grade of 2 stroke oil.	Change to correct grade.
● Restrictions in fuel system.	Check tank filter/soure of restriction.

Medium to deep scores along the entire piston skirt on the exhaust side.

Heavy scoring along the entire piston skirt on the exhaust side.

Medium to deep scores on the exhaust side. The piston ring is stuck in the groove. Black miscolouration under the piston ring due to blow-by.

The piston ring starts to stick or is completely stuck in its groove and has therefore not been able to seal against the cylinder wall, which has resulted in further, intensive temperature increases on the piston.

Seizure scores along the entire piston skirt on the inlet and exhaust sides.

Cause:	Action:
● Incorrect oil mixture in the fuel.	Change the fuel.
● Fuel has too low octane value.	Change to a higher octane petrol.
● Air leaks.	Replace damaged parts.
Cracked fuel pipe.	
Leaking inlet gaskets.	
Cracked manifold or inlet manifold.	
● Air leakage in engine body.	Replace leaking gaskets and shaft seals.
Leaking crankshaft seals.	
Leaking cylinder and crankcase gaskets.	
● Bad maintenance	Clean the cooling fins and air intake.
Dirty cooling fins on the cylinder.	
Blocked air intake on the starter.	
Blocked spark arrest screen on the muffler.	Clean or replace the spark arrest screen.

For the best results we recommend Husqvarna two-stroke oil, which is specially developed for air-cooled two-stroke engines.

Mixing ratio: 1:50 (2%).

If Husqvarna two-stroke oil is not available another good quality two-stroke oil can be used.

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

Piston scoring caused by heavy carbon deposits

Too heavy carbon depositing can cause damage similar to that caused by insufficient lubrication. However, the piston skirt has a darker colour caused by the hot combustion gases that are blown past the piston.

This type of piston damage starts at the exhaust port where carbon deposits can become loose and trapped between the piston and cylinder wall.

Inlet side. The piston ring is stuck in its groove. Black discolouration under the piston ring due to blow-by.

Typical for this type of piston damage is brown or black discolouration of the piston skirt.

Cause:	Action:
● Wrong type of two-stroke oil or petrol.	Change the fuel.
● Incorrect oil mixture in the fuel.	Change to a fuel with the right oil mixture.
● Incorrect carburettor setting.	Correct the carburettor setting.

Exhaust side damaged by a broken piston ring. The piston ring parts damage the top section and cause score marks.

Piston damage caused by a too high engine speed.

Typical damage associated with a too high engine speed is broken piston rings, broken circlips on the gudgeon pin, faulty bearings or that the guide pin for the piston ring has become loose.

Piston ring breakage

A too "lean" carburettor setting results in a too high speed and a high piston temperature. If the piston temperature rises above the normal working temperature the piston ring can seize in its groove, consequently it will not sit deep enough in its groove. The edges of the piston ring can then hit the top edge of the exhaust port and be smashed and also cause piston damage.

A too high engine speed can also cause rapid wear to the piston ring and play in the piston ring groove primarily in front of the exhaust port. The ring is weakened by the wear and can be caught in the port causing serious piston damage.

The guide pin for the piston ring has been pushed up through the top of piston.

Piston ring guide pin vibrated loose

A too high engine speed can cause the ends of the piston ring to hammer against the guide pin when the piston ring moves in its groove. The intensive hammering can drive out the pin through the top of the piston causing serious damage also to the cylinder.

Deep, irregular grooves caused by a loose circlip. Shown here on the piston's inlet side.

Damage caused by gudgeon pin circlips

A too high engine speed can cause the gudgeon pin circlips to vibrate. The circlips are drawn out of their groove due to the vibrations, which in turn reduces the circlips' tensioning power. The rings can then become loose and damage the piston.

Irregular grooves on the piston's inlet side caused by a broken roller retainer.

Bearing failure

A failure on the crankshaft bearing or on the connecting rod bearing is usually caused by a too high engine speed, resulting in the bearing being overloaded or over heating. This in turn can cause the bearing rollers or ball to glide instead of rotate, which can mean the roller or ball retainer breaks.

The broken debris can be trapped between the piston and cylinder wall, damaging the piston skirt.

Debris can also pass up through the cylinder's transfer channels and cause damage to the top and sides of the piston as well as the cylinder's combustion chamber.

Small score marks and a matt, grey surface on the piston's inlet side caused by fine dust particles.

Foreign objects

Everything other than clean air and pure fuel that enters the engine's inlet port causes some type of abnormal wear or damage to the cylinder and piston.

This type of increased wear shows on the piston's inlet side starting at the lower edge of the piston skirt.

The damage is caused by badly filtered air that passes through the carburettor and into the engine.

Inlet side.

Particles of dust and dirt from carbon-like deposits on the top of the piston and in the piston ring groove. The piston ring sits firmly in the groove. Piston material has been worn away.

The lower part of the piston skirt is thinner on the inlet side than on the exhaust side.

Cause:

- Faulty air filter. Small dust particles pass through the filter.
- The filter is worn out due to too much cleaning, whereby small holes have appeared in the material.
- Unsuitable filter maintenance, e.g. wrong method or wrong cleaning agent. Flock material becomes loose and holes appear.
- Air filter incorrectly fitted.
- Air filter damaged or missing.

Action:

Fit a finer grade filter.

Check the filter carefully for holes and damage after cleaning. Replace the filter if necessary.

Clean more carefully and use the right cleaning agent (e.g. tepid soapy water or Husqvarna Active Cleaning).
Change the filter.

Fit the filter correctly.

Fit a new air filter.

505 69 85-70

The piston scored and worn from the piston ring down on the inlet side.

Large, softer particles that penetrate into the engine cause damage to the piston skirt under the piston ring as the photograph shows.

Cause:

- Air filter incorrectly fitted.
- Air filter damaged or missing.

Action:

Fit the filter correctly.

Fit a new air filter.

Extensive damage to the piston's inlet side.

Larger, harder particles that enter the engine cause serious damage to the underside of the piston skirt.

Cause:

- Air filter damaged or missing.
- Parts from the carburettor or intake system have become loose and entered the engine.

Action:

Fit a new air filter.

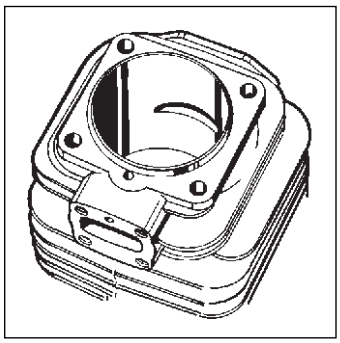
Regular service and inspection.

Service advice

Defect:	Action:
Broken cooling fins, damaged threads or sheared bolts by the exhaust port.	In bad situations – replace the cylinder. Repair the threads using Heli-Coil.
Seizure marks in the cylinder bore (especially by the exhaust port).	Polish the damaged area using a fine grade emery cloth so that the coating of aluminium disappears. With deep seizure score marks the piston and cylinder should be replaced.
Surface coating in the cylinder bore worn out (primarily at the top of the cylinder).	Replace the cylinder and piston.
The piston shows signs of seizure score marks.	Carefully polish the damaged area using a fine file of fine grade emery cloth. Before the piston is refitted the cylinder should be polished as above. With deep score marks the piston and cylinder should be replaced.
Piston ring burnt in its groove.	Carefully loosen the piston rings and clean the groove well before refitting. Carbon deposits in the groove impair the important heat transfer between the piston and cylinder. Check the wear on the piston ring by placing it in the lower part of the cylinder.

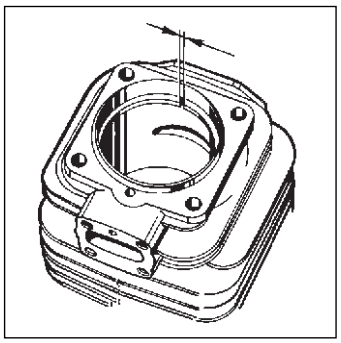
Wear tolerances

Cylinder bore



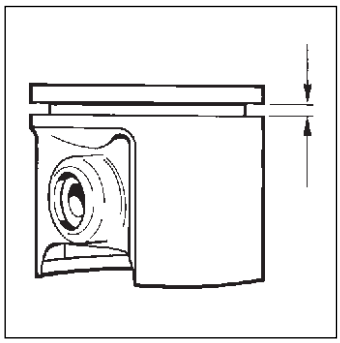
When the surface coating is worn and aluminium appears.

Piston ring gap



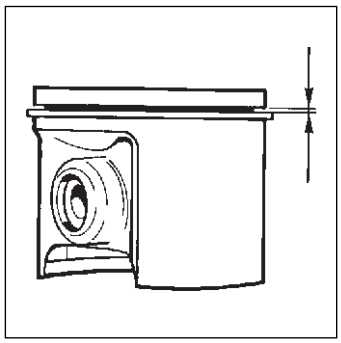
Max. 1.0 mm with the piston ring inserted in the lower part of the cylinder.

Piston ring groove



Max. height on a new piston ring + 0.10 mm.

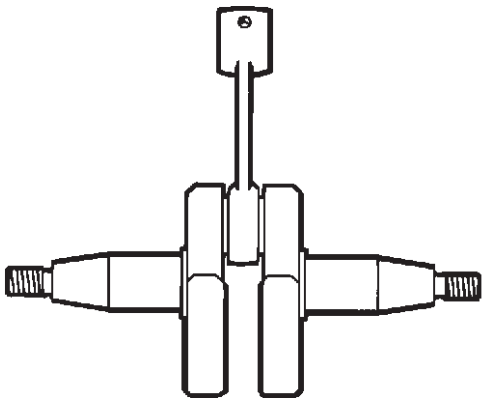
Piston ring play



Max. 0.15 mm. Clean the groove carefully before measuring.

Crankshaft and crankcase

7.



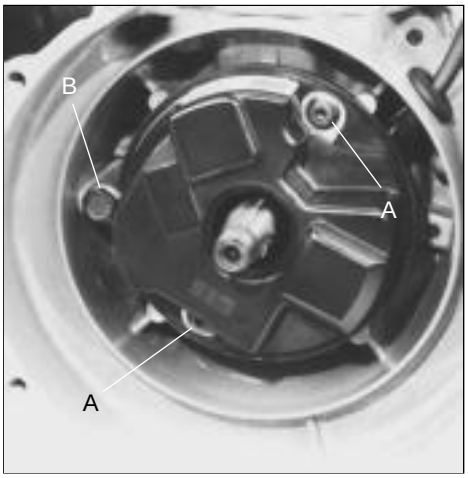
Content

Crankshaft and crankcase

The task of the crankshaft is to transfer the reciprocating motion of the piston to rotation. To do this requires a stable design withstanding immense pressure, rotational and bending strain as well as high rotational speed. In addition the connecting rod is exposed to large acceleration and retardation forces as it moves between top and bottom dead centres. This puts special demands on the bearings that must withstand quick changes in load. Besides, the bearing's roller retainer also must cope with high temperatures and friction. Therefore it is extremely important when servicing, to check the roller retainer for cracking, wear and miscolouration due to overheating.

The crankshaft is journalled in the crankcase on heavy-duty ball bearings. In addition to the journalling point for the crankshaft, the crankcase acts as scavenging pump for the fuel/air mixture when this is "sucked" from the carburettor and is forced into the cylinder's combustion chamber. The crankcase must be perfectly sealed so as not to affect this pump function. There cannot be any leakage either from the crankshaft or between the crankcase halves or between the crankcase and the cylinder.

Always replace the sealing rings and gaskets when servicing the crankcase.



Replace the sealing ring - ignition side

Model 265

Dismantle the flywheel and ignition module

Replace the sealing ring - ignition side

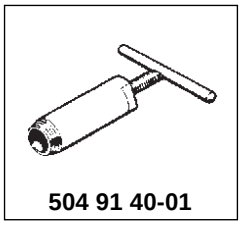
Model 265

The sealing ring can be replaced without splitting the crankcase.

Dismantle the flywheel.

Undo the six allen bolts (A) and loosen the bolt (B) enough so that the ignition module can be lifted out.

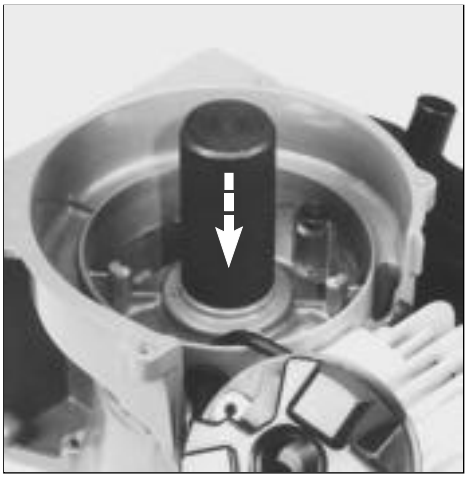
Dismantle the sealing ring with the puller.



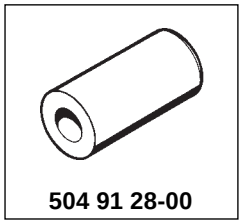
504 91 40-01

Screw on the puller 504 91 40-01 as far as it will go between the crankshaft and the sealing ring.

Pull the sealing ring out of the crankcase.



Lubricate the shaft extension and fit a new sealing ring.

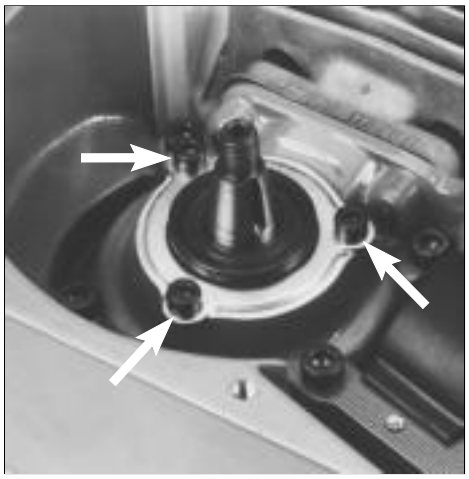


504 91 28-00

Lubricate the shaft extension with a few drops of engine oil and place a new sealing ring in position with the metal cover facing outwards.

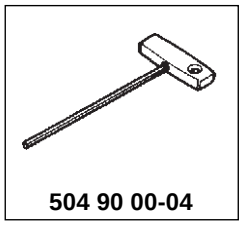
Press in the sealing ring until it is level with the crankcase.

Use e.g. punch 504 91 28-00.



Model 250

Dismantle the flywheel and the washer over the sealing ring.



504 90 00-04

Model 250

Dismantle the covers and ignition system incl. the flywheel. See chap. "Ignition system".

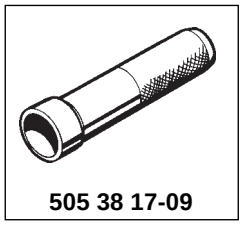
Remove the three bolts holding the washer over the seal holder.

Use allen key 504 90 00-04.

Remove the seal holder.

Press out the seal holder by using a screwdriver.

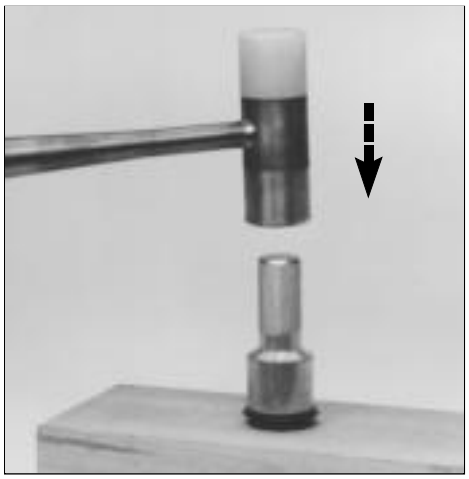
Remove the sealing ring from the holder.



505 38 17-09

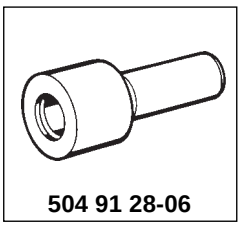
Remove the sealing ring from the holder using punch 505 38 17-09.

Use a suitable tubular sleeve as a drift.



Fit a new sealing ring.

Check that the O-ring is not damaged and fit the holder.



504 91 28-06

Fit a new sealing ring.

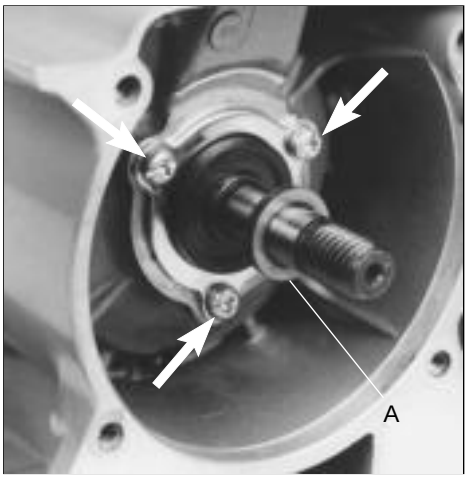
Turn the sealing ring so that the metal cover faces outwards.

Use a suitable punch, e.g. 504 91 28-06.

Check that the O-ring between the seal holder and the bearing in the crankcase is not damaged.

Change the O-ring if it does not seal as intended.

Lubricate the crankshaft and fit the holder.

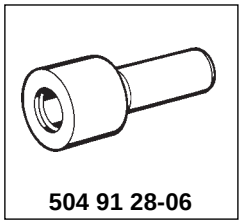


Replacing the sealing ring - clutch side

Model 265

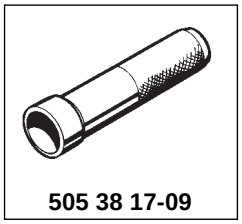
Dismantle the centrifugal clutch so that the sealing ring is accessible.

Remove the seal holder and change the sealing ring.



504 91 28-06

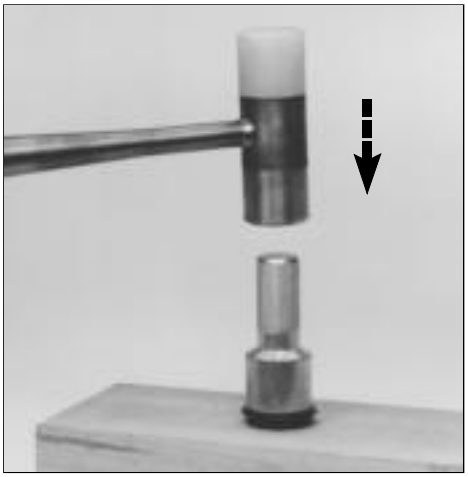
Take out the sealing ring from the holder.

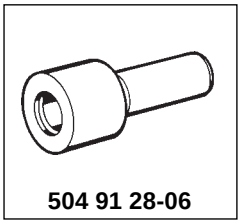


505 38 17-09

Fit a new sealing ring.

Check whether the O-ring is damaged and fit the holder.



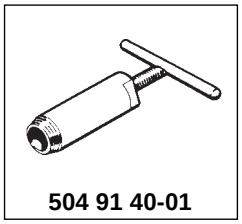


504 91 28-06

Model 250

Dismantle the clutch so that the sealing ring is accessible.

Dismantle the sealing ring using a puller.



504 91 40-01

Replacing the sealing ring - clutch side

Model 265

The sealing ring can be changed without splitting the crankcase.

Dismantle the clutch and remove the spacer (A).

Undo the three bolts that hold the cover over the seal holder.

Remove the seal holder and replace the sealing ring as described for model 250 (ignition side).

Take out the sealing ring from the holder using punch 505 38 17-09.

Use a suitable tubular sleeve as a drift.

Fit a new sealing ring in the holder.

Turn the sealing ring so that the metal cover faces outwards.

Use a suitable punch, e.g. 504 91 28-06.

Check that the O-ring between the seal holder and the bearing in the crankcase is not damaged.

Change the O-ring if it does not seal as intended.

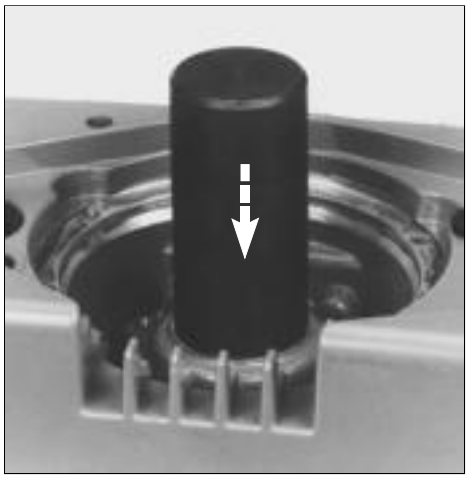
Lubricate the crankshaft and fit the holder.

Model 250

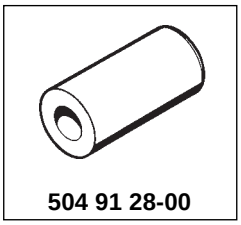
Dismantle the clutch. See chap. "Centrifugal clutch".

Screw on the puller 504 91 40-01 as far as it will go between the crankshaft and the sealing ring.

Thereafter pull the sealing ring out of the crankcase.



Lubricate the shaft extension and fit a new sealing ring.



504 91 28-00

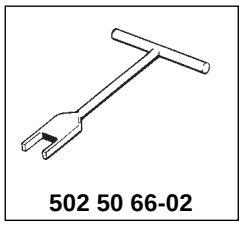
Lubricate the shaft extension with a few drops of engine oil and place a new sealing ring in position with the metal cover facing outwards. Press in the sealing ring until it is level with the crankcase.

Use e.g. punch 504 91 28-00.

Replacing the vibration damper

Model 250

Use tool no. 502 50 66-02 to dismantle / assemble the rubber vibration dampers to avoid damaging them.



502 50 66-02

Replacing the vibration damper

Model 250

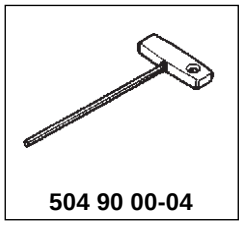
Dismantle the cylinder cover and clutch housing/shaft. Also see chap. "Centrifugal clutch".

Use tool no. 502 50 66-02 to dismantle/ assemble the rubber vibration dampers.

NOTE!

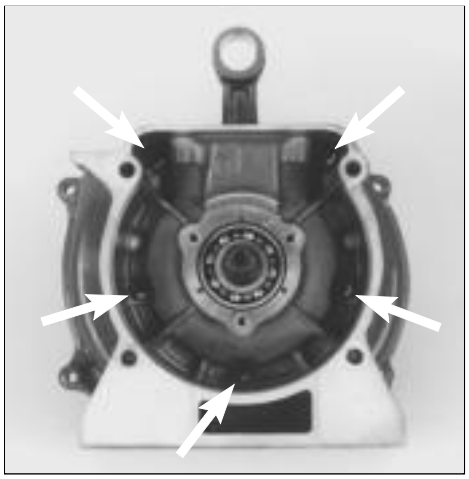
Makes sure the tool also grips under the metal washer on the damper. Otherwise the rubber must absorb all the turning force and can be damaged.

Use an allen key to dismantle the spring type vibration damper.



504 90 00-04

If the vibration damper is of a spring type use an allen key no. 504 90 00-04 to dismantle.



Stripping the crankcase

Model 265

Dismantle all parts so only the crankcase and crankshaft remain.

Remove the crankcase bolts.

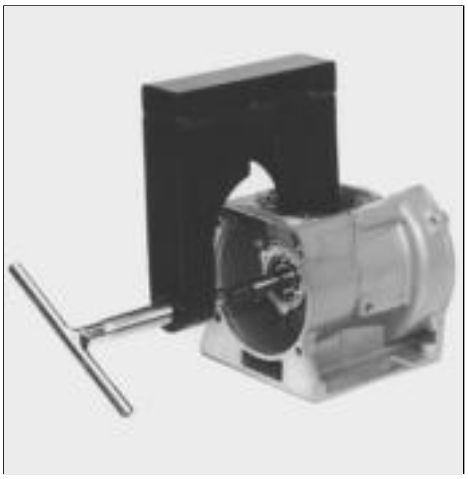
Stripping the crankcase

Model 265

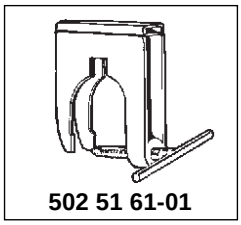
Dismantle all parts so only the crankcase and crankshaft remain.

See respective chapters.

Remove the 5 bolts holding the crankcase halves.

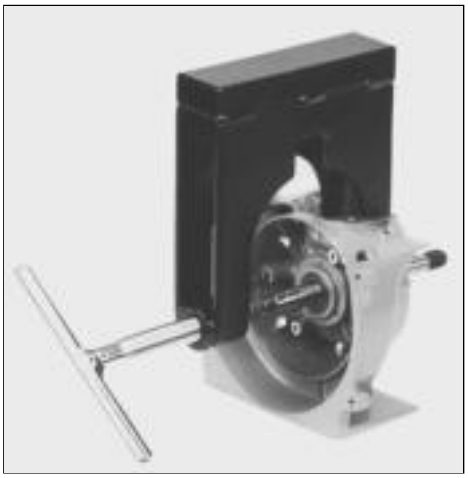


Separate the crankcase halves.

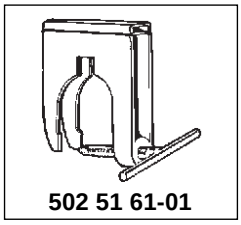


502 51 61-01

Place the puller 502 51 61-01 on the clutch side's crankcase half and separate the two halves.

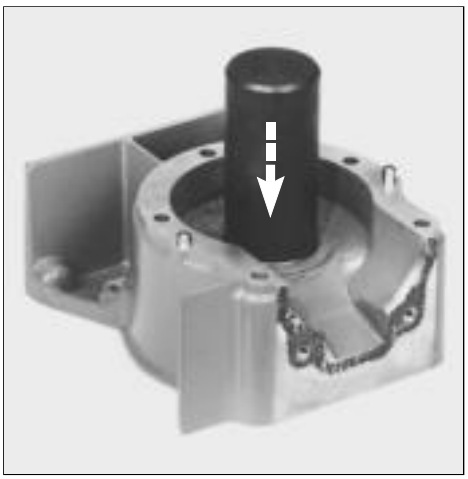


Press out the crankshaft.

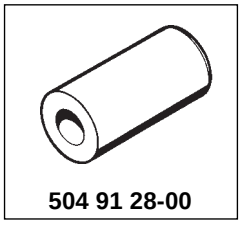


502 51 61-01

Use the same puller and press the crankshaft out of the ignition side's crankcase half.



Dismantle the bearing and the sealing ring on the ignition side's crankcase half.



504 91 28-00

Carefully heat the crankcase halves to 150 – 200°C using a hot air gun.

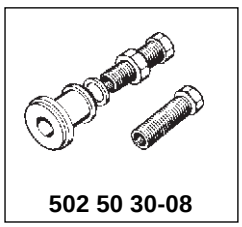
Dismantle the bearing using a punch or by hitting the crankcase half against a wooden block until the bearing falls out of its seating.

Press out the sealing ring from the ignition side's crankcase half.

Assembling the crankcase

Model 265

Clean all components and fit the bearing on the crankshaft.



502 50 30-08

Assembling the crankcase

Model 265

Clean all components before assembly.

Check the crankshaft with regard to wear and damage. See section "Inspecting the crankshaft".

Fit the bearing on the crankshaft.

Use assembly tool 502 50 30-08 on the ignition side.

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

Carefully heat the ignition side's crankcase half to 150 – 200°C and position the crankshaft.

NOTE!

Insert the crankshaft correctly. The shaft extension with the taper is the ignition side.

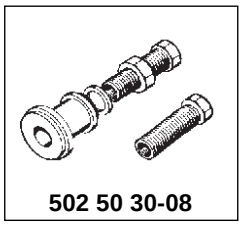
Fit the drive side's crankcase half.

Make sure that the gasket is not misaligned.

Place the gasket in position on the ignition side's crankcase half. Attach using a little grease.

Heat the clutch side's crankcase half to 150 – 200°C and place over the crankshaft.

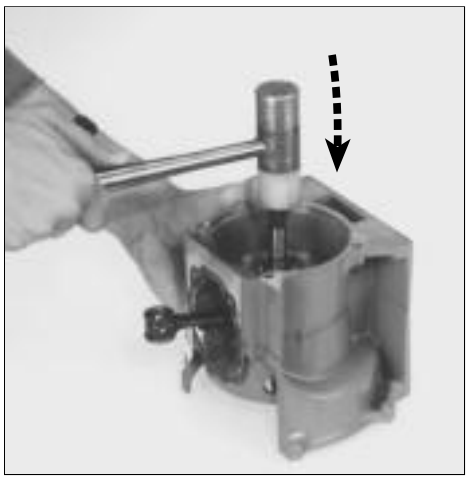
If necessary use assembly tool no. 502 50 30-08 on the ignition side's crankcase half.



502 50 30-08

Tip!

It is recommended that the crankcase bolts are inserted to guide the gasket before the crankcase half is fully installed.



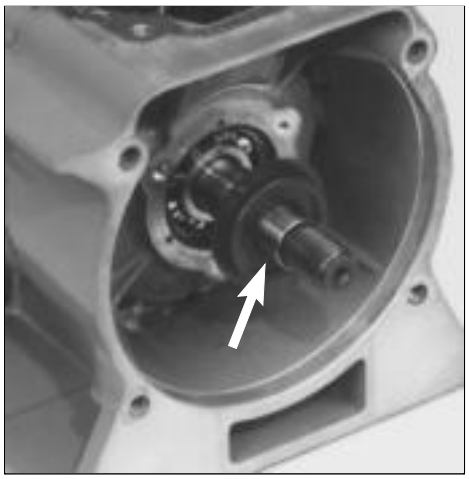
Tighten all the crankcase bolts.

Check that the crankshaft rotates easily.

Tighten all the crankcase bolts crosswise.

Cut off any excessive gasket from the cylinder base surface.

Rotate the crankshaft by hand. If it runs tightly apply a few ***light*** blows to the shaft extensions using a plastic mallet so that the stress releases and the shaft rotates easily.



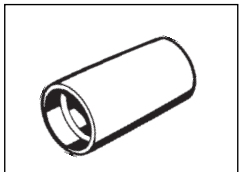
Fit new sealing rings and the remaining components.

Fit new sealing rings to both the ignition and clutch sides.

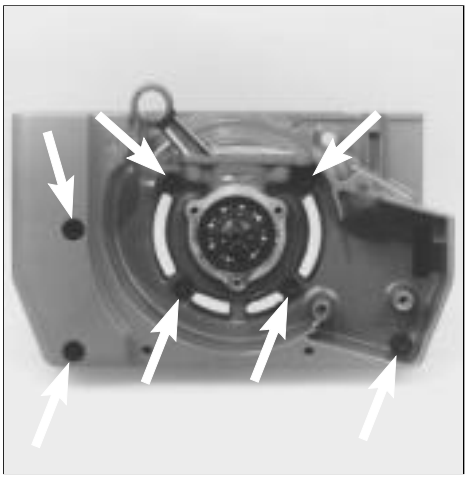
Place assembly sleeve 502 50 53-01 on the clutch side's shaft extension to protect the sealing ring when its fitted.

NOTE!

Do not forget the O-ring between the bearing and the sealing ring.



502 50 53-01

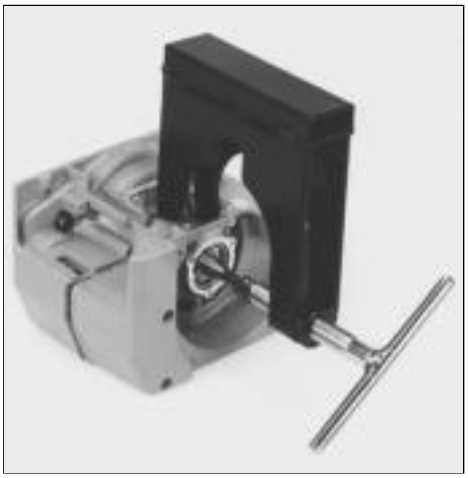


Stripping the crankcase

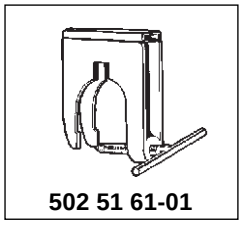
Model 250

Dismantle all parts so only the crankcase and crankshaft remain.

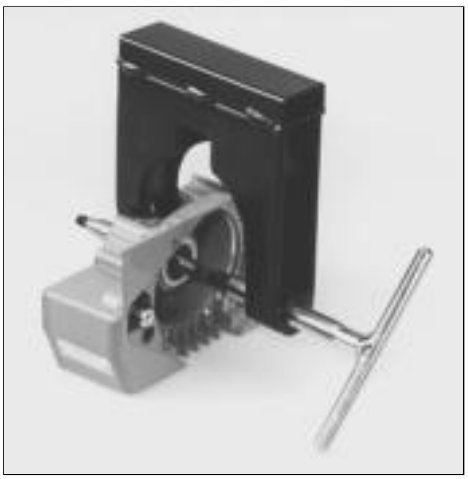
Remove the crankcase bolts.



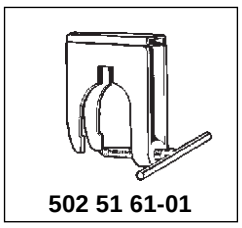
Separate the crankcase halves using puller no. 502 51 61-01.



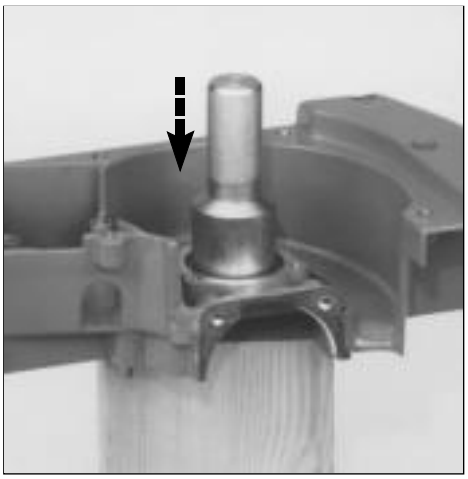
502 51 61-01



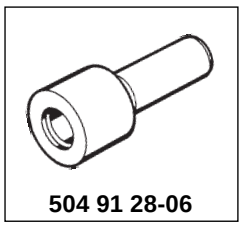
Press out the crankshaft from the crankcase half using puller no. 502 51 61-01.



502 51 61-01



Dismantle the bearings from the crankcase halves.



504 91 28-06

Stripping the crankcase

Model 250

Dismantle all parts so only the crankcase and crankshaft remain.

Remove the 7 bolts holding the crankcase halves.

See respective chapters.

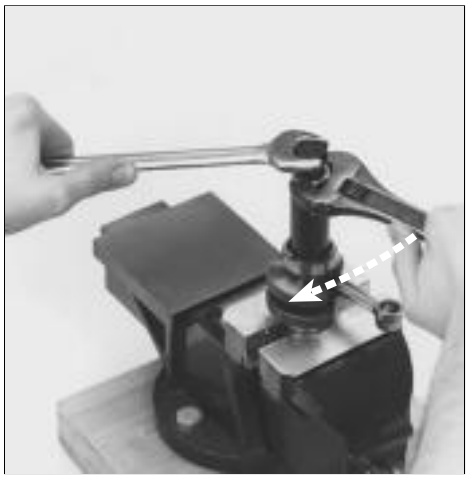
Separate the crankcase halves using puller no. 502 51 61-01.

Press out the crankshaft from the crankcase half using puller no. 502 51 61-01.

Carefully heat the crankcase halves to about 150°C.

Dismantle the bearing using a punch or by hitting the crankcase half against a wooden block until the bearing falls out of its seating.

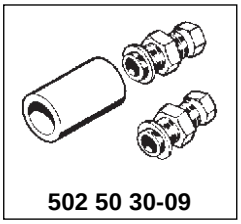
Press out the sealing ring from the clutch side's crankcase half.



Assembling the crankcase

Model 250

Clean all components and fit the bearing on the crankshaft.



502 50 30-09

Assembling the crankcase

Model 250

Clean all components before assembly.

Check the crankshaft with regard to wear and damage.

See section" Inspecting the crankshaft".

Fit the bearing on the crankshaft.

Use assembly tool no. 502 50 30-09 (M8).

Fit crankshaft on the clutch side's crankcase.

Carefully heat the clutch side's crankcase to about 150°C and position the crankshaft.

NOTE!

Turn the crankshaft the right way. The shaft extension without the keyway on the clutch side.

Fit the ignition side's crankcase half.

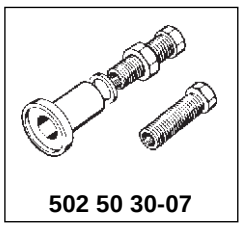
Make sure that the gasket is not misaligned.

Heat the ignition side's crankcase half (approx. 150°C).

Place the gasket in position on the drive side's crankcase half.

Attach using a little grease.

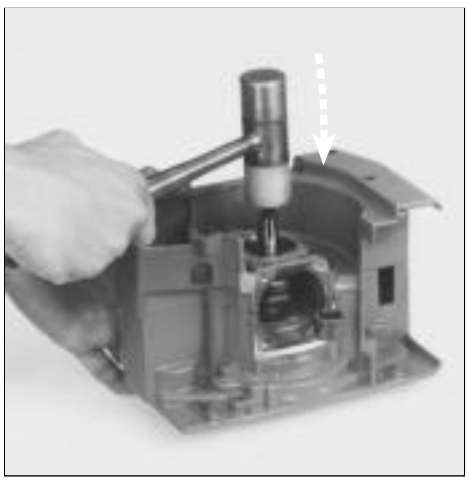
If necessary use assembly tools no. 502 50 30-07 + 502 50 30-09



502 50 30-07

Tip!

It is recommended that the crankcase bolts are inserted to guide the gasket before the crankcase half is fully installed.



Tighten all the crankcase bolts.

Check that the crankshaft rotates easily.

Fit new sealing rings and the remaining components.

Tighten all the crankcase bolts crosswise starting closest to the crankshaft.

Cut off any excessive gasket from the cylinder base surface.

Rotate the crankshaft by hand. If it runs tightly apply a few light blows to the shaft extensions using a plastic mallet so that the stress releases and the shaft rotates easily.

Fit new sealing rings to both the ignition and clutch side's as previously described.

Lubricate the crank bearing and the main bearing with a few drops of oil before the piston and cylinder are fitted.

Fit the remaining components.

Inspecting the crankshaft

Check the connecting rod's big end.

Inspecting the crankshaft

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

Check the big end on the connecting rod. If there are signs of seizure, discolouration on the sides or damage to the needle seating the crankshaft should be replaced.

Check the connecting rod's little end.

Check the little end on the connecting rod.

If there are signs of seizure, discolouration in the bearing race the crankshaft should be replaced.

Check the main bearing.

Check the main bearing. There should be no radial (up and down) play on the connecting rod.

However, there should be axial play, i.e. to provide good lubrication to the main bearing.

Dismantling the crankshaft

Models 240/245

Dismantle the crankshaft from the crankcase.

Dismantling the crankshaft

Models 240/245

Dismantle all the components surrounding the crankcase including the cylinder and piston.

See respective chapters.

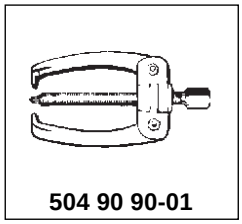
Lift out the crankshaft complete with bearings and bearing retainer from the crankcase.

Remove the bearing seats from the bearings.

Pull apart the bearing seat halves and remove them from the bearings using a screwdriver.

Dismantle the bearings from the crankshaft.

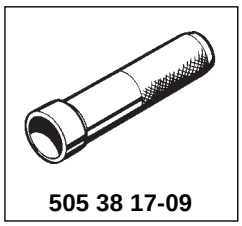
Dismantle the bearings from the crankshaft using puller no. 504 90 90-01.



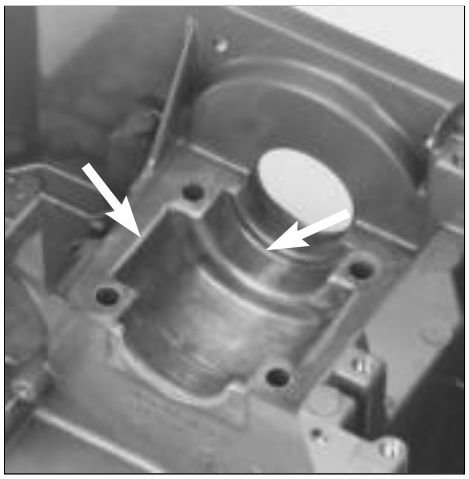
504 90 90-01

Dismantle the sealing rings.

Press out the bearing rings from the bearing seats by using punch no. 505 38 17-09.



505 38 17-09



Assembling the crankshaft

Models 240/245

Check the crankshaft as set out in the section "Inspecting the crankshaft".

Clean the crankcase's contact faces.

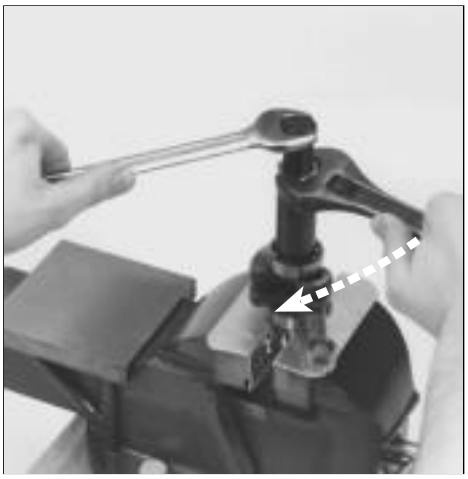
Assembling the crankshaft

Models 240/245

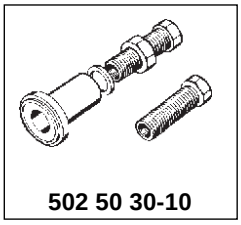
Check the crankshaft as set out in the section "Inspecting the crankshaft".

Clean the crankcase's contact faces carefully removing sealant residue and grease.

Carefully use a screwdriver or flat scraper so as not to scratch the faces.



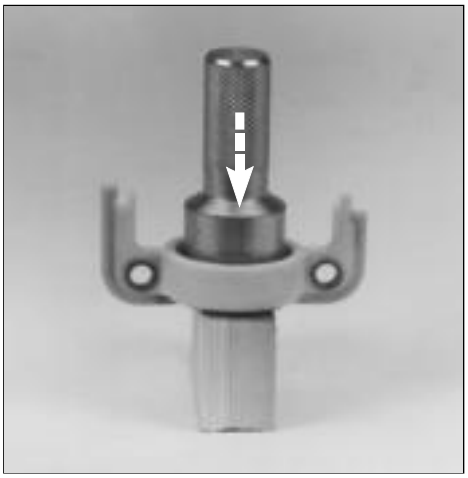
Fit the bearing on the crankshaft.



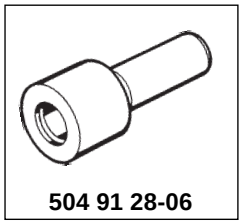
502 50 30-10

Fit the bearing on the crankshaft's ignition side using assembly tool no. 502 50 30-10.

Now fit the bearing on the crankshaft's clutch side in the same way.



Fit new sealing rings in the bearing retainer.

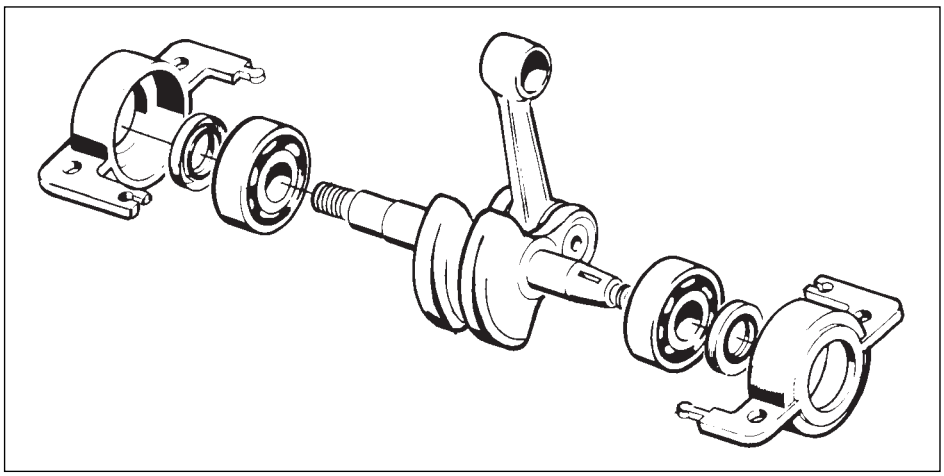


504 91 28-06

Fit new sealing rings in the bearing retainer using punch no. 504 91 28-06.

NOTE!

Turn the sealing rings so that the metal cover faces outwards from the engine.

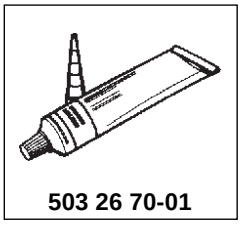


Lubricate the shaft extensions with a few drops of oil and fit the bearing seats onto the bearings.

Turn the seats so they lock into each other.

Place the crankshaft in the crankcase.

Use sealant no. 503 26 70-01.



503 26 70-01

Check that the contact faces on the bearing seats and crankcase are free of grease.

Apply a thin string (1–1.5 mm) of sealant (503 26 70-01) to the crankcase contact faces.

NOTE!

Only this sealant must be used.

Position the crankshaft.

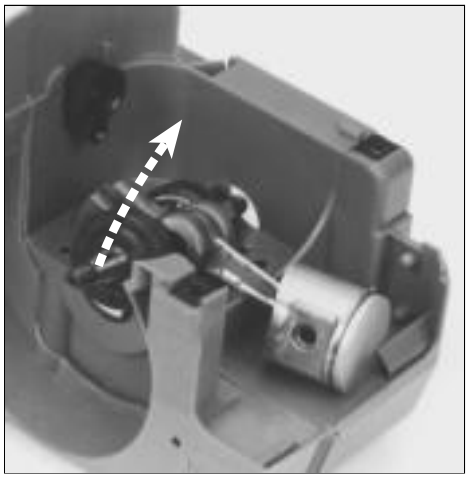
Make sure it is facing the right way!

Fit the piston and cylinder.

Check that the contact faces on the cylinder are free of grease.

Fit the piston and cylinder.

See chapter "Cylinder and piston".



Dismantling the crankshaft

Models 225/232/235

Lift out the crankshaft from the crankcase.

Dismantling the crankshaft

Models 225/232/235

Dismantle all the components surrounding the crankcase including the cylinder.

See respective chapters.

Lift out the crankshaft complete with bearings from the crankcase.

Dismantle the piston and pull off the bearings from the shaft extensions.

Dismantle the piston.

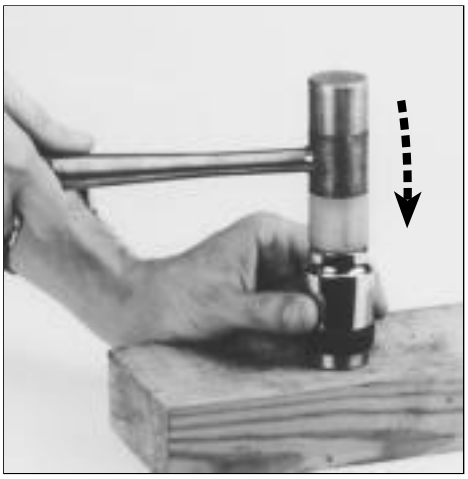
Pull off the bearings from the shaft extensions by hand.

Remove the seals from the bearing.

Always replace the seals.

Remove the old seal from the bearing by cutting a slot in the elastic casing and metal cup using a hacksaw.

Now pry the seal from the bearing using a screwdriver.



Fit a new seal on the bearing.

Press a new seal on the bearing by using a punch that presses against the sealing ring's outer edges.

Assembling the crankshaft

Models 225/232/235

Check the crankshaft as set out in the section "Inspecting the crankshaft".

Fit the bearing on the crankshaft.

Fit the piston.

Assembling the crankshaft

Models 225/232/235

Check the crankshaft as set out in the section "Inspecting the crankshaft".

Lubricate the crankshaft's shaft extensions using a few drops of oil and slide the bearing on by hand.

Fit the piston on the connecting rod.

NOTE!

Turn the piston the right way. The arrow facing the exhaust port.

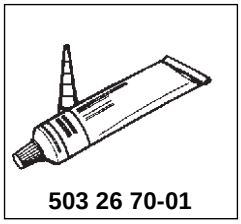
Position the crankshaft in the crankcase.

Position the crankshaft in the crankcase.

NOTE!

No sealant is required in the bearing seatings.

Fit the cylinder.

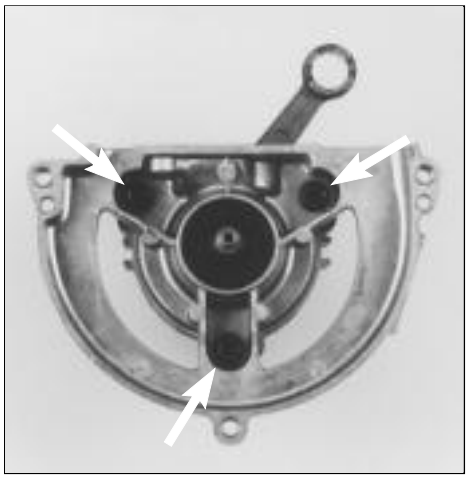


503 26 70-01

Make sure the contact faces on the cylinder and crankcase are clean from sealant and grease.

Apply a thin string (1–1.5 mm) of sealant to the bottom of the cylinder and fit the cylinder.

See chap. "Cylinder and piston".



Stripping the crankcase

Model 122

Dismantle all parts so only the crankcase and crankshaft remain.

Remove the crankcase bolts.

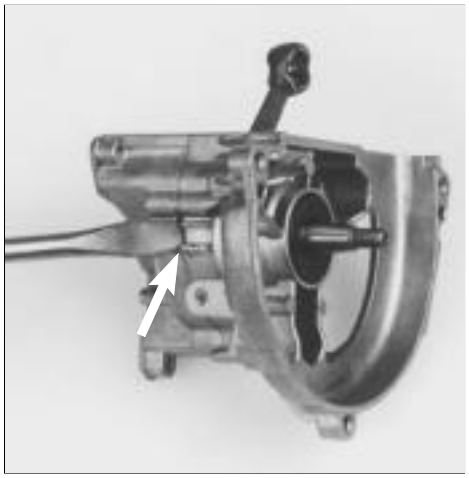
Stripping the crankcase

Model 122

Dismantle all parts so only the crankcase and crankshaft remain.

See respective chapters.

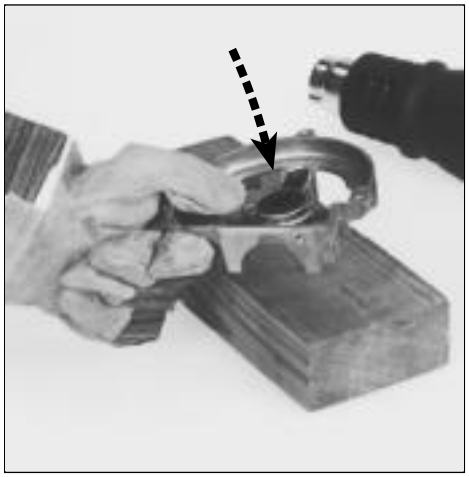
Remove the 3 bolts holding the crankcase halves.



Separate the crankcase halves using a screwdriver.

Insert a wide blade screwdriver in between the raised sections on the crankcase halves and pry open the crankcase.

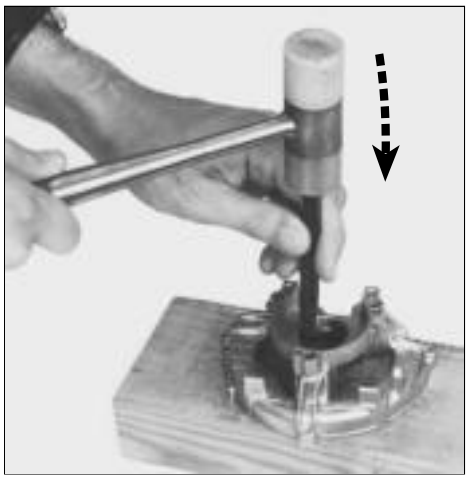
Lift out the crankshaft.



Dismantle the bearing.

Carefully heat the crankcase halves using a hot air gun to approx. 150°C.

Dismantle the bearing using a punch or by hitting the crankcase half against a wooden block until the bearing falls out of its seating.



Dismantle the sealing rings.

Press out the ignition side's sealing ring using a punch.

Let the circlip between the bearing and sealing ring remain in the crankcase half.

Press out the sealing ring from the clutch side's crankcase half.

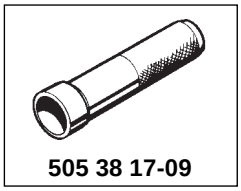
Assembling the crankcase

Model 122

Clean all components.

Inspect the crankshaft with regard to wear and damage.

Fit new sealing rings in the crankcase halves.



505 38 17-09

Assembling the crankcase

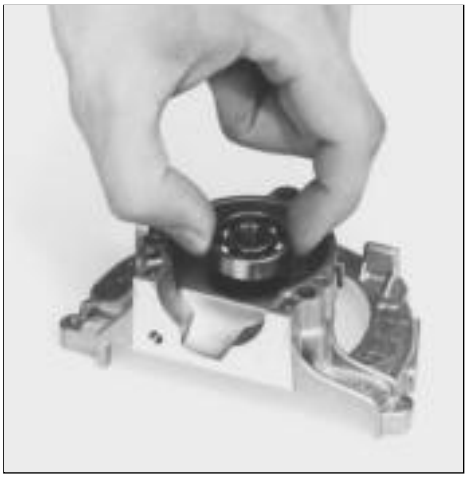
Model 122

Clean all components.

Check the crankshaft according to section "Inspecting the crankshaft".

Fit new sealing rings in the crankcase halves using suitable punches, e.g. 505 38 17-09 for the clutch side.

Press in the sealing rings level with the crankcase.

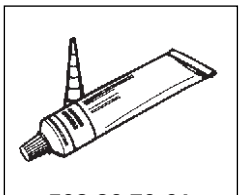


Fit the bearings in the crankcase halves.

Heat the crankcase halves to about 150°C using a hot air gun and position the bearings.

Make sure they sit against the circlip or the stop in the bearing seat.

Position the crankshaft on the ignition side's crankcase half and apply a thin string of sealant to the contact face.



503 26 70-01

Position the crankshaft on the ignition side's crankcase half.

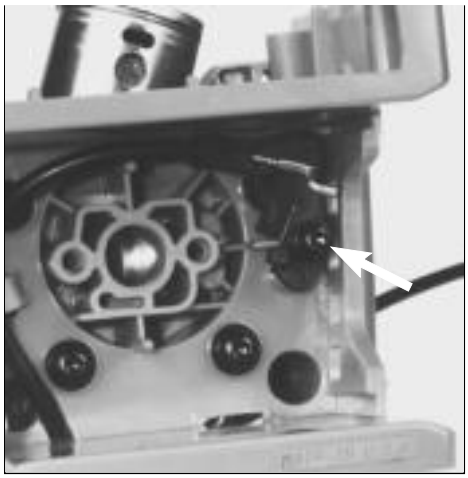
Check that the contact faces on the crankcase halves are free from grease and old gasket residue.

Apply a thin string (1 – 1.5 mm) of sealant 503 26 70-01 on the crankcase halves' contact faces.

Fit the clutch side's crankcase half and tighten the crankcase bolt.

Slide the clutch side's crankcase half over the crankshaft by hand and tighten the 3 crankcase bolts.

Assemble the remaining parts in the reverse order set out for dismantling.



Stripping the crankcase
Model 32

Dismantle all parts so only the crankcase and crankshaft remain.

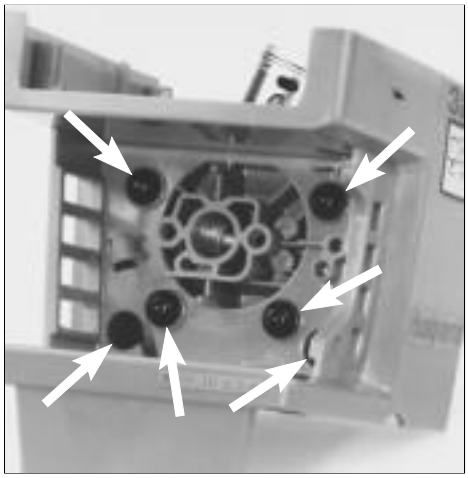
Dismantle the throttle cable and its holder.

Stripping the crankcase
Model 32

Dismantle all parts so only the crankcase and crankshaft remain.

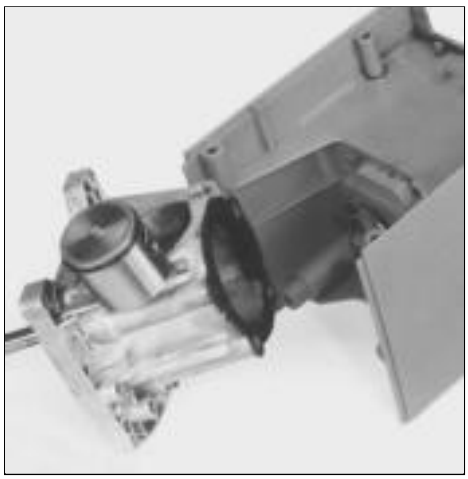
See respective chapters.

Remove the screw and plastic components that hold the throttle so the crankcase bolts are accessible.



Remove the bolts holding the crankcase halves together.

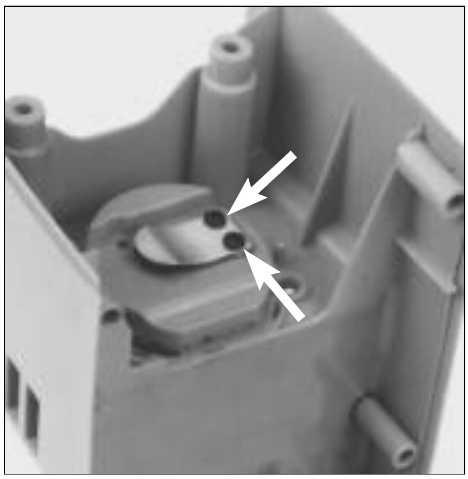
Remove the 6 bolts holding the crankcase halves together.



Carefully separate the halves.

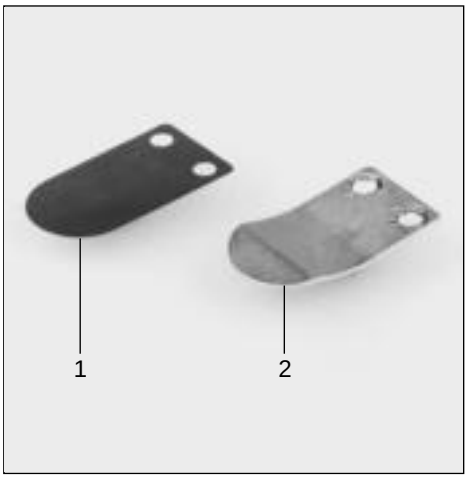
Carefully separate the halves.

Use a screwdriver to facilitate separating as sealant has been used on both sides of the gasket.



Dismantle the intake valve.

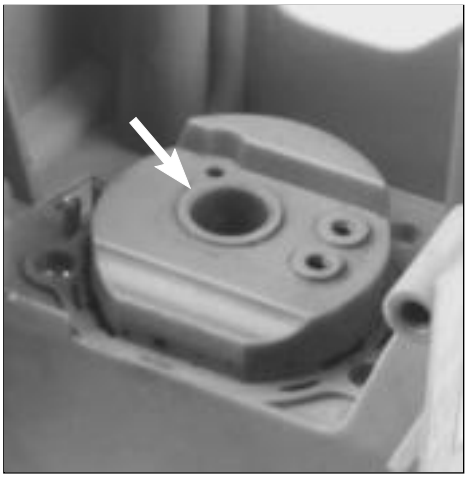
Remove the 2 bolts holding the intake valve.



Check the reed valve (1) and movement limiter (2) with regard to wear and damage.

Inspect the reed valve (1). If it is cracked, worn or shows signs of corrosion it should be replaced.

Also check the movement limiter (2) with regard to wear and damage.



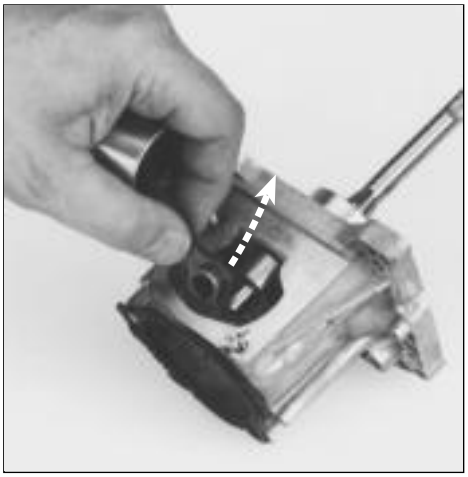
Check the contact face on the intake manifold.

Check the contact face on the intake manifold.

It is extremely important for the engine's low speed characteristics that the reed valve seals correctly against the intake manifold.

NOTE!

Check when assembling that the reed valve is in the centre of the intake manifold.

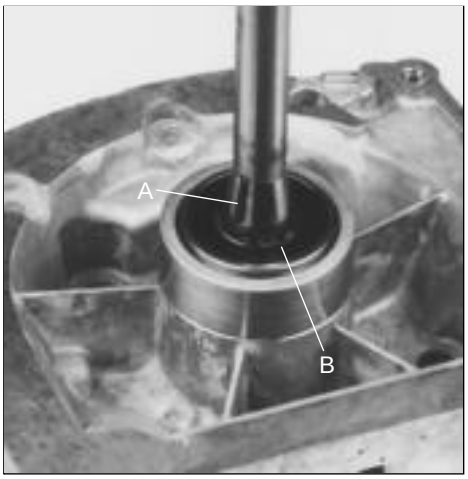


Lift out the connecting rod complete with piston.

Lift out the connecting rod complete with piston.

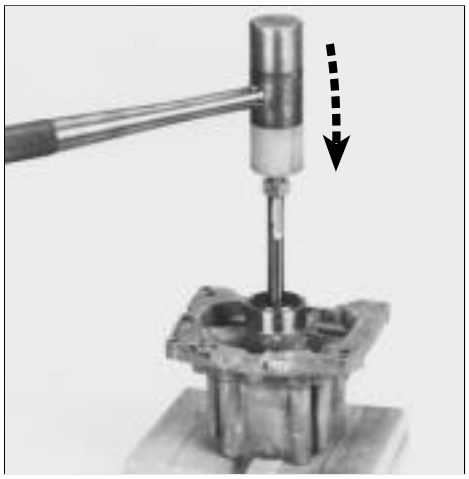
Note which way the connecting rod was facing. The connecting rod bearing with the small insertion spacing should face the crank disc.

Clean off any gasket or sealant residue from the crankcase half.



Remove the key and circlip.

Remove the key (A) using side cutters and the circlip (B).



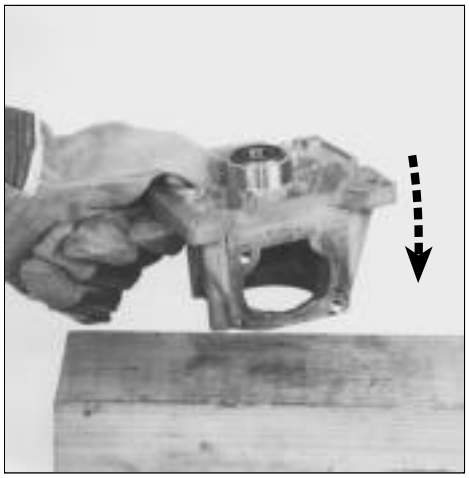
Knock out the crankshaft from the crankcase using a plastic mallet.

Screw on the flywheel nut on the crankshaft and knock out the shaft using a plastic mallet.

Place a block of wood under the crankcase so the crankshaft comes free.

NOTE!

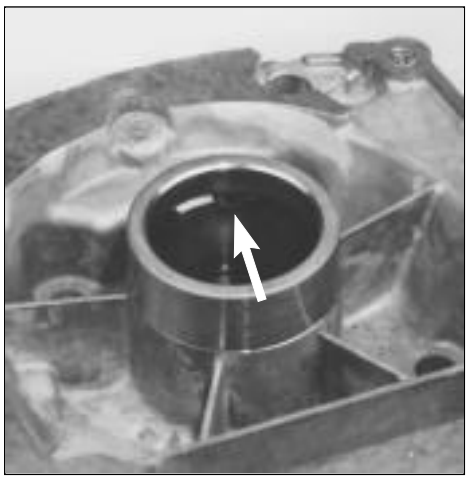
Turn the crankshaft so that the crank disc does not hit the crankcase.



Dismantle the bearing.

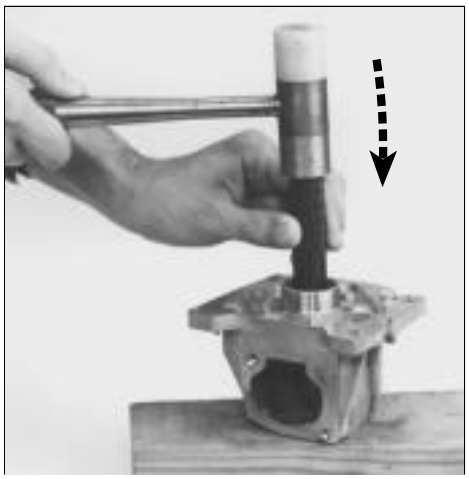
Heat the crankcase to approx. 150°C using a hot air gun and dismantle the bearing by knocking the crankcase against a wooden block.

Use a suitable punch and hammer if necessary.



Dismantle the sealing ring.

Remove the circlip on the ignition side (let the other circlip remain in place) and press out the sealing ring using a punch and hammer.



Assembling the crankcase

Model 32

Fit a new sealing ring in the crankcase.

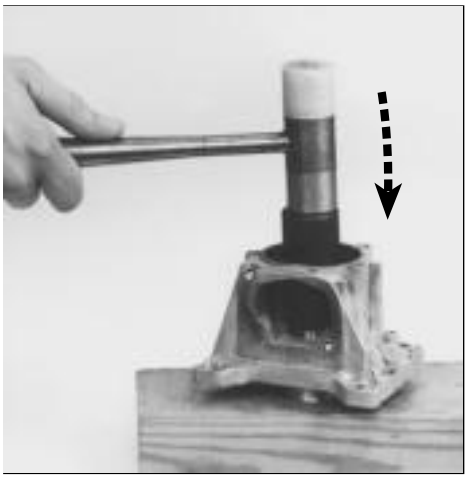
Fit the circlip.

Assembling the crankcase

Model 32

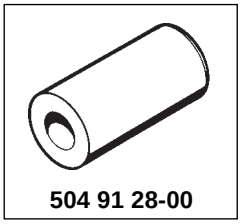
Fit a new sealing ring. Turn it so the scraper edge faces inwards and press it into place against the circlip using a suitable punch and hammer.

Fit the circlip and make sure it sits correctly in its groove.



Heat the crankcase and fit the inner bearing.

Heat the crankcase using a hot air gun to approx. 150°C and position the inner bearing. Adjust if necessary using punch no. 504 91 28-00 so the bearing rests against the circlip.



504 91 28-00

Grease and position the outer bearing.

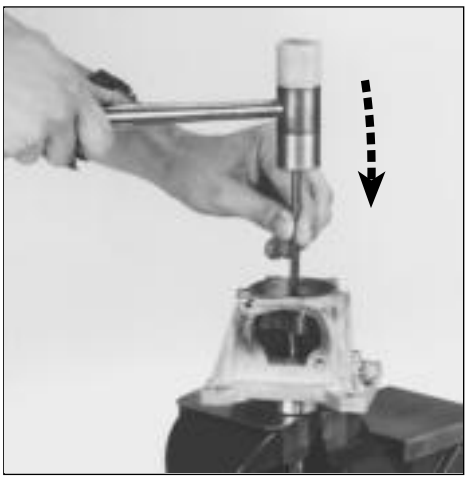
Make sure the dust seal faces outwards.

Turn the crankcase while its still warm and position the outer bearing.

NOTE!

Grease using bearing grease and fit it with the dust seal facing outwards.

Make sure the bearing is sitting against the circlip.



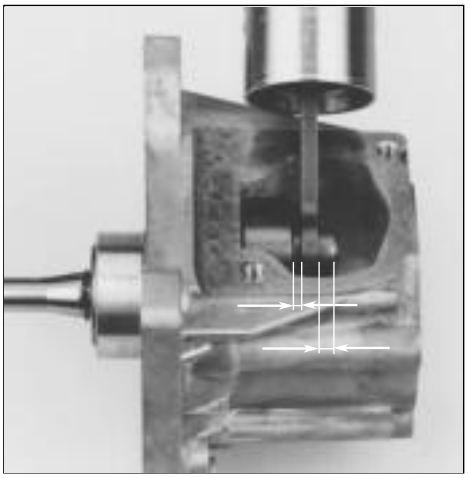
Fit the crankshaft in the crankcase.

Fit the circlip on the crankshaft.

Fit the crankshaft while the crankcase and bearing are still warm.

Press in the crankshaft using a suitable brass punch and hammer.

Check the shaft can rotate freely and fit the circlip on the shaft.



Fit the connecting rod on the crank pin.

Fit the connecting rod on the crank pin.

NOTE!

Turn the connecting rod so it comes as close to the bearing as possible.

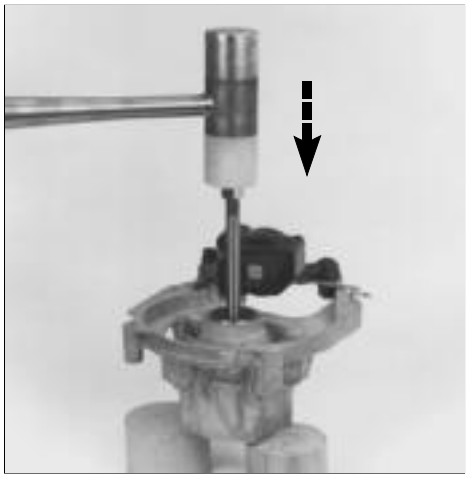
Assemble the remaining components in the reverse order set out for dismantling.

Stripping the crankcase

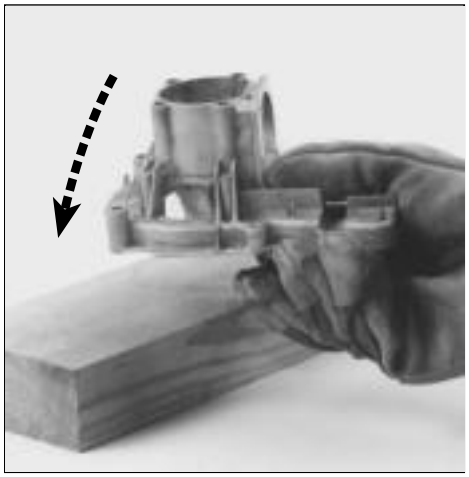
Model Mondo

Dismantle all parts so only the crankcase and crankshaft remain.

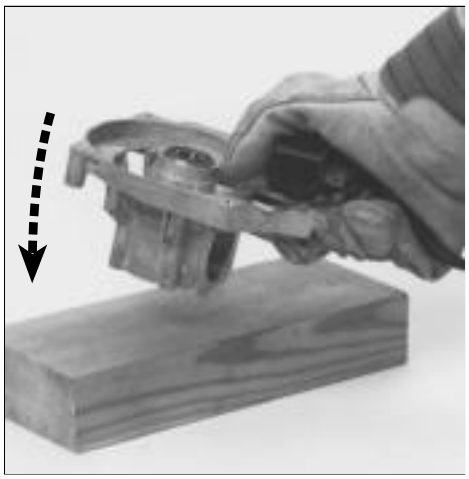
Remove circlip (A).



Knock the crankshaft out of the crankcase using a plastic mallet.



Dismantle the bearing on the ignition side.



Dismantle the other bearing *inwards.*

Stripping the crankcase

Model Mondo

Dismantle all parts so only the crankcase and crankshaft remain.

See respective chapters.

Remove circlip (A).

Screw the flywheel nut on the crankshaft and knock out the shaft using a plastic mallet.

Heat the crankcase to approx. 150°C and dismantle the bearing on the ignition side by knocking the crankcase against a wooden block.

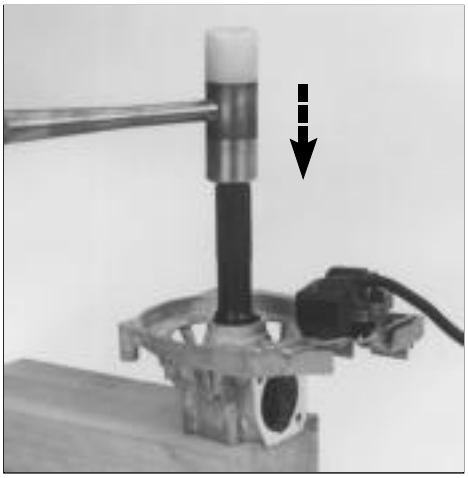
Dismantle the other bearing *inwards.*

You may need to knock out the bearing using a punch.

Dismantle the circlip on the ignition side and knock out the sealing ring.

Dismantle the circlip on the ignition side, but let the circlip on the other side of the sealing ring remain in place.

Knock out the sealing ring using a suitable punch and hammer.



Assembling the crankcase

Model Mondo

Fit a new sealing ring in the crankcase.

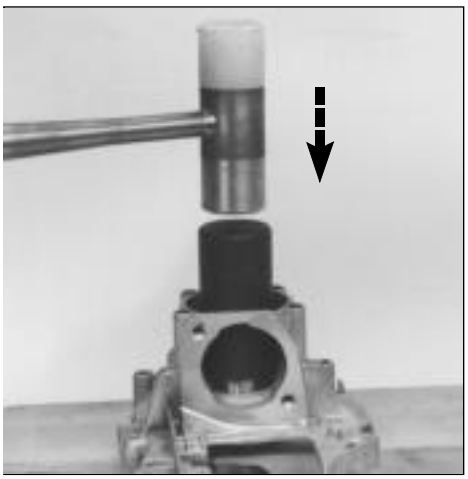
Fit the circlip.

Assembling the crankcase

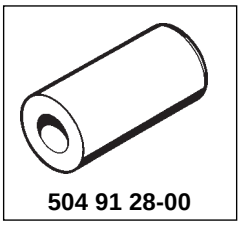
Model Mondo

Fit a new sealing ring in the crankcase. Turn it so the scraper edge faces inwards.

Fit the circlip and make sure it sits correctly in its groove.



Grease and fit the bearing in the crankcase.



504 91 28-00

Lubricate the bearing with grease.

Carefully heat the crankcase and fit the bearing in the crankcase.

Use punch no. 504 91 28-00 to press the bearing level with the crankcase.

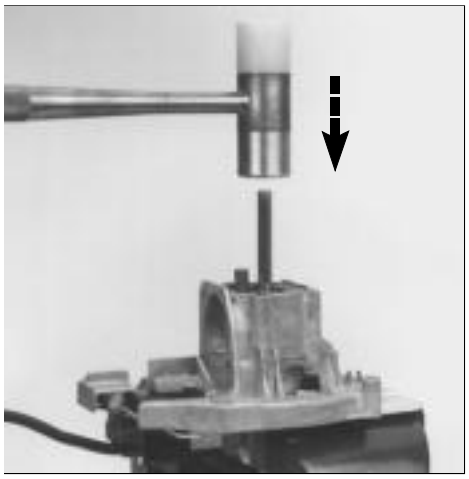
Grease and fit the dust sealed bearing while the crankcase is still warm.

Grease the dust sealed bearing and position it while the crankcase is still warm.

NOTE!

The dust sealed side of the bearing should face outwards.

Make sure the bearing rests against the circlip.



Fit the crankshaft in the crankcase.

Lubricate the crankshaft with a few drops of oil and slide it in the bearing.

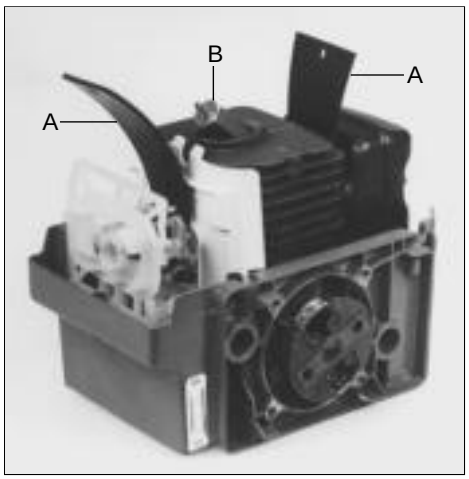
Use a hammer and suitable punch to press the shaft down towards bearing.

Check that the crankshaft can rotate freely and fit the circlip.

Check that the crankshaft can rotate freely.

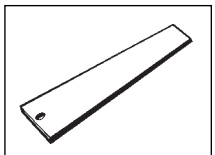
Lightly knock the shaft extension with a plastic hammer until the crankshaft rotates freely.

Fit the circlip and the remaining components in the reverse order set out for dismantling.

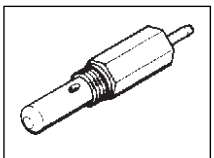


Leakage testing the crankcase

Fit the two sealing plates (A) and test pressure nipple (B).



502 54 11-01



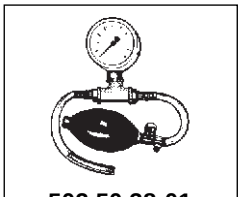
503 84 40-01

Leakage testing the crankcase

Fit a sealing plate (A) no. 502 54 11-01 between the carburettor and the intake manifold and a plate between the cylinder and the muffler.

Fit the test pressure nipple (B) no. 503 84 40-01 in the spark plug hole.

Connect the pressure gauge and check for leakage.



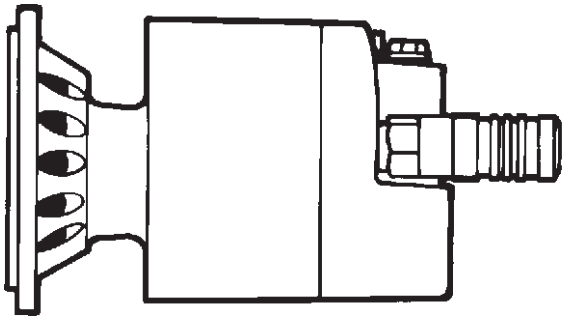
502 50 38-01

Connect the pressure gauge no. 502 50 38-01 to the nipple and pump up the pressure in the crankcase to 80 kPa (0.8 kp/cm^2).

Max. permitted leakage: 20 kPa (0.2 kp/cm^2) per 30 seconds.

Hydraulic unit

8.



Contents

Hydraulic unit

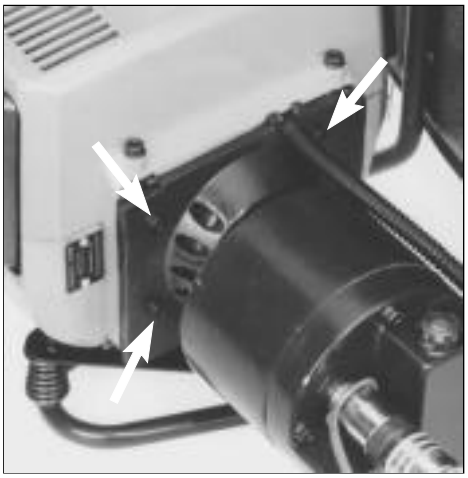
Hydraulics are an excellent solution to provide a long and flexible power transfer between the engine and cutting equipment.

This has been utilised on model 235P, which is intended for tree pruning. The power from the combustion engine is transferred to a hydraulic pump via a centrifugal clutch and from the pump to the cutting equipment via a flexible hydraulic hose.

NOTE!

The hydraulic pressure is very high and demands immense caution if connections leak. Replace the seals and tighten the connections immediately once a leakage has been discovered.

Cleanliness is extremely important with all work concerning the hydraulic system.



Hydraulic pump

Dismantling, assembling
Model 235P

Remove the bolts and lift off the hydraulic pump.

Drain the hydraulic oil.

Hydraulic pump

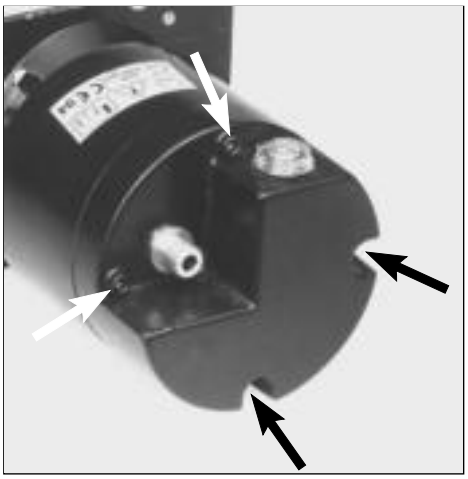
Dismantling, assembling
Model 235P

The hydraulic pump can be lifted off of the engine once the 4 bolts holding the pump on the crankcase have been removed.

Remove the refill plug and drain the hydraulic oil.

Unscrew the quick connector from the hydraulic hose.

Unscrew the quick connector from the hydraulic hose. (21 mm spanner).

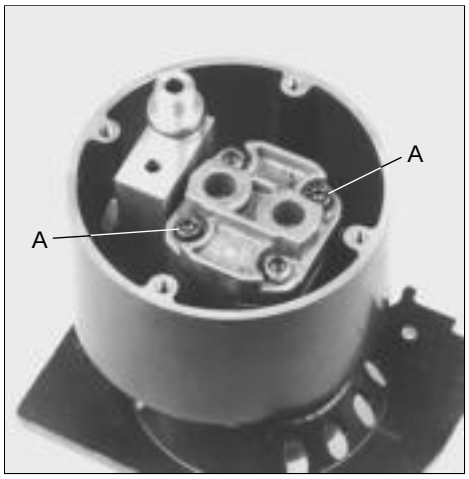


Remove the screws and cover from the hydraulic pump.

Remove the 4 screws holding the cover on the hydraulic pump.

Make sure the pump rests on the engine connection flange and carefully lift off the cover with a rocking action so that any remaining oil does not run out.

Remove the gasket between the cover and tank.



Loosen the screws (A) and lift up the hydraulic pump and control valve.

Loosen the screws (A) and lift up the hydraulic pump and control valve.

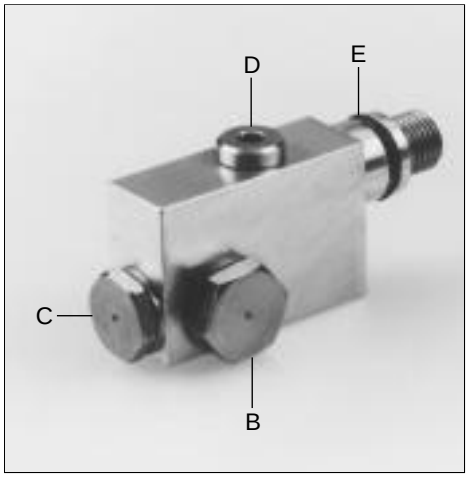
NOTE!

There is a gasket between the pump and tank.

Dismantle the control valve from the pump housing. Note how it is mounted.

Mark on the pump housing where the control valve was mounted. Also note which way the control valve is facing so it is fitted in the same position when reassembled.

Remove the bolt (B), the control valve and the sealing washer.



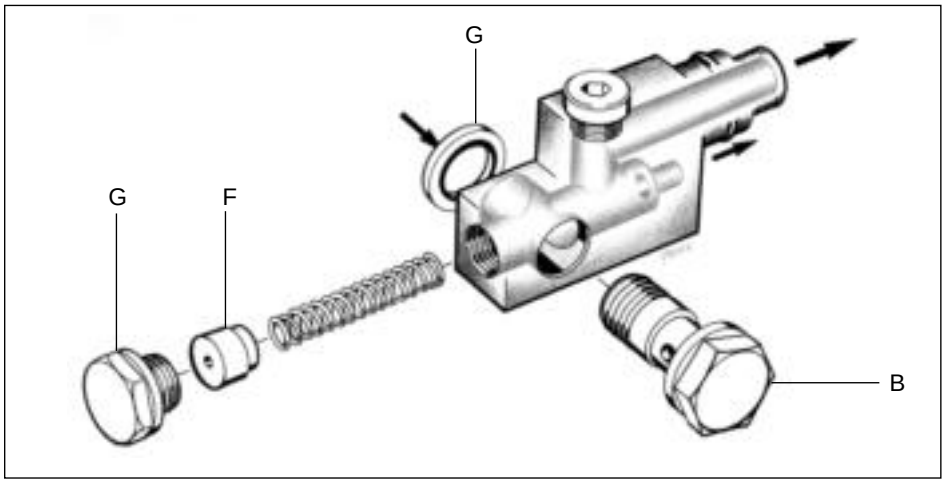
Remove the bolt (B), and the plugs (C) and (D) to make it easier to clean the valve block.

Remove the plug (C) and bolt (B).

NOTE!

A piston presses against bolt (B) by means of a spring (see illustration below). Remove the plug (D) as well to make it easier to clean the valve block.

Replace the O-ring (E).



Clean and inspect all components in the valve block and assemble in the reverse order set out for dismantling.

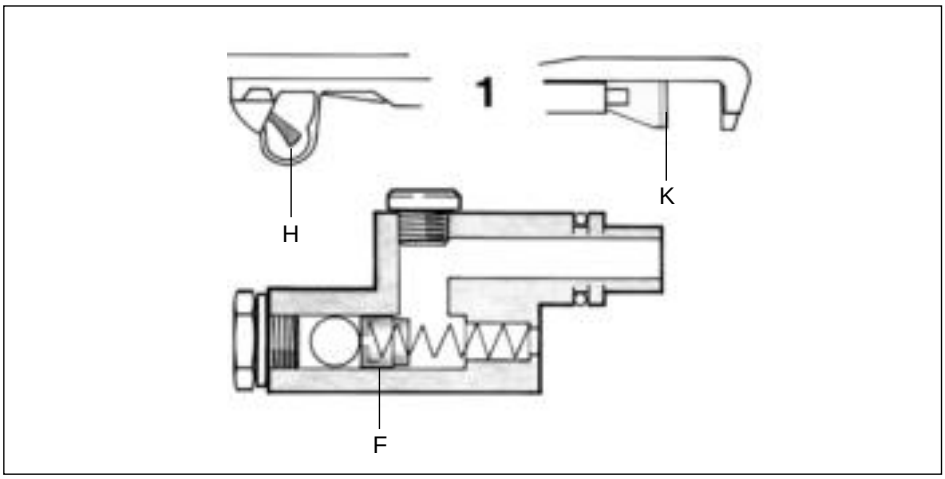
Check the piston (F). If it is scratched or scored it should be replaced with the valve block.

Press in the piston using a small screwdriver when the bolt (B) is fitted.

In the event of wear or damage to the hydraulic pump this must be replaced with a new one. Assemble all components in the reverse order set out for dismantling.

The washers (G) are special hydraulic sealing washers with a V shaped rubber ring as a seal.

It is extremely important that these washers seal correctly.



Control valve operation

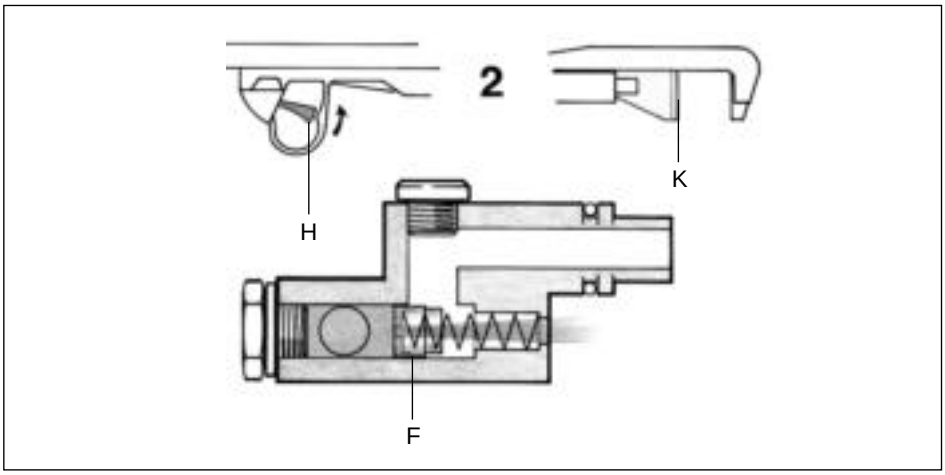
Model 235 P

Throttle (H) in the idling position.

No hydraulic oil flows through the control valve.

Piston (F) in the rest position.

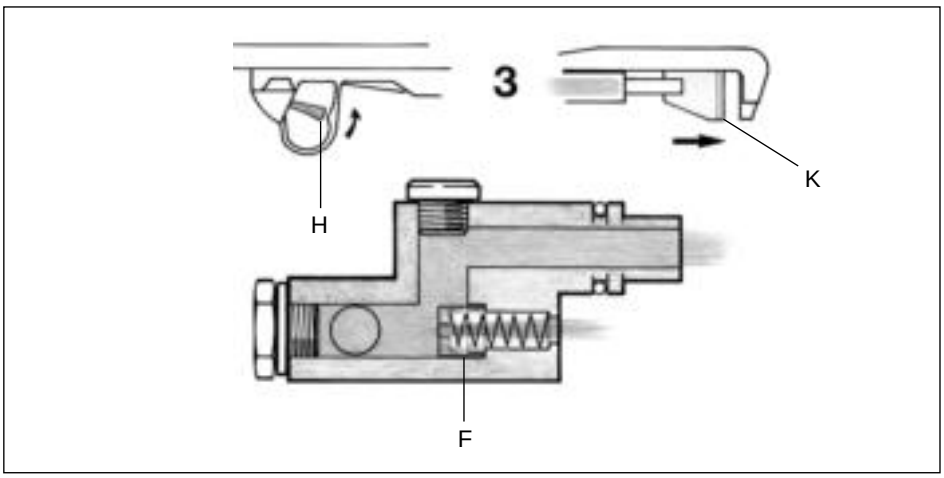
Pressure blade (K) in the open position.



Throttle (H) at full throttle.

The hydraulic oil flows through the control valve. In the first stage the oil is forced through the overflow hole in the piston (F) which starts to move once the spring pressure is counteracted.

Pressure blade (K) in the open position.



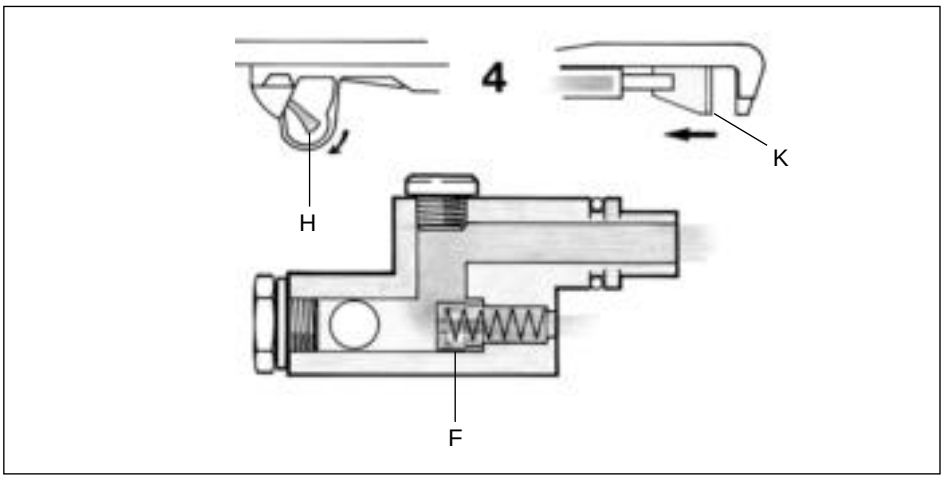
Throttle (H) at full throttle.

Full hydraulic oil flow through the control valve.

Piston (F) is forced back completely by the oil pressure.

The outlet channel to the pressure blade is fully open.

The pressure blade (K) is rapidly forced towards its stop.



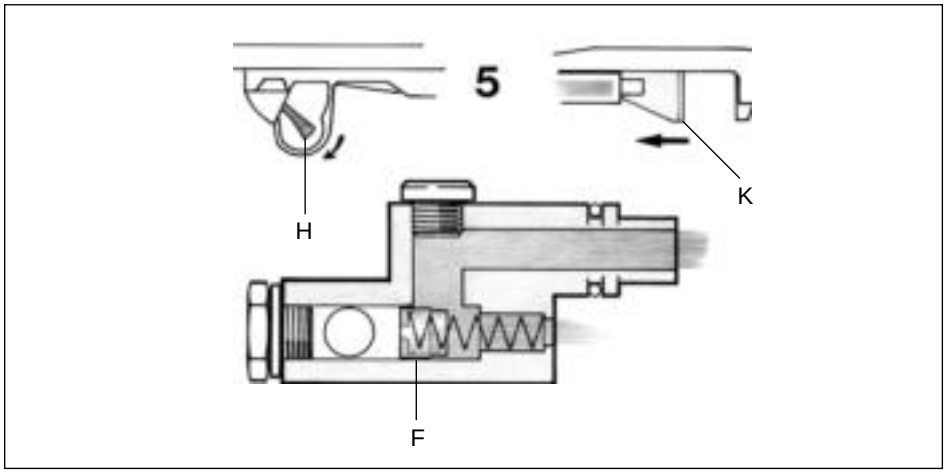
The throttle (H) is released and returns to the idling position.

The hydraulic oil flow from the pump ceases.

The oil pressure in the hose to the pressure blade reduces immediately.

The oil flow returns through the hose and passes through the overflow hole in the piston (F).

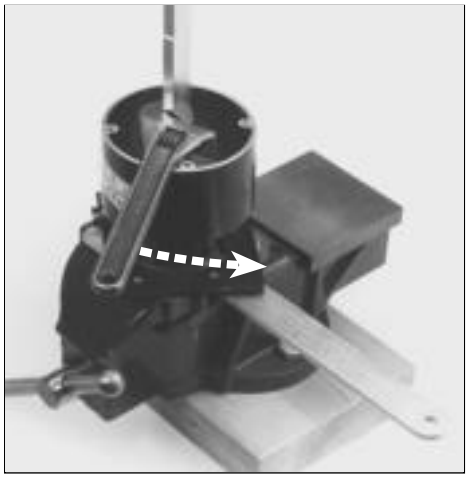
The pressure blade (K) is pulled quickly to the open position by the integrated spring.



The throttle (H) in the idling position.

The piston (F) is pressed back by the spring, and the oil channel for the pressure blade is fully open. Oil in the hose flows quickly back into the pump housing.

Pressure blade (K) in fully open position.

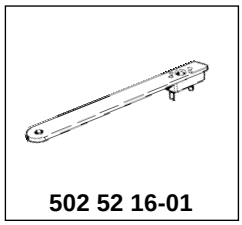


Replacing the clutch drum and bearing

Model 235P

Dismantle the hydraulic pump and control valve.

Lock the clutch drum and loosen the pump drive screw.



502 52 16-01

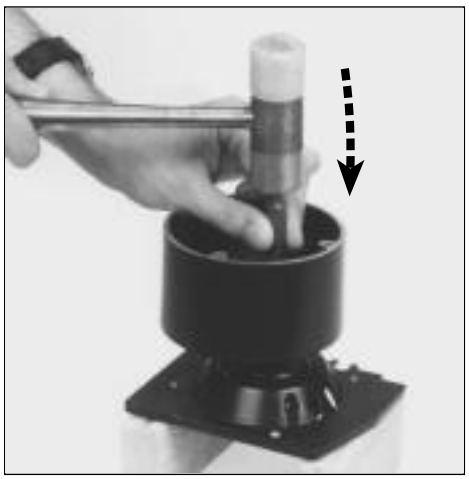
Replacing the clutch drum and bearing

Model 235P

Dismantle the hydraulic pump and control valve as described above.

Lock the clutch drum using tool no. 502 52 16-01 in a vice.

Loosen the pump drive screw using a large screwdriver or suitable flat bar.



Press out the clutch drum.

Press out the clutch drum from the bearing using a suitable punch.

Remove the circlip and heat the pump housing.

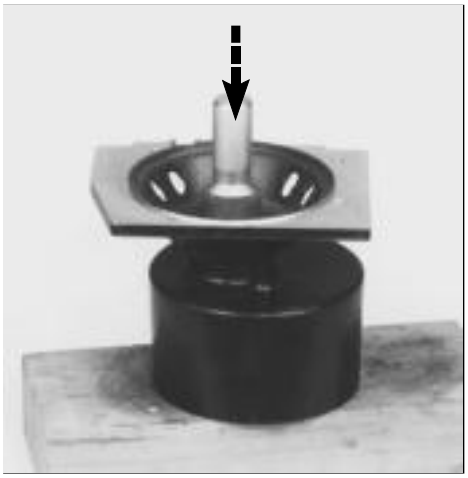
Remove the circlip using circlip pliers.

Heat the pump housing using a hot air gun to approx. 150°C.

Dismantle the bearing.

Knock the pump housing against a wooden block so the bearing falls out.

Alternatively, press out the bearing using a punch and hammer.



Fit a new bearing.

Fit the circlip and other components.

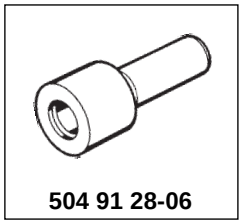
Position the new bearing making sure it sits correctly in its seating. Use punch 504 91 28-06.

Fit the circlip and other components in the reverse order set out for dismantling.

NOTE!

Do not forget to fill with new hydraulic oil until the level is visible in the refill hole.

Use an oil of the quality ISO VG 32 at an air temperature under +20°C and ISO VG 45 at an air temperature over +20°C.



504 91 28-06

Capacity test

Model 235P

Test run the unit under varying loads for about 5 minutes so the oil becomes warm.

Connect the adapter and pressure gauge.

Check the oil pressure. It should be min. 90 bar (9 MPa).

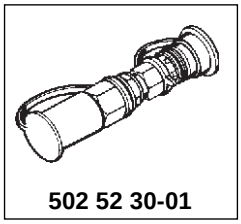
Capacity test

Model 235P

The capacity of the hydraulic pump is tested as follows:

Test run the unit with the pruner attachment with varying loads for about 5 minutes so the oil becomes warm.

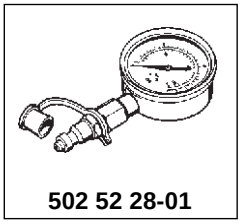
Now fit adapter 502 52 30-01 and pressure gauge 502 52 28-01.



502 52 30-01

Check the oil pressure under load. It should be min. 90 bar (9 MPa).

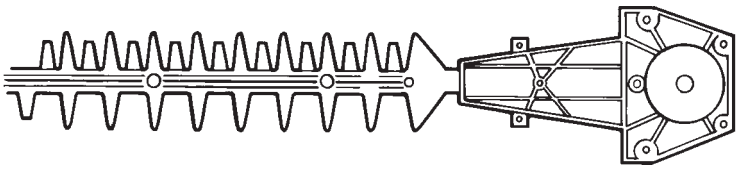
If the pressure is lower, this can be due to leakage or internal pump wear. If this is the case replace the pump.



502 52 28-01

Cutting equipment

9.



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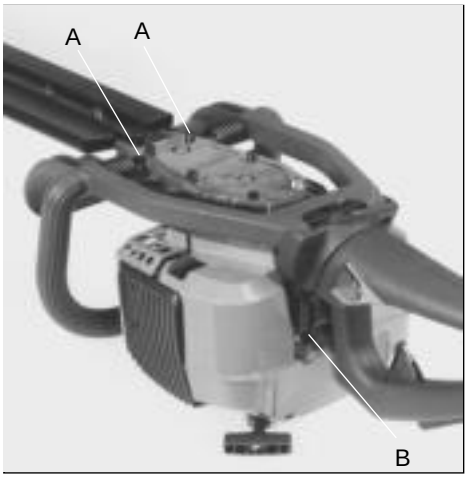
Cutting equipment

The condition of the cutting equipment is extremely important, no only for the clearing capacity but also for the quality of the cut. This is especially true for the pruner 235P when used, e.g. to prune fruit trees and ornamental plants.

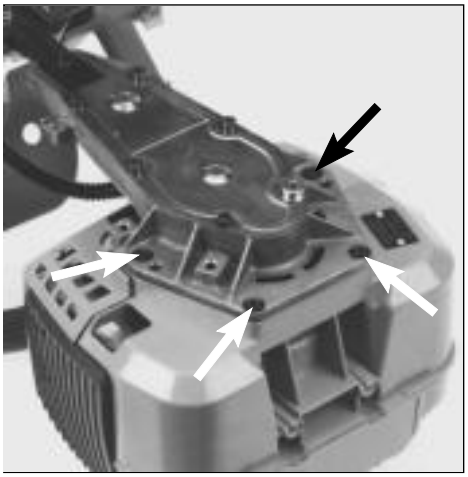
To meet these requirements service and maintenance of the cutting equipment plays a significant part. Well-sharpened and true blades are a prerequisite for a good cutting result.



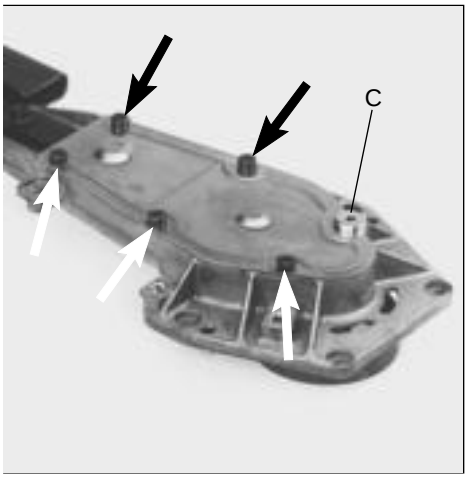
Dismantling the gearbox

Model 225 H60/H75

Separate the engine and the cutting equipment.



Dismantle the cutting equipment from the engine.



Remove the bolts and the grease refill plug.

Lift off the cover.

Dismantling the gearbox

Model 225 H60/H75

Separate the engine and the cutting equipment as follows:

Remove the 4 bolts (A) and (B) by the vibration dampers to remove the handle assembly.

⚠ **WARNING!**

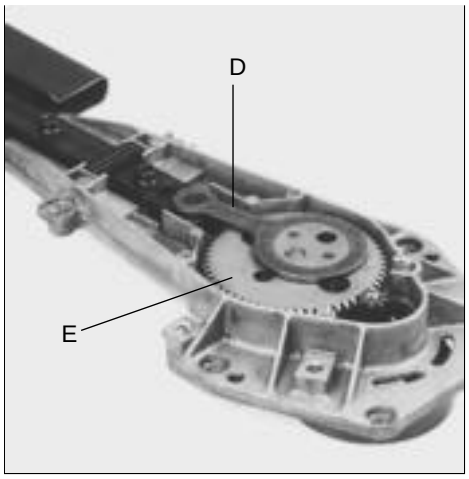
The transport guard should always be fitted when working on the cutting equipment to avoid cutting your hands.

Remove the bolts holding the clutch cover on the crankcase.

Lift off the clutch cover complete with the cutting equipment.

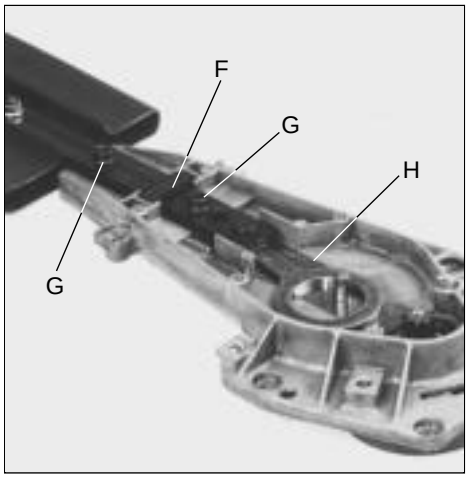
Remove the 4 allen bolts and the grease refill plug (C).

Lift of the gearbox cover.



Lift out the connecting rod and the gear wheel.

Lift out the connecting rod (D) and the gear wheel (E).

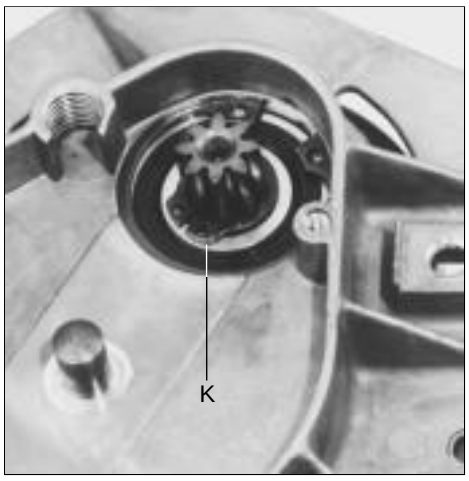


Remove the blades, connecting rod and protective plate.

Remove the seal (F) and both bolts (G) that hold the cutting equipment on the gearbox.

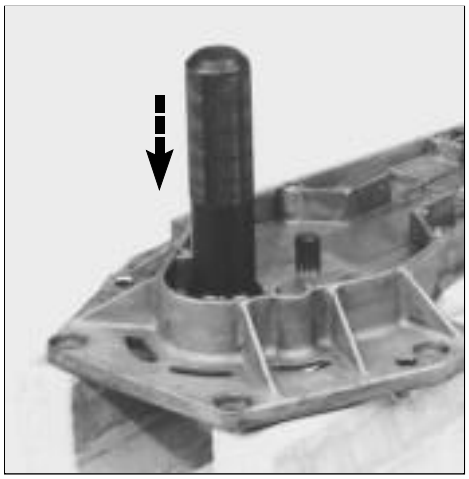
Remove the blades, connecting rod and protective plate (H).

Note which way the protective plate faces so it can be reassembled in the same way.



Dismantle the clutch drum.

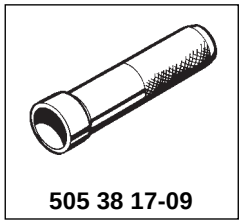
Remove the circlip (K) and press out the clutch drum using a punch and hammer.



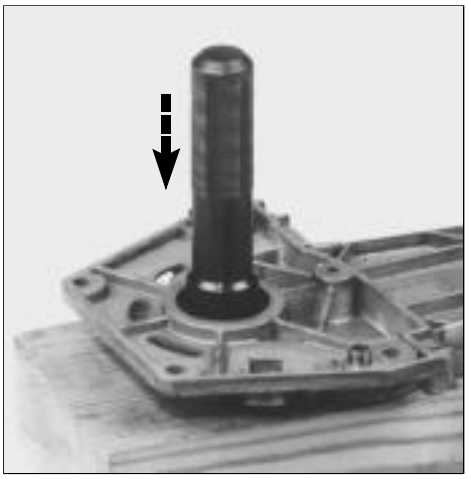
Dismantle the bearing.

Heat the gearbox to about 150°C by using a hot air gun and dismantle the bearing using punch no. 505 38 17-09.

Do not remove the circlip.

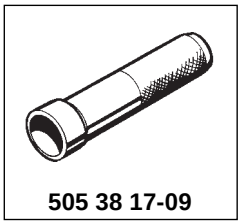


505 38 17-09



Assembling the gearbox

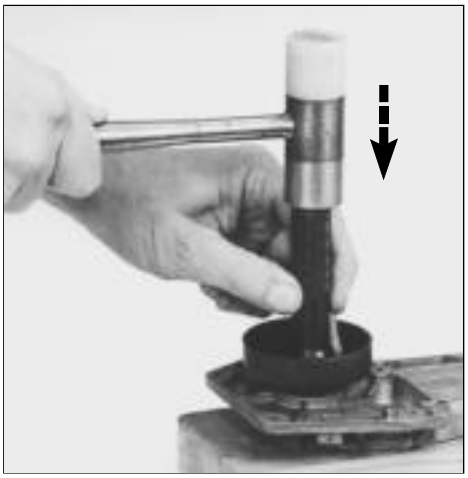
Heat the gearbox and fit the bearing against the circlip.



505 38 17-09

Assembling the gearbox

Heat the gearbox to about 150°C by using a hot air gun and position the bearing. Use punch no. 505 38 17-09 to press the bearing against the circlip.



Fit the clutch drum and the remaining components in the reverse order set out for dismantling.

Fit the clutch drum while the bearing is still warm.

Fit the circlip and the remaining components in the reverse order set out for dismantling.

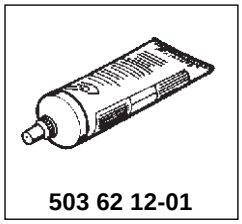
NOTE!

Fit the gear wheel with bevelled edge facing upwards.

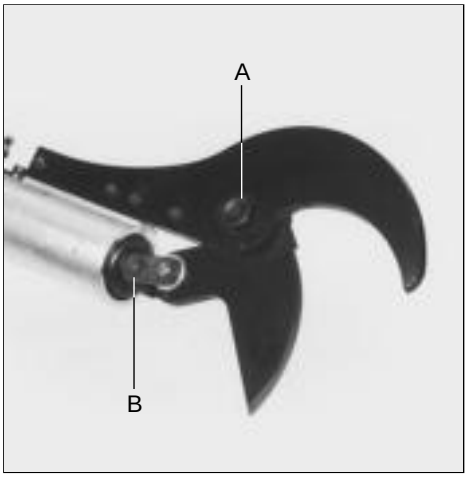
The X punched on the connecting rods should face each other.

Tighten the bolts for the blades so they butt against the spacer.

Do not forget to fill the gearbox with grease.



503 62 12-01



Replacing the scissor blade

Model 235P

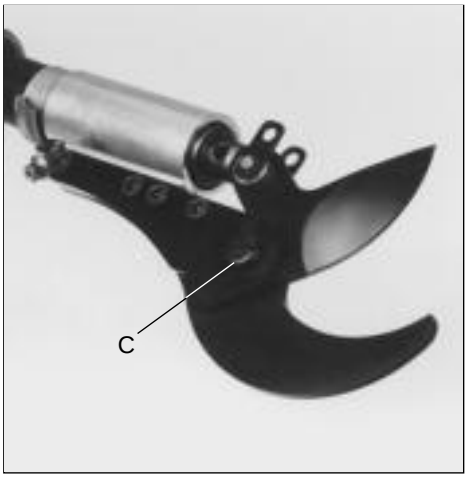
Remove the nut, circlip and bearing pin.

Replacing the scissor blade

Model 235P

Remove the nut (A) and circlip (B). Hold your thumb over the circlip so it does not fly away.

Remove the bearing pin.



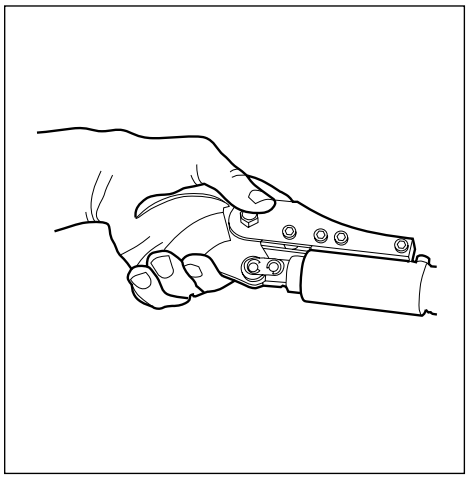
Remove the bolt and bearing sleeve and the moving blade.

Grind or replace the blade and reassemble in the reverse order set out for dismantling.

Remove the bolt (C) with its bearing sleeve.

Remove the moving blade for grinding or replacement.

Reassemble in the reverse order set out for dismantling.

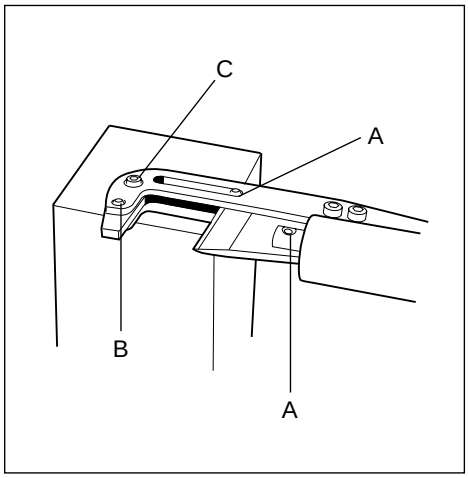


Ensure the moving blade can move unimpeded when the pruner is squeezed together by hand.

It should move to the open position under its own force.

Ensure the moving blade can move unimpeded when the pruner is squeezed together by hand.

It should move to the open position under its own force.



Replacing the pressure blade

Model 235P

Dismantle the spiral pins (A) and (B) and the bolt (C).

Lift off the stop and blade.

Replacing the pressure blade

Model 235P

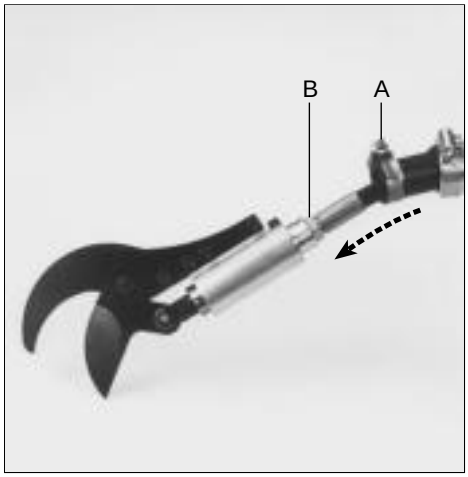
Dismantle the stop by removing bolt (C) and pressing out the spiral pin (B).

Dismantle the pressure blade by pressing out both spiral pins (A).

NOTE!

Put a support under the cutting equipment to avoid deformity.

Assemble in the reverse order set out for dismantling.



Replacing seals in the hydraulic cylinder

Model 235P
Dismantling

Loosen the hose clip.

Pull out the hydraulic hose and loosen it by the cutting equipment.

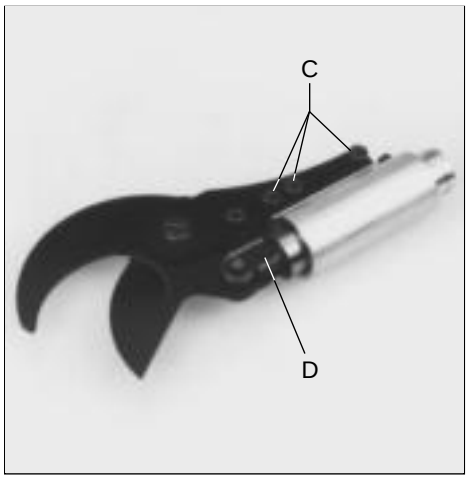
Replacing seals in the hydraulic cylinder

Model 235P
Dismantling

Loosen the hose clip (A) and pull out the entire cutting equipment so the hydraulic hose connector (B) is accessible.

Unscrew the hydraulic hose.

Drain the oil from the hydraulic cylinder.



Remove the 3 bolts (C) and the bearing pin respective spiral pin (D).

Remove the cutting equipment.

Remove the 3 bolts (C) and the bearing pin respective spiral pin (D).

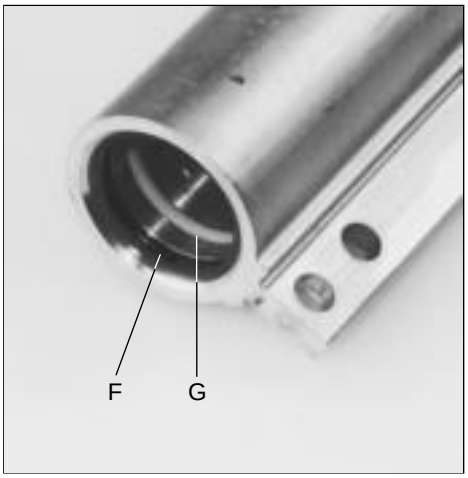
Remove the cutting equipment.

Loosen the screw (E) just enough so the return spring releases.

Make sure the hydraulic piston is fully inserted in the cylinder.

Now loosen the screw (E) just enough so the return spring releases.

Pull the piston out of the cylinder.



Dismantle the sealing ring, slide ring and O-ring.

Carefully pry out the sealing ring (F) from its groove using a small screwdriver and the slide ring (G) (and the underlaying O-ring) with a pointed object.

NOTE!

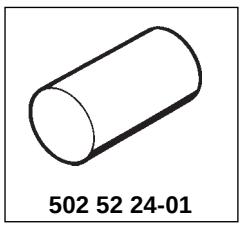
Take immense care so that the hydraulic cylinder's slide surface is not damaged.

Assembling

Clean and check all components with regard to wear and damage.

Replace the piston and cylinder if the slide surfaces are scored.

Fit the O-ring in the groove.



502 52 24-01

Assembling

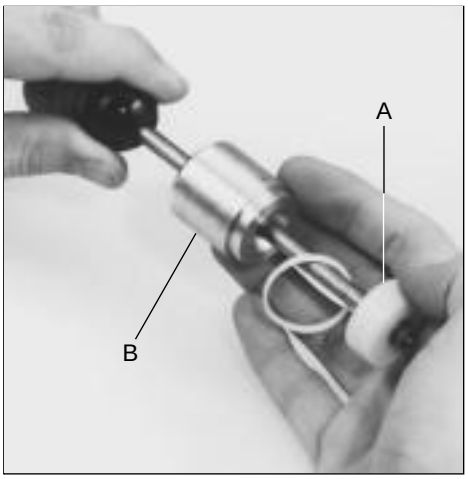
Clean and check all components with regard to wear and damage.

NOTE!

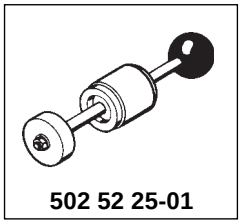
If the piston and cylinder have score marks on the slide surfaces these should be replaced by new components.

Fit the O-ring in the groove.

First slide in the spacer 502 52 24-01 in the cylinder and then press the O-ring in the groove.



Use assembly tool no. 502 52 25-01 to fit a new slide ring.



502 52 25-01

Remove the spacer from the cylinder.

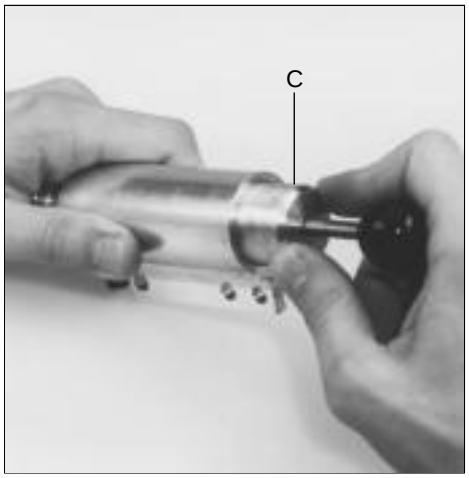
Fit a new slide ring.

Use assembly tool no. 502 52 25-01.

Place the ring loosely on the bar between the punch (A) and stop (B).

Insert the punch and slide ring in the cylinder so that they come under the groove.

Insert the punch and slide ring in the cylinder so that they come under the groove where the previously fitted O-ring is positioned.



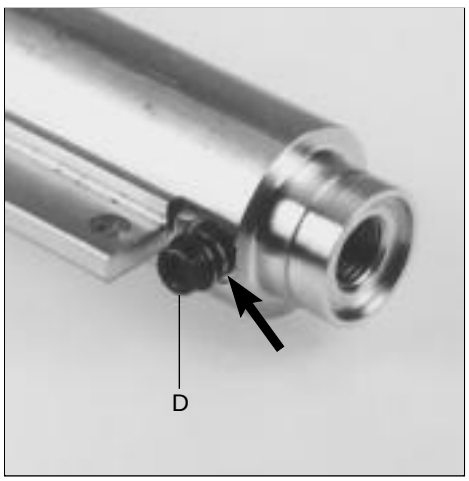
Slide the stop (C) down towards the cylinder and pull the ball on the tool until the slide ring snaps into position.

Slide the stop (C) down towards the cylinder edge.

Now pull the ball on the tool until the slide ring snaps into position.

Fit a new sealing ring and make sure it enters the groove correctly.

Fit a new sealing ring and make sure it enters the groove correctly.



Lubricate the piston and cylinder using hydraulic oil.

Fit the piston in the cylinder and secure the spring to the bottom of the cylinder using bolt (D).

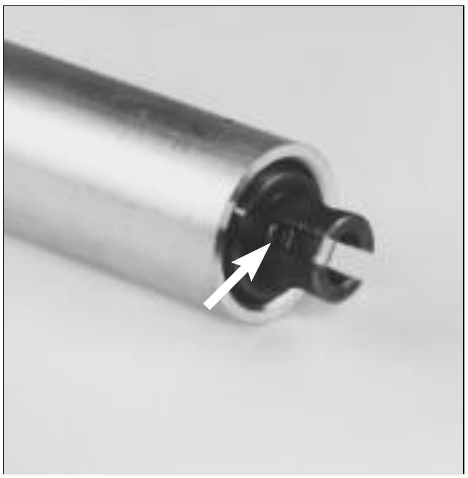
Lubricate the piston and cylinder using hydraulic oil.

Insert the piston and return spring in the cylinder and screw in the bolt (D) through the eye on the spring.

If necessary loosen the screw that holds the spring in position on the piston to facilitate assembly.

NOTE!

Check that the sealing washer under screw (D) is in position and undamaged.



Check that the screw holding the return spring is tensioned.

Fit the cutting equipment and the hydraulic hose in the reverse order set out for dismantling.

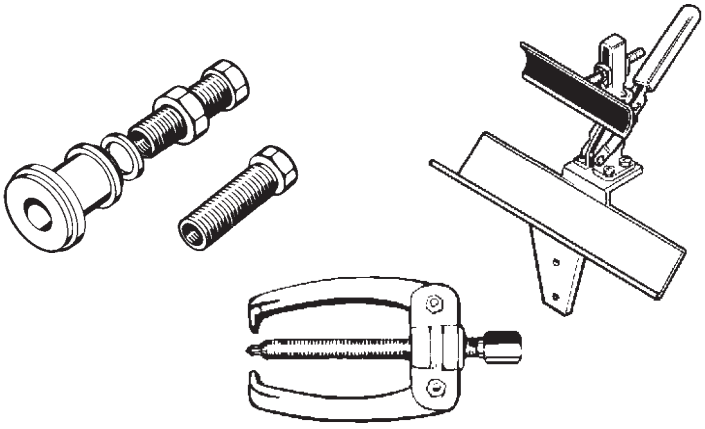
Tighten the screw holding the spring on the piston if it was loosened earlier to facilitate assembly.

Fit the cutting equipment and the hydraulic hose in the reverse order set out for dismantling.

Check that the sealing washer on the hose connector is not damaged. Fit with a new if necessary.

Tools

10.



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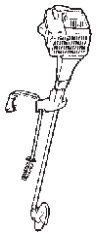
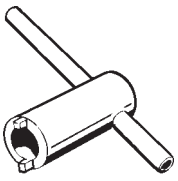
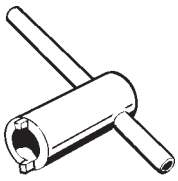
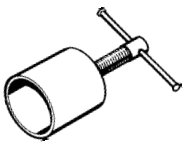
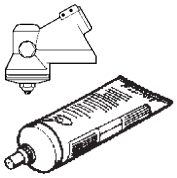
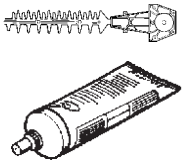
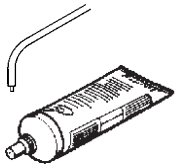
	Angle gear, gearbox					
Model	 502 51 11-01	 502 51 68-01	 502 50 65-01	 502 51 27-01	 503 62 12-01	 503 80 17-01
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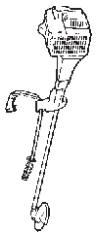
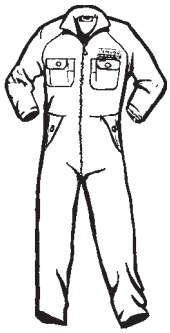
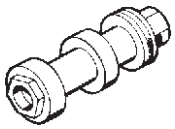
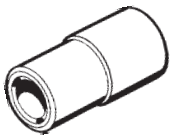
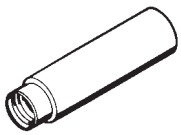
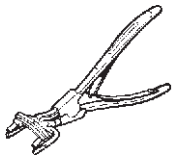
250	●		●	●		
240/245			●	●		
225/232/235				●		
240RBD				●		●
122				●		
32				●		
Mondo						●
235P						
225 H60/H75					●	

	Angle gear, gearbox		Centrifugal clutch			
Model	 502 52 17-01	 502 52 15-01	 502 52 16-01	 505 26 79-12	 502 50 49-01	Size S: 101 64 23-48 M: 101 64 23-50 L: 101 64 23-52 XL: 101 64 23-54 XXL: 101 64 23-56
265					●	●
250	●	●	●	●		●
240/245	●	●				●
225/232/235			●			●
240RBD			●			●
122						●
32						●
Mondo						●
235P			●			●
225 H60/H75						●

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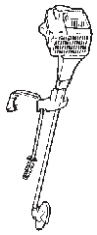
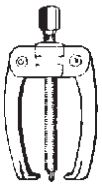
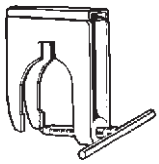
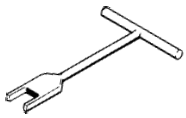
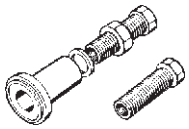
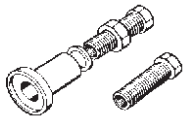
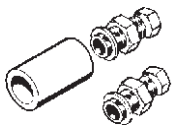
	Bearings	Crankcase	Vibration damper	Crankshaft		
Model			 18 mm			
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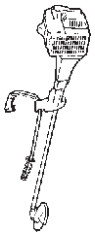
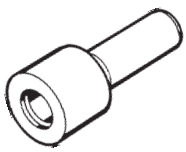
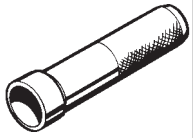
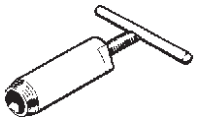
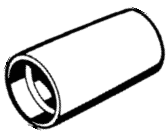
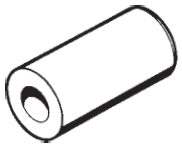
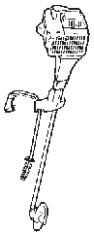
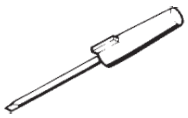
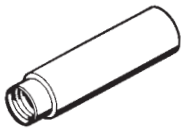
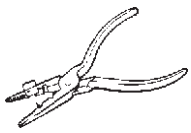
265	●	●				
250		●	●		●	●
240/245	●			●		
225/232/235						
240RBD	●					
122						
32						
Mondo						
235P						
225 H60/H75						

List of tools

	Sealing ring					
Model	 504 91 28-06	 505 38 17-09	 504 91 40-01	 502 50 53-01	 504 91 28-00	
265	●	●	●	●	●	
250	●	●	●		●	
240/245	●	●				
225/232/235						
240RBD						
122		●				
32					●	
Mondo					●	
235P	●					
225 H60/H75		●				

List of tools

	Fuel system			Ignition system		
Model	 502 50 83-01	 501 60 02-02	CARB EPA E-tech  531 00 48-63	 502 51 94-01	 502 71 13-01	 502 50 06-01
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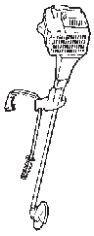
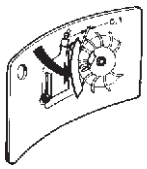
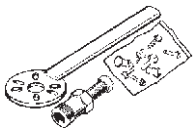
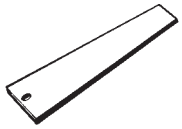
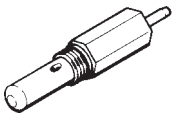
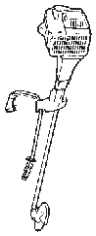
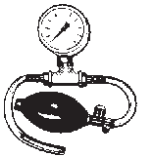
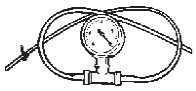
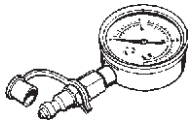
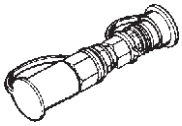
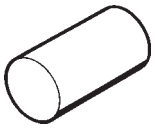
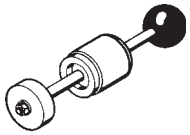
240/245	●	●	●		●	●
225/232/235	●	●	●	●	●	●
240RBD	●	●	●		●	●
122	●	●			●	●
32	●	●	●		●	●
Mondo	●	●	●		●	●
235P	●	●	●		●	●
225 H60/H75	●	●	●		●	●

	Ignition system				Leakage testing	
Model	 502 51 34-02	 531 00 48-61	 531 00 48-62	 502 51 49-01	 502 54 11-01	 503 84 40-01
265	●			●	●	●
250	●				●	●
240/245	●				●	●
225/232/235	●				●	●
240RBD	●				●	●
122		●	●		●	●
32	●				●	●
Mondo	●				●	●
235P	●				●	●
225 H60/H75	●				●	●

List of tools

	Leakage testing		Hydraulic unit		Cutting equipment	
Model	 502 50 38-01	 502 50 37-01	 502 52 28-01	 502 52 30-01	 502 52 26-01	 502 52 27-01
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250	●	●				
240/245	●	●				
225/232/235	●	●				
240RBD	●	●				
122	●	●				
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Mondo	●	●				
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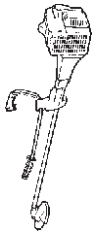
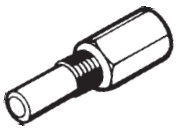
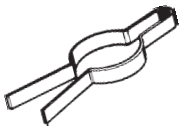
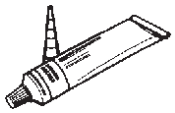
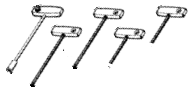
225 H60/H75	●	●				

	Cylinder/piston				Workshop equipment	
Model	 504 91 06-05	 502 50 70-01	 531 00 48-65	 505 38 17-05	 503 26 70-01	 *504 90 00-01–04 + 505 38 13-08 =* 504 90 00-06
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250	●			●		
240/245	●			●	●	
225/232/235	●			●	●	
240RBD	●			●	●	
122		●	●	●	●	
32	●	●		●		
Mondo	●			●	●	
235P	●				●	
225 H60/H75	●				●	

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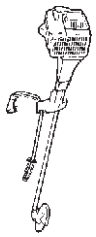
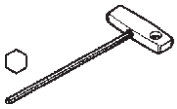
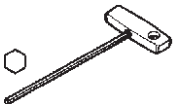
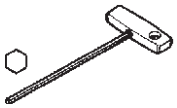
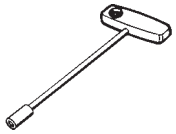
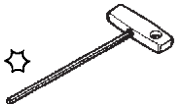
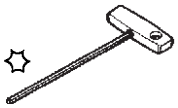
	Workshop equipment					
Model	 4 mm 504 90 00-02	 5 mm 504 90 00-03	 6 mm 504 90 00-01	 8 mm 505 38 13-08	 25 x 150 502 71 27-01	 30 x 200 502 71 31-01
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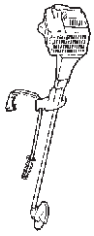
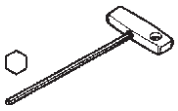
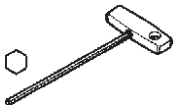
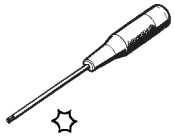
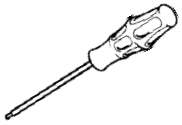
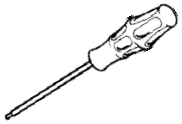
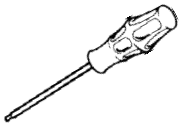
250						
240/245						
225/232/235						
240RBD						
122						
32						
Mondo						
235P						
225 H60/H75						

	Workshop equipment					
Model	 3/16"	 3 mm		 M6	 M5	 M4
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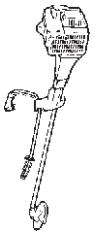
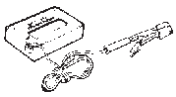
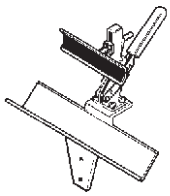
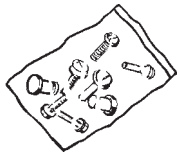
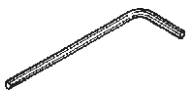
265						
250						
240/245						
225/232/235						
240RBD						
122						
32	●					
Mondo	●					
235P						
225 H60/H75						

List of tools

	Workshop equipment					
Model	 502 02 61-02	Degreasing agent  505 69 85-70	 502 71 14-01	 502 51 03-01	 502 51 54-01	 502 21 58-01
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250		●	●	●		●
240/245		●	●	●		
225/232/235		●	●	●		
240RBD		●	●	●		
122	●	●	●	●		
32		●	●	●		
Mondo		●	●	●		
235P		●	●	●		
225 H60/H75		●	●			

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