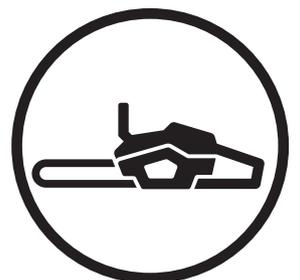




Workshop Manual
GZ3500T



English

Workshop Manual

GZ3500T

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Husqvarna AB has a policy of continuous product development and therefore reserves the right to modify the design and appearance of products without prior notice.

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2 Introduction and safety regulations

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2 Introduction and safety regulations

2.1 General information

This Workshop Manual provides a comprehensive description of how to trouble shoot, repair and test the chain saw. A description of different safety measures that should be taken during repair work is also given.

2.2 Safety

Note! The section dealing with safety must be read and understood by everyone carrying out repairs or service on the chain saw.

Warning symbols can be found in this Workshop Manual and on the chain saw. Refer to "Symbols on the saw" and "Symbols in the Workshop Manual". If any warning symbol on the chain saw has been damaged or is missing, a new one must be fitted as soon as possible in order to achieve the highest degree of safety when using the chain saw.

2.3 Target group

This Workshop Manual is written for personnel who are assumed to have general knowledge of repairing and servicing chain saws.

The Workshop Manual must be read and understood by personnel who will carry out repair work and service on the chain saw. The manual is also suitable to use when training new employees.

2.4 Modifications

Modifications will be successively introduced on the chain saw during production. When these modifications affect service and/or spare parts, a separate service message will be sent out on each occasion. This means that in time this Workshop Manual will become out of date. In order to prevent this, the Manual should be read together with all service messages concerning the chain saw in question.

2.5 Tools

Special tools are required for some stages. All service tools are listed in the Workshop Manual. Usage is evident from the respective section.

Always use Husqvarna's original:

- Spare parts
- Service tools
- Accessories

2.6 Structure

This Workshop Manual can be used in two different ways:

- Repair of a specific system on the chain saw.
- Dismantling and assembly of the entire chain saw.

Repair of a specific system

When a specific system on the chain saw must be repaired, do as follows:

1. Look up the page for the system in question.
2. Carry out the steps: Dismantling
 - Cleaning and checking
 - Assembly

Dismantling and assembly of the entire chain saw

When taking apart and putting back together the whole chain saw, do as follows:

1. Look up the chapter "Repair instructions", which deals with The starter and carry out the instructions listed under the heading Dismantling.
2. Work forward in the Manual and carry out Dismantling in the order set out in the sections.
3. Go back to Starter and carry out the instructions under Cleaning and checking.
4. Work forward in the Manual and carry out Cleaning and checking in the order set out in the sections.
5. Order or take out all requisite spare parts from the stores.
6. Look up the chapter "Repair instructions", which deals with The crankcase and carry out the instructions under Assembly.
7. Work backwards in the Manual and carry out Assembly in the order set out in the sections.

In order to increase the basic understanding, some sections include a Description of the unit in question.

2.7 Numbering

Position references to components inside the figures are designated A, B, etc.

The figures are numbered 1, 2 etc.

The position references and figure numbers restart in each new section.

2.8 General instructions

The workshop where the chain saw is to be repaired must be equipped with safety equipment in accordance with local regulations.

No one may repair the chain saw without having read and understood the contents of this workshop manual.

This workshop manual contains the following boxes in relevant places.



WARNING!
The warning box warns of the risk of personal injury if the instructions are not followed.

NOTE!

This box warns of material damage if the instructions are not followed.

2.9 Special instructions

The fuel used for the chain saw has the following hazardous properties:

- The liquid and its fumes are poisonous.
- Can cause eye and skin irritation.
- Can cause breathing difficulties.
- Is very flammable.

When using compressed air, do not direct the jet towards the body. Air can penetrate into the blood circulation system, which entails mortal danger.

Use hearing protection when test running.

After test running, do not touch the muffler before it has cooled down. Risk of burns. Use protective gloves when working with mufflers.

Do not start the chain saw unless the bar, chain and clutch cover (chain brake) are fitted, otherwise the clutch may come loose and cause personal injury.

Insufficient chain lubrication can result in chain breakage, which can cause serious or even life-threatening injury.

Exercise care to ensure the spring does not fly out and cause personal injury. Use protective goggles. If the spring tension is activated on the starter pulley when it is to be taken up, the spring can fly out and cause personal injury.

Check that the brake is applied when removing the pressure spring on the chain brake. Otherwise the pressure spring can fly out and cause personal injury.

After repairing, check the chain brake, see "Assembling chain brake \ Function check".

Keep in mind the fire risk. The chain saw may emit sparks, which cause ignition.

Check the chain catcher and replace it if it is damaged.

2.10 Symbols on the saw

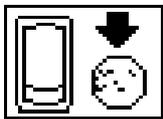
The symbols below are embedded in the chain saw.



Choke control



Refuelling



Stop button



Filling up saw chain oil

2.11 Symbols in the Workshop Manual



This symbol warns of personal injury when the instructions are not followed.

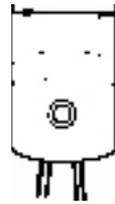
3 Technical data



Displacement
cm³/cubic inch

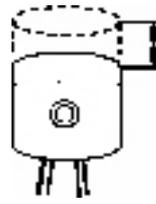
GZ3500T

35.235 / 2.15



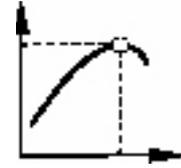
Cylinder diameter
Ømm/Øinch

40 / 1.57



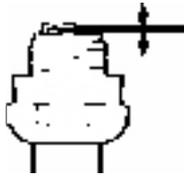
Length of stroke
mm/inches

28 / 1.10



Max. output/speed
kW/hp/rpm

1.5 / 2.0 / 9,500



Electrode gap
mm/inches

GZ3500T

0.5 / 0.02



Ignition system

Ikeda Denso



Air gap
mm/inches

0.3 / 0.012



Carburettor type

Walbro WT 804



Usable cutting length
cm/inch

GZ3500T

30-36/12-14



Chain speed at
max. output - speed
m/s - rpm

19.1 / 9,500



Chain pitch
mm/inches

3/8" / 9.52



Drive links
mm/inches

1.3 / 0.050



Idle speed
rpm



Engage speed
rpm



Spark plug

GZ3500T

2,900

3,800

NGK CMR 7H



Volume fuel tank
Litres/US.pint



Capacity oil pump at
9,500 rpm,
ml/min



Volume oil tank
Litres/US.pint



Automatic oil pump

GZ3500T

0.26 / 0.55

3-9

0.17 / 0.36

No



Weight without bar and chain
kg/lbs



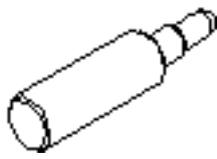
Weight with bar and chain
kg/lbs

GZ3500T

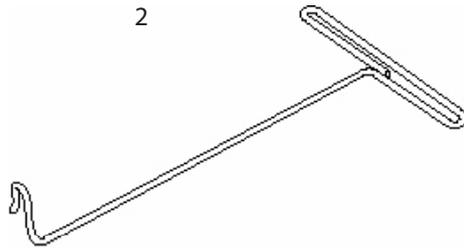
3.4 / 7.50

12": 3.9 / 8.60
14": 4.1 / 9.04

4 Service tools



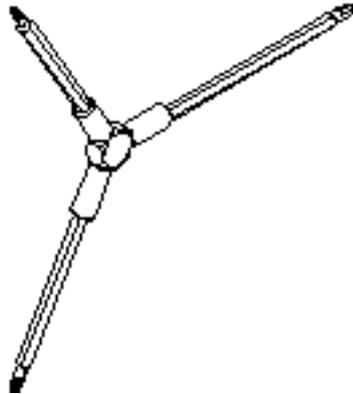
2



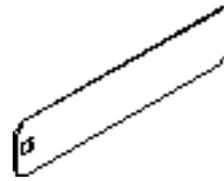
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4



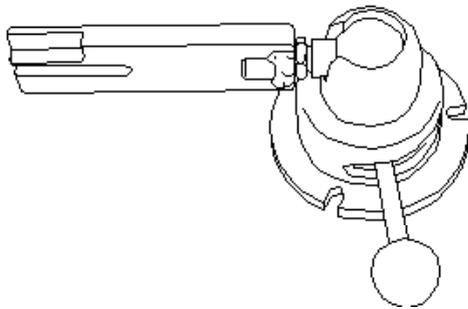
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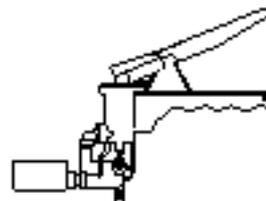
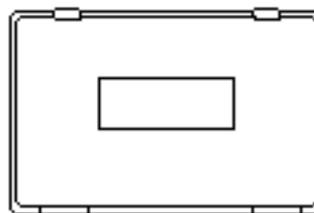
7



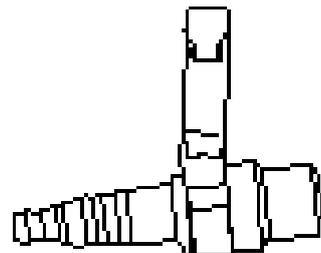
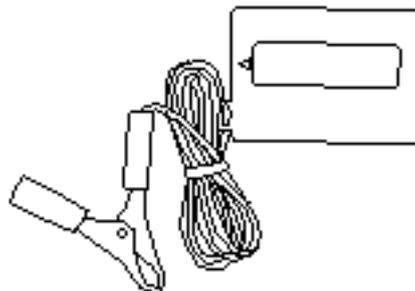
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9



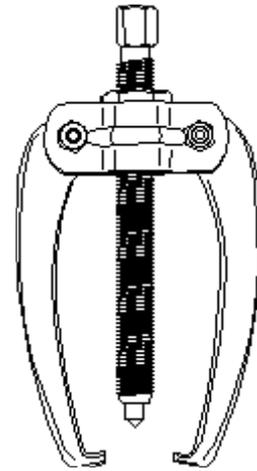
11



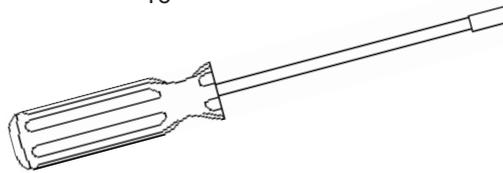
12



14

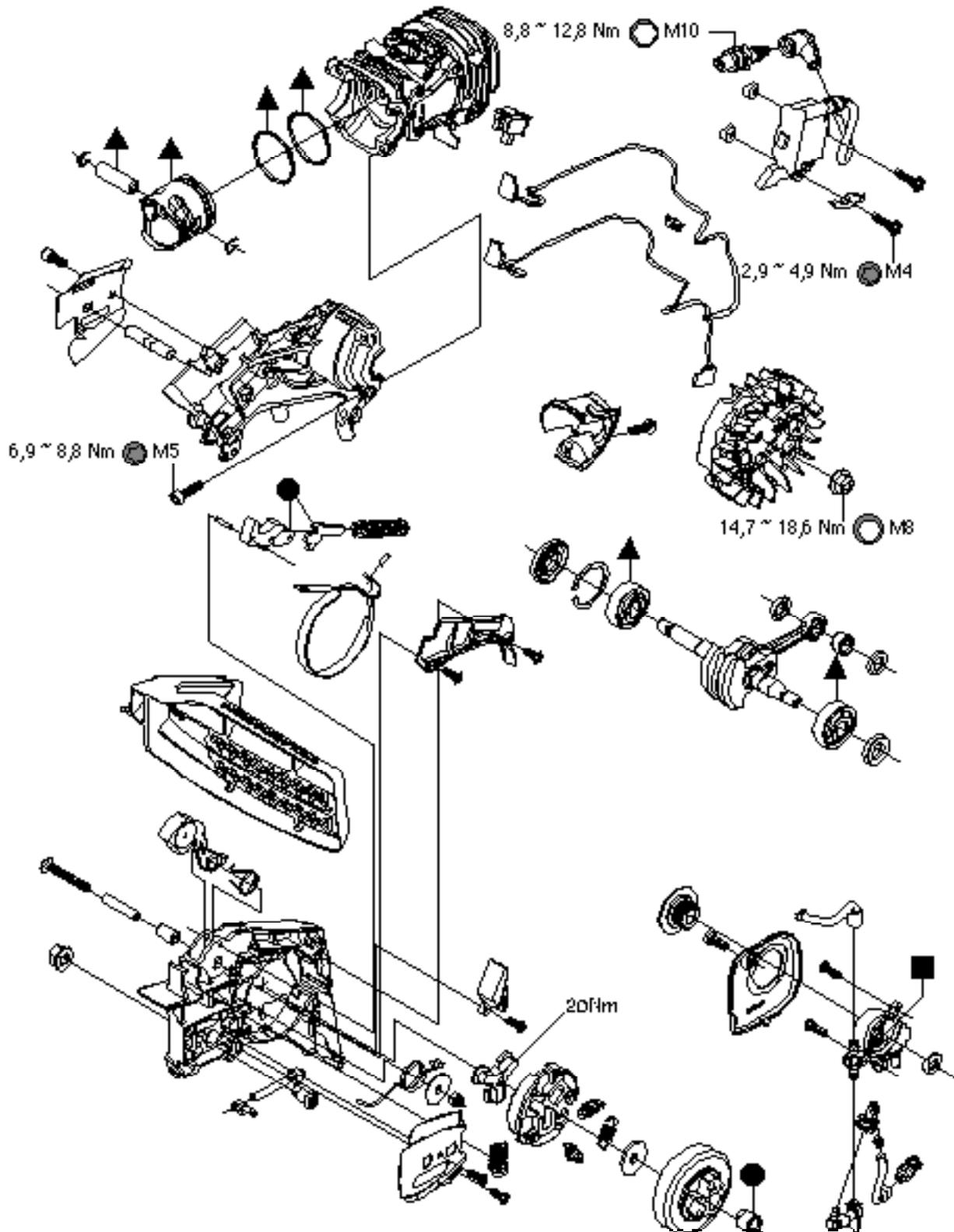


16



Pos.	Description	Used for	Order No.
1	Piston stop	Locking the crankshaft	521 34 51-01
2	Hook for fuel filter	Lifting out the fuel filter	502 50 83-01
3	Screwdriver	Carburettor adjustment	516 84 79-01
4	Combination spanner	For torx screws	516 97 42-01
5	Pressure tester	Pressure testing the cylinder	503 84 40-03
6	Feeler gauge	Setting, ignition module	521 03 13-01
7	Fitting cone	Assembling the intake system	522 63 97-01
8	Assembly fixture	Securing the chain saw	502 51 02-01
9	Pressure gauge	Pressure testing	531 03 06-23
10	Test spark plug	Checking the ignition module	501 97 64-01
11	Revolution counter	Adjusting the carburettor	502 71 14-01
12	Assembly pliers	Assembling the spark plug protector	502 50 06-01
13	Template	Maintenance of chain and bar	520 98 33-01
14	Puller	Dismantling the flywheel	504 90 90-01
15	Mandrel	Dismantling the flywheel	502 51 94-01
16	Adjustment screwdriver	Adjusting the carburettor	530 03 55-60

5 Service data



Key

The numbers by the components to be assembled with screws state the tightening torque in Nm.

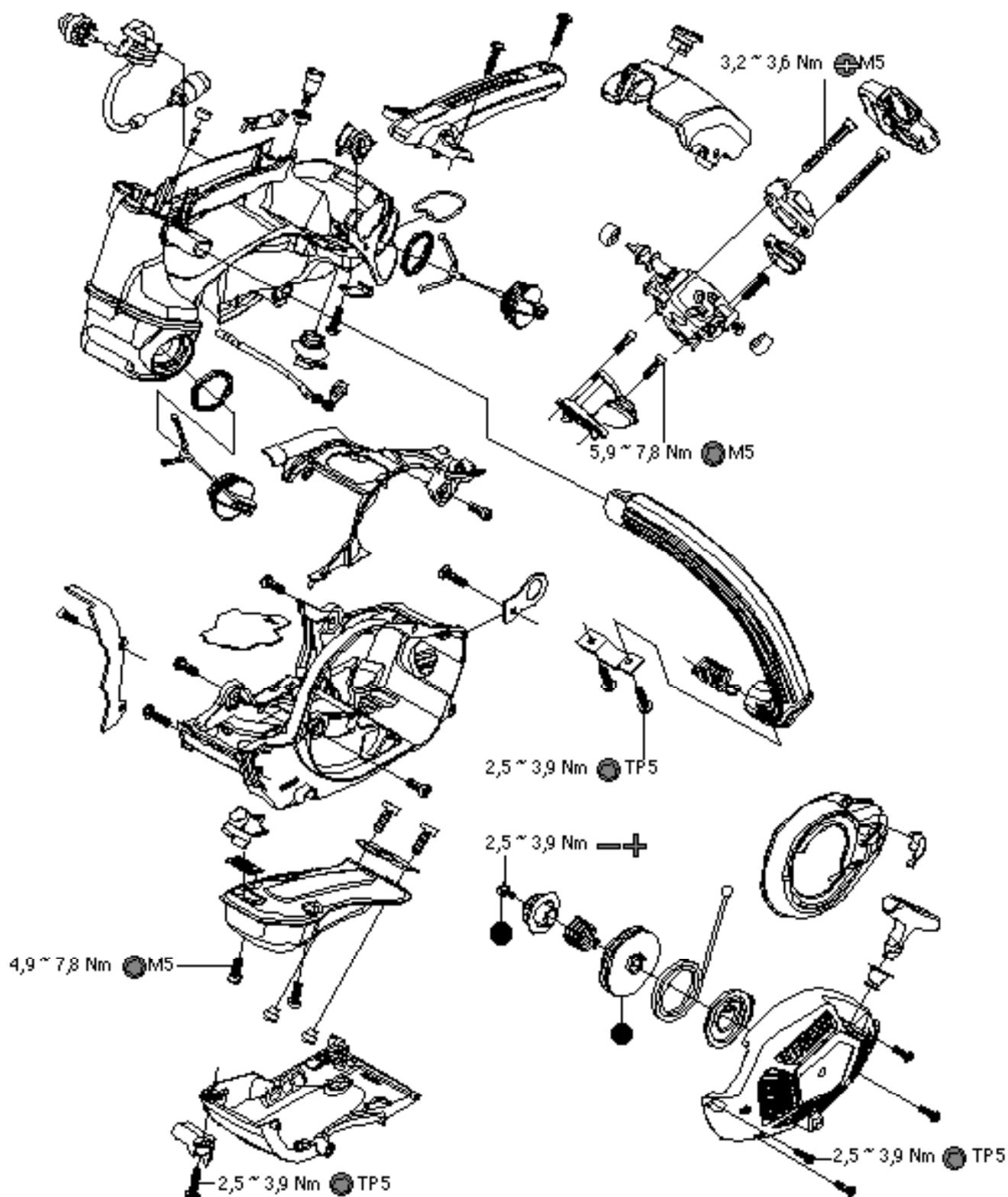
s = Lubricate with two-stroke oil.

n = Lubricate with engine oil.

l = Lubricate with grease.

q = Glued using 2 component adhesive.

m = Sealed with silicone.



6 Safety equipment

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6.6	Dismantling the start/stop switch	21
6.7	Assembling the start/stop control	21
6.8	Resistance test - stop function	22
6.9	Dismantling the throttle lockout, throttle and spring	23
6.10	Assembling the throttle lockout, throttle and spring	24

6 Safety equipment

6.1 Dismantling the chain brake



1

Release the brake by moving the kickback guard backwards.
Loosen the bar nut and remove the clutch cover, chain and bar.

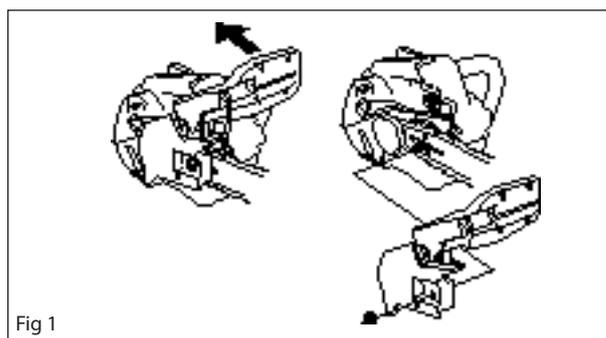


Fig 1

2

Release the brake by pushing the kickback guard forwards.



WARNING!
Exercise care to ensure the spring does not fly out and causes personal injury. Wear protective goggles.

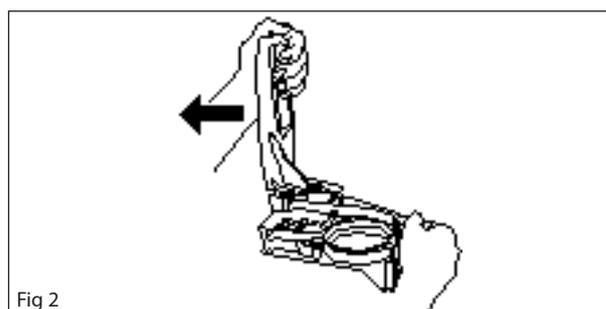


Fig 2

3

Secure a bolt in the vice, attain a distance of at least 18 mm and approx. 40 cm from the vice, then thread the clutch cover through the hole where the bar bolt runs. Lock with the bar nut.

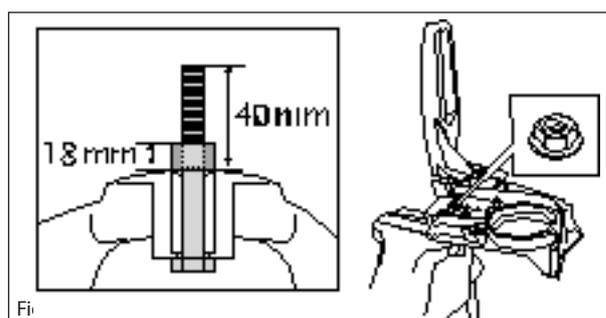


Fig 3

4

Loosen the screws and hold the cover in place with one hand. Insert a screwdriver as illustrated over the spring to prevent it from flying off when you lift the cover.

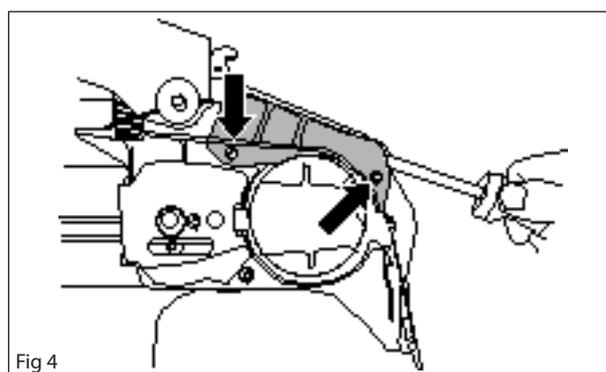


Fig 4

5

Carefully bend upwards until the spring is released and slides over the screwdriver.

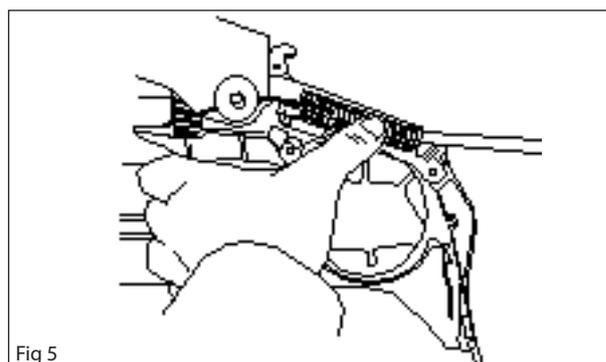
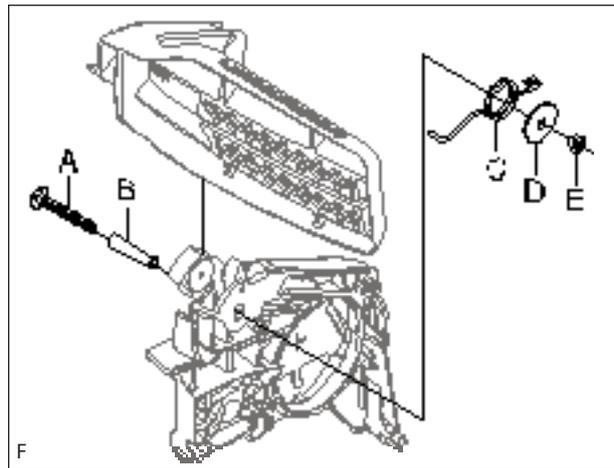


Fig 5

6

Loosen the nut E, washer D, spring C, sleeve B and screw A.

To remove the knee joint G and H, use a punch to press out the pin F. Pull out the pin J to loosen the brake band K and knee joint H, see figure 7.



Cleaning and checking

- Clean and check carefully, all components. Parts must be replaced if cracked or show signs of other defects. Always use original spare parts.
- Measure the thickness of the chain brake band. It must not be less than 0.6 mm in any place, see figure 9.
- Lubricate the knee joint with grease.

7

If necessary dismantle the weight L and check the spring M and sleeve N.

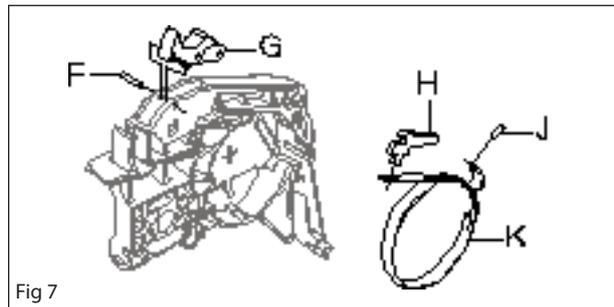


Fig 7

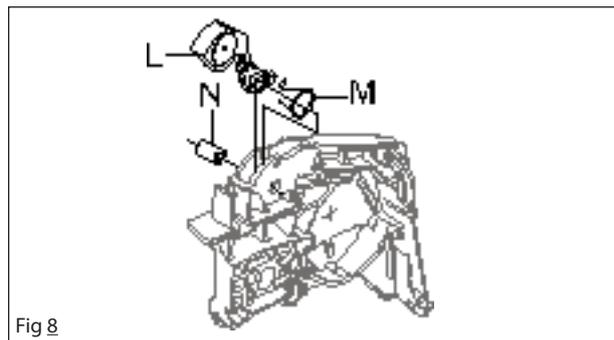


Fig 8

6.2 Assembling the chain brake

1

Fit the weight L, spring M and the sleeve N, see figures 8 and 9.

2

Fit the knee joint G and the fork H. Punch in the pin F. Insert the pin J through the brake band K into its slot. Place the fork H in the notch of the brake band and place the brake band K in its track.

In the jointed end of G is a fixed pin, which must be placed in the notch in the fork H, see figure 9.

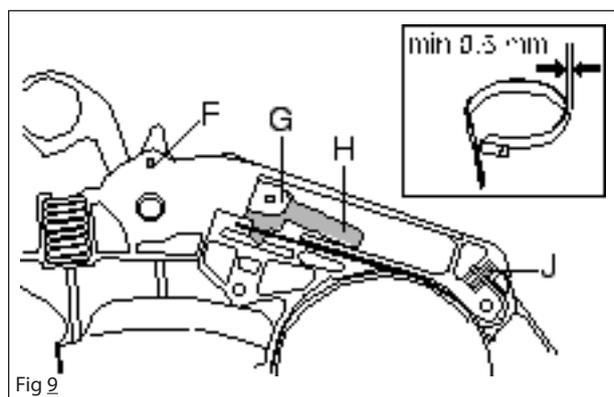


Fig 9

3

Fit the sleeve B and the screw A. Put the washer D in place and tighten the nut E, see figure 6. Add the spring C, use pliers to tension the spring behind the plastic plug, see figure 10.

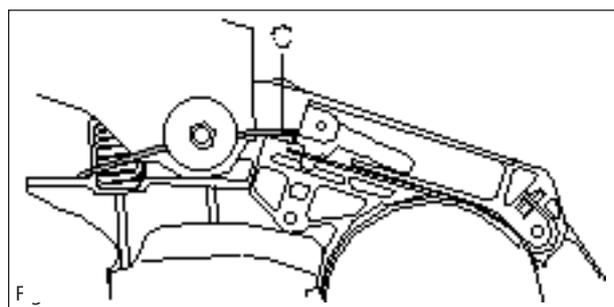


Fig 10

4

Insert the screwdriver into the end of the spring and press the spring together while pushing it down with the finger.

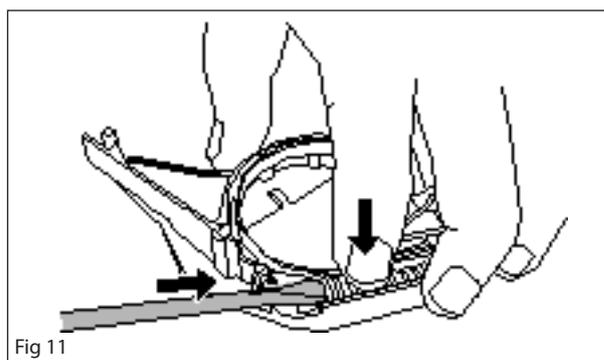


Fig 11

5

Hold the spring in place with your finger and remove the screwdriver. Insert the screwdriver straight from above and press down until the spring catches against the cut-out edge.

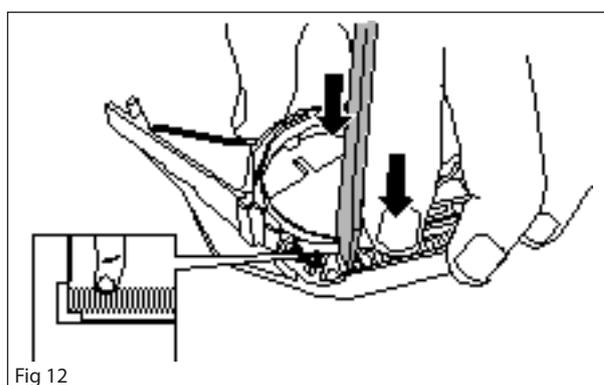


Fig 12

6

Bend the screwdriver away from the spring so that the spring is pressed together and slips down to the bottom.

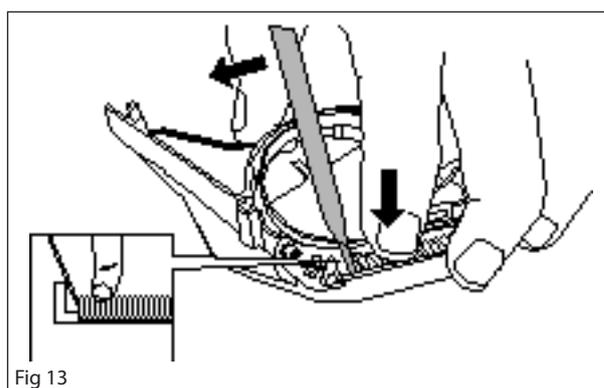


Fig 13

7

Fit and tighten the cover. Clamp the brake by moving the handle backwards, see figure 14.

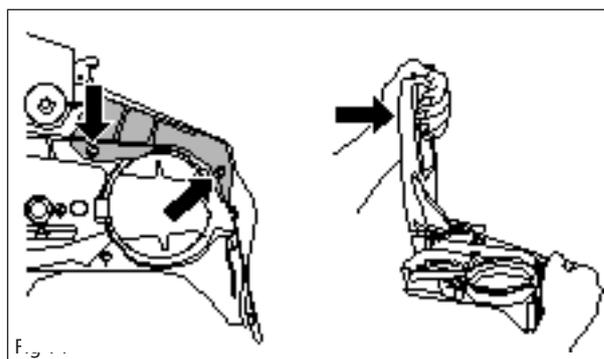


Fig 14

8

Fit the kickback guard, see figure 15.

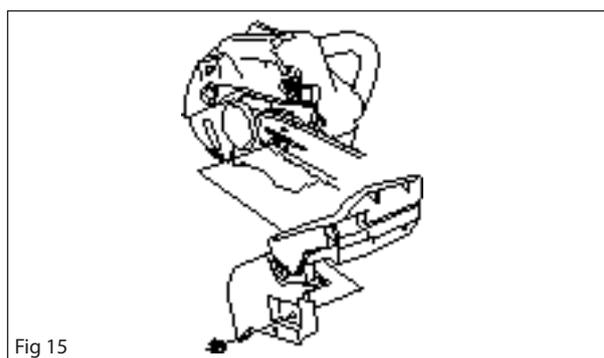


Fig 15

6.3. Dismantling the muffler



WARNING!
Do not touch the muffler before it has cooled down. Risk of burns.

1
Release the brake by moving the kickback guard backwards.
Loosen the bar nut and remove the clutch cover, chain and bar.

2
Loosen screws 1 and 2, see figure 17.

3
Slide the muffler cover as shown in figure 18.

4
Loosen the screws and nuts. Remove and check that the muffler is complete, see figures 19 and 20.

Cleaning and checking
Clean and check all components carefully.
Parts must be replaced if cracked or showing signs of other defects.
Never use the saw with a muffler that is in bad condition. Always use original spare parts.

6.4 Assembling the muffler

1
Assemble the muffler as shown in figure 20, tightening torque 12-14 Nm. The square screws should be slid in the slot on the cylinder. Assemble the chain, bar and clutch cover.

3
Warm up the saw for at least 1 minute and retighten the muffler screws with 12-14 Nm.

6.5 Replacing the chain catcher

A worn chain catcher must always be replaced with a new one.

1
Loosen the screw and replace the chain catcher with a new one as shown in figure 21.

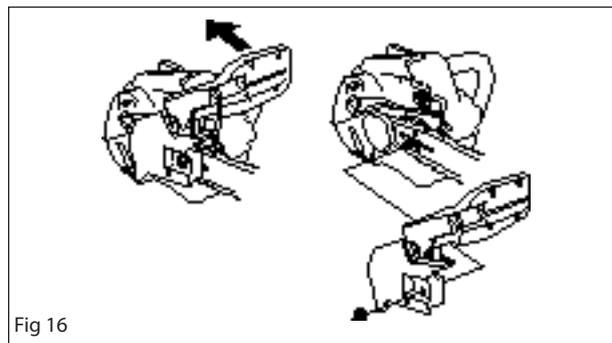


Fig 16

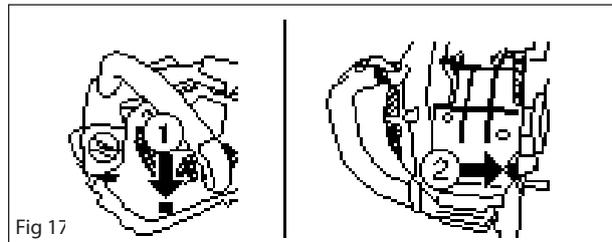


Fig 17

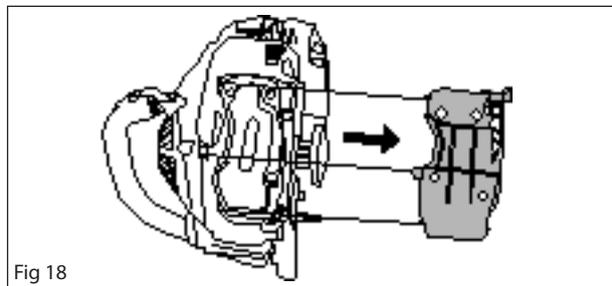


Fig 18

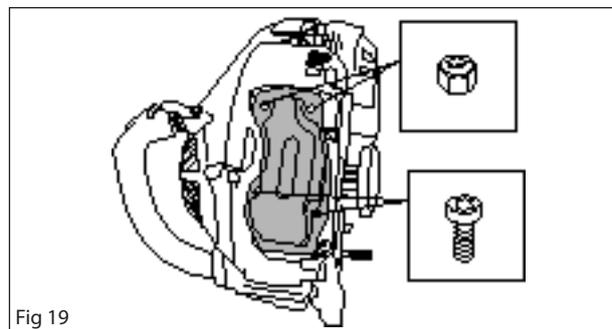


Fig 19

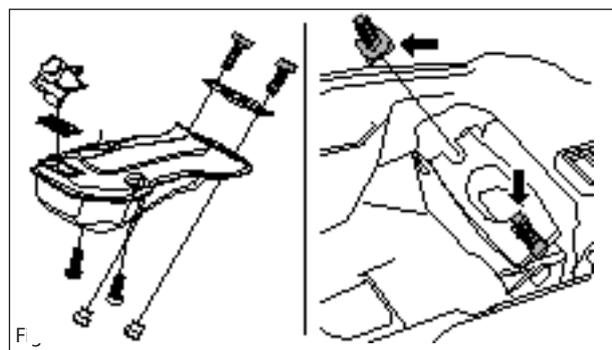


Fig 20

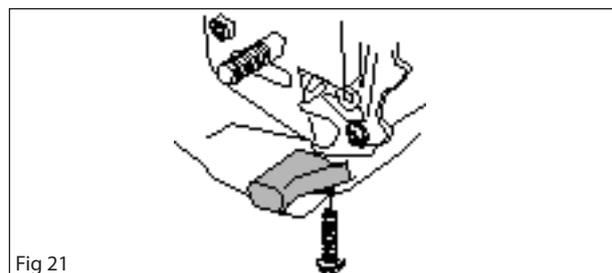


Fig 21

6.6 Dismantling the start/stop switch

1

Bend the start/stop switch loose with a screwdriver, see figure 22.

2

Check that the start/stop switch is intact.

Cleaning and checking

Clean and check carefully all components. If there are cracks or other defects, these details should be replaced with new ones. Always use original spare parts.

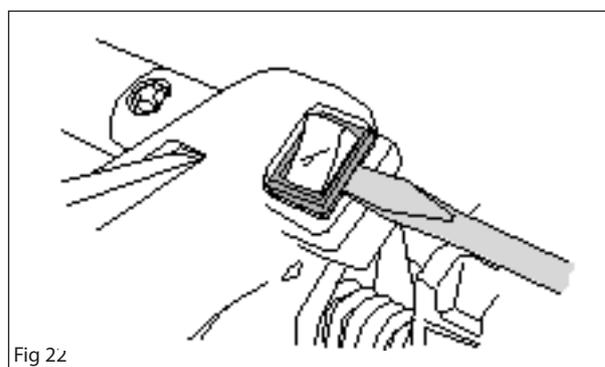


Fig 22

6.7 Assembling the start/stop switch

1

Attach the cables, see figure 23.

2

Push the start/stop switch into the slot.

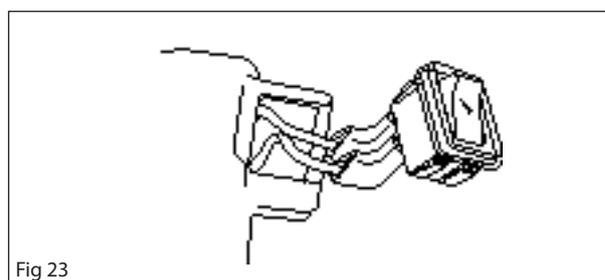


Fig 23

Attach cables A and B, which come from the ignition coil on the plates on the stop switch, see figure 24.

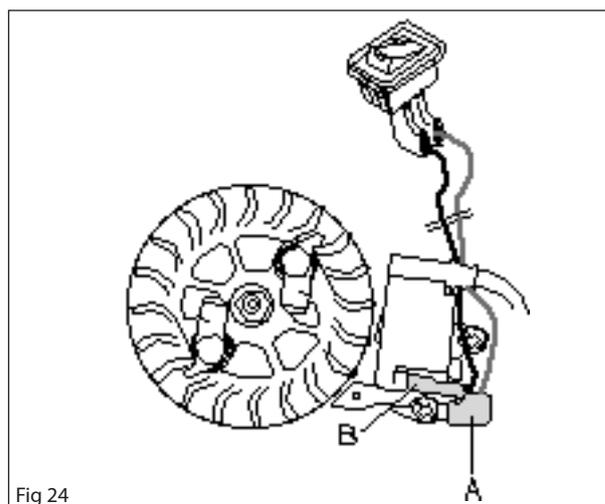
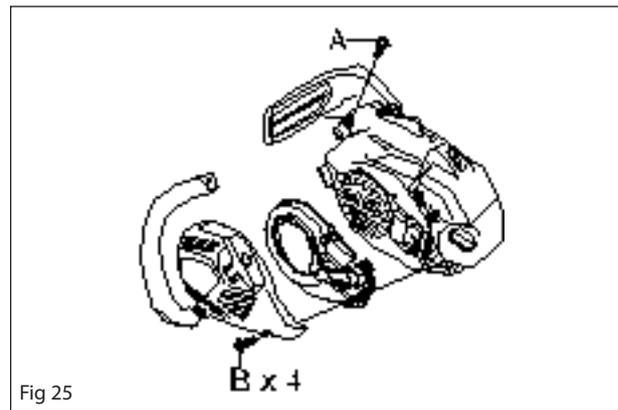


Fig 24

6.8 Resistance test - stop function

1
Remove the starter, see "Dismantling the starter".

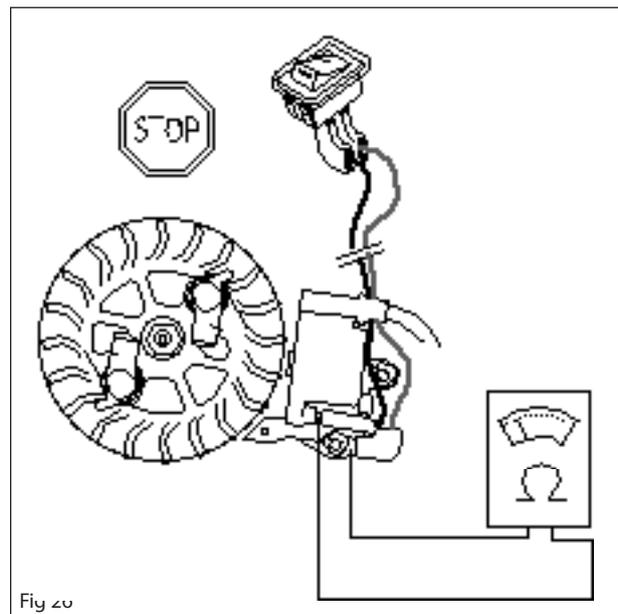
2
Remove the cold air wire.



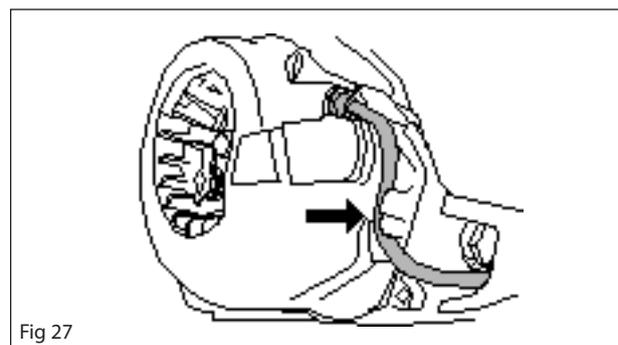
Clean the contact areas and check the resistance as follows:

Test the resistance by connecting a multimeter to the ignition coil. Note! The power switch must be in the "on" position to get the correct reading, see figure 26.

The resistance must not exceed 0.5 Ohm with the power switch in the "on" position.



When assembling the cold air wire, make sure that the ignition cable is fitted into the slot.



6.9 Dismantling the throttle lockout, throttle and spring

1

Unscrew the air filter housing, the air filter holder and the filter. Dismantle the handle part by loosening screws A. Remove the throttle lockout B. Remove the throttle C and the spring D. Loosen the carburettor screw E. Remove the guide F.

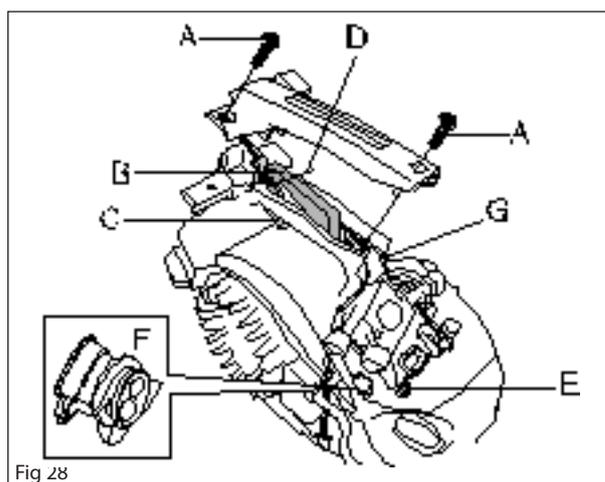


Fig 28

2

Remove the carburettor and the cover from the choke outlet H.

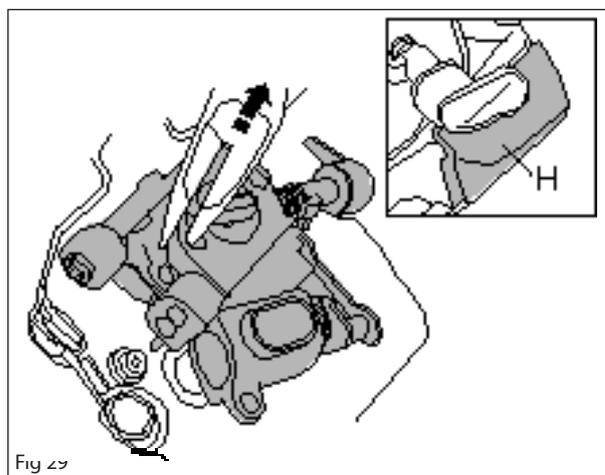


Fig 29

3

Turn the throttle actuator rod downwards and guide it out, see figure 30.

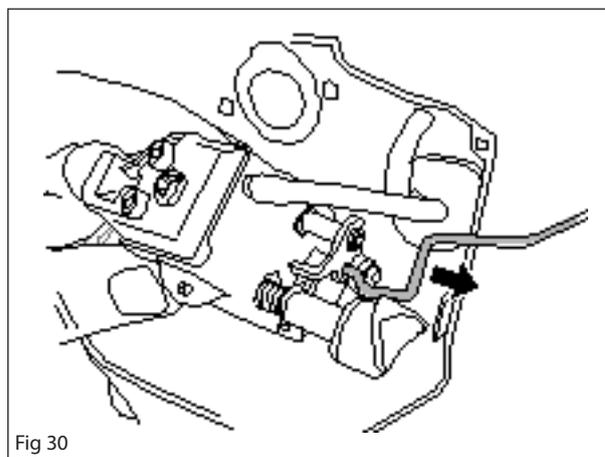


Fig 30

Cleaning and checking

- Clean and check carefully all components. Parts must be replaced if cracked or show signs of other defects. Always use original spare parts.
- Check that the spring is intact and retains all its tension.

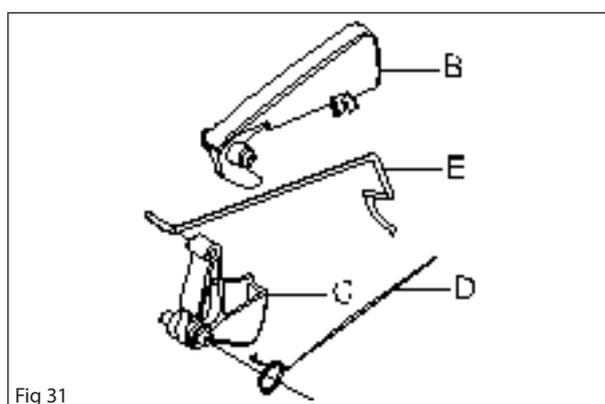
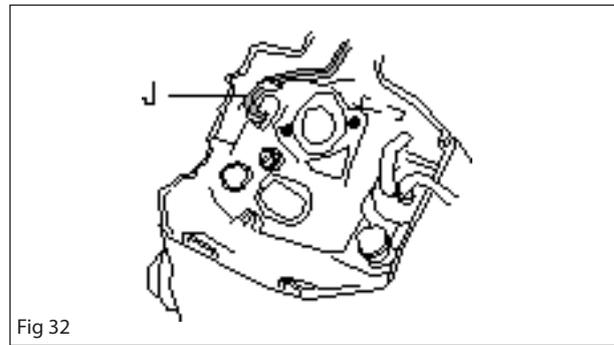


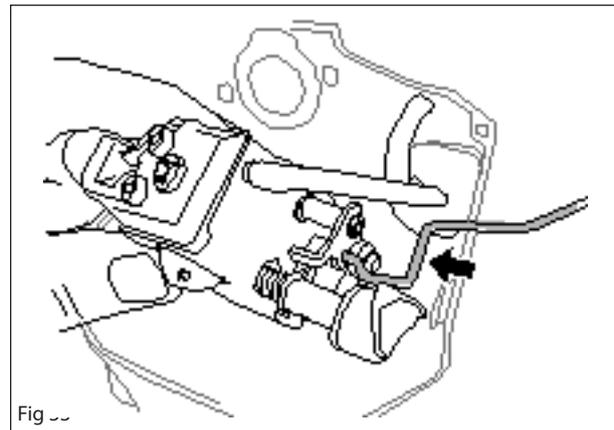
Fig 31

6.10 Assembling the throttle lockout, throttle and spring

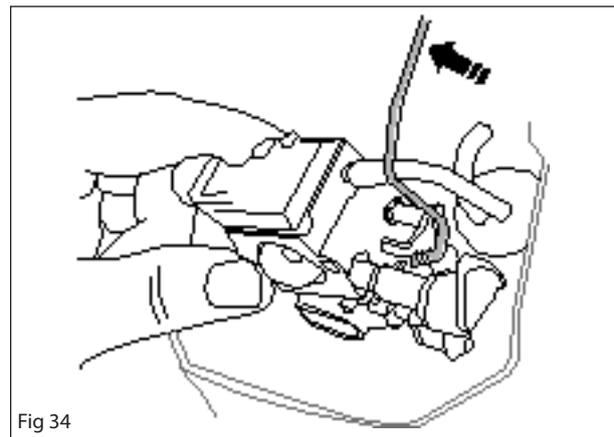
1
Put the electrical cables J back in the cable slot as shown in figure 32.



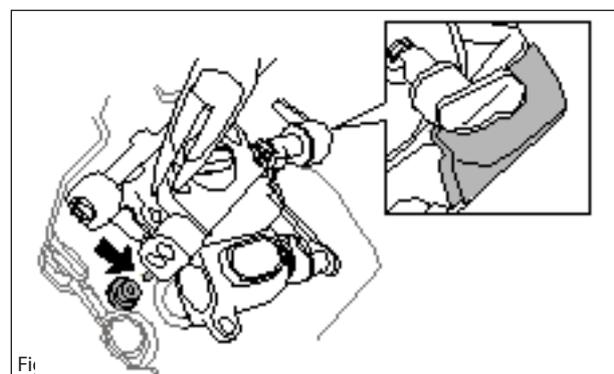
2
Insert the throttle actuator rod into the carburettor.



3
Fold the throttle actuator rod forwards so that it can be placed in the handle part.



4
Push the carburettor into place and make sure the nipple is securely pushed down in the intake connector. Push the cover for the choke outlet into place.



5

Hook the throttle actuator rod E to the throttle, put the spring back onto the throttle. Place the throttle and the spring in the handle part as shown in figure 36. Refit the electrical cables H in the slot as shown in figure 36.

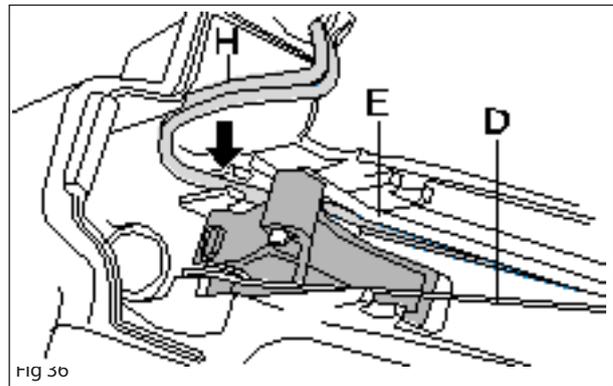


Fig 36

6

Place the throttle as shown in figure 37. Put the handle bar in the handle unit.

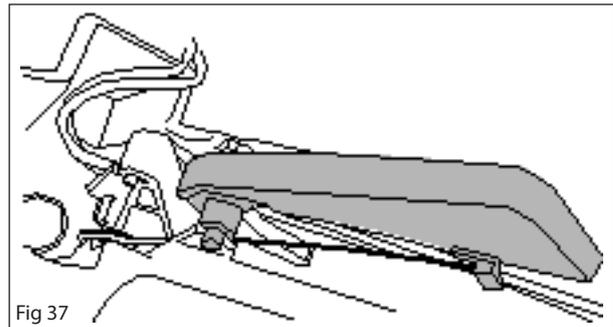


Fig 37

7

The handle part is fastened with the screws A, see figure 39. Note! Hold the throttle lockout down so that the spring doesn't jump out when the handle part is assembled.

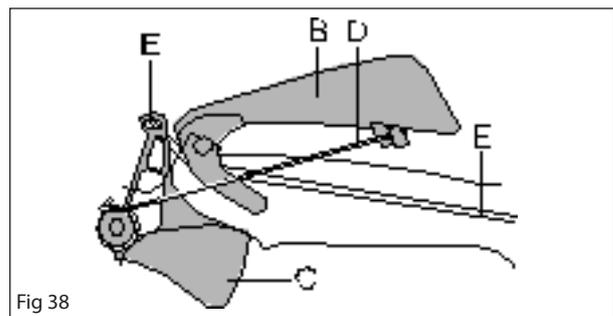


Fig 38

8

Refit the guide F, see figure 39. Fasten the air filter holder with the air filter, then fasten the air filter cover. Make sure the lock is open when you push the cover into place.

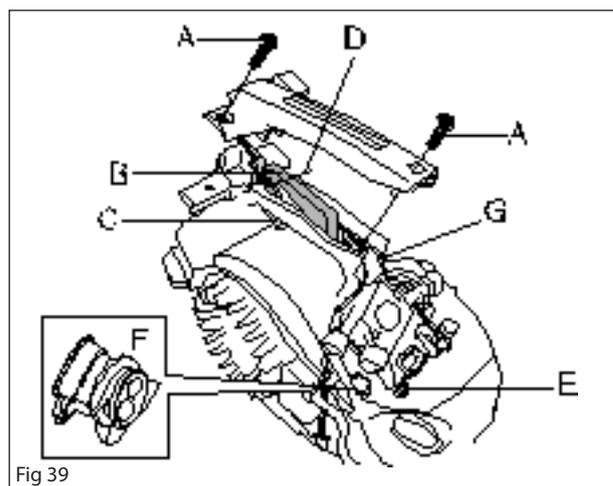


Fig 39

7 Repair instructions

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7 Repair instructions

7.1 Dismantling the starter

1

Loosen the starter with the screws A, B and C (four screws).

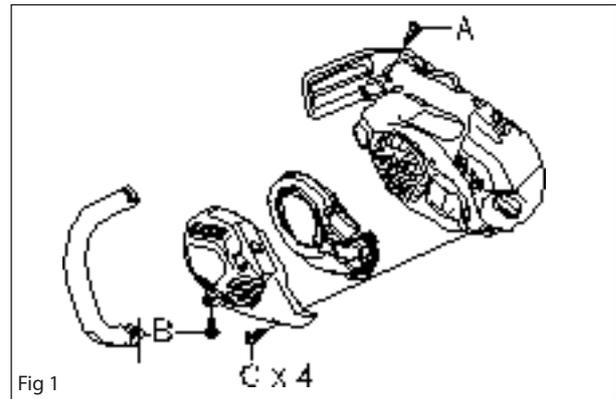


Fig 1

2

Pull the cord out about 30 cm and lift it into the notch on the starter pulley's outer edge. Release the tension in the return spring by allowing the starter pulley to rotate slowly backwards, see figures 2 and 3.

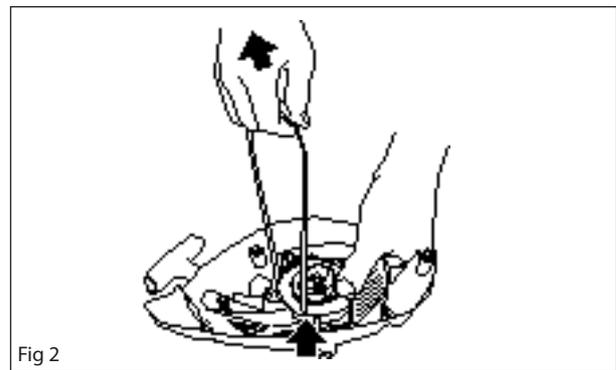


Fig 2



WARNING!

If the spring tension is activated on the starter pulley, the spring can fly out and cause personal injury. Use protective goggles.

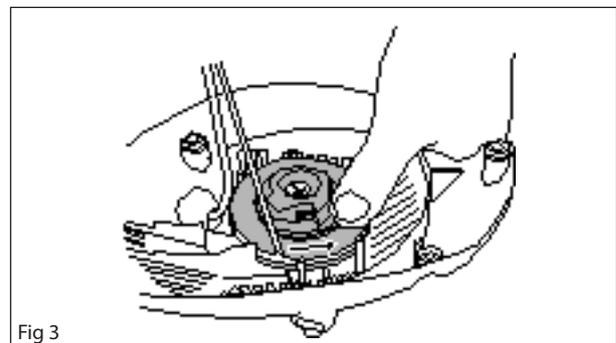


Fig 3

3

Undo the screw in the centre of the pulley and remove the pulley and the spring cassette.

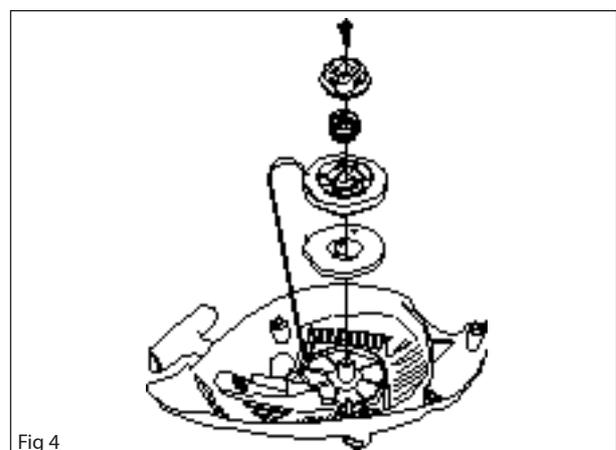


Fig 4

Cleaning and checking

Clean the parts and check:

- Starter cord.
- That the starter pawls on the flywheel are intact, i.e. that they spring back to the centre and move easily.
- Lubricate the return spring with a light oil.

7.2 Changing a broken or worn starter cord

When the starter cord is worn and must be replaced, the tension in the return spring must be released.

1

Pull the cord out about 30 cm and lift it into the notch on the outside of the starter pulley. Release the tension in the return spring by letting the starter pulley slowly rotate backwards. See "Dismantling the starter".



WARNING!

If the spring tension is activated on the starter pulley, the spring can fly out and cause personal injury. Use protective goggles.

2

Undo the screw in the centre of the pulley and remove the pulley.

3

When the starter pulley is removed, insert a new starter cord and attach it to the starter pulley. Thread the other end of the starter cord through the hole in the starter housing and starter handle and tie a double knot on the cord.

Cleaning and checking

- Clean and check carefully all components. Worn or damaged parts must be replaced. Lubricate the return spring with a light oil.

7.3 Tensioning the return spring

1

Wind approx. 3 turns of the starter cord onto the pulley. Fit the screw into the centre of the starter pulley, tightening torque 2-3 Nm. Pull the starter cord up into the notch in the starter pulley and turn the pulley about 3 turns clockwise.

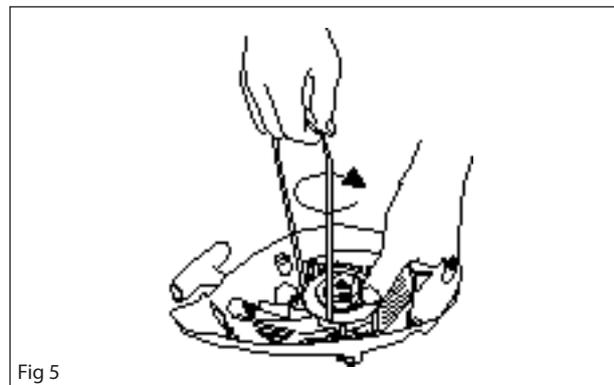


Fig 5

2

Stretch the cord with the handle. Remove your thumb and let the cord spin back. Check that the pulley can be turned at least a further 1/2 turn when the starter cord is pulled all the way out.

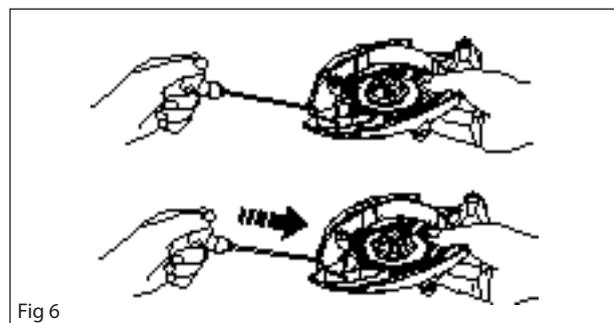


Fig 6

7.4 Replacing a broken return spring



WARNING!
Exercise care to ensure the spring does not fly out and causes personal injury. Wear protective goggles.



1

Undo the screw in the centre of the pulley and remove the pulley and spring.

2

Remove the broken return spring and replace it with a new one.

3

Fit the screw into the centre of the starter pulley, tightening torque 2-3 Nm. Load the return spring, see "Loading the return spring".

7.5 Assembling the starter unit

1

Put the electrical cables back in the cable slot as shown in figure 7. Assemble the starter unit, tightening torque 2.5-3.5 Nm.

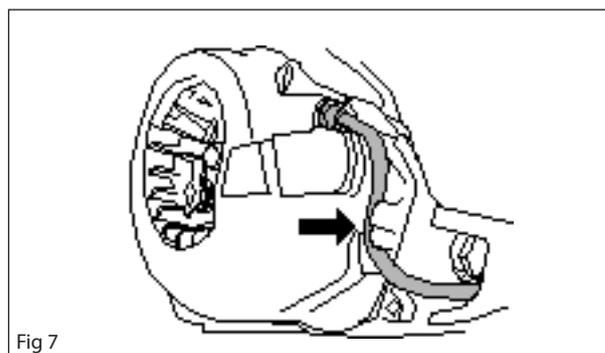


Fig 7

7.6 Testing the ignition module

1

In case of malfunctioning ignition system, the ignition module must be tested before the ignition system is removed.

Check the ignition module as follows:

- Unscrew the spark plug. Connect test spark plug 505 71 13-01 to the ignition cable and clamp the test spark plug onto the cylinder.
- Turn over the engine with the starter cord.
- If a spark appears on the test spark plug, the ignition module is free from defect, see figure 8.

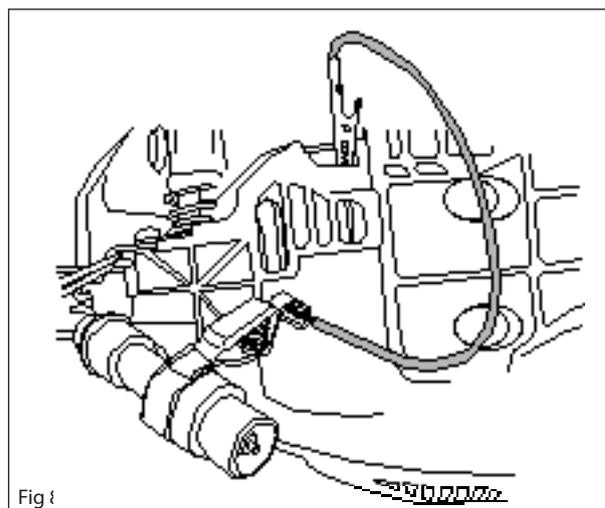
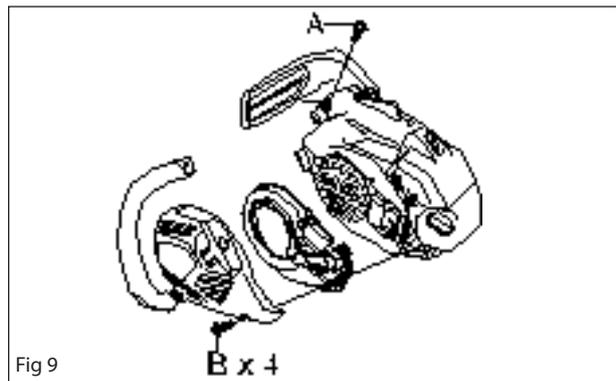


Fig 8

7.7 Dismantling the ignition module and flywheel

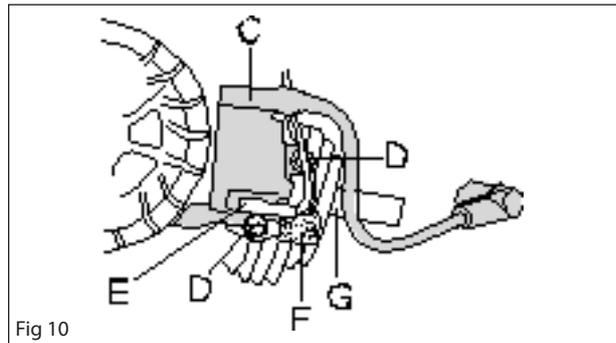
1

Loosen the starter with the screws A and B (four screws).



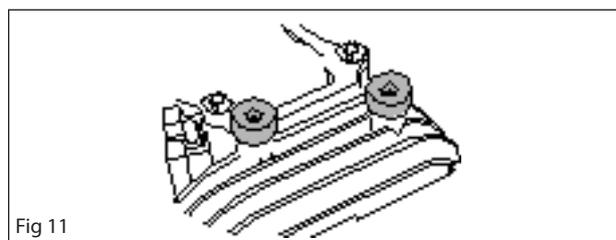
2

Loosen the screws D and remove the entire ignition module. Remove the spacers between the cylinder and the ignition coil, see figure 11. Loosen the electrical cable E and the earthing cable F from the ignition module C.



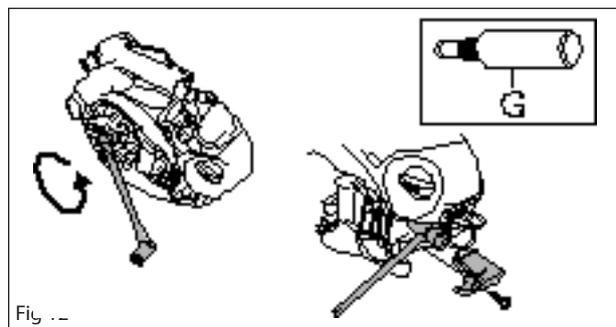
3

Unscrew the spark plug and screw in the piston stop G.



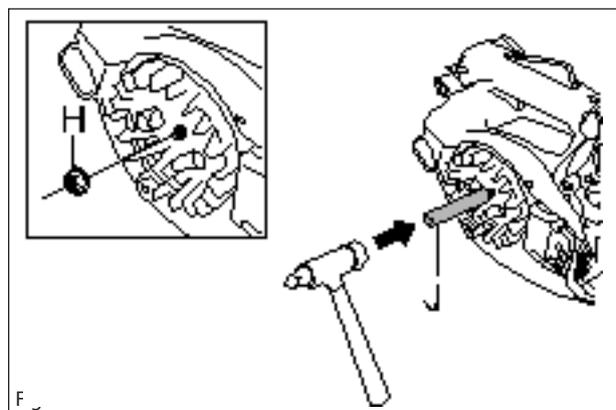
4

Loosen flywheel nut H with a suitable socket spanner and then remove the nut, see figures 12 and 13.



5

Knock on the mandrel J with a suitable metal hammer until the flywheel comes off from the shaft. Remove mandrel and flywheel, see figure 13.



Cleaning and checking

- Clean all parts, especially the tapers on the flywheel and shafts.
- Check the flywheel for cracks and any other damage.

7.8 Assembling the ignition module and the flywheel

1

Fit the flywheel onto the crankshaft journal. Turn the flywheel until the key goes into the keyway on the shaft.

Fit the nut H, tightening torque 20-25 Nm, see figure 14.

2

The ignition module must be fitted as follows:

Turn the flywheel so that the magnets are positioned opposite the ignition module. Fit the spacers, see figure 11. At the same time, fit ignition module C and plastic feeler gauge K. Fit the earthing cable F in screw D as shown in figure 15. Tighten the screw D, tightening torque 4.5-6 Nm. Remove the plastic feeler gauge. Fit the ignition cable E on ignition module C. Set the distance 0.3 ± 0.1 mm, between ignition module and magnet. The measurement applies to the two lugs on the ignition module. Remove the plastic feeler gauge.

3

Unscrew the piston stop and assemble the spark plug. Note! The earthing and electrical cable must be fitted into slot L.

Note! Fit the cable M into the slot on the air wire as shown in figure 16.

4

Then fit:

- spark plug cap
- air wire
- starter, tightening torque 2.5-3.5 Nm

When replacing the cables, they are fitted on the stop switch as shown in figure 24.

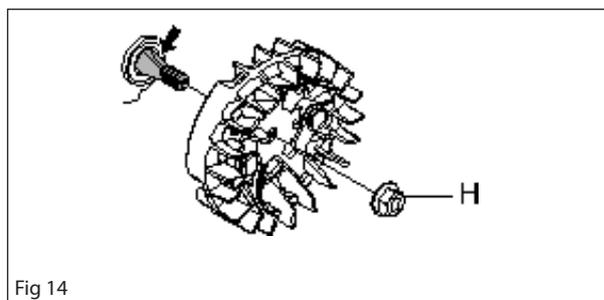


Fig 14

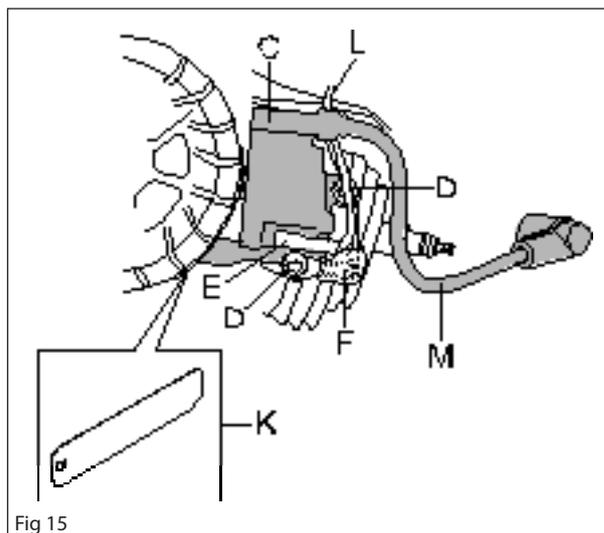


Fig 15

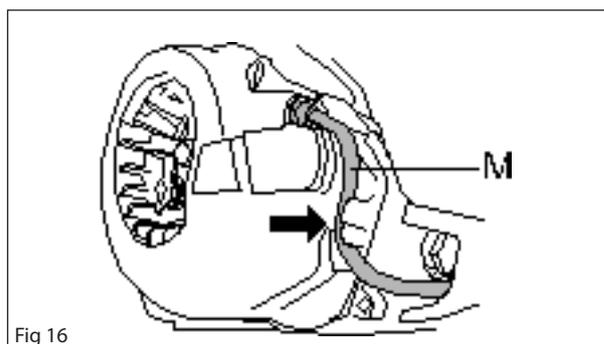


Fig 16

7.9 Dismantling the centrifugal clutch

1

Release the brake by moving the kickback guard backwards.
Loosen the bar nut and remove the clutch cover, chain and bar.

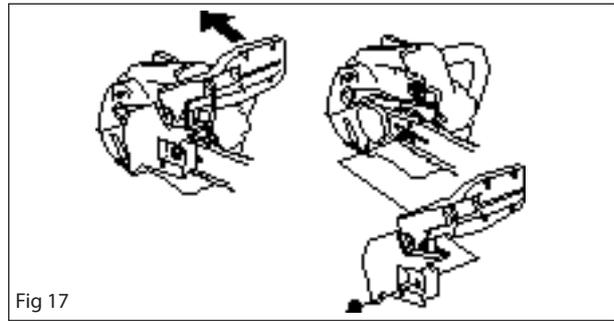


Fig 17

2

Unscrew the spark plug and put in piston stop A.



Fig 18

3

Loosen the clutch using a suitable socket spanner or combination spanner. Turn the clutch clockwise to loosen it.

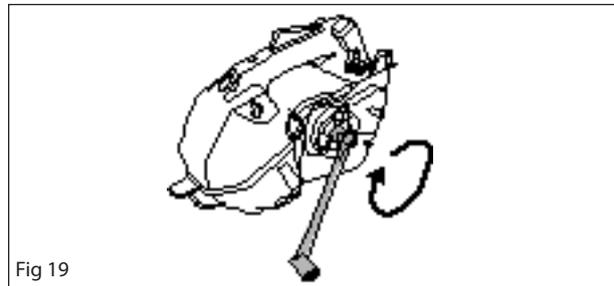


Fig 19

4

Check the thickness of the clutch shoes by measuring them with slide callipers across the whole clutch hub. If the thickness is below 58-58.5 mm, the entire clutch must be replaced, see figure 20.



Fig 20

5

Break apart the clutch as shown in figure 21.

NOTE!

Be careful with the clutch springs, opening them too much can result in material damage.

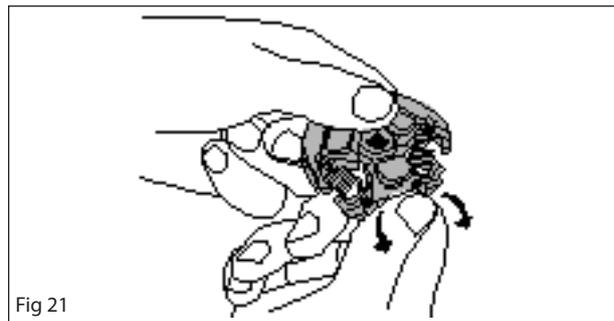


Fig 21

Cleaning and checking

- Clean and check all parts carefully. Parts must be replaced if cracked or showing signs of other defects. Always use original spare parts.

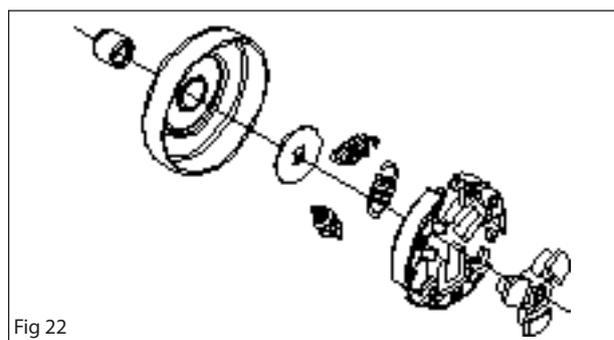


Fig 22

7.10 Assembling the centrifugal clutch

1

Hook the springs into the clutch shoes. Press in the clutch hub from above while bending back the clutch shoes around the clutch hub as shown in figures 23 and 24.

2

Fit the clutch by turning it counter clockwise.

3

Reinstall the spark plug.

4

Assemble the clutch cover, chain and bar.

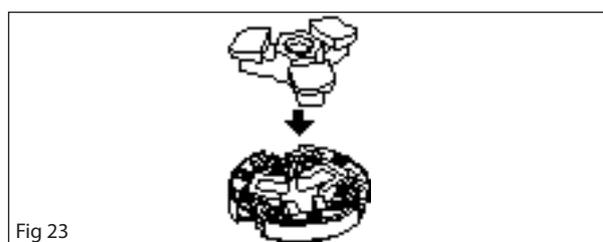


Fig 23

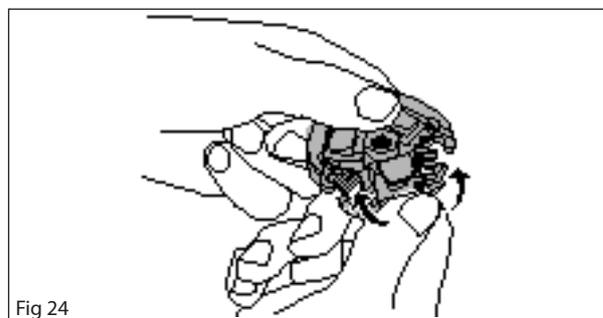


Fig 24

7.11 Dismantling the oil pump and screen

1

Dismantle the centrifugal clutch as in the chapter "Dismantling the centrifugal clutch".

2

Dismantle the vibration element from the tank unit.

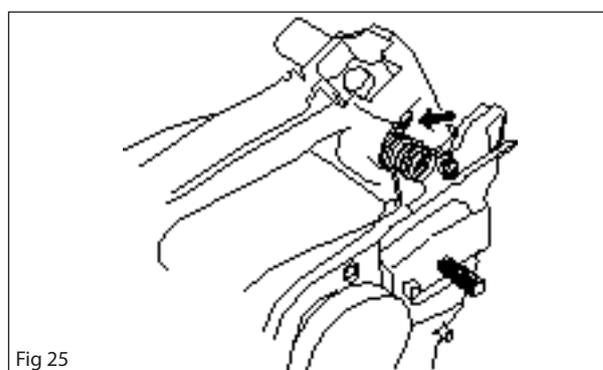


Fig 25

3

Unscrew the screw B. Remove the chain guide plate. Unscrew the screw A and pump drive wheel C and then lift off the cover.

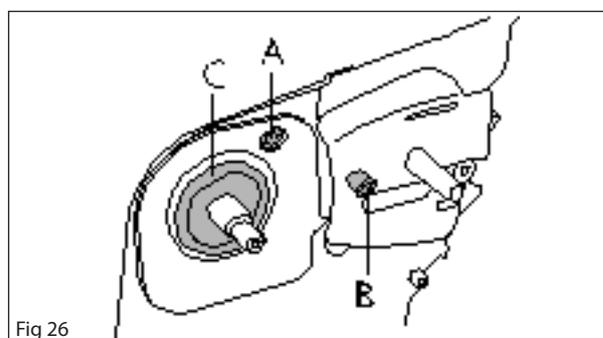


Fig 26

4

Unscrew the screws D.

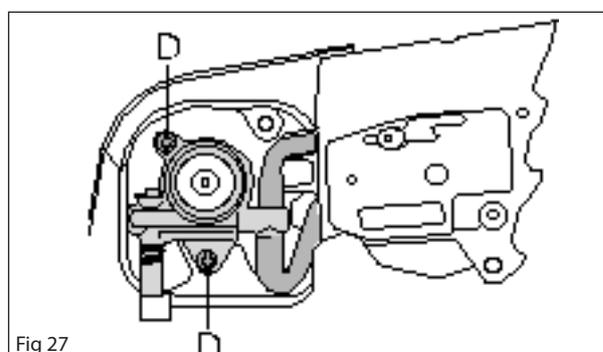


Fig 27

5

Use pliers with a shrinkable tube in order to loosen hose H so that nozzle E can be loosened. See figures 28 and 30. Note! Figure 30 shows the inside without tank unit.

If you experience problems loosening the hose, dismantle the tank unit, see chapter "Dismantling the tank unit".

Cleaning and checking

- Clean and check all parts carefully. Parts must be replaced if cracked or showing signs of other defects. Always use original spare parts.
- Lubricate all moving parts with saw chain oil.

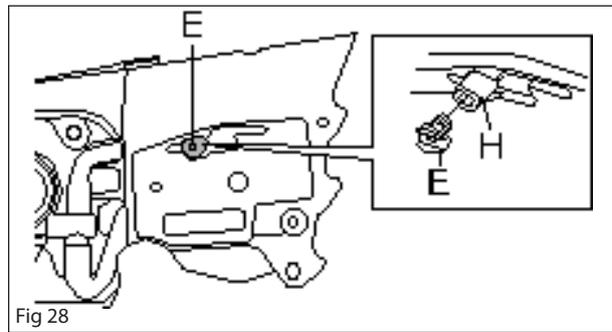


Fig 28

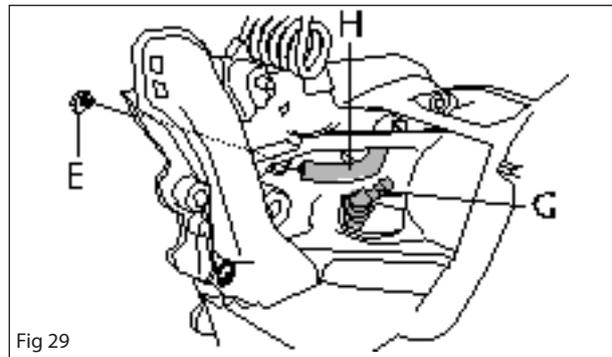


Fig 29

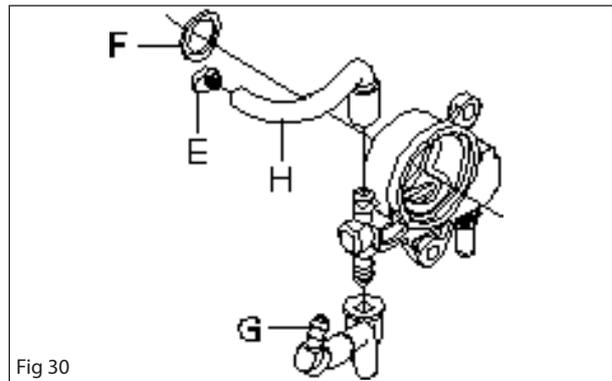


Fig 30

7.12 Assembling the oil pump and screen

1

Assemble the pump housing and guide hoses H and G into place as shown in figure 29. Note! Nozzle E must be placed facing in the right direction, see figure 28.

2

Use pliers with a shrinkable tube to press nipple G upwards through the rubber grommet to the oil tank.

3

Slide the washer F on the crankshaft. Refit the cover and the pump drive wheel. Screw the chain guide plate into place using screw B. Assemble the vibration element in the tank unit as shown in figure 25.

The adjuster screw for the oil pump is located on the bottom of the saw, see figure 32.

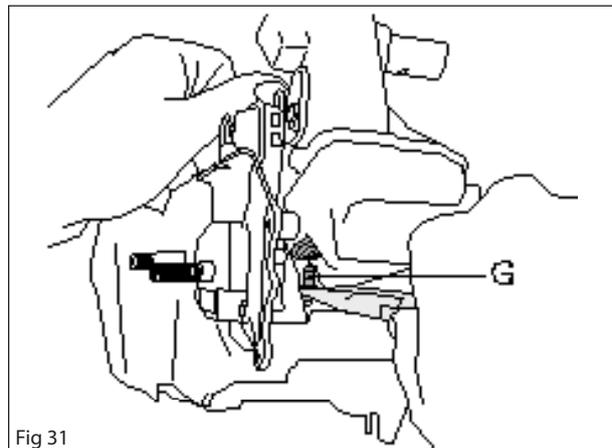


Fig 31

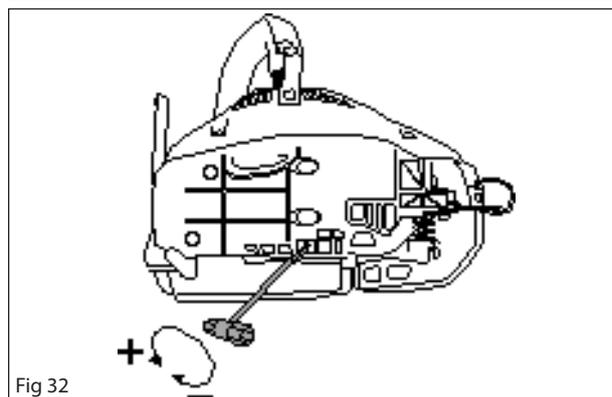


Fig 32

7.13 Carburettor

**WARNING!**

- The fuel used for the chain saw has the following characteristics:
1. The liquid and its fumes are poisonous.
 2. Can cause skin irritation.
 3. Is very flammable.

Description

The images for this description do not correspond to the carburettor on the chain saw. They purely show the principle for the design and function. The carburettor is based on three sub-systems:

Metering unit

The needles and the fuel's control functions are located in the metering unit A. Here the correct fuel amount is adjusted for the current speed and power output.

Mixing venturi

The mixing venturi B houses the choke, throttle valve and diffuser jets. Here, air and fuel are mixed to create a fuel-air mix that can be ignited by the ignition spark.

Pump unit

In the pump unit C fuel is pumped from the fuel tank to the carburettor's metering unit. One side of the pump diaphragm is connected to the crankcase and pulses in time with the pressure changes in the crankcase. The other side of the diaphragm pumps the fuel.

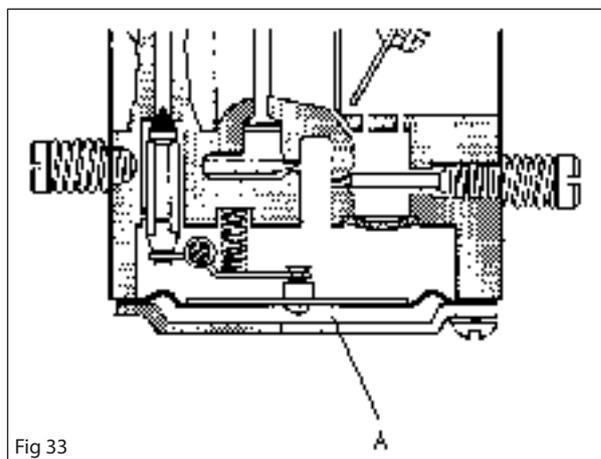


Fig 33

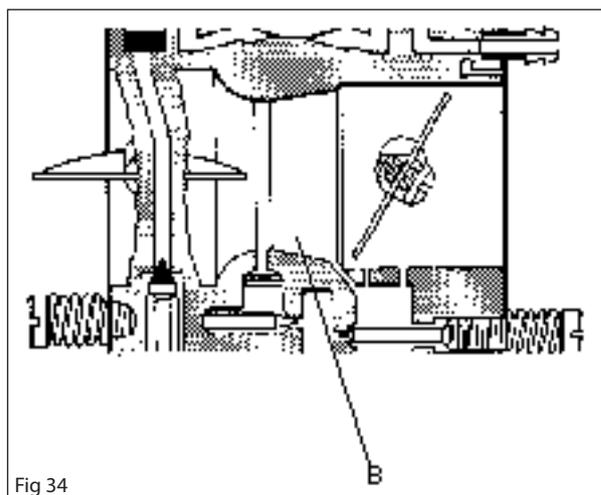


Fig 34

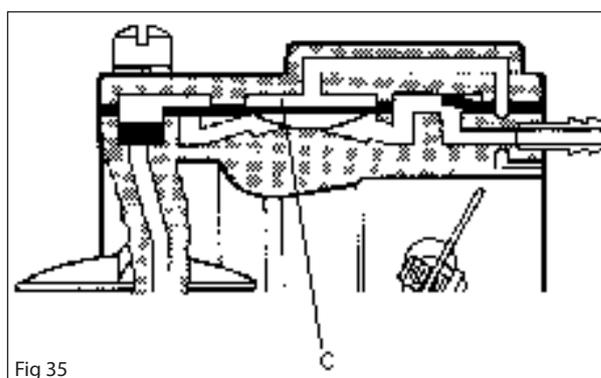


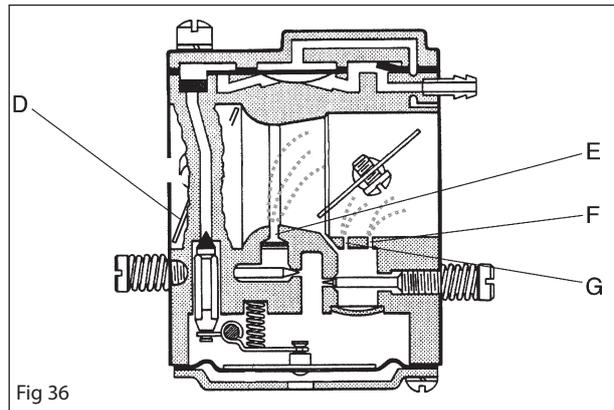
Fig 35

Function

The carburettor functions differently in the following modes:

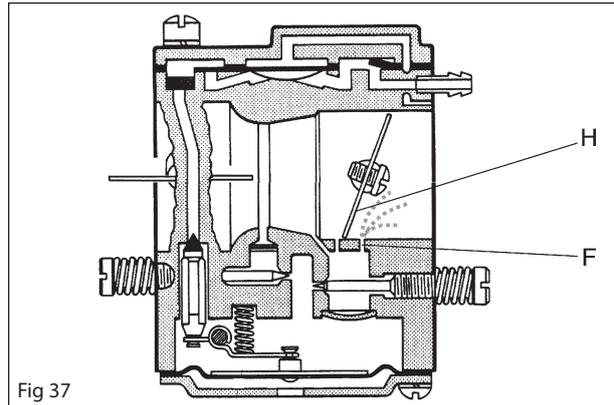
Cold start mode

In cold start mode the choke valve D is completely shut. This increases the vacuum in the carburettor and fuel is easier to suck from all the diffuser jets E, F and G. Throttle valve H is partly open.



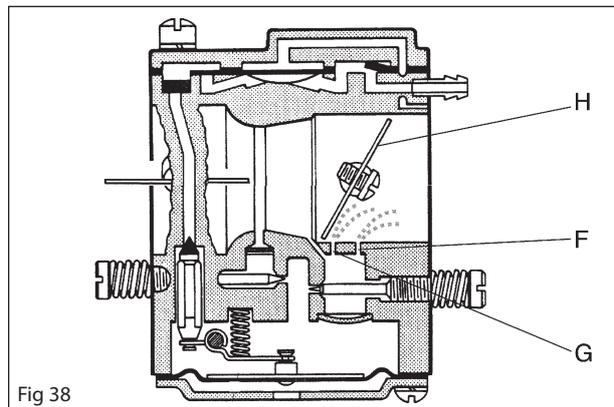
Idle mode

In idle mode throttle valve H is shut. Air is sucked in through an aperture in the throttle valve and a small amount of fuel is supplied through the diffuser jet F.



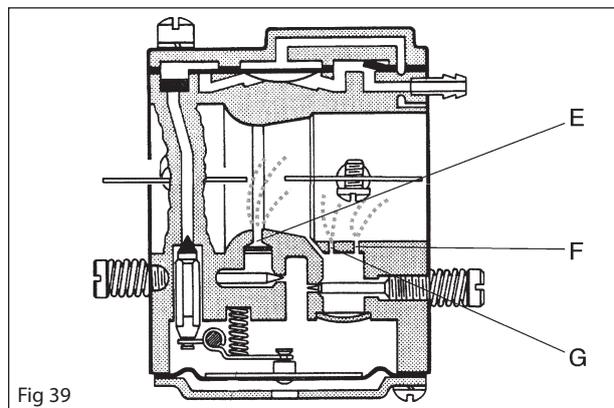
Part throttle mode

In part throttle mode the throttle valve H is partly open. Fuel is supplied through the diffuser jets F and G.



Full throttle mode

In full throttle mode both valves are open and fuel is supplied through all three diffuser jets E, F and G.



Dismantling the carburettor

1

Unscrew the air filter housing, the air filter holder and the filter. Dismantle the handle part by loosening screws A. Remove the throttle lockout B. Remove throttle C and spring D. Loosen carburettor screw E. Remove guide F, see figure 40.

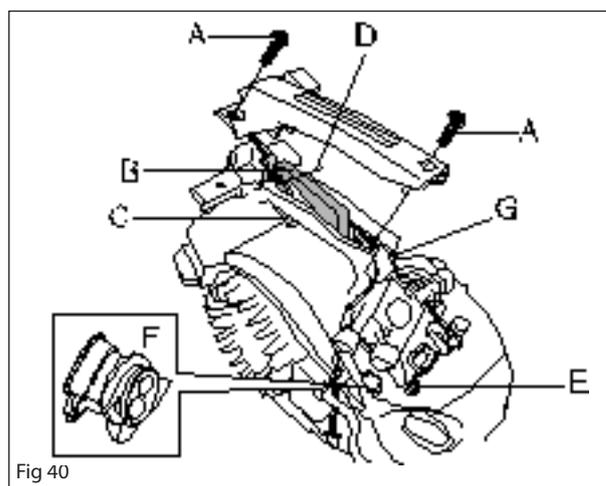


Fig 40

2

Remove the carburettor and remove the cover for choke outlet H.

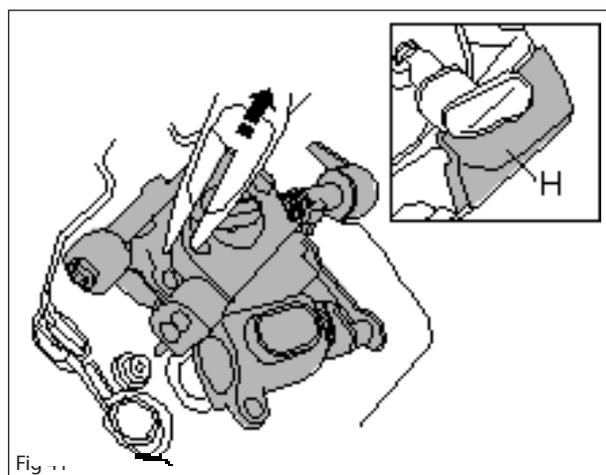


Fig 41

3

Turn the throttle actuator rod K downwards and guide it out, see figure 42.

4

Remove fuel hose J, see figure 42.

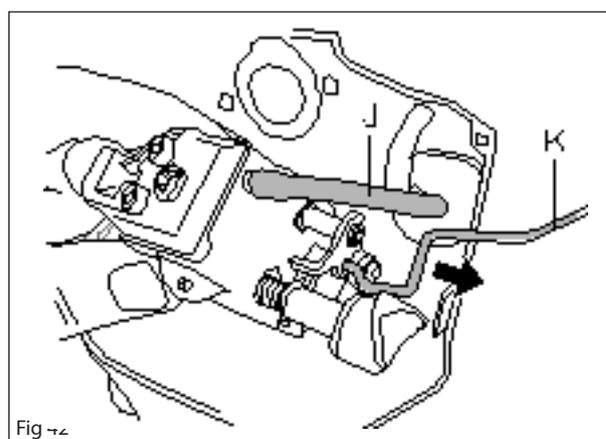
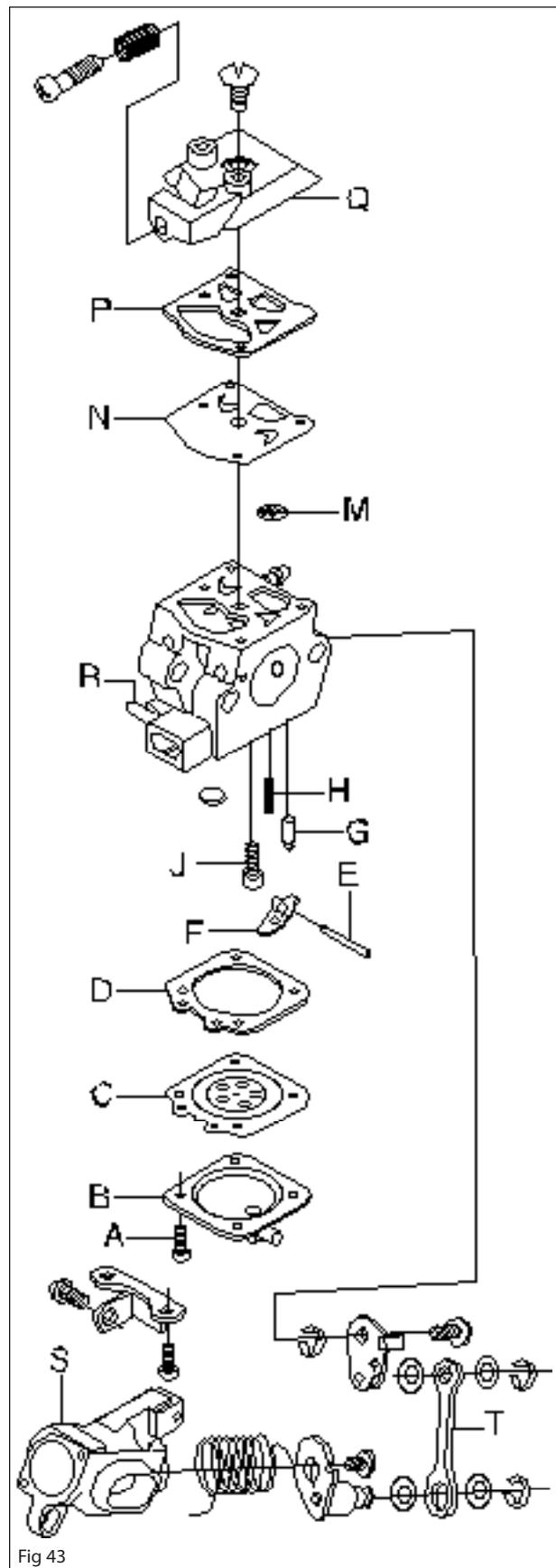


Fig 42

- 5
Dismantle the pump cover Q and carefully remove the membrane N with gasket P.
- 6
Dismantle valve housing S and lever arm T with accompanying details.
- 7
Unscrew screws A and lift off cover B and carefully remove gasket D and control diaphragm C.
- 8
Unscrew screw J and remove needle valve G with lever arm F, shaft E and spring H.
- 9
Use a needle or similar and carefully lift up fuel screen M.
- 10
Dismantle high-speed screw L and low-speed screw K, see figure 44.
- 11
If necessary, dismantle throttle valve V and choke valve U and remove the shafts with lever arms and springs, see figure 44.



Cleaning and checking

Clean all units in clean petrol.

Use compressed air to dry the petrol on the components. Direct the air through all channels in the carburettor housing and ensure that they are not blocked. Check the following:

1. That gasket, pump and control diaphragms are undamaged.
2. That there is no play on the throttle and choke valve shafts.

3. That the needle valve G and its lever arm F are not worn, see figure 43.
4. That the fuel screen M is intact and clean, see figure 43.
5. That the tips of the high L and low K speed needles are not damaged, see figure 44.
6. That the inlet manifold R is intact, see figure 43.

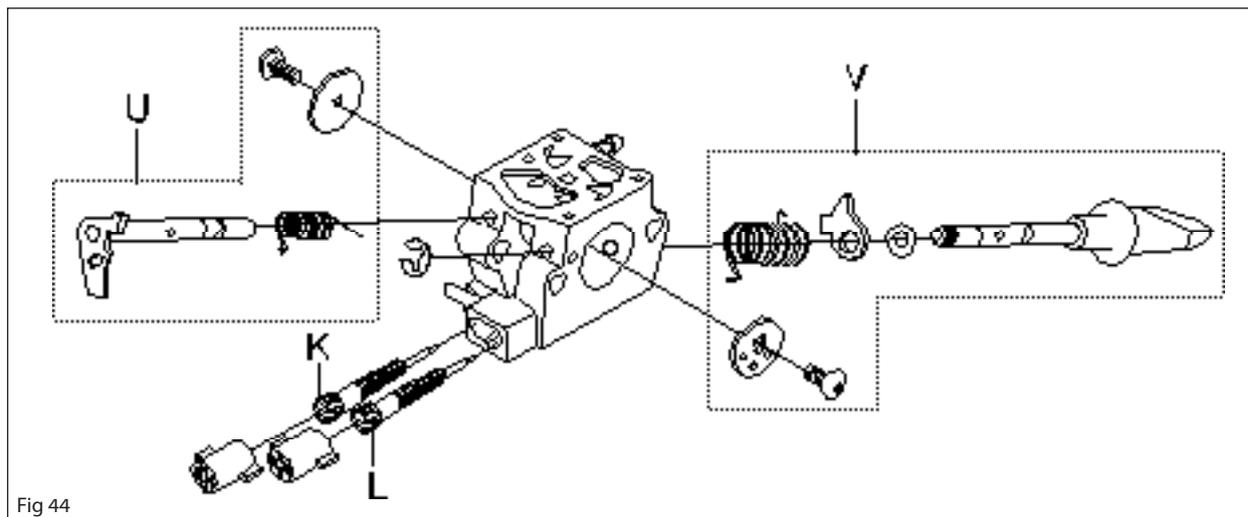


Fig 44

Assembling the carburettor

Observe cleanliness when assembling the carburettor. The slightest contamination can cause malfunctions.

1. If throttle and choke valves with shafts, lever arms and springs are removed, these shall be assembled. The springs are tightened 1-2 revolutions. Lubricate the shaft bearings using a light oil.
2. Assemble the high- and low-speed screws with springs. Note! Do not tighten the screws against the bases. This will damage seats and needle tips.
3. Assemble the fuel screen M using the handle of a small screwdriver, see figure 41.
4. Assemble membrane N with gasket P and tighten the pump cover Q, see figure 47.
5. Assemble needle valve G with lever arm F, shaft E and spring H, and tighten screw J, see figure 45.
6. Check using a ruler or the like that the lever is level with the assembly plane on the cover. If necessary, the lever arm can be bent, see figure 46.

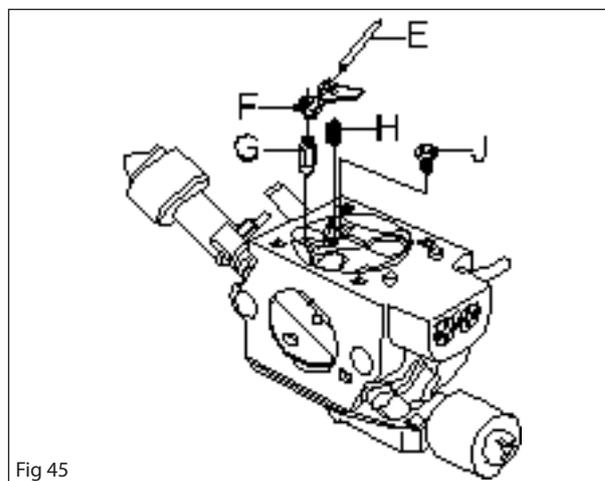


Fig 45

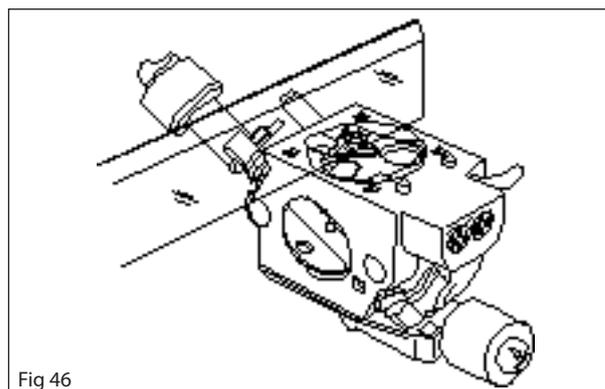
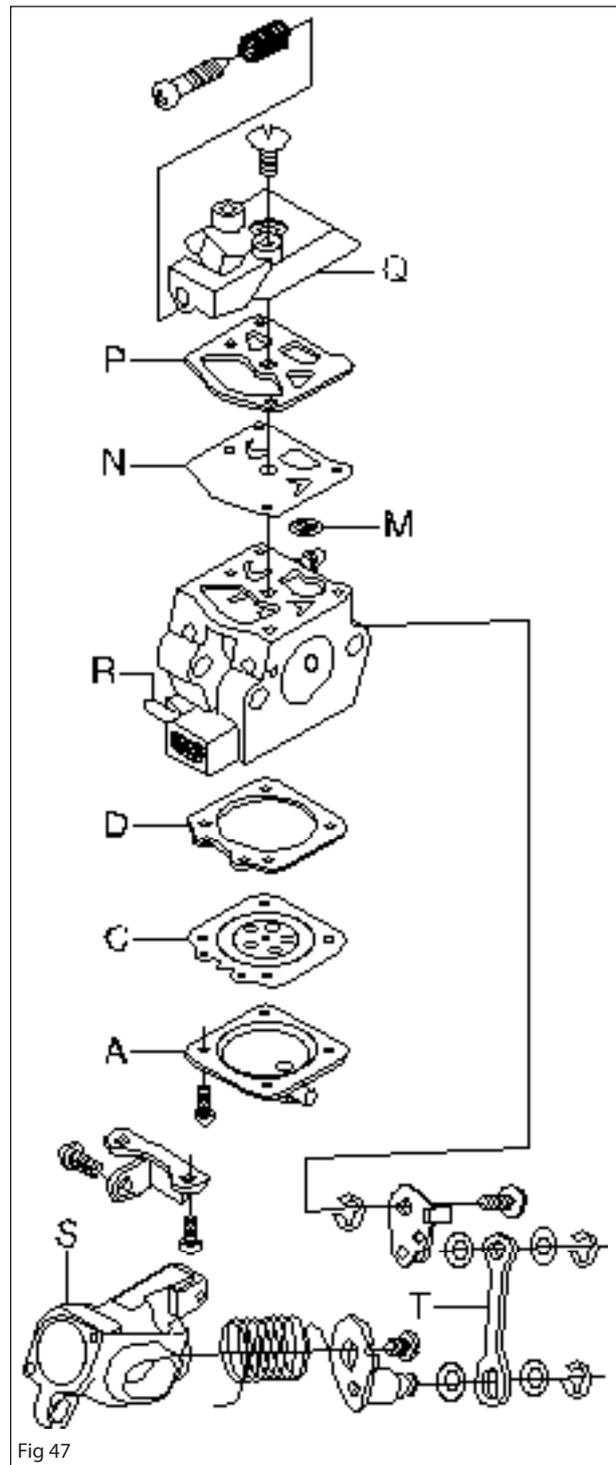


Fig 46

7. Assemble control diaphragm C, gasket D, cover B and tighten screw A.
8. Assemble the valve housing S and lever arm T with accompanying details.
9. Do a pressure test.



Pressure testing the carburettor

Pressure testing should be carried out with the carburettor fully assembled. The test shall always be done after the carburettor has been repaired, but can also be carried out as trouble shooting before the carburettor is taken apart.

See figure 48 and check as follows:

- 1
Adjust the high- and low-speed screw to two revolutions from the bottom.
- 2
Connect pressure tester to the carburettor fuel inlet.
- 3
Submerge the carburettor into a container with water, see figure 48.
- 4
Pump up the pressure to 50 kPa.
- 5
No leaks are permitted. In case of leaks, see the table below.

Leak in	Fault with
Diffuser jets Leak in the impulse pipe Ventilation hole above metering unit	Needle valve Pump membrane Control membrane

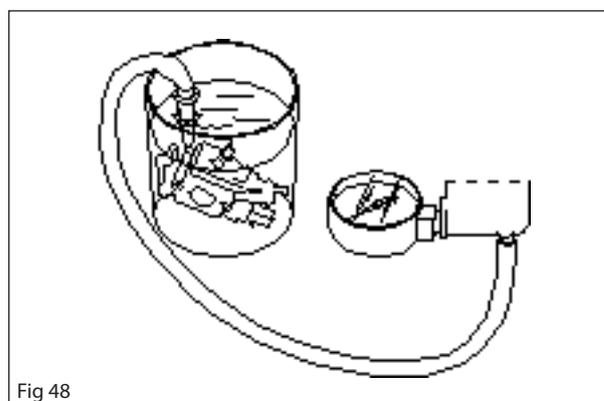


Fig 48

Assemble on the saw

1

Refit the cables H into the cable slot as shown in figure 49.

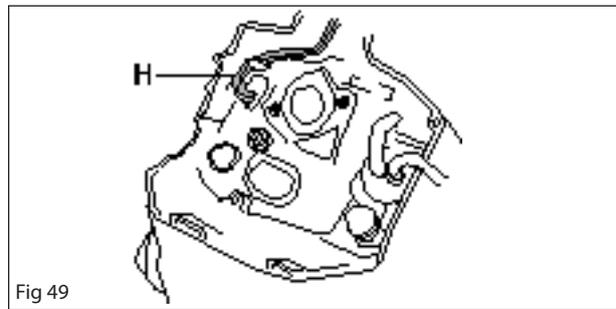


Fig 49

2

Insert the throttle actuator rod K into the carburettor, and fit the fuel hose J as shown in figure 50.

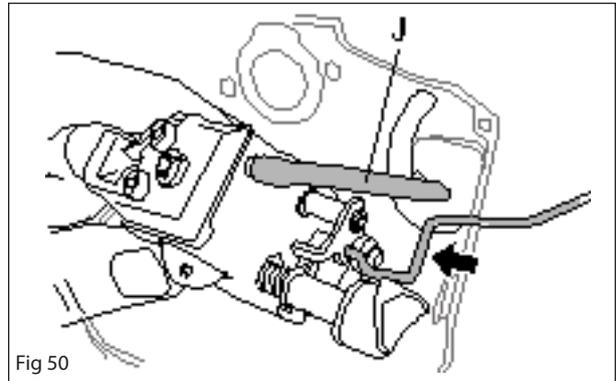


Fig 50

3

Fold the throttle actuator rod K forwards so that it can be placed in the handle part.

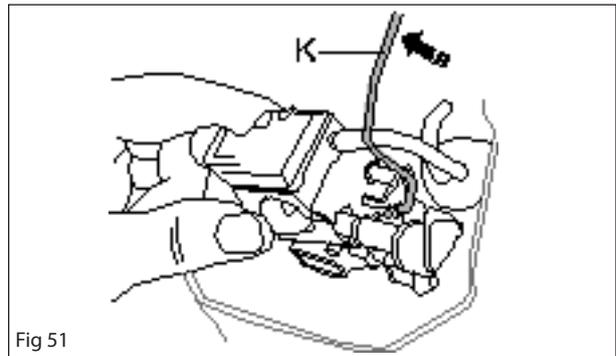
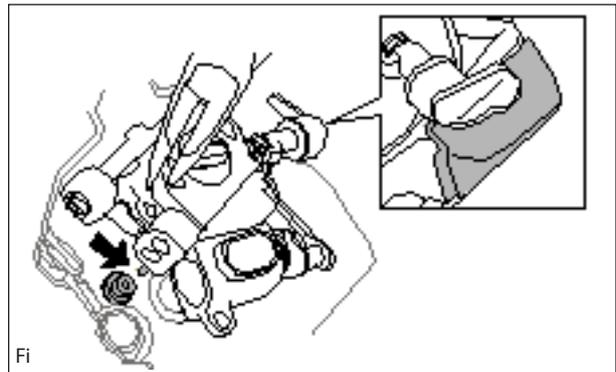


Fig 51

4

Push the carburettor into place and make sure the nipple is securely pushed down in the intake connector. Push the cover for the choke outlet into place.



Fi

5

Fit the remaining details, see chapter "Assembling the throttle lockout, throttle and spring".

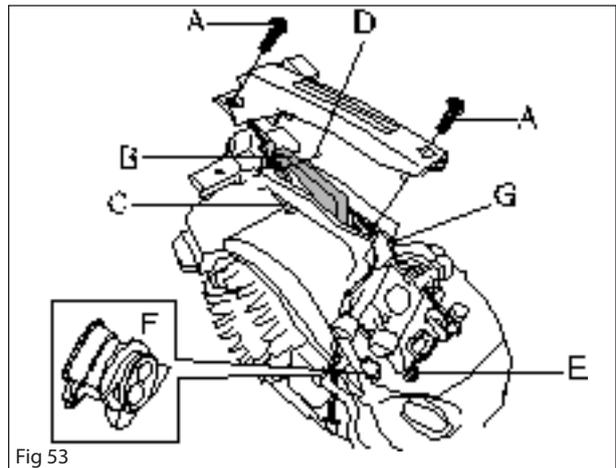


Fig 53

Adjusting the carburettor

Conditions during adjustment

- Before any adjustments are made the air filter should be clean and the air filter cover fitted.
Note! Adjusting the carburettor with a dirty air filter will give a too lean fuel mixture the next time the air filter is cleaned. This can give rise to serious engine damage.
- Fit a combination of chain and bar approved for this model (see technical data in the operator's manual).
T435 12"-14"
- The chain must not be tightened more than that about 0.5 cm remain to the bar.

See figure 54.

Replacing the H-needle or entire carburettor

1. Screw the new H-needle to the bottom and turn it "A" revolutions anticlockwise.
T435 A = 2
2. Start the engine. If necessary, adjust the idle speed with the T-screw until the chain stops.
3. Adjust the H-needle so that a top speed of "B" rpm is attained. Use a revolution counter.

T435 B = 12,500 -13,000, speed limitation

Use screwdriver 531 00 48-63.

4. Let the engine run at "B" rpm for about 1 minute until it is warm.

Replacing the L-needle

1. Screw the new L-needle clockwise to the closed position and then turn it "D" revolutions anticlockwise.

T435 D = 2.5

See figure 54.

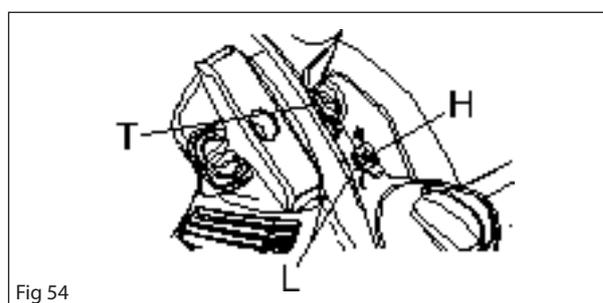


Fig 54

7.14 Dismantling the intake system

Dismantle:

- clutch cover
- air filter housing
- air filter
- air filter holder
- handle cover
- carburettor

1

Dismantle the vibration elements from the tank unit as shown in figures 55 and 56.

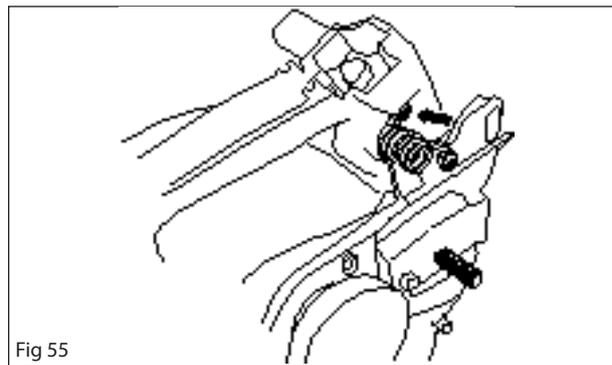


Fig 55

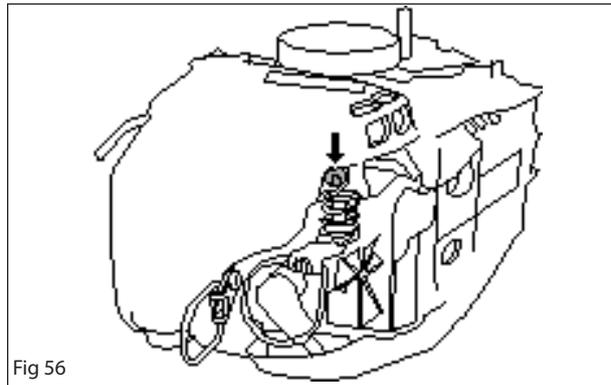


Fig 56

2

Gently press out the inlet bellows A, B and the air intake bellows C, see figure 57.

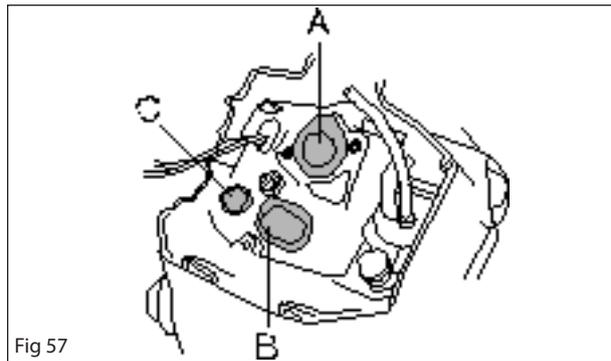
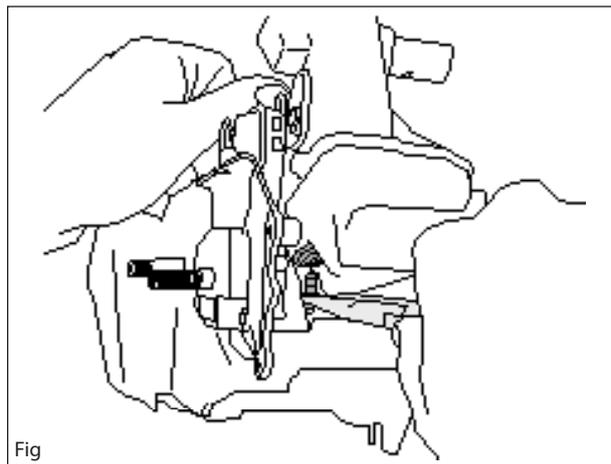


Fig 57

3

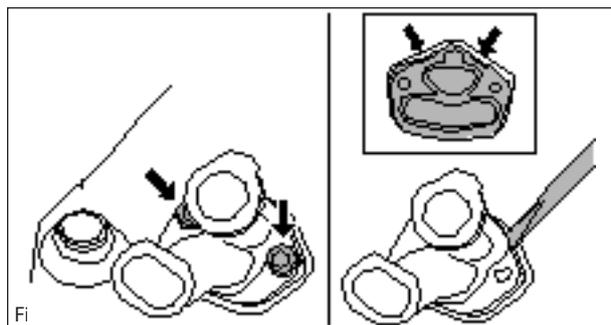
Loosen the nipple on the saw chain oil hose and lift off the tank unit.



Fig

3

Unscrew the inlet bellows, see figure 59.



Fi

Cleaning and checking

Clean and check all parts carefully. Parts must be replaced if cracked or showing signs of other defects. Always use original spare parts.

7.15 Assembling the intake system

1

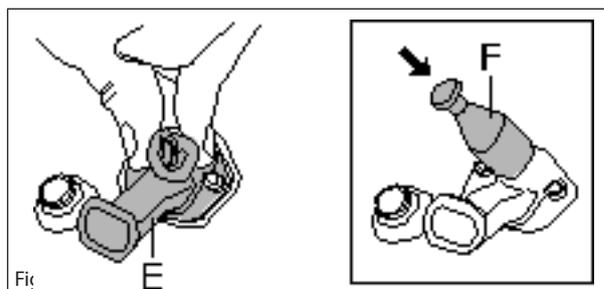
Tighten the inlet bellows. Make sure the nipple D is attached to the pump hose, see figure 60.



Fig 60

2

Press the fuel intake together on the inlet bellows E and thread on the fitting cone F, see figure 61.



Fig

3

Refit the tank unit. Insert the fitting cone as shown in figure 62. Use pliers with a shrinkable tube to insert the air intake bellows B and C, see figures 57 and 62. Pull off the fitting cone and make sure the bellows is placed correctly.

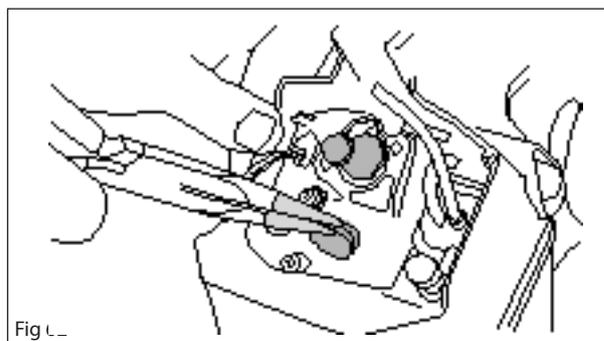


Fig 62

4

Push the nipple back through the grommet to the saw chain tank and fit the tank unit.

5

Assemble the vibration elements as shown in figures 55 and 56.

Fit the:

- carburettor
- handle cover
- air filter holder
- air filter
- air filter housing
- clutch cover

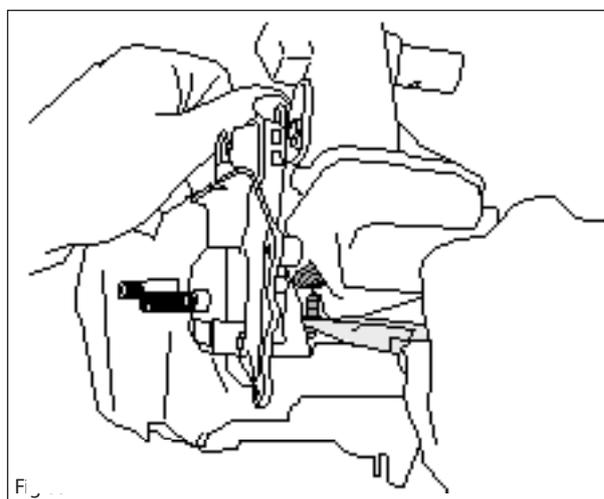


Fig 63

7.16 Dismantling the tank unit



WARNING!

The fuel used for the chain saw has the following hazardous properties:

1. The liquid and its fumes are poisonous.
2. Can cause skin irritation.
3. Is very flammable.

When dismantling the tank unit, see chapter "Dismantling the intake system" (the first 4 figures).

When assembling the tank unit, see chapter "Assembling the intake system".

NOTE!

Exercise care so that the fuel hose and throttle cable are not damaged.

7.17 Airing the fuel tank

Remove the air filter cover, air filter holder and the air filter. Use pliers with a shrinkable tube to remove the tank venting valve.

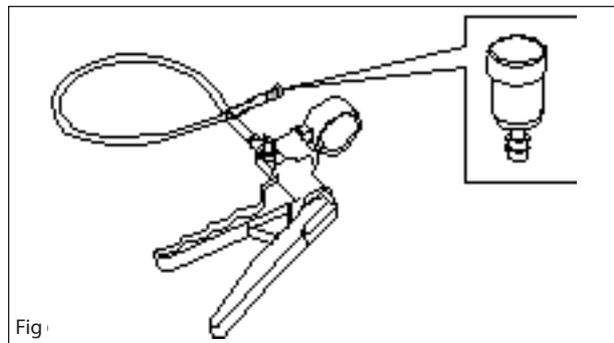
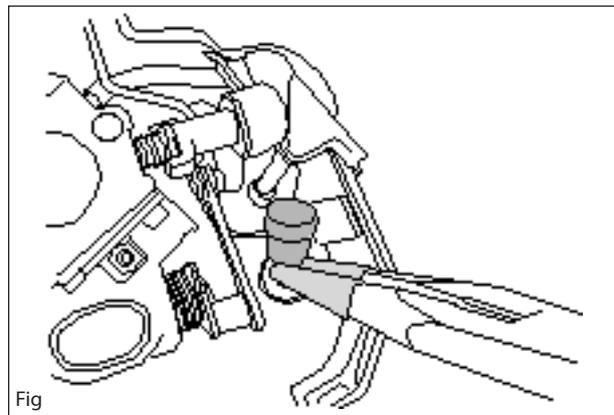
Test

Opening pressure outwards:

1. Open the tank lock and leave it open during the entire test. Empty the tank of fuel.
2. Connect the pump, ref. no. 531 03 06-23, to the tank valve.
3. Switch the pump to vacuum mode.
4. After pumping the indicator should be between 10-45 kPa.

Opening pressure inwards:

1. Open the tank lock and leave it open during the entire test. Empty the tank of fuel.
2. Connect the pump, ref. no. 531 03 06-23, to the tank valve.
3. Switch the pump to pressure mode.
4. After pumping the indicator should stop at max. 7 kPa.



7.18 Replacing the fuel filter

NOTE!

Fluted pliers may not be used with the fuel hose. They can cause material damage resulting in damage to the fuel hose.

1

When replacing the fuel filter, the old fuel filter must be taken out of the tank unit using special tool 502 50 83-01.

2

Pull out the fuel hose A from the tank unit so you can remove filter B.

3

Fit the new fuel filter B and press the fuel hose A back into place.

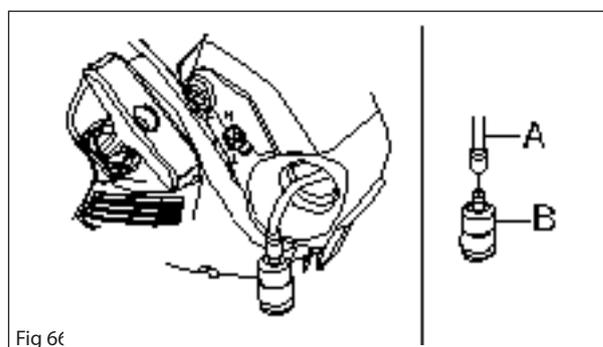


Fig 6c

7.19 Replacing the suction hose/return hose

1

Dismantle the tank unit, see chapter "Dismantling the throttle" (first 4 figures). Use pliers with a shrinkable tube to loosen return and suction hose, see figure 67.

2

Use a flat screwdriver to snap the fuel pump loose, see figure 67.

3

Split the suction hose C at the shaft. Replace hoses if necessary, see figure 68.

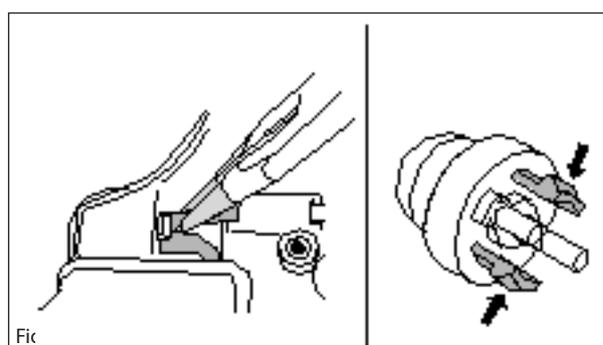


Fig 6d

7.20 Replacing the fuel pump

Dismantle the fuel pump, see chapter "Replacing the suction hose/return hose" (first 2 items).

Press the new fuel pump into place. Fit the suction hose C and return hose D as shown in figure 68.

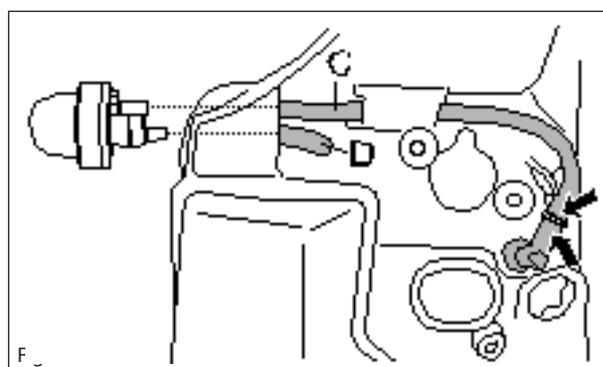


Fig 6e

7.21 Replacing the fuel hose

1

Loosen the grommet. Pull off the fuel hose E. Loosen the fuel filter and thread on the new hose onto the filter and through the grommet.

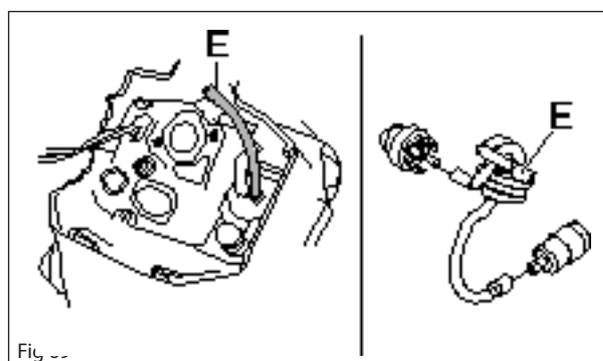


Fig 6f

7.22 Vibration damping system

Dismantling

1. Dismantle the following parts:
 - Chain and bar, see the operator's manual.
 - Handle unit.
2. Dismantle the springs as shown in figures 70, 71 and 72.

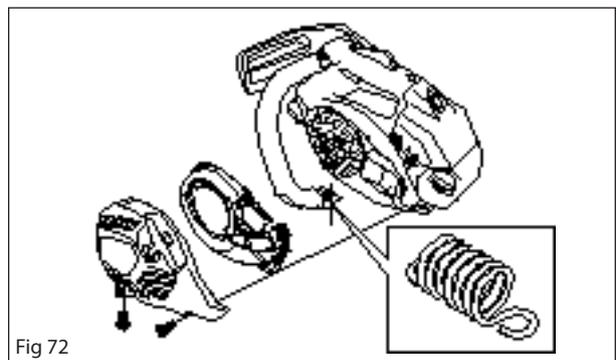
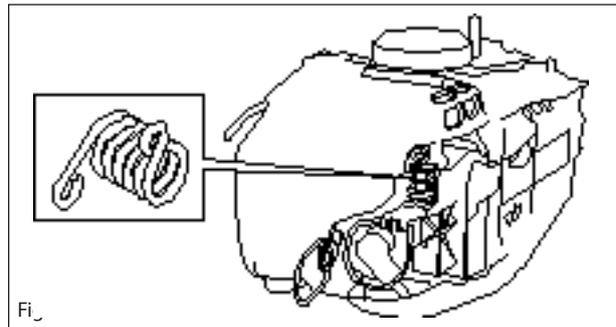
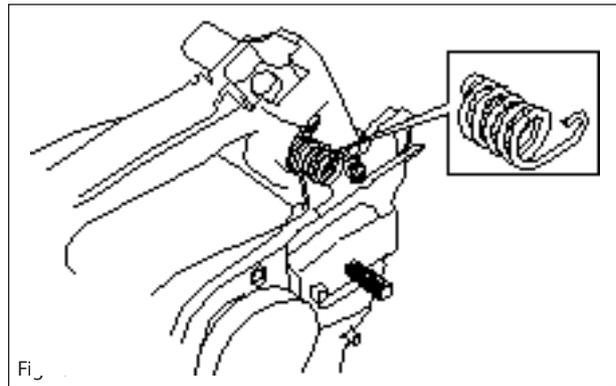
Cleaning and checking

Clean and inspect all parts.

Assembly

1. Assemble the springs as shown in figures 70, 71 and 72.

Note! Springs with greater resistance are available, but must only be used together with longer bars. See the spare parts list for spare part number.
2. Assemble the following parts:
 - Handle unit.
 - Chain and bar, see the operator's manual.



7.23 Dismantling the piston and cylinder

1

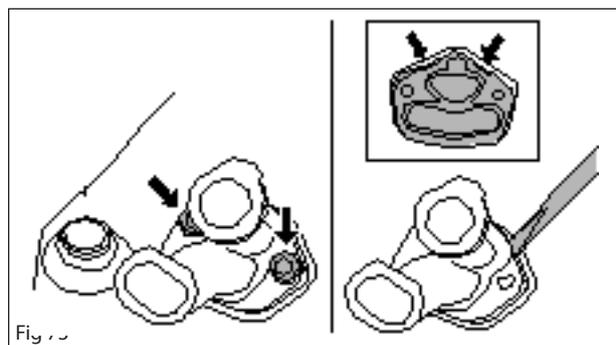
Dismantle:

- tank unit, see chapter "Dismantling the intake system".
- ignition module and flywheel
- pump unit

Dismantle the inlet bellows, see chapter "Dismantling the inlet bellows".

2

Dismantle the muffler, see chapter "Dismantling the muffler".



3

Loosen the heat shield A, see figure 74.

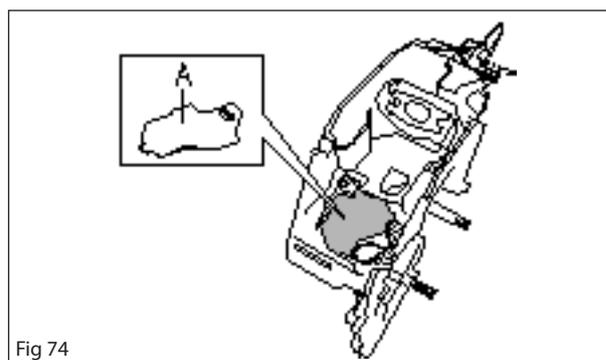


Fig 74

4

Loosen the four screws as shown in figures 75 and 76.

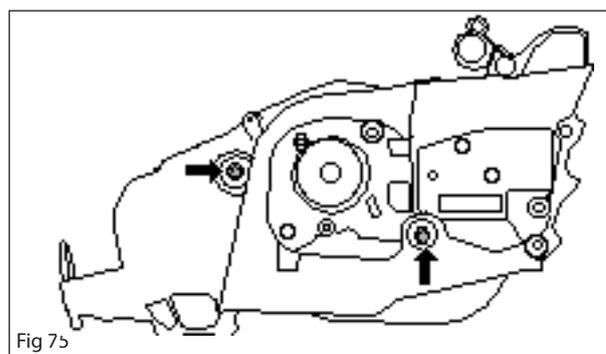


Fig 75

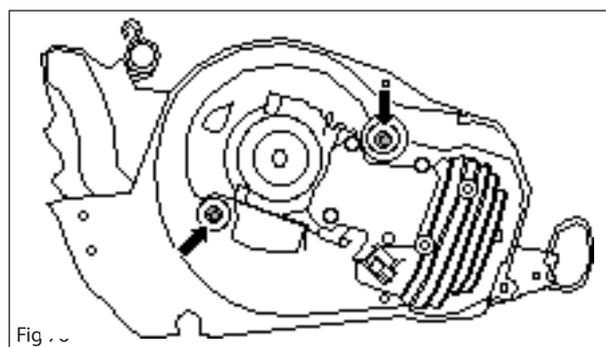


Fig 76

5

Remove the cylinder cover, see figure 77. Lift out the engine body.

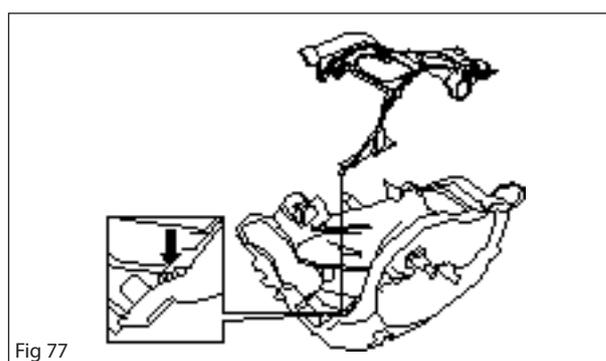


Fig 77

6

Screw apart the crankcase half and the cylinder.

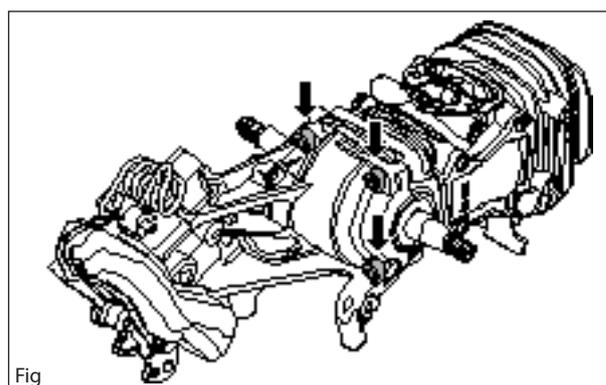


Fig 78

7

Remove the seals and the circlip. Carefully pull out piston and crankshaft. Cover with paper over the cylinder opening to prevent dirt from coming in.

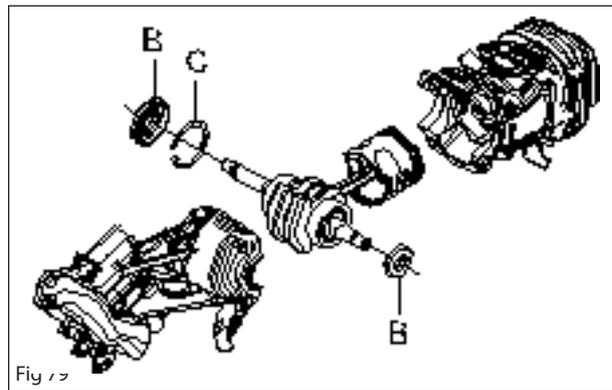
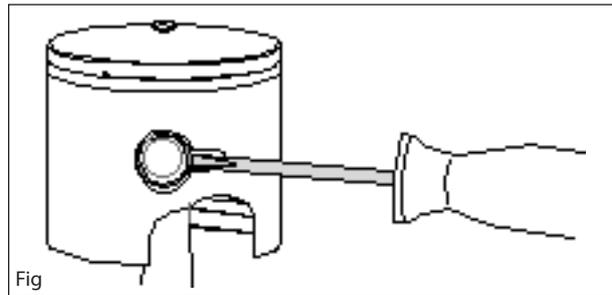


Fig 77

8

Carefully loosen the circlips D, see figures 80 and 81, with a small screwdriver.



Fig

9

Press out the gudgeon pin E. Now lift off the piston. Remove the covers F and the needle bearing G.

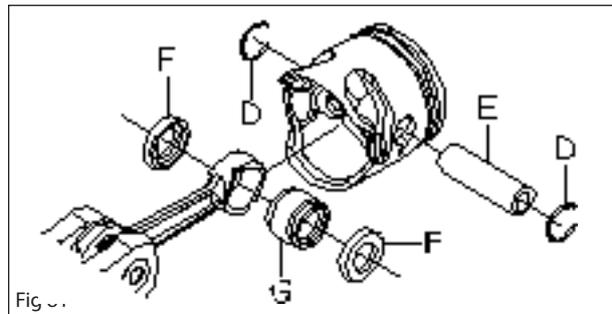


Fig 78

Cleaning and checking

Clean all parts, scrape off all gasket residue and carbon from the following places:

- The piston crown
 - Top of the cylinder bore (inside)
 - The cylinder exhaust port
 - The base of the cylinder and/or crankcase
- See figure 82.

Check the following:

- That the cylinder's surface coating is not worn. Especially the upper part of the cylinder.
- That the cylinder does not have any chafe or cutting marks.
- That the piston is free from cutting marks. Minor scratches can be polished off using fine emery paper.
- That the piston ring is not welded to its track.
- Remove the piston ring from the piston to measure the wear. Use the bottom of the piston to press down the piston ring into the cylinder. The opening of the ring must not exceed 1 mm. Put the piston ring back into the piston slot and make sure it is the right way around, see figure 83.
- That the needle bearing is intact.
- That the inlet bellows is intact.
- That air hoses and impulse hose are intact.

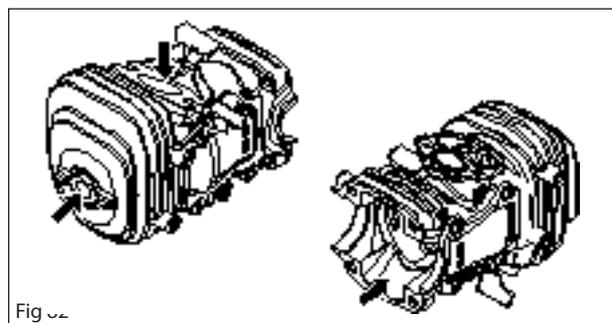


Fig 79

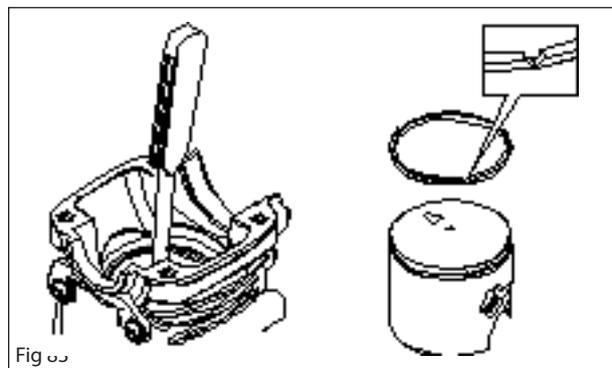


Fig 80

Faults and causes
Cutting marks on the piston (H)

1. Wrong carburettor setting. Too high fast idle speed.
2. Too low octane number of petrol.
3. Too low or incorrect oil in the fuel.

Carbon deposits (J)

1. Wrong carburettor setting. Too low fast idle speed.
2. Too much or incorrect oil in the fuel.

Piston ring breakage

1. Too high engine speed.
2. Piston ring worn out.
3. Oversized piston ring groove.

7.24 Assembling the piston and cylinder

1

Oil the needle bearing with two-stroke oil and insert it into the crank rod, press in the guiding washers, see figure 81.

Note! When assembling the piston onto the crank rod, the arrow on the piston should be pointing as shown in figure 85.

2

Slide in the gudgeon pin E and fasten the circlips D, see figure 81. Note! Use new circlips.

3

Oil the piston and piston ring with two-stroke oil. Fit the piston with the arrow pointing towards the exhaust port S, see figure 87.

4

Compress the piston ring and carefully push the piston into the cylinder. Put back the seals and the circlip and screw together the crankcase half and the cylinder, see figure 87. The screws should be tightened crosswise with tightening torque 13-15 Nm.

NOTE!

It is very important that the intake system is leak tight, or the engine may seize up.

5

Insert the cylinder and the crankcase half back into the plastic bottom. Fit the cylinder cover and tighten four screws as shown in figures 75 and 76.

Fit the heat shield. Insert and tighten the muffler. Insert and tighten the inlet bellows using two screws.

Fit the:

- pump unit
- clutch
- ignition module and flywheel
- tank unit, see "Assembling the intake system"
- chain, bar and clutch cover

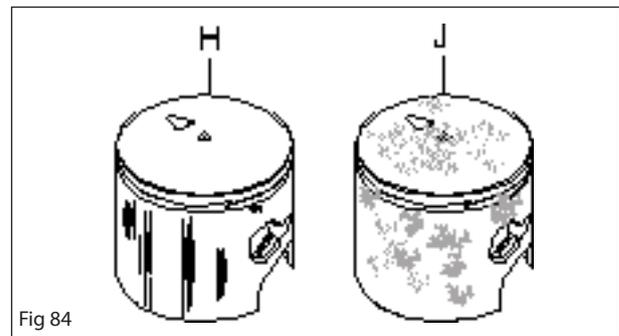


Fig 84

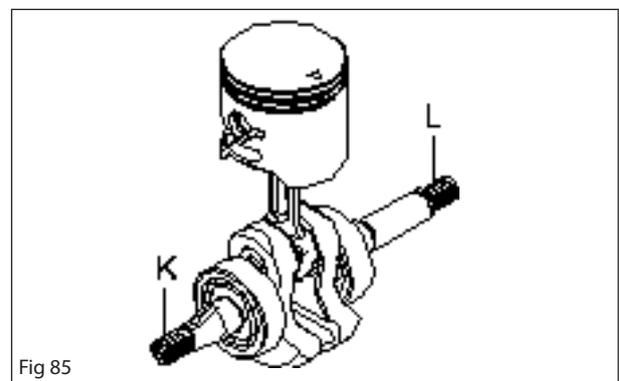


Fig 85

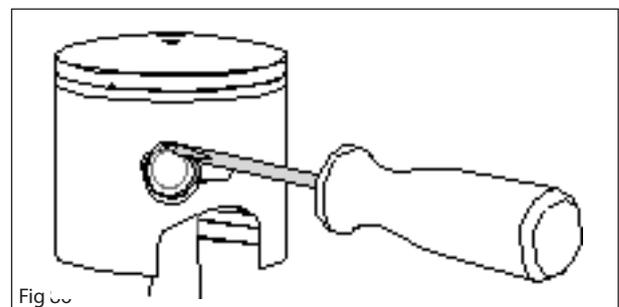


Fig 86

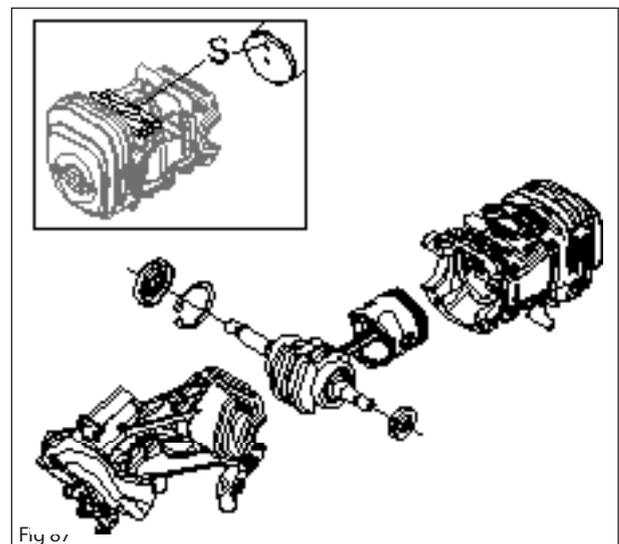


Fig 87

7.25 Dismantling the crankcase and crankshaft

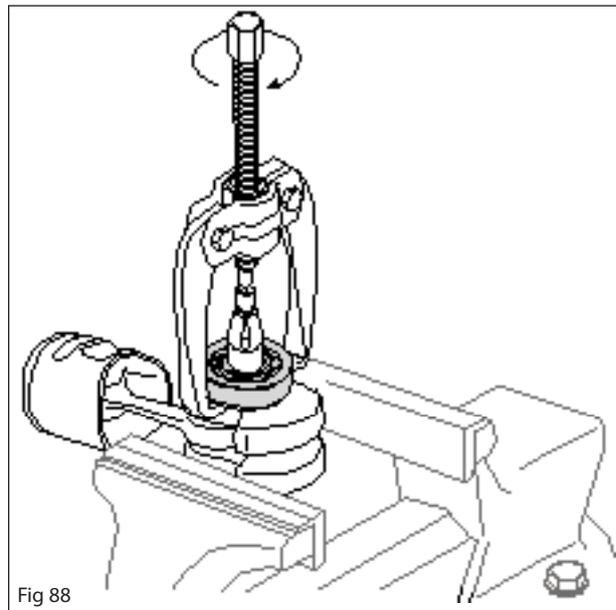
1
See chapter "Dismantling the piston and cylinder".

7.26 Replacing the crankshaft bearing

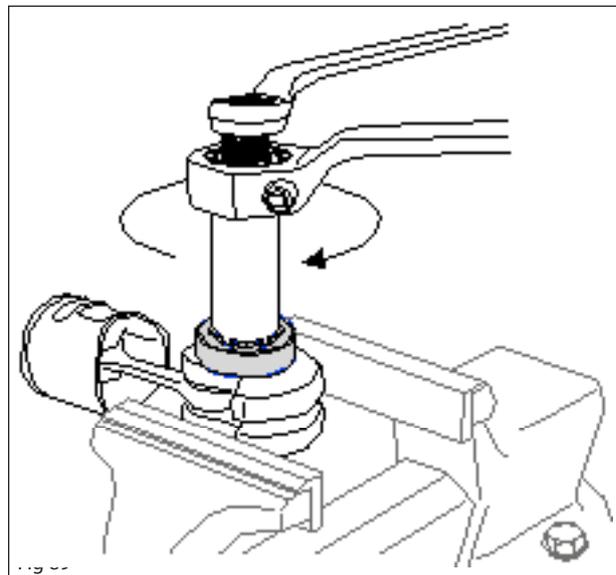
Remove:

- the crankshaft completely from the crankcase.

1
Pull out the crankshaft bearing from the crankshaft, see figure 88.



2
Fit the new bearing on the crankshaft using tool 502 50 30-18, see figure 89.



7.27 Assembling the complete crankshaft

1
See chapter "Assembling the piston and cylinder".

8 Trouble shooting

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8.1 Trouble shooting

The different faults which may occur on the chain saw are divided into four groups. Within each group possible operating faults are listed to the left while the probable fault alternatives are listed to the right. The most likely fault is listed first, etc.

Starting

Starting difficulties	Adjust the L-screw Clogged air filter Choke does not work Worn choke shaft Worn choke valve The fuel filter is clogged The fuel hose is clogged Piston ring is stuck Blocked impulse channel
The carburettor leaks fuel	Loose or defective fuel hose Hole in the membrane Worn needle/needle tip Control system is binding Control system set too high Leaking control system (air or fuel) The cover on the carburettor pump side is loose
Floods when the engine is not running	Worn needle/needle tip Control system set too high Control system is binding

Idling (low speed)

Does not run at idling	Adjust the L-screw Leaking inlet hose (rubber) Loose clamping screws carburettor Loose or defective fuel hose The fuel filter is clogged The fuel hose is clogged Tank venting clogged The throttle valve shaft is inert Throttle stay is binding Defective throttle return spring Bent valve shaft stop Faulty diffuser jet
Too high idling speed	Adjust the L-screw Worn needle/needle tip Control system set too high Worn lever arm in the control system Leaking diaphragm/cover plate Control system is binding

Idling (low speed) (cont.)

Runs in idle with closed L-screw	Worn needle/needle tip Leaking diaphragm/cover plate Control system is binding Worn lever arm in the control system Faulty diffuser jet
Irregular idling	The fuel filter is clogged The fuel hose is clogged Leaking inlet hose (rubber) Loose clamping screws carburettor Worn throttle valve shaft The throttle valve screw is loose The throttle valve is worn Control system is binding Leaking control system (air or fuel) The control system's centre knob is worn Hole in the membrane Leaking diaphragm/cover plate Crankcase leak
The L-screw needs constant adjustment	The fuel hose is clogged Control system set too high Control system is binding Leaking control system (air or fuel) Leaking diaphragm/cover plate Faulty diffuser jet Crankcase leak
Too much fuel on idling	Control system set too high Control system is binding Control system damaged Worn needle/needle tip Leaking diaphragm/cover plate Incorrectly fitted control system

High speed

Does not run at full throttle	Adjust the H-screw Blocked air filter Tank venting clogged The fuel filter is clogged The fuel hose is clogged Loose or defective fuel hose Impulse channel leaking Blocked impulse channel The cover on the carburettor pump side is loose Faulty pump diaphragm Leaking inlet hose (rubber) Loose clamping screws carburettor Control system set too low Control system damaged Control system incorrectly assembled Leak in control membrane/cover plate Control system is binding Clogged muffler
Low on power	Adjust the H-screw Tank venting clogged The fuel filter is clogged Impulse channel leaking Blocked impulse channel The cover on the carburettor pump side is loose Faulty pump diaphragm Blocked air filter Control system is binding Leaking control system (air or fuel) Control system incorrectly assembled Loose diaphragm rivet Hole in the membrane Leak in control membrane/cover plate
Will not "four stroke"	Tank venting clogged The fuel filter is clogged The fuel hose is clogged Loose or defective fuel hose Impulse channel leaking Blocked impulse channel The cover on the carburettor pump side is loose Faulty pump diaphragm Leaking inlet hose (rubber) Loose clamping screws carburettor Control system set too low Leaking control system (air or fuel) Control system incorrectly assembled Loose diaphragm rivet Hole in the membrane Leak in control membrane/cover plate

Acceleration and retardation

Does not accelerate	Adjust the L-screw Adjust the H-screw Blocked air filter Tank venting clogged The fuel filter is clogged The fuel hose is clogged Loose or defective fuel hose Blocked impulse channel The cover on the carburettor pump side is loose Faulty pump diaphragm Leaking inlet hose (rubber) Loose clamping screws carburettor Control system set too low Control system incorrectly assembled Control system is binding Faulty diffuser jet Clogged muffler
The engine stops when releasing the throttle	Adjust the L-screw Adjust the H-screw Faulty pump diaphragm Control system set too high Control system is binding Faulty diffuser jet
Too rich acceleration	Adjust the L-screw Adjust the H-screw Blocked air filter Faulty pump diaphragm Faulty diffuser jet

8.2 Trouble shooting techniques

In addition to faults given in the above schematic, trouble shooting can be carried out on a specific component or specific chain saw system.

The different procedures are described in respective sections, see the list of contents, and are as follows:

- Function check of chain brake
- Resistance testing the stop plate
- Pressure testing the carburettor
- Pressure testing the decompression valve
- Pressure testing the cylinder



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