

**Workshop Manual**

**120**

**125**



**English**



---

# Workshop Manual

## Husqvarna 120 and 125

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## 2 Introduction and safety regulations

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## 2 Introduction and safety instructions

### 2.1 General

This Workshop Manual describes in detail how to be troubleshoot, repair and test the chain saw. A description of different safety steps that must be taken during repair work is also given.

### 2.2 Safety

**Note: The section dealing with safety must be read and understood by all those carrying out repair work or service on the chain saw.**

Warning symbols can be found in this Workshop Manual and on the chain saw. See "Symbols on the saw" and "Symbols in the Workshop Manual". A new warning symbol decal must be applied as soon as possible if a warning symbol on the chain saw has been damaged or is missing so that the greatest level of safety can be maintained 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 for use when training new employees.

### 2.4 Modifications

Any modifications to the chain saw will be gradually introduced into ongoing production. As these modifications affect service and/or spare parts, specific service information 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 This means that in time this Workshop Manual will become out of date.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 information 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 made apparent in each 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 particular system on the chain saw is to be repaired, proceed as follows:

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

#### Dismantling and assembling the chain saw.

Proceed as follows when the chain saw is to be dismantled and assembled:

1. Open the "Repair instructions" chapter which deals with the **Starter** and carry out the instructions outlined under the **Dismantling** heading.
2. Work forward in the Manual and carry out **Dismantling** in the order set out in the sections.
3. Go back to the **Starter** and carry out the instructions under **Cleaning and Inspection**.
4. Work forward in the Manual and carry out **Cleaning and Inspection** in the order set out in the sections.
5. Order or collect all requisite spare parts from the stores.
6. Look up the "Repair instructions" chapter which deals with the **Crankcase** and carry out the instructions outlined in **Assembling**.
7. Work back in the Manual and carry out **Assembling** in the order set out in the sections.

Some sections include an introductory **Description** of the actual unit in order to increase the basic understanding.

### 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 unless they have read and understood the content of this Workshop Manual.

This workshop manual contains the following warning 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 in the chain saw has the following hazardous properties:

- The fluid and its vapour are poisonous.
- Can cause eye and skin irritation.
- Can cause breathing problems.
- Is highly inflammable.

When using compressed air, do not direct the jet towards your body. Air can penetrate into the blood stream, which can endanger life.

Wear protective earplugs or earmuffs when test running.

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

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

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

Exercise care to ensure the starter spring does not fly out and cause personal injury. Wear protective glasses. 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 chain saw

The symbols below are embedded on the chain saw.



Choke Lever



Refuelling



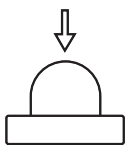
Stop switch



Chain oil fill



Chain brake

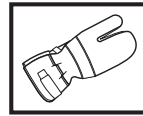


Primer bulb

## 2.11 Symbols in the Workshop Manual



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


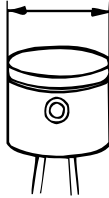
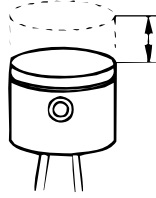
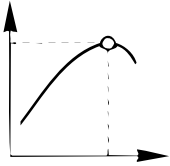


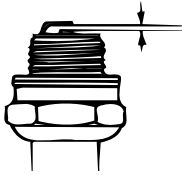
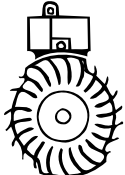

Wear protective gloves.

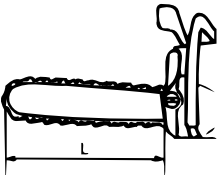

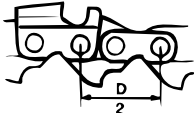
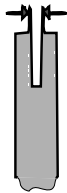


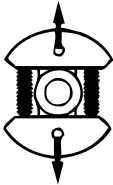

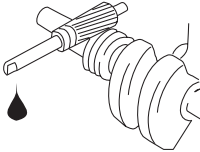
Wear protective goggle.


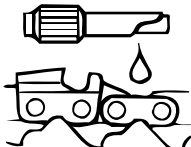
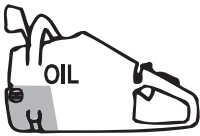

### 3 Technical data

|            |  |  |  |  |
|------------|---|---|--|---|
|            | Displacement<br>cm <sup>3</sup> /cubic inch                                       | Cylinder diameter<br>Ø mm/Ø inch  | Stroke length<br>mm/inch   | Max. output/speed<br>kW/hp/rpm  |
| 120 model: | 35 / 1.38   | 37.9 / 1.49   | 31 / 1.22  | 1.44 / 1.96 / 9 000   |
| 125 model: | 40 / 1.57   | 40.5 / 1.59   | 31 / 1.22  | 1.52 / 2.07 / 9 000   |

|            |  |  |  |
|------------|--|--|---|
|            | Electrode gap<br>mm/inch   | Air gap<br>mm/inch   | Carburettor type  |
| 120 model: | 0.60 / 0.024   | 0.3 / 0.016  | RUIXING H182A2-01-B   |
| 125 model: | 0.60 / 0.024   | 0.3 / 0.016  | RUIXING H182A2-BA<br>H182A2-BC  |

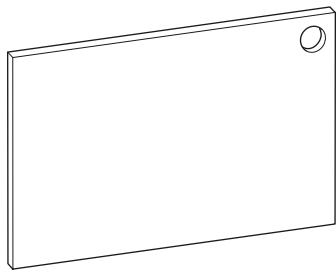
|            |  |  |  |  |
|------------|---|---|--|---|
|            | Usable cutting<br>length<br>cm/inch   | Chain speed at 133%<br>of maximum engine<br>power speed<br>ft/s / m/s               | Chain pitch<br>mm/inch   | Drive link<br>mm/inch   |
| 120 model: | 32.5-37.5 / 13-15   | 74.8 / 22.8   | 9.52 / 0.375   | 1.32 / 0.052 - 1.57 / 0.062   |
| 125 model: | 37.5-42.5 / 15-17   | 74.8 / 22.8   | 9.52 / 0.375   | 1.32 / 0.052 - 1.57 / 0.062   |

|            |  |  |  |  |
|------------|---|---|--|--|
|            | Engage speed rpm  | Spark plug  | Type of oil pump   |  |
| 120 model: | 4100 (+/- 250)  | TORCH CMR7H   | Automatic  |  |
| 125 model: | 4100 (+/- 250)  | TORCH CMR7H   | Automatic  |  |

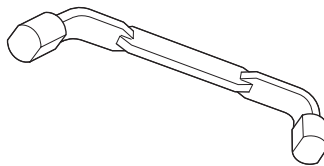
|            |  |  |  |  |
|------------|---|---|--|---|
|            | Volume fuel tank<br>Litre/US. pint  | Capacity oil pump<br>at 9,000 rpm<br>ml/min                                       | Volume oil tank<br>Litre/US. pint  | Weight without bar and<br>chain<br>kg / lbs   |
| 120 model: | 0.25 / 0.52   | 3-13  | 0.15 / 0.31  | 4.4 / 9.7   |
| 125 model: | 0.25 / 0.52   | 3-13  | 0.15 / 0.31  | 4.6 / 10.14   |

# 4 Service tools

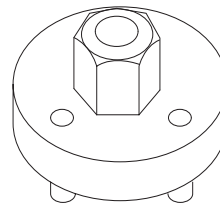
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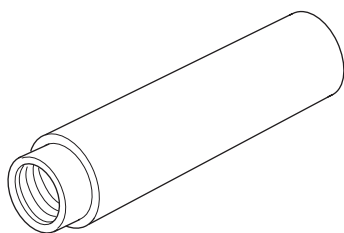
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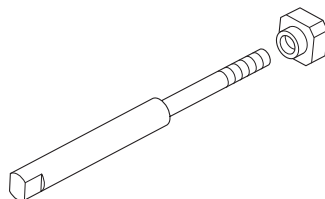
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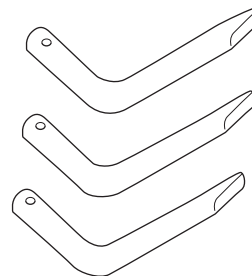
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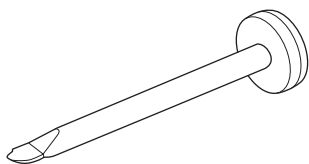
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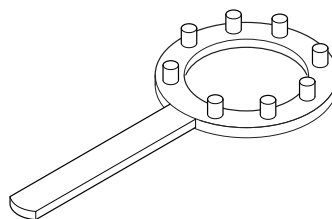
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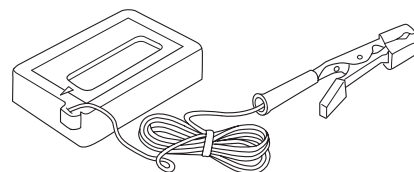
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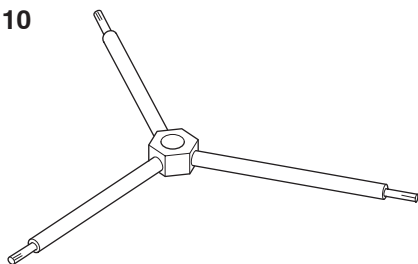
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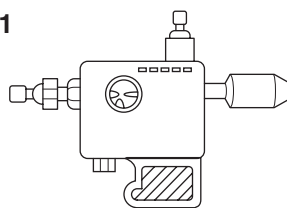
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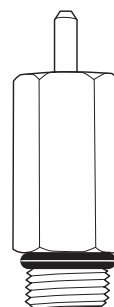
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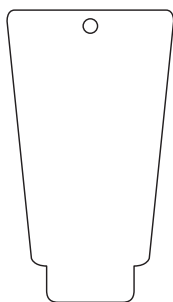
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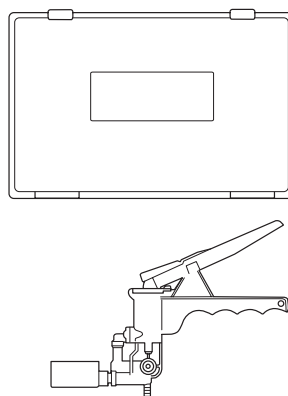
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13

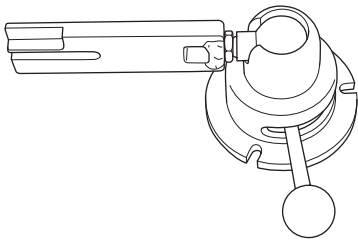


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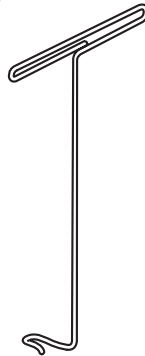




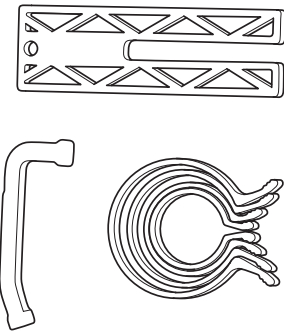
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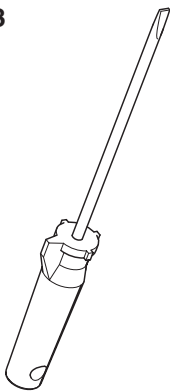
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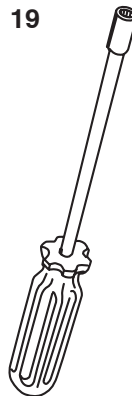
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18



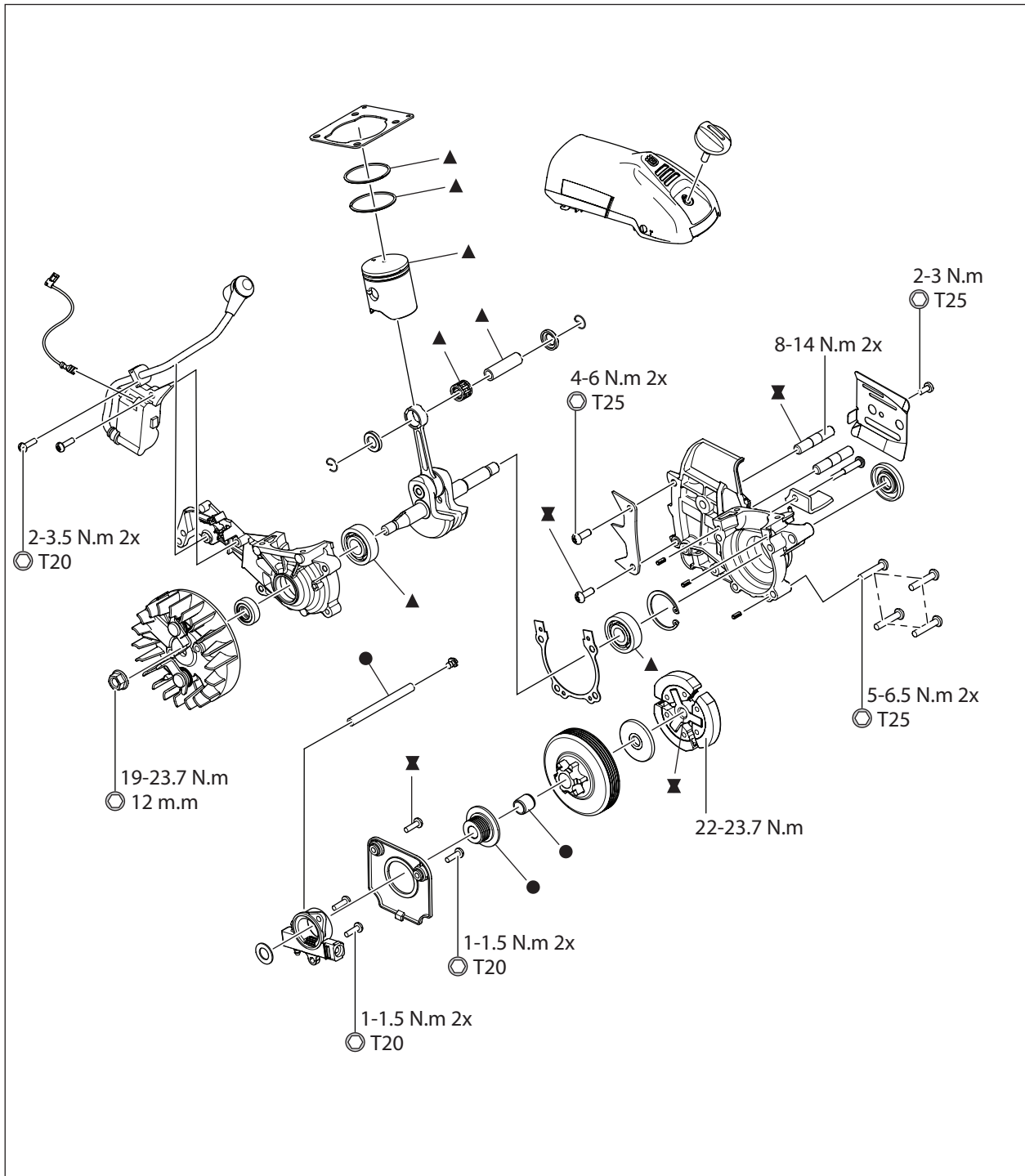
19



The tools listed here are the service tools required for this model of chain saw. In addition to these tools, a normal kit of hand tools is required.

| Pos. | Description            | Used for                      | Order No.    |
|------|------------------------|-------------------------------|--------------|
| 1    | Air gap tool, ignition | Setting ignition module       | 502 51 34-02 |
| 2    | Piston stop            | Locking the crank shaft       | 575 29 36-01 |
| 3    | Wrench                 | Clutch out or in              | 513 63 60-01 |
| 4    | Mandrel                | Dismantling the flywheel      | 502 51 94-01 |
| 5    | Rod assy               | Piston pin out or in          | 521 53 35-01 |
| 6    | Wrench                 | Clutch spring in              | 513 63 65-01 |
| 7    | Guide                  | Brake spring out or in        | 513 63 70-01 |
| 8    | Flywheel tool          | Remove the flywheel           | 504 91 08-03 |
| 9    | Tachometer             | Engine speed meter            | 502 71 14-01 |
| 10   | Torx wrench            | T20/T25/T27                   | 578 28 90-01 |
| 11   | Ignition checker       | Spark strength check          | 501 97 64-01 |
| 12   | Spark plug adapter     | Pressure testing              | 503 84 40-03 |
| 13   | Rubber wedge, outlet   | Pressure testing              | 502 54 11-02 |
| 14   | Pressure/vacuum gauge  | Pressure testing              | 531 03 06-23 |
| 15   | Assembly fixture       | Securing the chain saw        | 502 51 02-01 |
| 16   | Hook for fuel filter   | Withdrawing the fuel filter   | 502 50 83-01 |
| 17   | Assembly kit, piston   | Assembling the piston         | 502 50 70-01 |
| 18   | Adjustment screwdriver | Adjustment of the carburettor | 513 63 56-01 |
| 19   | Adjustment screwdriver | Adjustment of the carburettor | 530 03 55-60 |

## 5 Service data



### Key

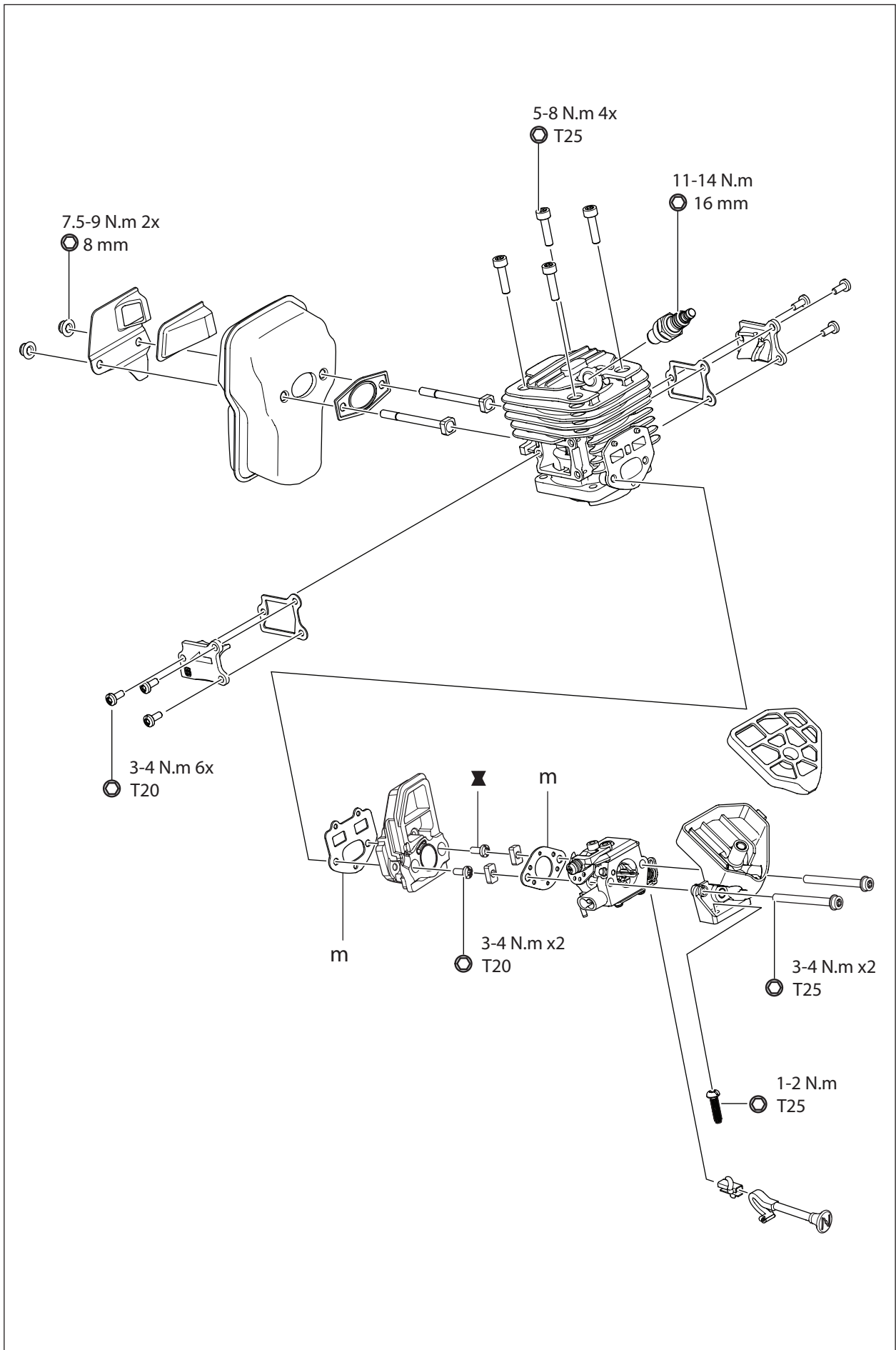
The numbers by bolted components represent the tightening torque in Nm.

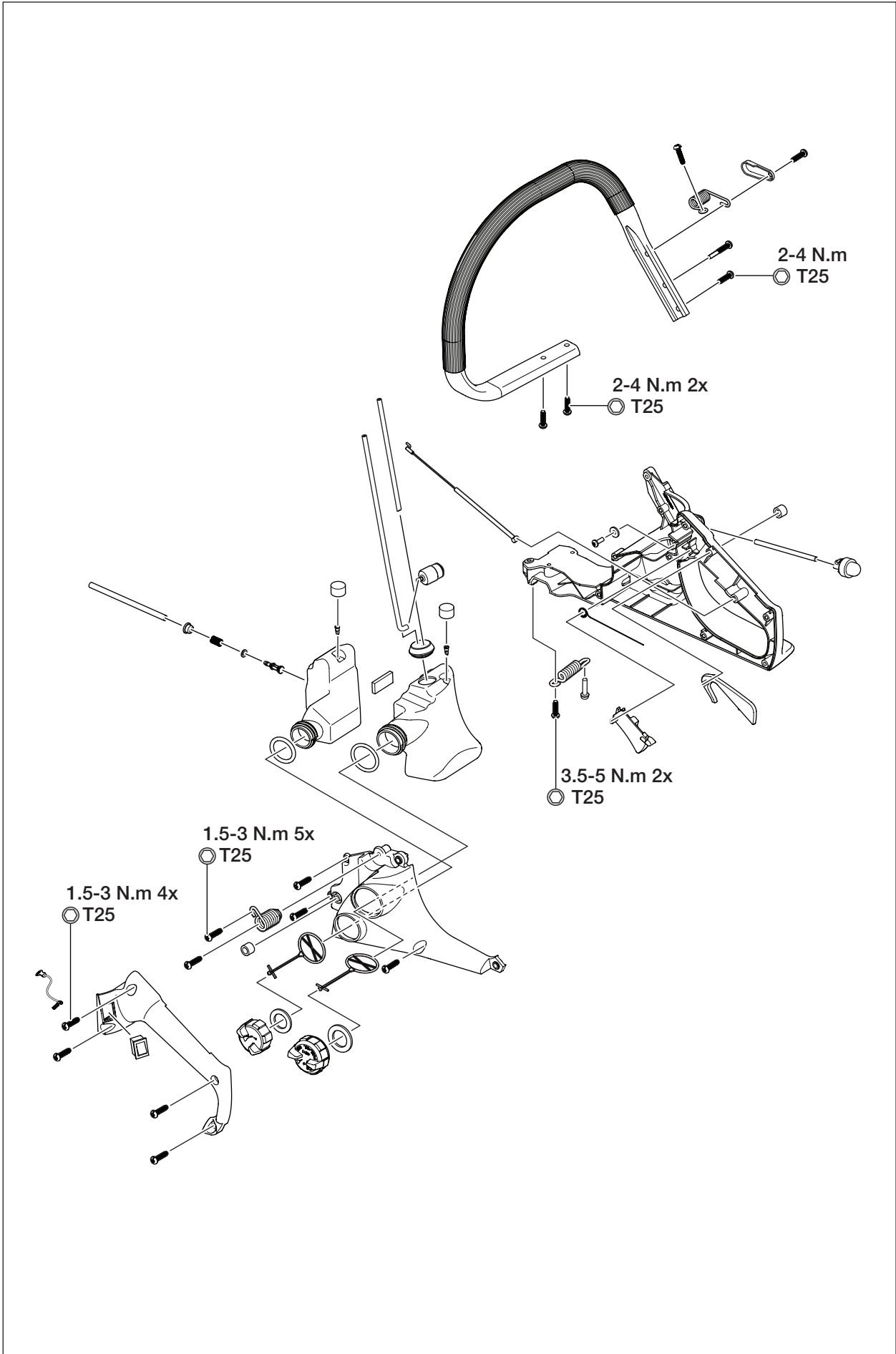
▲ Lubricate with two-stroke oil.

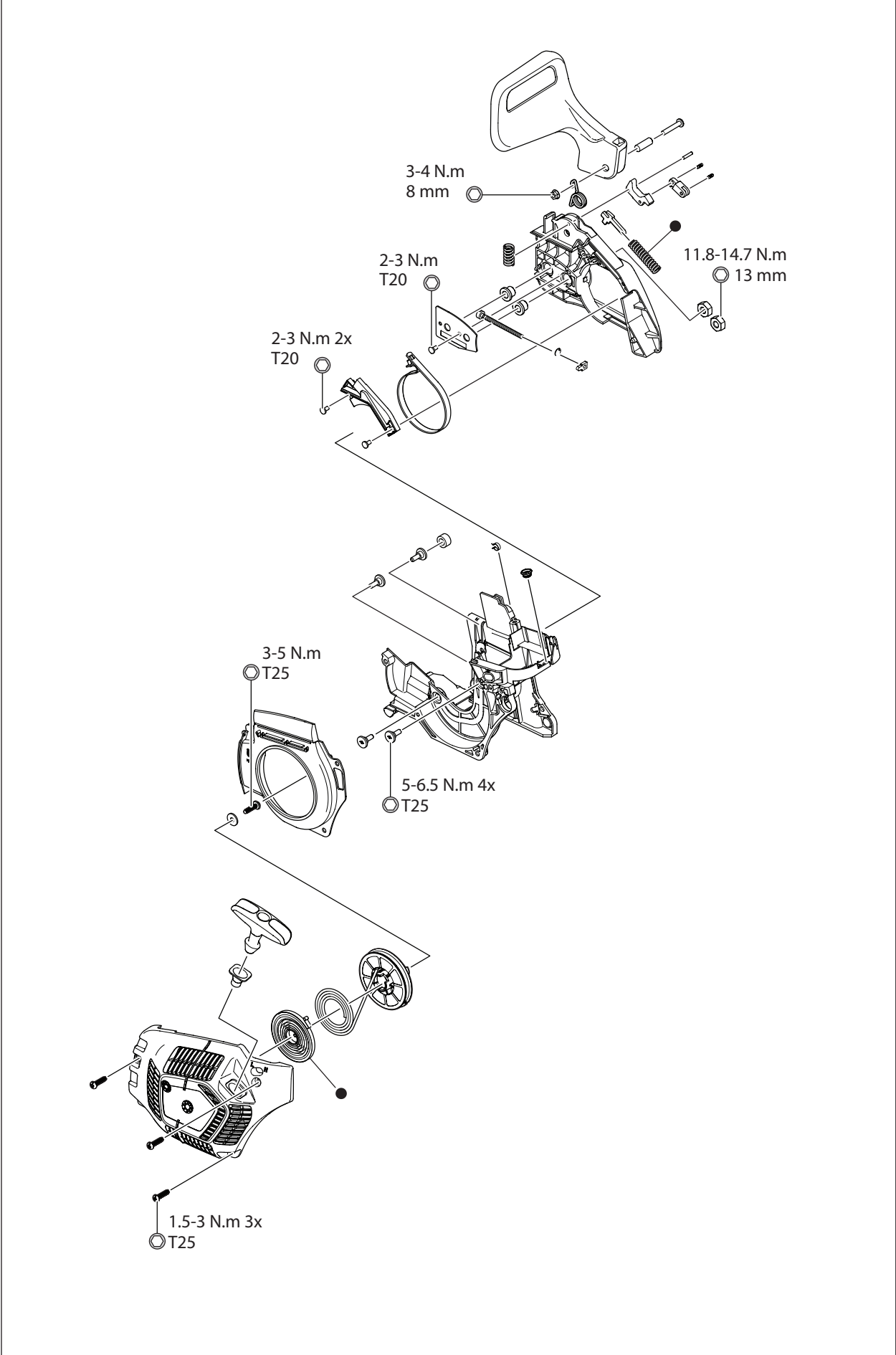
● Lubricate with grease.

⌘ Apply thread lock

m Apply liquid gasket







## 6 Safety equipment

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## 6 Safety equipment

### 6.1 Dismantling the chain brake



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



**1**

Loosen the bar nuts and remove the clutch cover, guide bar and saw chain. See figure 1.

**2**

Use a heat gun to loosen the thread lock on the mounting screw. Unscrew the mounting screw for the handle, using an Allen key and a socket wrench. Remove the screw and release the handle.

**3**

Release the tension in the brake spring by pressing down the lever. See figure 2b.

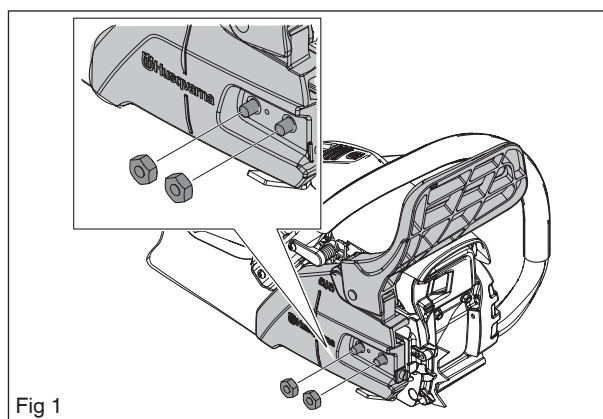


Fig 1

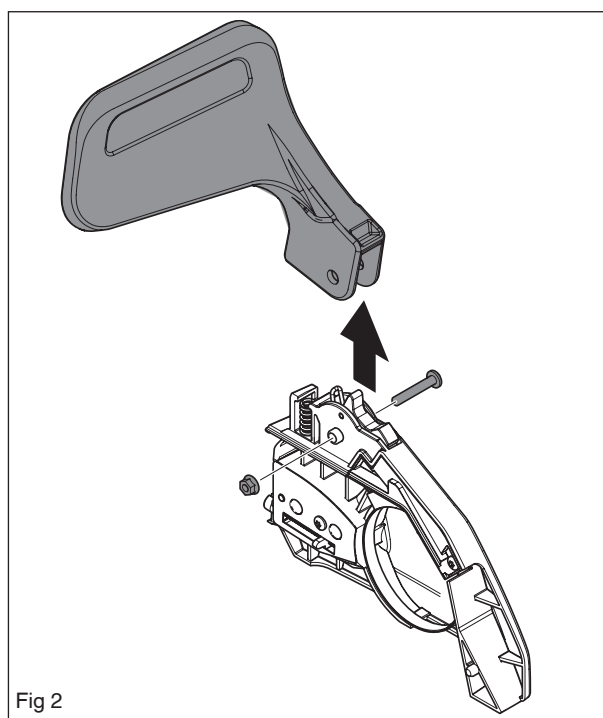


Fig 2

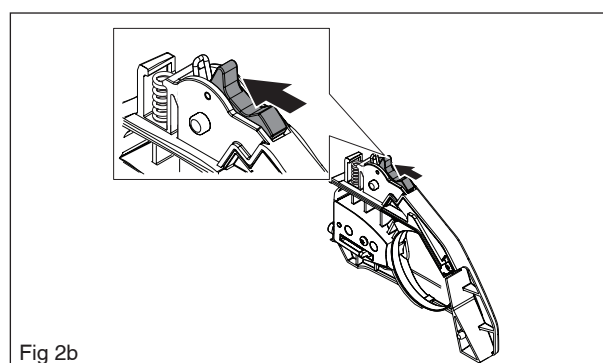
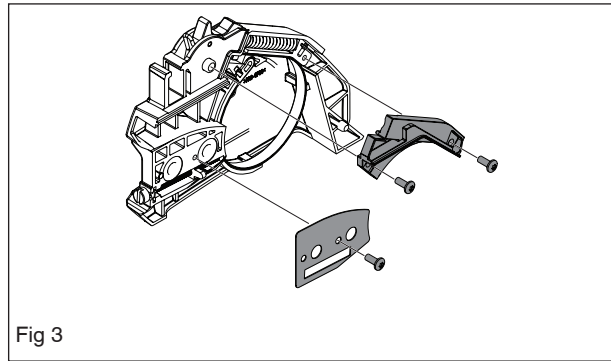


Fig 2b

4

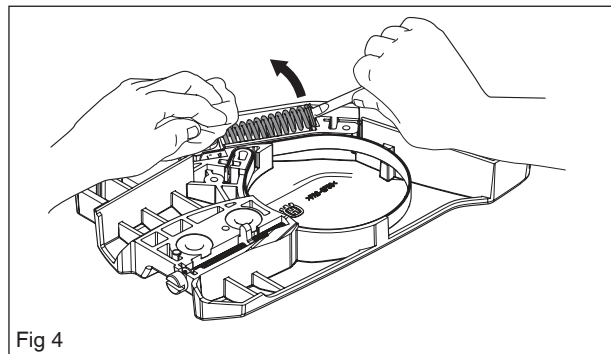
Loosen the screws and remove carefully the covers over the brake spring. See figure 3.



5

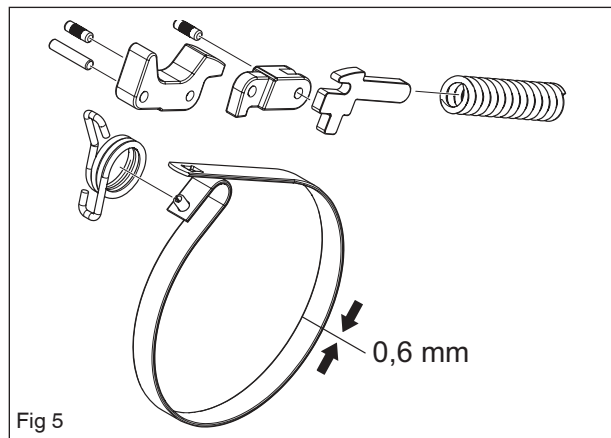
Hold one hand over the brake spring and press in a small screwdriver into the spring. Carefully bend upwards until the spring is released and slides onto the screwdriver, see figure 4.

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



### Cleaning and inspection

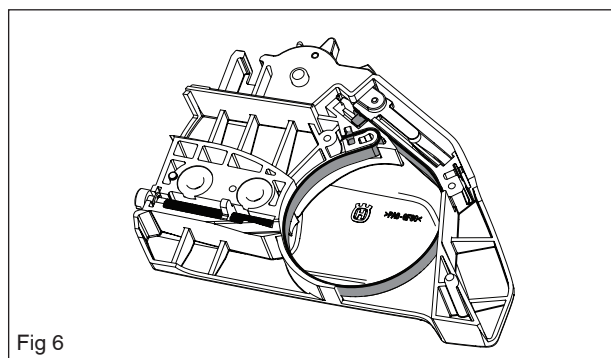
- Clean and check all components carefully. Parts must be replaced if cracked or show signs of other defects. Always use original spare parts.
- Measure the thickness of the chain brake band. It must not be less than 0,6 mm in any place. See figure 5.
- Lubricate the knee joint with grease.



## 6.2 Assembling the chain brake

1

Fit the knee joint and the brake band together. Place the knee joint with the fitted chain brake band in the opening in the clutch cover. The space for the spring in the cover must be lubricated with grease. See figure 6.



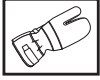


2

Compress the spring with a wide screwdriver (or special tool 513 63 70-01) and press it down with your thumb, see figure 7.



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



3

Fit the two covers using 2 - 3 Nm tightening torque, see figure 8.

4

Tension the spring by pressing down the lever. See figure 9.

5

Assemble the handle in right position. Fit the screw and tighten the nut. See figure 9b.

6

Fit the guide bar, saw chain and clutch cover and tighten the bar nuts. See figure 10.

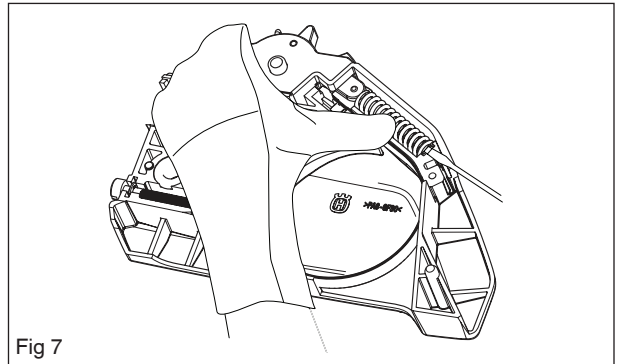


Fig 7

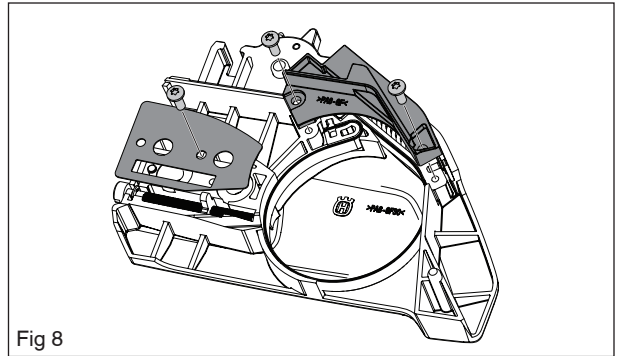


Fig 8

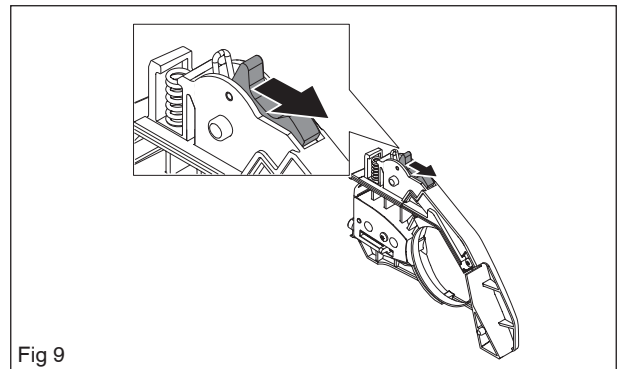


Fig 9

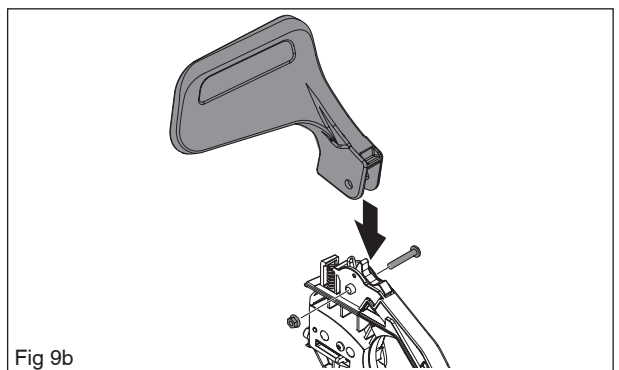


Fig 9b

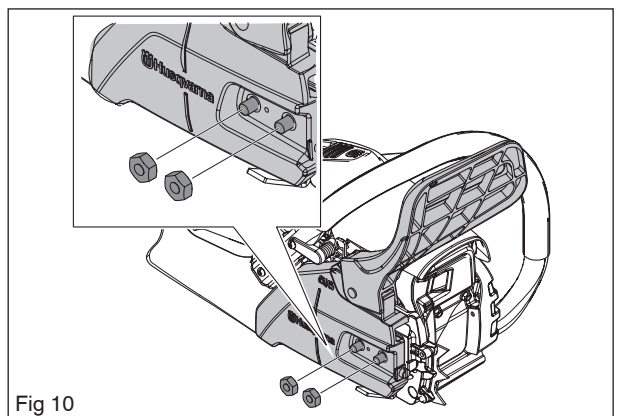


Fig 10

**NOTE!**

**After repairing, the chain brake must be inspected in line with the instructions below.**

Functional inspection:

Do not turn on the engine when carrying out this inspection.

| Guide bar length | Height    |
|------------------|-----------|
| 12"-18"          | 45 cm/18" |

- Hold the chain saw over a stable surface. The distance between the guide bar and the surface is shown in the table above.
- Let go of the front handle and let the chain saw drop toward the surface underneath.
- When the guide bar hits the surface the chain brake must trigger.



Fig 11

### 6.3 Dismantling the muffler



**WARNING!**  
Do not touch the muffler until it has cooled. Risk of burns.

- 1 Use a heat gun to loosen the thread lock on the screws before you unscrew the two screws for the spike (A). Remove the spike. See figure 12.
- 2 Release the two nuts (B) and remove the heat deflector.
- 3 Remove the spark arrestor mesh (C).
- 4 Remove the muffler (D), the gasket (E) and the two screws (F).

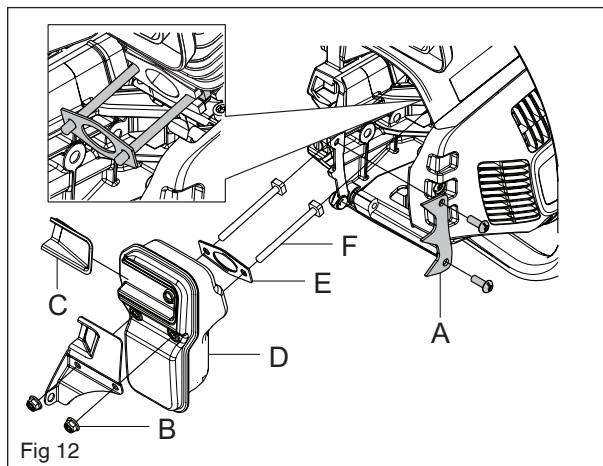


Fig 12

Cleaning and inspection

- Clean and check all components carefully. Parts must be replaced if cracked or show signs of other defects. Always use original spare parts.
- The spark arrestor mesh is best cleaned with a wire brush.
- The mesh must be replaced, if damaged. The chain saw will overheat if the mesh is clogged resulting in damage to the cylinder and piston.
- Never use a chain saw with a clogged or defective muffler.

## 6.4 Assembling the muffler

1

Assemble the muffler according to the instructions given in chapter 6.3 in reversed order.

2

Tighten the nuts (B) with a tightening torque of 7.5 - 9 Nm.

3

Warm up the chain saw for at least one minute and retighten the screws on the muffler to 7.5 - 9 Nm.

## 6.5 Replacing the chain catcher

A worn chain catcher must always be replaced with a new one. Always use original spare parts.

1

Release the chain brake by moving the front hand guard backward.

3

Loosen the bar nuts and remove the clutch cover, saw chain and guide bar.

2

Remove the chain catcher and replace it with a new one. Tightening torque 4 - 6 Nm.

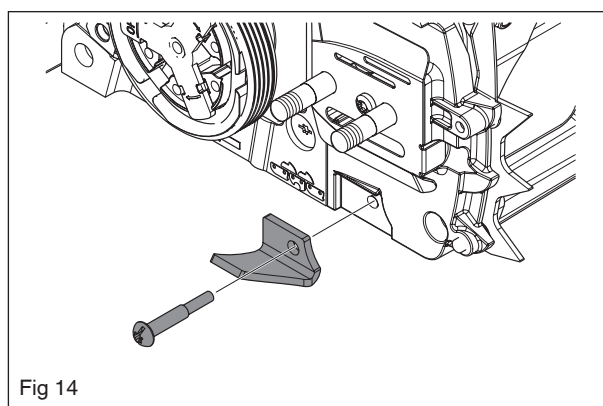


Fig 14

## 6.6 Dismantling the stop switch

1

Carefully remove the stop switch using a flat screwdriver or similar tool. See figure 15.

2

Disconnect the cables.

### Cleaning and inspection

- Clean and check the power switch carefully. Parts must be replaced if cracked or show signs of other defects. Always use original spare parts.

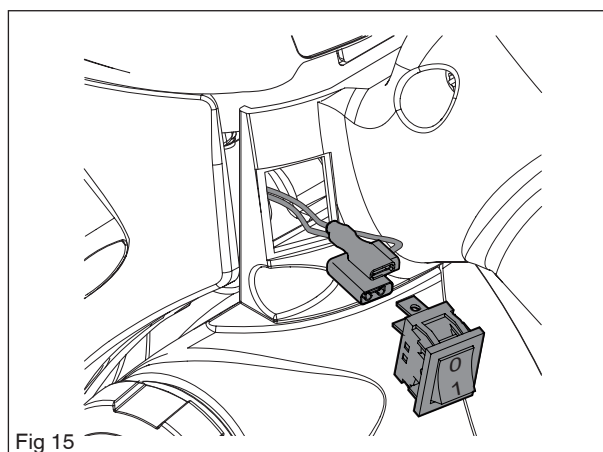


Fig 15

## 6.7 Assembling the stop switch

1

Connect the cables. See fig 15.

2

Fit the stop switch.

## 6.8 Resistance test - stop switch

**1**  
Dismantle the stop switch as outlined in “6.6 Dismantling the stop switch”.

**2**  
Clean the contact areas.

**3**  
Test the resistance by connecting a multimeter to the stop switch. See figure 16. The resistance should be as follows:

”0” pressed in - less than 0.1  $\Omega$ .

”1” pressed in - more than 1000  $\Omega$ .

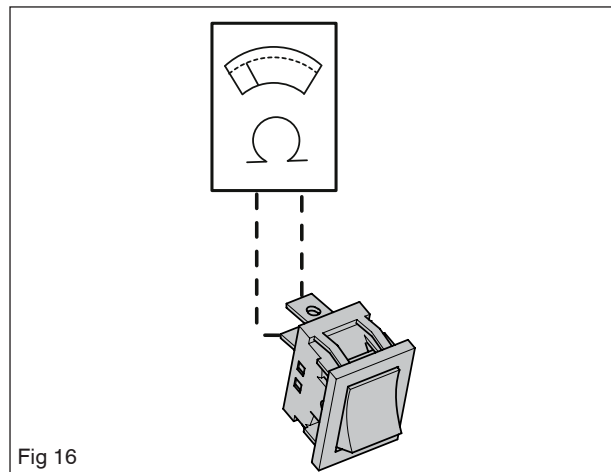


Fig 16

## 6.9 Dismantling the throttle lockout, throttle control and spring

**1**  
Loosen the four screws on the rear handle. Remove the handle cover. See figure 17.

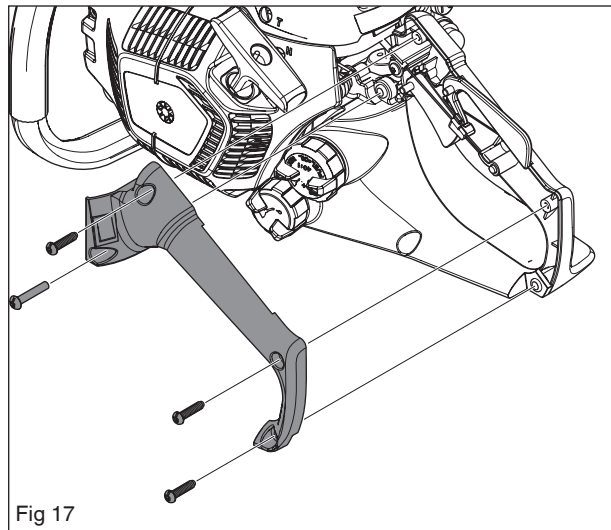


Fig 17

**2**  
Release the throttle wire with a plier.

**3**  
The throttle control and the throttle lockout are now easily detached. Notice the position of the spring, see the call-out of figure 18.

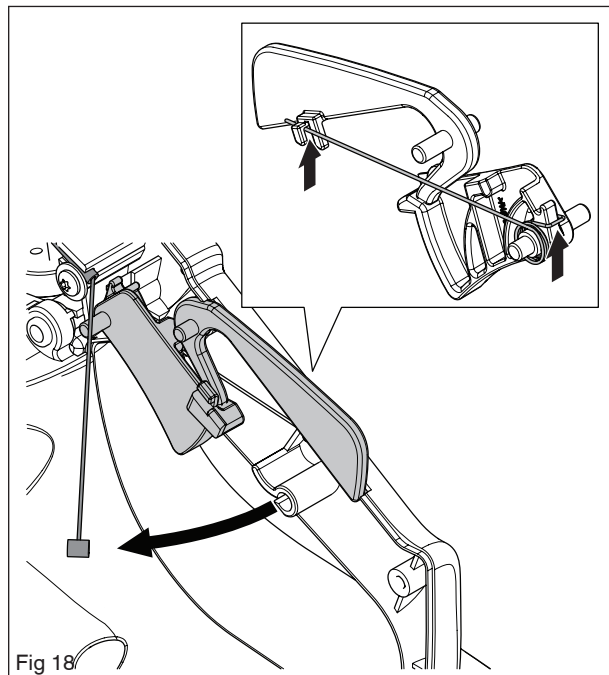
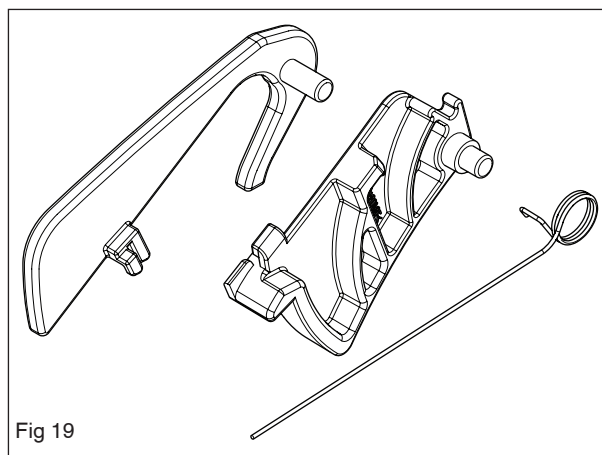


Fig 18

3

**Cleaning and inspection**

- Carefully clean and check all parts. See figure 19. 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.

**6.10 Assembling the throttle lockout, throttle control and spring**

1

Assemble the throttle lockout, the throttle control and the spring according to the instructions given in chapter 6.9 in reversed order. Carefully fit the spring to the throttle lockout and the throttle control as outlined in figure 18.

# 7 Repair instructions

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## 7 Repair instructions

### 7.1 Dismantling the starter



**WARNING!**  
If the spring tension is activated on the starter pulley, the spring can fly out and cause personal injury. Wear protective glasses.



1

Loosen the three screws, which hold the starter to the crankcase, and remove the starter. See figure 1.

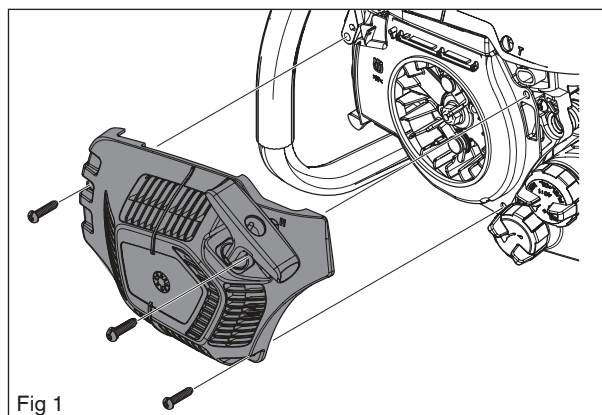


Fig 1

2

Pull out the cord 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 rotate counterclockwise. See figures 2 and 3.

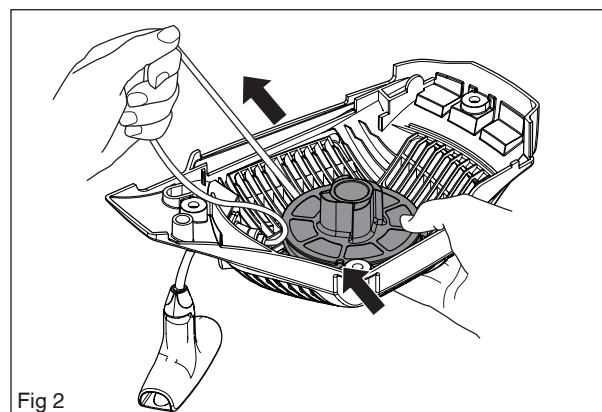


Fig 2

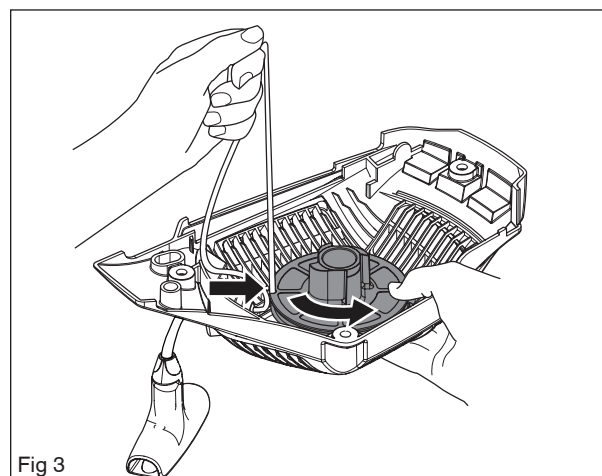


Fig 3

### 3

Make sure the starter pulley is not tensioned. Loosen the screw in the centre of the pulley and remove the sprocket. See figure 4.

#### Cleaning and inspection

Clean the parts and check:

- The starter cord.
- That the starter pawls on the flywheel are intact, i.e. that they spring back to the centre and move easily.
- To lubricate the return spring using light oil.

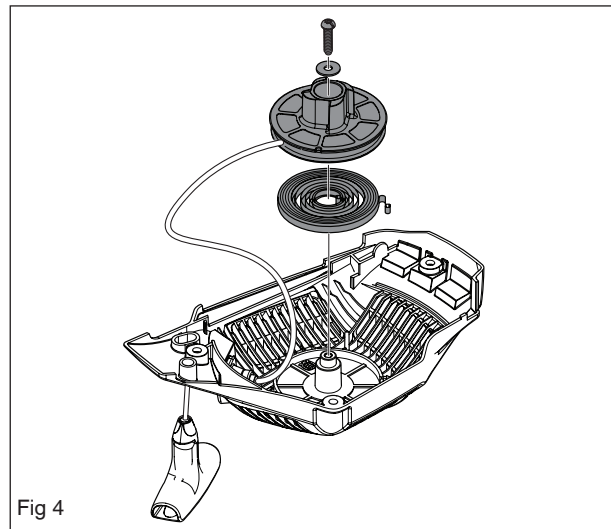


Fig 4

## 7.2 Replacing 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.



#### **WARNING!**

**If the spring tension is activated on the starter pulley, the spring can fly out and cause personal injury. Wear protective glasses.**



### 1

Pull out the cord about 30 cm and lift it into the notch on the outside of the starter pulley. Release the tension on the return spring by allowing the starter pulley to rotate slowly counterclockwise. See figure 5.

### 2

Loosen the screw in the centre of the pulley and remove the sprocket. See figure 4.

### 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 three knots on the cord.

### 4

Wind approx. 3 turns of the starter cord on the starter pulley. Turn the starter pulley until it latches into the correct position. Tighten the screw at the centre of the starter pulley. Tightening torque 3 - 5 Nm.

#### **Cleaning and inspection:**

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

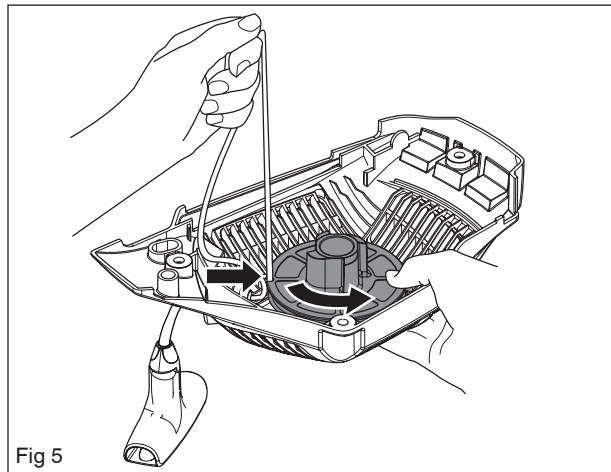


Fig 5



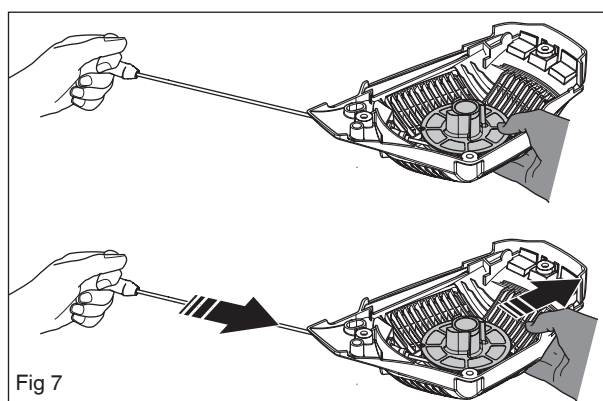
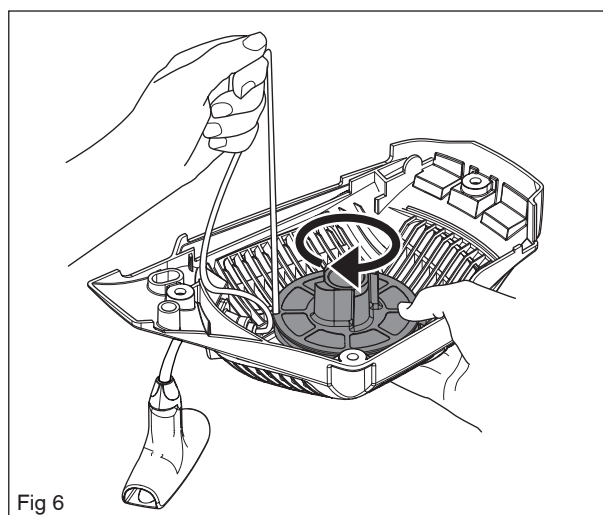
### 7.3 Tensioning the return spring

1

Lift the starter cord into the notch on the starter pulley and turn the pulley about 3 turns clockwise. Check that the pulley can be turned at least a further 1/2 turn when the starter cord is pulled all the way out. See figure 6.

2

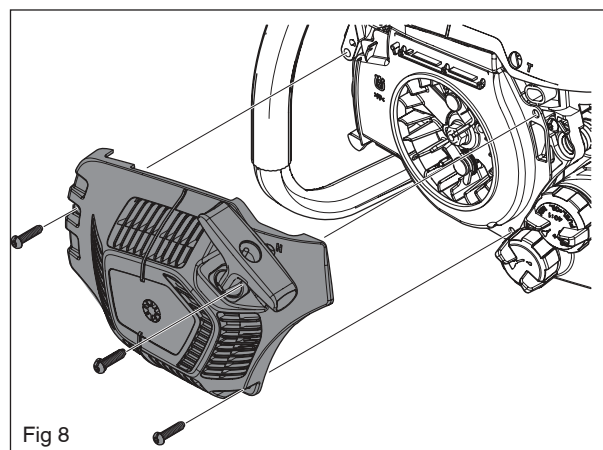
Grab the handle and stretch out the starter cord. Remove your thumb and let the cord spin back. See figure 7.



### 7.4 Starter assembly

1

Position the starter against the crankcase and tighten the screws with a tightening torque of 2 - 3 Nm, see figure 8.



## 7.5 Dismantling the ignition module and flywheel

1

Remove the cylinder cover. Remove the starter. Snap off the ignition cable from the air guide plate and remove the air guide plate. See figure 9.

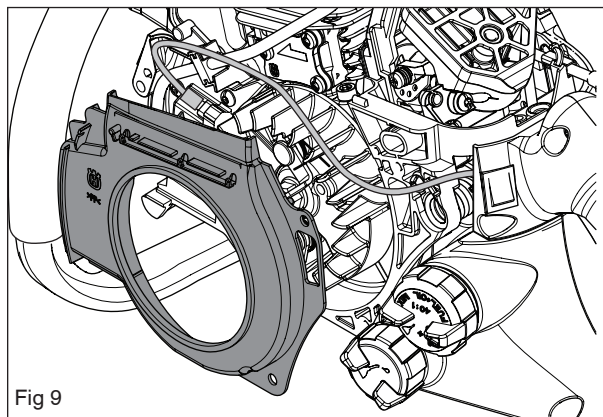


Fig 9

2

Knock out a few of the pins in the tool if it does not match up with the flywheel. Use a piston stop (575 29 36-01) to lock the fly wheel and then remove the nut by using a M12 socket wrench and a flywheel removal tool (504 91 08-03). See figure 10.

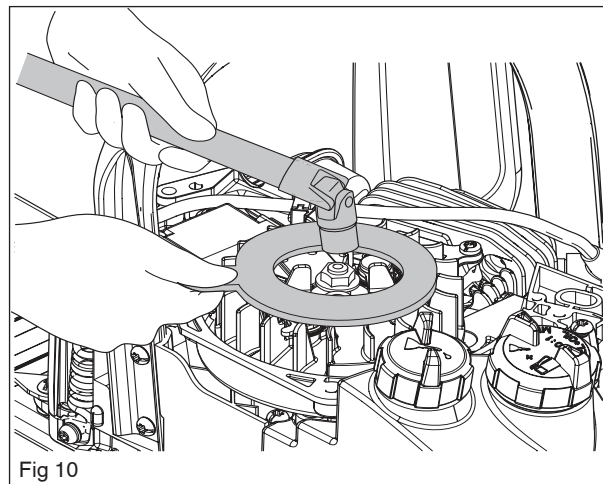


Fig 10

3

Thread the mandrel (502 51 94-01) on the crank pin. Screw until 1-2 threads are left to the flywheel. Knock on the mandrel with a suitable metal hammer while at the same time pulling the flywheel outward until the flywheel comes off the shaft. Remove the mandrel and flywheel. See figure 11.

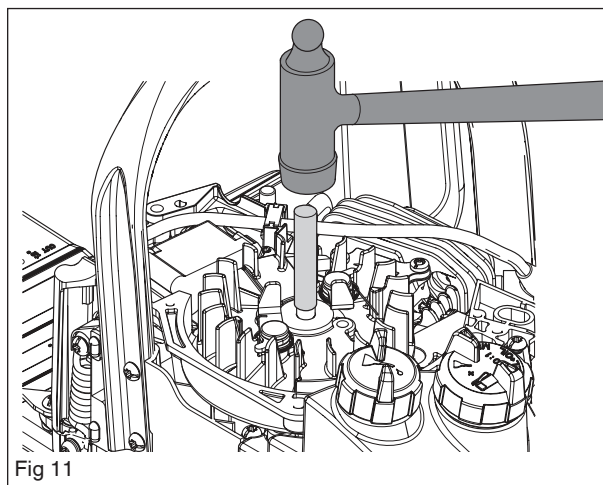


Fig 11

4

Detach the ignition cable and loosen the screws. See figure 12.

### Cleaning and inspection

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

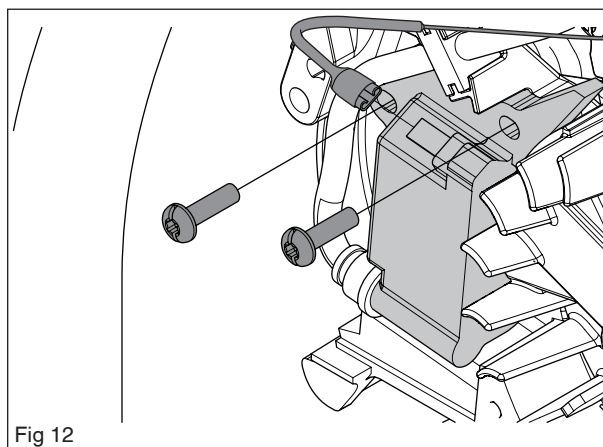


Fig 12

## 7.6 Assembling the ignition module and flywheel

**1**

Place the ignition module in position and fit the screws. See figure 13. Do not tighten the screws.

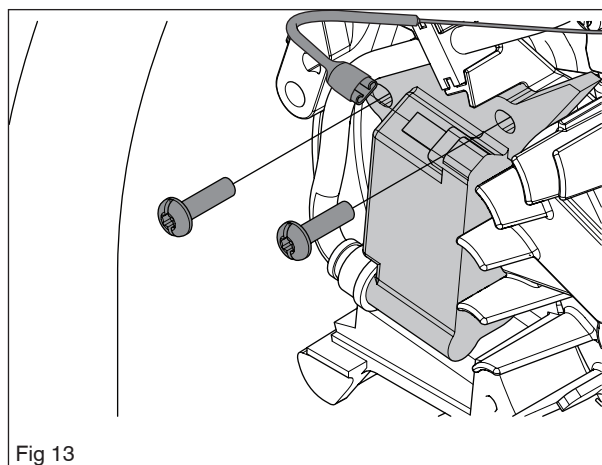


Fig 13

**2**

Fit the flywheel onto the crankshaft pin. Turn the flywheel until the key fits into the key slot on the shaft. See figure 14. Tighten the nut for the flywheel.

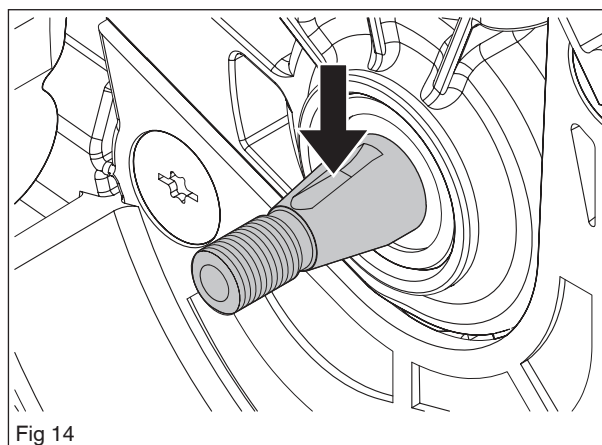


Fig 14

**3**

Insert the plastic air gap tool (a), at a thickness of  $0,3 \pm 0,1$  mm, between the lugs on the ignition module and flywheel. See figure 15.

Turn the flywheel so that the magnets are positioned opposite the ignition module. Tighten the screws, at a tightening torque of 2 - 3.5 Nm. Remove the plastic air gap tool.

**4**

Attach the ignition cable to the ignition module.

**5**

Then fit the:

- air guide plate and press the cable in place.
- starter, at a tightening torque of 2 - 3.5 Nm.
- cylinder cover and air filter cover.

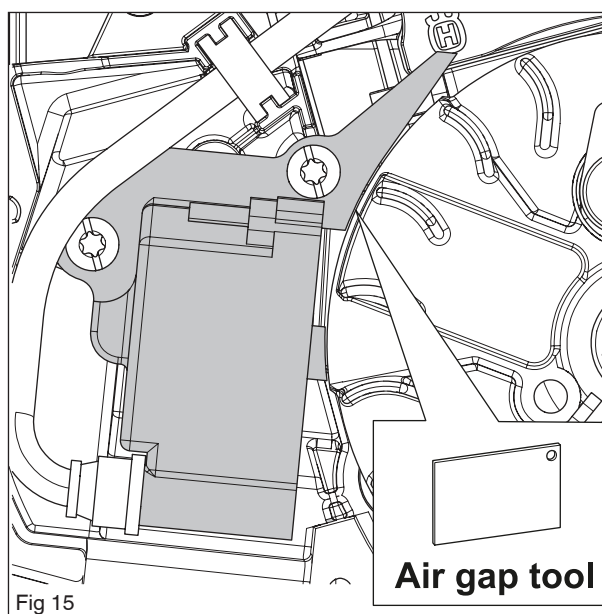


Fig 15

## 7.7 Dismantling the centrifugal clutch

1

Remove the cylinder cover. Release the brake by moving the front hand guard backwards. Loosen the bar nuts and remove the clutch cover, saw chain and guide bar. See figure 16.

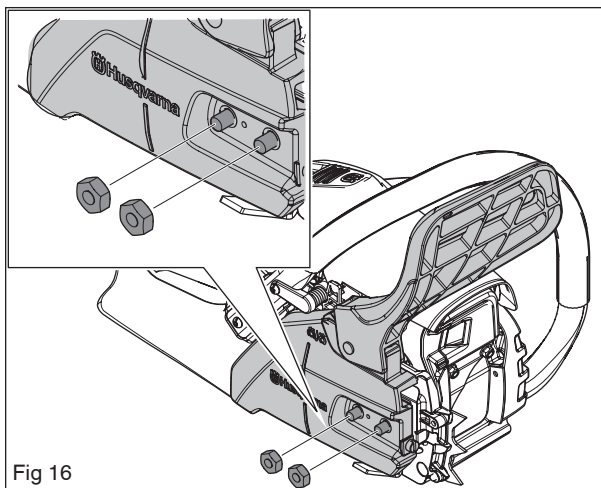


Fig 16

2

Remove the spark plug hat and the spark plug. Insert the piston stop (575 29 36-01). See figure 17.

3

Use a heat gun on the clutch to loosen the thread lock before loosening the clutch using tool 513 63 60-01 and a suitable socket wrench. Knock the tool gently in position. Turn the clutch clockwise to loosen it. See figure 17.

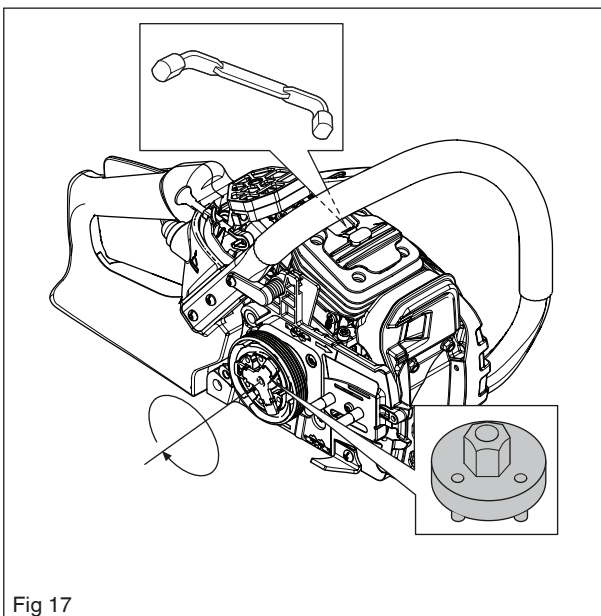


Fig 17

4

Dismantle the clutch according to figure 18. Carefully remove the clutch spring.

### NOTE!

**Be careful with the clutch spring; opening them too much can result in material damage.**

### Cleaning and inspection

- Clean and check all parts carefully. Parts must be replaced if cracked or showing signs of other defects. Always use original spare parts.
- Check the thickness of the clutch shoes by measuring them with slide callipers across the whole clutch hub. If the thickness is below 60 mm, the clutch must be replaced. See figure 19.

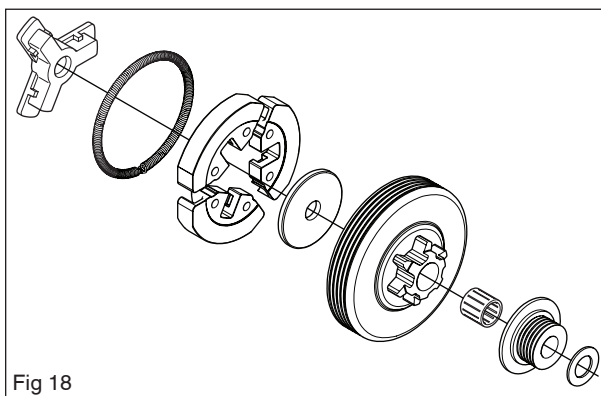


Fig 18

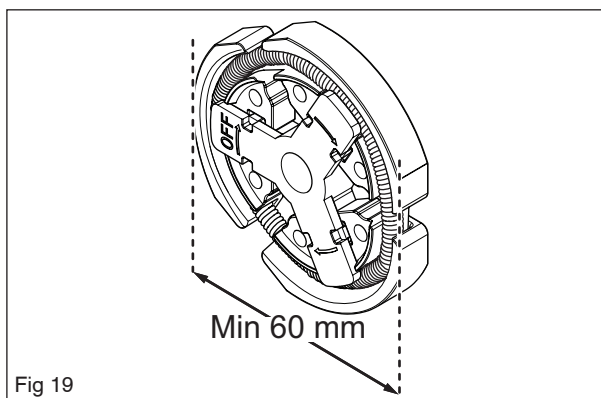


Fig 19

## 7.8 Assembling the centrifugal clutch

1

Use special tool 513 63 65-01 and assemble the clutch according to figure 20.

2

Screw the clutch (counterclockwise) until it stops. Then tighten the clutch using tool 513 63 60-01 and a suitable socket wrench or combination spanner. Tightening torque of 22 - 23.7Nm.

3

Remove the piston stop and fit the spark plug using a tightening torque of 11 - 14 Nm. Attach the spark plug hat.

Then fit the:

- cylinder cover
- guide bar
- saw chain
- clutch cover

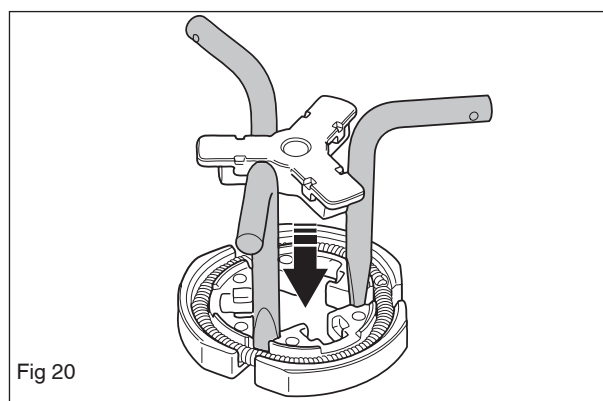


Fig 20

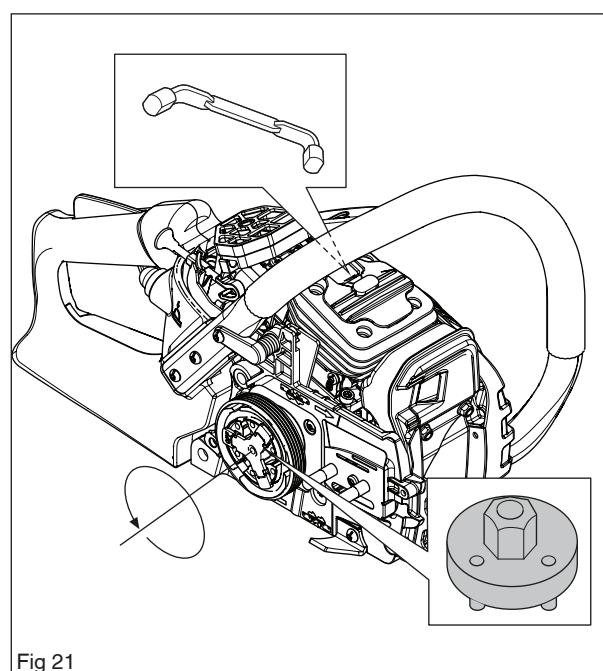


Fig 21

## 7.9 Dismantling the oil pump and screen

1

Empty and clean the saw chain oil tank. Dismantle the centrifugal clutch as outlined in "Dismantling the centrifugal clutch".

2

Remove the clutch.

3

Remove the oil pump cover and pump drive wheel. See figure 22.

4

Loosen the screws for the oil pump and lift it carefully up, disconnect the oil hoses and remove the pump.

Cleaning and inspection

- 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.

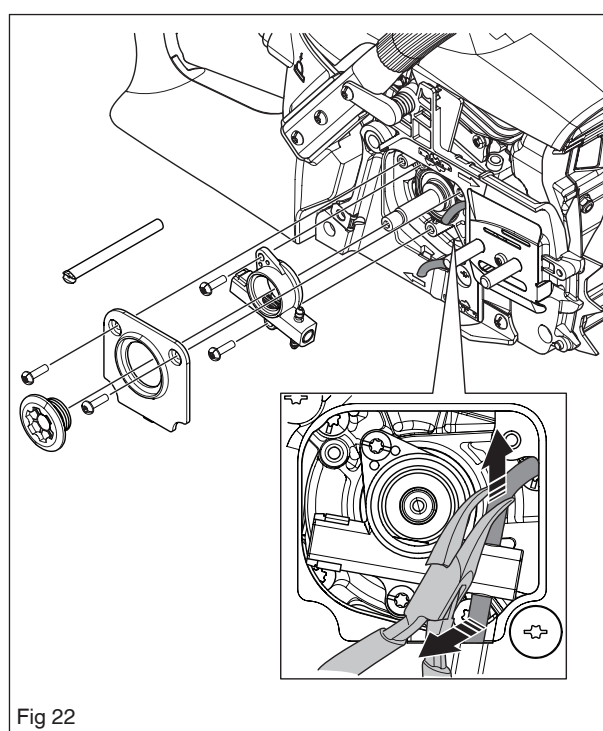


Fig 22



## 7.10 Assembling the oil pump and screen

- 1  
Replace the oil pump, connect oil hoses to the pump and put the pump back in place, tighten the screws.
- 2  
Fit the pump drive wheel and apply thread lock to the screws. Tightening torque 3 - 4 Nm. See figure 22B.
- 3  
Fit the clutch. See the "Assembling the centrifugal clutch" chapter.
- 4  
Fit the saw chain, guide bar and clutch cover.

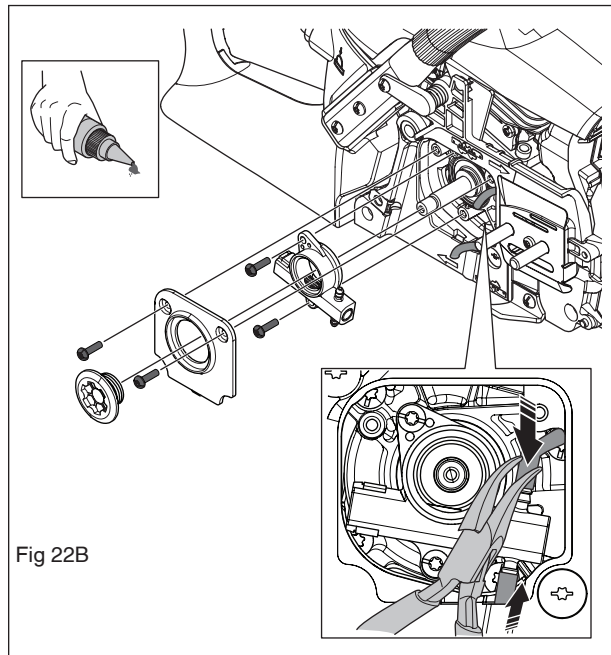
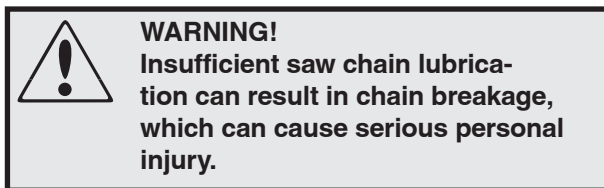


Fig 22B

## 7.11 Dismantling the intake system

- 1  
Remove the cylinder cover and the air filter.
  - 2  
Loosen the three screws shown in figure 23, and remove the air filter system.
  - 3  
Remove the choke and the throttle wire.
  - 4  
Detach the fuel hose.
  - 5  
Lift the carburettor up, detach the hose under the carburettor and remove the carburettor.
  - 6  
Loosen the 2 screws for the intake flange, C. See fig 24.
  - 7  
Dismantle the intake flange, A. See figure 24.
  - 8  
Dismantle the inlet pipe assembly, B. See figure 24.
- Cleaning and inspection**
- Clean and check all parts carefully. Parts must be replaced if cracked or showing signs of other defects. Always use original spare parts.

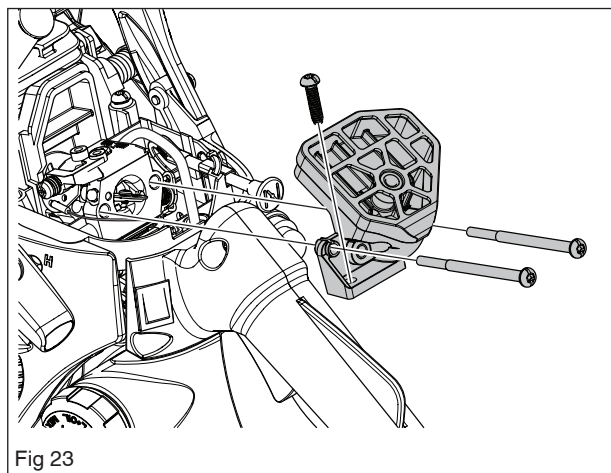


Fig 23

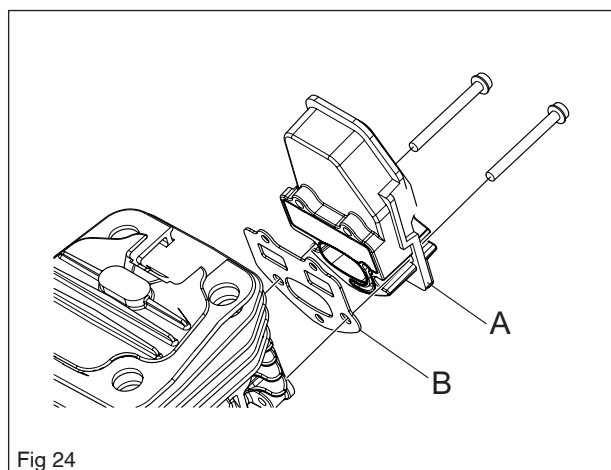


Fig 24

## 7.12 Assembling the intake system

1

Assemble the intake system according to the instructions given in chapter 7.14 in reversed order.

**NOTE!**

**It is very important that the intake system is sealed. Otherwise the engine may seize up.**

## 7.13 Carburettor



**WARNING!**

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

1. The fluid and its vapour are poisonous.
2. Can cause skin irritation.
3. Is highly inflammable.

### 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. See figure 26.

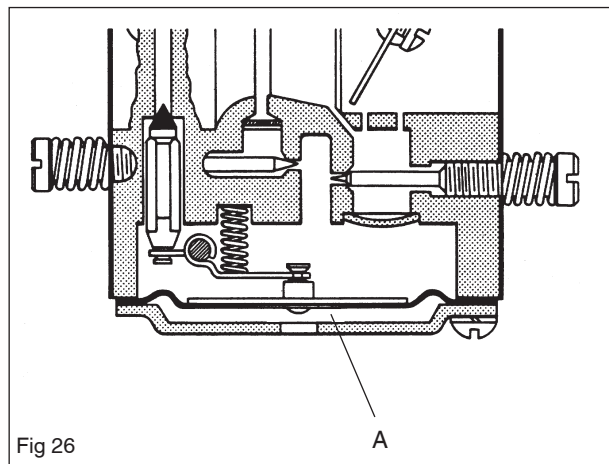


Fig 26

### 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. See figure 27.

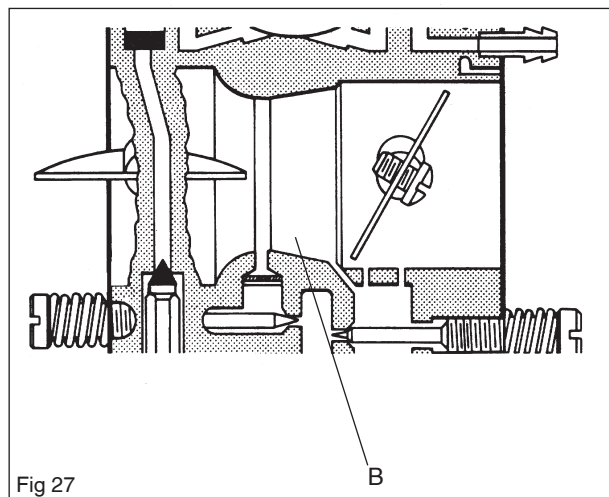


Fig 27

### 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. See figure 28.

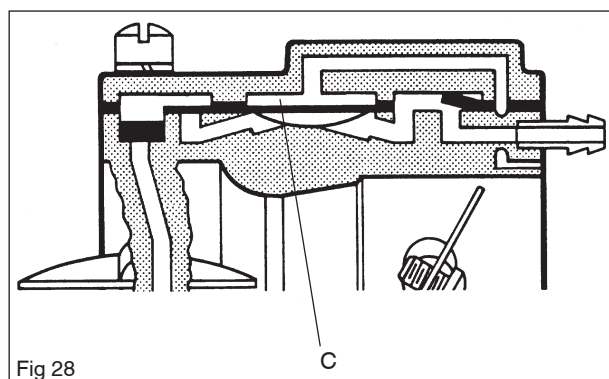


Fig 28

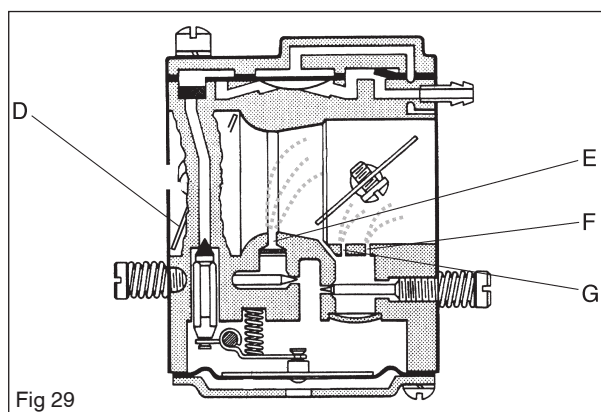


### Function

The carburettor functions differently in the following modes:

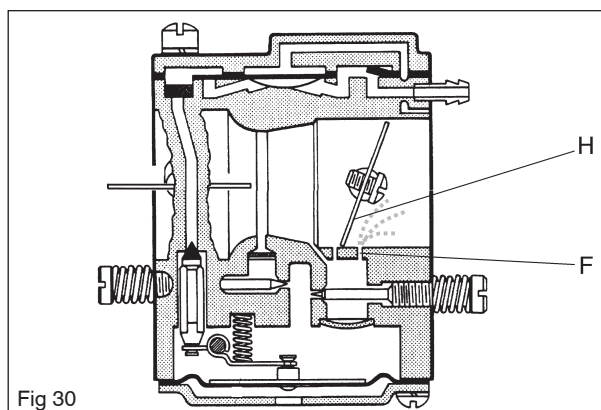
#### Cold start mode

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. See figure 29.



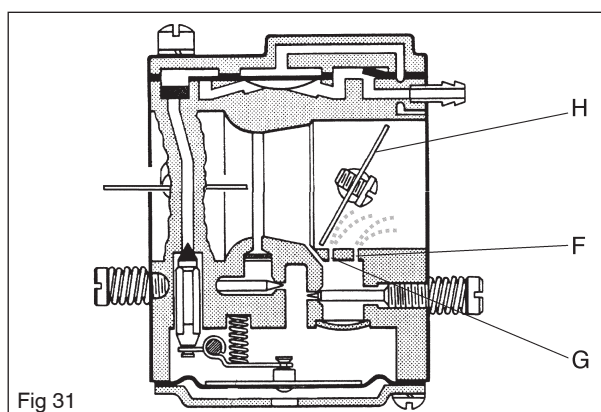
#### Idle mode

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. See figure 30.



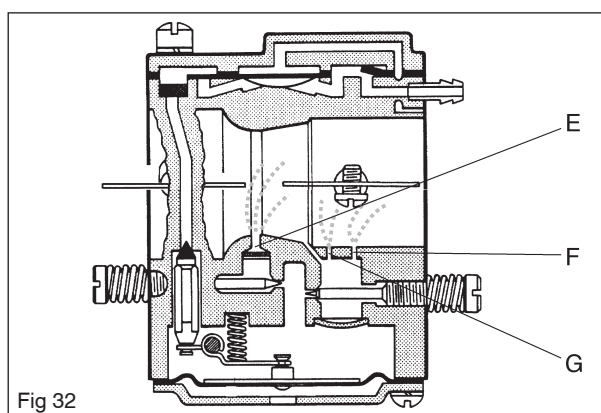
#### Part throttle mode

In part throttle mode the throttle valve H is partly open. Fuel is supplied through the diffuser jets F and G. See figure 31.



#### Full throttle mode

In full throttle mode both valves are open and fuel is supplied through all three diffuser jets E, F and G. See figure 32.



Dismantling the carburettor

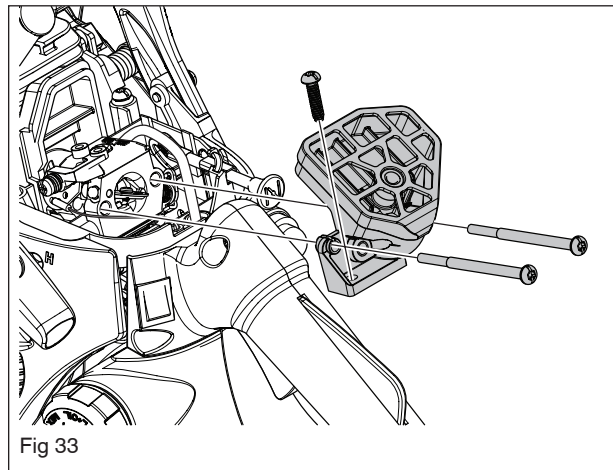
**1**

Remove the cylinder cover and the air filter.

Loosen the three screws outlined in figure 33.

**2**

Remove the air filter system.



**3**

Remove the choke and throttle wire. See figure 34.

**4**

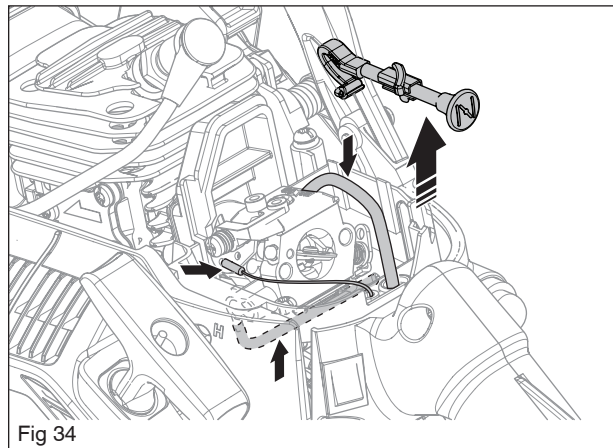
Detach the fuel hose.

**5**

Lift the carburettor up and detach the hose under the carburettor.

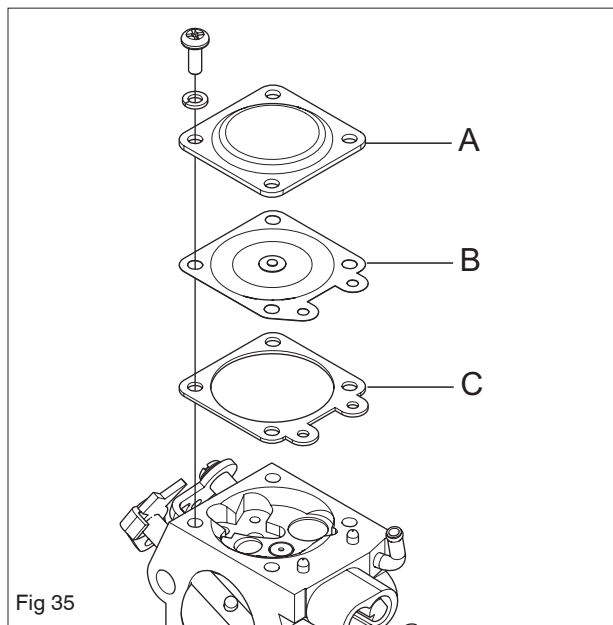
**6**

Remove the carburettor.



**7**

Dismantle the pump cover (A). Remove the control diaphragm (B) and gasket (C). See figure 35.



**8**

Remove screw (D) and needle valve (E) with lever arm (F), shaft (G) and spring (H). See figure 36.

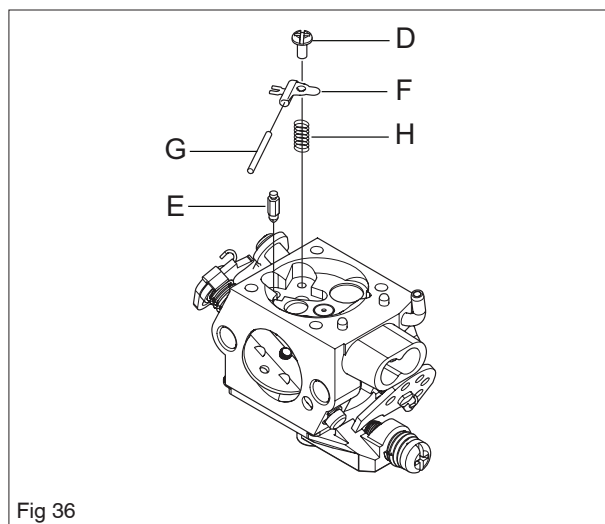


Fig 36

**9**

Remove screw (I) and remove gasket (J) and diaphragm (K). See figure 37.

**10**

Use a needle or similar device and carefully pull up the fuel screen (L). See figure 37.

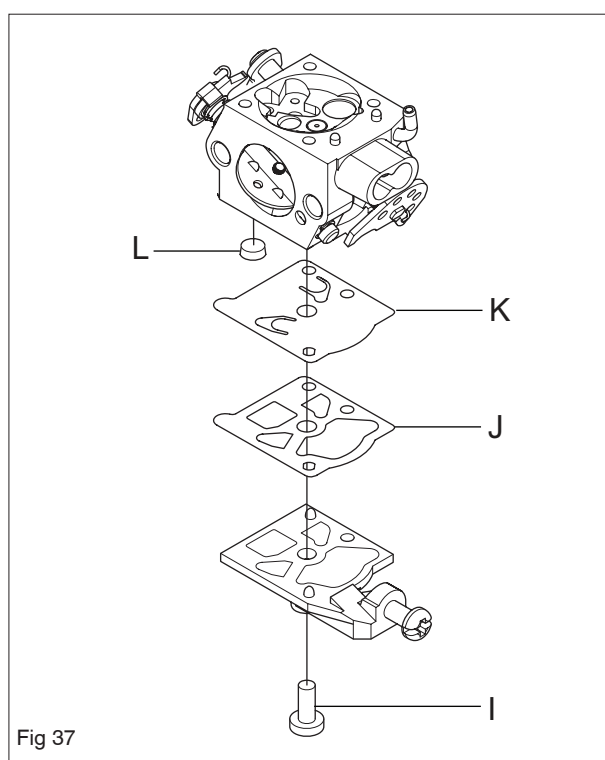


Fig 37

11

If necessary, dismantle throttle valve (M) and the High (N) and Low (O) jet screws valve. Remove the shafts with lever arms and springs. See figure 38.

**Cleaning and inspection**

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 the 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 (E) and its lever arm (F) are not worn. See figure 36.
4. That the inlet manifold is intact. See figure 38.
5. That the fuel screen (L) is intact and clean. See figure 39.
6. That the tips of the high and low jet screws are not damaged.

**Assembly**

Observe cleanliness when assembling the carburettor. The slightest contamination can result in downtime.

1. If the throttle valve with shaft, lever arm and spring is removed, this must be assembled. The spring is tensioned 1-2 turns. Lubricate the shaft bearings using a light oil. See figure 38.
2. Fit the fuel screen (L) using the handle of a small screwdriver. See figure 39.
3. Fit the gasket (K), diaphragm (J) in the carburettor as well as the cover. Screw in place screw (I) as outlined in figure 39.

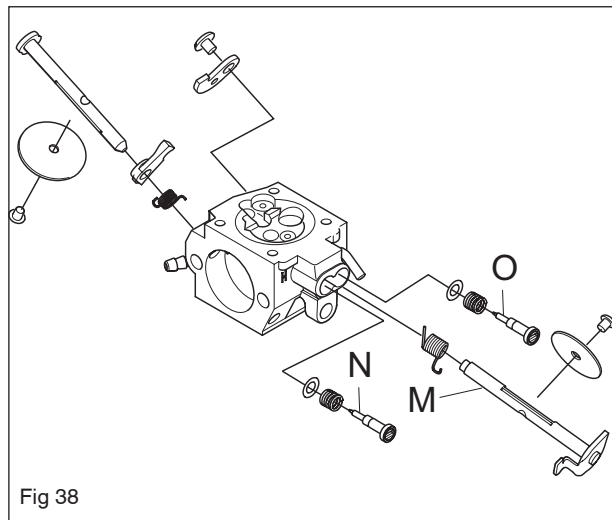


Fig 38

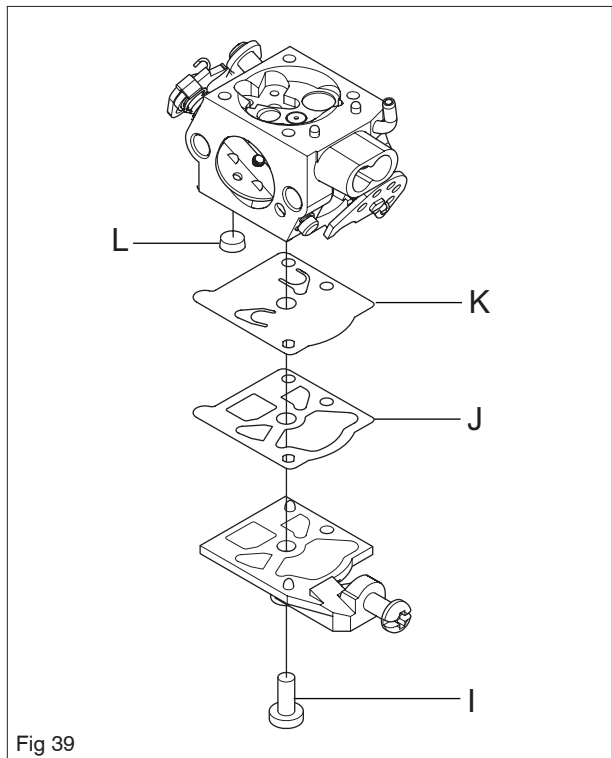


Fig 39

**4.**

Assemble needle valve (E) with lever arm (F), shaft (G) and spring (H), and tighten screw (D). See figure 40.

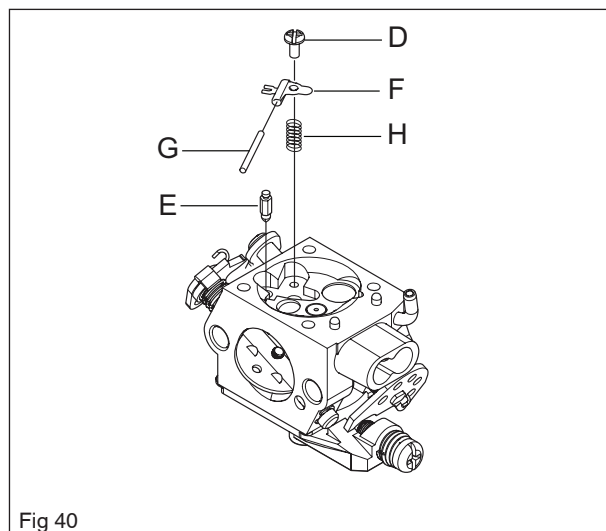


Fig 40

**5.**

Check using a ruler or the like that the lever is in level with the assembly plane on the cover. If necessary, the lever arm can be bent, see figure 41.

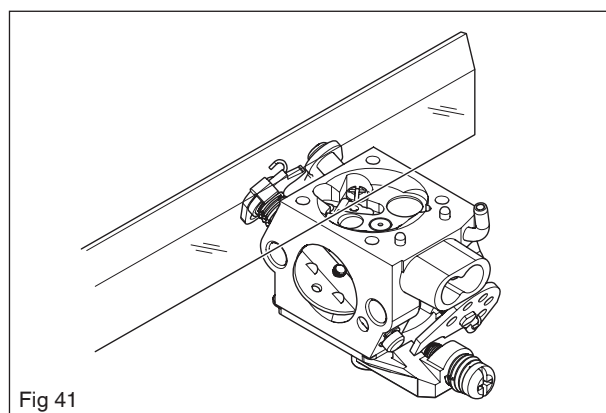


Fig 41

**7.**

Fit gasket (C), the control diaphragm (B) and the pump cover (A). See figure 42.

**8.**

Carry out a pressure test. See "Pressure testing the carburettor".

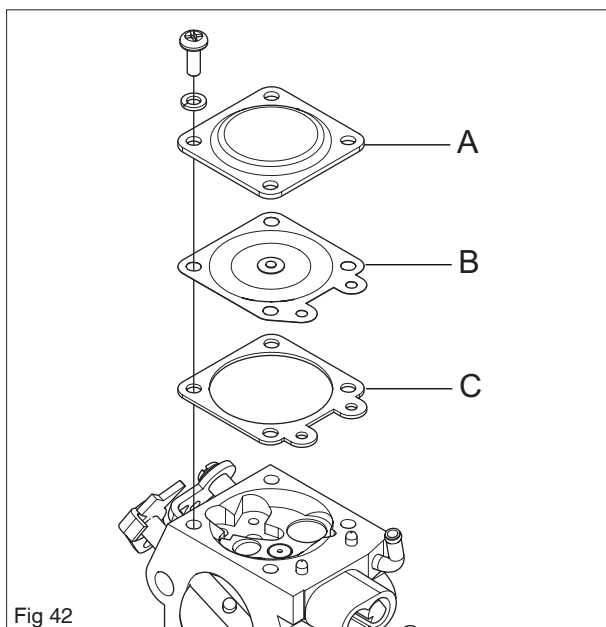


Fig 42

**Pressure testing the carburettor**

Pressure testing should be carried out with the carburettor fully assembled. Testing should always be carried out after the carburettor has been repaired, but a test can also be made for troubleshooting before dismantling.

**Option 1**

Carry out the check as follows:

**1**

Connect pressure tester to the carburettor fuel inlet.

**2**

Submerge the carburettor into a container with water. See figure 43.

**3**

Pump up the pressure to 20 kPa.

**4**

No leakage is permitted. If leakage occurs refer to the table below.



Fig 43

**Option 2**

Carry out the check as follows:

**1**

Plug the connections to the fuel inlet.

**2**

Create a vacuum to the purge nipple on the carburettor. No leakage is permitted. In the case of leakage, leakage spray can be used even if it is difficult. Try and identify where the spray is absorbed. It can be used to show leakages in main jets, idling needles, measuring cover gaskets and measuring diaphragms.

| Leak in   | Fault with  |
|---|---|
| Diffuser jets<br>Leak in the impulse pipe<br>Ventilation hole on the metering unit. | Needle valve<br>Pump membrane<br>Control membrane |

**Assemble the carburettor**

**1**

Assemble the carburettor according to the instructions given in “**Dismantling the carburettor**” in reversed order.

## Adjustment



**WARNING!**  
The guide bar, saw chain and clutch cover must be fitted before the chain saw is started, otherwise the clutch may come loose causing personal injury.



**WARNING!**  
Wear ear defenders when making adjustments with the engine running.



**WARNING!**  
Do not use the chain saw until it has been adjusted so that the saw chain is still during idling.

**NOTE!**

For optimal setting, a tachometer should be used. The recommended maximum over-speed should not be exceeded.

**NOTE!**

If the saw chain turns when idling, the T-screw should be turned anti-clockwise until the saw chain stops.

Adjusting the carburettor involves adjusting the engine to the local conditions e.g. climate, altitude, fuel and type of 2-stroke oil.

The carburettor is equipped with three adjustment options:

- L = Low speed jet
- H = High speed jet
- T = Idling adjustment

The L- and H-jets adjust the fuel flow to match the airflow that the throttle valve opening allows. Turning them clockwise makes the fuel/air mixture weaker (less fuel) and turning them counter-clockwise makes the fuel/air mixture richer (more fuel). A weaker mixture increases the engine speed and a rich mixture decreases the engine speed.

The T- screw controls the throttle position when idling. Turning the T-screw clockwise gives faster idling, turning it counterclockwise gives lower idling speed.

Run the chain saw for approx. 10 minutes before adjusting the carburettor.

## Basic factory setting

|                                |               |
|--------------------------------|---------------|
| 120: 967 06 79-01/967 06 79-02 |               |
| H needle                       | 2 + 3/4 turns |
| L needle                       | 2 turns       |

|                   |                |
|-------------------|----------------|
| 125: 967 06 80-02 |                |
| H needle          | 2 + 1/16 turns |
| L needle          | 2 + 1/8 turns  |

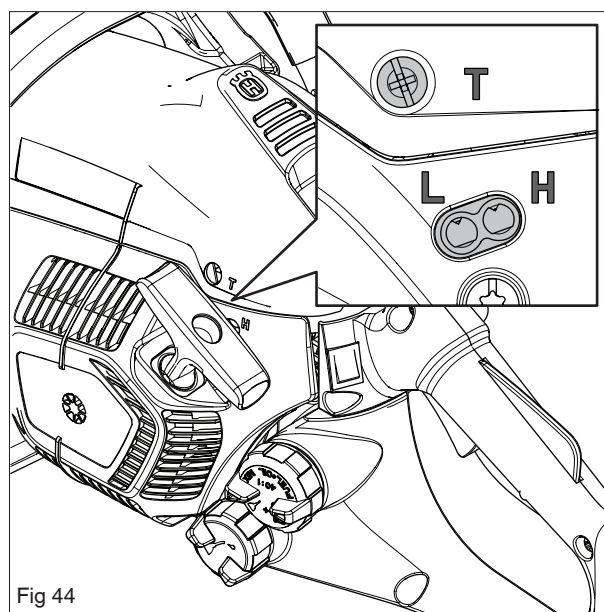


Fig 44

Basic adjustment for chain saws with ignition system and carburetors without limiters

To ensure that the engine components receive adequate lubrication (running in) the carburettor should be set to a somewhat richer fuel mixture for the chain saw's first 3-4 running hours. This is done by adjusting the maximum speed to 600-700 rpm less than the recommended maximum speed. Use tool 530 03 55-60 to adjust the carburettor (L- and H-needle).

**Adjustment of the L-needle and T-needle.**

1. Find the highest idling speed by slowly turning the L-screw clockwise and counterclockwise.
2. Turn the T-screw until the idling speed is 3 000 rpm.

3. Repeat the procedure in 1 and 2 once again.
4. Turn the L-screw counterclockwise 0,5 of a turn.
5. Adjust the T-screw until the idling speed is 2 700 rpm.

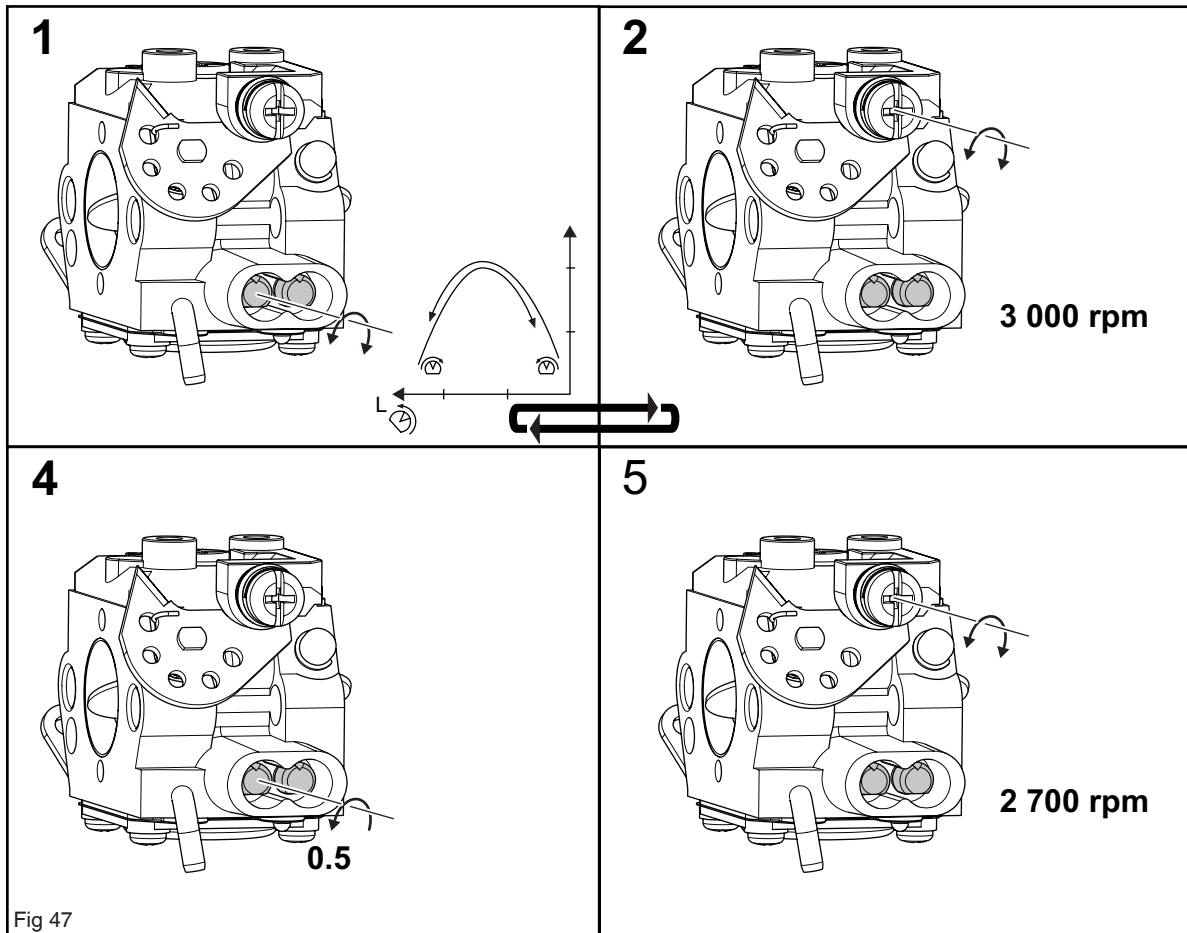


Fig 47

**Adjustment of the H-needle.**

1. Adjust the H-screw until the maximum engine speed at full throttle is 12250 rpm.

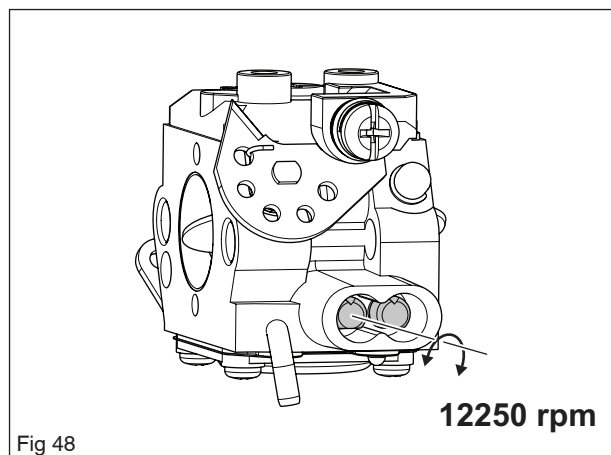


Fig 48



## 7.14 Tank unit



### WARNING!

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

1. The fluid and its vapour are poisonous.
2. Can cause skin irritation.
3. Is highly inflammable.

### Dismantling

1. Drain the fuel from the tank.
2. Remove the clutch cover, saw chain, guide bar, starter and the cylinder cover. Remove the rear handle cover.
3. Detach the two hoses and the throttle wire, marked in figure 49.
4. Remove the handle bar and the chain catcher.
5. Detach the cabling from the stop switch and earth-cabling from the crankcase.
6. Loosen the screws outlined in figure 50 and remove the tank unit..

### Assembly

1. Fit the tank unit. See figure 50.
2. Fit the earth cables.
3. Fit the stop control cable from the ignition module.
4. Fit the two hoses and the throttle wire. See figure 49.
5. Fit the starter, cylinder cover, clutch cover, saw chain and the guide bar.

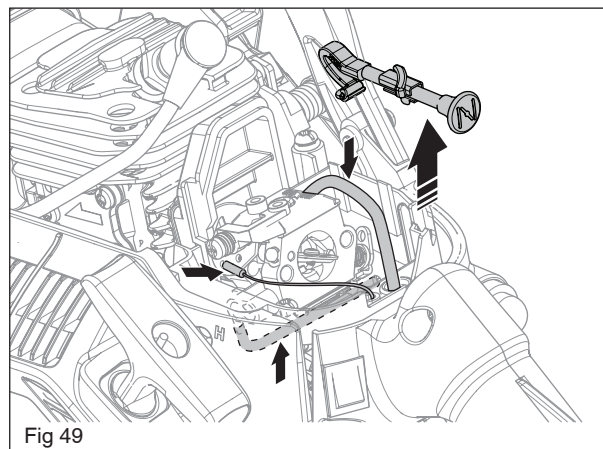


Fig 49

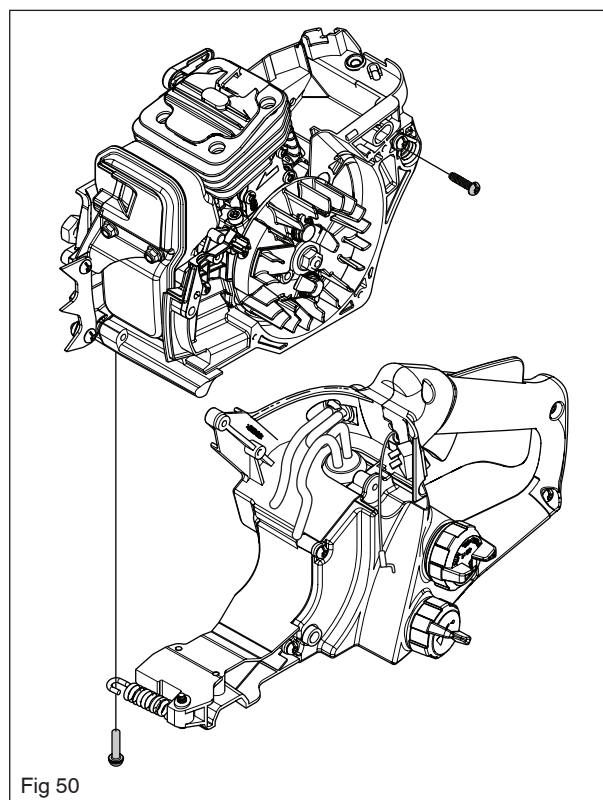


Fig 50

## 7.15 Vibration damping system

### Dismantling

Remove the spring dampers on both sides. See figures 51.

### Cleaning and inspection

- Clean and inspect all parts carefully. If there are any cracks or other defects, replace the damaged parts with new ones. Always use original parts.

### Assembly

Fit the spring dampers on both sides. See figures 51. Tightening torque 2 - 3 Nm

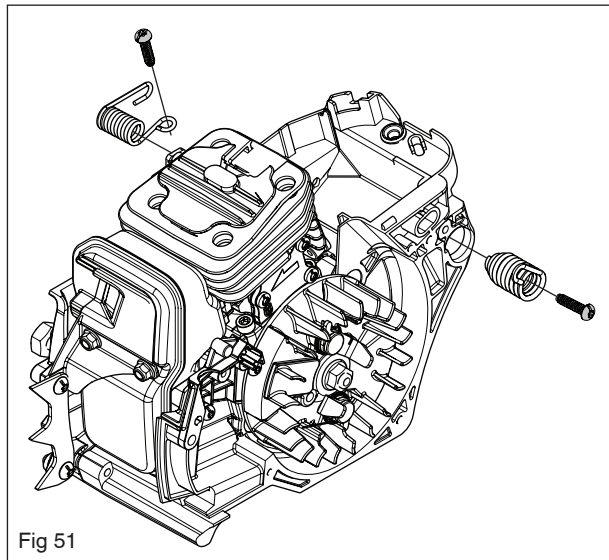


Fig 51

## 7.16 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 from the tank unit and pull away the filter A. See figure 52.

3

Fit the new fuel filter and insert the fuel hose back into the fuel tank.

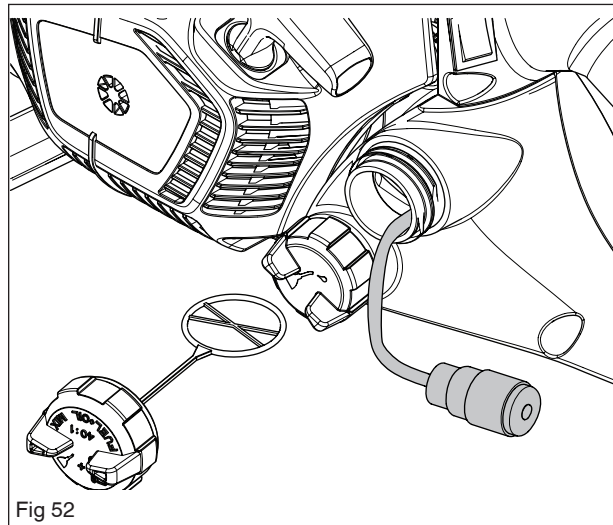


Fig 52

## 7.17 Replacing the primer bulb

### Dismantle

1.

Dismantle the cylinder cover.

2.

Make the primer bulb comes loose by pressing on the bulb holder with a flat-ended screwdriver, outlined in figure 53..

3

Pull out the primer bulb and loosen the return and suction hose.

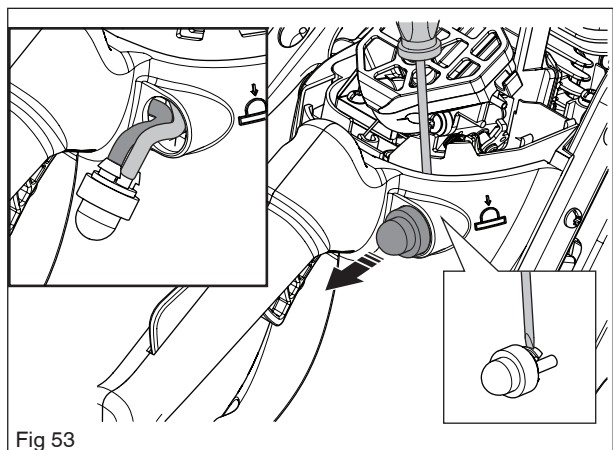


Fig 53

### Assembling

1. Fit the return and suction hose on the primer bulb.
2. Snap the primer bulb in place.
3. Fit the cylinder cover.

### 7.18 Replacing the fuel hose/return hose

The fuel hose is moulded and can only be removed from outside of the fuel tank.

Use suitable pliers with a smooth cutting face and loosen the fuel hose from the fuel tank. See figure 54.

Replace the return hose when required. Tighten the fuel hose on the filter side with your fingers.

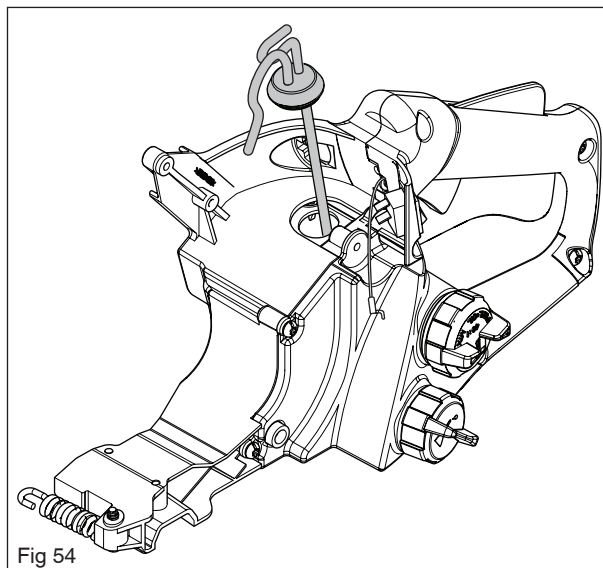


Fig 54

### 7.19 Dismantling the piston and cylinder

1

Dismantle the:

- cylinder cover
- carburettor
- muffler
- spark plug cap
- intake system

2

Remove the cylinder's four screws. Carefully lift away the cylinder and the gasket. See figure 56.

#### NOTE!

Take care to prevent any dirt and foreign particles from entering the crankcase.

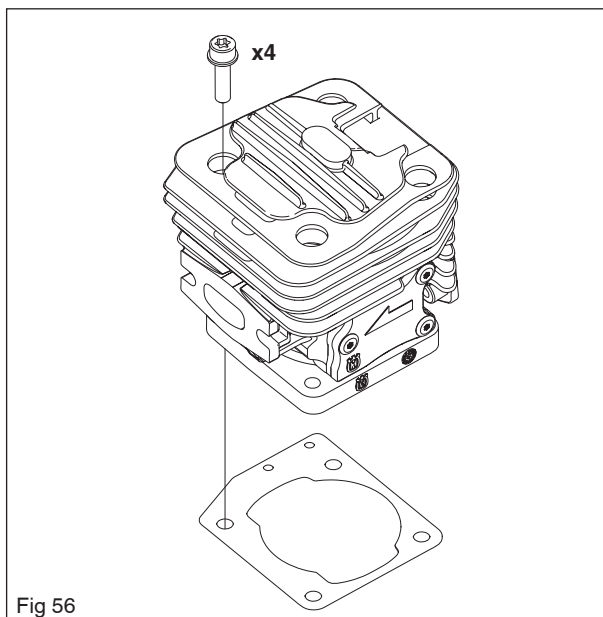


Fig 56

3

Cover the crankcase opening, see figure 57

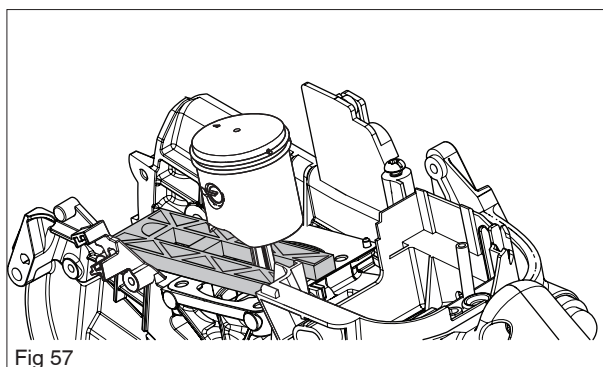


Fig 57

4

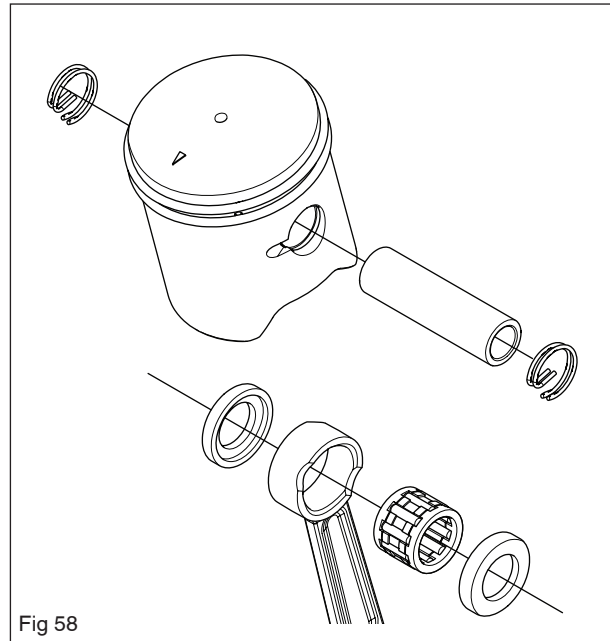
Remove the circlips and press out the gudgeon pin. Remove the piston. See figure 58.

5

Remove the gudgeon pin bearing (the needle bearing) using a pliers. See figure 58.

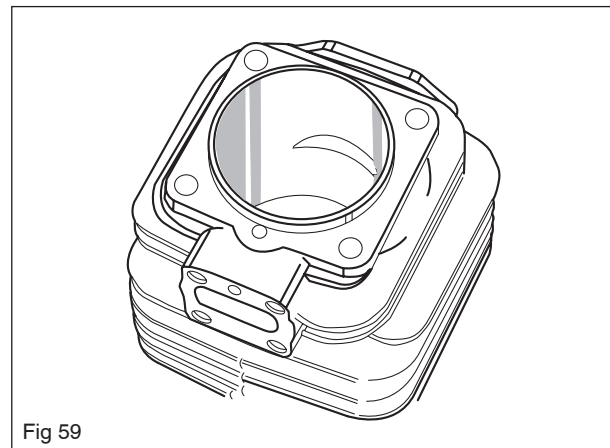
6

Replace with a new bearing.



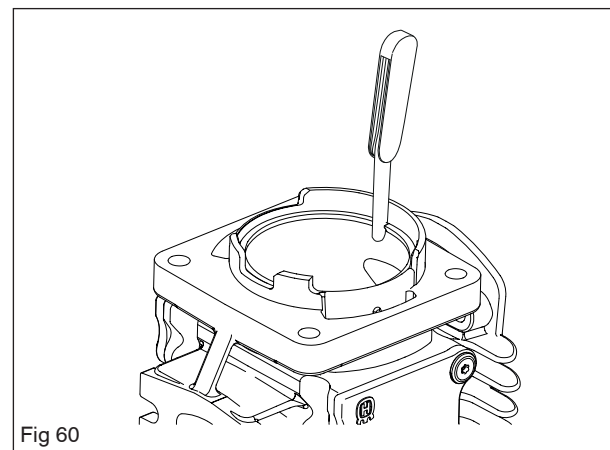
Cleaning and inspection of the cylinder  
Clean all components, scrape off all gasket remains and soot from the following areas:

- Piston crown
- Top of the cylinder bore (inside)
- Cylinder exhaust port
- Base of the cylinder and/or crankcase



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. See figure 59.
- That the piston is free of score marks. Minor scratches can be polished off using fine emery paper.
- That the piston ring is not burnt into its groove.
- Measure the wear on the piston rings. This must not exceed 1 mm. See figure 60. Use the piston to push the piston ring downward.
- That the gudgeon pin bearing is intact.
- That the intake bellows is intact.



## 7.20 Assembling the piston and cylinder

1

Oil the gudgeon pin bearing with two-stroke oil and insert the crank rod. See figure 61.

2

Attach the piston with the arrow facing the exhaust port. Slide in the gudgeon pin and fit the circlips. Note! Use new circlips.

3

Oil the piston with two-stroke oil.

4

Use piston assembly kit 502 50 70-01 when mounting the cylinder. See figure 62.

5

Tighten the cylinder screws crosswise. Tightening torque 6 - 8 Nm.

6

Assemble the:

- intake system \*
- spark plug cap \*
- muffler \*
- carburettor \*
- cylinder cover \*

\* See specific instruction.

### NOTE!

**It is very important that the intake system is sealed. Otherwise the engine may seize up.**

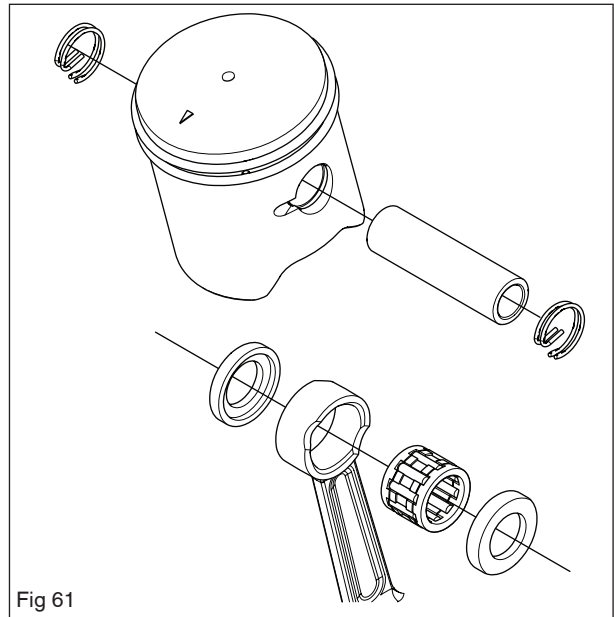


Fig 61

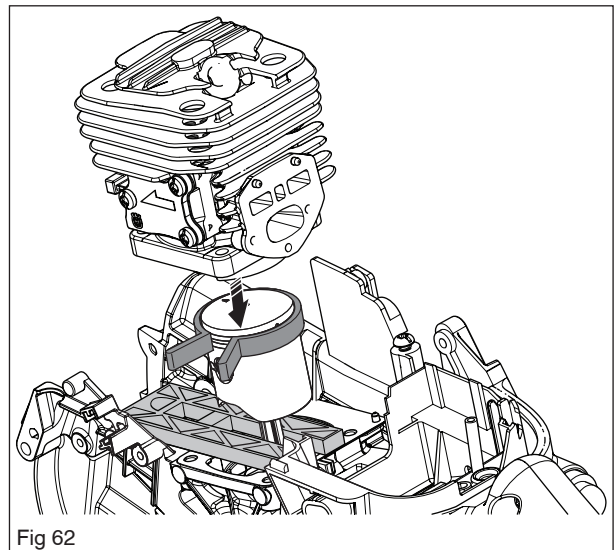


Fig 62

## 7.21 Leakage testing

1

Remove the:

- cylinder cover
- spark plug

2

Loosen the screws on the airbox and press the rubber wedge 502 54 11-02 between the adapter and carburettor. Tighten the screws. Attach the plug 503 84 40-03. See figure 63.

3

Loosen the screws on the muffler and press the cover plate 502 54 11-02 between the muffler and cylinder (remove the muffler gasket). Tighten the nuts for the muffler. See figure 63.

4

Screw the pressure test connection 503 84 40-03 in place. Connect tool 531 03 06-23 to the nipple. See figure 64.

5

Pump the pressure up to 80 kPa (0.8 bar). Wait 30 seconds. The pressure should not be less than 60 kPa (0.6 bar). Remove the cover plates from the muffler and carburettor, tighten the bolts to the specified torque. Remove the pressure test nipple and refit the spark plug.

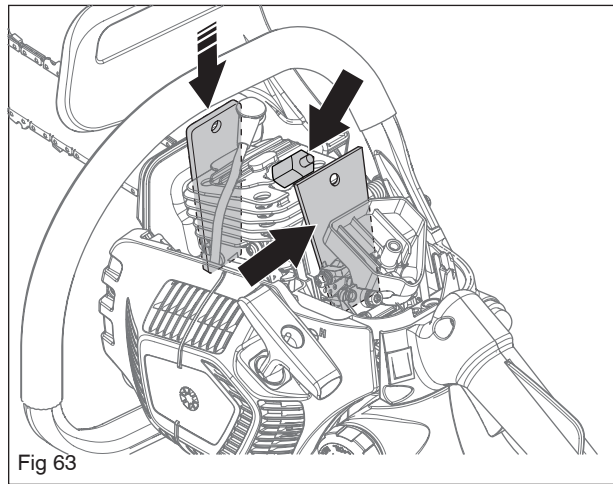


Fig 63

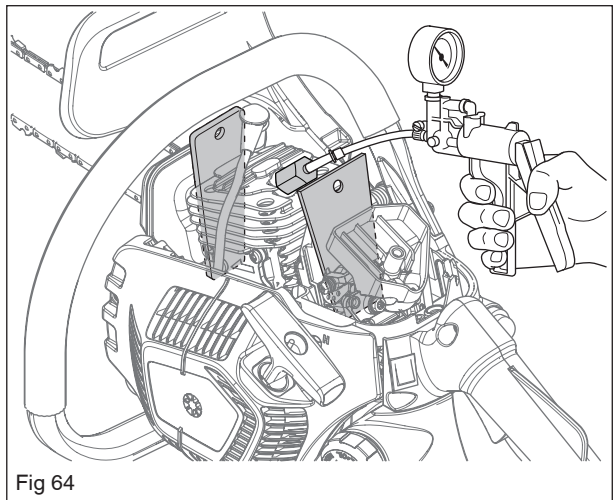


Fig 64

# 8 Troubleshooting

## Contents

|     |                               |    |
|-----|-------------------------------|----|
| 8.1 | Troubleshooting .....         | 52 |
| 8.2 | Troubleshooting methods ..... | 53 |



## 8.1 Troubleshooting

The various faults that can affect a chain saw are divided into four groups. In each group the likely symptoms are given on the left and possible causes are listed on the right. The most likely faults are given first, and so on.

### Starting

|                                  |   |
|----------------------------------|---|
| Difficulty starting              | Adjust L screw<br>Air filter blocked<br>Choke not working<br>Worn choke pivot<br>Worn choke valve<br>Fuel filter blocked<br>Fuel line blocked<br>Piston ring seized<br>Blocked impulse channel                      |
| Carburettor leaking fuel         | Loose or faulty fuel pipe<br>Hole in diaphragm<br>Worn needle valve<br>Needle valve assembly sticking<br>Needle valve set too high<br>Leak in metering system (air or fuel)<br>Loose cover on carburettor pump side |
| Flooding when engine not running | Worn needle valve<br>Needle valve set too high<br>Needle valve assembly sticking  |

### Idling (low rpm)

|                 |   |
|-----------------|---|
| Will not idle   | Adjust L screw<br>Leaking air intake hose (rubber)<br>Loose carburettor mounting bolts<br>Loose or faulty fuel hose<br>Fuel filter blocked<br>Fuel line blocked<br>Fuel tank vent blocked<br>Throttle valve pivot stiff<br>Throttle pushrod sticking<br>Defective throttle return spring<br>Bent throttle stop<br>Faulty diffuser jet |
| Idling too rich | Adjust L screw<br>Worn needle valve<br>Needle valve set too high<br>Worn needle valve lever<br>Leaking control diaphragm/cover plate<br>Needle valve assembly sticking  |

### Idling (low rpm) (cont.)

|                                      |   |
|--------------------------------------|---|
| Idles when L screw closed            | Worn needle valve<br>Leaking control diaphragm/cover plate<br>Needle valve assembly sticking<br>Worn needle valve lever<br>Faulty diffuser jet  |
| Idling uneven                        | Fuel filter blocked<br>Fuel line blocked<br>Leaking air intake hose (rubber)<br>Loose carburettor mounting bolts<br>Worn throttle valve pivot<br>Loose throttle valve screw<br>Worn throttle valve<br>Needle valve assembly sticking<br>Leak in metering system (air or fuel)<br>Metering system centre knob is worn<br>Hole in diaphragm<br>Leaking control diaphragm/cover plate<br>Crankcase leaking |
| L screw requires constant adjustment | Fuel line blocked<br>Needle valve set too high<br>Needle valve assembly sticking<br>Leak in metering system (air or fuel)<br>Leaking control diaphragm/cover plate<br>Faulty diffuser jets<br>Crankcase leaking   |
| Too much fuel at idling              | Needle valve set too high<br>Needle valve assembly sticking<br>Metering system damaged<br>Worn needle valve<br>Leaking control diaphragm/cover plate<br>Metering system incorrectly assembled   |



High rpm

|                               |  |
|-------------------------------|--|
| Will not run at full throttle | Adjust H screw<br>Blocked air filter<br>Blocked fuel tank vent<br>Blocked fuel filter<br>Fuel line blocked<br>Loose or damaged fuel hose<br>Impulse channel leaking<br>Impulse channel blocked<br>Loose cover on carburettor pump side<br>Faulty pump diaphragm<br>Leaking air intake hose (rubber)<br>Loose carburettor mounting bolts<br>Needle valve set too low<br>Metering system damaged<br>Metering system incorrectly assembled<br>Leaking control diaphragm/cover plate<br>Needle valve assembly sticking<br>Blocked silencer |
| Low power                     | Adjust H screw<br>Blocked fuel tank vent<br>Blocked fuel filter<br>Impulse channel leaking<br>Impulse channel blocked<br>Loose cover on carburettor pump side<br>Faulty pump diaphragm<br>Blocked air filter<br>Needle valve assembly sticking<br>Leak in metering system (air or fuel)<br>Metering system incorrectly assembled<br>Loose diaphragm rivet<br>Hole in diaphragm<br>Leaking control diaphragm/cover plate  |
| Will not "four-stroke"        | Blocked fuel tank vent<br>Blocked fuel filter<br>Fuel line blocked<br>Loose or damaged fuel hose<br>Impulse channel leaking<br>Impulse channel blocked<br>Loose cover on carburettor pump side<br>Faulty pump diaphragm<br>Leaking air intake hose (rubber)<br>Loose carburettor mounting bolts<br>Needle valve set too low<br>Leak in metering system (air or fuel)<br>Metering unit incorrectly assembled<br>Loose diaphragm rivet<br>Hole in diaphragm<br>Leaking control diaphragm/cover plate                                     |

Acceleration och retardation

|                                      |   |
|--------------------------------------|---|
| Does not accelerate                  | Adjust L screw<br>Adjust H screw<br>Blocked air filter<br>Blocked fuel tank vent<br>Blocked fuel filter<br>Fuel line blocked<br>Loose or damaged fuel hose<br>Impulse channel blocked<br>Loose cover on carburettor pump side<br>Faulty pump diaphragm<br>Leaking air intake hose (rubber)<br>Loose carburettor mounting bolts<br>Needle valve set too low<br>Metering system incorrectly assembled<br>Needle valve assembly sticking<br>Faulty diffuser jets<br>Blocked silencer |
| Engine stalls when throttle released | Adjust L screw<br>Adjust H screw<br>Faulty pump diaphragm<br>Needle valve set too high<br>Needle valve assembly sticking<br>Faulty diffuser jets  |
| Over rich acceleration               | Adjust L screw<br>Adjust H screw<br>Blocked air filter<br>Faulty pump diaphragm<br>Faulty diffuser jets   |

8.2 Troubleshooting methods

In addition to the faults described in the above table, trouble shooting can be carried out on specific components or sub-systems of the chain saw. The various procedures are described in the relevant chapters, see the contents page, as follows:

- Checking the operation of the chain brake
- Measuring the resistance of the stop plate
- Pressure testing the carburettor
- Pressure testing the decompression valve
- Pressure testing the cylinder





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