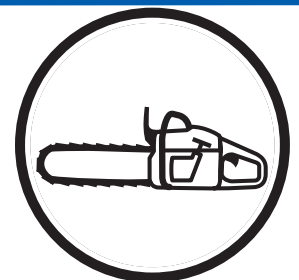


**Workshop Manual**  
**T540 XP**



**English**



---

# Workshop Manual

## Husqvarna T540 XP

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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 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". 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 This means that in time this Workshop Manual will become out of date.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 assembling 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
  - Assembling

#### 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 "Repair instructions" chapter, which deals with the **Starter** and carry out the instructions listed under the **Dismantling** heading.
2. Scroll forward in the manual and carry out the **Dismantling** in the order set out in the sections.
3. Go back to **Starter** and carry out the instructions under **Cleaning and checking**.
4. Scroll 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 "Repair instructions" chapter, which deals with the **Crankcase** and carry out the instructions under **Assembly**.
7. Scroll backwards in the manual and carry out the **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 devices 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 fatal 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 compression spring on the chain brake. Otherwise the compression 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.

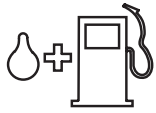


## 2.10 Symbols on the saw

The symbols below are embedded in the chain saw.



Choke control



Refuelling



Stop button



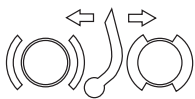
Filling up saw chain oil



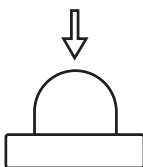
Handle insert size



Chain link



Chain brake



Air purge

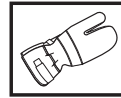


Adjustment of the oil pump

## 2.11 Symbols in the Workshop Manual



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



Use protective gloves.



Use protective goggles.

### 3 Technical data



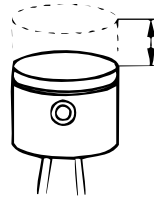
Displacement  
cm<sup>3</sup>/cubic inch

T540XP: 37.7 / 2.3



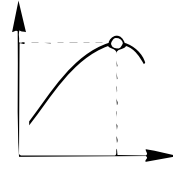
Cylinder bore  
Ømm/Øinch

40 / 1.57



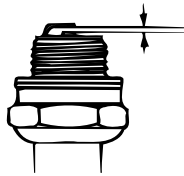
Length of stroke  
mm/inches

30 / 1.18



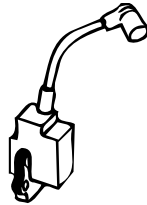
Max. output/speed  
kW/hp/rpm

1.8 / 2.45 / 10 200



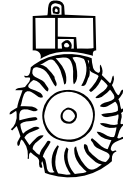
Electrode gap  
mm/inches

T540XP: 0.5 / 0.02



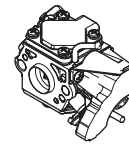
Ignition system

SEM DM61



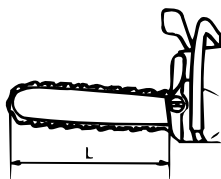
Air gap  
mm/inches

0.3 / 0.01



Carburettor type

Walbro AT2



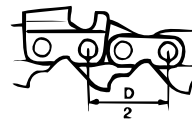
Usable cutting length  
cm/inch

T540XP: 28 - 38/11 - 15



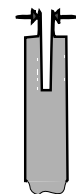
Chain speed at  
max. output - speed  
m/s - rpm

19.4 / 10,200



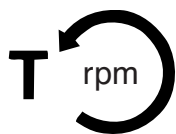
Chain pitch  
mm/inches

9.53 / 0.375



Drive links  
mm/inches

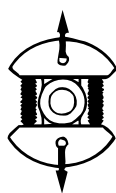
1.3 / 0.050



Idle speed  
rpm

T540XP:

3 000



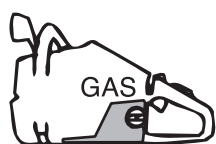
Engage speed  
rpm

4 400



Spark plug

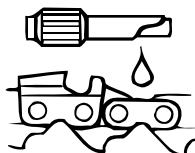
NGK CMR 6H



Volume fuel tank  
Litres/US pint

T540XP:

0.34 / 0.72



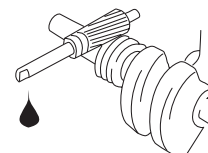
Capacity oil pump at  
9,500 rpm,  
ml/min

3 - 9



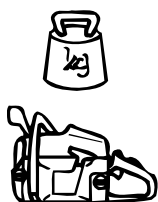
Volume oil tank  
Litres/US pint

0.20 / 0.42



Automatic oil pump

Yes



Weight without bar and chain  
kg/lbs

T540XP:

3.7 / 8.1



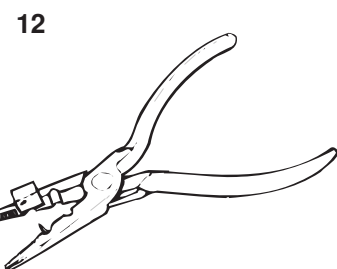
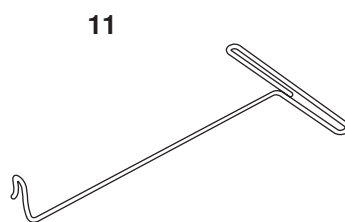
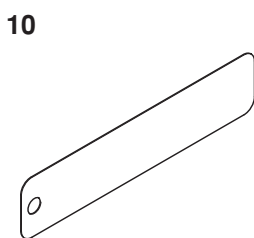
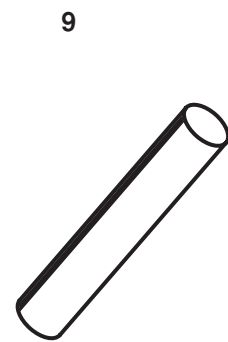
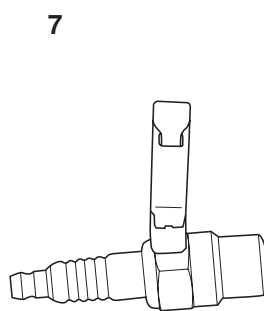
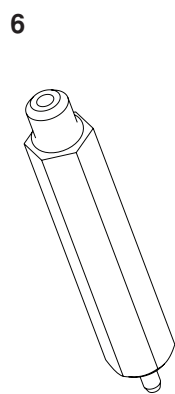
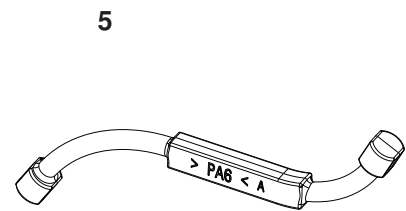
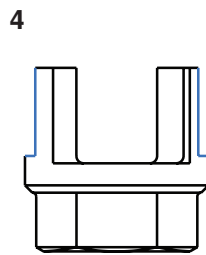
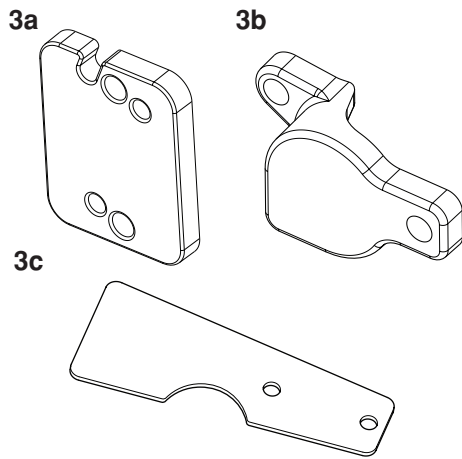
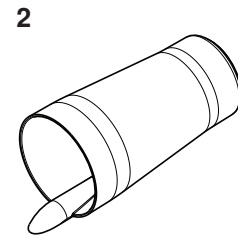
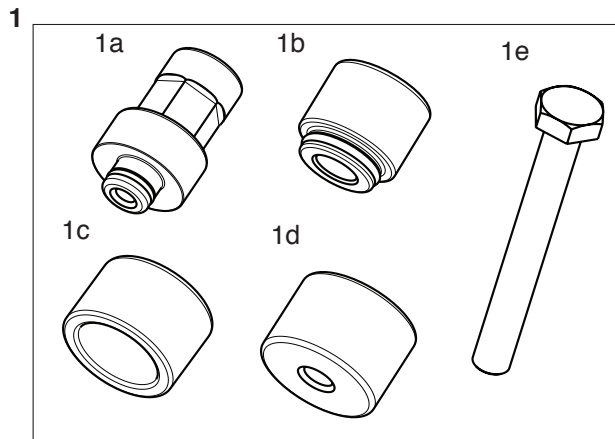
Weight with bar and chain  
kg/lbs

12": 3.9 / 8.60

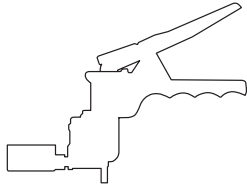
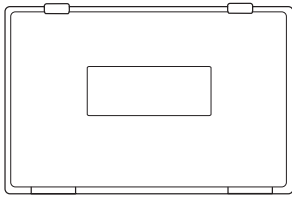
14": 4.1 / 9.04

16": 4.3 / 9.47

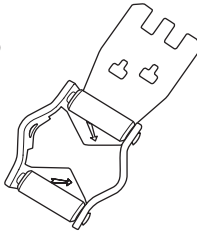
# 4 Service tools



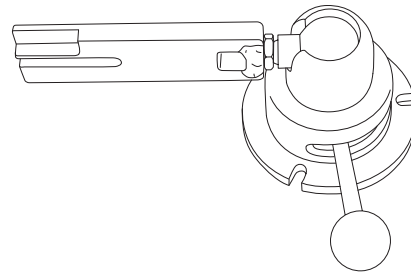
13



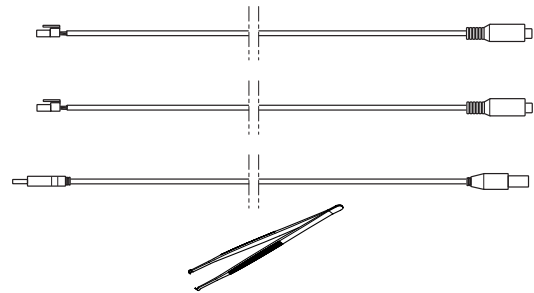
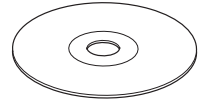
15



14

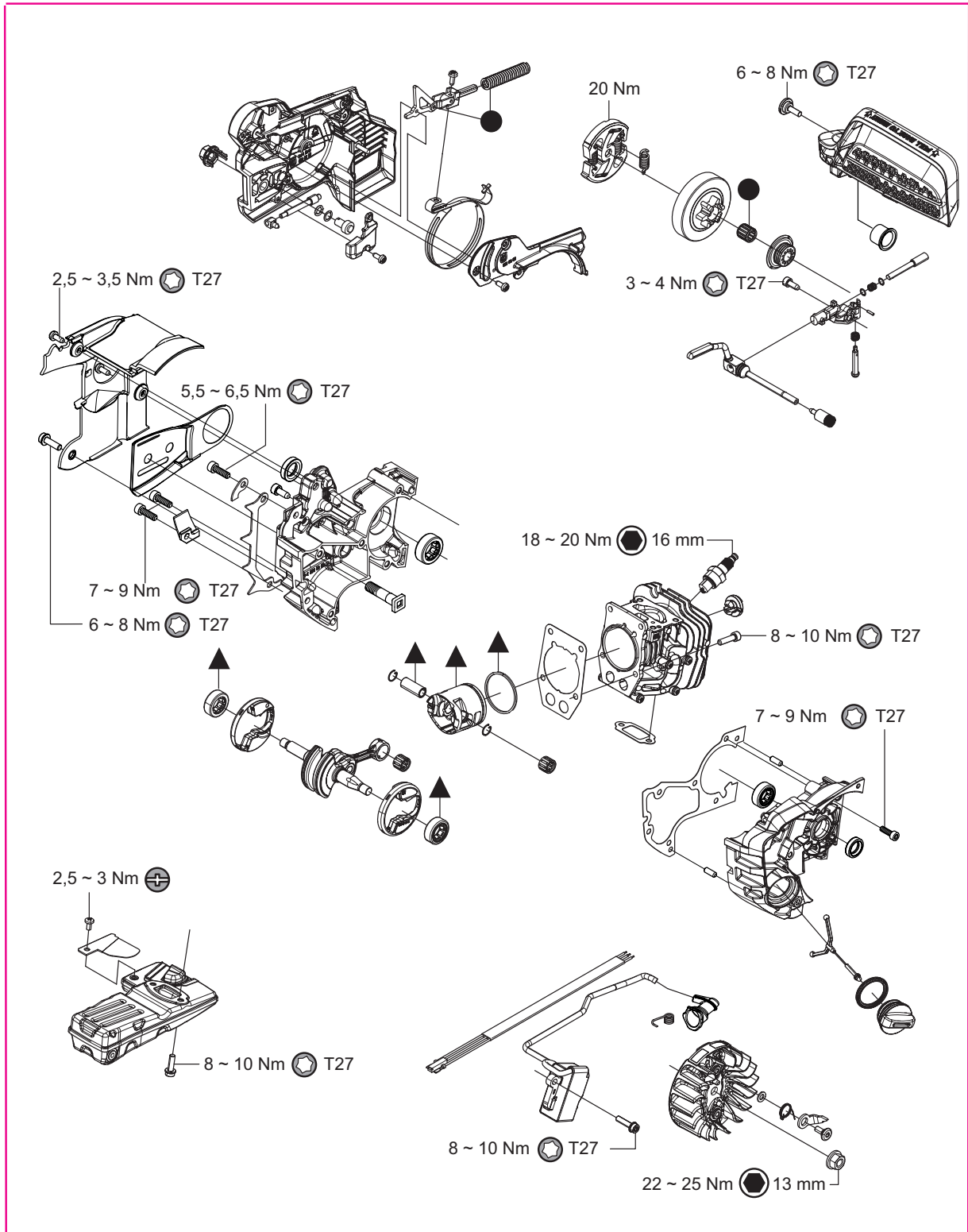


16



Pos.	Description	Used for	Order No.
1	Mounting kit for bearings and sealing ring	Dismantling and assembling bearings and sealing ring	577 71 44-01
1a	Dismantling tool	Dismantling bearings and sealing ring	576 66 64-01
1b	Assembling tool	Assembling the sealing ring	576 95 56-01
1c	Dismantling tool	Dismantling bearings and sealing ring	576 95 46-01
1d	Assembling tool	Assembling bearings	576 95 45-01
1e	Dismantling tool	Dismantling bearings and sealing ring	725 33 80-51
2	Assembling tool	Assembling the sealing ring	577 70 16-01
3a	Cover plate, intake	Seal the intake channel	576 48 35-01
3b	Cover plate, X-Torq intake	Seal the X-Torq intake	576 48 34-01
3c	Cover plate	Closure of outlet	577 75 38-01
4	Clutch tool	Centrifugal clutch	502 54 16-02
5	Piston stop	Lock crankshaft	575 29 36-01
6	Pressure tester	Pressure testing cylinder	576 38 48-01
7	Test spark plug	Checking the ignition module	502 71 13-01
8	Cabling	Checking the ignition module	577 83 18-01
9	Mandrel	Dismantling the flywheel	502 51 94-01
10	Feeler gauge	Setting, ignition module	521 03 13-01
11	Hook for fuel filter	Lifting out the fuel filter	502 50 83-01
12	Assembly pliers	Assembling the spark plug protector	502 50 06-01
13	Pressure gauge	Pressure testing	531 03 06-23
14	Assembly fixture	Securing the chain saw	502 51 02-01
15	File gauge	Maintenance of chain (H37)	579 65 36-01
	File gauge	Maintenance of chain (H36)	579 65 37-01
16	Engine Diagnostic Tool	Diagnosis and troubleshooting	576 69 23-01

## 5 Service data



### Key

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

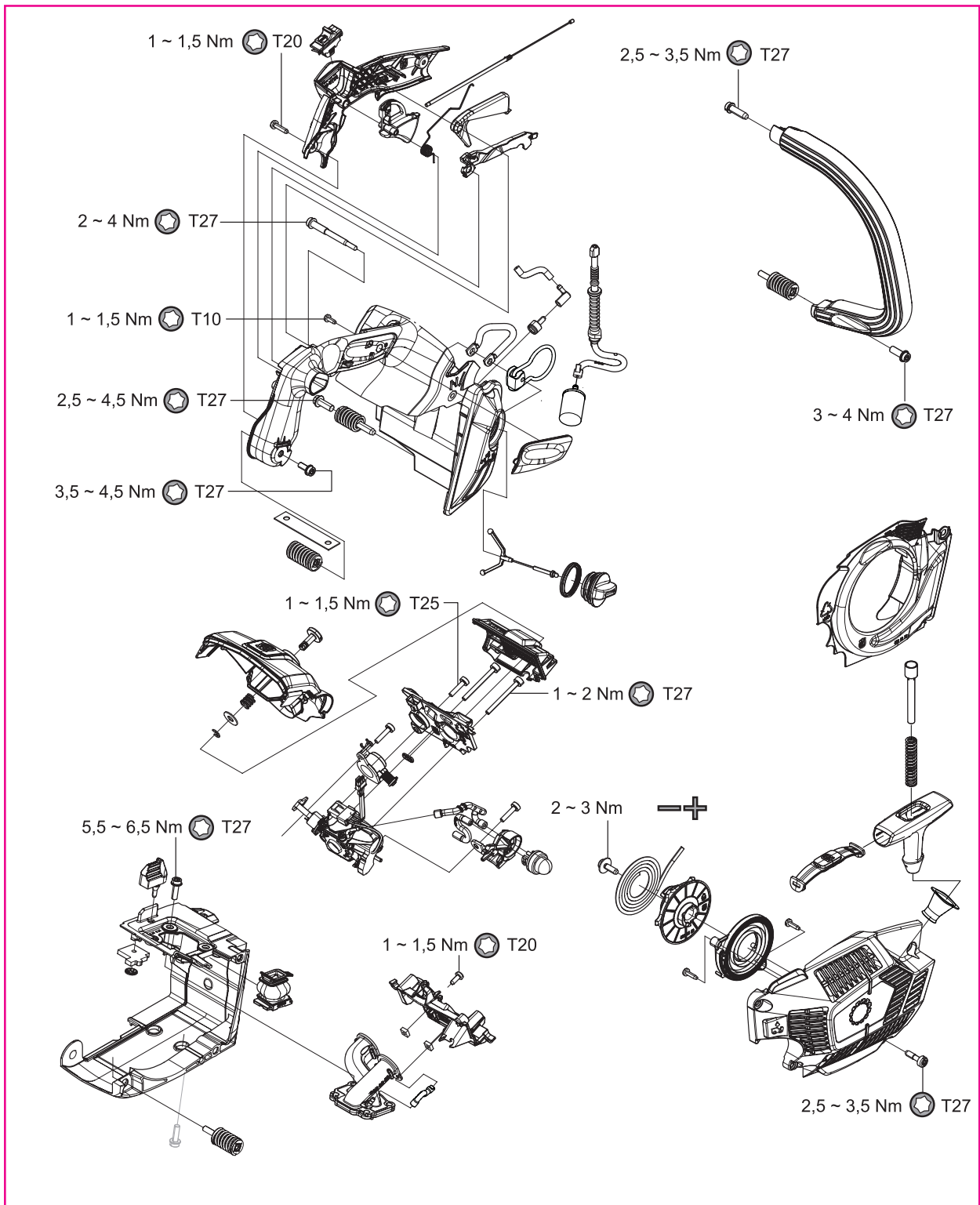
▲ = Lubricate with two-stroke oil.

■ = Lubricate with engine oil.

● = Lubricate with grease.

□ = Glued using 2 component adhesive.

○ = Sealed with silicone.



## 6 Safety equipment

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6.11	Replacing the handle insert .....	26
6.12	Assembling the belt eyelet .....	27



## 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, saw chain and bar. See Figure 1

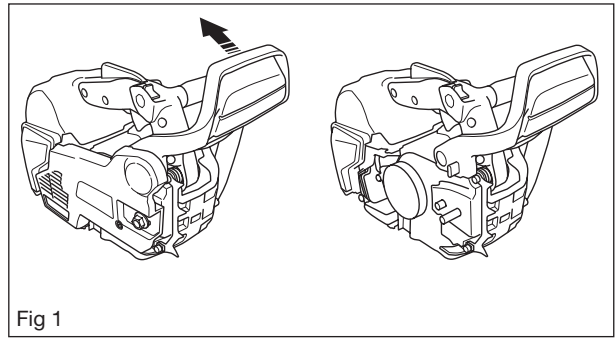


Fig 1

2

Activate brake tension by pulling back the knee joint as shown in Figure 2.

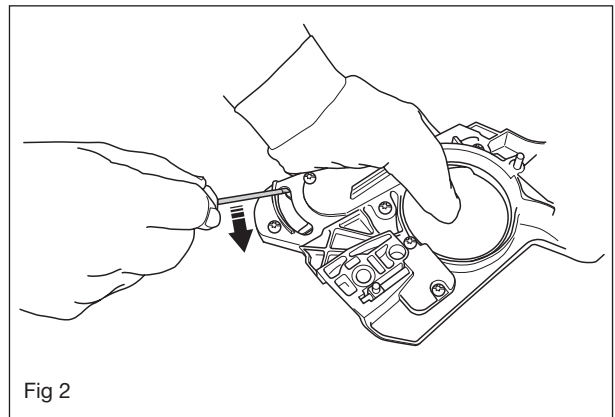


Fig 2



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

3

Remove the cover by loosening the two screws as outlined in Figure 3.

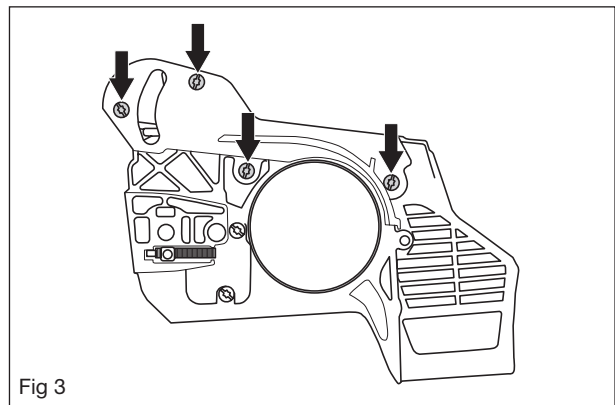


Fig 3

4

Insert a screwdriver in the spring and carefully prise upwards until the spring is released and slides onto the screwdriver. See Figure 4.

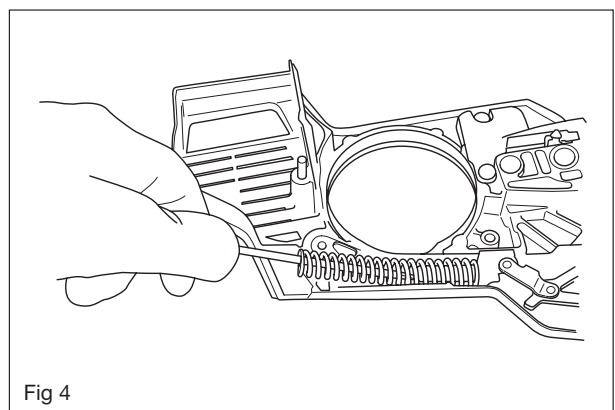


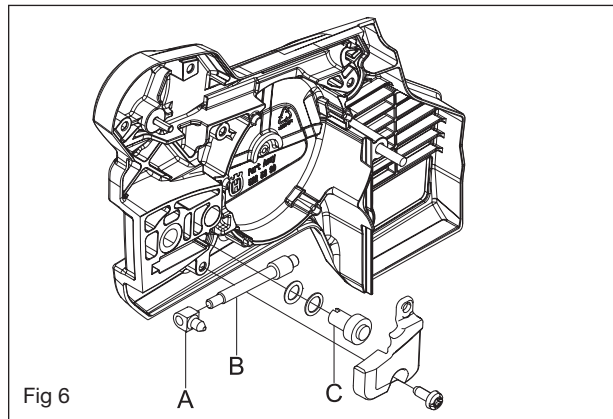
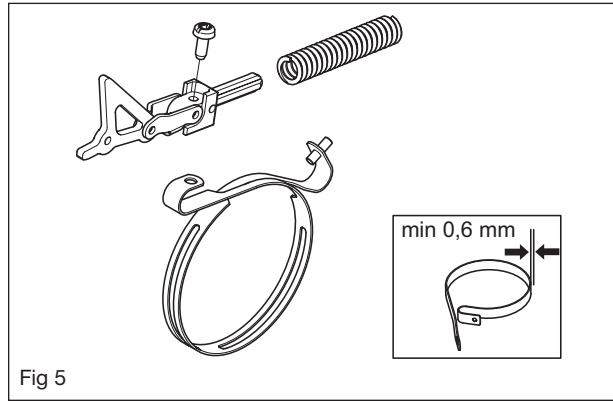
Fig 4

**5**

Remove the knee joint with the attached brake band from its attachment in the clutch cover.

**Cleaning and checking**

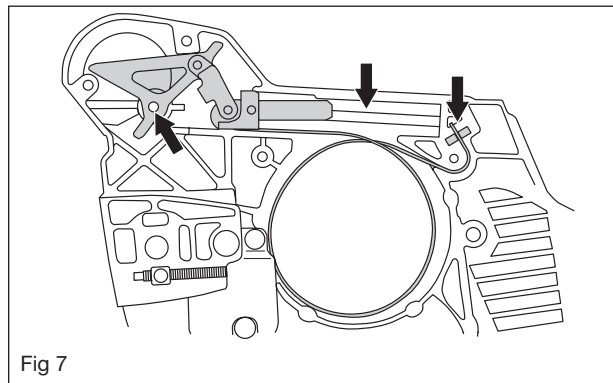
- Clean and check carefully all components. Parts must be replaced if cracked or show signs of other defects. Always use original spare parts.
- Measure the thickness of the chain brake band. It must not be less than 0.6 mm at any point. See figure 5.
- Lubricate the knee joint with grease.
- If necessary, dismantle the chain adjuster and check the tension block (A), worm shaft (B) and worm shaft (C). See Figure 6. Lubricate all components with grease.



**6.2 Assembling the chain brake**

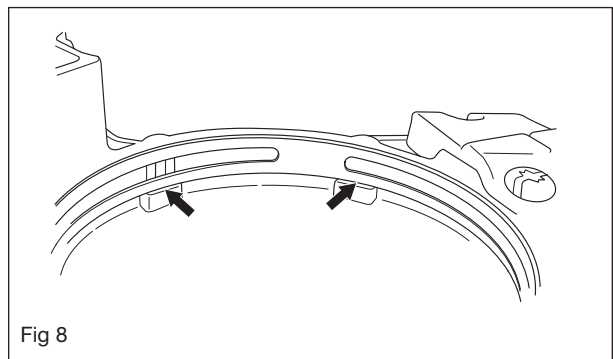
**1**

Place the knee joint with the fitted brake band in its groove in the clutch cover as outlined in Figure 7. The space for the spring in the cover must be lubricated with grease.



**2**

Make sure the brake band is fitted to the hooks in the clutch cover. See Figure 8.



**3**

Compress the spring with a wide screwdriver and press it down with your thumb. See Figure 9.

**4**

Fit the cover over the brake spring and screw the screws back in place. See Figure 3 "Dismantling the chain brake".

**5**

Tighten the chain brake by using the saw's front hand guard as a tool. Align the front section of the clutch cover with the front hand guard. Then pull the front hand guard back to disengage the brake. See Figure 10

Assemble the following parts:

- Bar.
- Saw chain.
- Clutch cover.

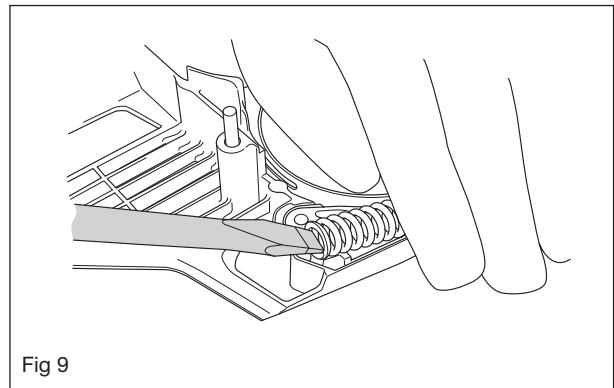


Fig 9

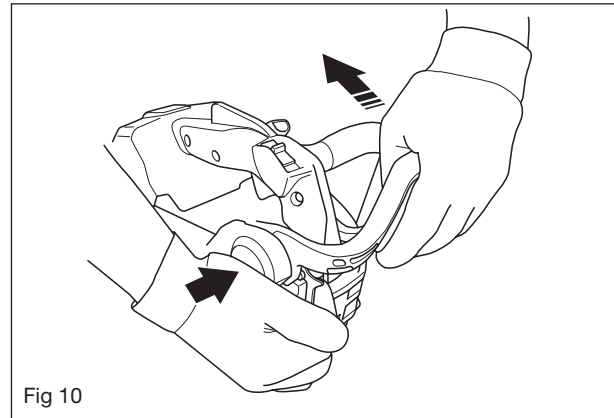



Fig 10

### 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 front hand guard backwards.  
Loosen the bar nut and remove the clutch cover, saw chain and bar.

**2**  
Loosen the screw holding the front hand guard.  
See Figure 11.

**3**  
Pull the front hand guard out of its attachment.  
See Figure 12

**4**  
Dismantle the clutch, the clutch drum and needle bearings. See the "Dismantling the centrifugal clutch" chapter for further information.

**5**  
Loosen the screws as outlined in Figure 13.

**6**  
Dismantle the starter and air guide rail. See the "Dismantling the starter" chapter for further instructions.

**7**  
Dismantle the oil pump cover by loosening the screws as outlined in Figure 14.

**8**  
Loosen the two screws for the muffler on the bottom of the chain saw.

**9**  
Lift up the front end of the cylinder cover no more than 35 mm and carefully work the muffler off as outlined in Figure 15.

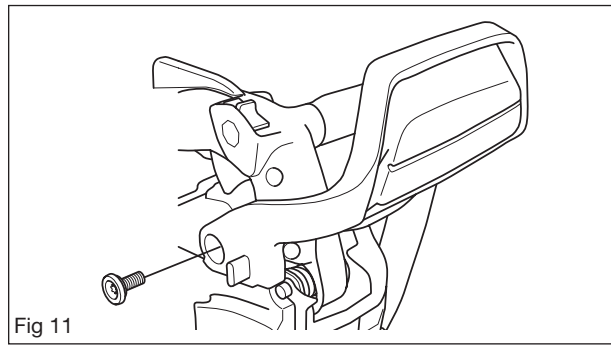


Fig 11

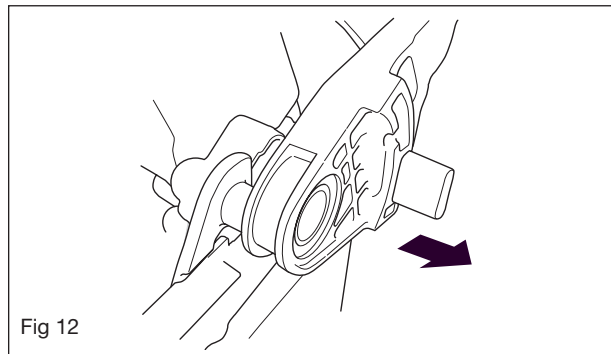


Fig 12

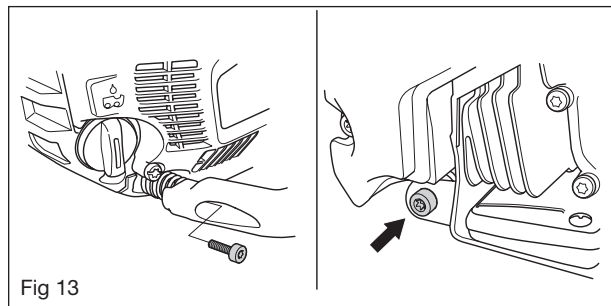


Fig 13

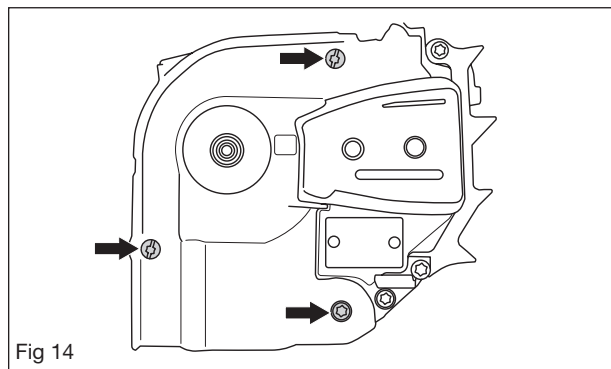


Fig 14

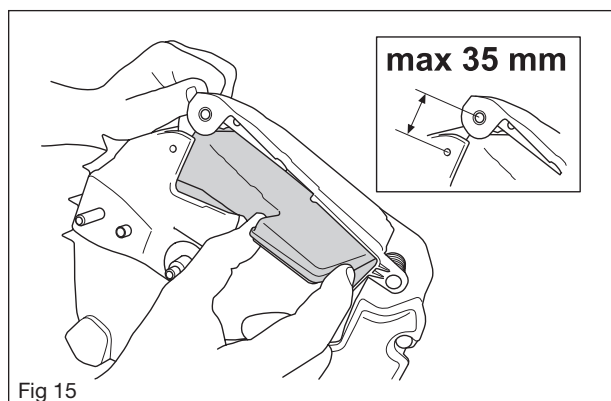


Fig 15

### Cleaning and checking

- 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 it is damaged. The saw will overheat if the mesh is clogged resulting in damage to the cylinder.
- Never use a saw with a muffler in bad condition.

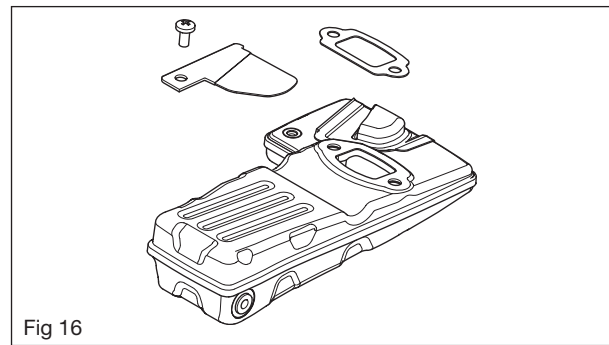


Fig 16

## 6.4 Assembling the muffler

**1**

Assemble the muffler and align the gasket in place. See Figure 17. Insert a screwdriver or the like in one of the holes to make it easier to position the gasket.

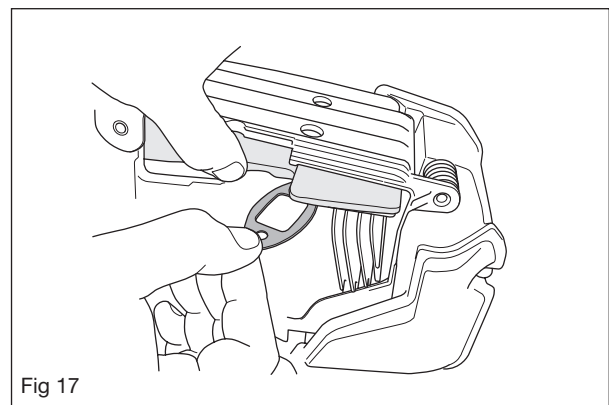


Fig 17

**2**

Screw the muffler in place. Assemble the oil pump cover, the centrifugal clutch and vibration element.

**3**

Make sure the bushing is fitted on the inside as outlined in figure 18a before fitting the front hand guard to the chain saw.

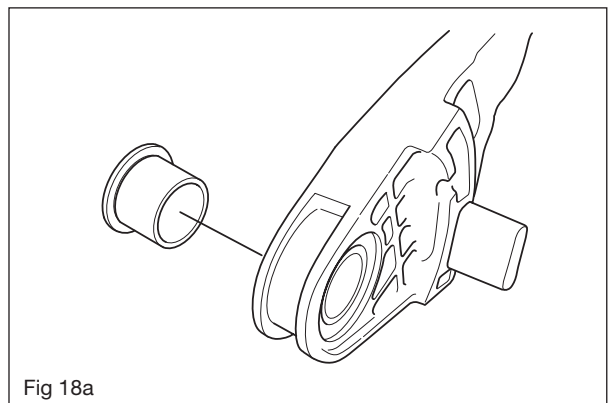


Fig 18a

**4**

Fit the front hand guard. Press down the spring using a suitable tool and then press the kickback guard into its bracket. See figure 18b. Tighten the screw. Tightening torque of 8-10 Nm.

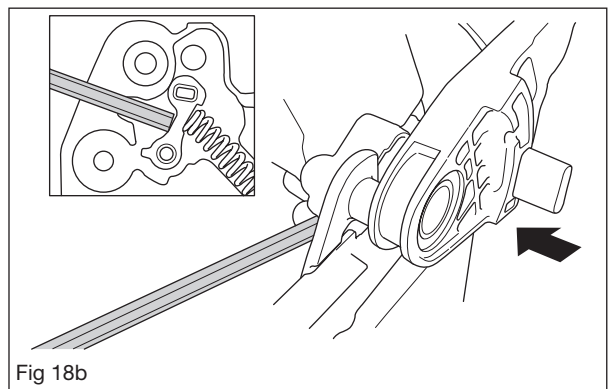


Fig 18b

**5**

Fit the bar, the saw chain and the clutch cover.

Warm up the saw for at least 1 minute and retighten the muffler screws.

### 6.5A Assembling the spike bumper

The spike bumper is not fitted at the time of delivery. When a spike bumper is fitted the first time, the washer fitted above the limiter cap must be removed. See Figure 19a.

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

**2**  
Loosen the screws and remove the washer and chain catcher. See Figure 19a.

**3**  
Fit the spike bumper as outlined in Figure 19b. Then fit the saw chain, the bar and the clutch cover.

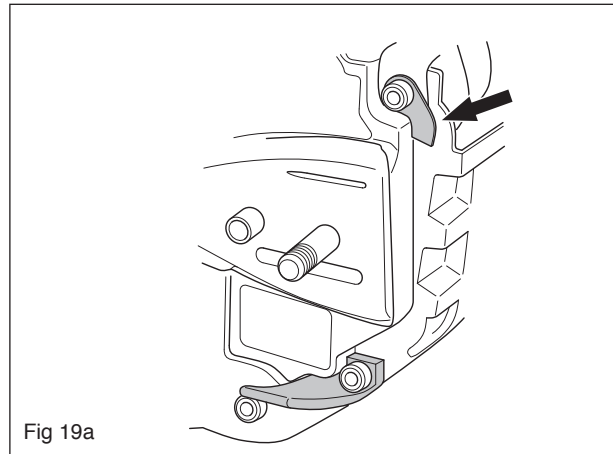


Fig 19a

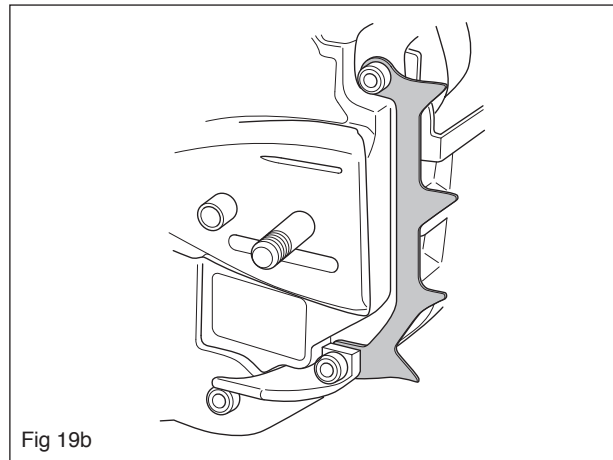


Fig 19b

### 6.5B Replacing the chain catcher

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

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

**2**  
Loosen the screw and replace the chain catcher with a new one as shown in Figure 19c. Tightening torque 8-10 Nm.

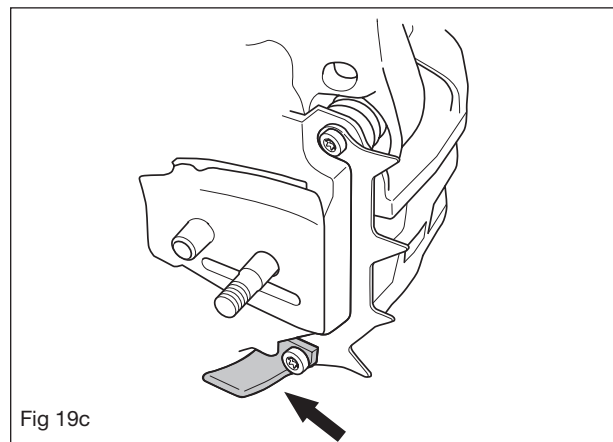


Fig 19c

## 6.6 Dismantling the stop switch

1

Dismantle the start/stop switch with a screwdriver. See Figure 20.

2

Check that the stop switch is intact.

### 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.

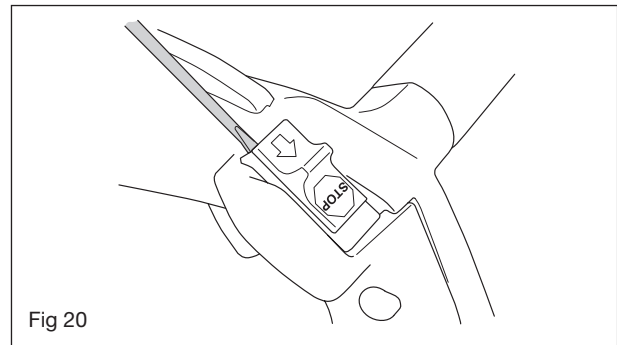


Fig 20

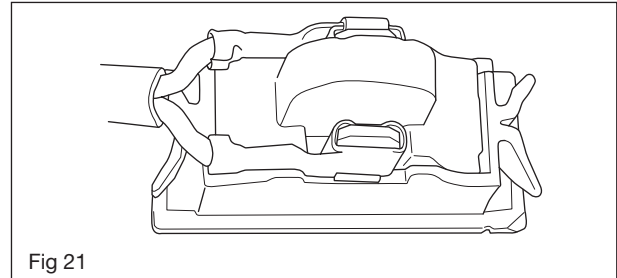


Fig 21

## 6.7 Assembling the stop switch

1

Fit the cables. See Figure 21

2

Press the stop switch into its holder as outlined in Figure 22.

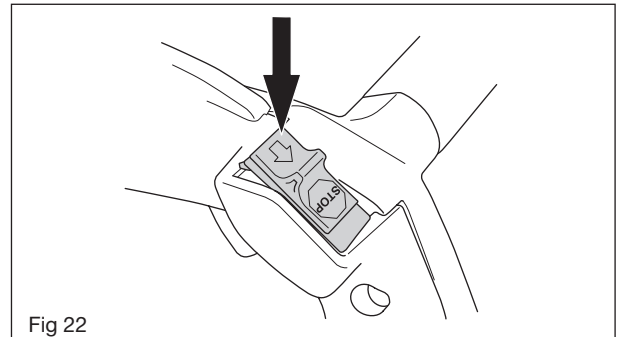


Fig 22

## 6.8 Resistance test - stop function

1

Remove the handle half. See Section 2 and Figure 24 in the "Dismantling the throttle lockout, throttle and spring" chapter.

Clean the contact areas and check the resistance as follows:

Test the resistance by connecting a multimeter to the ignition switch's cabling (black and blue cable). NOTE! The power switch must be in the "on" position to get the correct reading. See Figure 23.

The stop switch is in the "on" position when it is slid forward to Stop and is in the "off" position when the button is in neutral.

The resistance must not exceed 0.2 Ohm with the stop switch is placed in the "on" position.

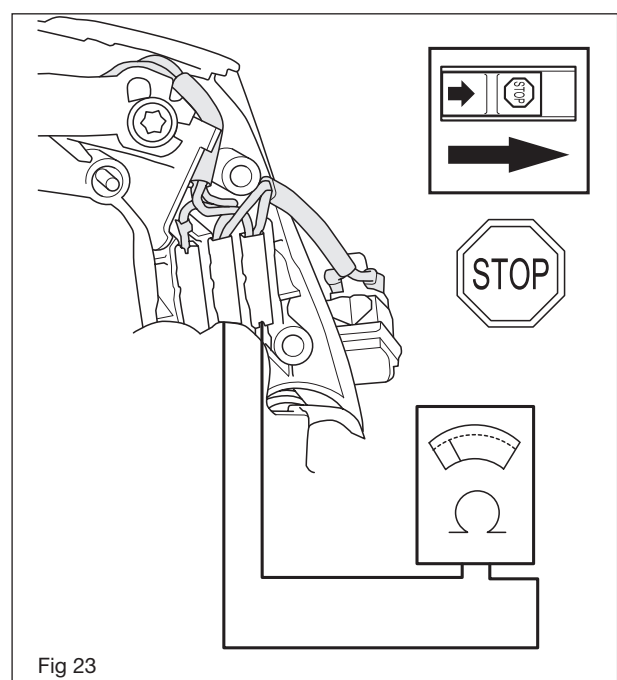


Fig 23

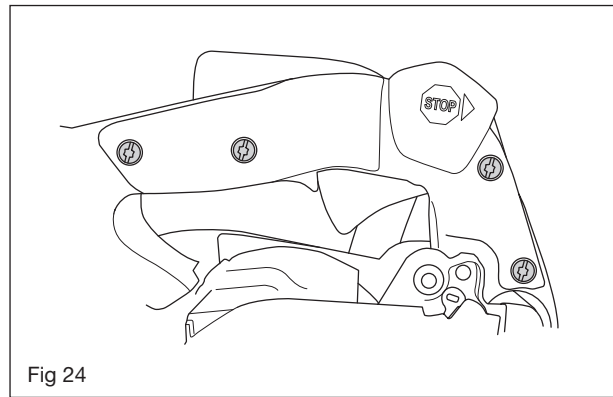
## 6.9 Dismantling the throttle lockout, throttle and spring

1

Release the chain brake by moving the kickback guard backwards. Dismantle the clutch cover and front hand guard. See the "Dismantling the muffler" chapter.

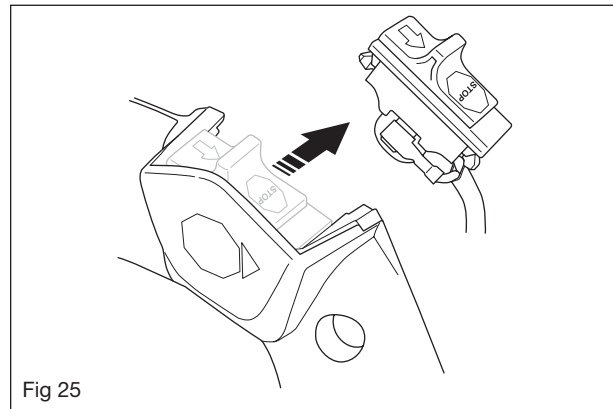
2

Dismantle the handle half by loosening the screws as outlined in Figure 24.



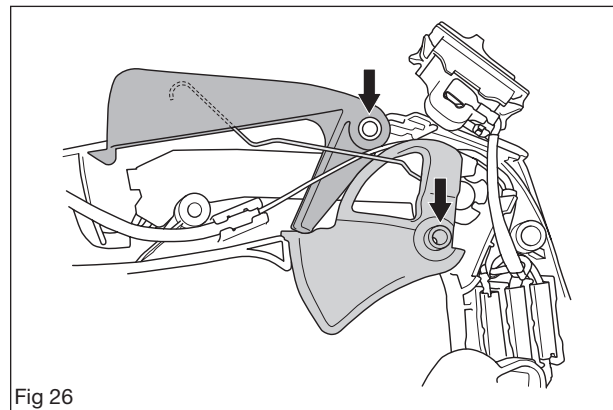
3

Slide the stop switch off its holder as outlined in Figure 25.



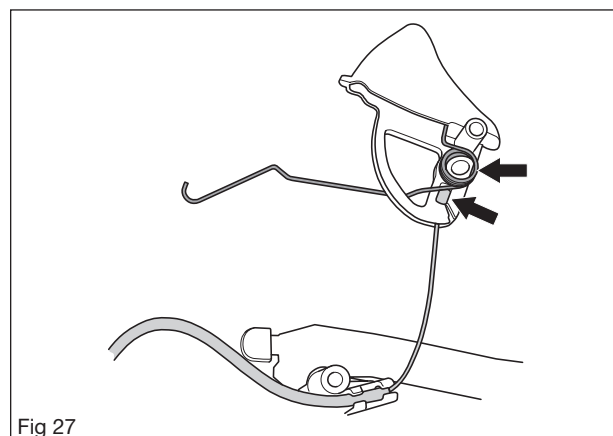
4

Lift off the throttle lockout and the throttle from their attachments in the handle. See figure 26.



5

Unhook the throttle cable and the recoil spring from their attachments. See figure 27.





### 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 recoil spring is intact and retains all its tension.

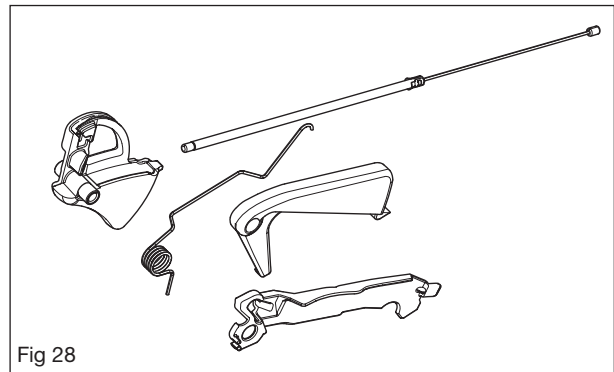


Fig 28

## 6.10 Assembling the throttle lockout, throttle and spring

1

Hook the throttle cable and the recoil spring in their attachments in the throttle as outlined in Figure 29.

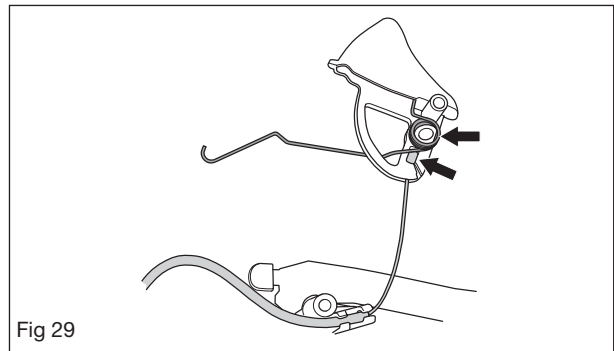


Fig 29

2

Fit the throttle and throttle lockout to their attachments in the handle and make sure that the hooks end up inside the handle as outlined in Figure 30. Replace the recoil spring in the throttle lockout.

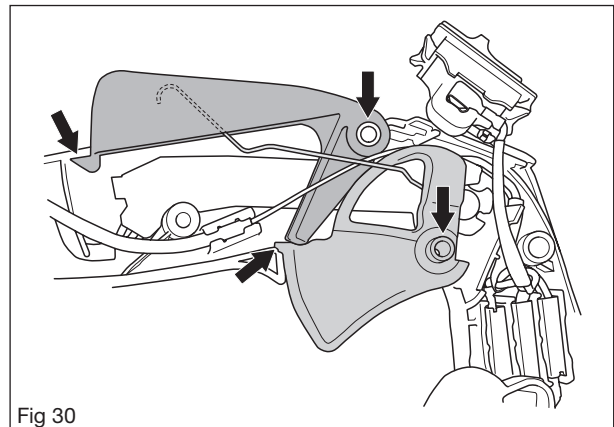


Fig 30

3

Fit the handle half and tighten the screws. Press down the stop switch in its holder. See Figure 31.

4

Then fit the front hand guard (See section 3, "Assembling the muffler"), the bar, the saw chain and the clutch cover.

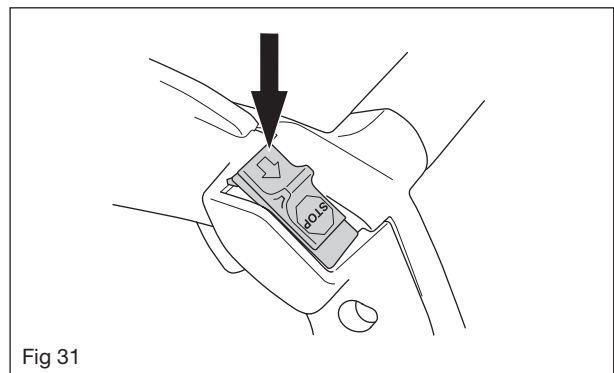
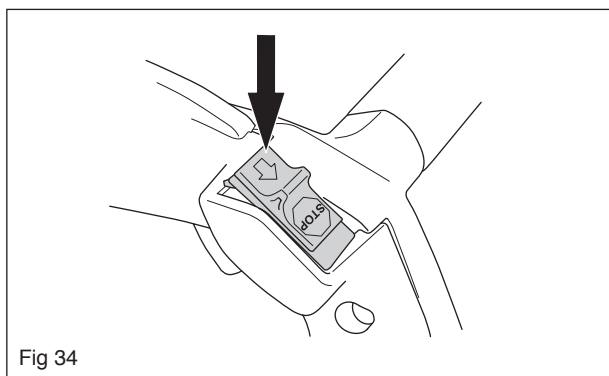
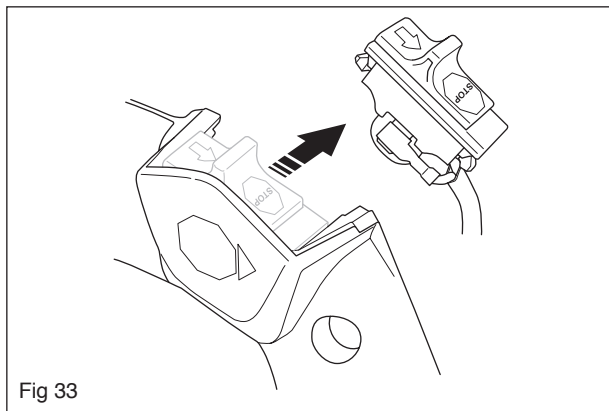
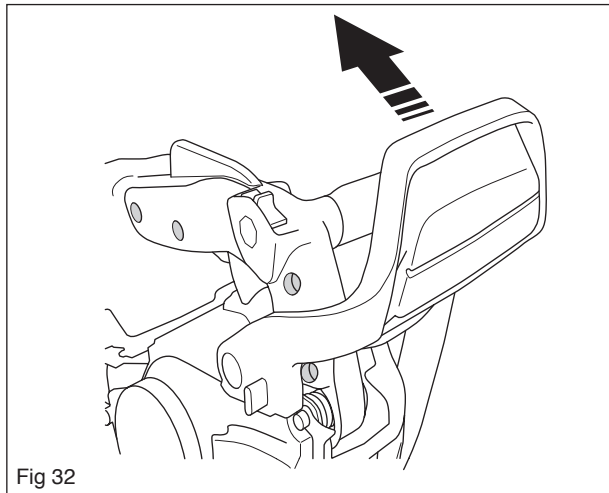


Fig 31

## 6.11 Replacing the handle insert

To make the upper handle suit different hand sizes, the chain saw is supplied with three different handle insert sizes - M, L and XL. The L size is fitted when the chain saw is delivered.

- 1**  
Release the chain brake by moving the kickback guard backwards. Loosen the bar nut and remove the clutch cover, saw chain and bar.
- 2**  
Loosen the four screws holding the handle insert. Slide the kickback guard backward as outlined in Figure 32 to access the front screw.
- 3**  
Loosen the handle insert and slide the stop switch off its holder as outlined in Figure 33.
- 4**  
Fit the handle insert and make sure that no cables are pinched. Rescrew the four screws and press down the stop switch in its holder. See Figure 34.
- 5**  
Fit the bar, the saw chain and the clutch cover.

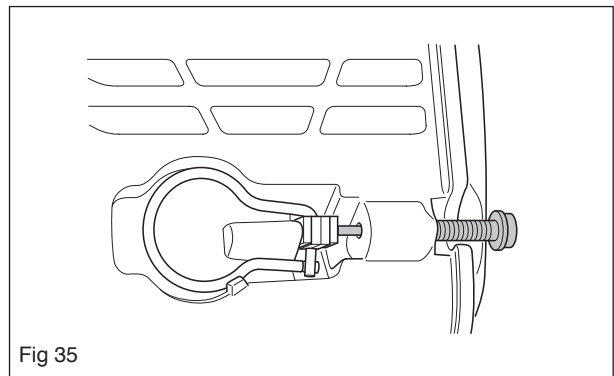


## 6.12 Assembling the belt eyelet

The chain saw is fitted with two eyes at the rear edge of the chain saw housing, a rope eye and a belt attachment eye. The belt attachment eye is not fitted on delivery.

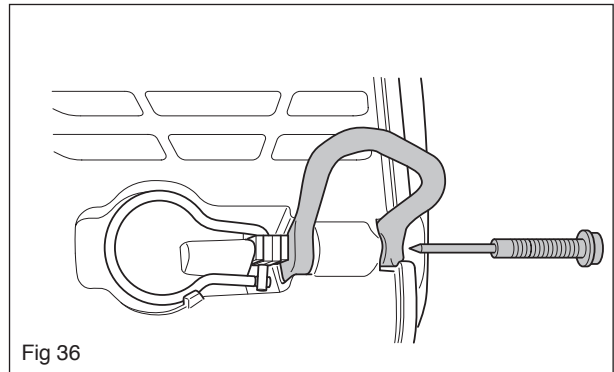
**1**

Loosen the screw that holds the rope eye in place. See Figure 35.



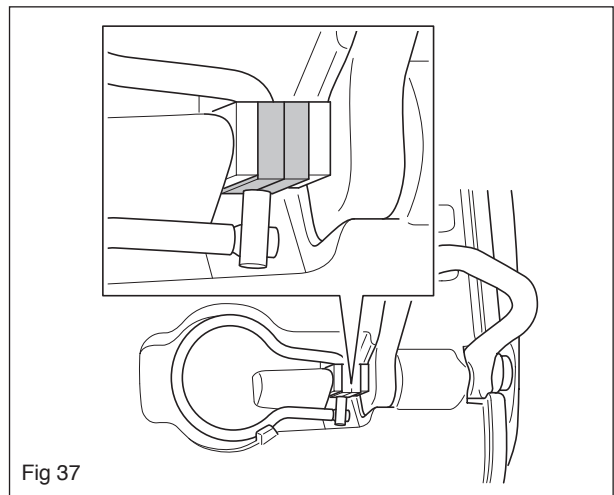
**2**

Fit the belt attachment eye in its mounting as outlined in Figure 36. Insert the screw through both eyes and tighten. Tightening torque of 2-4 Nm.



**3**

Note! It is important that the rope eye is fitted correctly. See Figure 37 on how to fit the rope eye.



# 7 Repair instructions

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# 7 Repair instructions

## 7.1 Dismantling the starter



1

Loosen the screws that hold the starter against the crankcase and remove the starter. See Figure 1.

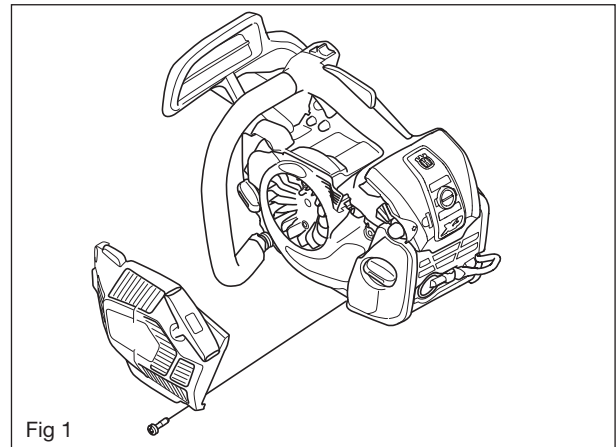


Fig 1

2

Pull out the cord about 30 cm and release the tension in the recoil spring by letting the starter pulley slowly rotate anti-clockwise. See Figures 2 and 3.



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

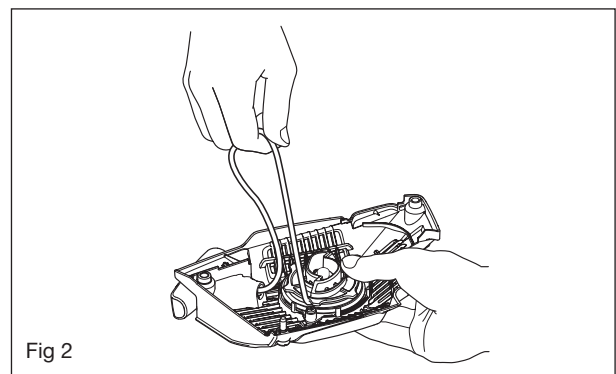


Fig 2

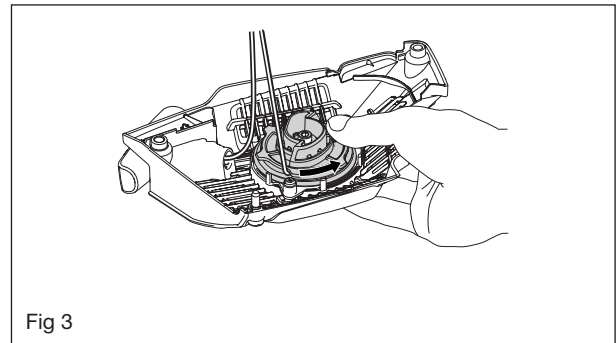


Fig 3

3

Make sure the starter pulley is not tensioned. Then loosen the screw in the centre of the starter pulley and remove the sprocket. Loosen the screws holding the spring cassette and remove it. See Figure 4.

### Cleaning and checking

Clean all components and check that

- The starter cord is not damaged.
- That the starter pawls on the flywheel are intact, i.e. that they spring back to the centre and move easily.
- Lubricate the recoil spring with a light oil.

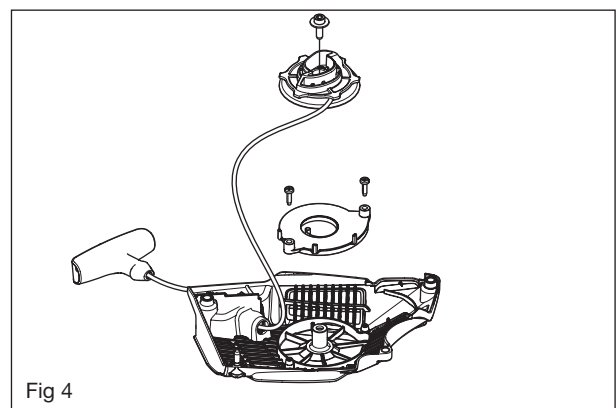


Fig 4

## 7.2 Replacing a broken or worn starter cord

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

1

Pull out the starter cord about 30 cm. Release the tension in the recoil spring by letting the starter pulley rotate anti-clockwise. See figure 5.



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

2

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

3

Hold the starter handle and pull the starter cord so that the built in spring is compressed and at least 10 mm of the spring guide is visible. Press in the starter handle cover at the same time and slide it to one side until it come completely out of the starter handle. See figure 1.

4

Release the starter cord and pull the spring guide out of the starter handle. The knot can then be taken loose from its position in the spring guide. See figure 2.

5

If the starter cord has been torn off inside the starter handle, press in the starter handle cover and push to one side with a suitable tool in the marked recess on the side wall of the cover. See figure 3.

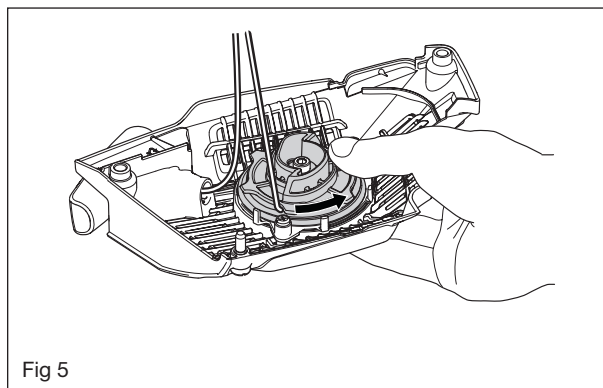


Fig 5

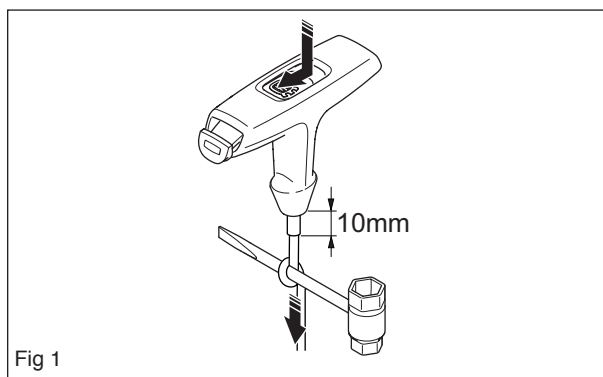


Fig 1

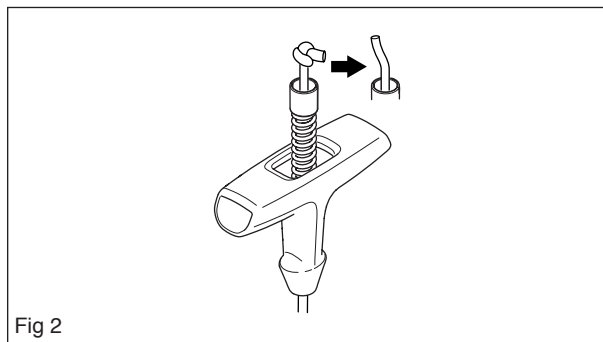


Fig 2

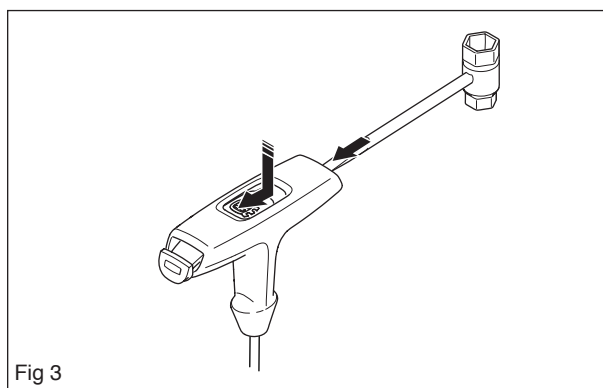


Fig 3

**6**

Insert the starter cord through the starter handle and the spring guide. Make a simple knot with approximately 10 mm of the free end protruding. See figure 4 (A).

**7**

Turn the protruding end so that it is parallel with the cord before the knot and press the knot into position in the spring guide. See figure 4 (B).

**8**

Stretch the starter cord relative to the starter handle so that at least 10 mm for the spring guide is visible. Then slide in the starter handle cover. See figure 5.

**9**

Insert and fasten the starter cord to the pulley.

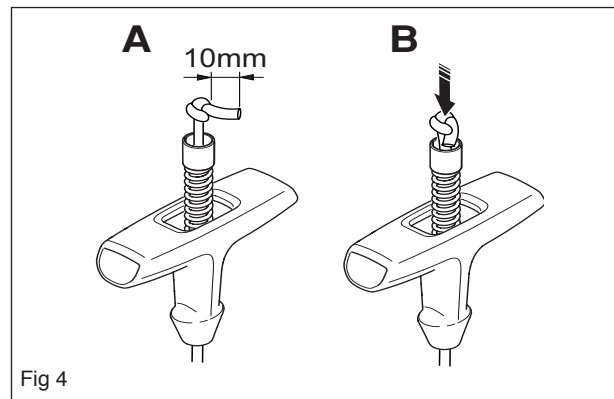


Fig 4

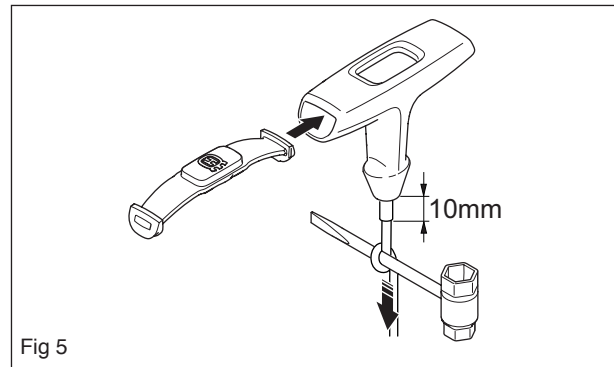


Fig 5

### Cleaning and checking

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

## 7.3 Tensioning the recoil spring

**1**

Twist the starter cord around the starter pulley about three times and fasten the screw in the centre of the starter pulley. Pull out the starter cord in the sprocket and turn the starter pulley about 3 turns clockwise. See Figure 6.

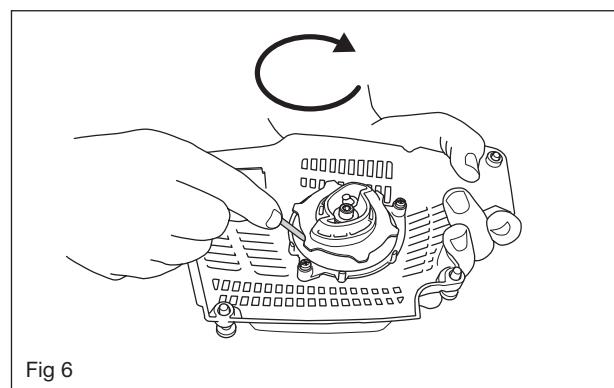


Fig 6

**2**

Stretch the cord with the starter handle. Remove your thumb and let the cord spin back as outlined in Figure 7. Check that the starter pulley can be turned at least a further turn when the starter cord is pulled all the way out.

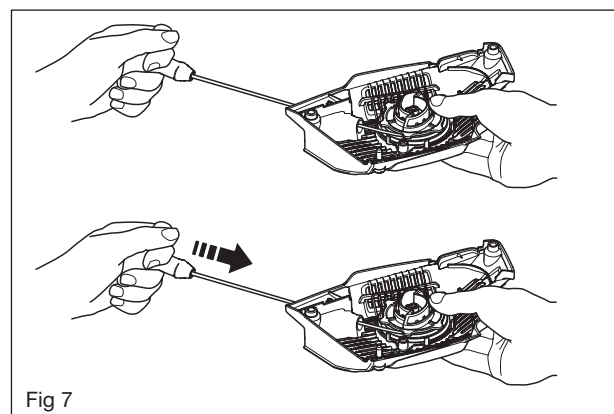


Fig 7

## 7.4 Replacing a broken recoil spring



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



1

Loosen the screws as outlined in Figure 8 and remove the starter pulley and the spring cassette.

2

Replace the faulty spring cassette.

3

Tighten the screw in the centre of the starter pulley and load the recoil spring. See Figure 7, "Loading the recoil spring".

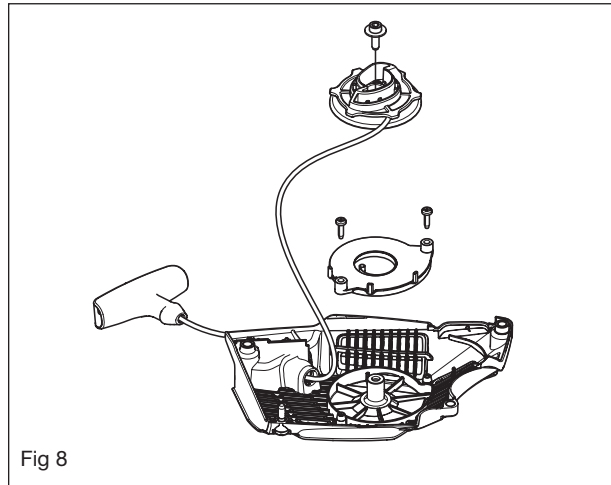


Fig 8

## 7.5 Assembling the starter unit

1

Refit the air guide rail and the starter against the crankcase and tighten the screws as outlined in Figure 9. Tightening torque 2.5 - 3.5 Nm.

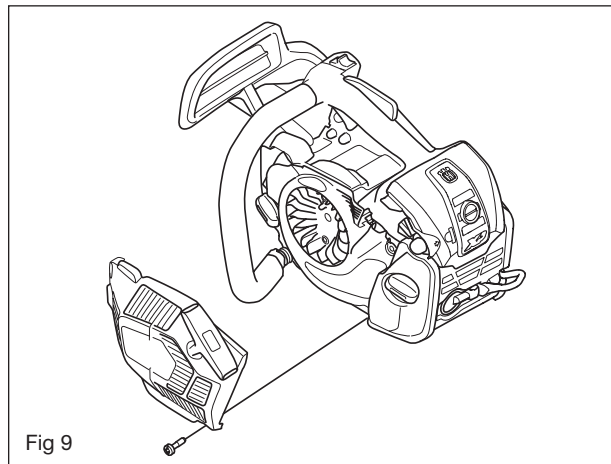


Fig 9

## 7.6 Testing the ignition module

In case of a fault in the ignition system, the ignition module must be tested before the ignition system is dismantled.

Check the ignition module as follows:

- Unscrew the spark plug. Fit the 507 71 13-01 spark plug to the ignition cable and connect the cabling used to test the 577 83 18-01 ignition module as outlined in Figure 10.
- Turn over the engine with the starter cord.
- If a spark appears on the test spark plug, the ignition module is not faulty.

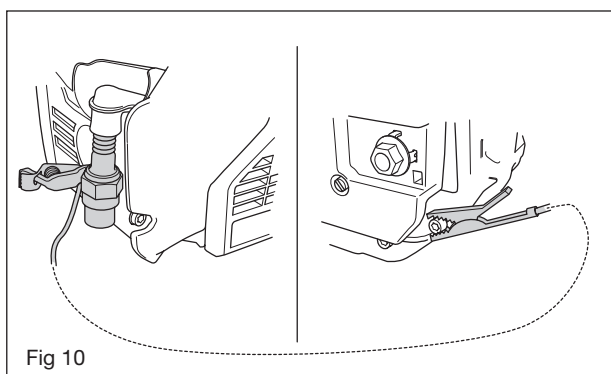


Fig 10



## 7.7 Dismantling the ignition module and flywheel

**1**

Dismantle the following:

- Starter and air guide rail.
- Clutch cover.
- Saw bar and saw chain.
- Front hand guard.
- Air filter cover and air filter.
- Centrifugal clutch and oil pump cover.

**2**

Loosen the vibration elements as outlined in figure 11

**3**

Unhook the spark plug cap and carefully lift the tank unit to create enough space to get the ignition cable and spark plug cap through. See Figure 12.

**4**

Grip the spring with a pliers and pull the ignition cable out through the spark plug cap. see Figure 13. Pour a little soap and water in the spark plug cap to facilitate this step.

**5**

Loosen the handle half and remove the throttle and the throttle lockout. Split the contact strips as outlined in Figure 14.

**6**

Loosen the screws as outlined in Figure 15a and remove the ignition module.

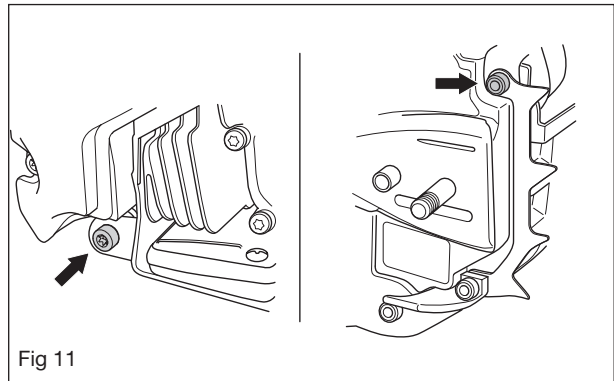


Fig 11

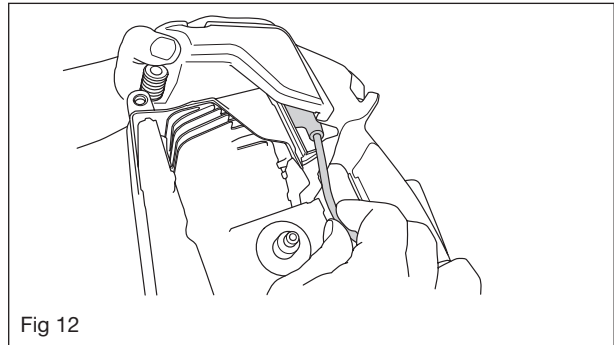


Fig 12

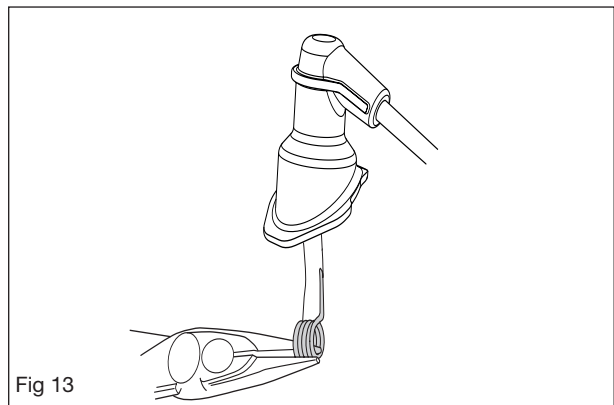


Fig 13

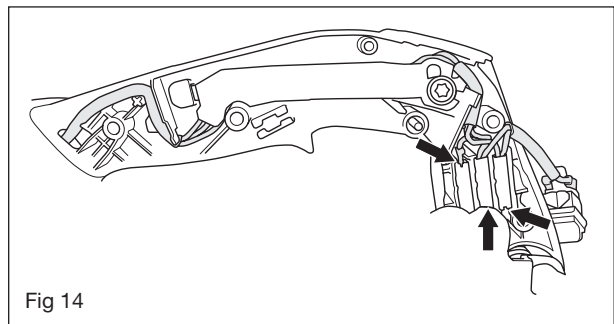


Fig 14

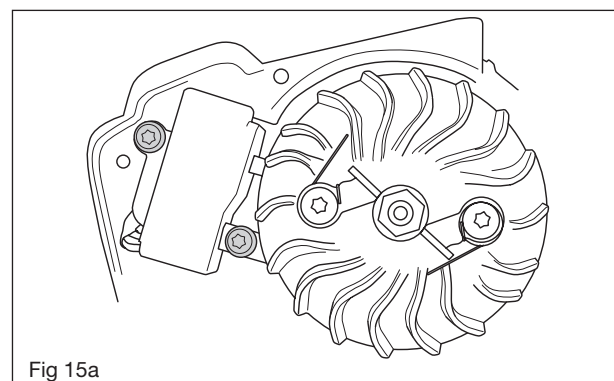
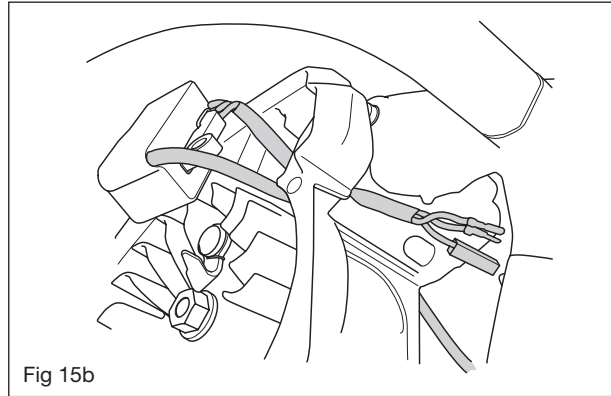


Fig 15a

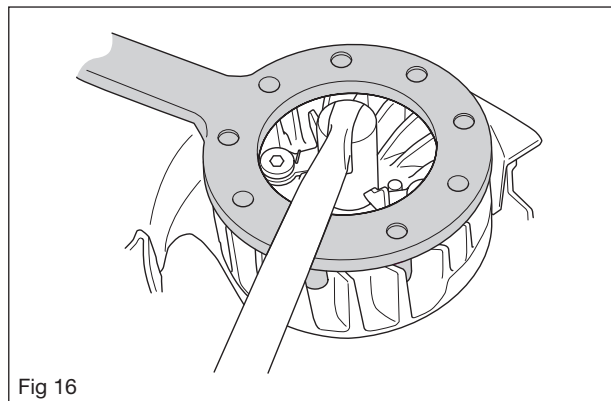
6

Pull the ignition module cables through the opening in the crankcase. See Figure 15b.



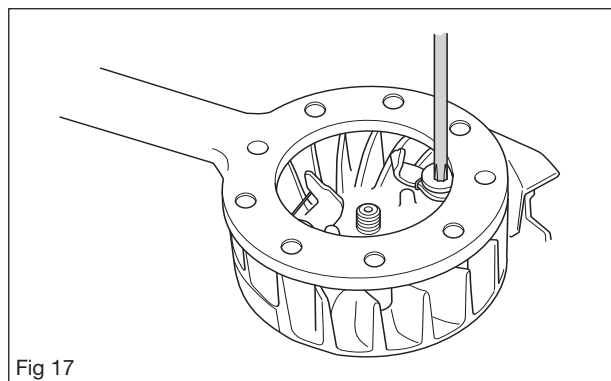
7

Knock out a few of the pins in the tool if it does not match up with the flywheel. Press against the flywheel while the flywheel nut is loosened using a suitable socket spanner. See figure 16.



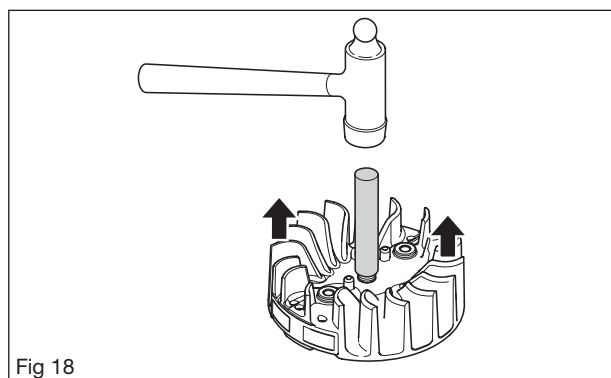
8

Unscrew the pawls as outlined in figure 17.



9

Screw the mandrel on the crank shaft journal. Screw in until 1-2 threads are left on the flywheel. Knock on the mandrel with a suitable metal hammer while at the same time pulling the flywheel outward until it comes off the shaft. See Figure 18. Then remove the mandrel.



### Cleaning and checking

- Clean all parts, especially the tapers on the flywheel and axle.
- 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 fits into the key slot on the axle. See figure 19 Tighten the nut and screw the pawls back on the flywheel.

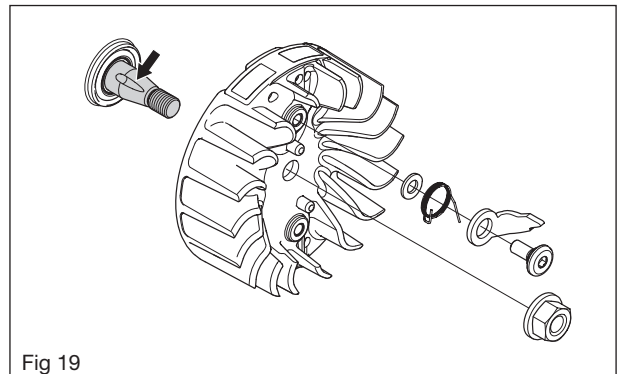


Fig 19

The ignition module must be fitted as follows:

**2**

Pull the ignition module cabling through the crankcase as outlined in Figure 20 and place the ignition module in position.

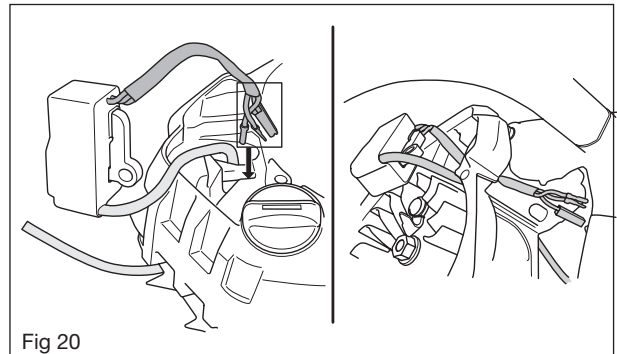


Fig 20

**3**

Turn the flywheel so that the magnets are aligned with the ignition module and place the plastic feeler gauge, 521 03 13-01, between the lugs on the ignition module and the flywheel magnets. See Figure 21.

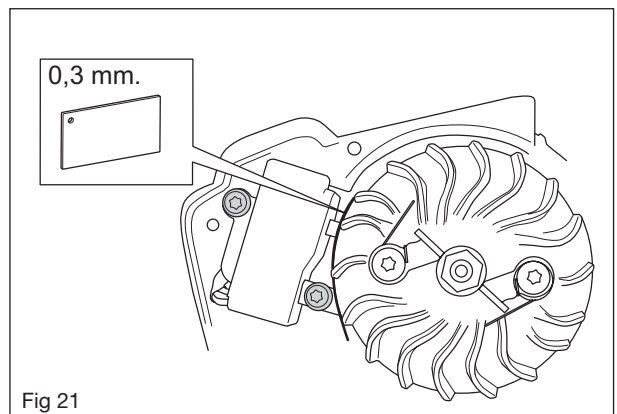


Fig 21

**4**

Tighten the screws for the ignition module and remove the plastic feeler gauge. See Figure 21.

**5**

Fasten the ignition module cabling to the contact strips in the handle part. See Figure 14 "Dismantling the ignition module and flywheel."

**6**

Fit the spark plug cap on the ignition cable. Note! When fitting a new ignition module a hole has to be made in the ignition cable for the spring. Use the assembly pliers, 502 50 06-01. See Figure 22.

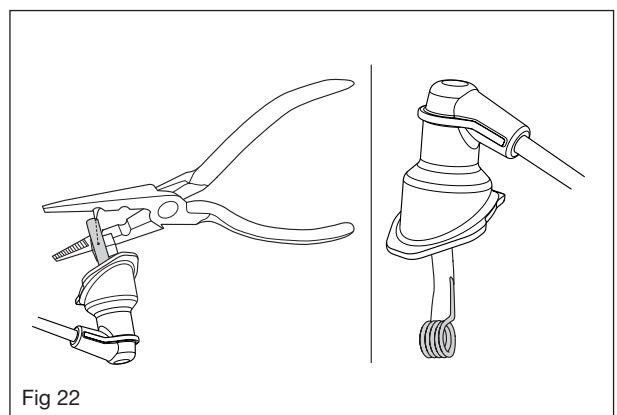


Fig 22

**7**

Pull the ignition cable through the tank unit to the spark plug. See Figure 12, "Dismantling the ignition module and flywheel."

**8**

Then fit the:

- Air filter cover.
- Vibration element.
- Oil pump cover and centrifugal clutch.
- Air guide rail and starter.
- Handle half and stop switch.
- Front hand guard. See section 3, "Assembling the muffler".
- Guide bar and saw chain.
- Clutch cover

## 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, saw chain and bar. See Figure 23.

2

Dismantle the air filter cover, remove the spark plug cap and unscrew the spark plug. Insert the plastic piston stop, 575 29 36-01, to lock the crankshaft. See Figure 24.

3

Loosen the clutch using tool 502 54 16-02 and a suitable socket spanner. Turn the clutch clockwise. See Figure 24.

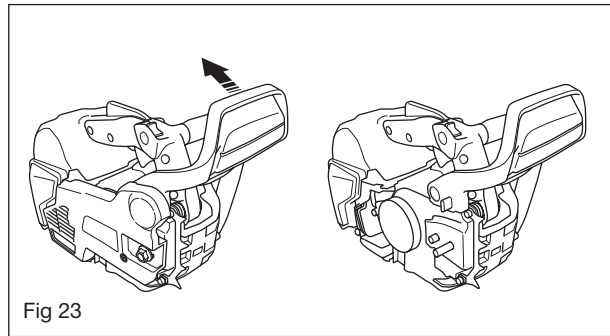


Fig 23

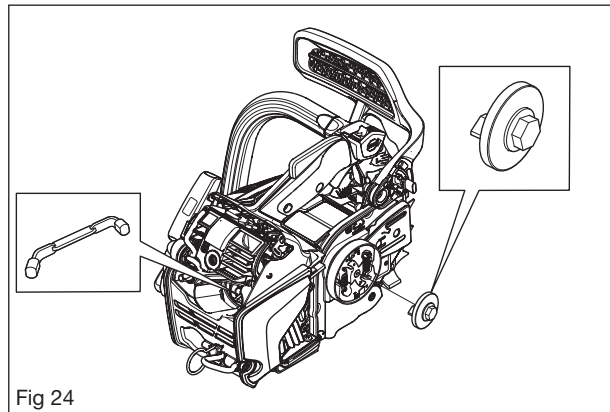


Fig 24

4

Remove the clutch and loosen the clutch springs using a screwdriver or a pliers. See Figure 24.

### NOTE!

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

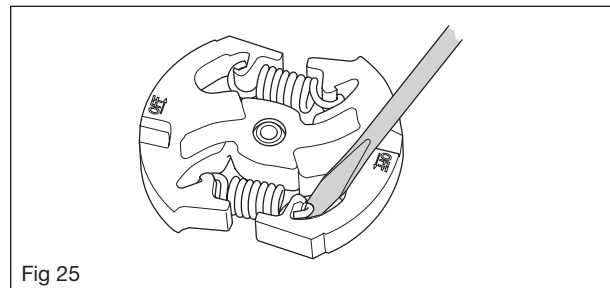


Fig 25

### Cleaning and checking

- Clean and check all parts carefully. Parts must be replaced if cracked or show 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 entire clutch must be replaced. See Figure 26.

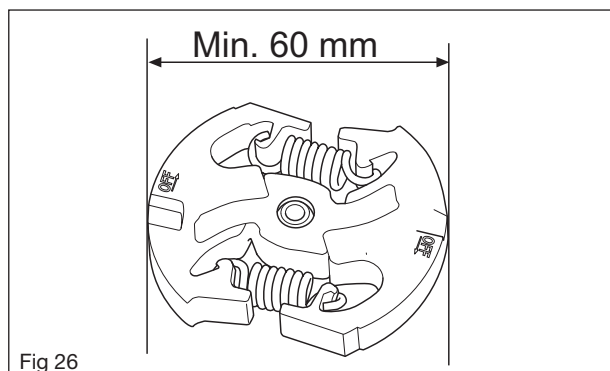


Fig 26

## 7.10 Assembling the centrifugal clutch

**1**

Hook the springs into the clutch shoes using a pliers. See Figure 27.

**2**

Screw in the clutch (anti-clockwise) until it stops. Then tighten the clutch using tool 502 54 16-02 and a suitable socket spanner. Tightening torque of 20 Nm. See Figure 24 "Dismantling the centrifugal clutch".

**3**

Remove the piston stop and fit the spark plug and spark plug cap. Tightening torque for the spark plug is 18-20 Nm.

**4**

Assemble the air filter cover, saw bar, saw chain and clutch cover.

## 7.11 Dismantling the oil pump and screen

**1**

Empty and clean the oil tank.

Dismantle the centrifugal clutch. See the "Dismantling the centrifugal clutch" chapter. Dismantle the clutch drum and the needle bearing. See Figure 28.

**2**

Loosen the screws as outlined in Figure 29 and remove the oil pump cover.

**3**

Remove the chain guide plate (A) and the pump drive wheel (D). See Figure 30.

**4**

Loosen the screws for the oil pump as outlined in Figure 31 and remove it together with the oil pressure hose.

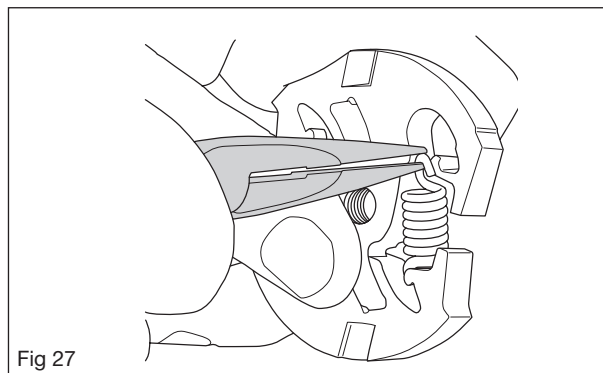


Fig 27

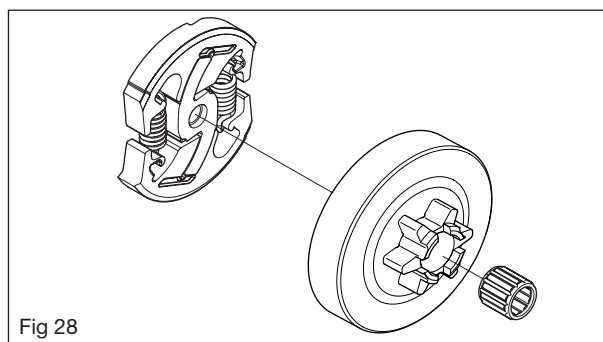


Fig 28

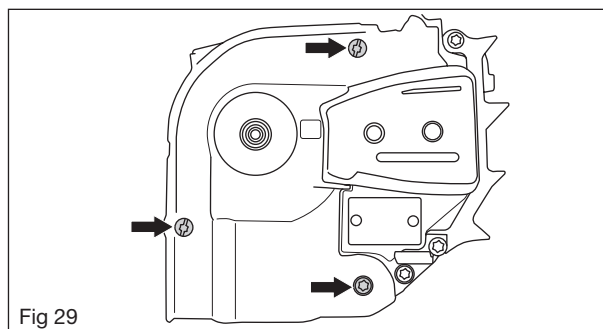


Fig 29

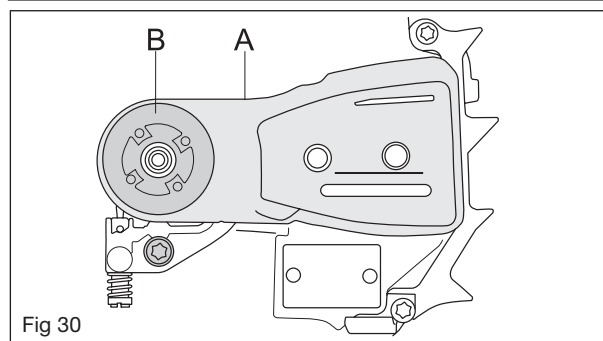


Fig 30

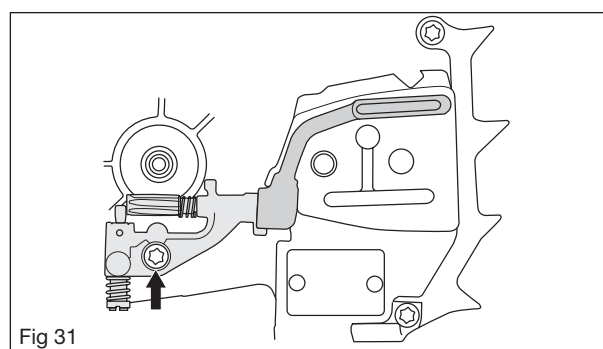


Fig 31

### 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.

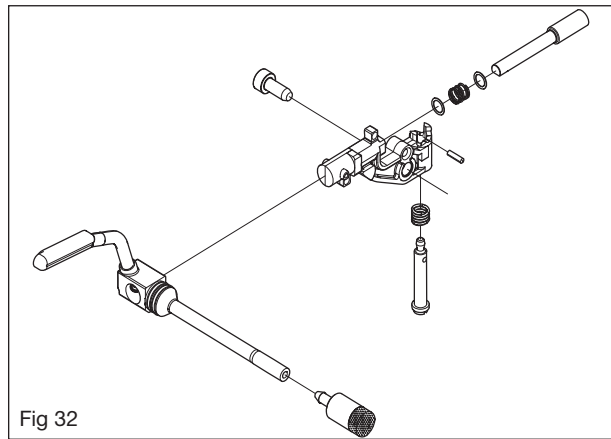


Fig 32

## 7.12 Assembling the oil pump and screen

1

Lower the oil filter in place and refit the oil pump and the oil pressure hose as outlined in Figure 31. Tighten the screws, using a tightening torque of 3-4 Nm.

2

Assemble the pump drive wheel, chain guide plate, needle bearing, clutch drum and centrifugal clutch. See Figures 30, 29 and 28 for "Dismantling the oil pump and screen".

3

Adjust the oil pump.  
The adjuster screw for the oil pump is located at the bottom of the saw. See Figure 33.

4

Fit the bar, the saw chain and the clutch cover.

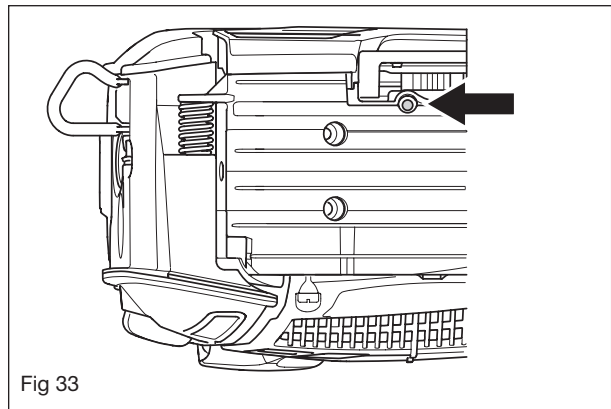


Fig 33



**WARNING!**  
Insufficient lubrication of the chain can result in chain breakage, which can cause serious personal injury.

## 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.

### Design

The carburettor is based on three sub-systems:

- Metering unit, A.
- Mixing unit, B.
- Pump unit, C.

The jet screws and the fuel's control functions are located in the metering unit A. Here the correct volume of fuel is adjusted for the actual speed and power output. See figure 34.

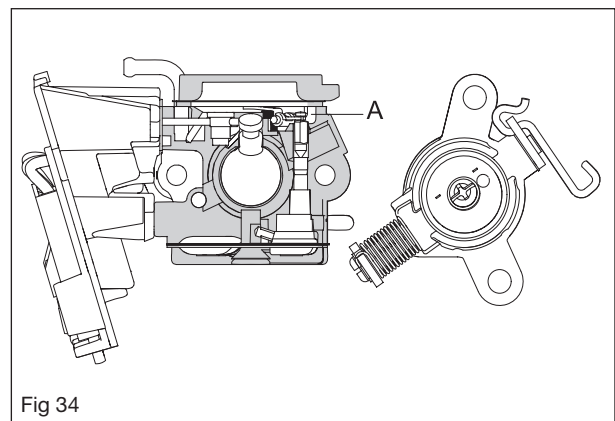


Fig 34

The mixing unit B houses the choke, throttle valve and diffuser jets. Here air is mixed with the fuel to give a fuel/air mixture that can be ignited by the ignition spark. See figure 35.

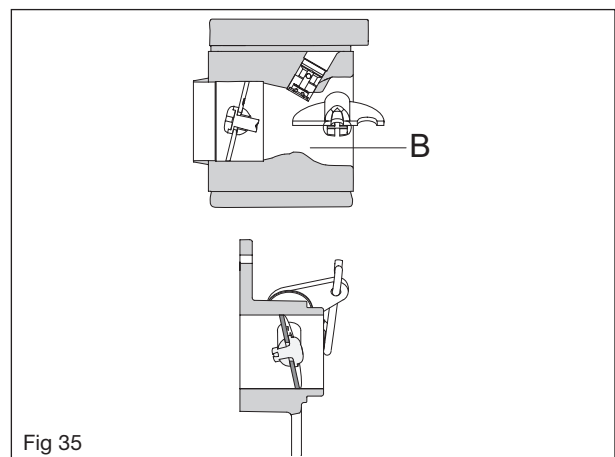


Fig 35

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 36.

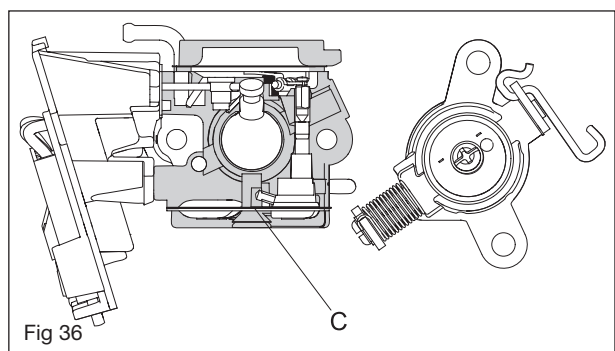


Fig 36

**Function**

The carburettor functions differently in the following modes:

- Cold start mode
- Idle mode
- Part throttle mode
- Full throttle mode

In cold start mode the choke valve, H, is completely shut. This increases the vacuum in the carburettor and fuel is easier to suck from all the diffuser jets, D, E and F. The throttle valve, I, is partly open. The throttle valve, J, is closed. See figure 37

In idling mode, the throttle valves, I and J, are closed and the choke valve, H, is open.

Air is sucked in through an aperture in the throttle valve and a small amount of fuel is supplied through the diffuser jet, D. See figure 38.

In part throttle mode, the throttle valve, I, is partly open and the choke valve, H, is fully open. Fuel is supplied through the diffuser jets, D and E. The throttle valve, J, starts to open. See figure 39

In the full throttle mode both valves are open and fuel is supplied through all four diffuser jets, D, E, F and G. The throttle valve, J, is fully open. See figure 40

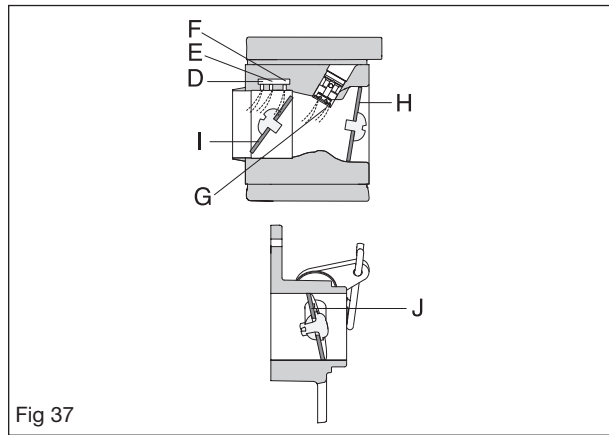


Fig 37

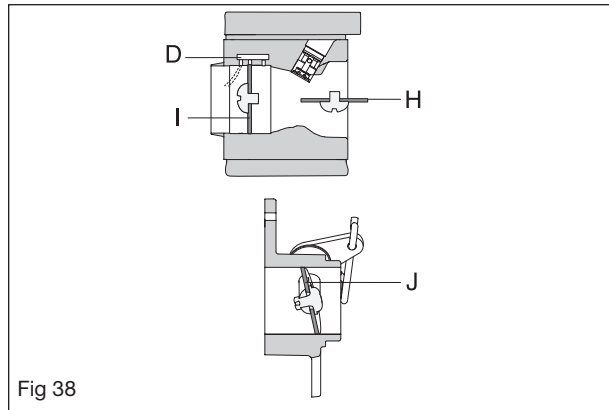


Fig 38

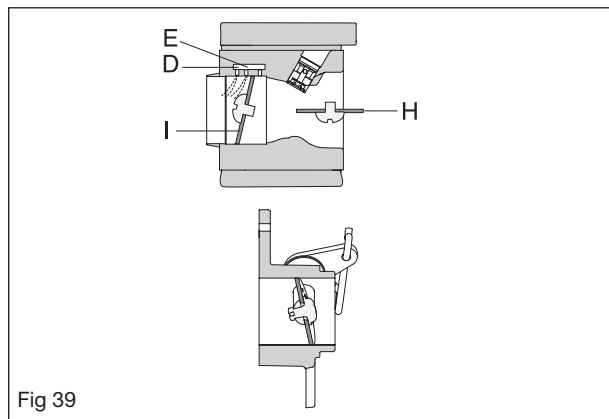


Fig 39

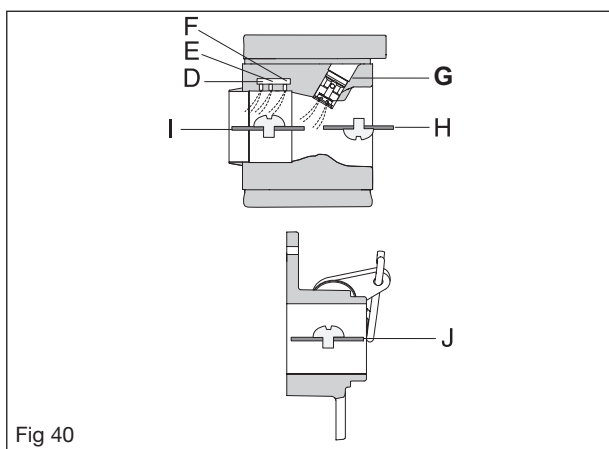


Fig 40



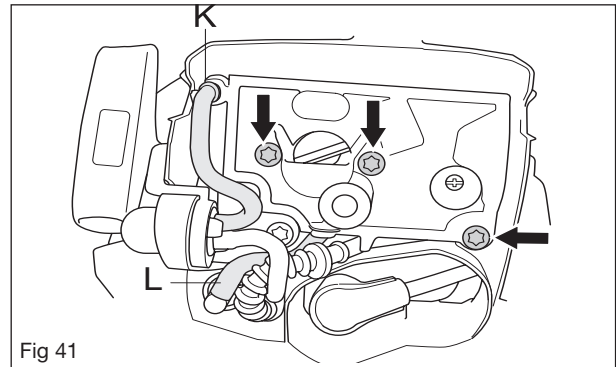
## Dismantling the carburettor

**1**

Dismantle the air filter and air filter cover.

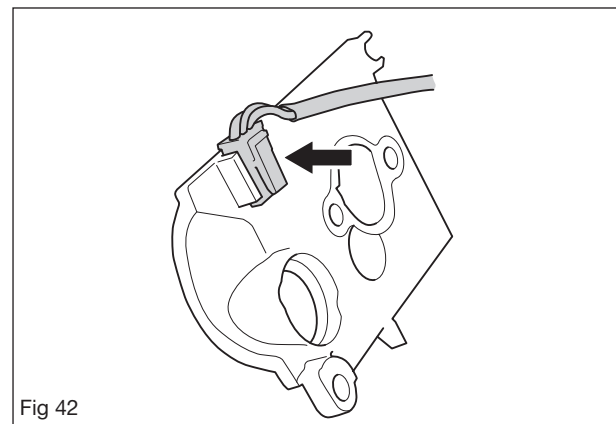
**2**

Loosen suction hose (K) and bleeding hose (L) from their respective attachments in the filter holder. Then unscrew the screws and lift out the filter holder. See Figure 41.



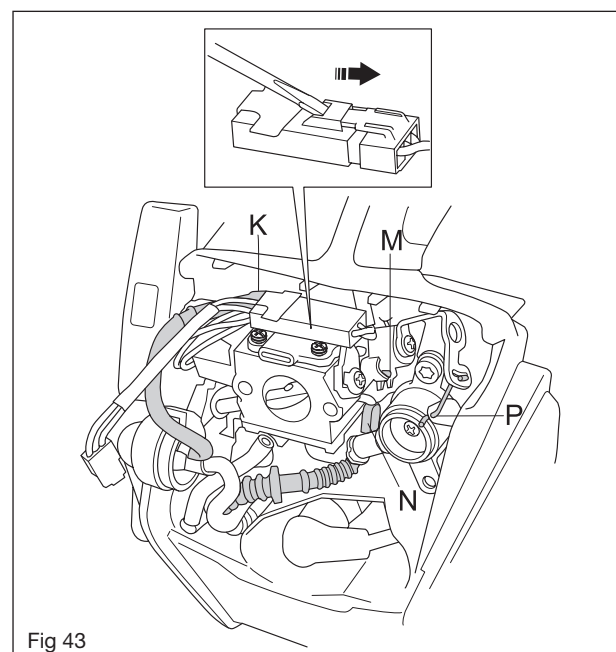
**3**

Remove the AutoTune service connector from its attachment on the back of the filter holder. See Figure 42.



**4**

Use a small flat screwdriver to unsnap the connector. Then loosen the suction hose (K), the throttle cable (M) and the fuel hose (N) from the carburettor. Unhook the link arm (P) from the air valve. See Figure 43.



**5**

Lift out the carburettor.

**6**

Dismantle the pump cover (Q) above the metering unit and carefully remove the control diaphragm (R) with gasket. See Figure 44.

**7**

Loosen the screw (S) and lift out the needle valve (U) with the lever arm (T), the axle and the spring. See Figure 44.

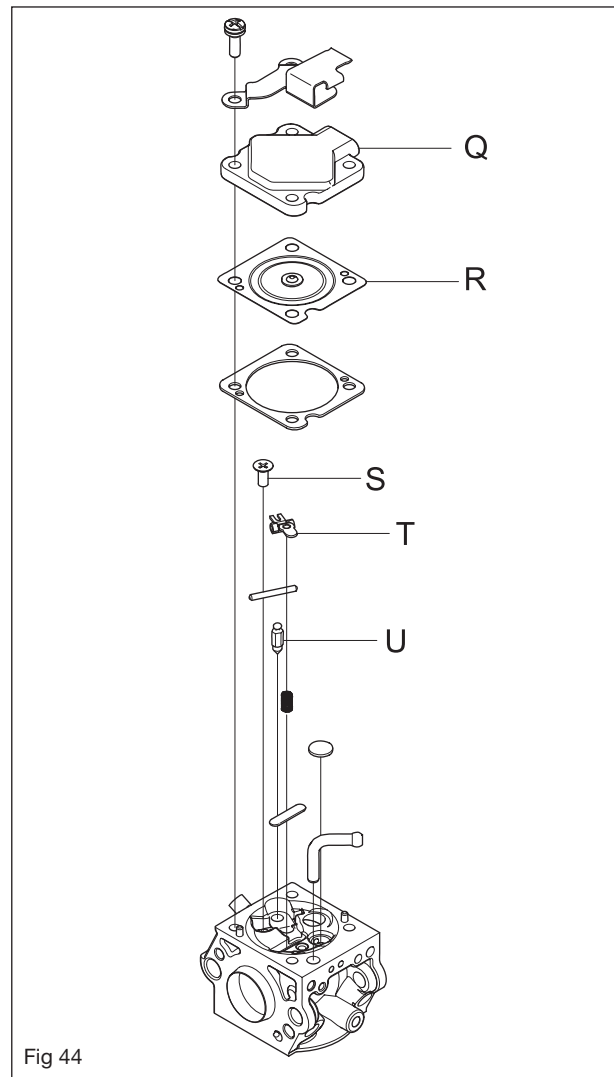


Fig 44

**8**

Dismantle the cover (X) and carefully remove the pump diaphragm (W) with gasket. See Figure 45.

**9**

Use a needle or similar and carefully lift up the fuel screen (V). See Figure 45.

**10**

If necessary, remove the throttle valve (AB) and choke valve (AC), as well as removing the shafts with lever arms and springs. See Figure 45.

**11**

If necessary, dismantle the AutoTune AB unit (AD) with the gasket. See Figure 46.

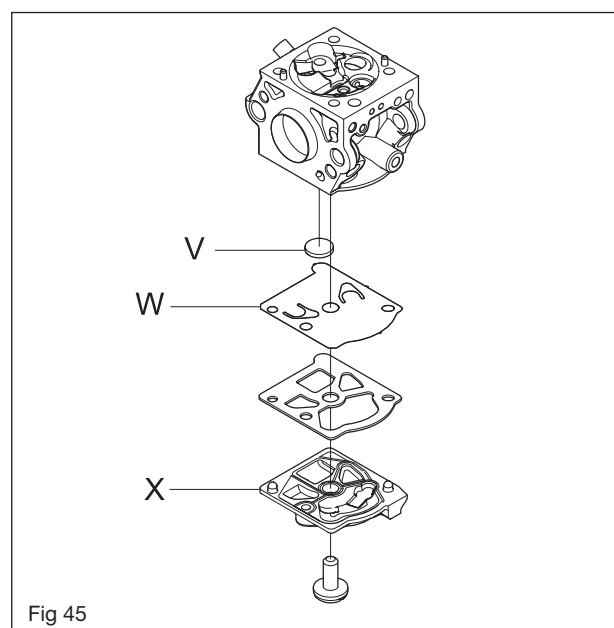


Fig 45

## Cleaning and checking



**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.

Clean all units in clean petrol.



**WARNING!**  
Never direct the compressed air jet towards the body. Air can penetrate into the blood circulation, which means mortal danger.

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, as well as the gasket between the carburettor body and the autotuner.
2. That there is no play on the throttle valve and choke valve shafts.
3. That the needle valve (U) and its lever arm (T) are not worn. See Figure 44.
4. That the fuel screen (V) is intact and clean. See Figure 45.
5. That the inlet manifold (Z) is undamaged. See Figure 48.
6. Use the service tool, Engine Diagnostic Tool 576 69 23-01, to inspect the AutoTune unit. See separate instruction for information about error codes and procedures.

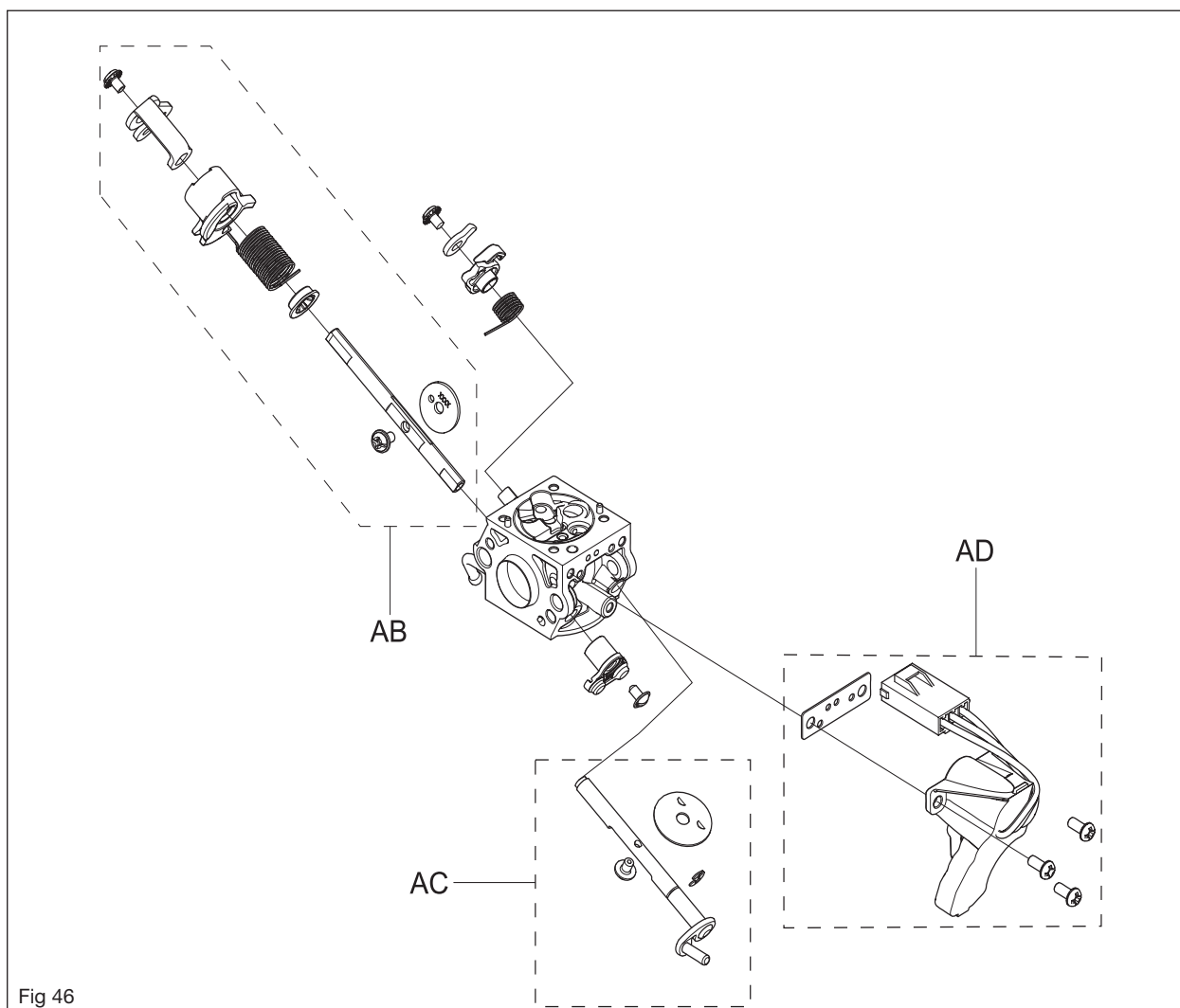
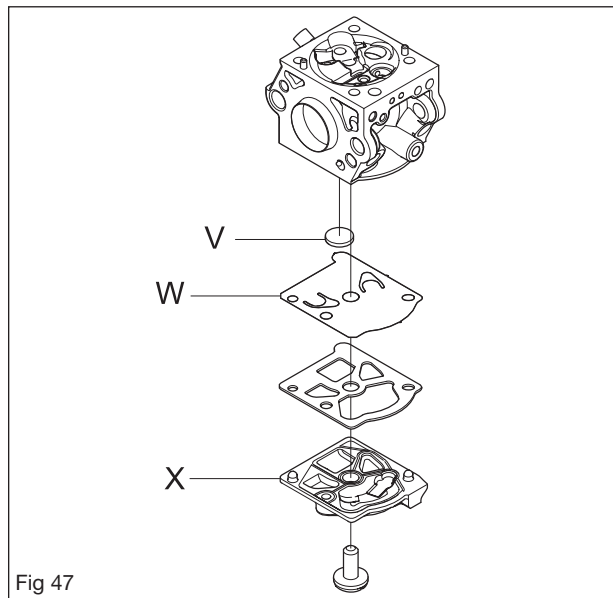


Fig 46

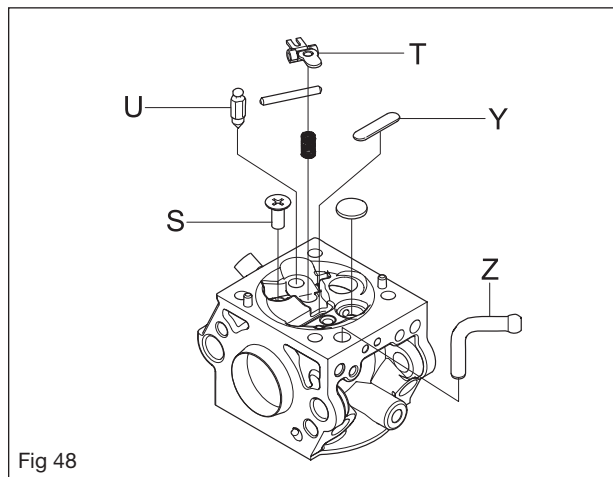
### Assembling the carburettor

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

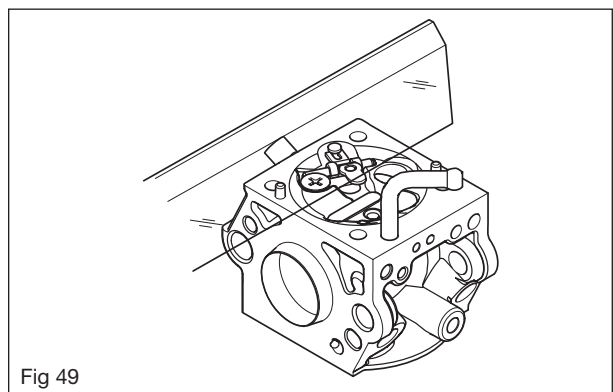
1. If throttle and choke valves with shafts, lever arms and springs have been removed, these must be assembled. The springs are tightened 1-2 turns. Lubricate the shaft bearings using a light oil.
2. Fit the fuel screen (V) by using the handle of a small screwdriver.
3. Assemble membrane (W) with gasket and screw tight the pump cover (X). See Figure 47.



4. Fit the needle valve (U) with lever arm (T), axle and spring. Screw in the screw (S). See Figure 48.



5. Check using a ruler or the like that the lever arm is level with the cover. The lever arm can be bent if necessary. See Figure 49.



6. Fit the control diaphragm (R) with gasket and cover (Q) with the bracket for the connector above the metering unit. See Figure 50.
7. Do a pressure test.
8. See figure 46 on how to assemble the AutoTune AB unit with gasket.

Note! When replacing the AutoTune unit or carburettor with an AutoTune unit, the unit must first be programmed before it can be used. Refer to the local support page or separate instruction for more information.

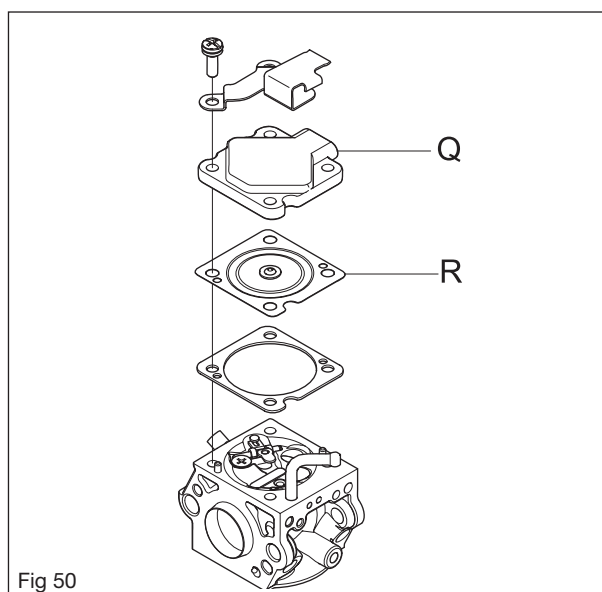


Fig 50

### Pressure testing the carburettor

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

#### Test 1

See Figure 51 and carry out the following check:

- 1 Connect pressure tester to the carburettor fuel inlet.
- 2 Lower the carburettor into a beaker of water.
- 3 Pump up the pressure to 20 kPa.
- 4 No leakage is permitted. If a leakage occurs refer to the table below.

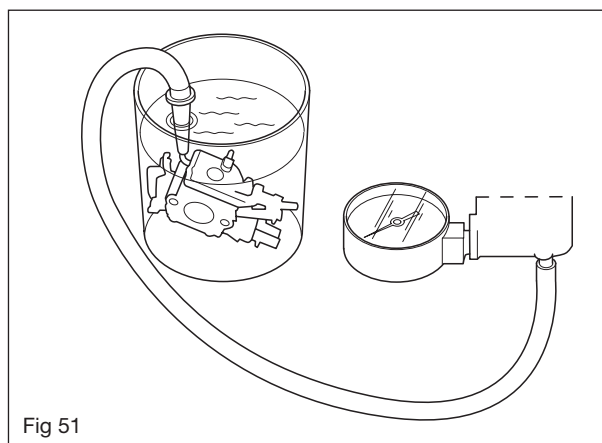


Fig 51

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

#### Test 2

- 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 sucked in. It can be used to show leakages in main jets, idling needles, measuring cover gaskets and measuring diaphragms, and AutoTune gasket.

### Assemble on the saw

1

Assemble the carburettor and secure the suction hose (K), the throttle cable (M) and the fuel hose (N). Hook the link arm (P) to the air valve and connect the connector. See figure 51.

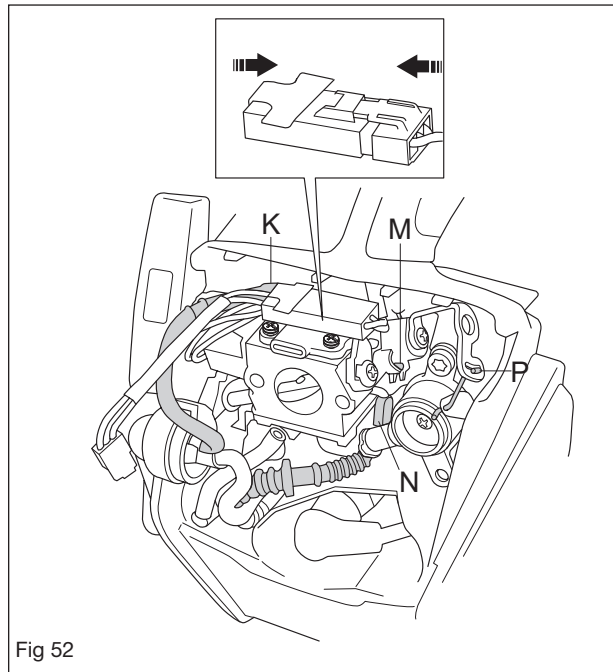


Fig 52

2

Fasten the AutoTune service connector to its attachment on the back of the filter holder. See figure 53.

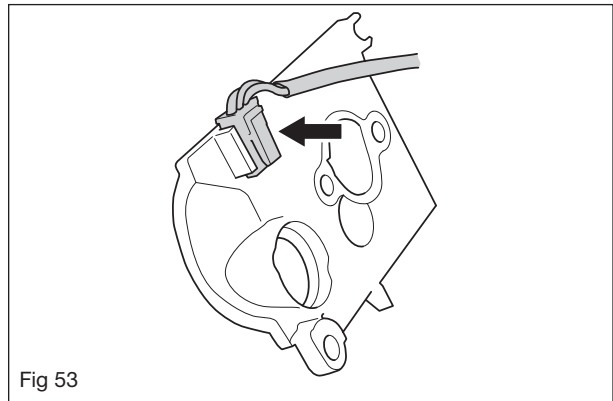


Fig 53

3

Fit the filter holder over the carburettor and screw the screws back in place. Secure the suction hose (K) and the bleeding hose (L) to their attachments in the filter holder. See figure 54.

Assemble the following parts:

- Air filter.
- Air filter cover.

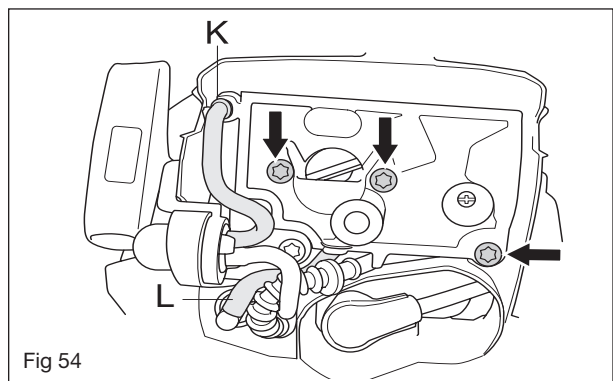


Fig 54

## 7.14 Dismantling the intake system

Dismantle the following:

- Clutch cover.
- Front hand guard.
- Air filter cover.
- Air filter.
- Air filter holder.
- Carburettor.

**1**

Loosen the screws holding the fuel pump attachment and the air valve. Remove the throttle cable from its attachment. Then loosen the screws holding the bottom of the carburettor. See figure 55.

**2**

Loosen the vibration elements as outlined in Figure 56.

**3**

Dismantle the starter. Loosen the screw holding the vibration element in the handle. See figure 57.

**4**

Remove the spark plug cap and the spark plug, and move the tank unit to one side.

**5**

Remove the air duct bellows from the bottom of the carburettor by unsnapping it from its attachments. See Figures 58 and 59. Then remove the inlet bellows and loosen the impulse hose from its attachment at the back of the carburettor bottom. Remove the carburettor bottom.

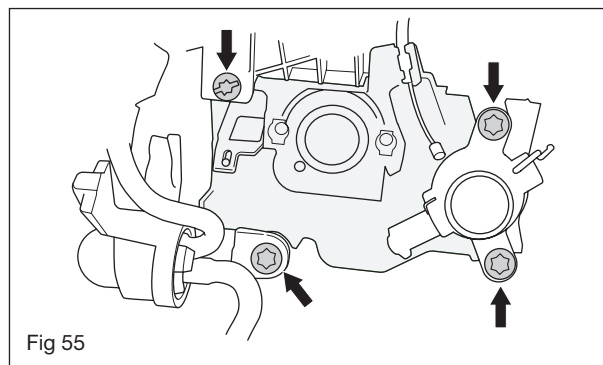


Fig 55

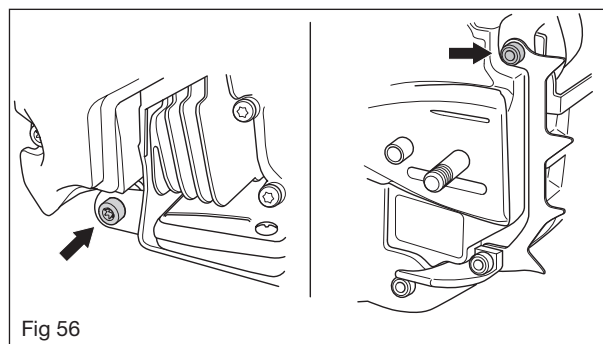


Fig 56

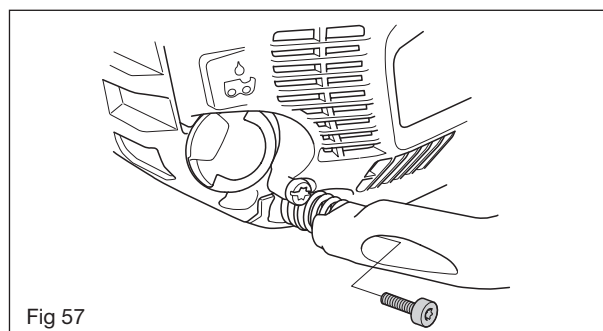


Fig 57

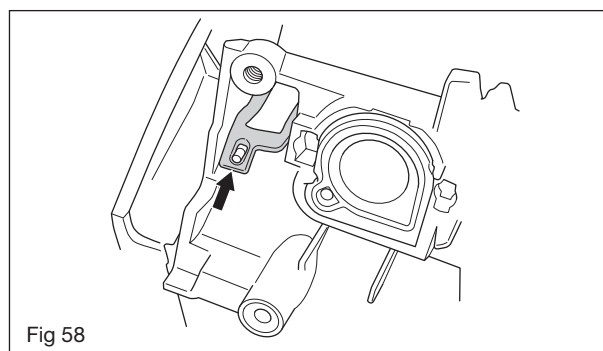


Fig 58

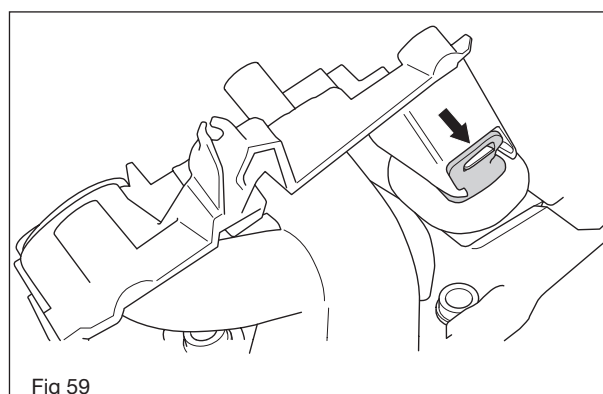
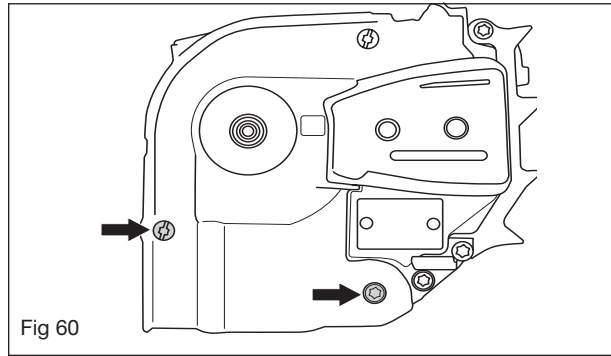


Fig 59

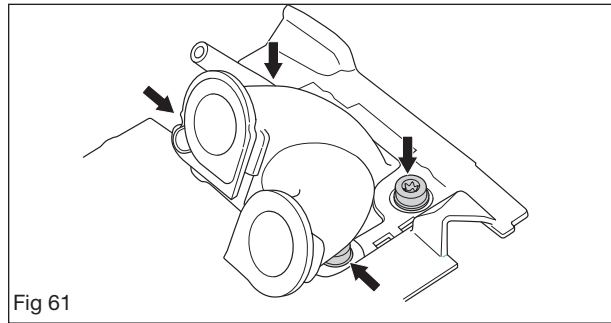
**6**

Loosen the two lower screws holding the oil pump cover. See figure 60.



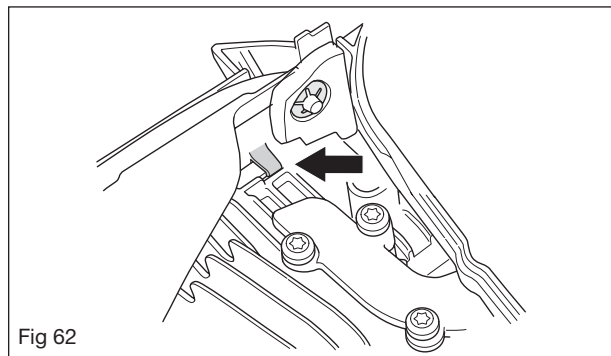
**7**

Loosen the four screws holding the intake system. See Figure 61.



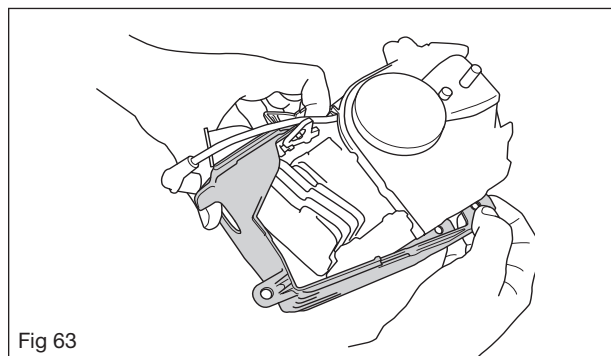
**8**

The intake plate is fastened to the cylinder cover using the hooks (one on each side). See Figure 62.



**8**

Loosen the oil pump cover from its groove and carefully remove the cylinder cover with the intake system. See Figure 63.



### Cleaning and checking

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



## 7.15 Assembling the intake system

1

Fit the intake system (B) and the air duct bellows (A) in the cylinder cover. See Figure 64.

2

Fit the cylinder cover with the intake system over the cylinder as outlined in Figure 63. Then screw back the screws as outlined in Figures 61 and 60.

**NOTE!**

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

3

Assemble the bottom of the carburettor (C) and pull the intake bellows through the respective openings. Secure the impulse hose (D) to the bottom of the carburettor. See Figure 64.

4

Fix the air duct bellows to its attachment on the bottom of the carburettor as outlined in Figures 58 and 59.

5

Turn the tank unit back over the cylinder cover and the intake system.

6

Assemble the spark plug and the spark plug cap. Assemble the vibration elements as shown in Figures 56 and 57.

7

Fit the fuel pump, the air valve and the throttle cable as outlined in Figure 55.

Assemble the following parts:

- Carburettor.
- Air filter holder.
- Air filter.
- Air filter cover.
- Front hand guard. See section 3, "Assembling the muffler".
- Clutch cover
- Starter.

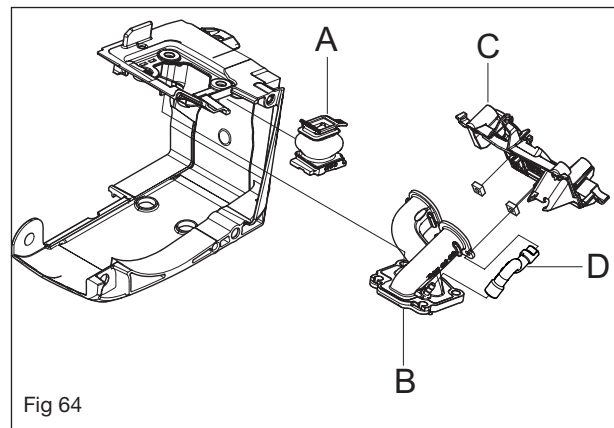



Fig 64

## 7.16 Dismantling the tank unit

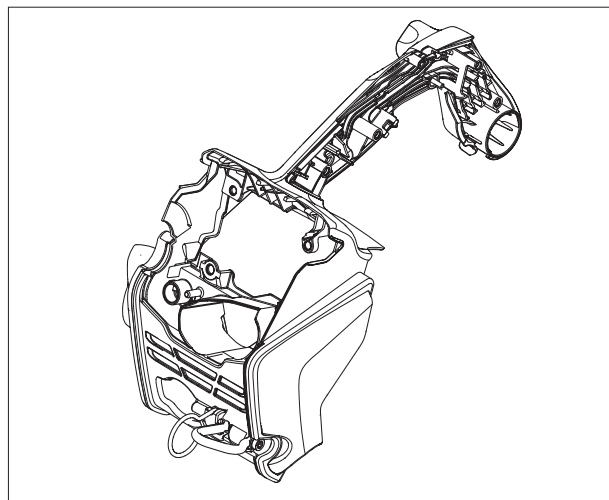
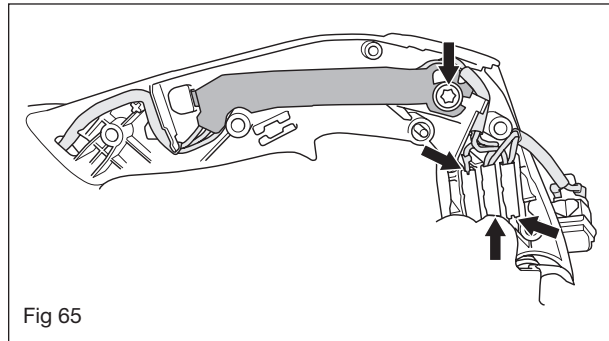
	<p><b>WARNING!</b> The fuel used for the chain saw has the following hazardous properties:</p> <ol style="list-style-type: none"><li>1. The liquid and its fumes are poisonous.</li><li>2. Can cause skin irritation.</li><li>3. Is very flammable.</li></ol>
-----------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

**1**  
When dismantling the tank unit, see the "Dismantling the intake system" chapter (points 1-4).

**2**  
Dismantle the handle half and remove the throttle and the throttle lockout. See the "Dismantling the throttle lockout, throttle and spring" chapter.

**3**  
Split the cabling to the ignition module and unscrew the screws holding the cable guard as outlined in Figure 65.

**4**  
Remove the cabling and the throttle cable from its groove in the handle and remove the tank unit.



## 7.17 Assembling the tank unit

**1**  
Fit the tank unit over the saw body and slide the cabling and the throttle cable into the handle.

**2**  
Place the cabling in the cable groove in the handle as outlined in Figure 66.

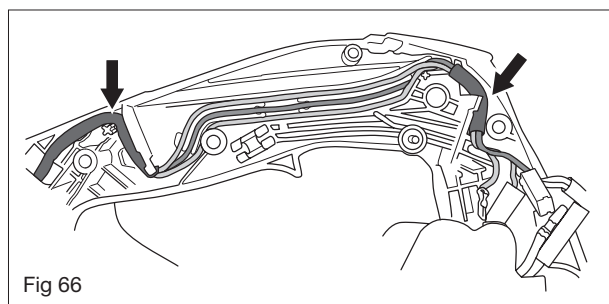
**3**  
Fit the cabling to the ignition module and screw the cable guard back in place as outlined in Figure 66.

**4**  
Assemble the throttle and throttle lockout. See the "Assembling the throttle lockout, throttle and spring" chapter.

**5**  
Assemble the fuel pump, the air valve and throttle cable as outlined in Figure 55, "Assembling the intake system".

Then assemble the following:

- Carburettor.
- Air filter holder.
- Air filter.
- Air filter cover.
- Clutch cover
- Starter.



## 7.18 Aerating the fuel tank

The two-way valve has the following properties:

- Checks opening pressure in both directions, which prevents a positive pressure or a vacuum developing in the fuel tank and impairing engine performance. This also prevents fuel leakage.
- Opening pressure outwards 10 – 45 kPa (0.1-0.45 bar).
- Opening pressure inwards (vacuum) max. 7 kPa (0.07 bar).

### Test

Opening pressure outwards:

1. Open the fuel cap and leave it open during the entire test. Empty the tank of fuel.
2. Connect the 531 03 06-23 pressure gauge to the tank valve as outlined in Figure 68.
3. Switch the pressure gauge to vacuum mode.
4. Pump 3 times.
5. After pumping, the indicator must be between 10-45 kPa (0.1-0.45 bar).

Opening pressure inwards:

1. Open the fuel cap and leave it open during the entire test. Empty the tank of fuel.
2. Connect the 531 03 06-23 pressure gauge to the tank valve.
3. Switch the pressure gauge to pressure mode.
4. Pump 3 times.
5. After pumping, the indicator must stop at max. 7 kPa (0.7 bar).

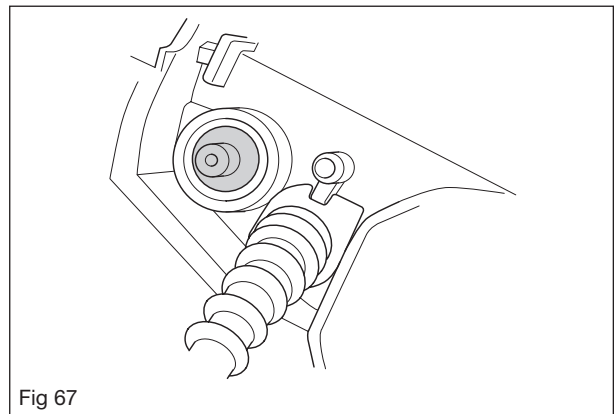


Fig 67

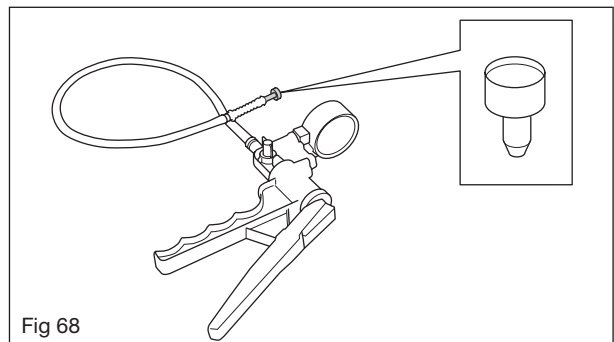


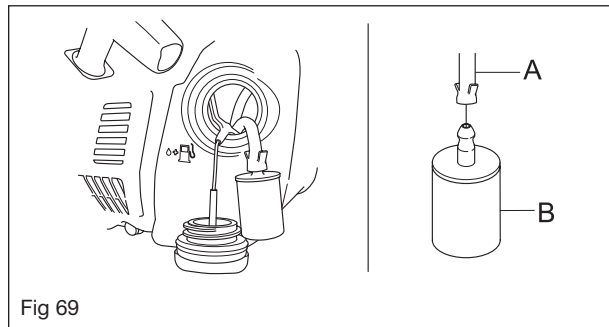
Fig 68

## 7.19 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 the special 502 50 83-01 tool.
- 2  
Pull out the fuel hose, A, from the tank unit so that the fuel filter, B, can be removed. See figure 69.
- 3  
Fit the new fuel filter and refit the fuel hose with filter in the tank unit.

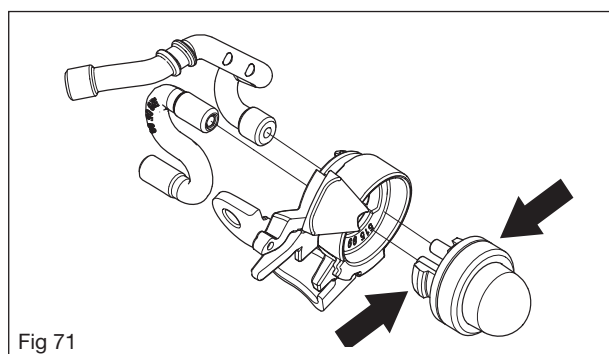
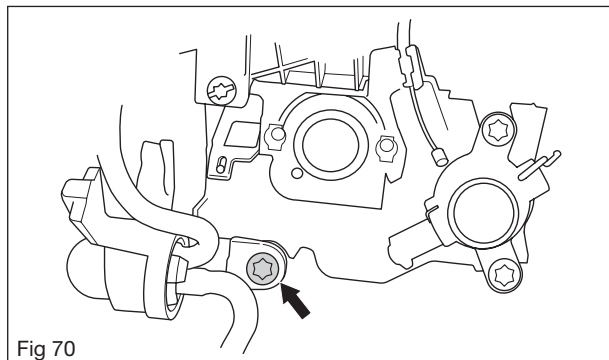


## 7.20 Replacing the suction hose/return hose

- 1  
Dismantle the filter cover and the air filter.
- 2  
Unsnap the return hose and the suction hose from the fuel pump and the carburettor and the tank unit. Replace hoses if necessary.

## 7.21 Replacing the fuel pump

- 1  
Unsnap the suction hose and return hose from the fuel pump.
- 2  
Loosen the screws and remove the fuel pump. See Figure 70.
- 3  
Press in the hooks to unsnap the fuel pump from the fuel pump attachment. See Figure 70.
- 4  
Fit the new fuel pump to the attachment. See Figure 71.
- 5  
Refit the fuel pump holder to the tank unit and screw back the screws in place. See Figure 70. Attach the suction hose and return hose to the fuel pump.



**NOTE!**

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

**7.22 Replacing the fuel hose**

**1**

The fuel hose is moulded (see Figure 72) and can only be removed from outside of the fuel tank.

**2**

Pull out the fuel hose from the tank unit and unsnap the fuel filter. See "Replacing the fuel filter" in Figure 69.

**3**

Loosen the fuel hose from the carburettor and remove it from the tank unit.

**4**

When assembling, make sure that the fuel hose is fitted into the groove as outlined in Figure 73. Remove the fuel hose from the tank and fit the fuel filter.

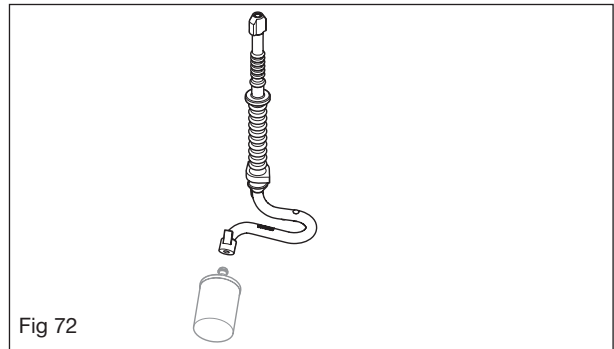


Fig 72

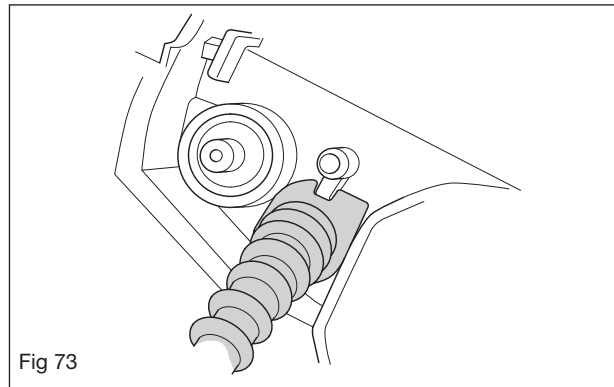


Fig 73

**7.23 Vibration damping system**

**Dismantling**

1. Dismantle the following parts:

- Clutch cover
- Saw chain and bar.

2. Dismantle the springs as outlined in Figures 74, 75 and 76.

**Cleaning and checking**

Clean and inspect all parts.

**Assembly**

1. Assemble the springs as shown in figures 73, 74 and 75.

2. Assemble the following parts:

- Saw chain and bar.
- Clutch cover

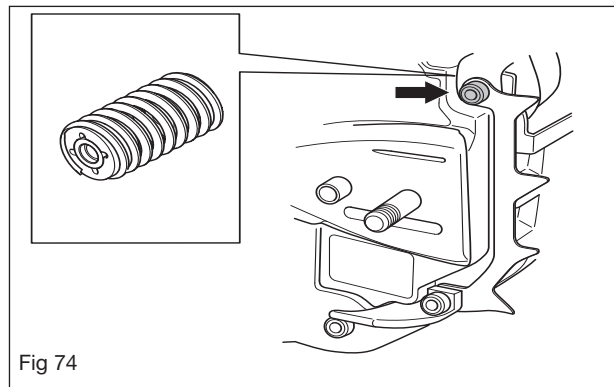


Fig 74

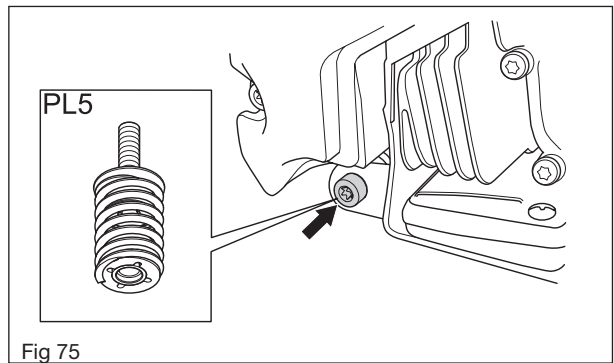


Fig 75

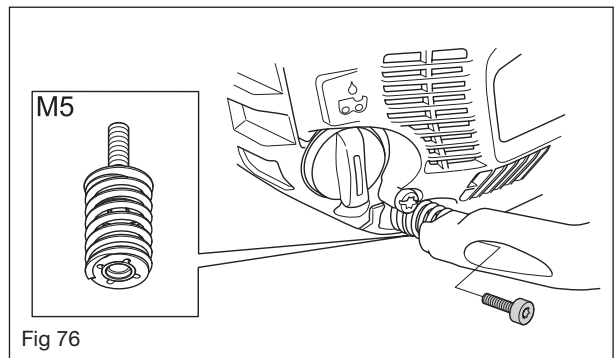


Fig 76

## 7.24 Dismantling the piston and cylinder

1

Dismantle the following:

- Tank unit.
- Centrifugal clutch.
- Muffler.
- Intake system.

2

Loosen the four cylinder screws and carefully pull out the cylinder and the gasket. See figure 77.

**NOTE!**

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

3

Cover the crankcase opening to prevent any dirt and foreign particles from entering the crankcase.

4

Use a flat screwdriver to remove the circlips from the gudgeon pin. See Figure 78.

5

Press out the gudgeon pin and lift off the piston from the connecting rod. Remove the gudgeon pin bearing using a pliers and replace it with a new one. See Figure 79.

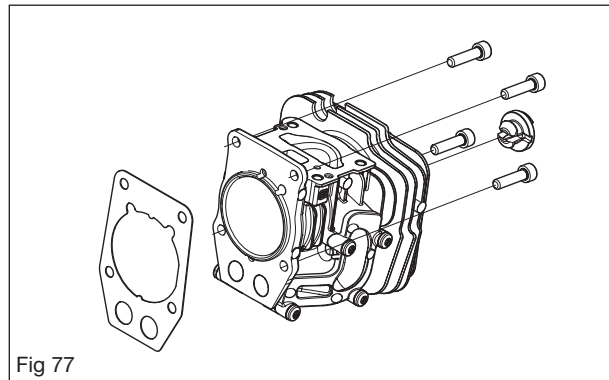


Fig 77

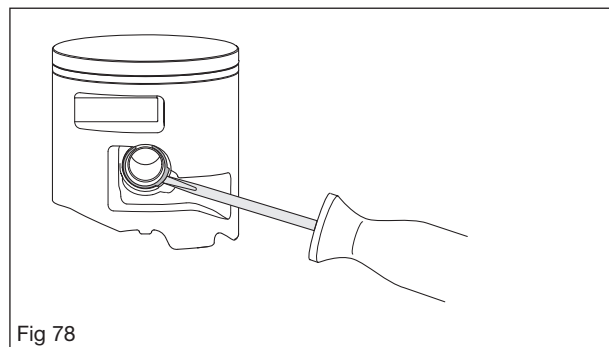


Fig 78

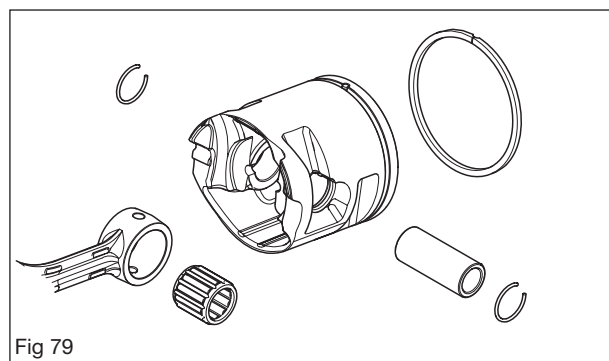


Fig 79

**Cleaning and checking**

Clean all parts, and scrape off all gasket remains and soot from the following components:

- The piston crown
- Top of the cylinder bore (inside)
- The cylinder exhaust port
- The 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.
- 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 base of the piston to push the piston ring down into the cylinder. The opening in 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 80.

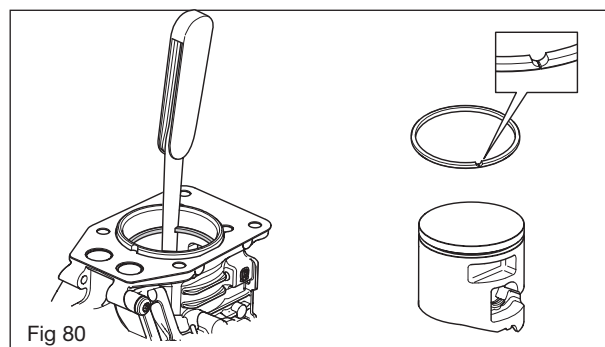


Fig 80

**Faults and causes****Score marks on the piston (A).**

1. Leakage, check not carried out.
2. Too low octane rating in the petrol.
3. Too little or incorrect oil in the fuel.

**Carbon deposits (B)**

1. Too much or incorrect oil in the fuel.

**Piston ring breakage**

1. Piston ring worn out.
2. Oversized piston ring groove.

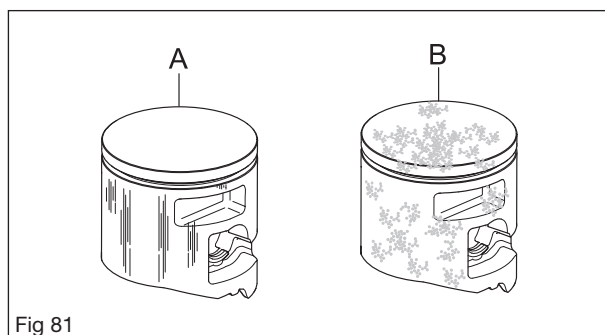


Fig 81

## 7.25 Assembling the piston and cylinder

1

Oil the gudgeon pin bearing with two-stroke oil and fit it to the connecting rod.

2

Fit the piston with the arrow facing the exhaust port, slide in the gudgeon pin and fit the circlips in place. See Figure 81. NOTE! Use new circlips.

3

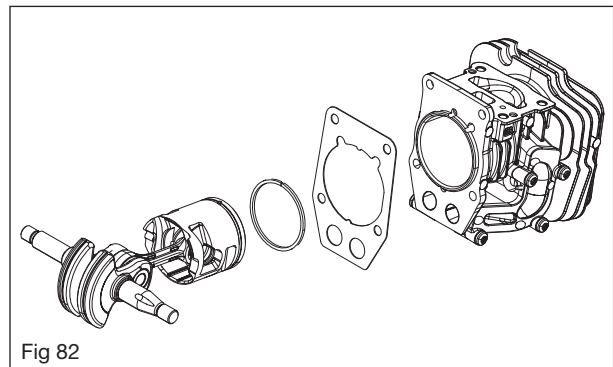
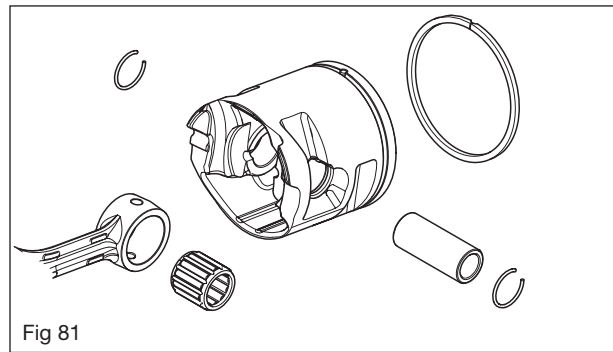
Oil the piston and piston ring with two-stroke oil.

4

Lubricate a new cylinder base gasket with chain-saw oil and put it in place. Compress the piston ring and carefully push the piston into the cylinder opening. See Figure 84.

5

Attach the cylinder. The cylinder screws must be tightened crosswise with a tightening torque of 8-10 Nm.



Assemble the following parts:

- Pump unit
- Centrifugal clutch.
- Ignition module and flywheel.
- Tank unit.
- Saw bar and saw chain.
- Clutch cover



## 7.26 Pressure testing the cylinder

The following parts must be removed to pressure test the crankcase and cylinder:

- Clutch cover
- Filter cover.
- Carburettor.
- Air valve.

Carry out pressure testing as follows:

**1**

Fit the cover plate X-Torq intake (576 48 34-01) at the air valve and cover plate, intake (576 48 35-01) at the carburettor using screws as outlined in Figure 85.

**2**

Loosen the screws holding the muffler. Insert the 577 75 38-01 cover plate between the muffler and cylinder and tighten the muffler screws.

**3**

Remove the spark plug and screw in the 576 38 48-01 pressure tester. Connect the 531 03 06-23 pressure gauge. See Figure 85.

**4**

Pump up the pressure to 80 kPa (0.8 bar). Wait 30 seconds and make a reading. The pressure must not fall below 60 kPa (0.6 bar).

## 7.27 Dismantling the crankcase and crankshaft

**1**

Dismantle the following:

- Clutch cover, bar and saw chain
- Front hand guard. See section 3, "Assembling the muffler".
- Centrifugal clutch.
- Starter.
- Flywheel and ignition module.
- Carburettor and air valve.
- Tank unit.
- Cylinder cover with intake system.
- Oil pump.

**2**

Unscrew the screws. See Figure 84.

**3**

Carefully pull the crankcase halves apart. Two guide pins keep the crankcase halves together. Lift out the connecting rod with the piston and dispose of the gasket. See Figure 84.

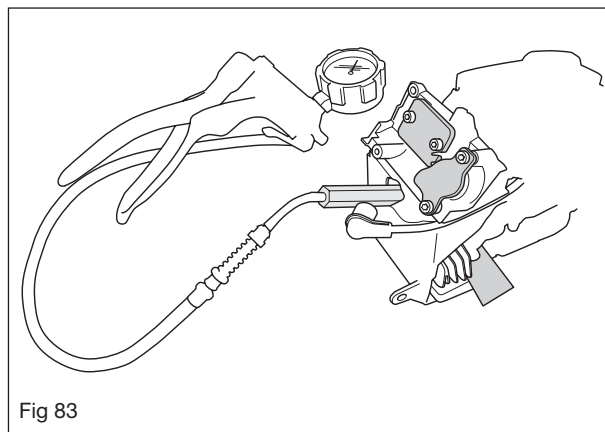


Fig 83

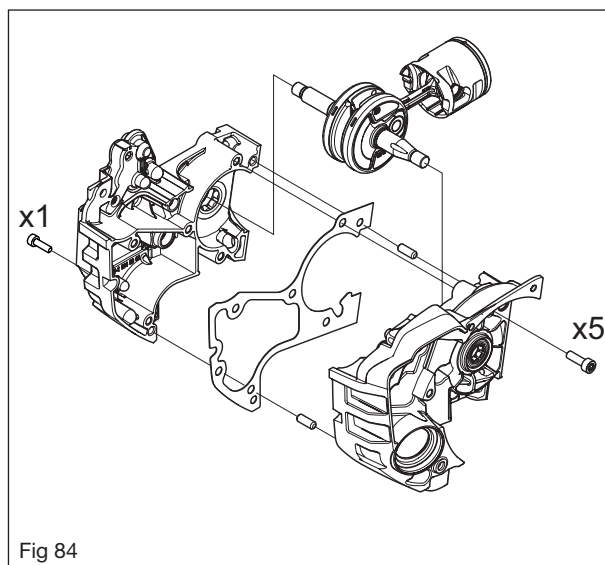


Fig 84

## Cleaning and checking

Clean all parts and scrape off all gasket remains from the contact surfaces on the crankcase halves. Check the following:

- That the big-end bearing does not have any radial play. Axial play is permitted. See Figure 85.
- That the big-end bearings do not have any score marks or are discoloured on the sides.
- That the bearing surface for the gudgeon pin bearing does not have any score marks or is discoloured. See Figure 85.
- That the crankshaft bearing has no play or knocks.
- That the sealing surfaces of the sealing rings fitted against the crankshaft are not worn.
- That the crankcase is not cracked.

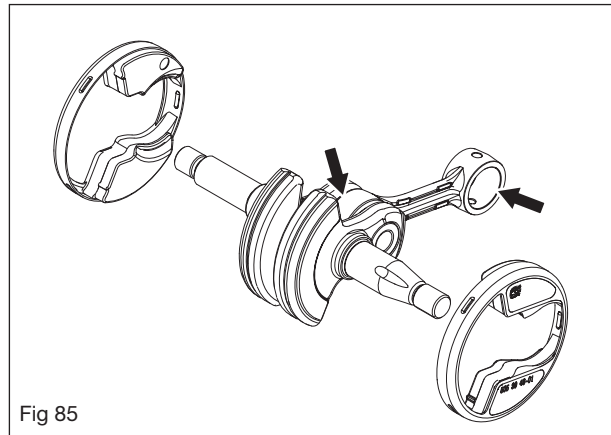


Fig 85

4

Use the 576 66 64-01 (A), 576 95 46-01 (D) and 725 33 80-51 (E) tools to dismantle the crankcase bearing (B) and sealing ring (C). Fit the service tool as outlined in Figure 86.

5

Tighten with a suitable socket spanner until the crankcase bearing (B) and sealing ring (C) come away from the crankcase half.

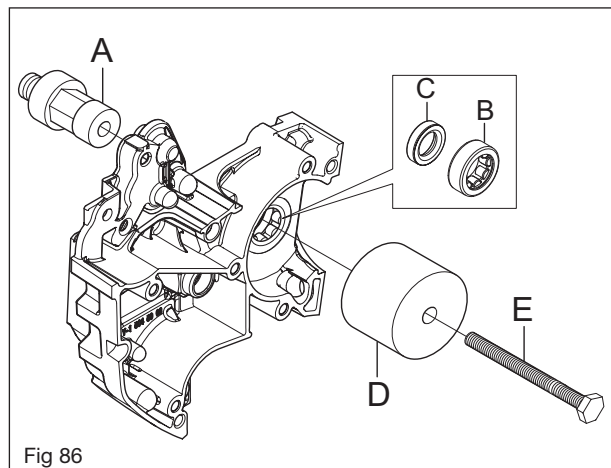


Fig 86

6

Carry out the same steps as in point four for the second crankcase half. See figure 87.

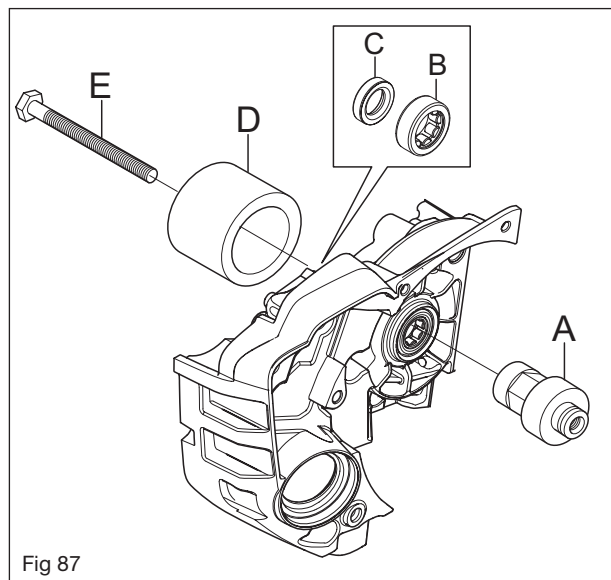


Fig 87

## 7.28 Replacing the crankshaft bearing and sealing ring

**1**

Use the 576 66 64-01 (A), 576 95 45-01 (B) and 725 33 80-51 (C) tools to assemble the crankcase bearing and sealing ring. Fit the service tool as outlined in Figure 88. Tighten with a suitable socket spanner until the roller bearing snaps in place.

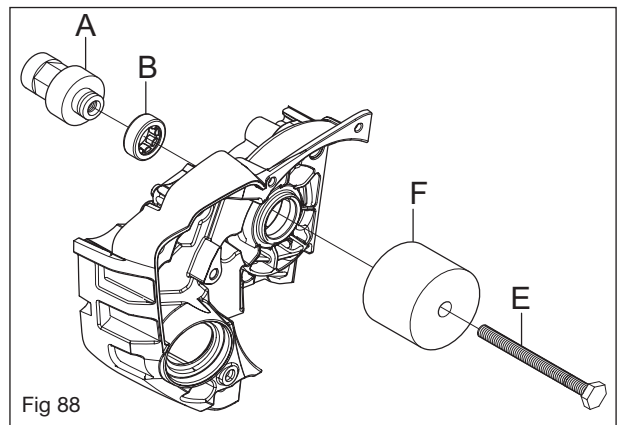


Fig 88

**2**

Carry out the same steps as in point 1 for the second crankcase half. See Figure 89.

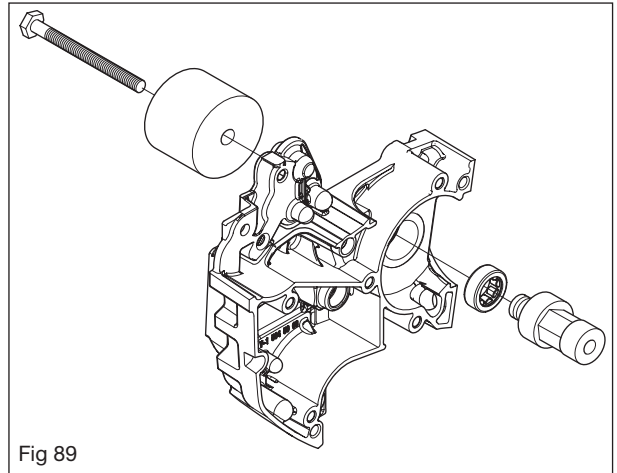


Fig 89

**3**

Use the 576 66 64-01 (A), 576 95 56-01 (G) and 725 33 80-51 (E) tools to assemble the sealing ring (C). Fit the service tool as outlined in Figure 90. Tighten with a suitable socket spanner as far as possible.

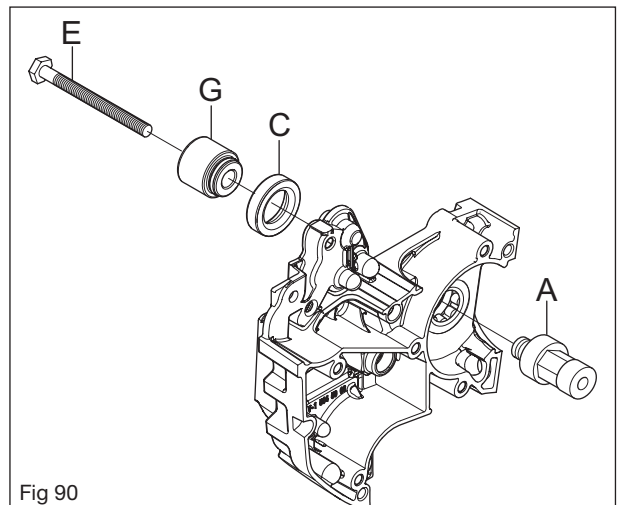


Fig 90

**4**

Carry out the same steps as in point 3 for the second crankcase half. See Figure 91.

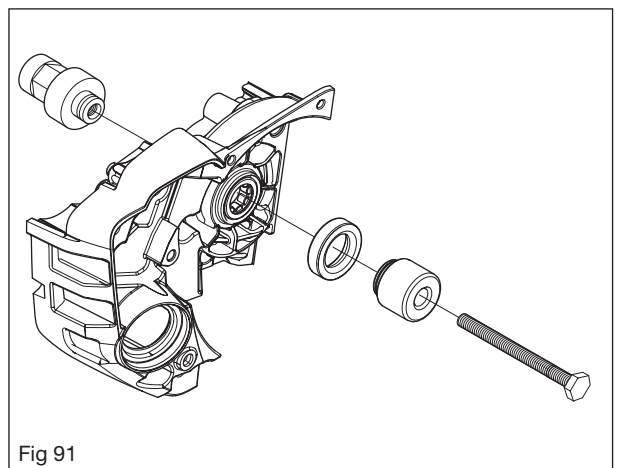


Fig 91

**5**

Place the guide pin in the crankcase half of the flywheel and fit a new gasket. Fit the 577 70 16-01 assembling tool to the crankshaft journal. See Figure 92.

**6**

Put the crankshaft in position and fit the other crankcase half. Screw in the six screws. Tighten them alternately. Tightening torque of 7-9 Nm.

Note! Remove the protective sleeve from the crankshaft journal after assembling the crankcase halves.

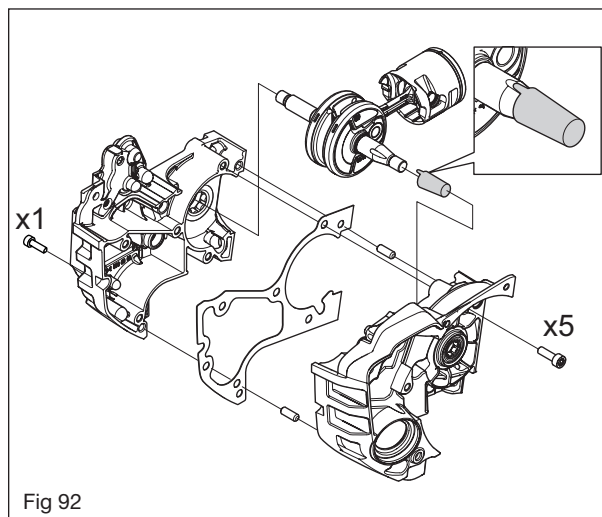


Fig 92

**7**

Cut off any excess gasket on the cylinder side. See Figure 93.

**NOTE!**

Remove the assembling tool from the crankshaft journal after assembling the crankcase halves.

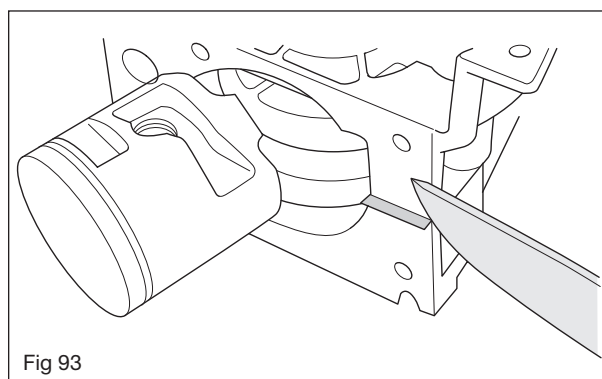


Fig 93

Assemble the following parts:

- Cylinder
- Oil pump.
- Intake system and cylinder cover.
- Tank unit.
- Carburettor.
- Ignition module.
- Flywheel.
- Starter.
- Centrifugal clutch.
- Front hand guard. See section 3, "Assembling the muffler".
- Guide bar and saw chain.
- Clutch cover

## 7.29 Replacing the bar bolt

### Replacing a bar bolt with intact crankcase

- 1**  
Empty the chain oil tank.
- 2**  
Knock in the old bar bolt from the outside so that it ends up in the chain oil tank.
- 3**  
Remove the bar bolt from the chain oil tank.
- 4**  
Attach a steel wire to the thread of the new bar bolt, thread the steel wire through the chain oil tank and out through the bar bolt opening in the crankcase. See Figure 94.
- 5**  
Pull on the steel wire so that the bar bolt protrudes from its opening. Make sure the head of the bar bolt finishes up in its groove in the crankcase. The bar bolt may have to be turned.
- 6**  
Pull out the bar bolt with a nut. Insert a spacer between the nut and the crankcase. See Figure 94.
- 7**  
Fill with chain oil.

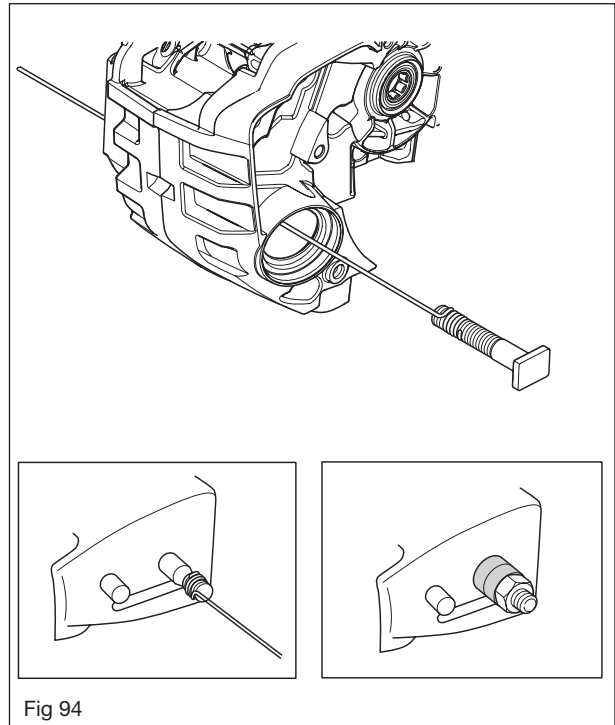
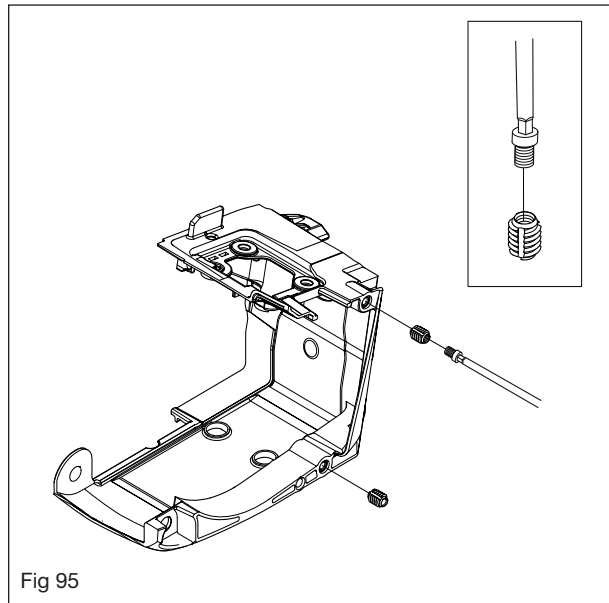


Fig 94

### 7.30 Repairing damaged threads

If threads on the chainsaw are worn, the reparation kit, 578 12 03-01, is available.

Damaged threads in the cylinder cover can be repaired using the 537 12 03-01 thread insert. Drill first with a 7.5 mm drill bit. Then screw in the thread insert using a suitable screw and spanner as shown in Figure 97.

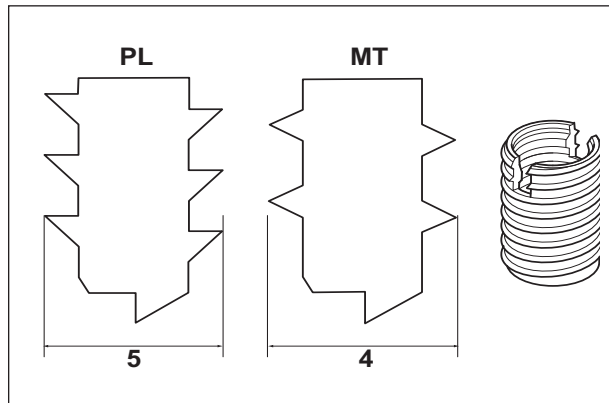


### Threading plug

Damaged threads can be repaired using a threading plug. The slotted section in the thread plug is screwed in place first as this is the cutting part.

Request to repair a thread where a PL5 screw was used. First drill with a 6.1 mm bit and then screw in the thread plug using a suitable screw and spanner.

If a thread for an MT4 screw must be repaired, first drill with a 5.1 bit and then screw in the thread plug using a suitable screw and spanner.



This type of thread plug is ideal for plastic and magnesium but cannot be used to repair aluminium threads, where helicoil and metric screws must be used instead. Check the manufacturer's manual for thread information.

Part No.	Description
578 12 03-01	M5
503 27 39-01	PL5
503 27 31-01	MT4

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# 8 Troubleshooting

## List of contents

8.1	Troubleshooting .....	64
8.2	Troubleshooting methods .....	65

## 8.1 Troubleshooting

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.

See separate instruction for AutoTune troubleshooting.

### Starting

Starting difficulties	Clogged air filter Choke does not work Worn choke shaft Worn choke valve The fuel filter is clogged The fuel line is clogged Piston ring is stuck Blocked impulse channel
The carburettor leaks fuel	Loose or defective fuel hose Hole in the membrane Control system is jamming 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	Control system set too high Control system is jamming

### Idling (low speed) (cont.)

Irregular idling	The fuel filter is clogged The fuel line 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 Leaking control system (air or fuel) The control system's centre knob is worn Hole in the membrane Leaking control diaphragm/cover plate Crankcase leak
Too much fuel on idling	Leaking control diaphragm/cover plate

### Idling (low speed)

Does not run when idling	Leaking inlet hose (rubber) Loose clamping screws carburettor Loose or defective fuel hose The fuel filter is clogged The fuel line is clogged Tank venting clogged The throttle valve shaft is sluggish Throttle stay is jamming Defective throttle return spring Bent valve shaft stop Faulty diffuser jet
Too high idling speed	Worn lever arm in the control system Leaking control diaphragm/cover plate



**High speed**

Does not run at full throttle	Blocked air filter Tank venting clogged The fuel filter is clogged The fuel line 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 diaphragm/cover plate Control system is jamming Blocked muffler
Low on power	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 jamming Leaking control system (air or fuel) Control system incorrectly assembled Loose diaphragm rivet Hole in the membrane Leak in control diaphragm/cover plate
Too lean	Tank venting clogged The fuel filter is clogged The fuel line 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 diaphragm/cover plate

**Acceleration and retardation**

Does not accelerate	Blocked air filter Tank venting clogged The fuel filter is clogged The fuel line 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 jamming Faulty diffuser jet Blocked muffler
The engine stops when releasing the throttle	Faulty pump diaphragm Control system set too high Control system is jamming Faulty diffuser jet
Too rich acceleration	Blocked air filter Faulty pump diaphragm Faulty diffuser jet

**8.2 Troubleshooting techniques**

In addition to faults given in the above schematic, troubleshooting 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:

- Resistance testing the stop plate
- Pressure testing the carburettor
- Pressure testing the decompression valve
- Pressure testing the cylinder



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