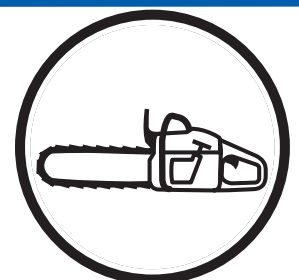


Workshop Manual  
545, 545 TrioBrake  
550XP, 550XP TrioBrake  
550XPG, 550XPG TrioBrake



English



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# Workshop Manual

## Husqvarna 545, 545 TrioBrake, 550XP 550XP TrioBrake, 550XPG and 550XPG TrioBrake

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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 instructions

### 2.1 General

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

### 2.2 Safety

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

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

### 2.3 Target group

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

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

### 2.4 Modifications

Any modifications to the chain saw will be gradually introduced into ongoing production. As these modifications affect service and/or spare parts, specific service information will be sent out on each occasion. This means that in time this Workshop Manual will become out of date. In order to prevent this, the Manual should be read together with all service information concerning the chain saw in question.

### 2.5 Tools

Special tools are required for some stages. All service tools are listed in the Workshop Manual. Usage is made apparent in each section.

Always use Husqvarna's original:

- Spare parts
- Service tools
- Accessories

### 2.6 Structure

This Workshop Manual can be used in two different ways:

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

#### Repair of a specific system

When a particular system on the chain saw is to be repaired, proceed as follows:

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

#### Dismantling and assembling the chain saw.

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

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

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

### 2.7 Numbering

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

The figures are numbered 1, 2 etc.


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

## 2.8 General Instructions

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

No one may repair the chain saw unless they have read and understood the content of this Workshop Manual.

This workshop manual contains the following warning boxes in relevant places.

	<p><b>WARNING!</b> The warning box warns of the risk of personal injury if the instructions are not followed.</p>
---	---

<p><b>NOTE!</b> This box warns of material damage if the instructions are not followed.</p>
---

## 2.9 Special Instructions

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

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

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

Wear protective earplugs or earmuffs when test running.

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

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

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

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

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

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

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

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

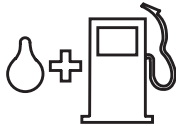


## 2.10 Symbols on the saw

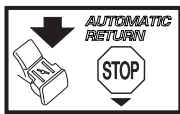
The symbols below are embedded on the chain saw.



Choke Lever



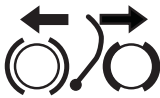
Refuelling



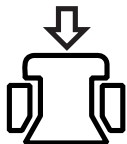
Stop button



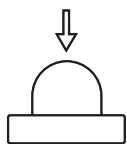
Chain oil fill.



Chain brake



Decompression valve



Fuel pump



Adjusting the oil pump

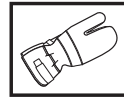


Heated handles

## 2.11 Symbols in the Workshop Manual



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



Use protective gloves.

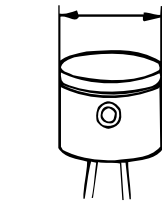


Use protective goggles.

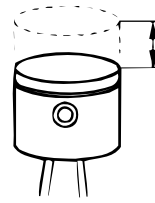
### 3 Technical data



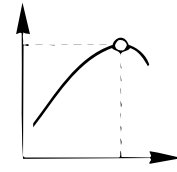
Displacement  
cm<sup>3</sup>/cubic inch



Cylinder diameter  
Ø mm/Ø inch

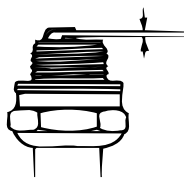


Stroke length  
mm/inch

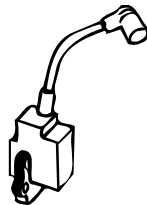


Max. output/speed  
kW/hp/ rpm

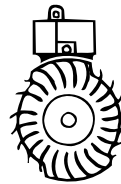
	Displacement cm <sup>3</sup> /cubic inch	Cylinder diameter Ø mm/Ø inch	Stroke length mm/inch	Max. output/speed kW/hp/ rpm
545:	50,1 / 3.06	43 / 1.69	34,5 / 1.36	2.5 / 3,4 / 9 600
545 TB:	50,1 / 3.06	43 / 1.69	34,5 / 1.36	2.5 / 3,4 / 9 600
550XP:	50,1 / 3.06	43 / 1.69	34,5 / 1.36	2.8 / 3,8 / 9 600
550XP TB:	50,1 / 3.06	43 / 1.69	34,5 / 1.36	2.8 / 3,8 / 10 200
550XPG:	50,1 / 3.06	43 / 1.69	34,5 / 1.36	2.8 / 3,8 / 10 200
550XPG TB:	50,1 / 3.06	43 / 1.69	34,5 / 1.36	2.8 / 3,8 / 10 200



Electrode gap  
mm/inch

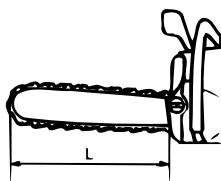


Ignition system



Air gap  
mm/inch

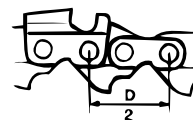
	Electrode gap mm/inch	Ignition system	Air gap mm/inch
545:	0,5 / 0,02	SEM-DM61	0,3 / 0,012
545 TB:	0,5 / 0,02	SEM-DM61	0,3 / 0,012
550XP:	0,5 / 0,02	SEM-DM61	0,3 / 0,012
550XP TB:	0,5 / 0,02	SEM-DM61	0,3 / 0,012
550XPG:	0,5 / 0,02	SEM-DM61	0,3 / 0,012
550XPG TB:	0,5 / 0,02	SEM-DM61	0,3 / 0,012



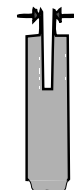
Usable cutting length  
cm/inch



Chain speed att 133% of  
maximum engine power speed  
ft/s / m/s

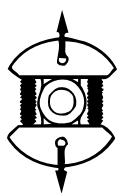


Chain pitch  
mm/inch



Drive link  
mm/inch

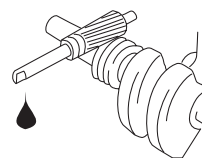
	Usable cutting length cm/inch	Chain speed att 133% of maximum engine power speed ft/s / m/s	Chain pitch mm/inch	Drive link mm/inch
545:	31-49 / 12-19	80.7 / 24,6	8,25 / 0.325	1,3 / 0.050 - 1,5 / 0.058
545 TB:	31-49 / 12-19	80.7 / 24,6	8,25 / 0.325	1,3 / 0.050 - 1,5 / 0.058
550XP:	31-49 / 12-19	85.6 / 26,1	8,25 / 0.325	1,3 / 0.050 - 1,5 / 0.058
550XP TB:	31-49 / 12-19	85.6 / 26,1	8,25 / 0.325	1,3 / 0.050 - 1,5 / 0.058
550XPG:	31-49 / 12-19	85.6 / 26,1	8,25 / 0.325	1,3 / 0.050 - 1,5 / 0.058
550XPG TB:	31-49 / 12-19	85.6 / 26,1	8,25 / 0.325	1,3 / 0.050 - 1,5 / 0.058



Engage speed  
rpm



Spark plug



Type of oil pump

Model	Engage speed rpm	Spark plug	Type of oil pump
545:	4 200	NGK CMR6H	Adjustable
545 TB:	4 200	NGK CMR6H	Adjustable
550XP:	4 200	NGK CMR6H	Adjustable
550XP TB:	4 200	NGK CMR6H	Adjustable
550XPG:	4 200	NGK CMR6H	Adjustable
550XPG TB:	4 200	NGK CMR6H	Adjustable



Volume fuel tank  
Litre/US. pint

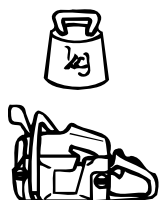


Capacity oil pump at  
9,000 rpm,  
ml/min



Volume oil tank  
Litre/US. pint

Model	Volume fuel tank Litre/US. pint	Capacity oil pump at 9,000 rpm, ml/min	Volume oil tank Litre/US. pint
545:	0,52 / 0.94	5-12	0,27 / 0.57
545 TB:	0,49 / 0.89	5-12	0,27 / 0.57
550XP:	0,52 / 0.94	5-12	0,27 / 0.57
550XP TB:	0,49 / 0.89	5-12	0,27 / 0.57
550XPG:	0,52 / 0.94	5-12	0,27 / 0.57
550XPG TB:	0,49 / 0.89	5-12	0,27 / 0.57



Weight without bar and chain  
kg / lbs



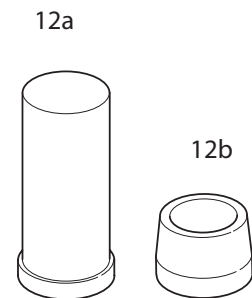
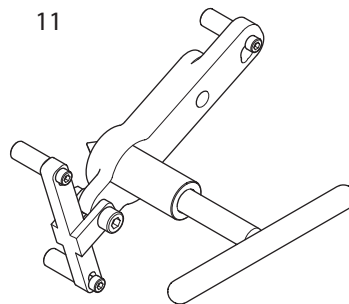
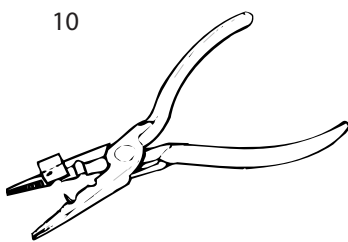
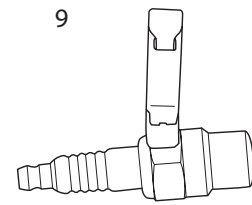
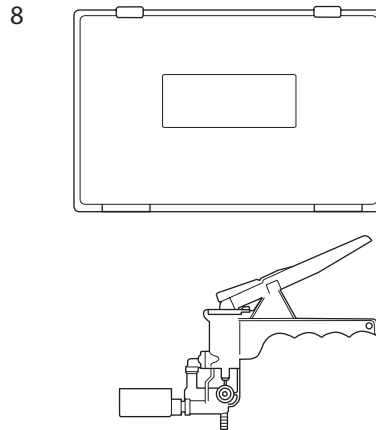
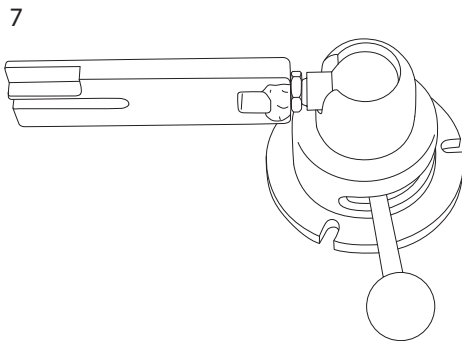
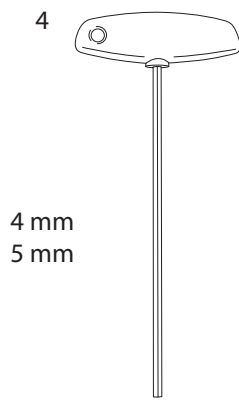
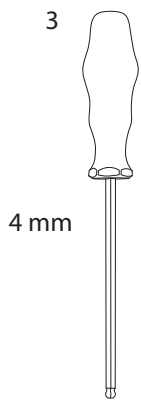
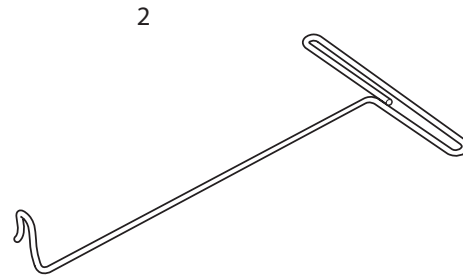
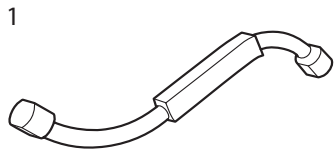
Heated handles  
kg / lbs

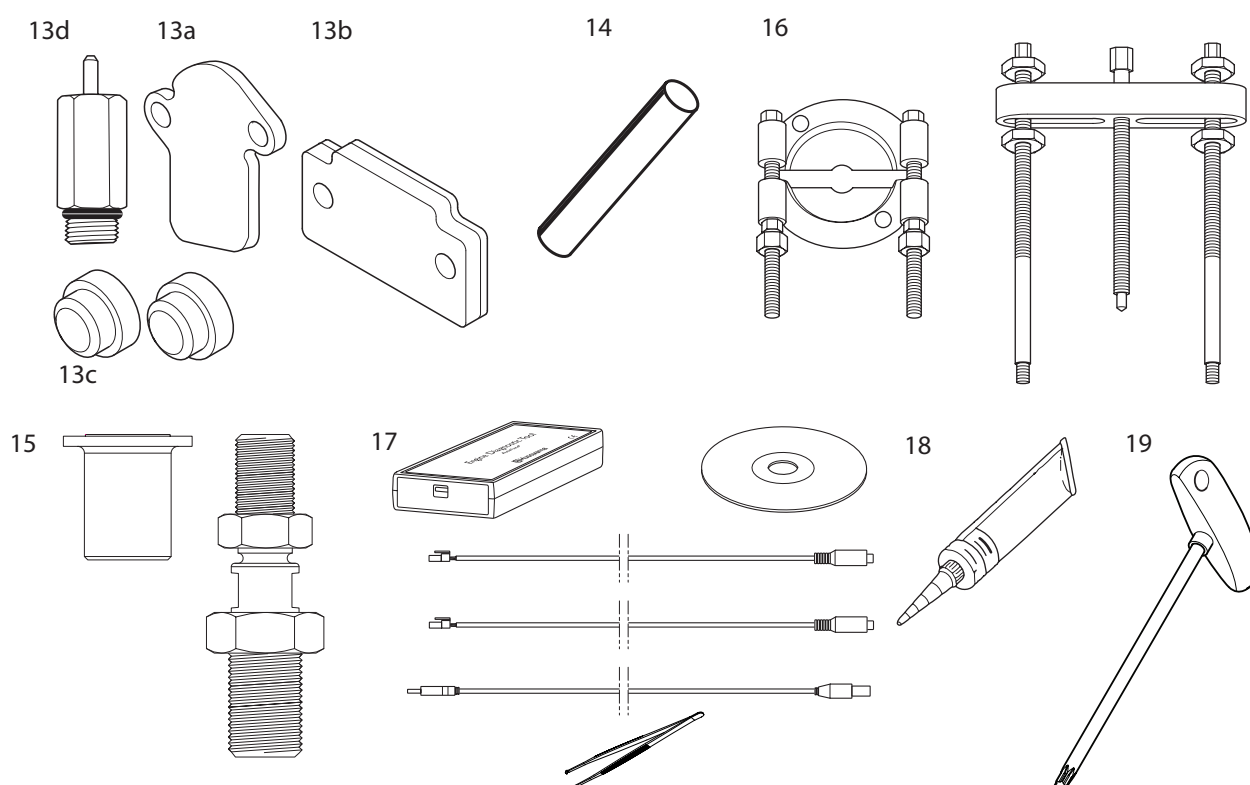


Electrical carburettor  
heating

Model	Weight without bar and chain kg / lbs	Heated handles kg / lbs	Electrical carburettor heating
545:	4,9 / 10.8	-	-
545 TB:	5,0 / 11.2	-	-
550XP:	4,9 / 10.8	-	-
550XP TB:	5,0 / 11.2	-	-
550XPG:	5,1 / 11.0	Yes	Yes
550XPG TB:	5,2 / 11.4	Yes	Yes

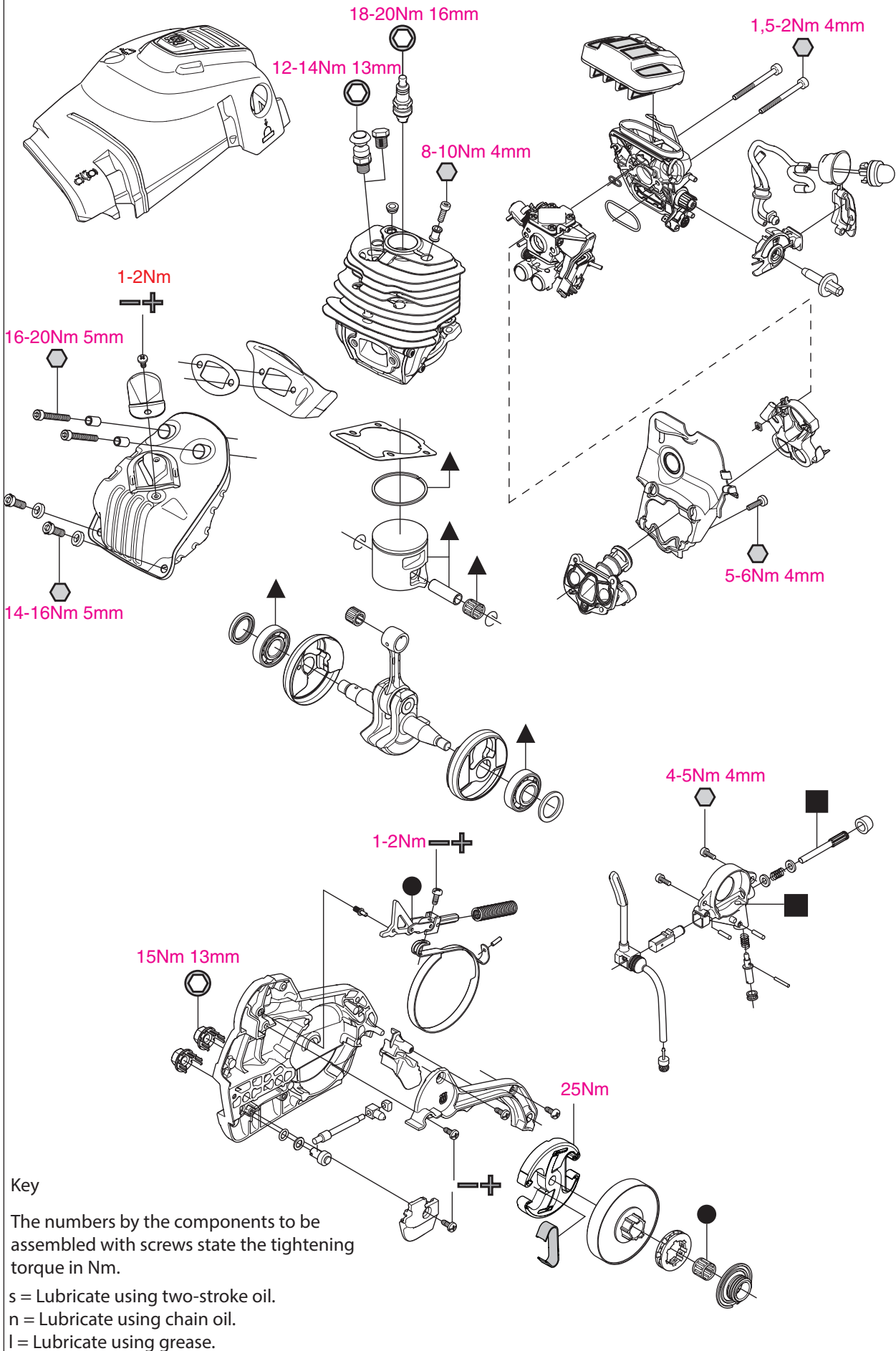
# 4 Service tools

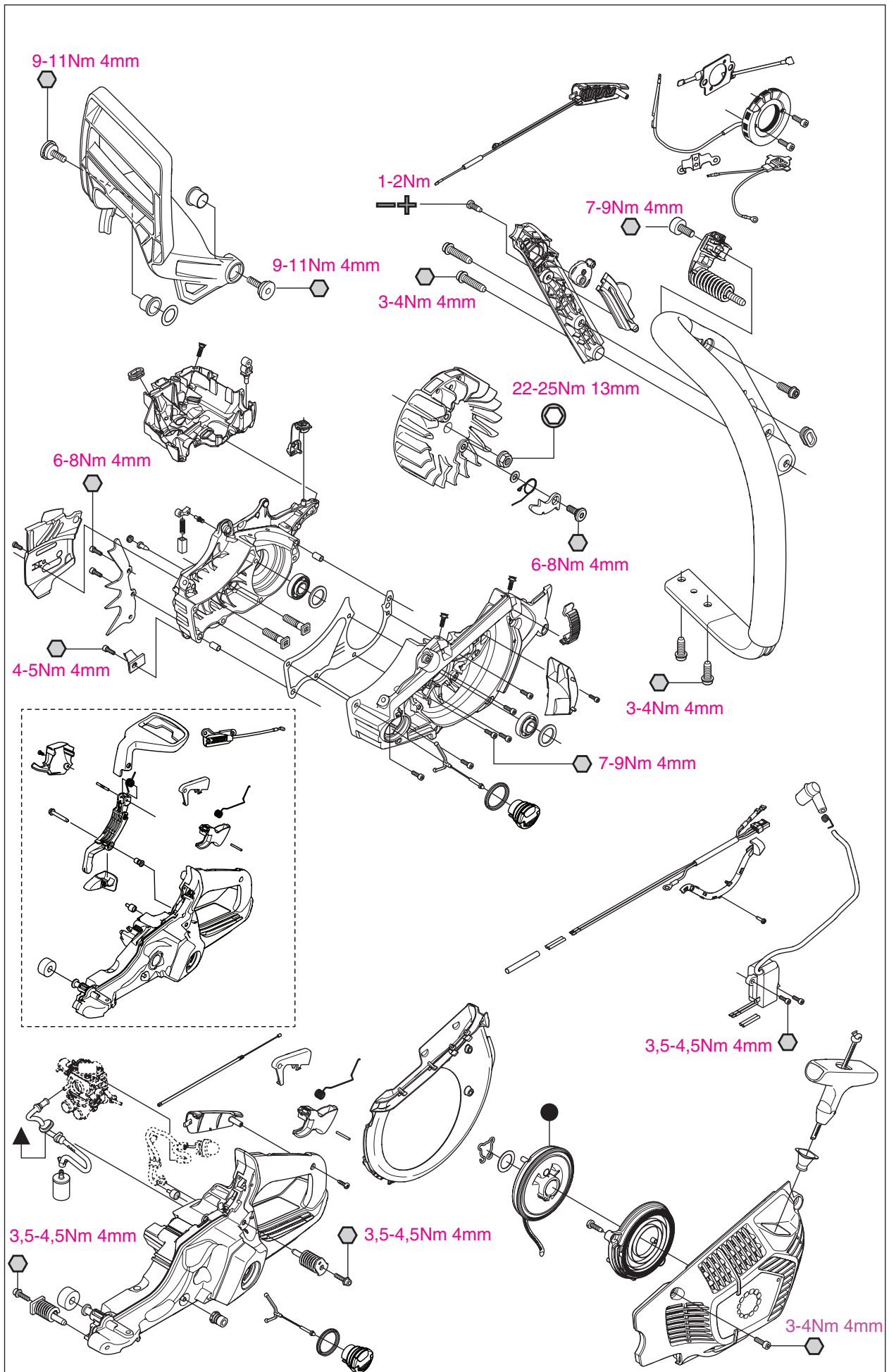




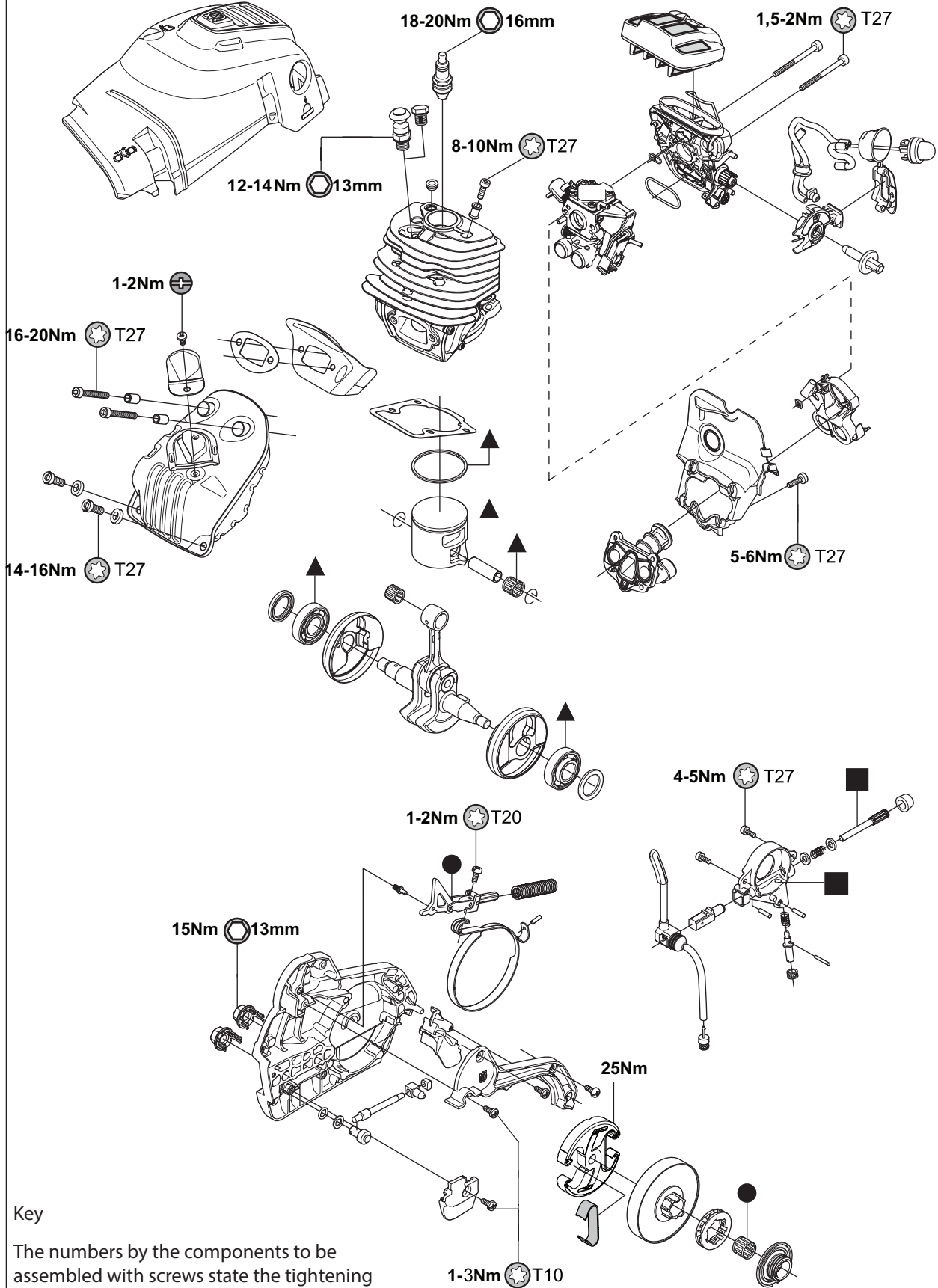
Pos	Description	Used for	Order No.
1	Piston stop	Locking the crankshaft	575 29 36-01
2	Hook for fuel filter	Suspending the fuel filter	502 50 83-01
3	Allen key, 4 mm	For M5 bolts	502 50 87-01
4	Allen key, 4 mm	For M5 bolts	502 50 18-01
4	Allen key, 5 mm	For M6 bolts	502 50 64-01
5	Air gap tool	Setting, ignition module	502 51 34-02
6	Clutch tool	Centrifugal clutch	502 54 16-02
7	Assembly fixture	Securing the chain saw	502 51 02-01
8	Pressure gauge	Pressure testing	531 03 06-23
9	Test spark plug	Checking the ignition module	501 97 64-01
10	Assembly pliers	Fitting the spark plug guard	502 50 06-01
11	Dismantling device	Dismantling the crankcase	575 28 69-01
12a	Assembly tool	Assembling the sealring	575 34 70-01
12b	Guide sleeve	Assembling the sealring	575 34 69-01
13a	Cover plate, inlet	Closure of inlet	574 71 14-01
13b	Cover plate, outlet	Closure of outlet	578 04 18-01
13c	Cover plug, inlet	Closure of inlet	578 02 13-01
13d	Pressure tester	Pressure testing the cylinder	503 84 40-03
14	Mandrel	Dismantling the flywheel	502 51 94-01
15	Assembly tool	Assembling the crankshaft	502 50 30-23
16	Puller	Dismantling the crankshaft	531 00 48-67
17	Engine Diagnostic Tool	Diagnosis and troubleshooting	576 69 23-01
18	Silicone tube	Assembling piston and cylinder	503 26 72-01
19	T-handle Torx T10	For torx screws	588 52 41-01
19	T-handle Torx T20	For torx screws	588 59 85-01
19	T-handle Torx T27	For torx screws	502 71 27-03

## 5 Service data - Allen





## 5 Service data - Torx

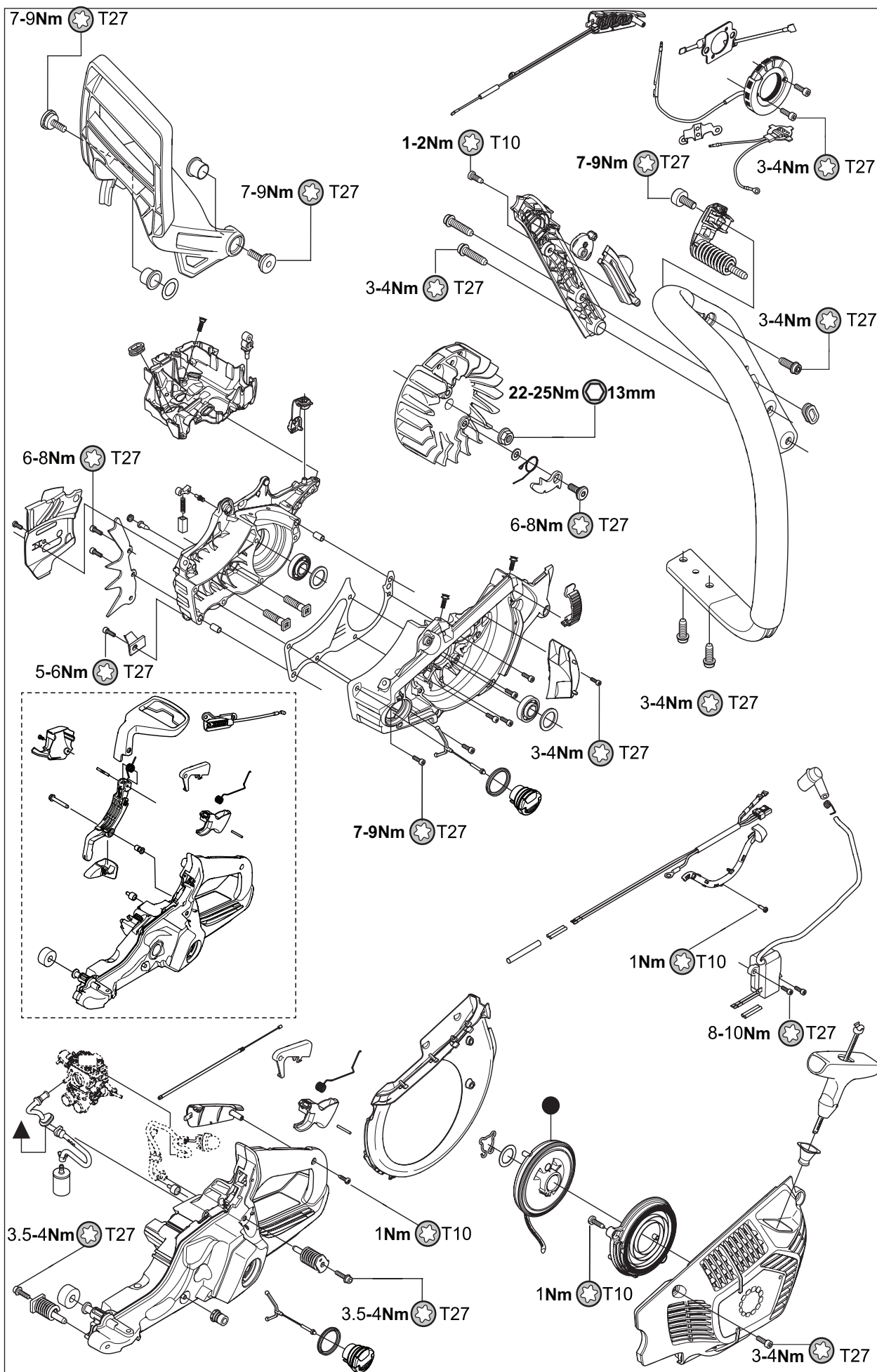


**Key**

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

- s = Lubricate using two-stroke oil.
- n = Lubricate using chain oil.
- l = Lubricate using grease.





## 6 Safety equipment

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## 6 Safety equipment

### 6.1 Dismantling the chain brake



1

Remove the cylinder cover.  
Release the brake by moving the front hand guard backward.  
Loosen the bar nuts and remove the clutch cover, bar and chain, see fig. 1.

2

Unscrew the kickback guard and remove it.  
**NOTE!** Make sure that the spring and rocker do not fly out.  
Carefully tighten the clutch housing in a vice. Release the brake by using the saw's hand guard as a tool. Mesh with the brake and tighten anti-clockwise until the brake is activated, see fig. 2.

3

Loosen the screws and insert a screwdriver to maintain pressure on the spring, and then carefully remove the cover over the brake spring, see fig. 3.



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



4

Hold one hand on top of the brake spring and press in a small screwdriver into the spring. Carefully bend upwards until the spring is released and it slides onto the screwdriver, see fig. 4.

#### Cleaning and inspection

- Clean and check carefully all components. Parts must be replaced if cracked or show signs of other defects. Always use original spare parts.
- Measure the thickness of the chain brake band. It must not be less than 0.6 mm in any place. See figure 5.
- Lubricate the knee joint with grease.

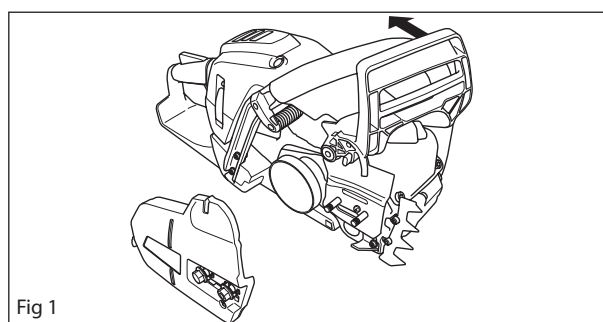


Fig 1

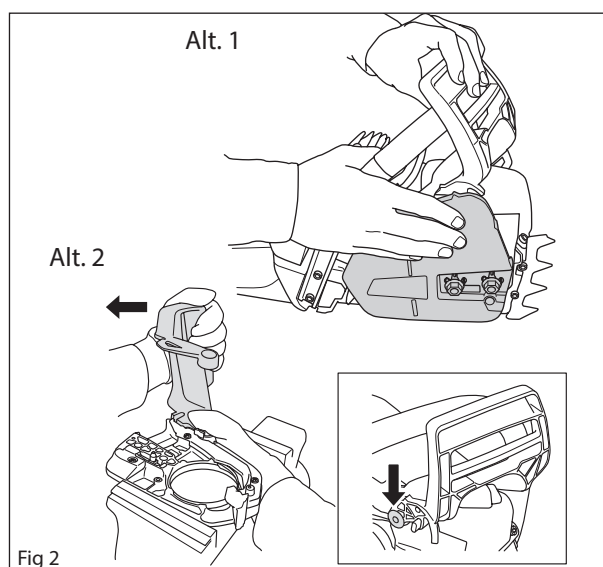


Fig 2

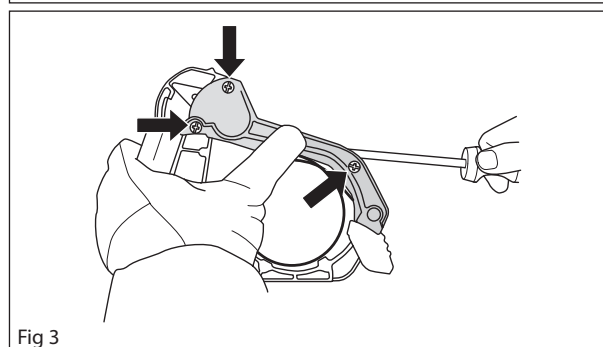


Fig 3

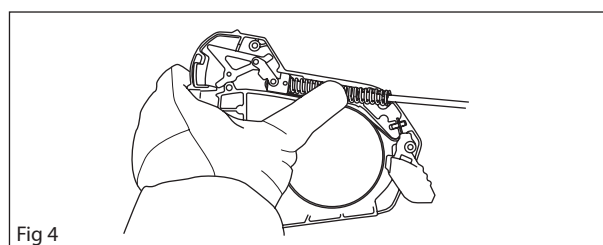


Fig 4

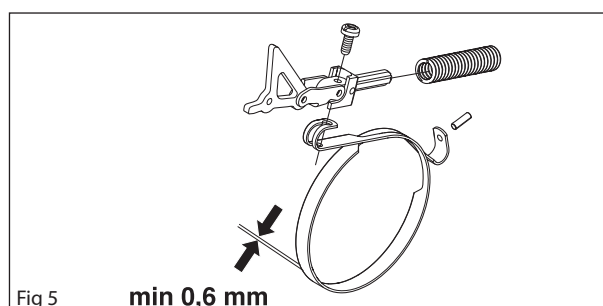


Fig 5

**min 0,6 mm**

## 6.2 Assembling the chain brake

1

Screw the knee joint and the brake band together (see figure 5) using a tightening torque of 1-1.5 Nm. Place the knee joint with the fitted chain brake band in the opening in the clutch cover. The space for the spring in the cover must be lubricated with grease. See figure 6.

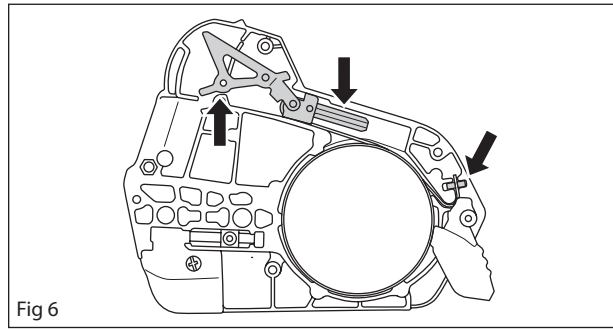


Fig 6

2

Compress the spring with a wide screwdriver and press it down with your thumb. See figure 7.

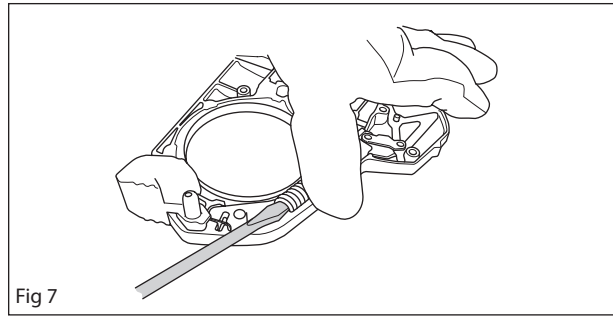
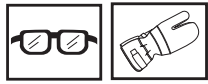
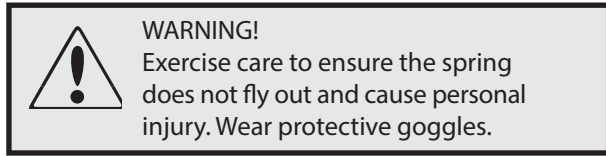


Fig 7

3

Fit the cover over the brake spring using 1-1.5 Nm tightening torque. See figure 8.

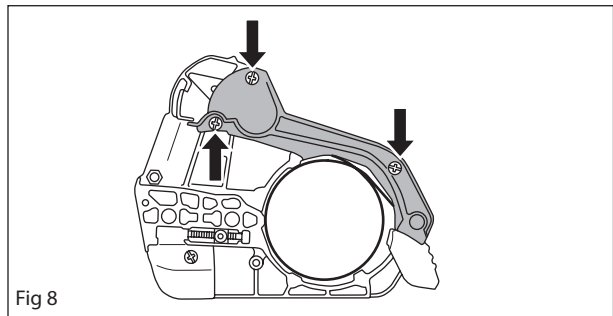


Fig 8

4

Tighten the brake by using the saw's hand guard as a tool. Mesh with the brake and tighten clockwise until the brake is in the off position. See figure 9.

5

**NOTE!** Make sure the bushings in the kickback guard's attachments are kept in place from the inside. See figure 9.

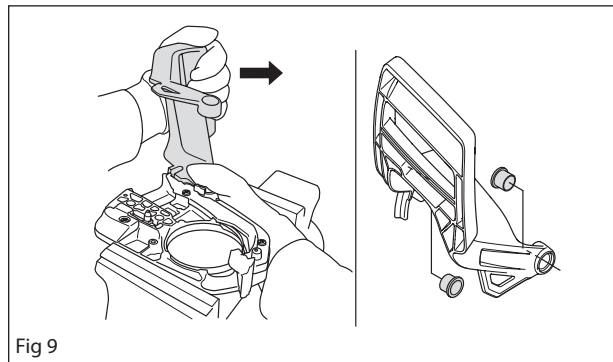


Fig 9

Screw the kickback guard in place and put the ratchet in position. Position the spring (B) in the plastic housing (C) (see figure 10) and press the spring against the rocker and then press the plastic housing into its groove. Tighten the chain guide plate in place.

Fit the:

- The bar
- The chain
- The clutch cover
- The cylinder cover

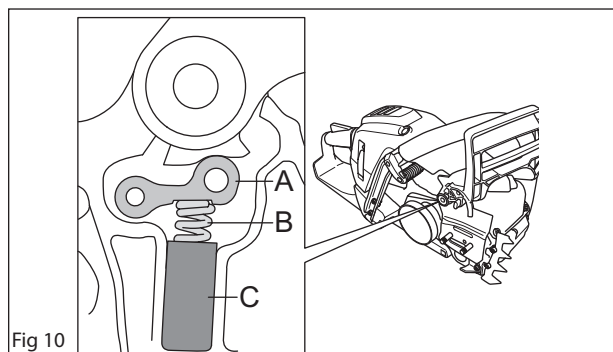


Fig 10

**NOTE!**

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

Functional inspection:

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

Bar length	Height
38 cm/15"	50 cm/20"

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



Fig 11

### 6.3 Dismantling the right-hand brake trigger

(545 TrioBrake, 550 XP TrioBrake, 550 XPG TrioBrake)

1

Release the brake by moving the front hand guard towards the front handle. Loosen the bar nuts and remove the clutch cover, bar and chain, see fig. 1.

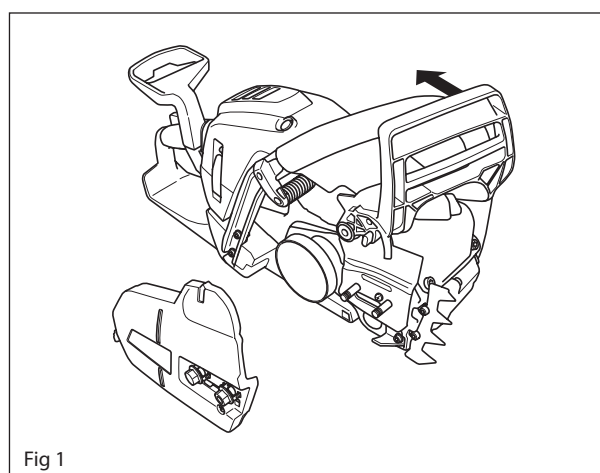


Fig 1

2

Loosen the screws D and remove the front handle, see fig. 2.

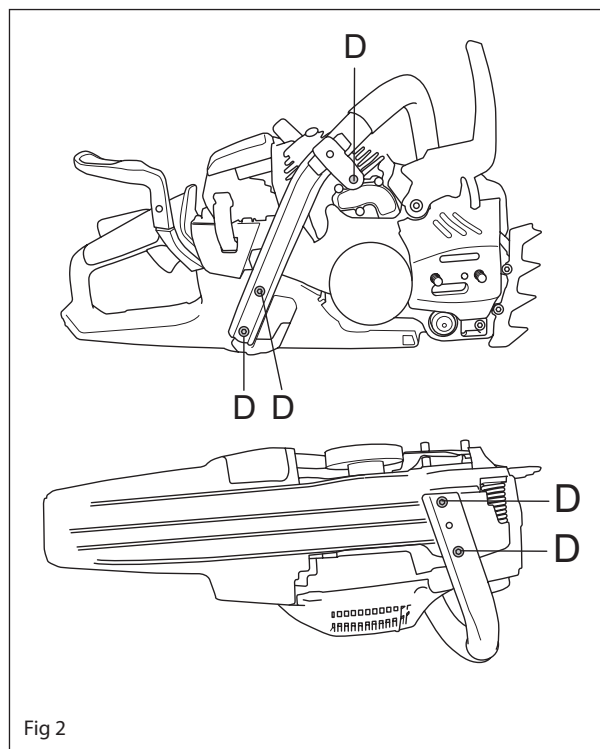


Fig 2

3

Loosen the movement limiter E. Loosen the screw F and remove the cover. See figure 3.

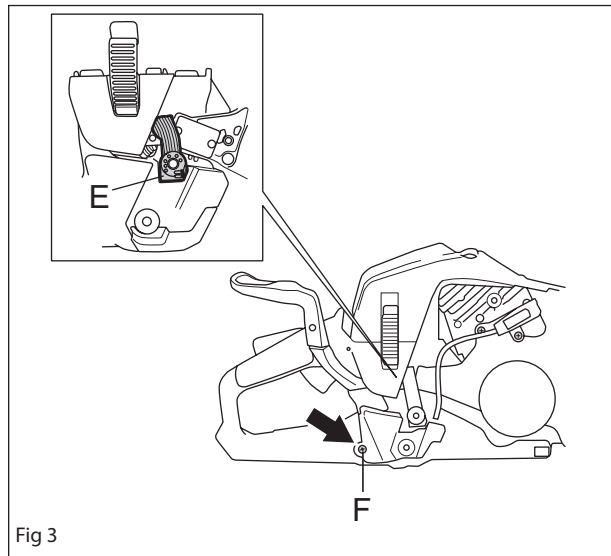


Fig 3

4

Loosen the screws H to release the brake cable. Pull back the rubber casing and loosen the screw G. See figure 4

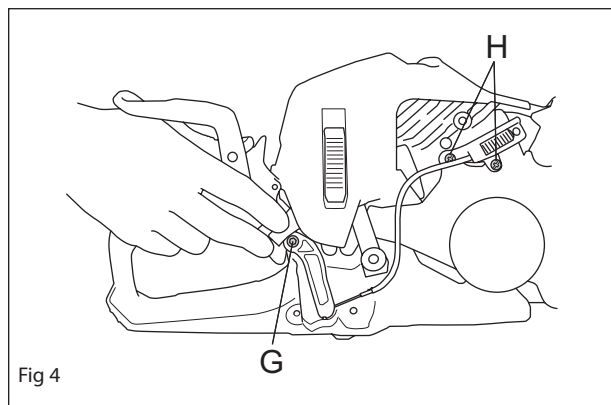


Fig 4

5

Detach the right-hand brake trigger from its mount on the rear handle. See fig. 5.

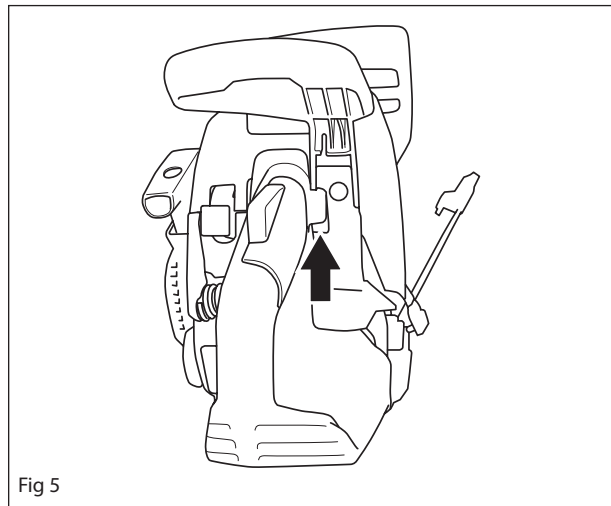


Fig 5

#### Cleaning and inspection

Clean and check all parts carefully.

Parts must be replaced if cracked or showing signs of other defects. Always use original spare parts.

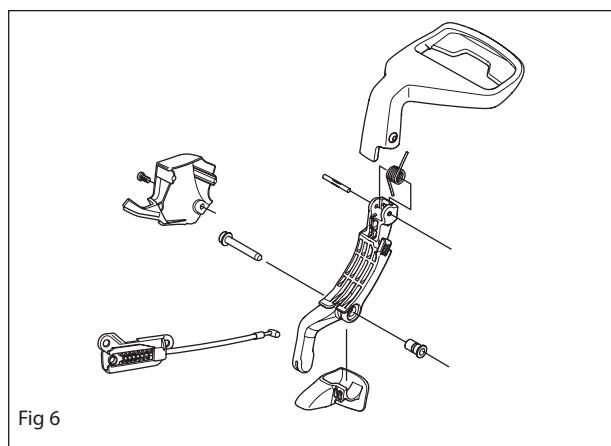


Fig 6

## 6.4 Assembling the right-hand brake trigger

(545 TrioBrake, 550 XP TrioBrake, 550 XPG TrioBrake)

1

Reattach the right-hand brake trigger in its mount on the rear handle and tighten screw G. Reposition the brake cable in its track and tighten screws H. See figure 5 and 4.

2

Replace the cover and tighten screw F. Replace the movement limiter E.

3

Fit the front handle and tighten screws D. Tightening torque 3-4 Nm.

Fit the:

- The bar
- The chain
- The clutch cover

## 6.5 Dismantling the muffler



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

1

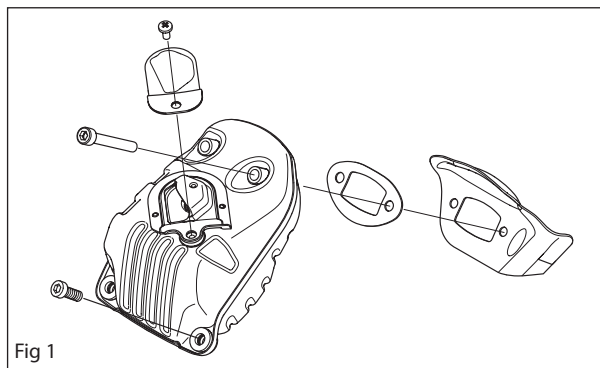
Remove the cylinder cover, muffler, gasket and cooling fin.

2

The saw is fitted with spark arrestor mesh, which is removed. If necessary, use the combination spanner to push down the plate edge and remove the spark arrestor mesh. See figure 12.

Cleaning and inspection

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



## 6.6 Assembling the muffler

1

If the saw is fitted with a spark arrestor mesh, put it in place first. When fitting the mesh, make sure that the mesh is inserted in the right position. If necessary, use the combination spanner to insert the mesh.

2

Fit the:

- cooling fin
- gasket
- muffler (cylinder screw), tightening torque of 19 Nm.
- muffler (crankcase screw), tightening torque of 14-16 Nm.
- Cylinder cover

3

Warm up the saw for at least one minute and retighten the mufflers cylinder screws to 17 Nm.

## 6.7 Replacing the chain catcher

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

1

Release the brake by moving the front hand guard backward.

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

2

Remove the chain catcher and replace it with a new one.

Make sure that the vibration element is fitted correctly on the crankcase when a new chain catcher is screwed in place. See figure 13.

## 6.8 Dismantling the start/stop control

1

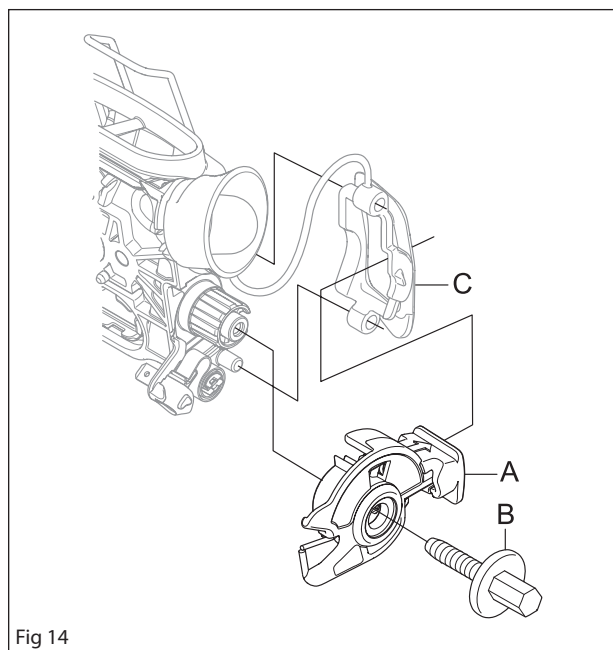
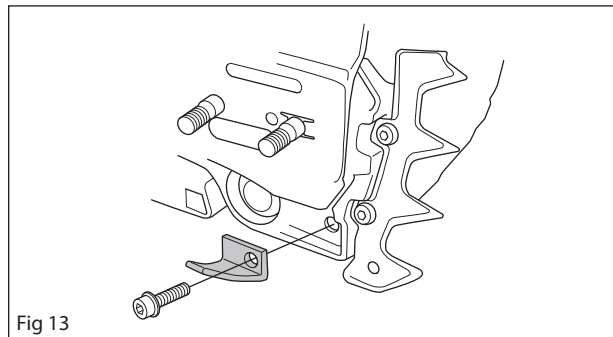
Remove the cylinder cover and air filter. Dismantle the air filter holder. See the "Dismantling the carburettor" chapter.

2

Loosen screw B and dismantle the stop control A. See figure 14. Unhook the rubber collar around the control from the guide plugs.

### Cleaning and inspection

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





## 6.9 Assembling the start/stop control

1

Fit the new stop control (A) and tighten screw (B) in place at a torque of 1 Nm. Slide in the stop control in the rubber sleeve C and hook the sleeve on the guide taps. See figure 15.

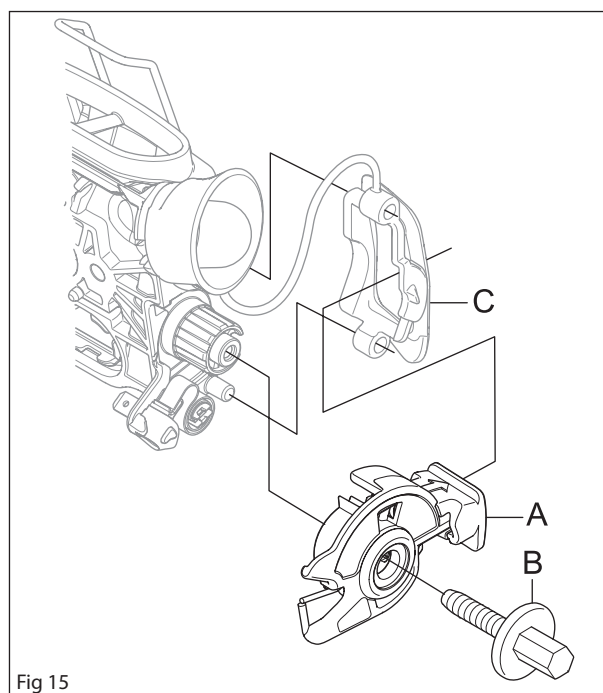


Fig 15

2

Attach the cables as outlined in figure 16.

3

Attach the air filter holder. See the "Assembling the carburettor" chapter.

4

Fit air filter and cylinder cover.

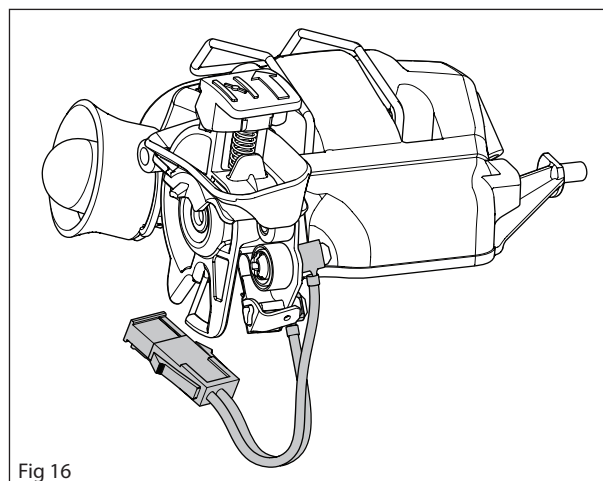


Fig 16

## 6.10 Resistance test - stop function

Dismantle the ignition module as outlined in "7.7 Dismantling the ignition module and flywheel". Cut open the shrink tube covering both cables and shrink tubing that encloses the cable ends.

Clean the contact areas and check resistance in the following way:

Test the resistance by connecting a multimeter to the cable ends. NOTE! The power switch must be in the "on" position to get the correct reading. See figure 17.

The stop switch is in the "on" position when the button is held down (see figure 17) and in the "off" position when the button is in neutral.

Resistance can be 0.5 Ohm at most with the power switch in the "on" position.

When assembling (see figure 18), pull the cable ends apart and slide on a thicker shrink tube over both cables. Then slide on the thinner shrink tubes over each cable. Connect the cable ends together. Slide the thinner shrink tubes over the cable ends and heat the shrink tube first on both cables separately. Slide the thicker shrink tube over the thinner shrink tubes and then heat the thicker shrink tube.

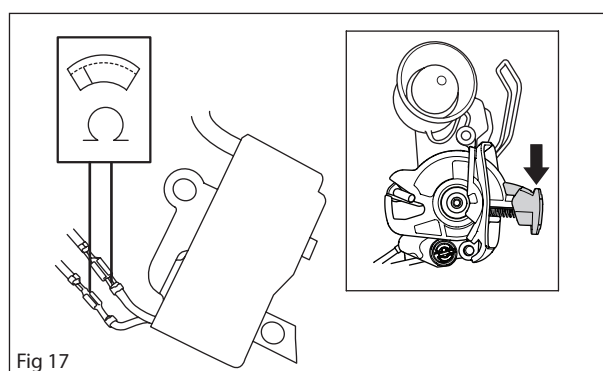


Fig 17

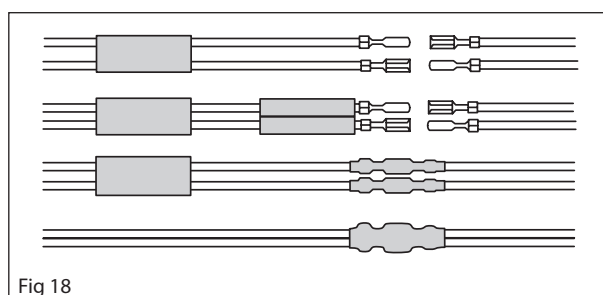
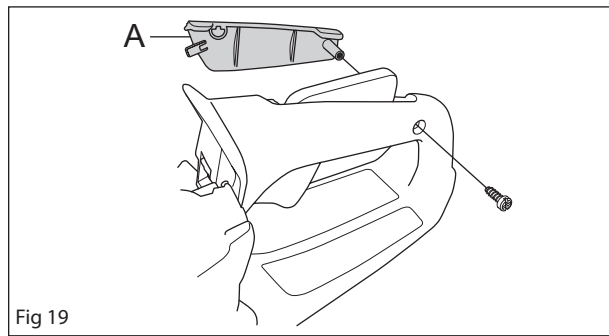


Fig 18

## 6.11 Dismantling the throttle control lock, throttle control and spring

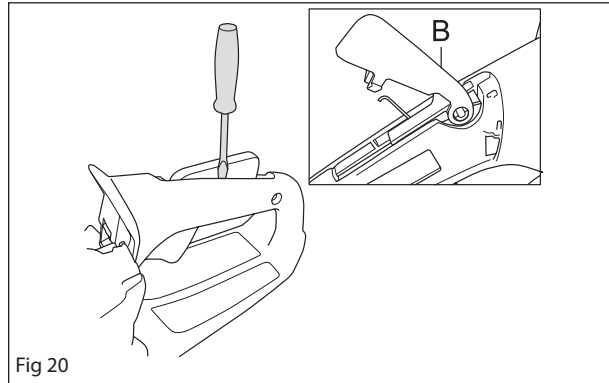
1

Loosen the screw on the rear handle. Remove the handle insert (A). See figure 19.



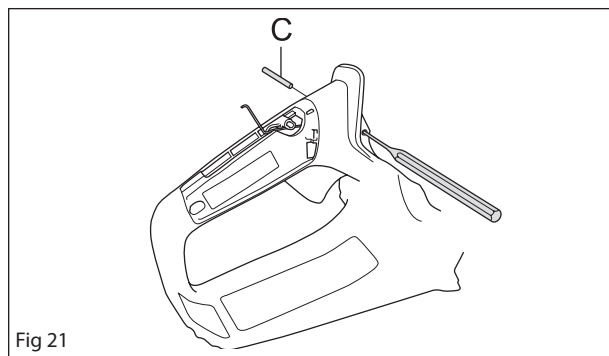
2

Loosen the throttle control lock (B) as shown in the figure using a screwdriver or similar tool. Remove it then from the shaft in the handle. See figure 20.



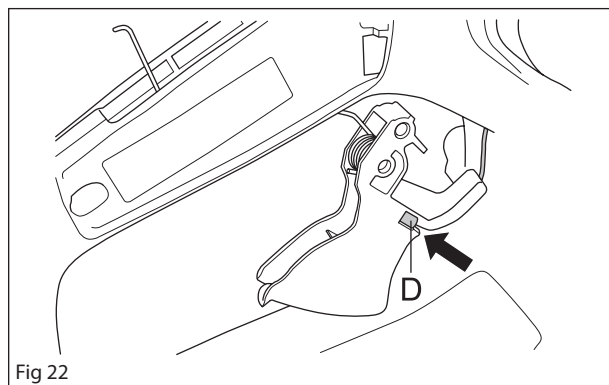
3

Press out the throttle control pin (C) with the help of a punch. See figure 21.



4

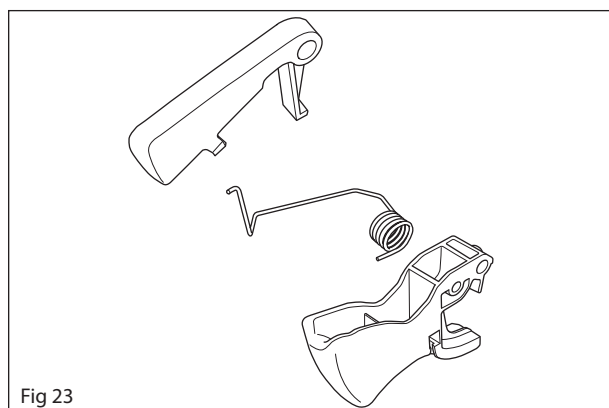
Loosen the throttle cable (D) and lift out the throttle control and the spring. See figure 22.



5

Cleaning and inspection

- Carefully clean and check all parts. See figure 13. Parts must be replaced if cracked or show signs of other defects. Always use original spare parts.
- Check that the spring is intact and retains all its tension.



## 6.12 Assembling the throttle control lock, throttle control and spring

1

Lubricate the pin and joined surfaces with a light oil. Hook on the throttle cable (D). Slide in the throttle control and make sure the spring is fitted as outlined in figure 24.

NOTE! Make sure that the rear end of the throttle control is correctly aligned inside the cut-out edging before the pin is pressed in place.

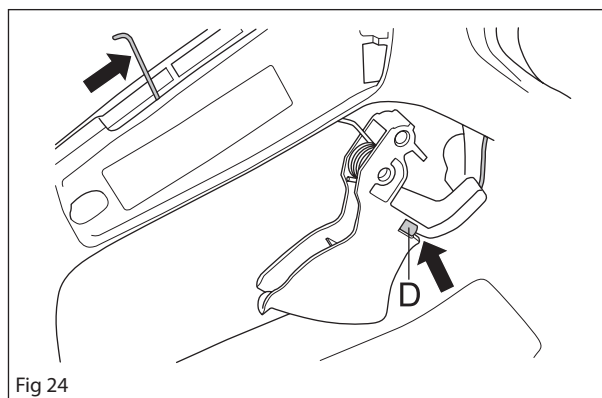


Fig 24

2

Fit the throttle control's pin (C) using a punch. See figure 25.

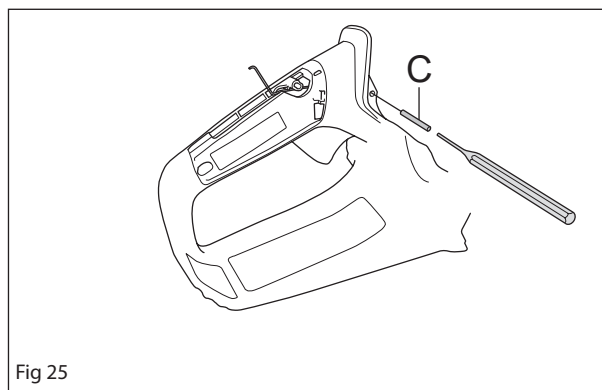


Fig 25

3

Fit the throttle control lock (B) by sliding it on the shaft in the handle. See figure 26. Make sure the spring is positioned inside the throttle control lock when you press it down so that the barbs are hooked in place.

4

Fit the handle insert using a screw, when the throttle control, spring, throttle cable and throttle control lock with pin are fitted correctly.

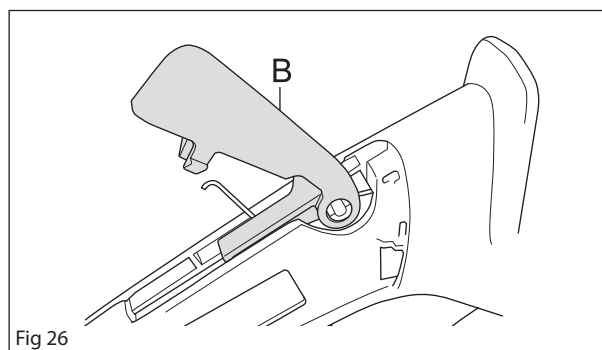


Fig 26

# 7 Repair instructions

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## 7 Repair instructions

### 7.1 Dismantling the starter

1

Loosen the four screws, which hold the starter against the crankcase and remove the starter. See figure 1a

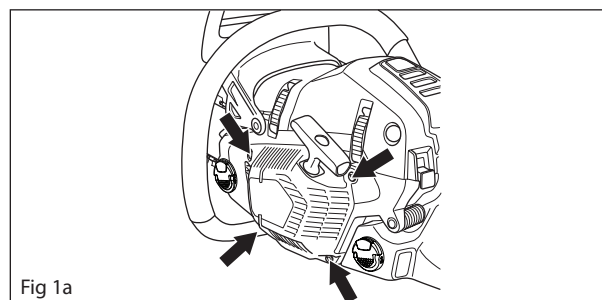


Fig 1a

2

Pull the cord out about 30 cm and lift it into the notch on the outside of the starter pulley. Release the tension in the return spring by letting the starter pulley rotate anti-clockwise. See figures 1b and 2.

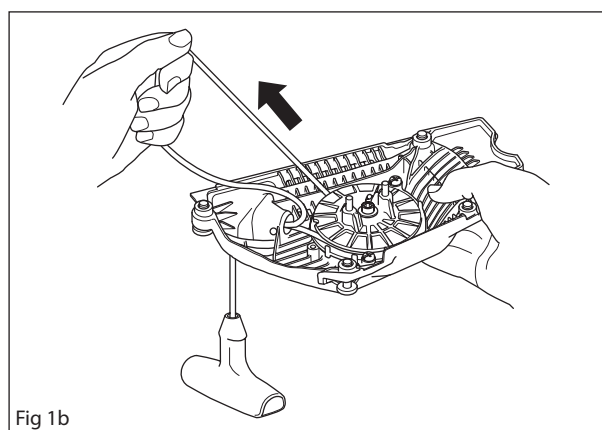


Fig 1b



**WARNING!**

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

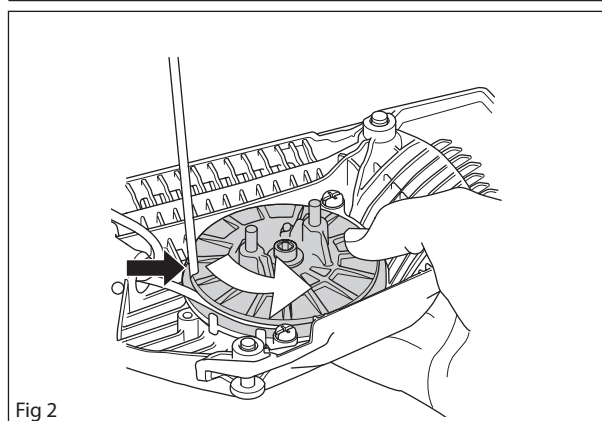


Fig 2

3

Remove the clip in the centre of the pulley. Remove the spacer and the pulley. See figure 3. Loosen the screws on the cassette and remove the cassette and spring.

#### Cleaning and inspection

Clean the parts and check:

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

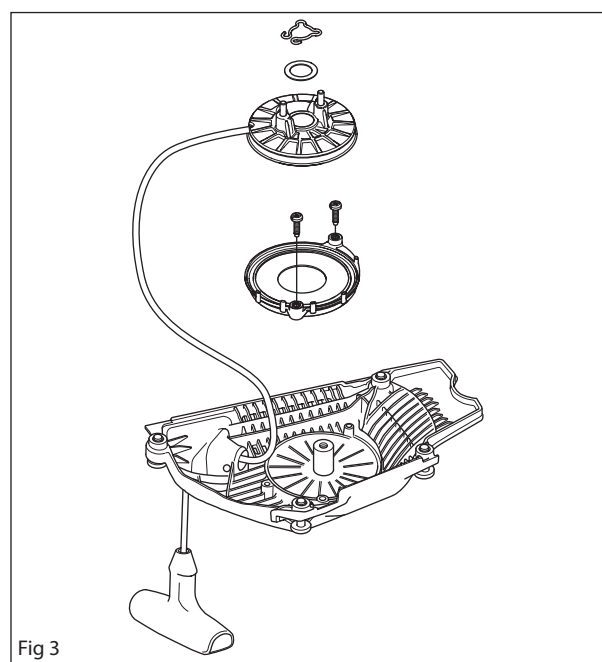


Fig 3

## 7.2 Replacing a broken or worn starter cord

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

1

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



**WARNING!**

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

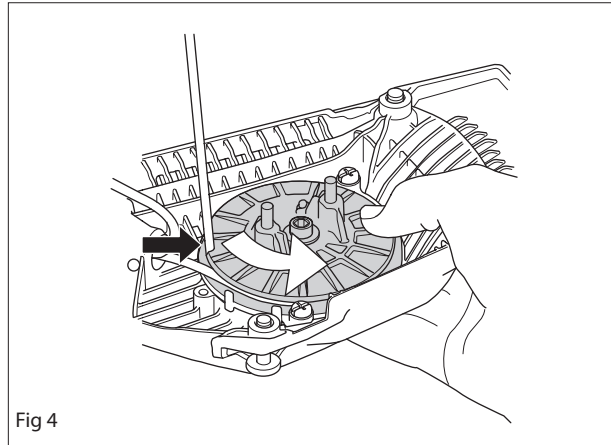


Fig 4

2

Remove the clip and the spacer in the centre of the pulley and remove the pulley. See figure 4.

3

When the starter pulley is removed, insert a new starter cord and attach it to the starter pulley. Thread the other end of the starter cord through the hole in the starter housing and starter handle and tie a double knot on the cord. Wind approx. 3 turns of the starter cord on the starter pulley. Turn the starter pulley until it latches into the correct position. Tighten the screw at the centre of the starter pulley, at a tightening torque of 2-3 Nm.

Cleaning and inspection:

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

## 7.3 Tensioning the return spring

1

Pull the starter cord up into the notch in the starter pulley and turn the pulley about 3 turns clockwise. Check that the pulley can be turned at least a further 1/2 turn when the starter cord is pulled all the way out. See figure 5.

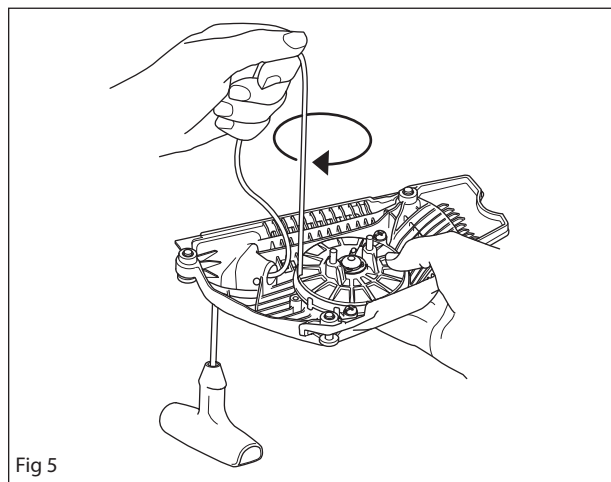


Fig 5

2

Stretch the line with the handle. Remove your thumb and let the cord spin back. See figure 6.

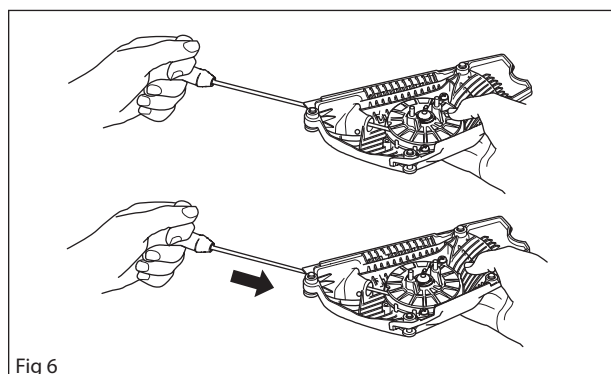


Fig 6

## 7.4 Replacing a broken return spring

**WARNING!**

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



1

Remove the clip in the centre of the pulley. Remove the spacer and the pulley. See figure 3a.

2

Remove the broken cassette and replace it with a new one.

3

Replace the spacer and the clip in the centre of the starter pulley. Load the return spring, see "Tensioning the return spring". See also the "Dismantling the starter" chapter.

## 7.5 Starter assembly

1

Position the starter against the crankcase and tighten the screws at a tightening torque of 3-4 Nm.

## 7.6 Dismantling the ignition module and flywheel

1

Remove the cylinder cover. Remove the starter. Snap off the ignition cable from the guide rail and remove the guide rail. See figure 7.

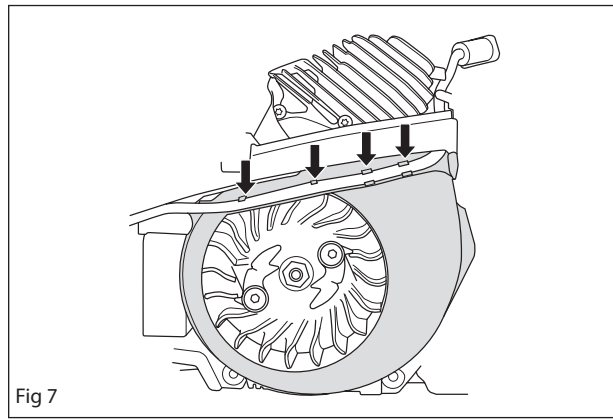


Fig 7

2

Knock out a few of the pins in the tool if it does not match up with the flywheel. Use the tool to hold the flywheel in place while the flywheel nut is loosened using a suitable socket wrench. See figure 8.

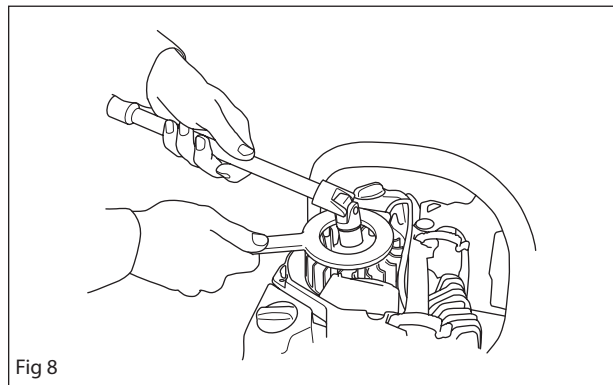


Fig 8

3

Thread the mandrel on the crank pin. Screw in until 1-2 threads are left to the flywheel. Knock on the mandrel with a suitable metal hammer while at the same time pulling the flywheel outward until the flywheel comes off the shaft. Remove mandrel and flywheel. See figure 9.

Unscrew the air nozzle to replace the ignition module. Loosen the screws on the ignition module. See figure 10.

Dismantle the air filter, air filter holder and carburettor. See the "Dismantling the carburettor" chapter.

Dismantle the tank unit as outlined in the "Dismantling the tank unit" chapter.

Dismantle the intake system, see the "Dismantling the intake system" chapter.

Loosen the earth cable. See figure 10. Pull the cables through the openings in the crankcase.

### Cleaning and inspection

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

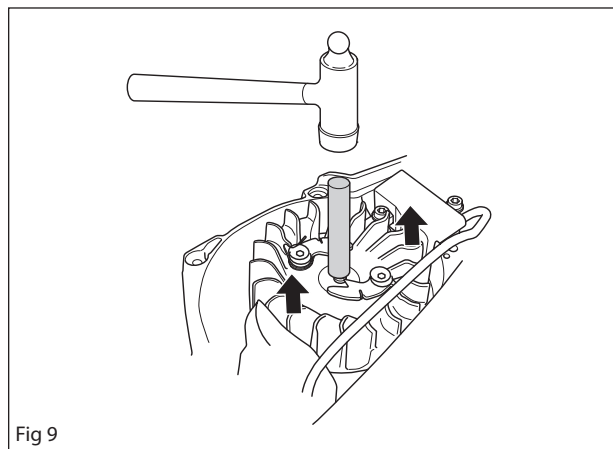


Fig 9

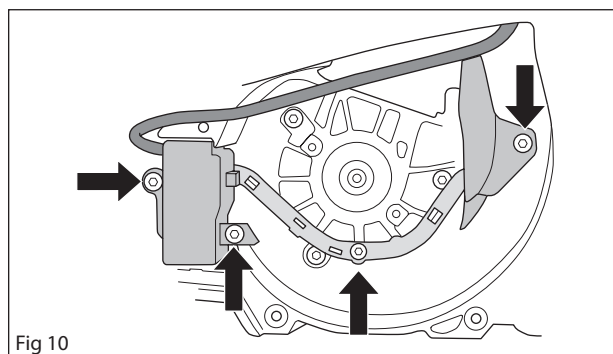


Fig 10



## 7.7 Assembling the ignition module and flywheel

1

Run the cables through the opening in the crankcase. Screw the earth cable in place. See figure 11. Fit the cabling to the stop button.

2

Position the cable channel as outlined in figure 11. **NOTE!** Take care that the cable channel is positioned correctly under the ignition module so that the cables are not crushed.

3

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

4

Fit the flywheel onto the crankshaft pin. Turn the flywheel until the key fits into the key slot on the shaft. See figure 12. Tighten the screw for the flywheel.

5

Insert the plastic air gap tool, at a thickness of  $0.3 \pm 0.1$  mm, between the lugs on the ignition module and flywheel. Turn the flywheel so that the magnets are positioned opposite the ignition module. Tighten the screws, at a tightening torque of 4.5- 6 Nm. Remove the plastic air gap tool. Fit the intake system as outlined in "7.14 Assembling the intake system", the tank unit as outlined in "7.16 tank unit", and the air filter as outlined in "Assembling the carburettor".

6

Press the ignition lead into the holder on the partition wall.

7

Then fit:

- The air nozzle
- The guide rail and press the cable in place
- The spark plug hat by unscrewing the piston stop
- The starter, at a tightening torque of 2.5-3.5 Nm
- The cylinder cover

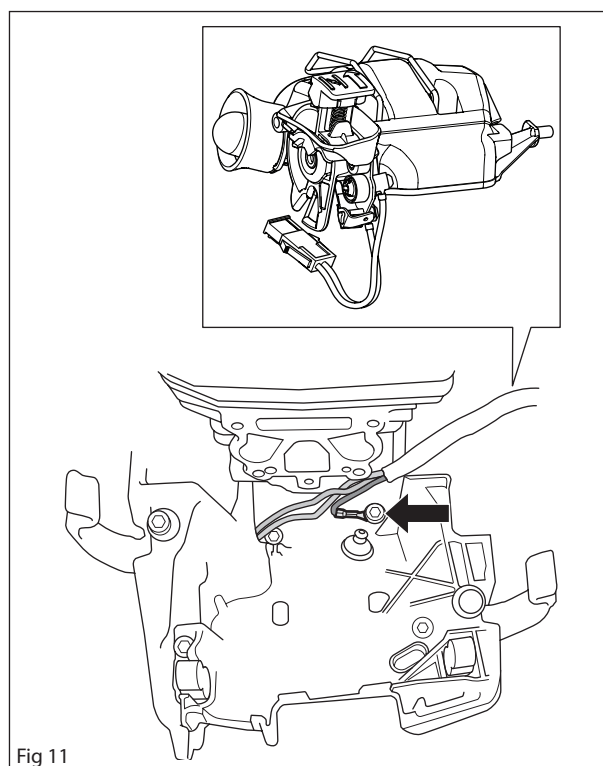


Fig 11

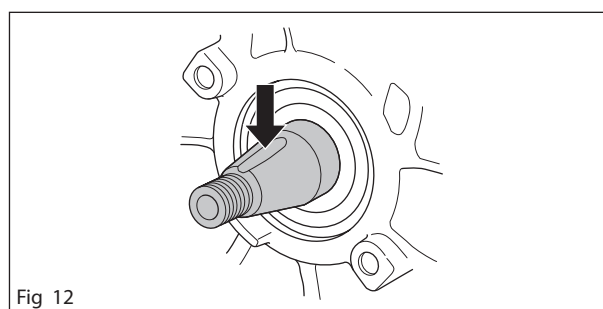


Fig 12

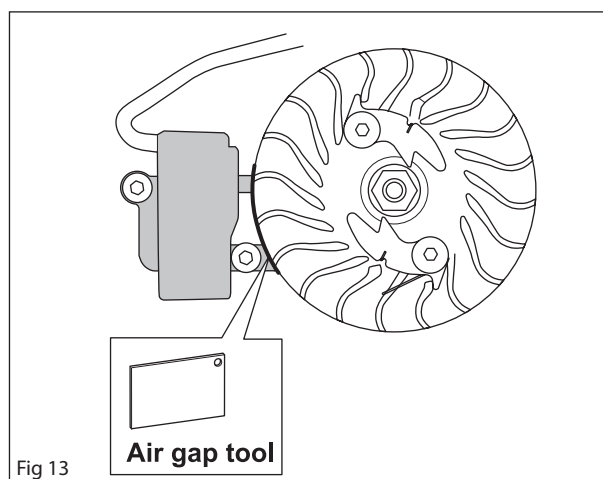


Fig 13

## 7.8 Dismantling the centrifugal clutch

1

Remove the cylinder cover. Release the brake by moving the kickback guard backwards. Loosen the bar nuts and remove the clutch cover, chain and bar. See figure 14.

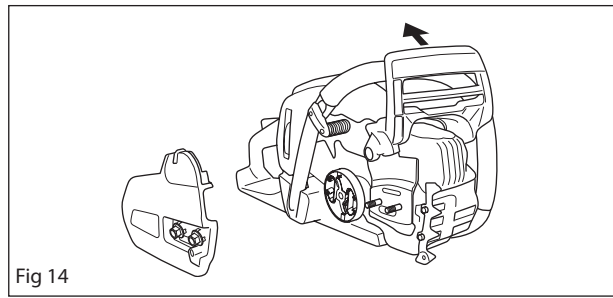


Fig 14

2

Loosen the spark plug hat and remove the spark plug, and insert the plastic piston stop (575 29 36-01). See figure 15.

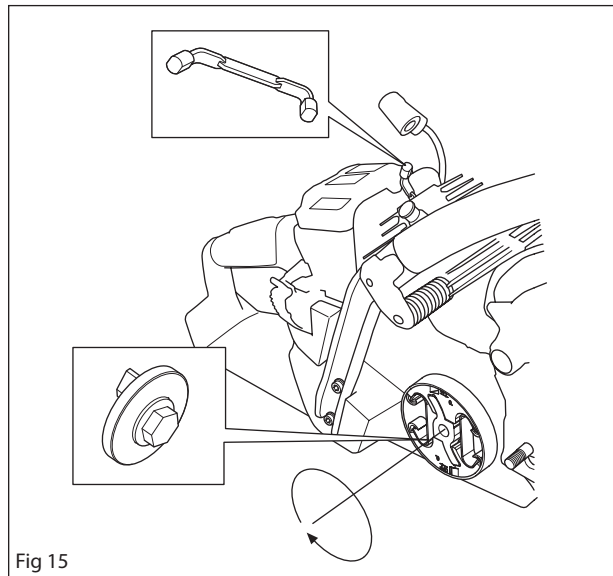


Fig 15

3

Loosen the clutch using tool 502 54 16-02 and a suitable socket wrench or combination spanner. Turn the clutch clockwise to loosen it. See figure 15.

4

Secure the clutch in a vice as shown in figure 16. Carefully remove the clutch springs. Remove the clutch shoe springs from the side that does not have text.

**NOTE!**

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

### Cleaning and inspection

- Clean and check all parts carefully. Parts must be replaced if cracked or showing signs of other defects. Always use original spare parts.
- Check the thickness of the clutch shoes by measuring them with slide callipers across the whole clutch hub. If the thickness is below 65 mm, the clutch must be replaced. See figure 16.

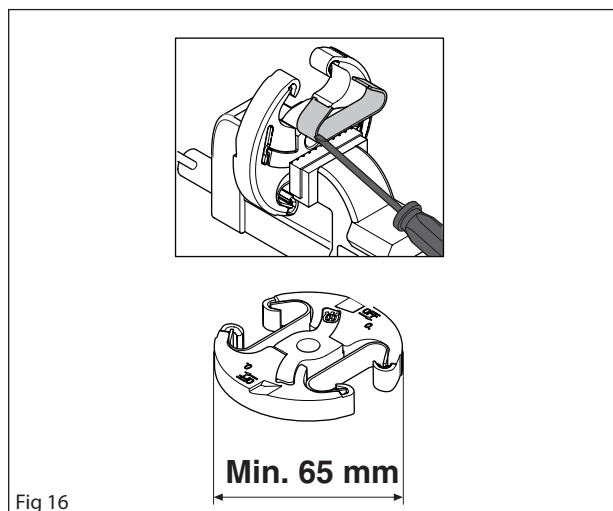


Fig 16

## 7.9 Assembly of centrifugal clutch

1

Insert the clutch springs on the side of the shoes without text. See figure 17.

2

Screw in the clutch (anti-clockwise) until it stops. Then tighten the clutch using tool 502 54 16-02 and a suitable socket wrench or combination spanner. Tightening torque of at least 25 Nm.

3

Remove the piston stop and fit the spark plug using a tightening torque of 20 Nm and the spark plug hat.

Then fit:

- The cylinder cover
- The bar
- The chain
- The clutch cover

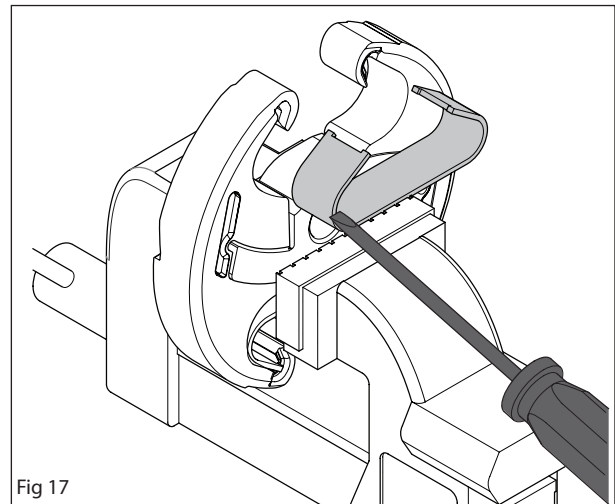


Fig 17

## 7.10 Dismantling the oil pump and screen

1

Empty and clean the oil tank.

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

2

Loosen the clutch drum, the drive sprocket, the needle bearing and the pump drive wheel. See figure 18.

3

Unscrew the chain guide plate. See figure 19.

4

Loosen the screws on the oil pump from the crankcase and remove it together with the oil pressure hose. See figure 20.

Cleaning and inspection

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

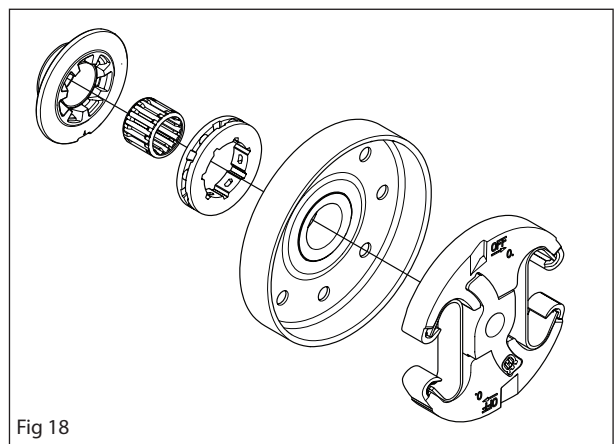


Fig 18

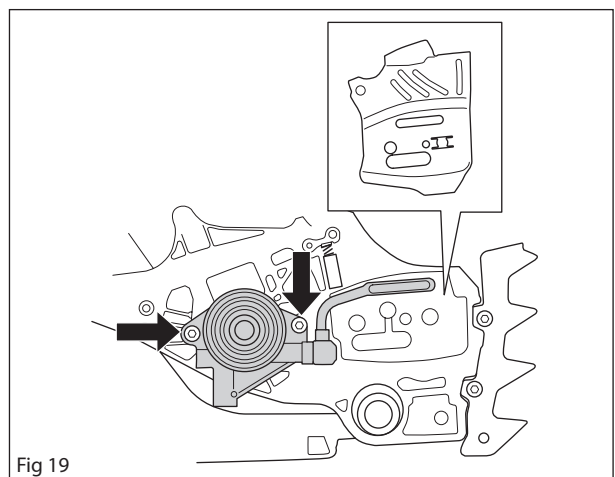


Fig 19

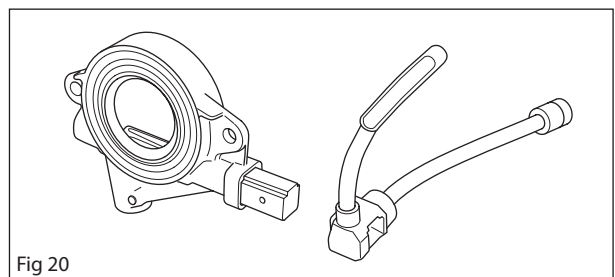


Fig 20

### 7.11 Assembling the oil pump and screen

1

Lower the oil filter in place and replace the oil pump as outlined in figure 19 and tighten the screws.

2

Fit the pump drive wheel, the needle bearing, the drive sprocket, the clutch drum and the clutch, using a tightening torque of 25 Nm.

3

Adjust the oil pump. See Figure 21.

4

Fit the clutch. See the "Assembling the centrifugal clutch" chapter.

5

Fit the chain, bar and clutch cover.

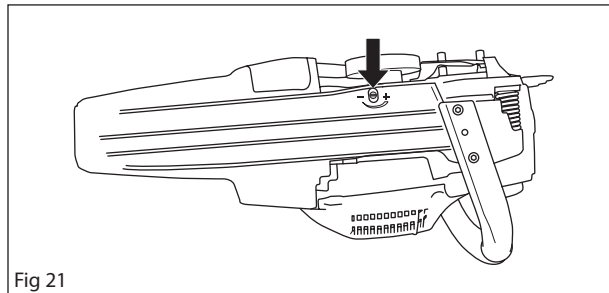
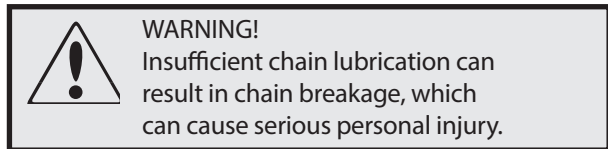


Fig 21



### 7.12 Dismantling the intake system

The intake system consists of:

- The inlet manifold, A
- The partition wall, B
- The intake flange, C

See Figure 22.

1

Dismantle the cylinder cover.

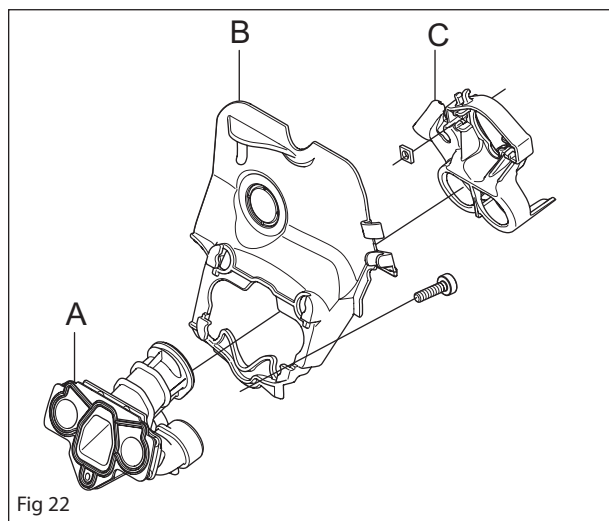


Fig 22

2

Loosen screws D and the movement limiter E as outlined in figure 23. Loosen the ignition cable.

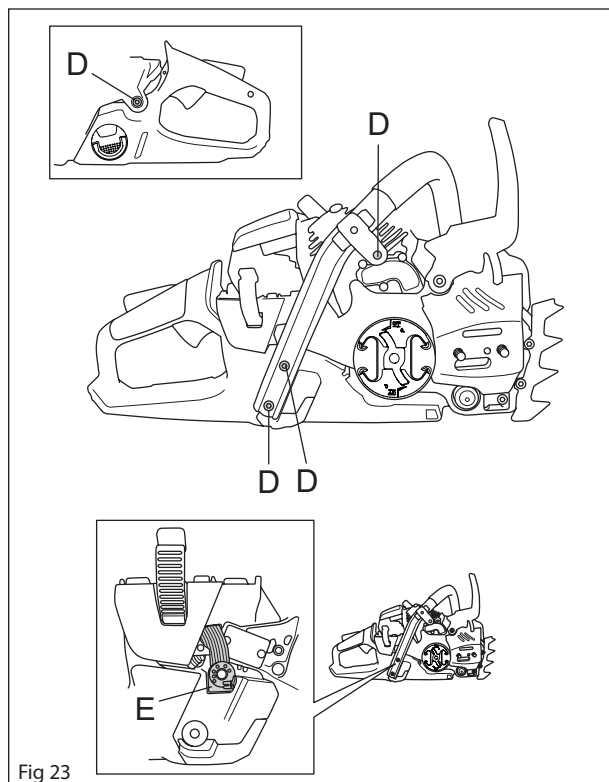


Fig 23

3

Dismantle the air filter, the filter holder, the cable from the intake flange holder and the carburettor and the throttle cable as outlined in "Dismantling the carburettor".

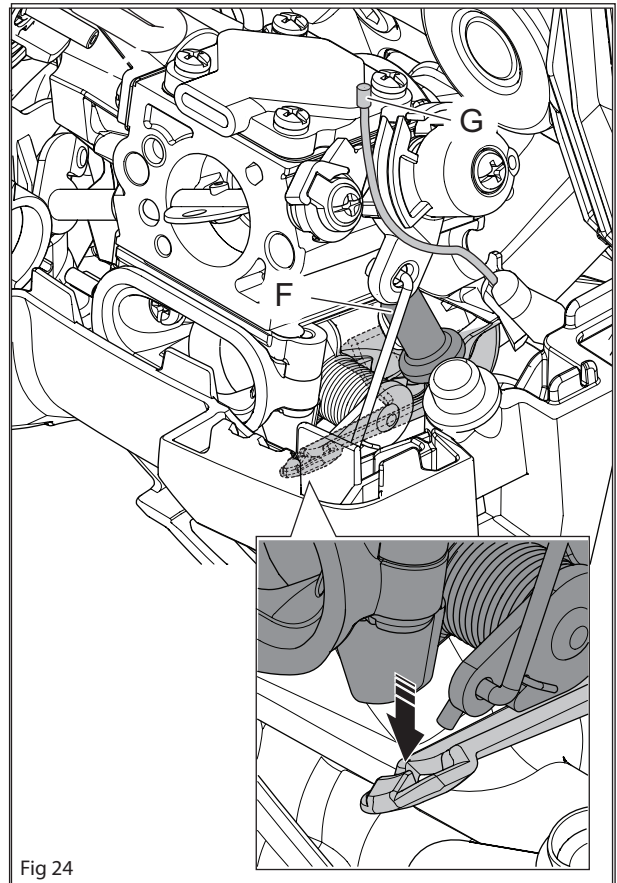


Fig 24

4

Hook off the cabling H from the holder on the intake system. See figure 25a. Knock out the POP-out window using a screwdriver. See figure 25b. Lower the tank slightly and slide the fuel hose down into the hole. Loosen the lower screws of the intake system using the POP-out hole and the fuel hose hole. Loosen the other screws.

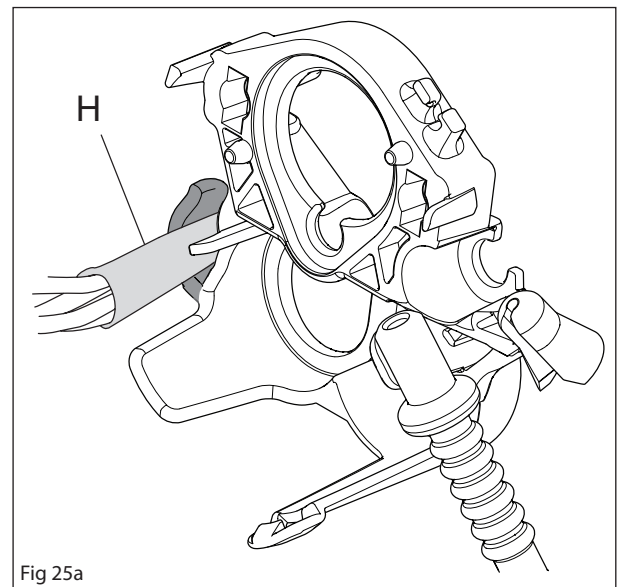


Fig 25a

5

Dismantle the intake system. Pull up and then outward. See figure 26.

#### Cleaning and inspection

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

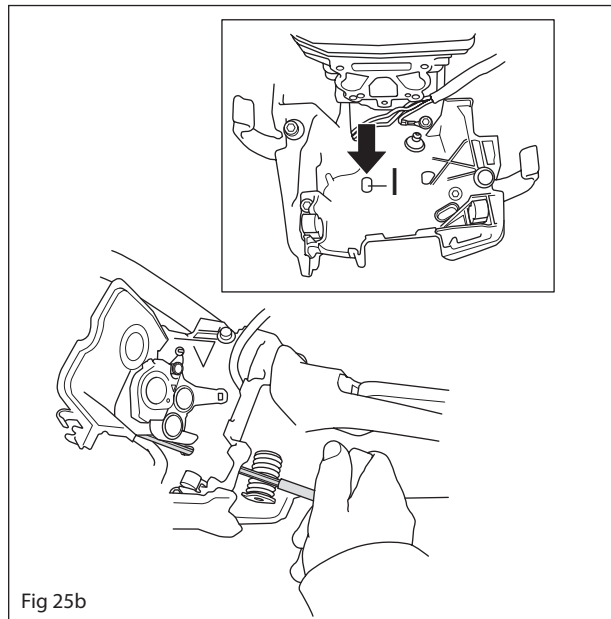


Fig 25b

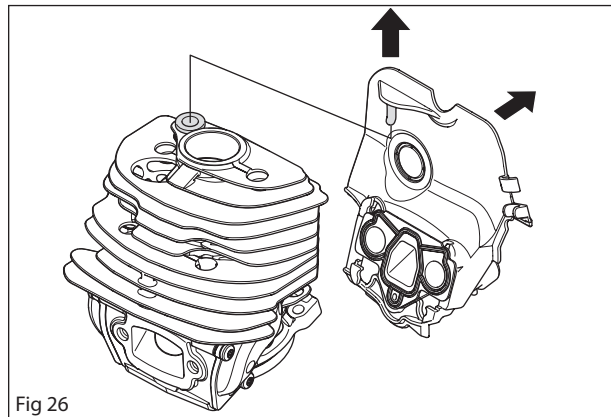


Fig 26

### 7.13 Assembling the intake system

1

Assemble the intake system.

2

Fit the lower screws of the intake system using the POP-out hole and the fuel hose hole. Fit the other screws. Fit the fuel hose and the throttle cable to their attachments. See figure 24.

Fit the rubber grommet to the throttle cable. Push the tank back in position. Hook on the cabling to the holder on the intake system.

3

**NOTE!** Press the lug on the carburettor in place on its bracket on the partition wall. See figure 24.

Fit the carburettor, the filter holder and the air filter as outlined in "Assembling the carburettor".

## 7.14 Carburettor



### WARNING!

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

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

### Description

The figures accompanying this description do not correspond with the carburettor on the chain saw. They show only the principle of design and function.

### Design

The carburettor is based on three sub-systems:

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

In the pump unit A, 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. With the help of inlet and outlet valve in diaphragm, the fuel is transferred through a filter screen to the inlet needle. See figure 27.

The fuel control unit is attached to the metering unit, B. Here the correct quantity of fuel is adjusted for the actual speed and power output. See figure 28.

The mixing unit C houses the choke, the throttle valve and the 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 29.

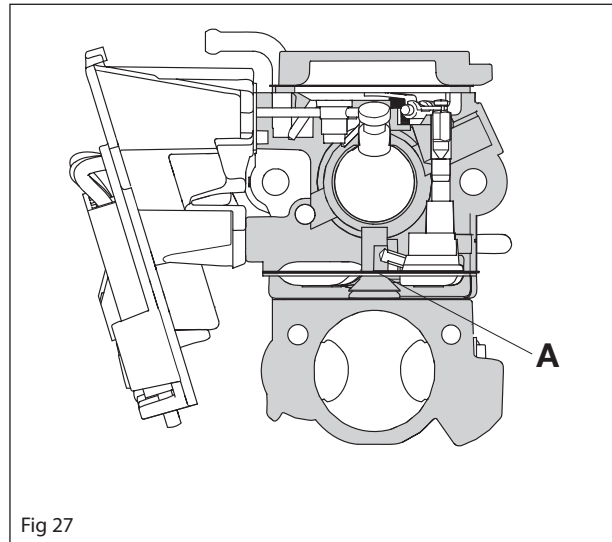


Fig 27

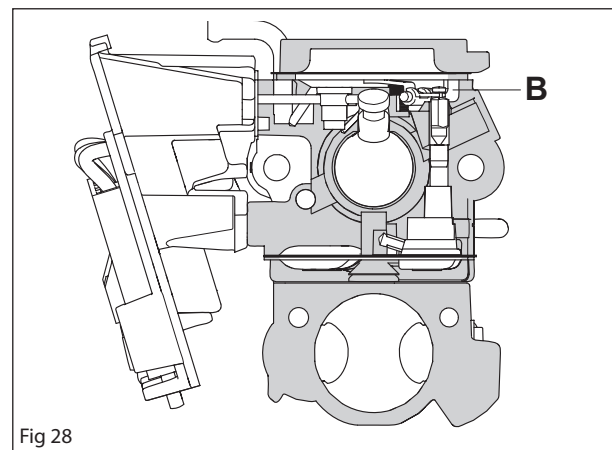


Fig 28

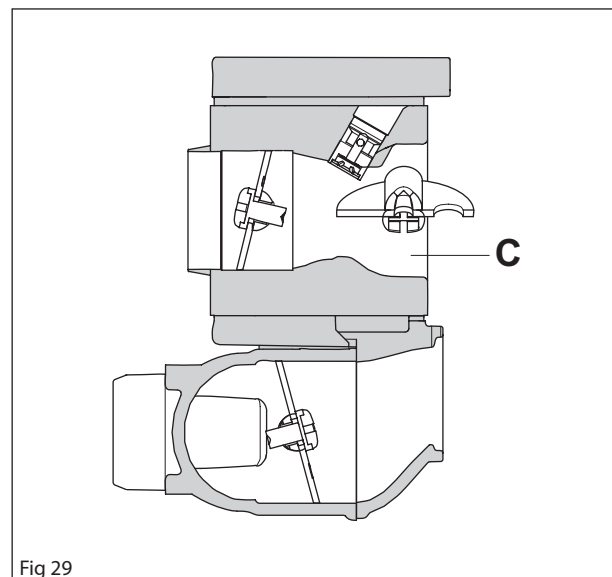


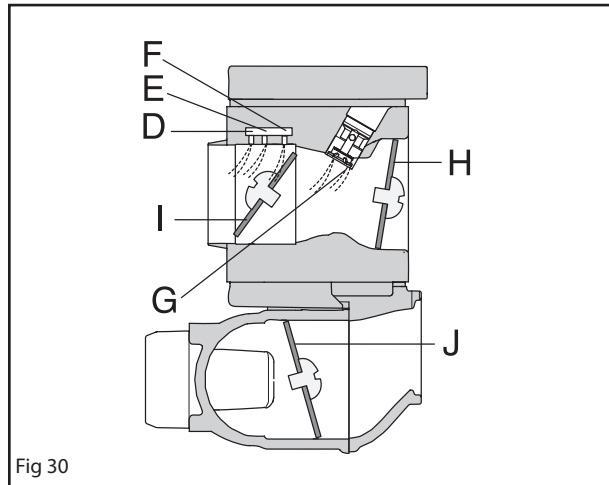
Fig 29

Function

The carburettor operates differently in the following modes:

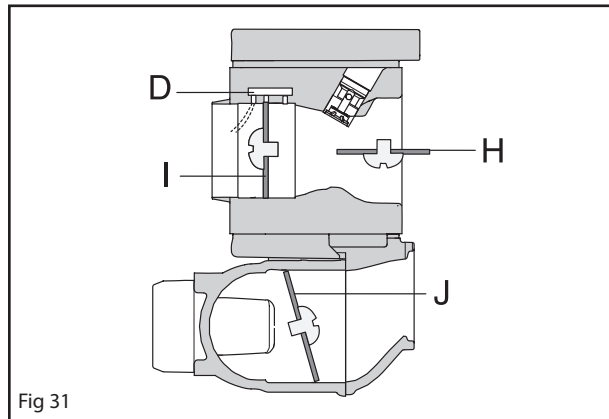
- Cold start mode
- Idling mode
- Part throttle mode
- Full throttle mode

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 air throttle valve, J, is closed. See figure 30.

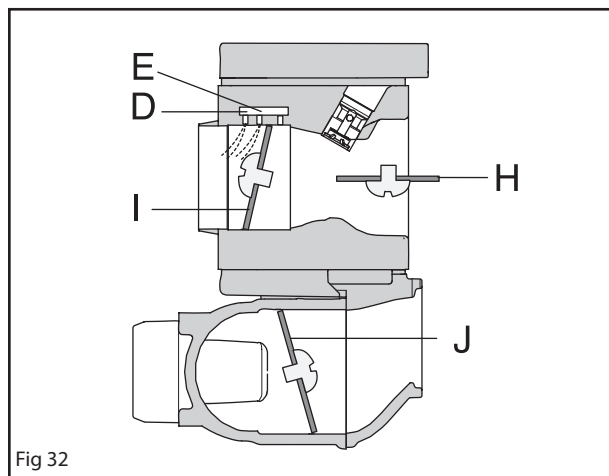


In idling mode, the throttle valves I and J are closed and the choke valve H is open.

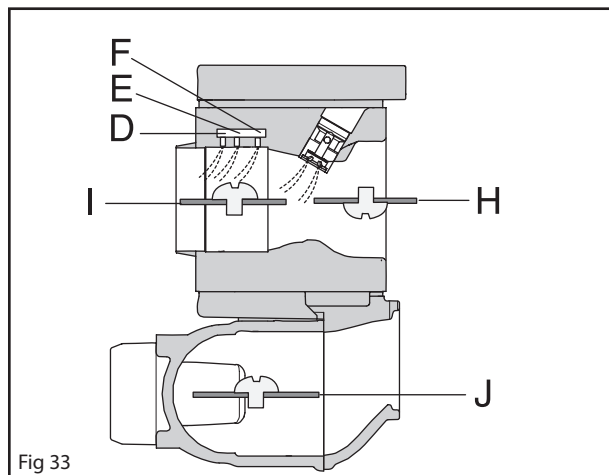
Air is sucked in through an aperture in the throttle valve and a small amount of fuel is supplied through the diffuser jet D. See figure 31.



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 air throttle valve, J, starts to open. See figure 32.



In the full throttle mode both valves are open and fuel is supplied through all four diffuser jets (D, E, F and G). The air throttle valve, J, is fully open. See figure 33.





## Dismantling the carburettor

1

Dismantle the cylinder cover and the air filter.

2

Loosen the screws E. Unhook the rubber attachment F on both sides. See Figure 35.

3

Loosen the suction hose A and the return hose B. See figure 34.

**NOTE!**

Do not use any sharp tools for loosening the hoses.

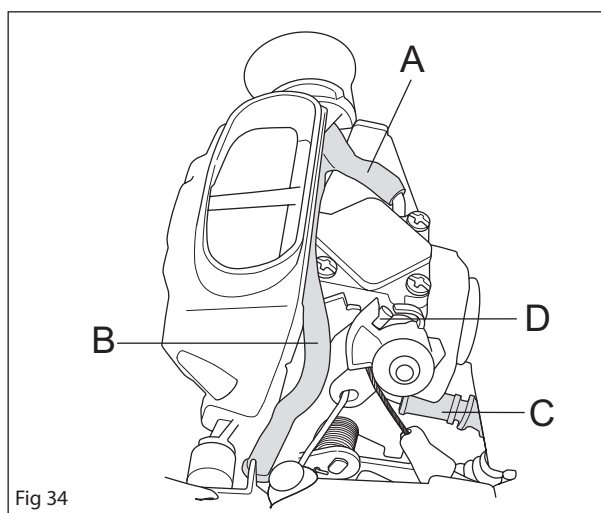


Fig 34

4

Remove the air filter holder. Let the air filter holder remain in place in the cabling for the stop button. Loosen the fuel hose C. Unhook the throttle cable, D. See figure 34.

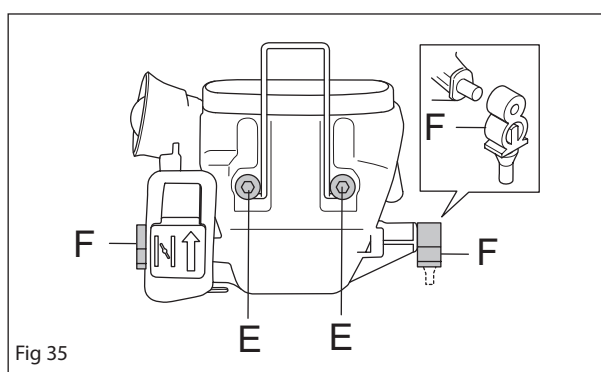


Fig 35

5

Press down the lug to release the carburettor. Lift out the carburettor. See figure 36.

**NOTE!**

The lug on the carburettor is securely attached to the partition wall.

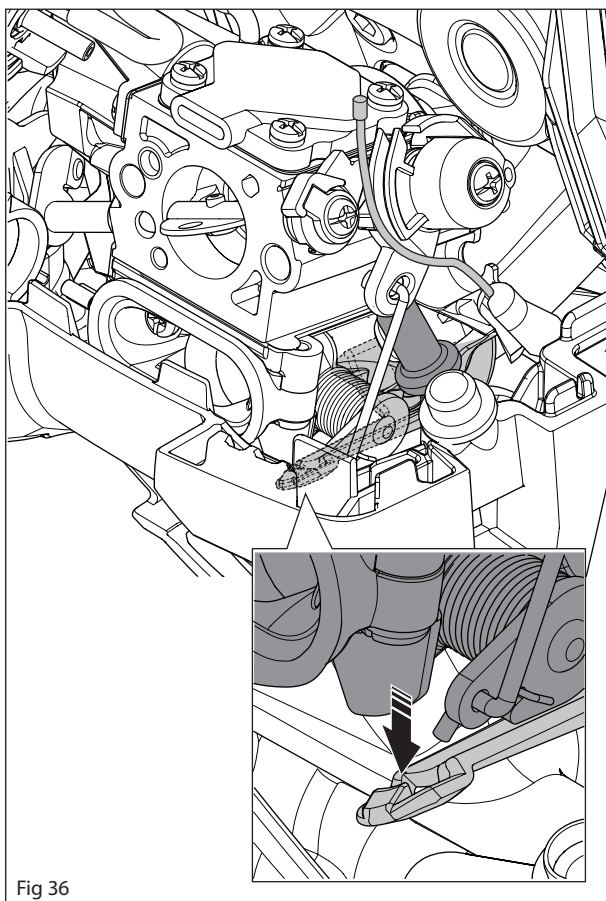


Fig 36

6  
Use a small flat screwdriver to snap open the connector from the black attachment. Separate the connector by pressing down the catch with a flat screwdriver and then pulling the unit apart. See figure 37.

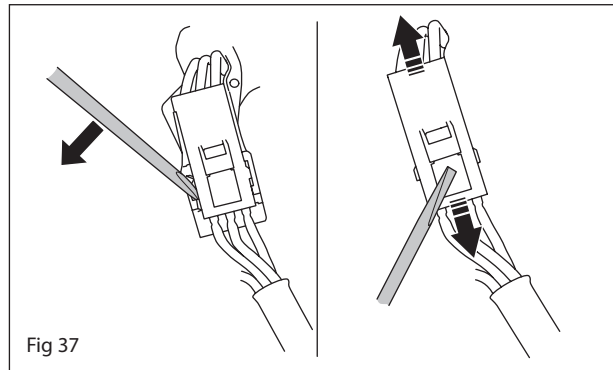


Fig 37

Alternative 1; AT-7 carburettor

7  
Dismantle the metering cover G and carefully remove the control diaphragm H and gasket I. See figure 38.

8  
Unscrew screw N and remove needle valve M with lever arm O, shaft L and spring P. See figure 38.

9  
To access the pump diaphragm and the inlet screen, first remove the air throttle housing from the pump cover by unscrewing the two screws Z. Then remove the pump cover. See figure 40.

10  
Use a needle or similar device and carefully pull up the fuel screen U. See figure 40.

11  
If necessary, dismantle throttle valve R and choke valve S and air valve Q, and remove the shafts with lever arms and springs (see figure 40). Before removing the screws attaching the valves, cut off the ends of each screw.

12  
If necessary, dismantle the AutoTune Y unit. See figure 40.

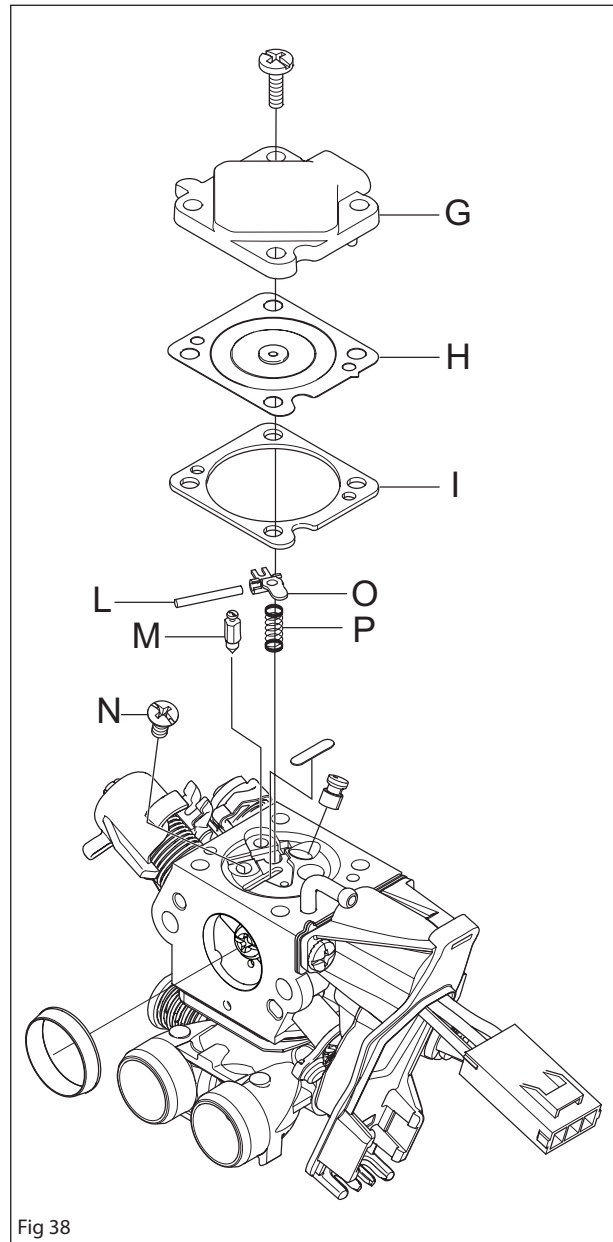


Fig 38

## Alternative 2; AT-12 carburettor

7

Dismantle the metering cover G and carefully remove the gasket H, diaphragm I, spiral J and gasket K. See figure 39.

8

Unscrew screw N and remove needle valve M with lever arm O, shaft L and spring P. See figure 39.

9

To access the pump diaphragm and the inlet screen, first remove the air throttle housing from the pump cover by unscrewing the two screws Z. Then remove the pump cover. See figure 40.

10

Use a needle or similar device and carefully pull up the fuel screen U. See figure 40.

11

If necessary, dismantle throttle valve R and choke valve S and air valve Q, and remove the shafts with lever arms and springs (see figure 40). Before removing the screws attaching the valves, cut off the ends of each screw.

12

If necessary, dismantle the AutoTune Y unit. See figure 40.

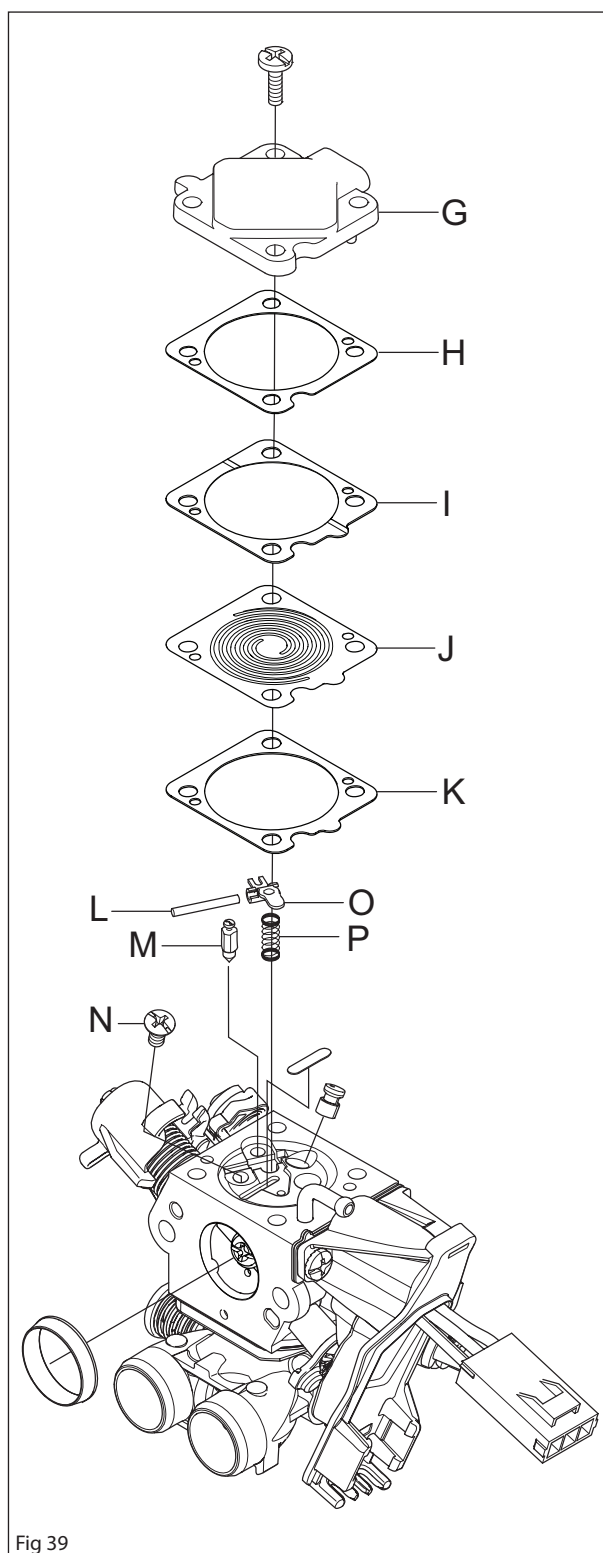


Fig 39

## Cleaning and inspection

Clean all units in clean petrol.

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

1. That the gasket, pump and control diaphragms are undamaged, as well as the gasket between the carburettor body and the autotuner.
2. That there is no play on the throttle and choke valve shafts.
3. That the needle valve M and its lever arm O are not worn. See figure 38.
4. That the fuel screen U is intact and clean. See figure 40.
5. That the inlet manifold T is intact. See figure 40.
6. Use the service tool, Engine Diagnostic Tool 576 69 23-01, to inspect the AutoTune unit Y. See separate instruction.

## Assembly

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

1. If throttle and choke valves with shafts, lever arms and springs are removed, these must be assembled. The spring is tensioned 1-2 turns. Lubricate the shaft bearings using a light oil.
2. Fit the fuel screen U using the handle of a small screwdriver. See figure 40.
3. Fit the gasket V in the carburettor as well as the holder W. Screw in place screw X as outlined in figure 40.
4. See figure 40 on how to assemble the AutoTune unit Y 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 for more information.

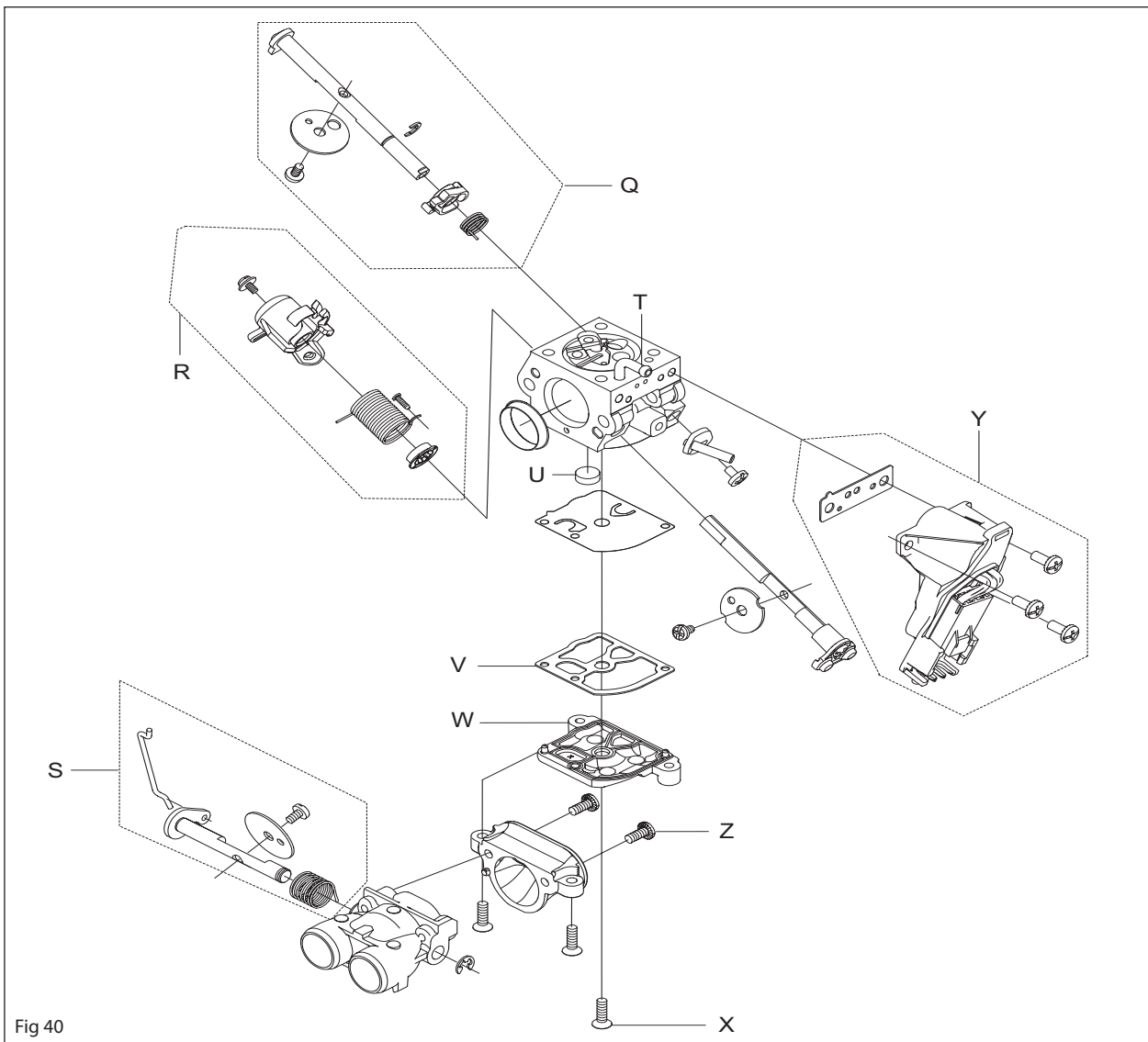


Fig 40

5. Assemble needle valve M with lever arm O, shaft L and spring P, and tighten screw N. (Fit the expansion washer). See figure 41.

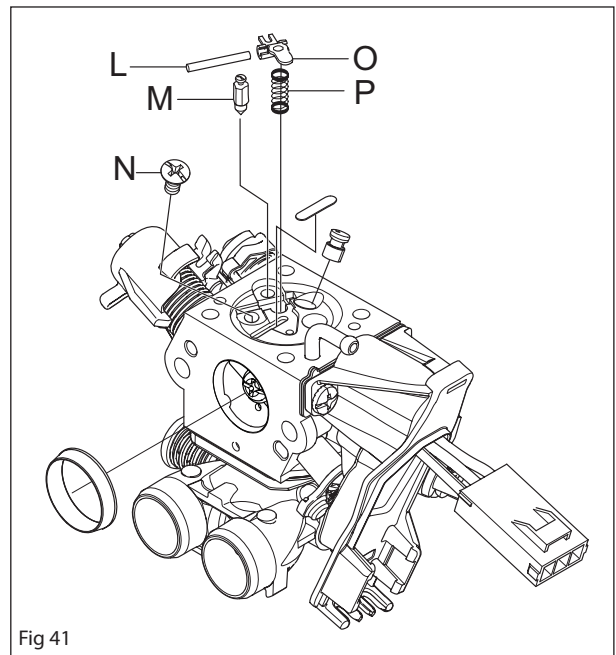


Fig 41

6. Check, using a ruler or the like, that the lever O is 0.66 mm under the plane of the gasket surface for AT-7 carburetors, or 0.55 mm over the plane of the gasket surface for AT-12 carburetors. If necessary, the lever arm can be bent. See figure 42.

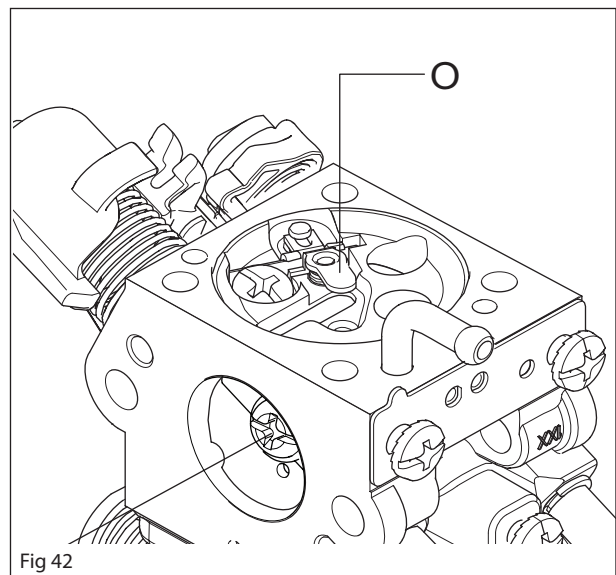
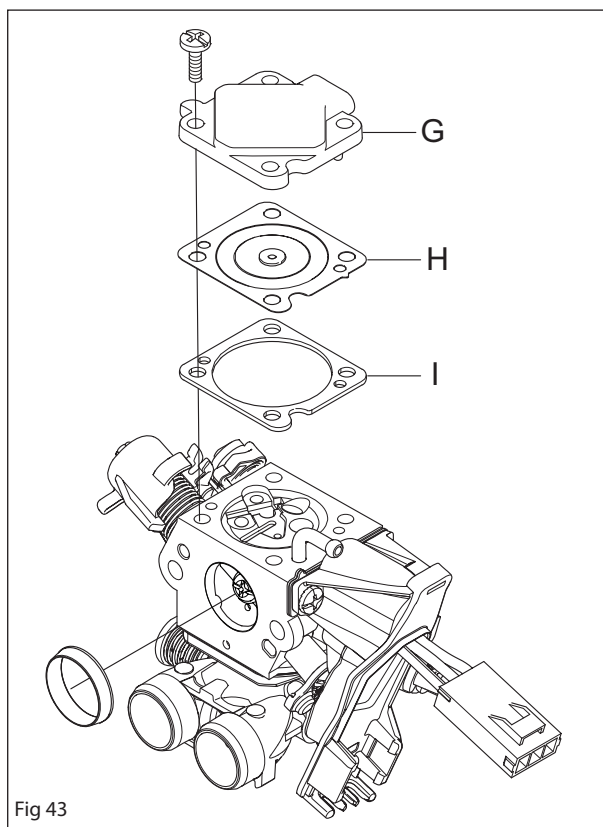


Fig 42

Alternativ 1, AT-7 carburettor

7. Fit gasket I, the control membrane H and the metering cover G. See figure 43.

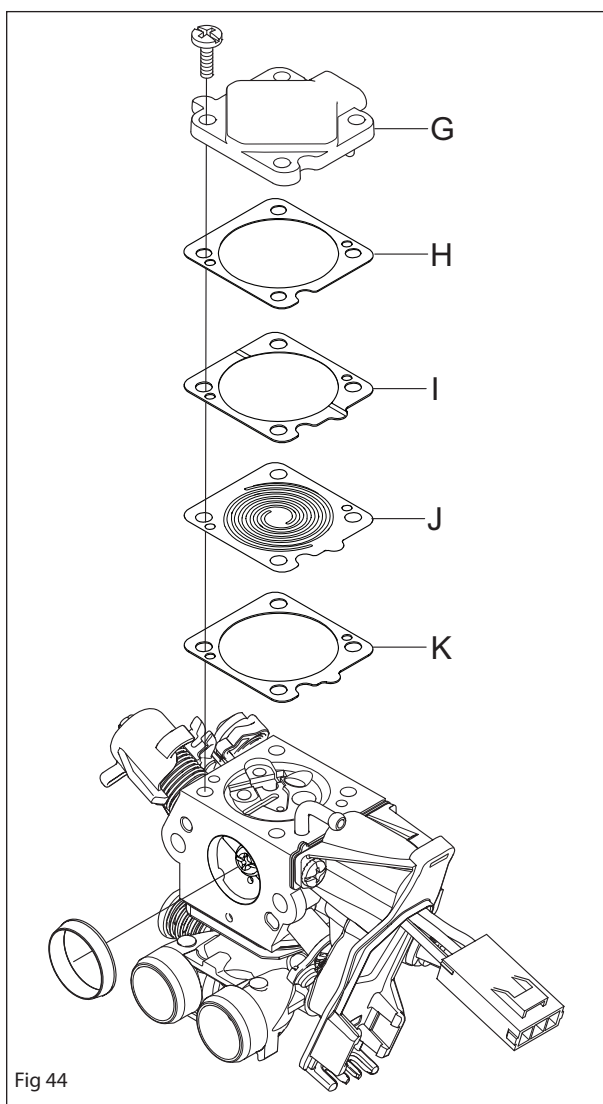
8. Carry out a pressure test.



Alternativ 2, AT-12 carburettor

7. Fit the gasket K, spiral J, diaphragm I, gasket H. and the metering cover G . See figure 44.

8. Carry out a pressure test.



Pressure testing the carburettor

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

Option 1

See the figure and carry out the check as follows:

1  
Connect pressure tester to the carburettor fuel inlet.

2  
Submerge the carburettor into a container with water. See figure 45.

3  
Pump up the pressure to 20 kPa.

4  
No leakage is permitted. If a leakage occurs refer to the table below.

Option 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 absorbed. It can be used to show leakages in main jets, idling needles, measuring cover gaskets and measuring diaphragms, and autotune gaskets.

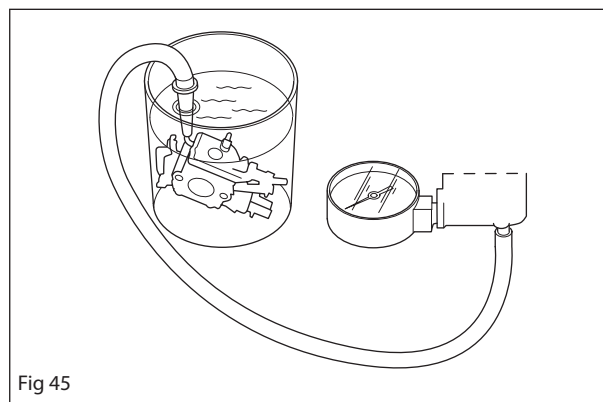


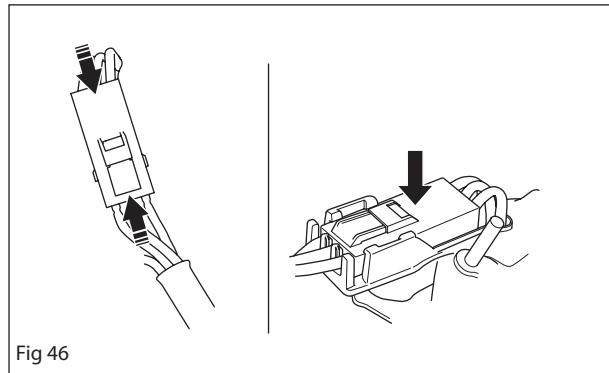
Fig 45

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

Fitting on the saw

1

Press the connector together as outlined in figure 46 and push it into place in the holder.



2

Make sure the cabling is fitted to its mounting on the intake flange.

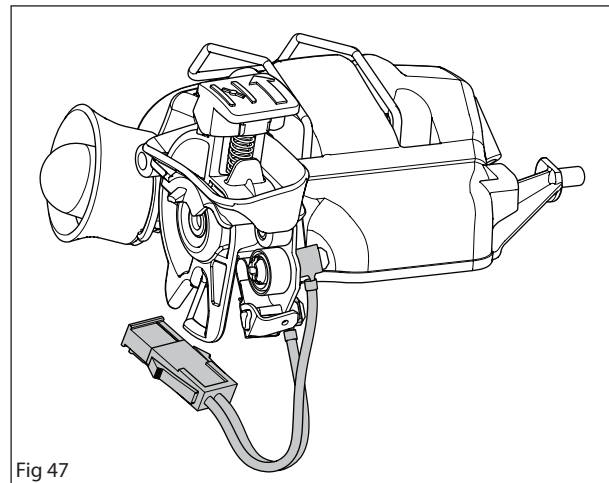
Press the fuel hose in place in the collar on the intake bellows.

Hook on the throttle cable E in its mounting on the intake bellows. See figure 48.

Make sure the lug on the carburettor hooks in place on its mounting on the intake system.

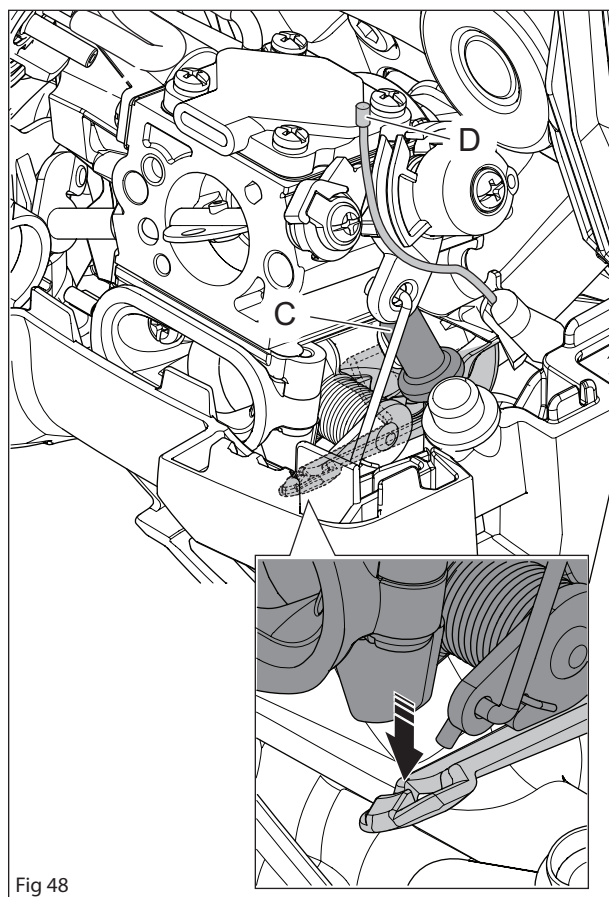
Make sure that the following components are correctly fitted:

- Position the air filter holder against the carburettor.
- Make sure the carburettor cover's intake channel is aligned correctly with the slot for the air filter holder.
- The spring must be fitted under the choke pin on the carburettor. See figure 49.
- The rubber collar on the stop button must be on the inside of the bottom of the carburettor compartment. See figure 49.



**NOTE!**

Make sure that the fuel and return hoses are not crushed.





3  
Position the guide taps on the air filter holder in the rubber grommets, F. See figure 50.

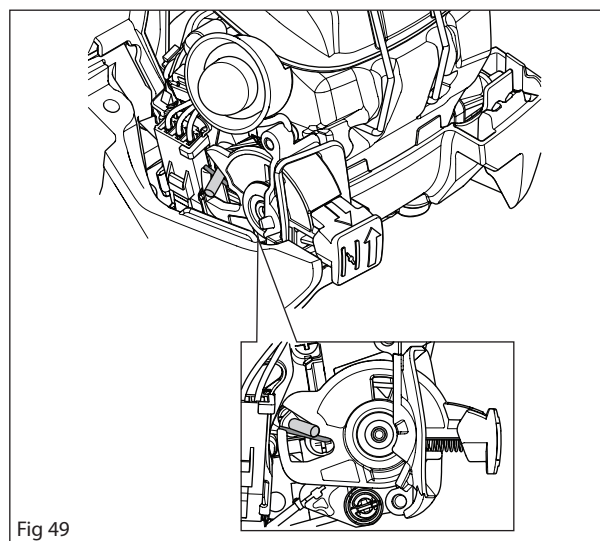


Fig 49

4  
Hook on the throttle cable E. See figure 48.  
Fasten the return hose B and secure it in its mountings on the air filter holder.  
Attach the pressure hose A, with the short hose on the short plastic plug on the fuel pump. See figure 51.

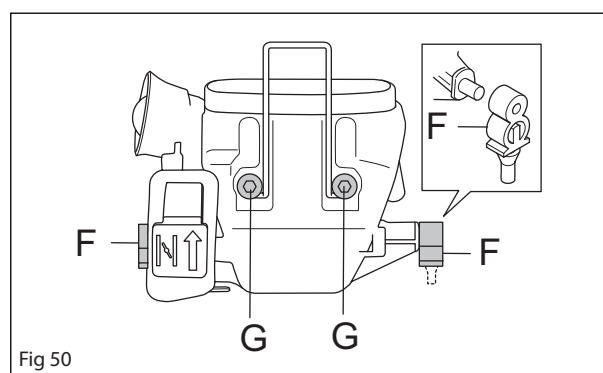


Fig 50

5  
Hook it on the left side and then the right side of the carburettor in the rubber mounting. Then screw the carburettor in place. See figure 50.

6  
Fit the air filter.

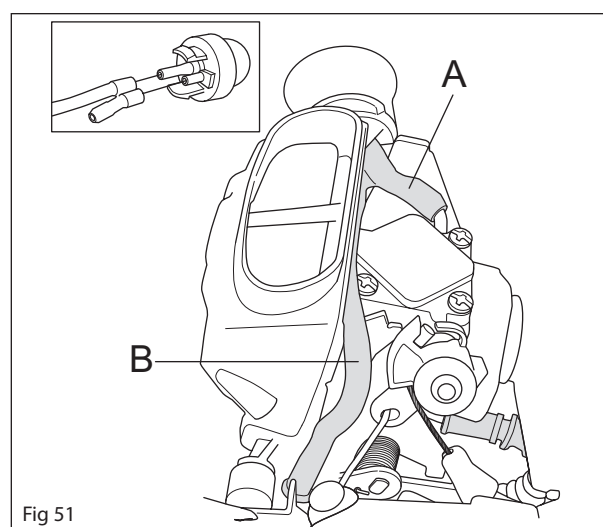


Fig 51

## 7.15 Tank unit



### WARNING!

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

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

### Dismantling

1. Drain the fuel from the tank.
2. Remove the cylinder cover, the clutch cover, the chain and the bar. See the Operator's Manual. Dismantle the carburettor as outlined in "Dismantling the carburettor".
3. Loosen the hoses A to C. See figure 52.
4. Loosen the screws E. See figure 53.
5. Loosen the movement limiter G. See figure 55.
6. Pull out the hoses A to C in the bottom of the carburettor compartment. Unhook the throttle cable, D, from the intake bellows before pulling out from the bottom of the carburettor compartment.

### NOTE!

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

## 7.16 Venting the fuel tank

The two-way valve has the following properties:

- Controlled 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 outward 100-450 mbar.
- Opening pressure inward (vacuum) max. 70 mbar. (2 locations)

### Test

Opening pressure outwards:

1. Open the tank lock and leave it open during the entire test. Drain the fuel from the tank.
2. Loosen the positive pressure hose as outlined in figure 56. Connect the pump, ref. no. 531 03 06-23, to the tank valve H.
3. Switch the pump to vacuum mode.
4. After pumping the indicator should be between 10-45 kPa.

Opening pressure inwards:

1. Open the tank lock and leave it open during the entire test. Drain the fuel from the tank.
2. Loosen the positive pressure hose as outlined in figure 56. Connect the pump, ref. no. 531 03 06-23, to the tank valve H.
3. Switch the pump to pressure mode.
4. After pumping the indicator should stop at max. 7 kPa.

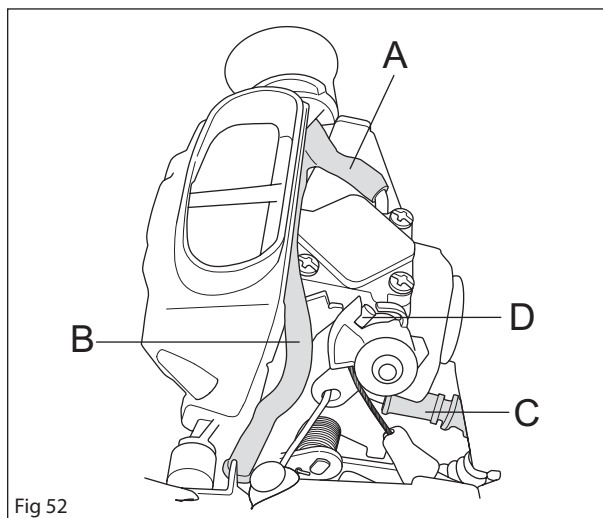


Fig 52

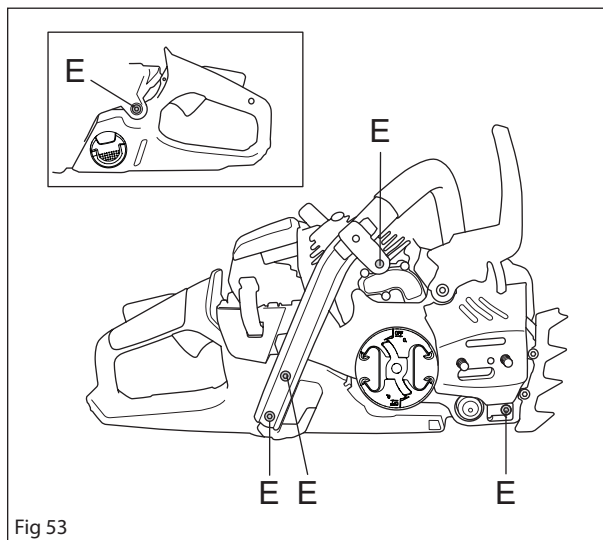


Fig 53

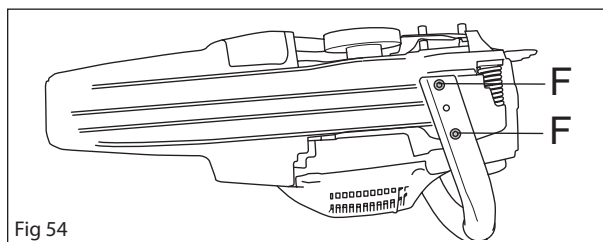


Fig 54

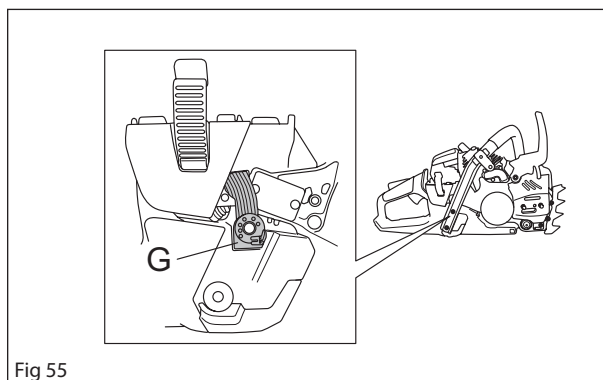


Fig 55

### Assembly

1. Thread the throttle cables in the connection K as outlined in figure 57. NOTE! The figure is shown from underneath.
2. Run the fuel hose C through hole I and hoses B in hole J. See figure 57. Pull the hoses so that the collars are on each side of the bottom on the carburettor compartment.
3. Tighten the chain catcher in place.
4. Press the movement limiter G into position. See figure 55.
5. Tighten the screws E. See figure 53.
6. Hook on the throttle cable D in the intake bellow. See figure 52.
7. Fit the tank unit. The two short screws are fitted to the bottom of the handle bar.
8. Assemble the carburettor as outlined in "Assembling the carburettor". Assemble the air filter and cylinder cover.

### 7.17 Vibration damping system

#### Dismantling

1. Dismantle the following parts:
  - Bar and chain. See the Operator's Manual.
  - Cylinder cover. See the Operator's Manual.
  - Tank unit and handle. See "Dismantling the tank unit".
2. Dismantle the spring on the handle bar using a 4 mm Allen key (see figure 59).
3. Dismantle the springs on the tank unit using a 4 mm Allen key (tool 502 50 18-01). See figure 59.

#### Cleaning and inspection

Clean and inspect all parts.

#### Assembly

1. Fit the springs on the handle bar using a 4 mm Allen key (tool 502 50 18-01).
2. Assemble the following parts:
  - Tank unit and handle. See "Assembling the tank unit".
  - Cylinder cover. See the Operator's Manual.
  - Bar and chain. See the Operator's Manual.

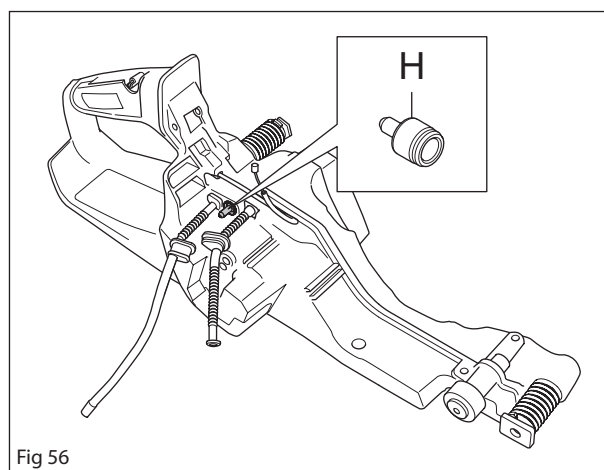


Fig 56

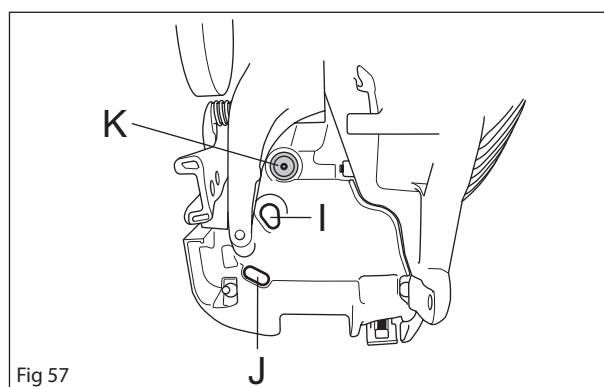


Fig 57

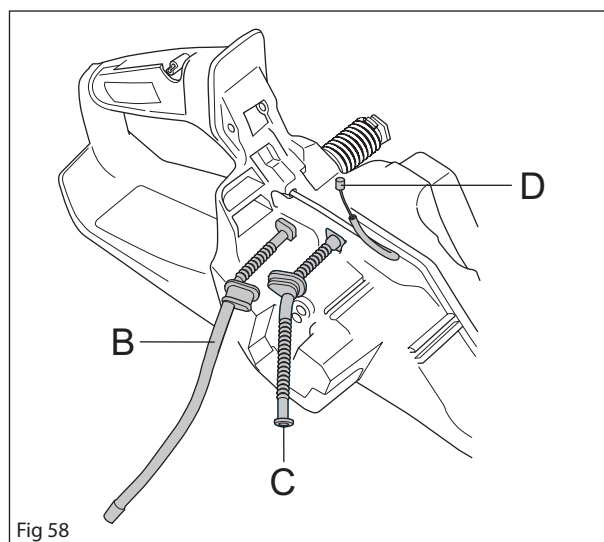


Fig 58

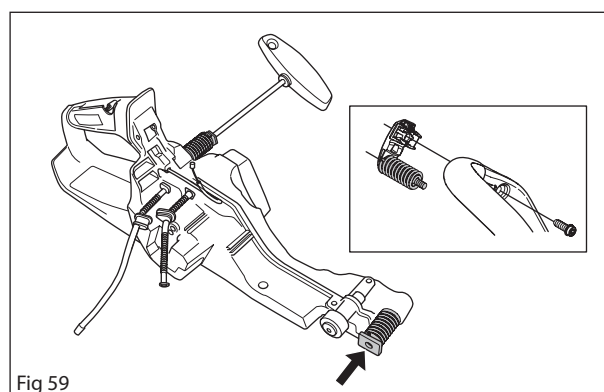


Fig 59

## 7.18 Replacing the fuel filter

**NOTE!**

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

1

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

2

Pull out fuel hose B from the tank unit and pull away the filter A. See figure 60.

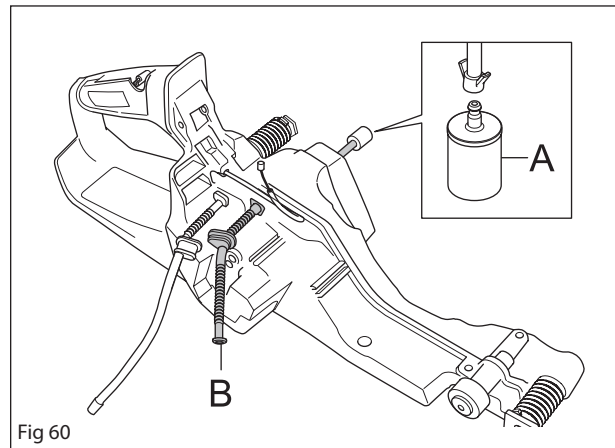
3

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

## 7.19 Replacing the fuel hose/return hose

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

Use suitable pliers with a smooth cutting face and loosen the hose B from the fuel tank. See figure 60. Replace the return hose when required. Tighten the fuel hose on the filter side with your fingers.



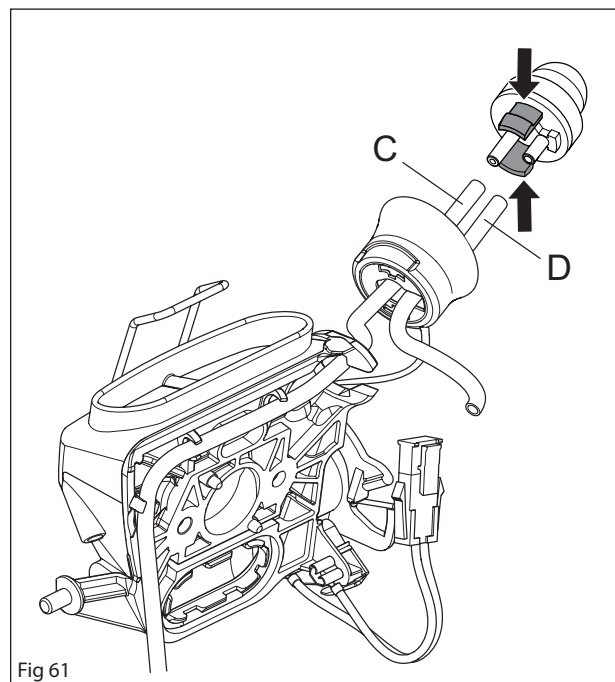
## 7.20 Replacing the fuel pump (Purge)

Dismantle

1. Dismantle the cylinder cover and the air filter.
2. Loosen suction hose C and return hose D from the fuel pump. See figure 61.
3. Snap off the fuel pump from the filter holder.

Assembling

1. Snap the fuel pump in place in the filter holder. See figure 61.
2. Fit the return and suction hose on the fuel pump.
3. Assemble the air filter and cylinder cover.



## 7.21 Handle heater and carburettor heater heater (550XPG, 550XPG TrioBrake)

Certain chain saw models can be fitted with a handle heater and a carburettor heater and comprise the following:

- Generator
- Power switch
- Heating element in the rear handle
- Handle bar with heating element
- Carburettor heating element
- Thermostat

### Troubleshooting

It is possible to troubleshoot with most parts fitted to the chain saw. Troubleshooting requires:

- Ammeter
- Ohmmeter
- Coolant spray

Oxidation of the connectors in the heating elements in the rear handle and the power switch's contact plate is the most common fault.

Troubleshoot as follows:

1

Loosen the screw holding the earth cable. See Figure 1.

2

Measure the resistance in the whole circuit by connecting the multimeter to the earth cable and a properly cleaned cylinder. See Figure 2.

A correct reading with the power switch set to "OFF" =  $\infty$  Ohm

A correct reading with the power switch set to "ON" = 4 to 5 Ohm

3

Unscrew the two screws on the front handle and remove the cover. See Figure 3.

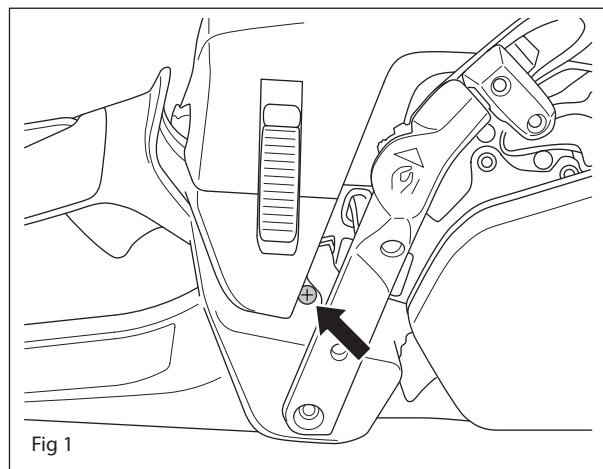


Fig 1

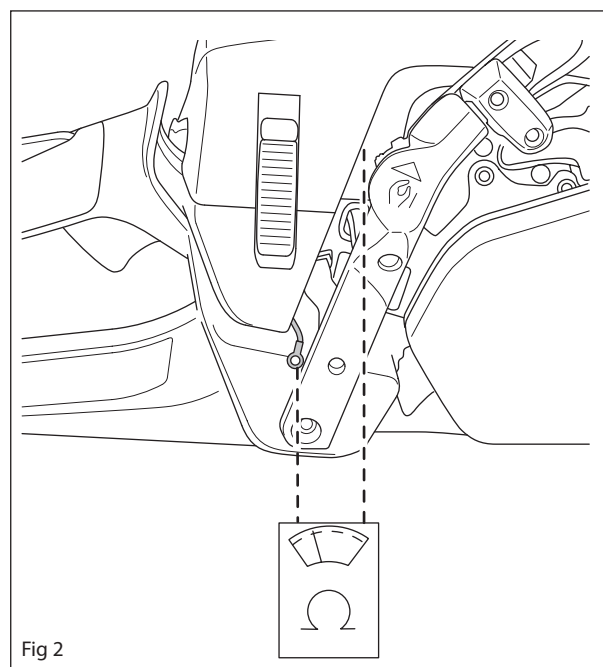


Fig 2

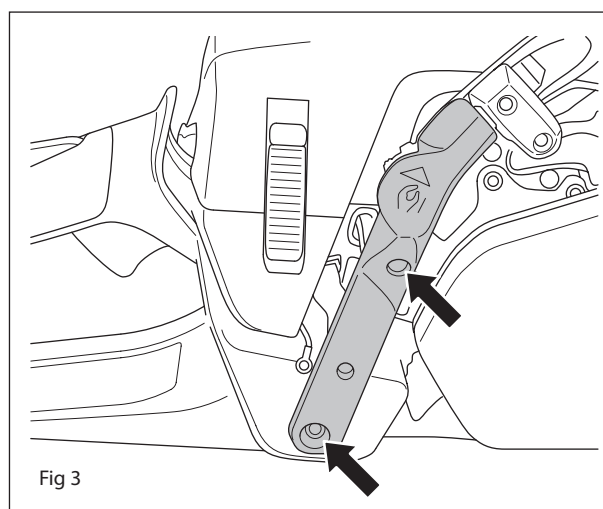
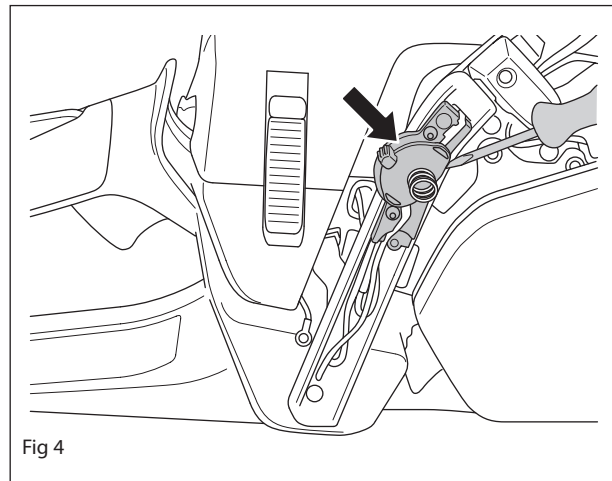


Fig 3

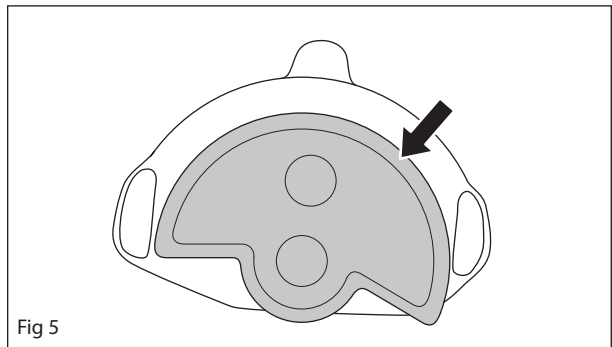
4

Carefully remove the power switch using a flat screwdriver or similar tool. See Figure 4



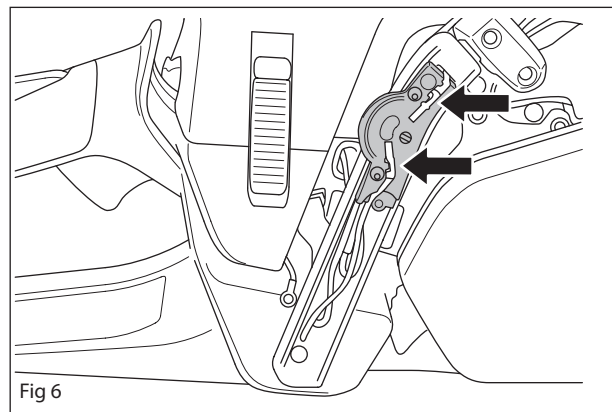
5

Check that the contact plate in the power switch is intact and free of dirt and oxidation. See Figure 5. Clean and assemble the power switch. Carry out a resistance test according to step 2.



6

Loosen the cables and remove the cable bracket. See Figure 6.



### Troubleshooting the heating element, rear handle

7

Connect the multimeter as outlined in Figure 7 and measure the resistance in rear handle's heating element. The multimeter reading should indicate between 0.5 and 1.2 Ohm. Replace the heating element if you get another reading.

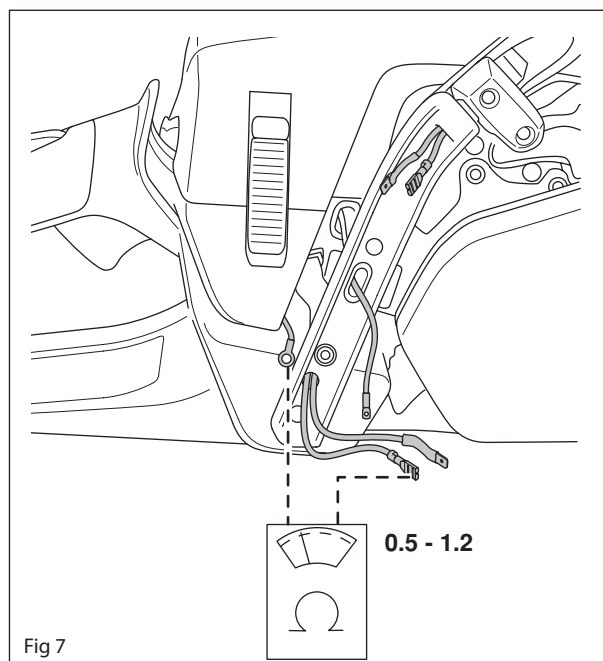


Fig 7

### Troubleshooting the heating element, front handle

8

Connect the multimeter as outlined in Figure 8 and measure the resistance in the front handle's heating element. The multimeter reading should indicate between 3 and 5 Ohm. Replace the front handle if you get another reading.

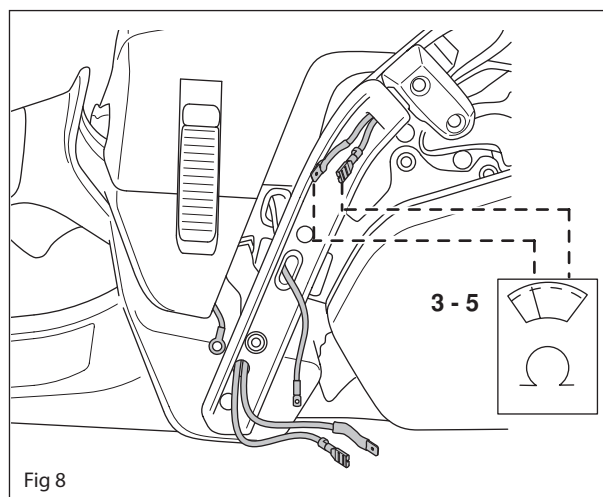


Fig 8

### Troubleshooting the generator

9

Connect the multimeter to the generator cable and a properly cleaned cylinder as outlined in Figure 9. The multimeter reading should indicate between 0.4 and 1.1 Ohm. Replace the generator if you get another reading.

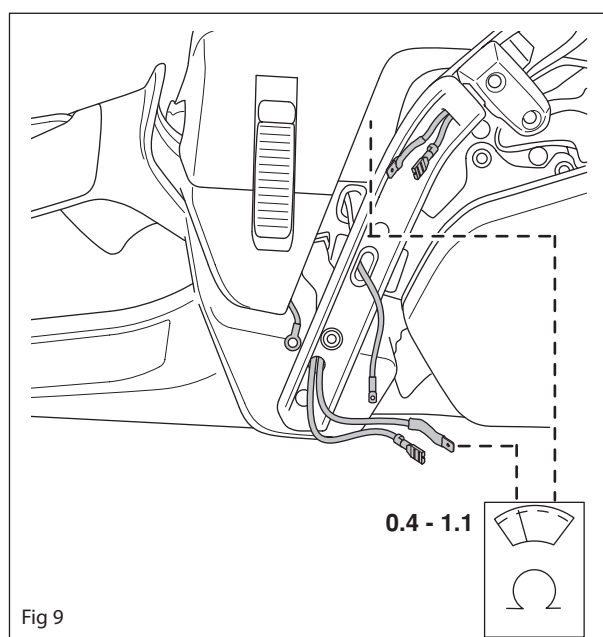


Fig 9

### Troubleshooting the carburettor's heating element and thermostat

10

Connect the multimeter as outlined in Figure 10. The measurement should be carried out at normal room temperature (20°C/68°F) and should indicate in that case 0 A.

Cool the thermostat for instance with a coolant spray or a similar agent. The ammeter should then have a reading of 0.5 A.

Replace the heating element and the thermostat if you get another reading.

### Replacing the heating element in the rear handle

1

Remove the cylinder cover. Loosen the screw on the left hand side of the rear handle and dismantle the handle insert with the attached cables. See Figure 11.

2

Fit the new handle insert with the heating element and run the cabling through the handle out through the openings in the front handle. . Connect the cable and fit the:

- Cable bracket with cabling
- Power switch
- Cover
- Cylinder cover
- Tighten the screw for the earth cable.

### Replacing the front handle

1

Dismantle the following parts:

- Clutch cover
- Bar and chain
- Cylinder cover

2

Loosen the screws F and remove the front handle.

3

Fit the new handle and run the cabling through the openings and tighten the screws F. Tightening torque 3-4 Nm. Connect the cabling and fit the following parts:

- Cable bracket with cabling
- Power switch
- Cover
- Cylinder cover
- Tighten the screw for the earth cable.
- Bar and chain
- Clutch cover

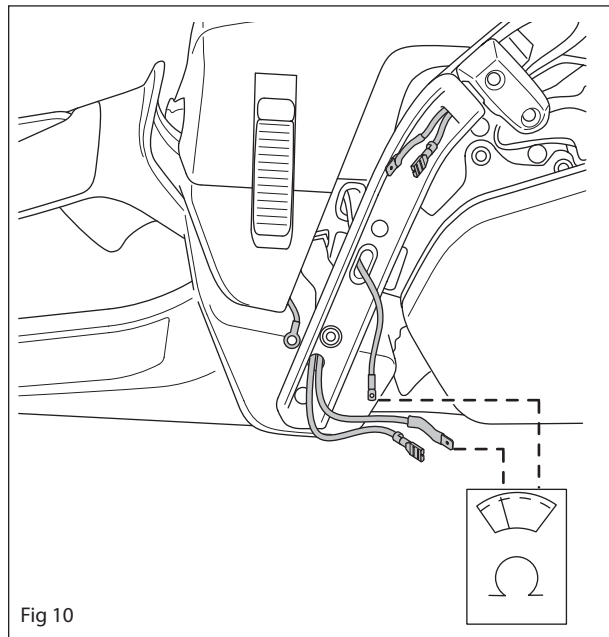


Fig 10

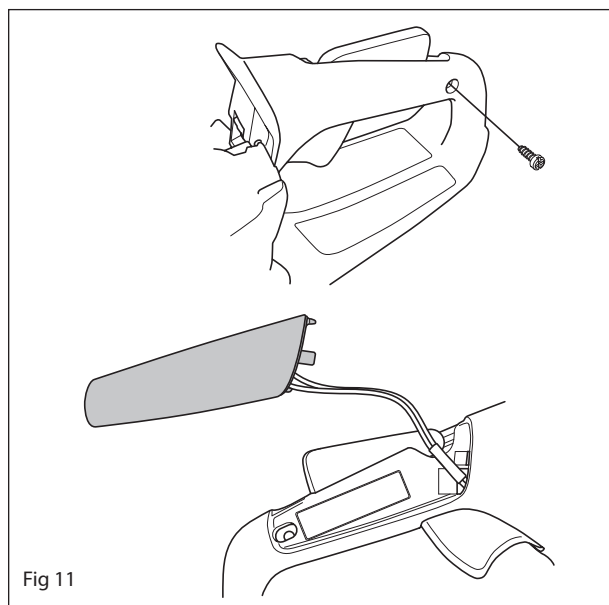


Fig 11

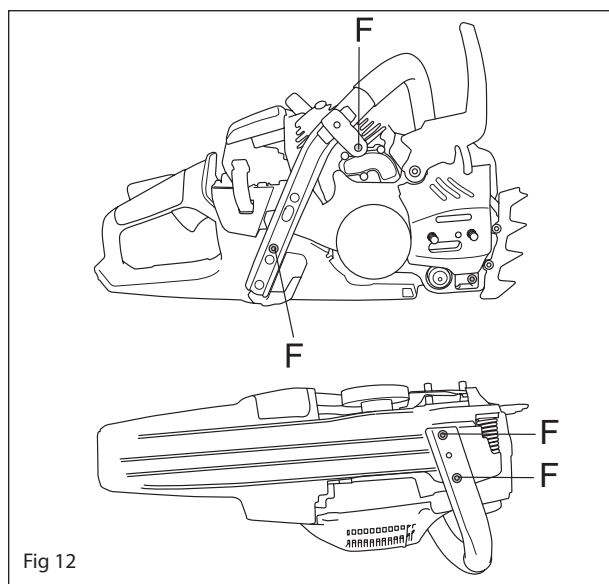


Fig 12



## Replacing the generator

1

Dismantle the following parts:

- Clutch cover
- Bar and chain
- Cylinder cover
- Starter
- Flywheel \*

\* See the chapter "Dismantling the ignition module and flywheel."

2

Loosen the screws to the generator without removing it. See Figure 13.

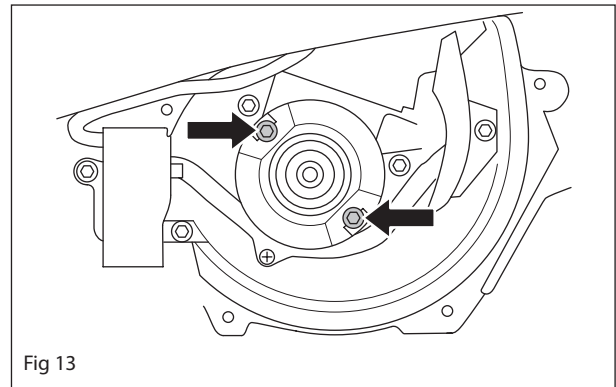


Fig 13

3

Loosen the return hose B and the tank bleeding hose C. See Figure 16. Loosen the fuel tank's rear mounting bracket, i.e. the rear vibration element (D). Loosen the screw F as outlined in Figure 14 a and remove the limiter cap band. Lower the tank as much as possible to access the attachment for the generator cable on the tank. See Figure 14b.

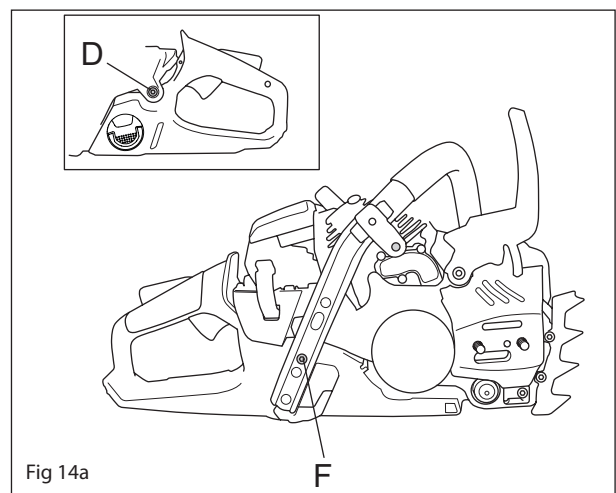


Fig 14a

4

Loosen the generator cable from its cable lug by the handle bar. Remove the generator and cable and replace it with a new one.

5

Run the generator cable through the opening in the crankcase, the attachment in the tank unit and the front handle. Screw the generator in place with a tightening torque of 5 Nm.

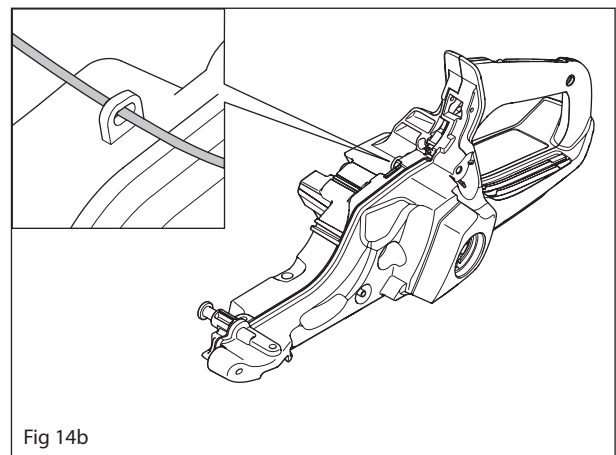


Fig 14b

6

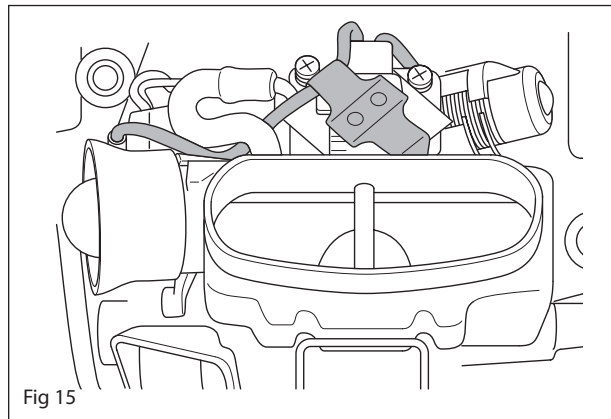
Lift the tank in place and attach it with the screws D and F. Attach the return hose and the tank bleeding hose. Connect the cabling in the front handle and fit the following parts:

- Flywheel
- Cable bracket with cabling
- Power switch
- Cover
- Cylinder cover
- Tighten the screw for the earth cable.
- Bar and chain
- Clutch cover

## Replacing the carburettor's heating element and thermostat

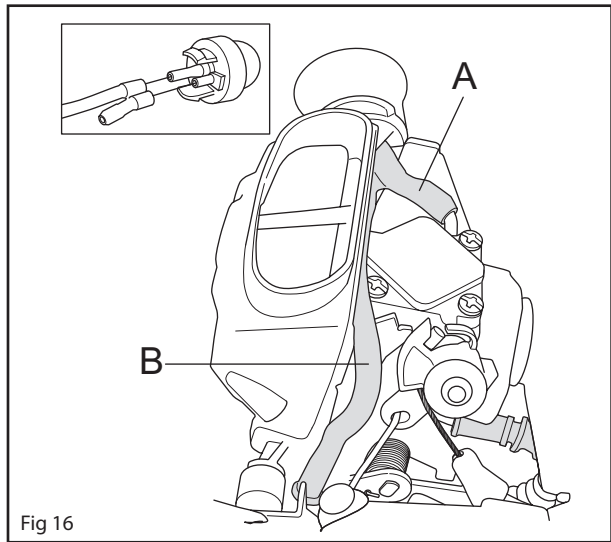
1

Remove the cylinder cover and air filter. Loosen the thermostat cable from the air filter holder as well as from the cabling in the front handle. Loosen the two screws holding the thermostat's attachment bar and remove the thermostat. See Figure 15.



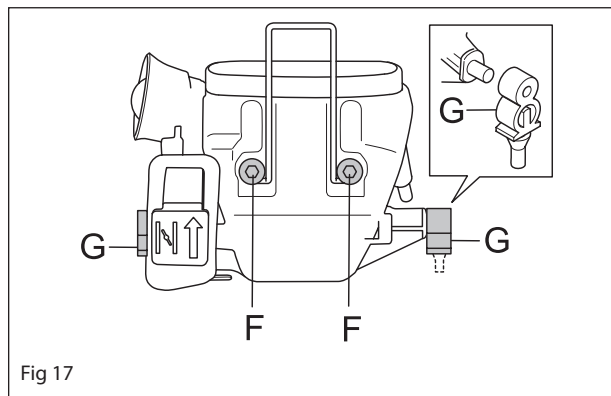
2

Loosen the pressure hose A, the return hose B. See Figure 16.



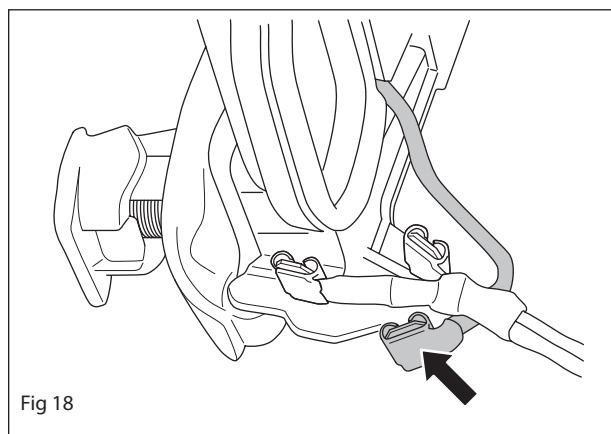
3

Loosen screws F and unhook the rubber mounting G on both sides of the air filter holder. See Figure 17.



4

Loosen the cable to the carburetor's heating element. See Figure 18.



5

Fit the new heating element and make sure that no cables are pinched. See Figure 19.

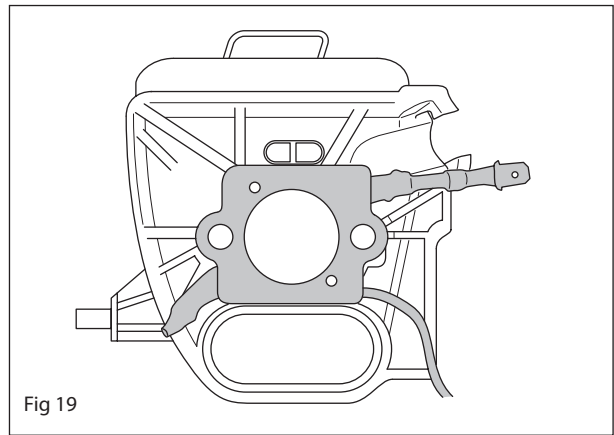
6

Connect the cable to the carburettor's heating element as outlined in Figure 18. Fit the filter holder as outlined in Figure 17 and tighten screws F. Attach the hoses as outlined in Figure 16.

7

Fit the new thermostat to the carburettor as outlined in Figure 15 and connect the cabling. Then fit the:

- Cable bracket with cabling
- Power switch
- Cover
- Air filter
- Cylinder cover
- Tighten the screw for the earth cable.



## 7.22 Dismantling the piston and cylinder

1

Dismantle:

- The cylinder cover
- The carburettor (see "Dismantling the carburettor")
- The muffler
- The vibration element
- The spark plug cap
- The intake system

2

Unscrew the cylinder's four screws and carefully lift away the cylinder and the gasket. See figure 60.

**NOTE!**

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

3

Cover over the crankcase opening.

4

Remove the circlips for the gudgeon pin and press out the gudgeon pin. Then lift off the piston. See figure 61.

5

Remove the gudgeon pin bearing (the needle bearing) using a pliers. See figure 61. Replace with a new bearing.

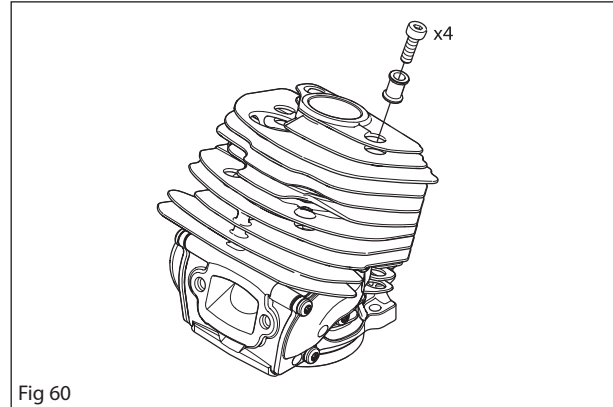


Fig 60

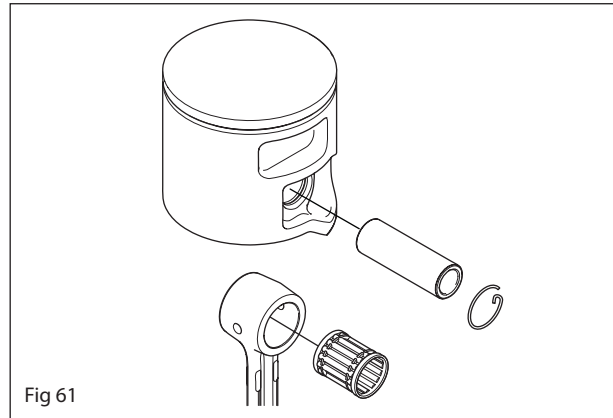


Fig 61

### Cleaning and inspection of the cylinder

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

- The piston crown
- The 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 of score marks. Minor scratches can be polished off using fine emery paper.
- That the piston ring is not burnt into its groove.
- Measure the wear on the piston ring. This must not exceed 1 mm. See figure 62. Use the piston to push the piston ring downward.
- That the gudgeon pin bearing is intact.
- That the intake bellows is intact.
- Pressure test the decompression valve. Carry out pressure testing on the decompression valve as follows. See also figure 68.
  - A. Fit the pressure gauge tool 531 03 06-23 to the decompression valve.
  - B. Pump up the pressure to 80 kPa (0.8 bar).
  - C. Wait 30 seconds.
  - D. The pressure must not fall below 60 kPa (0.6 bar).

Unscrew the cover plates for the carburettor and muffler. Tighten the screws to the stated torque. Remove the pressure test connection 503 84 40-03 and fit the spark plug.

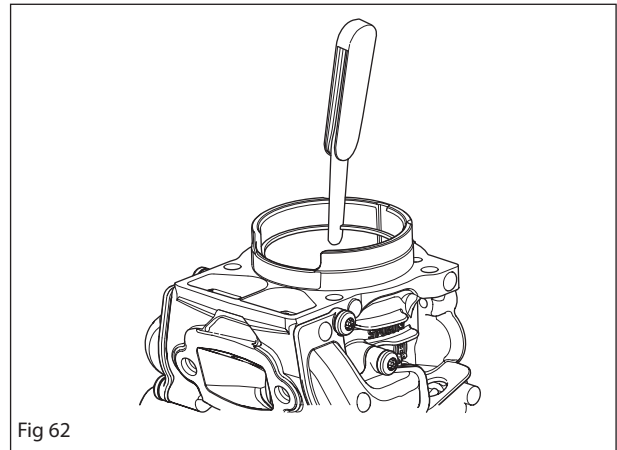


Fig 62

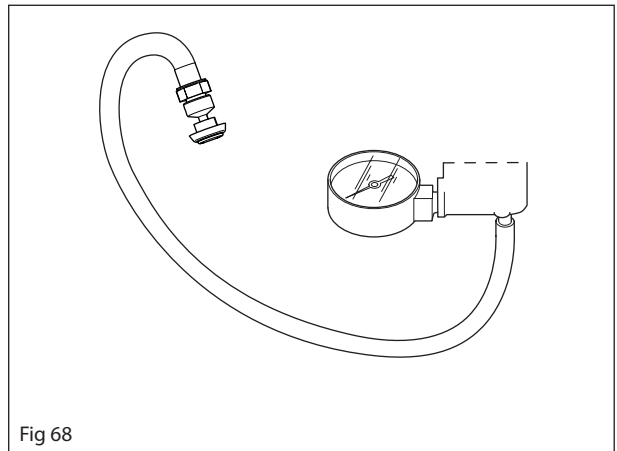


Fig 68

Faults and causes

Score marks on the piston (A)

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

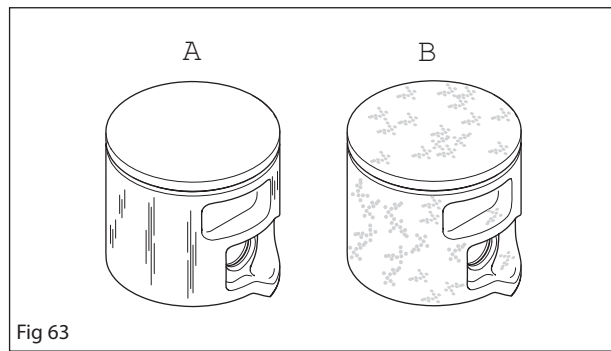
Carbon build-up (B)

- 1 Too much or incorrect oil in the fuel.

See Figure 63.

Piston ring breakage

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



### 7.23 Assembling the piston and cylinder

1

Oil the gudgeon pin bearing with two-stroke oil and insert it into the crank rod. See figure 64.

2

Replace the piston with the arrow facing the exhaust port, and slide in the gudgeon pin and fit the circlips. NOTE! Use new circlips. See figure 64, 65.

3

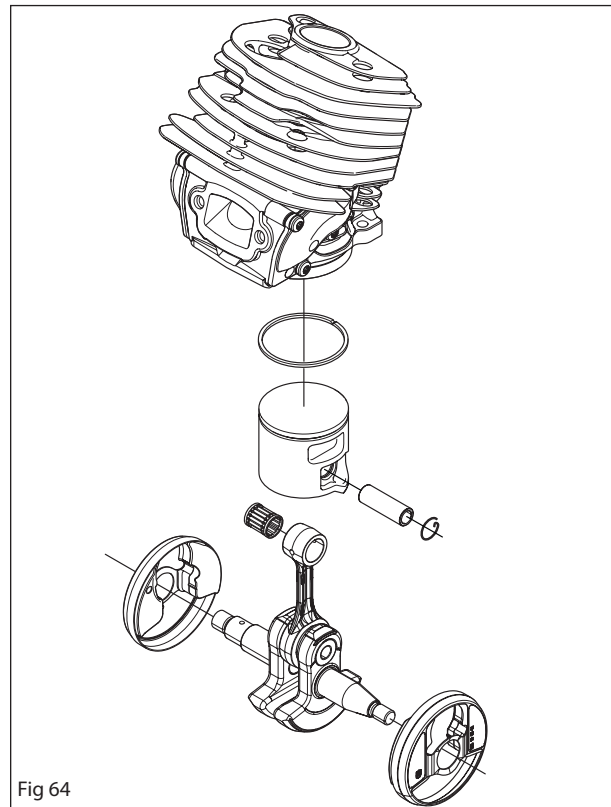
Oil the piston and piston ring with two-stroke oil.

4

Put a new cylinder base gasket in place. Apply silicone (Order No. 503 26 72-01) on the gasket according to figure 64b. Compress the piston ring and carefully push the piston into the cylinder opening.

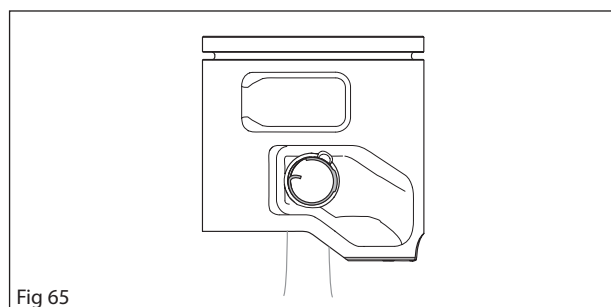
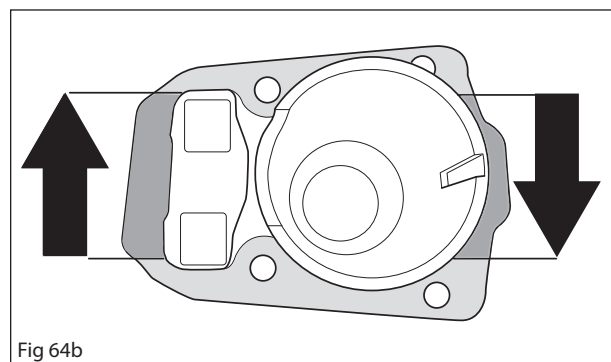
5

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



**NOTE!**

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



## 7.24 Pressure testing the cylinder

1

Loosen

- The cylinder cover
- The carburettor

2

Attach the cover plate 574 71 14-01 and plug 578 02 13-01. See figure 66a.

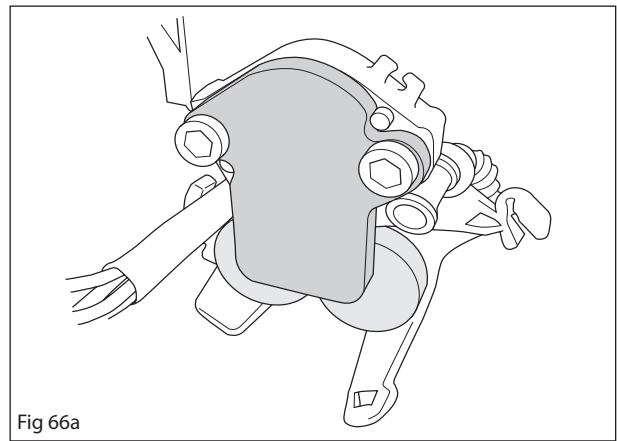


Fig 66a

3

Loosen the screws on the muffler and press the cover plate 578 04 18-01 between the muffler and cylinder. Tighten the screws for the muffler. See figure 66b. Use the plastic piston stop 575 29 36-01.

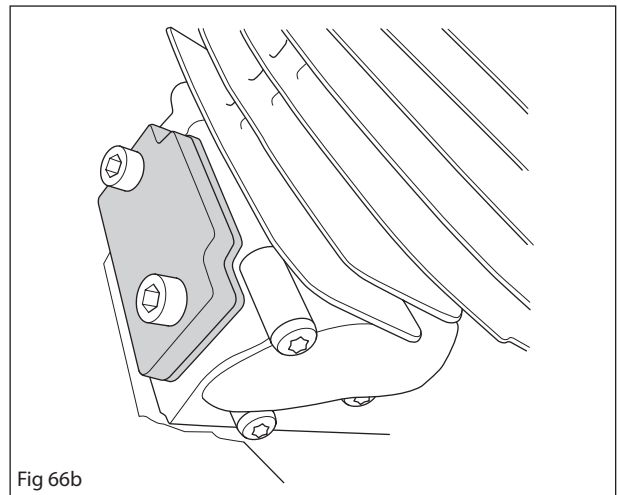


Fig 66b

4

Screw the pressure test connection 503 84 40-03 in place. Connect tool 531 03 06-23 to the nipple. See figure 67.

5

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

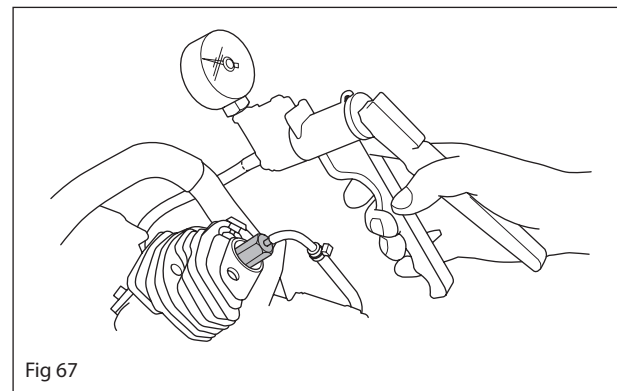


Fig 67



**WARNING!**

Once the cylinder has been pressure tested, make sure the inlet manifold is fitted correctly. Otherwise the chainsaw can be damaged.

## 7.25 Dismantling the crankshaft and crankcase

1

Dismantle the following:

- The clutch cover
- The chain and bar.
- The centrifugal clutch \*
- The cylinder cover
- The starter \*
- The flywheel \*
- The carburettor \*
- The bottom of the carburettor \*
- The hand guard \*
- The muffler \*
- The handle system \*
- The fuel unit \*
- The piston and cylinder \*
- The ignition module
- Cabling
- The oil pump

\* See specific instruction.

**NOTE!**

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

2

If required, remove the circlip on the flywheel side.

3

Remove the 6 screws from the pulley wheel side. See Figure 69.

4

Fit tool 575 28 69-01 as outlined in figure 70. Remove the crankcase half on the clutch side.

5

Fit tool 575 28 69-01 as outlined in figure 71. Remove the flywheel side's crankcase half.

6

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



**WARNING!**  
Beware of burn injuries as the crankcase halves are hot. Wear protective gloves.

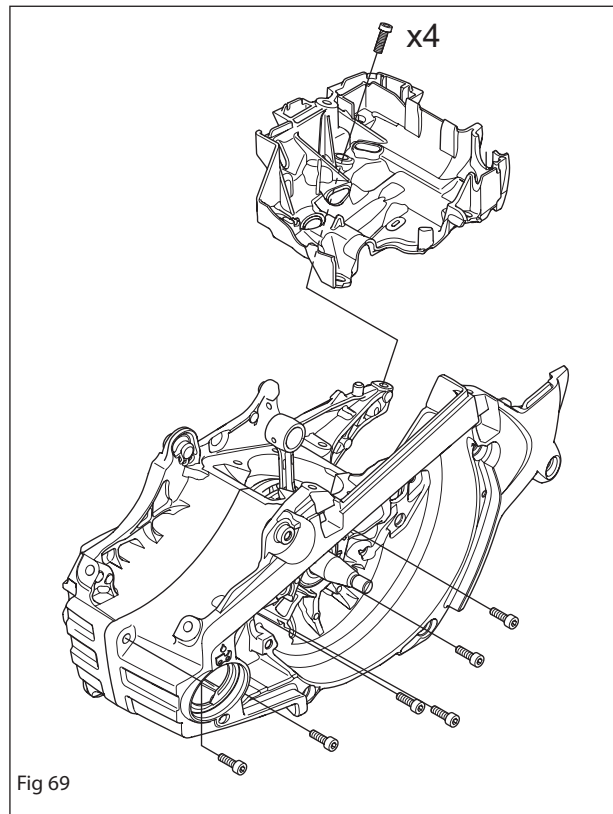


Fig 69

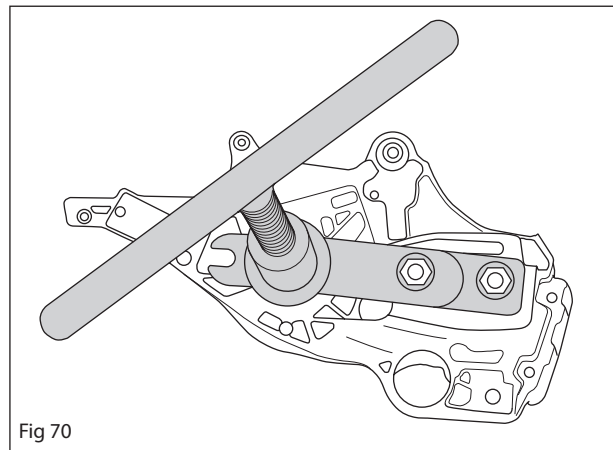


Fig 70

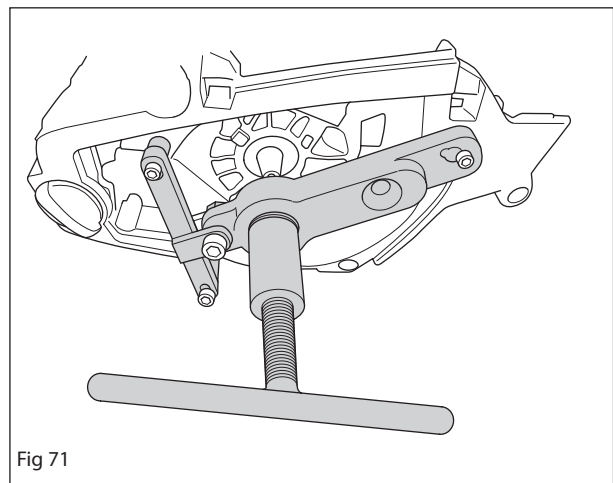


Fig 71



7

If required, remove the crankshaft bearing from the crankcase.

Proceed as follows:

- A. Remove the oil refill cap.
- B. Heat up the crankcase half in question to 200°C.
- C. Use protective gloves. Press the bearing out of the crankcase half.

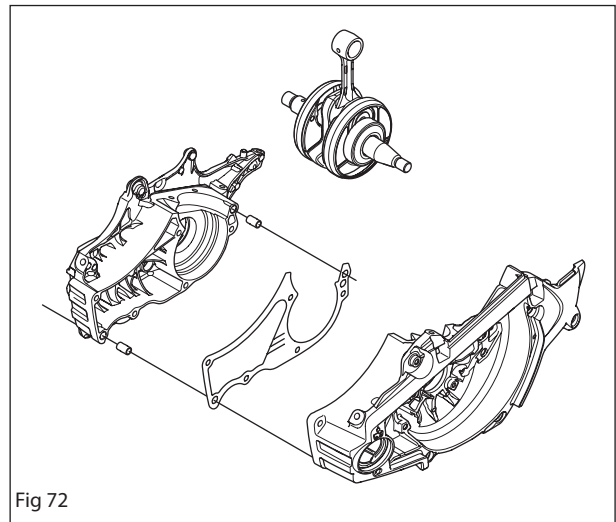


Fig 72

8

If the crankshaft bearings are still attached to the crankshaft when dismantling, pull them off using the 531 00 48-67 pulling device. See figure 73. Also inspect the bearing grip in the crankcase half. Cleaning and inspection

**NOTE!**

If the bearings are fitted to the crankcase, take care to prevent any dirt and foreign particles from entering.

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

1

That the big-end bearing does not have any radial play. Axial play is permitted. See figures 74 and 75.

2

That the big-end bearing does not have any score marks or is discoloured on the sides.

3

That the bearing surface for the gudgeon pin bearing does not have any score marks or is discoloured.

4

That the crankshaft bearing has no play or knocks.

5

That the sealing surfaces of the sealing rings fitted against the crankshaft are not worn, and that the rubber is not hard.

6

That the crankcase is not cracked.

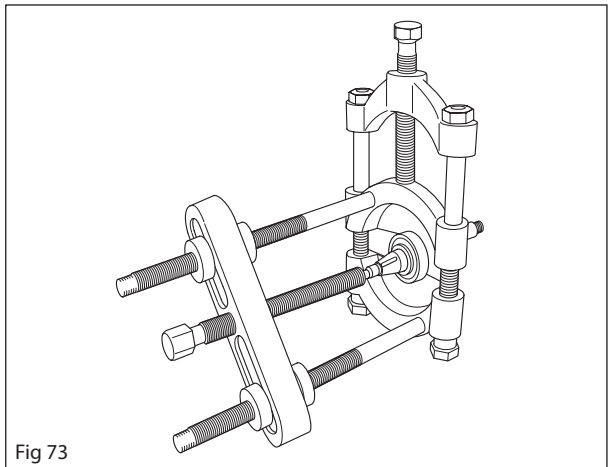


Fig 73

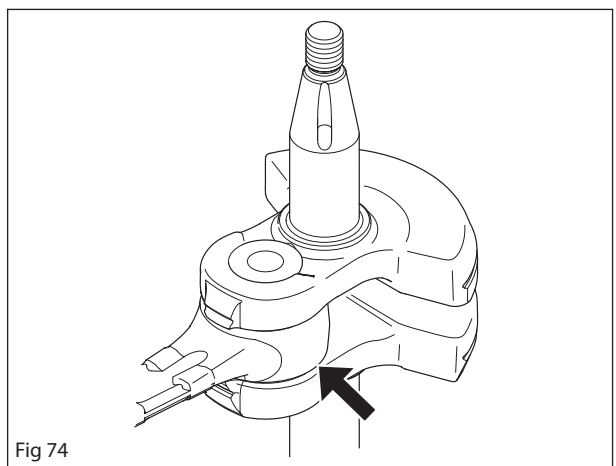


Fig 74

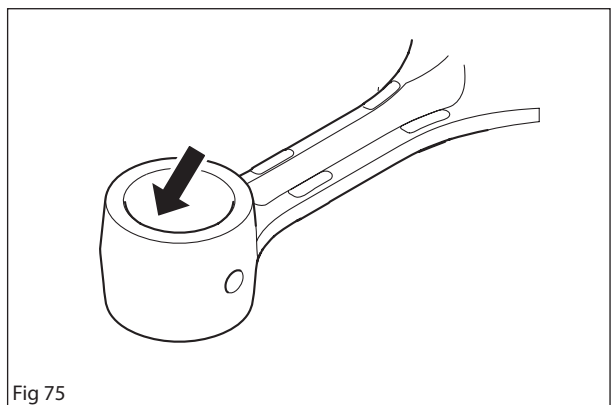


Fig 75

Assembly of crankshaft bearings

**WARNING!**  
Beware of burn injuries as the crankcase halves are hot. Wear protective gloves.

- 1  
New bearings must be used. Proceed as follows:  
A. Heat up the crankcase half in question to 200°C.  
B. Use protective gloves. When fitting the bearing in the crankcase half the bearing must be fitted to the stop in the crankcase.  
C. Allow the crankcase half to cool down before continuing with the work.

**NOTE!**  
Take care to prevent any dirt and foreign particles from entering the bearings.

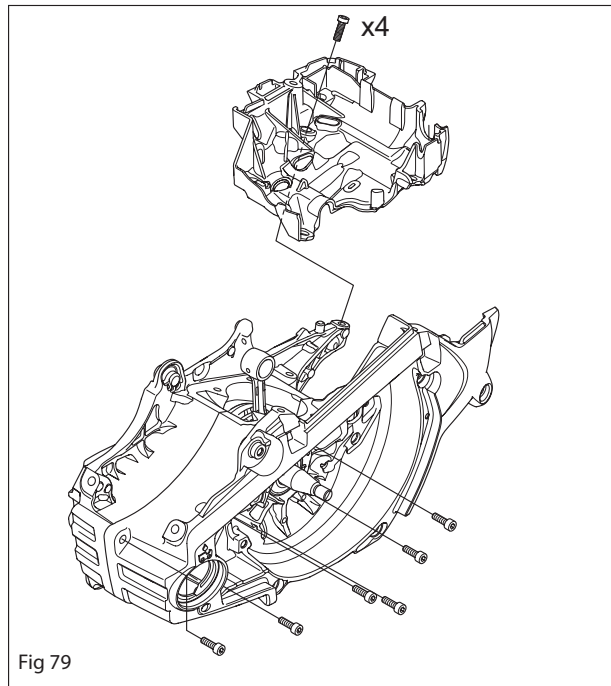
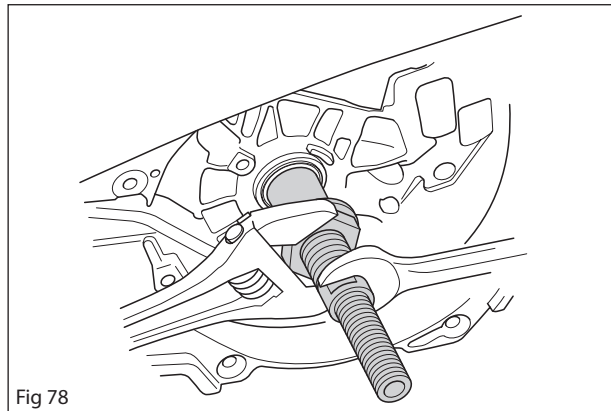
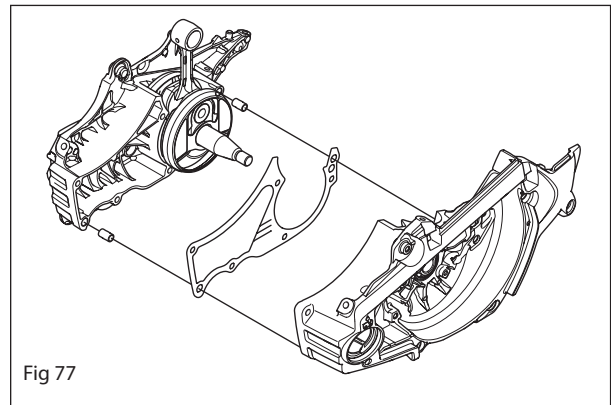
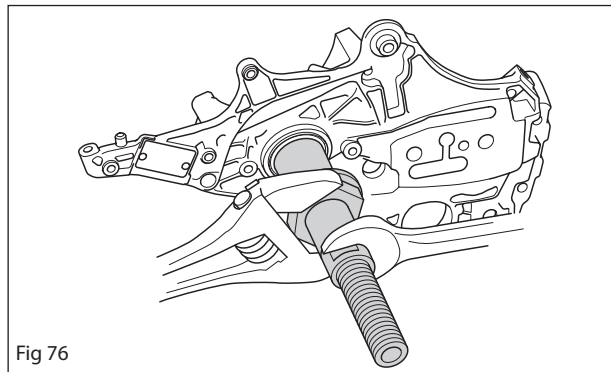
- D. Fit the oil refill cap.

**NOTE!**  
Make sure the connecting rod is not crushed against the crankcase when the crankcase and crankshaft are fitted together.

7.26 Assembly of crankshaft and crankcase

1.  
Use the 502 50 30-23 tool. Use the back end of the sleeve and slot the crankshaft in place into the clutch side of the crankcase half. See figure 76. Tighten until the crankshaft collar comes into contact with the bearing.
2.  
Insert the guide pin in the crankcase half on the clutch side, apply grease and fit the gasket(C). See figure 77.
- 3  
Use the 502 50 30-23 tool. Turn the sleeve and slot the crankcase half in place on the flywheel side. Tighten until the gasket is pinned in place between the crankcase halves. See figure 78.
- 6  
Fit the screws. Tighten them alternately. Finally tighten them to 8 Nm. See figure 79.
- 7  
Fit the carburettor bottom with the four screws. Tighten the screws using 5 Nm of torque. See figure 79.

**NOTE!**  
Make sure that any excess gasket does not finish up in the crankcase.



85

Assemble the following parts:

- A. Tank unit.
- B. Piston and cylinder.
- C. Muffler.
- D. Carburettor.
- E. Centrifugal clutch.
- F. Electrical System.
- G. Starter.
- H. Bar and chain. See the Operator's Manual.

## 7.27 Assembly of sealing rings

1

To replace the crankshaft's sealing rings, first dismantle the following parts:

On the flywheel side:

- Starter.
- Flywheel.

On the clutch side:

- Bar and chain.
- Chain guide plate.
- Centrifugal clutch.
- Oil pump.

2

Use a screwdriver to remove the sealing ring and pull it out.

3

Apply 2-stroke oil on the sealing lip before assembly.

4

Slide the dowel 575 34 69-01 (figure 80) on the crankcase pin. Knock the new sealing ring in place using the 575 34 70-01 tool. See Figure 81.

**NOTE!** Excessively hard impact can move the bearing.

5

Fit the parts as outlined in point 1 above.

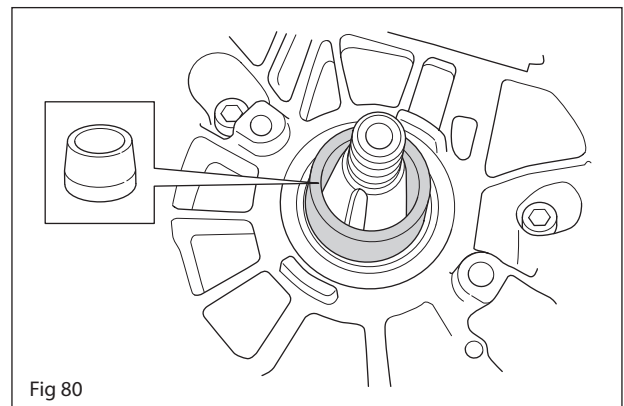


Fig 80

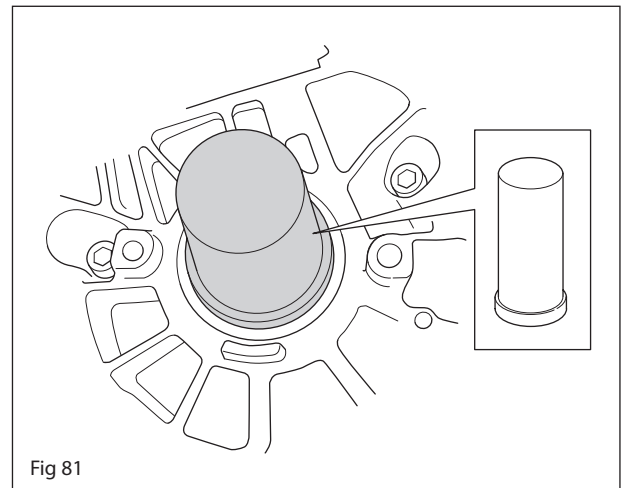


Fig 81

## 7.26 Assembling a complete crankshaft

1

Fit the complete crankshaft in the crankcase.

Fit the following parts:

- The piston and cylinder \*
- The fuel unit \*
- The handle system \*
- The muffler \*
- The hand guard \*
- The bottom of the carburettor \*
- The carburettor \*
- The flywheel \*
- The starter \*
- The cylinder cover
- The centrifugal clutch \*
- The chain and bar.
- The clutch cover

\* See specific instruction.

## 7.27 Replacing the bar bolt

Replacing a bar bolt with intact crankcase

- 1  
Empty the oil tank.
- 2  
Knock in the old bar bolts from the outside so that they end up in the oil tank.
- 3  
Remove the bolts from the oil tank.
- 4  
Attach a wire to the head of the bar bolt, lower the wire through the oil tank and out through the bolt opening in the crankcase. See figure 83.
- 5  
Pull out the bar bolt so that it protrudes from its opening. See figure 83.
- 6  
Pull out the bar bolt with its nut. Insert a spacer between the nut and the crankcase. See figure 83.
- 7  
Fill with chain oil.

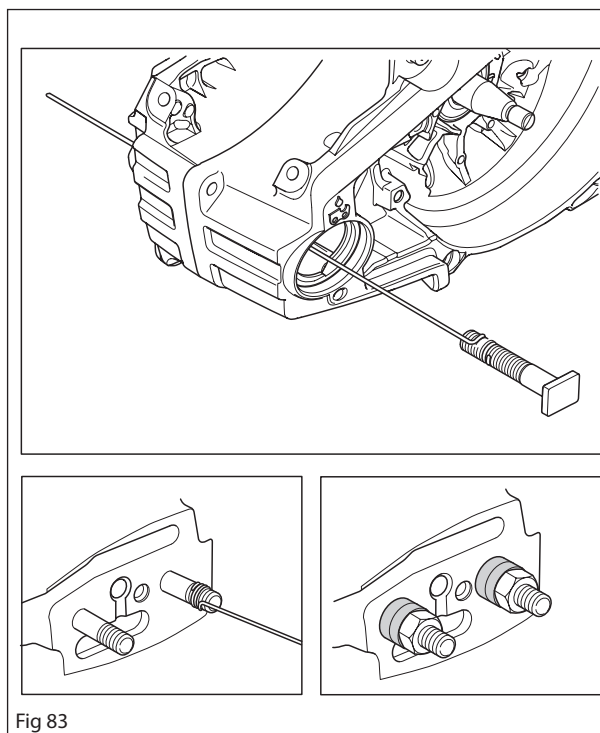


Fig 83

## 7.28 Repairing damaged threads

If threads on the chainsaw are worn, the reparation kit, 503 27 33-01, is available.

First drill with:

6.1 mm drill for the magnesium crankcase

Then screw in the thread plug using a suitable screw and wrench.

This type of screw plug is ideal for plastic and magnesium but cannot be used to repair threads in aluminium. There is another type of thread plug and metric screw available for this purpose. See figure 84. Check the manufacturer's manual for thread information.

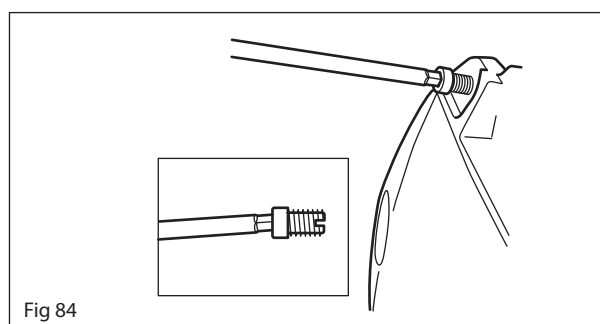


Fig 84

# 8 Troubleshooting

## Contents

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8.2	Troubleshooting methods .....	72

## 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

Difficult to start	Air filter blocked Choke does not work Worn choke axle Worn choke valve Blocked fuel filter Blocked fuel line Piston ring is stuck Blocked impulse channel
The carburettor leaks fuel	Loose or faulty fuel pipe Hole in diaphragm Worn needle/needle tip Control system sticking Control system set too high Leaking control system (air or fuel) The cover on the carburettor pump side is loose
Floods when the engine is not running	Worn needle/needle tip Control system set too high Control system sticking

### Idling (low speed) (continued)

	Worn needle/needle tip Leaking diaphragm/cover plate Worn lever arm in the control system Faulty diffuser jet
Uneven idling	Blocked fuel filter Blocked fuel line Leaking inlet hose (rubber) Loose carburettor mounting Worn throttle valve axle Loose throttle valve screw Worn throttle valve Leaking control system (air or fuel) The control system's centre knob is worn Hole in diaphragm Leaking diaphragm/cover plate Leaking crankcase
	Blocked fuel line Leaking control system (air or fuel) Leaking diaphragm/cover plate Faulty diffuser jet Leaking crankcase
Too much fuel at idle speed	Worn needle/needle tip Leaking diaphragm/cover plate

### Idling (low speed)

Does not idle	Leaking inlet hose (rubber) Loose carburettor mounting Loose or faulty fuel pipe Blocked fuel filter Blocked fuel line Tank ventilator blocked The throttle valve shaft is inert Throttle stay is binding Defective throttle return spring Bent valve axle stop Faulty diffuser jet
Too rich idling	Worn needle/needle tip Worn lever arm in the control system Leaking diaphragm/cover plate

High speed

Will not run at full throttle	Blocked air filter Tank venting clogged Blocked fuel filter Blocked fuel line Loose or faulty fuel pipe Impulse channel leaking Blocked impulse channel The cover on the carburettor pump side is loose Faulty pump diaphragm Leaking inlet hose (rubber) Loose carburettor mounting Control system set too low Damaged control system Control system incorrectly assembled Leaking diaphragm/cover plate Control system sticking Blocked muffler
Low power	Tank venting clogged Blocked fuel filter Impulse channel leaking Blocked impulse channel The cover on the carburettor pump side is loose Faulty pump diaphragm Blocked air filter Control system sticking Leaking control system (air or fuel) Control system incorrectly assembled Loose diaphragm Hole in diaphragm Leaking diaphragm/cover plate
Will not "four stroke"	Tank venting clogged Blocked fuel filter Blocked fuel line Loose or faulty fuel pipe Impulse channel leaking Blocked impulse channel The cover on the carburettor pump side is loose Faulty pump diaphragm Leaking inlet hose (rubber) Loose carburettor mounting Control system set too low Leaking control system (air or fuel) Control system incorrectly assembled Loose diaphragm Hole in diaphragm Leaking diaphragm/cover plate

Acceleration and retardation

Does not accelerate	Blocked air filter Tank venting clogged Blocked fuel filter Blocked fuel line Loose or faulty fuel pipe Blocked impulse channel The cover on the carburettor pump side is loose Faulty pump diaphragm Leaking inlet hose (rubber) Loose carburettor mounting Control system set too low Control system incorrectly assembled Control system sticking Faulty diffuser jet Blocked muffler
The engine stops when releasing the throttle	Faulty pump diaphragm Control system set too high Control system sticking Faulty diffuser jet
	Blocked air filter Faulty pump diaphragm Faulty diffuser jet

8.2 Troubleshooting methods

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 and are as follows:

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







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