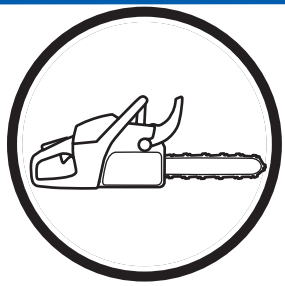
Husqvarna®

Workshop Manual

543 XP
543 XPG



English

Workshop Manual
Husqvarna 543 XP and 543 XPG

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2 Introduction and safety instructions

2.1 General

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

2.2 Safety

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

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

2.3 Target group

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

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

2.4 Modifications

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 This means that in time this Workshop Manual will become out of date.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

2.5 Tools

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

Always use Husqvarna’s original:
- **Spare parts**
- **Service tools**
- **Accessories**

2.6 Structure

This Workshop Manual can be used in two different ways:

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

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

1. Look up the page for the system in question.
2. Carry out the following steps:
   Dismantling

   Cleaning and inspection

   Assembly

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

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

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

2.7 Numbering

Position references to components inside the figures are designated A, B, etc.
The figures are numbered 1, 2 etc.
The position references and figure numbers restart in each new section.

2.8 General Instructions

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

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

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

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

NOTE!

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

2.9 Special Instructions

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

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

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

Wear protective earplugs or earmuffs when test running.

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

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

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

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

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

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

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

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

2.10 Symbols on the chain saw

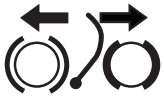
The symbols below are embedded on the chain saw.

Choke Lever

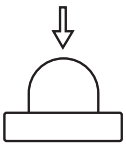
Refuelling

Stop switch

Chain oil fill



Chain brake



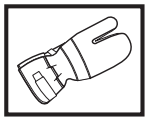
Primer bulb

Adjusting the oil pump

Heated handles

2.11 Symbols in the Workshop Manual

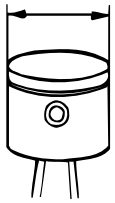
This symbol warns of personal injury when the instructions are not followed.

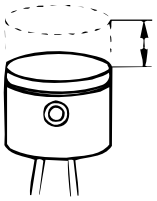


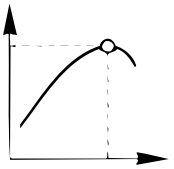
Wear protective gloves.

Wear protective goggle.

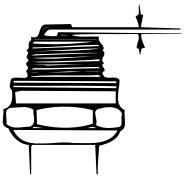
3 Technical data

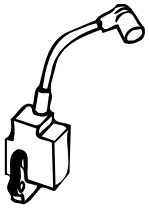


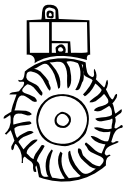


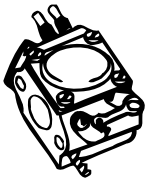


	Displacement cm3/cubic inch	Cylinder diameter Ø mm/Ø inch	Stroke length mm/inch	Max. output/speed kW/hp/rpm
543 XP:	43,1 / 2.63	42 / 1.65	31,1 / 1.22	2,2 / 2.95 / 9 600
543 XPG:	43,1 / 2.63	42 / 1.65	31,1 / 1.22	2,2 / 2.95 / 9 600

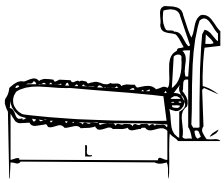


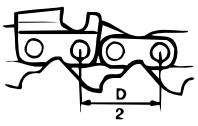


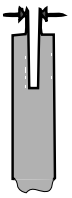




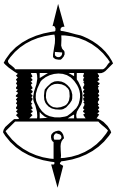
	Electrode gap mm/inch	Ignition system	Air gap mm/inch	Carburettor type
543 XP:	0,65 / 0.025	IKEDA UK-09701	0,4 / 0.016	Walbro HD-54B
543 XPG:	0,65 / 0.025	IKEDA UK-09701	0,4 / 0.016	Walbro HD-54B

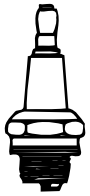


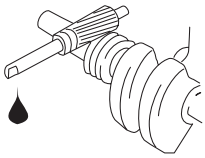




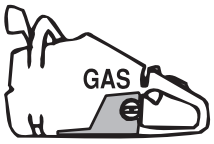
	Usable cutting length cm/inch	Chain speed at 133% of maximum engine power speed ft/s / m/s	Chain pitch mm/inch	Drive link mm/inch
543 XP:	31-43 / 12-17	80.7 / 24,6	8,25 / 0.325	1,3 / 0.050 - 1,5 / 0.058
543 XPG:	31-43 / 12-17	80.7 / 24,6	8,25 / 0.325	1,3 / 0.050 - 1,5 / 0.058

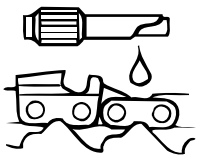


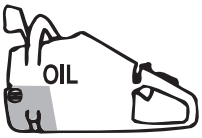




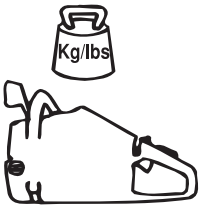
	Engage speed rpm	Spark plug	Type of oil pump
543 XP:	4100 (+/- 250)	NGK CMR7H	Adjustable
543 XPG:	4100 (+/- 250)	NGK CMR7H	Adjustable

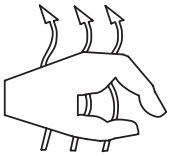






	Volume fuel tank Litre/US. pint	Capacity oil pump at 9,000 rpm, ml/min	Volume oil tank Litre/US. pint
543 XP:	0,42 / 0.87	3-13	0,27 / 0.57
543 XPG:	0,42 / 0.87	3-13	0,27 / 0.57



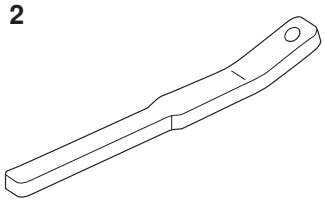


	Weight without bar and chain kg / lbs	Heated handles
543 XP:	4,5 / 9.92	-
543 XPG:	4,7 / 10.36	Yes

4 Service tools

1

2



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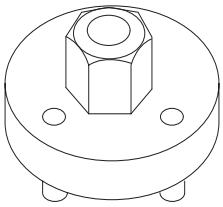

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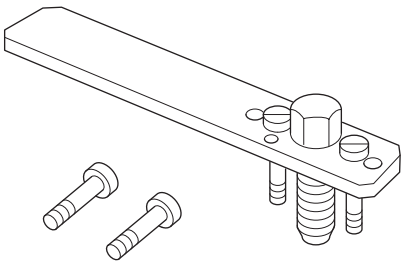

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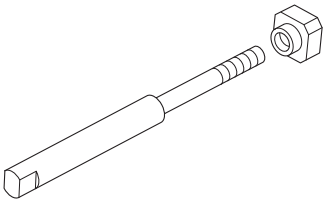

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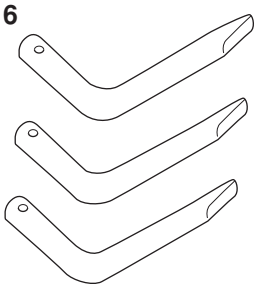

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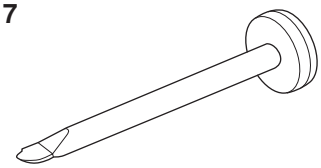

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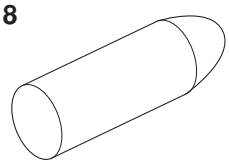

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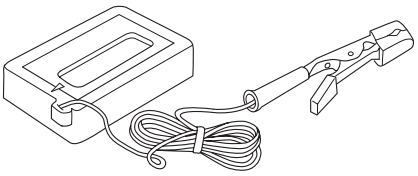

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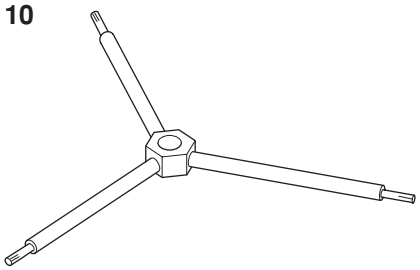

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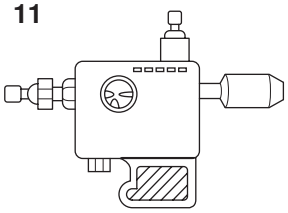

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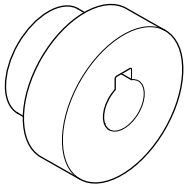

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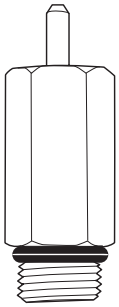

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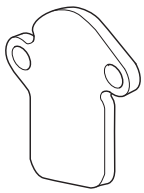

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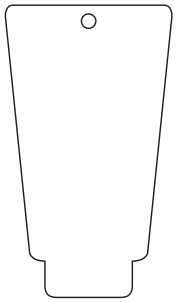

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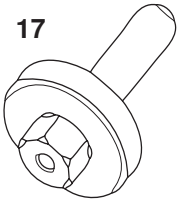

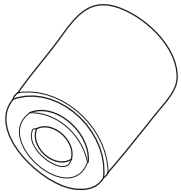

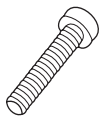

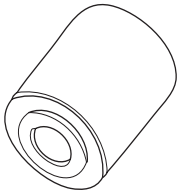

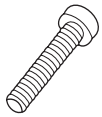

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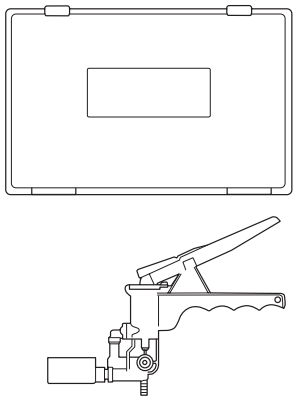

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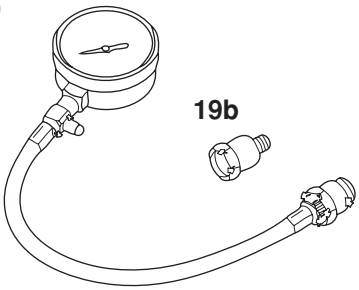

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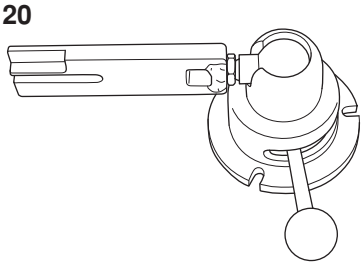

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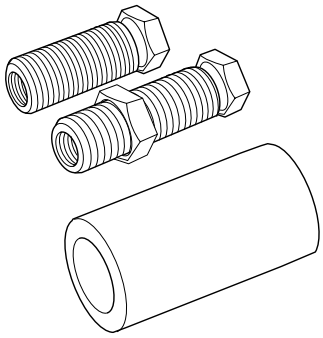

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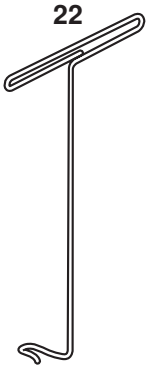

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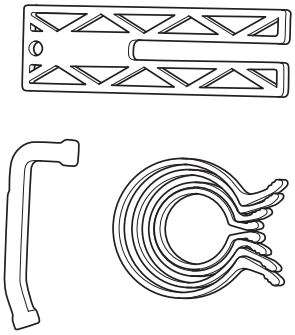

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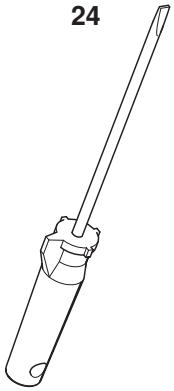

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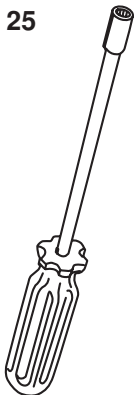
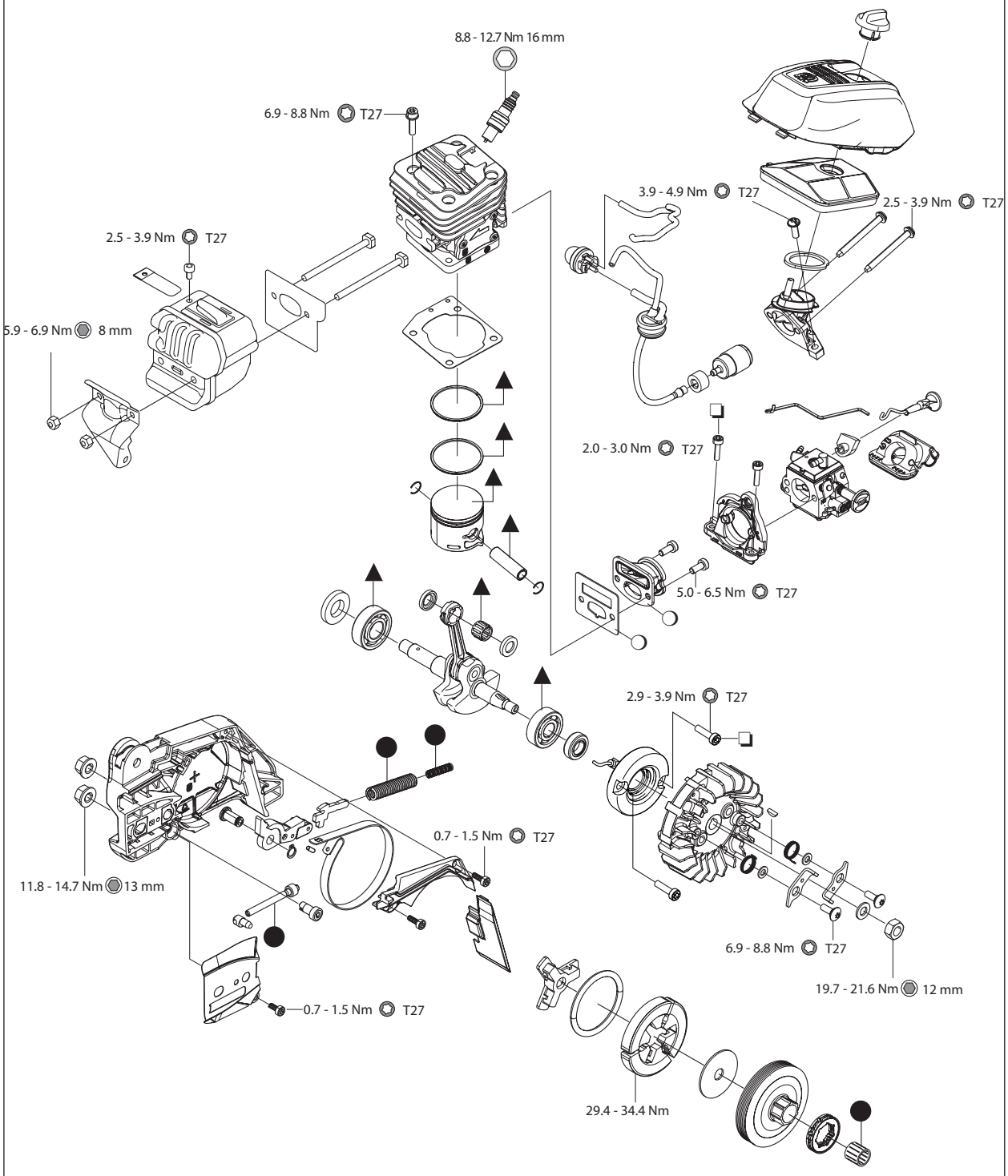


Pos.	Description	Used for	Order No.
1	Air gap tool, ignition	Setting ignition module	514 24 41-01
2	Piston stopper	Locking the crank shaft	581 40 85-01
3	Wrench	Clutch out or in	513 63 60-01
4	Puller assy	Rotor out	510 13 89-01
5	Rod assy	Piston pin out or in	521 53 35-01
6	Wrench	Clutch spring in	513 63 65-01
7	Guide	Brake spring out or in	513 63 70-01
8	Guide	Crankshaft in	513 70 59-01
9	Tachometer	Engine speed meter	502 71 14-01
10	Torx wrench	T20/T25/T27	578 28 90-01
11	Ignition checker	Spark strength check	501 97 64-01
12	Guide	Setting heating coil (543XPG)	512 41 31-01
13	Spark plug adapter	Pressure testing	503 84 40-03
14	Cover plate, inlet	Pressure testing	574 71 14-01
15	Rubber wedge, outlet	Pressure testing	502 54 11-02
16	Bearing/oil seal, kit	MAG side	584 14 05-01
17	Bearing/oil seal, kit	PTO side	584 14 05-02
18	Pressure/vacuum gauge	Pressure testing	531 03 06-23
19	Compression tester	Compression testing	531 03 16-86
19b	Adapter	Size: 10mm	583 84 98-01
20	Assembly fixture	Securing the chain saw	502 51 02-01
21	Crankshaft assembly kit	Assembling crankshaft (MAG side only)	502 50 30-22
22	Hook for fuel filter	Withdrawing the fuel filter	502 50 83-01
23	Assembly kit, piston	Assembling the piston	502 50 70-01
24	Adjustment screwdriver	Adjustment of the carburettor	513 63 56-01
25	Adjustment screwdriver	Adjustment of the carburettor	530 03 55-60

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

5 Service data



Key

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

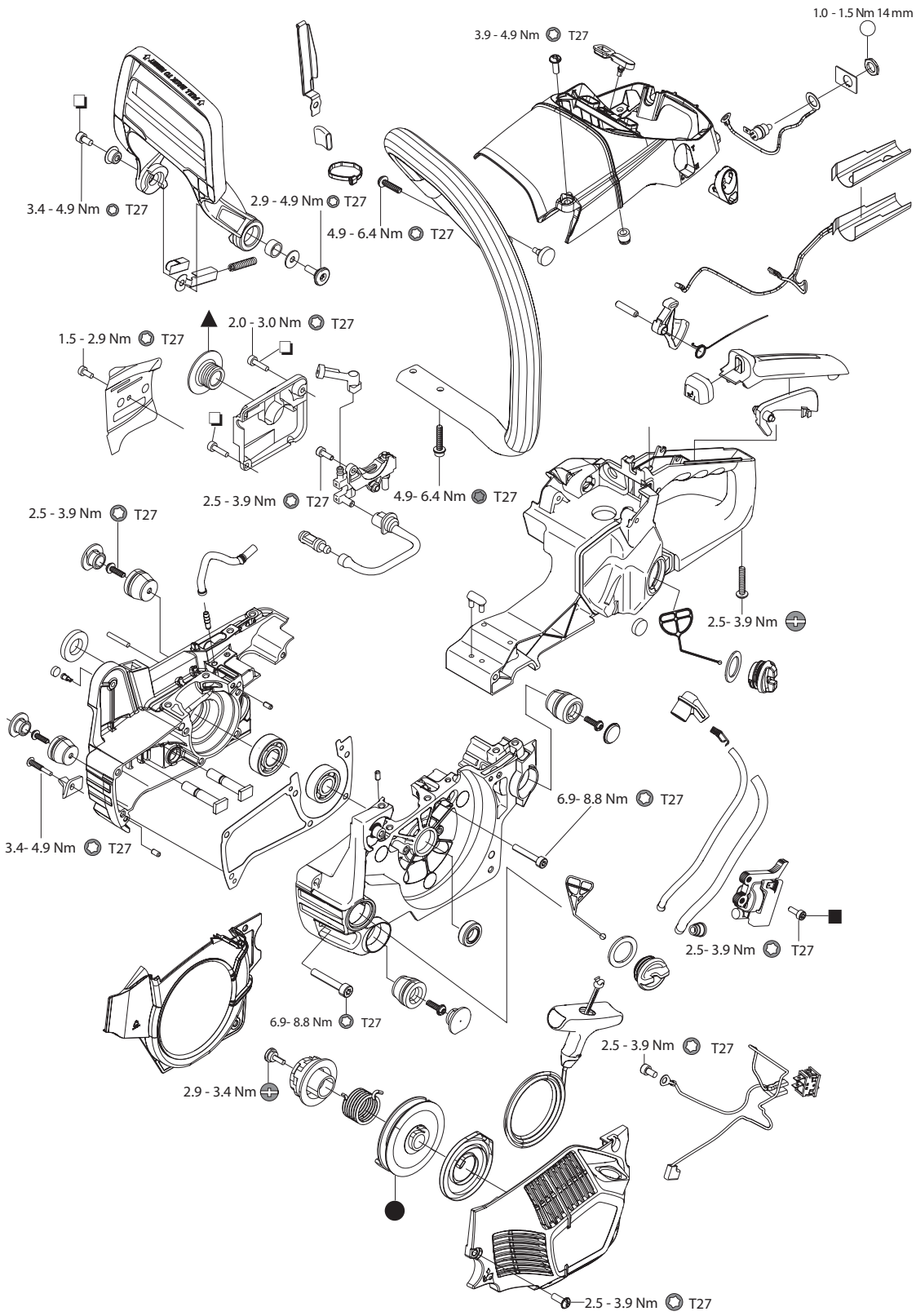
▲ Lubricate with two-stroke oil.

● Lubricate with grease.

■ Apply thread lock: Three bond #1342 or Loctite #242.

❑ Apply thread lock: Three bond #1322 or Loctite #262.

❍ Apply liquid gasket: #1217F.


1.0 - 1.5 Nm 14 mm
3.9 - 4.9 Nm T27
3.4 - 4.9 Nm T27
2.9 - 4.9 Nm T27
4.9 - 6.4 Nm T27
1.5 - 2.9 Nm T27
2.0 - 3.0 Nm T27
2.5 - 3.9 Nm T27
4.9- 6.4 Nm T27
2.5 - 3.9 Nm T27
2.5- 3.9 Nm
3.4- 4.9 Nm T27
6.9- 8.8 Nm T27
2.5- 3.9 Nm T27
6.9- 8.8 Nm T27
2.5 - 3.9 Nm T27
2.9 - 3.4 Nm
2.5 - 3.9 Nm T27

6 Safety equipment

Contents

6 Safety equipment

6.1 Dismantling the chain brake

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

1
Release the brake by moving the front hand guard backward. Loosen the bar nuts and remove the clutch cover, guide bar and saw chain.
See figure 1.

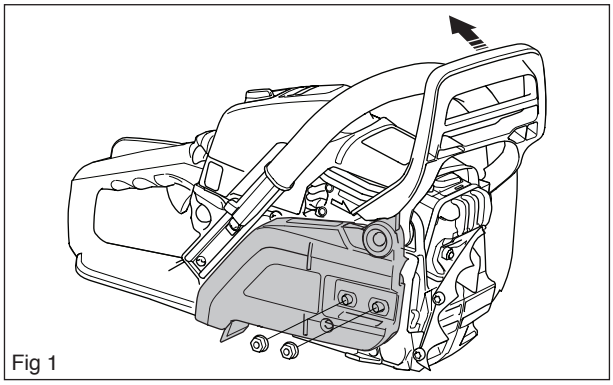


Fig 1

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

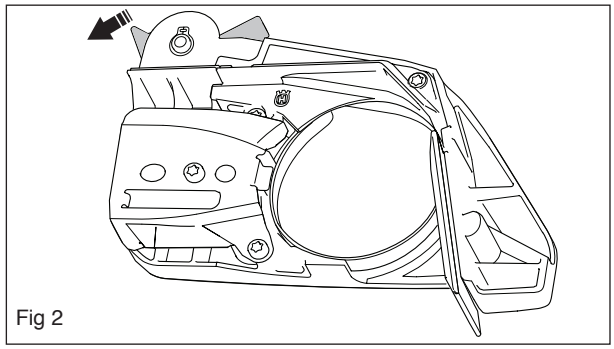


Fig 2

Loosen the screws and carefully remove the covers over the brake spring. See figure 2b.

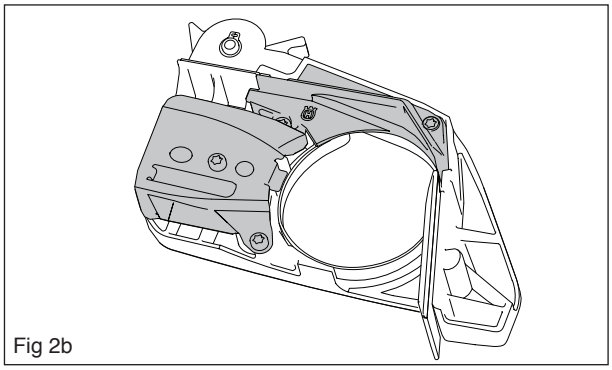


Fig 2b

3
Hold one hand on top of the brake spring and press in a small screwdriver (or special tool 513 63 70-01) into the spring. Carefully bend upwards until the spring is released and it slides onto the screwdriver, see figure 3.

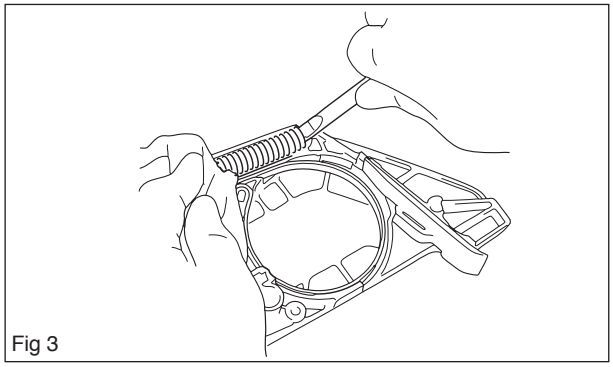


Fig 3

Cleaning and inspection

- Clean and check all components carefully. Parts must be replaced if cracked or show signs of other defects. Always use original spare parts.
- Measure the thickness of the chain brake band. It must not be less than 0,6 mm in any place. See figure 4.
- Lubricate the knee joint with grease.

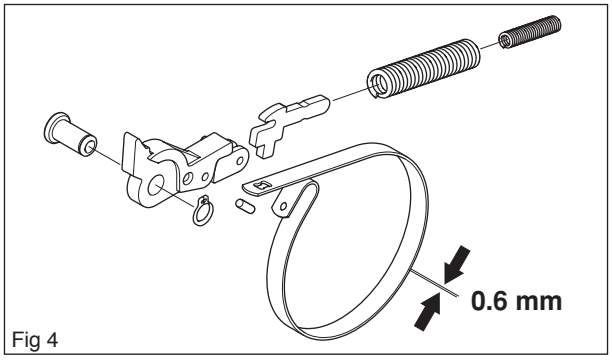


Fig 4

6.2 Assembling the chain brake

1
Fit the knee joint and the brake band together (see figure 5). 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 5.

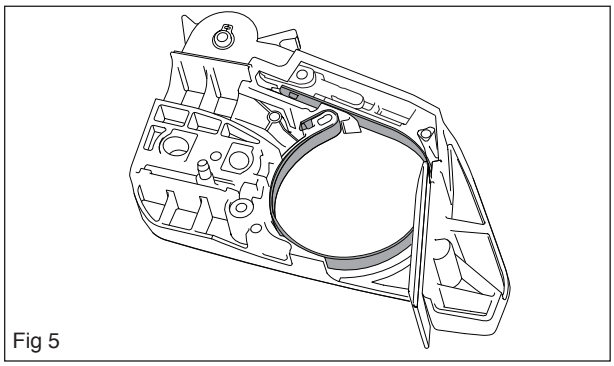
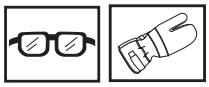


Fig 5

2
Compress the spring with a wide screwdriver (or special tool 513 63 70-01) and press it down with your thumb, see figure 6.

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



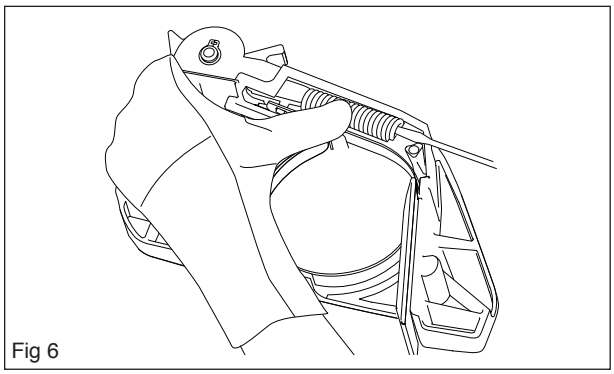


Fig 6

3
Fit the two covers using 0,7-1,5 Nm tightening torque, see figure 7.

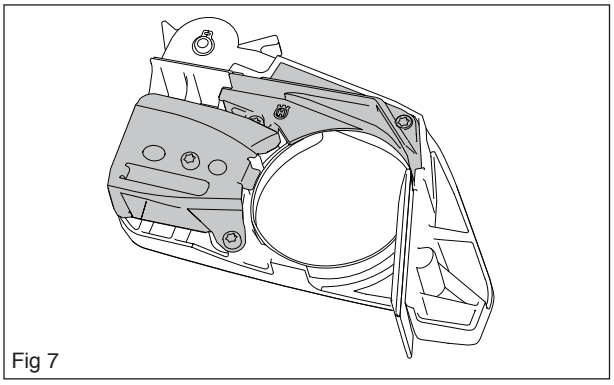


Fig 7

4
Tension the spring by pressing down on the lever. See figure 8.

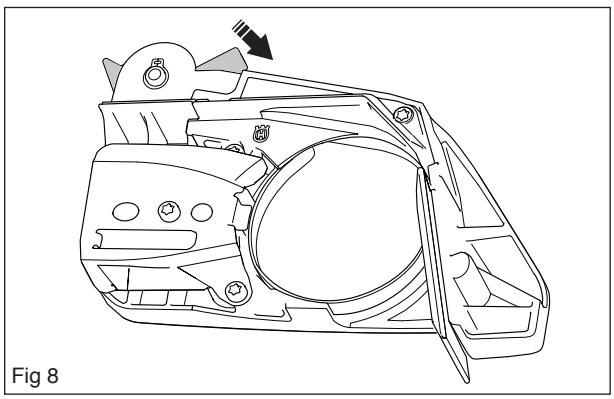


Fig 8

5
Fit the guide bar, saw chain and clutch cover. See figure 9.

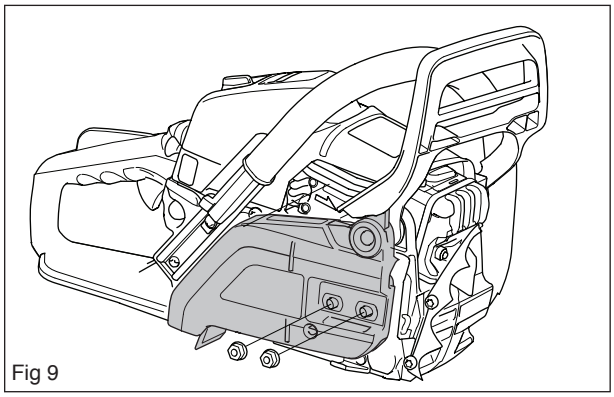


Fig 9

NOTE!

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

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

Guide bar length	Height
13”-18”	45 cm/18"

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


Fig 10

6.3 Dismantling the muffler

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

1
Remove the cylinder cover, muffler and gasket. See figure 11.

2
If the muffler is fitted with a spark arrestor mesh, this is removed. If necessary, use the combination spanner to push down the plate edge and remove the spark arrestor mesh, See figure 11.

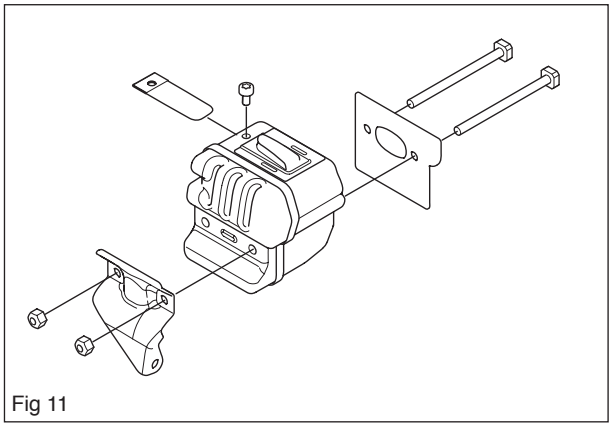


Fig 11

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

6.4 Assembling the muffler

1
If the muffler 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:
- gasket
- muffler, tightening torque of 5,9- 6,9 Nm.
- cylinder cover

3
Warm up the chain saw for at least one minute and retighten the screws on the muffler to 5,9 - 6,9 Nm.

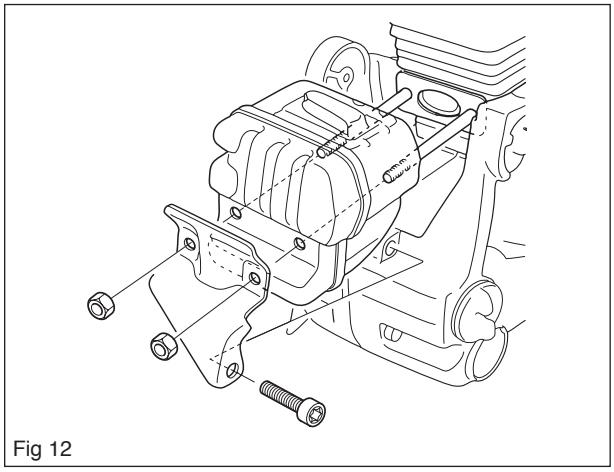


Fig 12

6.5 Replacing the chain catcher

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

1
Release the chain brake by moving the front hand guard backward.
Loosen the bar nuts and remove the clutch cover, saw chain and guide bar.
2
Remove the chain catcher and replace it with a new one. Tightening torque 3,4-4,9 Nm.

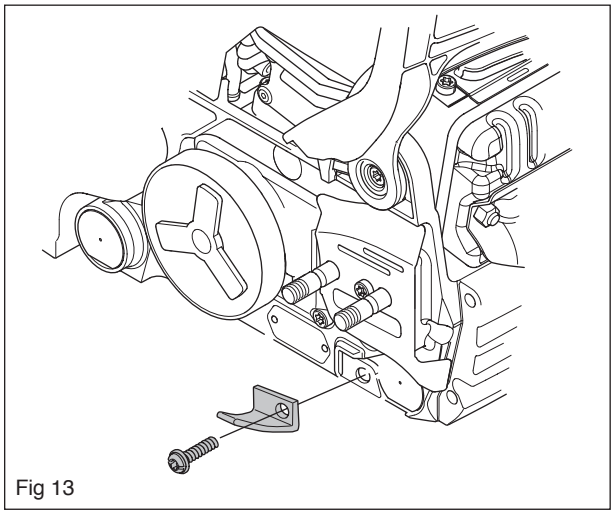


Fig 13

6.6 Dismantling the stop switch

1
Carefully remove the stop switch using a flat screwdriver or similar tool. See figure 14.

2
Disconnect the cables.

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

6.7 Assembling the stop switch

1
Connect the cables. See fig 14.

2
Fit the stop switch.

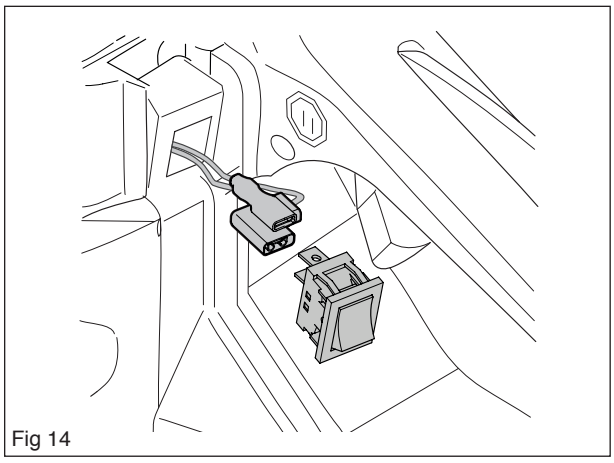


Fig 14

6.8 Resistance test - stop switch

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

2
Clean the contact areas.

3
Test the resistance by connecting a multimeter to the stop switch. See figure 15. The resistance should be as follows:

”0” pressed in - less than 0.1 Ω.

”1” pressed in - more than 1000 Ω.

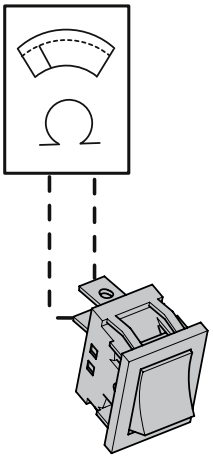


Fig 15

6.9 Dismantling the throttle trigger lockout, throttle trigger and spring

1
Loosen the screw on the rear handle. Remove the handle cover. See figure 16.

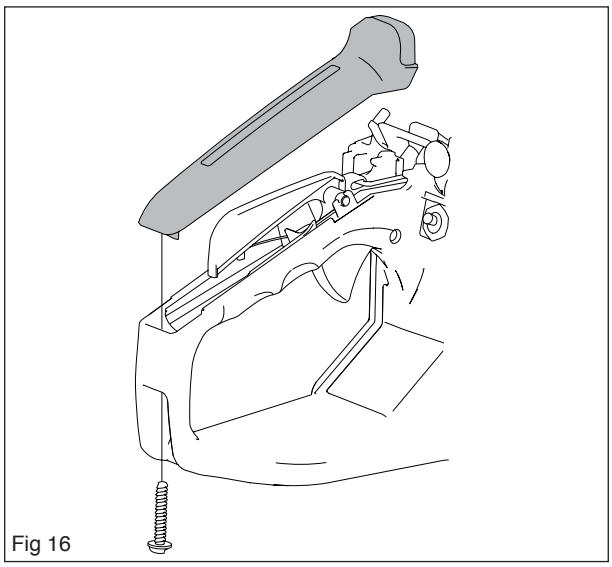


Fig 16

2
Detach the spring and remove the throttle trigger lockout by pulling it upward. See figure 17.

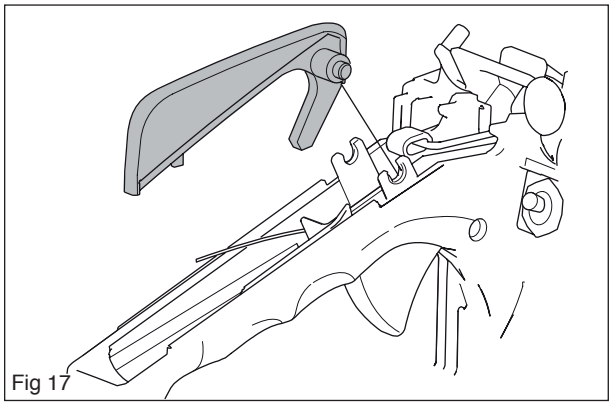


Fig 17

3
Remove the throttle rod from the throttle trigger, see arrow in figure 22. Press out the throttle trigger pin with the help of a punch. Remove the throttle trigger and the spring. See figure 18.

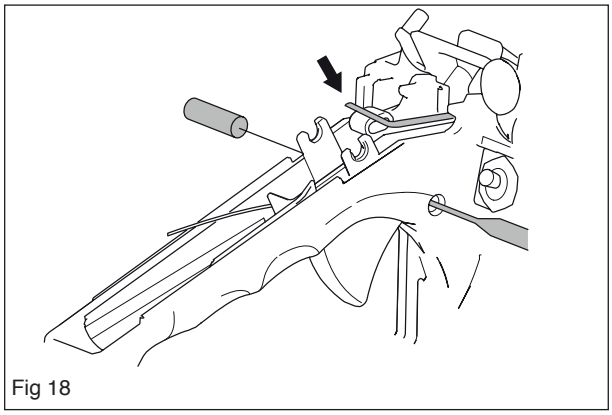


Fig 18

4
Cleaning and inspection

- Carefully clean and check all parts. See figure 19. Parts must be replaced if cracked or show signs of other defects. Always use original spare parts.
- Check that the spring is intact and retains all its tension.

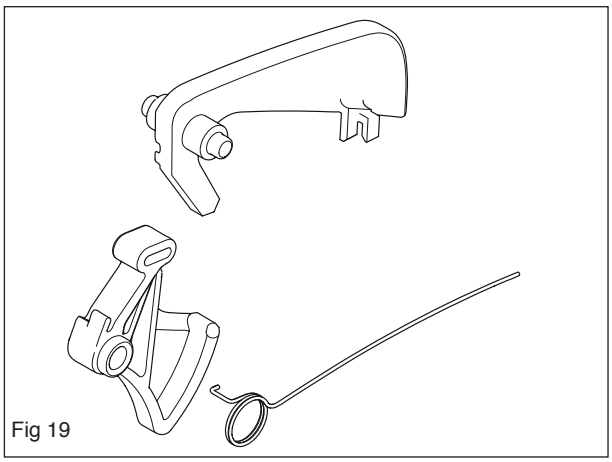


Fig 19

6.10 Assembling the throttle trigger lockout, throttle trigger and spring

1
Lubricate the pin and joined surfaces with a light oil. Slide in the throttle control and make sure the spring is fitted as outlined in figure 20.

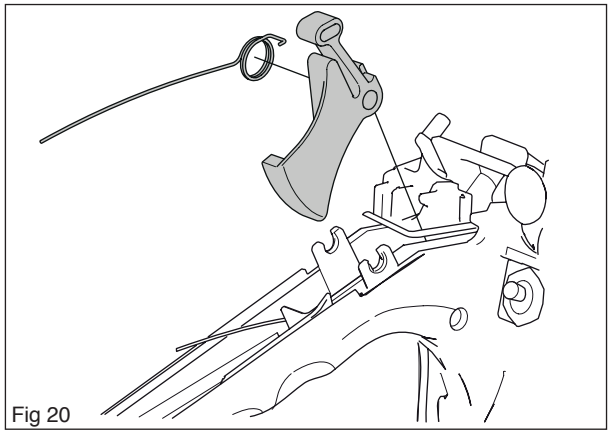


Fig 20

2
Fit the throttle rod on the throttle trigger. Fit the throttle trigger's pin using a punch.
See figure 21.

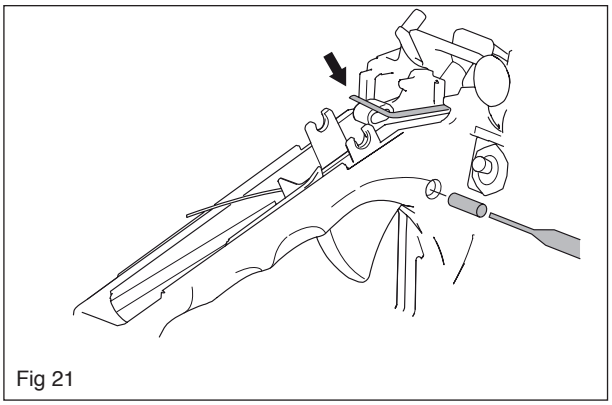


Fig 21

3
Fit the throttle trigger lockout by sliding it on the shaft in the rear handle. See figure 22.

Place the spring according to figure 23.

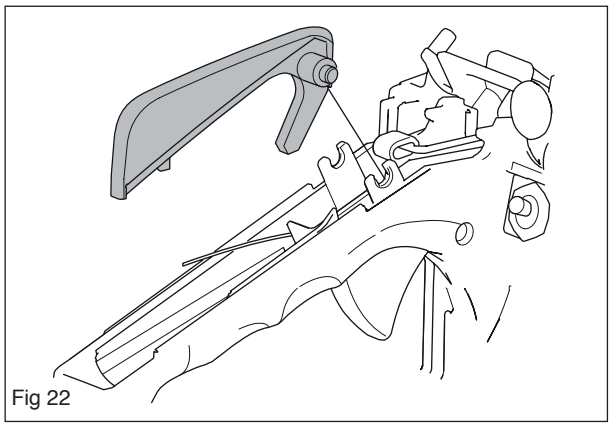


Fig 22

4
Fit the handle cover and fasten the screw. Tightning torque 2,5- 3,9 Nm. See figure 16.

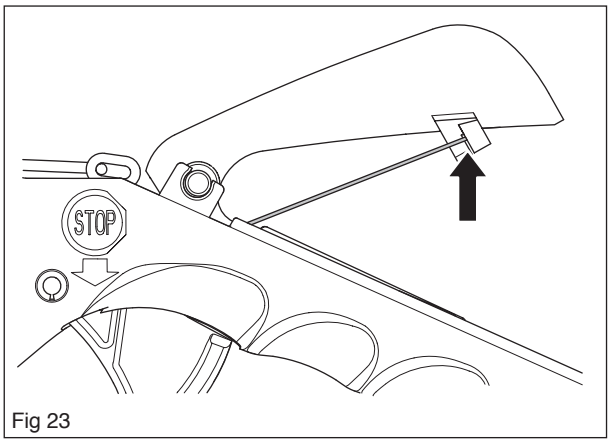


Fig 23

7 Repair instructions

Contents

7 Repair instructions

7.1 Dismantling the starter

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

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

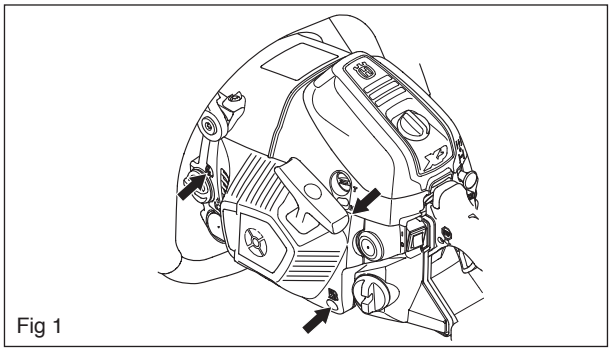


Fig 1

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 anticlockwise. See figures 2 and 3.

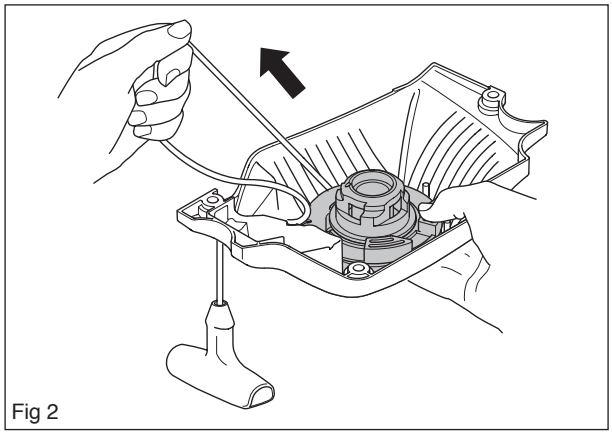


Fig 2

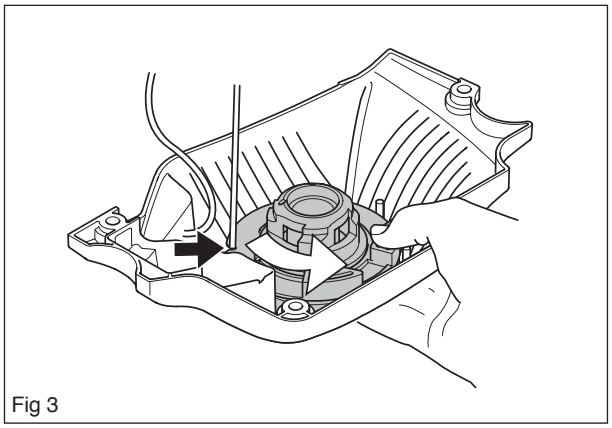


Fig 3

3
Make sure the starter pulley is not tensioned. Loosen the screw in the centre of the pulley and remove the sprocket. See figure 4.

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

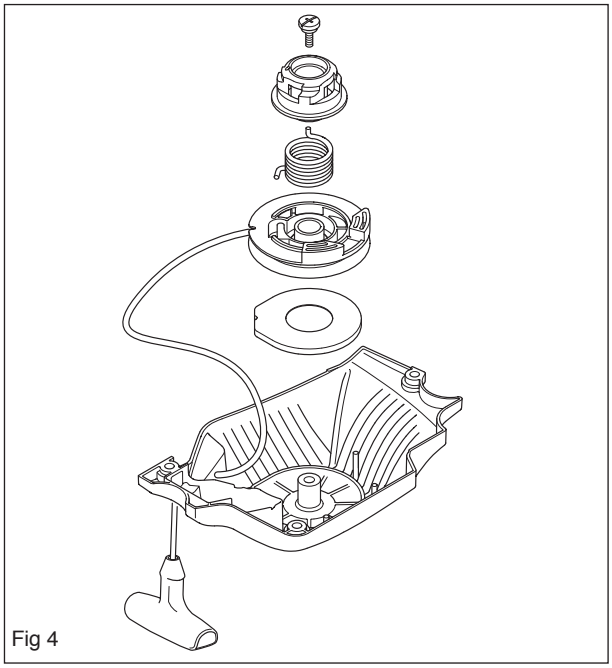


Fig 4

7.2 Replacing a broken or worn starter cord

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

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

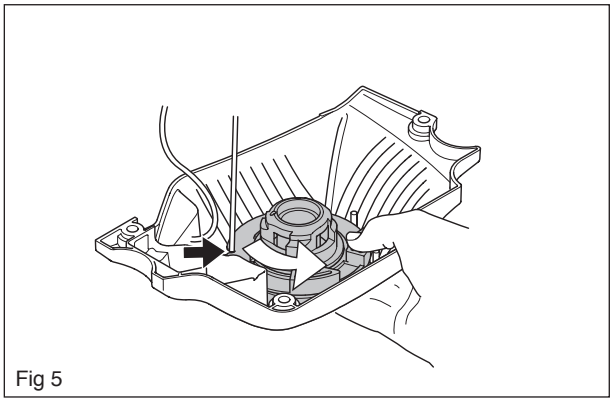


Fig 5

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. See fgure 5.

2
Loosen the screw in the centre of the pulley and remove the sprocket. See figure 4.

3
When the starter pulley is removed, insert a new starter cord and attach it to the starter pulley. Thread the other end of the starter cord through the hole in the starter housing and starter handle and tie 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. Tightening torque 2,9-3,4 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 6.

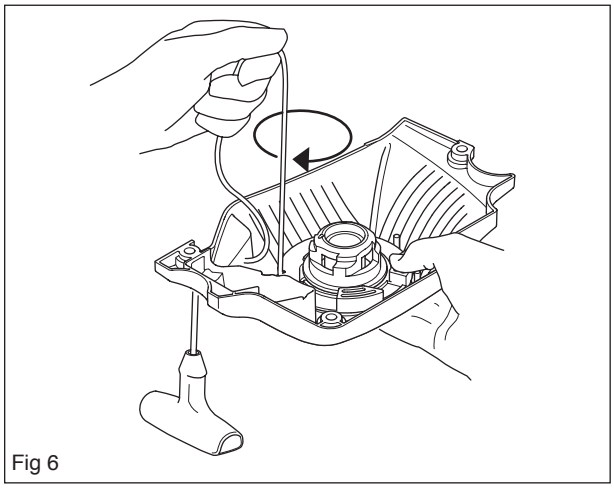


Fig 6

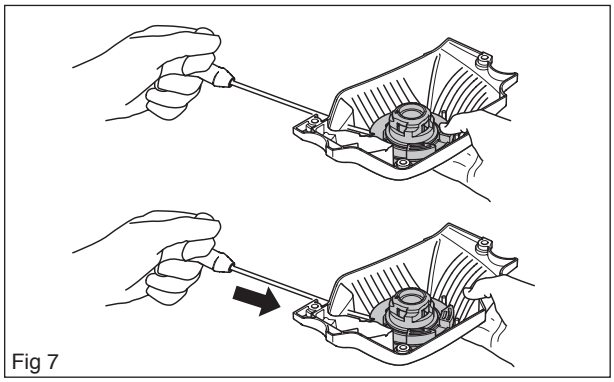


Fig 7

2
Stretch the line with the handle. Remove your thumb and let the cord spin back. See figure 7.

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

2
Remove the broken spring cassette and replace it with a new one.

3
Replace the screw 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 2,5-3,9 Nm, see figure 8.

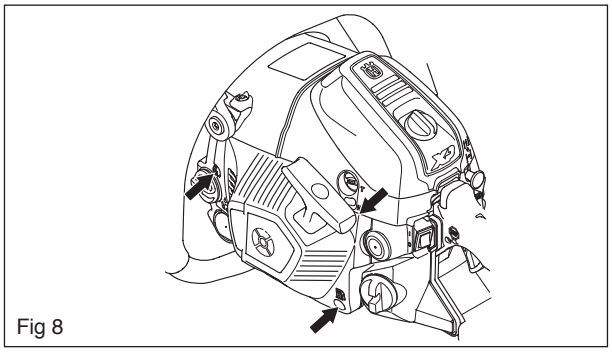


Fig 8

7.6 Removing the cylinder cover

1
Remove the air filter cover and air filter.

2
Remove the T-screw (B). Detach the choke rod (A) from the cylinder cover. See figure 8A.

3
Remove the screws (C). Remove the cylinder cover.

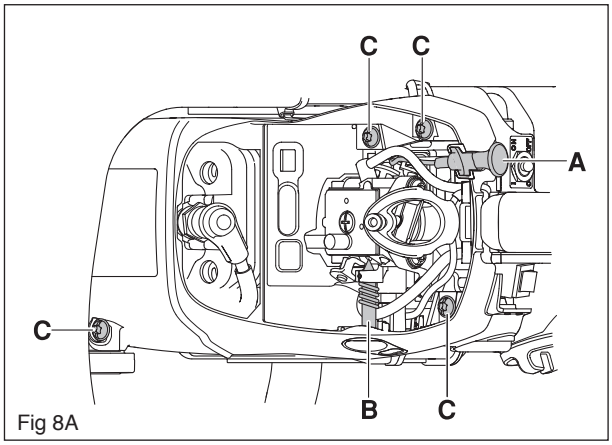


Fig 8A

7.7 Replacing the cylinder cover

1
Fit the cylinder cover. Note! be careful not to damage the fuel hose and ignition cable when fitting the cylinder cover. See figure 8A. Screws tightening torque 3.9 - 4.9 Nm.

2
Replace the T-screw and the choke rod. See figure 8B.

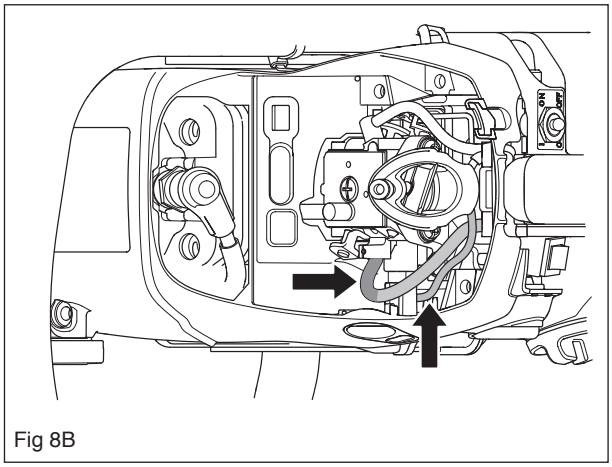


Fig 8B

7.8 Dismantling the ignition module and flywheel

1
Remove the cylinder cover. Remove the starter. Snap off the ignition cable from the air guide plate and remove the air guide plate. See figure 9.

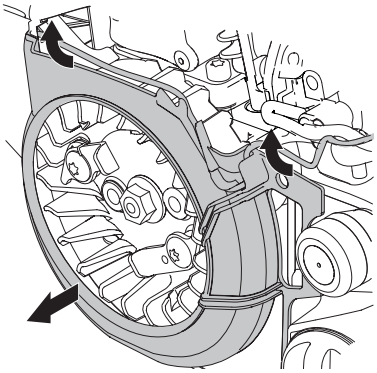


Fig 9

2
Knock out a few of the pins in the tool if it does not match up with the flywheel.
Use the tool to hold the flywheel in place while the flywheel nut is loosened using a suitable socket wrench. See figure 10.

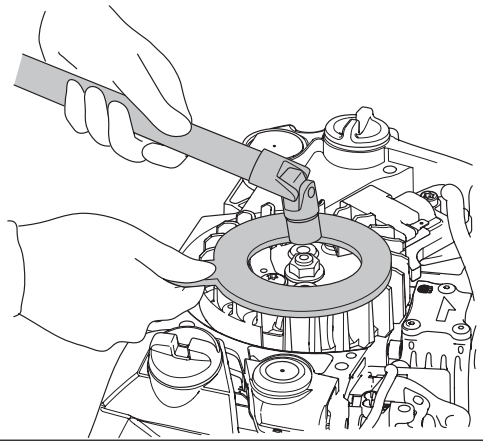


Fig 10

3
use special tool 510 13 89-01 to remove the flywheel. See figure 11.

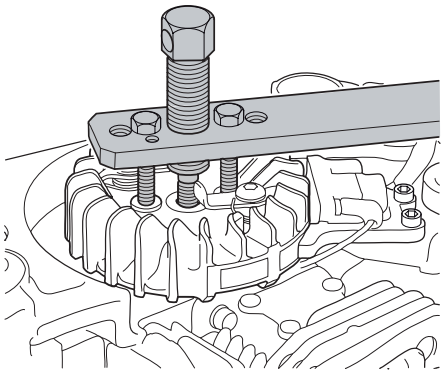


Fig 11

4
Detach the ignition cable and loosen the screws. See figure 12.

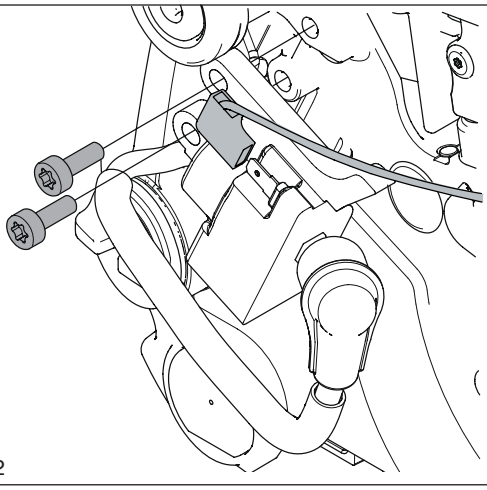


Fig 12

Cleaning and inspection

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

7.9 Assembling the ignition module and flywheel

1
Place the ignition module in position and fit the screws. See figure 13. Do not tighten the screws.

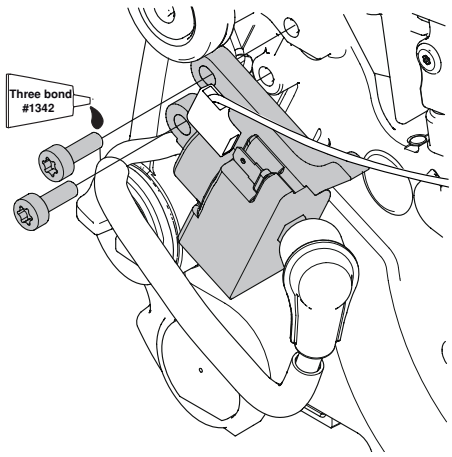


Fig 13

2
Fit the flywheel onto the crankshaft pin. Turn the flywheel until the key fits into the key slot on the shaft. See figure 14.
Tighten the nut for the flywheel.

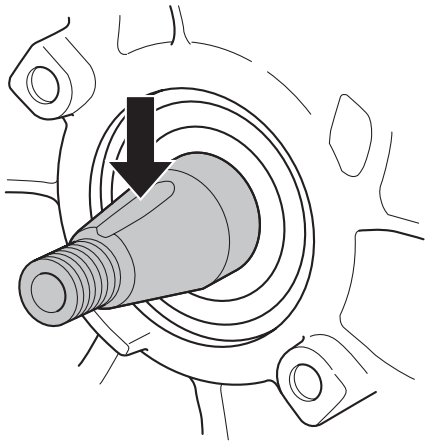


Fig 14

3
Insert the plastic air gap tool, at a thickness of 0,4 +- 0,1 mm, between the lugs on the ignition module and flywheel. See figure 15.

Turn the flywheel so that the magnets are positioned opposite the ignition module. Tighten the screws, at a tightening torque of 2,5-3,9 Nm. Remove the plastic air gap tool.

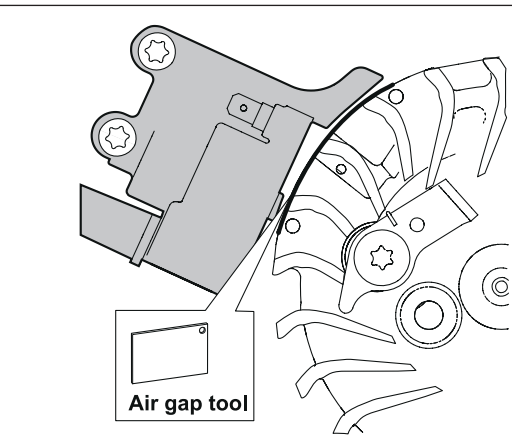


Fig 15

4
Attach the ignition cable to the ignition module.

5
Then fit the:
- air guide plate and press the cable in place.
- starter, at a tightening torque of 2,5-3,9 Nm.
- cylinder cover and air filter cover.

7.10 Dismantling the centrifugal clutch

1
Remove the cylinder cover. Release the brake by moving the front hand guard backwards. Loosen the bar nuts and remove the clutch cover, saw chain and guide bar. See figure 16.

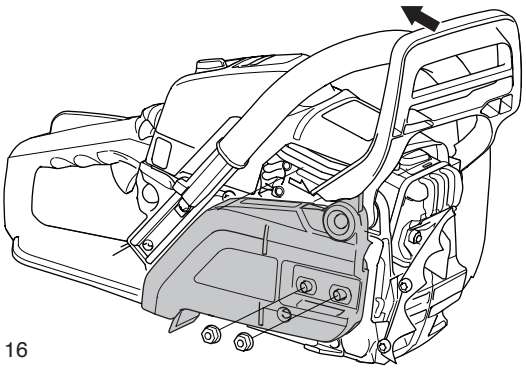


Fig 16

2
Remove the spark plug hat and the spark plug. Insert the piston stop (581 40 85-01). See figure 17.

3
Loosen the clutch using tool 513 63 60-01 and a suitable socket wrench. Turn the clutch clockwise to loosen it. See figure 17.

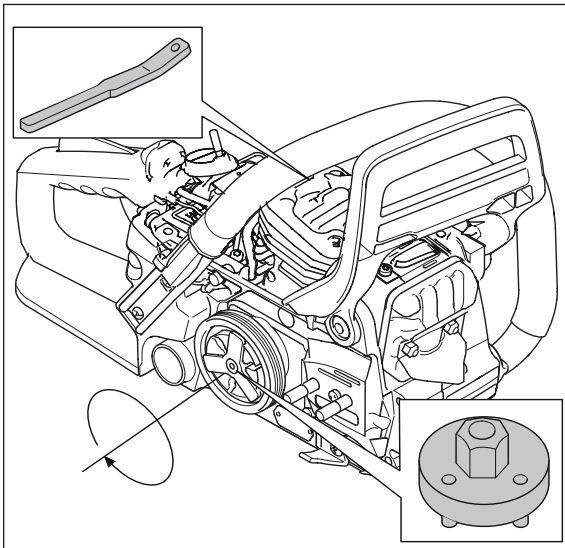


Fig 17

4
Dismantle the clutch according to figure 18. Carefully remove the clutch spring.

NOTE!

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

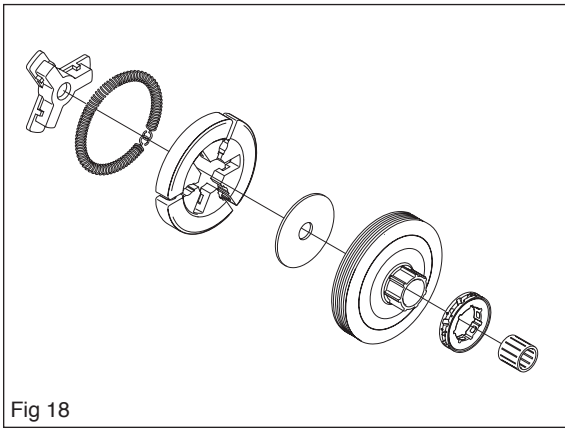


Fig 18

Cleaning and inspection

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

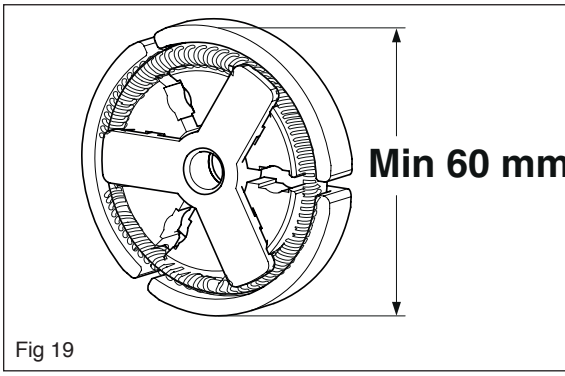


Fig 19

7.11 Assembling the centrifugal clutch

1
Use special tool 513 63 65-01 and assemble the clutch according to figure 20.

2
Screw in the clutch (anti-clockwise) until it stops. Then tighten the clutch using tool 513 63 60-01 and a suitable socket wrench or combination spanner. Tightening torque of 29,4-34,4 Nm.

3
Remove the piston stop and fit the spark plug using a tightening torque of 8,8-12,7 Nm. Attach the spark plug hat.

Then fit the:
- cylinder cover
- guide bar
- saw chain
- clutch cover

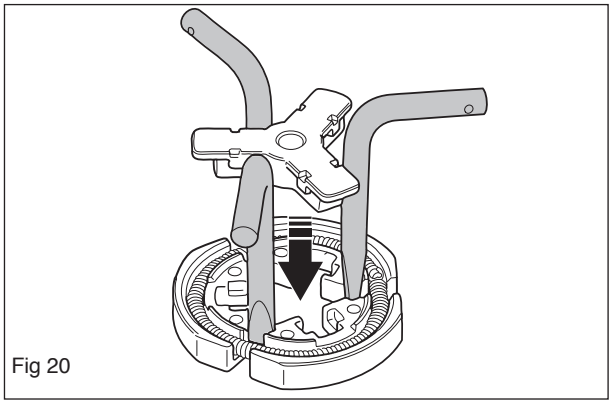


Fig 20

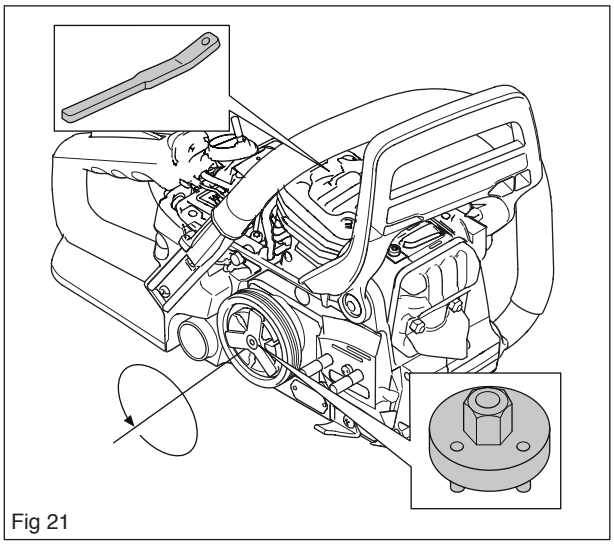


Fig 21

7.12 Dismantling the oil pump and screen

1
Empty and clean the saw chain oil tank. Dismantle the centrifugal clutch as outlined in “Dismantling the centrifugal clutch”.

2
Remove the clutch.

3
Remove the chain guide plate and the oil pump cover. See figure 22.

4
Remove the oil pump from the crankcase together with the oil pressure hose. See figure 22.

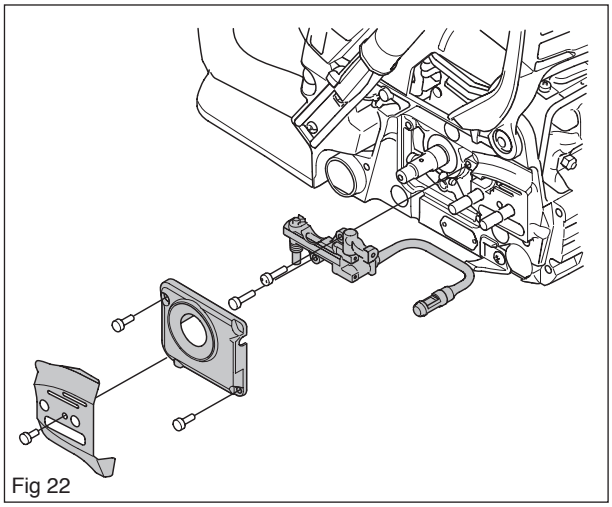


Fig 22

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

7.13 Assembling the oil pump and screen

1
Lower the oil filter in place and replace the oil pump as outlined in figure 22 and tighten the screws.

2
Fit the pump drive wheel and apply three bond #1322 (thread lock) to the screws. Fit the chain guide plate.Tightening torque 1,5-2,9 Nm. See figure 22B.

3
Fit the clutch. See the “Assembling the centrifugal clutch” chapter.

4
Fit the saw chain, guide bar and clutch cover.

5
Adjust the oil pump. See Figure 23.

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

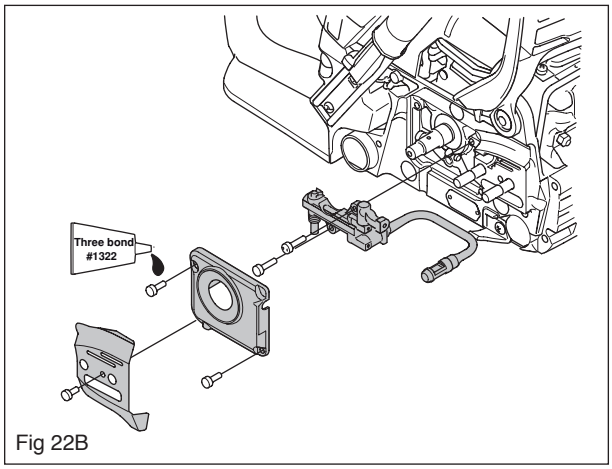


Fig 22B

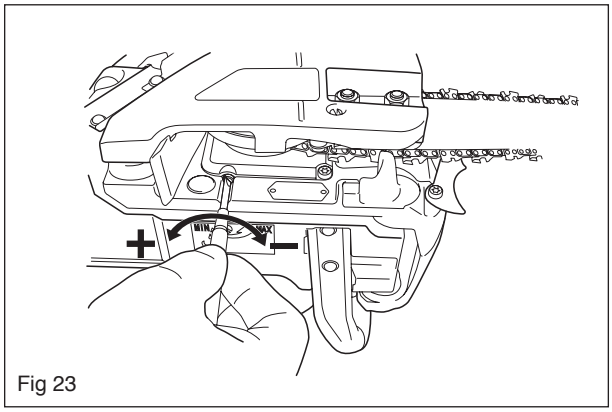


Fig 23

7.14 Dismantling the intake system

The intake system consists of:
- The inlet pipe assy, B
- The intake flange, C

See Figure 24.

1
Dismantle the cylinder cover.

2
Dismantle the air filter, the filter holder, the cable from the intake flange holder.

3
Dismantle the carburettor as outlined in “Dismantling the carburettor”.

4
Dismantle the intake flange, C.

5
Dismantle the inlet pipe assy, B.

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.

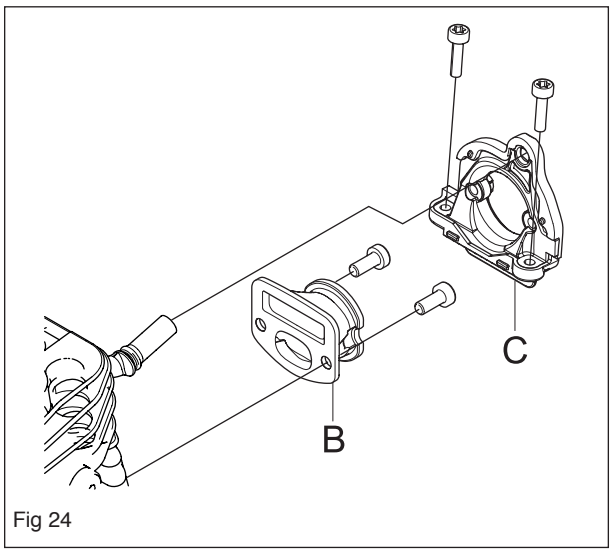


Fig 24

7.15 Assembling the intake system

1
Fit the inlet pipe assy, B. See figure 25.

2
Fit the intake flange, C. See figure 25.

3
Fit the carburettor and the throttle rod as outlined in “Assembling the carburettor”.

4
Fit the air filter, the filter holder, the cable from the intake flange holder.

5
Fit the cylinder cover.

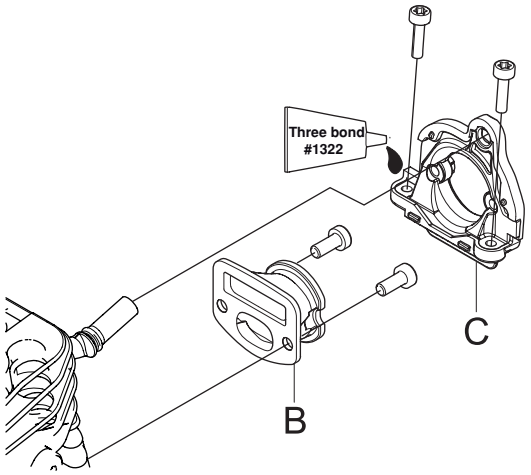


Fig 25

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

7.16 Carburettor

WARNING!
The fuel used in the chain saw has the following hazardous properties:
1. The fluid and its vapour are poisonous.
2. Can cause skin irritation.
3. Is highly inflammable.

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

Metering unit
The needles and the fuel's control functions are located in the metering unit A. Here the correct fuel amount is adjusted for the current speed and power output. See figure 26.

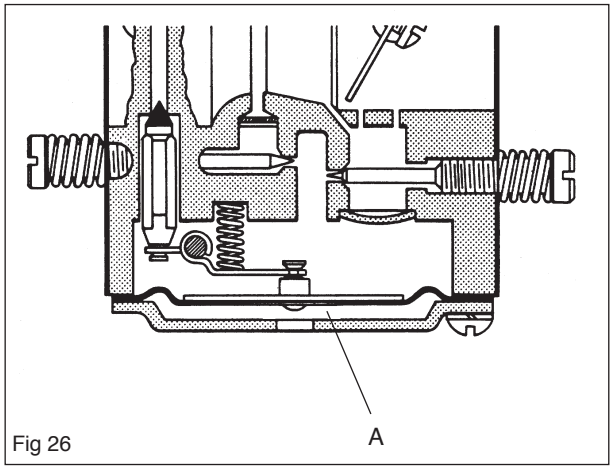


Fig 26

Mixing venturi
The mixing venturi B houses the choke, throttle valve and diffuser jets. Here, air and fuel are mixed to create a fuel-air mix that can be ignited by the ignition spark. See figure 27.

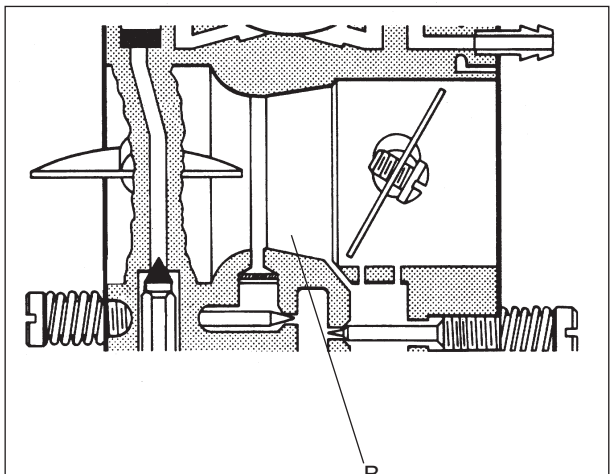


Fig 27

Pump unit
In the pump unit C fuel is pumped from the fuel tank to the carburettor's metering unit. One side of the pump diaphragm is connected to the crankcase and pulses in time with the pressure changes in the crankcase. The other side of the diaphragm pumps the fuel. See figure 28.

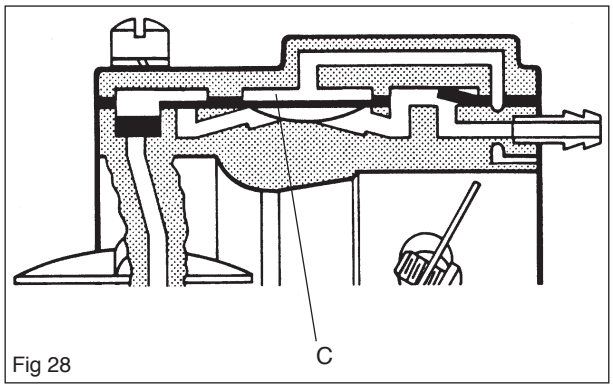


Fig 28

Function
The carburettor functions differently in the following modes:

Cold start mode
In cold start mode the choke valve D is completely shut. This increases the vacuum in the carburettor and fuel is easier to suck from all the diffuser jets E, F and G. Throttle valve H is partly open. See figure 29.

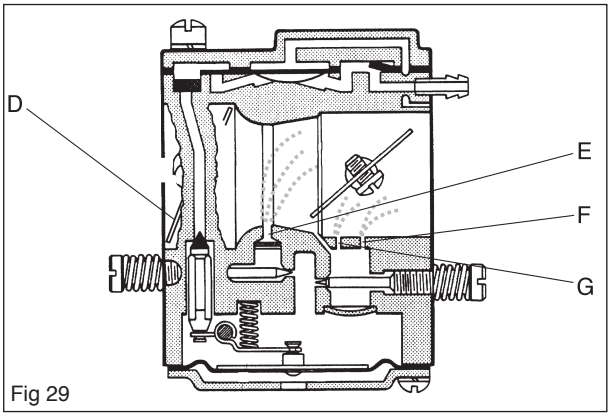


Fig 29

Idle mode
In idle mode throttle valve H is shut. Air is sucked in through an aperture in the throttle valve and a small amount of fuel is supplied through the diffuser jet F. See figure 30.

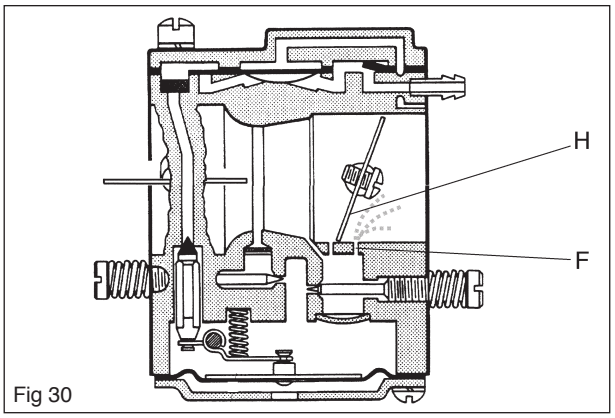


Fig 30

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

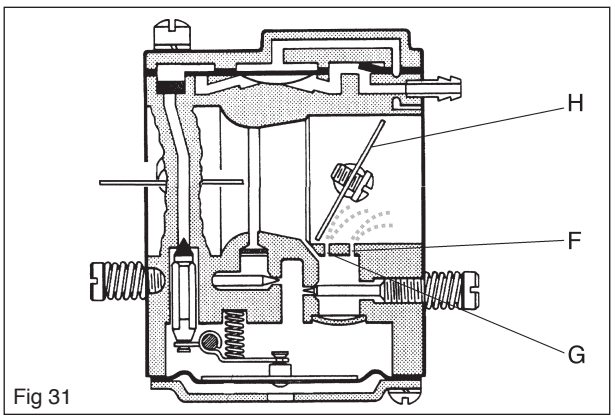


Fig 31

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

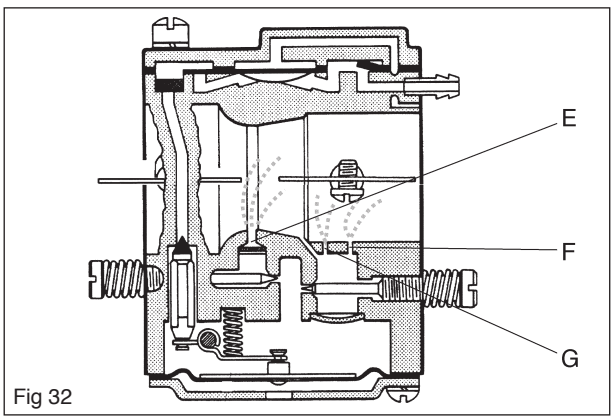


Fig 32

Dismantling the carburettor

1
Remove the cylinder cover and the air filter.

2
Remove the manifold. See figure 33.

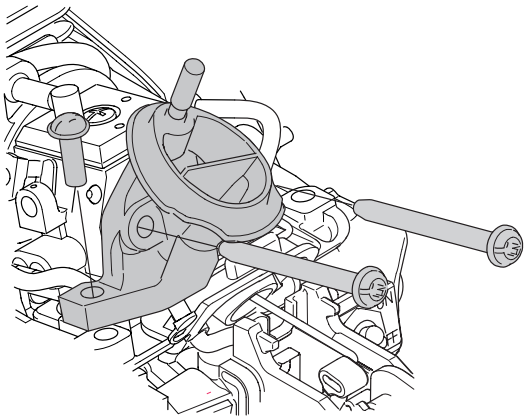


Fig 33

3
Detach hose A, B and C from the carburettor. See figure 34.

4
Unhook the choke and throttle rods. See figure 34B.

5
Remove the carburettor.

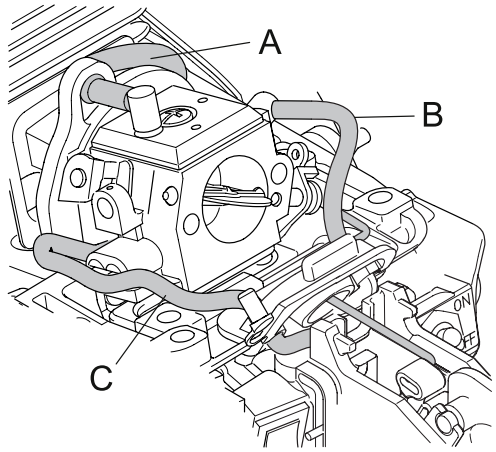


Fig 34

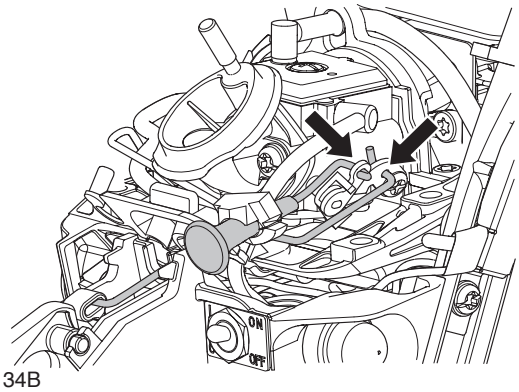


Fig 34B

6
Dismantle the pump cover H. Remove the control diaphragm J and gasket K. See figure 35.

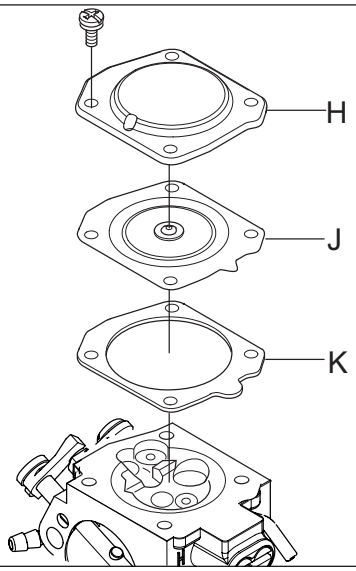


Fig 35

7
Remove screw P and needle valve M with lever arm Q, shaft L and spring R. See figure 36.

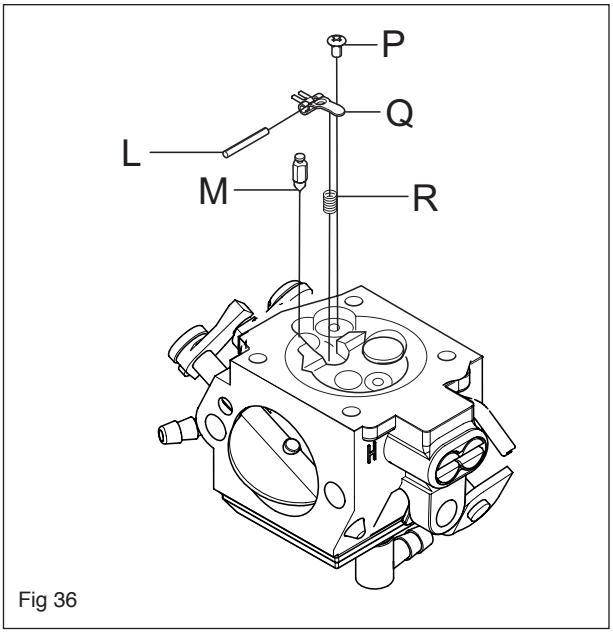


Fig 36

8
Remove screw Z and remove gasket Y and diaphragm X. See figure 37.

9
Use a needle or similar device and carefully pull up the fuel screen (W). See figure 37.

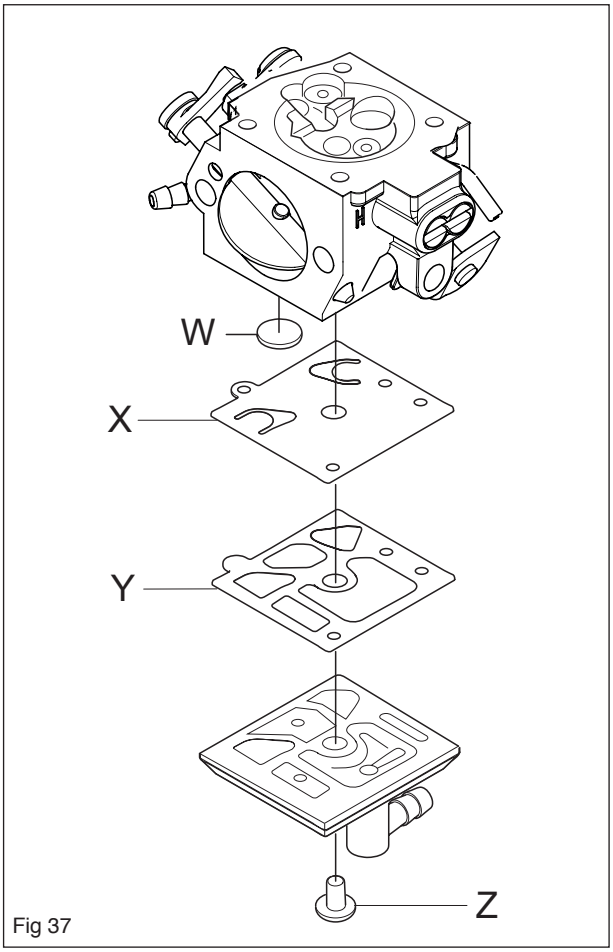


Fig 37

10
If necessary, dismantle throttle valve T and the High (S) and Low (P) jet screws valve. Remove the shafts with lever arms and springs. See figure 38.

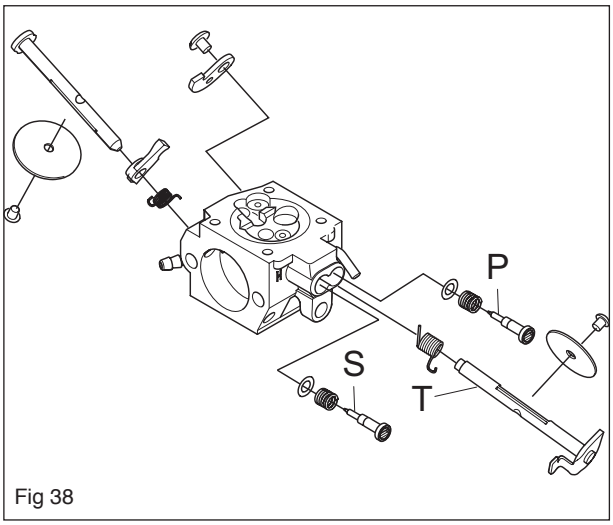


Fig 38

Cleaning and inspection
Clean all units in clean petrol.

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

1. That the gasket, pump and control diaphragms are undamaged.
2. That there is no play on the throttle and choke valve shafts.
3. That the needle valve M and its lever arm Q are not worn. See figure 36.
4. That the inlet manifold is intact. See figure 38.
5. That the fuel screen W is intact and clean. See figure 39.
6. That the tips of the hight and low jet screws are not damaged.

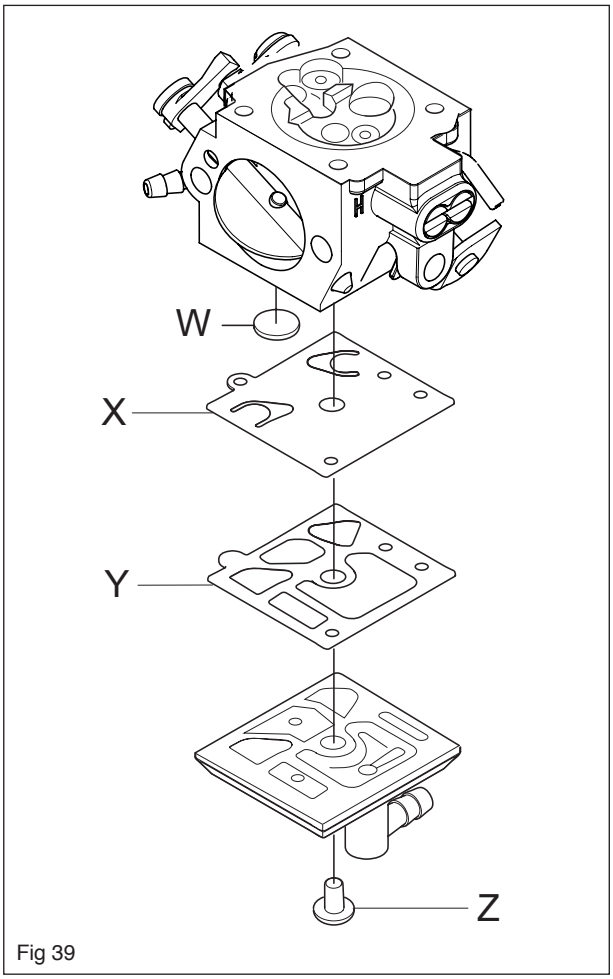


Fig 39

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

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

4. Assemble needle valve M with lever arm Q, shaft L and spring R, and tighten screw P. See figure 40.

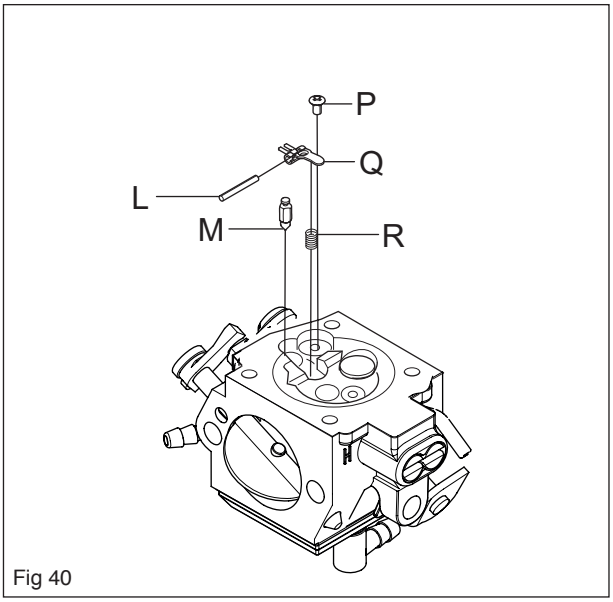


Fig 40

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

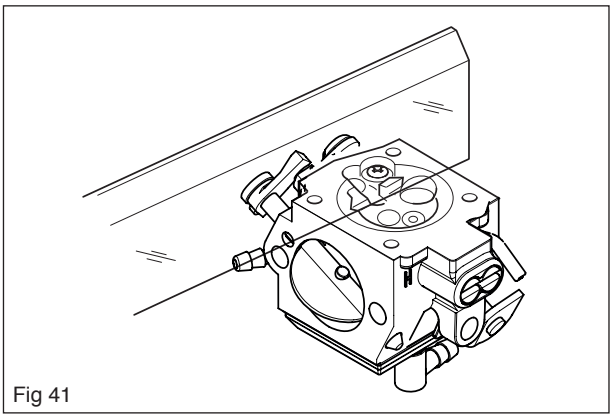


Fig 41

7. Fit gasket K, the control membrane J and the pump cover H. See figure 42.
8. Carry out a pressure test. See “Pressure testing the carburettor”.

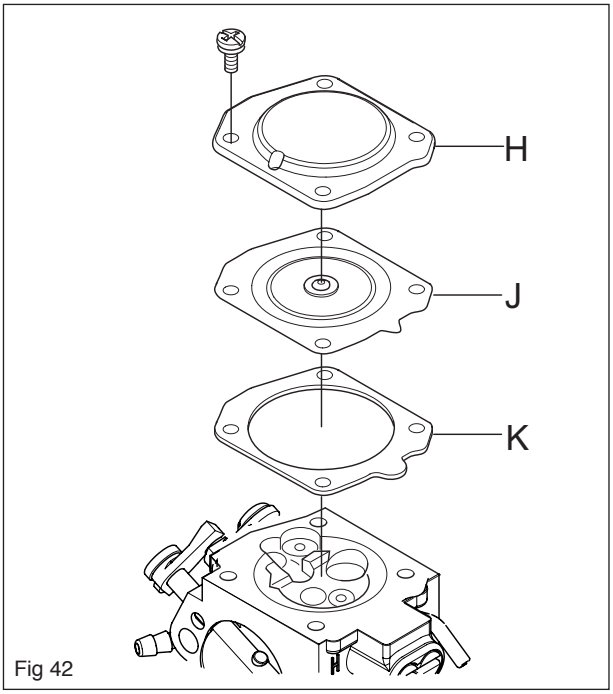


Fig 42

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

Option 1
Carry out the check as follows:

1
Connect pressure tester to the carburettor fuel inlet.

2
Submerge the carburettor into a container with water. See figure 43.

3
Pump up the pressure to 20 kPa.

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

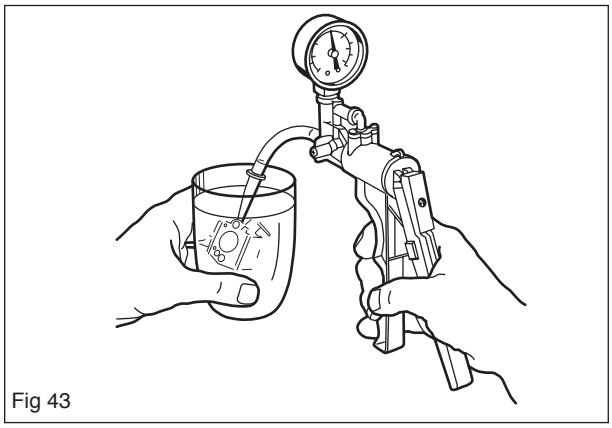


Fig 43

Option 2
Carry out the check as follows:

1
Plug the connections to the fuel inlet.

2
Create a vacuum to the purge nipple on the carburettor. No leakage is permitted. In the case of leakage, leakage spray can be used even if it is difficult. Try and identify where the spray is absorbed. It can be used to show leakages in main jets, idling needles, measuring cover gaskets and measuring diaphragms.

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

Fitting the carburettor

1
Fit the carburettor.

2
Fit the pulse hose A, the input hose B, and the tank return hose C. See figure 44.

3
Fit the manifold. See figure 45.

4
Fit the choke and throttle rods to the carburettor. See figure 45B.

5
Fit the cylinder cover, air filter, air filter cover and the rear handle cover.

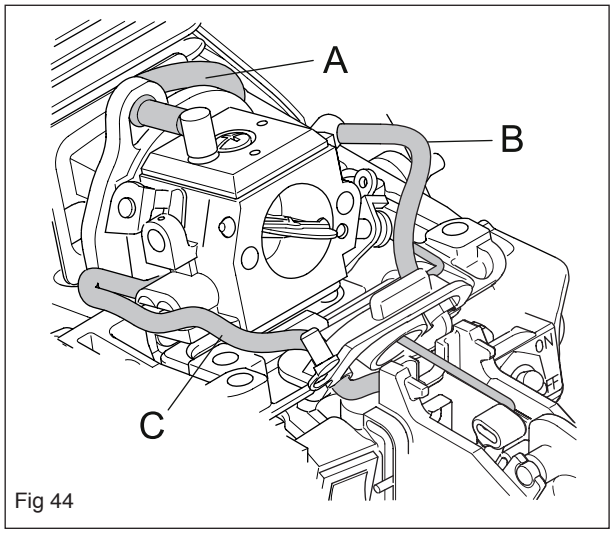


Fig 44

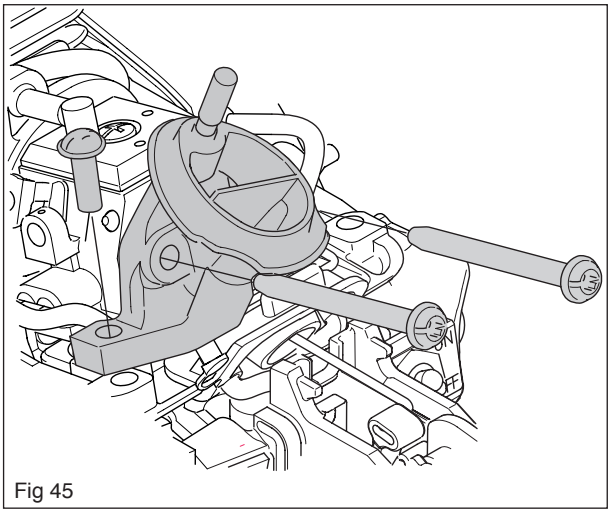


Fig 45

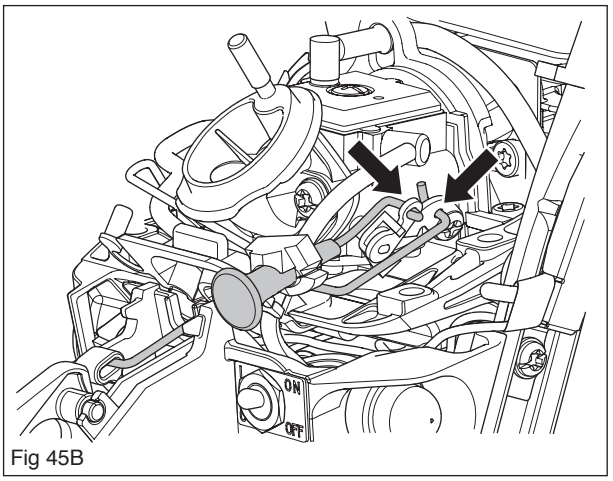


Fig 45B

Adjustment

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

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

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

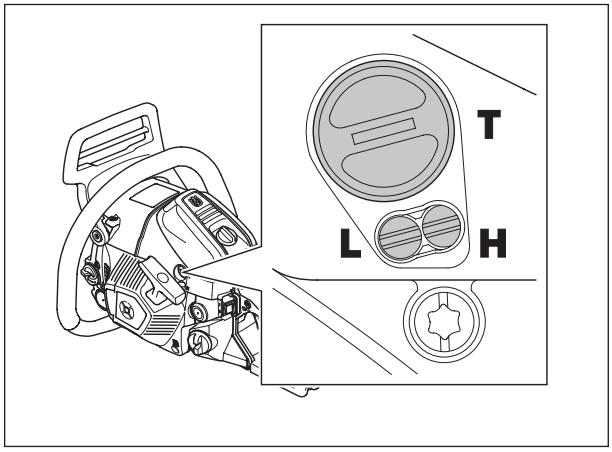
NOTE!
For optimal setting, a tachometer should be used. The recommended maximum overspeed should not be exceeded.

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

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

The carburettor is equipped with three adjustment options:

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



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

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

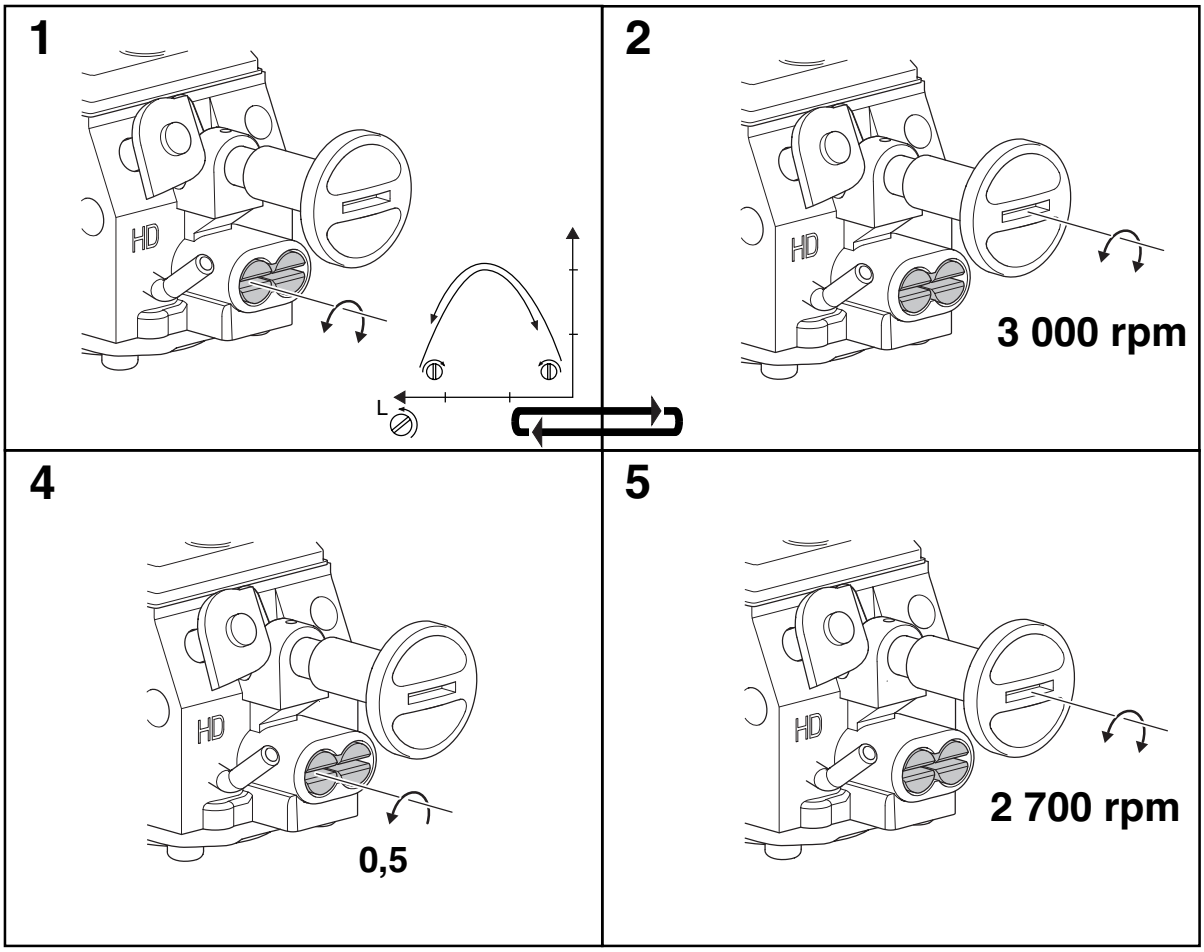
Run the chain saw for approx. 10 minutes before adjusting the carburettor.

Basic adjustment for chain saws with ignition system (IKEDA UK-09701) and carburettors without limiters (Walbro HD-54B)

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

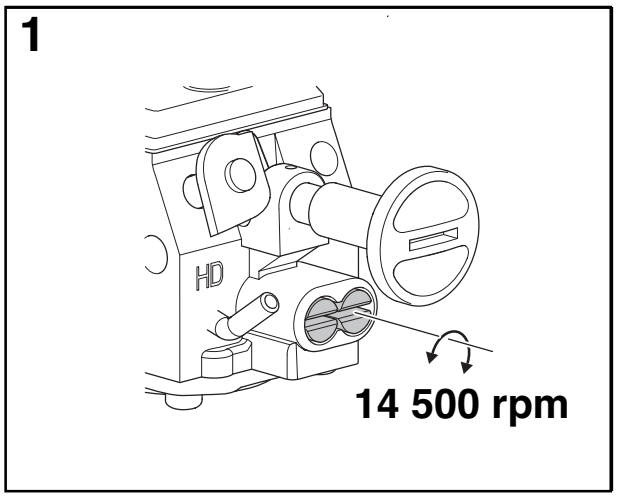
Adjustment of the L-needle and T-needle.

1. Find the highest idling speed by slowly turning the L-screw clockwise and counterclockwise.
2. Turn the T-screw until the idling speed is 3 000 rpm.
3. Repeat the procedure in 1 and 2 once again.
4. Turn the L-screw counterclockwise 0,5 of a turn.
5. Adjust the T-screw until the idling speed is 2 700 rpm.



Adjustment of the H-needle.

1. Adjust the H-screw until the maximum engine speed at full throttle is 14 500 rpm.



7.17 Tank unit

WARNING!
The fuel used in the chain saw has the following hazardous properties:
1. The fluid and its vapour are poisonous.
2. Can cause skin irritation.
3. Is highly inflammable.

Dismantling

1. Drain the fuel from the tank.
2. Remove the clutch cover, saw chain, guide bar, starter and the cylinder cover. Remove the rear handle cover.
3. Detach hoses B and C. Detach the throttle rod A. See figure 46.
4. Remove the handle bar. Detach the handle heater (543 XPG). Remove the chain catcher.
5. Detach the cabling from the stop switch and earth cabling from the crankcase.
6. Detach the cabling from the handle heater switch (543 XPG) and stop switch (top one)
7. Remove the tank unit. See figure 47.

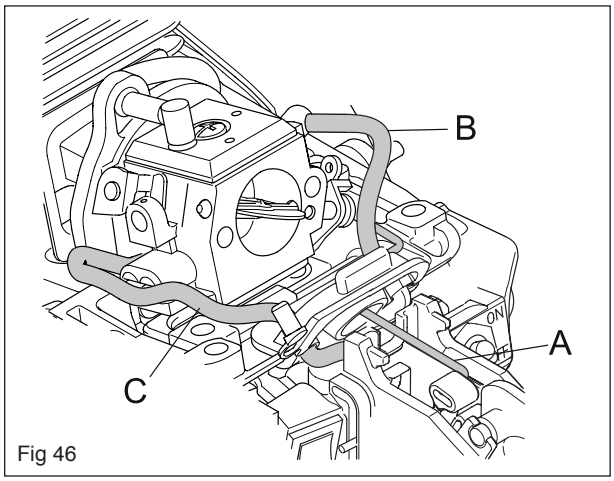


Fig 46

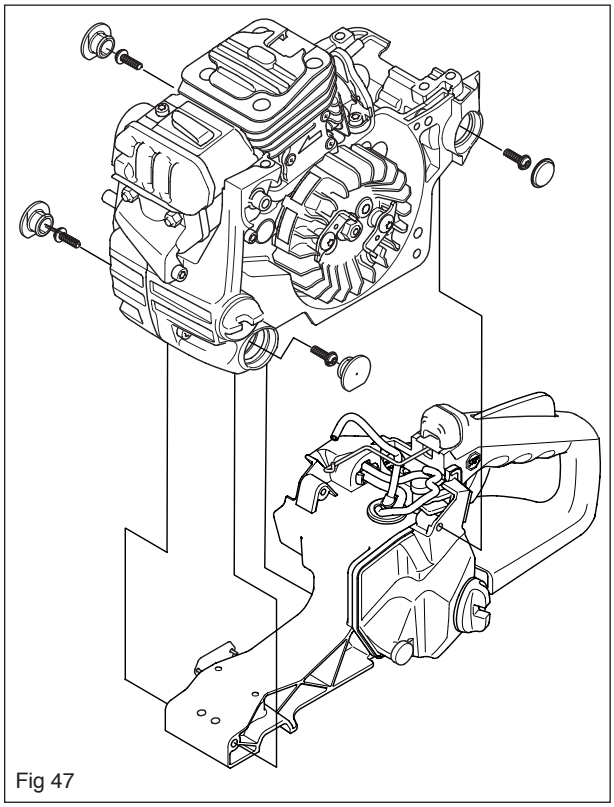


Fig 47

Assembly

1. Fit the tank unit. See figure 47.
2. Fit the earth cables.
3. Fit the stop control cable from the ignition module.
4. Fit the hoses B and C and the throttle rod A to the throttle trigger. See figure 46.
5. Fit the starter, cylinder cover, clutch cover, saw chain and the guide bar.

7.18 Vibration damping system

Dismantling
Remove the plastic lids and rubber dampers on both sides. See figures 48-49.

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

Assembly
Fit the rubber dampers and plastic lids on both sides. See figures 48-49. Tightening torque 2,5 - 3,9 Nm

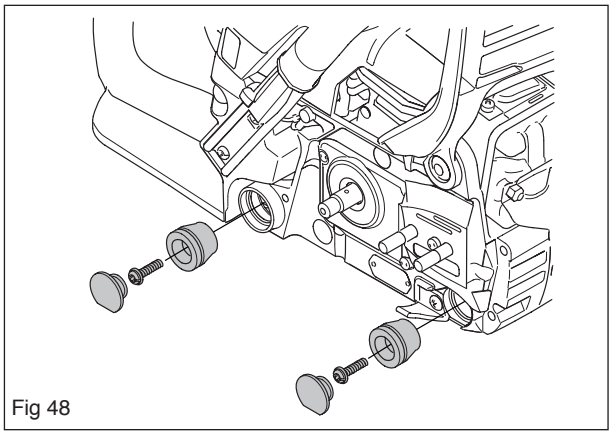


Fig 48

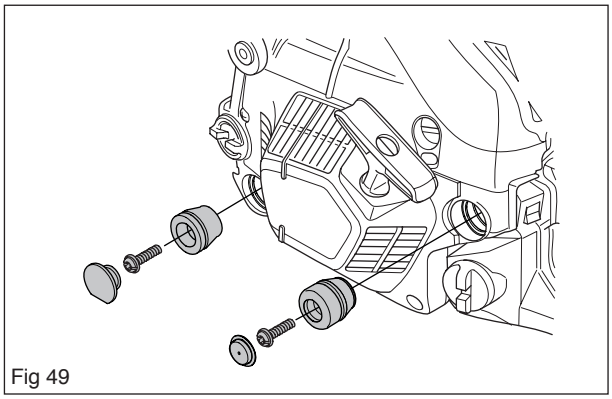


Fig 49

7.19 Replacing the fuel filter

NOTE!

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

1
When replacing the fuel filter, the old fuel filter must be taken out of the tank unit using special tool 502 50 83-01.

2
Pull out the fuel hose from the tank unit and pull away the filter A. See figure 50.

3
Fit the new fuel filter and insert the fuel hose back into the fuel tank.

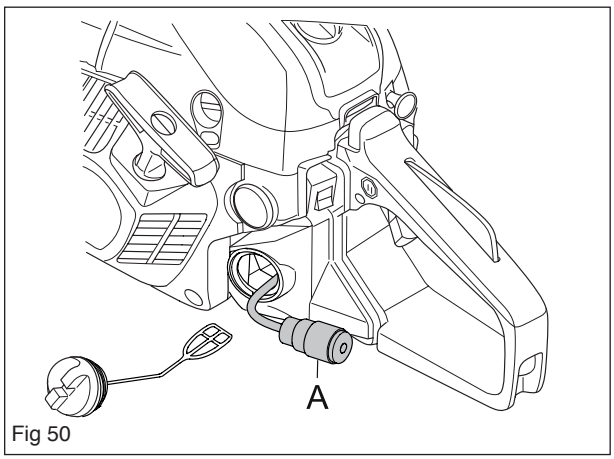


Fig 50

7.20 Replacing the primer bulb

Dismantle

1. Dismantle the cylinder cover and the air filter.
2. Loosen suction hose C and return hose from the primer bulb. See figure 51.
3. Snap off the fuel pump from the filter holder.

Assembling

1. Snap the primer bulb in place in the filter holder. See figure 51.
2. Fit the return and suction hose on the primer bulb.
3. Fit the air filter and cylinder cover.

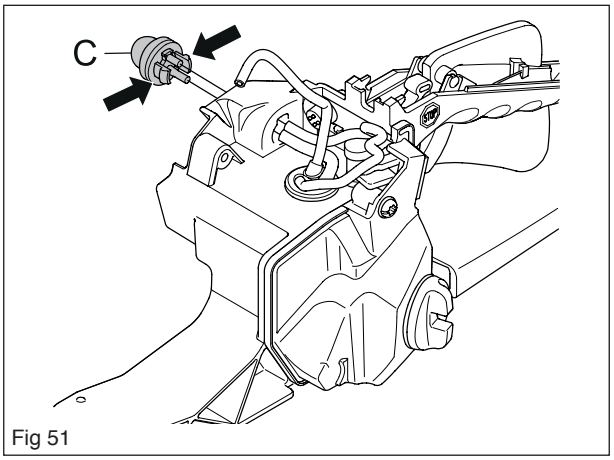


Fig 51

7.21 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 52.

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

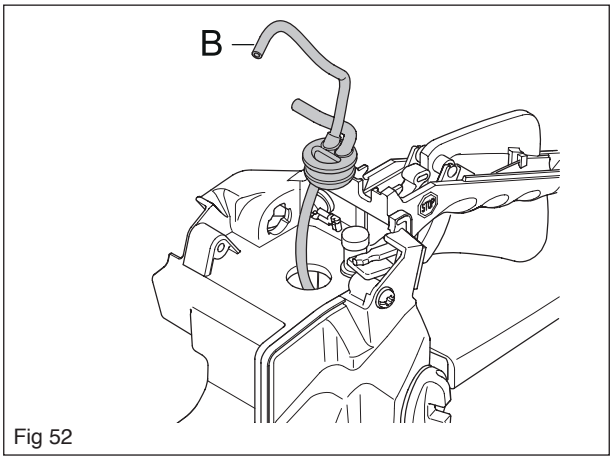


Fig 52

7.22 Handle heating system (543 XPG)

The handle heating system comprises the following:

- Generator
- Power switch
- Heating elements in the rear handle and the front handle bar.

Troubleshooting

Troubleshooting requires:

- Ammeter
- Ohmmeter
- Coolant

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

Remove the screw holding the earth cables. Remove the cover. See Figure 53.

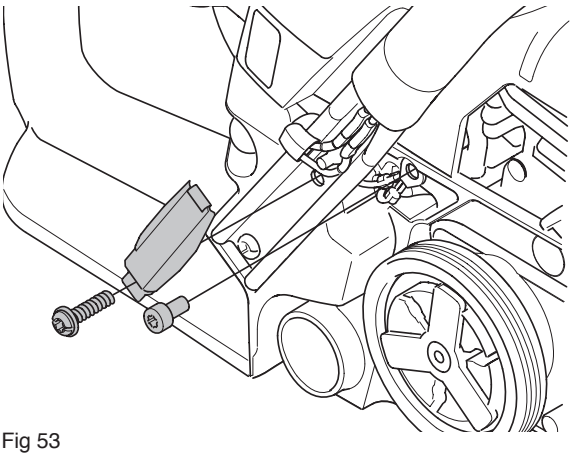


Fig 53

2

Measure the resistance in the whole circuit by connecting the multimeter to the earth cable and a properly cleaned cylinder. See Figure 54.

A correct reading with the power switch set to "OFF" = ∞ Ω.

A correct reading with the power switch set to "ON" = 3.1 Ω to 4.1 Ω.

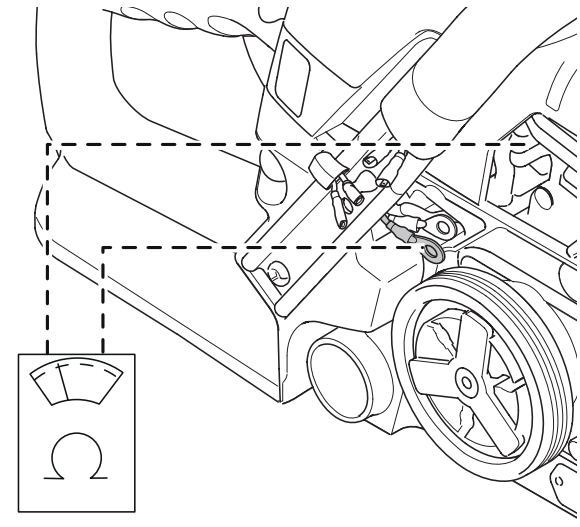


Fig 54

Troubleshooting the heating element, rear handle

1
Connect the multimeter as outlined in Figure 55 and measure the resistance in the rear handle's heating element.

2
The multimeter reading should indicate between 0.4 Ω and 0.6 Ω. Replace the heating element if you get another reading.

- Check the heating element for cracks or thermal deformation. If necessary, replace it with a new one.
- If the lead wires covering material is damaged or worn, replace it with a new one.

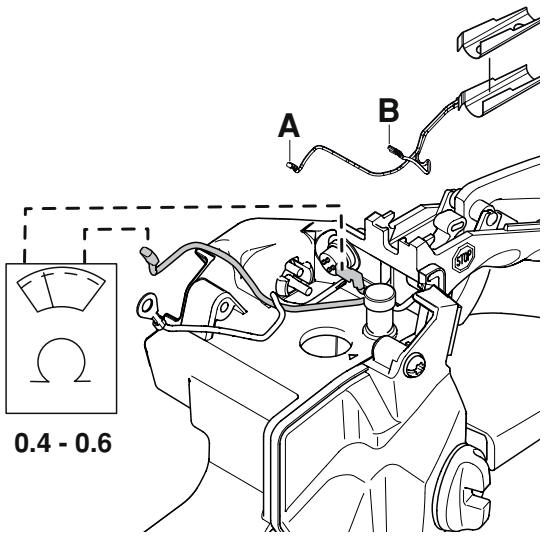


Fig 55

Troubleshooting the heating element, front handle

1
Connect the multimeter as outlined in Figure 56 and measure the resistance in the front handle's heating element.

2
The multimeter reading should indicate between 1.8 Ω and 2.4 Ω. Replace the front handle if you get another reading.

- If the lead wire is open-circuted or its covering material is worn or damaged, replace it with a new one.

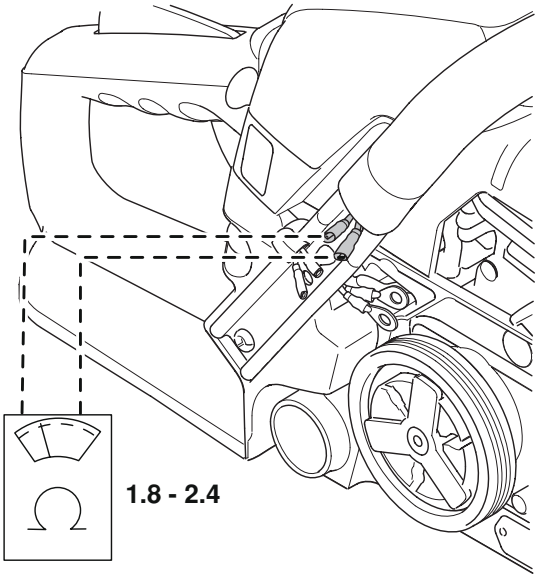


Fig 56

Troubleshooting the generator

1
Connect the multimeter to the generator cable and the heater coil as outlined in Figure 57.

2
The multimeter reading should indicate between 0.9 Ω and 1.1 Ω. Replace the generator if you get another reading.

- Check for cracks and thermal deformation. If necessary, replace with a new one.
- If the lead wire is damaged, replace with a new one.

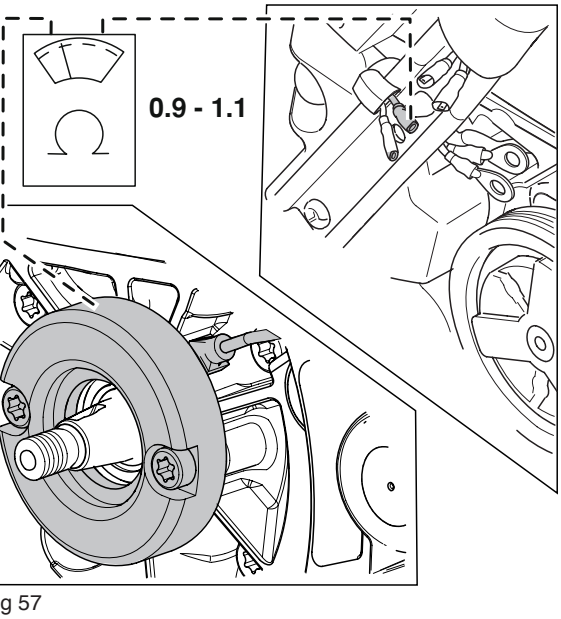


Fig 57

When replacing the generator, use special tool 512 41 31-01 to fix the heating coil. Also, apply three bond #1322 (thread lock) or similar to the screws. See figure 57B. Tightening torque 2,9 - 3,9 Nm.

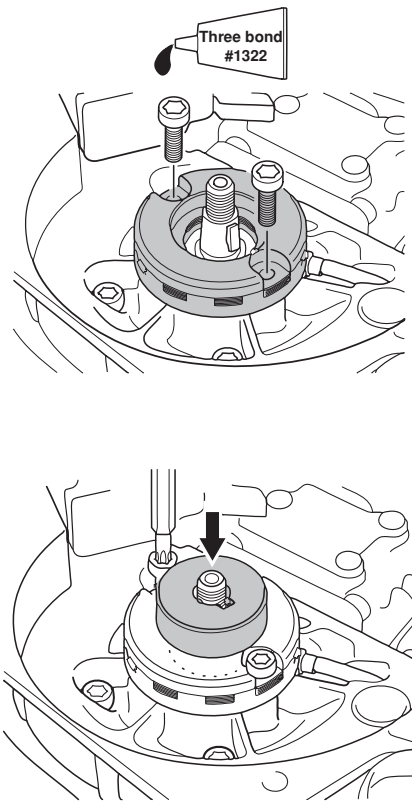


Fig 57B

7.23 Dismantling the piston and cylinder

1
Dismantle the:
- cylinder cover
- front handle
- carburettor
- muffler
- spark plug cap
- intake system

2
Remove the cylinder's four screws.
Carefully lift away the cylinder and the gasket.
See figure 58.

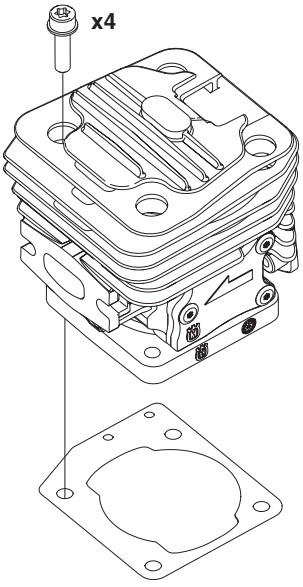


Fig 58

NOTE!

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

3
Cover the crankcase opening.

4
Remove the circlips and press out the gudgeon pin. Remove the piston. See figure 59.

5
Remove the gudgeon pin bearing (the needle bearing) using a pliers. See figure 59.

6
Replace with a new bearing.

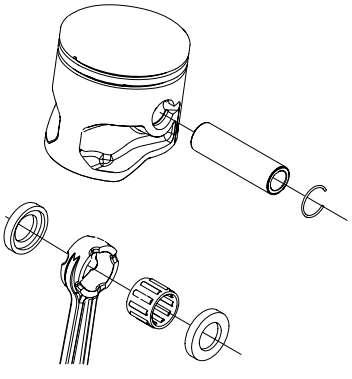


Fig 59

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

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

Check the following:

- That the cylinder's surface coating is not worn. Especially the upper part of the cylinder.
- That the cylinder does not have any chafe or cutting marks. See figure 60.
- That the piston is free of score marks. Minor scratches can be polished off using fine emery paper.
- That the piston ring is not burnt into its groove.
- Measure the wear on the piston rings. This must not exceed 1 mm. See figure 61. Use the piston to push the piston ring downward.
- That the gudgeon pin bearing is intact.
- That the intake bellows is intact.

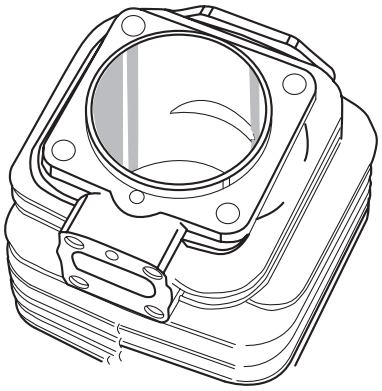


Fig 60

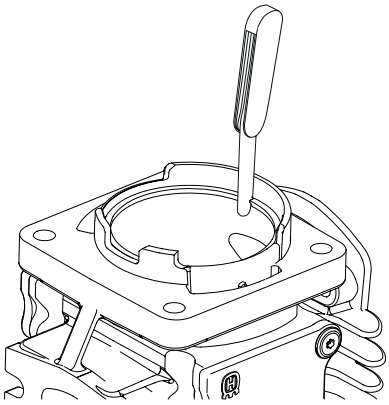


Fig 61

Faults and causes

See Figure 62.

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.

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

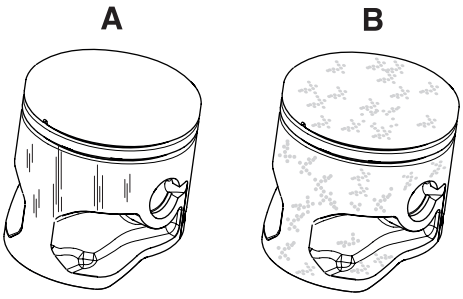


Fig 62

7.24 Assembling the piston and cylinder

1
Oil the gudgeon pin bearing with two-stroke oil and insert the crank rod. Se figure 63.

2
Attach the piston with the arrow facing the exhaust port. Slide in the gudgeon pin and fit the circlips. Note! Use new circlips.

3
Oil the piston with two-stroke oil.

4
Use piston assembly kit 502 50 70-01 when mounting the cylinder. See figure 64.

5
Tighten the cylinder screws crosswise. Tightening torque 6,9 - 8,8 Nm.

6
Assemble the:
- intake system *
- spark plug cap *
- muffler *
- carburettor *
- front handle *
- cylinder cover *

* See specific instruction.

NOTE!

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

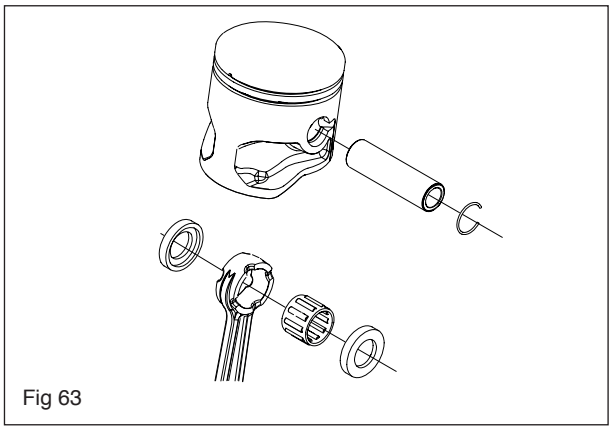


Fig 63

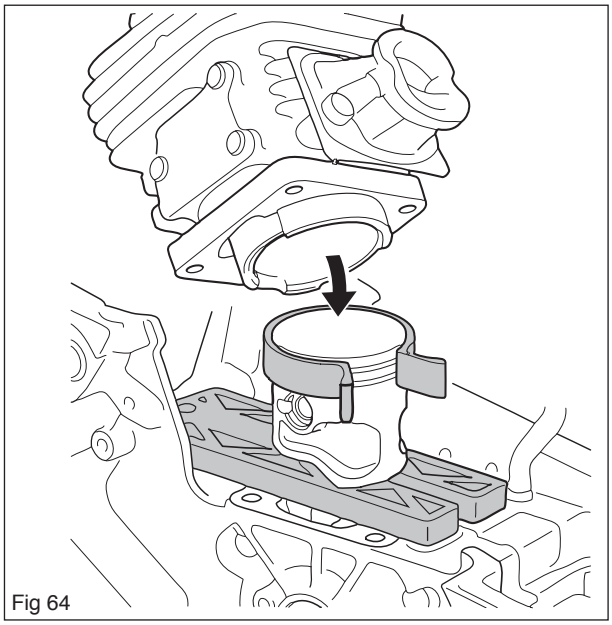


Fig 64

7.25 Leakage testing

1
Remove the:
- cylinder cover
- carburettor
- spark plug

2
Attach the cover plate 574 71 14-01 and plug 503 84 40-03. See figure 65.

3
Loosen the screws on the muffler and press the cover plate 502 54 11-02 between the muffler and cylinder (remove the muffler gasket). Tighten the nuts for the muffler. See figure 66.

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 muffler and carburettor, tighten the bolts to the specified torque. Remove the pressure test nipple and refit the spark plug.

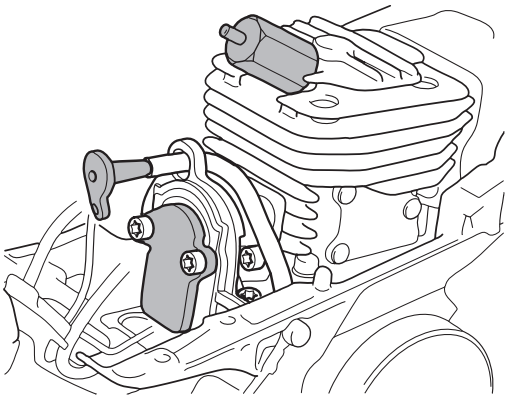


Fig 65

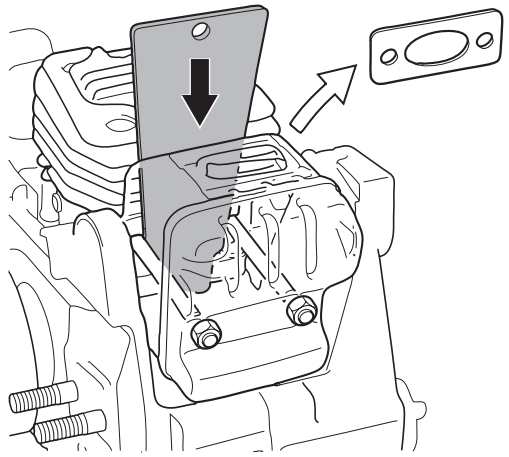


Fig 66

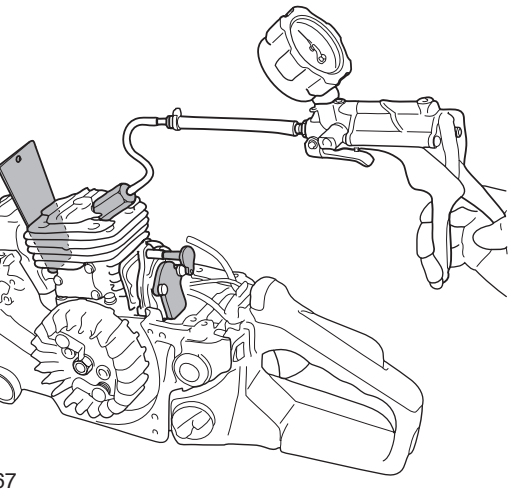


Fig 67

Cylinder compression test

1
Remove the spark plug and fit the pressure test tool art.nr 531 03 16-86. Use the 10mm adapter 583 84 98-01.

2
Pull the starter handle to measure the compression in the cylinder. The compression should not be under 686 kPa (7Kg/cm2). See figure 67B.

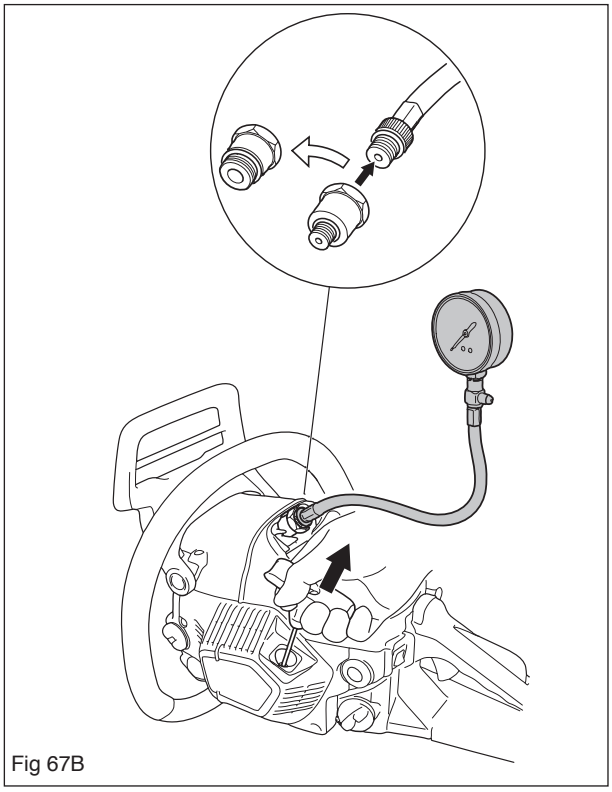


Fig 67B

7.26 Dismantling the crankshaft and crankcase

1
Dismantle the following:

- Clutch cover
- Saw chain and guide bar
- Centrifugal clutch *
- Cylinder cover *
- Starter *
- Flywheel *
- Carburettor *
- Hand guard *
- Muffler *
- Fuel unit *
- Piston and cylinder *
- Ignition module *
- Cabling *
- Oil pump *

* See specific instruction.

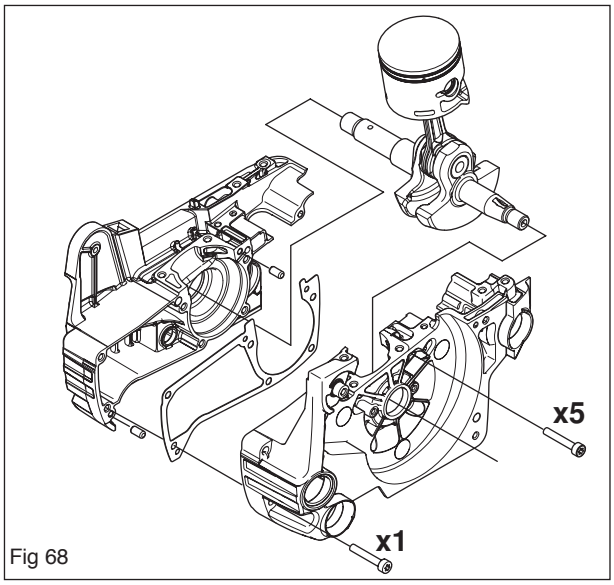


Fig 68

2
Remove the 5 screws from the pulley wheel side. See Figure 68.

3
Carefully pull the crankcase halves apart. Two guide pins keep the crankcase halves together. Remove the connecting rod and dispose of the gasket.

4
If required, remove the crankshaft bearings and sealing rings from the crankcase.

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 69.
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. See figure 70.
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.
7. Also inspect the bearing grip in the crankcase half.

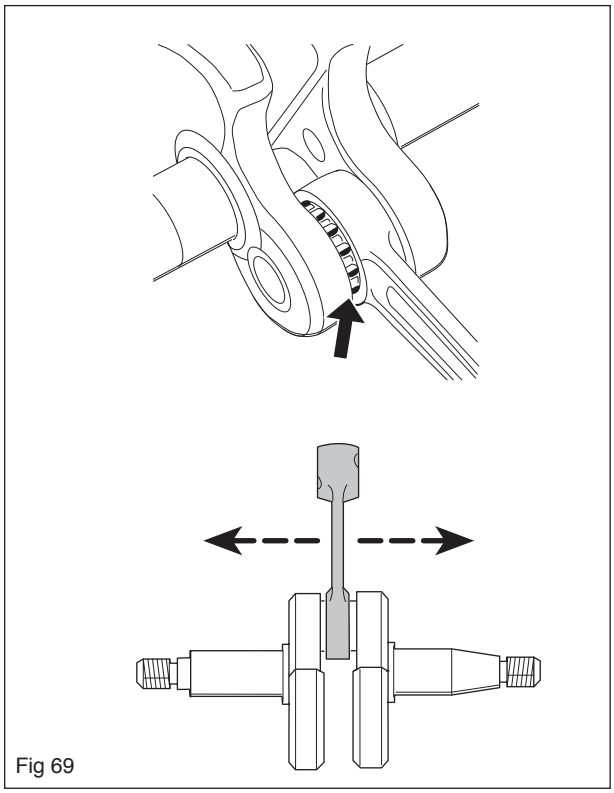


Fig 69

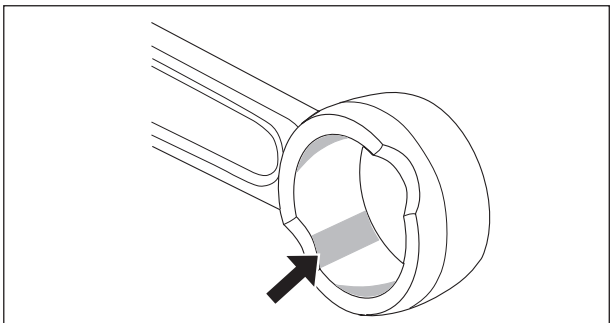


Fig 70

Assembly: bearings & oil seals

NOTE!

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

Proceed as follows if new bearings and oil seals must be fitted:

1
Fit the bearing in the flywheel side of the crankcase half. Make sure the bering is fitted aligned with the inside of the crankcase. Drive the bearing lightly into the crankcase with a plastic hammer. See figure 71.

2
Use special tool 584 14 05-01 as outligned in figure 72 to press the bearing into the crankcase.

3
Use the same procedure for the press-fitting of the bearing on the clutch side. Note! Use special tool 584 14 05-02 in this case.

4
Apply grease to the sealing surfaces. Press-fit the oil seals as outlined in figure 73. Special tool used: 584 14 05-01 (MAG side), 584 14 05-02 (PTO side).

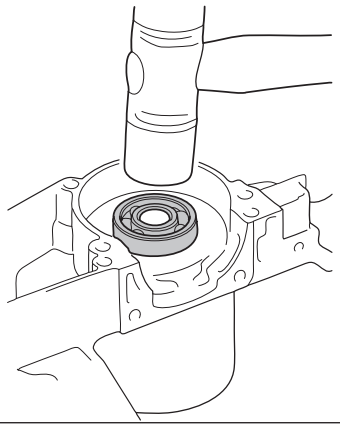


Fig 71

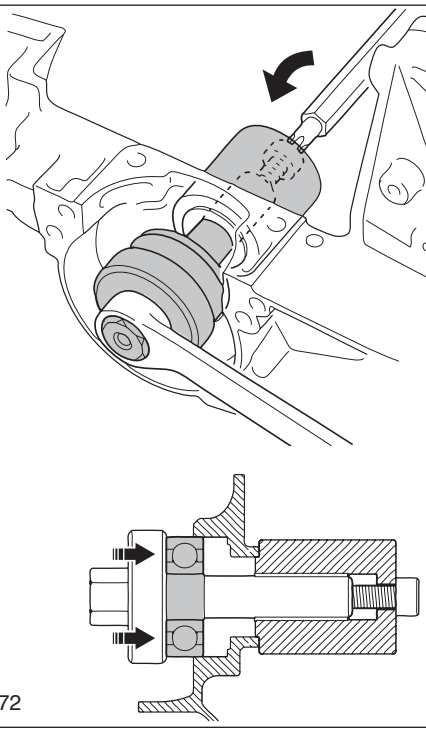


Fig 72

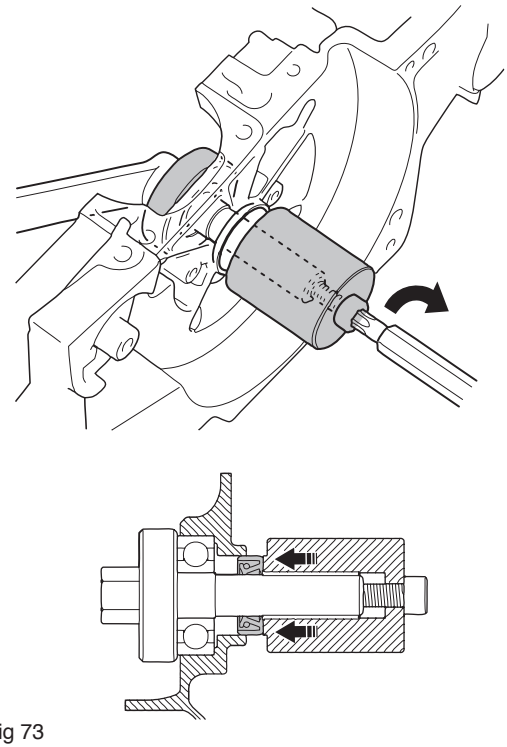


Fig 73

8
Fit the crankshaft to the PTO side of the crankcase. Note! Fit the guide, 513 70 59-01, to the crankshaft journal before the crankshaft is inserted. The guide prevents the oil seal from getting damaged. Remove the guide afterwards. See figure 74

9
Place the guide pegs in the PTO side half. Grease in and fit a new gasket. See figure 75.

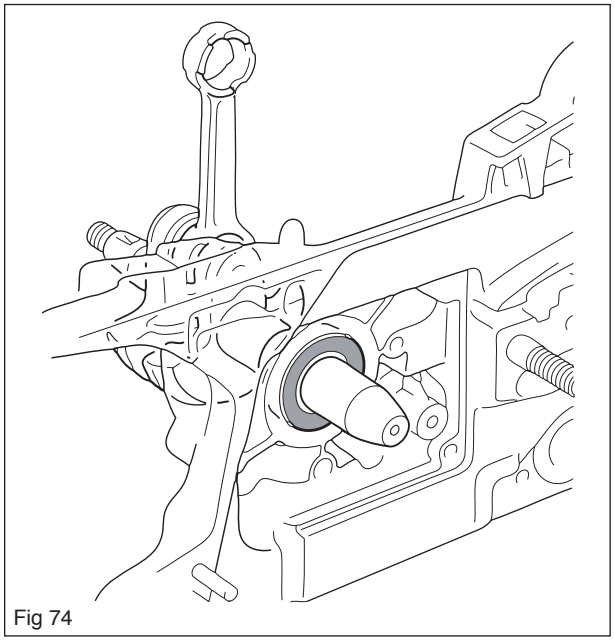


Fig 74

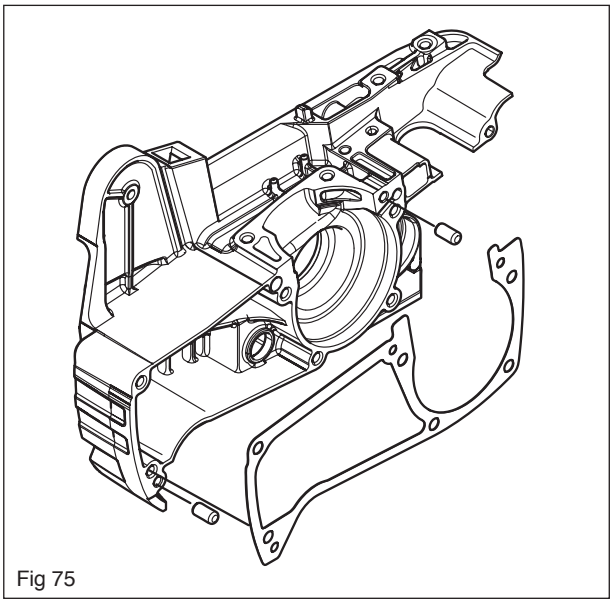


Fig 75

10
Fit the piston assembly tool (against rotation). Use the crankshaft assembly tool 502 50 30-22 and pull the crankshaft into the MAG side of the crankcase. Se figure 76.

11
Fix the six crankcase bolts. Tighten them alternately. Tightening torque 6,9 - 8,8 Nm. See figure 77.

12
Refit remaining parts.

NOTE!

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

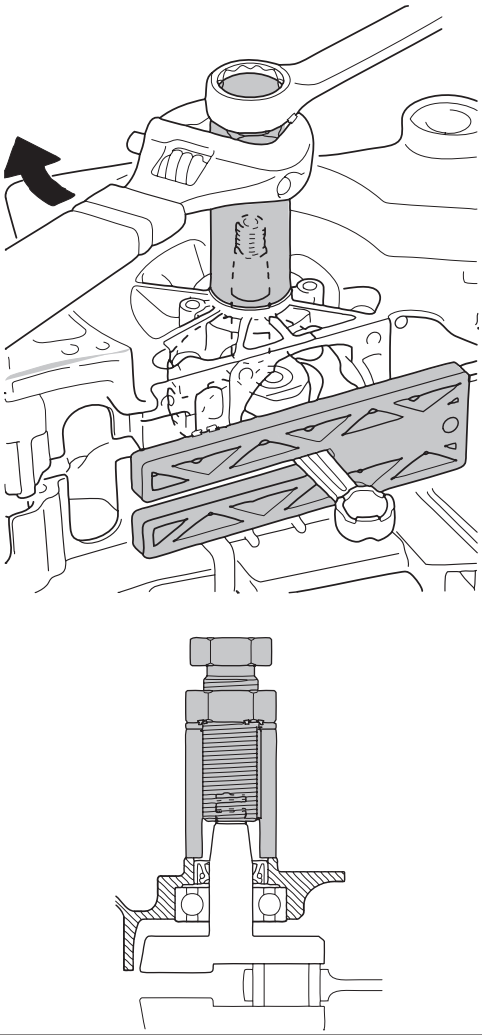


Fig 76

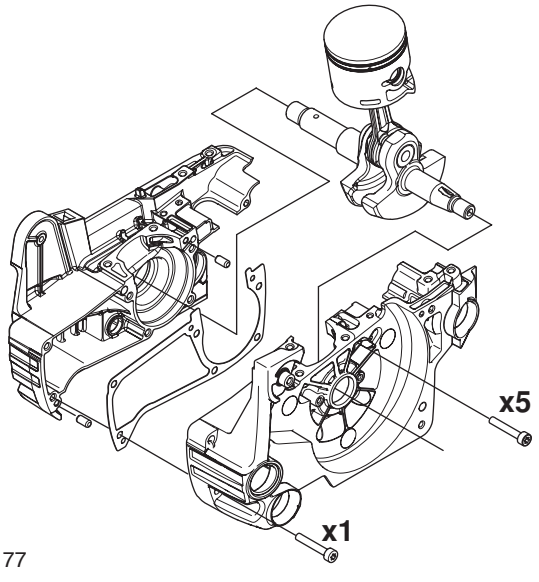


Fig 77

8 Troubleshooting

Contents

8.1 Troubleshooting

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

Starting

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

Idling (low rpm)

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

Idling (low rpm) (cont.)

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

High rpm

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

Acceleration och retardation

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

8.2 Troubleshooting methods

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

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

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