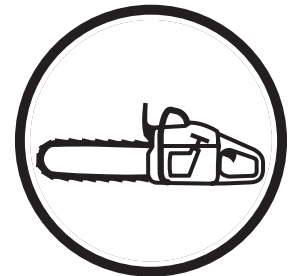


Workshop manual
385XP



English

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INTRODUCTION

General

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

Safety

Note! The section dealing with safety should be read and understood by all who carry out repair and service work on the chainsaw.

Warning symbols can be found in this Workshop Manual and on the chainsaw. See page 3. A new warning symbol must be applied as soon as possible if a warning symbol on the chainsaw has been damaged or is missing to ensure the greatest possible safety when using the chainsaw.

Target Group

When producing this Workshop Manual the assumption has been made that personnel who use it have general knowledge in the repair and service of small engines.

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

Modifications

Modifications will be successively introduced on the chainsaw during production. When these modifications affect servicing and/or spare parts, separate 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 This means that in time this Workshop manual will become out of date.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 issued concerning the chainsaw in question.

Tools

Special tools must be used during specific steps. All service tools are listed in the Workshop Manual. Usage is evident from respective sections.

Always use Husqvarna original parts:

- Spare parts
- Service tools
- Accessories

Layout

This Workshop Manual can be used in two different ways:

- For the repair of a particular system on the chainsaw.
- Dismantling and Assembly of the entire chainsaw.

Repair of a particular system

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

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

Dismantling and Assembly of the entire chainsaw

Proceed as follows when the entire chainsaw is to be dismantled and assembled:

1. Look up page 19, which deals with the **Starter** and carry out the instructions under the heading **Dismantling**.
2. Leaf forward in the book and carry out **Dismantling** in the order given in the sections.
3. Go back to the **Starter** on page 1 and carry out the instructions under **Cleaning and inspection**.
4. Leaf forward in the book and carry out **Cleaning and inspection** in the order given in the sections.
5. Order or take out all requisite spare parts from the stores.
6. Look up page 47 which deals with the **Crankcase** and carry out the instructions under **Assembly**.
7. Leaf forward in the book and carry out **Assembly** in the order given in the sections.

To improve understanding some sections provide a **Description** first of the actual unit.

Numbering

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

The figures are number 1, 2 etc.

The position references figure numbers restart in each new section.

SAFETY REGULATIONS

General instructions

The workshop where chainsaw repairs are to be done must be equipped with safety equipment as set out in local regulations.

No one may repair the chainsaw unless they have read and understood the contents of this Workshop Manual.

This Workshop Manual contains the following warning texts in relevant places. Warning texts are positioned before the procedures they refer to.



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

NOTE!
This text warns of material damage if the instructions are not followed.

Special instructions

The fuel used in the chainsaw has the following hazardous properties:

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

The bar, chain and clutch cover (chain brake) must be fitted before the saw is started otherwise the clutch can work loose and cause personal injury.

Wear ear-muffs when test running.

Do not use the saw until it has been adjusted so that the chain remains still when idling.

After test running, do not touch the muffler until it has cooled. Risk of burn injuries.

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

Ensure that the spring in the starter does not fly out and cause personal injury.

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 repair, the chain brake must be checked in accordance with the instructions on page 16.

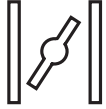
When replacing the crankshaft bearings note that the crankcase halves are hot. Wear protective gloves

Do not direct the compressed air jet towards the body when using compressed air. Air can penetrate into the blood circulation, which means mortal danger.

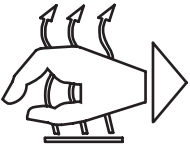
SYMBOLS

Symbols on the chainsaw

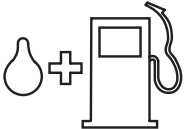
The following symbols are moulded into the chainsaw casing.



Choke



Switch for hand grip heater



Fuel filler



Stop button



Screw to adjust chain lubrication



Chain oil filler



Electric carburettor heating

Symbols in this Workshop Manual



This symbol indicates a risk of personal injury if instructions are not followed.

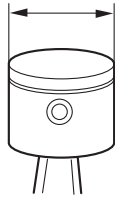
TECHNICAL DATA



Displacement
cm³/ cubic inch

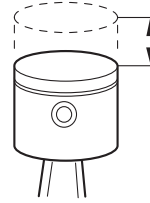
385XP

84.7cm³/5.2



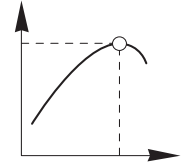
Bore
Ømm/Øinch

54mm/2.1"



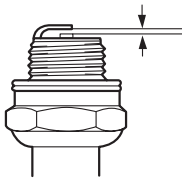
Stroke
mm/inch

3,7/1,5



Max. power/rpm
kW/hp/ rpm

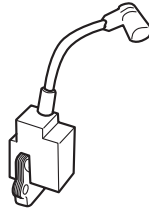
4.6/6.3, 9600rpm



Spark plug gap
mm/inch

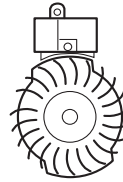
385XP

0,5/0,02



Ignition system

FHP/CD



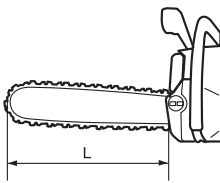
Air gap
mm/inch

0.30mm/X



Carburettor type

Tilotson HS 290



Guide bar length
cm/inch

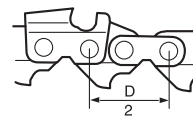
385XP

45-72/18-28



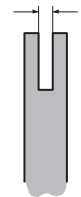
Chain speed at max.
power and 9600 rpm
m/s

21,4



Chain pitch
mm/inch

9,52/3,8



Drive link
mm/inch

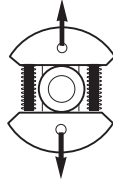
1,5/0,058

TECHNICAL DATA



Idling speed
rpm

385XP 2 700



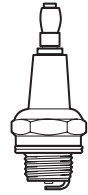
Engage speed
rpm

3500



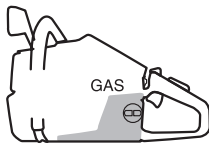
Max. speed
rpm

13000



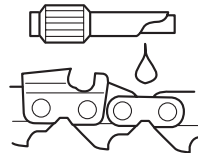
Spark plug

Champion RCJ 7Y



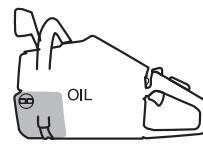
Fuel tank volume
Litres/US pint

385XP 0,90/1,9



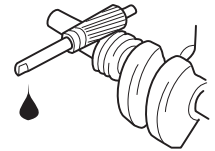
Oil pump capacity
cm³/min

4-20/xx rpm



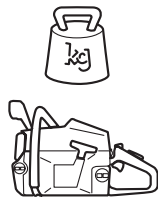
Oil tank volume
Litres/US pint

0,50/1,1



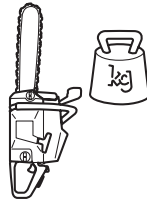
Automatic oil pump

Yes



Weight without bar and chain
kg/lbs

385XP XP 7.0/15.4
XPG 7.2/15.9



Weight with bar and chain
kg/lbs

XP20" 8.4kg/18.5



Hand grip heater
Watts/rpm

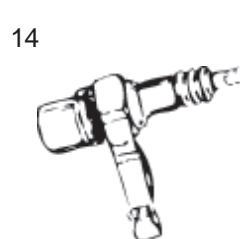
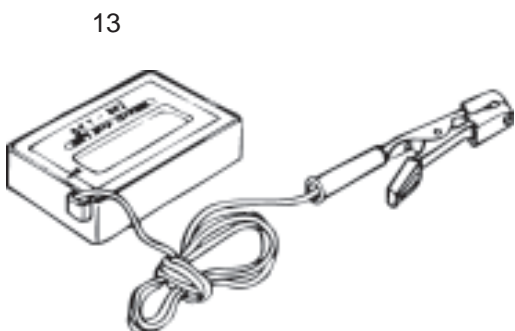
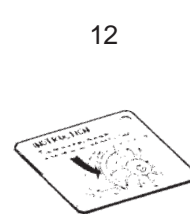
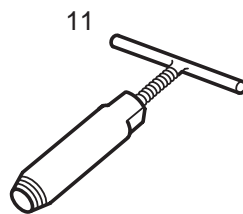
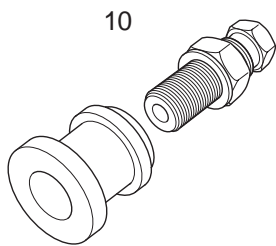
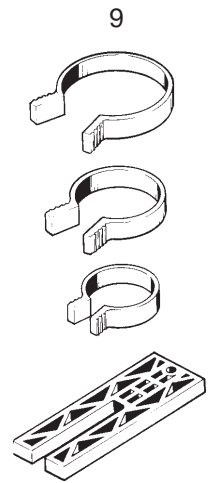
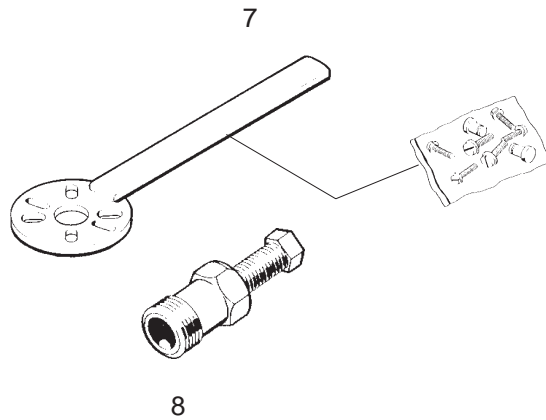
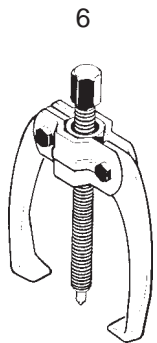
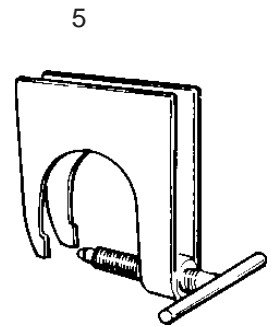
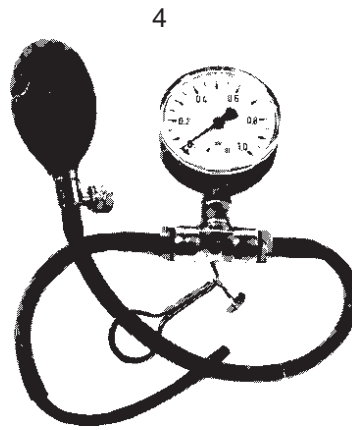
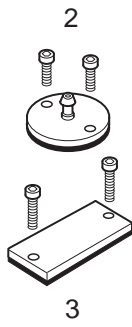
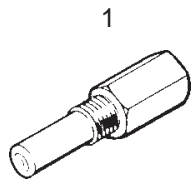
65/10000



Electric carburettor heater
Watts/rpm

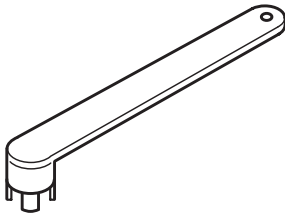
Yes

SERVICE TOOLS

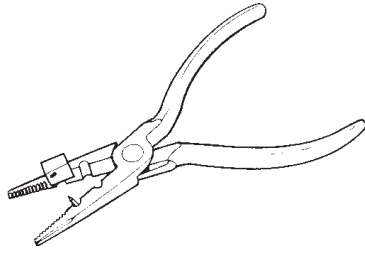


SERVICE TOOLS

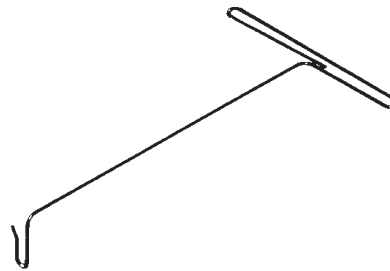
15



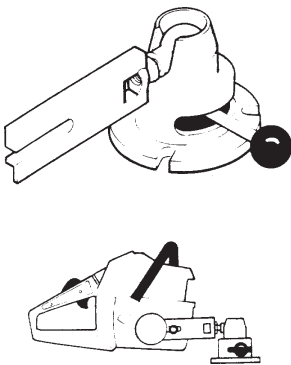
16



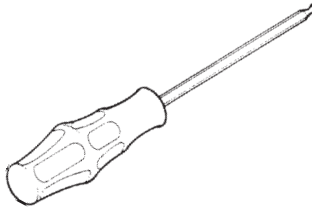
17



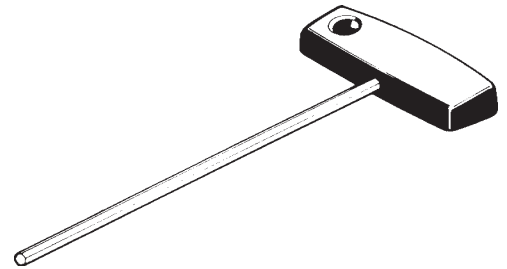
18



19



20



The tools listed here are service tools intended for use on the chainsaw in question. In addition to these tools, a standard set of hand tools is required.

Item	Description	Used for	Order No.
1	Piston stop	Locking the crankshaft	502 54 15-01
2	Cover plate, inlet	Sealing the intake manifold	502 54 05-01
3	Cover plate, exhaust	Sealing the exhaust port	502 71 39-01
4	Pressure tester	Produce pressure when leakage testing	502 50 38-01
5	Extractor	Dismantling the crankshaft	502 51 61-01
6	Puller	Removing bearings from the crankshaft	504 90 90-01
7	Holding tool	Dismantling of the flywheel	502 51 49-01
8	Puller	Dismantling of the flywheel	502 50 26-01
9	Piston assembly set	Assembling the piston	502 50 70-01
10	Assembly tool	Assembling the crankshaft	502 50 30-17
11	Extractor	Removing seal on flywheel side	502 50 55-01
12	Feeler gauges, air gap	Adjustment of the ignition module	502 51 34-02
13	Tachometer	Adjusting the carburettor	502 71 14-01
14	Test spark plug	Checking the ignition module	502 71 13-01
15	Clutch tool	Assembling and dismantling of centrifugal clutch	502 52 22-01
16	Assembly bar	Assembly of the spark plug guard	502 50 06-01
17	Hook for the fuel filter	Lifting out the fuel filter	502 50 83-01
18	Assembly fixture	Assembling the chain saw	502 51 02-01
19	Hexagonal screwdriver, 3 mm	For M-4 screws	502 50 86-01
19	Hexagonal screwdriver, 4 mm	For M-5 screws	502 50 87-01
19	Hexagonal screwdriver, 4 mm	For M-6 screws	502 50 88-01
20	Allen key, 3 mm	For M-4 screws	502 50 19-01
20	Allen key, 4 mm	For M-5 screws	502 50 18-01
20	Allen key, 5 mm	For M-6 screws	502 50 64-01

TROUBLE SHOOTING

Trouble shooting chart

The different faults that can occur on the chainsaw are divided into four groups as follows. Within each group possible operating faults are listed to the left while the probable fault alternatives are listed to the right. The most likely fault is listed first, etc.

Starting

Difficult to start	Adjust the L-screw Air filter blocked Choke does not work Worn choke axle Worn choke valve Blocked fuel filter Blocked fuel line Piston ring seized Blocked impulse channel
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) Loose cover on carburettor pump side
Floods when engine is not running	Worn needle/needle tip Control system set too high Control system sticking

Idling (low speed)

Does not idle	Adjust the L-screw Leaking intake hose (rubber) Loose carburettor mounting Loose or faulty fuel pipe Blocked fuel filter Blocked fuel line Tank ventilator blocked Throttle valve axle stiff Throttle wire sticks Defective throttle return spring Bent valve axle stop Faulty diffuser jet
Too rich idling	Adjust the L-screw Worn needle/needle tip Control system set too high Worn lever arm in the control system Leaking diaphragm/cover plate Control system sticking

Idling (low speed) (continued)

Idles with closed L-screw	Worn needle/needle tip Leaking diaphragm/cover plate Control system sticking Worn lever arm in the control system Faulty diffuser jet
Uneven idling	Blocked fuel filter Blocked fuel line Leaking intake hose (rubber) Loose carburettor mounting Worn throttle valve axle Loose throttle valve screw Worn throttle valve Control system sticking Leaking control system (air or fuel) Worn centre knob in control system Hole in diaphragm Leaking diaphragm/cover plate Leaking crankcase
L-screw requires constant adjustment	Blocked fuel line Control system set too high Control system sticking Leaking control system (air or fuel) Leaking diaphragm/cover plate Faulty diffuser jet Leaking crankcase
Too much fuel when idling	Control system set too high Control system sticking Damaged control system Worn needle/needle tip Leaking diaphragm/cover plate Incorrectly fitted control system

TROUBLE SHOOTING

High speed

Will not run at full throttle	Adjust H-screw Blocked air filter Tank ventilator blocked Blocked fuel filter Blocked fuel line Loose or faulty fuel pipe Impulse channel leaking Blocked impulse channel Cover on carburettor's pump side is loose Faulty pump diaphragm Leaking intake hose (rubber) Loose carburettor mounting Control system set too low Damaged control system Incorrectly fitted control system Leaking diaphragm/cover plate Control system sticking Blocked muffler
Low power	Adjust H-screw Tank ventilator blocked Blocked fuel filter Impulse channel leaking Blocked impulse channel Cover on carburettor's 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 ventilator blocked Blocked fuel filter Blocked fuel line Loose or faulty fuel pipe Impulse channel leaking Blocked impulse channel Cover on carburettor's pump side is loose Faulty pump diaphragm Leaking intake 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

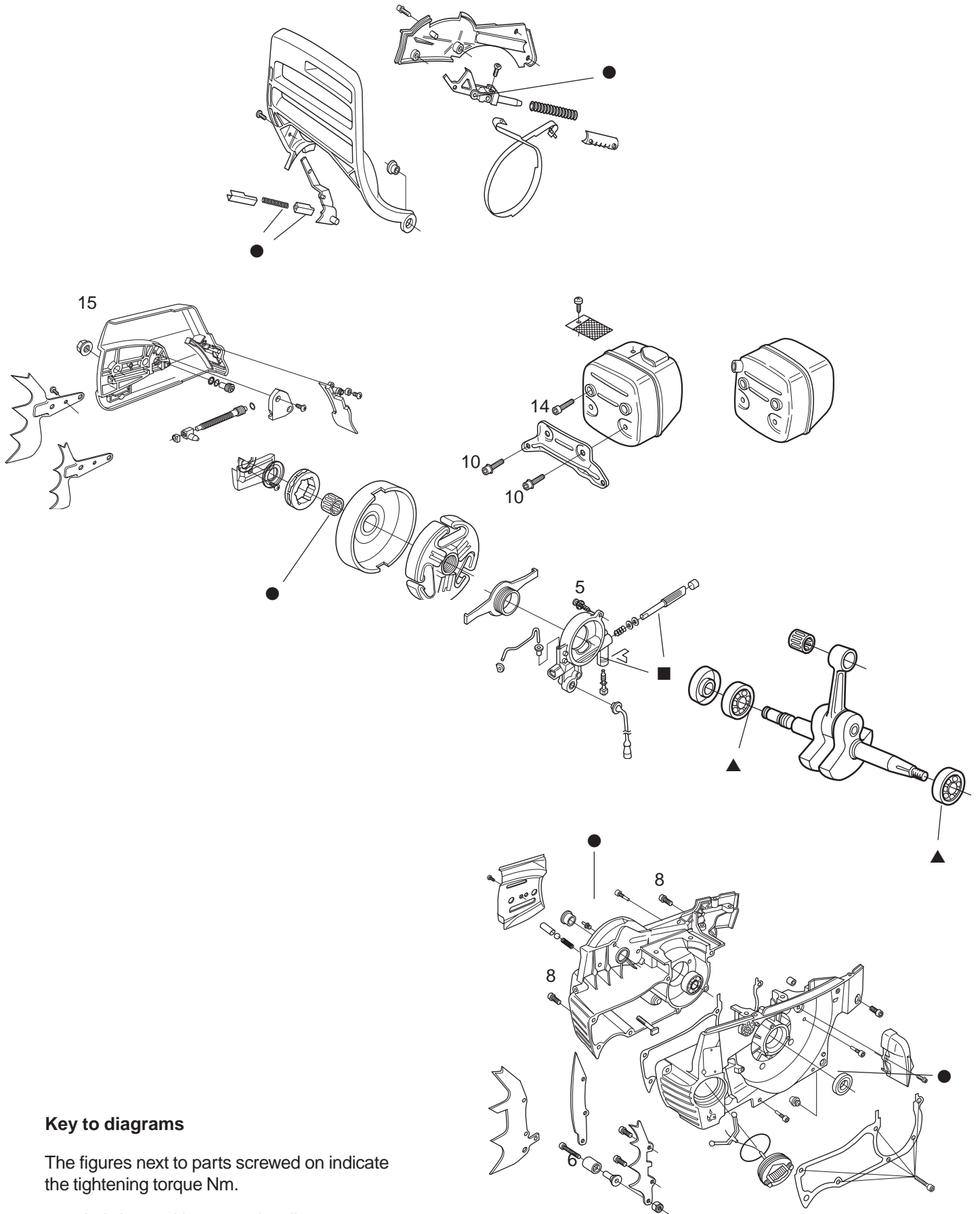
Does not accelerate	Adjust the L-screw Adjust the H-screw Blocked air filter Tank ventilator blocked Blocked fuel filter Blocked fuel line Loose or faulty fuel pipe Blocked impulse channel Cover on carburettor's pump side is loose Faulty pump diaphragm Leaking intake hose (rubber) Loose carburettor mounting Control system set too low Incorrectly fitted control system Control system sticking Faulty diffuser jet Blocked muffler
Engine stops when throttle released	Adjust the L-screw Adjust the H-screw Faulty pump diaphragm Control system set too high Control system sticking Faulty diffuser jet
Too rich acceleration	Adjust the L-screw Adjust the H-screw Blocked air filter Faulty pump diaphragm Faulty diffuser jet

Trouble shooting methods

In addition to faults given in the above schematic, trouble shooting can be carried out on a specific component or specific chainsaw system. The different procedures are described in respective sections and are as follows:

1. Pressure testing the carburettor. See page 35.
2. Pressure testing the crankcase and cylinder. See page 44.
3. Pressure testing the decompression valve. See page 42.
4. Checking of the chain brake. See page 16.

SERVICE DATA

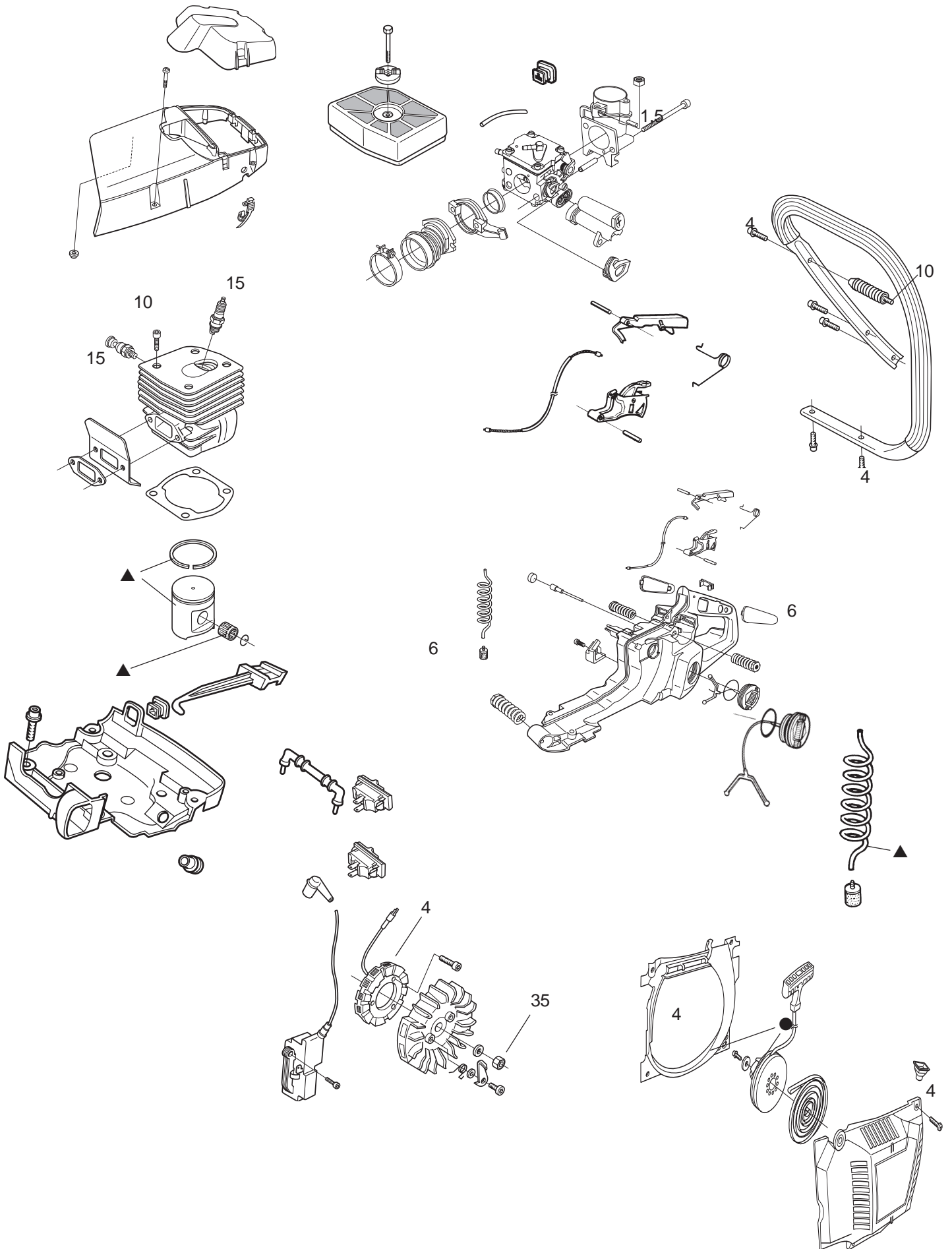


Key to diagrams

The figures next to parts screwed on indicate the tightening torque Nm.

- ▲ = Lubricate with two-stroke oil.
- = Lubricate with chain oil.
- = Lubricate with grease.

SERVICE DATA

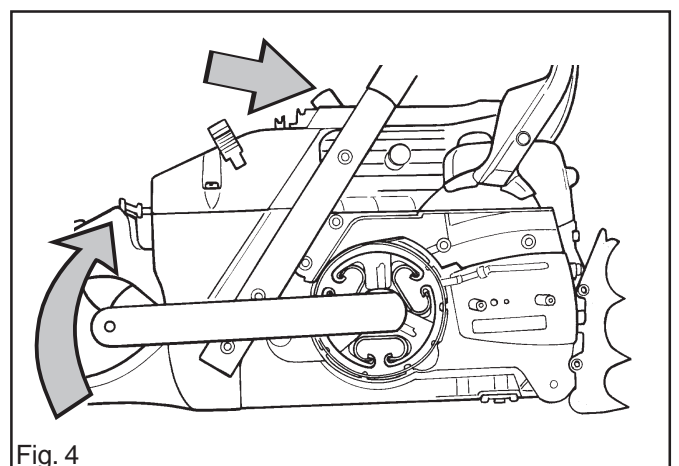
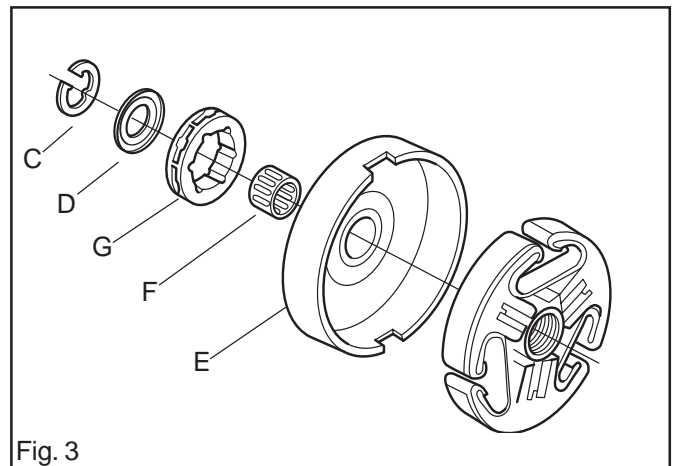
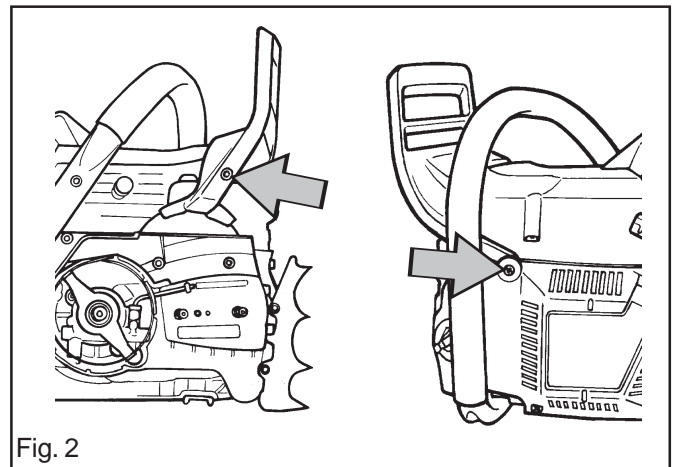
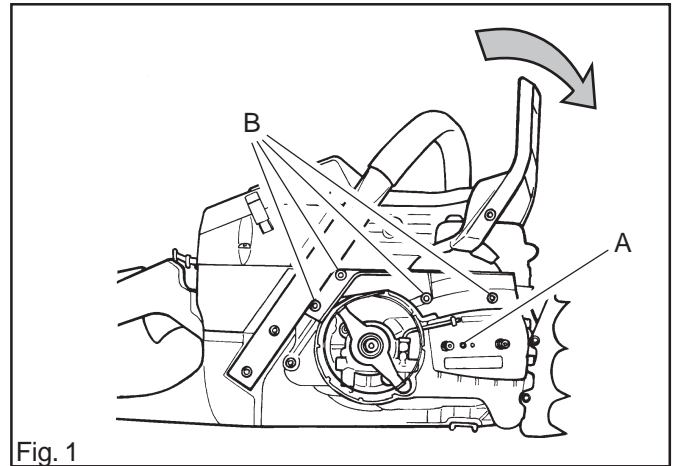



SAFETY EQUIPMENT

Chain brake

Dismantling

1. Dismantle the following parts first:
 - Chain and bar. See the Operator Guide.
 - Centrifugal clutch. See page 23.
2. Push the hand guard forward so that the chain brake is on. See fig. 1.
3. Remove the hand guard, two screws. Note the sleeve on the starter side. See fig. 2.
4. Remove the chain guide-plate (A). See fig. 1.
5. Remove the locking ring (C) with washer (D) and lift up the clutch drum (E) with needle bearing (F) and chain drive sprocket (G). See fig. 3.
6. Remove the spark plug and fit the piston stop. Remove the clutch with the clutch tool. Note – left-hand thread. Screw in the direction of the arrow as in fig. 4.
7. Remove the four screws (B) and the cover over the chain brake mechanism. See fig. 1.



 **WARNING!**
Check that the brake is on. Otherwise the pressure spring can fly out and cause personal injury.

8. Press down the retaining bush (C fig. 5) while releasing the lever (D fig. 5) with a screwdriver.
9. Remove the pressure spring by freeing the back end with a screw driver. See fig. 6.
10. Remove the toggle joint (E) with attached brake strap. See fig. 6.
11. Remove the brake strap from the toggle joint.
12. Take out the retaining bush (C) with spring. See fig. 5.

SAFETY EQUIPMENT

Inspection

Clean and inspect all parts.

The thickness of the brake strap must nowhere be less than 0.8 mm. See fig. 7.

Assembly

Assemble the chain brake as follows:

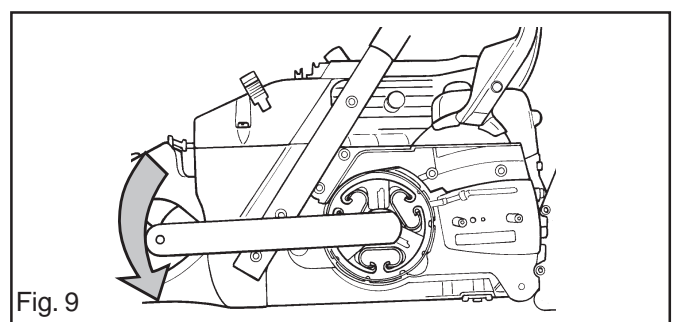
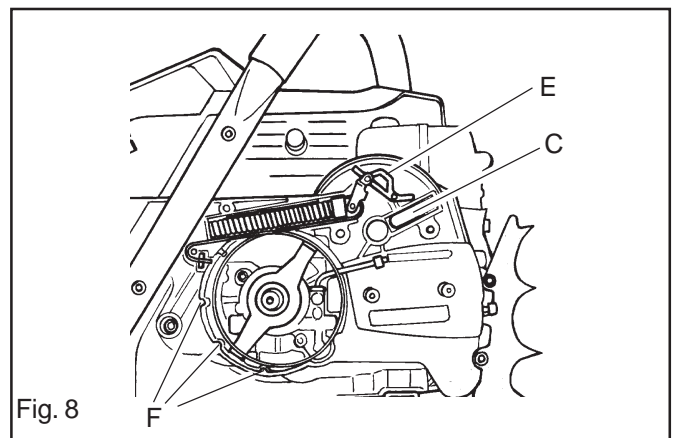
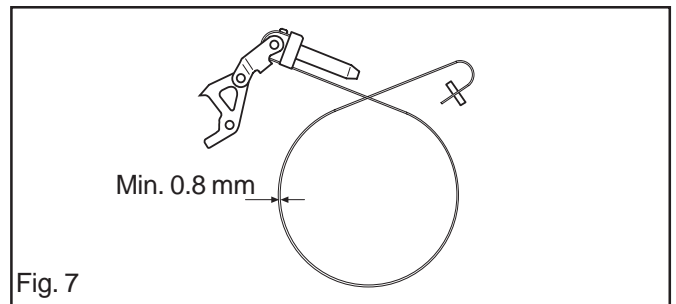
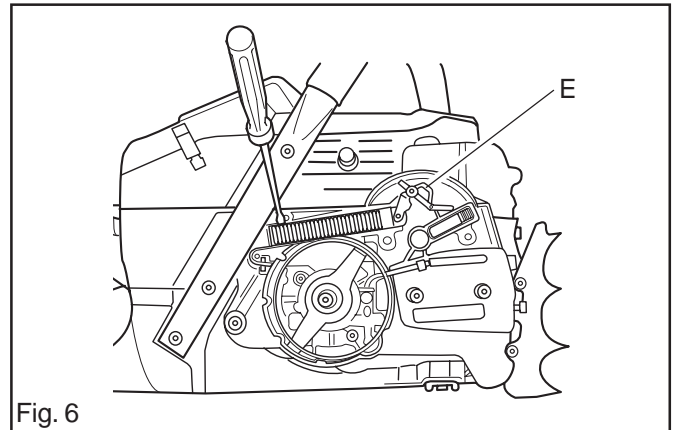
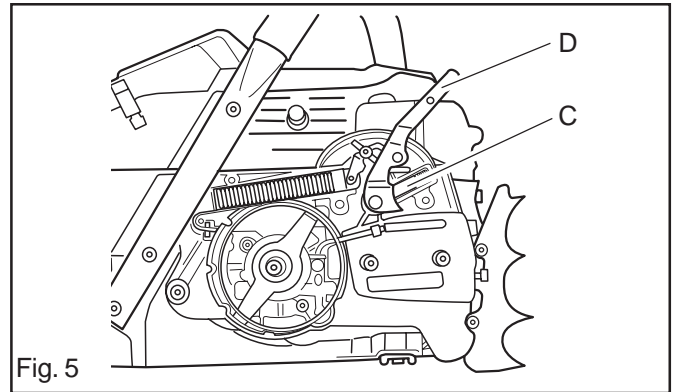
1. Fit the toggle joint and brake strap. See fig. 7.
2. Grease the moving parts of the toggle joint (E) and fit the unit on the chain saw. See fig. 8.



WARNING!
Ensure that the spring does not fly out and cause personal injury. Wear protective glasses.

Compress the spring with special tool 502 50 67-01 and press it down with your thumb.

3. Grease and fit the lever (D). See fig. 5.
4. Grease and fit the retaining bush (C) with spring. See fig. 5.
5. Fit the cover over the chain brake mechanism. Four bolts (B). Tighten the bolts to 4 Nm. See fig. 1.
6. Fit the chain guide-plate with bolt (A). See fig. 1.
7. Fit the hand guard with the sleeve on the starter side. See fig. 2.
8. Push back the hand guard so that the chain brake is in the off position.
9. Check that the brake strap is correctly positioned in the recess (F) in the crankcase. See fig. 8.
10. Fit the clutch hub on the crankshaft and tighten with the clutch tool.
Note – left-hand thread! See fig. 9.
11. Remove the piston stop and fit the spark plug and put on the ignition cable.
12. Grease in the needle bearing before fitting. Fit the clutch drum (E) with needle bearing (F) and chain drive sprocket (G). See fig. 3.
13. Fit the washer (D) and locking ring (C). See fig. 3.
14. Fit the cylinder cover, chain and bar. See Operator Guide.



SAFETY EQUIPMENT

Function check



WARNING!
After repair, the chain brake must be checked according to the following instructions.

For this test, the engine must **not** be running.
Check that the chain brake cuts in as follows:

1. Hold the chain saw over a stable surface as shown in fig. 10. The distance between the bar and surface is given in the table below.

Bar length, L	Height, H
18-20 inches	50 cm
21-28 inches	70 cm

2. Let go of the front hand grip and let the chainsaw pivot round on the rear hand grip.
3. When the bar hits the surface the chain brake should cut in.



Fig. 10

Chain catcher

Dismantle the chain and bar. See instruction book.

Inspect the chain catcher and replace it if it is damaged. The bolts should be tightened to 6 Nm. See fig. 11.

Fit the chain and bar. See instruction book.

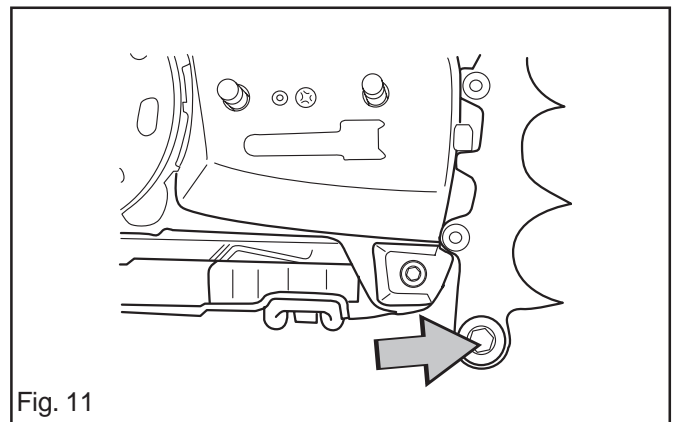


Fig. 11

SAFETY EQUIPMENT

Muffler



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

Dismantling

1. Remove the two lower M5 bolts and the muffler's two M6 bolts. See fig. 9
2. Remove the gasket and cooling plate. See fig. 9
3. If the saw is fitted with a spark-arrester, remove it. See fig. 9.

Inspection

Clean all components and check the following:

1. That the spark-arrester is intact.
2. That the muffler and muffler mounting are not cracked or otherwise defect.
3. That the gasket is undamaged.

Assembly

1. Clean the contact surfaces to the gasket, cooling plate and cylinder.
2. If the saw is fitted with a spark-arrester, refit it. See fig. 9.
3. Fit the cooling plate, gasket and muffler to the cylinder. Tighten the two M6 bolts to the cylinder to 14 Nm. Tighten the four M5 bolts to 10 Nm.

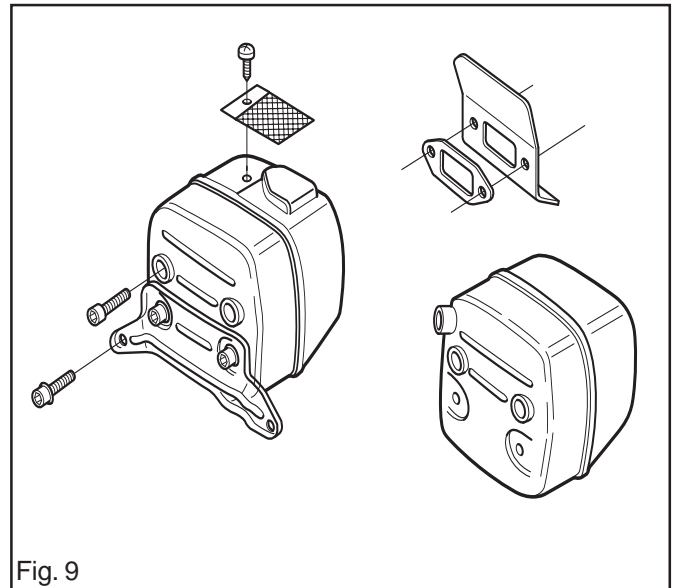


Fig. 9

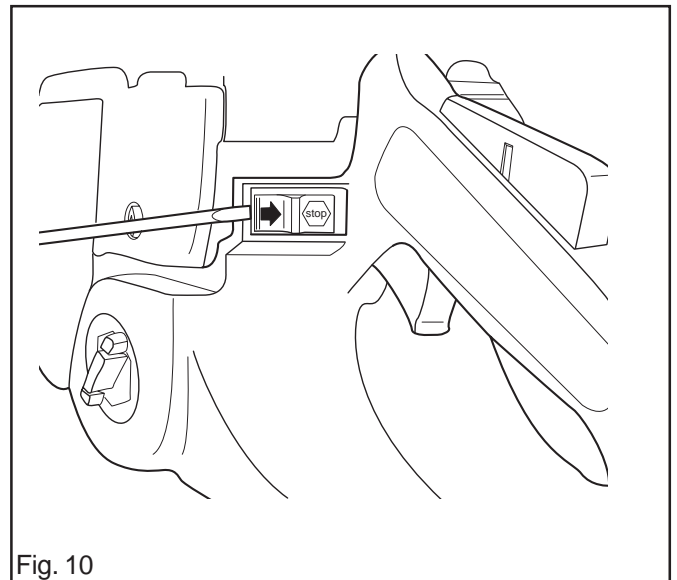


Fig. 10

Stop switch

Dismantling

Prise out the stop switch with a screwdriver and detach the leads. See fig. 10.

Inspection

Measure the resistance by connecting an ohmmeter to the stop switch. See fig. 11. The resistance should be as follows:
"0" pressed in - less than 0.1 ohm.
"1" pressed in - more than 1000 ohm.

Assembly

The symbol/stop marking should be mounted to the rear hand grip during assembly. The earth lead is fitted in the upper or lower connection. See fig. 11

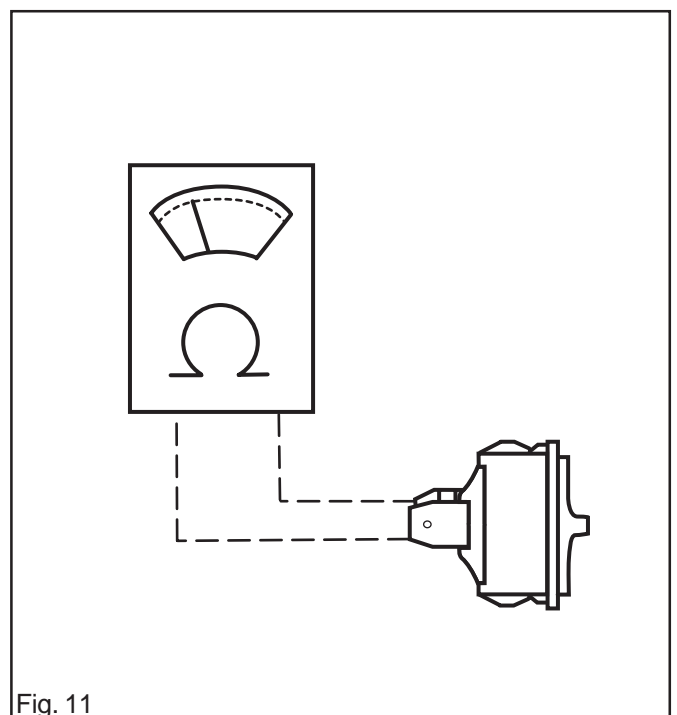


Fig. 11

SAFETY EQUIPMENT

Throttle lock

Dismantling

1. Remove the hand grip insert (C). See fig. 12.
2. Remove the throttle lock pivot (A) with the help of a driver. See fig. 12.
3. Press apart with a screwdriver or the like the throttle lock/control and take out the throttle lock from the recess in the hand grip. Now remove the spring. See fig. 13.
4. Remove the stop switch. Press out the throttle lever pivot (B) with a driver. See fig. 12 and 15.
5. Remove the throttle cable and lever. See fig. 15.

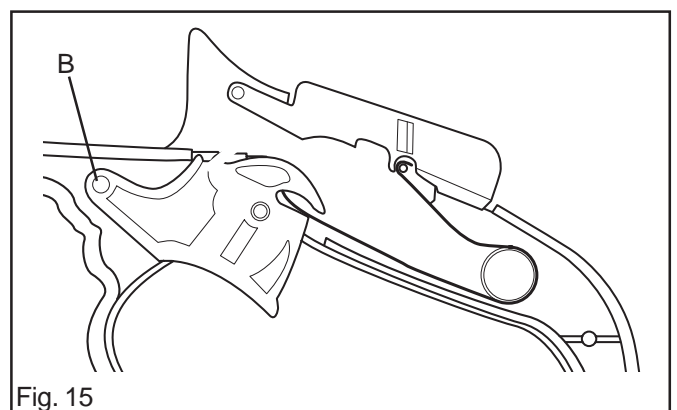
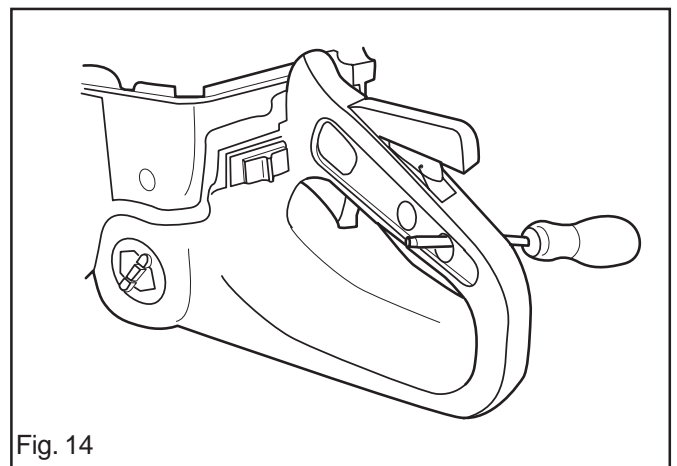
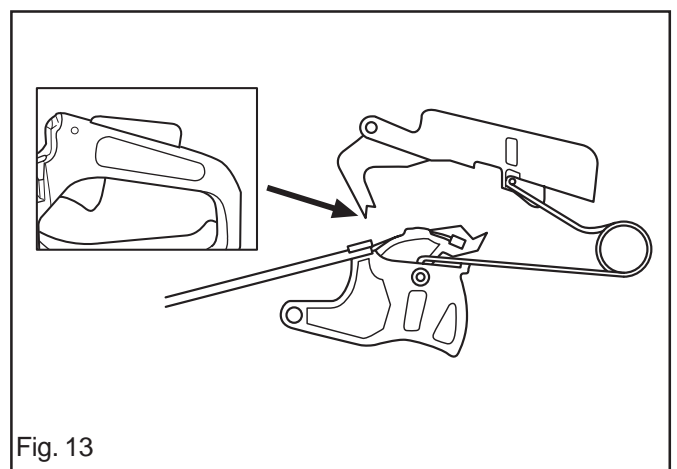
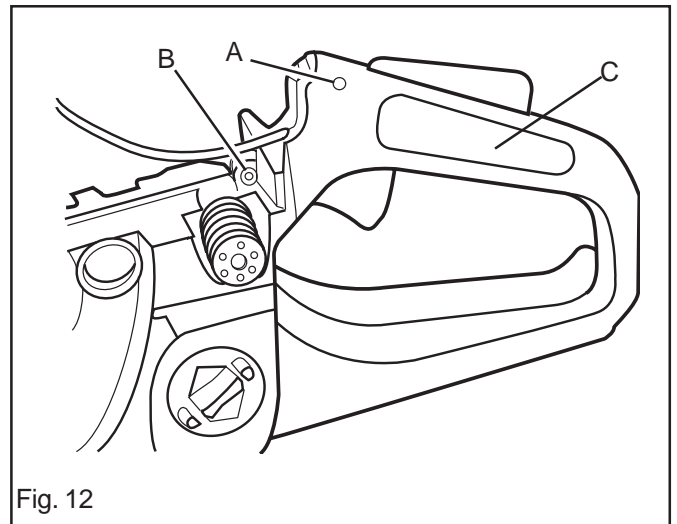
Inspection

Clean all components and check the following:

1. That the throttle cable and lever are undamaged and run easily.
2. That the lock activation mechanism is not worn. See fig. 13.

Assembly

1. Fit the throttle cable and lever. Fit the throttle lever with pivot (B). See fig. 12 and 15.
2. Fit the spring in the recess in the throttle lock. Hold the spring in place and locate the throttle lock in the recess in the hand grip.
3. Fitting of the throttle lock is simplified by using a screwdriver or the like to lock the spring. See fig. 14.
4. Fit the throttle lock pivot (A) with the help of a driver. See fig. 12.
5. Fit the switch and hang grip insert.



STARTER

Starter

Dismantling

1. Remove the four bolts holding the starter to the crankcase and remove the starter. See fig. 1.
2. Pull out the handle 20-30 cm and take out the cord from the slot in the starter pulley. See fig. 2.
3. Rotate the starter pulley anticlockwise until the tension on the pulley is released.



WARNING!
If the spring is tensioned on the starter pulley it can fly up and cause personal injury.

4. Remove the central bolt and take out the washer and starter pulley. See fig. 3.
5. If the starter cord is to be replaced, cut it off pull out the ends from the handle and starter pulley with pointed pliers.



WARNING!
If the spring is tensioned on the starter pulley it can fly up and cause personal injury.
Wear protective glasses.

6. If the spring is to be replaced, remove the old spring.

Cleaning and inspection



WARNING!
If the spring is tensioned on the starter pulley it can fly up and cause personal injury.
Wear protective glasses.

Clean all components and check the following:

1. Starter cord.
2. The dogs on the starter pulley.
3. That the pawls on the flywheel are intact, spring back towards the centre and move freely.

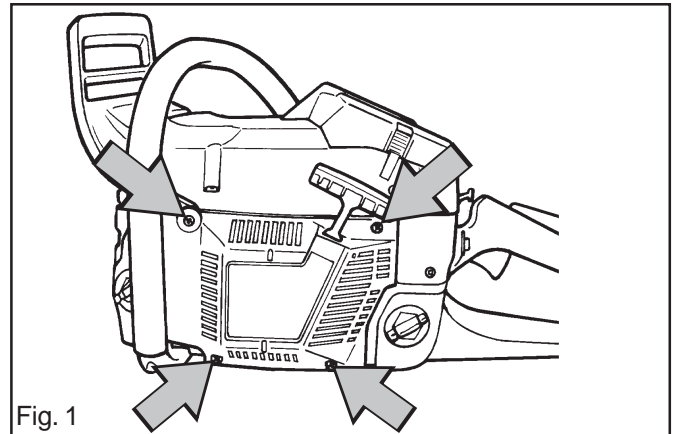


Fig. 1

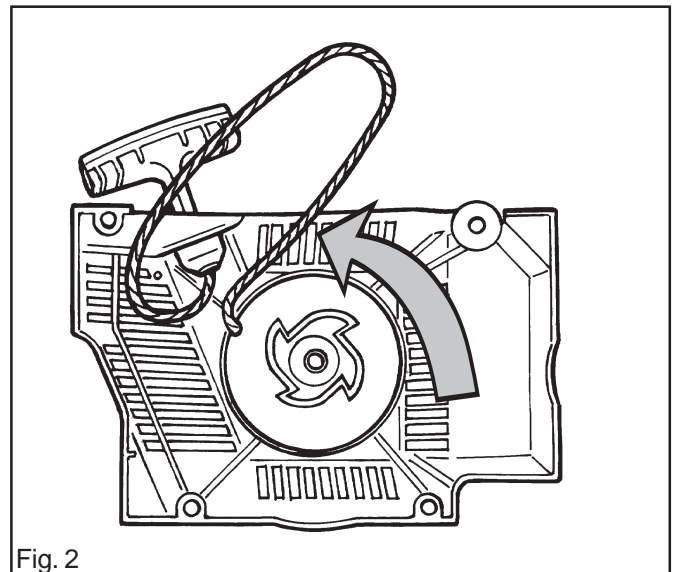


Fig. 2

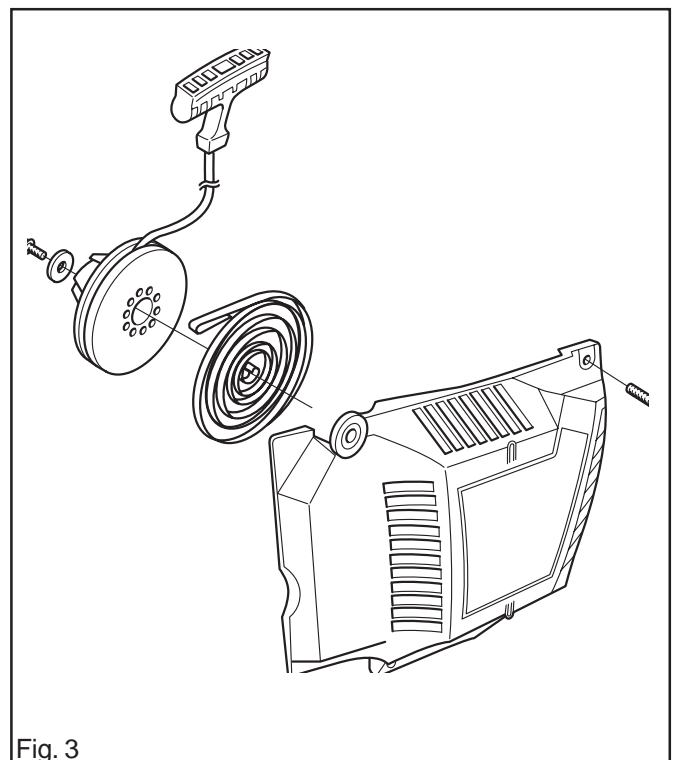


Fig. 3

STARTER

Assembly



WARNING!
If the spring is tensioned on the starter pulley it can fly up and cause personal injury.
Wear protective glasses.

1. If a new spring is to be fitted, place the new spring with steel wire so that the end loop comes over the peg (A) in starter pulley. See fig. 4.
2. Press down the spring in the starter pulley and remove the wire.
3. If a new cord is to be fitted, push the free end in the hole in the starter pulley. Take hold of the end with pointed pliers inside the pulley and pull up the cord. See fig. 5.
4. Grease the starter pulley bearing and spring, and fit the pulley on the spindle. Turn gently backwards and forwards until the spring catches on the stop in the housing. See fig. 5.
5. Fit the washer and bolt. See fig. 3. Tighten the bolt to 4 Nm.
6. Pull out the cord through its hole in the housing and fit the handle and secure it with a double knot. See fig. 5.
7. Wind the cord onto the starter pulley and rotate the pulley clockwise until the cord is correctly tensioned. See below and fig. 6.

Checking the cord tension:

- A. Pull out the cord completely.
 - B. In this position it should be possible to turn the pulley by hand an additional 1/2 - 3/4 turn.
8. Fit the starter on the crankcase. Tighten the bolts to 4 Nm. See fig. 1.

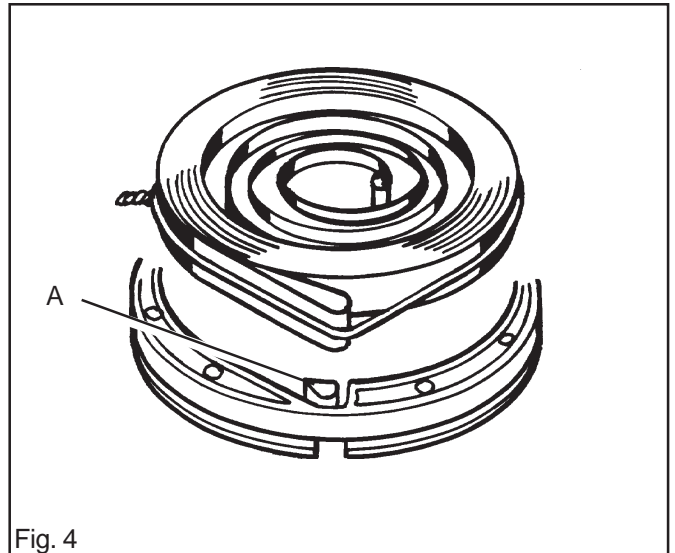


Fig. 4

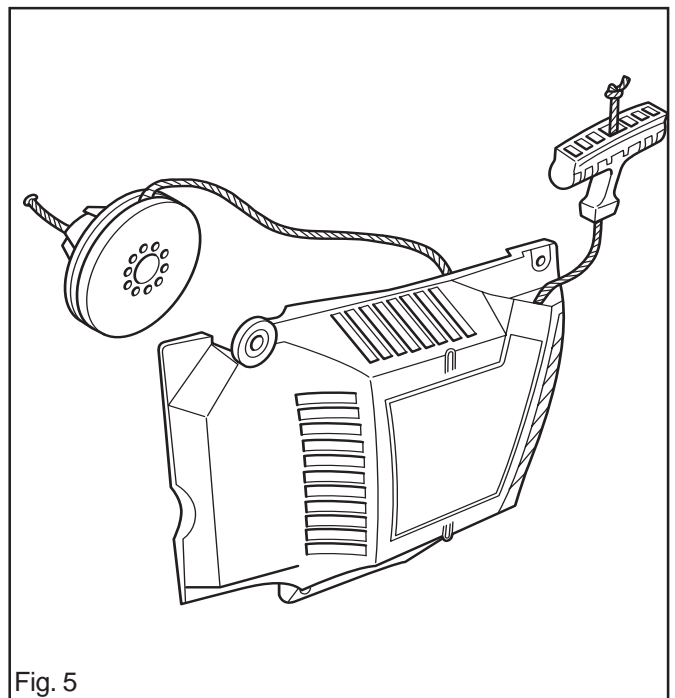


Fig. 5

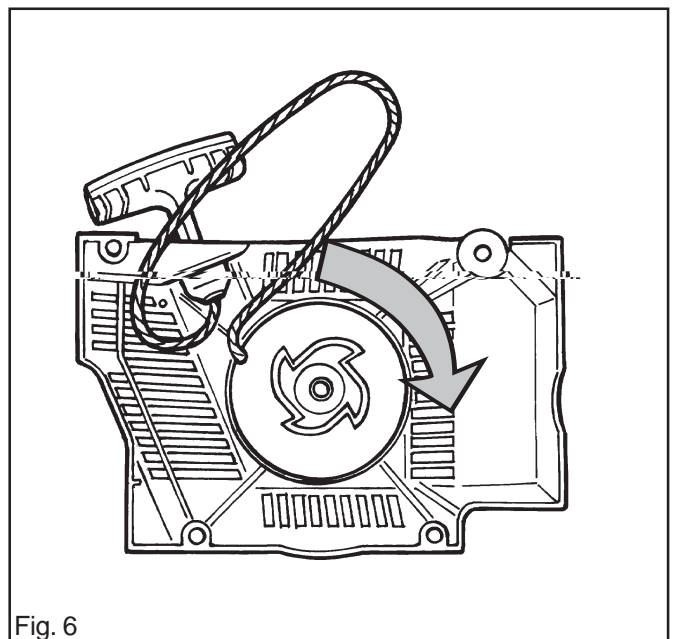


Fig. 6

ELECTRICAL SYSTEM

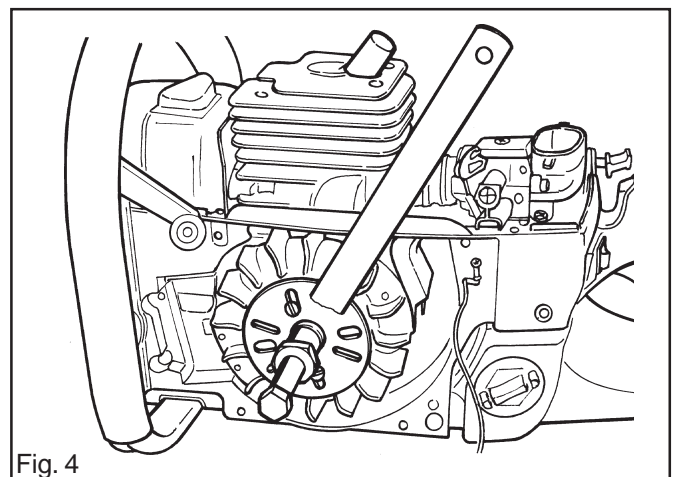
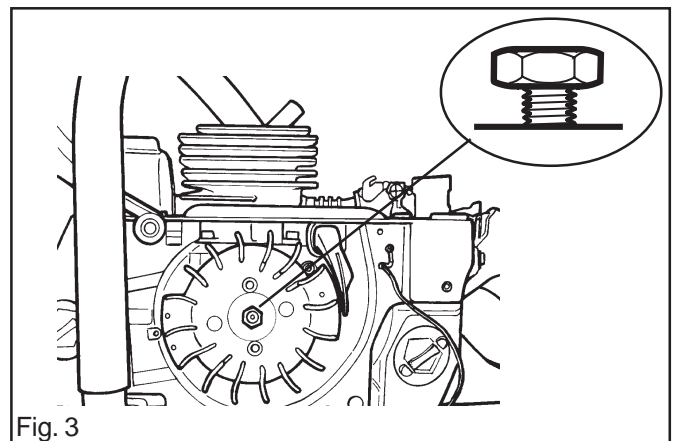
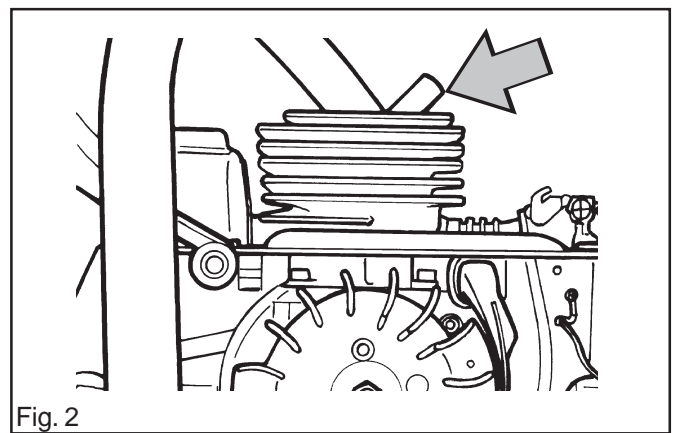
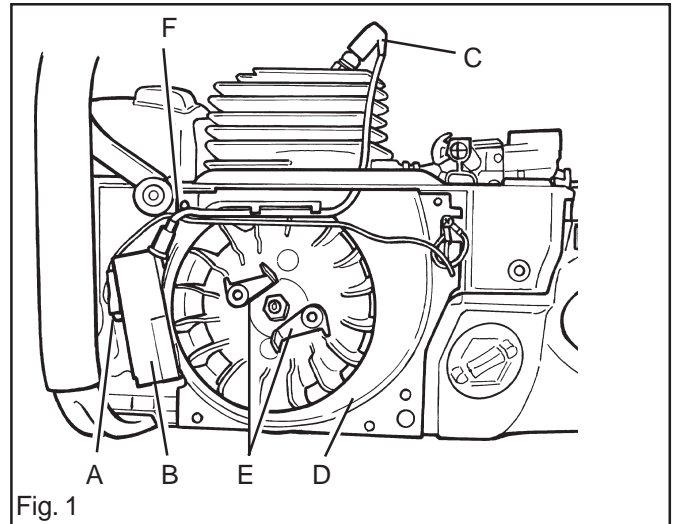
Ignition system

Dismantling

1. Remove the cylinder cover and starter unit.
See page 16.
2. Release the blue lead (A) (which connects to the stop button) from the ignition module (B). See fig. 1.
3. Remove the ignition cable (C) from the spark plug and release both cables from the cable guide (D), and lift off the cable guide. See fig. 1.
4. Remove the two M5 bolts and lift off the ignition module (B). See fig. 1.
5. Remove the two pawls (E) for the starter. See fig. 1 and fig. 6.
6. Remove the spark plug and fit the piston stop in spark plug hole. See fig. 2.
7. Release the flywheel nut. Unscrew the nut until it comes level with the outer end of the shaft thread
See fig. 3.
8. Fit the flywheel puller. Tighten down the two M5x25 bolts approx. 10 turns. Tighten the centre bolt, while preventing rotation with the holding tool until the flywheel releases.
See fig. 4.
9. Remove the puller, nut, washer and flywheel.

Cleaning and inspection

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



ELECTRICAL SYSTEM

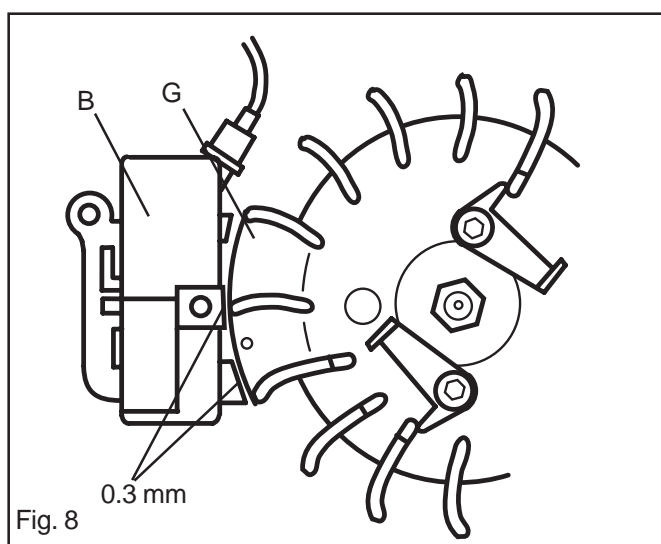
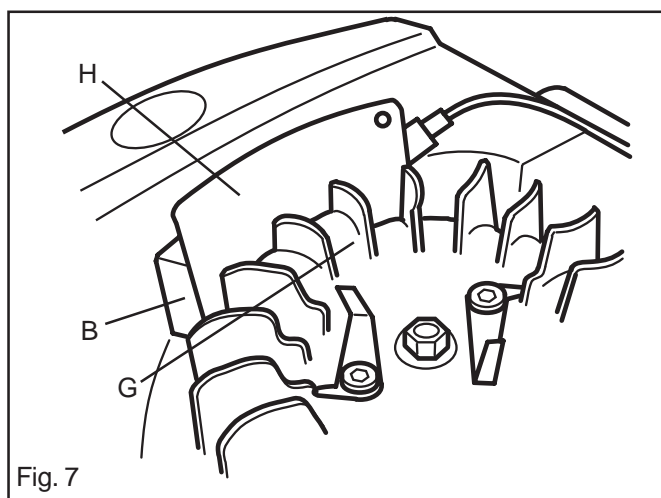
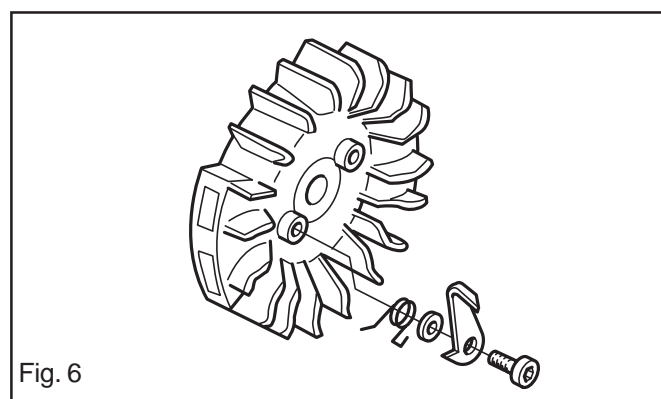
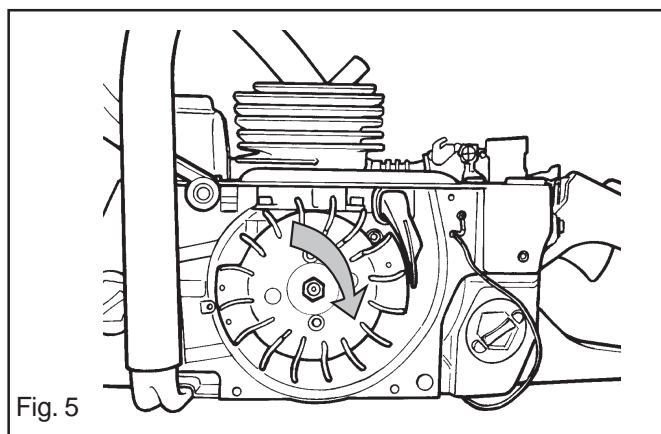
Assembly

Assemble the ignition system as follows:

1. Fit the flywheel on the spindle. Turn it gently until the key on the flywheel mates with the recess in the shaft.
2. Fit the flywheel washer and nut. Tighten the nut to 35 Nm. See fig. 5.
3. Fit the two pawls on the flywheel. See fig. 6.
4. Remove the piston stop.
5. Fit the ignition module (B) without tightening its bolts. See fig. 8.
6. Turn the flywheel so that its magnet (G) comes opposite the ignition module. See fig. 7.
7. Insert the feeler gauge (H) (0.3 mm) between the ignition module and the flywheel magnet. The clearance only applies to the two lower pegs on the ignition module. See fig. 7 and 8.
8. Push the ignition module against the flywheel and tighten the bolts to 4 Nm.
9. Fit the cable guide (D page 21 fig. 1) and press on the ignition cable. Connect the ignition cable to the spark plug.
10. Pull out the cable and press home the cable clip (F) on the ignition module. See fig. 1.
11. Fit the remaining parts on the saw. See respective chapters.

Stop switch

The stop switch is described in the section "Safety equipment". See page 15.



ELECTRICAL SYSTEM

Hand grip heater and carburettor heater 385

Some chainsaws are fitted with hand grip heaters and carburettor heaters, and consist of the following parts:

- Generator.
- Switch.
- Heating element in rear hand grip.
- Front hand grip with heating element.
- Carburettor heating element.
- Thermostat.

Trouble shooting

Trouble shooting can be carried out with most components fitted on the saw. Trouble shooting requires:

- ammeter
- ohmmeter
- cooling spray.

The most common fault is oxidation of the heating element contacts in the rear hand grip and the switch contact.

Carry out trouble shooting as follows:

Heating element in rear hand grip.

Separate the cable connection at B. See fig. 10.

Remove the switch with a screwdriver. See fig. 9.

Set the switch to position "0".

Clean the contacts D, E, F and G. See fig. 10.

Measure the resistance between point B and F, between D and C and between E and C. See fig. 10

The resistance for both heating elements should be 0.6-2.4 ohms. Between D and C and between E and C the resistance should be 0.3-1.2 ohms.

Replace the element if the values deviate.

Front hand grip with heating element

Measure the resistance in the front hand grip element between points A and B. See fig. 10. The ohmmeter should show 3-4 ohms. If the value is higher, replace the hand grip.

Generator

Measure the resistance in the generator between the points G and H. See fig. 10.

The ohmmeter should show 0.3-1.3 ohms.

If the value is higher, replace the generator.

Switch

Release one of the connections to the switch and connect the ohmmeter between the points F and G. See fig. 10.

The ohmmeter should show more than 1000 ohms with the switch in position "0".

The ohmmeter should show at least 0.1 ohms with the switch in position "1".

Replace the switch if the values deviate.

Carburettor heating element

Measure the resistance for the heating element on the carburettor at L and J. The ohmmeter should show 3-10 ohms.

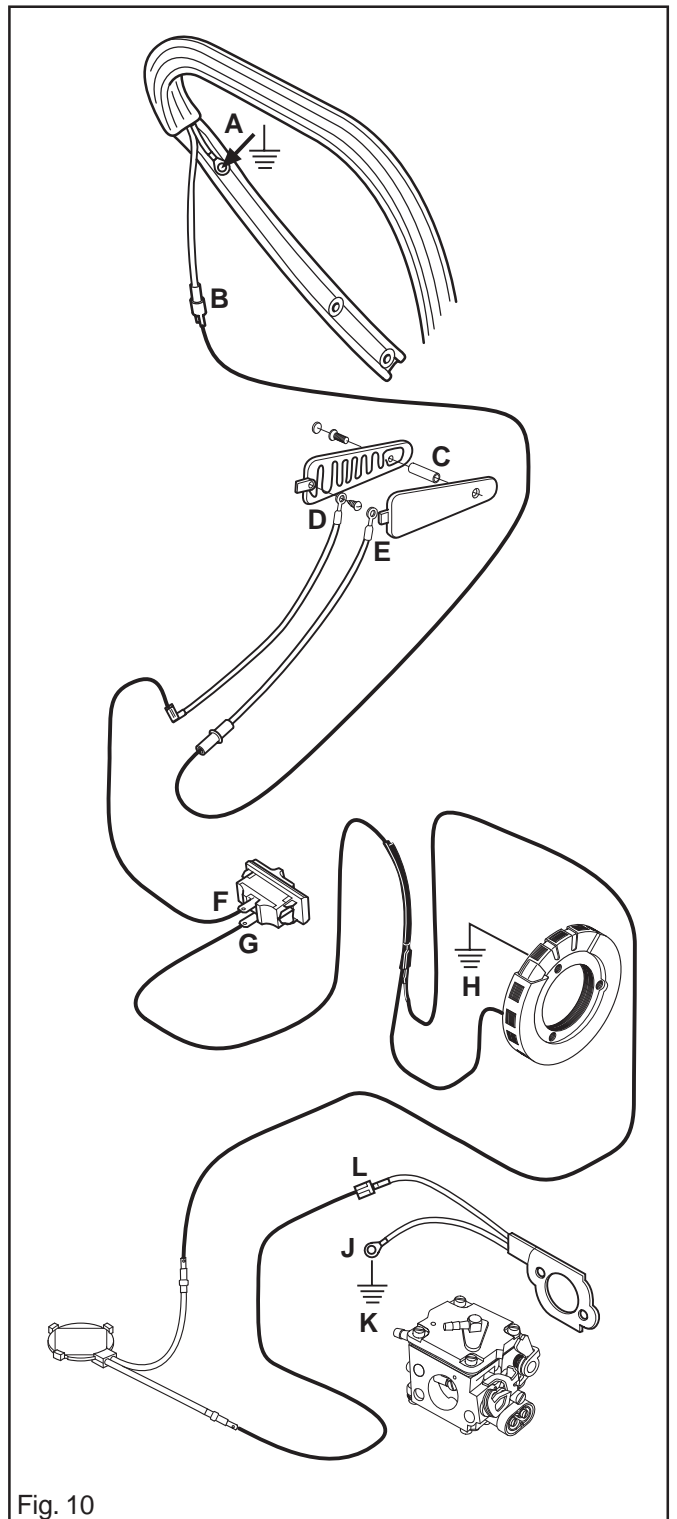
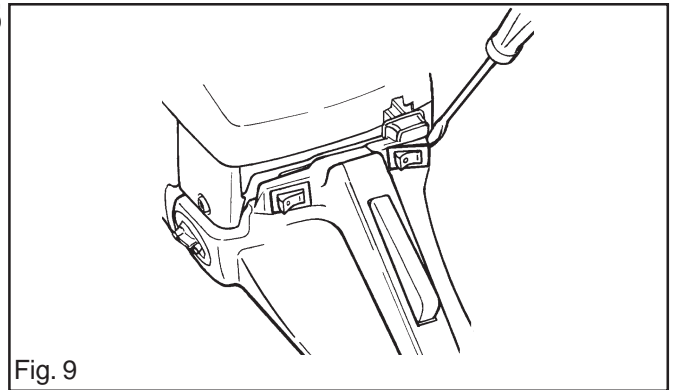
Replace the heating element if the value deviates.

Thermostat

Release the earth cable J. Measure with the ammeter between J and K. Start the saw and run at approx. 10,000 rpm.

The ammeter should show 0 at an air temperature of 15 C or higher. Cool the thermostat with a cooling spray or the like. The ammeter should show 2 A at 10,000 rpm.

Replace the thermostat if the values deviate.



Refit the relevant components.

ELECTRICAL SYSTEM

Replacing the generator

1. The following components must be removed before the generator can be replaced:
A. Starter. See page 17.
B. Flywheel. See page 19.
2. Remove the bolts for the rear damper element (A) and the travel inhibiting bolts (B). See fig. 14.
3. Remove the generator by unscrewing the three bolts. See fig. 15.
4. Release the cable from the switch and remove the generator.
5. Fit the new generator as shown in fig. 16 and tighten the bolts to 4 Nm.
6. Position the cable as shown in fig. 16 and connect it to the switch.
7. Refit the components according to item 1.

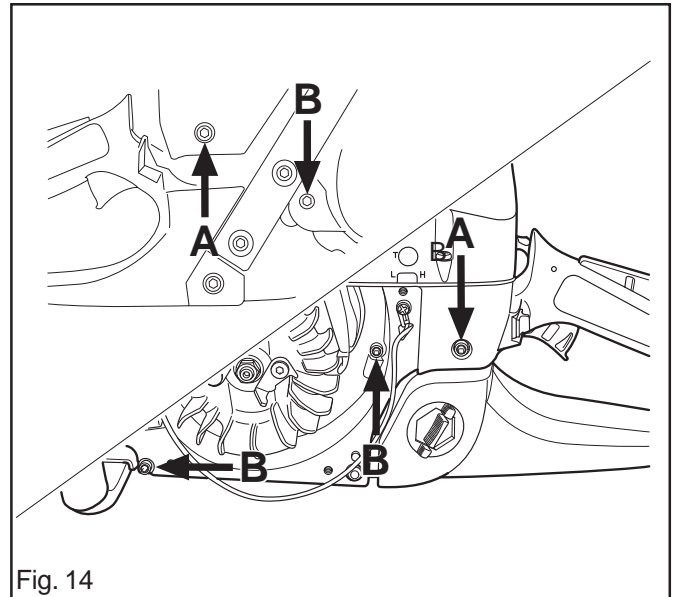


Fig. 14

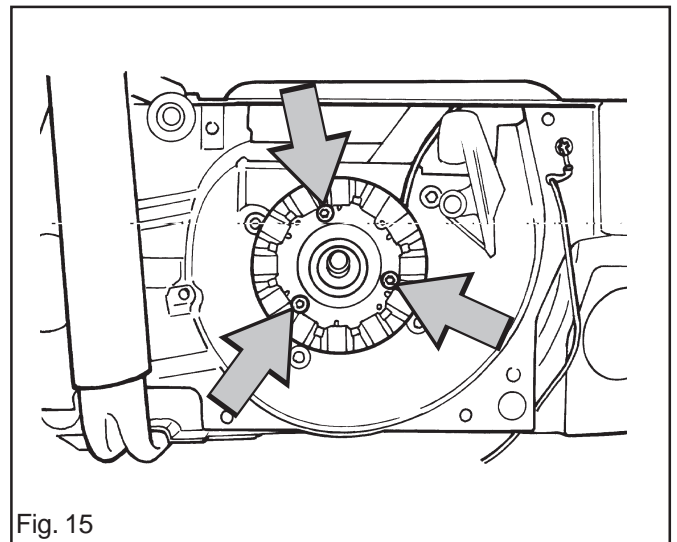


Fig. 15

Replacing the switch

1. Remove the switch and disconnect the cables. See fig. 9.
2. Fit the cables on the new switch and press in the switch.

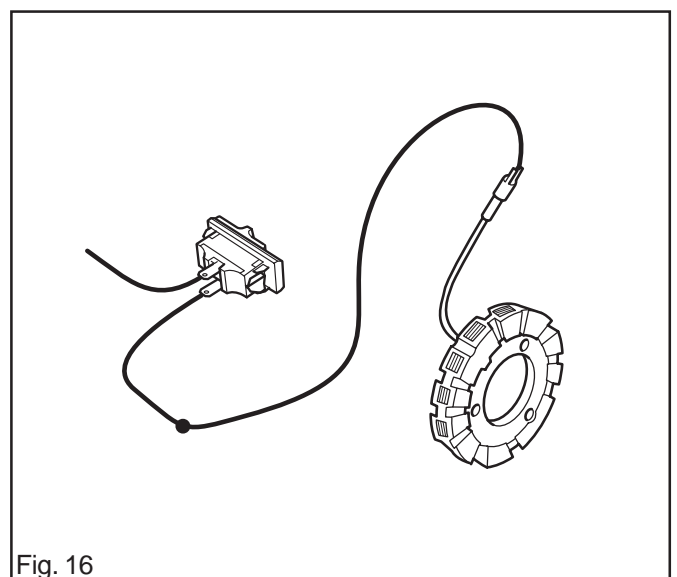
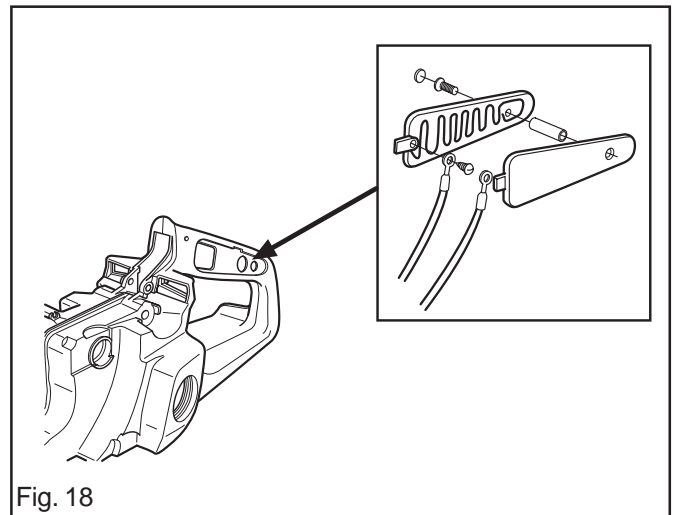


Fig. 16

ELECTRICAL SYSTEM

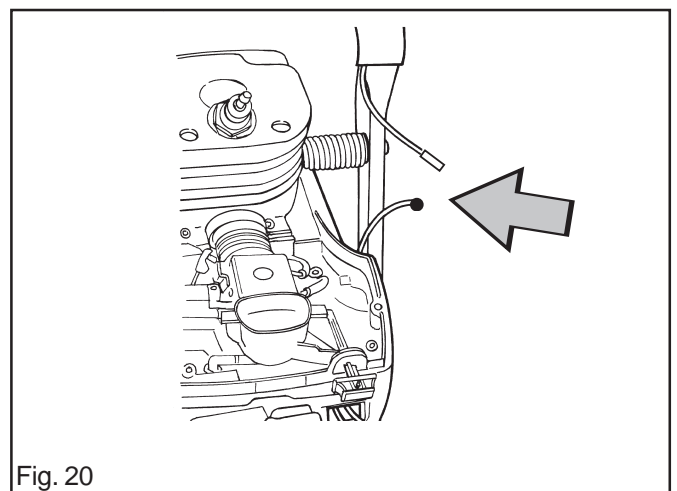
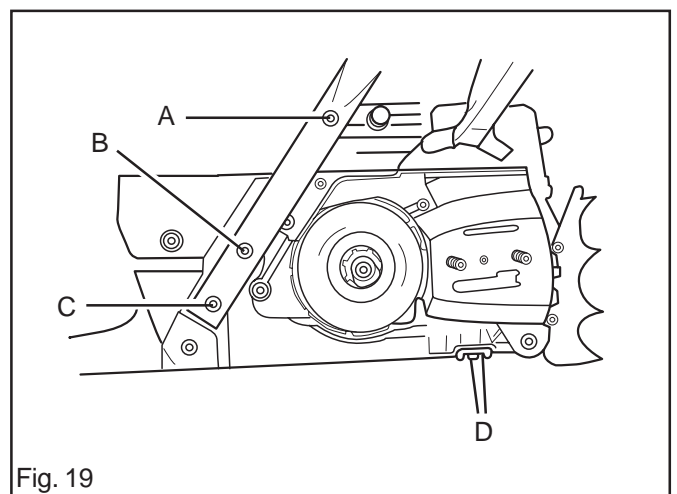
Replacing the heating element in the tank unit

1. Remove the rear hand grip insert. See fig. 18.
2. Remove the cable connections. See fig. 18.
3. Fit the heating element and cable connections.



Replacing the front hand grip

1. Release the two cable clips beside the spring. See fig. 20.
2. Remove the five bolts (A, B, C and D) which hold the front hand grip. See fig. 19.
3. Fit the new front hand grip by screwing in the five bolts (A, B, C and D). Tighten the bolts to 4 Nm. See fig. 19.
4. Connect the two cables. See fig. 20.



CENTRIFUGAL CLUTCH

Centrifugal clutch

Dismantling

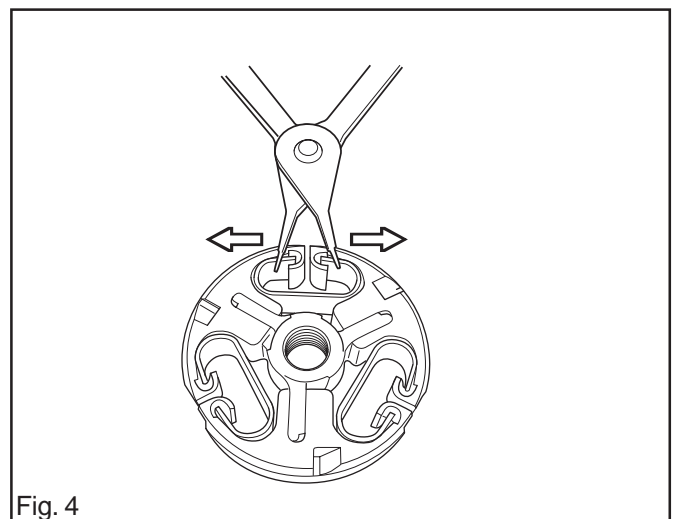
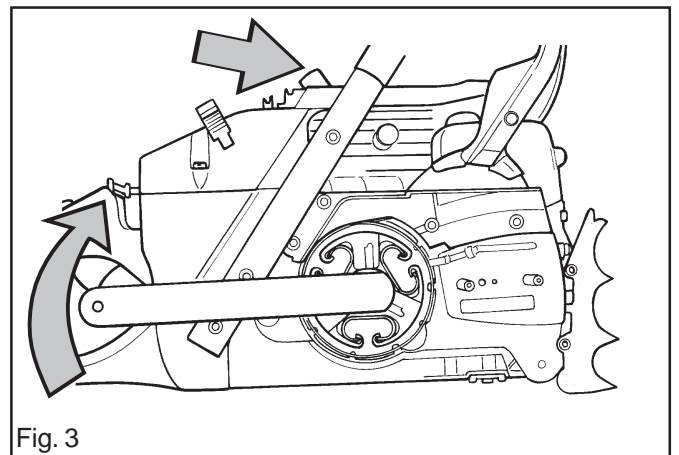
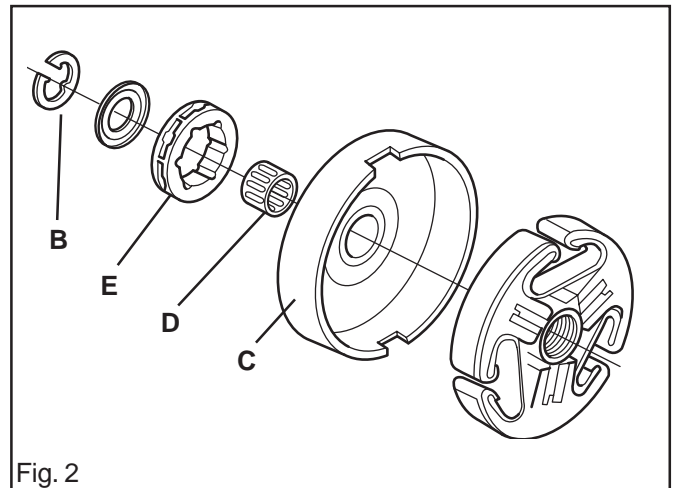
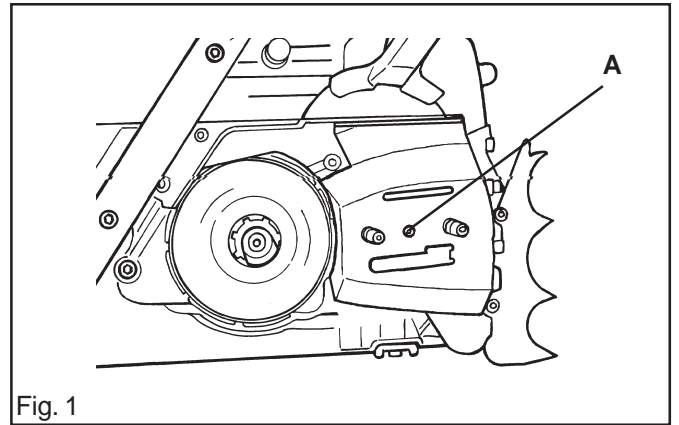
When dismantling the centrifugal clutch the chain brake must be in the off position.

1. Remove the cylinder cover, chain and bar. See the instruction book.
2. Remove the chain guide plate by unscrewing the bolt (A). See fig. 1.
3. Remove the locking ring (B) with washer and lift up the clutch drum (C) with needle bearing (D) and chain drive sprocket (E). See fig. 2.
4. Remove the spark plug and fit the piston stop. Remove the clutch with the clutch tool. Note – left-hand thread. Screw in the direction of the arrow as shown in fig. 3.

The following steps (5-6) describe the dismantling of clutch hub.

NOTE!
The clutch springs must not be opened more than is necessary. Risk of deformation.

5. Stretch out the springs with circlip pliers and press them out from the clutch hub.
6. A complete clutch or springs are available as spare parts.



CENTRIFUGAL CLUTCH

Cleaning and inspection

Clean all components and check the following:

1. The lining thickness on the clutch shoes must not be less than 3.5 mm at the most worn point. See fig. 5.
To avoid imbalance all the clutch shoes should be replaced at the same time.
2. There should be no play between the clutch shoes and the clutch hub.
3. Wear on the chain drive sprocket.
4. The needle bearing should be in good condition and the journal surface on the crankshaft undamaged.
5. The friction surface on the clutch drum should be intact and the bearing surface undamaged.

Assembly

When assembling the centrifugal clutch the chain brake must be in the off position.

NOTE!
The clutch springs must not be opened more than is necessary. Risk of deformation.

1. Fit the clutch shoes on the hub and fit the springs with circlip pliers. See fig. 4.
2. Fit the clutch hub on the crankshaft and tighten with the clutch tool. Note – left-hand thread!
See fig. 6.
3. Remove the piston stop and fit the spark plug and put on the ignition cable.
4. Grease in the needle bearing before fitting. Fit the clutch drum (C) with needle bearing (D) and chain drive sprocket (E). See fig. 2 page 24.
5. Fit the washer and locking ring (B). See fig. 2 page 24.
6. Fit the cylinder cover, chain and bar. See Operator Guide.

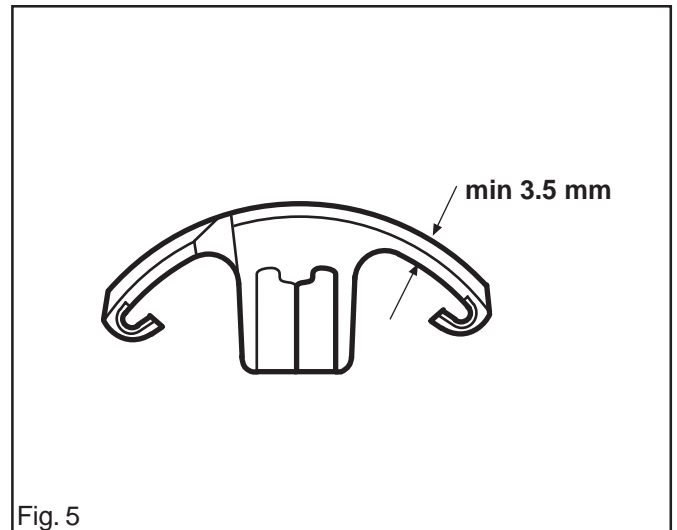


Fig. 5

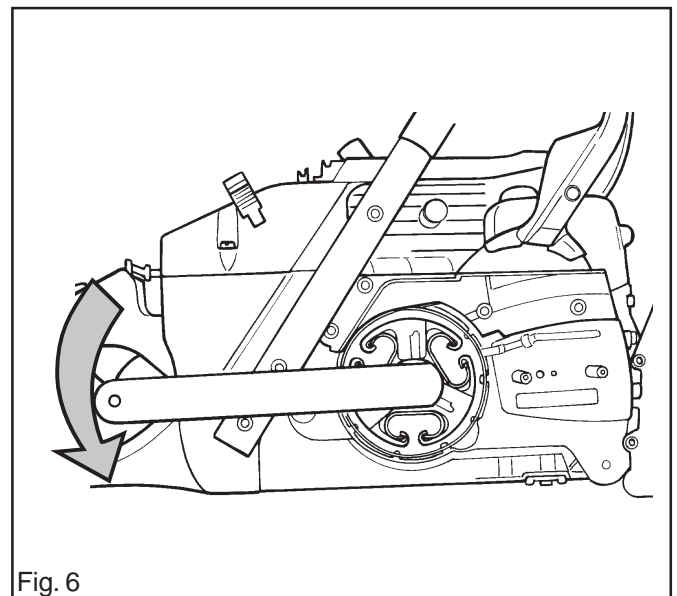


Fig. 6

LUBRICATION SYSTEM

Lubrication system



WARNING!
Insufficient lubrication of the chain can result in the chain breaking, which can cause serious or even life-threatening injury.

The lubrication system consists of the following parts:

- Oil pump.
- Suction pipe with filter.
- Oil pipe with seals.

All the above parts are described in sequence under the headings that follow.

Dismantling

1. Empty and clean the oil tank.
2. Dismantle the following parts:
 - Chain and bar. See the instruction book.
 - The centrifugal clutch. See page 26.
3. Dismantle the drive wheel. See fig. 1.
4. Remove the two bolts (B) and lift up the oil pump from the crankcase. See fig. 2.
5. Use a screwdriver to push up the oil pipe at A. Lift up the pipe and pull it out of the oil pump. See fig. 2.
6. Use pointed pliers and pull up the suction pipe (C) with filter. See fig. 3.
7. Remove the clip (D) and unscrew the adjuster screw (E). See fig. 4.
8. Use a pair of pliers and push on the pump piston at F so that the cover plug (G) and pump piston (H) can be removed. See fig. 4.
9. Use a pair of pliers and pull out the spring (I) and 2 washers (J). See fig. 4.

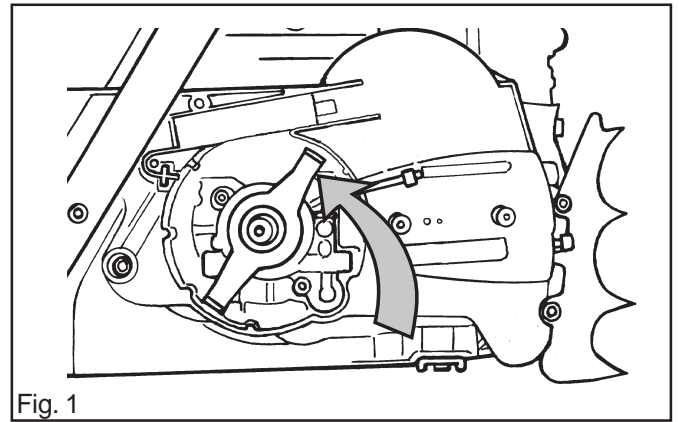


Fig. 1

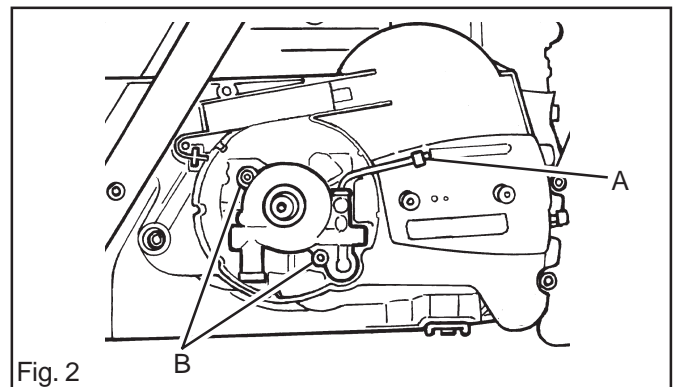


Fig. 2

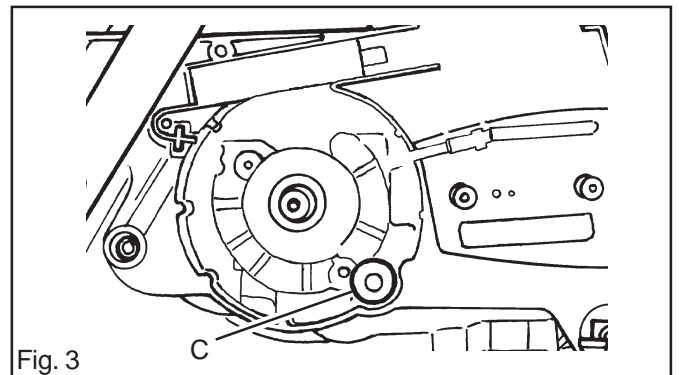


Fig. 3

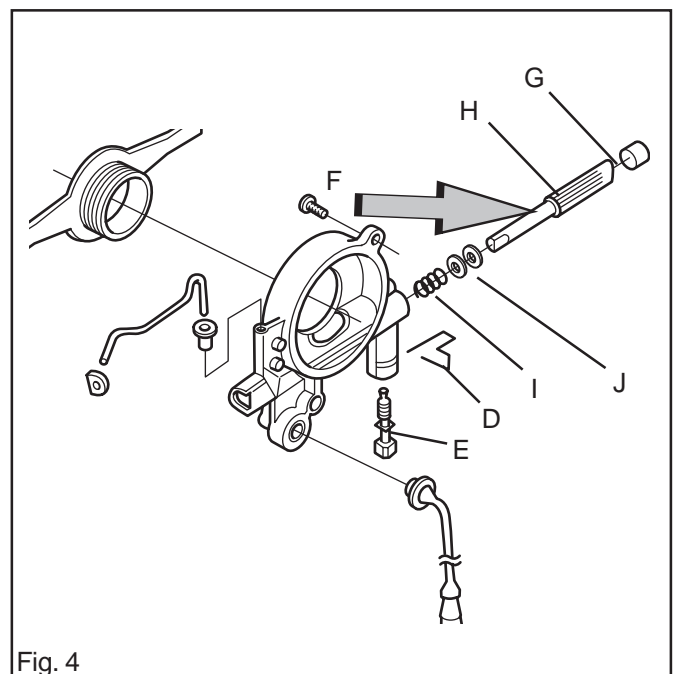


Fig. 4

LUBRICATION SYSTEM

Cleaning and inspection

Clean all parts, including the pump and oil pipe mounts in the crankcase, and check the following:

1. The taper on the adjuster screw (E) should not have any wear marks. See fig. 5.
2. The eccentric face on the pump piston should not have any wear marks. See fig. 5.
3. The gear on the pump piston should be undamaged. See fig. 5.
4. The oil pump drive's worm gear should be undamaged. See fig. 6.
5. The oil pipe should be free from impurities and the filter clean.
6. The oil pipe should be free from impurities and its seals undamaged.

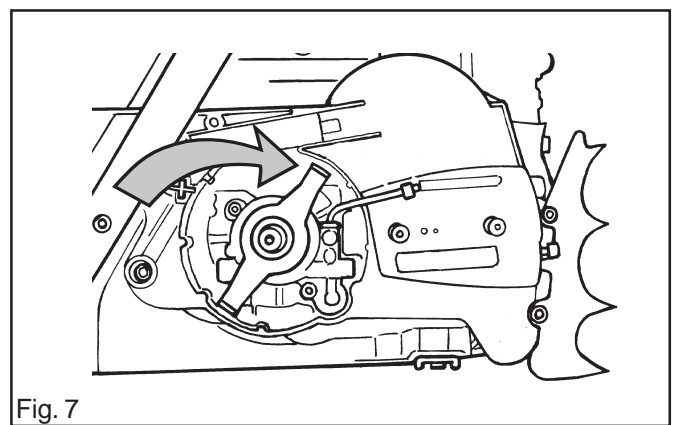
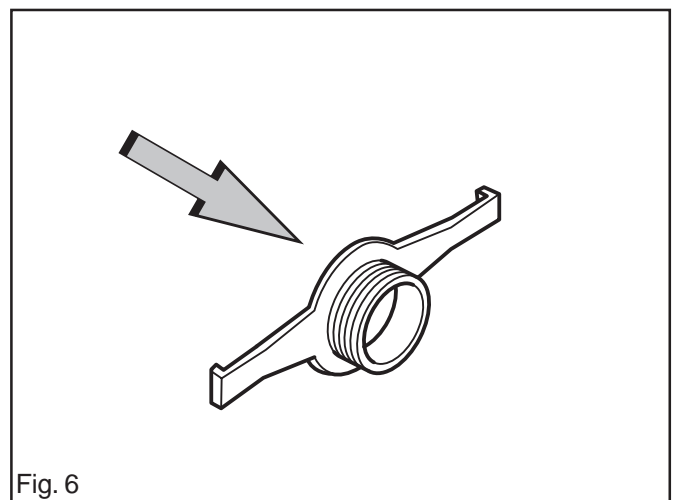
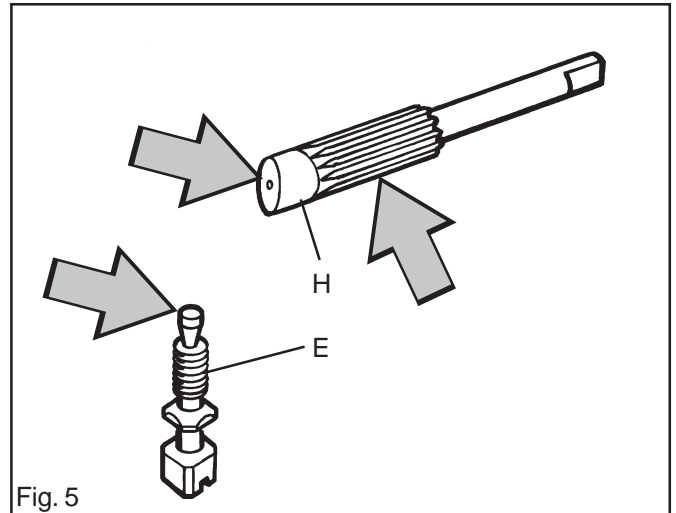
Assembly

1. Insert the suction pipe (C) in the hole in the crankcase. See fig. 3 page 28.
2. Place the spring (I), 2 washers (J) and pump piston (H) in the pump housing. Oil in all parts with chain oil. See fig. 4 page 28.
3. Use a screwdriver to press in the pump piston and screw home the adjuster screw (E). See fig. 4 page 28.
4. Fit the cover plug (G). See fig. 4 page 28.
5. Fit the clip (D). See fig. 4 page 28.
6. Fit the oil pump in the crankcase. Fit the oil pipe with seals. See fig. 2 page 28.
7. Tighten the bolts to 5 Nm. See fig. 2 page 28.
8. Fit the drive wheel. See fig. 7.
9. Assemble the following parts:
 - The centrifugal clutch. See page 26.
 - The other parts of the saw. See the Operator Guide.
10. Adjust the pump feed rate as described below.
11. Refill with chain oil and check the lubrication. See the Operator Guide.

Adjusting the pump feed rate

The pump feed rate is adjusted with the adjuster screw (E). The table (right) shows the number of turns from the home position for respective bar lengths. The table applies to Husqvarna chain oil.

If a different oil is used the screw should be unscrewed an additional turn in the first two cases.



Bar	Number of turns from home position
-18"	2
18"-24"	3
24"-	4

CARBURETTOR

Carburettor



WARNING!

The fuel used in the chainsaw has the following hazardous properties:

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

Description

The drawings accompanying this description do not correspond with the carburettor on the chainsaw. They only show the principle for the design and function.

Design

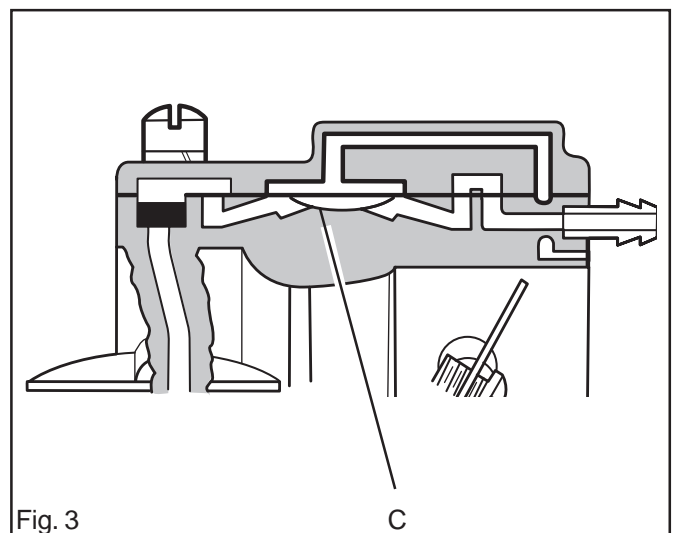
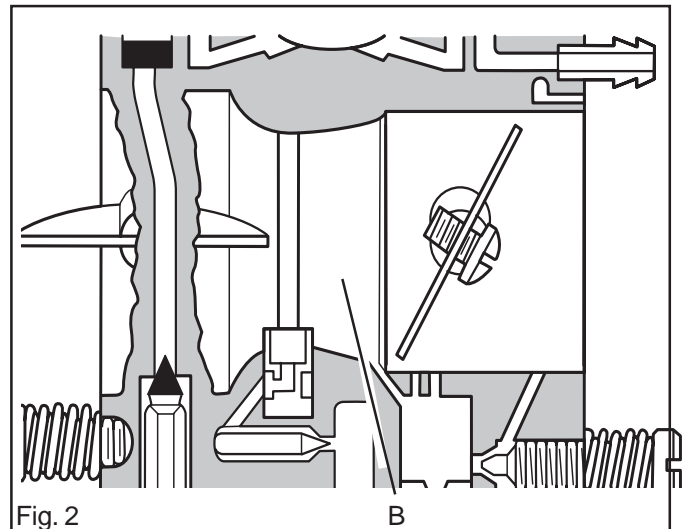
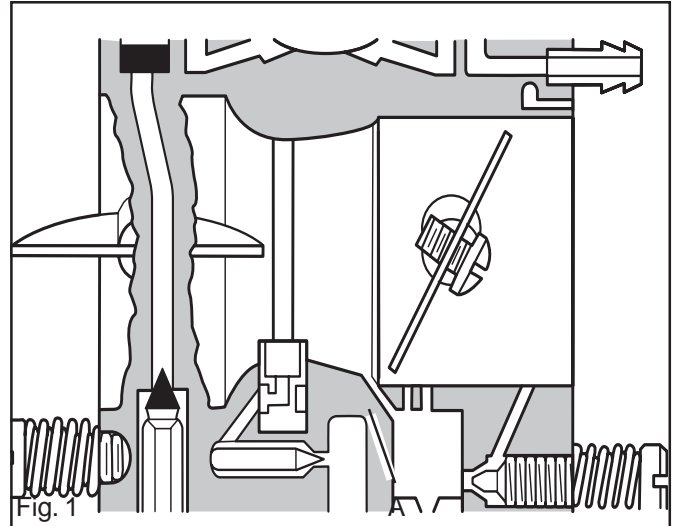
The carburettor is based on three sub-systems:

- The metering unit, A in fig. 1.
- The mixing venturi, B in fig. 2.
- The pump unit, C in fig. 3.

The jets and the fuel's control functions are located in the metering unit (A). Here the correct quantity of fuel is adjusted for the actual speed and power output.

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

In the pump unit (C), fuel is pumped from the fuel tank to the 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.



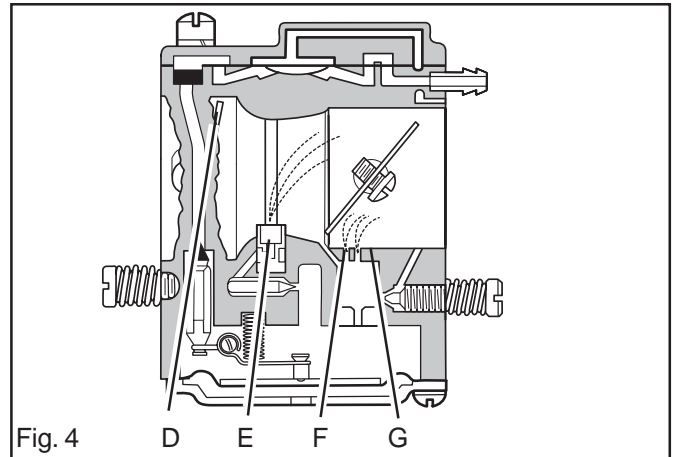
CARBURETTOR

Function

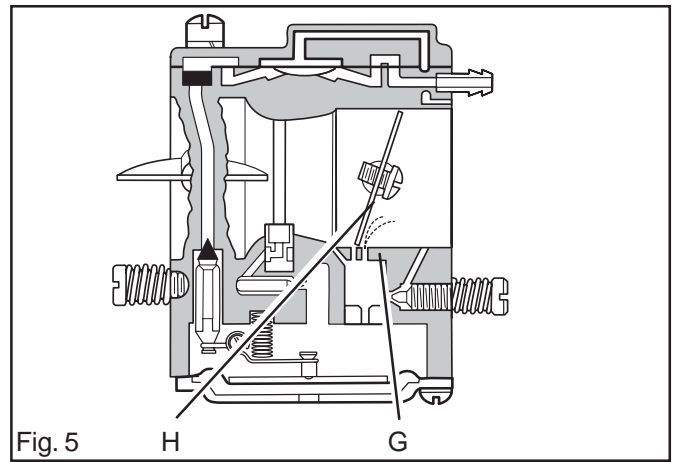
The carburettor operates differently in the following modes:

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

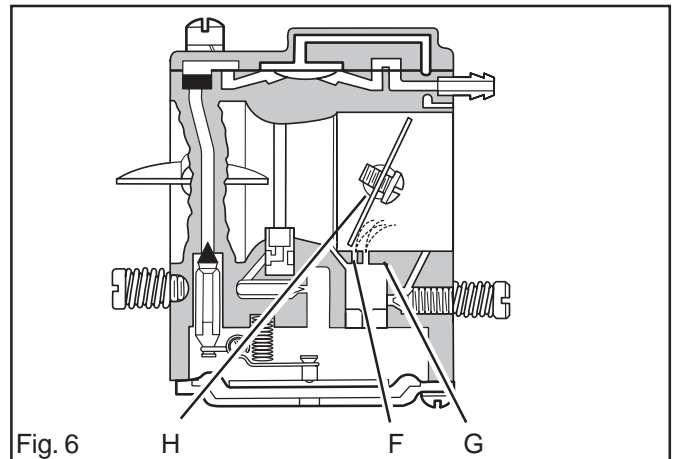
In the cold start mode (fig. 4) the choke valve (D) is fully closed. This increases the vacuum in the carburettor so that fuel is sucked more easily from all the diffuser jets (E, F and G). The throttle valve (H) is partly open.



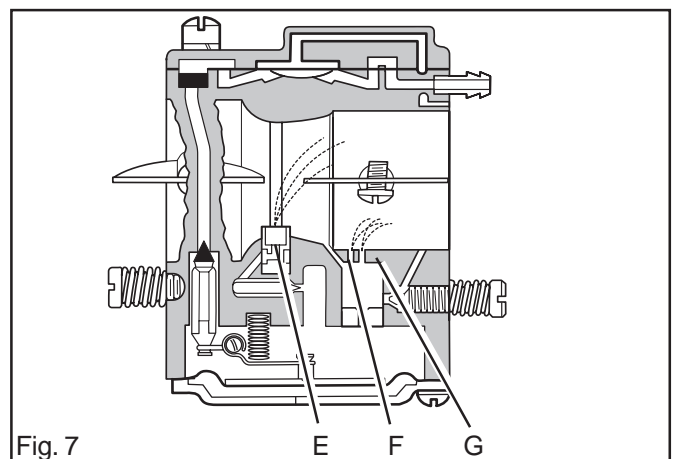
In the idling mode (fig. 5) the throttle valve (H) is closed. Air is sucked in through an aperture in the throttle valve and a small amount of fuel is supplied through the diffuser jet (G).



In the part throttle mode (fig. 6) the throttle valve (H) is partially open. Fuel is supplied through the diffuser jets (F and G).



In full throttle mode (fig. 7) both valves are open and fuel is supplied through all three diffuser jets (E, F and G).



CARBURETTOR

Dismantling



WARNING!

The fuel used in the chainsaw has the following hazardous properties:

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

Dismantling

1. Remove the cylinder cover and air filter.
2. Remove the carburettor control (A) by pushing it towards the carburettor and lifting.
3. Unhook the throttle cable and remove the choke control.
4. Remove the fuel pipe (B) and the impulse channel (C).
5. Remove the bolts (D) which secure the filter holder, carburettor and intake tube.
6. Loosen the filter holder and lift off the carburettor. Leave the filter holder in the carburettor space.

Carburettor

7. Remove the cover (E) over the metering unit and carefully remove the metering diaphragm (F) and gasket. See fig. 9.
8. Remove the screw (G) and take out the needle valve (H) with lever, spindle and spring. See fig. 9.
9. Remove the cover (I) over the pump unit and carefully remove the gasket (J) and pump diaphragm (K). See fig. 10.
10. Use a needle or the like to carefully remove the fuel filter (L). See fig. 10.
11. Remove the high and low speed screws. See fig. 12.
12. If necessary, remove the throttle and choke valves and remove the spindles together with levers and springs. See fig. 12.

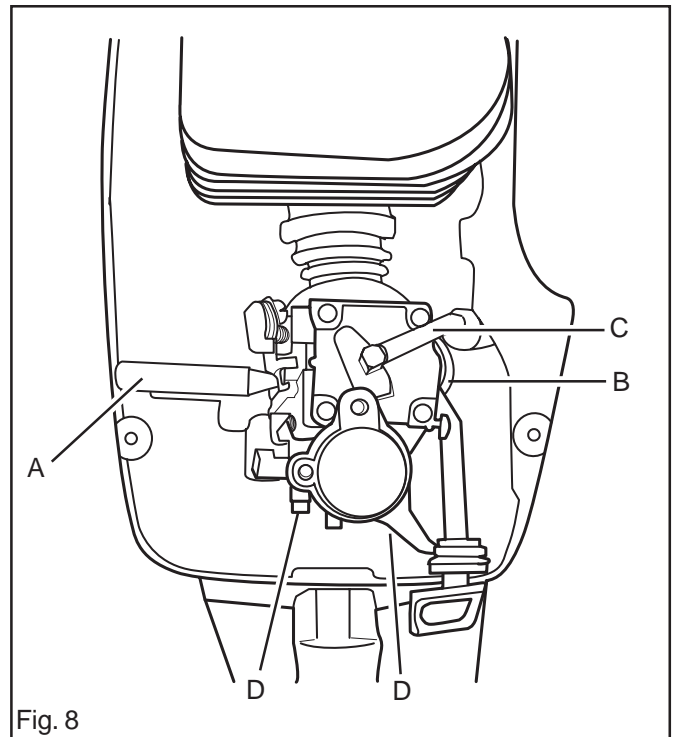


Fig. 8

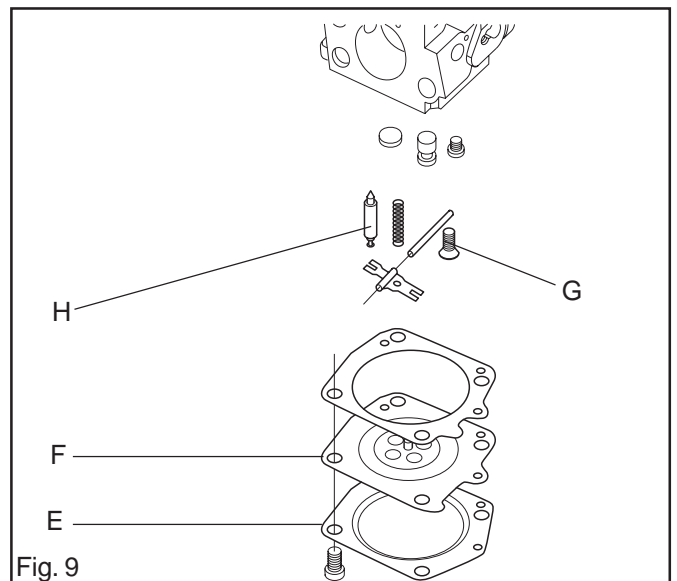


Fig. 9

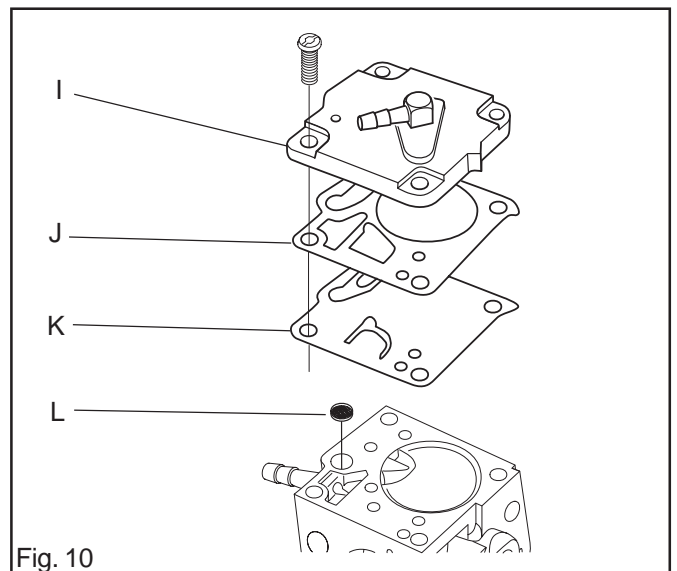


Fig. 10

CARBURETTOR

Cleaning and inspection



WARNING!
Fuel has the following hazardous properties:

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

Clean all units in clean petrol.



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

Use compressed air to dry the petrol on the components. Direct the air through all channels in the carburettor housing and make sure that they are not blocked.

See fig. 11 and 12 and check the following:

1. That gaskets, pump and control diaphragms are undamaged.
2. That there is no play on the throttle and choke valve shafts.
3. The needle valves and lever are not worn at M in fig. 11.
4. The fuel filter is undamaged. See L in fig. 10.
5. The tips of the high and low speed screws are not damaged.
6. The intake manifold is undamaged. See page 39 and 41.

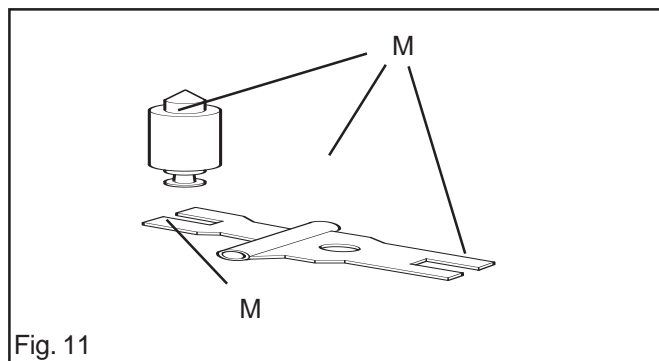


Fig. 11

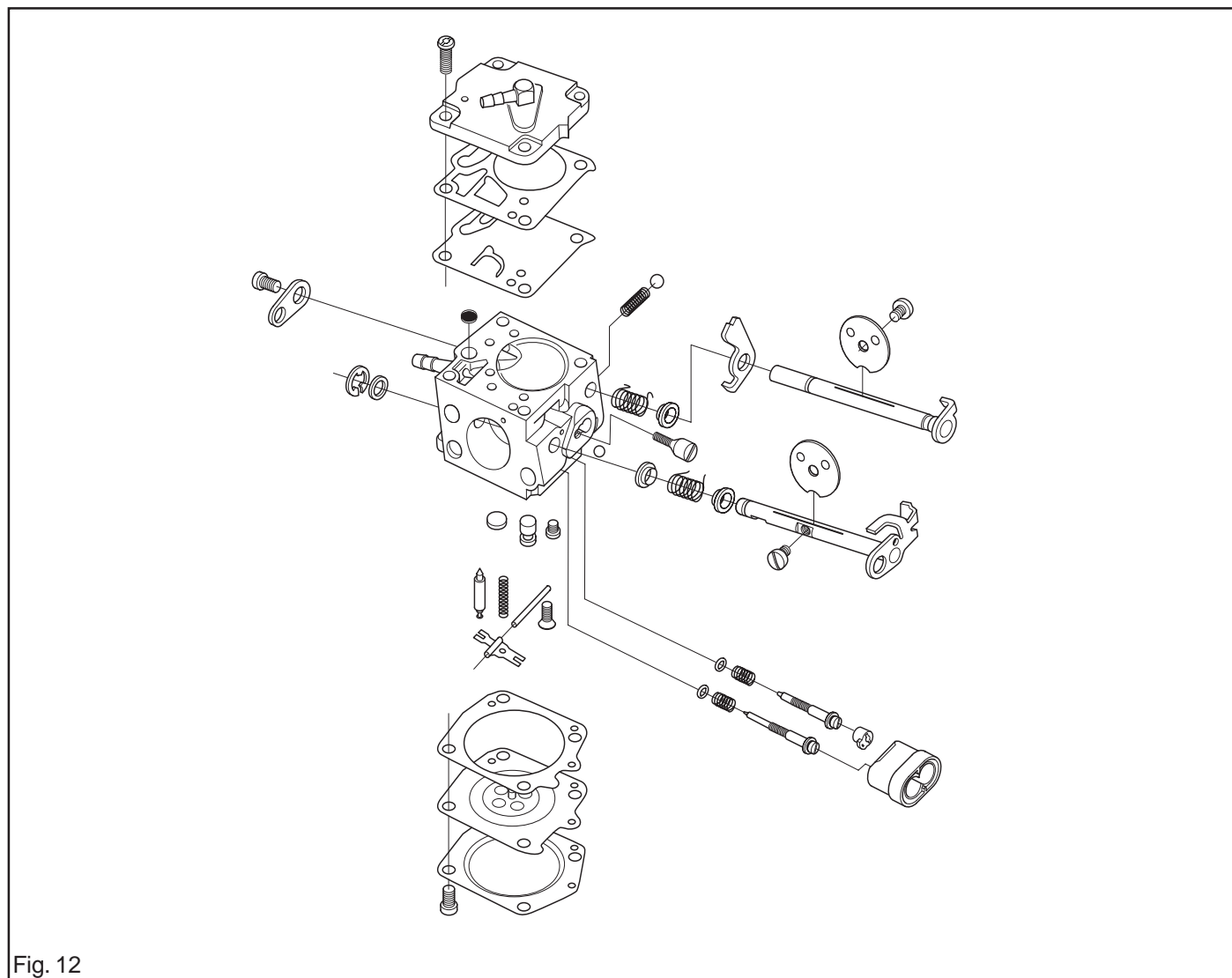


Fig. 12

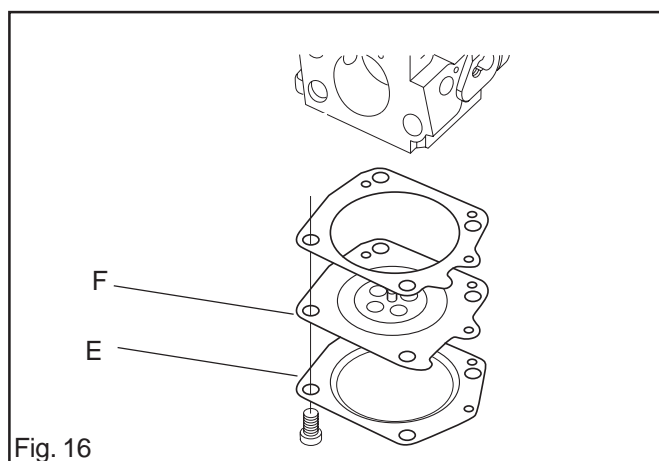
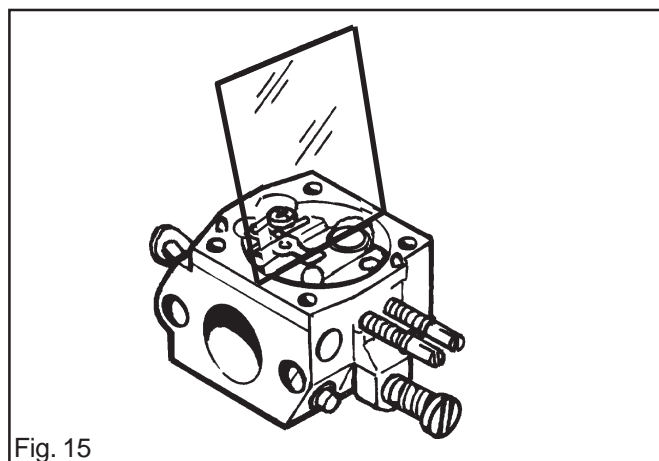
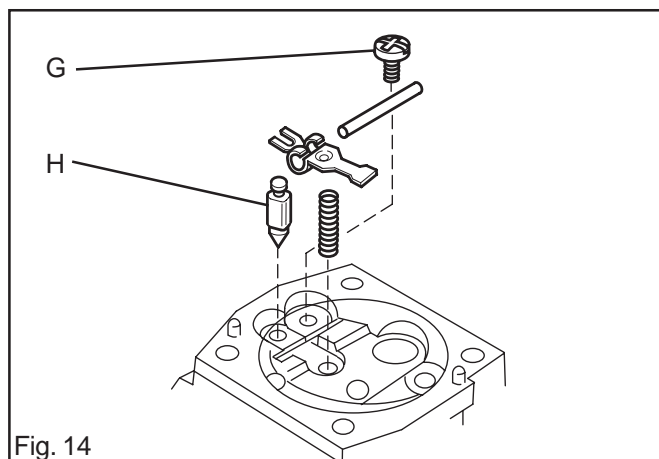
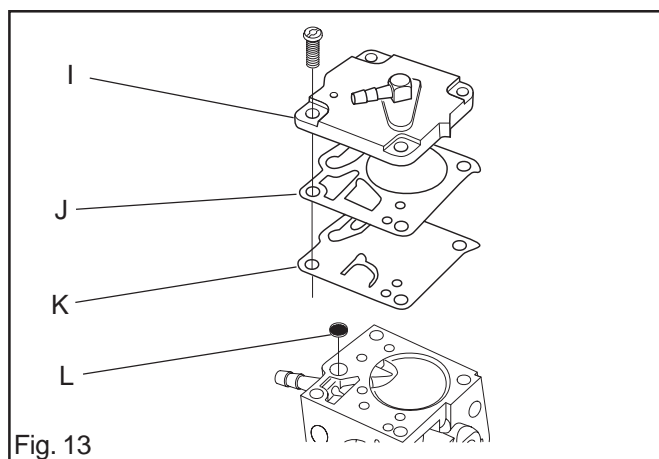
CARBURETTOR

Assembly

Where no figure is referred to, see exploded diagram 12 on the previous page.

Maintain a high level of cleanliness when assembling the carburettor. The slightest contamination can result in running problems.

1. If the throttle and choke valves, together with levers and springs were removed, they should be refitted. Lubricate the spindle bearings with light oil.
2. Fit the high and low speed screws and springs.
Note! Do not fully tighten the screws. This will damage the seats and needle tips.
3. Fit the fuel filter (L) by using the handle of a small screwdriver. See fig. 13.
4. Fit the pump diaphragm (K), gasket (J) and cover (J) on the pump unit. See fig. 13.
5. Fit the needle valve (H) with lever, spindle and spring and tighten the screw (G). See fig. 14.
6. Check with a ruler or the like that the lever is level with the cover face. See fig. 15. If necessary, the lever can be bent slightly.
7. Fit the control diaphragm (F) with packing and cover (E) on the metering unit. See fig. 16.
8. Carry out a pressure test. See next page.



CARBURETTOR

Pressure testing

Pressure testing should be carried out with the carburettor fully assembled. Testing should always be carried out after the carburettor has been repaired, but it can also be carried out as trouble shooting before dismantling the carburettor.

See fig. 17 and carry out the test as follows:

1. Unscrew the high and low speed screws one turn from home position.
2. Connect pressure tester 502 50 38-01 to the carburettor's fuel intake.
3. Lower the carburettor into a beaker of water.
4. Pump up the pressure to 50 kPa (0.5 bar) and squeeze together the tube.
5. No leakage is permitted. If a leakage occurs refer to the table below.

Leakage at	Fault with
Diffuser jets Leakage in impulse tube Ventilation hole on metering unit.	Needle valve Pump diaphragm Control diaphragm

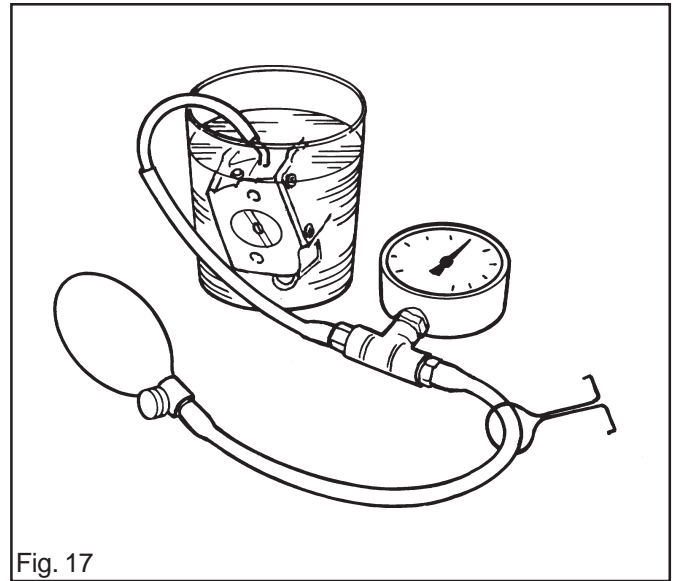


Fig. 17

Refitting to the chainsaw

See fig. 18.

1. Loosen the filter holder and put the carburettor in place on the chainsaw.
2. Fit the filter holder, carburettor and intake manifold. Tighten the bolts to 1.5 Nm.
3. Fit the fuel pipe (B) on the fuel nipple and the tube (C) on the impulse nipple.
4. Fit the throttle cable and choke control.
5. Fit the carburettor control (A).
6. Fit the cylinder cover and air filter. See the instruction book.

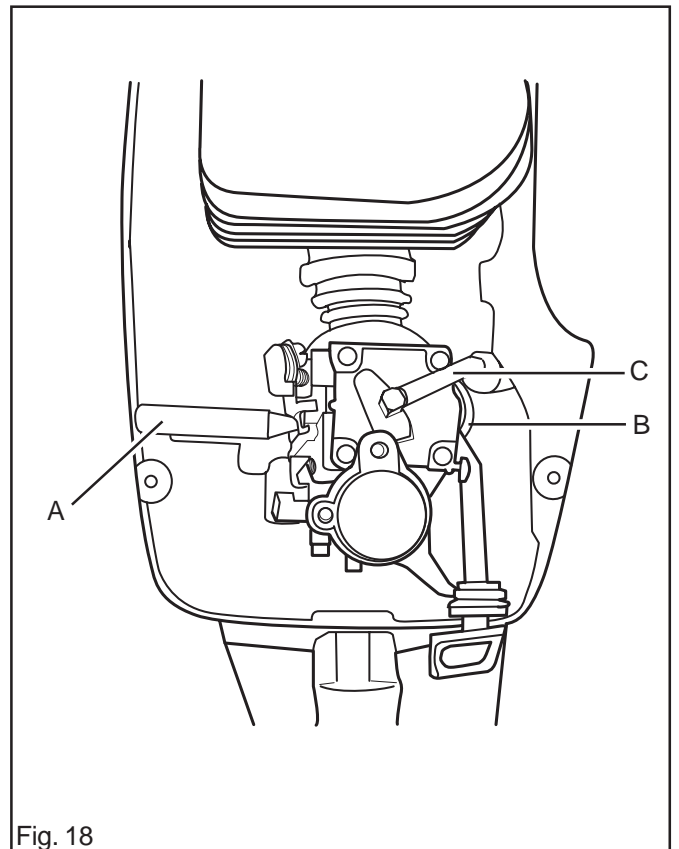


Fig. 18

CARBURETTOR

Adjustment



WARNING!
The bar, chain and clutch cover must be fitted before the chainsaw is started, otherwise the clutch can work loose and cause personal injury.



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

Adjusting the carburettor means adapting the engine to local conditions, e.g. the climate, altitude, petrol and the type of 2-stroke oil.

The carburettor is fitted with three adjustment possibilities:

- L = Low speed jet
- H = High speed jet
- T = Adjuster screw for idling

The quantity of fuel in relation to the air flow permitted by the throttle opening is adjusted with the L and H jets. Turning them clockwise gives a leaner fuel mixture (less fuel) and turning them anticlockwise gives a richer air/fuel mixture (more fuel). A lean mixture gives a higher speed, while a rich mixture gives a lower speed.

The T-screw regulates the position of the throttle while the engine is idling. Turning the T-screw clockwise gives a higher idling speed, while turning it anticlockwise gives a lower idling speed.

Basic settings and running-in

The basic carburettor settings are used for test running in the factory.

The basic settings are H = 1 ¼ and L = 1 ¼ turns respectively.

To ensure that the engine components receive adequate lubrication (running-in) the carburettor should be set to a somewhat richer fuel mixture for the first 3-4 hours the chainsaw is used. To achieve this, the max. overspeed is adjusted to 6-700 rpm less than the recommended max. overspeed.

If it is not possible to check the max. overspeed with a tachometer then the H-jet should not be set to a leaner mixture than stated in the basic settings.

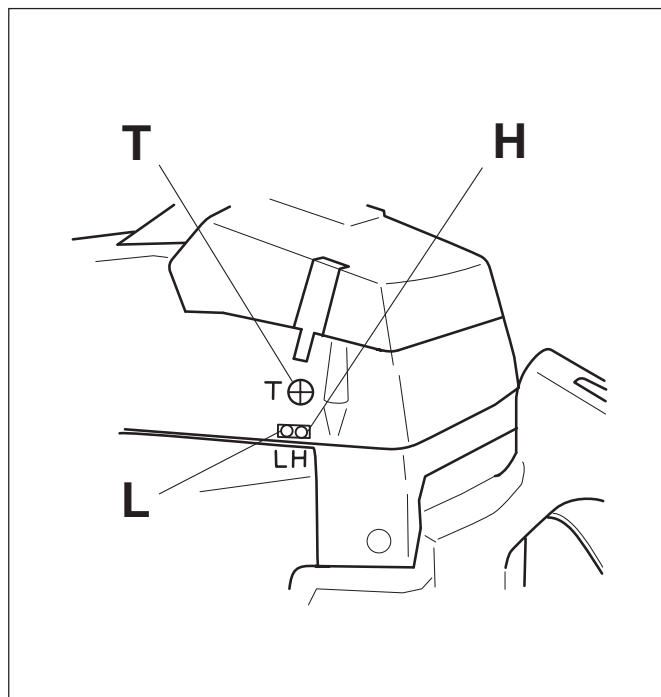
The recommended max. overspeed must not be exceeded.
NOTE! If the chain goes round at idling speed the T-screw should be turned anticlockwise until it stops.

Fine adjustment

Fine adjustment of the carburettor should be carried out after the engine has been "run-in". First adjust the L-jet, then the idling speed's T-screw, and finally the H-jet.

The following speed recommendations apply:

	<u>Max. overspeed</u>	<u>Idling speed</u>
385XP	13000 rpm	2700 rpm



Conditions

The air filter should be clean and the cylinder cover fitted when adjustments are made. Adjusting the carburettor with a dirty air filter will give a fuel mixture that is too lean the next time the air filter is cleaned. This can result in serious damage to the engine.

Carefully screw in (clockwise) the L and H jets until they bottom. Now screw out (anticlockwise) the jets 1 turn. The carburettor now has the setting H = 1 and L = 1.

Start the chainsaw according to the starting instructions and run warm for 10 minutes.

NOTE! If the chain goes round at idling speed the T-screw should be turned anticlockwise until it stops.

Place the chainsaw on a flat surface so that the bar points away from you and so that the chain and bar are not in contact with the surface or any other object.

CARBURETTOR

Low speed jet L

Find the highest idling speed by slowly turning the low speed screw clockwise then anticlockwise. When the highest speed has been found, turn the L-screw anticlockwise 1/8 - 1/4 of a turn.

NOTE! If the chain goes round at idling speed the T-screw should be turned anticlockwise until it stops

Fine tuning of idling T

The idling speed is set with the screw marked T. If adjustment is necessary, screw in (clockwise) the idling screw T with the engine running until the chain begins to go round. Now screw out (anticlockwise) until the chain stops turning. A correctly set idling speed is when the engine runs smoothly in all positions with a good margin to the speed when the chain starts to turn.



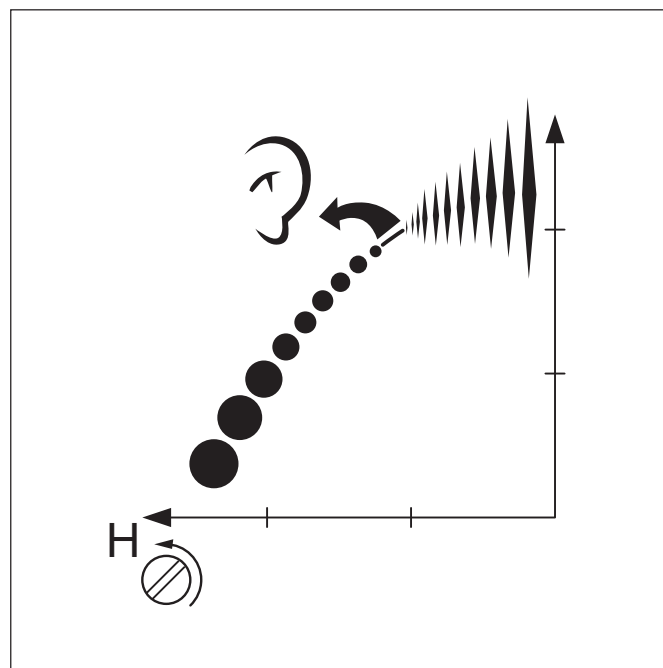
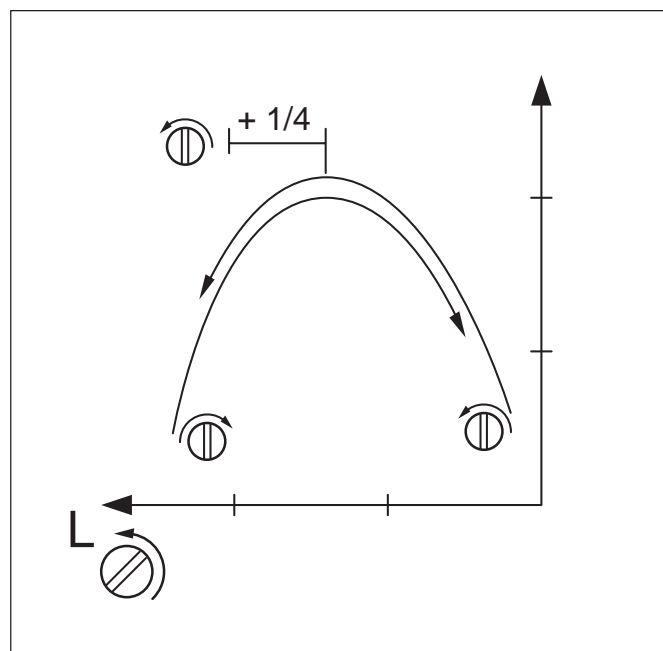
WARNING!
Do not use the chainsaw until it has been adjusted to prevent the chain going round at idling speed.

High speed jet H

The high speed jet H affects the chainsaw's power and speed. A too lean high speed jet setting (H-jet screwed in too far) gives over revving on the saw, resulting in damage to the engine. Run the chainsaw at full throttle for about 10 seconds. Then turn the H-screw anticlockwise 1/4 of a turn. Run the chainsaw again at full throttle for approx. 10 second seconds and listen to the difference in the overspeed. Repeat this procedure with the H-screw turned an additional 1/4 of a turn anticlockwise.

You have now run the chainsaw at $H \pm 0$, $H = +1/4$, and $H = +1/2$ from the basic settings. At full throttle the engine will have sounded different for each setting. The H-screw is set correctly when the chainsaw "splutters" somewhat. If the saw "screams" then the setting is too lean. If the muffler emits a lot of smoke, at the same time as the chainsaw splutters a lot, then the setting is too rich. Turn the H-screw clockwise until you find the setting that sounds right.

NOTE! A tachometer should be used to achieve an optimal setting. The recommended max. overspeed must not be exceeded.



Correctly adjusted carburettor

A correctly adjusted carburettor means that the chainsaw accelerates without hesitation and that it splutters somewhat at full throttle. In addition, the chain should not go round at idling speed. If the L-screw is set too lean this can cause starting problems and poor acceleration. If the H-screw is set too lean this will give the chainsaw less power, poor acceleration, and/or will damage the engine. If both the L and H screws have an over-rich setting this will give acceleration problems or reduce the working speed.

TANK UNIT

Tank unit



WARNING!

The fuel used in the chainsaw has the following hazardous properties:

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

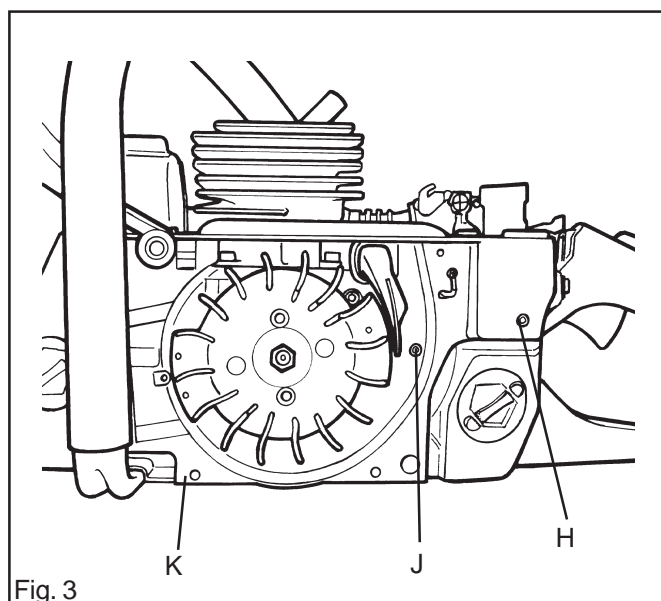
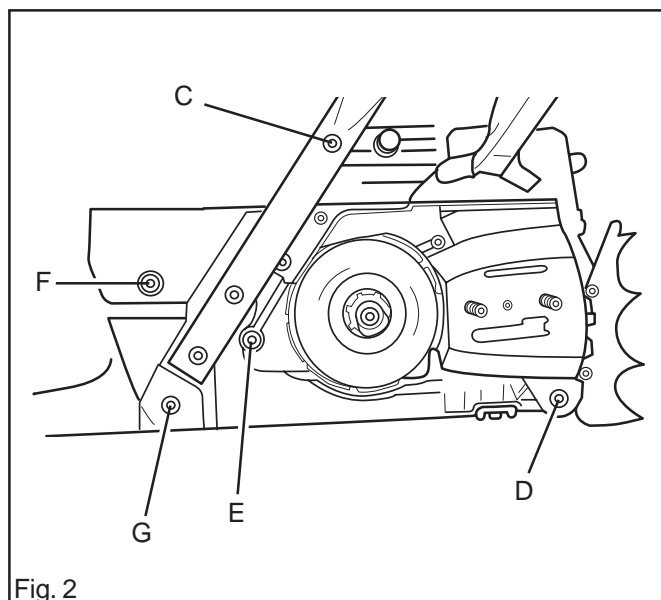
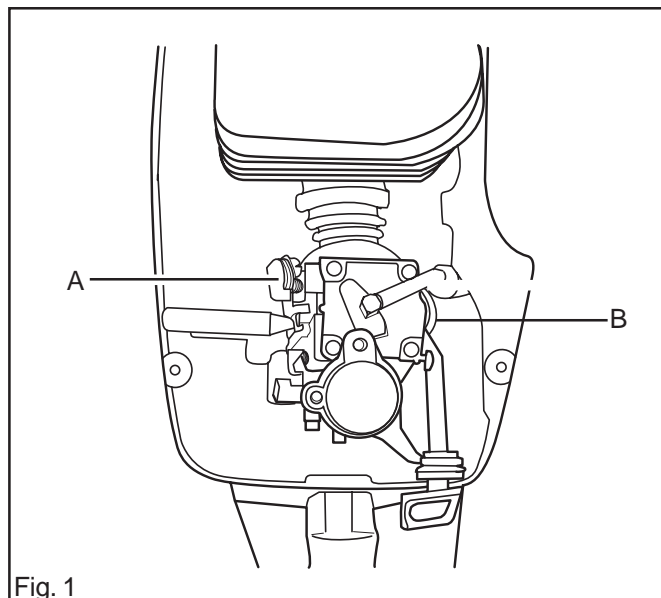
Dismantling

1. Drain off the fuel from the tank.
2. Remove the cylinder cover, chain and bar.
See the instruction book.
3. Unhook the throttle cable (A) from the carburettor and push out the cable casing from its attachment. See fig. 1.
4. Remove the fuel pipe (B) from the carburettor.
5. If the chainsaw is fitted with hand grip heating, release the cable at C. See fig. 2.
6. Remove the bolts (C, D, E and F). See fig. 2.
7. Remove the bolts (H, J and K) from the flywheel side. See fig. 3.
8. Remove the stop switch and disconnect the leads. If the chainsaw is fitted with hand grip heating, disconnect the switch and leads.

NOTE!

Take care not to damage the fuel pipe and throttle cable.

9. If the tank guard (chain deflection/break) (G) is damaged, it must be replaced. See fig. 2.
10. If necessary, lift out the fuel pipe and pull off the fuel filter.
Use tool 502 50 83-01, see pos. 17, page 9.
11. If the chainsaw is fitted with hand grip heating, release the connector to the heating element.
See fig. 20 page 25.
12. If the springs are to be removed, see AV-system, page 40.



TANK UNIT

Cleaning and inspection

Clean all parts and check that the fuel pipe is intact.

Assembly

1. If the chainsaw is fitted with hand grip heating, fit the heating element if it has been removed.
See page 21 and 23.
2. If a new fuel pipe is to be fitted, do as follows:
 - A Lightly oil in one half of the new fuel pipe.
 - B Press the oiled part through the hole in the tank unit. Allow 80-85 mm to protrude on the outside. See fig. 4.
 - C Turn the pipe so that it bends upwards. See fig. 4.
 - D Cut off the angled ends at both ends so that it protrudes 80-85 mm on the outside.
 - E Remove the pipe from the tank and fit the fuel filter. Push on the pipe as far as it will go.

NOTE!

Take care not to damage the fuel pipe and throttle cable.

3. If the throttle lock has been removed, it should be refitted before the tank unit and engine unit are assembled.
See page 16.
4. Lift the engine unit over the tank unit and push the fuel pipe and throttle cable into their holes in the bottom of the carburettor space.
5. The vent for the fuel tank is placed on the right-hand side of the tank. See fig. 6.
When changing the tank vent use screws of the "self-threading 6 mm" type to pull out the tank vent.
6. Fit the leads on the stop switch.
7. Fit the bolts (H, J and K) on the flywheel side.
See fig. 3. Tighten the bolts to the torque in the service data, page 10.
8. Fit the bolts (C, D, E and F). See fig. 2. Tighten the bolts to the torque in the service data, page 12-13.
9. If the chainsaw is fitted with hand grip heating, fit the lead at C.
10. Fit the fuel pipe (B) on the carburettor. See fig. 7.
11. Insert the throttle cable casing in the attachment and hook on the throttle cable (A) on the carburettor. See fig. 7.
12. Fit the cylinder cover, chain and bar.
See the Operator Guide.

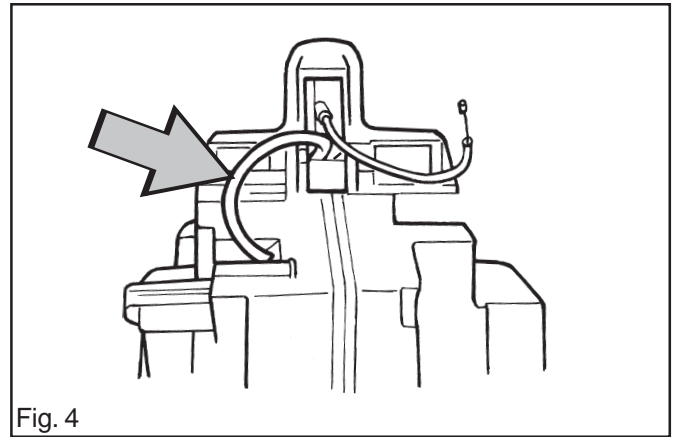


Fig. 4

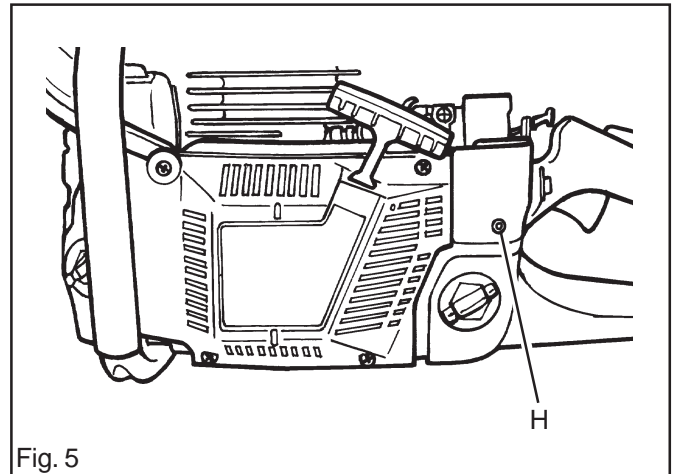


Fig. 5

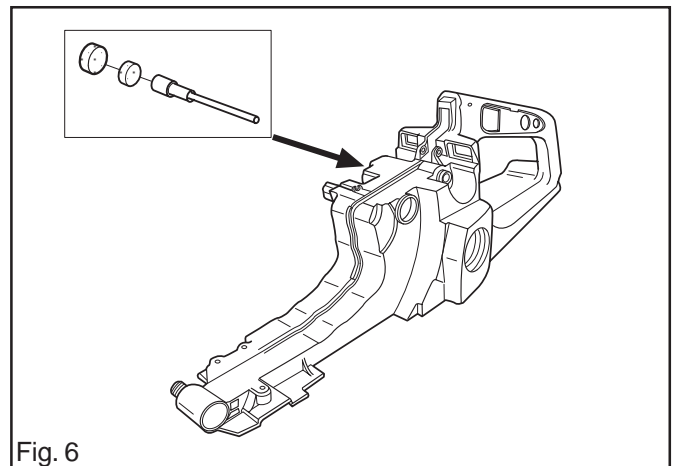


Fig. 6

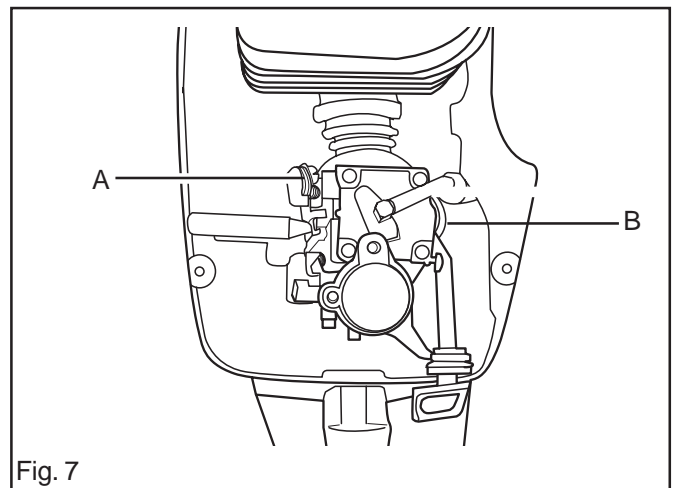


Fig. 7

ANTI-VIBRATION SYSTEM

Anti-vibration system



WARNING!

The fuel used in the chainsaw has the following hazardous properties:

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

Dismantling

1. Dismantle the following parts:
 - Chain and bar. See the Operator Guide.
 - Cylinder cover. See the Operator Guide.
 - Tank unit. See page 38.
2. Remove the spring on the cylinder with a 4 mm Allen key. See fig. 1.
3. Remove the springs on the tank unit with a 4 mm Allen key. See fig. 2.

Cleaning and inspection

Clean and inspect all parts.

Assembly

1. Remove the springs on the cylinder with a 4 mm Allen key. See fig. 1.
2. Assemble the following parts:
 - Tank unit See page 39.
 - Cylinder cover. See the Operator Guide.
 - Chain and bar. See the Operator Guide.

Repair of thread inserts

Repair kits, 50327 33-01, are available if the threads on the chainsaw are worn.

First drill with:

6.1 mm drill to the magnesium crankcase.

Screw in the thread insert with a suitable bolt and key. See fig.3.

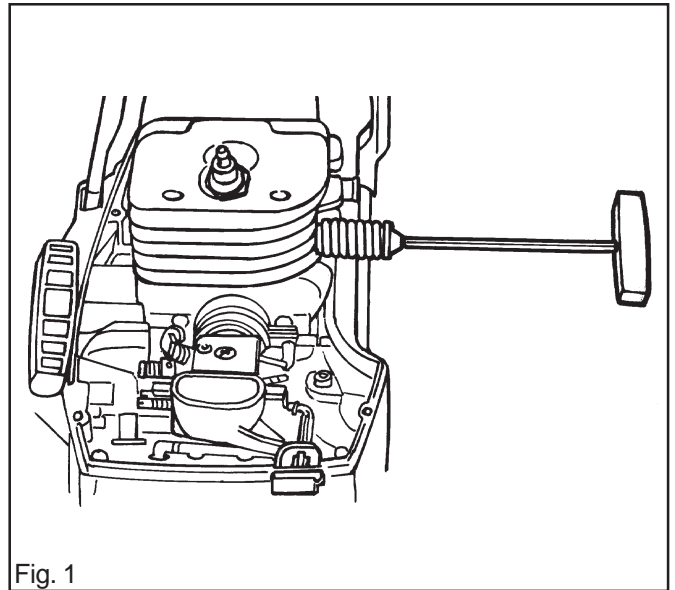


Fig. 1

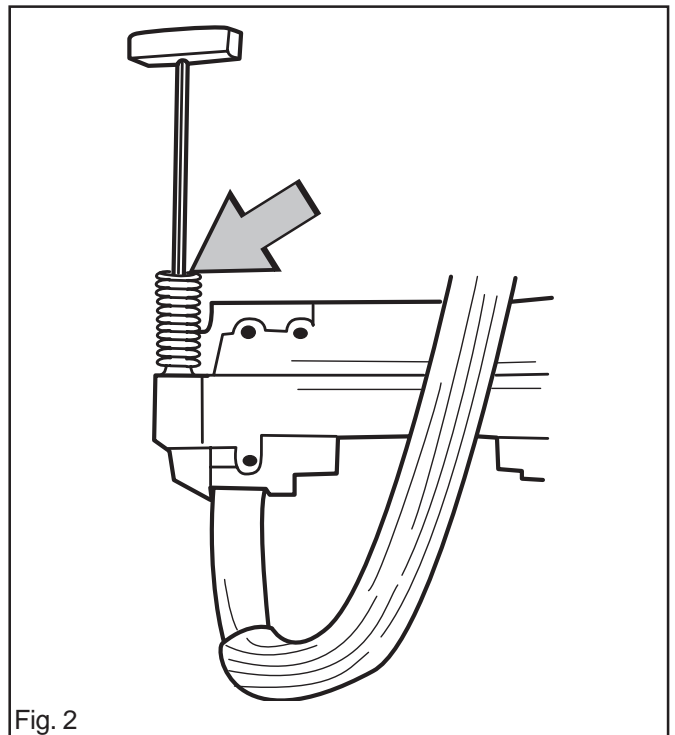


Fig. 2

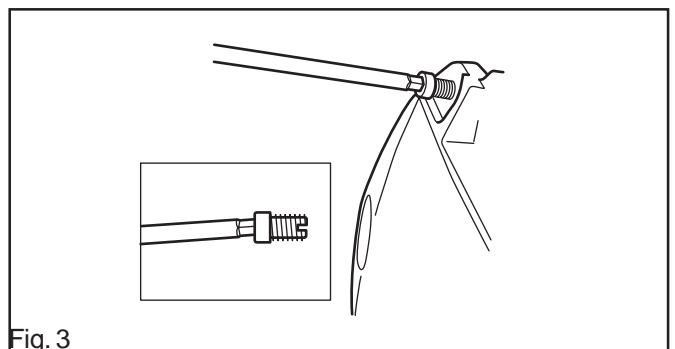


Fig. 3

PISTON and CYLINDER

Piston and Cylinder

Dismantling

1. Dismantle the following parts:
 - Cylinder cover.
 - Spark plug.
 - Carburettor. See page 30.
 - Muffler. See page 17.
2. Unscrew the anti-vibration spring (B) from the cylinder. See fig. 1.
3. Unscrew the cylinder's four bolts (C). See fig. 1.
4. Carefully lift up the cylinder.

NOTE!

Exercise care so that dirt and foreign particles do not get into the crankcase.

5. Cover the crankcase opening immediately with a sheet of paper or a cloth. See fig. 2.
6. Remove one of the piston's circlips, press out the gudgeon pin, and remove the piston. See fig. 2.
7. Remove the needle bearing from the connecting rod's little-end.
8. Unscrew the decompression valve (D). See fig. 1.
9. Unscrew the intake manifold.

Cleaning and inspection

Clean all parts, scrape off all the remains of any gasket material and scrape off carbon deposits from the following surfaces:

1. The piston crown.
2. Top of the cylinder bore (inside).
3. The cylinder exhaust port.
4. The decompression valve channel.

Check the following:

1. That the cylinder's surface coating is not worn. Especially in the upper part of the cylinder. See fig. 3.

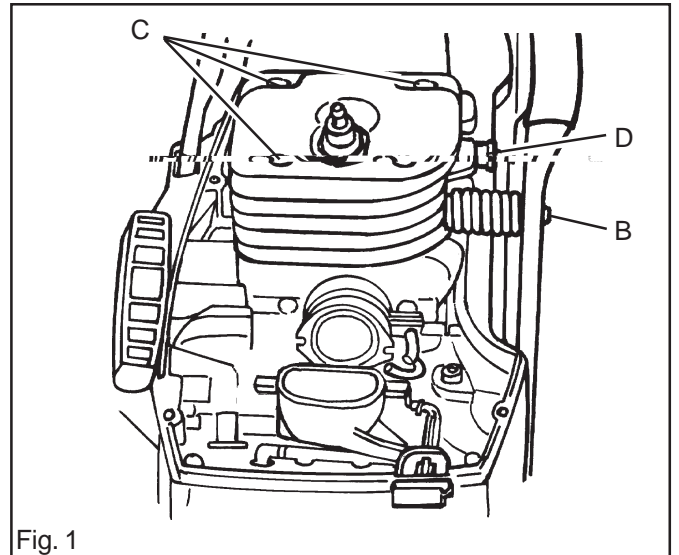


Fig. 1

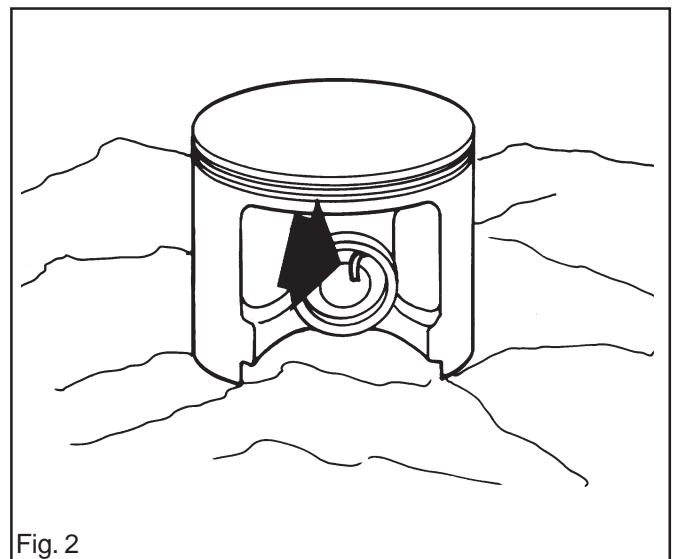


Fig. 2

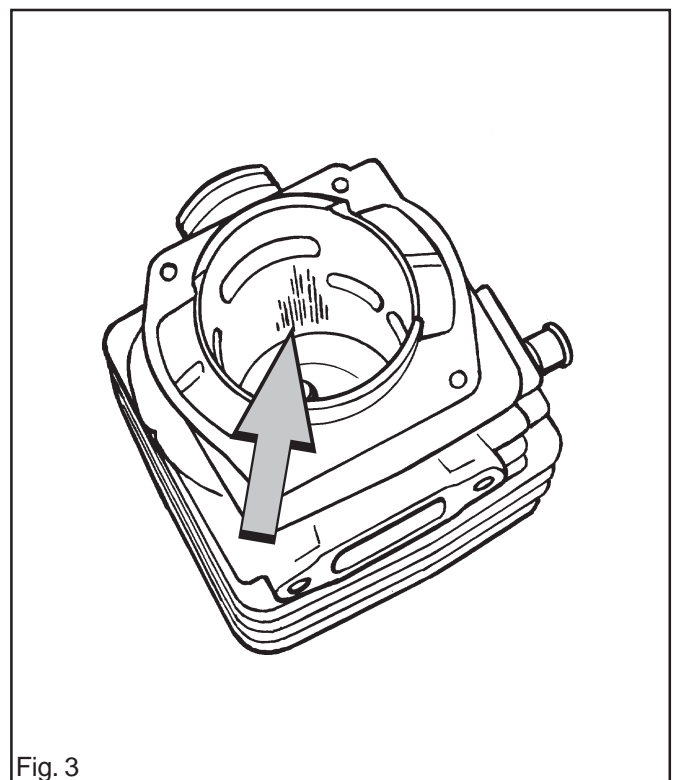


Fig. 3

PISTON and CYLINDER

2. That the cylinder is free of score marks.
 3. That the piston is free of score marks. Minor scratches can be polished off with fine emery paper.
 4. That the piston ring is not burnt into its groove.
 5. Measure the wear on the piston ring by placing it at the bottom of the cylinder and measuring the gap. See fig. 4. The clearance must not exceed 1 mm.
 6. That the needle bearing is undamaged.
 7. That the intake manifold is undamaged.
-
8. Pressure test the decompression valve as follows. See also fig. 5.
 - A. Connect tool 502 50 38-01 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).

Faults and causes

Score marks in the piston. Fig. 6

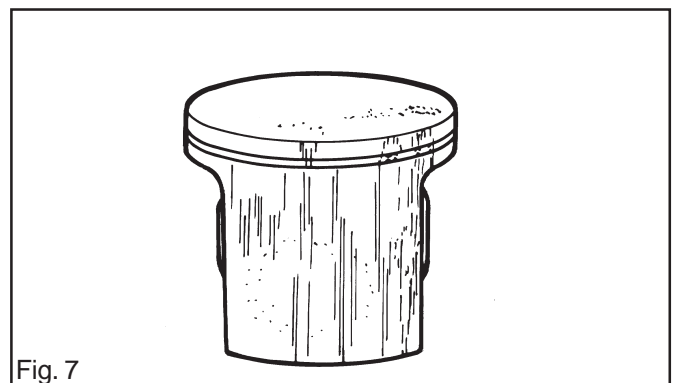
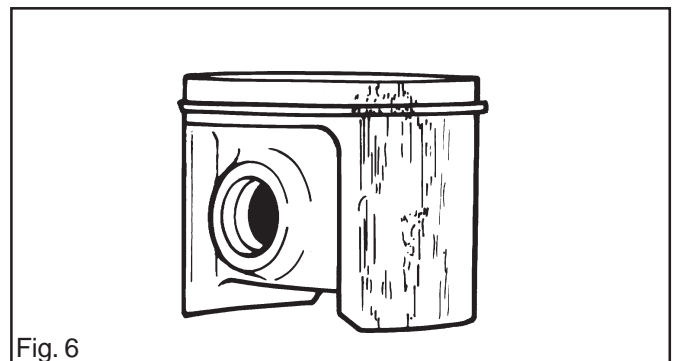
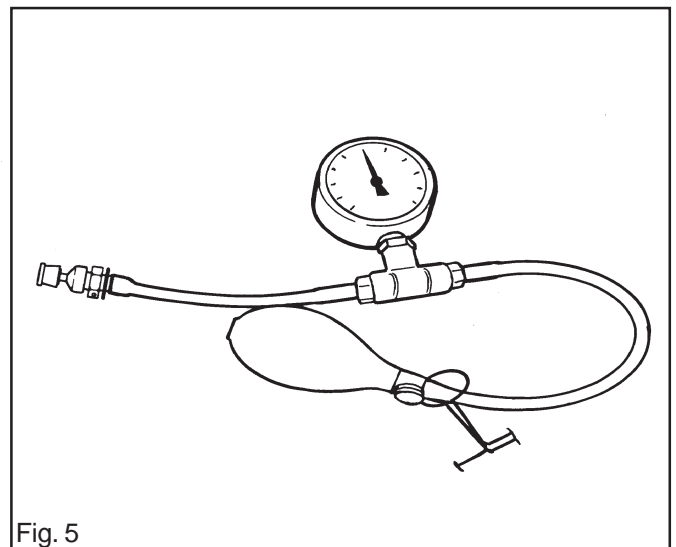
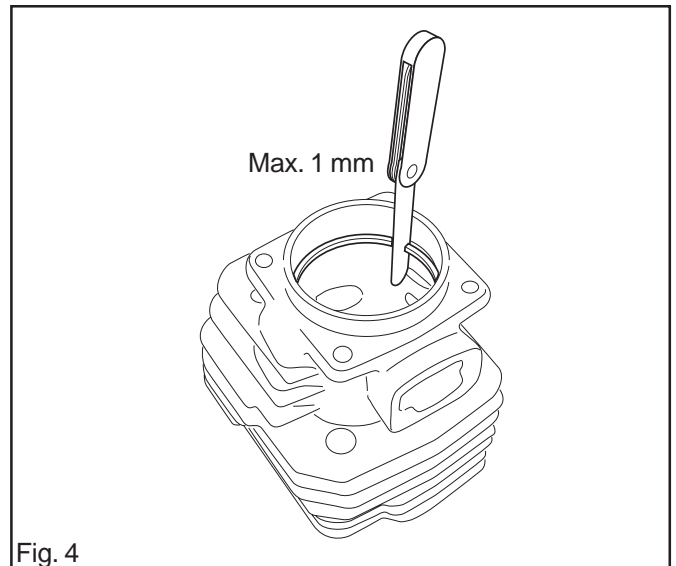
1. Incorrect carburettor setting. Too high overspeed.
2. Too low octane fuel.
3. Too little, or incorrect oil in the fuel.

Carbon build-up. Fig. 7

1. Incorrect carburettor setting. Too low overspeed.
2. Too much, or incorrect oil in the fuel.

Piston ring breakage

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



PISTON and CYLINDER

Assembly

Assembly of the piston and cylinder is carried out as follows:

NOTE!
Exercise care so that dirt and foreign particles do not get into the crankcase.

1. Lubricate the needle bearing and fit it in the connecting rod's little-end.
2. Replace the piston with the arrow facing the exhaust port. See fig. 8. Slide in the gudgeon pin and fit the circlip.
3. Fit the intake manifold on the cylinder. The clamp bolt should be upwards. See fig. 9.
4. Fit the decompression valve (D). See fig. 11. Tighten it to 15 Nm.
5. Fit the gasket on the cylinder base. Press it up so that it fastens on the sleeve of the cylinder.
6. Oil in the piston ring and sides of the piston.
7. Compress the piston ring, either by hand or with tool 502 50 70-01. See fig. 10. Carefully fit on the cylinder.
8. Guide up the cylinder base gasket with the four bolts (C) and tighten them alternately. Tighten them finally to 10 Nm. See fig. 11.
9. Fit the anti-vibration spring (B) on the cylinder. See fig. 11. Tighten the bolt to 10 Nm.
10. Insert the spark plug and pressure test as shown in the instructions on the next page.
11. Assemble the following parts:
 - Muffler. See page 17.
 - Carburettor. See page 34.
 - Cylinder cover. See the Operator Guide.
12. If a new piston and/or cylinder is fitted the chainsaw should be run-in for 3-4 hours with the carburettor set at its basic settings (H=1/4 and L=1/4 turn). See carburettor settings on pages 36 and 37.

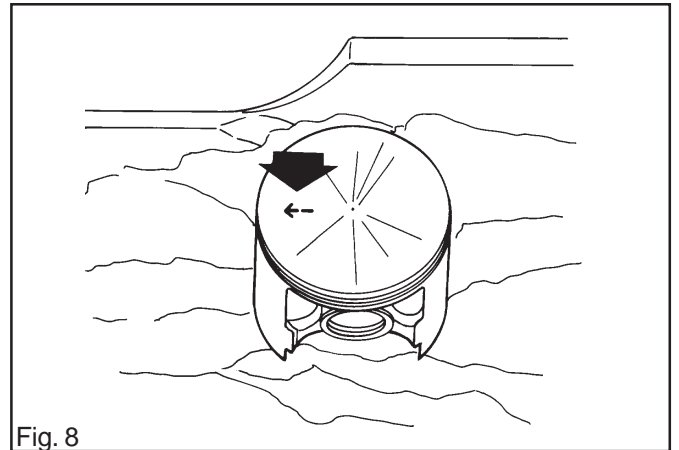


Fig. 8

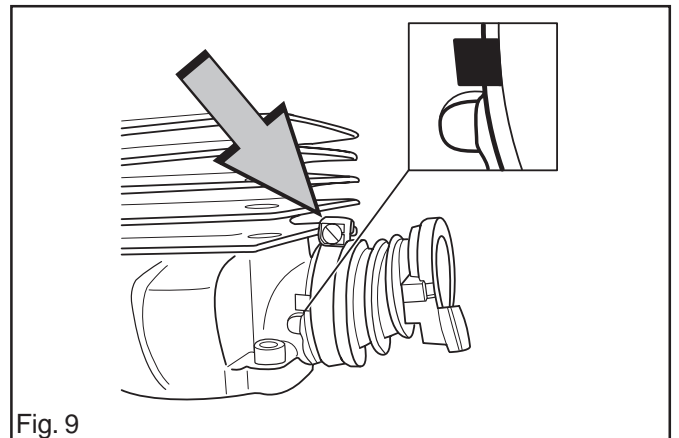


Fig. 9

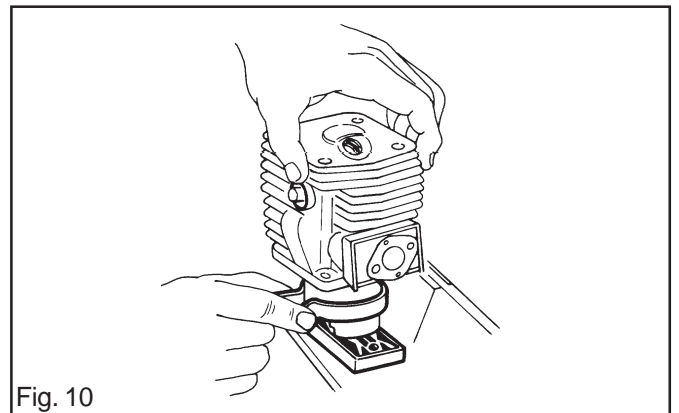


Fig. 10

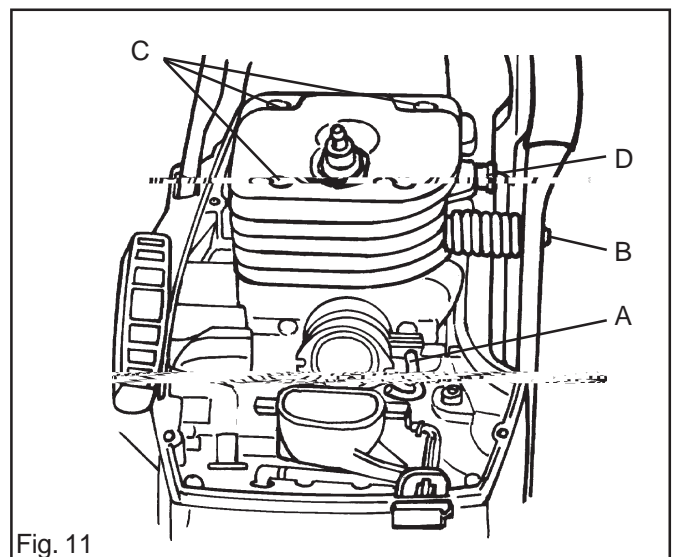


Fig. 11

PISTON and CYLINDER

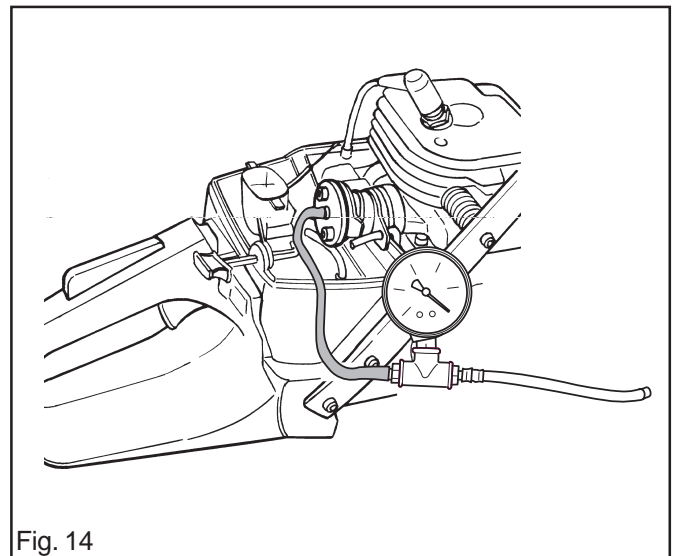
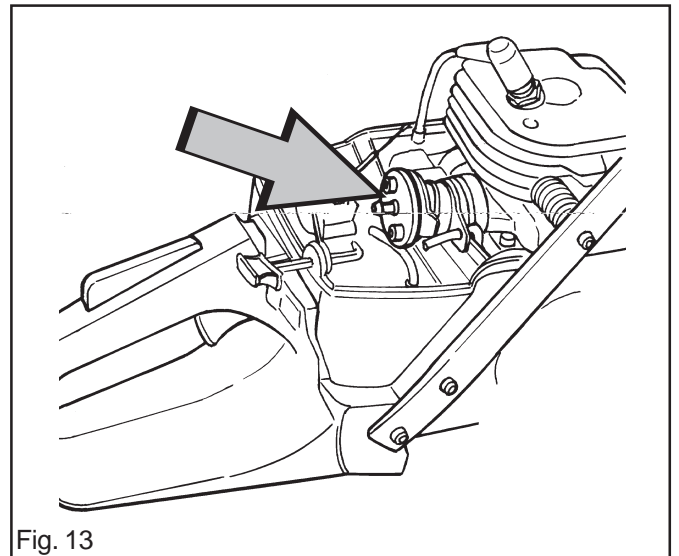
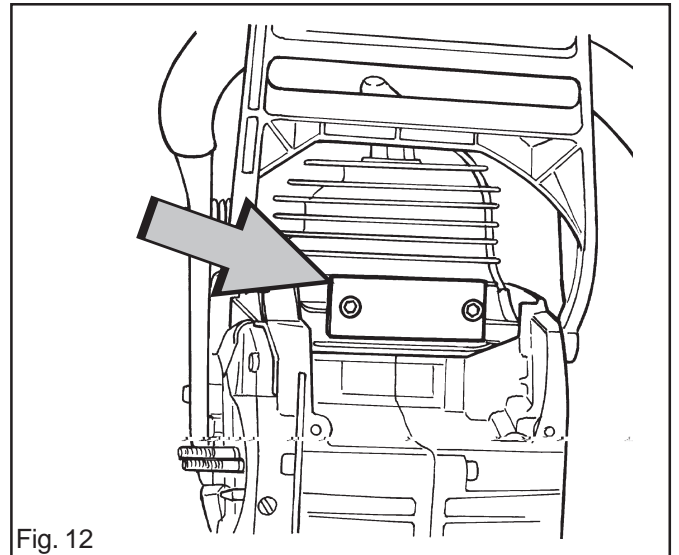
Pressure testing

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

- Carburettor. See page 32.
- Muffler. See page 17.

Carry out pressure testing as follows:

1. Remove the support ring in the intake manifold. Fit cover plate 502 54 05-01 with M4x15 mm bolt on the intake manifold. See fig. 13. Fit cover plate 502 71 39-01 with M6x20 mm on the exhaust port. See fig. 12.
2. Connect tool 502 50 38-01 to the cover plate on the intake manifold. See fig. 14. The decompression valve should be closed.
3. Plug the hose to the impulse channel.
4. Pump up the pressure to 80 kPa (0.8 bar).
5. Wait 30 seconds.
6. The pressure must not fall below 60 kPa (0.6 bar).
7. Leakage can occur in the decompression valve and crankshaft seals.
8. Assemble the following parts:
 - Carburettor. See page 35.
 - Muffler. See page 17.



CRANKCASE and CRANKSHAFT

This section deals with the following:

- Crankcase and crankshaft (describes how the whole assembly is dismantled and reassembled)
- Seals (describes only replacement of seals)
- Bar bolts (describes only replacement of bar bolts)

Crankcase and crankshaft

Dismantling

1. Before the crankcase can be separated the following parts must be dismantled:
 - A Chain and bar. See the Operator Guide.
 - B Starter. See page 19.
 - C Electrical system. See page 21.
 - D Centrifugal clutch. See page 26.
 - E Lubrication system. See page 28.
 - F Carburettor. See page 30.
 - G Muffler. See page 17.
 - H Piston and cylinder. See page 41.
 - I Tank unit. See page 38.

NOTE!
Exercise care so that dirt and foreign particles do not get into the bearing.

2. Remove the carburettor space bottom by unscrewing the four bolts. See fig. 1.
3. If necessary, remove the seal on the flywheel side. Use tool 502 50 55-01. See fig. 4.
4. Remove the six bolts on the flywheel side. See fig. 2.
5. Fit tool 502 51 61-01 as shown in fig. 3 and remove the crankcase half on the clutch side.
6. Remove the crankcase half on the flywheel side in the same way as item 4 above.
7. If necessary, remove the crankshaft bearing from the crankcase. Do as follows:

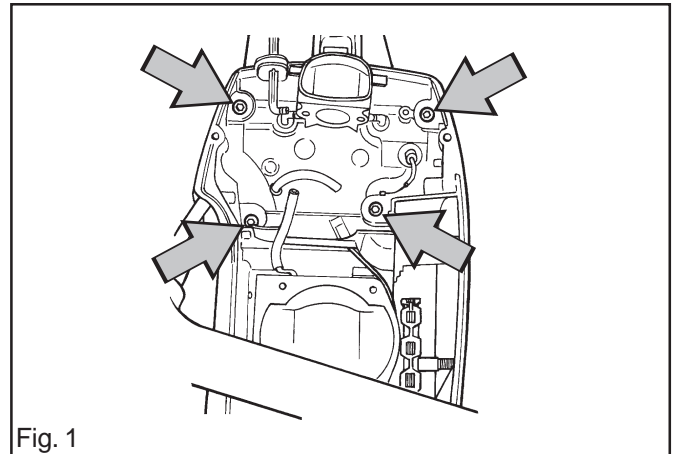


Fig. 1

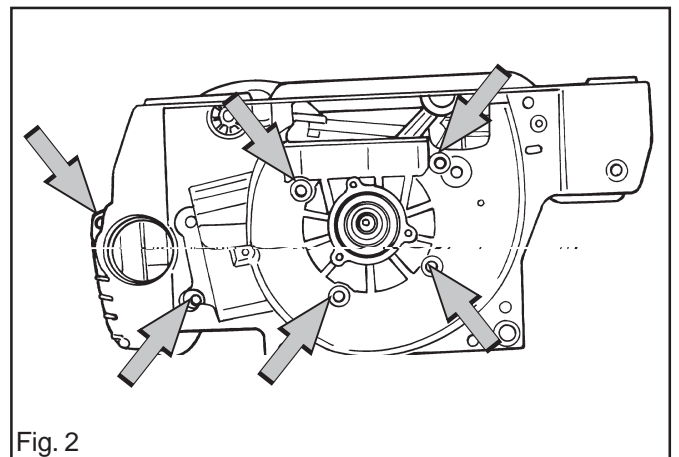


Fig. 2

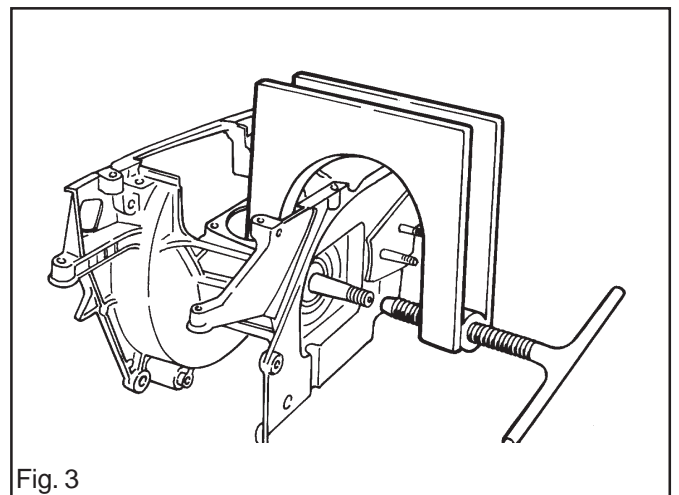


Fig. 3

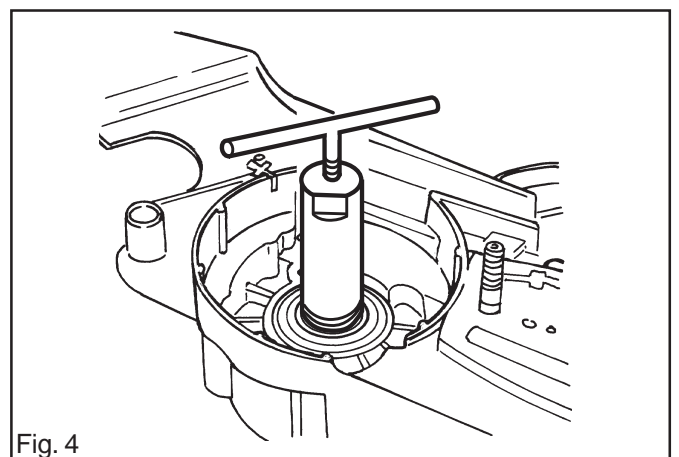


Fig. 4

CRANKCASE and CRANKSHAFT



WARNING!
The crankcase halves are hot and can cause burn injuries. Wear protective gloves.

- A Remove the oil filler cap.
- B Heat the relevant crankcase half to 200°C.
- C Use protective gloves and press the bearing out from the crankcase half.

- 8. If the crankshaft bearing should remain on the crankshaft remove it with puller 504 90 90-01. See fig. 6.
- 9. If necessary, remove the following parts:
 - A Bark gripper
 - B. Rubber stop (A). See fig. 5.

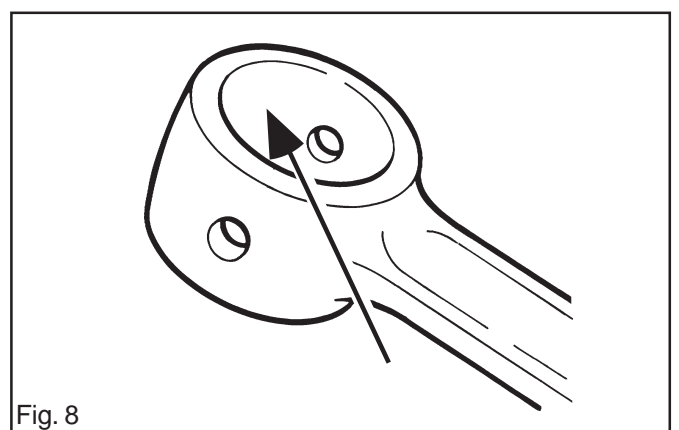
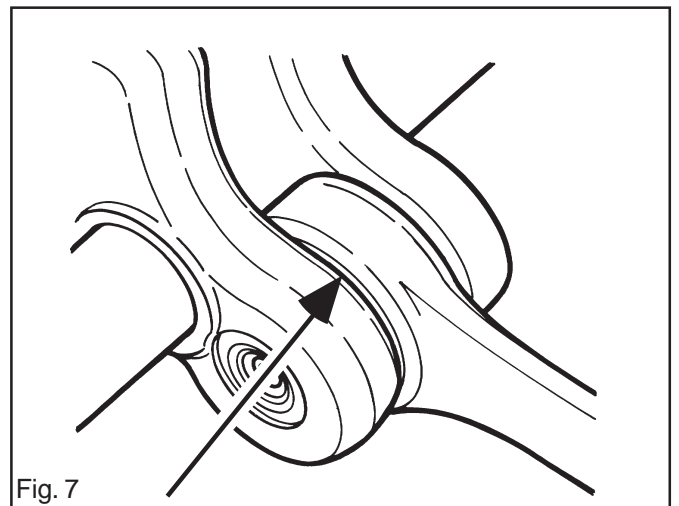
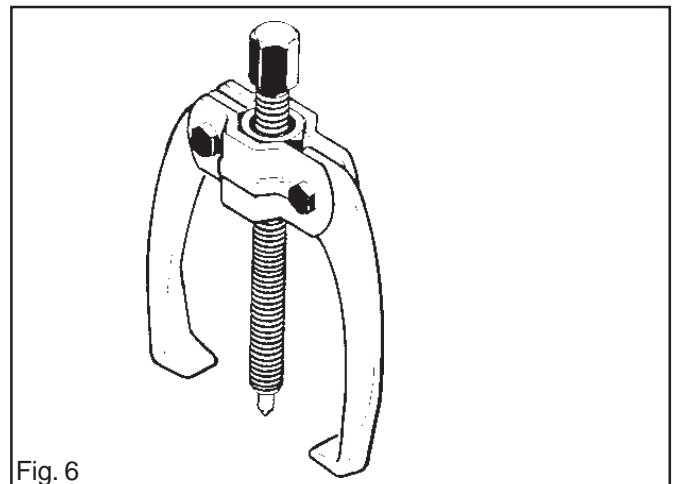
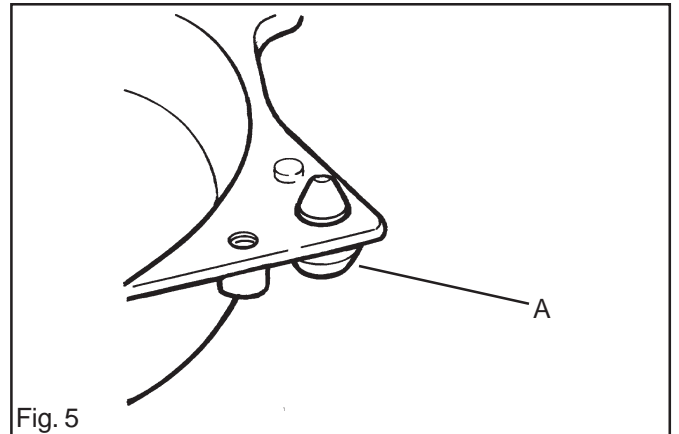
Cleaning and inspection

NOTE!
If the bearings are mounted in the crankcase, exercise care to avoid dirt and foreign particles getting in.

Clean all parts and scrape of the remains of gasket material from the mating surfaces of the crankcase halves.

Check the following:

- 1. That the big-end bearing does not have any radial play. Axial play is acceptable.
- 2. That the big-end bearing does not have any score marks or is discoloured on the sides. See fig. 7.
- 3. That the bearing surfaces for the little-end do not have any score marks or are discoloured. See fig. 8.
- 4. That the crankshaft bearings do not have any play or dissonance.
- 5. That the surfaces of the seals to the crankshaft are not worn and that the rubber has not hardened.
- 6. That the crankcase is not cracked.



CRANKCASE and CRANKSHAFT

Assembly

Fit the crankcase and crankshaft as follows:



WARNING!
The crankcase halves are hot and can cause burn injuries. Wear protective gloves.

1. If bearings are to be fitted, do as follows:
 - A. Heat the relevant crankcase half to 200°C.
 - B. Use protective gloves and fit the bearing in the crankcase side on the flywheel side. When fitting the bearing in clutch side's crankcase half the bearing should be fitted flush with the inside of the crankcase (A). See fig. 9.
 - C. Allow the crankcase half to cool before continuing work.

NOTE!
Exercise care so that dirt and foreign particles do not get into the bearing.

- D. Fit the rubber stop (A). See fig. 5.
- E. Fit the oil filler cap.

2. When fitting new seals the sealing surfaces should be greased in. When fitting the seal on the flywheels side use tool 502 50 30-17. The seal on the clutch side is fitted in the ball bearing. See fig. 10.
The seals can also be fitted when the crankshaft is in place.

NOTE!
Make sure that the connecting rod does not jam against the crankcase when the crankcase and crankshaft are reassembled.

NOTE!
The crankshaft should be fitted in the clutch side's crankcase half first.

3. Use tool 502 50 30-17 and pull the crankshaft into the clutch side's crankcase half. See fig. 11. Pull until the crankcase shoulder mates with the bearing.

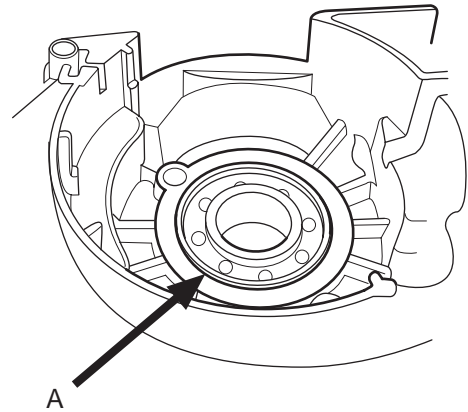


Fig. 9

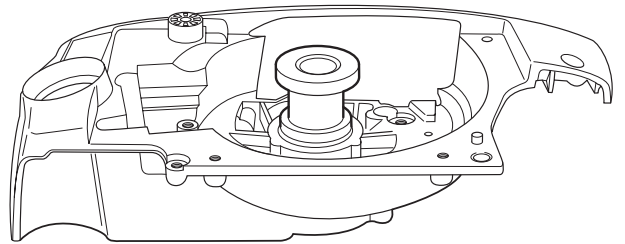


Fig. 10

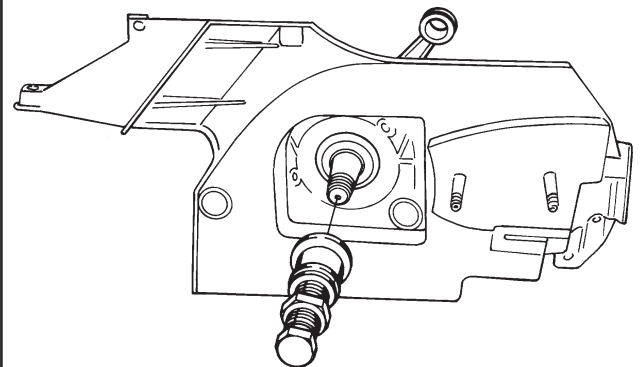


Fig. 11

CRANKCASE and CRANKSHAFT

- Place the guide pegs in the clutch side's crankcase half, and grease in and insert the gasket. See fig. 12.

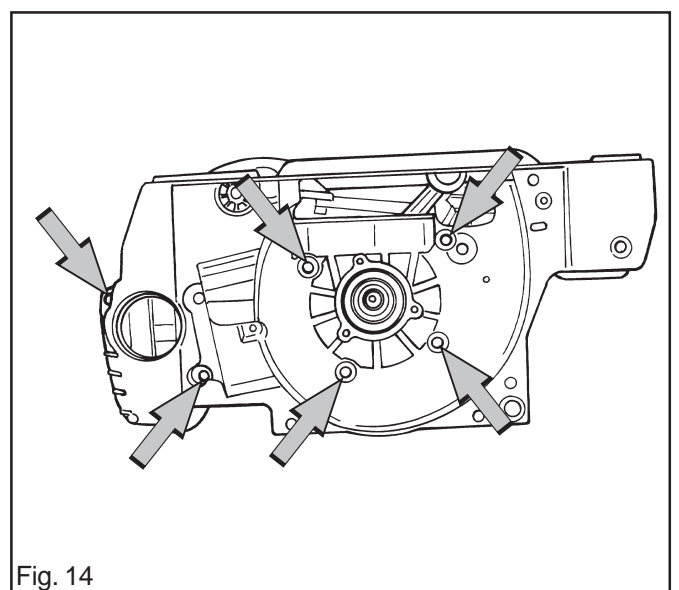
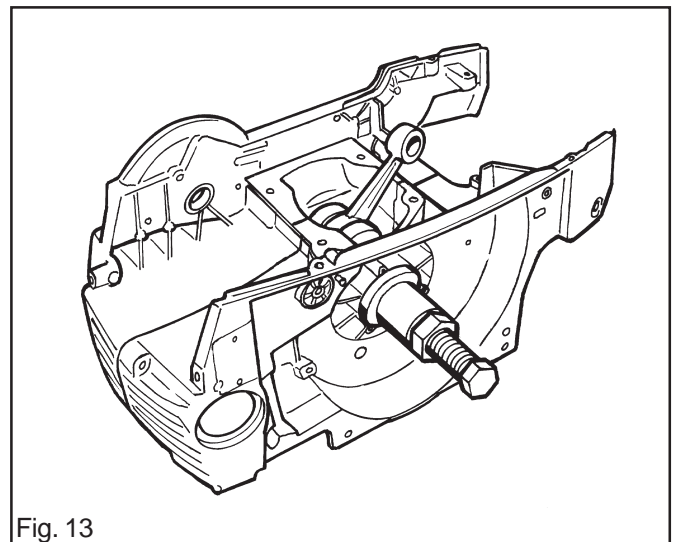
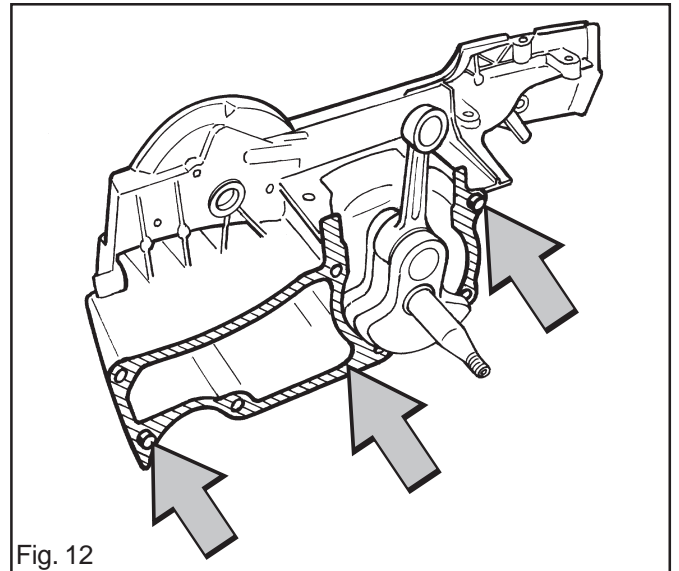
NOTE!
Continuing to pull with the assembly tool after the gasket is clamped will damage the crankshaft.

- Use tool 502 50 30-17 and pull on the flywheel side's crankcase half. Pull until the gasket is clamped between the crankcase halves. See fig. 13.
- Fit the six bolts. Tighten them alternately. Tighten them finally to 8 Nm. See fig. 14.

NOTE!
Make sure that excess gasket material does not fall into the crankcase.

- Cut off the gasket at the level of the cylinder's seating plane.
- Fit the carburettor space bottom with the four bolts. Tighten the bolts to 5 Nm.
- Assemble the following parts:
 - Tank unit. See page 38.
 - Piston and cylinder. See page 41.
 - Muffler. See page 17.
 - Carburettor. See page 35.
 - Lubrication system. See page 29.
 - Centrifugal clutch. See page 27.
 - Electrical system. See page 22.
 - Starter. See page 20.
 - Chain and bar. See the Operator Guide.

- If a new crankshaft is fitted the chainsaw should be run-in for 3-4 hours with the carburettor set to its basic settings (H=1/4 and L=1/4 turn). See adjustment of the carburettor on page 34 and 35.



CRANKCASE and CRANKSHAFT

Seals

1. To replace the seals on the crank shaft, remove the following parts first:

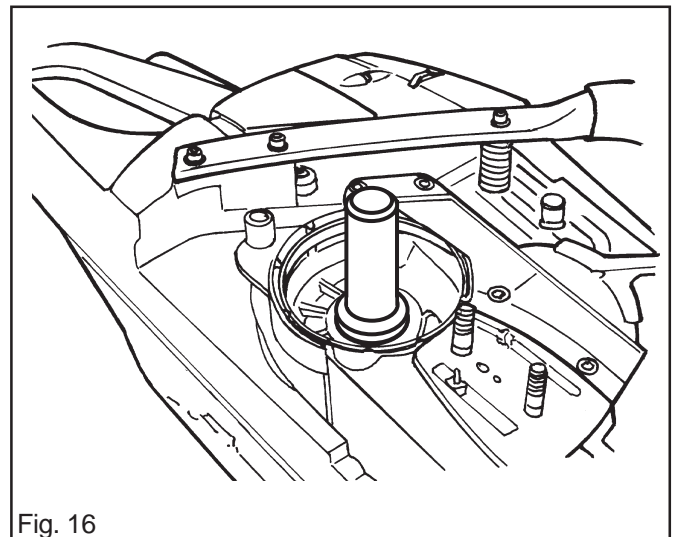
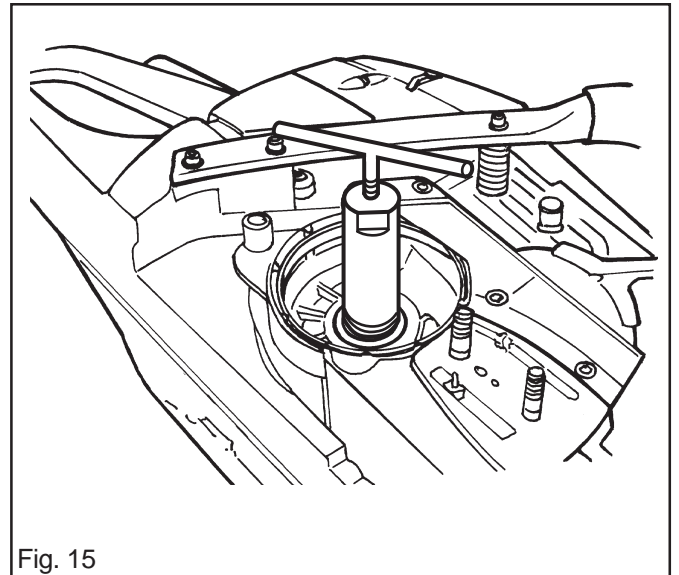
On the flywheel side:

- Starter. See page 19.
- Flywheel. See page 21.
- Generator, where appropriate. See page 22.

On the clutch side:

- Chain and bar. See Operator Guide.
- Chain guide plate. See page 24.
- Centrifugal clutch. See page 24.
- Oil pump. See page 26.

2. Screw the relevant dismantling tool into the seal and pull it out. See pos. 12 or 13 on page 6 and 7 for dismantling tool. See also fig. 15.
3. Tap in the new seal with the drift (pos. 10 or 11 on page 6 and 7). See fig. 16.
4. Fit the parts in accordance with pos. 1 above.



Bar bolts

1. Drain off the chain oil.
2. Tap in the old bar bolt from outside so that it drops in the oil tank.
3. Remove the bolt from the oil tank.
4. Fix a piece of steel wire on the end of the new bolt, and thread it through the oil tank and out through the bolt hole in the crankcase. See fig. 17.
5. Pull the steel wire so that the bolt comes into its hole.
6. Pull out the bolt with its nut and shim between the nut and crankcase.
7. Check that the square head of the bolt comes in its recess in the crankcase. Where appropriate, turn the bolt.
8. Refill with chain oil.

