

Workshop manual chain saw model

2100

- 1** **Technical Specification**
 - 2** **Service Data**
 - 3** **Special Tools**
 - 4** **Fuel system, Carburettor**
 - 5** **Electric system**
 - 6** **Lubricating system, Oil pump**
 - 7** **Cylinder, Piston**
 - 8** **Crankcase, Crankshaft**
 - 9** **Starter**
 - 10** **Centrifugal Clutch**
 - 11** **Safety Equipment**
-



Displacement	99 cm ³ (6 cu in)
Bore	56.0 mm (2 20")
Stroke	40.0 mm (1.57")
Ignition system	Electronic Make SEM type GA 1.
Ignition advance	24° before t.d.c. at 133 r/s (8,000 r/mm)
Spark plug	Bosch WSR OF
Electrode gap	0.5 mm (0.020")
Carburettor	Diaphragm carburettor. Make Tillotson type HS 136C with speed governor 0.070". Basic setting: H= 1.0 L= 1.2
Fuel tank volume	1.0 litre (0.26US gallon, 0.22 imp gallon) Fuel mixture 4%(1:25) With Husqvarna Twostroke Oil 2% (1:50).
Oil tank volume	0.65 litres (0.17 US gallon, 0.14 Imp gallon).
Chain lubrication	Two separate lubrication systems Automatic No supply during idling. Adjustable for two different delivery rates: Bar 15" - 21" : Position I Bar 21" and more. Position II Manual Hand-operated pump on the left side of the rear handle.
Clutch drum/sprocket	Standard 7 teeth, 0.404" Pitch Optional . 8 teeth, 3/8" Pitch.
Weights	1. Weight sawbody (empty) _____ 8.0 kg (17.6 lb) 2. Weight sawbody (empty) incl. 24" bar and chain (Oregon 52L - 76E 0.404"L10 2 kg (22.5 lb) 3. Same as 2 however with full tanks. 11.4 kg (25.1 lb)



Classification table

Cylinder class	Piston class
A	A
B	B
C	C

PLEASE NOTE!

As "A" denotes smallest cylinder diameter and "C" the largest, piston grades should be matched or one grade smaller. E.g. it is not permissible to use a grade B piston in a grade A cylinder.

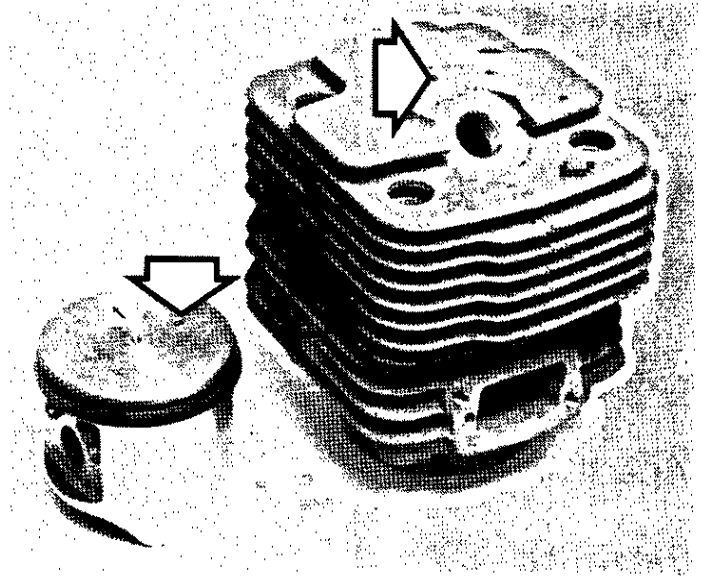


Fig 1.1

Crankcase Assy

Vacuum: 0.04 MPa (0.4 kp/cm², 5.7 psi)

Max. leakage: 0.01 MPa/1 mm (0.1 kp/cm²,
1.4 psi, per min)

Tools: 502 50 37-01 Vacum gauge
502 50 81-01 Cover plate, exhaust port
502 50 47-01 Cover plate, inlet port

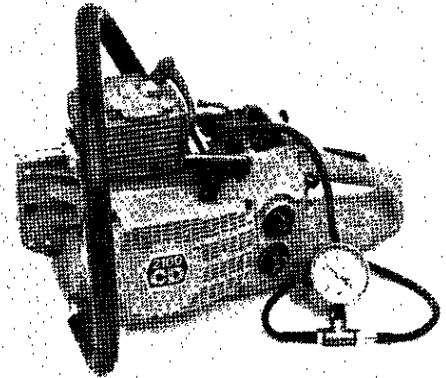


Fig 2.1

Pressure: 0.08 MPa (0.8 kp/cm², 11.4 psi)

Max. leakage: 0.02 MPa/30 see (0.2 kp/cm²,
2.8 phi, per 30 sec)

Tools: 502 50 38-01 Pressure gauge
502 50 81-01 Cover plate, exhaust port
502 50 47-01 Cover plate, inlet port

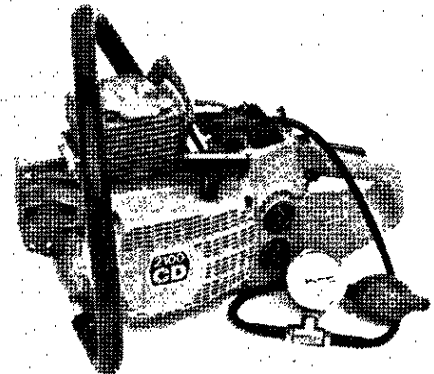


Fig 2.2

Fuel tank

Pressure: 0.05 MPa (0.5 kp/cm², 7.1 psi)

Leakage: No leakage permitted.

Tool: 502 50 38-01 Pressure gauge

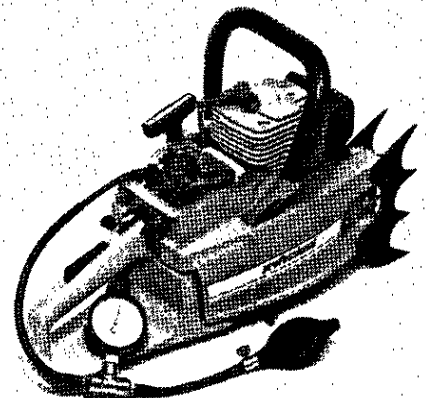


Fig 2.3

Carburettor

Pressure: 0.03 MPa (0.3 kp/cm², 4.3 psi)

Leakage: No leakage permitted

Tool: 502 50 38-01 Pressure gauge

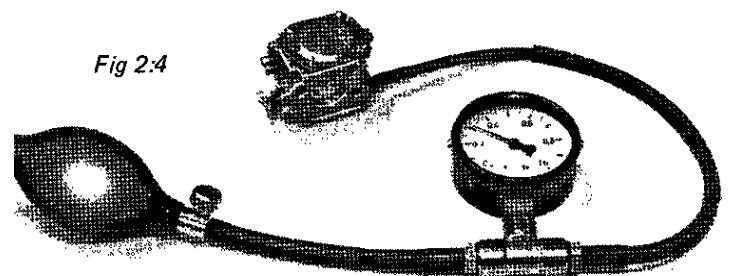


Fig 2.4

Oil pump

Pressure: 0.3 MPa (3 kp/cm², 42.7 psi)

Pump capacity at 6,000 r/min:

Pos 1: approx 16-18 ml/min (0.98-1.10 cu in/min)

Pos 2: approx 22-24 ml/min (1.34-1.46 cu in/min)

Tools: 502 50 85-01 oil pump tester
Grad measuring glass.

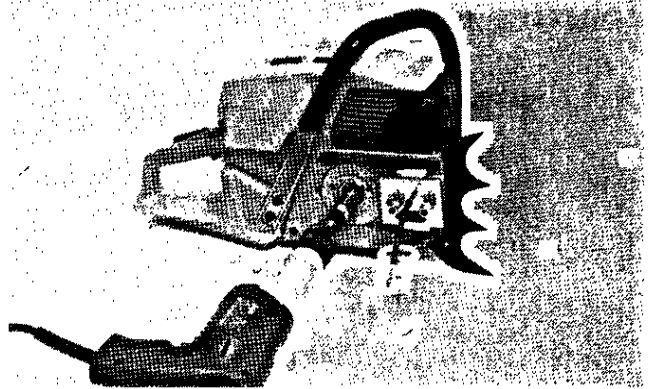


Fig 2.5

Starter

Make sure that it IS possible to turn the pulley at least 1/2 turn further when the cord is pulled out completely.

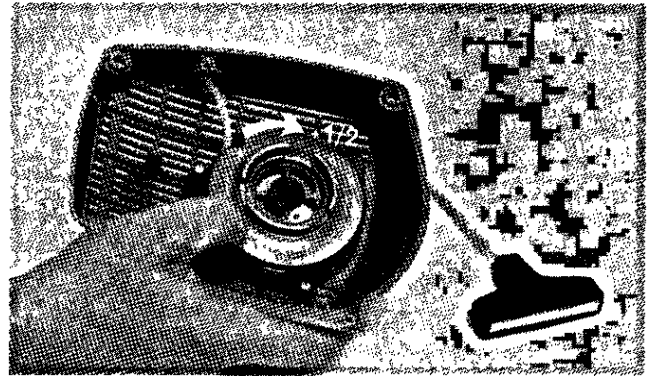


Fig 2.6

Fuel and oil

The twostroke engine IS lubricated by oil mixed with petrol in various proportions depending on the type of oil used.

"Pre-mixed" oil 1 :20 (5% oil)
Ordinary twostroke oil 1 :25 (4% oil)
Husqvarna Twostroke Oil 1:50 (2% oil)

See also the mixing table below:

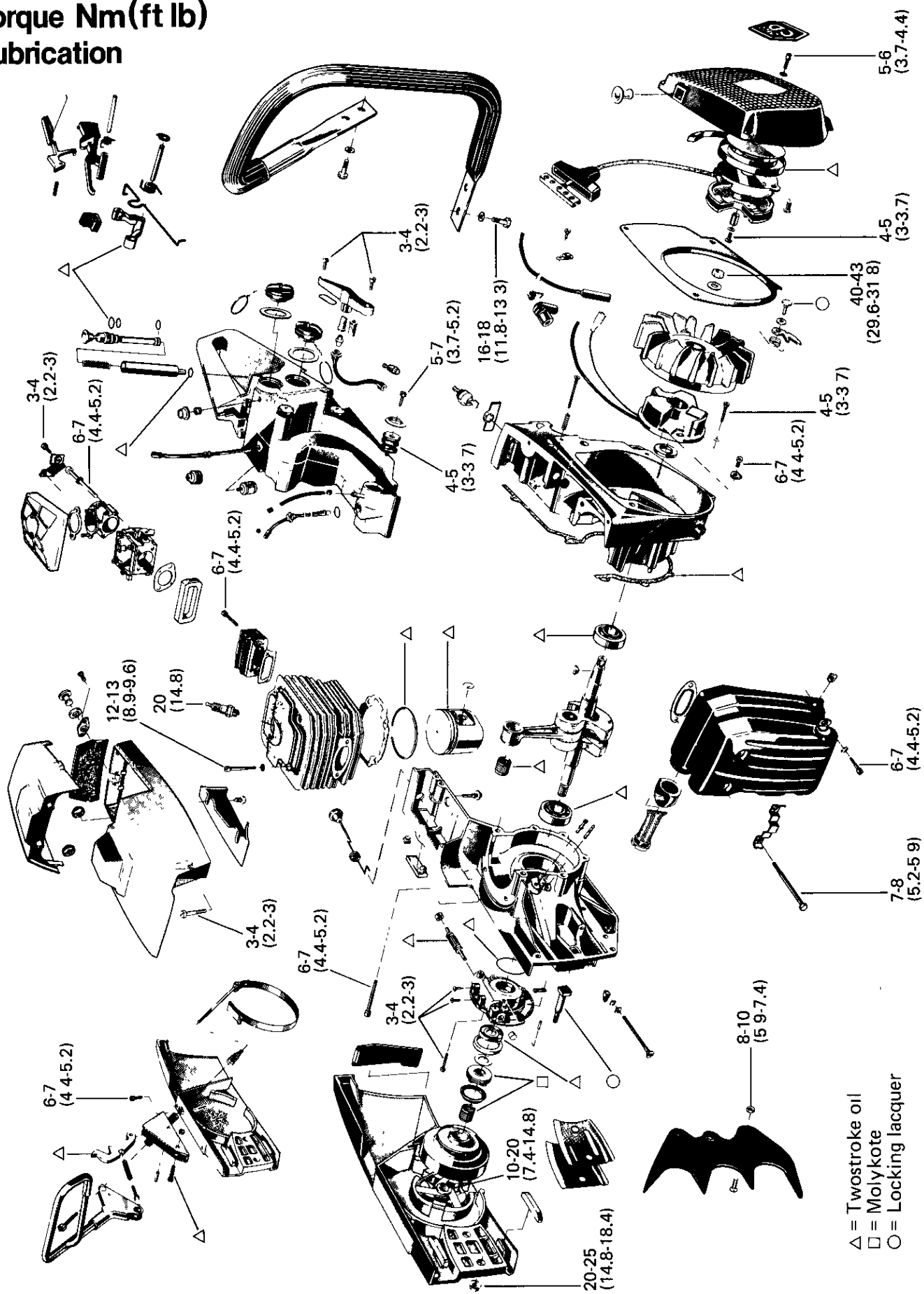


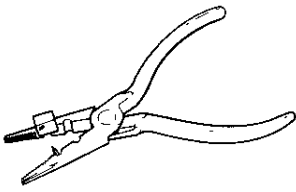
Fig 2.7

Mixing table

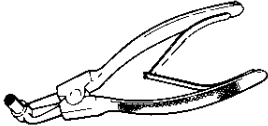
Mixing table		2%			4%			5%		
Litres of oil	Pints of oil	Litres of petrol	Petrol in Imp gallon	Petrol in US gallon	Litres of petrol	Petrol in Imp gallon	Petrol in US gallon	Litres of petrol	Petrol in Imp gallon	Petrol in US gallon
0.2	0.35	10	2.2	2.6	5	1.1	1.3	4	0.8	1.0
0.4	0.70	20	4.4	5.2	10	2.2	2.6	8	1.7	2.1
1.0	1.76	50	11.0	13.2	25	5.5	6.6	20	4.4	5.2

Torque Nm(ft lb) Lubrication

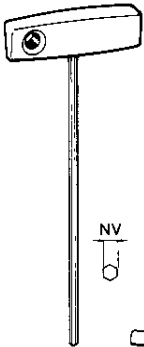




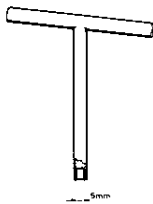
502 50 06-01
Assembling pliers
(spark plug protector)



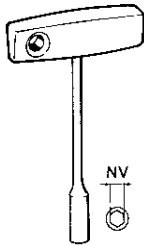
502 50 07-01
Assembling pliers
(cable grommet)



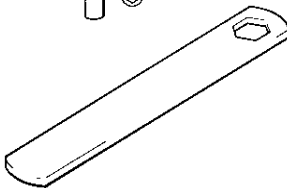
502 50 18-014 NV 4 mm
502 50 19-01V3 NV 3 mm
502 50 57-01 NV 3/16"
Allen key



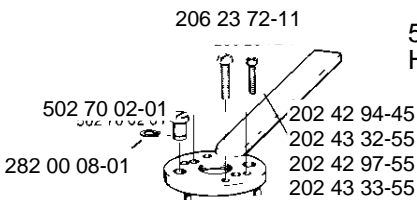
502 50 20-01 (M5)
Stud fitting tool



502 50 22-01 NV 8 mm
502 50 23 01 NV 10 mm
Socket spanner

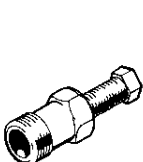


502 50 24-01
Spanner, clutch centre

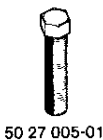


502 50 25-01
Holding bar compl.

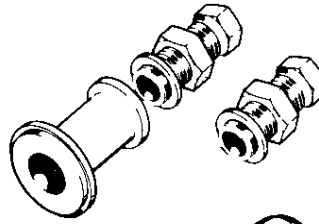
502 50 25-01 (compl.)



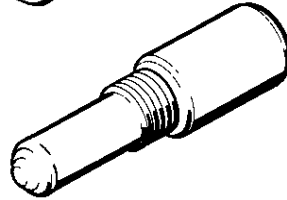
502 50 26-01
Puller compl. with screw



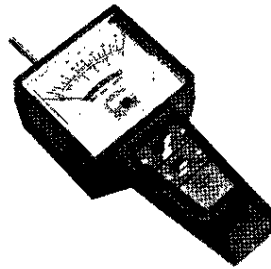
50 27 005-01



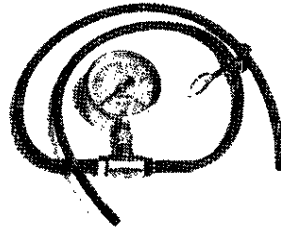
502 50 30-01
Fitting tool compl for
crankshaft



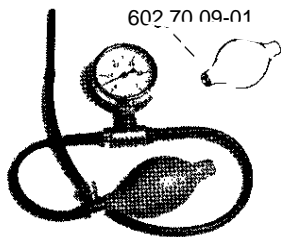
502 50 33-01
Piston stop



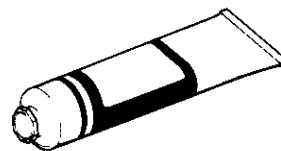
502 50 36-01
Revolution counter



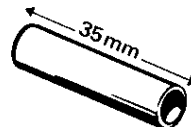
50 25 037-01 Vacuum
gauge, compl.



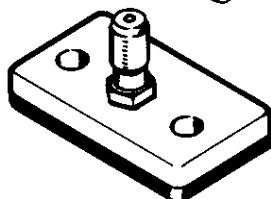
502 50 38-01 Pressure
gauge, compl.



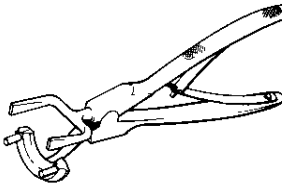
502 50 42-01
Lithium grease 250 g
(0.55 lb)



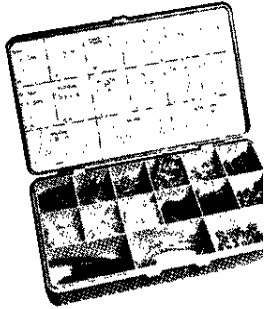
502 50 45-01
Distance sleeve (35 mm)



502 50 47-01
Cover plate, inlet port



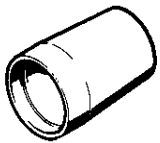
502 50 49-01
Assembling pliers
(centrifugal clutch)



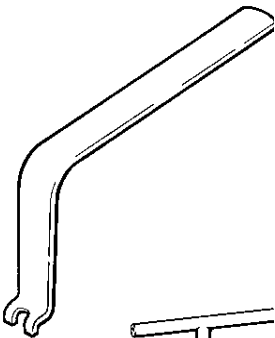
502 50 50-01
Repair kit for elec-
tric cables



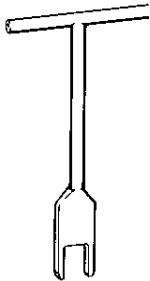
502 50 51-01
Cable clip pliers



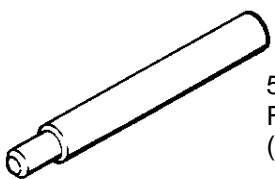
502 50 52-01
Fitting sleeve for
sealing ring



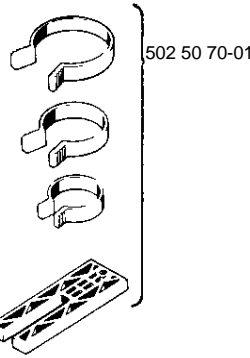
502 50 62-01
Fitting tool (manual
pump)



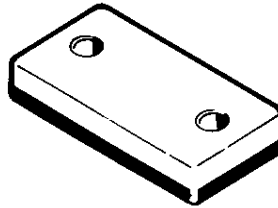
502 50 66-01
U-spanner for vibration
damper



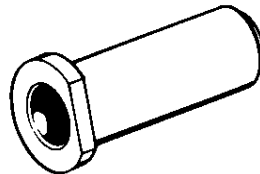
502 50 69-01
Fitting drift
(piston pin)



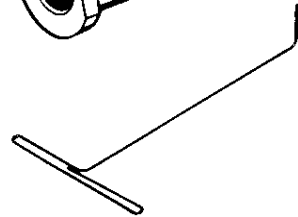
502 50 70-01
Piston mounting set,
compl.



502 50 81-01
Cover plate, exhaust port



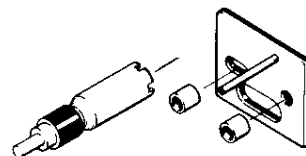
502 50 82-01
Fitting drift (sealing ring)



502 50 83-01
Hook for oil filter



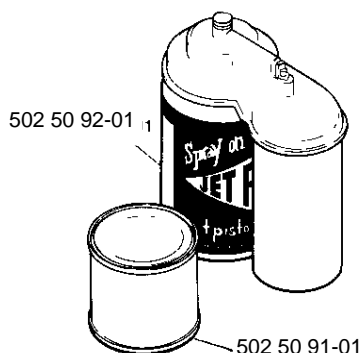
502 50 84-01
Electrotester



502 50 85-01 Oil
pump tester,
compl.

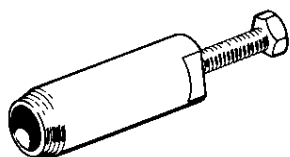


502 50 86-01 NV 3 mm
502 50 87-01 NV 4 mm
Allen screwdriver with ball

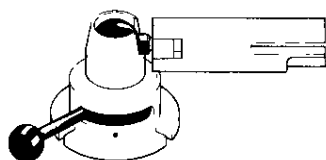


502 50 90-01
Jet-Pac spray gun compl.
incl.. retouch paint

502 50 91-01
Retouch paint, orange,
1/8 l
502 50 92-01



502 51 01-01
Extractor (sealing ring)



502 51 02-01
Clamping device



502 5106-01
Glue, adhesive

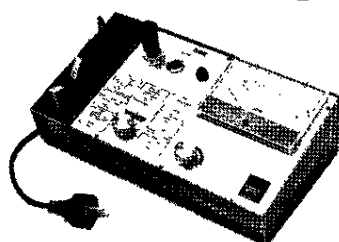


502 51 07-01
Glue, epoxy



502 51 08-01
Loctite AA (normal locking power)

502 51 09-01
Loctite AAV (strong locking power)



502 51 24-01
SEM electric system tester

Removal of carburettor

Remove carburettor cover, pre-filter, air filter, cylinder cover and fuel hose
Remove the throttle push rod from the plastic lever with a pair of flat hose pliers.

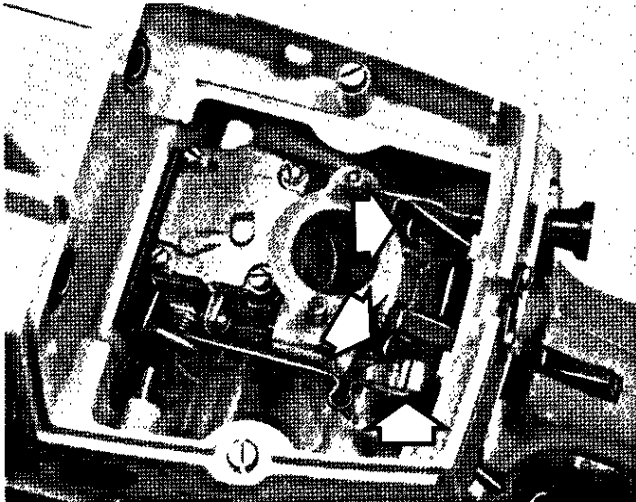


Fig 4:1
Loosen the socket head screws that retain the carburettor (use the Allen key No. 502 50 18-01). Remove screws, air filter elbow and carburettor. Clean the carburettor on the outside.

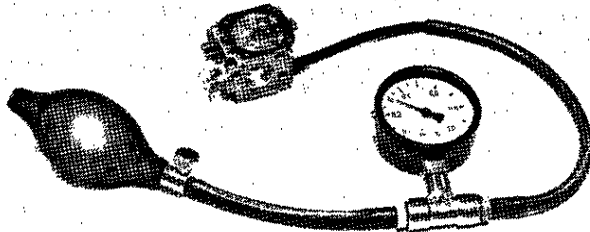


Fig 4:2
Remove the metering diaphragm cover and the metering diaphragm.
Note that the centre pin of the diaphragm enters the forked end of the lever of the needle valve.
Connect the pressure gauge 502 50 38-01 to the fuel inlet of the carburettor and pump until a pressure of 0.03 MPa (0.3 kp/cm²) is reached. Check for any leakage at the needle valve or at the gasket on the pump side.
The easiest way of locating leakages IS to pour some petrol where you suspect the leakages to be.

Loosen the screw that retains the bearing shaft of the lever and remove lever, shaft, spring and needle valve (see fig. 4:3).

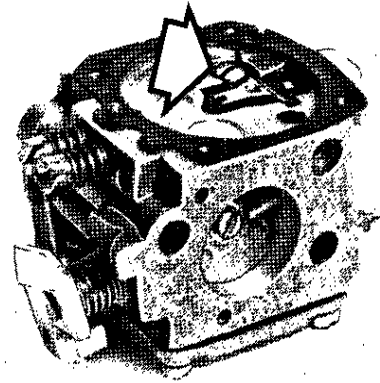


Fig4:3
Dell a small hole in the Welch plugs (approx. Ø 2 mm) and pose away the plugs by means of a pointed tool.

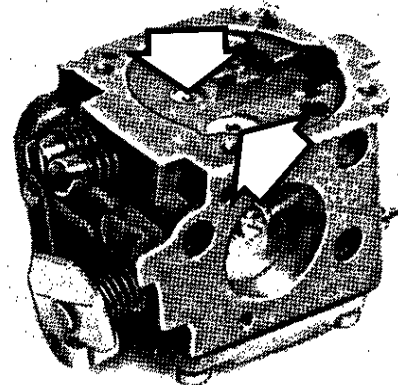


Fig 4:4
NOTE!
Drill with care in order not to damage the carburettor housing

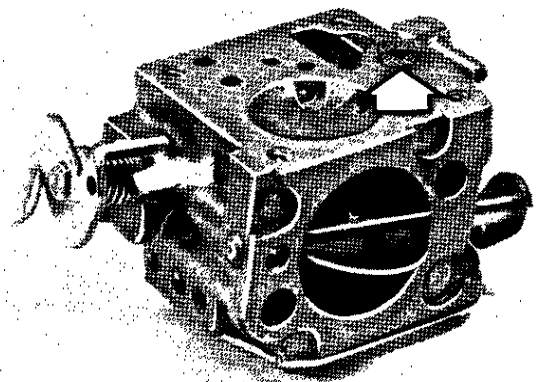


Fig 4:5
Unscrew the two adjusting needles. Remove the cover above the pump diaphragm and remove diaphragm and gasket. Lift off the fuel screen carefully by means of a pointed tool.

Speed governor

The purpose of the governor is to limit the engine speed in order to protect vital parts like the crankshaft and ignition system from excessive stresses. We therefore advise most strongly against any interference designed to render it inoperative. When the saw IS run under no-load conditions, the engine speed IS limited to 10,500 r/min as the governor comes into operation.

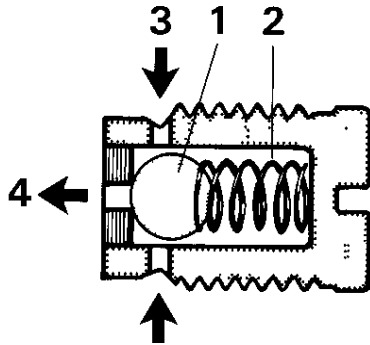


Fig 4:6
1. Steel ball. 2. Spring 3 Fuel inlet. 4. Fuel outlet

The steel ball and spring in the governor are so devised that vibrations in the carburettor at a certain engine speed cause the steel ball to open the fuel outlet. An excessively rich mixture IS then obtained and the engine begins to four-stroke, the speed drops and the vibrations decrease. The steel ball then closes the outlet, the engine speed increase and the process IS repeated.

Removal of speed governor

Remove the screw for the choke flap. Pull out the flap approx. 7 mm and push out the choke shaft approx 5 mm. Remove the speed governor with a suitable screw driver.

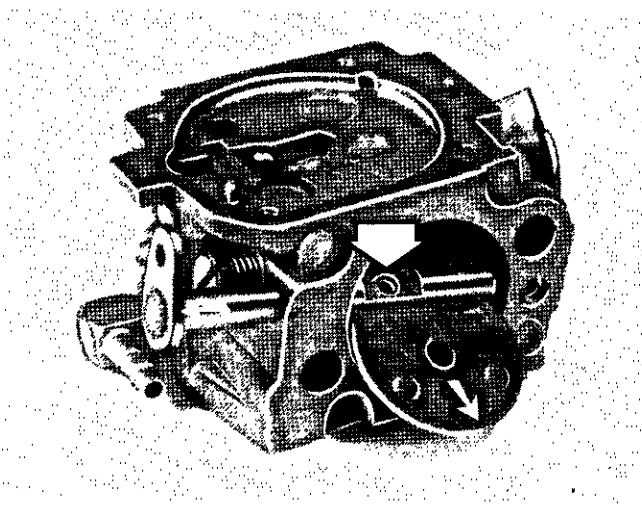


Fig 4:7

Carburettor check

A. Pumping section

Clean the fuel screen and -lines with compressed air.

Check the gasket and the pump diaphragm for damage or wear.

B. Metering section

Check that the adjusting needles are straight and that their tapered ends are not damaged. Check the

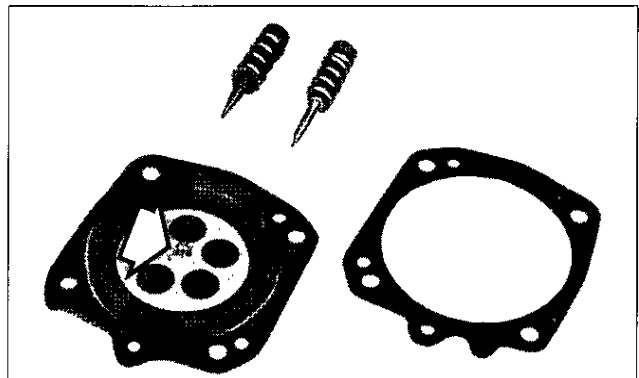


Fig 4:8
gasket and the metering diaphragm for damage or wear. Check with particular care the wear on the centre pin of the diaphragm.

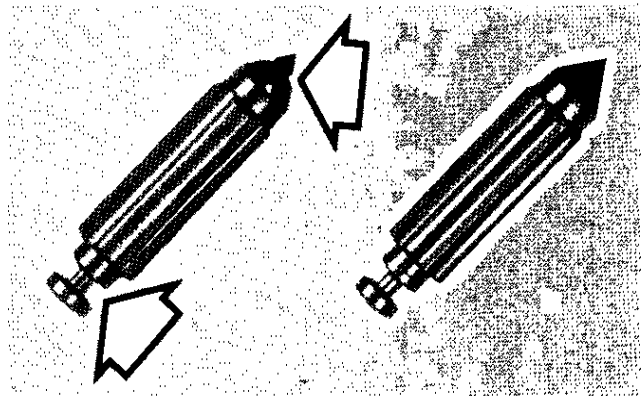


Fig 4:9
Check that the needle valve is not worn, neither on its seat, nor in the groove for the lever

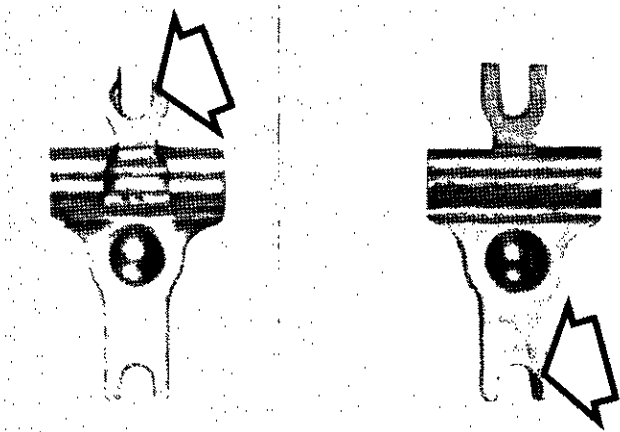


Fig 4:10

Check that the needle valve lever is not worn, neither at the connection to the valve, nor to the metering diaphragm.

Check that the filter screen near the main jet is not dirty or damaged.

C. Mixing section

Clean all fuel jets and jets with compressed air.

D. Speed governor

The speed governor is easily checked by means of the pressure gauge No. 502 50 38-01.

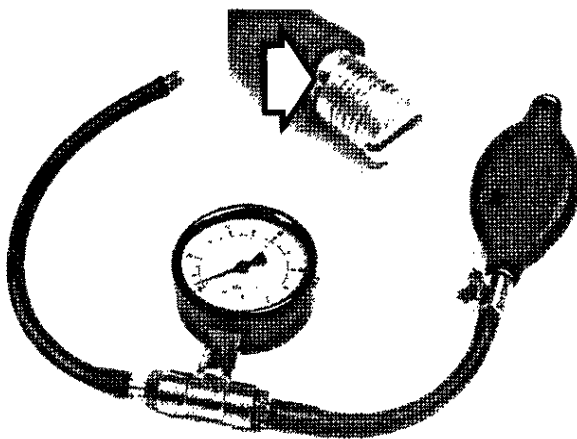


Fig 4:11

Connect the pressure gauge as shown in fig. 4.11. Check that the hose does not cover the two holes near the thread.

The valve should be tight, which means no "hiss sound" at a pressure below 0.10 MPa (1 kp/cm²). In case of leakage, the valve should be replaced.

The carburettor spare part kit has got No. 501 54 67-01.

Assembly

A. Pumping section

Locate the fuel screen carefully in its seating (see fig. 4:5). Locate the pump diaphragm next to the carburettor housing and then add gasket and cover. Tighten the screws of the cover diagonally and evenly.

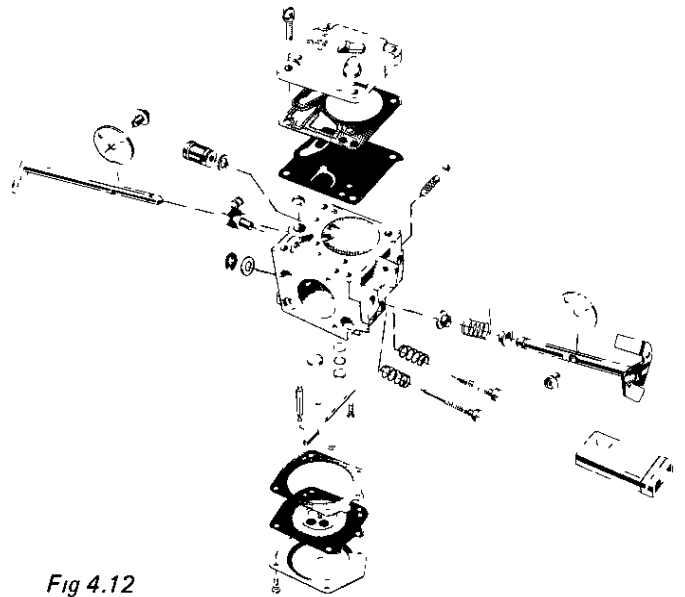


Fig 4.12

B. Metering section

Fit new Welch plugs. Install them with a suitable drift:

for the big plug drift \varnothing 8 mm

for the small plug drift \varnothing 4 mm

NOTE!

Do not press in the plugs so that they bulge inwards!

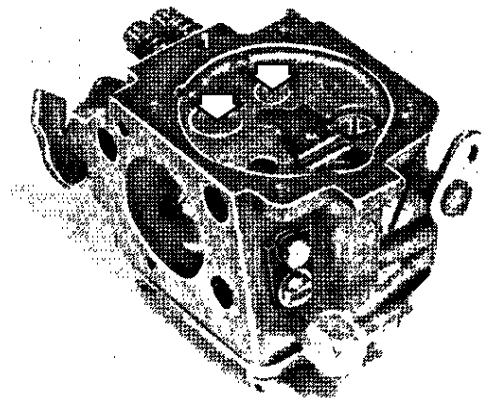


Fig 4:13

Mount the needle valve, lever, spring and shaft. Locate the spring properly!

When properly adjusted the lever of the needle valve shall be on a level with the carburettor housing surrounding it. Adjust if necessary (see Fig. 4:14)

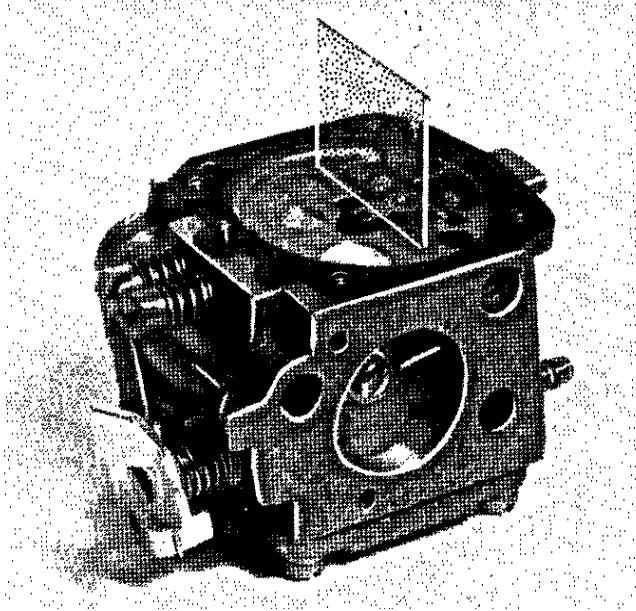


Fig 4:14
If the lever is located too high, the carburettor will be very sensitive as regards the adjustment of the adjusting needles.
A too low lever induces bad acceleration qualities.

Check that the lever can move freely.
Make a pressure test of the carburettor. Proceed as mentioned above.
Then mount gasket, metering diaphragm and cover.

NOTE!
Care should be taken to ensure that the centre pin of the diaphragm enters the fork in the level!

Install the adjusting needles and screw them out to the following basic position:

- H = 1.0 turn open
- L = 1.2 turn open

C. Speed governor

Locate the sealing washer in the carburettor housing and fasten the speed governor. Push the choke shaft into its position and fit the choke flap and its locking screw.

Adjustment of carburettor

A. Basic setting

Before adjusting the carburettor, proceed as follows:

- Clean the air filter or, if necessary, replace it*
- Check the spark plug and its electrodes*
- check that the fuel filter is not clogged.*

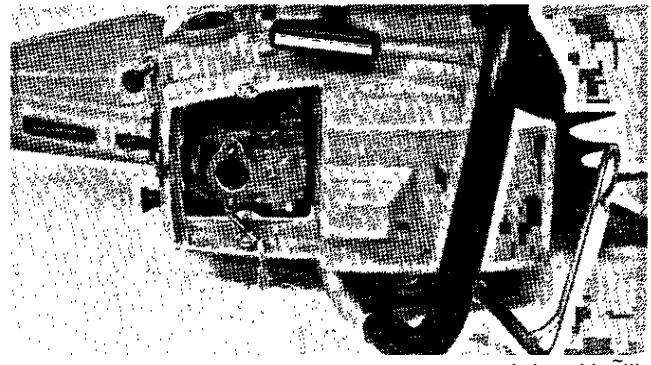


Fig 4:15
Examine the fuel filter as follows:

Loosen the fuel hose from the carburettor and lay the chain saw on the clutch side. Open the tank cap. If there is enough fuel in the tank, some of it ought to run out of the hose (see fig. 4:15)

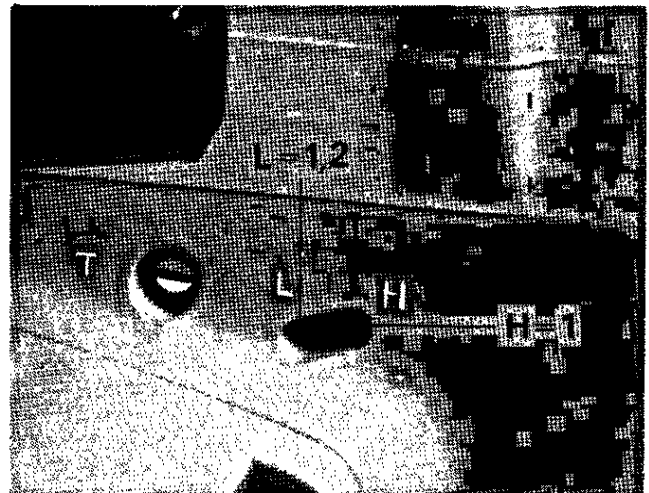


Fig 4:16
After the abovementioned checks, make a basic adjustment of the carburettor needles, i.e. H = 1.0 turn open and L = 1.2 turn open.
Start the chain saw and warm it up by applying full throttle and letting it cut into a log.

A constant speed, without fourstroking, for 10-20 sec. when cutting into a log indicates not only a good high speed function of the carburettor but also a good condition overall.

The following problems may occur when warming the chain saw up:

PROBLEM

Engine fourstroking _____

Bad idling _____

Low engine power _____

DAMAGE

Speed governor faulty

Crack in the insulating piece

Badly tightened carburettor screws

Incorrectly assembled or leaking gaskets

Tank breather valve inoperative

Fuel filter clogged

Leakage in the pumping section of the carburettor

NOTE!

Too lean adjustment of the carburettor would cause a considerable loss of power. Adjust the carburettor in order to obtain maximum power and not maximum speed.

B. Adjustment of L-needle

Adjust the idling speed by means of the throttle adjusting screw "T" (fig. 4:16). Try to reach a position where the chain IS just beginning to rotate, that is at a comparatively high idling speed.



Fig 4:17

Put your right hand on the front handle and make a fine adjustment of the L-needle with your left hand. Use screwdriver No. 50160 02-01.

Fine adjustment IS made as follows:

1. Screw in the L-needle slowly and the speed will increase. Screw in the needle a little further and the speed will slow down again as the fuel supply becomes too "lean". Notice the position of the needle at the highest speed.
2. Open the L-needle again and notice the highest speed position. Note that the speed slows down at "richer" supply.

3. Adjust the L-needle to the highest speed position. Then open it equivalent to 10 min on a clock-face to obtain a somewhat "richer" supply to aid acceleration.
4. By means of the T-needle adjust the idling speed to 2,300 - 2,500 r/min ensuring that the chain does not rotate when engine is idling.
5. Give full throttle a couple of times to check that the engine "responds". if not, open the L-needle by abt. 3 min. Check again.

C Adjustment of H-needle

Adjust the high speed needle (H) as follows.

Apply full throttle by keeping a constant grasp of the throttle trigger. At correct adjustment of the H-needle the engine should be fourstroking. The high idle speed should be approx. 10.500 r/min.

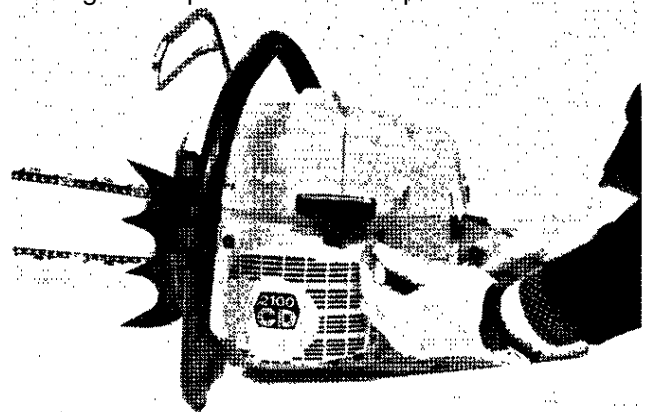


Fig 4:18

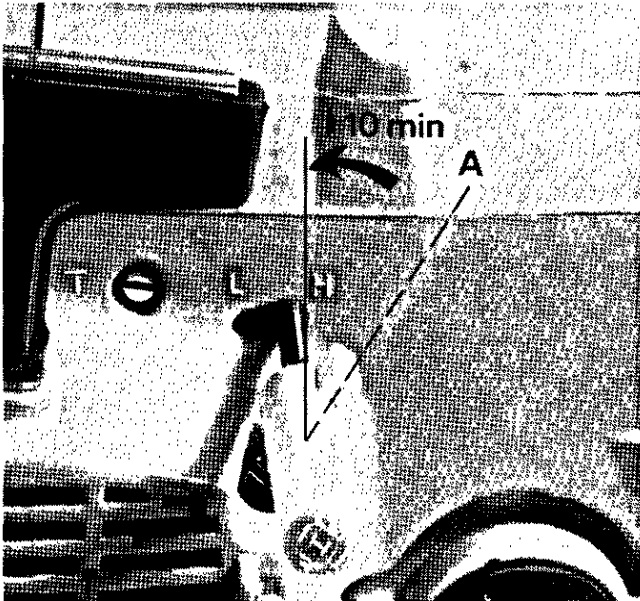


Fig 4:19
Screw in the H-needle slowly until acceleration becomes slower (position A). Then screw the needle out equivalent to 10 min on a clock-face.

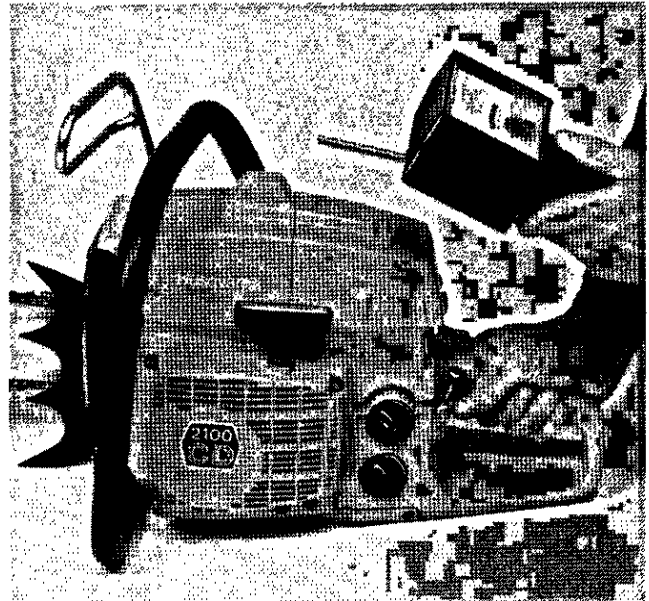


Fig 4:20
Check by means of e.g. revolution counter No. 502 50 36-01, that the high idle speed is approx. 10,500 r/min. Should the high idle speed of the engine be below 10,000 r/min, check the speed governor of the carburettor and replace it, if necessary.

Trouble shooting guide

	Dirt in the fuel lines	Walch plugs loose	Weak impulse	Adjusting needles bent or broken	Needle seats damaged	Dirt in the screen	Worn details in metering section	Lever too high	Fuel filter clogged	Hole in fuel hose	Faulty tank breather	Leakage in pumping section	Air filter clogged	Speed governor faulty
Irregular idling speed										X	X			
Engine stops when accelerated (choke required)	X			X				X				X	X	
"Leaning out"				X								X	X	X
No fuel supply				X								X	X	X
Difficult adjustment		X				X	X							
Too "rich" supply									X					X
No idling speed		X												
Extreme needle position	X	X						X						X
High idle speed not reaching 10,500 r/min														X
														X

A. ignition system, trouble shooting

In all ignition testing the plug must be firmly earthed against the cylinder in order to prevent damage to the system

1. Remove the spark plug.

Connect the ignition cable and "earth" the plug e.g. against the cylinder.

Check for a spark between the electrodes when

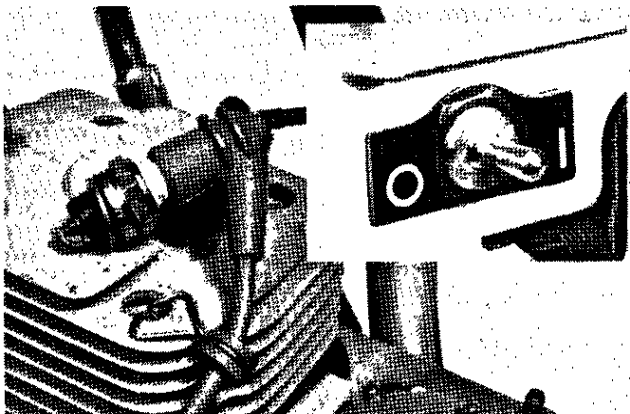


Fig 5:1
you rotate the engine by means of the starting handle.
The stop switch should be in position "1".

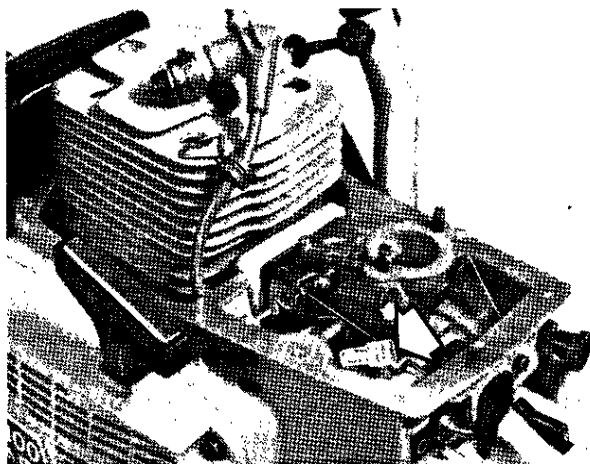


Fig 5:2
If no spark occurs, try a new plug.
If still no spark, check the connection between Ignition cable and spark plug protector.

2. Disconnect the short circuiting cable from the switch. Check for a spark. If a spark occurs, the stop switch IS faulty and should be exchanged.

3. Remove the starter and air conductor.

Cables that are squeezed or otherwise damaged should be exchanged.

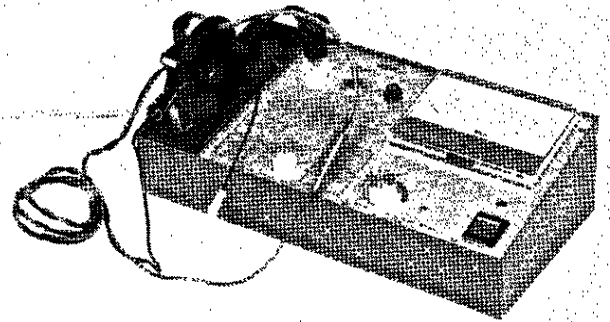


Fig 5:3
4. In case the trouble has not been detected, check the armature plate by means of testing device No. 502 51 24-01.
Remove the armature plate (see below, "Removal, assembly") and test it under load.
For test values, see the instruction supplied with the testing device.

B. Removal/assembly

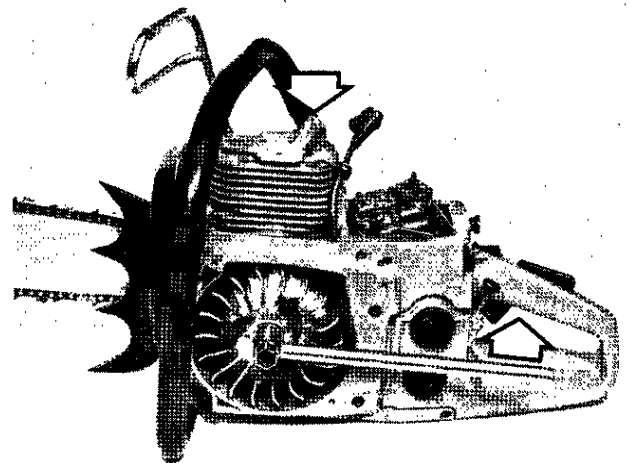


Fig 5:4
Remove starter and air conductor. Remove cylinder cover and spark plug and fit piston stop No. 502 50 33-01 in the spark plug hole. Then loosen the flywheel nut by means of a box spanner (17 mm).

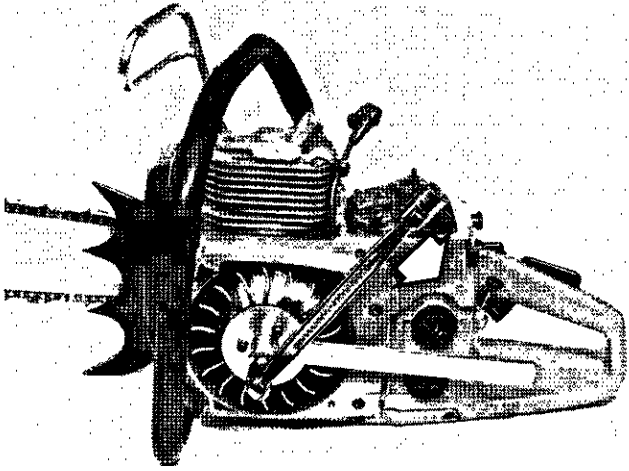


Fig 5.5
Fit holding bar No. 502 50 60-01 on the flywheel and puller No; 502 50 26-01 on the holding bar



Fig 5.7

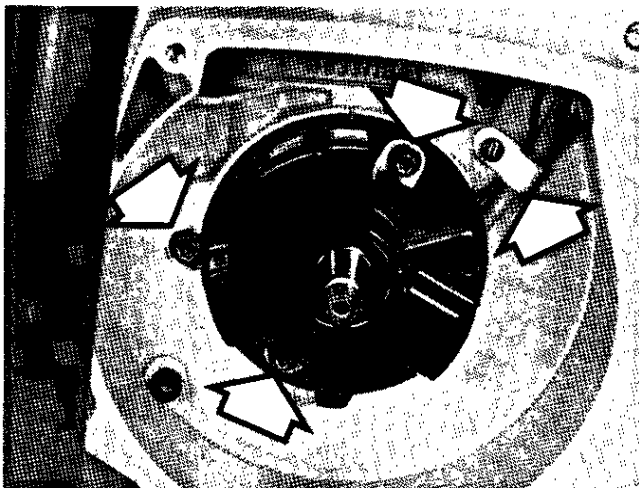


Fig 5.6
Remove the three screws retaining the armature plate. Remove the bracket for the ignition cable and disconnect the short circuiting cable from the stop switch. Then remove the armature plate.

Assembly is made in reverse order.

When fitting the armature plate notice the marking (fig. 5:7), ensuring a correct advance ignition. The flywheel nut should be tightened by torque 40-43 Nm.

NOTE!

Before fitting a new flywheel remove every trace of rust preventive be especially on the hub.

Changing the starter pawls and springs

Place the flywheel on the working bench with the starter pawls downwards.

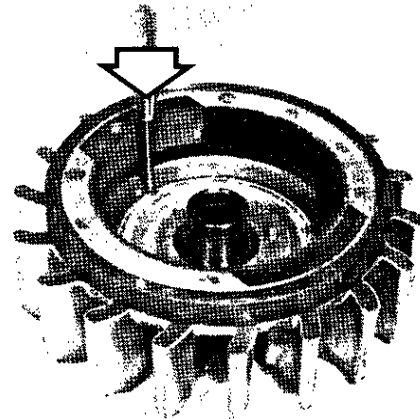


Fig 5.8
Push the bearing pins of the starter pawls out of the flywheel with a drift (0 3 mm). Change starter pawls and springs, and press back the bearing pins from the fan side. Use Loctite AA in the pin holes before putting the pins back. Check that the pins reach the bottom and that springs and pawls work properly.

To ensure proper connection between contact spring and ignition cable, use assembling pliers No. 502 50 06-01 for fitting the spark plug protector on the ignition cable.

We recommend the use of Lithium grease No. 502 50 42-01 when connecting the ignition cable to the spark plug protector.



Removal of oil pump

Remove the following parts in order to get at the oil pump:

Clutch cover, chain and bar, centrifugal clutch (NOTE! Left-hand threads), clutch drum.

NOTE!

The washer between the pump drive gear and the main bearing seal!

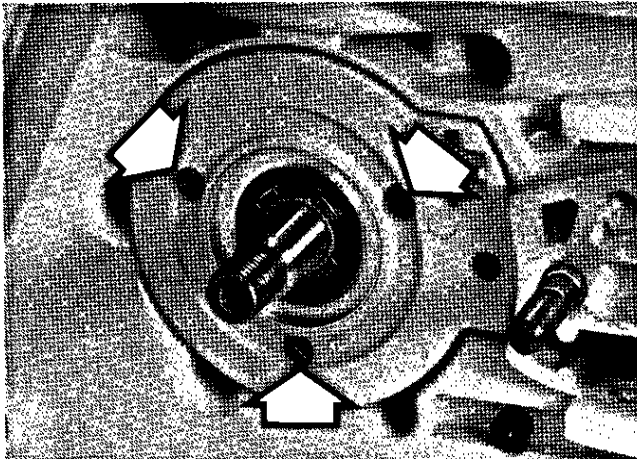


Fig 6:1

Loosen the three screws that retain the pump with a screwdriver and remove the oil pump.

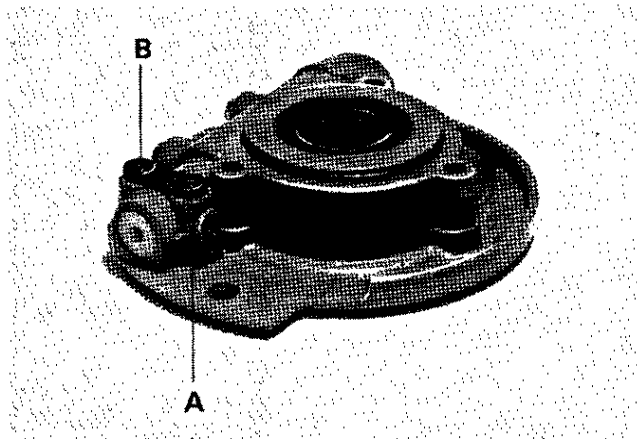


Fig 6:2

Check if there is dirt in the suction channel by rotating the pump shaft in both directions. When the pump works properly and is filled with oil, the oil goes alternately through the suction channel (A) and the pressure channel (B)

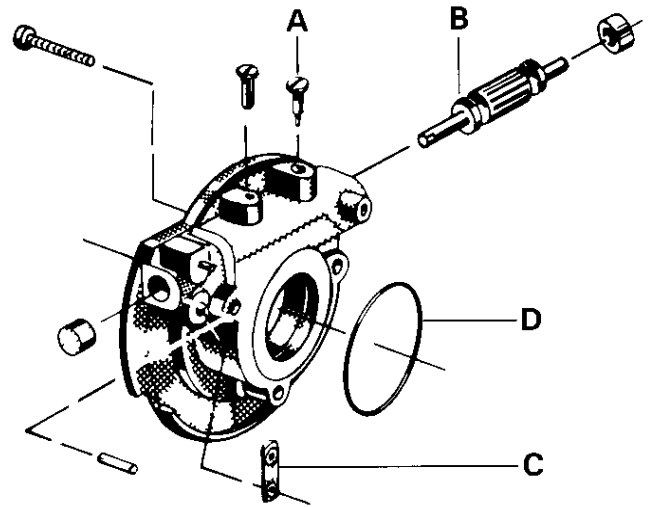


Fig 6:3

For cleaning, dismantle the pump as follows.

1. Remove the adjusting screw (A, fig. 6:3).
2. Knock the edge of the pump housing against a piece of wood to make the pump piston (B, Fig. 6:3) and its bearing slide out of the casing.

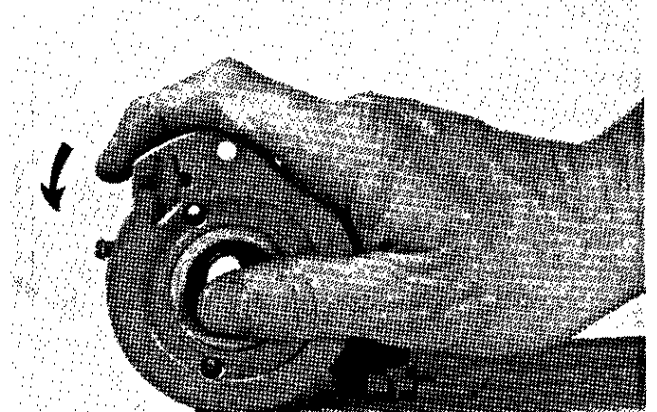


Fig 6:4

3. Check the wear of the adjusting screw against which the cam curve of the pump piston runs. Replace if necessary.
4. Check the oil hoses and their connections to tank and crankcase (fig. 6:5)

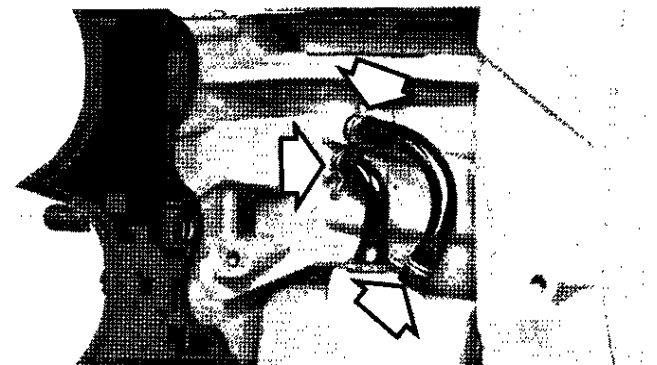


Fig 6:5



Assembly

Assembly of the oil pump is made in reverse order to dismantling.

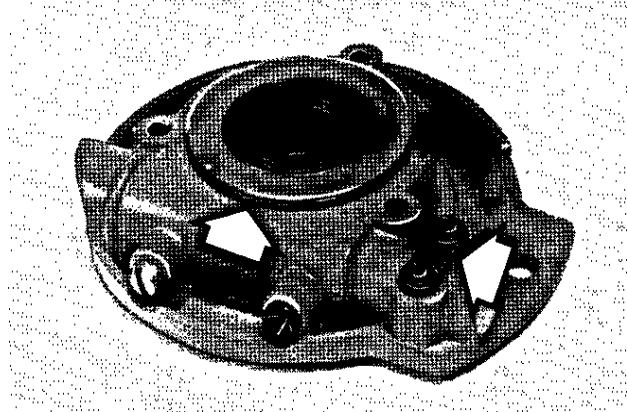


Fig 6.6

Note the following:

1. Check that the sealing for the pressure and suction channel is fitted, clean and undamaged (C, fig. 6:3). Check also the O-ring of the pump housing (D. fin. 6:3;

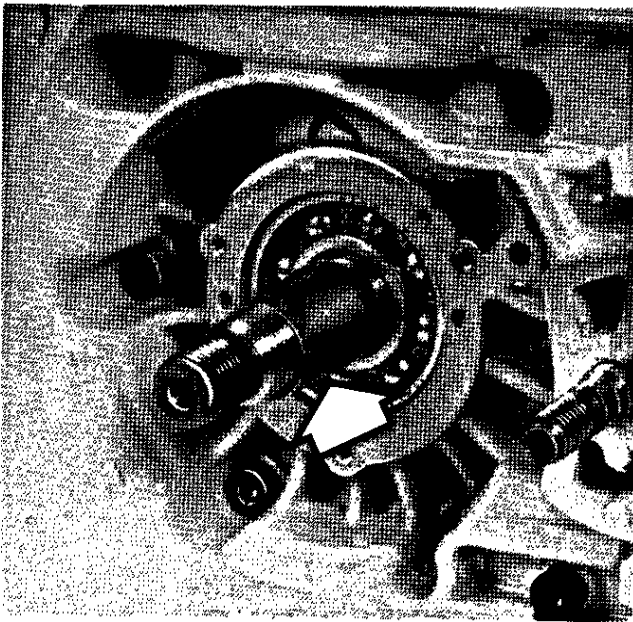


Fig 6.7

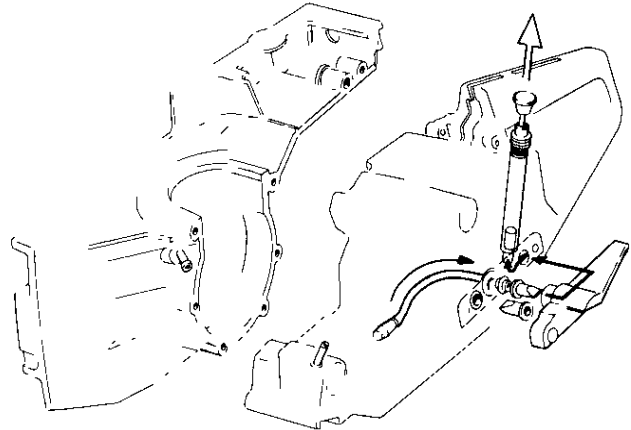
Use sleeve No. 502 50 52-01 to protect the main bearing seal when the pump is fitted into the crankcase.

2. After fitting the pump into the crankcase, check that the pump piston turns easily.

Manual oil pump

Figure 6:8 shows the oil passage from the oil tank, through the manual oil pump to the guide bar.

A. Oil passage from the oil tank into the pump.



B. Oil passage from the oil to the guide bar

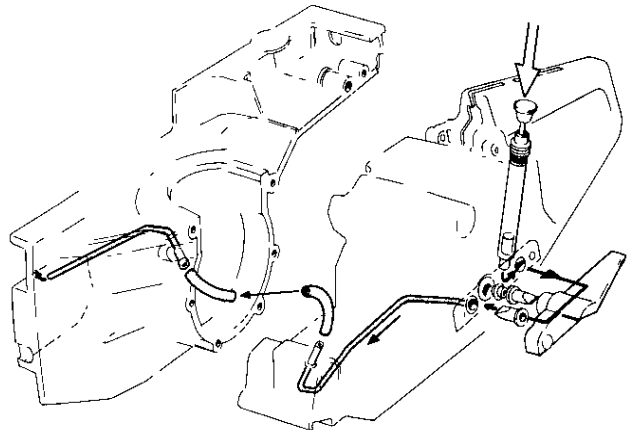


Fig 6.8

Removal of pump piston

Loosen the pump piston with tool No. 502 50 62-01. Then pull pump piston and pump cylinder out of the crankcase.

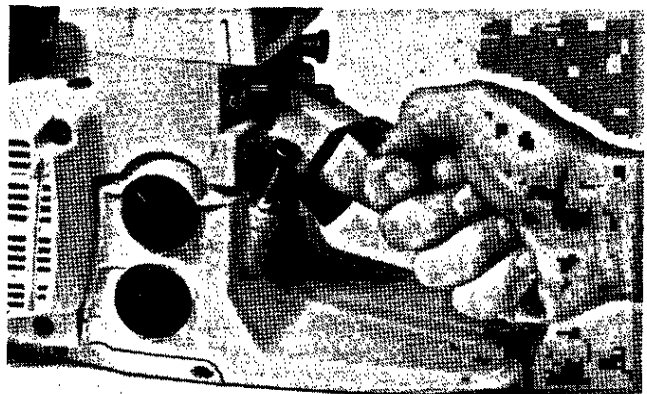


Fig 6.9



Removal of valve housing

Loosen the socket head screws that retain the valve housing with Allen key No. 502 50 19-01.

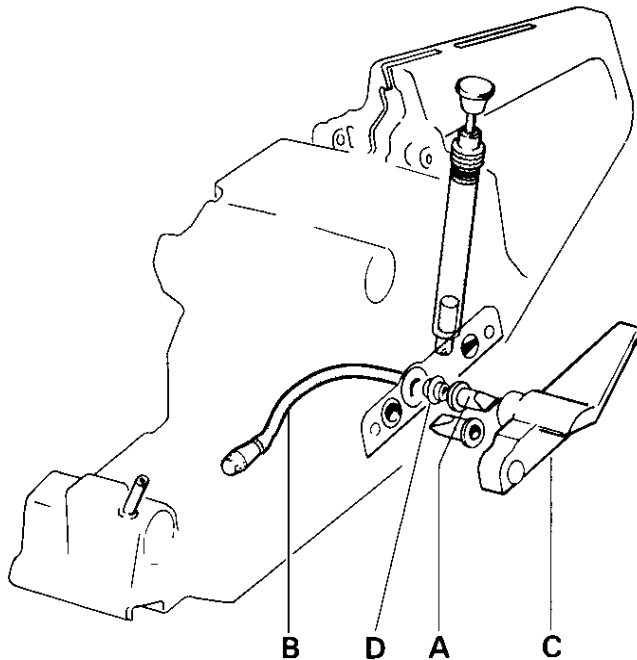


Fig 6:10

A = Valves C = Valve housing
B = Suction hose D = Valve guidance

Remove the valve housing (C, fig.6:10) from the oil tank.

Pull the suction hose (B, fig 6:10) and the oil filter out of the oil tank.

Clean the parts and replace if damaged.

Particularly check the O-ring and the valves (A, fig. 6:10) Clean the oil channels with compressed air and check simultaneously the hose connection between tank and crankcase behind the silencer.

Assembly

Assembly of the valve housing and the pump piston is made in reverse order to dismantling.

Note the following:

1. The valve guidance (D) for the suction hose shall be fitted according to fig. 6:10.
2. Fit the valves according to fig. 6:10.
3. Lubricate the O-rings on the pump cylinder before assembly to prevent damages.
4. Check that the pump works after assembly.

Trouble shooting guide

	Leakage	Too much lubrication	Insufficient lubrication	Driving gear damaged	
Adjusting screw in position II			X		
Adjusting screw worn			X		
Dirt in the suction hose and oil filter				X	
Vacuum in the oil tank				X	
Pump piston seized					X
Suction hose cracked or leaking	X			X	
Oil channel of crankcase clogged				X	
Driving gear damaged				X	
Sealing ring damaged or lost	X			X	

Removal

Lift off the cylinder cover and remove the throttle push rod. Remove the plastic sleeve from the carburettor adjusting needles. Loosen the screws retaining the carburettor but leave the carburettor in its seating. Remove the spark plug protector, and the spark plug from the cylinder

Remove the silencer and loosen the four screws retaining the cylinder with Allen key No. 502 50 57-01

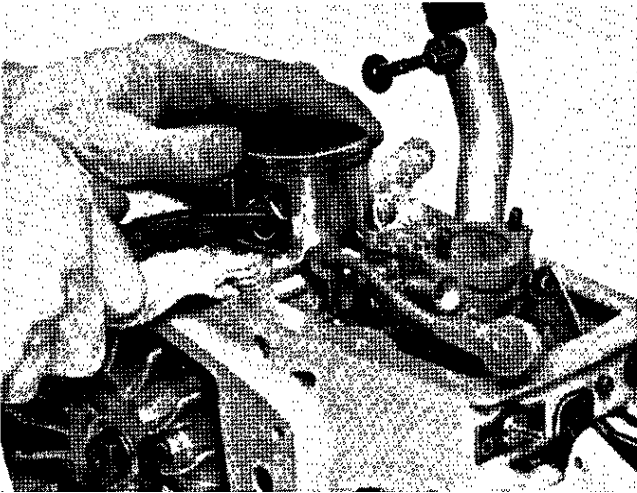


Fig 7:1

Lift the cylinder. To facilitate removal, the piston should be at the bottom dead centre.

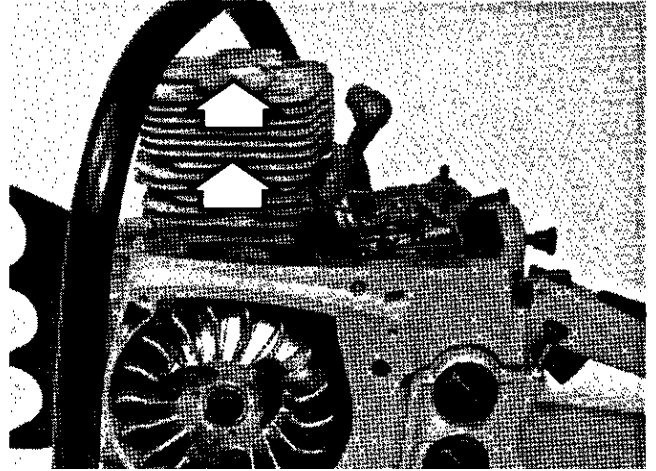


Fig 7:2

Put a rag into the crankcase opening to protect the crankcase from the ingress of dirt. Remove the circlips on the wristpin with a pair of flat hose pliers and push out the wristpin with fitting drift No 502 50 69-01.

Remove the insulating piece from the cylinder. Scrape off carbon deposits from the exhaust port and combustion chamber.

Control

Check the following before assembly, and take the measures required.

DAMAGE

Broken cooling fins, damaged threads

Seizure marks in the cylinder wall (especially at exhaust port).

Surface of the cylinder wall worn (esp. at the top)

Seizure marks on the piston

Piston rings stuck in the grooves.

REMEDY

In case of severe damage, change the cylinder. Restore the thread with Heli-Coil inserts.

Polish the marks with a fine emery cloth to remove aluminium deposits

If the marks are deep, change cylinder and piston. Replace cylinder and piston

Polish the marks carefully with a fine file or emery cloth. Before fitting the piston, polish the cylinder wall as stated above. If the marks are deep, change the piston and, if necessary, the cylinder

Remove the piston rings carefully and clean the grooves completely before reassembly

Check the wear of the piston rings by placing them in the bottom of the cylinder. The gap between the ends of the rings should be 0.6 mm max.

Check that the rings are still springy

Assembly

Check that piston and cylinder have the same classification marking (see fig. 1:1 and the classification table).

Fit the insulating place and the sealing collar on the cylinder. Check that the gasket is fitted correctly.

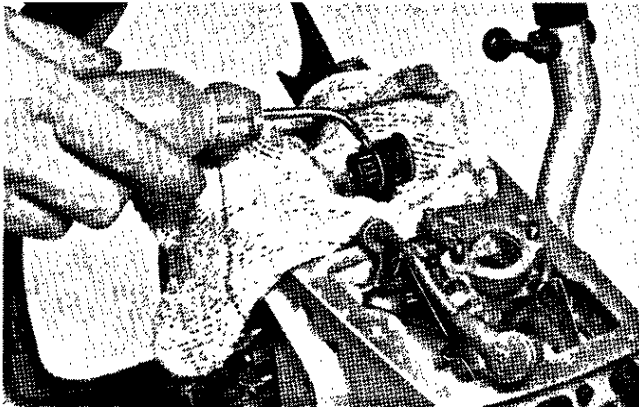


Fig 7:3
Place a new cylinder base gasket on the crankcase. Check that the needle bearing of the wristpin is not damaged. Fit it in the connecting rod and lubricate with a few drops of two-stroke oil.

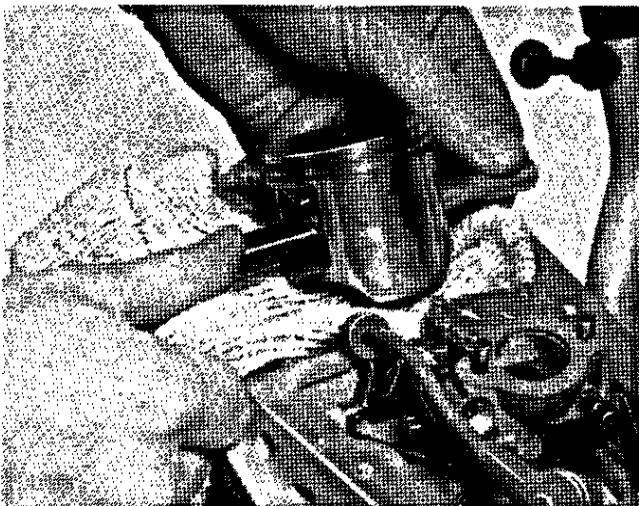


Fig 7:4
Fit the piston on the connecting rod. Use fitting drift No. 502 50 69-01 to centre the piston against the needle bearing of the connecting rod. Push the wristpin in and fit the circlips. Turn them round with a pair of flat hose pliers to check that they run smoothly in the grooves.

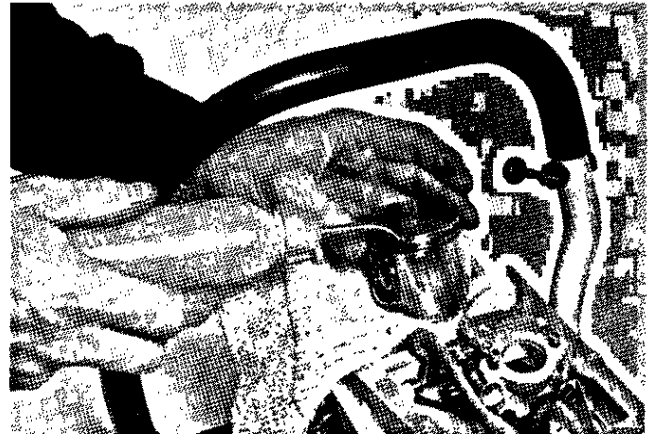


Fig 7:5
Lubricate the piston rings with a few drops of two-stroke oil. Place the supporting piece in mounting set No 502 50 70-01 under the piston.

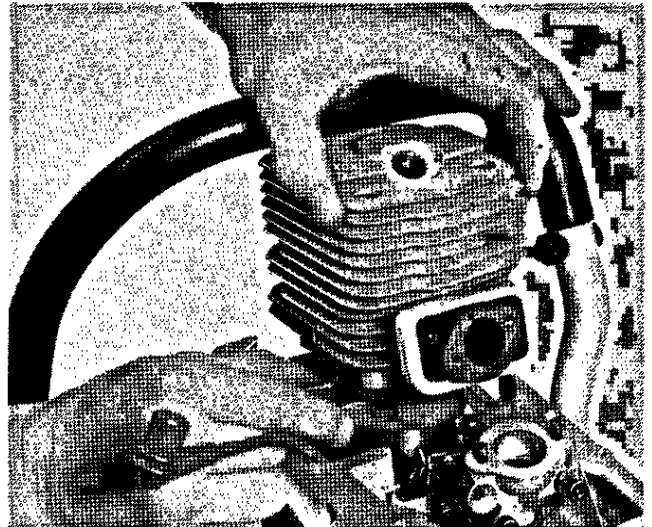


Fig 7:6
Use the piston ring compressor in mounting set No. 502 50 70-01 and push the cylinder carefully down over the piston. To avoid breaking the piston rings, do not turn the cylinder.

Tighten the four cylinder base screws diagonally and evenly. Turn the crankshaft and check that the piston moves easily in the cylinder. Fit the silencer and the carburettor.

Connect the throttle push rod to the carburettor, and fit the plastic sleeve over the adjusting needles.

Removal of crankcase

The following components will have been removed already: chain and bar, centrifugal clutch, Ignition system, carburettor, silencer, cylinder and piston.

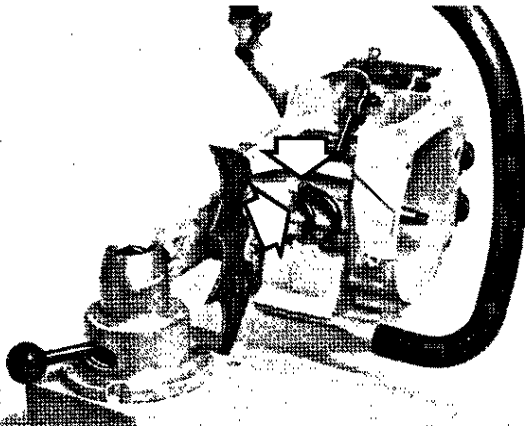


Fig 8:1

Drain the oil and fuel tanks.
Place the chain saw in the clamping device No. 502 51 02-01 and remove oh pump and tank unit.
Do not forget to disconnect the oil hoses between crankcase and oil tank.

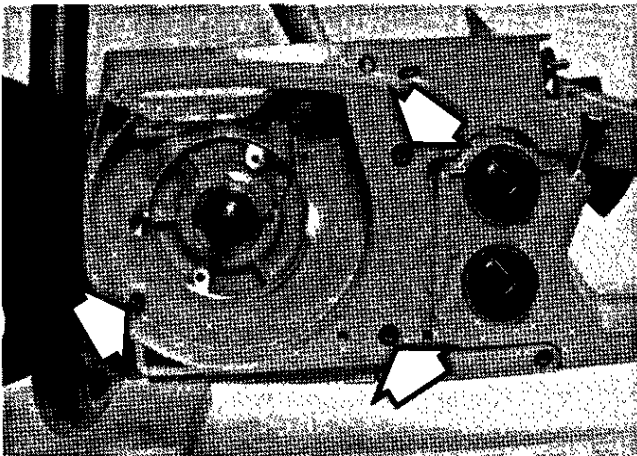


Fig 8:2

Remove the SIX screws (three on each side) that connect the crankcase to the tank unit.

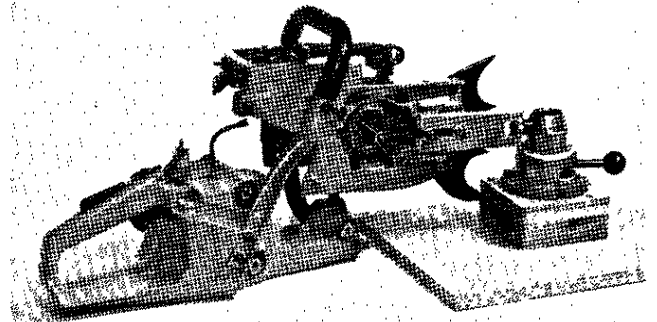


Fig 8:3

Separate the tank unit from the crankcase.
Remove the cylinder base gasket

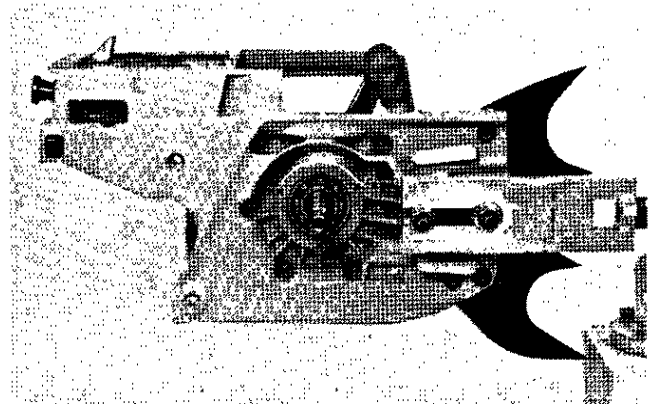


Fig 8:4

Remove the seven screws holding the crankcase halves together

Do not forget the screw behind the plastic cover on the rear of the crankcase.

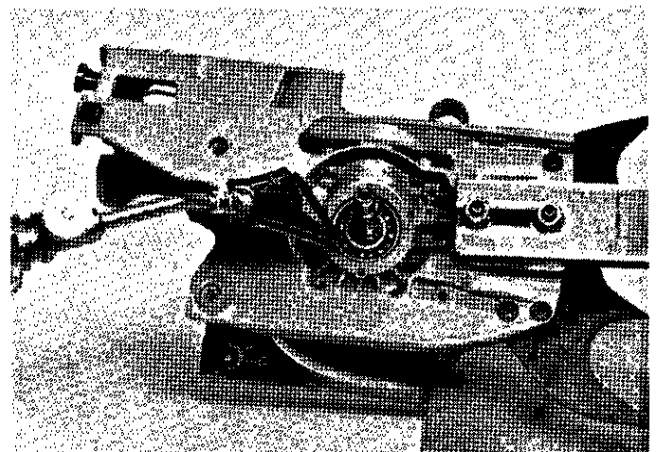


Fig 8:5

Warm up the bearing seats carefully with a gas burner, to bat 130° C Warming up should be apple l; c' evenly to avoid thermal stress.
Avoid to heat the ball bearings direct with the flame!

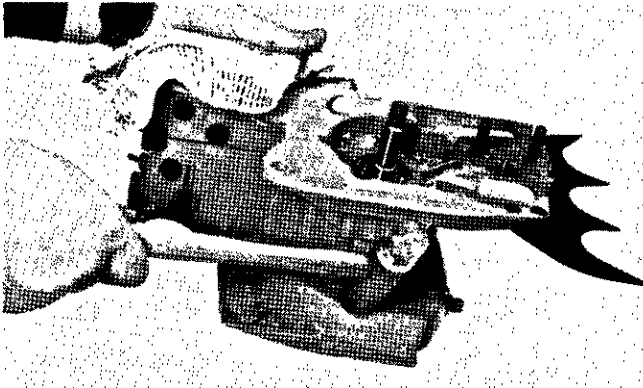


Fig 8.6
Separate the crankcase halves by careful use of a plastic hammer. Remove the sealing ring on the magneto side. Remove the ball bearings from the crankshaft with a special ball bearing puller.

Assembling the crankcase

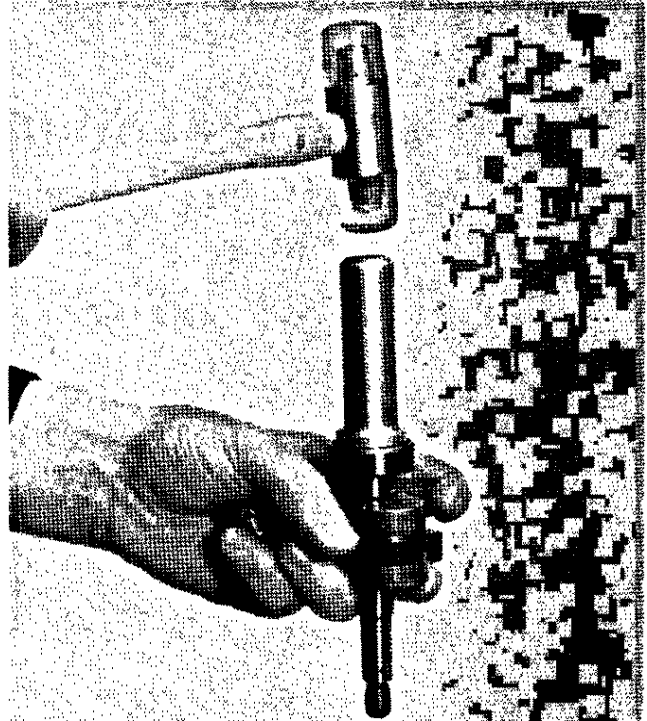


Fig 8:8
Fit a new ball bearing on the magneto side of the crankshaft. Use fitting drift No. 502 50 82-01.

Crankshaft check

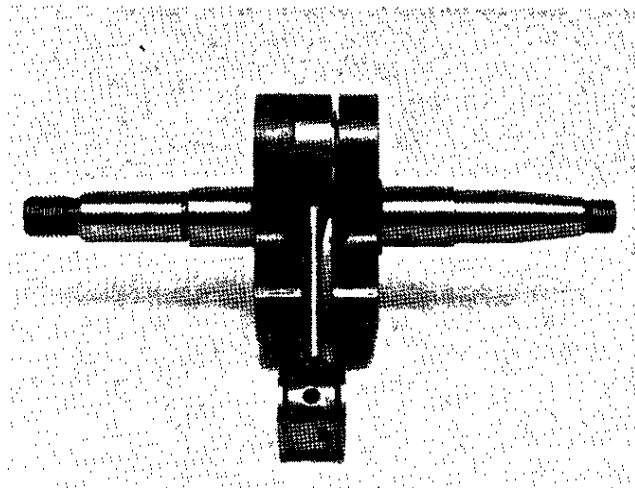


Fig 8:7
A defective crankshaft must be replaced. Check the big end of the connecting rod. Should there be seizure marks or discoloured spots on the sides, the crankshaft must be changed. The connecting rod should not show any radial play (up and down).

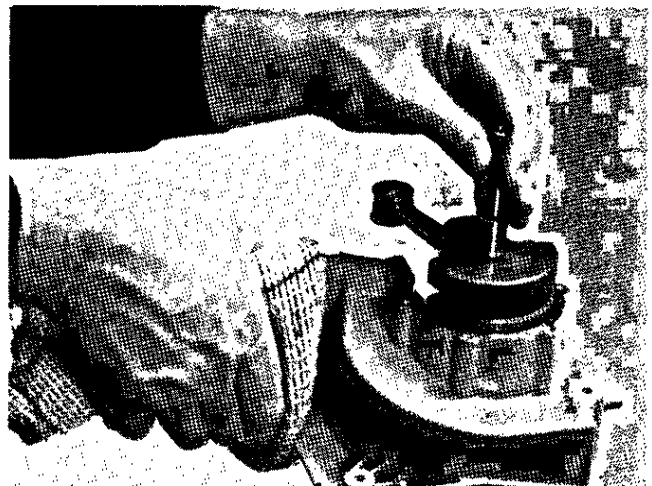


Fig 8:9
Warm up the bearing seat in the magneto half of the crankcase to abt 130° C. Fit the crankshaft with ball bearing in the crankcase half.

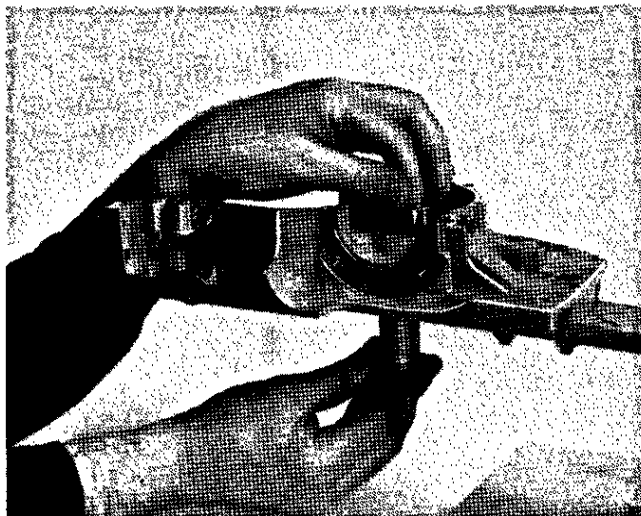


Fig 8:10
Place the drive side in the clamping device No. 502 51 02-01. Warm up the bearing seat to abt 130°C. Fit the bail bearing in the seat and locate it properly with fitting tool No. 502 50 30-01. Leave the crankcase half in the clamping device to cool down.

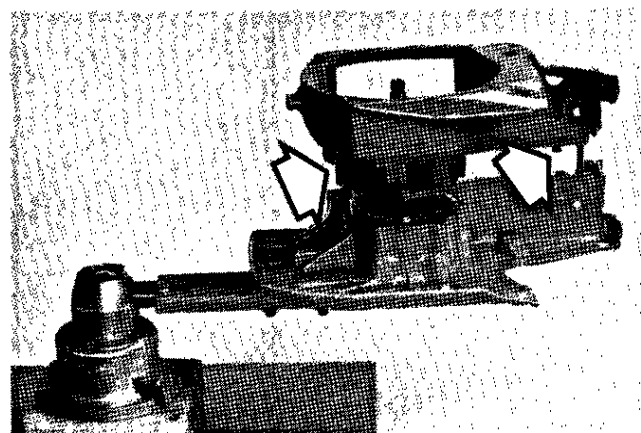


Fig8 11
Grease the gasket seat and fit a new gasket on the magneto side of the cranked is. Locate the magneto side with crankshaft over the drive side, ensuring that the gasket is not displaced.

Turn around the crankcase in the clamping device.

Check that the guide pins enter correctly.

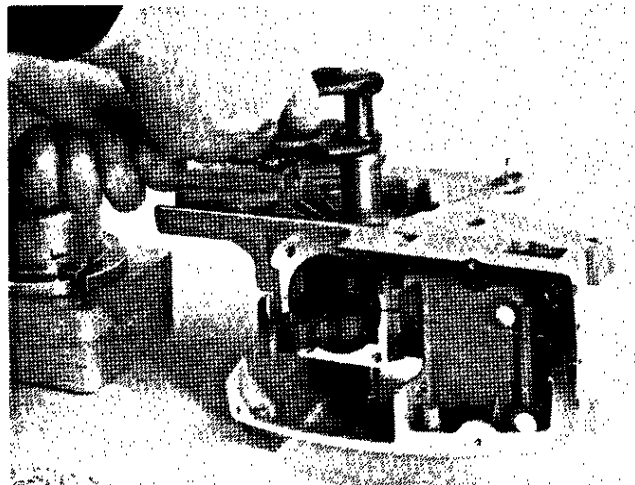


Fig 8:12
Pull the crankcase halves together with fitting tool No. 502 50 30-01
Tighten all screws, beginning nearest the crankshaft (see fig. 8:4).
Check the position of the gasket and cut off its edges on the cylinder base surface.

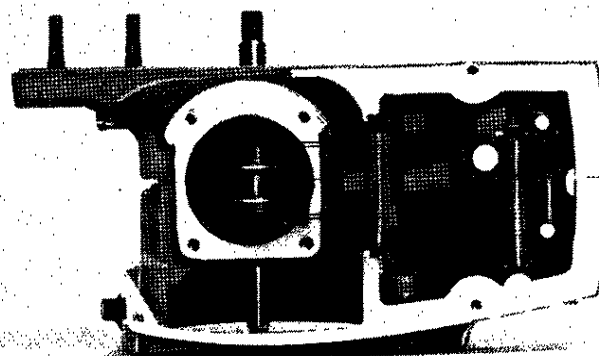


Fig 8:13
Check that the crankshaft rotates easily. If not, knock lightly with a plastic hammer on the drive side of the crankshaft.

Check that the crankshaft is properly centered in the crankcase.

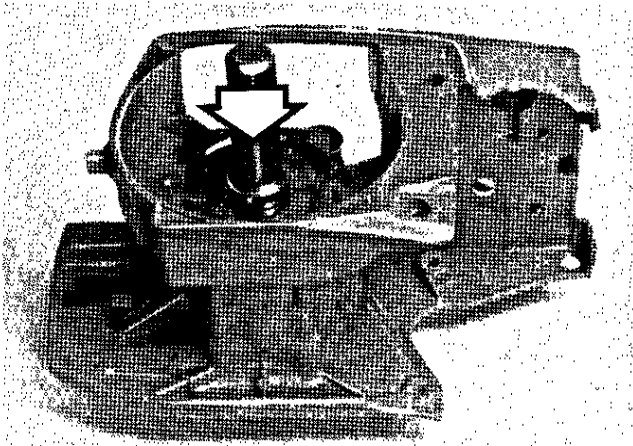


Fig 8 14
Fit a new main bearing seal in the magneto side of the crankcase. Use fitting drift No. 502 50 82-01.

Fit the oil pump (see chapter 6).

Fit piston and cylinder (see chapter 7).

Pressure test the crankcase (see chapter 2).

Assembly of crankcase—tank unit

Fit the rear part of the tank unit first, so that the fuel hose may be pulled through the hole in the crankcase.

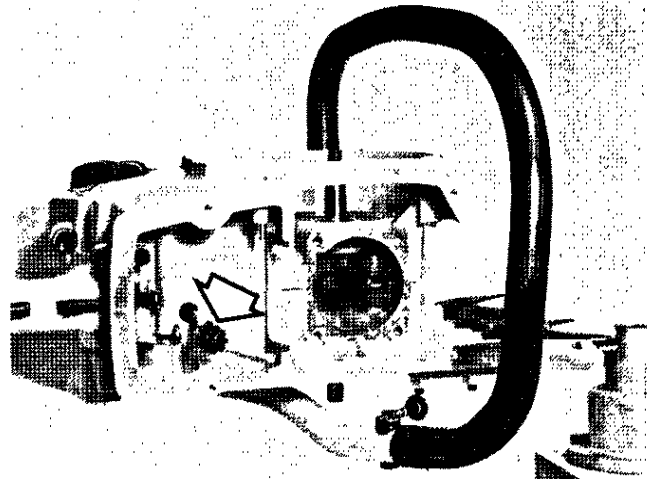


Fig 8 16
Adjust the front part of the tank unit and fit the vibrations damper.

Changing the vibration dampers

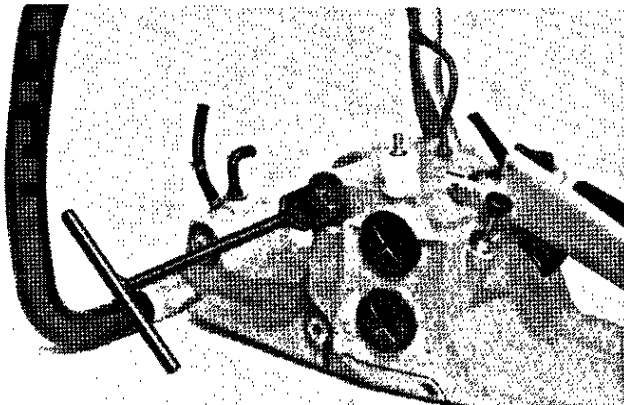


Fig 8:15
Check the vibration dampers before reassembling the tank unit and the crankcase. If they are limp or damaged they should be changed. Use U-spanner No. 502 50 66-01. Make sure that the tool also turns the rear steel washer of the damper.

Removal

Remove the screws that retain the starter. Set the return spring to zero by pulling out the starting cord by bat 30 cm,

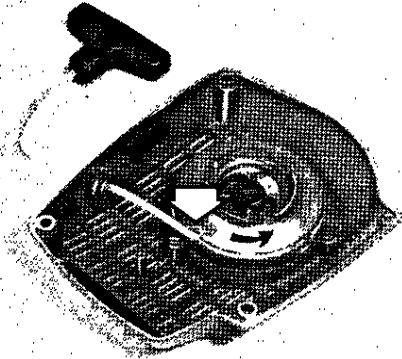


Fig 9:1
put it into the groove of the pulley rim and let the pulley turn slowly backwards (slow it down with your thumb). Loosen the screw and remove the washer in the centre of the pulley.

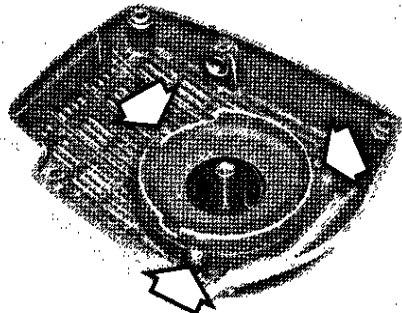


Fig 9:2
Lift off the pulley.
Remove the screws that retain the plastic cover over the return spring.
Remove the cover and the spring.

NOTE!

It should be possible to turn the pulley a further 1/2 of a turn approx. With the cord pulled out entirely.

Assembly

Put the return spring, a new one if necessary, into the starter housing. Lubricate the centre tap with a few drops of ordinary engine oil

Put the plastic cover back and tighten the screws.

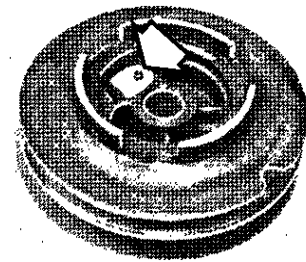


Fig 9:3
If necessary, change the starting cord and fit it on the pulley.
Make sure that the stop cube fits properly in the recess in the pulley and that the screw in the cube has its head facing the pulley (the end of the screw points outwards).
Wind up the cord but 3 turns on the pulley. (Note! right direction) and fit it in the starter housing.
Check that the spring grips the pulley, then fit the washer and the screw. Make sure that the pulley can move freely

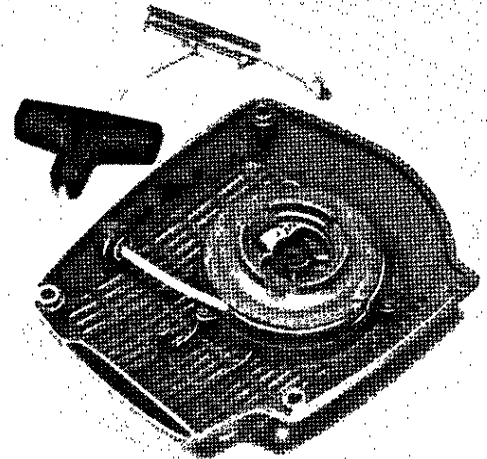


Fig 9:4
Pull the cord through the cord sleeve of the starter housing and through the starter handle. Make a knot in the cord and pull the knot completely into the insert and handle.
Put the cord into the groove of the pulley rim and tension the spring enough to get 1/2 spare round.
Fit the starter.

Removal

Fit the piston stop No. 502 50 33-01 into the spark plug hole. Remove the clutch centre with too! No. 502 50 24-01 or combination wrench. NOTE! Left-hand threads. Lift off clutch centre and clutch drum. Do not lose the washer behind the worm gear, if the gear follows the drum.

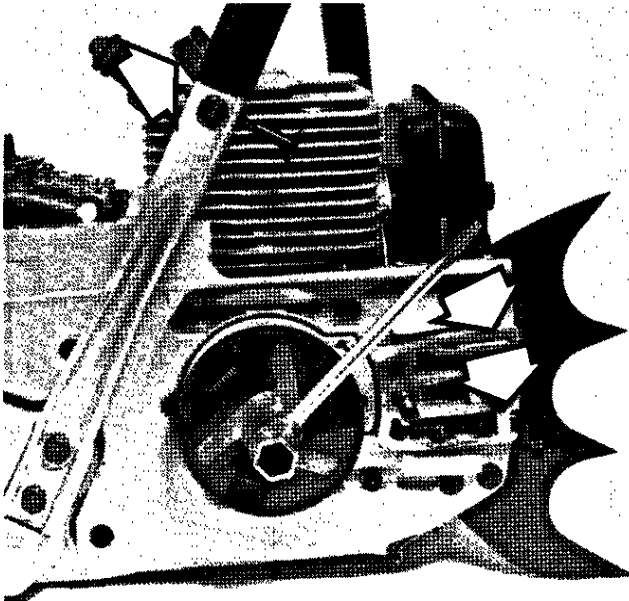


Fig 10:1

Changing the needle bearing

Lift off the worm gear of the oil pump drive if necessary and place the clutch drum with the chain drive upwards on a tube sleeve (e.g. No. 502 50 30-04) as close to the bearing as possible.

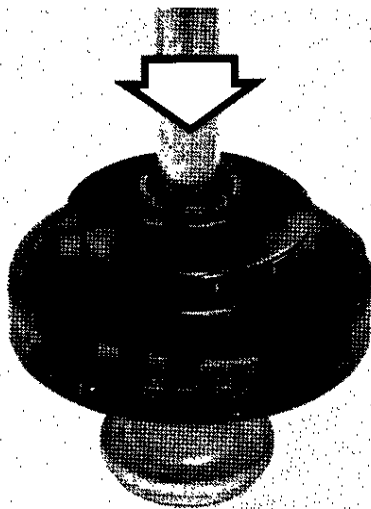


Fig 10:2

Push out the bearing with a suitable drift. The drift is to be centered by the inner diameter of the bearing (e.g. use a rejected shaft).

Use the drift to press a new bearing into the clutch drum. NOTE! Press on the side of the bearing where the type number is. Check that the bearing is on a level with the drum hub. On Oregon rim sprocket drum the bearing can be changed without tools.

Changing the clutch spring

The clutch spring should be changed if it has been overheated (blue coloured) or broken. It is easily changed with pliers No. 502 50 49-01 as shown in fig. 10:3



Fig 10:3

When fitting the new spring, check that its ends connect in the centre of a clutch shoe. Do not overstretch the spring!



Changing the worm gear

The worm gear of the oil pump drive is easily removed from the clutch drum. It has four dogs which fit into four corresponding grooves in the clutch drum.

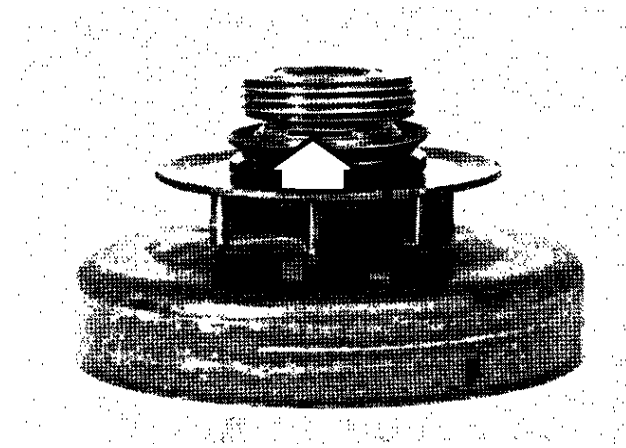


Fig 10:4
When fitting a new gear, put it in the clutch drum and check that it fits exactly into the grooves of the drum. Then fit the drum with gear on the crankshaft.

Do not forget the washer behind the worm gear!

Lubrication

Lubricate the worm gear of the oil pump drive with Molykote before fitting the clutch drum. The needle bearing IS to be lubricated with ball bearing grease. Two pumps with the grease gun into the hole of the shaft centre are sufficient.

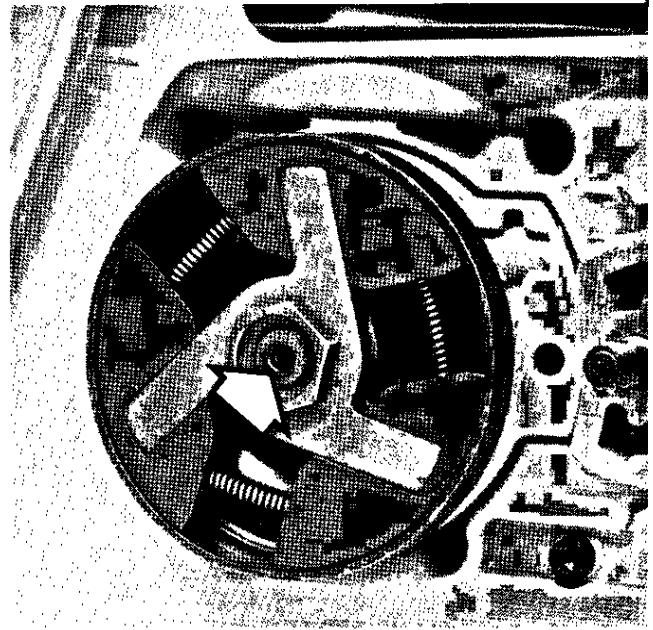


Fig 10 6

Checking wear

Check the wear of the clutch centre and the clutch shoes. There should be at least 1 mm material left on the friction surface of the shoes.

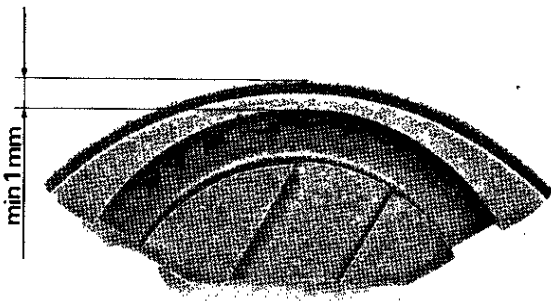


Fig 10.5
All the shoes have to be changed on the same occasion.



A. Chain brake

Removal

Proceed as follows:

Remove the clutch cover and clean brake mechanism and brake band

Fix the clutch cover in the clamping device No 502 51 02-01 with two spare guide bar studs and nuts.

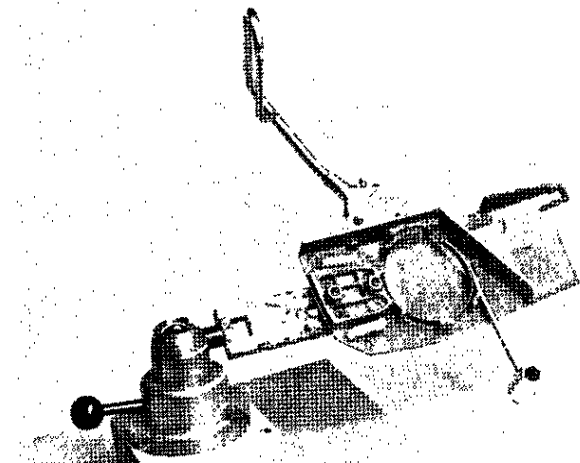


Fig 11:1

Push the brake band upwards (e.g. by inserting a combination key between the brake band and the two rear supports) in order to get at the adjusting nut (see fig 11 :1).

Remove the adjusting nut retaining the pull rod, and carefully release the brake mechanism with the hand guard.

Remove the brake spring.

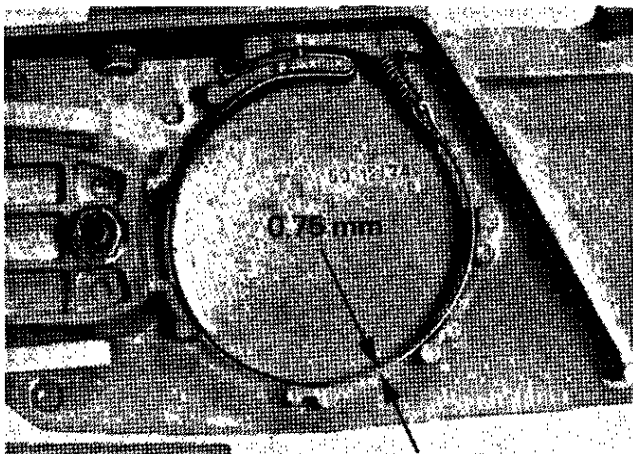


Fig 11:2

Check the band wear. The band should have at least 3/4 of its original thickness (1 mm) on its most worn part, otherwise it must be changed.

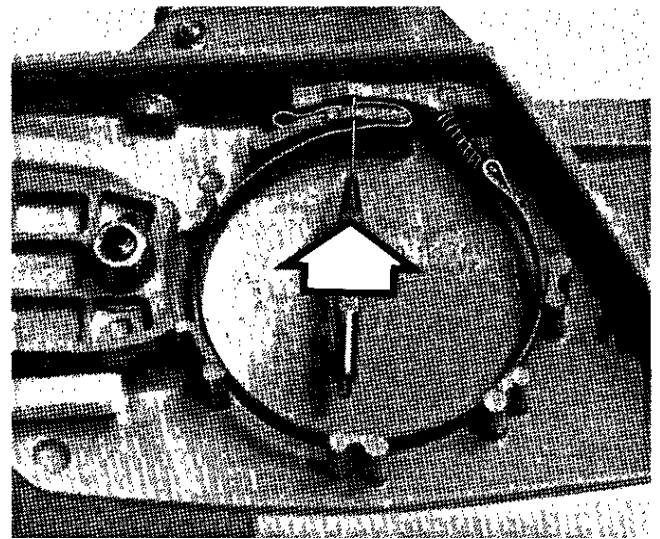


Fig 11:3

Dismantle the brake band as follows:

Use a drift \varnothing 1 mm to push out from below the rail pin that retains the brake band in the correct position. The band with pull rod and spring may then be changed.

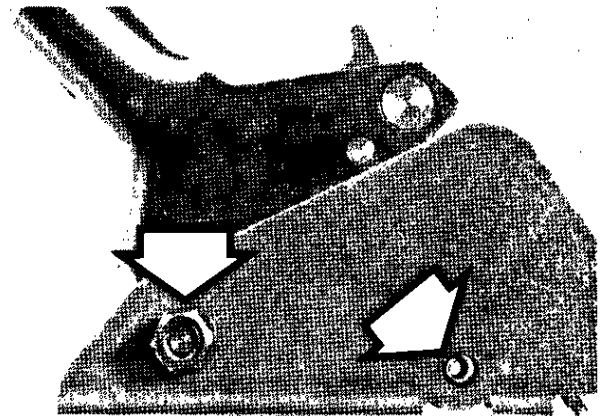


Fig 11:5

When replacing the hand guard, first remove the nut then the pivot pin.

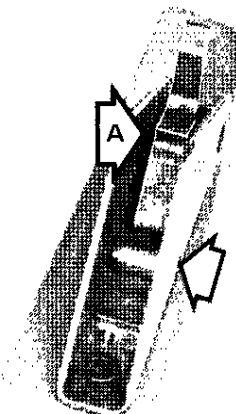
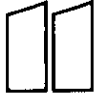


Fig 11 5



The catch may be removed after pushing out the roll pin functioning as a bearing. Use a drift \varnothing 4 mm.

Check the wear on the locking part of the catch (see A, fig. 11:5).

The catch spring is easily changed, if necessary.

Adjustment of brake band

Make an initial adjustment utilising a spare clutch drum in the brake band.

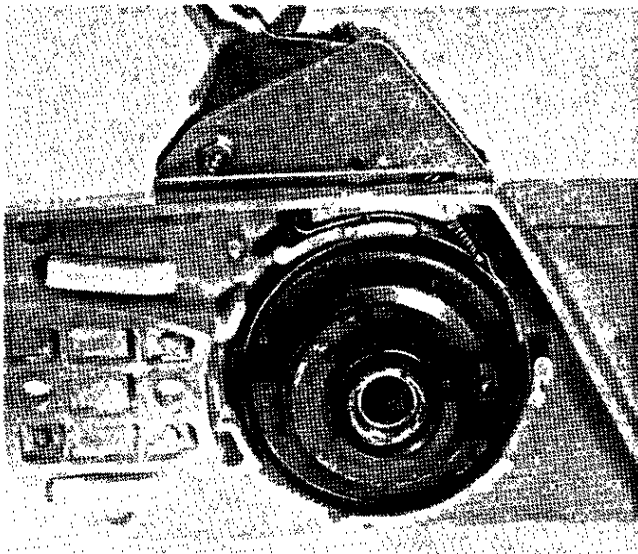


Fig 11:6

It should not be possible to rotate the drum when the brake is released, but in the unbraked position the drum should be easily rotated.

Fine adjustment IS made with the clutch cover fitted on the saw. The gap between the catch and the head of the adjusting nut should be 7 mm when the brake is released. Measure the gap with a calliper (see fig. 11:7).

Note that in the unbraked position the brake band must not touch the clutch drum.

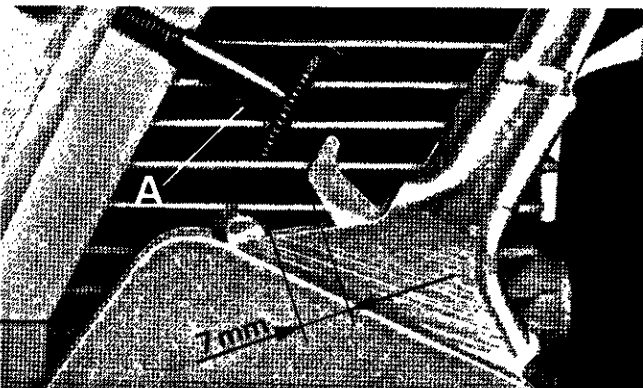


Fig 11:7

Release and lock the brake repeatedly to check that the mechanism works smoothly.

To check that the chain brake actuates correctly, proceed as follows:

Fit guide bar and chain.

Start the engine and let it idle.

Release the chain brake with the hand guard.

Operate the throttle trigger.

With a properly adjusted brake band the chain must not rotate as the engine accelerates.

Adjustment of the Swed=O-Matic

Set the adjusting screw (A fig. 11 7) so that the brake actuates at a load of 20-24 kp on the guide bar nose (24" guide bar) Check this e.g by pushing the guide bar nose against a spring balance.

The Swed-o-Matic should be adjusted so that it actuates too easily rather than not at all.

B. Changing the throttle safety catch and the throttle lever

Dismantle the tank unit as described in chapter 8 under the heading "Removal of crankcase"

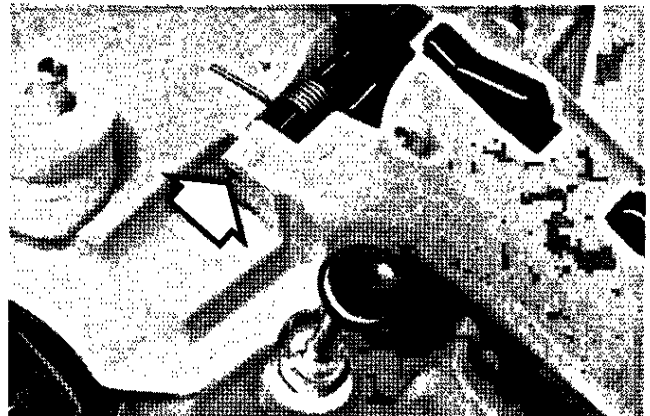


Fig 11:8

Remove the throttle lever shaft and the lever with a drift \varnothing 3 mm.

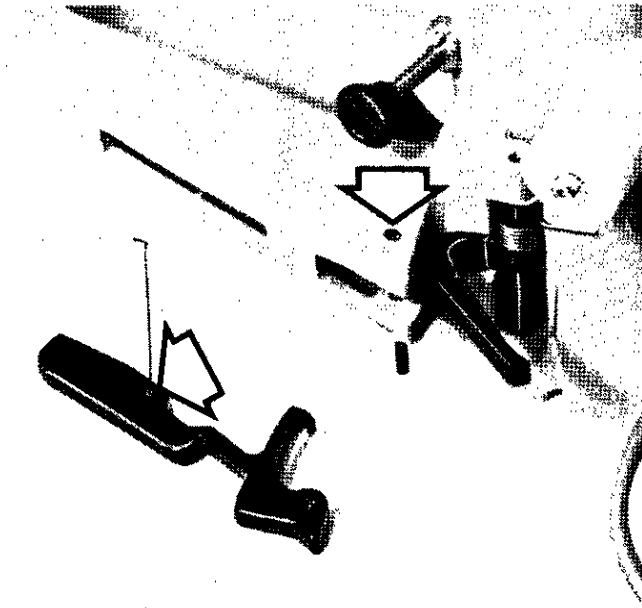
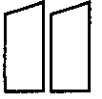


Fig 11:9
The safety catch IS removed by pushing out the roll pin with a drift \varnothing 3 mm

The spring IS attached to the safety catch. it may be changed after pushing out the roll pin with a drift \varnothing 1.5 mm.

Reassembly of the throttle safety catch and the throttle lever IS made in reverse order to dismantling.

Check that the throttle lever works properly both as safety catch and as starting throttle ratchet.