Husqvarna

Workshop manual
Clearing Saw
Model

101 88 04-26

Ignition system	SEM, type GA2
Ignition advance	24° b.t.d.c. at 142 rfs (8500 r/min)
Sparking plug	Bosch WS7F, Champion CJ7Y
Sparking plug gap	0.5 mm
Carburettor	Tillotson diaphragm carburettor type HS 121 A Basic setting: **H =** 3/3 turn L = 1 turn
Fuel tank capacity	1.0 litre petroil admixture Fuel mixture 4% (1:25) oil With Husqvarna Twostroke Oil 2% (1:50)
Harness	Husqvarna, type BU 75
Saw blade	Husqvarna, type Maxi 9"
Shaft angle	110°
Weight	10.8 kg Empty clearing saw without harness and transit protection for saw blade
Grease	EP 0 grease or Husqvarna special grease, order number 502 51 27-01

Classification table

Cylinder class	Piston class
A	A
B	B
C	C

If absolutely necessary, a class A piston may be used with a class B cylinder.

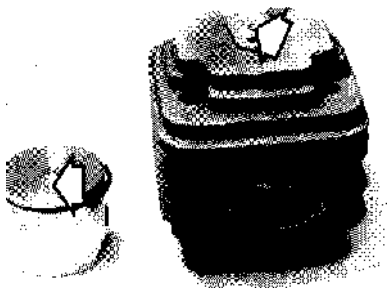
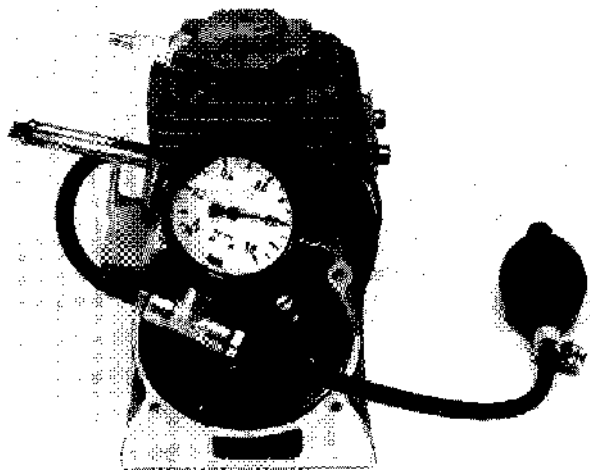


Fig. 1:1

NOTE:
A class 13 piston must not be used with a class A cylinder *nor a class C piston with a class B cylinder.*

Leakage testing

Pressure: 0.08 MPa (0.8 kgflcm^2)
Max. leakage: 0.02 MPa per 30 sec.



(0.2 kgflcm^2

Fig 2:1
per 30 sec.)

Tools: 502 50 38-01 Pressure tester 502 50 45-01 Spacer sleeve (35 mm) 502 50 47-01 Sealing plate, inlet 502 50 48-01 Sealing plate, exhaust

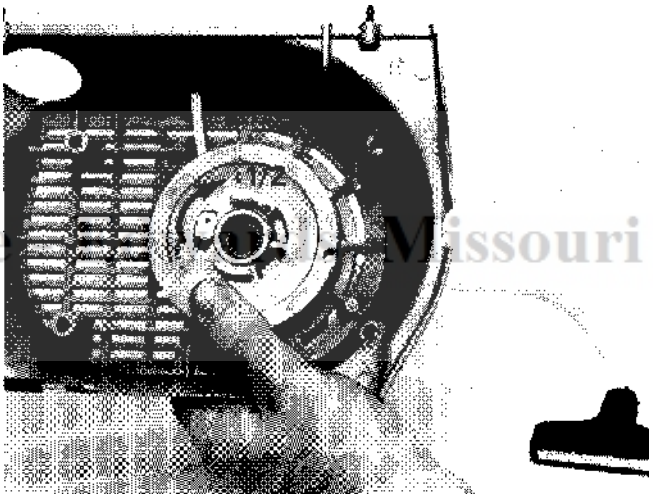


Fig 2:2

Starter

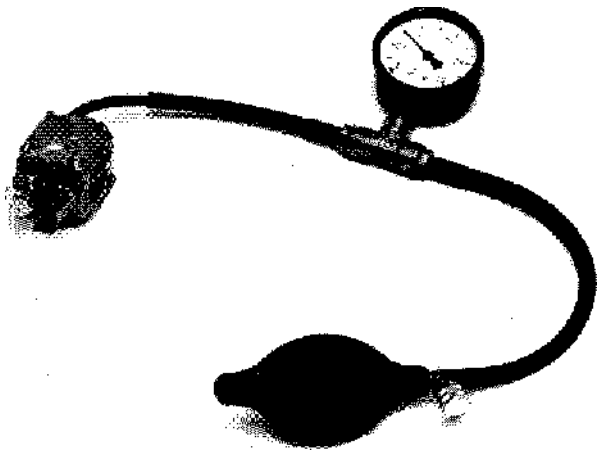
It should be possible to turn the cord pulley about another half-turn when the starter cord is fully withdrawn.

Carburettor

Pressure: 0.03 MPa (0.3 kgflcm^2, 4.3 psi)
Leakage: No leakage permitted.

Tools: 502 50 38-01 Pressure tester 502
50 45-01 Spacer sleeve (35 mm)
502 50 47-01 Sealing plate, inlet
502 50 48-01 Sealing plate, exhaust

Fig 2:3



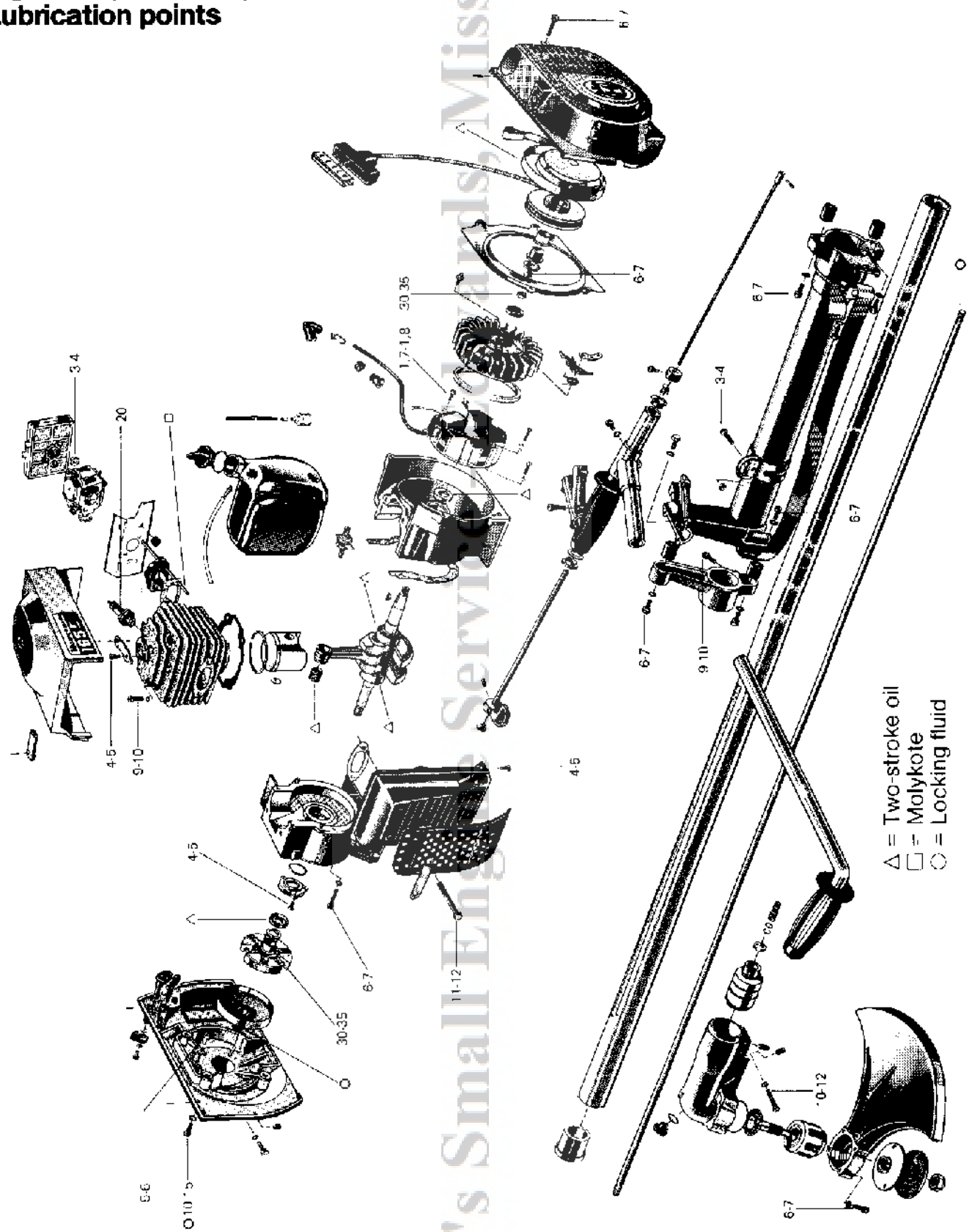
Fuel mixture

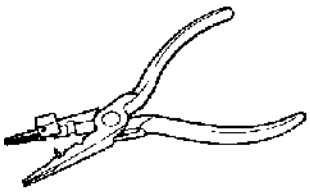
The engine is of two-stroke type and receives lubrication through the addition of oil to the petrol in certain proportions. For ordinary two-stroke oil a mixture of 1 part oil to 25 parts petrol (4%) is recommended. For premixed two-stroke oil a mixture of 1 part oil to 20 parts petrol (5%) is recommended.
For Husqvarna Two-stroke Oil a mixture of 1 part oil to 50 parts petrol (2%) is recommended.
The table below shows the different mixture proportions.

Mixture table

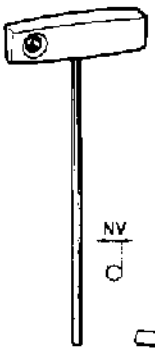
Litres of petrol	For 2% mixture Litres of oil	For 4% mixture Litres of oil	For 5% mixture Litres of oil
5	0.1	0.2	0.25
10	0.2	0.4	0.50
15	0.3	0.6	0.75
20	0.4	0.8	1.00
25	0.5	1.0	1.25

Tightening torques (Nm)
Lubrication points

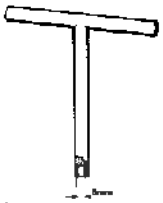




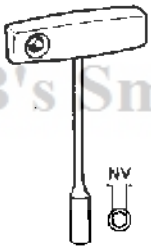
502 50 06-01
Pliers, sparking plug cover



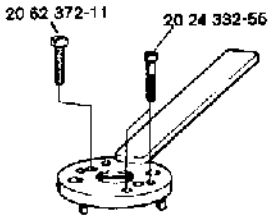
502 50 18-01 NV 4 mm
502 50 18-01 NV 3 mm
502 50 64-01 NV 5 mm
T-type Allen key



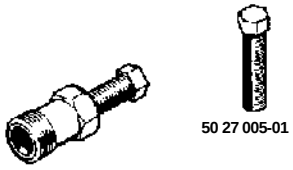
502 50 20-01 (M5)
Stud tightener



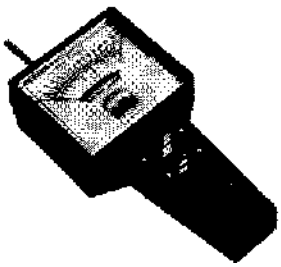
502 50 22-01 NV 8 mm
502 50 23-01 NV 10 mm Nut driver



502 50 25-01
Holdfast, complete



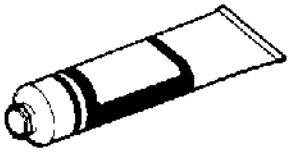
502 50 26-01
Puller, complete with screw



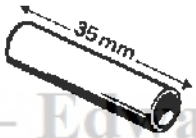
520 50 36-01
Tachometer

502 50 37-01
Vacuum tester, complete

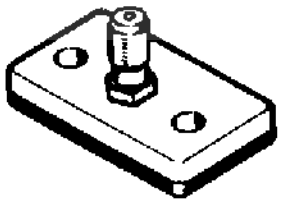
502 50 38-01
Pressure tester, complete



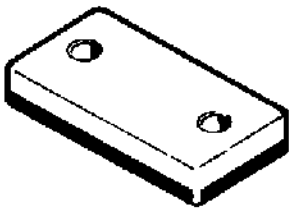
502 50 42-01
Lithium grease, 250 g



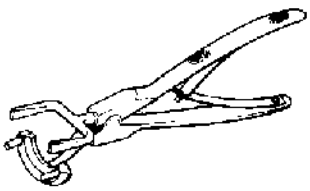
502 50 45-01
Spacer sleeve, 35 mm



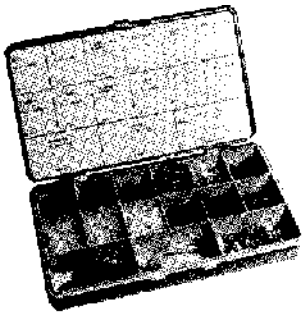
502 50 47-01
Sealing plate, inlet



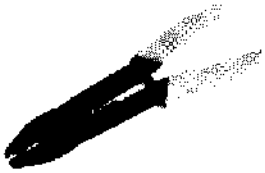
502 50 48-01
Sealing plate, exhaust



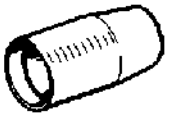
502 50 49-01
Pliers, centrifugal clutch



502 50 50-01
Repair kit for electric leads

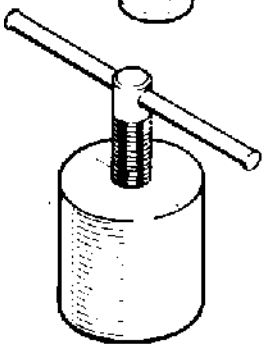


502 50 51-01
Crimping pliers

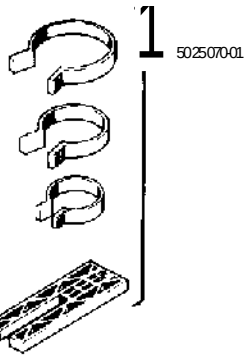


502 50 53-01
Sealing ring assembly socket

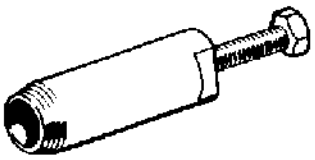
502 50 63-01
Extractor, angle gear



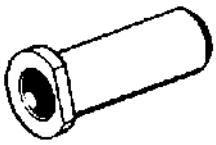
502 50 65-01 (M10)
Puller, gear shaft



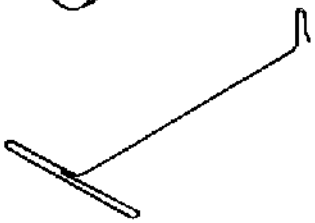
502 50 70-01
Piston assembly kit, complete



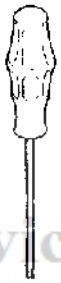
502 50 78-01
Extractor, sealing ring



502 50 79-01
Sealing ring assembly sleeve



502 50 83-01
Hook for tank weight

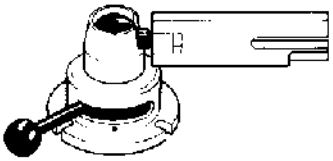


502 50 86-01 NV 3 mm
502 50 87-01 NV 4 mm
502 50 88-01 NV 5 mm
Socket driver with ball

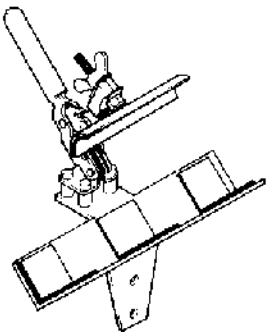
502 50 90-01
Jet-Pac spray gun, complete with touch-up paint

502 50 91-01
Touch-up paint, orange 1/8 litre

502 50 92-01
Propellant gas for Jet-Pac



502 51 02-01
Assembly jig

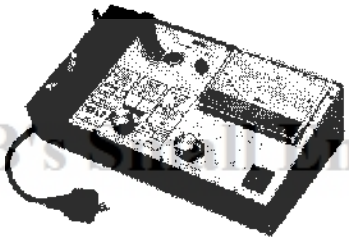


502 51 03-01
Special fixture

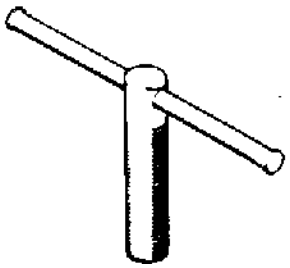
502 51 06-01
Glue

502 51 07-01
Epoxy adhesive

502 51 08-01
Loctite AA (normal locking force)
502 51 09-01
Loctite AAV (high locking force)



502 51 24-01
SEM ignition system tester



502 TO 04-01 (M12)
Screw for puller

Dismantling the carburettor

Clamp the clearing saw in fixture No 502 51 03-01.

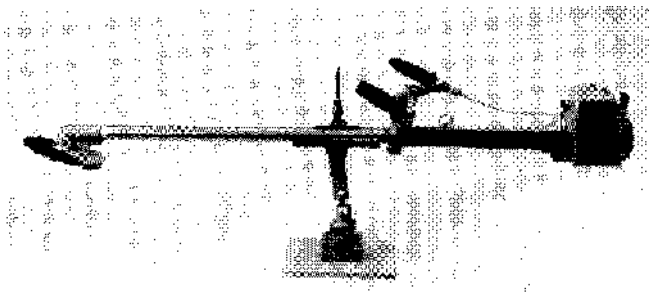


Fig 4:1

Remove the cylinder casing and blow as much dirt as possible away from the area round the carburettor, using compressed air.
Remove the sparking plug cover and air cleaner. Do not yet remove the plastic sleeve over the carburettor adjusting screws as this is held in place by a nail.

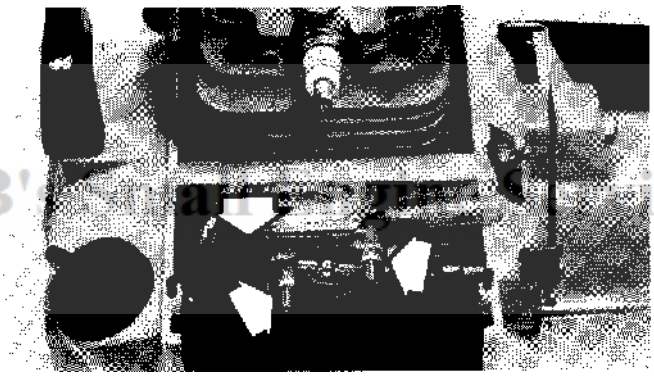


Fig 4:2

Close the choke flap to prevent dirt from entering the cylinder. Disconnect the fuel line and back off the two nuts (nut driver No 502 50 22-01) holding the carburettor in place.
Open the choke flap and pull the carburettor straight out to the rear.

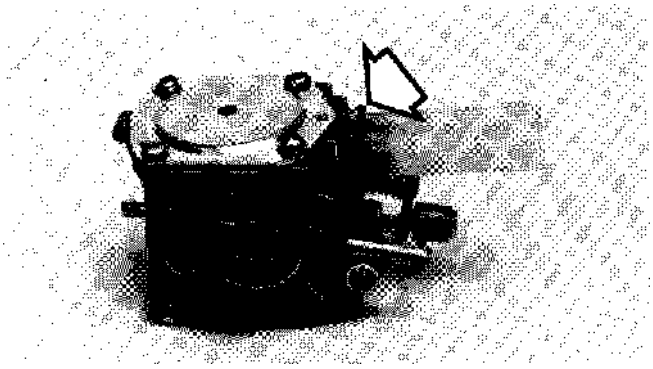


Fig 4.3

Remove the small nail holding the plastic sleeve in position over the adjusting screws and remove the sleeve. Clean the outside of the carburettor.

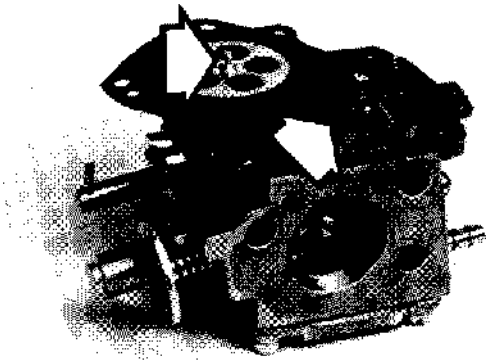


Fig 4.4

Back off the four screws holding the diaphragm cover in place and remove the cover. Remove the diaphragm. Note that the centre stud of the diaphragm enters a fork-shaped opening in the needle valve lever.

Fig 4.5

Connect pressure tester No. 502 50 38-01 to the fuel inlet on the carburettor and pump it up to *a* pressure of 0.03 MPa (0.3 kgf/cm^2).
Check whether any leakage occurs at the needle valve or at the gasket on the pump side. Leakage points can most easily be located by dripping petrol onto the places where leakage is suspected.

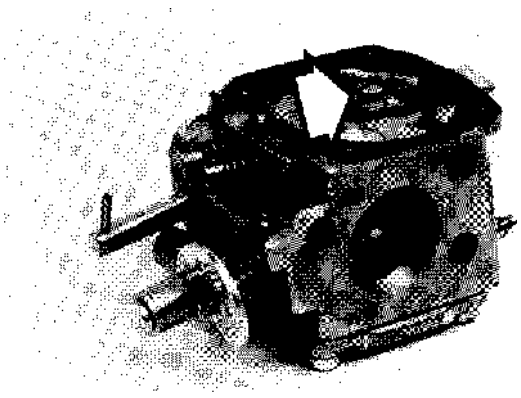


Fig 4.6

Back off the screw holding the shaft on which the lever pivots and remove lever, shaft, spring and needle valve.

Drill a small hole (diameter approx. 2 mm) in the two blank plugs and prise the plugs out by means of a sharp object.

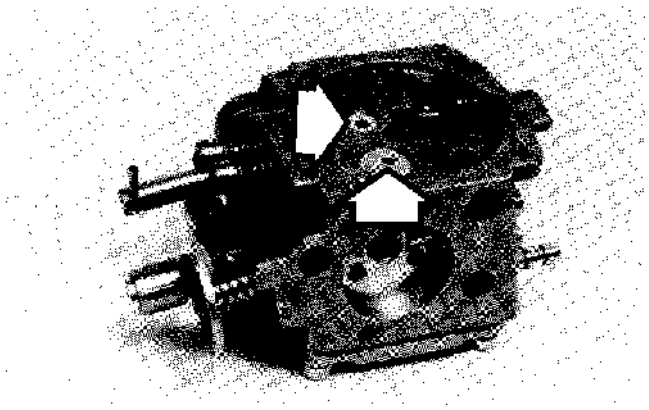


Fig 4.7

NOTE:
Exercise care when drilling to avoid damaging the carburettor housing.

Back off the two adjusting screws and remove the cover over the pump diaphragm. Remove the diaphragm and gasket.

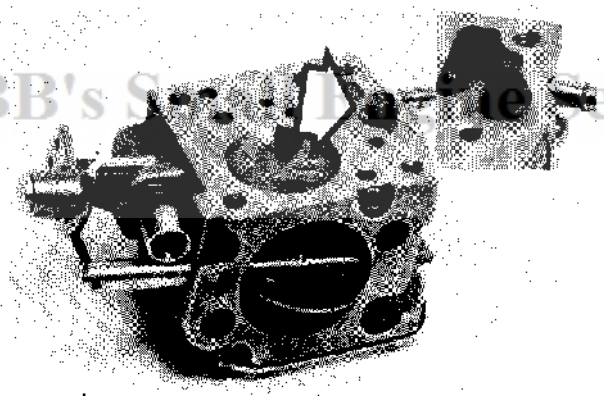


Fig 4.8

Carefully remove the fuel filter from the carburettor housing, using a sharp object.

Checking the carburettor

A. Pump

Clean the fuel filter carefully, using compressed air.
Clean all fuel passages and chambers, using compressed air.
Inspect the pump diaphragm for signs of fatigue and damage (holes).

B. Metering system

Check that the adjusting screws are straight and that no tip is broken.
Inspect the cones for damage.

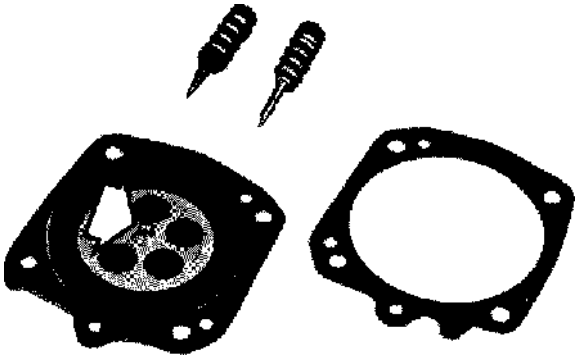


Fig 4.9

Inspect the diaphragm for wear in the centre stud slot and for any signs of fatigue or other damage (holes), Check that the gasket is undamaged.

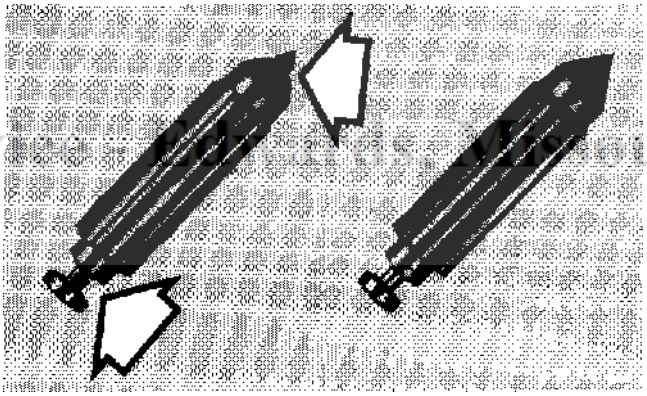


Fig 4.10

Inspect the needle valve for wear at the tip and in the groove for the lever. Fig. 4:10 shows a worn needle valve on the left and a new one on the right.

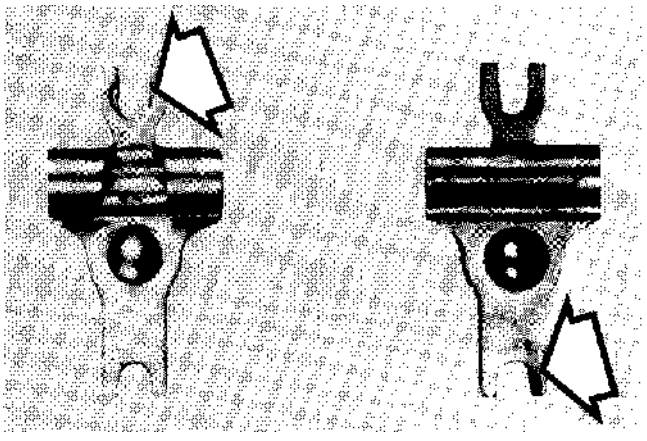


Fig 4:11

The needle valve lever must not be worn either at the needle valve end or the diaphragm end (see Fig. 4:11).

Check that the filter screen at the main jet is neither dirty nor damaged.

C. Mixture arrangements

Blow all fuel passages and jets clean with compressed air.
Make sure that the screws retaining the choke and throttle flaps are tight.
Check that the throttle flap shaft and its journalling in the carburettor housing are not so badly worn that air might leak past.
Fit replacements if any parts are damaged or worn.

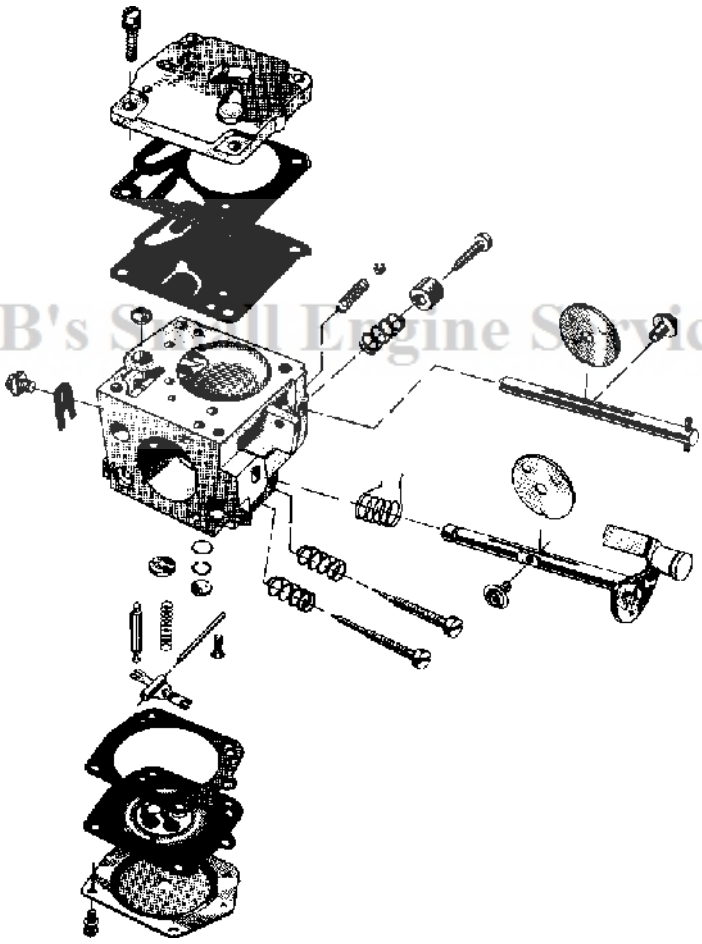


Fig 4:12

Assembling the carburettor

A. Pump

Carefully fit the fuel filter back in place.
Check that it is the right way round with the flared collar upwards.
Place the pump diaphragm on the carburettor housing and then the gasket and cover.
Tighten the four cover screws alternately.

B. Metering system

Fit new blank plugs. Press them into place by means of suitable pin punches or the like:
for the large plug: punch diameter 8 mm
for the small plug: punch diameter 4 mm

NOTE:
Do not *press down on the plugs with such* force *that they bend inwards.*
In such event they may not seal as intended.

Fig 4:13

Fit the needle valve, lever with shaft, and spring.
Make sure that the spring is mounted in the right position.

HELPFUL HINT
The large set of spare parts for the carburettor carries order number 501 54 67-01.

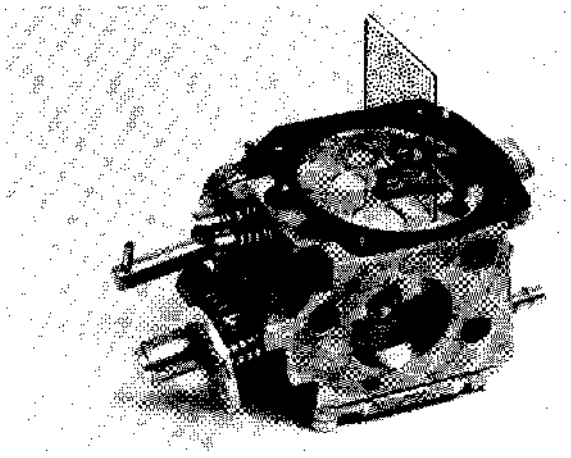


Fig 4:14

When correctly adjusted, the needle valve lever should be on a level with the carburettor housing (see Fig. **4:14).** The lever can be adjusted by bending the forked end up or down (press the needle valve down at the same time).
Check that the lever and needle valve can move freely after adjustment. Pressure-test the carburettor as described above (see Fig. 4:5).
Then fit the gasket, diaphragm and cover back in place.

NOTE:
The centre stud of the diaphragm should fit in the opening in the lever.

Refit the adjusting screws and adjust them to the basic setting:
High speed needle H = 3/4 turn open
Low speed needle L = 1 turn open

Fitting the carburettor to the cylinder

If the studs holding the carburettor were unscrewed from the cylinder when backing off the carburettor nuts, screw the **short** thread into the cylinder again.

Check that the choke control is in the open position.

Fit the plastic sleeve over the carburettor adjusting screws and secure it in place with the small nail.

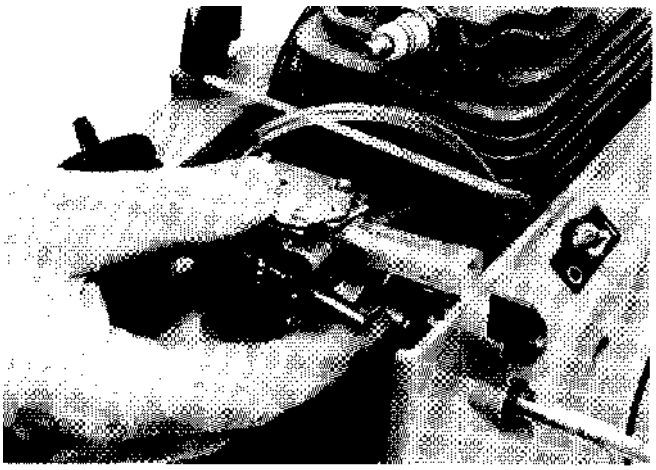


Fig 4:15

Set the choke flap in the open position.
Open the throttle flap fully by pressing on the lever with your index finger.

Push the carburettor into position over the studs, making sure that the pin of the choke flap shaft correctly enters the groove in the choke control. Tighten the nuts.

Connect the fuel line and check that it has no kinks that may interrupt the supply of fuel.
Fit the air cleaner in place.

Carburettor tuning

A. Basic setting

Before tuning the carburettor, proceed as follows:
Clean the air cleaner or fit a new one, if necessary.
Inspect the sparking plug and its electrodes. Check that the fuel filter is not clogged.

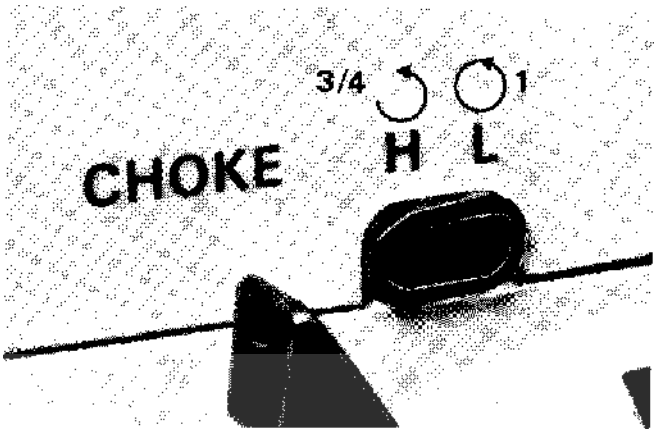


Fig 4:16

After checking the above, turn the carburettor adjusting screws to the basic setting:
H = 3/4 turn, L = 1 turn
Use screwdriver No. 501 60 02-01.

Start the clearing saw and warm it up by cutting into a stump or *the* like.

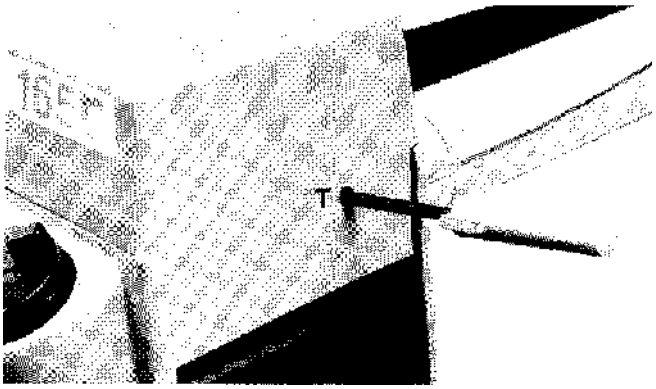


Fig 4:17

Adjust idling speed by turning throttle stop screw T to a position where the saw blade tends to rotate, i.e. a comparatively high idling speed.

B. Adjusting the low speed needle (L)

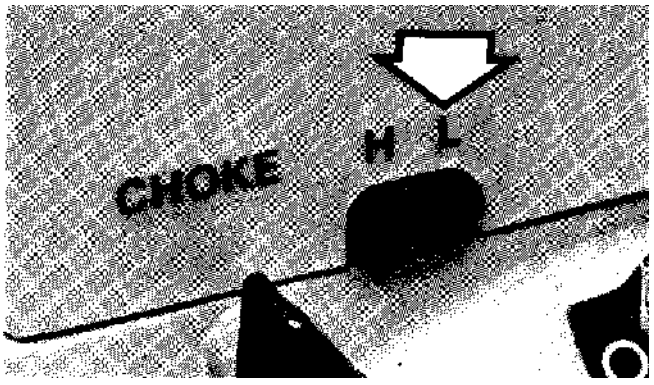


Fig 4:18

Carry out fine adjustment as follows:

1. Screw the L needle in slowly from the basic setting. Engine speed will increase and then decrease when the fuel-air mixture becomes too lean. Note the needle setting at which engine speed is highest.
2. Now unscrew the L needle and again note the setting at which engine speed is highest. Note that the engine will run slower when the fuel-air mixture is too rich.
3. Turn the L needle to the position giving the highest engine speed and then unscrew it by an amount cor: responding to ten minutes on a clod< face to give the engine a slightly richer mixture.
4. Set the idling speed by means of throttle stop screw T to 2200-2300 r/min.
5. Open the throttle smartly a couple of times to check that the engine responds.
   If it does not, unscrew the L needle by an amount cor-responding to about three minutes on a clock face. Try again.

Run the engine at maximum speed by holding the throttle control firmly open. If the setting is correct the engine should "four-stroke".

Reduce engine speed by slowly screwing in H needle until fourstroking ceases. From this position, back it off corresponding to ten minutes on a clock face.

If a tachometer such as No. 502 50 36-01 is available, do not allow the engine to race at more than 11 200 r/min.

Carburettor tuning is now finished and the throttle control can be released.

NOTE:
A carburettor that *is set to* give too weak *a mixture will result in a considerable power loss. Tune the carburettor for maximum* power *and not for maximum speed.*

C. Adjusting the high speed needle (H)

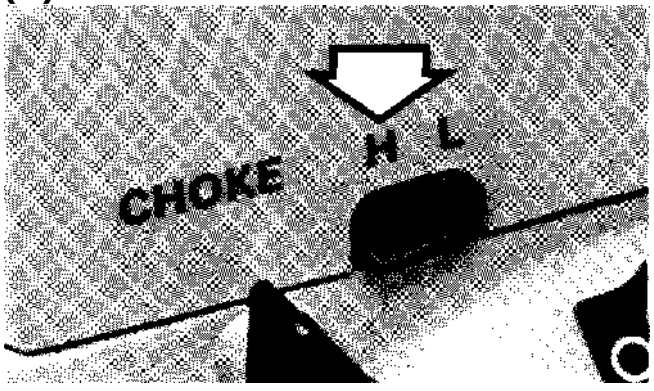
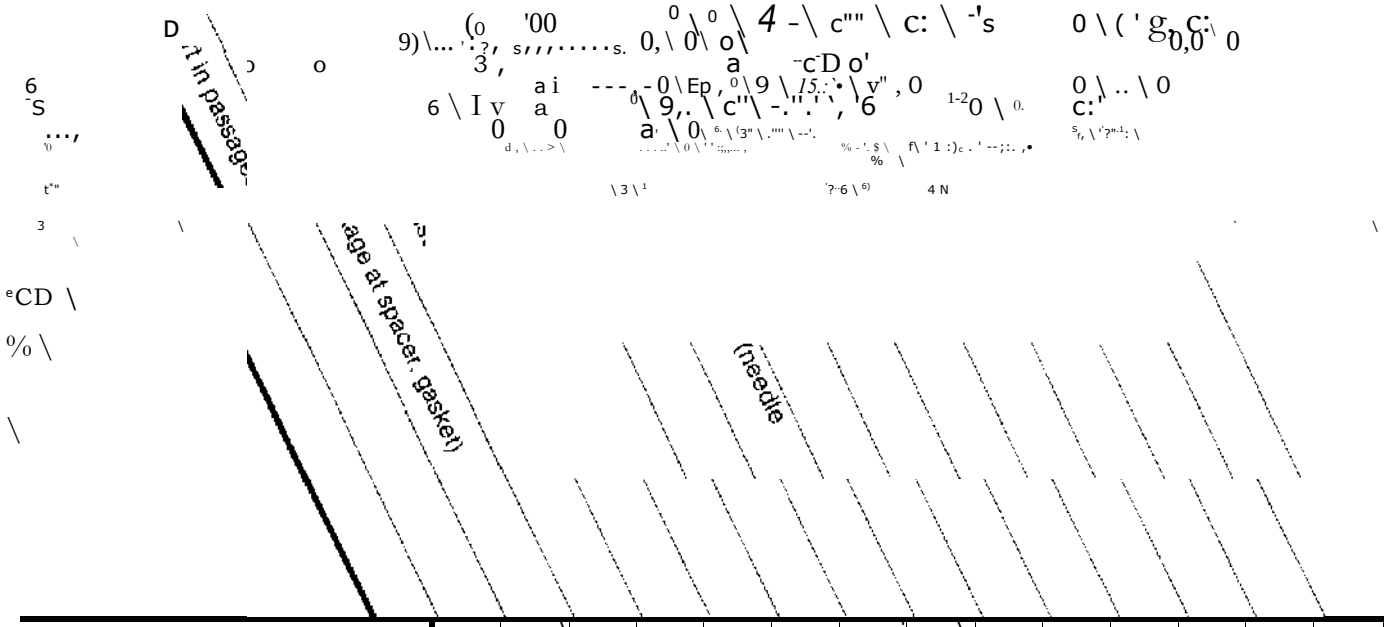


Fig 4:19

Now adjust the H needle to the correct setting as follows:

Fault tracing schedule



Uneven idle							X	X						
Stalls when throttle opened (needs choke)	X		X			X			X	X				
Mixture grows too weak			X						X	X	X	X		
Receives no fuel			X						X					
Hard to adjust		X		X	X									
Mixture too rich							X							X
No Idle		X												
Abnormal needle setting	X	X				X								X

A. Fault tracing

AI. Dismantle the cylinder casing and remove the sparking plug. Reconnect the plug lead and rest the sparking plug against "earth", e.g. the cylinder. Check whether a spark occurs between the electrodes when the engine is turned over by means of the starter. The stop contact should be in position 1.

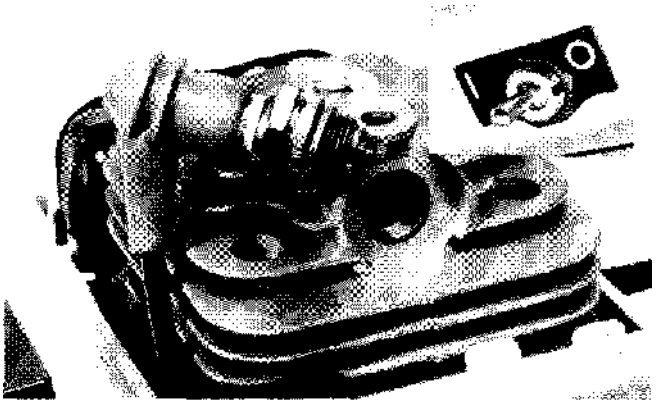


Fig 5:1

Try with a new sparking plug. If there is still no spark then check that the connection between plug lead and sparking plug cap is satisfactory.

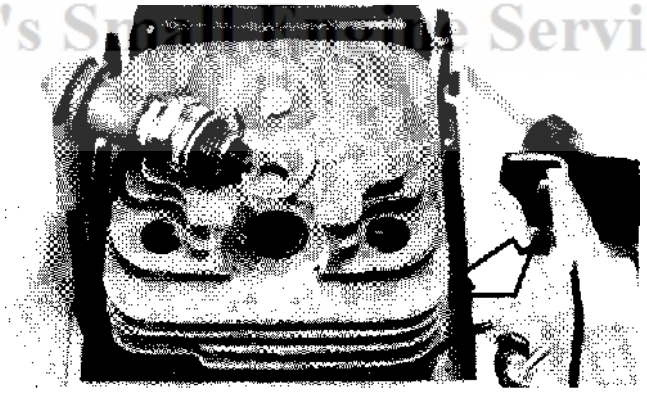


Fig 5:2

A2 Disconnect the short-circuiting lead from the switch. Turn the engine over and check whether a spark occurs between the sparking plug electrodes. If it does, the stop contact is defective and should be replaced.

A3 If the ignition system is still inoperative after carrying out checks Al and A2, dismantle the starter and guide rail. It is not necessary to remove the tank filler cap. Check that the short-circuiting lead and plug lead are not damaged.

A4 If no faults have been found in the previous checks, the next step is to inspect the ignition coil.

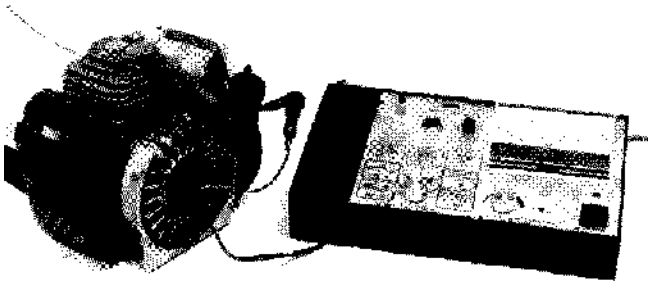


Fig 5:3

Check the secondary winding of the ignition coil by means of SEM ignition system tester No. 502 51 2401. Connect the earth lead of the instrument to the cylinder, for example, and the other lead to the plug lead. The instrument should then give a reading when set for resistance measurement.

A5 Remove the flywheel and ignition coil (see B. Dismantling). Test the ignition coil under load.

Note that different makes of ignition coil testers may give different readings for the ignition coil. For this reason we do not give any standard reading for the coil but recommend the following test procedure:

Test three or four new ignition coils of the same type as the one suspected of being defective. The average reading obtained for these coils will then comprise a standard figure for the type of ignition coil and tester in question. Compare the reading for the coil that may be defective with this standard figure. If no test equipment is available, we recommend replacement of the ignition coil after carrying out checks Al-A4.

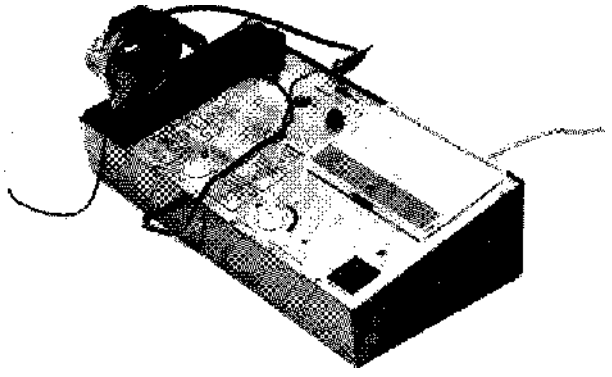


Fig 5:4. *SEM ignition system tester,* type G6/35E.

A6 If no fault has been found in any of the previous checks, replace *the* electronic module or check it by means of instrument No. 502 51 24-01.

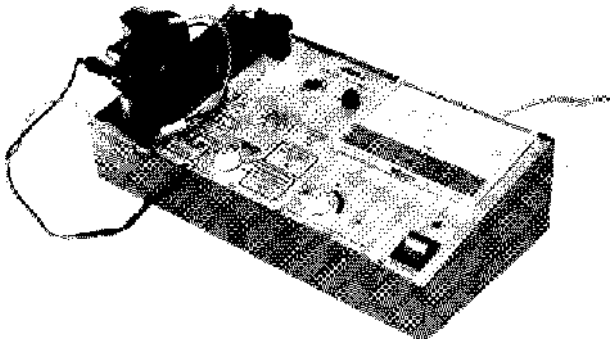


Fig 5:5. *SEM ignition system tester,* type *GA2*

Connect the module to the instrument as shown in Fig. 5:5. Vary the position of the module on the tester until a maximum reading is obtained on the instrument. Compare this reading with the average figure obtained when testing three or four new electronic modules.

B. Dismantling

Remove the starter and guide rail.

Fig 5:6

Back off the screws holding the securing plates for the driver hooks and return springs (see Fig. 5:6) and remove these parts. Fit holdfast No. 502 50 25-01 to the flywheel and back off the nut, using a socket wrench (14 mm).

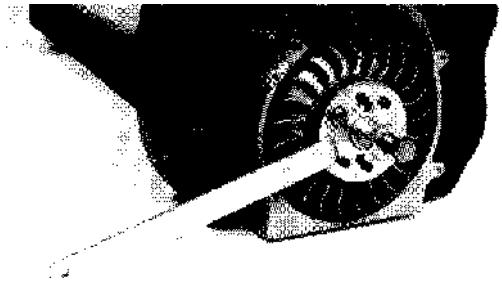


Fig **5:7**

Fit puller No. 502 50 26-01 to the holdfast and withdraw the flywheel.

NOTE:
Rest the flywheel on a *clean surface to avoid metal filings or metal objects being attracted* to the *magnets.*

Fig 5:8

Remove the sparking plug cap. Grasp the connecting spring inside the cap with a pair of flat-nosed pliers (e.g. 502 50 06-01) and withdraw spring and lead. A few drops of oil applied to the inside of the cap will facilitate reassembly.

Then unhook the spring from the lead.

Fig 5:9

Disconnect the short-circuiting leads from the contact.

Back off the screws retaining the armature plate.

Remove the armature plate and pull the leads together with the rubber grommets out of the crankcase.

NOTE:
The protective sleeve on the *short-circuiting lead* contact need *not be removed.*

C. Assembly

Fit the armature plate in reverse order to removal. The short-circuiting lead must be run **under** the carburettor

spacer. Exercise care on assembly to avoid damaging the lead.

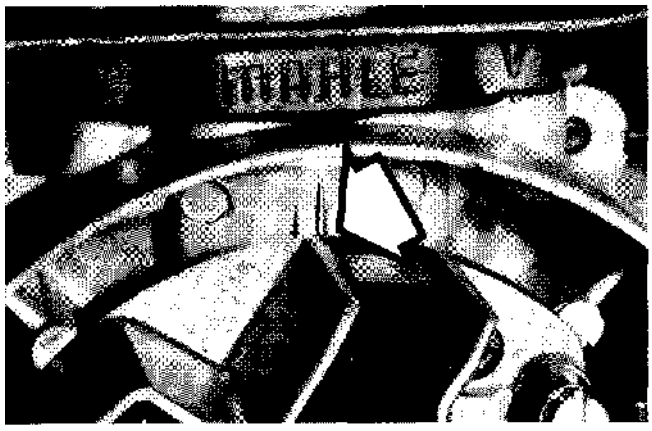


Fig 5.10

After fitting the armature plate in the crankcase it will be necessary to set the timing. Rotate the plate until the mark on the crankcase and the line inscribed on the armature plate are opposite each other (ignition system SEM G6/35E, see Fig. 5:10).
Tighten the screws securing the armature plate. Fit the flywheel (note the key slot) and other components in reverse order to removal.

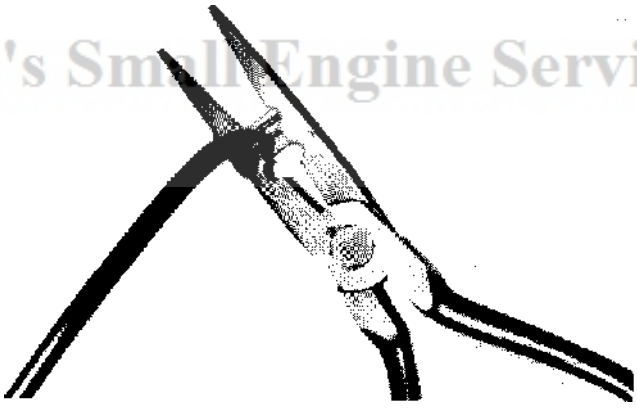


Fig 5:11

Use special pliers No. 502 50 06-01 when fitting the sparking plug cap to the plug lead to ensure satisfactory connection between contact spring and lead.

We recommend applying grease No. 502 50 42-01 to both ends of the plug lead where it is connected to the sparking plug cap and the ignition coil. *In* the latter case the grease should be packed under the rubber cover.

Dismantling

Empty the fuel tank.
Clamp the clearing saw in fixture No. 502 51 03-01.
Remove the cylinder casing and clean the cooling fins of the cylinder as well as the area round the cylinder base.
Also clean the carburettor and spacer, making sure they are free from metal filings and dirt.
Dismantle the following:
Starter, sparking plug cap. sparking plug, air cleaner, fuel line and carburettor.

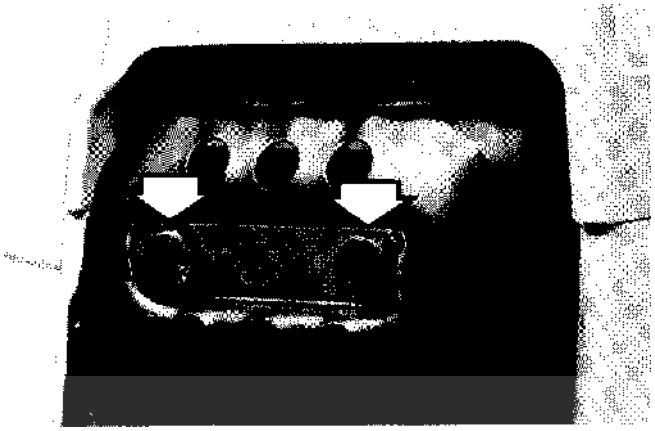


Fig 6:1

Bend the ends of the securing plate aside and back off the screws retaining the silencer. Note the two screws securing the bottom of the silencer to the crankcase.

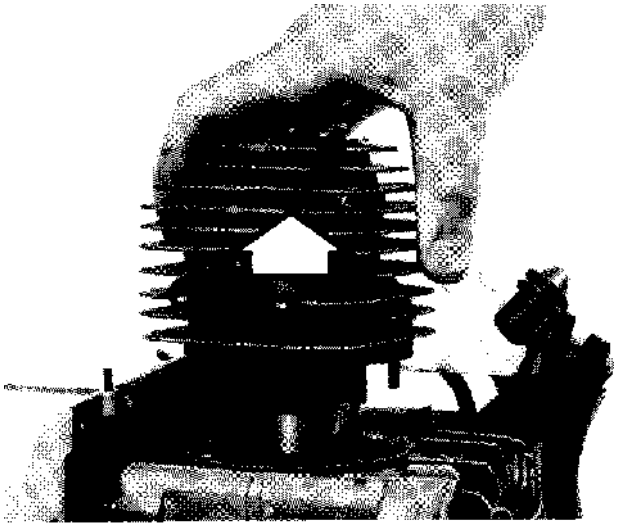


Fig 6:2

Remove the four screws securing the cylinder. Use T-type Allen key No. 502 50 18-01.
Carefully lift the cylinder straight up.

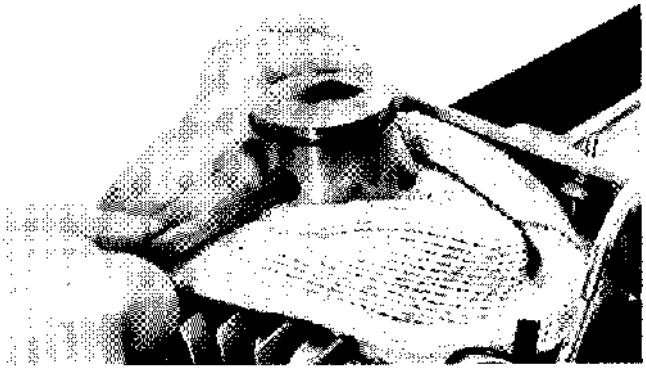


Fig 6:3

Place a cloth in the crankcase opening to prevent dirt and foreign objects from dropping into the crankcase. Remove the gudgeon pin retaining rings, using a pair of flat-nosed pliers, and press the gudgeon pin out with a suitable pin punch.

Scrape the carbon deposits off the cylinder exhaust port and combustion chamber.

Inspection

FAULT	*REMEDY*
Broken cooling fins	*In serious cases — change the cylinder.*
Damaged threads	*Repair the threads with Heli-Coil inserts.*
Binding marks in cylinder wall (particularly at exhaust port)	Clean *the damaged area with fine emery cloth to* remove *adhering aluminium. In the case of deeper binding scratches* the *cylinder and piston should be replaced.*
Surface coating on *cylinder wall worn (chiefly at top of cylinder)*	Change *cylinder and piston.*
Binding scratches on *piston*	Clean *the damaged area carefully with a fine file or emery cloth.* Clean *the cylinder carefully as described above before fitting the piston back in place. In the case of deeper scratches the piston and possibly the cylinder should be changed. Before assembly,* clean *both piston and cylinder carefully to remove all metal filings.*
Piston ring burnt in its groove	Carefully remove *the piston ring and clean the groove with extreme thoroughness before reassembly.*
Piston ring worn	*Check the* wear *by positioning the ring in the lowest part of the cylinder. The distance between the ends of the piston ring should not exceed 0.6 mm. Also check that the piston ring has lost none of its springiness.*

Assembly

Check that the piston and cylinder are marked with the same class designation (see Fig. 1:1 and the classification table).

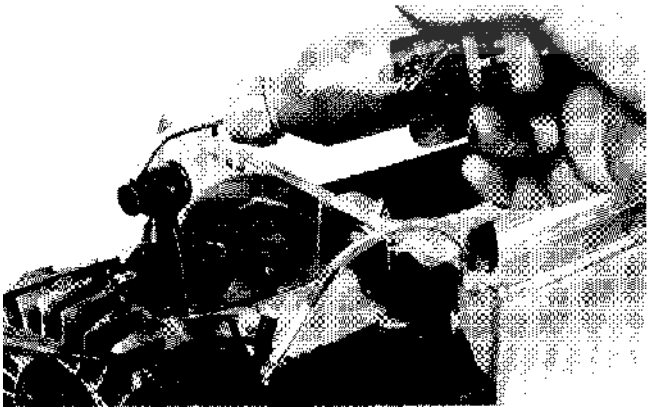


Fig 6:4

Check that the gudgeon pin needle bearing is not damaged or worn. Fit it in the connecting rod and lubricate with a few drops of two-stroke oil.

Fit the piston to the connecting-rod.

NOTE: The arrow on *the piston crown should point toward the exhaust port.*

Use a suitable drift to centre the piston opposite the needle bearing in the connecting-rod. Slide the gudgeon pin into position and fit the circlips in place. Check that

Fig 6:5

they are correctly seated in their grooves by rotating them with a pair of flat-nosed pliers.

Lubricate the piston with a few drops of two-stroke oil. Place the cylinder gasket in position on the crankcase. Position the plastic support in assembly kit No. 502 50 70-01 under the piston.

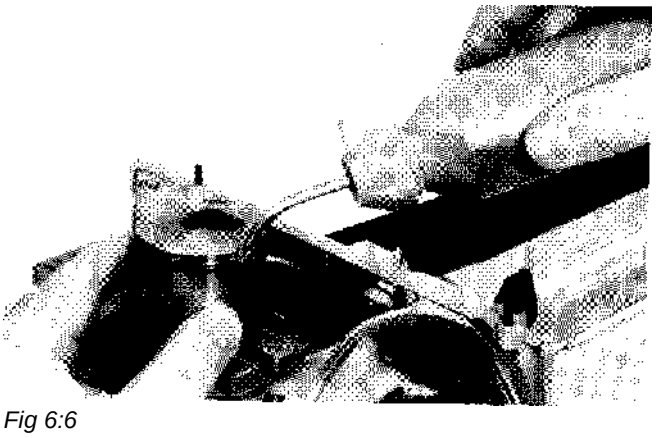


Fig 6:6

Use the piston ring compressor in assembly kit No. 502 50 70-01 to squeeze the piston ring closed and carefully

Fig 6:7

slide the cylinder with mounted spacer and heat screen into position without turning it. If it is turned the piston ring might be broken.

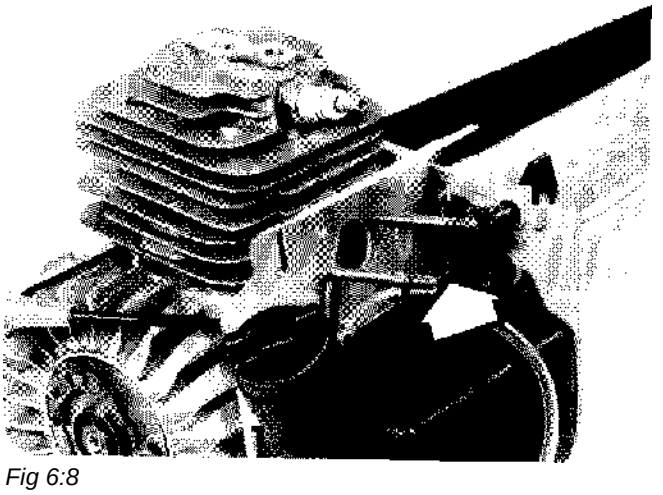


Fig 6:8

Make sure that the heat screen is correctly fitted.

Rotate the crankshaft to check that the piston can move freely.

Secure the cylinder by tightening the four screws alternately.

Fit the silencer in place. Do not forget the securing plate for the screws in the cylinder nor the two screws holding the bottom of the silencer to the crankcase.

Fit the carburettor and air cleaner in place and reconnect the fuel line.

Dismantling the crankcase

Empty the fuel tank.
Clamp the clearing saw in fixture No. 502 51 03-01. Remove the following: Cylinder casing, starter, carburettor, cylinder and piston. The throttle control cable need not be removed.

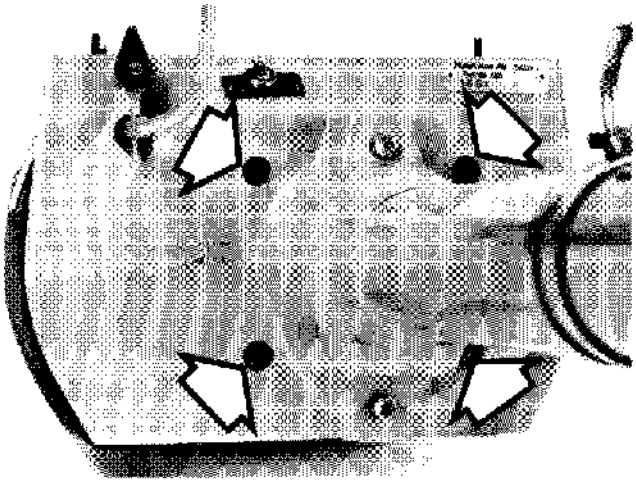


Fig 7:1

Back off the four screws in the clutch housing and separate the crankcase from the drive shaft, if necessary by striking it lightly with a plastic mallet.

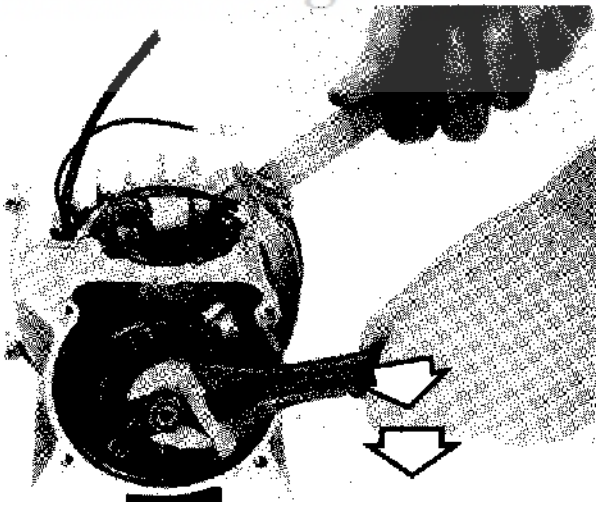


Fig 7:2

Remove the starter and fit holdfast No. 502 50 25-01 to the flywheel.
Remove the centrifugal clutch (left-hand thread).
Note the shim inside the clutch.

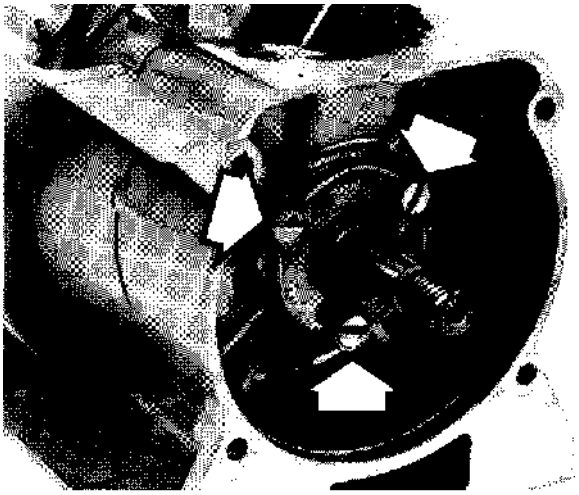


Fig 7:3

Back off the three screws securing the sealing ring holder and remove the holder. Note the 0-ring located inside the sealing ring holder.

Remove the ignition system.

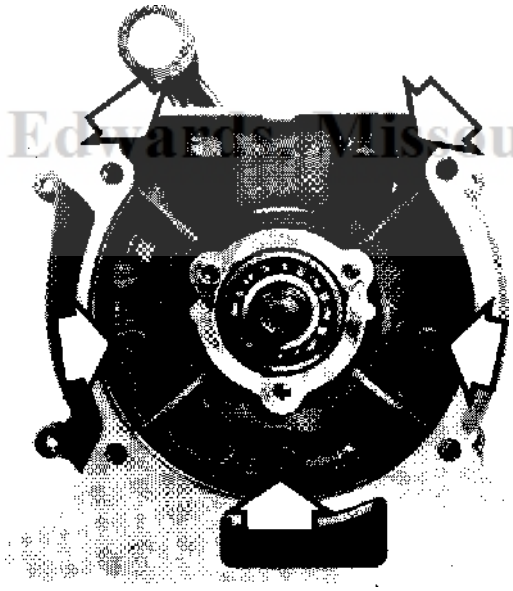


Fig 7.4

Back off the five screws holding the crankcase halves together.
Heat the bearing seats carefully to a temperature of about 130°C with a blowlamp. They should be heated evenly all round to avoid heat stresses.
Separate the crankcase halves by tapping them carefully with a plastic mallet.

Remove the ball bearings from the crankshaft, using a special ball bearing puller.

Inspection of crankshaft

The crankshaft cannot be reconditioned and must be replaced by a new one in the event of defects or damage. Some crankshafts display slight blue discolouration of the webs round the crank pin. This is perfectly normal and is the result of heat treatment round the crank pin hole. Inspect the connecting-rod big-end. If binding marks and discolouration of the sides are in evidence, the crankshaft must be replaced.

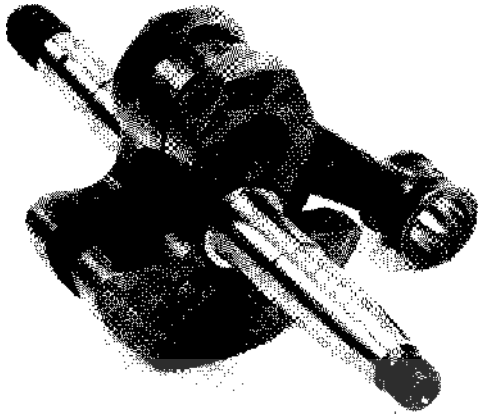


Fig 7:5

The connecting-rod should display no perceptible radial (up and down) play while axial play should be 1.2-1.6 mm.

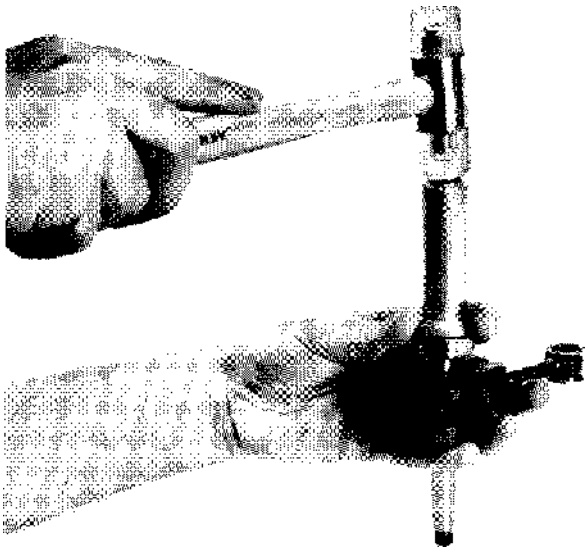


Fig 7.6

Mount the ball bearings on the ends of the crankshaft. This will be facilitated by carefully heating the bearings to about 80°C before fitting them on the crankshaft. Tap the bearings down against the shoulder, using sealing ring assembly sleeve No. 502 50 79-01.

Assembling the crankcase

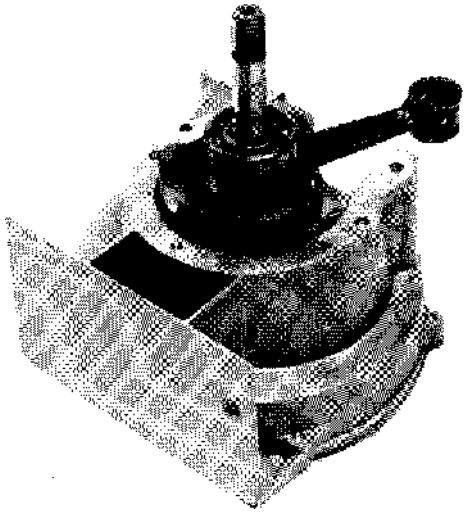


Fig 7:7

Heat the magneto side crankcase half to about 130°C. Fit the crankshaft with ball bearings in the bearing seat. Check that the correct crankshaft journal is mounted and that the ball bearing abuts against the bottom of the bearing seat.

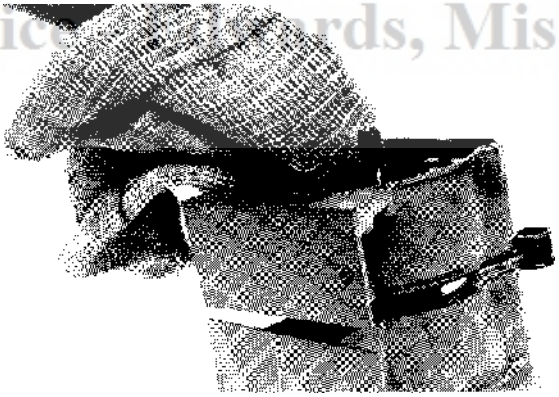


Fig 7:8

Smear a little grease on the magneto side sealing surface to keep the gasket in position. Fit a new gasket. Heat the drive side crankcase half in the same manner as before and press it down over the crankshaft and the magneto side.
Check that the locating pins mate corrrectly and that the gasket is not dislodged.

Fit the crankcase screws in place and tighten them alternately as shown in Fig. 7:9. Cut away any surplus gasket material.

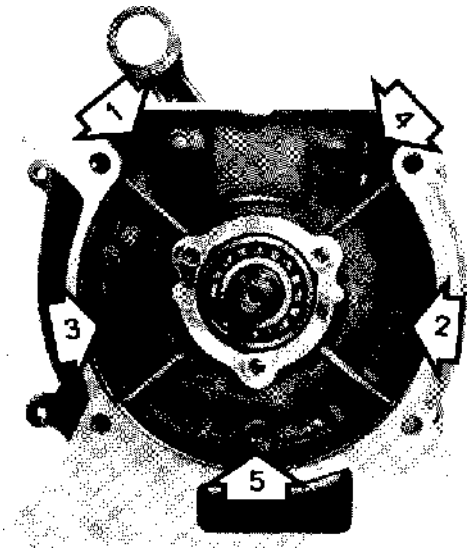


Fig 7:9

Check that the crankshaft is free to rotate easily. If it is not, any stresses can be relieved by tapping the ends of the crankshaft with a plastic mallet.

Fig 7:10

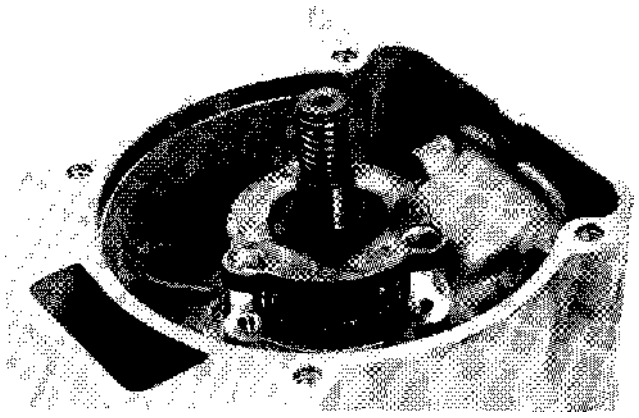


Fig 7:11

Check that the sealing rings are not worn or otherwise damaged (cracks in the rubber) and fit replacements if necessary. Lubricate the sealing rings with oil before fitting them in place.
Use sealing ring assembly sleeve No. 502 50 79-01.

Fig 7.•12

Note the following when fitting the sealing ring on the drive side:

1. First fit the sealing ring in the holder. The dust-excluding tongue should face outwards.
2. Fit the 0-ring in the bearing seat outside the ball bearing.
3. Fit sealing ring assembly socket No. 502 50 53-01 on the crankshaft.
4. Push the sealing ring holder into position and tighten the three screws.

Mount the centrifugal clutch onto the crankshaft (left-hand thread.

Inspect the thrust bearing in the centre of the clutch drum. Replace if necessary.

Lubricate the shaft carrying the clutch with a few drops of oil and fit the crankcase and clutch housing together.

Fit other components in reverse order to removal. See also the relevant section in the manual.

Dismantling

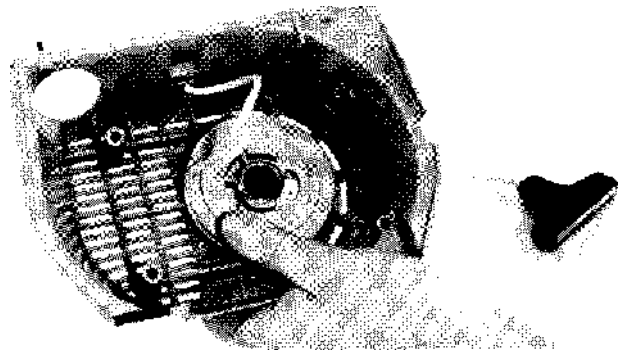


Fig 8:1

Remove the starter.
Relieve the return spring tension by withdrawing the starter cord about 30 cm, securing it in the notch in the periphery of the pulley and allowing the pulley to rotate slowly backwards (braking it with your thumb).

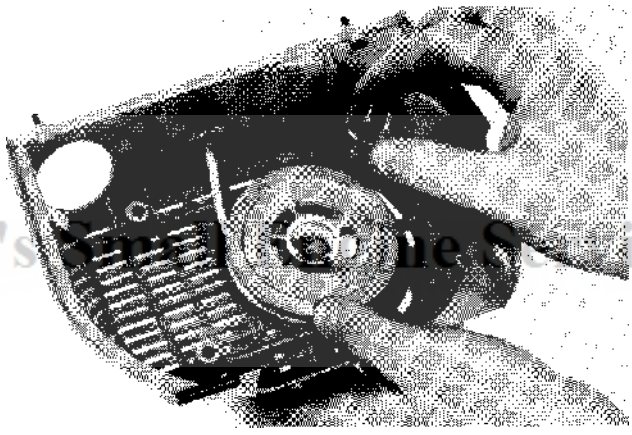


Fig 8:2

Remove the screw and washer in the centre of the cord pulley.
Remove the bearing sleeve.

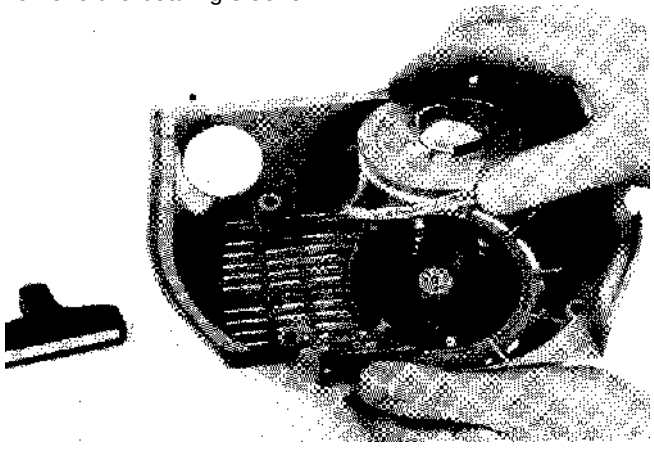


Fig 8:3

Lift up the pulley carefully, making sure that the return spring does not accompany it. If the spring has fastened where it engages with the pulley it can be prised back with the aid of a small screwdriver.

Remove the return spring from the starter housing by turning the housing so that the spring faces the work-bench. Pull the spring out of the housing, using a suitable pair of pliers.

Assembly

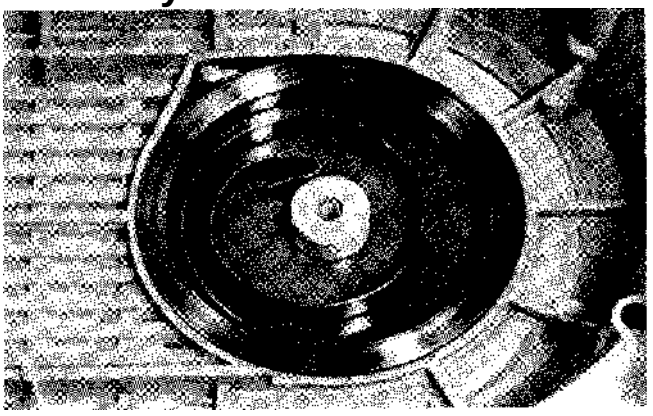


Fig 8:4

Fit a replacement return spring, if necessary. Turn it the right way round (see Fig. 8:4) and lubricate it with a few drops of ordinary motor oil. Do not forget the Pertinax disc under the spring.

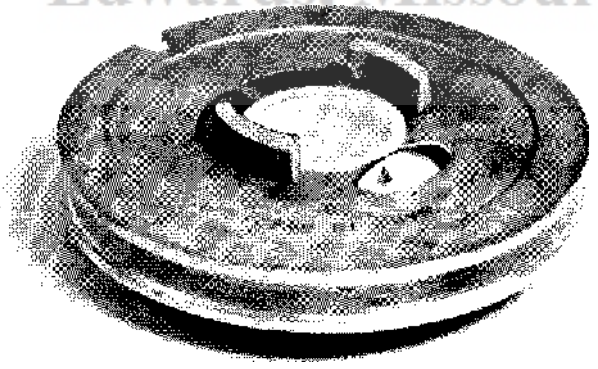


Fig 8:5

If necessary, attach a new starter cord to the pulley. Make sure that the cord stop is fitted correctly in the pulley so that the tip of the screw points outwards from the pulley. Mount the pulley in the starter housing, making sure that the return spring engages with the pulley. Mount the bearing sleeve, washer (with the recess round the hole facing upwards) and screw.

Pass the cord through the starter housing and the starter handle. Tie an ordinary knot in the cord and pull the knot all the way into the handle.

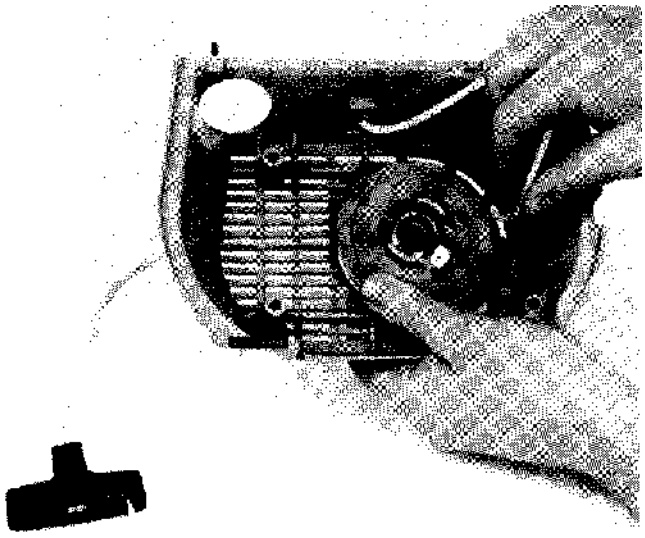


Fig *8:6*

Wind all the starter cord round the pulley, making sure that the pulley does not rotate. Pull the cord all the way out, braking the cord pulley with your thumb. Wind the cord about another two turns round the pulley.

Checking

Pull the starter cord all the Way out.
It should now *be* possible to rotate the pulley at least another half turn before the spring bottoms.

Fit the starter to the clearing saw and check that the driver hooks engage with the pulley.
Adjust the engagement position by means of a series of slight jerks with the starter handle.

Adjusting the handlebars

The left-hand and right-hand halves of the handlebars can be adjusted to any desired position after slackening the five screws in the clamp and then the locking screw underneath. After adjustment, first tighten the five screws in the clamp and finally the locking screw underneath.

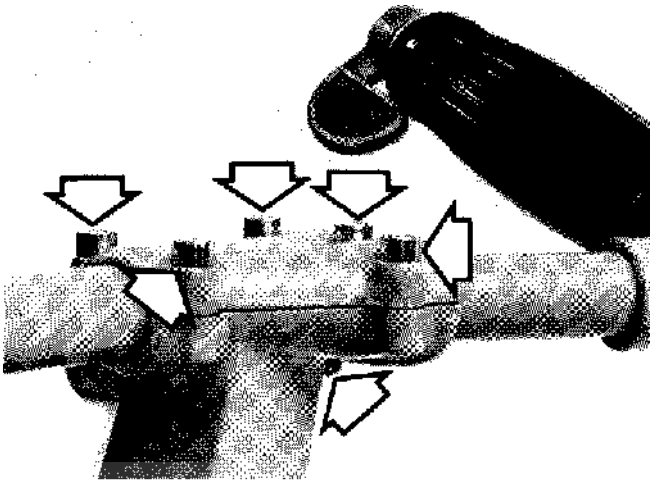
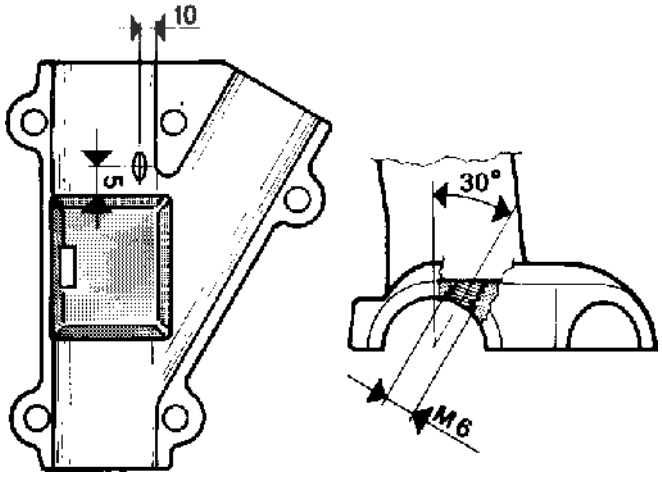


Fig *9:1*

The purpose of the locking screw underneath is to provide additional locking of the left-hand half of the handlebars and prevent it from turning.



We also recommend introducing the locking screw on earlier clearing saw models. Drill and tap an M6 hole as shown in the diagram and fit the locking screw, No. 22 31 364-46 (M6 x 10 mm).

Adjusting the position of the throttle control

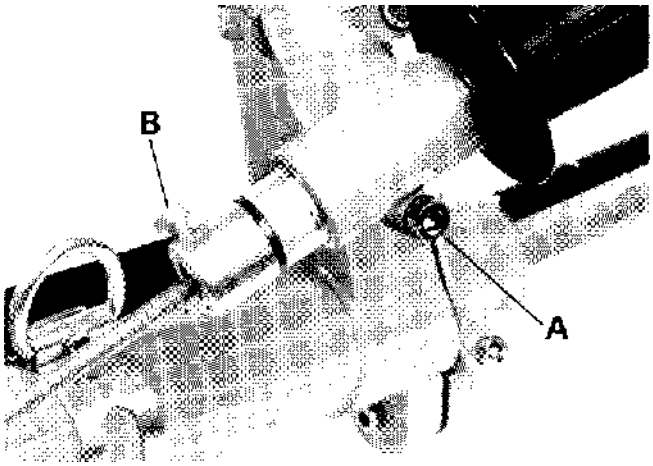


Fig 9:2

Back off screws A and B. Rotate the handlebar tube until the throttle control is in the desired position. Tighten screw A (Fig. 9:2).

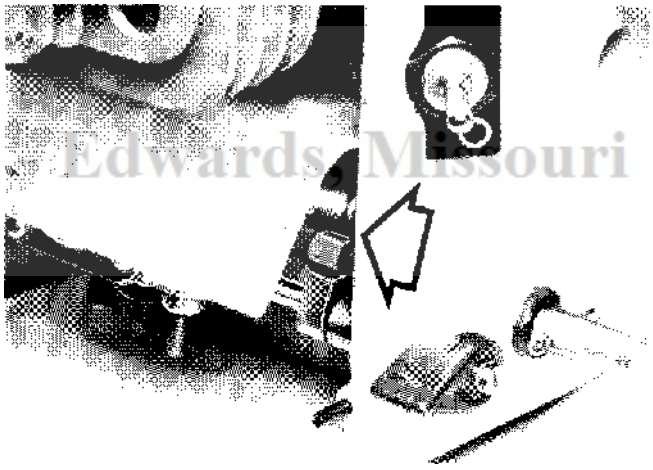


Fig 9:3

Remove the cylinder casing, allowing the throttle lever to be seen. Turn the throttle control cable by hand until the throttle lever just touches the choke lever. Note that the choke control should be in the open position. Tighten screw B (Fig. 9:2).
Make sure that the two end positions of the throttle lever, full throttle and idling, can be attained within the range of movement of the throttle control.

Adjusting the spring tension of the throttle control

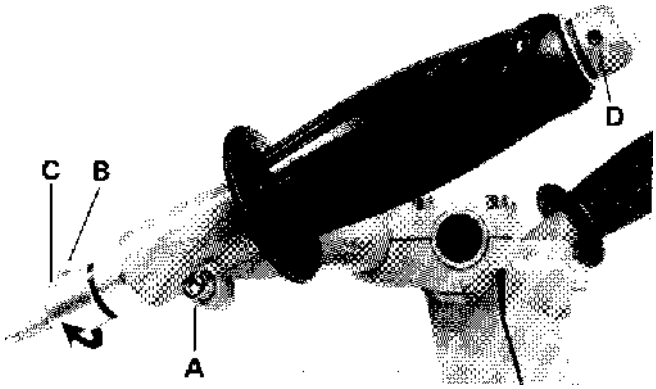


Fig 9:4

Back off screw B about 1-11/2 turns. Grip sleeve C with a pair of pliers.
Slacken stop screw D and hold the throttle control firmly.
Rotate sleeve C in the direction of the arrow to increase the spring tension.
Do not adjust by more than a 1/4-turn at a time as the spring may otherwise be damaged.
Adjust the throttle control cable as above.

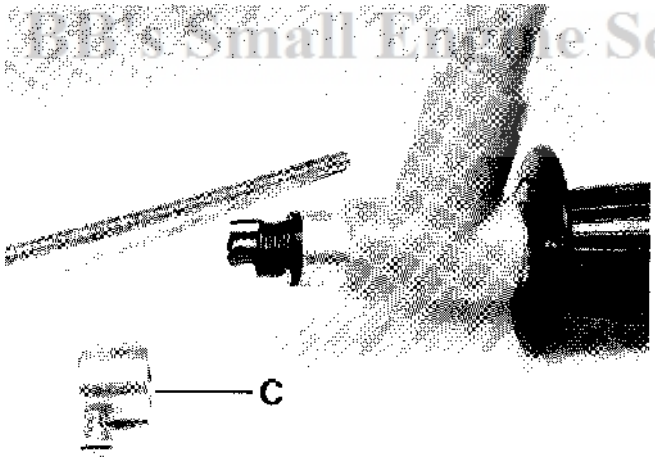


Fig 9:5

If it is not possible to adjust the spring tension it may be because the spring has jumped out of position or has become deformed. In such case, disconnect the throttle control cable from the handlebar and remove sleeve C. Inspect the return spring and fit a replacement if necessary.
Then carry out adjustment as described above.

Engine unit - drive shaft

Dismantling

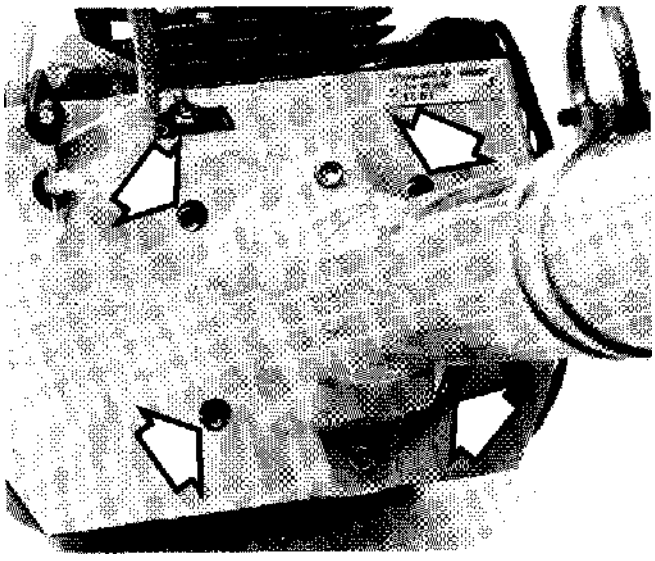


Fig 10:1

Clamp the clearing saw in fixture No. 502 51 03-01.
Remove the cylinder casing and disconnect the short-circuiting cable from the stop contact.
Back off the four screws in the clutch housing. Separate the engine unit from the drive shaft. This may be facilitated by careful tapping with a plastic mallet.

Assembly

Assemble in reverse order to removal.
Lubricate the shaft carrying the centrifugal clutch with a few drops of oil and fit the engine unit to the clutch housing.

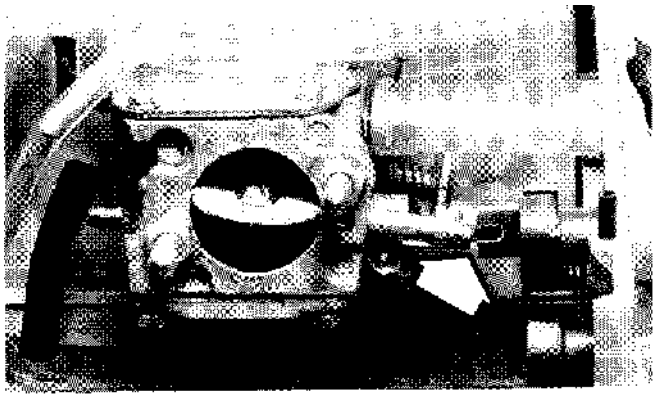


Fig 10:2

Make sure that the carburettor controls are in the right position, particularly the choke control.

Apply a few drops of Loctite to the screws and tighten the engine to the clutch housing.

NOTE: It *is extremely important* to ensure *that the four screws are* properly tightened.

Connect the short-circuiting cable to the stop contact. Fit the cylinder casing in place.

Clutch housing - suspension tube

Dismantling

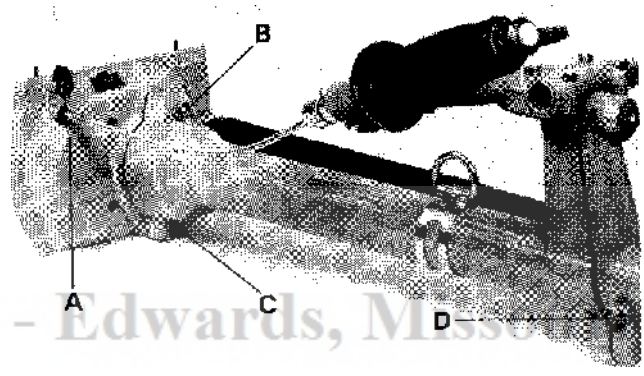
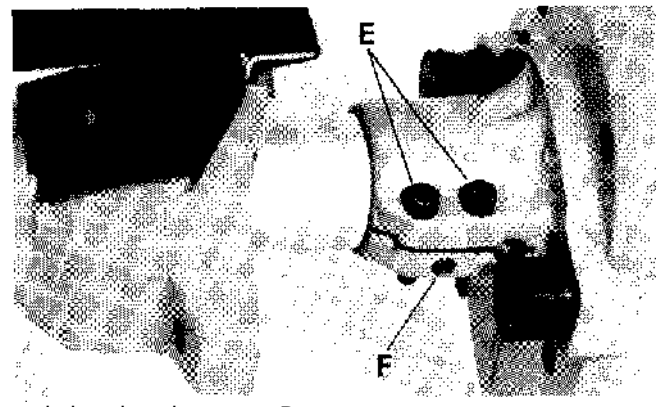


Fig 10:3

Clamp the clearing saw in fixture No. 502 51 03-01.
Separate the engine unit from the drive shaft.
Withdraw the clutch drum and drive shaft from the drive shaft tube.
Remove split pin A.
Back off screws B and C at the rear vibration dampers



and also clamping screw D.

Fig 10:4

Pull the suspension tube rearward and back off the two clamping screws E and stop screw F.
Withdraw the clutch housing and suspension tube from the drive shaft tube.

Assembly

Slide the suspension tube onto the drive shaft tube but do not tighten the clamping screw.
Fit the clutch housing to the drive shaft tube, making sure that the tube abuts against the shoulder in the housing.
. Align the housing in relation to the angle gear and tighten the two clamping screws E and stop screw F (se Fig. 10:4).
Pull the suspension tube against the clutch housing and tighten screws B, C and D (see Fig. 10:3).
Connect the throttle control cable.
Mount the engine unit (see "Engine unit — drive shaft, assembly").

Replacement of rear vibration dampers

Separate the clutch housing and suspension tube (see "Dismantling" above) until the vibration dampers are exposed

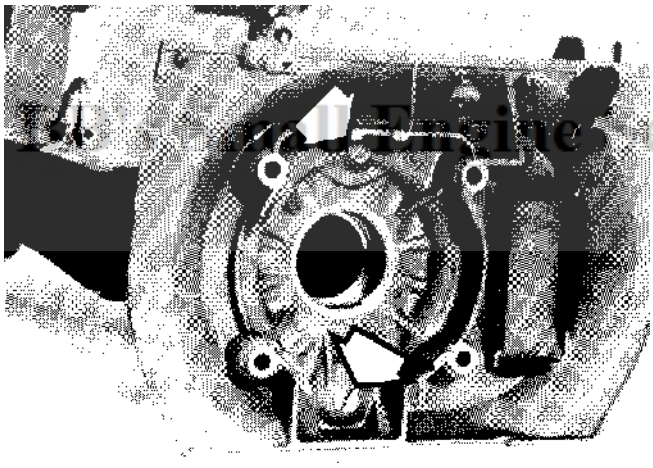


Fig 10:5

Back off the screws securing the vibration dampers.

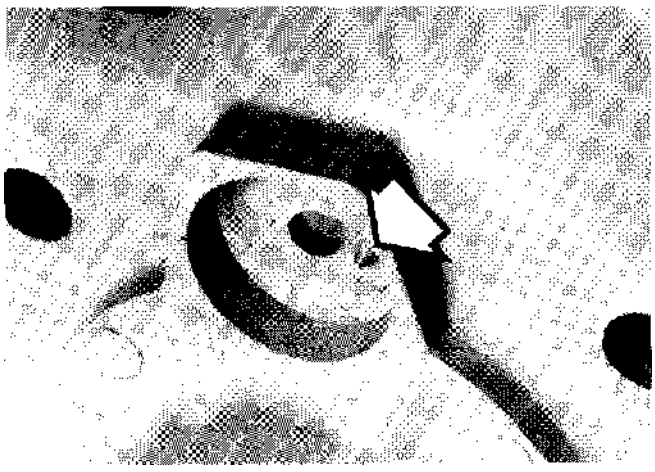


Fig 10:6

Fit new dampers and check that the locating stud in the clutch housing fits into the hole in the vibration damper.

Fit the suspension tube and clutch housing together (see "Assembly" above).

Replacement of front vibration dampers

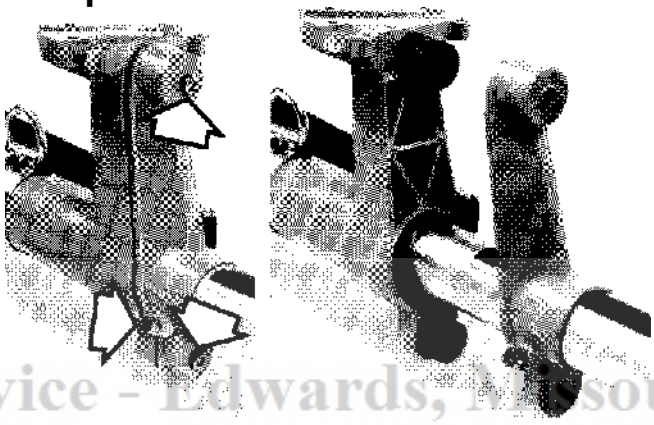


Fig 10:7

Back off the five screws securing the clamp to the handlebars and also the locking screw (see Fig. 9:1).
Back off the clamping screw and the two screws in the vibration dampers.
Slide the holder for the vibration dampers along the drive shaft tube until the dampers are exposed.
Back off the screws securing the vibration dampers and change the dampers.

Assemble in reverse order to removal.
On assembly, make sure that the locating studs fit in the holes in the dampers.

Drive shaft tube

Dismantling

Separate the engine unit from the drive shaft.
Remove the drive shaft and clutch drum.
Remove the clutch housing and suspension tube.

Back off the two clamping screws and the stop screw holding the angle gear to the drive shaft tube. Pull the angle gear away from the tube. If it does not come away easily, slacken the clamping screws still further and press a wedge (screwdriver) into the opening.

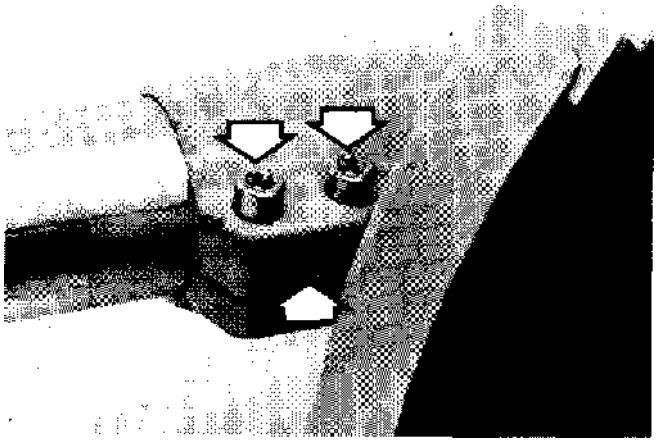


Fig 10:8

Inspect the drive shaft tube for damage. Dents in the tube (after a kickback, for example) may cause the driveshatt to *bind* in the bearings. This may give rise to vibration and, in the worst case, seizure of the bearings.

Assembly

Assemble the drive shaft tube in reverse order to dismantling.

NOTE: if *is extremely important to ensure that the drive shaft tube abuts against the angle gear and that the stop screw is properly tightened.*

Centrifugal clutch, drive shaft

Separate the engine unit from the clutch housing (see section 10).
Remove the drive shaft with clutch drum from the drive shaft tube.

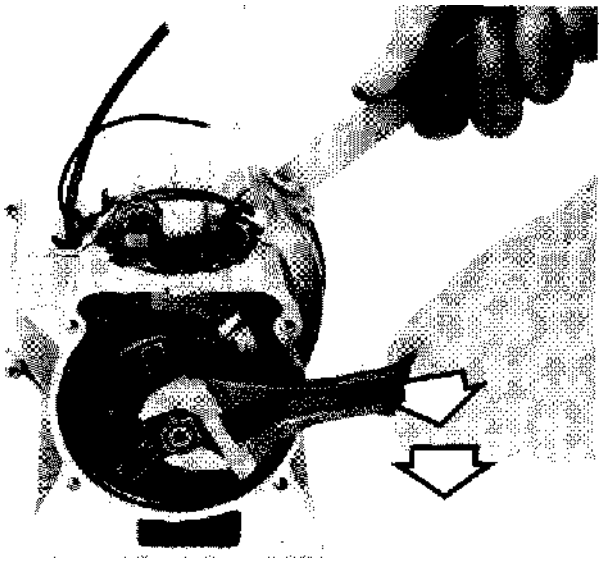


Fig 11:1

Remove the centrifugal clutch from the crankshaft (left-hand thread).
The clutch may be fitted so tightly to the crankshaft that it is difficult to remove merely by striking the socket wrench with a hammer against the compression resistance of the engine.
In such cases there is a remedy:
Remove the starter and fit holdfast No. 502 50 25-01 to the flywheel (se section 5).

Inspection

Inspect the clutch centre spokes and the centrifugal weights for wear.
The weights should have a minimum of 1 mm metal at the most worn point on the contact surface. In the event of replacement, all weights must be replaced at the same time.

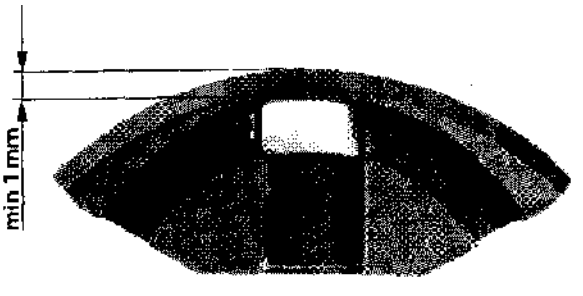


Fig 11:2

Check that the clutch spring is not broken or discoloured *by running* hot. If it is, change the spring.

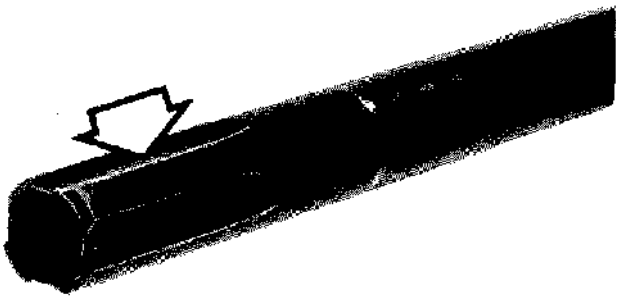


Fig 11:3

Inspect the drive shaft for wear at its connection to the angle gear and check that the thrust bearing in the clutch drum is in perfect condition. Change any worn or damaged parts.

Replacement of clutch spring

The clutch spring can easily be changed using special pliers No. 502 50 49-01.

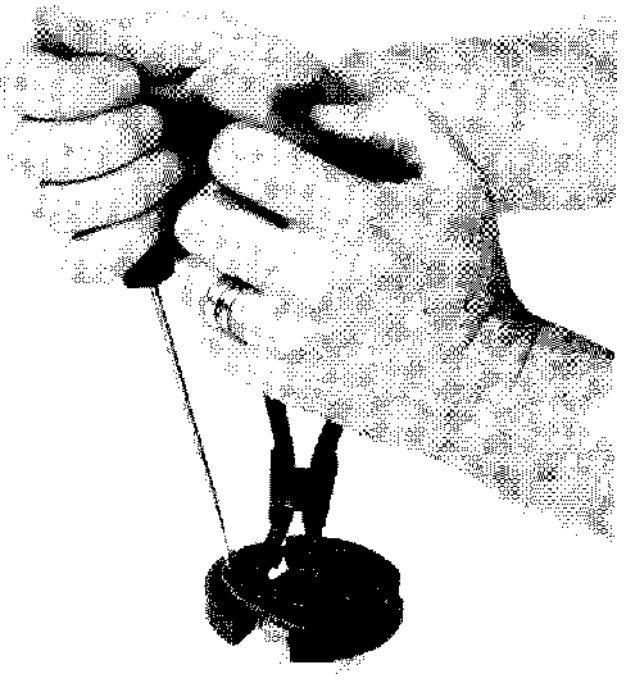


Fig 11:4

When fitting the new spring, check that its engagement point is opposite a centrifugal weight.
Do not overload the spring on assembly.

Angle gear

Dismantling

Mount the clearing saw in fixture No. 502 51 03-01.

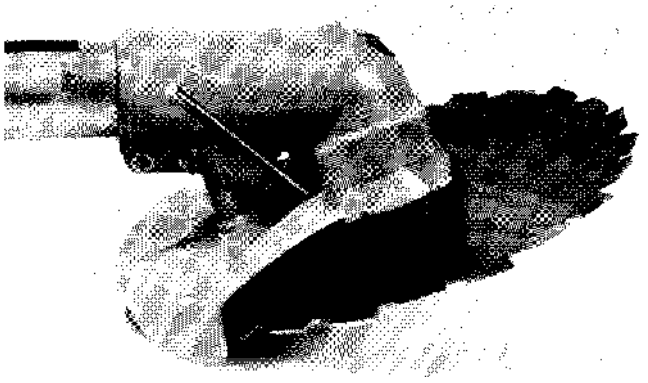


Fig 11:5

Lock the angle gear by inserting a suitable punch (included in the saw toolkit) through the hole in the gear housing.
Back off the blade nut (left-hand thread) and remove the support flange, saw blade and driver.

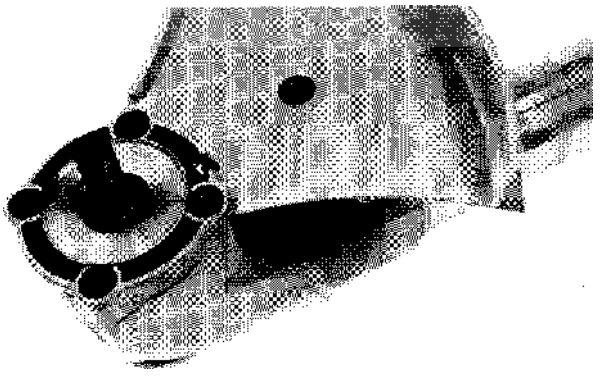


Fig 11:6

Back off the five blade guard screws and remove the guard.
Back off the two angle gear clamping screws and the stop screw (see Fig. 10:9).
Withdraw the angle gear from the drive shaft tube.
Remove the oil filler plug and drain off any remaining oil in the gear housing.

Removal of lower bearing housing and gear shaft

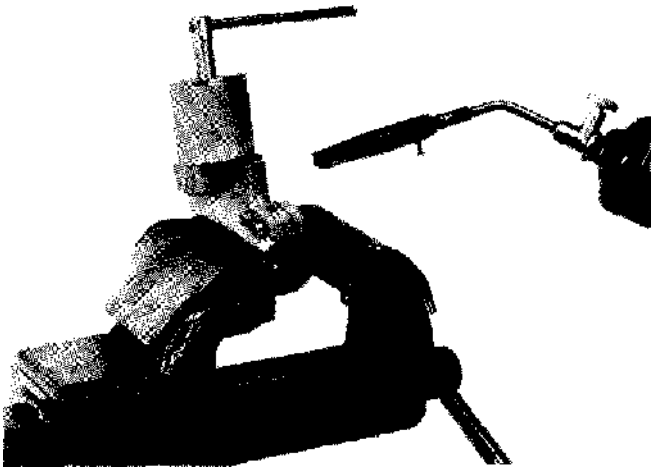


Fig 11:7

Heat the angle gear with a blowlamp to approx. 130°C.
Clamp the angle gear in a vice with soft jaws.
Fit puller No. 502 50 65-01. Prevent the shaft from rotating by means of an adjustable spanner and tighten the puller screw hard. Withdraw the bearing housing from the gear housing by means of the puller.

Removal of upper bearing housing

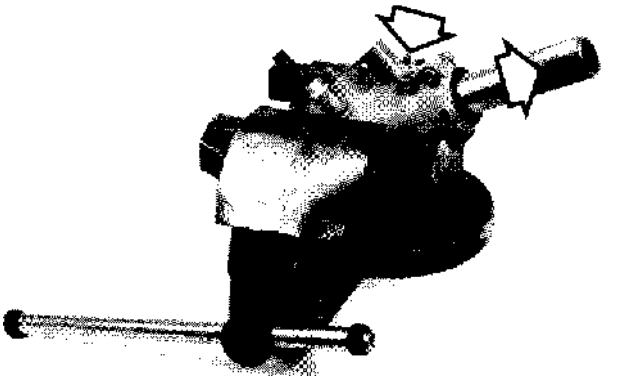


Fig 11:8

Remove the locking screw.
Fit extractor No. 502 50 63-01 and withdraw the bearing housing from the gear housing.

Replacement of lower gear shaft

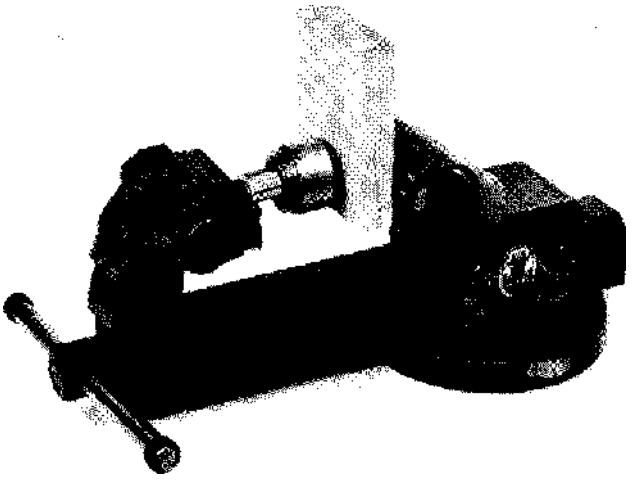


Fig 11:9

Press the gear shaft out of the bearing housing. Check the condition of the ball bearings and replace if necessary.
Place the gear shaft in the bearing housing and press it into position, using a vice (Fig. 11:9).
Use a block of wood to protect the teeth and a suitable sleeve on the inner ring of the ball bearing.
Make sure that the gear shaft is pressed fully into the bearing housing.

Mounting of lower bearing housing

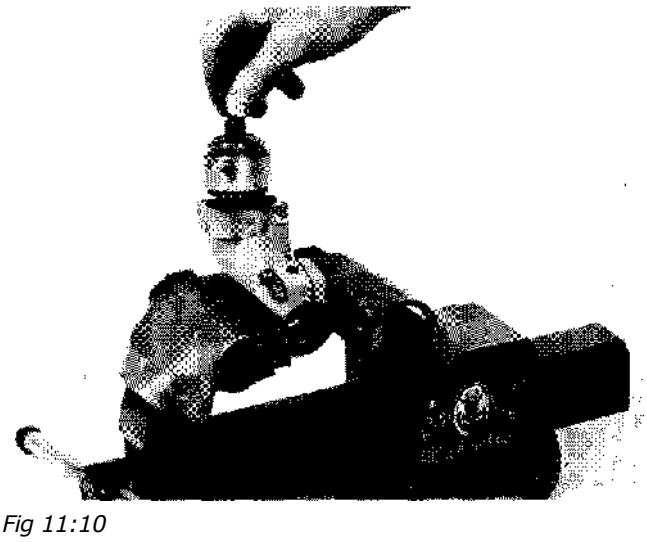


Fig 11:10

Heat the gear housing with a blowlamp to about 130°C. Clamp the gear housing in a vice.
Quickly press the bearing housing in until it abuts against the shoulder in the gear housing.
Make sure that the teeth engage as intended.

Mounting of upper bearing housing

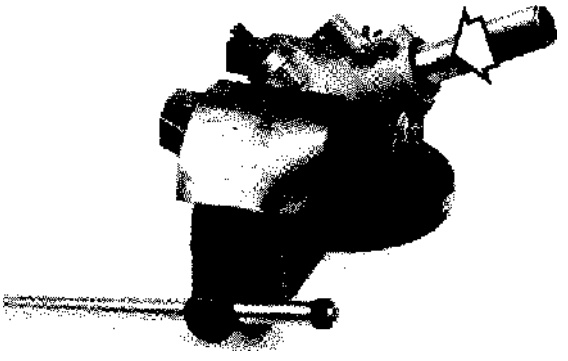


Fig 11:11

Fit extractor No. 502 50 63-01.
Heat the gear housing with a blowlamp to about 130°C. Clamp the gear housing in a vice.
Quickly press the bearing housing in all the way.
Leave the *puller* in *place* until the gear housing has cooled down to avoid all likelihood of dislodging the bearing housing.
Unscrew the puller and secure the bearing housing by means of the stop screw.

Check that the two gears mesh with each other and that the play between the teeth is scarcely noticeable.

To ensure that the play between the gears is not too small when the upper bearing housing is mounted, the lower gear shaft must abut against the bottom of the bearing housing.

Mounting of blade guard

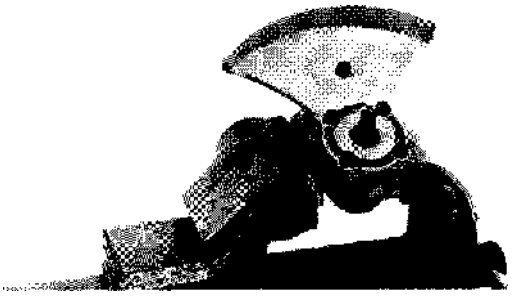


Fig 11:12

Fit the blade guard on the gear housing and tighten the five screws.

Lubricating the angle gear

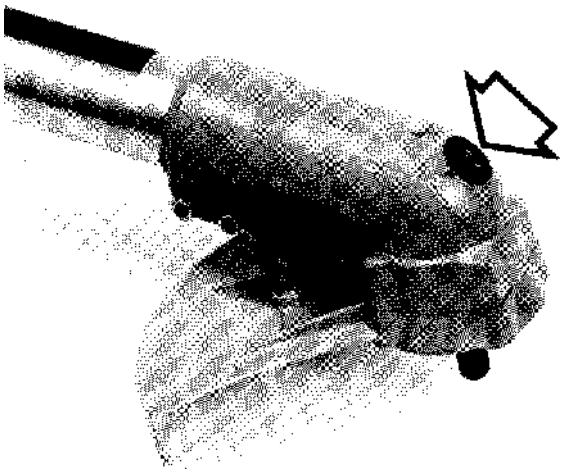


Fig 11:13

After carrying out work on the angle gear the housing must be packed with grease.
Back off the filler plug and pack with grease until it emerges at the upper bearing housing.
Use type EP 0 grease as listed in the table of recommended lubricants or Husqvarna angle gear grease, No. 502 51 27-01.

RECOMMENDED LUBRICANTS

BP	HT-EP 00
ESSO	Fibrax EP 370
Gulf	Gear housing grease
Mobil	Mobilplex 45
Shell	Alvania EPW 0
Texaco	Marfak 00