

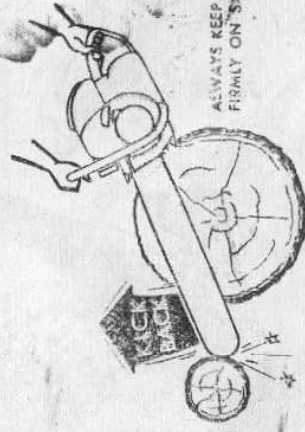
SOLO TWIN 611 Chain Saw Spare Parts List

00 10 106	Fill. Head Screw	00 61 120	Felt Ring	05 10 226	Retaining Plate Screw	26 74 408	Hose Connection	60 74 339	Oil Tank Cap
00 10 117	Fill. Head Screw	00 61 150	Gasket	05 10 234	Throttle Shaft	26 74 412	Carburetor Port Piece	60 74 381	Catch Bolt
00 10 143	Fill. Head Screw	00 61 168	Washer	05 10 235	Idle Valve Spring	20 76 112	Friction Disc	60 74 382	Plunger cap
00 10 176	Fill. Head Screw	00 61 188	Gasket	05 10 237	Screw Washer	21 00 204	Crank Case, Assy.	61 00 150	Cover, Assy.
00 10 177	Fill. Head Screw	00 61 189	Packing Ring	05 10 239	Throttle Shaft Retain. Plate	21 00 205	Carburetor, Port Piece, Assy.	61 00 161	Bar Seat, Assy.
00 10 191	Fill. Head Screw	00 62 104	O-Ring			21 00 208	Magneto Casing, Assy.	64 00 186	Pump Casing, Assy.
00 10 198	Fill. Head Screw	00 62 122	O-Ring	05 10 240	Throttle Shaft Bushing	22 00 342	Cylinder Assy., + 2 Piston Assy.	62 00 108	Oil Tank Bottom
00 10 211	Fill. Head Screw	00 62 126	O-Ring			22 00 346	Crankshaft, Assy.	63 00 120	Handle Bar Assy., complete
00 10 214	Fill. Head Screw	00 62 131	O-Ring	05 10 241	Screw, Pump body	23 00 131	Coil, Stator Plate, Assy.	64 00 121	Automatic Pump Assy.
00 11 121	Oval Head Screw	00 62 132	O-Ring			23 00 132	Stator Plate, Assy.		not shown
00 11 165	Bolt	00 63 100	Fuel strainer	05 10 243	Control Lever	23 00 133	Ignition Coil, Assy.	64 00 133	Hand Pump, Assy.
00 12 104	Polygonal Screw	00 63 120	Oil Felt	05 10 244	Pump Body	23 00 177	Spark Plug KW 225		not shown
00 12 182	Polygonal Screw	00 63 126	Asbestos Cord	05 10 246	Cover	23 00 202	Diaphragm Type Carburetor, Assy.	67 00 100	Screened Fuel Intake
00 12 228	Hex. Screw	00 63 128	Starter Rope	05 10 247	Cover Gasket	23 00 209	Cut-out, Assy.	68 00 114	Toggle Switch Assy.
00 13 160	Countersunk Screw	00 63 138	Round Cord	05 10 248	Fuel Filter	24 00 139	Fan Wheel, Assy.	63 00 144	Handle Assy.
00 13 161	Countersunk Screw	00 63 142	Asbestos Cord	05 10 249	Pump Diaphragm	25 00 146	Filter Connection, Assy.		
00 15 129	Stud	00 64 102	Hose	05 10 250	Diaphragm Gasket	25 00 219	Exhaust, Assy.		
00 20 102	Hex. Nut	00 64 161	Oil Pipe, hand pump	05 10 251	Full Strainer Cover Retaining Screw	26 00 119	Rope Pulley, Assy.	301 021	Foam Air Filter
00 20 104	Hex. Nut	00 64 162	Oil Pipe, bar			26 00 135	Rewind Spring, Assy.	301 022	Clip
00 20 106	Hex. Nut	00 64 185	Oil Hose, hand pump	05 10 253	Main Diaphragm	27 00 139	Tank Cap		
00 21 124	Adjust Nut			05 10 254	Fulcrum Pin	27 00 167	Fuel Tank Assy.		
00 21 152	Lock Nut	00 64 187	Fuel Line	05 10 255	Pump Diaphragm Gasket	30 16 161	Shoe		
00 30 115	Washer	00 64 189	Impulse Line	05 10 257	O-Ring, Main and Idle	35 00 164	Clutch Drum, Assy.		
00 31 100	Washer	00 64 224	Hose		Adjustment Screw	35 00 179	Spider, Assy.		
00 31 113	Washer	00 65 103	Double Flange Ring	05 10 258	Main and Idle Adjustment Washer	40 74 288	Slide		
00 31 133	Washer	00 65 136	Flanged Nut			60 11 200	Blower Casing		
00 31 157	Washer	00 65 157	Hinged Screw	05 10 260	Fulcrum Pin Spring	60 11 205	Bottom Plate		
00 32 121	Washer	00 65 167	Oil Ring with nipple, Assy.	05 10 263	Choke Switcher	60 11 210	Chain Guard		
00 34 100	Circlip	00 65 169	Hollow Screw	05 10 268	Throttle Shaft Return Spring	60 12 201	Pump Casing		
00 34 102	Lock Washer	00 66 153	Clamp	05 10 274	Inlet Needle, Seat & Gasket	60 23 165	Clamping Lever		
00 34 107	Lock Washer	00 66 167	Clamp	05 10 345	Washer	60 31 173	Reducing Ring		
00 34 114	Lock Washer	00 66 177	Hose Clamp	05 10 346	Throttle Shaft	60 31 221	Conical Ring		
00 34 120	Circlip	00 66 184	Oil Nipple	05 10 347	Main Washer	60 31 249	Lock Pin		
00 34 121	Lock Washer	00 66 185	Connection Nipple	05 10 359	Choke Shaft	60 31 383	Pump Insert		
00 34 126	Lock Washer	00 67 101	Impulse Connection	05 10 360	Body	60 31 384	Pump Piston		
00 34 135	Circlip	00 67 108	Impulse Nipple	20 12 241	Rope Bushing	60 31 385	Piston		
00 34 150	Spring Ring	00 67 109	Impulse Nipple (on carb.)	20 12 258	Sintered Cam	60 32 111	Chain Adjuster		
00 34 151	Spring Ring			20 12 273	Exhaust Cup, gas inlet	60 32 176	Nipple, short		
00 34 156	Spring Ring	00 70 106	Valve Spring			60 32 181	Check Valve		
00 35 124	Safety Washer	00 70 126	Pressure Spring	20 12 274	Exhaust Cap, outlet, Assy.	60 32 254	Connecting Rod		
00 41 102	Grease Felt Support	00 70 135	Pressure Spring	20 31 248	Spacer	60 36 130	Throttle Linkage		
		00 70 155	Pressure Spring	20 31 355	Petrol Feeler	60 36 131	Snap		
		00 71 116	Tension Spring	20 42 175	Pawl	60 36 132	Air Throttle Linkage		
00 42 106	Check Pin	00 72 107	Cup Spring	20 43 327	Rope Pulley	60 42 122	Stop Washer		
00 42 137	Check Pin	00 73 131	Brush Spring	20 43 373	Air Deflector, exhaust	60 42 176	Sprag		
00 42 138	Grooved Dowel Pin	00 73 134	Slide Spring			60 43 291	Guide Plate LH		
00 42 151	Split Pin	00 73 140	Tension Spring	20 43 394	Air Deflector, carburetor	60 43 292	Guide Plate RH		
00 52 101	Check Ball	00 73 144	Ignition Spring			60 45 180	Cover Plate, top		
00 52 129	Needle Bearing	00 75 100	Key	20 43 145	Piston Ring	60 45 181	Cover Plate, bottom		
00 52 130	Needle Bearing	00 84 131	Ignition Cable	20 61 169	Cylinder Gasket	60 61 170	Oil Tank Gasket		
00 52 143	Needle Bearing	00 84 132	Ignition Cable	20 61 206	Gasket	60 65 142	Hose Piece		
00 53 116	Bearing Sleeve	00 84 134	Flat Sleeve	20 61 208	Gasket		Throttle Lever		
00 54 134	Crankshaft Seal	00 84 136	Double Flat Sleeve	20 61 211	Carburetor Gasket				
00 54 135	Crankshaft Seal	00 84 137	Flat Sleeve	20 61 212	Carburetor Gasket				
00 55 101	Circlip	00 84 139	Connection Cable I	20 61 217	Carburetor Port Piece Gasket				
00 55 103	Circlip	00 84 141	Connection Cable II						
00 55 122	Piston Pin Check Ring								

Safety Measures

Every single one of these instructions is the result of experience gained from accidents. So there is a really good reason for all of them!

1. Never work without a safety helmet.
2. Always hold the saw with **both** hands.
3. Don't smoke when refuelling.
4. Nobody must stand within swinging range of the saw.
5. Never check the chain tension with the engine running.
6. When felling, always stand to one side of the falling tree.
7. Always work at a distance of at least one and a half tree lengths away from other chain saw crews.
8. Don't carry the chain saw about with the engine running.
9. Always place the sprag properly.
10. Be sure to have a firm foothold.



ALWAYS KEEP BOTH HANDS
FIRMLY ON SAW

— Avoid Hitting Branches or Other Objects with Blade

Maintenance

In most cases, breakdowns of your chain saw are caused by ingress of dirt.

The life of your chain saw is largely

in your hands.

Don't worry, though, you need not dismantle half the engine every day, but one thing

is essential:

Never saw with a blunt or poorly filed

chain bar. It is reversed at certain intervals (between 5 and 10 operating hours) by

turning the underside uppermost, the service bar will be considerably

sharper. At the same time remove with

the guide groove.

If you have a spare chain, we recommend

to use it alternately.

By spending a few extra minutes cleaning

your machine (important: cooling fins

of the cylinders) then we have done a lot

for you.

Regular maintenance is essential for daily maintenance.

By raising a lever (Fig. 11/8) the cover

can be easily removed and the airfilter,

carburettor and cylinders are freely

accessible.

Never let the engine run with the cover

removed.

Naturally, the fuel must be clean and

of the correct mixture. Do not add more

oil to the mixture than is prescribed.

It will only cause the spark plugs to sputter

up more quickly, and large quantities of

carbon to be deposited in the exhaust.

Fig. IV

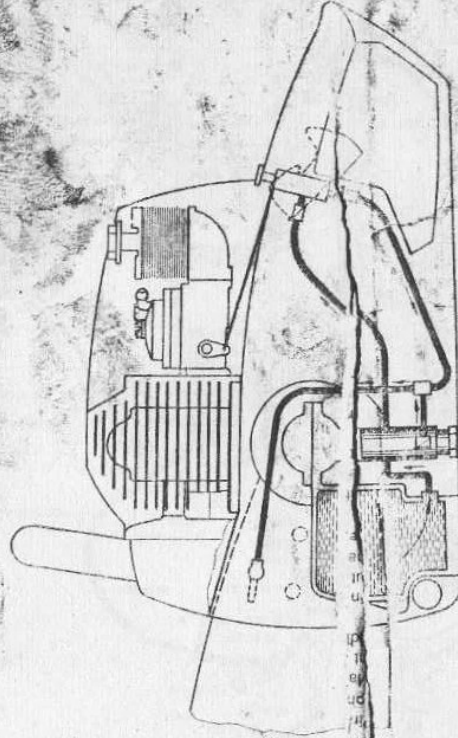
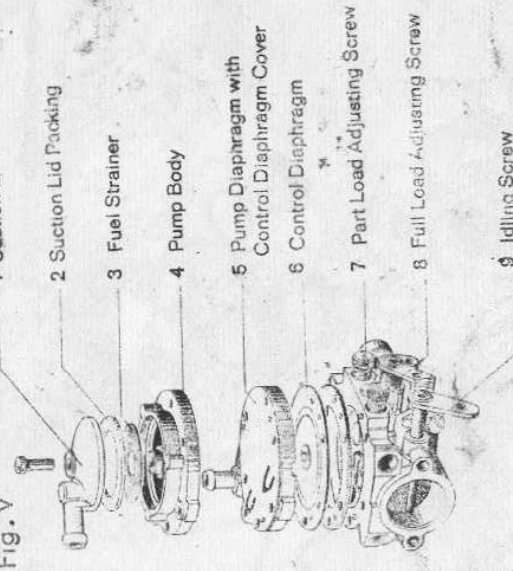


Fig. V



Air Filter

Clean and oil the air filter daily. In dusty conditions clean more often. This can be determined by (a) looking under the filter element to see if dust has penetrated past the filter or (b) by the choking effect of the clogged filter (the engine will run rich, 4-stroke, and not develop full power).

To clean air filter remove the carburettor

cover and take out the filter foam element. Thoroughly wash this in petrol and squeeze dry. Then put clean oil on it and squeeze excess oil out. Then replace carefully, ensuring that foam filter is not reversed, and that it is sealed and sealed all round. Remember — it is the oil that catches dust, therefore never use a dry filter. NEVER use the saw without the air

Automatic Lubrication of the Saw Chain

Your Saws TWIN is provided with automatic chain lubrication (Fig. IV). This is done by the oil pump is activated by the crankshaft of the engine via a cam drive. The pump is provided with an outlet valve (ball-type). A slide valve controls the oil feed to the pump, and the quantity is adjusted by a control screw (Fig. III/1). The hexagon oil tank cap is located near the control screw and can be removed with the multi-purpose wrench. Turn in the tank by turning back this screw, you will obtain the position where the maximum quantity of oil is fed to the saw chain (1 turn). The more you turn it back, the more the oil feed will be reduced. By depressing the key (Fig. I/7) the pump is activated and thus the chain is lubricated additionally. (Refer to "The first 10 minutes are decisive for the life of your chain and bar".)

The first 10 minutes are decisive for the length of life of your chain and bar

Never start sawing straight off with a new chain! First let the chain run for a few minutes. At the same time keep on oiling it with the hand oiler (Fig. 1/7). Check whether the chain when running, leaves a slight oil trace on the ground. This is proof that the lubrication is functioning properly.

Start with some light cutting! Always work at full throttle, otherwise there will be unnecessary wear and tear on the centrifugal clutch. After the first few cuts check the chain tension. When doing this, the engine must be stopped.

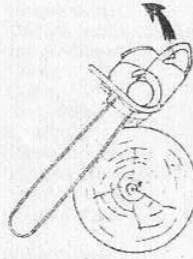
During the first half hour of use, the chain will stretch considerably.

Operating the Chain Saw

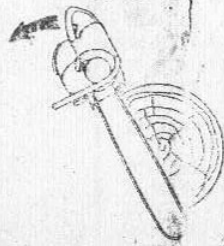
If you have never before handled a chain saw, please don't try right away to fell a tree. It might have unfortunate results for both you and your saw.

The best thing to do is to look for a felled trunk lying about on which you can practice a few trial cuts. Make sure that this trunk does not lie on even ground, otherwise the saw chain will end up in the soil, and that would mean the end of its being sharp. Put something underneath the trunk so that it clears the ground. Then try the first cuts, putting the saw with its spray as low as possible against the trunk, guiding it calmly and steadily.

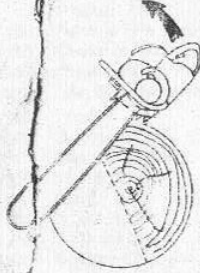
PLACE THE SAW, BUMPER AGAINST THE WOOD. OPEN ENGINE THROTTLE WHEN CHAIN REACHES FULL SPEED. PIVOT SAW BAR ON FISTOL GRIP UNTIL THE CHAIN ENGAGES WOOD.



KEEP PULLING ON FISTOL GRIP TO PIVOT GUIDE BAR THROUGH THE WOOD. IF SAW JAMS IN CUT, RELEASE THROTTLE, PULL SAW FREE, AND REENGAGE IN CUT.

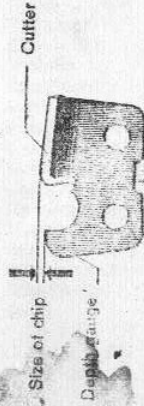


STOP PIVOTING BEFORE TIP OF BAR HITS GROUND—OR WHEN YOU CAN NO LONGER PULL ON GRIP AND CUT. WOOD KEEP CHAIN RUNNING IN CUT, BUT PUSH DOWN ENGINE END TO REACH NEW PIVOT POINT. CONTINUE TO CUT USING PIVOT ACTION.



— Pivot Action

Don't exert any unnecessary pressure on the saw, it won't take it and might stall. You will gain nothing by doing so, as you will soon appreciate that the cutting speed does not depend on your own strength but on that of your saw and the condition of your saw chain. Moreover, the cutting depth of each tooth of the saw chain is limited by the depth gauge.



1/4 Cutting direction

Therefore, there is absolutely no point in exerting excessive pressure; the cutter cannot cut deeper than the depth gauge will allow. You only slow the chain unnecessarily, if you press on the saw, and in running more slowly, fewer cutters will operate within the same space of time. Simply hold the saw steady as it proceeds, and guide it carefully. Only after you have mastered some steady and even cutting can you venture to fell a tree.

1. FELLING A TREE

(a) Analyse the cutting factors—wind direction, lean of tree, if

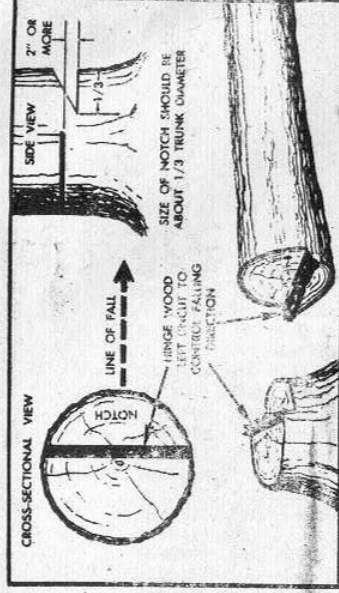


Figure 7 — Controlling Direction of Fall

there is more weight on one side than the other—these should tell you whether the tree can be made to fall in the desired direction. Then cut a notch about $\frac{1}{4}$ to $\frac{1}{3}$ through on the side you wish the tree to fall. (See figure 7.) When the notch is finished, start the felling cut on the opposite side of the tree, at least two inches above the horizontal cut of the notch. Engage the spiked bumper near one corner of the notch so that pivoting will make the blade come parallel to the notch. **DO NOT CUT THROUGH**... always leave a section of wood parallel to the notch as a hinge. (See figure 7.) As the tree is widened widening of the cut and movement of the top branches will indicate when it is about to fall. As the tree topples, pull the saw free and retreat to safety.

(b) When the tree is thicker than the blade is long, a series of cuts must be made to fell it. It is important that these cuts be made in the order shown in figure 8, with the blade moving toward the notch on the final cut, engaging the hinge properly. On a large tree, insert soft wedges to hold the cut open, pull saw free just before the tree is ready to fall, then drive the wedges into the force the tree over.

(2) BUCKING AND LIMBING

When it is necessary to cut with the top or tip of the blade, brace the engine against your hip or thigh, because the saw may kick backward if the chain limits. **Never** let the ground should be bucked from the top, but when a log is supported only on the ends, it should be bucked from one end to the other. The top, then finished by bucking upward from the bottom. Experience will teach you that cutting a suspended log or branch all the way through from one side may result in either pinching or splitting. Whenever you are unsure whether the cut will open or close on the blade, use soft wedges to keep the cut open.

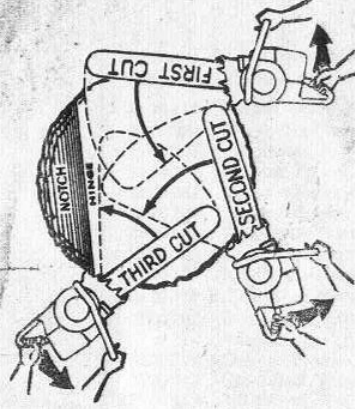
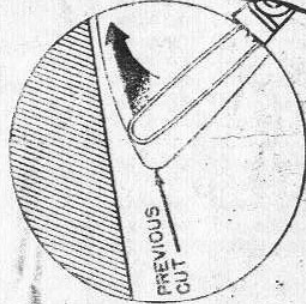


Figure 8 — Felling Tree of Large Diameter with a Short Blade Saw



— Safe Cutting Instruction

SAW MAY KICK BACK IN DIRECTION OF LARGE ARROW IF TOP OF BLADE CONTACTS ANY OBSTRUCTION SUCH AS THE BOTTOM OF A PREVIOUS CUT.

ALWAYS KEEP BOTH HANDS FIRMLY ON SAW.

Instruction Manual Effective from Chain Saw No. 03478

Your SOLO TWIN comes from a modern and highly productive manufacturing company which is leading in this line of industry in Europe. Built by specialists who have accumulated experience and "know-how" based on the construction of power units.

The SOLO TWIN is not a "cheap" saw. It is fitted with the most up-to-date technical improvements you are expecting from a modern machine. The two-cylinder engine is a true progress. Low engine vibration, faster, freer and evenly cutting saw chain, smoother exhaust noise are only a few of many an outstanding advantageous feature.

The SOLO TWIN has been submitted to long and thorough tests. If you handle this saw with a little skill - it will never let you down.

On the following pages you will learn more about the SOLO TWIN, its maintenance and operation.

Assembly of Bar and Chain

Loosen the two nuts (Fig. 1/1) with the wrench supplied with the tool kit.

After removing the cover (Fig. 1/2) and the fly guide plate, check whether the tensioning guide plate (Fig. 1/1) fits to the saw in such a way that its longitudinal slot gives access to the outlet hole for the chain lubrication and the groove provided for this purpose. Now push the bar over the two standing bolts past into the casing.

The tensioner (Fig. 1/3) fits properly into the lower hole of the bar. By turning the adjusting screw (Fig. 1/4) to the right you press the bar away from the sprocket until the chain has its tension required.

There must be a slack of abt. 1 mm (.047 in.). When tightening the nuts (Fig. 1/1) slightly lift the bar nose. Then check the chain for easy running by pulling it through by hand.

When assembling the bar, take good care that the two guide plates on the bar, engine and chain guard are meticulously clean. Any dirt and sawdust between these surfaces may cause gaps after assembling, through which the lubricating oil will leak without ever reaching the chain.

Fuel

Use a two-stroke mixture of gasoline and oil in the ratio of 25:1 (or 20:1 during the break-in period). Use only a pure branded fuel and a branded oil of SAE 30. For lubricating the chain we recommend special saw chain lubricants or a good branded oil of the SAE 30 type. Whenever you replenish the fuel tank, fill up the oil tank for the chain lubrication at the same time.

Starting the Engine

Before starting your SOLO TWIN, place it on level ground and have a firm foothold. Lock the throttle lever (Fig. 1/3) with the knob (Fig. 1/4) and pull out the choke (Fig. 1/5) to the second catch (first catch is intended for starting with the engine still being warm).

Make sure that the lever (Fig. 1/6) of the short-circuit switch points to the left side. (In position 0 the ignition circuit is broken.)

Step on the handle with your right foot and with your left hand hold the saw down. Be careful that the handle of the starter does not snap back when you have pulled

it, but guide it gently back to its resting position. Once the engine has started, push back the choke.

Fig. I 4 7 6 9 5

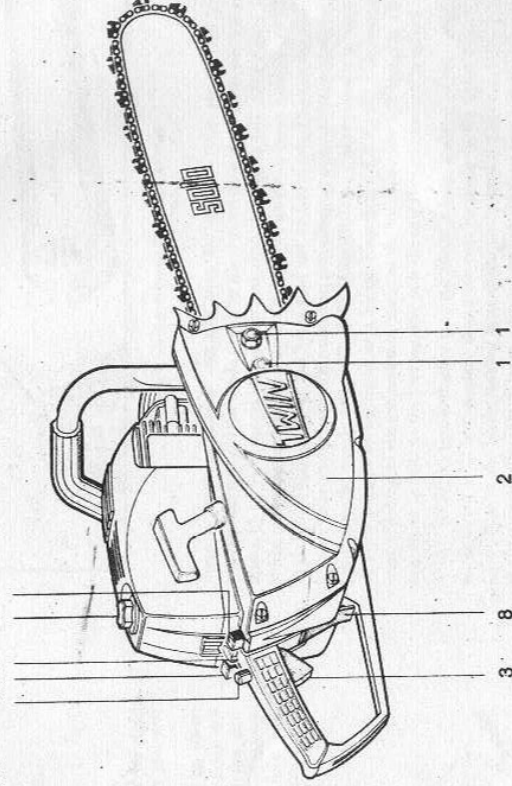


Fig. II

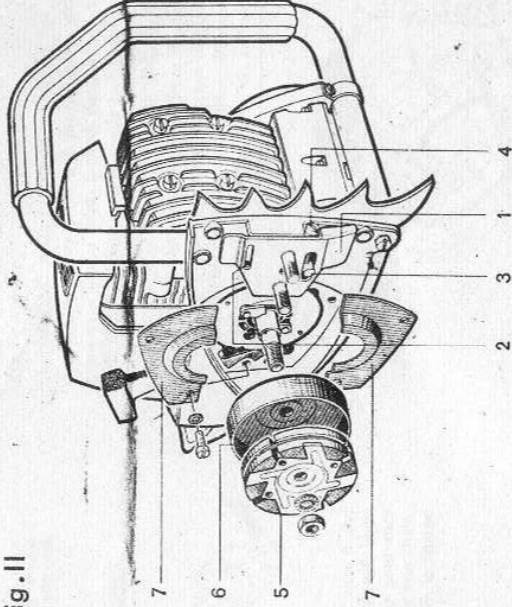
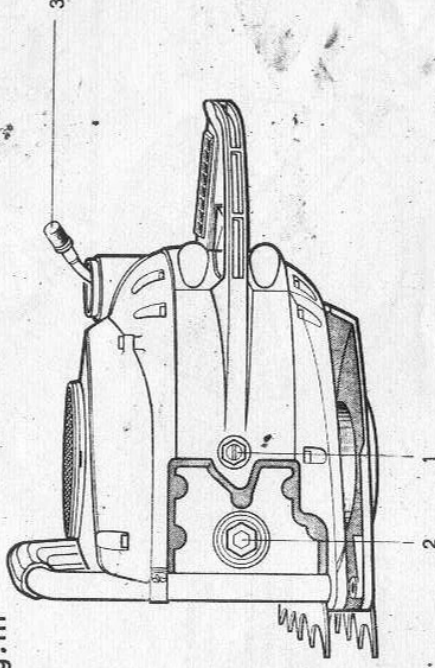


Fig. III



To remove the fan, loosen the tightening nut. For fixing the crankshaft, use a special fan wheel wrench which protects the fan wheel against damages. This wrench is inserted into the two recesses visible from the outside in the center of the fan wheel. If you reverse now the tightening nut and screw it with the large thread into the fan, it serves as a puller.

The fan, guided by a key, is seated conically and directly on the crankshaft. The contact breakers are located under the fan; they are dustproof enclosed by a

plastic capsule which can be easily removed after loosening two circlips. Setting of one and then of the other pair of contacts is only made if one contact pair is completely open. The gap can be checked with a 0.4 mm ($\frac{1}{64}$ ") gauge. If necessary they can be re-set by inserting into the semi-slot a screwdriver which is slightly turned. Prior to this, loosen a little the adjusting screw which afterwards must be tightened again.

If parts of the magneto have to be

exchanged, have it done by an expert. So much for the most important maintenance work and servicing of your SOLO TWIN which you might do yourself. For any other work, please contact our after-sales services which will always be pleased to help you and whose technicians are specially trained men for such work. Whenever you need help and advice don't hesitate to contact us directly. We shall always try to assist you in solving your saw problems.

CHAIN SHARPENING INSTRUCTIONS

The most important part of the modern chain is the hard chrome cutting surface. This chrome surface extends across the top plate and down the side plate of the tooth. This hard chrome surface is the cutting edge and if damaged the tooth must be filed back until there is a good clean cutting edge of chrome. It will require a number of strokes to file a tooth back to this edge when the chain has hit a stone or lay-cut into the ground so remember to file all teeth the same number of strokes so as to maintain approximate uniform length of cutters.

Not knowing or realising the importance of the hard chrome cutting surface is the reason for 80% of chain sharpening problems.

The two cutting edges of a chrome chain, top and side (side plate) are both sharpened at the same time by the 45° East File.

When these instructions the cutters will be sharp and uniform.



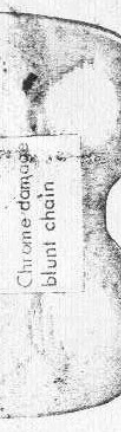
Line up the 35° marks on the East File so they are in line with the chain. This gives you the correct top plate filing angle.

MAIN POINTS TO REMEMBER :

1. Must have complete chrome cutting edges.
2. Uniform top plate and side plate angles.
3. Depth gauge setting must be exact.
4. Sharpen Left hand cutters to Left, Right hand cutters to Right.

Hold file at 90° to side of chain and not the cutter bar. Allow for lean of chain in the bar so that actually you are filing slightly downward.

COMMON OPERATOR PROBLEMS



CONDITION: Hook.

Excessive hook causes cutters to grip and hang-up.



CONDITION: Back Slope.

Causes cutter to pull out of wood so that operator has to increase pressure.

If chain cuts to one side check for hooked cutters on one side of chain and back sloped cutters on other side.

Also check for chrome damage.

SOLO DISTRIBUTORS PTY. LTD.

Head Office & Factory:
15-21 Reynolds Street, Balmain, Sydney
Tel.: 82 0194 (4 lines)
Telegrams: SOLOMOTORS, SYDNEY

Victorian Branch:
238 Roden Street, W. Melbourne
Tel.: 30 1604, 30 1648
Telegrams: SOLODIST, MELBOURNE

Western Australian Branch:
1704 Albany Highway, Kenwick
Tel.: 68 3237, 68 3238
Telegrams: SOLOSAW, PERTH

Queensland Branch:
259C Montague Road, West End, Brisbane
Tel.: 4 6139
Telegrams: SOLOMIST, BRISBANE

(Form No. 911 01)

Carburetor

The carburetor of your SOLO TWIN has a very important and difficult task to perform. Whatever the position of the saw, it must feed the fuel from the tank to the engine with the correct fuel-air mixture. It is, therefore, somewhat more complicated than an ordinary float carburetor, requiring an additional fuel pump as well as the control diaphragm which performs the function of the float, as the tank is not always positioned above the carburetor in the course of sawing. Nevertheless, it will always work reliably if you see to it that the fuel is clean. The diaphragm carburetor does not take kindly to dirt in the fuel because there are several valves and nozzles which clog easily. For this reason a special fuel filter has been built into the carburetor. Should any dirt penetrate into the carburetor in spite of this, the carburetor must be dismantled and cleaned (Fig. VI).

This is not as bad as it may sound. All you need for this work is a screwdriver. If you follow the hints below, you are sure to succeed.

Work on a clean base, preferably on a clean sheet of paper.

Thoroughly clean the outside of the carburetor before taking it apart.

When taking it apart, memorize the sequence in which the parts have been assembled.

Never use force and only work with the tools provided for that purpose.

When re-assembling, be sure that the parts are meticulously clean; this applies above all to their surfaces.

After cleaning and reassembling, the carburetor must be re-set. This is done with two regulating screws, the conical tips of which protrude into the nozzles and more or less decrease the flow. Take care, therefore, when turning these screws. Never tighten them too much, as they might damage the nozzles with their cones.

Re-setting is carried out as follows:

1. Turn both adjusting screws until they stop. Do not use force.

2. Loosen part load (idling) screw by $\frac{3}{4}$ turn.

3. Loosen main adjusting screw by $1\frac{1}{4}$ turns.

4. Start the engine and allow to warm up.

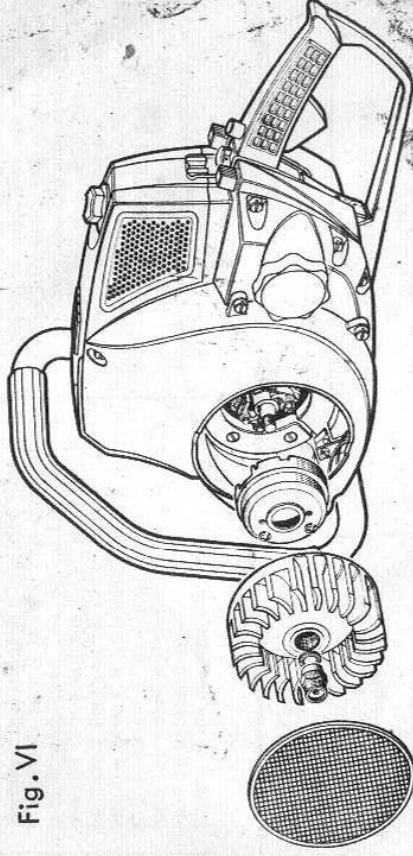
5. Adjust idle check screw until saw chain stops running.

The idling screw must be adjusted until the engine turns over smoothly when idling and does not stop or splutter when the throttle is suddenly opened.

The main regulating screw must not be turned too far, otherwise the engine will smoke when operating and when it has warmed up, or it will change over to four stroke.

The brown colour of the spark plug indicates that the carburetor has been set correctly.

Fig. VI



Fuel Filter

Besides in the carburetor, there is another filter inside the tank at the end of the fuel suction pipe. This filter consists of special felt material in a brass casing and is easily accessible through the inlet of the fuel tank. You may take a piece of wire in order to bring the end of the pipe with the filter to the tank inlet. If the felt is very contaminated, replace it by a new one. Always use the original part and do not substitute by wad or other felt. Do not pull out completely the pipe from the fuel tank (Fig. III/3).

Centrifugal Clutch

If you fit a new chain, it would be advisable to fit a new sprocket; too, if the old one shows signs of wear. For this purpose the clutch drum must be removed (Fig. II/5). The bore in the clutch is provided with a cone directly fixed onto the crankshaft and secured by a nut with left-hand thread. To loosen the nut (left-hand thread), the clutch spider can be fixed with the aid of a **clutch wrench** (Fig. II/5). Then the clutch can be removed from the crankshaft by a puller. For that purpose 2 threaded bores M 6 are provided in the clutch spider. When the clutch has been removed, it is quite simple to exchange the sprocket (Fig. II/6).

Take this opportunity to grease the needle bearing on which the sprocket runs, after you have washed off the old grease. If the clutch shoes are worn, replace them with the tension spring.

Starter

It depends entirely on you how long a life your starter will have. Two important points must be observed, if you want it to last for a long time:

1. Never pull the starter with a jerk, but let it first get "into position", i.e. let the starter pawls ease themselves into position. Only then give the starter a vigorous tug.
2. Never let the starter rope snap back after starting. Guide the handle back to its resting position.

If despite careful handling the starter rope should break, you can change it without difficulty. The starter mechanism is arranged in the right lateral casing behind the

sprocket. After removal of bar and sprocket, proceed as follows:

1. Loosen the four screws (Fig. II/7) and take off the upper and lower starter cover plates.
2. Pull out the defect rope.
3. Unscrew both spark plugs from the cylinder.
4. Turn the rope pulley clockwise by hand (in this direction of rotation the engine turns simultaneously) until it stops and then back by $\frac{1}{2}$ turn.
5. Insert a new rope into the rope pulley provided for that purpose on the outer edge of the rope pulley (upon this, slackening of the recoil spring is impossible).
6. Thread the new rope into the rope pulley from inside the starter and pull it out so far that the knot is completely pressed into the recess provided in the rope pulley. The remaining end of the rope is threaded through the rope guide, the handle and the cover plate and knotted at its end.
7. Now keep the rope firmly and directly at the rope pulley and take out the nail. The pre-tensioned recoil spring winds up the rope as soon as you guide gently back the handle into resting position.
8. Assemble the two starter cover plates and the saw equipment.

Magneto

If you think there is a defect in your magneto, make quite sure that it is. In fact, the magneto which is at fault. The lever of the short circuit switch must be set to the position of the ignition circuit shall not be interrupted. First check the spark plugs or renew them. Take care that the new plugs have the correct thermal value. Its marking must read KW 225, or its equivalent. The wrong setting of the carburetor may also be a source of troubles. Only after you have convinced yourself that the magneto is at the root of trouble, get to work on it.

For this purpose press the protective screen out of the fan housing (Fig. VI).