

KIORITZ ECHO CHAINSAW

INSTRUCTION MANUAL

● MODEL CS-601S



KIORITZ CORPORATION

CONTENTS

1. Specifications	2
2. Designations of parts	3
3. How to fit the bar and chain	4
4. Fuel and lubricant	6
5. Starting the engine	7
6. To run and stop the engine	9
7. Felling and lumbering	10
8. Safety standard	11
9. Setting of the chain and maintenance of the bar	12
10. Maintenance and arrangement	16
11. Troubles and repairing	24

1. SPECIFICATIONS

●Engine

Type:	Air-cooled, 2-cycle, single-cylinder engine
Piston displacement:	3.7 cu. in (1.89"×1.33")
Revolution:	Counter-clockwise as viewed from the magnet side
Magnet:	Flywheel magnet type
Ignition plug:	NGK BM-6A
Carburetor:	Tillotson diaphragm type HS-94A
Fuel:	Mixture of gasoline and mobile oil exclusively for 2-cycle engine at the ratio of 20 to 1
Cooling method:	Forced air cooling
Starting method:	Recoil starter
Lubricating method:	Manual/automatic combined lubrication
Chain oil:	KYORITSU chain oil
Transmitting method:	Automatic centrifugal clutch

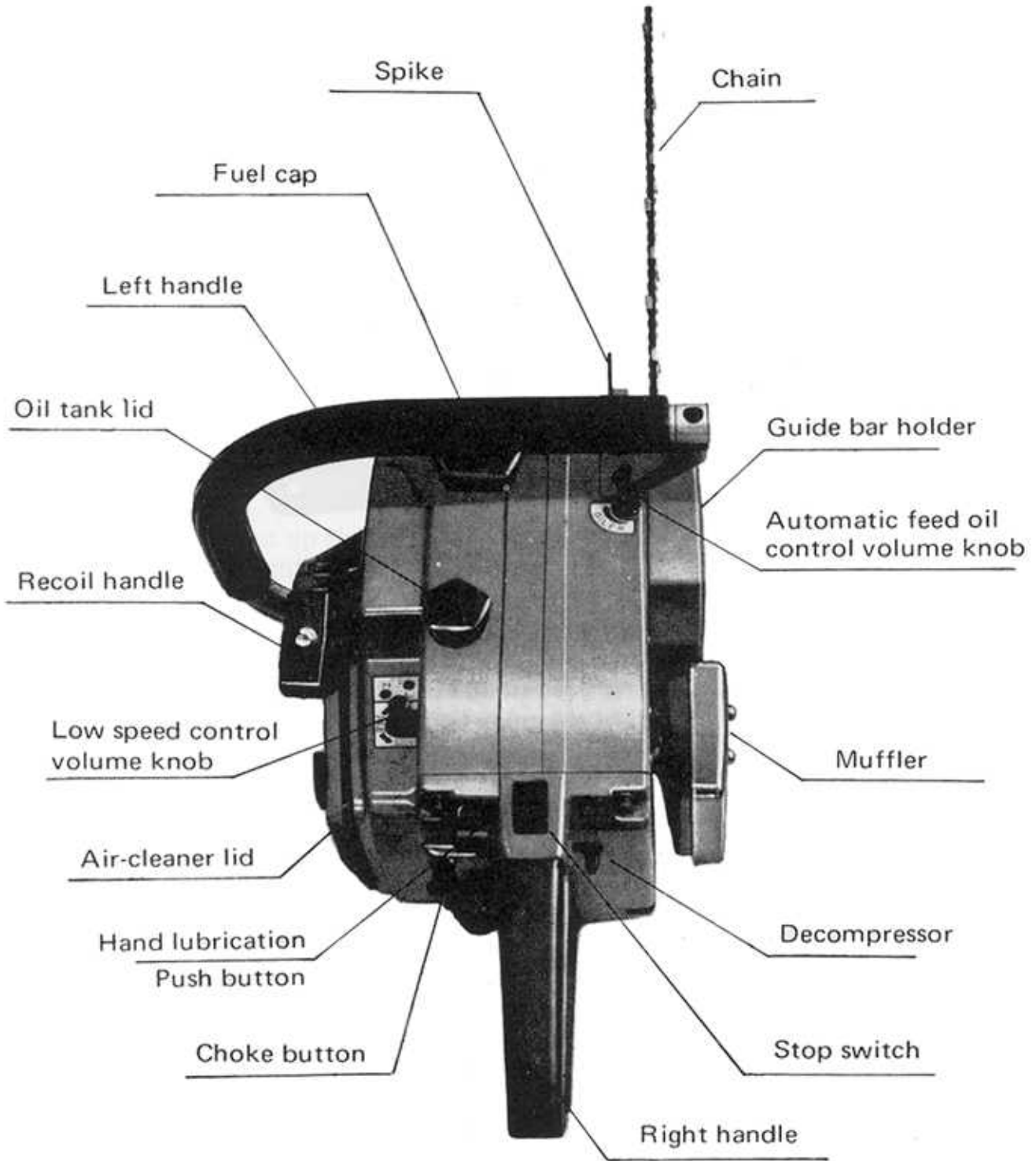
●Tank capacity

Fuel tank:	0.8 l (1.69 US pt.)
Oil tank:	0.4 l (0.845 US pt.)

●Saw

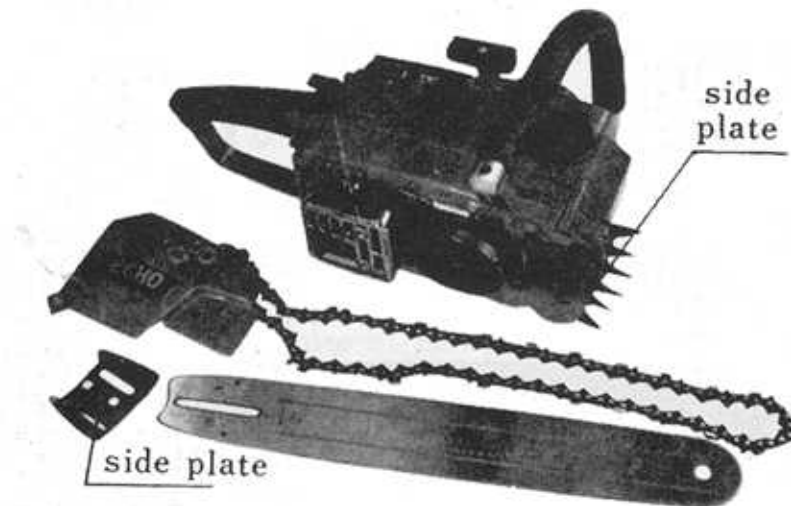
Chain:	Chain pitch 3/8", Chain gauge 0.050"
Bar:	Gauge 0.050", Length 20" (20K50) No. of drive links.69 frames
Weight:	14.3 lbs. (without bar and chain)

2. DESIGNATIONS OF PARTS

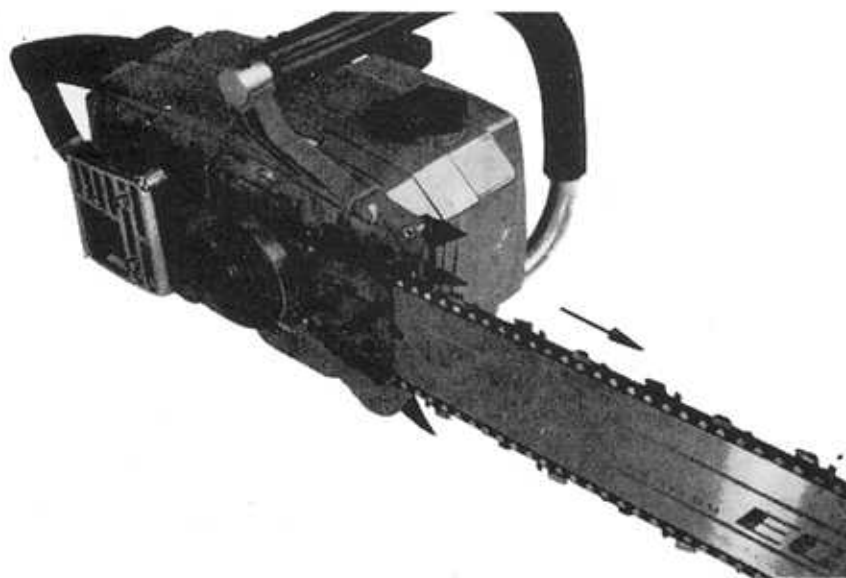


3. HOW TO FIT THE BAR AND CHAIN

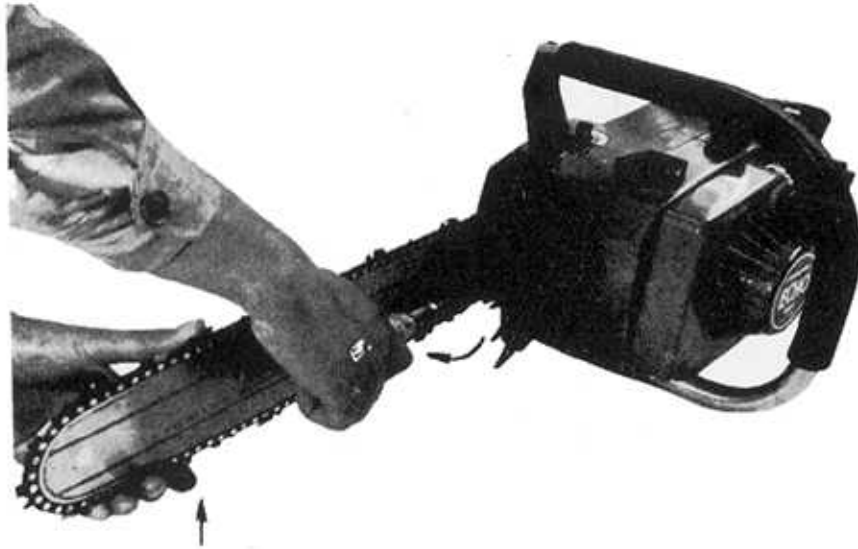
- * Take off the guide bar holder, one of the guide bar side plates nearer to you and a piece of wood placed between the side plates.
- * Leave the other side plate unremoved.



- * To set the bar, insert the chain tensioning lug into the bar hole.
- * Put the chain first on the sprocket and then on the bar end.
- * Pay attention to the direction of chain mounted.
- * After the bar and chain have been fit and the chain tensioning lug has been inserted into the bar hole, fit the guide bar side plate and guide bar holder.
- * Next tighten them lightly with hand by the use of the washer and nut.



- * To tension the chain, hold up the bar end in one hand and turn the adjusting screw clockwise.
- * To obtain proper tension of the chain, get the chain come into contact with the bar at the lower end of the latter and then return the adjusting screw for about 1/8 turn.



- * Finally tighten up the two nuts with a double-ended wrench while holding the bar end slightly up.



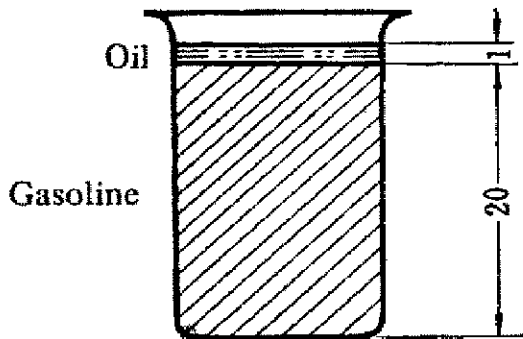
Note:

It is important to tension the chain properly.

- * If too tight, the bar and chain wear fast.
- * If too loose, the chain comes off. It is dangerous.
- * When the chain is properly tensioned, there is no noticeable clearance at the bottom of the bar between the bar and the chain, and the chain can slide on the bar very smoothly by hand.

4. FUEL AND LUBRICANT

Fuel



- * The fuel used for operating the Echo 601S is a mixture of gasoline and KIORITZ Echo oil.
- * The gasoline and the oil are mixed at the ratio of 20 to 1.

Note:

- * If the mixing ratio is different from 20 to 1, the use of the fuel may cause the engine to operate irregularly.
- * If KIORITZ Echo oil is not available, use mobile oil for 2-cycle engine.
- * No other oil shall be used under any circumstances.

Mixing ratio of gasoline and oil

Gasoline (l)	Oil (l)	Gasoline (l)	Oil (l)
1.0	0.05	6.0	0.30
2.0	0.10	7.0	0.35
3.0	0.15	8.0	0.40
4.0	0.20	9.0	0.45
5.0	0.25	10.0	0.50

Lubricant

Lubricant well-supplied to the chain in operation will prevent the chain from getting stuck or worn unreasonably fast. It also plays an important role in lessening the friction between chain and bar.

- * Lubricant to be used for KIORITZ chain oil.

Note:

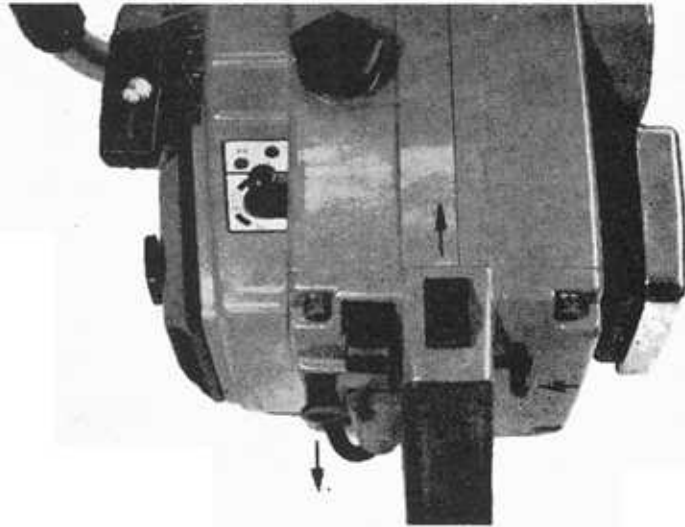
- * Never use disca ded oil or reclaimed oil, for it may cause various troubles.
- * If KIORITZ chain oil is not available, lubricant to be used for mobile oil differs with seasons.

Above 15° CSAE 30
 Below 15° C, or in the case of resinaceous trees . .SAE 10

5. STARTING THE ENGINE

IN CASE ENGINE IS COLD

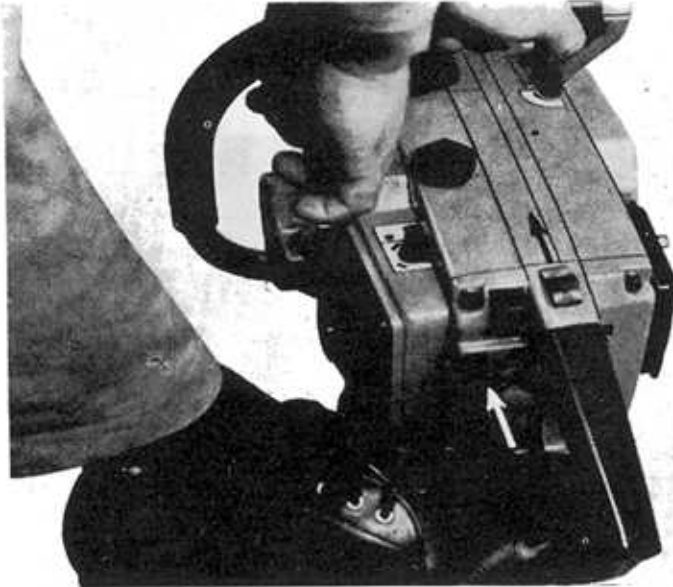
- * Supply the mixed fuel and lubricating oil in the respective tanks.
- * Push the switch toward the arrow mark.
- * Pull the choke button in the direction of arrow mark.
- * Push the decompressor lever in the direction of arrow mark. For starting of the decompressor, to begin with, pull the throttle and push the decompressor lever at the condition and release the throttle.



- * Secure the chain saw with your foot and pull the coil.
- * When the recoil is pulled 5 – 6 times, the first ignition sound can be heard. Then, push the choke button and return it to the original position. Then, when the recoil is pulled, the engine will be started.
- * When the engine is started, the chain will turn, resulting in requiring care for this point. Then, pull the throttle then and release it. Thus, the decompressor will be disconnected and the engine will be revolved at low speed.

IN CASE ENGINE IS WARM

- * In case the engine is warm, use the throttle and decompressor and pull the recoil. Thus, the engine will be started.
If the engine is found hard to be started, pull the recoil in the same manner as in the case of cold engine.

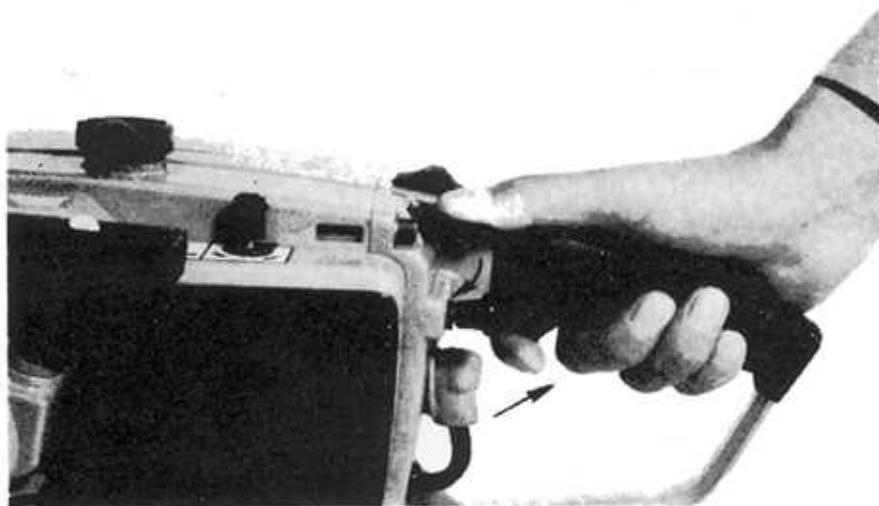


Note:

- * In case the engine is warm, do not use the throttle, choke, decompressor but push the switch. Then, pull the recoil and the engine will be started.
- * When the engine is started at the condition where the choke is pulled, if the first igniting sound is heard, be sure to return the choke.

6. TO RUN AND STOP THE ENGINE

- * After the engine is started, keep it running at a low speed for 5 to 6 minutes.
- * After running the engine slow, pull the throttle gradually to run it fast.
- * When the engine revolutions have reached 3,000 r.p.m., the chain begins to rotate.
- * When the chain has started rotating, push the oil push button 2 or 3 times to lubricate it.



- * For low speed rotation of the engine, adjust it by turning the knob located on the air cleaner. When turned in the direction of H, it will become high speed. When turned in the direction of L, it will become low speed.



- * For stopping of the engine, release the throttle and pull the switch in the direction of OFF.

7. FELLING AND LUMBERING

- * It is advisable to get used to your chain saw before cutting trees actually.
- * For this purpose try cutting a felled timber several times.
- * When cutting a tree, open the throttle fully and place the spike against the tree to be felled, and the chain saw will do the rest. It is unnecessary to forcibly press the chain saw to cut a tree.

Felling

- * Decide the direction in which the tree is felled.
- * Then remove all obstacles around the tree to enable you to operate the chain saw freely.
- * Find a safe place near the tree in advance.
- * To fell a tree, make a cut on that side of the tree to which it is intended to be felled.
- * Then cut the tree at the opposite side at a position a little higher than the cut preliminarily made.



Lumbering

- * When lumbering, be careful about the stability of the felled tree. It may roll down on a steep slope.
- * Hold the felled tree off the ground by using a support as much as possible, and take care not to have the chain or bar caught in the cut.



8. SAFETY STANDARD

Lumbering and timber preparation are attended with danger. Be sure to observe the following points.

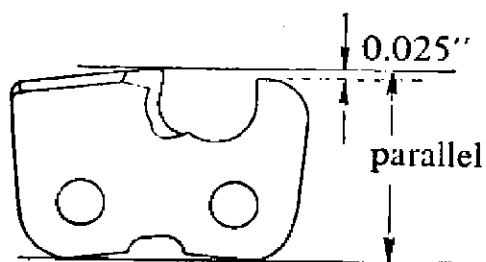
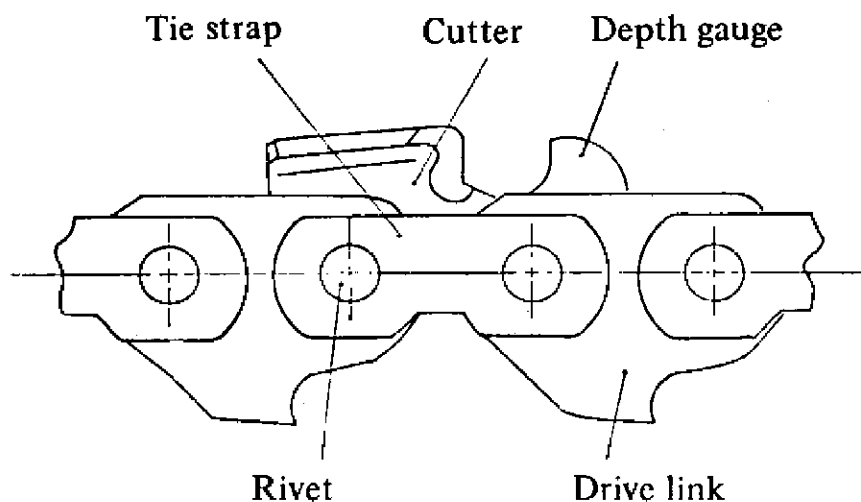
1. Start the engine by only one worker.
2. Avoid letting workers or other persons come near the chain saw worker so far as practicable.
3. When the operation is carried out, provide full space among the workers.
4. When movement is made, be sure to stop the engine and do so.
5. At the time of adjustment on chain tension and setting of teeth, do so after stopping the engine.
6. Hold the chain saw with both hands during saw operation.
7. Supply fuel at such a place where there is no fire.
8. Be sure to avoid starting the engine at the place where fuel is supplied.

9. SETTING OF THE CHAIN AND MAINTENANCE OF THE BAR

Designations of parts

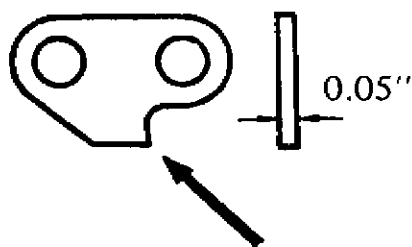
Chain parts are named as follows:

- * The chain pitch for the Echo 601S is 9.525mm (3/8").
- * Do not use a chain with the pitch larger than this.



* The depth gauge is intended for limiting the thrust at the time of cutting.

* The right and left cutters shall be kept always sharp and well balanced.



* The driver link serves to eliminate the sawdust from the bar groove. For this purpose the lower end shall be kept always sharp.

Setting of the chain

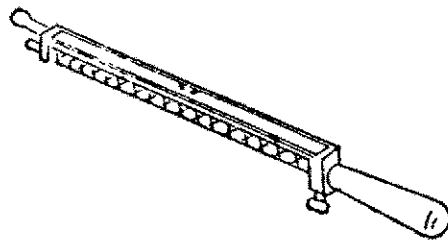
What are important about the chain are the following:

1. The cutters shall be always sharp.
2. The right and left cutters shall be even.

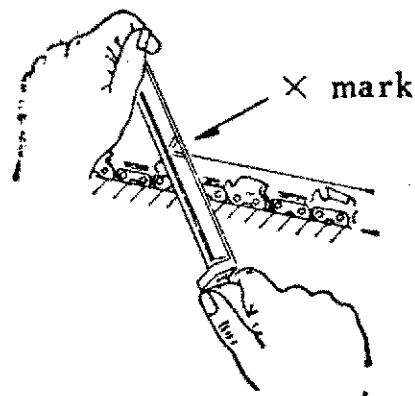
If they are not sharp or uneven, the operating efficiency decreases and they are greatly vibrated by the chain to damage the machine unreasonably fast.

Correct way of setting the chain

- * The chain may be set by the use of a 5.5mm ($7/32''$) round file or flat file.
- * When the cutters have become smaller as setting progress, a $3/16''$ round file may be used instead of a $7/32''$ round file.

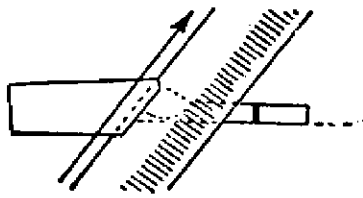


- * Fit the file to the file holder.
- * How to use the file is to put the file holder on the cutter and apply the file only when you push it.
- * Do not apply it when you pull it toward you.



PROPER DIRECTION AND POSITION OF FILE

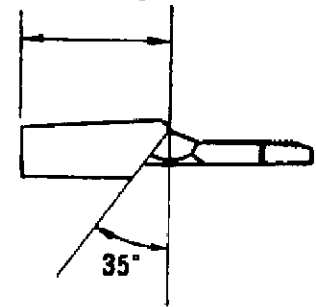
1) Upper blade teeth-setting angle (35°)



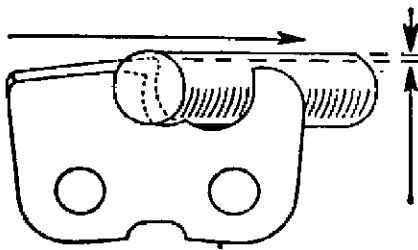
35° is the standard



Blade length



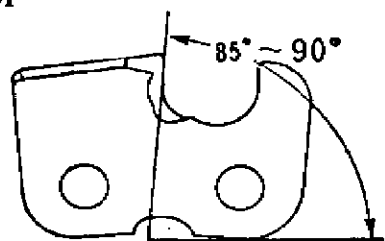
2) Side blade teeth-setting angle (90°)



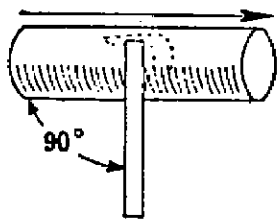
Put it up for a distance equal to $1/10$ the length of the file.



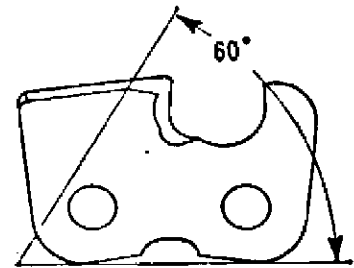
In case of chain pitch $3/8''$



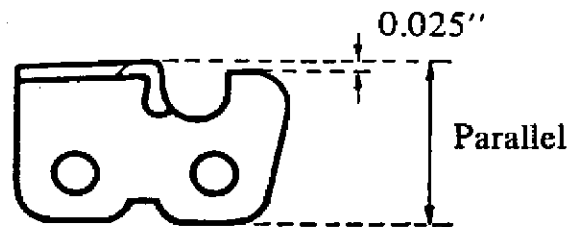
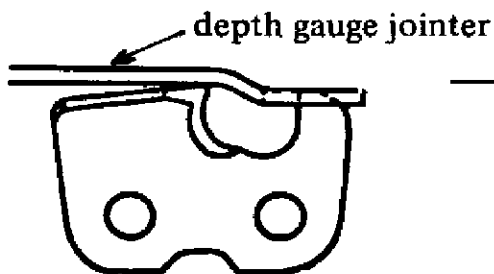
3) Upper blade cutting angle (60°)



Make it horizontal.



4) Depth gauge



Cleaning of the chain

- * If the chain is stained, clean it with petroleum and put oil on it.

Maintenance of the bar

- * Keep the bar groove always clean.
- * Pay particular attention to the oil inlet part.
- * Bars shall be used placed alternately.

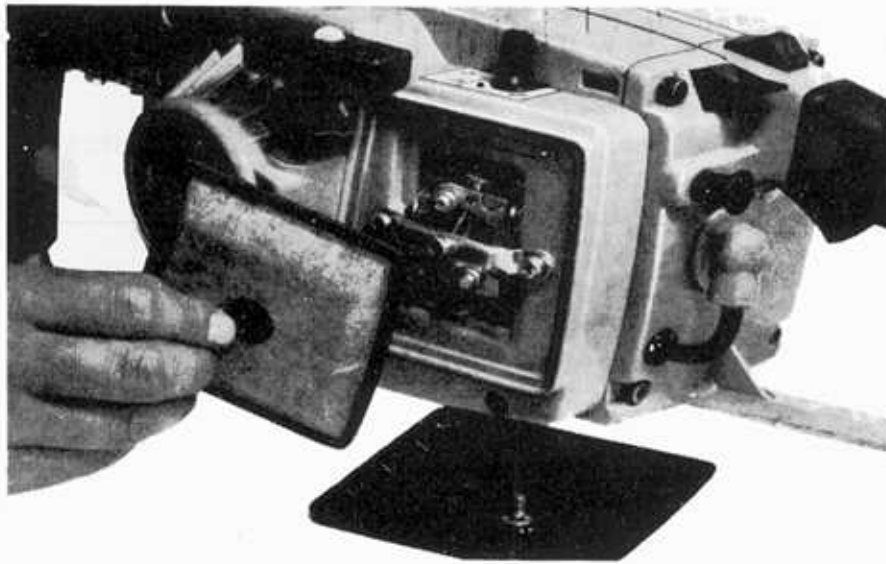
Chain and bar

Length of bar	Chain	Pitch 3/8'' Gauge 0.05''	
	No. of Drive link		
16'' (16K50)	59		Special order
20'' (20K50)	69		Standard
24'' (24K50)	81		Special order

10. MAINTENANCE AND ADJUSTMENT

Cleaning of air cleaner Clean it every day.

- * It may be taken off by holding the center of the rubber and pulling it.
- * To clean it, wipe off dust lightly or wash it with gasoline.
- * When washed with gasoline, dry it well and use it.



Inspection of screws and nuts

. Check them every morning before the machine is used.

- * Check and ascertain if the screws at the handle and fan cover carburetor are loose before using the machine.

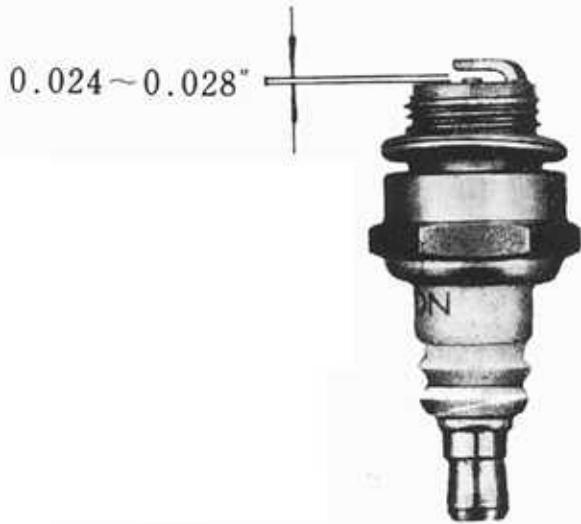
Inspection of chain and bar

. Check them every morning before the machine is used.

- * Set the teeth of the chain every day.
- * Clean the groove of the bar.
- * Turn over the bar once a day and use it.



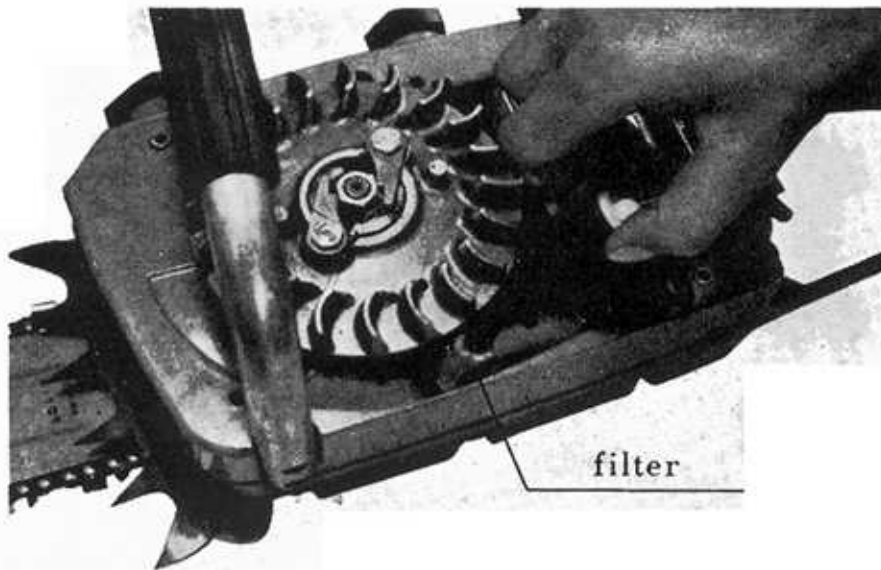
Ignition plug Check it regularly.



- * The clearance between the electrodes of the ignition plug shall be 0.024"–0.028".
- * If it is too wide or too narrow, adjust it correctly.
- * Set the ignition plug after making it free of carbon and dust by careful cleaning.

Fuel tank filter Check it regularly.

- * When the filter is clogged, the starting condition of the engine will become bad, causing poor condition of the engine.
- * For cleaning of the filter, remove the fan cover and pull out from the joint part of the fuel pipe.
- * When the filter is taken out, wash it with gasoline.
- * When the clogging of dust is hard, exchange it for new one.



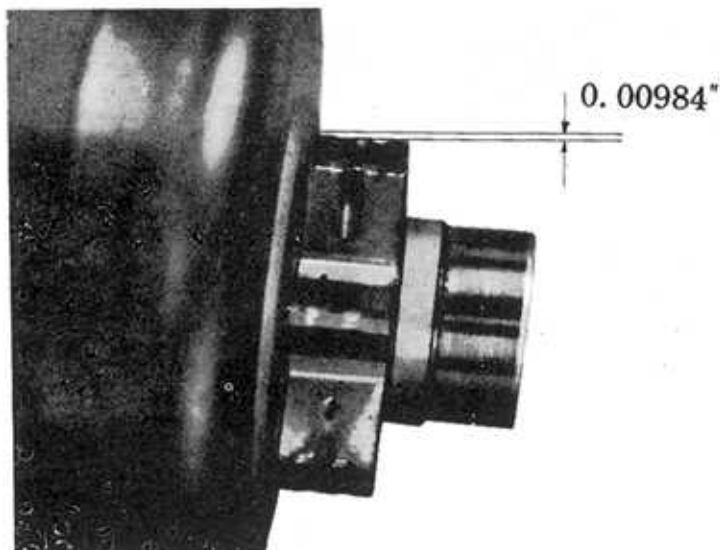
Centrifugal clutch Check it regularly.

- * Loosen the nut fastening the clutch, and take off the outer ring.
- * The nut may be taken off by giving it a shock and turning it clockwise.



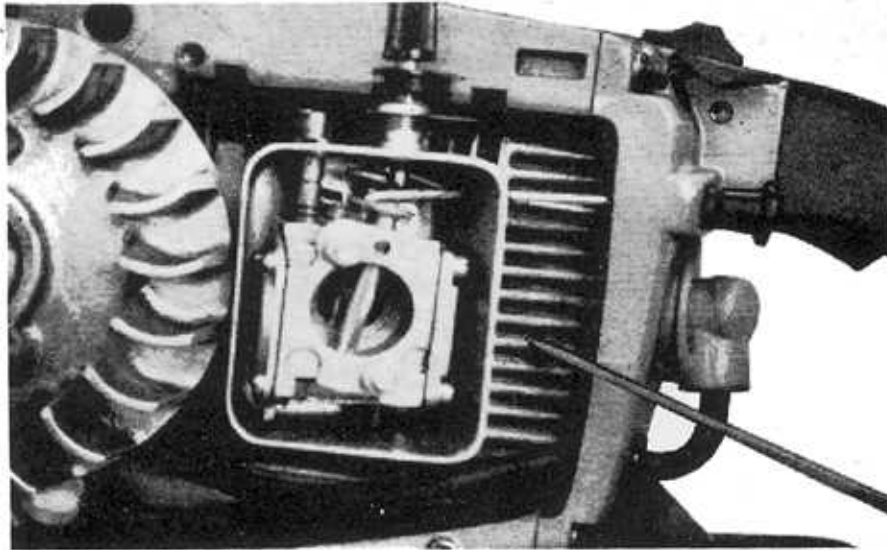
Sprocket Check it regularly.

- * If the sprocket is damaged, it quickens the damage of chain.
- * When the damage is 0.00984" at the maximum, replace it with new.



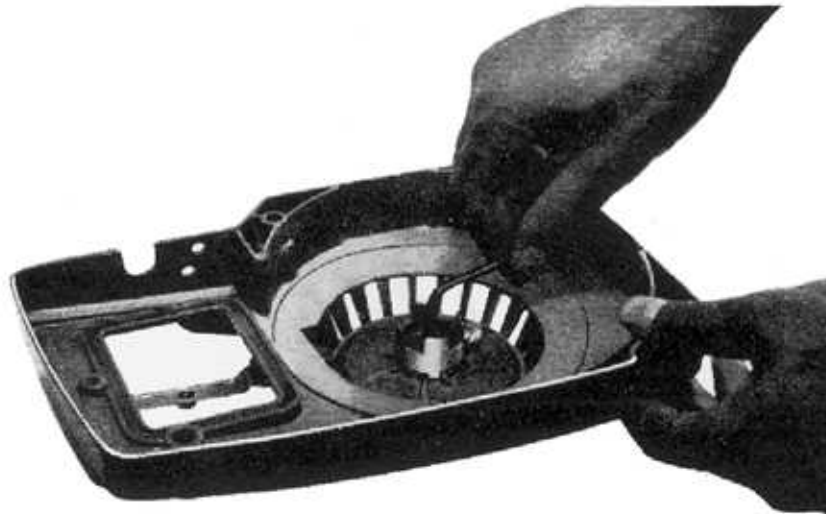
Cylinder fin Check it regularly.

- * If the cylinder fin is blocked with dirt, it will decrease the cooling effect.
- * Take off the fan cover and the right handle for cleaning.



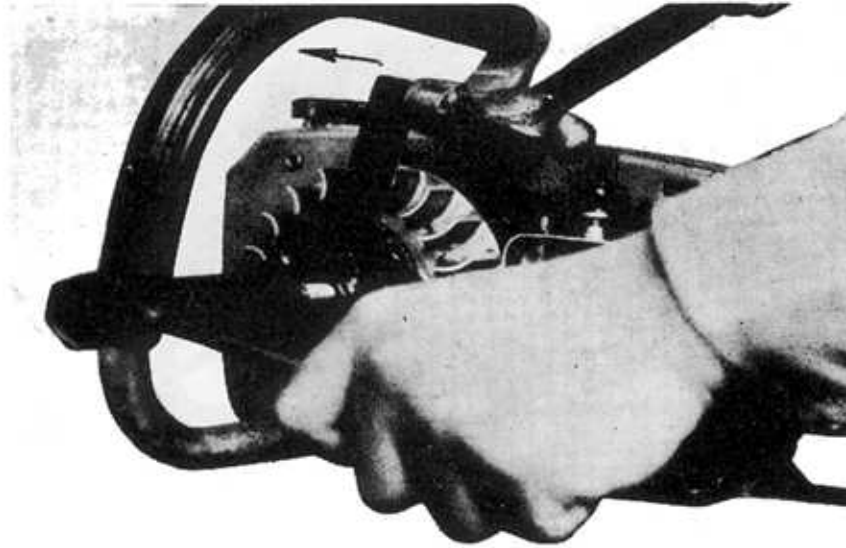
Recoil starter Check it regularly.

- * If the recoil starter is not normally operating, overhaul, inspect and replace it in the following procedure.
- * Take off the fan cover.
- * Loosen the screws of the recoil.

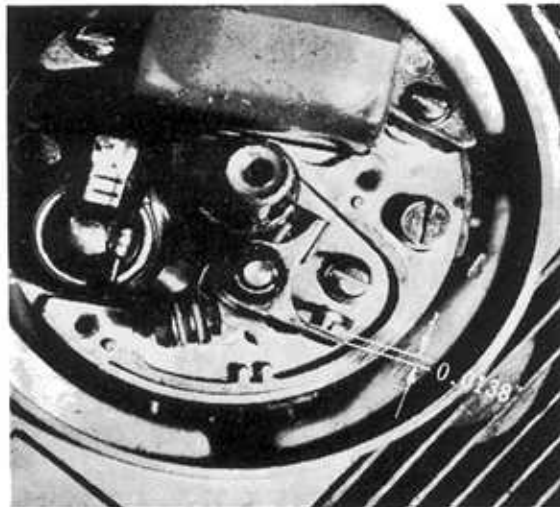


Magnet Check it regularly.

- * Take off the fan cover, recoil starter and nut for fastening the rotor.
- * Pull out the rotor by means of a tool serving the purpose. Never pull it out by beating.



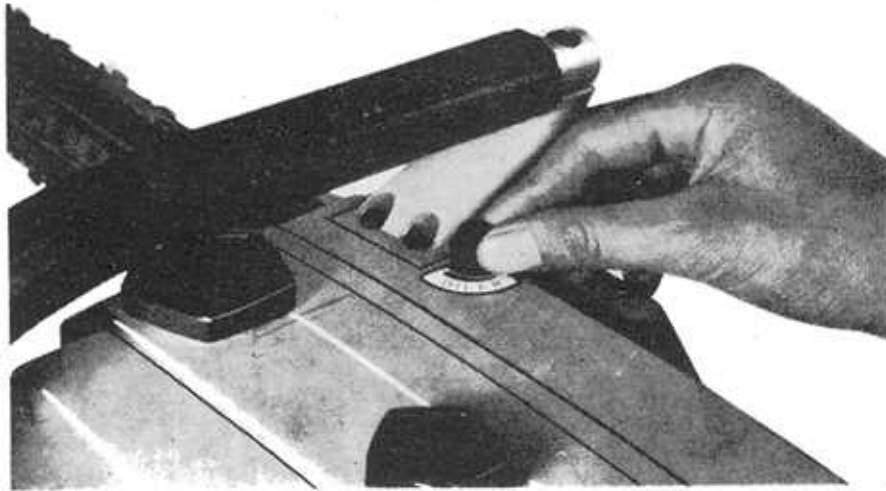
- * Take off the point cover, and inspect the breaker point clearance to see if it is kept 0.0138 in. as required.
- * When adjusting the point of contact, be careful not to allow it to be stained with oil and other foreign matters.



Automatic oiler Check it regularly.

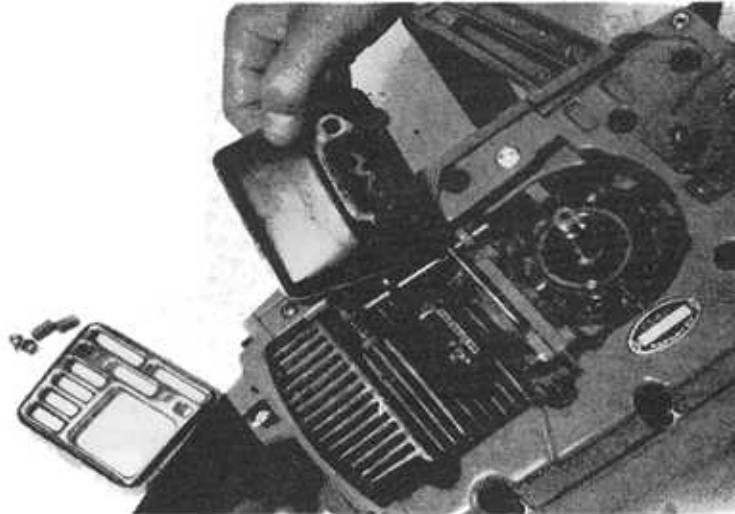
* When the chainsaw is shipped from the factory, the automatic oiler is already adjusted to deliver 20 – 25 cc (maximum delivery: 1.225 ~ 1.530 cu.in.) of oil when the engine runs at 6,000 r.p.m.

Note: Turning the adjusting screw clockwise decreases the amount of oil delivery. Do not turn the adjusting screw beyond the stopper, because more than 1 complete turn will stop oil delivery.



Muffler Check it regularly.

- * When carbon sticks to the exhaust port of the cylinder and muffler, the output of the engine will drop. Or, fire dust will come out from the muffler.
- * Remove the muffler and remove carbon. Then, take care for preventing the cylinder from being damaged.



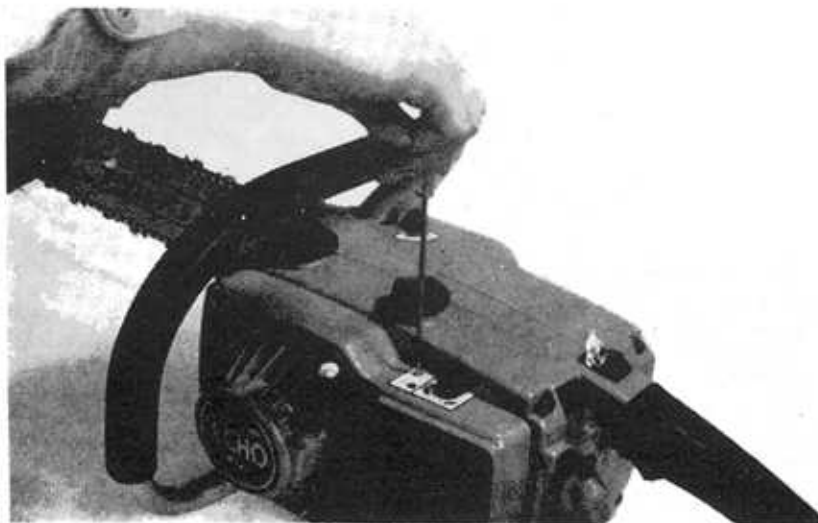
Carburetor When it requires readjustment.

- * Needle valve for the carburetor shall be adjusted to:

3/4 at high speed.

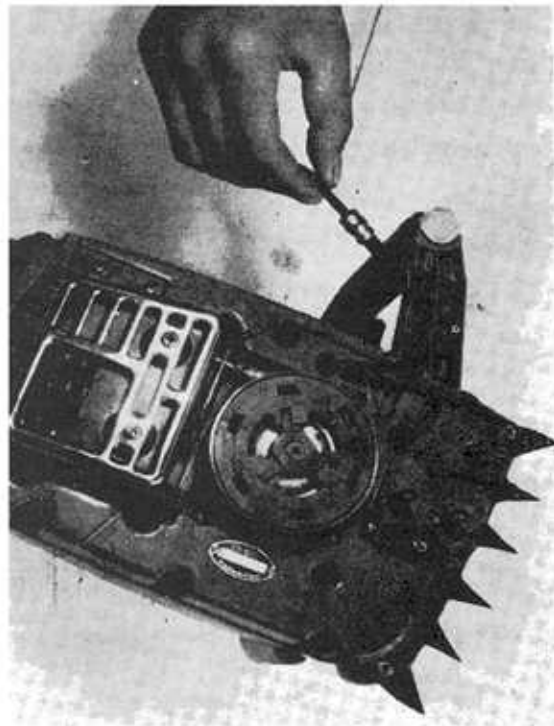
1 at low speed.

- * To adjust the needle valve, turn the screws clockwise slowly and return them after they are fully closed. Adjustment is made by how much they are returned then.

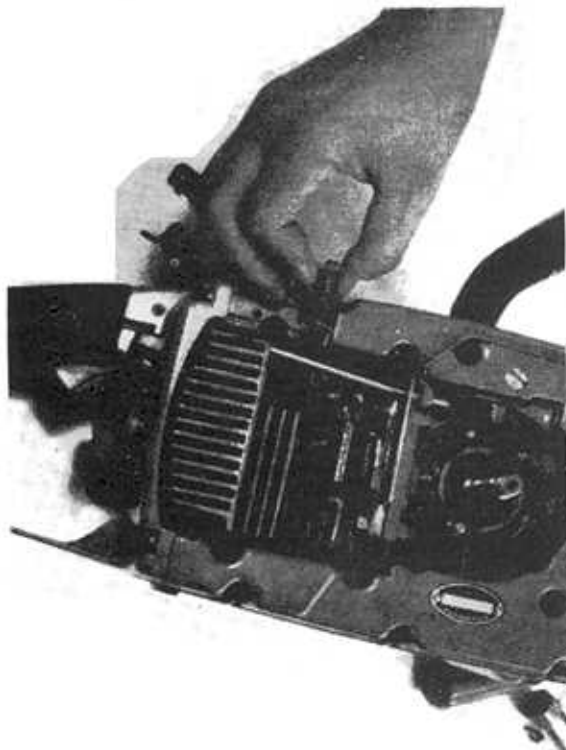


Oil strainer Check it regularly.

- * As for the oil strainer, remove the blind plug on the centrifugal clutch and use 5 mm screw and pull it gently.
- * If saw dust is clogged, be sure to wash it with gasoline well.



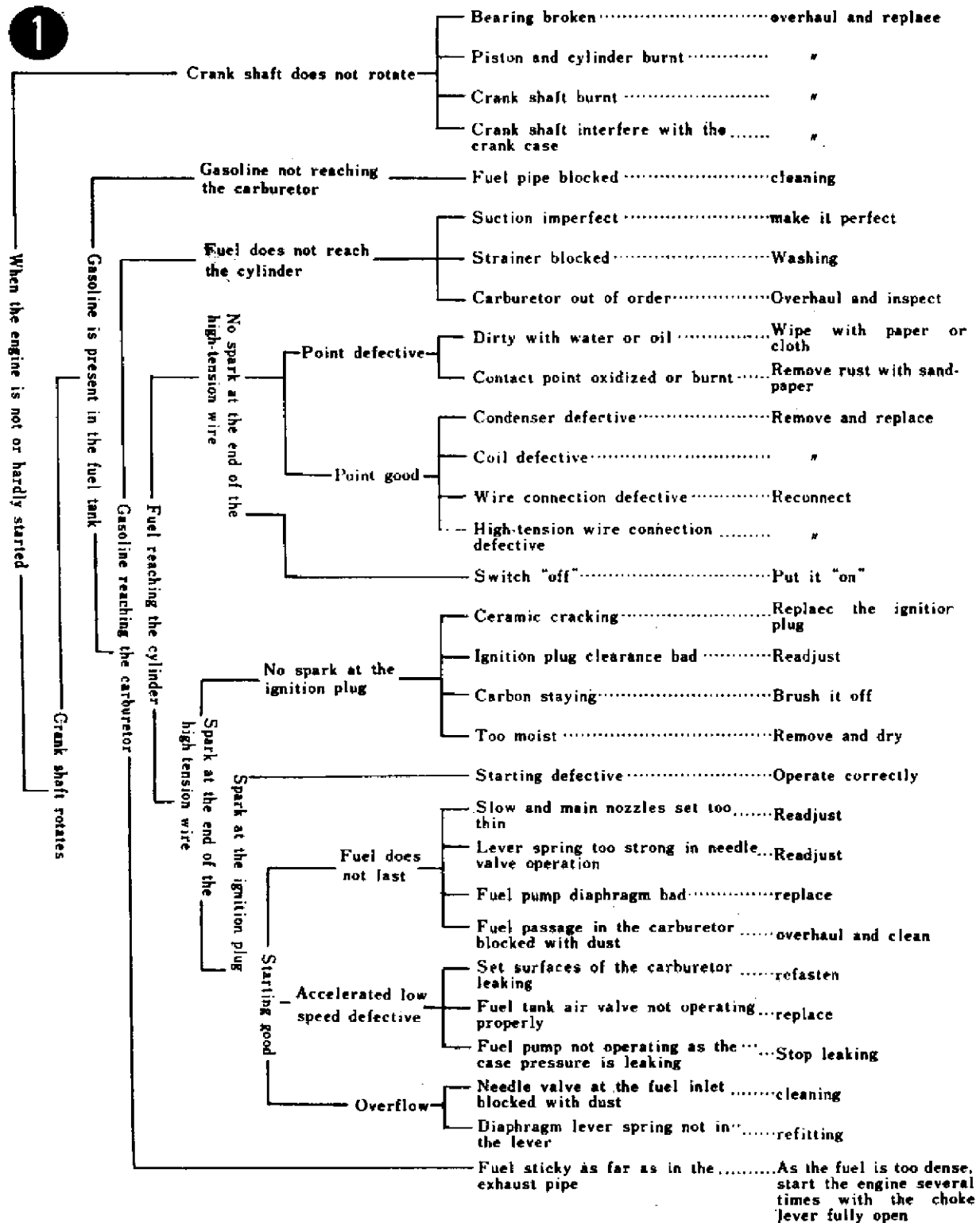
Decompressor Check it regularly.



- * When carbon sticks to the decompressor, compression leakage will be caused. When carbon sticks, disassemble and clean it in the following order.
- * Remove the muffler and loosen the two screws secured on the fuel tank and remove the decompressor.
- * Remove carbon with a wooden spatula or soft material, taking care for preventing the cylinder from being damaged.

11. TROUBLES AND REPAIRING

When there is any trouble about the chain saw, find the cause referring to the following tables and overhaul the machine.



2

