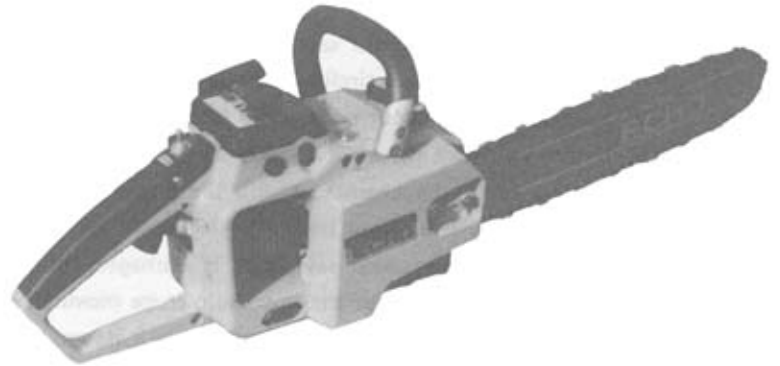


ECHO



OPERATOR'S MANUAL

ECHO CHAIN SAW CS-315

CAUTION

Read Rules for Safe Operation
and Instructions Carefully



898 572-1123 7

RULES FOR SAFE OPERATION

1. Never operate a chain saw when you are fatigued.
2. Use safety footwear, snug-fitting clothing, and eye, hearing and head protection devices.
3. Always use caution when handling fuel. Move the chain saw at least 10 feet (3 m) from the fueling point before starting the engine.
4. Do not allow other persons to be near the chain saw when starting or cutting. Keep bystanders and animals out of the work area.
5. Never start cutting until you have a clear work area, secure footing, and a planned retreat path from the falling tree.
6. Always hold the chain saw firmly with both hands when the engine is running. Use a firm grip with thumb and fingers encircling the chain saw handles.
7. Keep all parts of your body away from the saw chain when the engine is running.
8. Before you start the engine, make sure the saw chain is not contacting anything.
9. Always carry the chain saw with the engine stopped, the guide bar and saw chain to the rear, and the muffler away from your body.
10. Never operate a chain saw that is damaged, improperly adjusted, or is not completely and securely assembled. Be sure that the saw chain stops moving when the throttle control trigger is released.
11. Always shut off the engine before setting it down.
12. Use extreme caution when cutting small size brush and saplings because slender material may catch the saw chain and be whipped toward you or pull you off balance.
13. When cutting a limb that is under tension, be alert for spring back so that you will not be struck when the tension in the wood fibers is released.
14. Keep the handles dry, clean and free of oil or fuel mixture.
15. Don't operate the chain saw in such a condition as muffler or muffler screen is removed or the damaged muffler system kept un-repaired. For ECHO chain saws, Fire preventing mufflers (fire arrester screen) are available as optional parts, beside standard mufflers, for purpose of preventing the unforeseen risk of fire. Please do not fail to apply this fire arrester screen when working, surrounded by the inflammable objects like chips, dry grass, etc. during the summer or dry seasons.
16. Operate the chain saw only in well ventilated areas.
17. Do not operate a chain saw in a tree unless specially trained to do so.
18. All chain saw service, other than the items listed in the Operator's Manual maintenance instructions, should be performed by competent chain saw service personnel. (e.g., if improper tools are used to remove the flywheel, or if an improper tool is used to hold the flywheel in order to remove the clutch, structural damage to the flywheel could occur which could subsequently cause the flywheel to burst.)
19. Guard against kickback. Kickback is the upward motion of the guide bar which occurs when the saw chain at the nose of the guide bar contacts an object. Kickback can lead to dangerous loss of control of the chain saw.

TO AVOID KICKBACK:

Hold the chain saw firmly with both hands. Don't over reach.

Don't let the nose of the guide bar contact a log, branch, ground or any other obstruction.

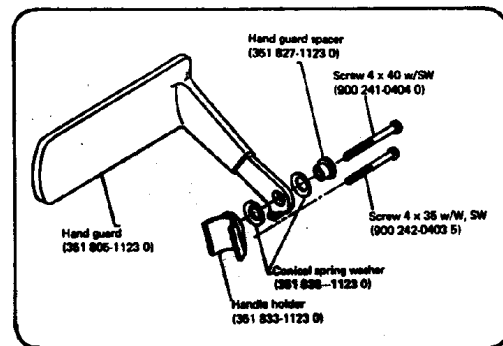
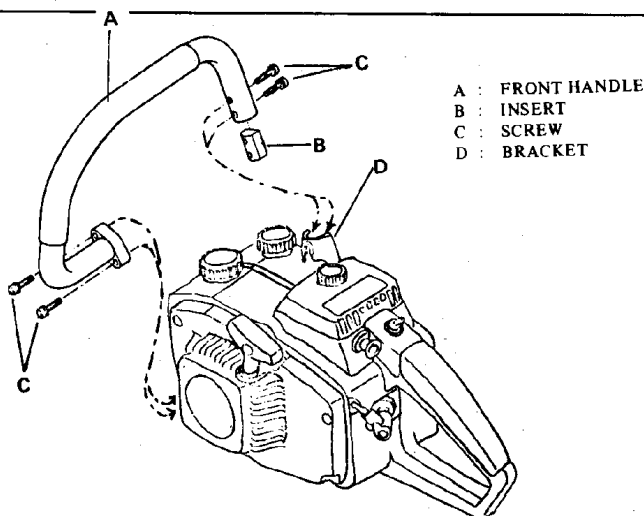
Cut at high engine speeds.

Don't cut above shoulder height.

Follow manufacturer's sharpening and maintenance instructions for the saw chain.

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Front hand guard (Optional parts)

(NOTE)

FRONT HANDLE INSTALLATION

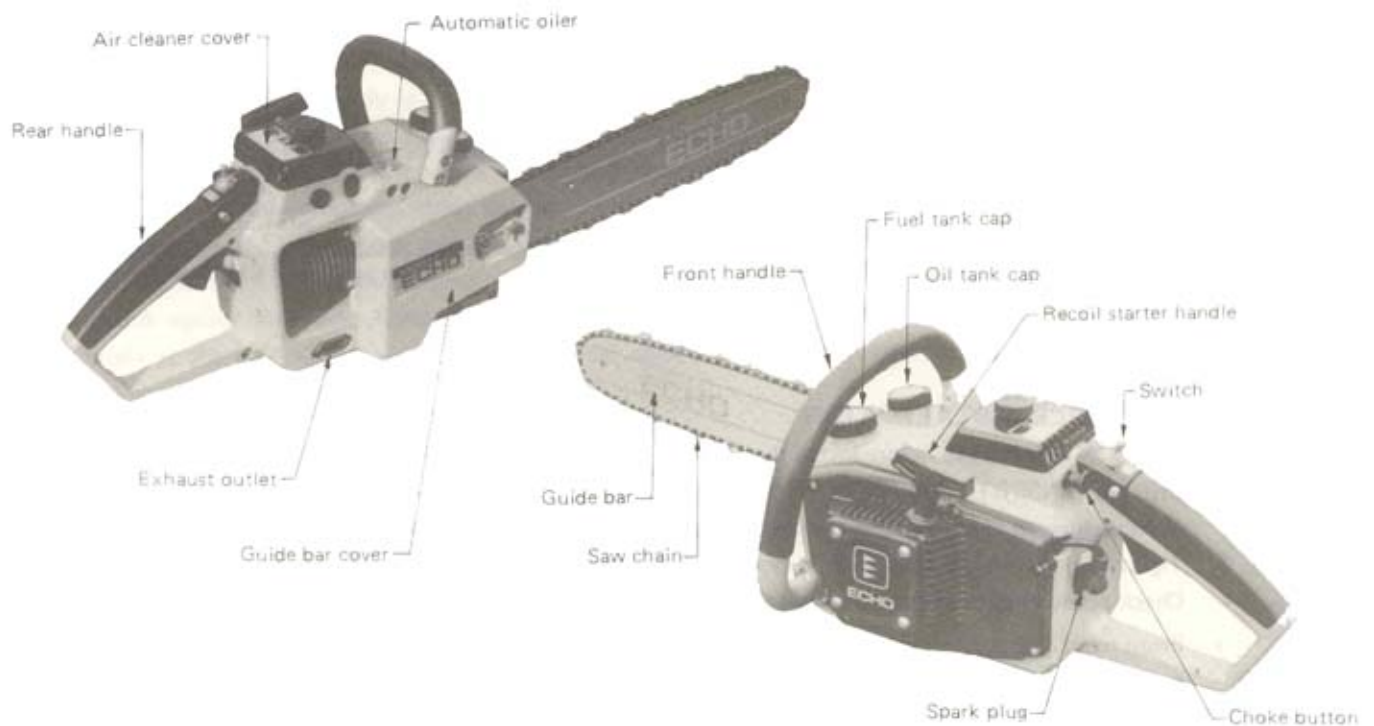
Install the FRONT HANDLE, before install the guide bar and chain, as following instructions.

- 1 Install the INSERT (B) in FRONT HANDLE as illustrated.
 - 2 Hold the handle in position on the saw and secure all four screws finger tight.
 - 3 Tighten using a philips head screw driver correct torque 20~25kg.cm (18~20 in. lb.).
 - 4 Check at intervals in service to ensure that the screws are tight.
- * Front hand guard is available as optional parts at extra cost as shown.
 - Install the front hand guard as shown the illustration.
 - In this case, INSERT (B) is unnecessary.
 - Insert the conical spring washer correctly as shown.

SPECIFICATIONS

Engine type:	Air-cooled, 2-cycle, single-cylinder engine
Piston displacement:	30.1 cc (37.0 mm bore x 28.0 mm stroke): 1.83 cu.in.
Direction of rotation:	Counterclockwise from magneto side
Magneto:	Flywheel type
Ignition plug:	Champion CJ-8 or NGK BM-6A
Carburetor:	Walbro diaphragm type WA-33
Fuel:	Gasoline-oil (20 : 1 ratio) Echo brand oil (or equivalent 2 cycle air cooled oil)
Fuel tank capacity:	0.35 ℓ : 11.8 FL. oz. (us)
Cooling system:	Forced-air
Starting system:	Recoil starter
Lubrication system:	Automatic oiler
Chain oil:	Motor oil SAE 30 (Summer), SAE 10 (Winter).
Oil tank capacity:	0.19 ℓ : 6.4 FL. oz. (us)
Transmission system:	Automatic centrifugal clutch
Chain:	Pitch 3/8 in. drive links 47, gauge 0.050 in. (91s)
Guide bar:	Length 30 cm (12 in) gauge 0.050 in
Weight:	4.2 kg (dry, without chain, guide bar) : 9 lbs.

NOMENCLATURE OF PARTS

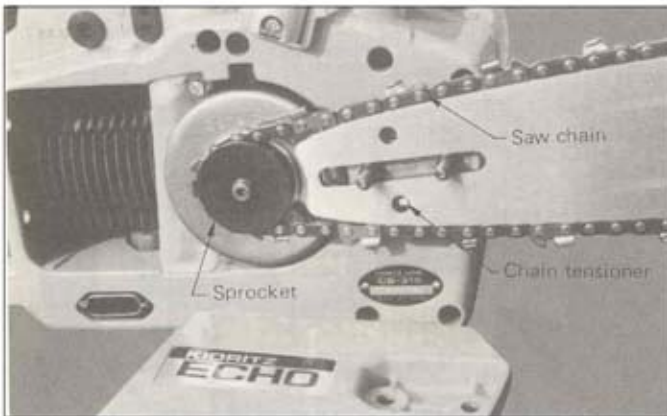


MOUNTING GUIDE BAR AND CHAIN

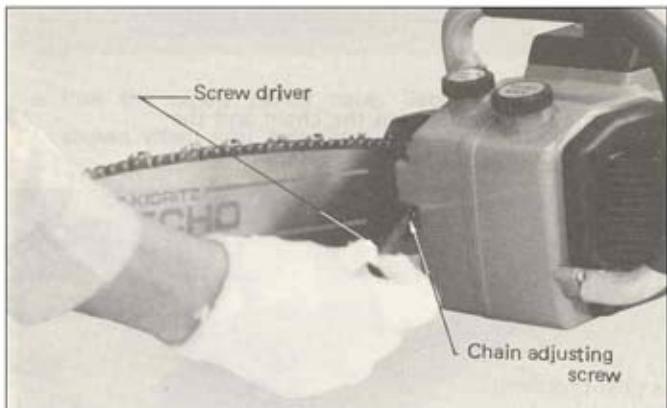
- Mount the guide bar, ensuring that the chain tensioner enters the locating hole in the guide bar.
- Mount the chain on the sprocket first, then proceed to the other end of the guide bar feeding drive links into the guide bar groove.

NOTE:

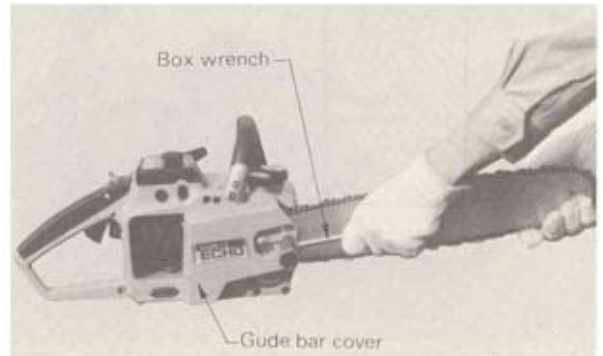
- Ensure the cutting edges of the chain teeth point toward the bar nose or rounded end of the bar.



- Mount the guide bar cover, and secure in position with both nuts.
- Do not tighten fully.
- Now tension the chain:
Lift the bar nose and start tensioning the chain by turning the chain adjusting screw clockwise.



- Keep tensioning to get a proper chain tension. It is obtained when the chain comes in contact with the bottom rails of the guide bar.
- After the chain is properly tensioned, tighten nuts with the box wrench firmly, lifting the nose of the guide bar slightly upwards.



NOTES:

- Correct chain tension is essential to the proper operation of the chain saw.
- Too tightly tensioned chain will cause premature wear of the chain and the guide bar.
- Too loosely tensioned chain may run off the guide bar.
- Under proper tension, the chain provides no noticeable clearance between itself and the bottom rails of the guide bar, and should be smoothly rotated around the guide bar by hand.
- Always wear gloves when handling the chain to prevent injury.

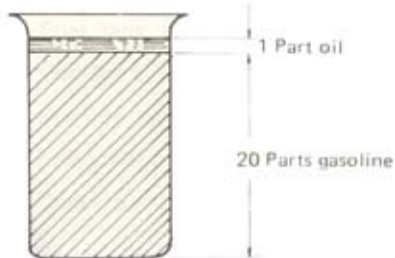
FUEL AND LUBRICANT

FUEL MIXING INSTRUCTIONS

- o This chainsaw has a two-cycle engine, it uses a gasoline-oil fuel mixture. Mixture ratio is 20 : 1 as shown in the figure and the table.

Fuel mix chart

US		IMPERIAL		METRIC	
GAS	OIL	GAS	OIL	GAS	OIL
GAL.	FL.OZ.	GAL.	FL.OZ.	LITERS	C.C.
1	6.4	1	8	4	200
2	12.8	2	16	8	400
5	32.0	5	40	20	(1 Liter) 1,000



CAUTION:

- o Make sure the mixing ratio is 20 : 1. Use at other ratios may cause engine trouble.
- o Use only Kioritz Echo 2-cycle oil or Air cooled two-cycle engine oils.
- o Observe gas-oil mixture ratio shown in the above chart.
- o Disregard instruction on oil containers.
- o Do not mix directly in engine fuel tank.
- o Do not use multi-viscosity oils.

CHAIN LUBRICANT

Proper lubrication to the chain while in operation will reduce the friction between the chain and the guide bar to the minimum, and will assure a longer service life. Use motor oil for this purpose. As follows:

- SAE #30 in summer
- SAE #10 in winter, or when you cut resinous trees

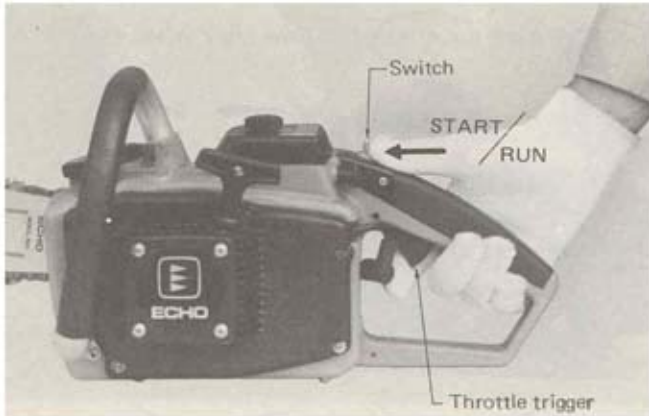
NOTES:

- o Do not use used or reclaimed oil in order to avoid various oiler problems.
- o When refueling, also refill chain oil.

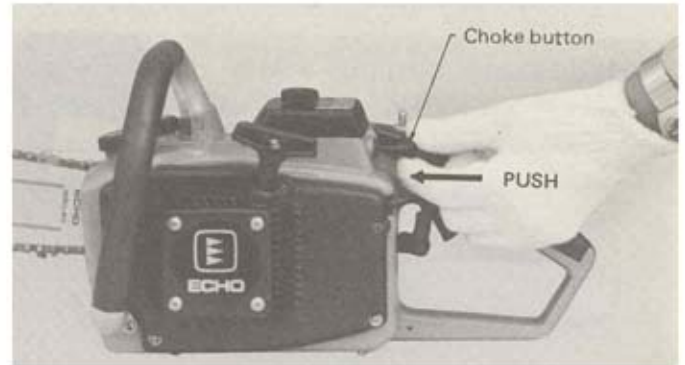
STARTING THE ENGINE

WHEN THE ENGINE IS COLD

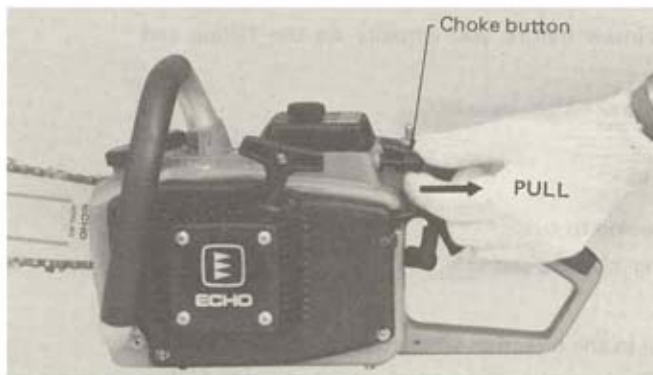
- o Fill the fuel tank with the mixed fuel. Fill chain oil tank with lubricating oil.
- o Turn the switch forward.



- o When you pull the recoil starter rope a few times, you may hear the first firing sound. Then push in the choke button.



- o Pull out the choke button.



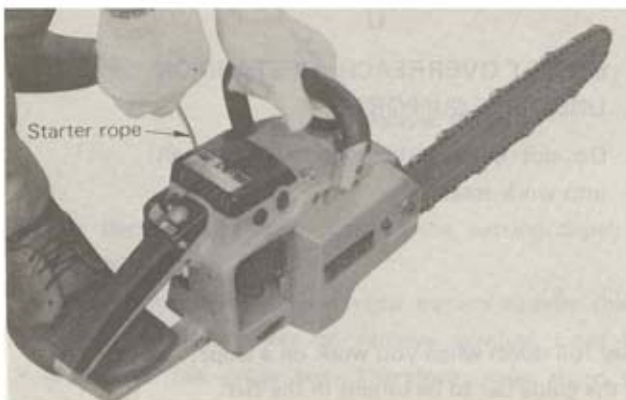
WHEN THE ENGINE IS WARM

- o When the engine is warm, you may start it by pulling the recoil starter rope with the switch positioned at ON, even without using the choke button.
- o If the engine does not start in a few tries, follow the same procedures as to start the cold engine.

NOTES:

- o When you start the engine with the choke pulled out, be sure to push it back when you hear the first firing sound.

- o Pull the recoil starter rope. Secure the chainsaw as shown when you pull the recoil starter rope.



RUNNING AND STOPPING THE ENGINE

RUNNING

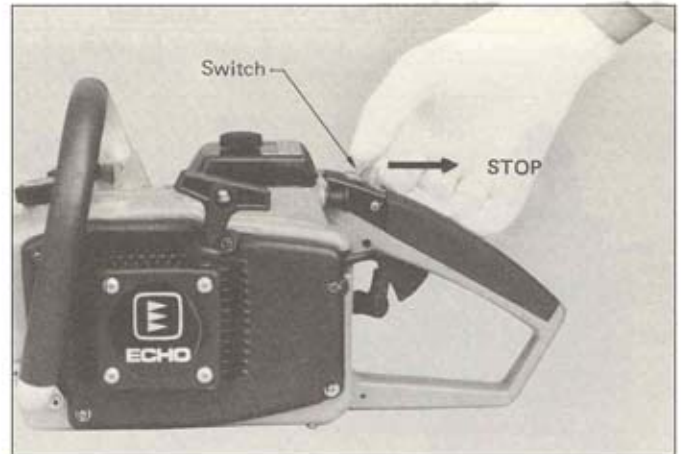
- o When the engine starts, allow it to idle for a few minutes.
- o After idling pull the throttle gradually and increase the engine speed.
- o The chain will start running when the engine reaches about 3,000 rpm.



Ensure proper acceleration and lubrication of chain and bar.

STOPPING

- o Turn back the switch as indicated on it by arrow to stop the engine.



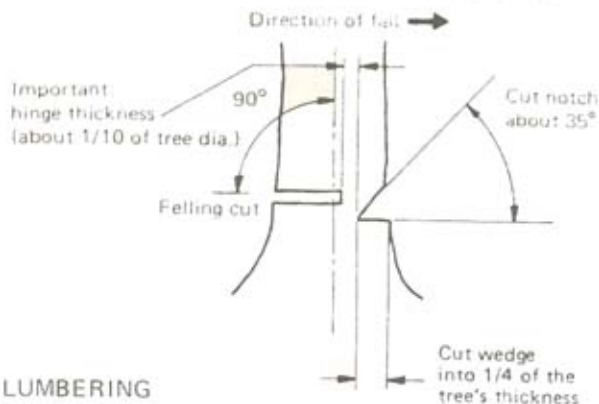
FELLING AND LUMBERING

Wear safety shoes, snug-fitting clothing, and eye, ear and head protection devices.

- o It is important to familiarize yourself with the chainsaw before you actually do the felling and lumbering.
- o For this, we suggest you use the chainsaw to cut a few felled trees.

FELLING

- o Determine the direction of the fall of the tree you are going to cut.
- o Remove all obstacles around the tree to make the felling job easy and safe.
- o Find a shelter in advance for emergency.
- o Make a notch in the tree as shown. The tree should fall in the direction where the notch is provided.
- o Cut the tree from the opposite side to the notch. The cut should be at the level slightly higher than the notch. Refer to illustration as shown.



LUMBERING

- o Secure the felled tree to lumber. If not secured, the log may roll down when you work on a slope.
- o Use a support under the felled tree and avoid the chain or the guide bar to be caught in the cut.

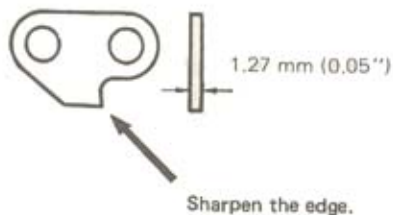
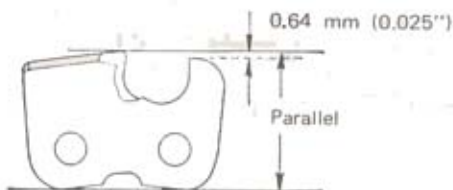
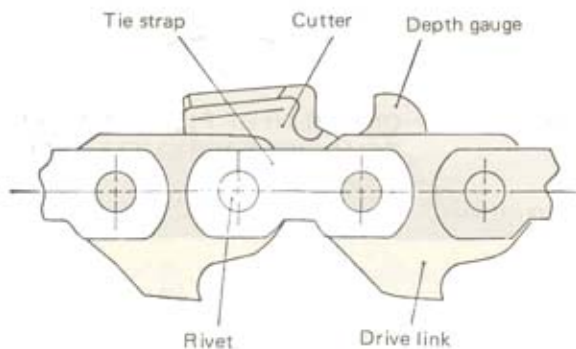
DO NOT OVERREACH OR STAND ON
UNSTABLE SUPPORT

Do not allow either people or animals into work area.

SETTING THE CHAIN

DESIGNATIONS OF PARTS

- o The chain components are designated in the illustration below.
- o The chain pitch for the Echo Model 315 is 9.53 mm (3/8 in)
- o Do not use a chain with different pitch from 9.53 mm.



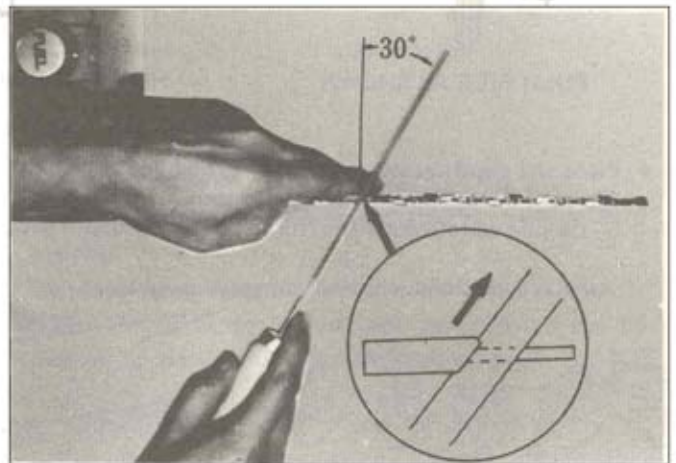
- o The depth gauge is to control the cutting depth of the chain.
- o Always keep the left and right cutters equally sharp.
- o The drive link serves to remove sawdust from the groove in the guide bar. Therefore, keep sharp the lower end corner as indicated by the arrow.

SETTING THE CHAIN

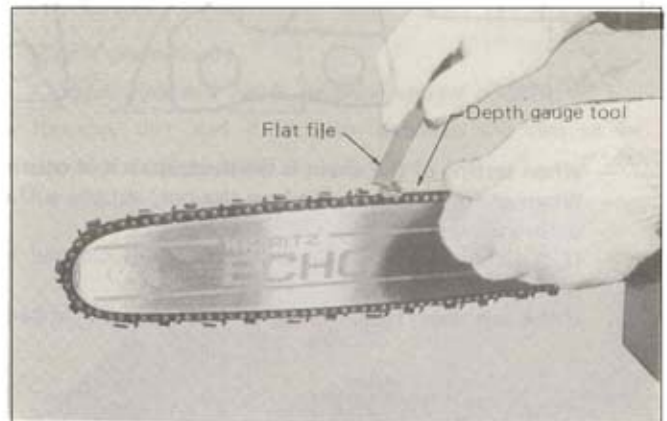
- o Blunt or irregular cutters will result in poor cutting performance. Increase in chain vibration, and premature damage to the chainsaw.
- 1. Always keep the cutters sharp.
- 2. Align the left and right cutters properly.

RECOMMENDED CHAIN SETTING PROCEDURES

- o Use a 4.0 mm dia round file and flat file.
- o Push to file only. Do not file by return stroke.



- o As mentioned previously, the depth gauge is to control the cutting depth of the chain. Therefore, maintain the depth.
- o Set the depth gauge tool firmly on the cutters and file the depth gauge with a flat file.



NOTE:

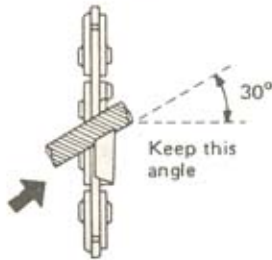
- o After filing, round the sharp corners of the depth gauge.

FILING THE CUTTERS

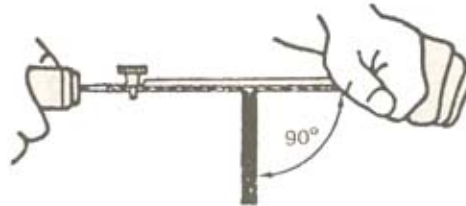
These instructions are for the Oregon 91S saw chain.

For setting saw chains, round file (4 mmφ: 5/32") and flat file are used.

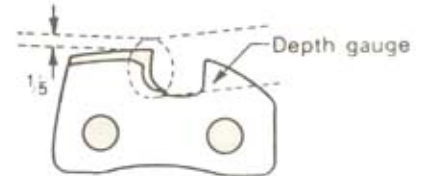
- To keep correct position and correct angle, use the file holder (Sure Sharp).
 - Round file (P-No. 897510-03930) and flat file (P-No. 897511-00230) are optional.
 - Please inquire about the file holder, if desired.
- File the cutters as below.



PUSH FILE AS SHOWN



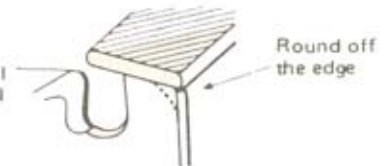
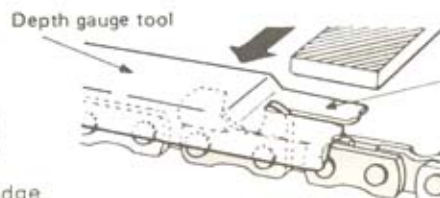
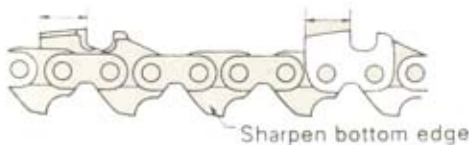
HOLD FILE HOLDER LEVEL



ONE FIFTH OF FILE DIAMETER REMAINS ABOVE CUTTER EDGE

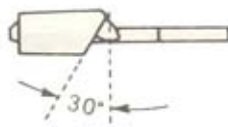
- Place the depth gauge tool firmly on guide bar so that depth gauge protrudes. Then file top of depth gauge with flat file until flat with top of the gauge tool.
 - Be sure to round off the front edge of the depth gauge.

Keep all cutters same length

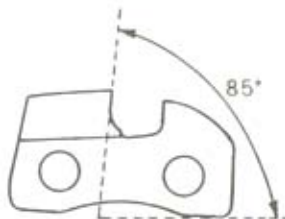


- Properly filed cutters are shown below.

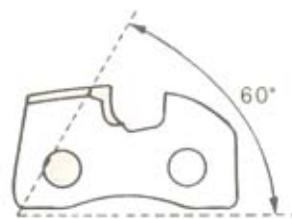
(Top plate angle)



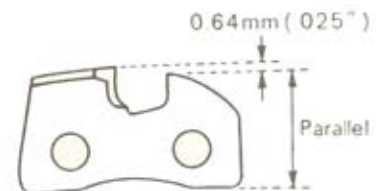
(Side plate angle)



(Top plate cutting angle)



(Depth gauge)



- When setting of the chain is finished, soak it in oil and wash away filings completely before using.
- When chain has been filed on the bar, supply sufficient oil to it, rotate the chain slowly to wash away the filings before using again.
- If the chain saw is operated with filings clogged in the groove, the saw chain and the guide bar will be damaged prematurely.
- If the saw chain becomes soiled with resin, for instance, clean it with kerosene and soak it in oil.

NOTE:

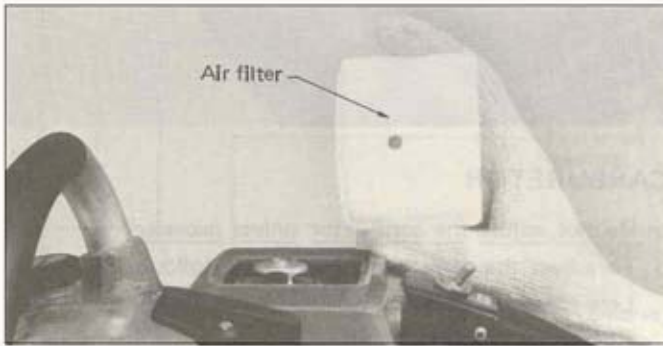
When replacing with new saw chain, ensure that it is used with corresponding pitch sprocket.

When replacing clutch case (with sprocket) snap ring (fitted on the drive shaft) should be replaced with a new one.

MAINTENANCE AND CARE

AIR CLEANER

- o Clean it daily.
- o Remove air cleaner cover.
- o Pull up to remove.
- o Brush off dust lightly or wash the filter in gasoline.
- o When you wash it in gasoline, dry completely before putting it back in place.



SPARK PLUG

- o Check periodically.
- o The standard spark gap is 0.6–0.7 mm (.023–.028 in.)
- o Adjust the spark gap if wider or narrower than the standard gap
- o Remove carbon dust if deposited and clean if dirty.



FUEL FILTER

- o Check periodically.
- o Clogged filter will cause engine trouble such as hard starting.
- o Do not allow dust to enter into fuel tank.
- o When the inside of the fuel tank gets dirty, it can be cleaned by rinsing the tanks out with gasoline.

OIL STRAINER

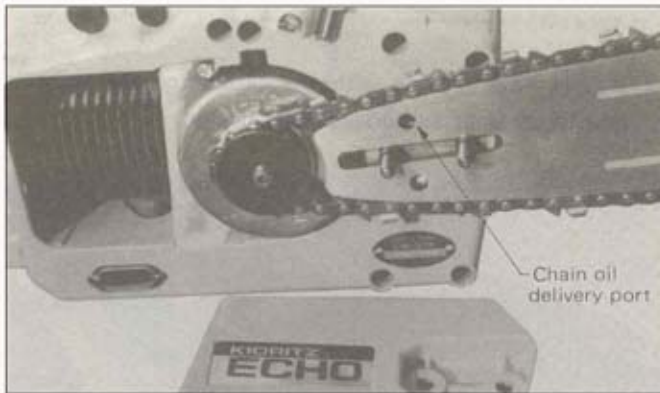
- o Check periodically.
- o Clogged strainer will cause trouble in the lubricating system and in engine performance.
- o Do not allow dust to enter into oil tank.
- o When the inside of the tank gets dirty, strainer can be cleaned by rinsing out the tanks with gasoline.

CYLINDER FINS

- o Check periodically.
- o Clogged fins will result in poor engine cooling.
- o Remove dirt and dust from between the fins to let cooling air pass easily.

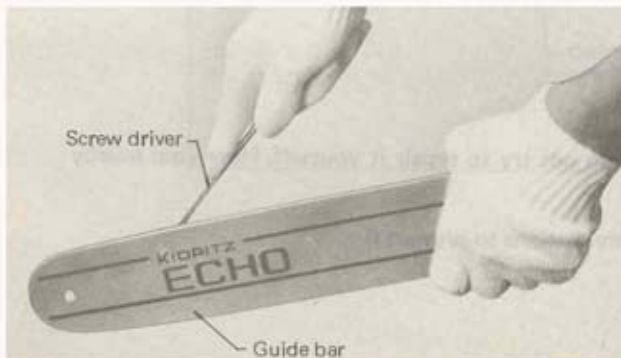
CHAIN OIL DELIVERY PORT

- o Clean the port daily
- o Clean the guide bar lubricating oil port area, too.



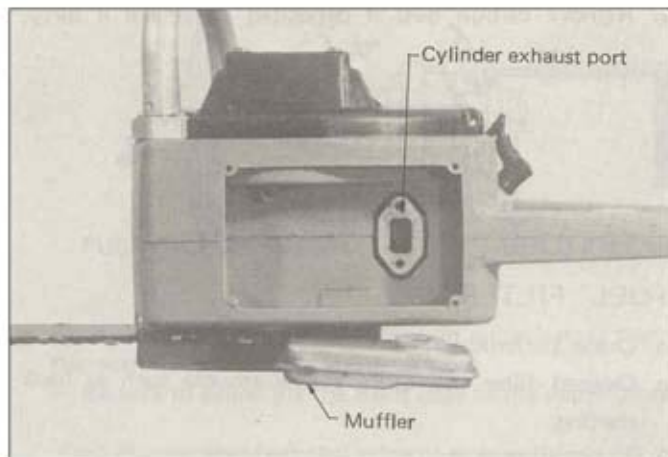
GUIDE BAR

- o Clean it daily before you use the chainsaw.
- o Clean the groove in the guide bar using a small screw driver.



MUFFLER

- o Carbon deposit in the cylinder exhaust port and muffler will reduce the engine output and cause sparking from the muffler.
- o Remove the muffler and clean the cylinder exhaust port. Be careful not to damage the cylinder.

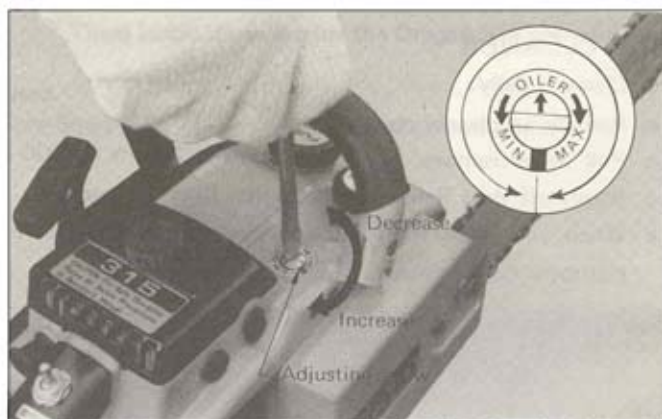


NOTE:

- o Use wood or non-ferreous tools to prevent damage to hard chrome plating.

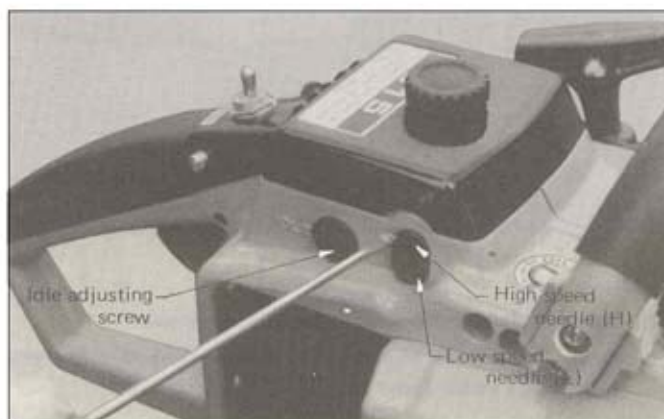
AUTOMATIC OILER

- o The discharge volume of the automatic oiler is adjusted prior to shipment from factory to 10–14 cc/6000 RPM.
- o To reduce discharge volume, turn the adjusting screw counter-clockwise. Turn it clockwise to increase volume.
- o Do not turn the adjusting screw beyond the Max. or Min. limit of the Volume adjustment.



CARBURETOR

- o Do not adjust the carburetor unless necessary.
- o To adjust the carburetor, proceed as follows.
 - Low-speed needle valve (L) 3/4 to 1 turn
 - High-speed needle valve (H) 3/4 to 1 turnTurn the corresponding adjusting screw lightly clockwise to fully closed position and return the screw by the number of turns indicated above.
- Idle adjusting screw 2,500–3,000 rpm
- o If you have trouble with the carburetor, we suggest you to see your authorized Echo dealer.



CAUTIONS

- o When there is serious trouble with your chainsaw, do not try to repair it yourself. Have your nearby authorized Echo dealer do it for you.
- o Gasoline is highly inflammable. Take all necessary precautions to prevent fire.

TROUBLE SHOOTING

In the event that your chain saw engine is not running properly, locate the symptom in the chart, and repair as necessary.

Table 1

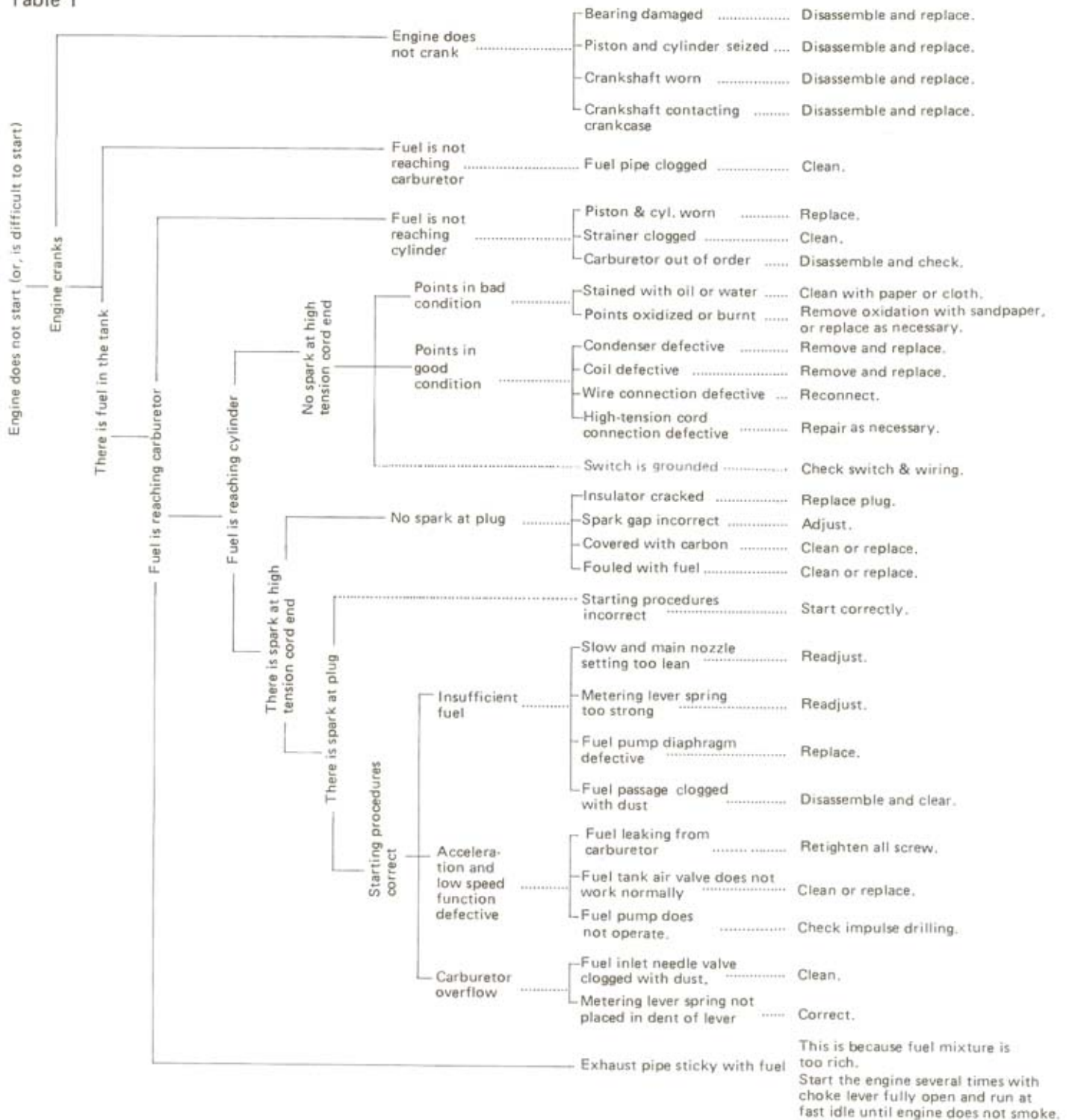


Table 2

