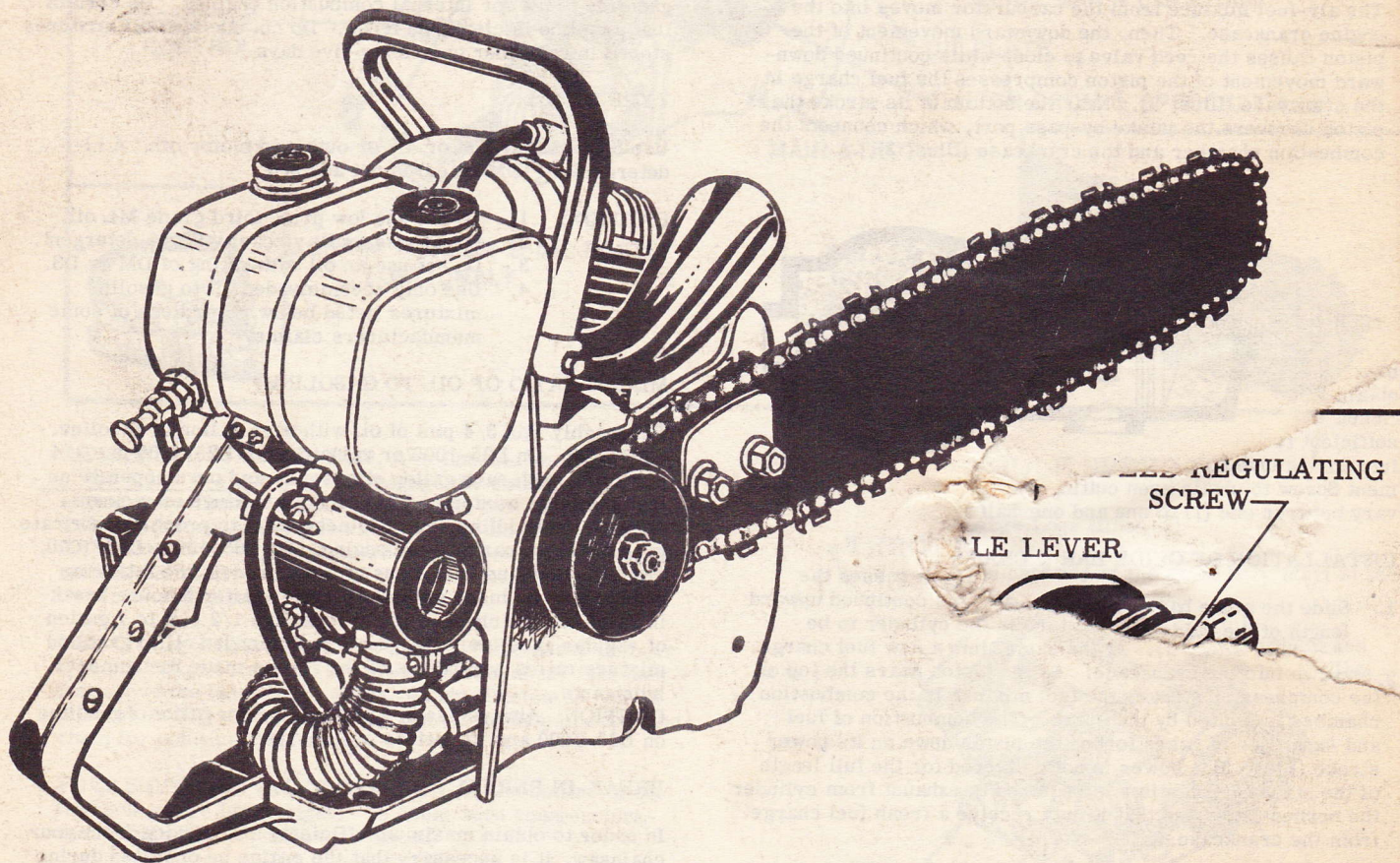


# OWNER'S GUIDE

## CHAINSAW

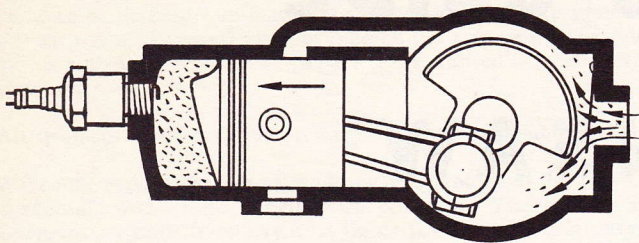


*Manufactured by*

**CLINTON ENGINES CORPORATION**

MAQUOKETA, IOWA

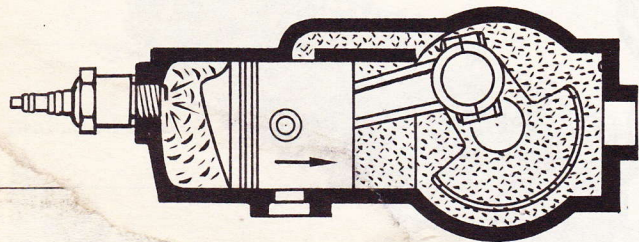
In a two cycle engine, intake, compression, power and exhaust are completed in two strokes of the piston. A power stroke results with every revolution of the crankshaft. On the upward stroke of the piston, a partial vacuum is created in the crankcase (Illus. 1).



## COMPRESSION

1

First, the vacuum and outside air pressure cause the reed valve between the crankcase and the carburetor to open. The air-fuel mixture from the carburetor moves into the engine crankcase. Then, the downward movement of the piston causes the reed valve to close while continued downward movement of the piston compresses the fuel charge in the crankcase (Illus. 2). Near the bottom of its stroke the piston uncovers the intake by-pass port, which connects the combustion chamber and the crankcase (Illus. 3).

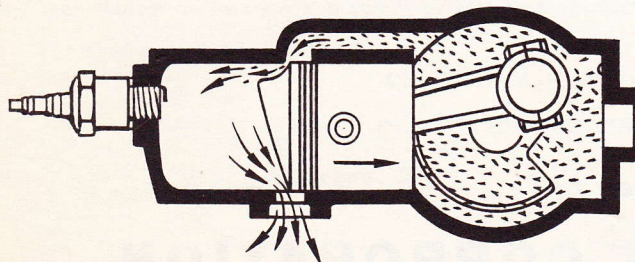


City

2

If warranty is required:

1. Do not use (Illus. 1). At the same time a new fuel charge is drawn into the crankcase. As the piston nears the top of the compression stroke, the fuel mixture in the combustion chamber is ignited by the spark. The combustion of fuel and expansion of gases forces the piston down on its power stroke (Illus. 3). Power is not delivered for the full length of the stroke. Sometime is required to exhaust from cylinder the burned gases, so that it may receive a fresh fuel charge from the crankcase.



## EXHAUST

3

As the piston nears the bottom of its stroke, it uncovers the exhaust port opening slightly ahead of the intake port (Illus. 3). This releases pressure of the exhaust gases in the cylinder which is still comparatively high, and allows gases to start escaping. Further downward travel of the piston uncovers the intake by-pass port, the incoming charge assists in forcing the exhaust gases out of the cylinder, to complete the cycle.

## FUEL PREPARATION & LUBRICATION

**DO NOT POUR UNMIXED GASOLINE OR OIL INTO THE FUEL TANK.**

\*Correct fuel and oil mixture is one of the most important points in operating your engine. Follow these instructions carefully.

### TYPE OF GASOLINE

A good grade of regular gasoline, available at your local filling station, is recommended for use in your chainsaw engine. High octane or premium fuels offer no advantages and ARE NOT Advised. White Marine Gasoline is acceptable. Other white fuels should be carefully selected as some white gasoline is not for internal combustion engines. Be certain that gasoline is clean and fresh. Do not use fuel-oil mixtures stored in container over forty-five days.

### TYPE OF OIL

Use SAE #30 oil MM or MS or outboard motor oil. A hi-detergent oil (DM rated) is not advised.

- CAUTION:
1. Do not use low price third grade ML oil.
  2. Do not use multi viscosity oil hi-detergent.
  3. Do not use an oil with rating of DM or DS.
  4. Use only recommended oil to gasoline mixtures listed below regardless of some manufacturers claims.

### MIXING RATIO OF OIL TO GASOLINE

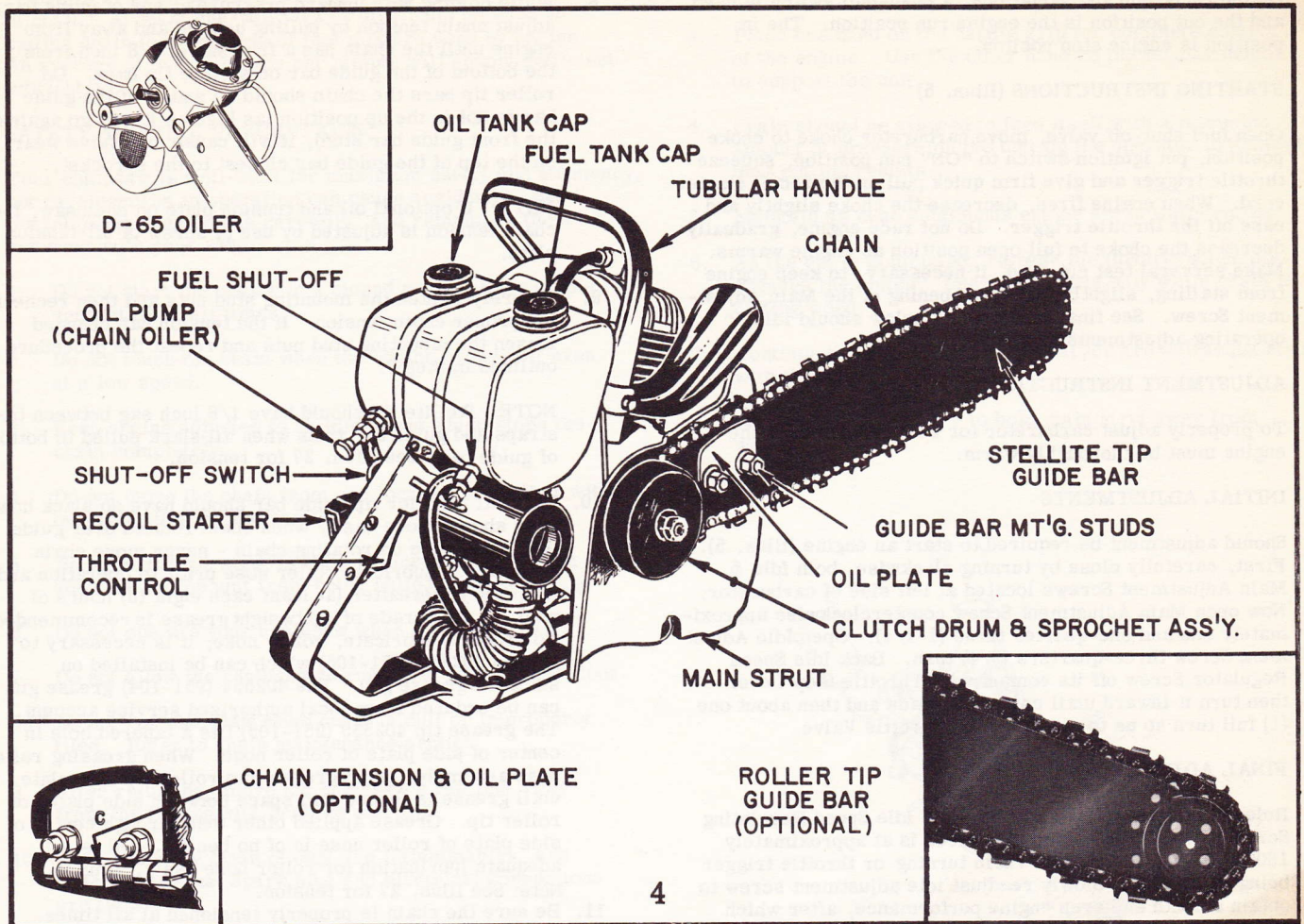
Thoroughly mix 3/4 pint of oil with each gallon of gasoline. CAUTION: On D25-1000 or variations of D25-1000 use 3/4 pint of oil with each gallon of gasoline and never operate on less than this mixture. This rich oil mixture may cause difficulty with idling, but it is necessary to properly lubricate in the various parts of the engine. On D35-1000, D55-1000, and D65-1000 and variations of these models the following change may be made on fuel oil ratio. After 5 hours break-in ratio may be changed to not less than 1/2 pint to 1 gallon of regular gasoline. Use only recommended oil to gasoline mixture ratios regardless of the claims made for some lubricants.

CAUTION: Always use 3/4 pint of oil to one gallon of gasoline on D25-1000 and variations of D25-1000.

### BREAK-IN PERIOD

In order to obtain maximum efficiency and service from your chainsaw, it is necessary that the engine be operated during a break-in period of approximately five (5) hours. Never operate the engine at hi-speed without load or allow it to become overheated. Proper breaking in of key parts will have much to do with the life of your engine. Be sure to check prior to such operation for loose nuts and screws and make all necessary adjustments. Periodic inspection and service by your authorized service dealer will result in long life and good performance of your chainsaw.

Major controls on your chainsaw are conveniently grouped around the hand grip assembly for finger tip action. You will find your saw easy to manage once you associate the following controls with their locations on the saw.



**THE RECOIL STARTER (Illus. 4)** - Located on the left side of the unit. A slight pull will engage the starter with the engine and a firm pull after engagement will crank engine, a spring disengages recoil when the tension is relieved. **CAUTION:** The starter rope when pulled out, should not be released abruptly and allowed to snap back; release slowly to permit complete re-winding.

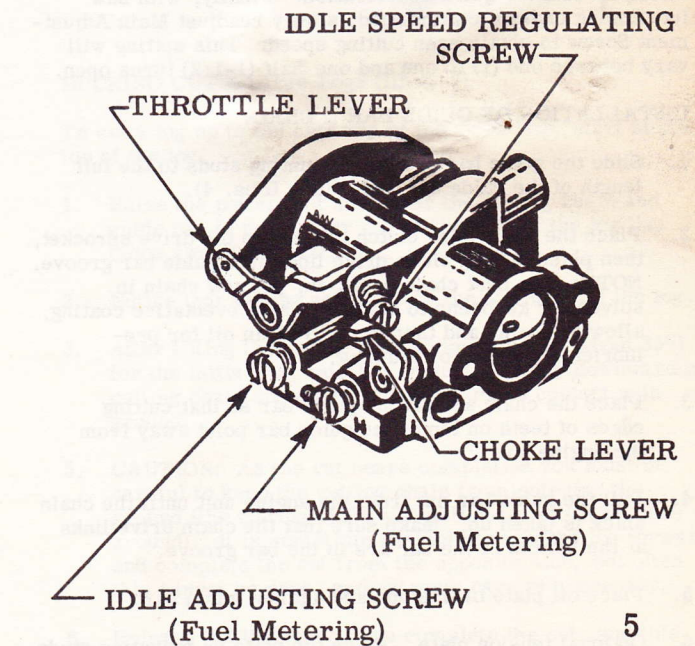
**THE CHAIN OILER (Illus. 4)** - Manually operated, plunger type oil pump, located in the lower portion of the fuel tank just above the hand grip. (Illus. 4 also illustrates type of oiler on D-65). This system forces oil to the guide bar and chain for positive lubrication.

**FUEL SHUT-OFF VALVE (Illus. 4)** - On the bottom of the fuel tank at the lower right. To open, turn counterclockwise until a slight tension is noticed.

**THE THROTTLE CONTROL (Illus. 4)** - Trigger-type, located on the handle grip. The engine speed, or throttle opening, is increased by squeezing the trigger upward into the handle. **CAUTION** - Do not operate at full throttle except while cutting.

**THE HIGH SPEED FUEL METERING ADJUSTMENT SCREW (Illus. 5)** - Located on the left side of the carburetor (Illus. 5). The adjustment is used to obtain proper fuel and air mixture, make the engine run smoothly and achieve maximum power.

**THE IDLE FUEL METERING ADJUSTMENT SCREW (Illus. 5)** - This device is found on the left side of carburetor. It is used to obtain proper idling speed.



**THE CHOKE LEVER (Illus. 5)** - Located on the left side of the carburetor just above the adjustment screws.

**MAGNETO-Ground (Ignition Switch)** - Illus. 4. Located on left side of handle. Decal indicates OFF-ON position.

On the D25-1000 and variations, a push-pull switch is used and the out position is the engine run position. The in position is engine stop position.

#### STARTING INSTRUCTIONS (Illus. 5)

Open fuel shut-off valve, move carburetor choke to choke position, put ignition switch to "ON" run position, squeeze throttle trigger and give firm quick pull on the recoil starter cord. When engine fires, decrease the choke slightly and ease off the throttle trigger. Do not race engine, gradually decrease the choke to full open position as engine warms. Make several test cuts and, if necessary, to keep engine from stalling, slightly increase opening of the Main Adjustment Screw. See final adjustments below should idle or operating adjustments be required.

#### ADJUSTMENT INSTRUCTIONS

To properly adjust carburetor for best performance the engine must be thoroughly warm.

#### INITIAL ADJUSTMENTS

Should adjustment be required to start an engine (Illus. 5). First, carefully close by turning clockwise, both Idle & Main Adjustment Screws located at left side of carburetor. Now open Main Adjustment Screw counterclockwise approximately one and one-quarter turns (1-1/4). Open Idle Adjustment Screw three-quarters (3/4) turn. Back Idle Speed Regulator Screw off its contact with Throttle Stop Lever then turn it inward until contact is made and then about one (1) full turn so as to slightly open Throttle Valve.

#### FINAL ADJUSTMENTS

Release throttle trigger and readjust Idle Speed Regulating Screw (Illus. 5) so engine idle speed is at approximately 1800 to 2200 RPM without chain turning or throttle trigger being depressed. Slowly readjust idle adjustment screw to obtain smooth and even engine performance, after which richen the mixture slightly above this setting to provide sufficient fuel for quick acceleration. Finally, with saw functioning under a cutting load, slowly readjust Main Adjustment Screw to obtain even cutting speed. This setting will vary between one (1) to one and one-half (1-1/2) turns open.

#### INSTALLATION OF GUIDE BAR & CHAIN

1. Slide the guide bar over the mounting studs to the full length of the guide bar slot. (See Illus. 4).
2. Place the chain over clutch drum onto the drive sprocket, then place cutting chain drive links into guide bar groove. NOTE: For best chain break-in, put new chain in solvent or kerosene to remove rust preventative coating, allow to drain, and then dip into clean oil for pre-lubrication prior to mounting.
3. Place the chain around the guide bar so that cutting edges of teeth on top of the guide bar point away from the engine unit.
4. Pull the guide bar out from the engine unit until the chain slack is taken up. Make sure that the chain drive links at the bottom of the bar are in the bar groove.
5. Place oil plate over studs and against guide bar.
6. Optional tension plate. Place the plate on mounting studs with the flat pad against the guide bar; be certain that the chain tension lug, located in the chain tension plate, fits into hole.
7. Put washers and nuts on the guide bar mounting studs, make them snug, but not tight, against the oil plate or optional tension plate.

8. While holding with upward pressure at end of guide bar, adjust chain tension by pulling upward and away from engine until the chain has a free sag of 1/8 inch from the bottom of the guide bar on stellite tip bars. On roller tip bars the chain should be snug. If the guide bar is not in the up position (as high as it will go against the front guide bar stud), it will cause excessive wear on the top of the guide bar closest to the sprocket.

NOTE: If optional oil and tension plate on chainsaw, the chain tension is adjusted by use of screw of oil-tension plate.

9. Securely tighten the mounting stud nuts and then recheck for proper chain tension. If the tension has changed loosen the mounting stud nuts and repeat the procedure outlined in Step 7.

NOTE: Stellite tip should have 1/8 inch sag between tie straps and guide bar rails when all slack pulled to bottom of guide bar. See Illus. 27 for tension.

10. Optional - Roller tip guide bar should have no slack however should move easily when chain rotated over guide bar. Use care on rotating chain - never move chain backward. Lubricate roller nose prior to operation and frequently thereafter (at least each eight (8) hours of use). A good grade of lightweight grease is recommended. To properly lubricate, roller nose, it is necessary to use tip 402555 (951-105) which can be installed on standard grease gun. The 402554 (951-104) grease gun can be ordered from local authorized service account. The grease tip 402555 (951-105) fits a tapered hole in center of side plate of roller nose. When greasing roller nose assembly, pump grease into roller tip side plate until grease is forced into space between side plates of roller tip. Grease applied other than through center of side plate of roller nose is of no benefit. Oil is not adequate lubrication for roller nose ass'y. Illus. 4 Note: See Illus. 27 for tension.
11. Be sure the chain is properly tensioned at all times. Check it often. A chain that is too tight will interfere with proper cutting and will cause serious damage to the guide bar, chain and sprocket. CAUTION: Check and maintain chain tension for long life and best operation. Use extra care with a new chain until the stretch, which is most noticeable in the first hour of cutting, is eliminated.

CAUTION - Never Adjust Chain Tension While Engine Is Running.

12. CAUTION - Oil chain thoroughly prior to setting chain tension. Never set chain tension immediately after cutting. A cool well oiled chain is shorter. Preceding settings consider that chain will loosen slightly on tension during continual cutting, however, will check out as set initially when cool and well oiled.

#### CHAIN AND GUIDE BAR LUBRICATION

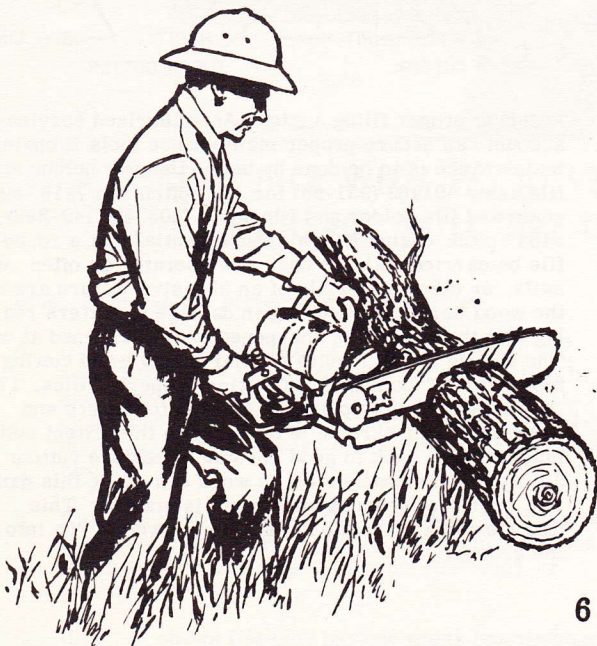
A positive action oil pump is located in an oil reservoir at lower portion of the fuel tank (See Illus. 4) (D-65 oiler varies from this and is illustrated in inset of Illus. 4) provides ample lubrication to the cutting chain and guide bar. Fill this oil reservoir with new SAE #30 oil, being sure to keep the oil level in the reservoir above the intake tube of the oil pump. When the reservoir is filled and cap replaced, push the oil pump plunger a number of times until pressure is felt, or until you see oil appearing on the guide bar opposite the oil fitting in the main strut. In extremely cold weather, or when cutting wood which contains a lot of pitch, sap or resin, use a 50-50 mixture of kerosene and oil in the oil reservoir. This will provide good lubrication as well as keeping the guide bar groove and chain comparatively clean. To properly lubricate the cutting chain it is necessary to depress slowly or push button inward slowly and allow to

return to original position continually for proper lubrication of chain. At least one-half tank of oil should be used on cutting chain for each tank of fuel mixture used by engine. An average of twenty pumps per minute will supply sufficient lubrication.

#### SAFETY AND FIRE PRECAUTIONS

Your chainsaw is well-built for maximum safety and efficiency, but carelessness in operation can cause accidents. Read the following suggestions carefully, and remember them as you work with your saw.

1. Do not start the engine in a closed room. Have ample ventilation at all times.
2. Do not touch the chain when the engine is running even at a low speed.
3. Keep engine adjusted to an idle speed which stops the chain completely.
4. Do not move the chain from one location to another without first stopping the engine.
5. Be sure that the strut is flush against the sawing log to keep the engine unit from being pulled against the log.
6. Do not operate your chainsaw when it needs repair.
7. Do not allow the chainsaw to run while on a cement floor.
8. Do not run chainsaw when chain is dull or improperly filed. Refer to chain maintenance section.
9. After refueling, move the chainsaw a few feet away from the fueling site prior to starting.
10. Keep chainsaw clean of dust and inflammables, and check to see that spark plug and electrical connections are tight.
11. NOTE: Never Carry the Chainsaw from Place to Place with the Engine Running. Safety-First.

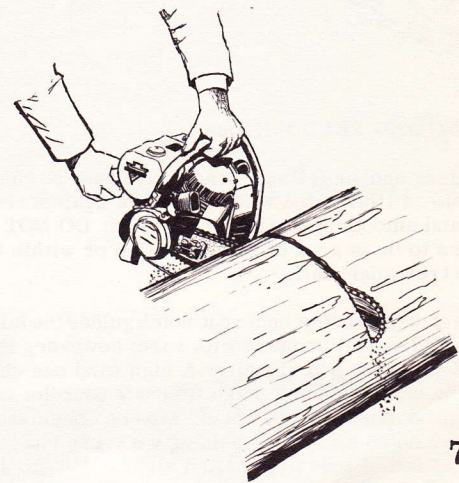


6

BUCKING CUT - Small Logs (Illus. 6)

1. Select a suitable log approximately 8 to 12 inches in diameter.

2. Start your saw according to instructions.
3. Place one hand on the handle grip for complete control of the engine. Use the other hand on the tubular handle to support the unit.
4. Chain should be allowed to feed itself with a minimum amount of pressure on the unit by the operator to achieve best cutting results.
5. Maintain an even continuous engine speed while cutting.
6. As the cut is completed, release the throttle which disengages the clutch. Use full throttle only while chain is cutting wood.
7. Continue this bucking practice until you are well acquainted with the saw.
8. Do not rock saw or try to hold main strut away from wood.

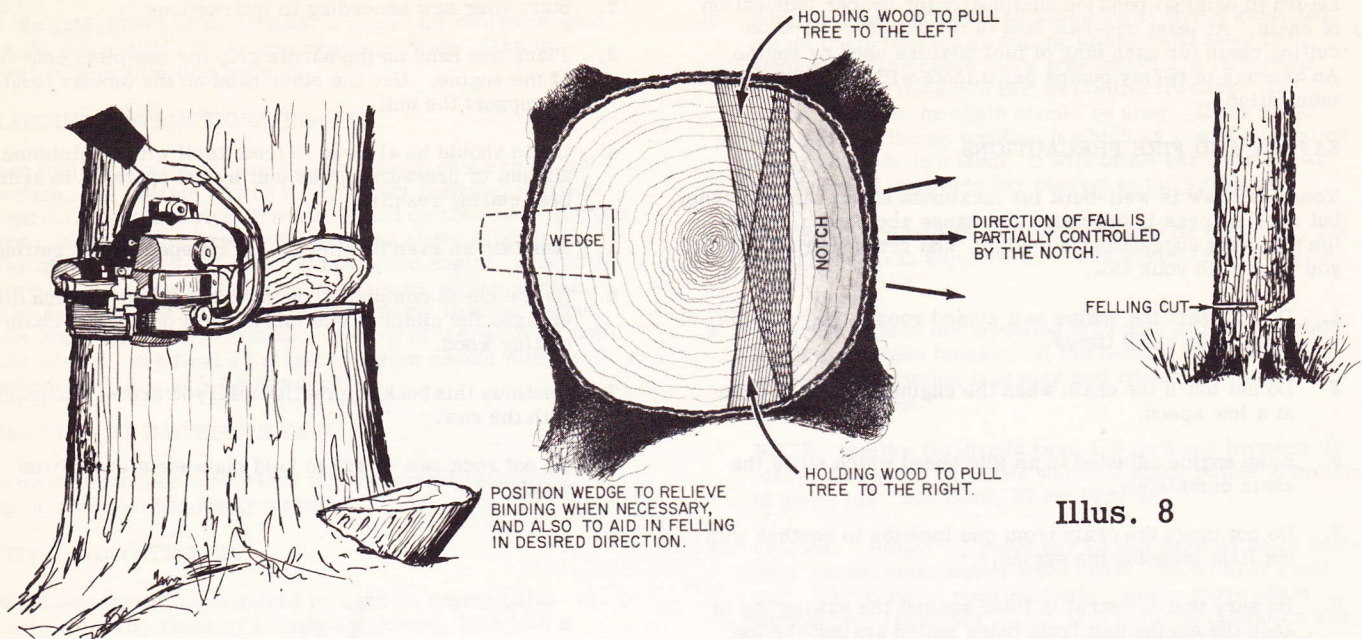


7

BUCKING CUT - Large Logs (Illus. 7)

To cut a log up to the capacity of the guide bar, start at the top of the log.

1. Raise the power unit and lower the cutting chain and guide bar to begin your cut on the side of the log that faces away from you.
2. Notice that sawing action holds the saw against the log.
3. After tilting the unit to the maximum angle (about 35°) for the initial cut, pull the chainsaw slowly downward so cutting chain and guide bar do not make contact with ground.
5. CAUTION: As the cut nears completion you must be careful to keep the cutting chain from entering the ground (the cutting chain will dull rapidly if it touches ground). It is sometime possible to roll the log forward and complete the cut from the opposite side, but often this cannot be done, and extreme care is necessary.
6. Release the throttle as you complete the cut, and this action disengages the clutch. Use full throttle only while chain is cutting wood.
7. Prior to completion of cut, check possibility of log weight pinching saw and wedge log as necessary to prevent binding.



Illus. 8

**NOTCHING AND FELLING (Illus. 8)**

For notching and/or felling, handle chainsaw so the guide bar is held as illustrated with main strut against tree for balance and smooth operation. CAUTION: DO NOT allow spectators to be in area of saw operation or within vicinity of where tree might fall.

1. Remember that the undercut notch guides the fall of the tree and should be made with care; however, first check wind direction and velocity. A high wind can change felling conditions and make it unsafe to fell a tree. Weight balance of tree should also be considered. A proper notch and use of holding wood can change direction of fall of tree to be felled slightly (30° to 45°); however, heavy wind and a leaning tree can determine direction tree has to be felled. By holding your saw at the desired angle any type of notch can be made, but plan carefully. (See Illus. 8).

2. As you start your felling cut remember to LEAVE HOLDING WOOD (See Illus. 8) or the tree might spin out of control.

3. Think before you cut!!

**CUTTING CHAIN, GUIDE BAR & SPROCKET MAINTENANCE**

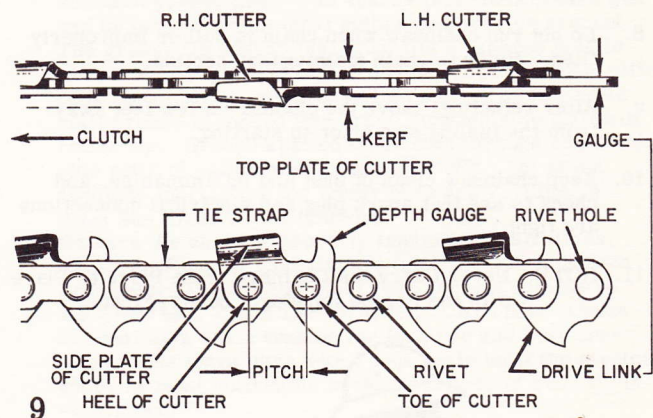
**CHAIN MAINTENANCE** - Correct Chain Break-In & Maintenance is important to "YOU". Refer to Illus. 9 for Chain Nomenclature.

A properly sharpened and maintained chain makes a chainsaw a pleasure to operate plus making it a very productive cutting tool.

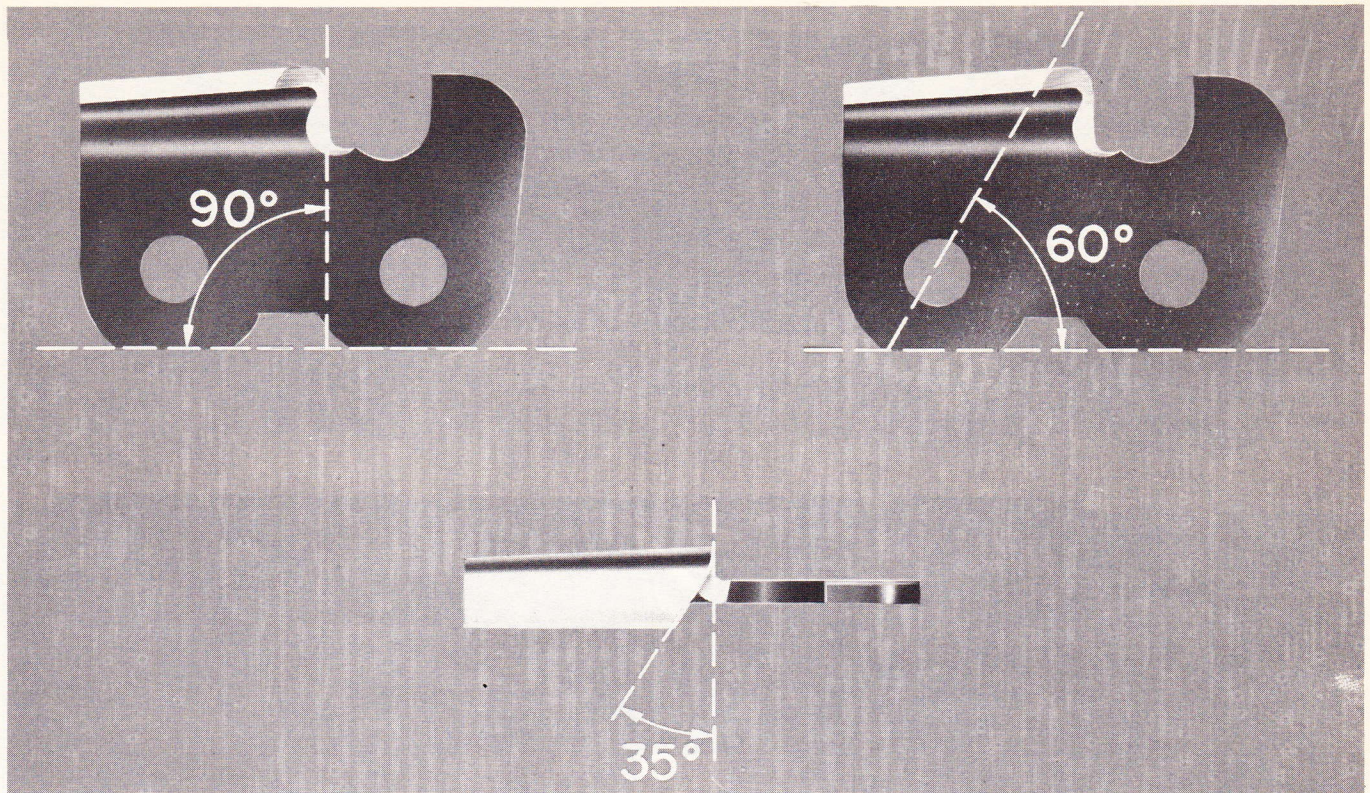
**SHARPENING - CUTTERS**

Chain Pitch	File For New Chain	File - With 50% or less of Cutter Remaining
1/2	1/4	1/4
7/16	1/4	7/32
.404	7/32	3/16

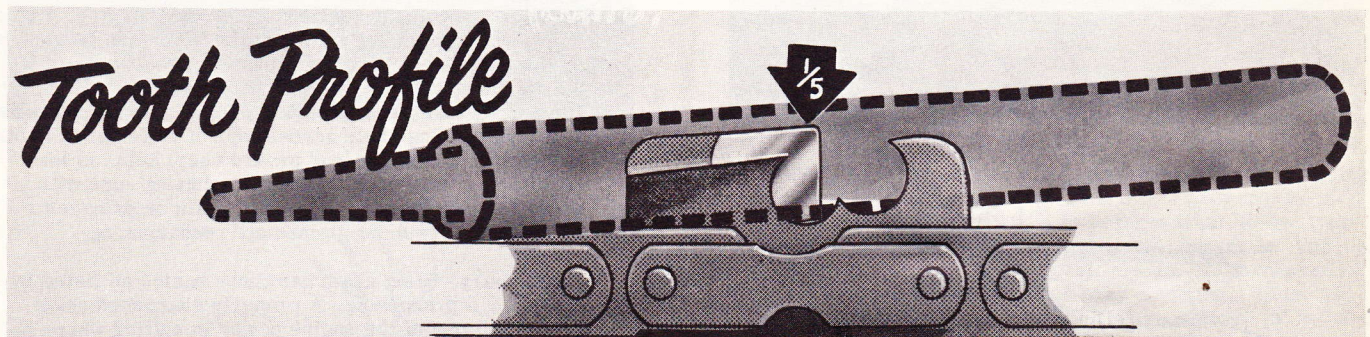
2. It is recommended that File Guide be used to assist in



securing proper filing angles. An authorized service account can secure proper maintenance tools if chain maintenance is to be done by user. Use file holder and file ass'y 401969 (951-95) for 1/2" pitch and 7/16" pitch chain and file holder and file ass'y (403349 (149-299) .404" pitch chain. It is almost essential that a round file be carried with the chainsaw operator as often wire, nails, or other materials of an abrasive nature are in the wood being cut resulting in damage to cutters requiring that the cutters be sharpened or resharpened at once. The cutting chain is quite similar to any wood cutting tool and must be sharp to function properly. Illus. 17 illustrates possible points of damage to cutters and when the cutter chrome is damaged to this extent cutters must be filed back to good chrome to restore cutting ability. Occasionally steel in wood can cause this damage in a matter of seconds after a cut is started. This damage can also occur if chain is allowed to run into the ground.



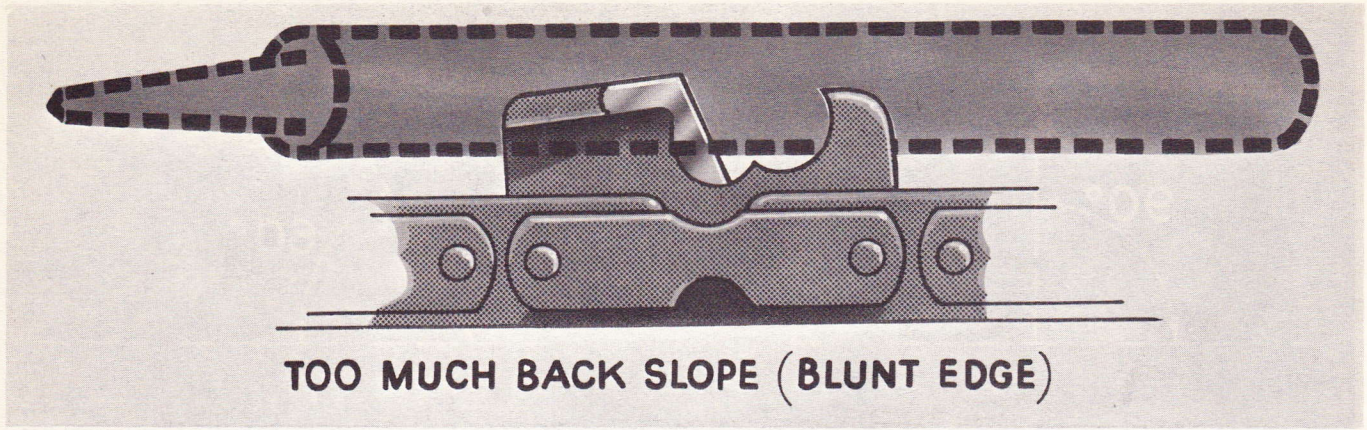
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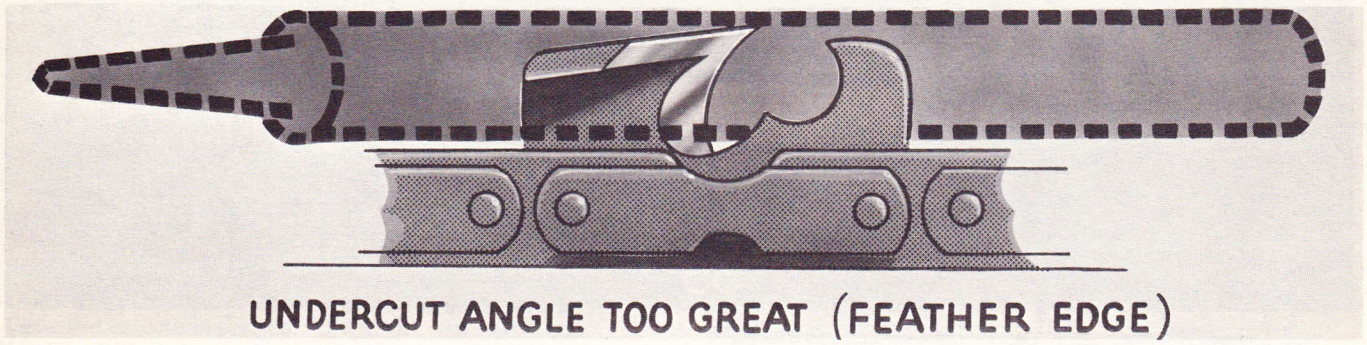
**"A ROUND FILE WITH  $\frac{1}{10}$  TO  $\frac{1}{5}$  OF FILE EXPOSED ABOVE THE TOOTH SURFACE WILL GIVE THE PROPER UNDERCUT ANGLE"**

11

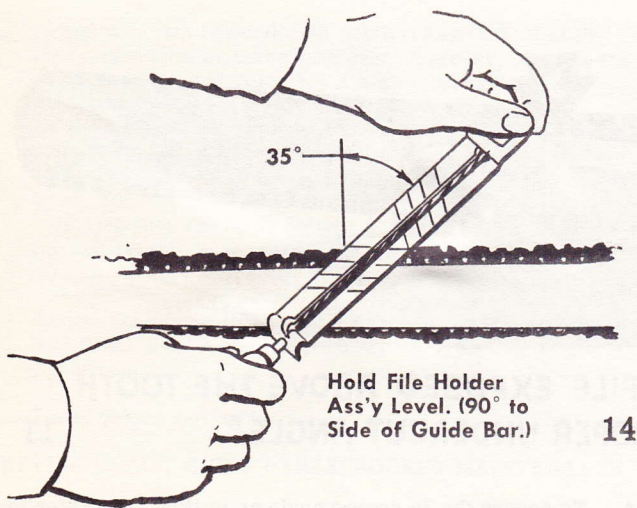
3. Illus. 10 shows the proper angles of a cutter.
  - A. Illus. 11 shows position of file to secure the  $90^\circ$  angle necessary to secure best cutting which is by use of proper size round file with not more than  $\frac{1}{5}$  of file above top of cutter. On new chain approximately  $\frac{1}{10}$  of file above top of cutter secures best results.
  - B. Illus. 12 shows file held too high which has resulted in a blunt cutter across the top and results in poor cutting speed and loss of engine efficiency or performance.
  - C. Illus. 13 shows file held too low which has resulted in a poorly supported cutting edge and can result in a Chain grabbing and/or breaking cutting edge off or turning back of the cutting edge during first cut thus requiring immediate resharping.
4. To secure the 35 degree angle as in Illus. 10, refer to Illus. 14. This illustrates use of a file guide which has lines on it at  $35^\circ$ . These lines are to be lined up parallel to the guide bar to secure the  $35^\circ$  angle which is  $35^\circ$  figured from rail a line at right angle to center line of guide bar or chain.
  - A. Illus. 15 illustrates the part of the cutter affected by the  $35^\circ$  angle and this is the side of the cutter.
  - B. Too little angle results in a blunt side cutter using up horsepower to force chain into cut and also throws much stress on guide bar rail and groove.
  - C. Too much angle results in a poorly supported cutting angle resulting in possibility of turning back or breaking of cutting edge which requires immediate resharping. Too much angle can result in chain grabbing or diving into wood causing undue stress on guide bar, chain and clutch and generally poor handling characteristics of saw.



12



13

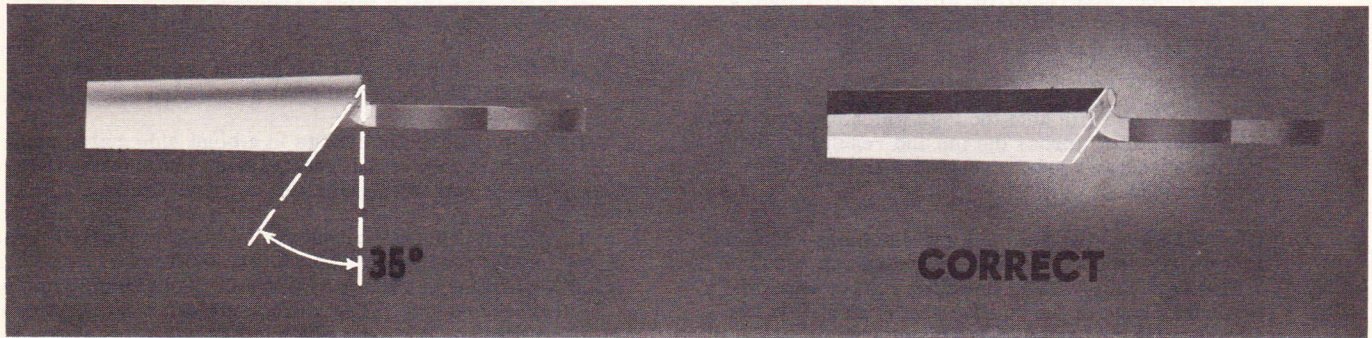


14

5. The third position necessary for proper filing is to hold file parallel to the top of the cutter which can be checked by the file marks. Proper filing will result in the file marks being parallel to top of cutter as illustrated in Illus. 16. A file (end toward user) held too high results in a blunt cutting angle across top of cutter and the other extreme which is file (end toward user) held too low results in a very poorly supported cutting edge with possible grabbing and sticking of chain or damage to cutting edge requiring immediate resharping.

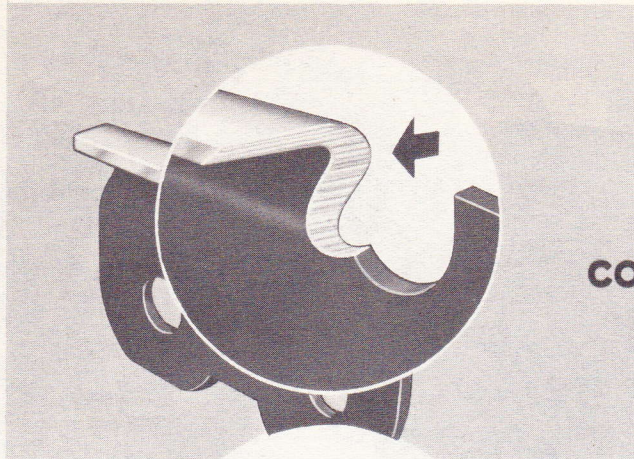
In summary, filing chain has three basics as listed in 2, 3, 4 & 5 preceding. A properly sharpened chain allows full use of the engine power in cutting where as a dull chain or improperly sharpened chain may waste 50%, 75% or more of chainsaw's potential productive cutting ability and result in damage in a matter of minutes to clutch, guide bar, chain and sprocket and this is within the operators control.

NOTE: When sharpening cutters, a very light burr at

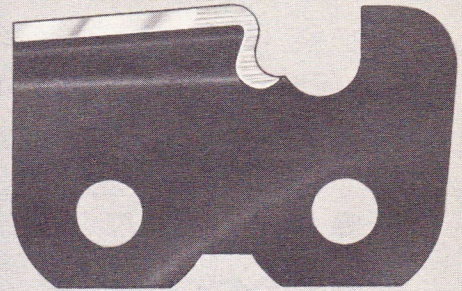


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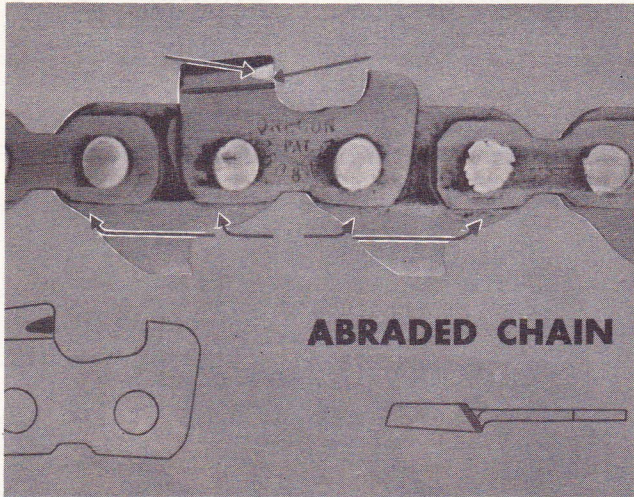




**CORRECT**

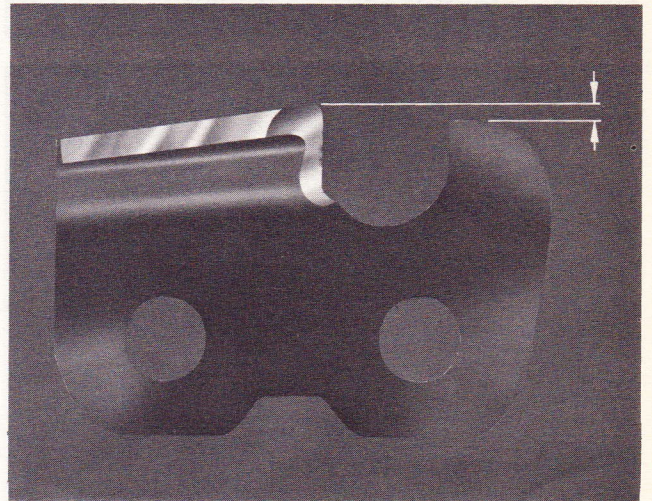


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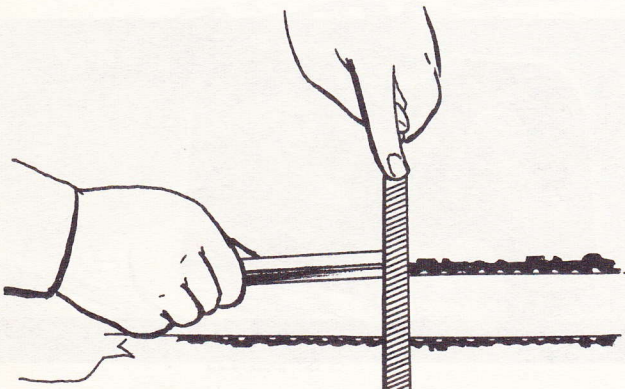


**ABRADED CHAIN**

17



18



**Hold File Level . . (90° to Side of Guide Bar.)**

19

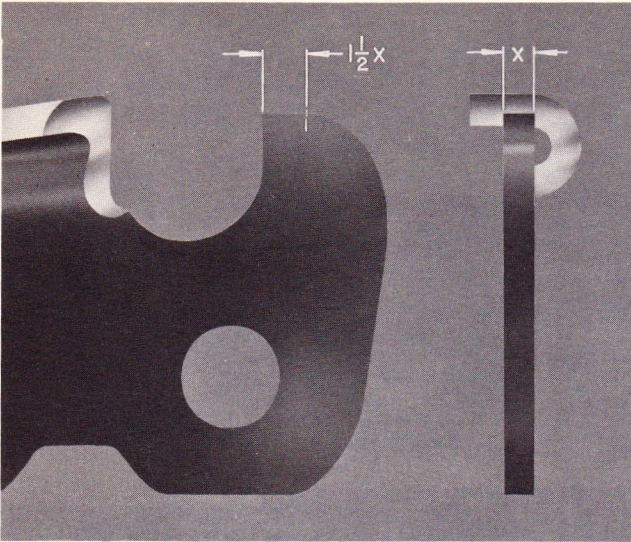
cutting edge indicates that a cutter is sharp. A light burr should extend around cutting edge. Illus. 17 shows damage to chrome and cutter and this type of damage requires filing of cutter back until feed angles are restored which is indicated by good chrome or straight line of cutter to cutting edge. Caution - All cutters should be the same length from cutting edge to the back of cutter for smooth chain operation. Cutters of various length can cause chain to cut to one side and will shorten guide bar and chain life.

6. After the chain is filed a few times the depth gauge setting should be checked. Illus. 18 shows a properly formed depth gauge also that it is to be somewhat lower than top of respective cutter. An average setting is .025. A depth gauge tool 401972 (951-97) can be purchased from authorized account for easy checking. Illus. 19 shows use of depth gauge and flat file 402680 (951-106-5) flat file and handle ass'y used to secure even setting.

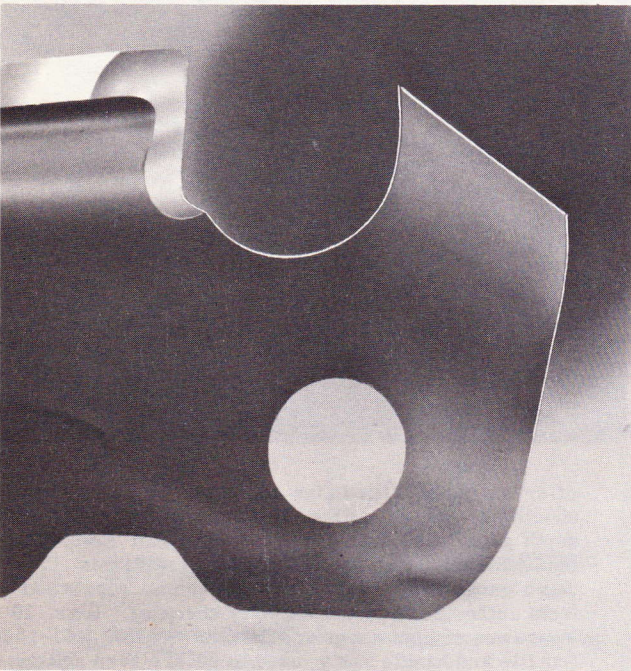
**NOTE:** Even with sharp chain, too little depth gauge clearance will allow chainsaw to cut less than capacity or operate overspeed or the operator may compensate for shallow setting by applying excess pressure resulting in undue wear to guide bar rails and chain; too much clearance on depth gauge will result in chain grabbing and sticking resulting in abuse to chain, guide bar, sprocket, clutch, etc.

- A. Illus. 20 shows proper depth gauge for support of cutter depth.
- B. Illus. 21 shows depth gauge that has improper configuration and this would tend to hammer as each cutter fed into wood resulting in vibration and probably chain breakage.
- C. Illus. 22 shows a pointed depth gauge that will tend to dig into wood resulting in chain sticking and generally poor performance.

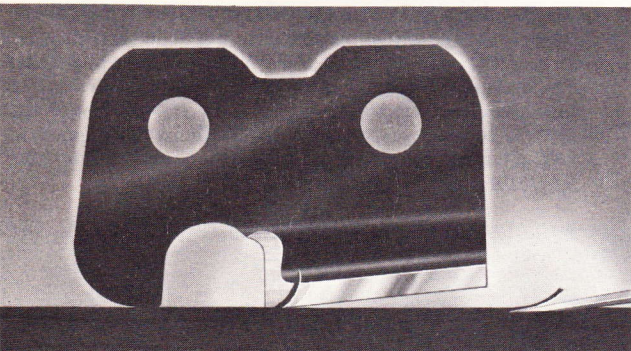
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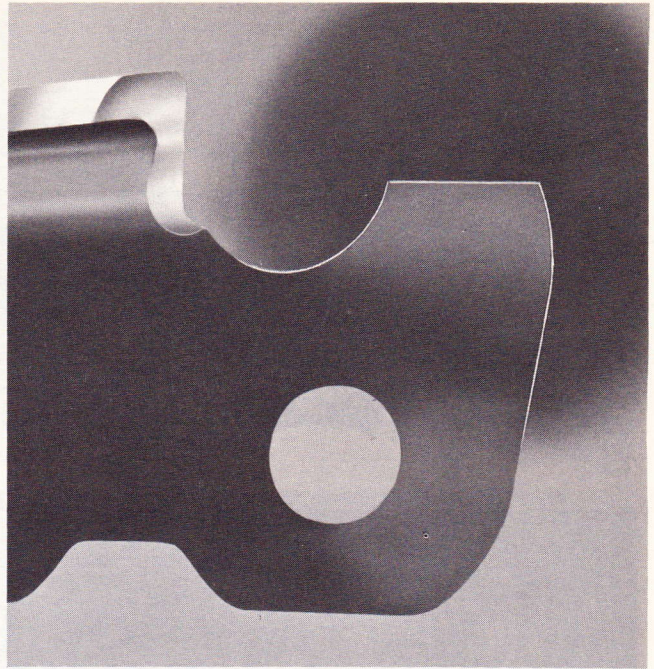
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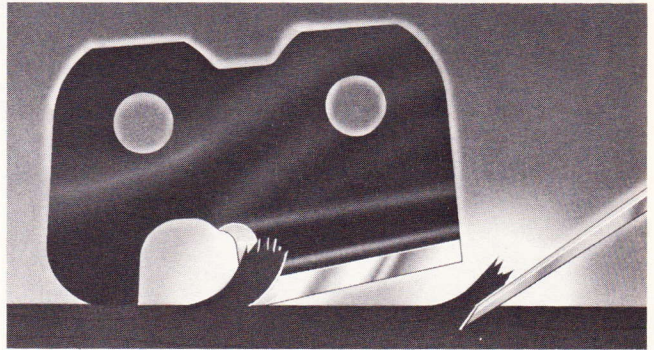
D. Illus. 23, 24 & 25 compare chain cutter to another wood working tool.

There are many variables to proper depth gauge setting for example.

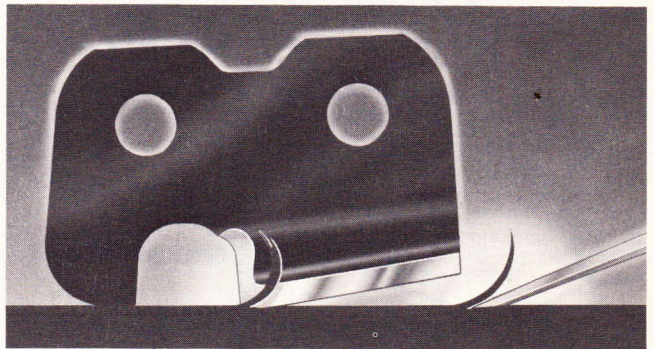
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24



25



1. Type or condition of wood.

Soft Wood	VS	Hardwood
Green Wood	VS	Dry Wood
Normal Wood	VS	Frozen Wood

2. Length of Guide Bar & Chain.  
Longer Guide Bar & Chain require less on depth gauge setting.
3. Operator's  
Some operators prefer to apply more pressure requiring shallower depth gauge setting.

E. A file vise for holding chain for best support in filing may be ordered through local service account.

For filing in the woods, cut downward into a stump about 1/2 depth of guide bar. This will support guide bar for filing and allow hands to be free for best touch up or filing of chain.



### 7. General Comments on Chain

26

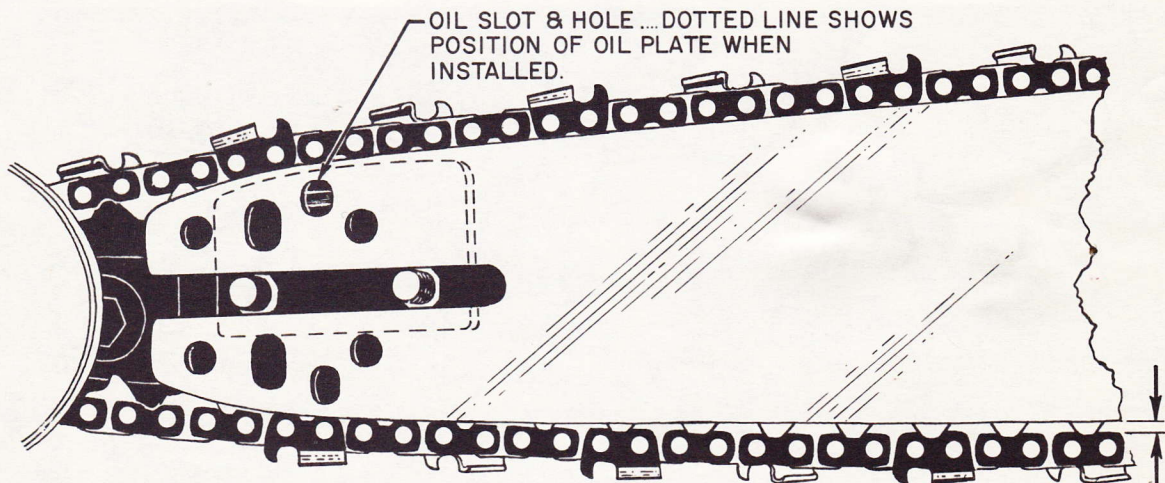
A. Well oiled chain as in Illus. 26 with adequate oil being applied during use will lengthen chain life. When adding oil to chainsaw oil tank, next operate the chain at a slow speed and rapidly pump oil into the chain which will assist greatly in extending chain life. Oiling while chain is operating at high speed can maintain oil in chain, however, best lubrication of chain secured as illustrated in Illus. 26 plus proper oiling while cutting.

- C. Illus. 28 shows proper ass'y of chain should it be necessary to repair chain.
- D. Illus. 29 shows certain maintenance and replacement practices that are required for proper chain operation, smooth cutting, and for proper life of chain, guide bar and sprocket. When a Cutter is replaced, always file new cutter back to equal length of used cutters.
- E. Illus. 9 shows nomenclature of chain.
- F. Illus. 30 shows:

1. Wrong sprocket chain combination which result in very rapid damage to both sprocket and chain.
2. Also illustrated is a sprocket too small for chain and this can be improper combination of new parts or can result from chain stretch. If the chain stretches due to improper operation or maintenance practice (such as too tight on tension, not oiling sufficiently, nosing into dirt, etc.) the chain becomes too large for sprocket resulting in accelerated wear to guide bar, chain, and sprocket plus vibration to complete chainsaw resulting in shorter life of chainsaw.

- G. Illus. 31 illustrates guide bar-chain relationship as to drive tang and bar groove.
- H. Replacement of chain: Use a new sprocket. When chain is replaced, it is a normal practice to also replace sprocket.

Check the new chain against the guide bar if the



Illus. 27

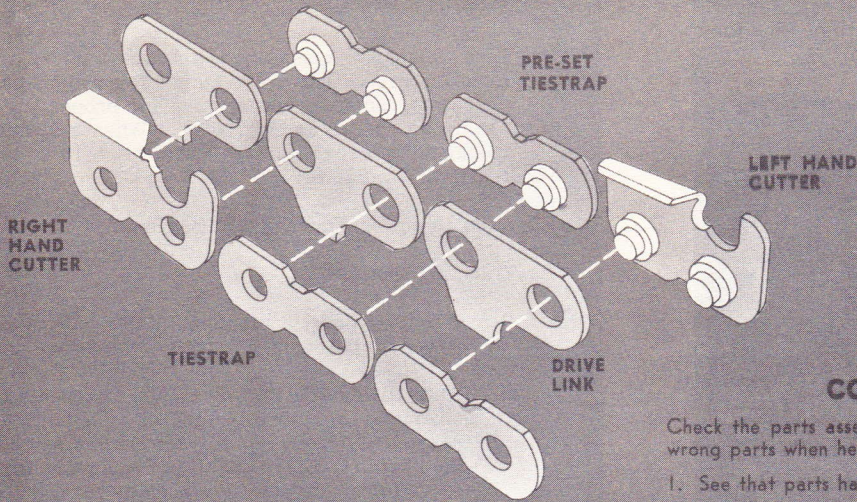
FOR CHECKING CHAIN TENSION REFER TO INSTALLATION OF GUIDE BAR & CHAIN INSTRUCTIONS.

B. Illus. 27 check chain tension after a few minutes operation to be certain chain is not too tight or too loose. Should the tension have changed to too tight or excessively loose, operate chain very slowly and oil chain thoroughly (adequate oil around rivets will shorten chain length) and then recheck tension prior to changing. A cool and well oiled chain is shorter than a hot chain and/or a dry chain so tension must be set with chain oiled and cool.

guide bar has been used to be certain there is adequate depth of bar groove. If guide bar rails have worn down and the guide bar is in good condition, bar may be regrooved to secure adequate groove depth (Illus. 32). Inspection of guide bar for possible regrooving should be by authorized dealer.

### I. GUIDE BAR MAINTENANCE

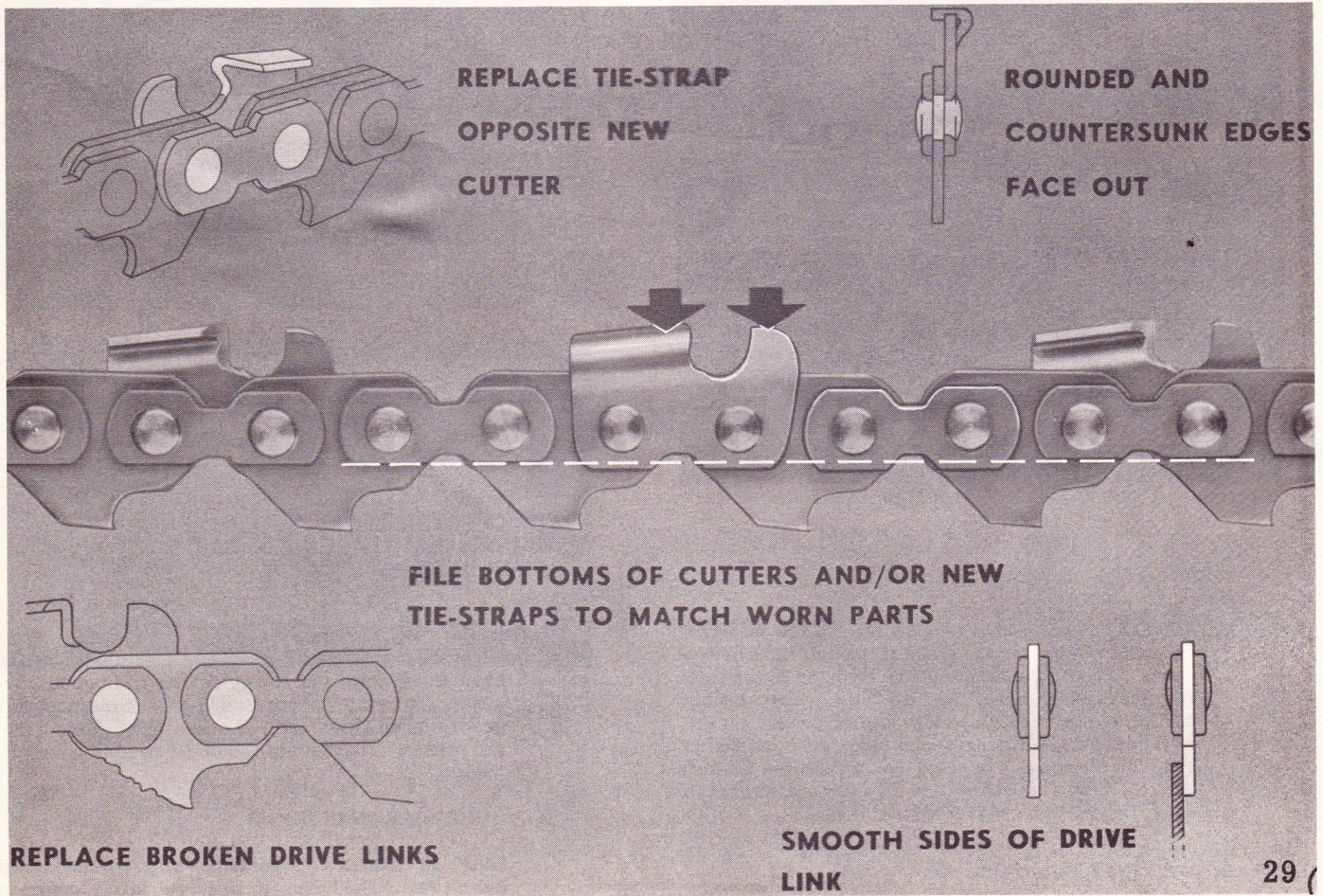
Illus. 33 illustrates a guide bar with a burr turned out on rail. The burr, if light, is fairly common

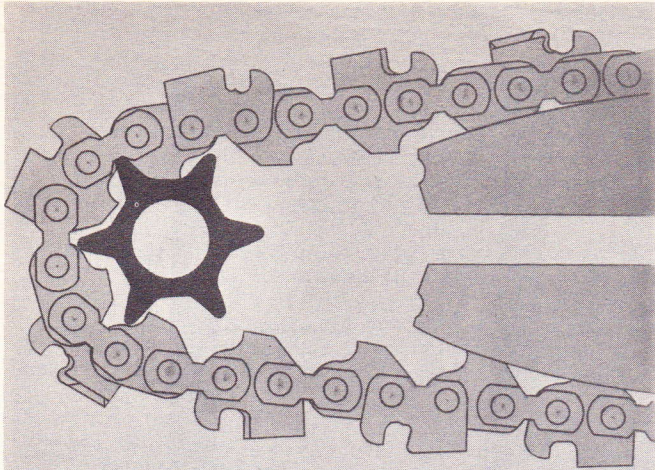


**CORRECT ASSEMBLY**

Check the parts assembly. Frequently, the user will install the wrong parts when he repairs his chain.

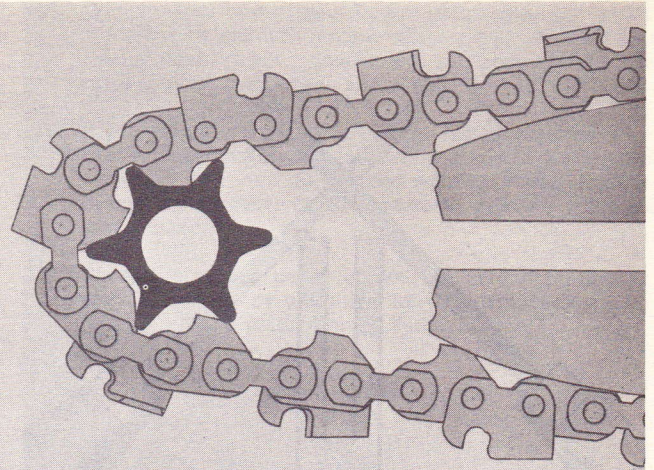
1. See that parts have not been installed backwards.
2. See that all parts are correct size and pitch. Sometimes a 1/2" pitch chain will be repaired with a 9/16" part.
3. Tight joints. If the rivet has been struck too hard the center hub will be broken, resulting in a tight joint.
4. Don't install used parts when repairing chain. For example, if a used rivet is placed in a chain it is very difficult to make a secure connection because part of the rivet hub is gone. It may also break off, and a piece of the rivet head will become lodged between the tie strap, or cutter, and drive link. A tight joint results. Also, the tie straps have been weakened by filing or by use of the chain breaker.



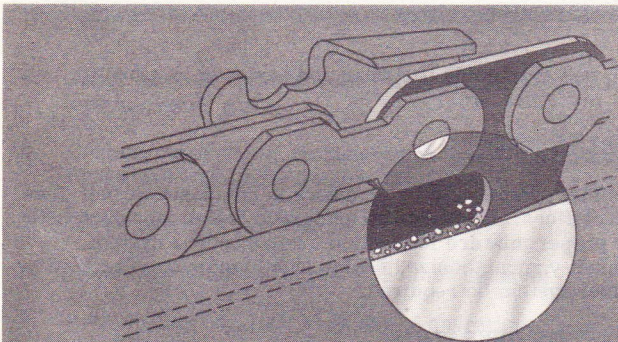


**SPROCKET PITCH TOO LARGE**

30



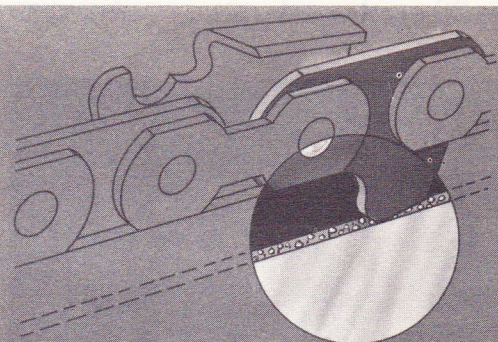
**SPROCKET PITCH TOO SMALL**



**RIGHT**

**DRIVE LINK TANG ARE PEENED BY:**

1. Improper bar entry.
2. Shallow bar groove; increased by built up sawdust.
3. Badly worn bar end.
4. Worn sprocket.



**WRONG**

**THESE CONDITIONS CAUSE:**

1. Excessive wear and weakening of chain.
2. Excessive stretch, with loss of pitch of sprocket.
3. Chain chatter.
4. Chain lean to sides.
5. Chain jumping and breaking when boring.

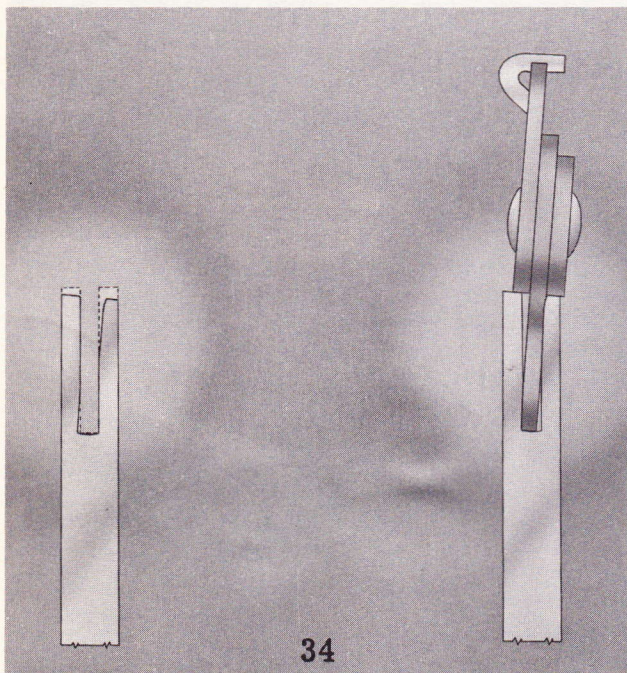
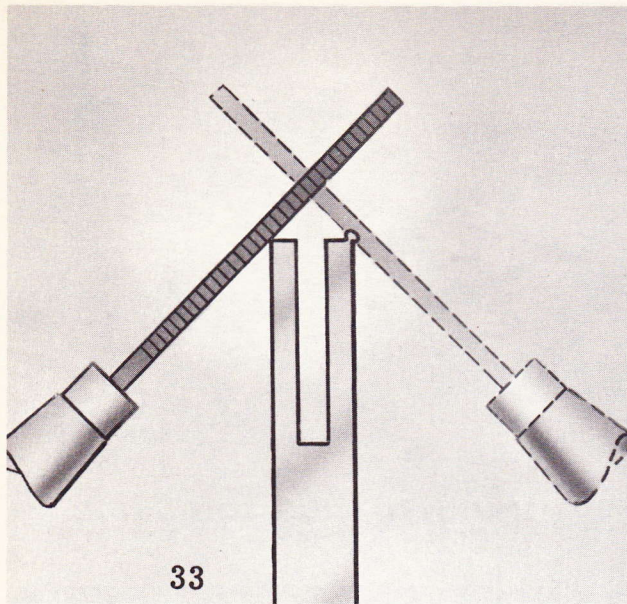
31

RECOMMENDED BAR GROOVE DEPTHS		
CHAIN PITCH	DRIVE LINK TANG LENGTH	MINIMUM RECOMMENDED BAR GROOVE DEPTH
.404"	17/64"	21/64"
7/16"	1/4"	5/16"
1/2"	17/64"	21/64"

32

over a period of operation and should be removed before it becomes a heavy burr. If the guide bar burrs rapidly (Heavy burr in a few hours) review chain for sharpness and depth gauge for adequate clearance. Burr is formed by excessive pressure due to dull chain, too little depth gauge clearance or not sufficient lubrication. If burred only on one side, the burring can be due to improper operator use, chain dull one side, shorter cutters on one side or filing angle varying from cutter on one side as compared to other side.

**CAUTION:** A rapidly forming heavy burr warns that damage is occurring to the chain and guide bar and probably also to the drive sprocket. A heavy



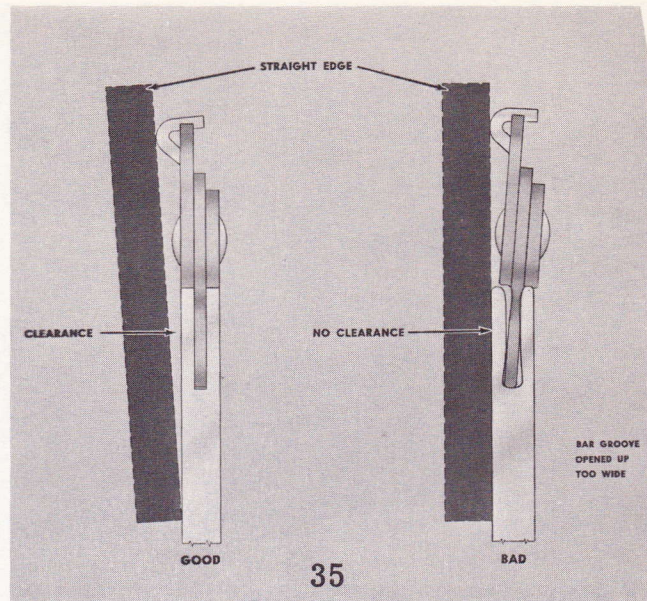
burr on rail will indicate heavy wear to chain also and indicates excess temperatures on both chain and bar to the point that splitting or cracking can occur to guide bar or parts of chain. This is within control of the user. Immediate action should be taken to correct cause of burring rather it be handling of saw, chain angles depth gauge setting, cutter length, lack of lubrication, etc.

Illus. 34 shows what can occur if corrective action is not taken immediately. When chain is not supported by even rails it will not cut straight.

Illus. 35 shows bar groove, bar rail, and chain wear to the point that the chain is not cutting wide enough for chain and bar to go through the cut. The bar groove & rail and drive link holds the cutters in position for cutting.

**NOTE:**

The rotating of guide bar 180° after each day of use



will even guide bar wear and assist in lengthening guide bar life.

**FUEL SYSTEM**

The fuel system in your chainsaw is composed of fuel lines and orifices. It utilizes an automatic fuel pump which puts the proper mixture into action throughout the system. Consult your authorized dealer should inspection or repair of fuel system be required.

**OIL PUMP OPERATION**

Since proper lubrication of chain and guide bar is so important, be sure to check oil flow from this system. If oil fails to flow to the guide bar and chain when the oil pump plunger is pushed, or if there is no pressure required to depress the plunger, the pump is not functioning. See your authorized service station dealer.

**GAS CAP & GASKET**

The filler cap like most gas caps has an air-hole in it. This is because the fuel tank must take in air as fuel is removed from the tank.

**MAGNETO ASSEMBLY & IGNITION SYSTEM (Flywheel Type)**

Remember the magneto should be inspected after every 100 hours of operation. If the engine refuses to start or is hard to start, check magneto and spark plug. (If the spark plug is badly burnt, replace) with spark plug of equal reach and equivalent heat range. Spark plug setting is .028 to .033. The breaker point setting is .018 to .021 with rocker arm on cam lobe.

**CLEANING VALVE PORTS (Exhaust)**

The only servicing required for the valve ports is an occasional cleaning to remove carbon deposits.

1. Remove muffler assembly from chainsaw engine which will expose the exhaust valve ports.
2. The engine should be turned over by hand until the piston moves below the port openings, which will allow greater access for the cleaning of these ports.

3. Clean with suitable instrument capable of scraping and removing carbon deposits within these ports.
4. Care should be taken not to damage or score top of piston when cleaning. Also use care not to burr ports which can cause damage to piston and rings. Spark plug should be removed and engine cranked over several times to blow loose carbon from combustion chamber after cleaning the ports.

**MAINTENANCE** - Check following prior to each operation of chainsaw or oftener if appropriate!

By making the following practices a habit or maintaining the following you can keep your chainsaw in good running order and avoid repairs that neglect can make necessary.

1. Cutter tooth sharpness.
  2. Cutter tooth profile.
  3. Cutter depth gauge setting.
  4. Lubrication of chain.  
For increased chain life, soak cutting chain in oil overnight.
  5. Lubrication of optional roller tip - Lubricate with light-weight grease daily.
  6. Chain tension should be checked each time chainsaw fueled and adjusted if required.
  7. Check sprocket for wear.
  8. Check guide bar for burrs - or other damage.
  9. Rotate guide bar 180° each day of operation.
  10. Remove sawdust and dirt daily so that a thorough inspection can be made.
  11. Tighten any loose nuts or screws.
  12. Check fuel and oil lines for leaks, especially at connection points.
  13. Check air filter and brush off dirt. On D25-1000, depress center clip of filter on right side, turn to unhook on left side, remove, tap lightly to remove sawdust and re-install. Replace with a new filter when filter becomes oil soaked or coated with oil and dust.
- CAUTION:** Do not wash D25-1000 air cleaner element in gasoline or kerosene.
14. Do not use compressed air to remove dust or dirt from the OUTSIDE of the carburetor, since damage may be done to diaphragms, etc.
  15. Check muffler and exhaust ports when the loss of power is apparent. If ports are plugged or dirty, clean them.
  16. As often as necessary, remove the cutting chain from the guide bar and allow it to soak overnight in a pan of kerosene to remove the sap and resin deposits and then soak in oil to provide lubrication for all parts of the chain.
  17. Remove blower housing periodically and carefully remove debris, dirt or any foreign material lodged between cooling fins or that may be coating cooling fins. Proper cooling can only be secured with open, clean cylinder fins. Blocked or dirty cooling fins raise operating temperature and reduce engine life.

18. Cold weather operation. Do not place chainsaw with the guide bar or chain in a snow bank or pool of water when cutting chain is hot. Sudden extreme temperature change can result in brittleness and resulting cracking.
19. If you notice symptoms of trouble but cannot find the cause, check with your authorized service dealer to be sure that your saw is in good running order or that necessary corrections are made to restore potential performance.
20. Check the yellow pages of your directory for local service. Parts or units are not to be returned to factory without prior factory authorization.

CHAINSAW WARRANTY REGISTRATION

WARRANTY

This Chainsaw Unit is warranted for 45 days from the date of purchase (30 days for commercial or rental use). The Clinton Engines Corporation will repair or replace at no charge to the original purchaser (end user), any part or parts found to be defective in material and/or workmanship when inspected by an Authorized Service Outlet or Clinton Engines Corporation. (Normal maintenance on the cutting chain, guide bar, sprocket, and clutch is the responsibility of the owner and/or user. These parts are warranted for defective parts and/or workmanship for the same period as the chainsaw.

All transportation charges on warranty material submitted for replacement is to be paid by the purchaser.

Warranty repairs are to be made by an Authorized Service Outlet only; that is a Service Outlet that has a direct service agreement with Clinton Engines Corporation. There is no other warranty expressed or implied. Clinton Engines Corporation shall in no event be liable for consequential damages.

HOW TO SECURE SERVICE

Mr. Salesman or Mr. Dealer: Please fill out this warranty form to insure that your customer will receive warranty service if needed.

Mr. Customer: Please retain this warranty form along with your Chainsaw Operation and Maintenance Manual. Should warranty service be required, present this completed warranty form to your Authorized Service Center along with the Chainsaw.

CAUTION: Please read the Operation and Maintenance instructions prior to starting the chainsaw.

Owner's Name City State
Street Address or R. F. D. No. County
Chainsaw Model No. (Copy numbers from name plate) Chainsaw Serial No.
Date Purchased Purchased From
City County State

WARRANTY PROCEDURE

If warranty is required:

- 1. Do not attempt to disassemble to repair Chainsaw or have repairs made other than by an Authorized only Servicing Account. Should warranty service be required, it is to be performed by Service Account signed on direct service agreement with Clinton Engines Corporation.
2. Show the Authorized Service Account this warranty registration form.
3. Fill out warranty claim completely with Service Account and sign.
4. If the Authorized Service Account is in doubt whether the repairs necessary are warranty, he is within his rights to charge for the repair and fill out a warranty claim for refund which is submitted to his source of supply and is then subject to the source of supply or factory inspection, review, and decision.

CHAINSAW MANUFACTURED BY
CLINTON ENGINES CORPORATION

Maquoketa, Iowa

Clinton, Michigan