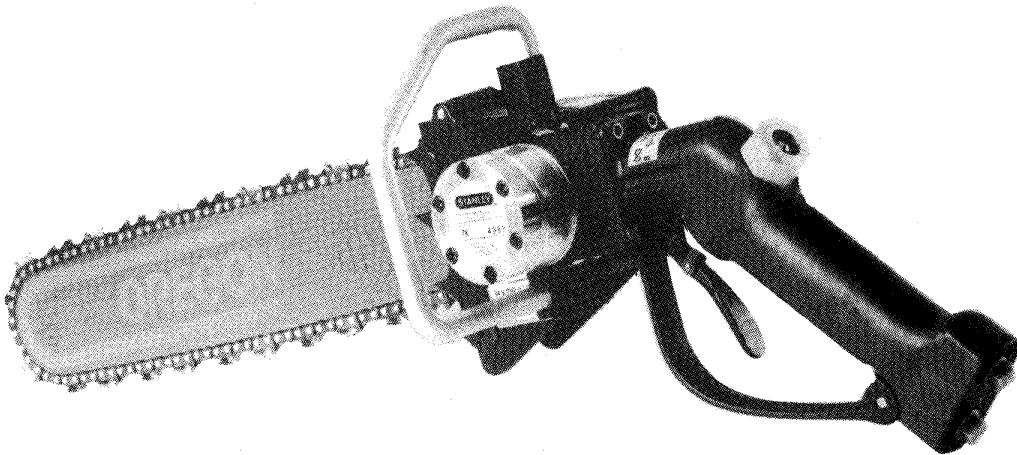


CS04/07 HYDRAULIC CHAIN SAW



Safety, Operation and Maintenance Manual

STANLEY[®]

helps you do things right

SAFETY PRECAUTIONS

Tool operators and maintenance personnel must always comply with the safety precautions given in this manual and on the nameplate and decals attached to the tool and hose.

These safety precautions are given for your safety. Review them carefully before operating the tool and before performing maintenance or repairs.

Supervising personnel should develop additional precautions relating to the specific work area and local safety regulations. If so, place the added precautions in the space provided on page 5.

GENERAL SAFETY PRECAUTIONS

The CS04/07 Chain Saw will provide safe and dependable service if operated in accordance with the instructions given in this manual. Read and understand this manual and any stickers and tags attached to the saw before operation. Failure to do so could result in personal injury or equipment damage.

- Operators must start in a work area without bystanders. Flying debris can cause serious injury.
- Establish a training program for all operators to ensure safe operation.
- The operator must be familiar with all prohibited work areas such as excessive slopes and dangerous terrain conditions.
- Do not operate the tool unless thoroughly trained or under the supervision of an instructor.
- Always wear safety equipment such as goggles, ear and head protection, gloves, snug fitting clothing, and safety shoes at all times when operating the saw.
- Do not overreach. Maintain proper footing and balance at all times.
- Do not inspect or clean the tool while the hydraulic power source is connected. Accidental engagement of the tool can cause serious injury.
- Always connect hoses to the tool hose couplers before energizing the hydraulic power source. Be sure all hose connections are tight.
- Do not operate the tool at oil temperatures above 140°F/60°C. Operation at higher temperatures can cause higher than normal temperatures at the tool which can result in operator discomfort.
- Do not rely exclusively upon the safety devices built in the saw. As a chain saw user, several steps must be taken to keep your cutting jobs free from accident or injury:
 1. With basic understanding of kickback, you can reduce or eliminate the element of surprise. Sudden surprise contributes to accidents.
 2. Keep a good firm grip on the saw with both hands, the right hand on the rear handle and the left hand on the front handle when operating the saw. Use a firm grip with thumbs and fingers encircling the chain saw handles. A firm grip will help reduce kickback and maintain control of the saw. Do not let go.
 3. Make sure that the area in which you are cutting is free of obstructions. Never allow the nose of the guide bar on contact the log, branch, or any obstruction that can be accidentally hit while operating the saw.
 4. Cut at rated operating speeds (gpm).

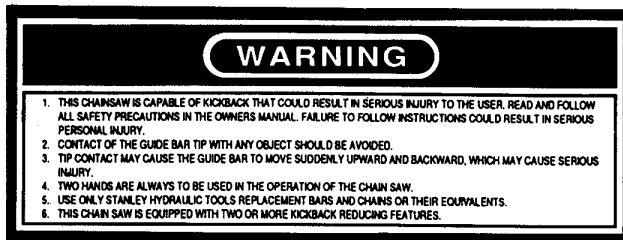
5. Do not overreach or cut above shoulder height.
 6. Follow the manufacturer's sharpening and maintenance instructions for the saw chain.
 7. Only use replacement bars and chains specified by Stanley or the equivalent.
- Always be well rested and mentally alert before operating the chain saw.
 - Do not allow other persons to be near the chain saw when starting or cutting with the chain saw. Keep bystanders and animals out of the work area.
 - Do not start cutting until you have a clear work area, secure footing and a planned escape path from a falling tree.
 - Keep all parts of the body away from the saw chain during operation.
 - Carry the saw with the unit deenergized and the bar and chain to the rear of the body.
 - Do not operate a chain saw that is damaged, is improperly adjusted, or is not completely and securely assembled. Be sure that the chain stops moving when the control trigger is released.
 - Use extreme caution when cutting small size brush and saplings. Twigs may catch the saw chain and be whipped toward the operator or pull the operator off balance.
 - When cutting a limb that is under tension, be alert for springback so that you will not be struck when the tension on the limb is released.
 - Keep the handles dry, clean and free of oil.
 - Do not operate a chain saw while in a tree unless you have been specially trained to do so.
 - When using tools near energized transmission lines, be sure to use only hoses labeled and certified nonconductive.
 - Turn off the power unit or move the hydraulic control valve to neutral before setting the saw down.
 - Use a guide bar scabbard when transporting the saw.
 - Know the location of buried or covered electrical services before starting work.

TOOL STICKERS AND TAGS

The safety related stickers attached to the chain saw prior to shipment from the factory are shown below.

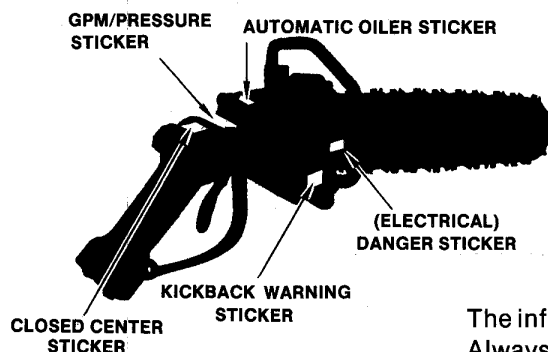
The pressure and flow rates specified must never be exceeded. All stickers must be read and understood prior to operation of the tool.

CS04: MODELS



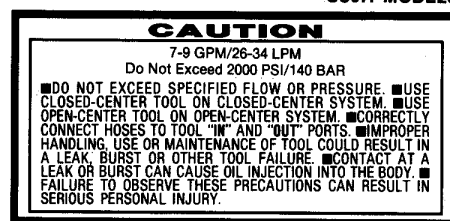
KICKBACK WARNING STICKER

CS07: MODELS



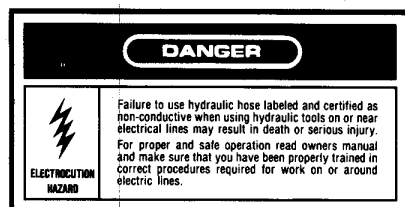
THIS CHAIN SAW IS EQUIPPED WITH AN AUTOMATIC CHAIN OILER.
SEE YOUR PARTS & SERVICE BOOK FOR PROPER ADJUSTING PROCEDURE.

AUTOMATIC OILER STICKER



GPM/PRESSURE

The information listed on each sticker must be legible at all times. Always replace stickers that have become worn or damaged. They are available from your local Stanley distributor.



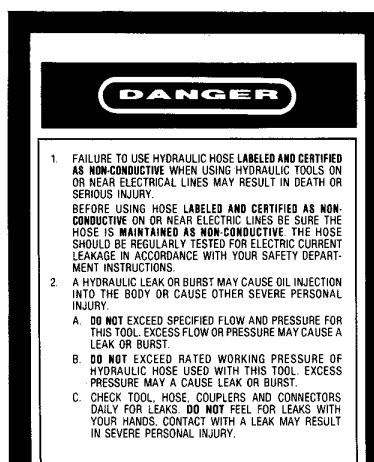
(ELECTRICAL) DANGER STICKER

WHEN APPLICABLE

CLOSED CENTER
FOR USE ON
CLOSED CENTER
HYDRAULIC SYSTEM

CLOSED CENTER STICKER

The safety tag at right is attached to the saw when shipped from the factory. Read and understand the safety instructions listed on this tag before removal. We suggest you retain this tag and attach it to the saw when not in use.



IMPORTANT

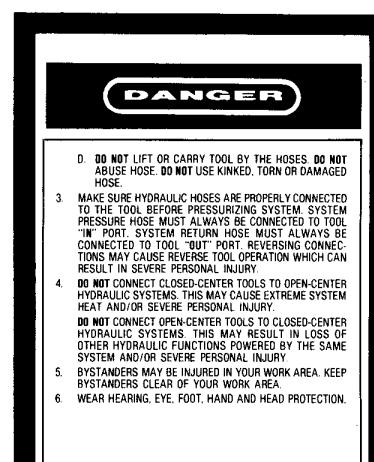
READ OPERATION MANUAL AND SAFETY INSTRUCTIONS FOR THIS TOOL BEFORE USING IT.

USE ONLY PARTS AND REPAIR PROCEDURES APPROVED BY STANLEY AND DESCRIBED IN THE OPERATION MANUAL.

TAG TO BE REMOVED ONLY BY TOOL OPERATOR.

SEE OTHER SIDE

15875



IMPORTANT

READ OPERATION MANUAL AND SAFETY INSTRUCTIONS FOR THIS TOOL BEFORE USING IT.

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TAG TO BE REMOVED ONLY BY TOOL OPERATOR.

SEE OTHER SIDE

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HYDRAULIC HOSE REQUIREMENTS

HOSE TYPES

Hydraulic hose types authorized for use with Stanley Hydraulic Tools are as follows:

- ① Labeled and certified non-conductive
- ② Wire braided (conductive)
- ③ Fabric braided (not certified or labeled non-conductive)

Hose ① listed above is the only hose authorized for use near electrical conductors.

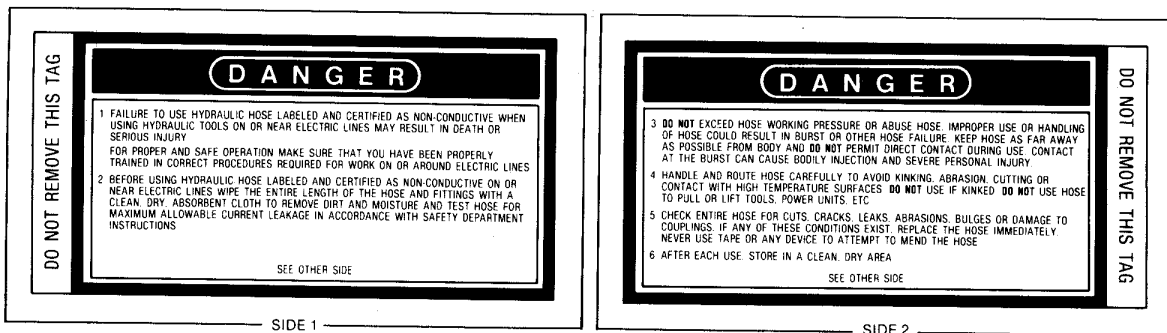
Hoses ② and ③ listed above are **conductive** and **must never** be used near electrical conductors.

To help ensure your safety, the following DANGER tags are attached to all hose purchased from Stanley Hydraulic Tools. **DO NOT REMOVE THESE TAGS.**

If the information on a tag is illegible because of wear or damage, replace the tag immediately. A new tag may be obtained at no charge from your Stanley distributor.

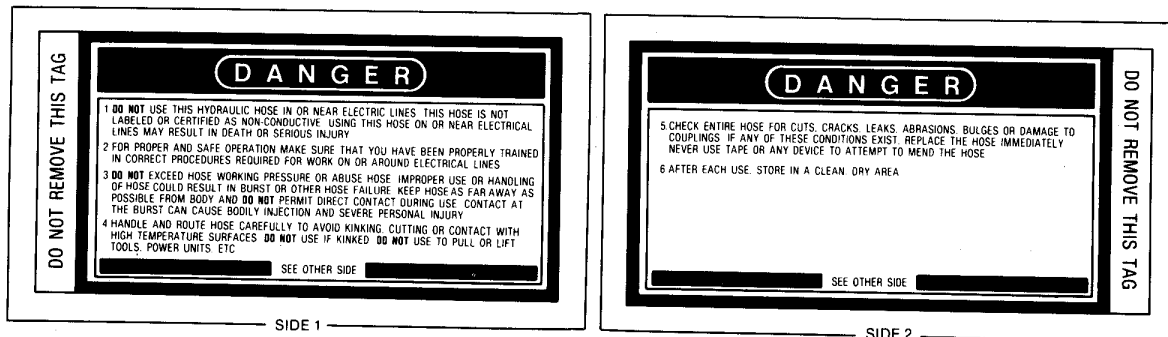
① CERTIFIED NON-CONDUCTIVE HOSE

This tag is attached to all certified **non-conductive** hose.



② AND ③ WIRE- AND FABRIC-BRAIDED (NOT CERTIFIED OR LABELED NON-CONDUCTIVE) HOSE

This tag is attached to all **conductive** hose.



HOSE PRESSURE RATING

The rated working pressure of the hydraulic hose **must be equal to or higher than** the relief valve setting of the hydraulic system used to power the saw.

OPERATION

IMPORTANT

In addition to the Safety Precautions on pages 1 thru 5 of this manual, observe the following for equipment protection and care.

- Always store an idle saw in a clean dry space, safe from damage or pilferage.
- Keep chain sharp for maximum tool performance.
- Always keep critical tool markings, such as labels and warning stickers legible.
- Always replace hoses, couplings and other parts with replacement parts recommended by Stanley Hydraulic Tools. Supply hoses must have a minimum working pressure rating of 2500 psi/175 bar.
- All hoses must have an oil resistant inner surface and an abrasive resistant outer surface. Whenever near electrical conductors, use **clean**, labeled and certified non-conductive hoses.
- Allow only trained service personnel to perform tool repair.
- Make certain that the recommended relief valves are installed in the pressure side of the system.
- Make sure all couplers are wiped clean before connection. Use only lint-free cloths.
- The hydraulic circuit control valve must be in the "OFF" position when coupling or uncoupling hydraulic tools. Failure to do so may result in damage to the quick couplers and cause overheating of the hydraulic system.
- Do not use the tool for applications it was not designed. The saw chain is only designed to cut wood. Immediate cutter dulling occurs when the chain is allowed to penetrate dirt, sand, roots, or other foreign material.

HYDRAULIC SYSTEM REQUIREMENTS

- For the CS04, the hydraulic system should provide a flow of 3-5 gpm/11-19 lpm at an operating pressure of 1500-2000 psi/105-140 bar. For the CS07, the hydraulic system should provide a flow of 7-9 gpm/26-34 lpm at an operating pressure of 1000-2000 psi/70-140 bar. Recommended relief valve settings are 2100-2250 psi/145-155 bar.
- The system should have no more than 250 psi/17 bar backpressure measured at the tool end of the operating hoses. The system conditions for measurement are at maximum fluid viscosity of 400 ssu/82 centistokes (minimum operating temperatures).
- The hydraulic system should have sufficient heat rejection capacity to limit the maximum oil temperature to 140°F/60°C at the maximum expected ambient temperature. The recommended minimum cooling capacity is 5 hp/3.73 kW at a 40°F/22°C difference between ambient temperature and oil temperature.
- The hydraulic system should have a minimum of 25 micron filtration. It is recommended that filter elements be sized for a flow of at least 30 gpm/114 lpm for cold temperature startup and maximum dirt holding capacity.
- The hydraulic fluid used should have a viscosity between 100 and 400 ssu/20 and 82 centistokes at the maximum and minimum expected operating temperatures. Petroleum base hydraulic fluids with antiwear properties and a viscosity index over 140 ssu/28 centistokes will meet the recommended requirements over a wide range of operating temperatures.
- The recommended hose size for the CS04 is .375-inch/10 mm I.D. up to 30 ft/9 m long and .500-inch/12 mm I.D. minimum up to 100 ft/30 m long.

- The recommended hose size for the CS07 is .500-inch/12 mm I.D. up to 50 ft/15 m long and .625-inch/16 mm I.D. minimum up to 100 ft/30 m long.

PREOPERATION PROCEDURES

CHECK POWER SOURCE

1. Using a calibrated flowmeter and pressure gauge, check that the hydraulic power source develops a flow of 3-5 gpm/11-19 lpm at 1500-2000 psi/105-140 bar for the CS04 or a flow of 7-9 gpm/26-34 lpm at 1000-2000 psi/70-140 bar for the CS07.

2. Make certain that the power source is equipped with a relief valve set to open at 2100-2250 psi/145-155 bar.

CONNECT HOSES

1. Wipe all hose couplers with a clean lint-free cloth before making connections.

2. Connect the hoses from the hydraulic power source to the tool fittings or quick disconnects. It is a good practice to connect return hoses first and disconnect them last to minimize or avoid trapped pressure within the tool.

3. Observe the arrow on the couplers to ensure that the flow is in the proper direction. The female coupler on the tool is the inlet (pressure) coupler.

4. Move the hydraulic circuit control valve to the "ON" position to operate the tool.

Note: If uncoupled hoses are left in the sun, pressure increase inside the hoses may make them difficult to connect. Whenever possible, connect the free ends of the hoses together.

OPERATING PROCEDURES

WARNING

The following are general woodcutting procedures and techniques. Differences in the terrain, vegetation, and type of wood will make this information more or less valid for particular areas. For advice on specific woodcutting problems or techniques for your area, consult your local Stanley representative or your county agent. They can often provide information that will make your work safer and more productive.

CUTTING TIPS

1. Check the lean of the tree. Tie a weight to a piece of string about 2-feet long. Hang the weight in your line of sight. The string is a good vertical line to help you judge the lean of the tree. The tree should fall the way it is leaning. Trees that are straight (leaning no more than 5 degrees) generally can be felled in any direction.

2. Avoid felling across another tree, log, rocks, gulley, or ridge. Do not fell straight uphill or downhill; fell the tree diagonally to the hill. Consider the wind direction and velocity. Do not attempt cutting in strong winds.

3. Check the weight distribution. A tree is heavier on the side with the most limbs. It will try to fall on its heavy side. Trim a few limbs to "balance" the tree.

4. Clear the work area. You need a clean area all around the tree for good footing. Get everything out of the area where the tree will fall. Do not cut trees near structures. Because of the danger of electrocution, use extreme care when cutting trees near power lines.

5. Before starting the cut, prepare your escape path. Make sure the escape path is clear of brush and branches. The escape path should be at an angle away from the direction of fall.

6. The saw chain should cut with very little pressure applied to the handle. If you have to force the saw to cut or if the cut is not straight, cease cutting immediately to prevent further saw chain and bar damage. See the Maintenance and Adjustments section of this manual for chain replacement or adjustment procedures.

7. Underwater models require daily preventive maintenance. See the Maintenance and Adjustments section of this manual for these maintenance procedures.

FELLING (CUTTING DOWN A TREE) (Figure 1)

1. Observe all safety precautions.

Notching or Undercutting

2. The notching or undercutting cut is made on the side you want the tree to fall. Place the saw so the hand guard is close to the tree trunk and the bucking cleat is dug in.

3. Start the cut horizontally. Pivot the nose of the bar in last. Cut to about one-quarter of the tree's diameter.



4. Make a diagonal cut down to meet the horizontal cut and remove the wood from the notch.

Felling or Back Cut

5. The felling or back cut is made on the side opposite and at least 2-inches above the horizontal undercut (the felling cut is made higher as the size of the tree increases). Place the saw so the hand guard is close to the tree trunk and the bucking cleat is dug in.

6. Start the cut horizontally. Pivot the bar in until the cut is being made parallel to the notch cut. Cut until the saw is about 1- or 2-inches from the notch. **Do not cut through the notch.**

Note: The uncut wood between the felling and notch cuts is called the hinge. The hinge controls the fall of the tree and should be of uniform thickness.

7. As the saw nears the back cut, watch the treetop and the cut for signs of movement. Be alert as soon as the tree starts to move, turn off the saw, pull it from the tree and move away quickly on your escape route.

8. For trees larger than bar length, make two felling cuts. Cut in as far as the bar will go, move to the other side and start the second cut in the same manner as the first while pivoting the saw to complete the felling cut.

BUCKING

Bucking is the sawing of a log or fallen tree into smaller pieces.

1. Observe all safety precautions.

2. Use both hands. Grip the saw firmly.

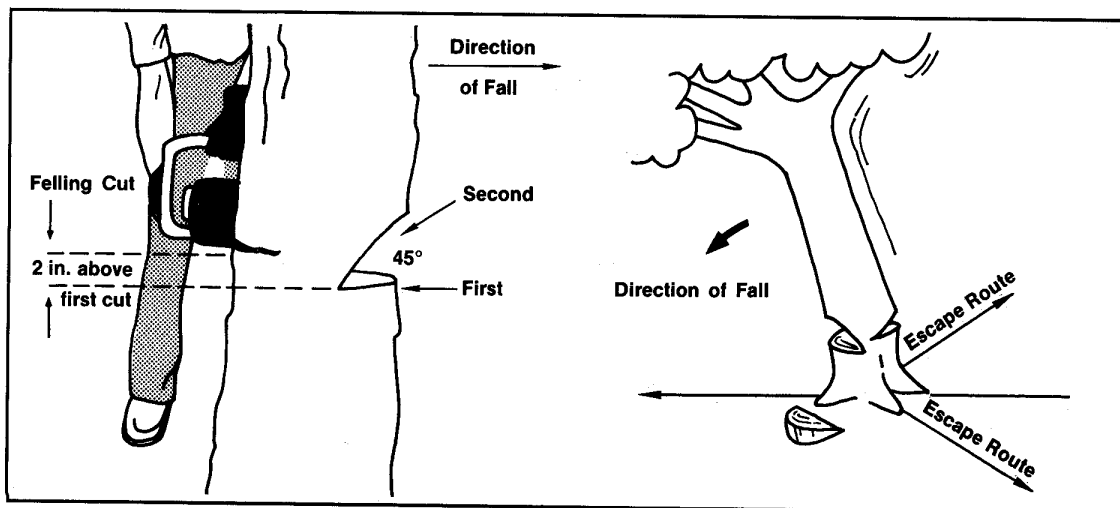


Figure 1. Felling a Tree.

3. Stand uphill. A log that is cut loose may roll downhill.
4. Keep the chain out of the dirt. Dirt will dull the chain. A dull chain is unsafe.
5. Stand to the left of the saw.

CROSSCUTTING

Note: Before starting to cut through a log, try to imagine what is going to happen. Look out for stresses in the log and cut through the log in such a manner that the guide bar will not get pinched.

Logs with Pressure on Top (Figure 2)

1. Observe all safety precautions.
2. Begin with an upper cut, down from the top. **Do not cut too deeply.** A cut of about one-third of the log diameter is enough.
3. Finish with a bottom cut. The saw cuts should meet.

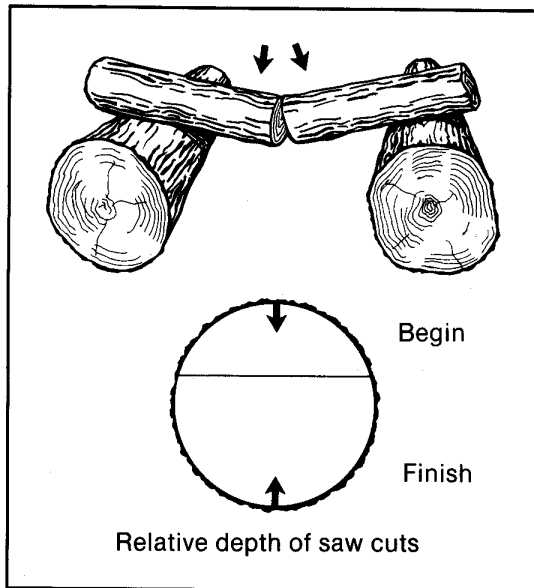


Figure 2. Crosscutting Logs with Pressure on Top.

Thick Logs Larger than Bar Length with Pressure on Top (Figure 3)

1. Observe all safety precautions.
2. Begin by cutting on the opposite side of the log.
3. Pull the saw towards you and cut from the top.

4. Cut from the bottom. Make a boring cut if the log is close to the ground.
5. Finish with a bottom cut.

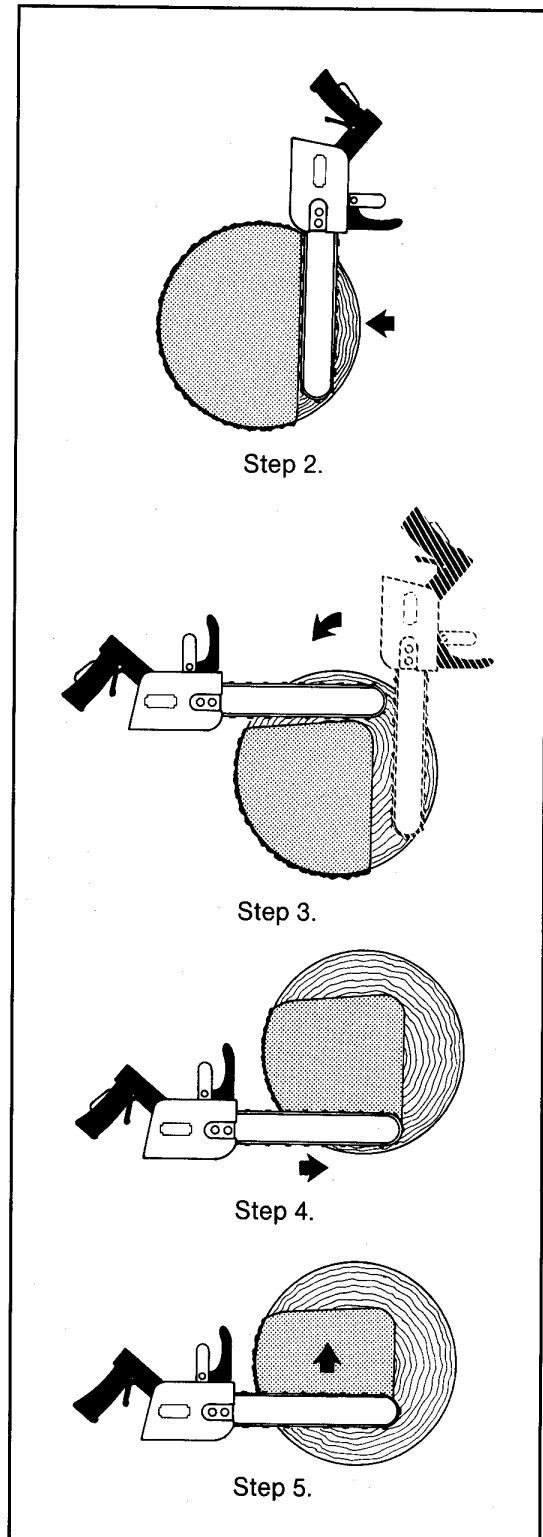


Figure 3. Crosscutting Logs Larger than Bar Length With Pressure on Top.

Logs/Limbs with Pressure on Bottom (Figure 4)

1. Observe all safety precautions.
2. Begin with a bottom cut. The depth of the cut should be about one-third of the log diameter.
3. Finish with an upper cut, down from the top. The saw cuts should meet.

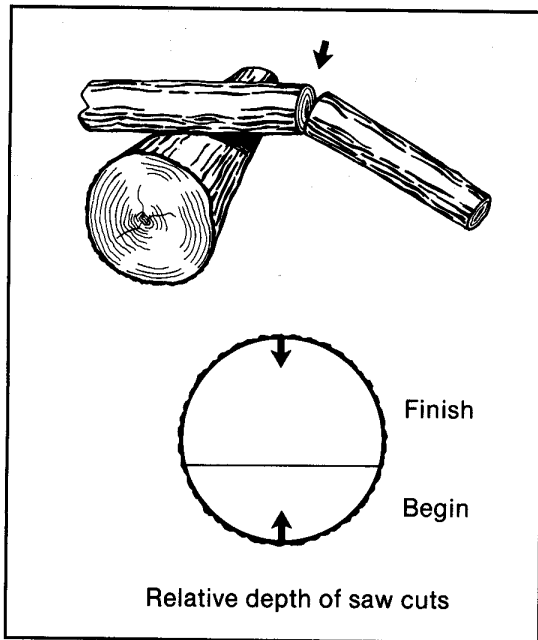


Figure 4. Crosscutting Logs/Limbs with Pressure on Bottom.

Thick Logs Larger than Bar Length with Pressure on the Bottom (Figure 3)

1. Observe all safety precautions.
2. Begin by cutting on the opposite side of the log.
3. Pull the saw towards you and cut from the top.
4. Cut from the bottom. Make a boring cut if the log is close to the ground.
5. Finish with a top cut.

PRUNING AND DEBRANCHING

1. Observe all safety precautions.
2. Use both hands. Keep a firm grip.
3. Be alert for kickback. Do not allow the tip of the bar to touch anything while the chain is in motion.

4. Do not cut overhead. Keep the saw below chest level. The chain is too close to your face in this position.

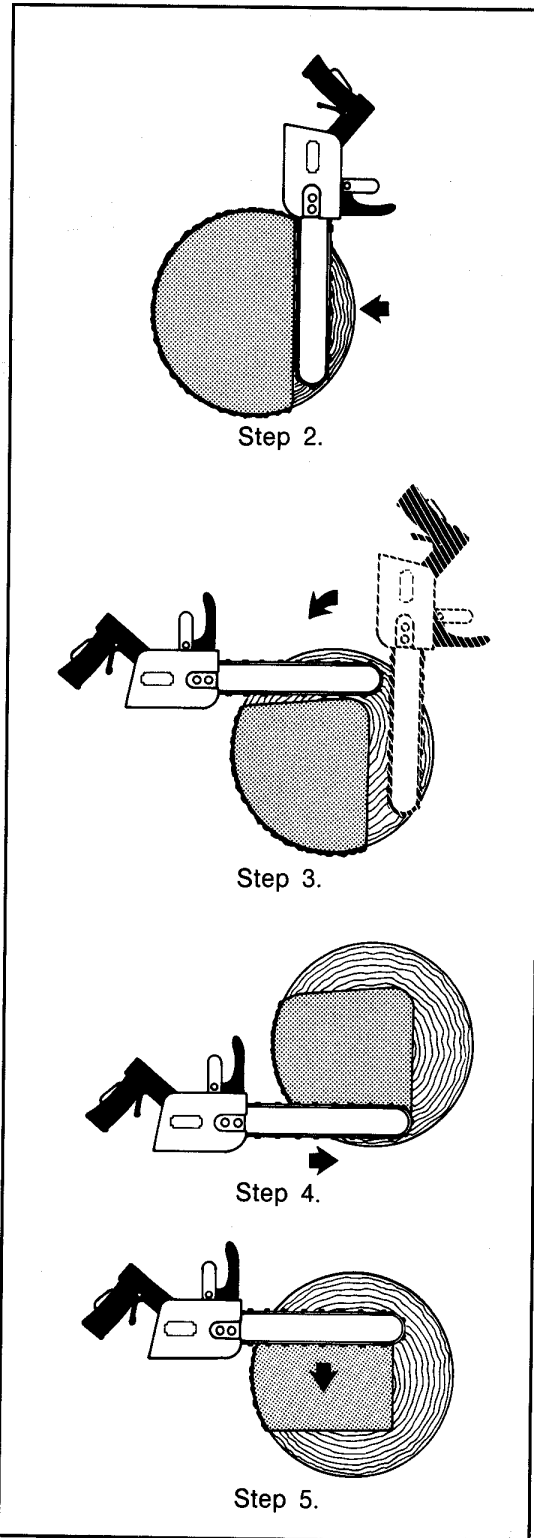


Figure 5. Crosscutting Logs Larger than Bar Length with Pressure on Bottom.

COLD WEATHER OPERATION

- If the saw is to be used during cold weather, preheat the hydraulic oil at low engine speed. When using the normally recommended oils, oil should be at or above 50° F/10° C (400 ssu/ 82 centistokes) before use.

Damage to the hydraulic system or saw can result from use with oil that is too viscous or thick.

- Cutting frozen wood causes the cutters to wear, crack and break at the back rivet hole unless proper precautions are taken. To extend chain life when cutting in cold weather:

- a. Be sure the oiler is working.
- b. Keep the chain tensioned and check often.
- c. Keep the cutters properly sharpened. Touch up at least every hour. Never force a dull chain to cut.
- d. Clean out the bar groove and keep the oil hole open. Turn the bar over to equalize wear on the rails.
- e. Always install a new sprocket with a new chain.

SERVICE INSTRUCTIONS

WARNING

Failure to properly maintain the bar and chain or to replace with original parts specified by the manufacturer or the equivalent could result in serious personal injury.

Note: For orientation of the parts identified in the following procedures, refer to the parts location illustration contained at the rear of this manual.

PRIOR TO DISASSEMBLY

- Clean exterior of the tool.
- Obtain Seal Kit, part number 01123 for land models or part number 01159 for underwater models, to replace all seals exposed during disassembly. Note orientation of seals before removing them. Install new seals in the same way.

PRIOR TO REASSEMBLY

- Clean all parts with a degreasing solvent.
- Ensure that all seals that were exposed have been replaced with new parts.
- Apply clean grease or o-ring lubricant to all parts during reassembly.

ON-OFF VALVE DISASSEMBLY AND REASSEMBLY

DISASSEMBLY

1. Remove the 1/4-20 x 3/4-inch/19 mm long machine screw securing the trigger guard and remove the trigger guard.

2. Remove the 8-32 x 1/4-inch/6 mm long machine screw and stop washer from the valve spool.

3. Remove the trigger link and the 1/8 x 3/8-inch/10 mm long roll pin from the trigger.

4. From the top of the valve assembly, remove the spring cap assembly, o-ring and spring; then carefully withdraw the valve spool. If the tool is a closed-center model, a retaining ring must be removed from the trigger end of the valve spool.

5. Remove the seal cap assembly and o-ring from the trigger side of the valve handle.

6. Clean and inspect the valve and its bore in the handle carefully. The valve and bore should have a polished appearance without scoring or deep scratches. Excessive wear indicates contaminated oil in the system.

REASSEMBLY

1. Install the quad ring in the bore of the seal cap assembly and the o-ring in the face groove. Install the seal cap assembly in the trigger side of the valve bore in the valve handle assembly.

2. Insert the valve spool, cross drilled end first, in the spool bore of the valve handle assembly and through the seal cap assembly. Install the retaining ring if the tool is a closed-center model.

3. Place the trigger in position and retain with the 1/8 x 3/8-inch/10 mm long roll pin. Connect the trigger to the valve spool with the trigger link.

4. Place the spring over the end of the valve spool.

5. Install the quad ring in the spring cap assembly and the o-ring in the face groove. Install the spring cap assembly in the top of the valve handle assembly.

IMPORTANT

Do not allow the Loctite onto the outside of the valve spool. Tapped hole is to be free of lubricant.

6. While depressing the trigger, place a small drop of Loctite 242 in the tapped hole in the end of the valve spool.
7. Install the 8-32 x 1/4-inch/6 mm long machine screw and washer.
8. Install o-rings in the oil tube bores and install the oil tubes in the valve handle assembly.
9. Install the trigger guard and retain with the 1/4-20 x 3/4-inch/19 mm long machine screw.

HYREVZ™ MOTOR REMOVAL, DISASSEMBLY, CLEANING AND AND INSPECTION REASSEMBLY

REMOVAL

1. Remove the three 1/4-20 x 1 1/2-inch/38 mm long machine screws securing the sprocket guard; then remove the guard.
2. Remove the two nuts and washers retaining the saw bar. Remove saw bar and saw chain.
3. Remove the lube bar assembly by removing the 10-24 x 1/2-inch/13 mm long flat head screw.
4. Remove the motor shaft nut and sprocket. Remove the grease fitting on underwater models.
5. Remove the four 1/4-20 x 7/8-inch/22 mm long capscrews and lockwashers securing the saw housing assembly to the valve handle assembly.

6. Remove the valve handle assembly by pulling straight back, **do not twist**, until the oil tubes are free from the motor assembly.

Note: If the oil tubes should remain in the motor assembly, remove carefully by pulling straight out.

7. Remove the two capscrews securing carrying handle and remove the handle.

8. Remove the four 1/4-20 x 3/8-inch/10 mm long oval head machine screws retaining the motor assembly; then push the motor assembly from the saw housing assembly.

DISASSEMBLY

1. Place the motor in a vise (with soft jaws or V-blocks) around the bearing end; output shaft down.
2. Scribe assembly marks across the bearing retainers and the gear housing. Make sure that the marks will be visible during reassembly.
3. Remove the six 10-24 x 1 3/4-inch/44 mm long capscrews securing the bearing retainers and the gear housing.
4. Pry the rear bearing retainer away from the gear chamber. Be careful to lift the bearing retainer straight off. Use the inside groove provided at the split between parts to prevent scratches on the surfaces between parts.
5. Pry the gear chamber away from the front bearing retainer in the same manner as described in step 4.
6. Remove the two gears, motor shaft key and the idler shaft.
7. Remove the large face seal o-rings being careful not to damage the o-ring grooves or surrounding surfaces.
8. To remove the motor shaft from the front bearing retainer remove the large retaining ring securing the ball bearings. Place the retainer on a flat surface with clearance for bearing removal. Push on the small end of the motor shaft until the shaft and bearings slide free. Be careful not to bend the motor shaft.
9. The ball bearings should be removed from the motor shaft **only** if they must be replaced because damage can occur during removal. To remove the bearings from the motor shaft,

press on the threaded end of the motor shaft while supporting the outer race of the bearings. Discard the bearings.

10. Remove the retaining ring at the bottom of the ball bearing bore to service the motor shaft seals.

11. Remove the seal liner and associated parts by inserting the small end of the motor shaft through the seal liner. Place a rag across the gear face of the front bearing retainer and blow air through the small diameter motor shaft bearing. Use a shop air nozzle to force the seal liner onto the motor shaft for removal.

12. To remove the needle bearings/bushings use Bearing Puller Assembly part number 00933.

MOTOR INSPECTION AND CLEANING

Note: Wear to bushings, gears, gear housings, or shafts that have been sealed in oil is caused by contaminated hydraulic fluid. Tool wear can be limited if the hydraulic supply is kept clean, adequate filtration is used, and condensed moisture is prevented from entering the hydraulic fluid.

Inspect and clean all parts as follows:

Cleaning

Clean all parts with a degreasing solvent. Blow dry with compressed air and wipe clean. Use only lint-free cloths.

Small Diameter Bearings/Bushings

- On motors equipped with needle bearings, check to make sure all rollers are in place and not nicked or seized. If shaft wear is present, the bearing and shaft must be replaced.
- On motors equipped with bushings, the inside of the bushing should be gray with some bronze showing through. If a significant amount of yellow-bronze shows, bushing replacement is required. Inspect motor shaft for corresponding wear and replace as required.

Gear Chamber

- The chamber bores and end faces around the bearing bores should be polished but not rough or grooved. The flat surfaces around the chamber and bolt holes should be flat and free of nicks or burrs that could cause misalignment or leaks.

Gears

- Both gears should have straight tips without nicks; square tooth ends and a smooth even polish on the teeth and end faces. Check for cracks between the drive gear keyway and gear tooth root. Discard the gear if cracks are present.

Motor End Housing/Retainers

- The gear face running surface should show two interconnecting polished circles without a step and should not be rough or grooved.
- The shaft seal bore should be smooth and free from nicks or scratches.

Shafts

- The shaft diameter at the bearing and seal locations must be smooth. Grooves, roughness or a reduced diameter indicate fluid contamination or damaged needle bearings. Grit particles may have been imbedded in the bushings grinding into the hardened shaft. If abnormal shaft wear as above occurs (in excess of normal polishing), both the shaft and associated bearings/bushings must be replaced.

REASSEMBLY

IMPORTANT

The seal liner must not be forced, pried or pushed on directly because it can be easily damaged.

1. Assemble the seal liner assembly by installing the outside diameter o-ring, quad ring and seal liner washer as shown on the parts location diagram. Place idler shaft through the seal liner; then loosely position the assembly in the seal bore of the front bearing retainer (quad ring side down). Place the seal liner washer over the shaft; then carefully push the seal liner into place. Install the retaining ring. Remove the idler shaft.

2. To install the ball bearings on the motor shaft; support the ball bearing inner race and press the motor shaft through the bearing inner race.

3. To install the needle bearings/bushings, use Needle Bearing Insert Tool, part number 00851, and Pilot Tool, part number 00847.

4. Place the front bearing retainer housing assembly on a smooth clean arbor press surface (protected from damage) with a large bearing bore facing up. Position the piece so that a clearance hole exists for the insertion of the motor shaft.

5. Apply grease to the motor shaft and keyway, then insert it through the shaft seal. Using Bearing Pusher, part number 00848, or a sleeve/socket with a diameter slightly smaller than the outside diameter of the ball bearing, press the bearing assembly into place. Press only on the outer race. Install the ball bearing retaining ring.

6. Install the key in the keyway of the motor shaft. Use a small amount of grease to keep the key in place. Slide the drive gear over the key and shaft. Install the idler shaft and gear.

7. Apply grease to the face seal o-ring grooves, then install the o-rings.

IMPORTANT

Do not force parts together.

8. Note the scribe marks made during disassembly; then carefully slide the gear chamber and rear bearing retainer into place.

Note: Make sure dowel pins and shafts are aligned during installation.

9. Turn the motor shaft manually to check for free rotation. Install the six 10-24 x 1 3/4-inch/44 mm long capscrews, then recheck rotation.

10. When new parts are installed, it may be necessary to "break-in" the motor. After the saw has been reassembled without the guard, bar and chain, the motor may be broken-in as follows:

⚠ WARNING

The following step can be hazardous. Failure to heed the instructions could result in serious injury.

11. Connect the saw to a hydraulic power source and check for proper operation. **READ THE FOLLOWING CAREFULLY BEFORE PROCEEDING.**

a. Make sure the hydraulic power source is running at the lowest gpm/lpm rate it can while still producing full pressure.

b. Grasp the saw firmly in a bench vise and place the correct size wrench on the nut securing the sprocket.

c. Connect the hydraulic power source to the saw and turn the power source valve to the "ON" position.

d. With a firm grip on the saw and wrench, **SLOWLY** squeeze the trigger to activate the saw.

e. Turn the motor shaft both against and with the direction of rotation.

f. Release the trigger and remove the wrench.

g. Activate the saw to determine if the motor starts and runs freely.

h. If the motor is not starting or running freely, carefully repeat this procedure until the motor performs satisfactorily.

REPLACEMENT

1. Insert the motor assembly into the saw housing assembly. Place a small drop of Loctite 242 on the four oval head screws and secure the motor assembly.

2. Install the carrying handle and retain with the 10-24 x 5/8-inch/16 mm long capscrew on top and 10-24 x 1/2-inch/13 mm long capscrew on the bottom.

3. Carefully insert the valve assembly with the oil tubes into the motor assembly through the saw housing assembly. Retain using the four 1/4-20 x 7/8-inch/22 mm long capscrews and lock washers.

4. Install the 1/2-inch O.D. o-ring in the face of the motor.

5. Install the 1/4-inch O.D. o-ring over the small brass tube on the lube bar assembly.

6. Install the lube bar assembly on the face of the motor assembly and secure with 10-24 x 1/2-inch/13 mm long flat head screw.
7. Install the sprocket and secure with the motor shaft nut and washer.
8. Install the saw bar and the saw chain; aligning them with the bar adjusting nut. Secure loosely with the two saw bar washers and nuts.
9. Perform the CHAIN TENSION ADJUSTMENT procedure.

MAINTENANCE AND ADJUSTMENTS

GENERAL MAINTENANCE TIPS

There are many simple maintenance tasks which, if performed, can keep a chain saw operating at a high level of efficiency. Routine maintenance will also keep replacement costs down on the parts of the chain saw, which occasionally wear out.

Bar Groove Wear

The wear pattern of the bottoms of the chain cutters, tie straps, and drive lengths is a good indication of the condition of the bar.

1. If the bottoms of the drive links are worn flat, the groove is too shallow in the tail or flat section of the bar. The groove must be ground deeper by an authorized chain saw dealer or the bar replaced.
2. If the drive links are worn concave, the groove is shallow in the bar nose. It is possible that the armor-tip of the bar nose has worn off. The groove should be rebuilt, reground or the bar replaced.

In summary, the groove width should not allow the chain to wobble from side to side when moved with fingers. Groove depth should range between 5/16-inch/8 mm to a maximum of 7/16-inch/11 mm.

Bar Rail Wear

A quick check can be made to determine rail wear. Put a straight edge against the bar and the cutting edge (figure 6). Force the cutter sideways as far as it will go with the straight edge. There should be 1/16- to 1/8-inch/1.5 to 3

mm gap between the straight edge and the side of the bar. The chain should be supported squarely by the bar rails. If not, the bar is worn and the groove is sloppy. Authorized chain saw dealers have equipment to close the rails.

If the chain saw is used frequently, check the bar for flat and even rails. Rails must be flat and square with side of bar and the bar itself must be perfectly straight. If bows or bends are present in the bar, a dealer should attempt to remove them.

If the bar rails are uneven (stepped), the chain is leading off the cutter. The rails should be reground by an authorized dealer.

Chain Lubrication

Soak a new chain overnight in SAE 30 oil.

Before cutting, check to make sure that oil is being thrown from the nose of the bar.

Chain Tension

Correct chain tension is very important throughout the life of the chain. Check chain tension often during use (when the saw is stopped and the bar and chain are cool). The chain should move easily around the bar when pulled by hand. Watch tension and lubrication during prolonged cutting periods.

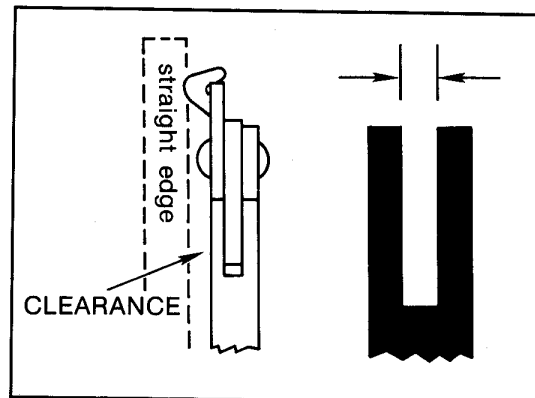


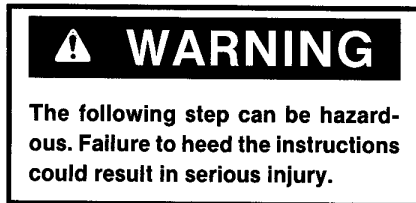
Figure 6. Rail Wear

AUTOMATIC OILER ADJUSTMENT

1. Observe all safety precautions.
2. The automatic oiler adjustment screw is located above the motor shaft behind the lube bar handle assembly. The oil volume can be adjusted with a 3/16-inch allen wrench by turning the plug counterclockwise to increase output and turning clockwise to decrease output.

3. The automatic oiler adjustment is made with the lube bar, saw bar, chain and sprocket guard removed.

Note: Oil output varies proportionally to the load and operating pressure. It should be adequate for most operations as adjusted at the factory.



4. Connect the saw to a hydraulic power source and check for proper operation. **READ THE FOLLOWING CAREFULLY BEFORE PROCEEDING.**

- a. Make sure the hydraulic power source is running at the lowest gpm/lpm rate it can while still producing full pressure.
- b. Grasp the saw firmly in a bench vise. Place the correct size wrench on the motor shaft nut.
- c. Connect the hydraulic power source to the saw and turn the circuit control valve to the "ON" position.
- d. With a firm grip on the saw and wrench, **SLOWLY** squeeze the trigger to activate the saw.
- e. Adjust the oiler for a flow of approximately one drop every one to two seconds.
- f. Release the trigger and remove the wrench.

CHAIN TENSION ADJUSTMENT

1. Observe all safety precautions.
2. When the chain appears loose, lubricate it well and let it cool for a few minutes to allow for contraction of the chain. Disconnect the saw from its hydraulic power source.
3. Rotate the saw chain around the bar and snap in bar groove to straighten parts and show maximum looseness.
4. Adjust the saw bar nuts so that saw bar will slide easily.
5. Hold tip of the bar up to remove slack in the chain and adjust the chain tension by turning

the adjusting screw clockwise to tighten, counter-clockwise to loosen.

6. Pull the saw chain on the bottom of the saw bar away from the bar until the entire drive link just clears the edge of the saw bar. Allow the saw chain to snap back against the saw bar. The tie straps of the saw chain should rest against the saw bar when chain tension is properly adjusted. Rotate saw chain around bar and recheck.

7. Tighten saw bar nuts while continuing to hold bar tip up.

Note: New chains will require frequent adjustments until broken in. Make sure the automatic oiler is working properly. **DO NOT OVERTIGHTEN CHAIN.**

8. Install sprocket guard with three 1/4-20 x 1/2-inch/13 mm long machine screws.

Note: Never break in a new saw chain under a heavy cutting load.

9. Watch saw chain tension carefully for the first half-hour of cutting.

CHAIN SHARPENING (FIGURE 7) OREGON 72LG/72LP (3/8 PITCH) CHAIN

Note: Chain type stamped on drive link.

1. Observe all safety precautions.
2. Use OREGON file holder, part number 11299, and the proper round file for the chain to be sharpened (see ACCESSORIES). Press the file holder so it rides on both the cutter top plate and depth gauge with the guide marks in line with the length of the chain.
3. File all of the cutters on the side of the chain opposite yourself in the direction shown.
4. Hold the file handle down 10 degrees as you make a few firm strokes away from yourself while applying pressure against the cutting edge.
5. Move to the other side of the chain and file all of the cutters opposite to complete chain sharpening. File all of the cutters uniformly.

SETTING THE DEPTH GAUGES (FIGURE 8)

1. Observe all safety precautions.
2. Place the OREGON Gaugit, part number 22290, on the chain after every third or fourth sharpening. If the depth gauges extend above

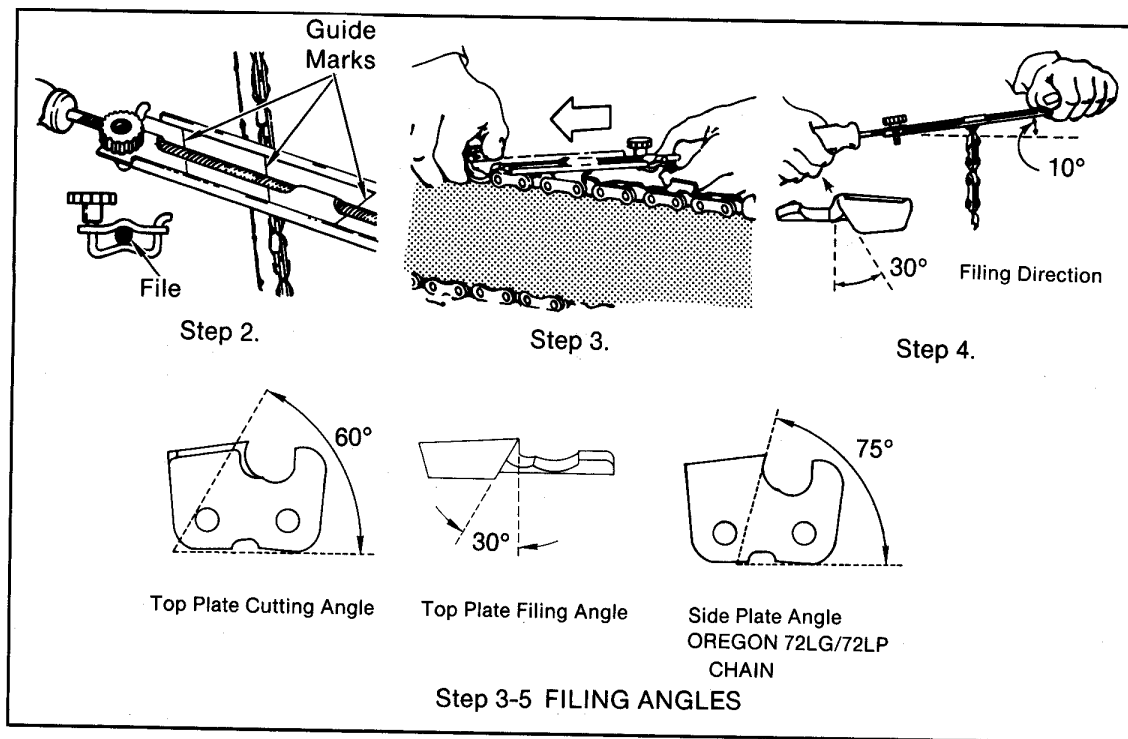


Figure 7. Chain Sharpening.

the slot, file them level with a flat file. Depth gauge setting is .025-inch.

3. After lowering, round off the front edge to its original shape.

UNDERWATER MODEL PREVENTIVE MAINTENANCE

1. After each use, dip or spray the entire tool with a water displacing oil such as WD40. Pay particular attention to the on-off valve and trigger area of the valve handle, the drive sprocket, the chain, and the bar.

2. Purge the motor shaft bearing by pumping a **marine** type of grease, part number 03201, into the grease fitting at the front of the motor housing before storing the tool.

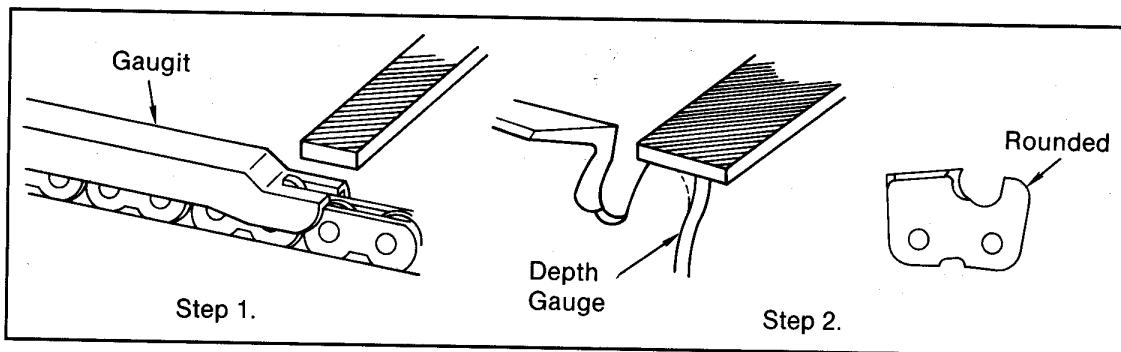


Figure 8. Setting Depth Gauge.

TROUBLESHOOTING

If symptoms of poor performance develop, the following chart can be used as a guide to correct the problem.

When diagnosing faults in operation of the saw, always check that the hydraulic power

source is supplying the correct hydraulic flow and pressure to the saw as listed in the table. Use a flowmeter known to be accurate. Check the flow with the hydraulic oil temperature at least 80°F/27°C.

PROBLEM	CAUSE	REMEDY
Cuts slow.	Insufficient oil flow or low relief valve setting.	Adjust oil flow to proper gpm. For optimum performance adjust relief valve to 2250 psi/160 bar.
	Chain dull.	Sharpen per instructions or replace.
	Backpressure too high.	Should not exceed 250 psi/17 bar at 8 gpm/30 lpm measured at the end of the tool operating hoses.
Bar turns color.	Insufficient oiler flow.	Adjust oiler per service instructions.
Tool does not run.	Power unit not functioning.	Check power unit for proper flow and pressure (4 gpm/15 lpm at 1500 psi/104 bar minimum for CS04, 8 gpm/30 lpm at 1000 psi/70 bar minimum for CS07).
	Coupler or hoses blocked.	Remove obstruction.
	Mechanical failure.	Disassemble tool and inspect for damage.
Tool runs backwards.	Pressure and return reversed.	Connect for proper flow direction. Motor shaft rotates clockwise.
On-off trigger is hard to press.	Pressure and return reversed.	Correct for proper flow direction.
	Backpressure too high.	Should not exceed 250 psi/17 bar at 8 gpm/30 lpm measured at the end of the tool operating hoses.
Oil leakage around drive sprocket.	Motor shaft seal failure.	Replace as required. Make sure that oil present is not the result of excess oiler flow.
Oil leakage between motor housings.	Motor face seal failure.	Replace as required.

SPECIFICATIONS

Capacity	CS04 9- and 12-inch/23 and 30 cm cut lengths CS07 9-, 12-, and 15-inch/23, 30, and 38 cm cut lengths
Weight	8 lbs/3.6 kg
Length	15-inches/38 cm (without bar)
Width	9-inches/23 cm
Pressure	CS04 1500-2000 psi/105-140 bar CS07 1000-2000 psi/70-140 bar
Flow Range	CS04 3-5 gpm/11-19 lpm CS07 7-9 gpm/26-34 lpm
Optimum Flow	CS04 4 gpm/15 lpm CS07 8 gpm/30 lpm
Porting	3/8 pipe
Hose Whips	No
Motor	Hyrevz™
Kickback Reduction Features	Low kickback saw chain, small radius saw bar, front hand guard, low inertia motor/drive system

NOTE

Weights, dimensions and operating specifications listed are subject to change without notice. Where specifications are critical to your application, please consult the factory.

ACCESSORIES

PART NUMBER	DESCRIPTION
00040	12-inch/30 cm Saw Bar (9-inch cut)
00156	15-inch/38 cm Saw Bar (12-inch cut length)
00928	Sprocket
01825	18-inch/46 cm Saw Bar (15-inch cut length)
01826	Saw Chain for 18-inch/46 cm Saw Bar 72LP
02036	Saw Chain for 12-inch/30 cm Saw Bar 72LP
02037	Saw Chain for 15-inch/38 cm Saw Bar 72LP
05096	Saw Hoister
05132	Grease Gun for Roller and Sprocket Nose Bars
05144	Chain Guard for 18-inch/46 cm Saw Bar
05147	Chain Saw File

SERVICE TOOLS

PART NUMBER	DESCRIPTION
00847	Pilot for Needle Bearing Insertion Tool
00848	Bearing Pusher
00851	Needle Bearing Insertion Tool
04337	O-Ring Tool Kit

WARRANTY

Hand held tools and their parts are warranted against defects in materials and workmanship for a period of 12 months from the date of purchase. Exceptions are cutting parts, steels, and other parts not manufactured by Stanley (such as impact mechanisms, alternators, regulators, and hoses), and parts subject to normal wear and tear (such as o-rings, saw blades, and other parts that become worn through normal use of the tool).

The Warranty Registration Card packed with the tool must be filled out and returned to Stanley upon receipt of the tool.

Stanley reserves the right to replace or repair only those parts which under our examination prove to have been defective at the time of purchase.

Shipping charges are prepaid by the customer unless otherwise authorized by Stanley.

The warranty is void if maximum flow and pressure ratings are exceeded.

There is no other warranty expressed or implied.

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STICKERS

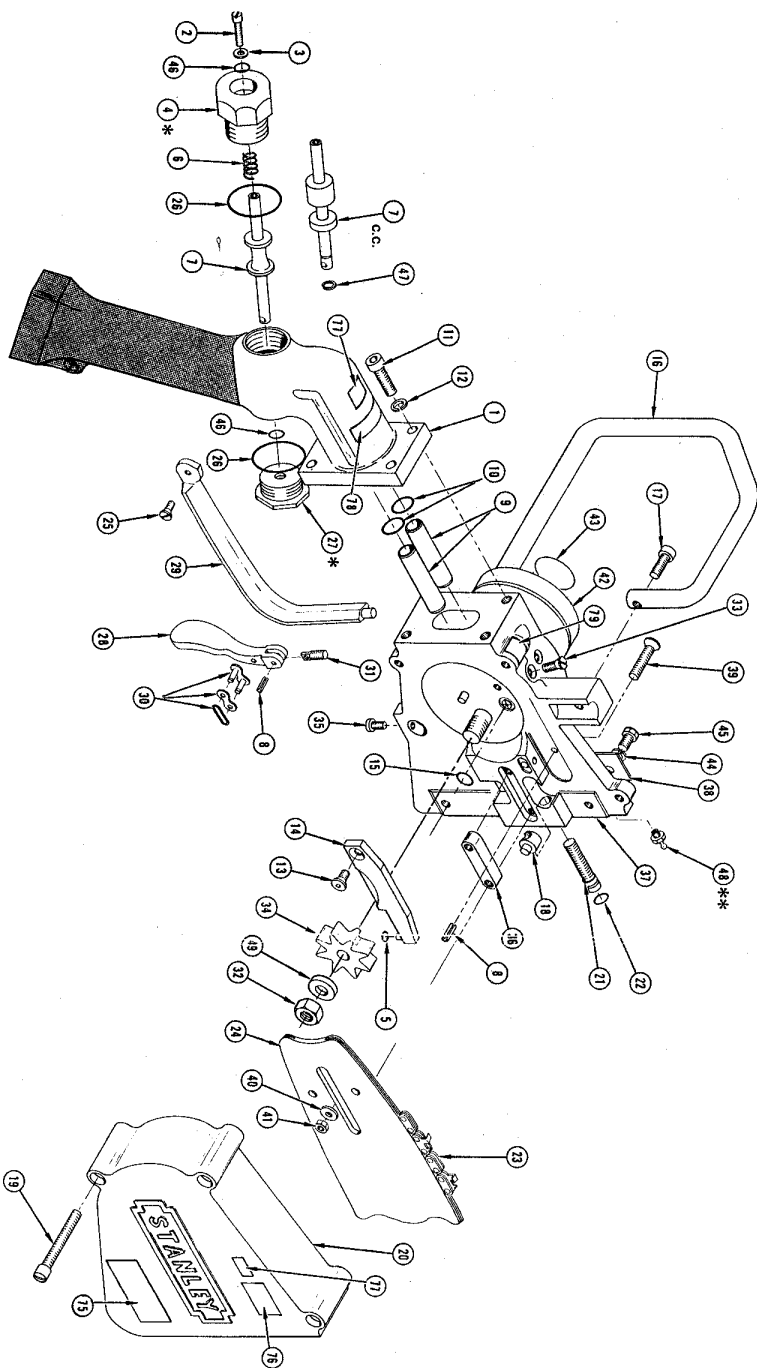
Item No.	Part No.	Part No.	Qty.	Part Name
75	15562	15562	1	Warning Sticker - Kickback
76	12412	12412	1	Danger Sticker - Electrical
77	03693	03693	1	Sticker - Closed Center (CC Model)
78	03781	03786	1	GPM/Pressure Sticker
79	04746	04746	1	Automatic Oiler Sticker

PARTS LIST

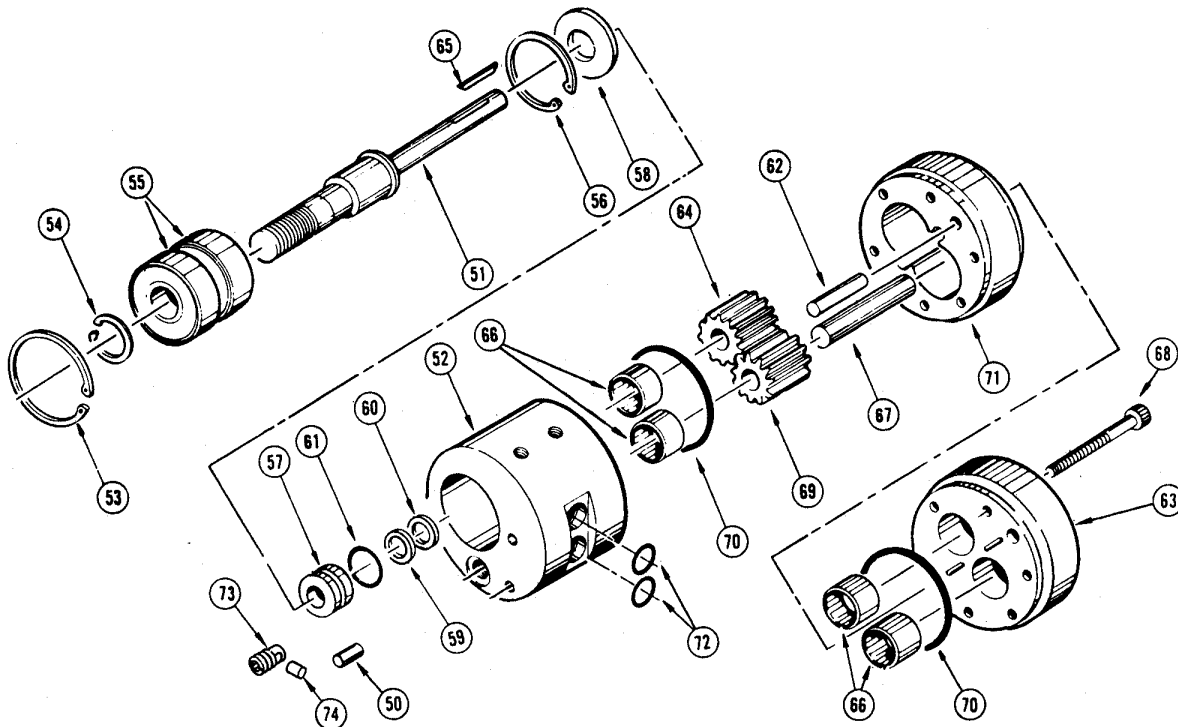
Item No.	Part No.	Qty.	Part Name
1	01959	1	Valve Handle Assembly o.c.
2	01961	1	Valve Handle Assembly c.c.
3	00109	1	Machine Screw, 8-32 x 1/4 Fil. Hd.
4	02290	1	Stop Washer, #8 Flat Brass
5	02291	1	Spring Cap Assembly o.c.
6	00107	1	Spring Cap Assembly c.c.*
7	00006	1	O-Ring, 1/8 x 1/4 x 1/16
8	00005	1	Spring o.c.
9	00078	1	Valve Spool o.c.
10	00072	1	Valve Spool c.c.
11	00162	2	Roll Pin, 1/8 x 3/8
12	00018	2	Oil Tube
13	00047	2	O-Ring, 7/16 x 9/16 x 1/16
14	00046	4	Cap Screw, 1/4-20 x 7/8 Hex. Soc. Hd.
15	00102	4	Lockwasher, 1/4 High Collar
16	00003	1	Cap Screw, 10-24 x 1/2 Hex. Soc. Flat Hd.
17	00055	1	Lube Bar Assembly
18	00055	1	O-Ring, 3/8 x 1/2 x 1/16 90 Duro
19	00296	1	Carrying Handle
20	00151	1	Cap Screw, 10-24 x 5/8 Hex. Soc. Hd.
21	00030	1	Bar Adjusting Nut
22	00152	3	Machine Screw, 1/4-20 x 1-1/2 Fil. Hd.
23	00031	1	Sprocket Guard
24	00026	1	Bar Adjusting Screw
25	02037	1	O-Ring, 3/16 x 1/16 90 Duro
26	01826	1	Saw Chain - 12-in.
27	00040	1	Saw Bar - 15-in.
28	00156	1	Saw Bar - 12-in.
29	01825	1	Saw Bar - 18-in.
30	00074	1	Machine Screw, 1/4-20 x 3/4 Oval Hd.
31	00073	2	O-Ring, 15/16 x 1-1/16 x 1/16
32	00070	1	Seal Cap Assembly
33	00113	1	Trigger
34	00016	1	Trigger Guard
35	00453	1	Trigger Hinge
36	00027	4	Machine Screw, 1/4-20 x 3/8 Oval Hd.
37	00028	1	Spocket
38	00154	1	Cap Screw, 10-24 x 1/2 Hex. Soc. Hd.
39	00036	1	Key For 12-in. Bar
40	01383	1	Key For 18-in. Bar
41	01817	1	Saw Housing Assembly
42	00038	2	Bucking Cleat
43	00037	2	Cap Screw, 1/4-20 x 1-1/4 Hex. Soc. Hd.
44	02272	1	Nut, 1/4-20 Hex.
45	03770	1	Motor Assembly CS07 (See Parts on page 24)
46	01298	1	Motor Assembly CS04 (See Parts on page 24)
47	00889	1	Name Tag CS07
48	00112	2	Name Tag CS04
49	00077	2	Lockwasher, 1/4 Reg. Helical Spr.
50	00767	2	Cap Screw, 1/4-20 x 1/2 Hex. Hd.
51	05468	1	Quad Ring, 1/4 x 3/8 x 1/16
52		1	Retainer Ring (c.c. only)
53		1	Grease Fitting**
54		1	Washer

* Includes Item No. 46
** Not Used on All Units

NOTE: Use Part Number and Part Name when ordering.
• Denotes Part in Repair Kit.
⊙ Denotes Part in Seal Kit.



HYDRAULIC MOTOR ASSEMBLY



Item No.	Part No.	Part No.	Qty.	Part Name
	CS07	CS04		
50	00642	00642	1	Dowel Pin, 3/16 x 1/2
51	00424	03397	1	Motor Shaft
52	03406	03406	1	Front Bearing Retainer (Incl. Item 66)
53	00118	00118	1	Retaining Ring, Int. 1-1/4
54	00008	00008	1	Retaining Ring, Ext. 19/32
55	00007	00007	2	Bearing
56	00011	00011	1	Retaining Ring, Int. 1.023
57	00015	00015	1	Seal Liner
58	02556	02556	1	Washer
59	00014	00014	1	Quad Ring, 1/16 x 5/16 I.D.
60	00655	00655	1	Washer
61	00016	00016	1	O-Ring, 9/16 x 11/16 x 1/16
62	00061	00024	2	Dowel Pin. 3/16 x 1-1/4

Item No.	Part No.	Part No.	Qty.	Part Name
	CS07	CS04		
63	03399	03399	1	Rear Bearing Retainer (Incl. Item 66)
64	00763	00764	1	Gearway w/ Keyway
65	00987	00986	1	Key
66	00017	00017	4	Needle Bearing
67	00060	00022	1	Idle Shaft
68	00025	00111	6	Cap Screw, 10-24 x 1-3/4 Soc. Hd.
69	00475	00023	1	Idle Gear
70	00020	00020	2	O-Ring, 1/16 x 1-11/16 I.D.
71	00454	00021	1	Gear Chamber
72	00018	00018	2	O-Ring, 1/16 x 7/16 I.D.
73	06821	06821	1	Lube Screw
74	00634	00634	1	Nylon Lock

REPAIR AND SEAL KIT DATA

01123 Part No.	01159 Part No.	Qty.	Description
00012	00012	1	O-Ring
00014	00014	1	Quad Ring
00015	00015	1	Seal Liner
00016	00016	1	O-Ring
00018	00018	4	O-Ring
00020	00020	2	O-Ring
00026	00026	1	O-Ring
00055		1	O-Ring
00074	00074	2	O-Ring
00106	00106	1	O-Ring
00107	00107	1	O-Ring
00112		2	Quad Ring
	00173	2	Quad Ring
00655	00655	1	Washer

01123 Part No.	01159 Part No.	Qty.	Description
00006	00006	1	Spring
00007	00007	2	Bearing
00008	00008	1	Retaining Ring
00011		1	Retaining Ring
00027	00867	4	Machine Screw
00072	00875	1	Retaining Ring
00077	00235	1	Roll Pin
00080	00080	1	Spring
00113	00113	1	Trigger Link
00118	00807	1	Retaining Ring
00616	00616	1	Trigger Hinge
00986		1	Key
00987	00987	1	Key
01123	01159	1	Seal Kit

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Stanley Hydraulic Tools

Division of The Stanley Works

3810 S.E. Naef Road

Milwaukie, Oregon 97267

Phone: 503/659-5660

Telex: 360771

Fax: 503/652-1780