Introduction/Contents

Your chainsaw is only as good as your chain, guide bar, and sprocket. They function as a team while cutting wood and must be maintained as a team.

A properly maintained chain, bar, and sprocket will provide excellent cutting performance. An improperly maintained chain will cause damage to the bar and sprocket, will cut poorly, and will create potential safety hazards.

This manual addresses the maintenance of only Oregon® manufactured chains, bars, and sprockets. For information on maintenance and operation of your saw, refer to your saw's operator's manual or contact your local chainsaw dealer.

2 The Four Oregon® End-Use Symbols

Each of these four symbols represents a generalized category of chain saw use. Oregon® chains are listed in this manual under one or more of these symbols, generally indicating the type of use for which the product is intended.

Professional Chainsaw Use

- Big-timber loggers
- Pulpwood loggers
- Forest firefighters

Commercial Chainsaw Use

- Arborists • Orchardists
- Utility and construction workers
- Tree Surgeons
- Farmers • Commercial thinners
- Commercial firewood cutters
- Landscapers

Consumer Chainsaw Use

- Homeowners
- Occasional firewood cutters
- Campers
- Hunters

Mechanical Harvester Use

- For use on mechanical timber-harvesting and processing equipment.

  Do not use harvester attachments on hand-held saws.

NOTE Harvester chains are listed in this manual for reference. For more information on other harvester products, see the Oregon® Harvester Application Guide or the Oregon® Harvester Handbook.

The Five Oregon® Symbols for Periodic Maintenance

To keep your cutting system of chain, bar, and sprocket working at peak efficiency - and to minimize wear - there are a number of things every user should do periodically. There are specific maintenance tasks that should be performed and there are more general "common-sense" things to do, some of which need to occur with greater frequency, some with lesser frequency. And there are some things you should never do.

To help you know what to do and how often, Oregon® uses five symbols that tell the frequency at which each of the different activities should occur. Here are the five symbols, what they mean, and an example of a task or activity that corresponds to each.

EXAMPLES OF SYMBOL USE

Symbol	Its Meaning	Example task or activity
▲	Before each use	Be sure your saw's oil reservoir is filled with clean bar-and-chain oil.
■	Often (hourly, or at each refueling)	Check your chain's tension and adjust it if necessary.
●	Daily	Check you drive sprocket for wear and replace it if necessary.
◆	Weekly (periodically)	Check your bar's rails to be sure they are square and free from excessive wear, repair or replace if needed.
⊘	Never	Never allow your chain to contact dirt or rocks during operation.

These five symbols appear throughout this manual, and on other Oregon® product packaging. Oregon® urges you to become familiar with these symbols, and to perform the tasks they refer to, so that you can enjoy maximum performance and maximum life from your Oregon® chain, bar, and sprocket.

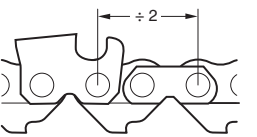
OREGON® CHAIN TERMS

CHAIN PITCH

Chain pitch is the distance between any three consecutive rivets, divided by two.

Oregon® chain pitches are:

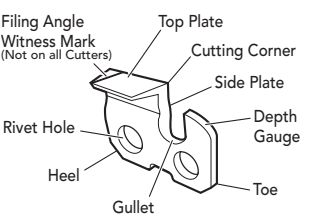
1/4," .325," 3/8," .404," and 3/4."



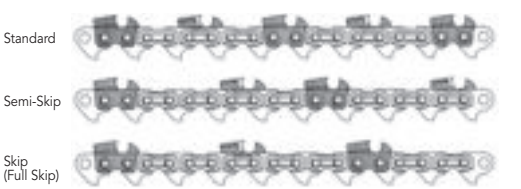
CHAIN GAUGE

Chain gauge is the drive link's thickness where it fits into the guide-bar groove. The industry standard for gauges is: .043," .050," .058" and .063." Oregon® chain gauges of .063," .080" and .122" are used for Harvester applications.

THE PARTS OF A CUTTER



CHAIN CUTTER-SEQUENCE TERMS



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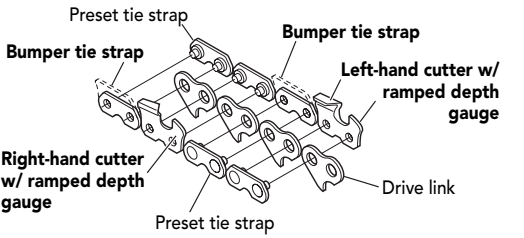
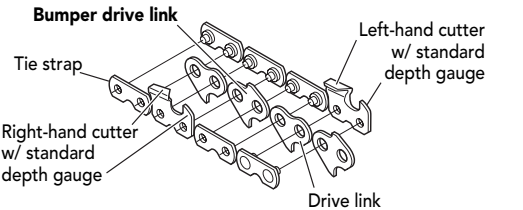
OREGON® CHAIN TERMS (CONTINUED)

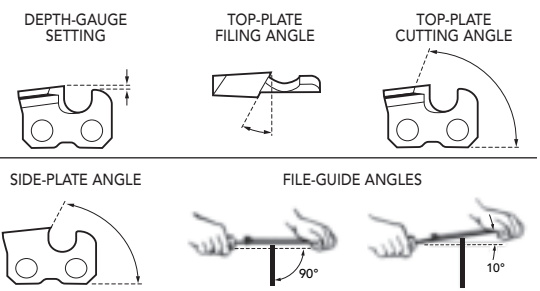
THE PARTS OF A SAW CHAIN

NOTE Parts below named in **Bold Face** indicate kick-back-reducing links and features: bumper tie straps, bumper drive links, and ramped depth gauges.





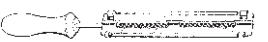
CUTTER MAINTENANCE TERMS



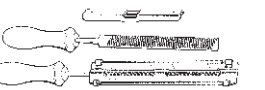
OREGON® CHAIN-MAINTENANCE TOOLS

FILING TOOLS

① ASSEMBLED FILE GUIDE
*Asst'd. P/N's



② SHARPENING KITS
*Asst'd. P/N's

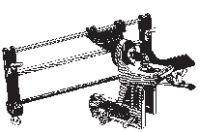


③ ROUND FILE
*Asst'd. P/N's

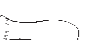
④ FLAT FILE
P/N 12211

⑤ DEPTH-GAUGE TOOLS
*Asst'd. P/N's

⑥ BAR-MOUNT FILING GUIDE
P/N 23736A



⑦ FILE HANDLE
P/N 30870B (100 CT.)

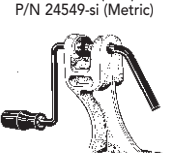


*See pages 35-63 for part numbers, file sizes, and other help selecting the right tools for your Oregon® chain.

CHAIN-REPAIR TOOLS

① CHAIN BREAKER
P/N 24548A

② RIVET SPINNER
P/N 24549-s (SAE)
P/N 24549-si (Metric)



③ CHAIN BREAKER ANVIL
P/N 111939

OREGON® CHAIN-MAINTENANCE TOOLS

GRINDERS

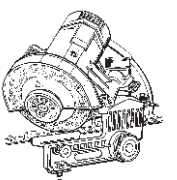
① SURE SHARP® 12-VOLT GRINDER P/N 28588

② BENCH-MODEL CHAIN GRINDER P/N 511A

③ GRINDING WHEELS FOR 511A GRINDER *Asst'd. P/N's See page 8

④ MINI GRINDER P/N 108181

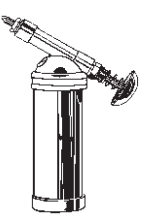
⑤ BAR-MOUNTED CHAIN GRINDER P/N 109178 (12 V) P/N 109176 (115 V)



⑥ GRINDING WHEELS FOR MINI GRINDER & BAR-MOUNTED GRINDERS *Asst'd. P/N's See page 8

GREASE GUNS

① GREASE GUN P/N's 110534



② GREASE GUN 40469-A)

③ GREASE GUN 21939

511-A GRINDER WHEELS

GRINDING WHEEL PART NUMBER 	GRINDING WHEEL WIDTH 	CORRESPONDS TO FILE SIZE DIAMETER(S) 
OR534-18 OR534-316 OR534-516	1/8" 3/16" 5/16"	5/32" or 4.5mm 3/16" or 7/32" 5/16"

MINI GRINDER AND BAR-MOUNTED CHAIN GRINDER WHEELS

GRINDING WHEEL PART NUMBER 	GRINDING WHEEL WIDTH 	CORRESPONDS TO FILE SIZE DIAMETER(S) 
OR4125-18 OR4125-316	1/8" 3/16"	5/32" or 4.5mm 3/16" or 7/32"

CHAIN IDENTIFICATION

OREGON® CHAIN PART NUMBER	FILING SPEC'S	OREGON® CHAIN TYPE	CHAIN GAUGE	CUTTER TYPE		CUTTER SEQUENCE	KICKBACK-REDUCING FEATURES (IF ANY)*
				END VIEW	SIDE VIEW		
1/4" – PITCH CHAIN							
25AP	PAGE 35	MICRO CHISEL®	.050"	MICRO CHISEL®		STANDARD	
.325" – PITCH CHAIN							
20BP 21BP 22BP	PAGE 36	MICRO CHISEL®	.050" .058" .063"	MICRO CHISEL®		STANDARD	
20LP, M20LP 21LP, M21LP 22LP, M22LP	PAGE 37	SUPER 20	.050" .058" .063"	CHISEL		STANDARD	
33LG 34LG 35LG	PAGE 38	SUPER GUARD®	.050" .058" .063"	CHISEL		STANDARD	
33SL 34SL 35SL	PAGE 39	PRO GUARD™	.050" .058" .063"			STANDARD	
95VP	PAGE 40	MICRO LITE™	.050"	MICRO CHISEL®		STANDARD	
95R	PAGE 41	RIPPING CHAIN	.050"	MICRO CHISEL®		STANDARD	
3/8" – PITCH CHAIN (CONTINUED ON NEXT PAGE)							
72CJ, CJX, CK, CKX, CL, CLX 75CJ, CJX, CK, CKX, CL, CLX	PAGE 48	SUPER GUARD® SQUARE GROUND	.050" .063"	CHISEL		(CJ, CJX) SKIP (CK, CKX) SEMI-SKIP (CL, CLX) STANDARD	
72AP, DP 73DP 75DP	PAGE 43	S-70	.050" .058" .063"	SEMI CHISEL		(AP) SKIP (DP) ST'D.	

***KICKBACK REDUCING FEATURES**

① BUMPER DRIVE LINK 

② BUMPER TIE STRAP 

③ RAMPED DEPTH GAUGE 

④ LOW-PROFILE RAMPED DEPTH GAUGE 

⑤ WIDE-TRACK RAMPED DEPTH GAUGE 

⑥ HIGH TOP-PLATE TAIL LOCATION 

CHAIN IDENTIFICATION (CONTINUED)

3/8" – PITCH CHAIN (CONTINUED)

OREGON® CHAIN PART NUMBER	FILING SPEC'S	OREGON® CHAIN TYPE	CHAIN GAUGE	CUTTER TYPE		CUTTER SEQUENCE	KICKBACK-REDUCING FEATURES (IF ANY)
				END VIEW	SIDE VIEW		
72DG,DJ 73DG 75DG	PAGE 44	SPEED GUARD™	.050" .058" .063"	SEMI-CHISEL		(DG) ST'D. (DJ) SKIP	
72JG,LG 73JG,LG 75JG,LG	PAGE 45	SUPER GUARD®	.050" .058" .063"	CHISEL		(JG) SKIP (LG) ST'D.	
72JP,LP,M72LP 73JP,LP,M73LP 75LP,M75LP	PAGE 46	SUPER 70	.050" .058" .063"	CHISEL		(JP) SKIP (LP) ST'D.	
72RD 73RD 75RD	PAGE 49	RIPPING CHAIN	.050" .058" .063"	SEMI-CHISEL		STANDARD	
72SG 73SG 75SG	PAGE 47	XTRA GUARD®	.050" .058" .063"	SEMI-CHISEL		STANDARD	
72V 73V 75V	PAGE 42	VAN-GUARD	.050" .058" .063"	CHISEL		STANDARD	
90SG	PAGE 50	MICRO-LITE™	.043"	CHAMFER CHISEL		(SG) ST'D.	
91P	PAGE 51	XTRA GUARD®	.050"	CHAMFER CHISEL		STANDARD	
91VS, M91VS	PAGE 52	LOW VIBRATION LOW PROFILE	.050"	CHAMFER CHISEL		STANDARD	
91VG	PAGE 53	LOW VIBRATION XTRA GUARD®	.050"	CHAMFER CHISEL		STANDARD	
91LX	**	POWER SHARP®	.050"	SPECIALIZED		STANDARD	

**Use 91LX ONLY on saws with automatic chain-sharpening systems. No hand maintenance required.

CHAIN IDENTIFICATION (CONTINUED)

OREGON® CHAIN PART NUMBER	FILING SPEC'S	OREGON® CHAIN TYPE	CHAIN GAUGE	CUTTER TYPE		CUTTER SEQUENCE	KICKBACK-REDUCING FEATURES (IF ANY)
				END VIEW	SIDE VIEW		
.404" – PITCH CHAIN							
16H 18H	PAGE 61	HAR-VESTER	.063" .080"	MICRO CHISEL®		STANDARD	
26, 26P 27, 27A 27P	PAGE 54	MICRO CHISEL®	.058" .063"	MICRO CHISEL®		STANDARD (A) SKIP	26P, 27P  26, 27, 27A 
27R 27RA	PAGE 55	RIPPING CHAIN	.063"	MICRO CHISEL®		(R) ST'D. (RA) SKIP	
50AJ,AL 51AJ,AL 52AJ, AK,AL	PAGE 59	SUPER CHISEL™ SQUARE GROUND	.050" .058" .063"	CHISEL		(AJ) SKIP (AK) SEMI (AL) ST'D.	
50L 51L 52L	PAGE 56	SUPER CHISEL™	.050" .058" .063"	CHISEL		STANDARD	
58CJ, CL 59CJ, CK, CL	PAGE 59	SUPER GUARD® GROUND	.058" .063" SQUARE	CHISEL		(JG) SKIP (LG) ST'D.	
58CP 59CP	PAGE 57	MICRO BIT®	.058" .063"	CHIPPER		STANDARD	
58J, 58L 58LG 59J, 59L 59JG, LG	PAGE 58	SUPER GUARD®	.058" .063"	CHISEL		(JG) SKIP (LG) ST'D.	
59AA	PAGE 60	CHIPPER CUTTER	.063"	CHIPPER		SKIP	
3/4" – PITCH CHAINS							
11BC	PAGE 62	CHIPPER	.122"	CHIPPER		STANDARD	
11H	PAGE 63	SEMI CHISEL	.122"	SEMI-CHISEL		STANDARD	

Saw Chain

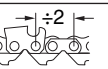
CHAIN DRIVE-LINK NUMBER IDENTIFICATION

Nearly all Oregon® chains are named by a part number made up of a number (see below), and letters (see pages 13-14).

Oregon® Part-number Examples: 27A, 72LP, 91VG, M72LP

First, note the numbers: 27A, 72LP, 91VG, M72LP

These numbers are stamped on the chain's drive links and indicate the physical size of the chain (pitch and gauge).



CHAIN NUMBER	PITCH	GAUGE
11	3/4"	.122"
16	.404"	.063"
18	.404"	.080"
20	.325"	.050"
21	.325"	.058"
22	.325"	.063"
25	1/4"	.050"
27	.404"	.063"
33	.325"	.050"
34	.325"	.058"
35	.325"	.063"
50	.404"	.050"
51	.404"	.058"
52	.404"	.063"
58	.404"	.058"
59	.404"	.063"
72	3/8"	.050"
73	3/8"	.058"
75	3/8"	.063"
90	3/8" Low Profile	.043"
91	3/8" Low Profile	.050"
95	.325"	.050"

CHAIN LETTER IDENTIFICATION

The Letters: 27 A, 72 LP, 91 VG, M 72 LP

The letters represent cutter type and sequence, kick-back-reducing features, or other physical traits of the chain.

- **A** Micro Chisel® cutters with skip sequence (27A only)
- **AA** Chipper cutters with skip sequence (59AA only)
- **AJ** Square-ground chisel cutters with skip sequence
- **AK** Square-ground chisel cutters with semi-skip sequence
- **AL** Square-ground chisel cutters with standard sequence
- **AP** 25AP: Micro Chisel® cutters with bumper drive links and standard sequence. 72AP: Semi-chisel cutters with skip sequence
- **BC** Chipper cutters with standard sequence (11BC only)
- **BP** Low-vibration Micro Chisel® cutters with bumper drive links and standard sequence
- **CJ** Square-ground chisel cutters with ramped depth gauges and skip sequence
- **CJX** Square-ground DuraPro™ chisel cutters with ramped depth gauges and skip sequence
- **CK** Square-ground chisel cutters with ramped depth gauges and semi-skip
- **CKX** Square-ground DuraPro™ chisel cutters with ramped depth gauges and semi-skip sequence
- **CL** Square-ground chisel cutters with ramped depth gauges and standard sequence
- **CLX** Square-ground DuraPro™ chisel cutters with ramped depth gauges and standard sequence
- **CP** Chipper cutters with bumper drive links and standard sequence
- **DG** Semi-chisel cutters with ramped depth gauges and standard sequence
- **DJ** Semi-chisel cutters with ramped depth gauges and skip sequence (72DJ only)
- **DP** Semi-chisel cutters with bumper drive links and standard sequence
- **H** Modified for harvester applications, Micro Chisel® cutters with standard sequence

CONTINUED...

CHAIN LETTER IDENTIFICATION (CONTINUED)

- **JG** Round-ground chisel cutters with ramped depth gauges, bumper tie straps and skip sequence
- **JP** Round-ground chisel cutters with bumper drive links and skip sequence
- **L** Chisel cutters with standard sequence
- **LG** Round-ground chisel cutters with ramped depth gauges and standard sequence (33LG is a low vibration chain)
- **LP** Low-vibration, round-ground chisel cutters with bumper drive links and standard sequence
- **LX** Power Sharp® chain with ramped depth gauges, bumper drive links and standard sequence (no hand maintenance required)
- **M** Specially built chain with round-ground chisel cutters and bumper drive links for effective cutting in extremely dirty or abrasive conditions
- **P** Micro Chisel® cutters (26P, 27P), or Chamfer Chisel cutters (91P), with bumper drive links and standard sequence
- **R** Ripping chain with Micro Chisel® cutters and standard sequence
- **RA** Ripping chain with Micro Chisel® cutters and skip sequence (27RA only)
- **RD** Ripping chain with semi-chisel cutters and standard sequence (3/8"-pitch only)
- **SG** Ramped depth gauges, bumper tie straps and standard sequence (72, 73, 75SG have semi-chisel cutters. 90SG has low-vibration chamfer-chisel cutters)
- **SL** Round-ground chisel cutters with ramped depth gauges, bumper tie straps and standard sequence (33SL is a low vibration chain)
- **V** Low-vibration, round-ground Vanguard chisel cutters with standard sequence and wide-track depth gauges
- **VG** Low-vibration semi-chisel cutters with ramped depth gauges, bumper tie straps and standard sequence
- **VP** Low-vibration Micro Chisel® cutters with ramped depth gauges, bumper drive links and narrow-kerf design (95VP only)
- **VS** Low-vibration semi-chisel cutters with ramped depth gauges and standard sequence (91VS only)

THE FOUR BASIC SAW-CHAIN RULES

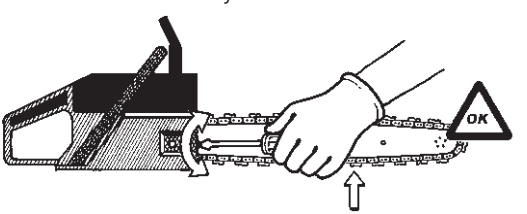
ATTENTION CHAINSAW USERS:

Oregon® urges you to become familiar with the four basic saw-chain rules. Users who know and follow these rules can count on superior performance from their chain, bar, and sprocket – and – reduce safety hazards at the same time.

RULE NUMBER 1

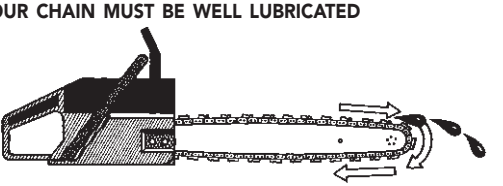
YOUR CHAIN MUST BE CORRECTLY TENSIONED

More chain and bar problems are caused by incorrect chain tension than by any other single factor. See pages 18-21 on how to tension your chain.



RULE NUMBER 2

YOUR CHAIN MUST BE WELL LUBRICATED

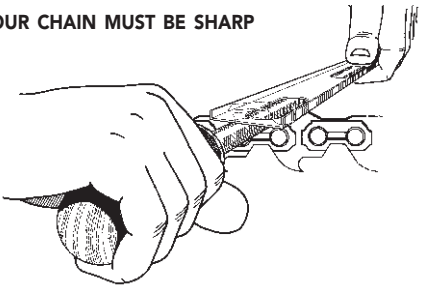


A constant supply of oil to your saw's bar, chain, and sprocket is vital. Without it, excessive friction, wear, and damage will occur. See page 21 for instructions on how to lubricate your chain.

CONTINUED...

RULE NUMBER 3

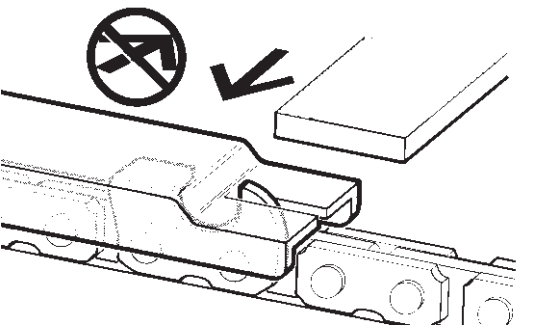
YOUR CHAIN MUST BE SHARP



When your chain is sharp, it does the work. When it's not, you do the work – and your cutting attachments will wear more rapidly. See pages 22-26 for instructions on how to sharpen your chain. See pages 35-63 to find maintenance specifications for each Oregon® chain type.

RULE NUMBER 4

YOUR CHAIN'S DEPTH GAUGES MUST BE SET CORRECTLY



Depth-gauge setting and depth-gauge shape are critical to performance and safety. See pages 26-30 for instructions on how to set your chain's depth gauges.

NOTE See specific depth gauge maintenance for 72V, 73V and 75V Vanguard chains on pages 29-30.

HOW TO MAINTAIN CHAIN

ATTENTION: Oregon® urges dealers, chainsaw users, and anyone who services saw chain to become familiar with proper chain-maintenance techniques and the possible dangers which can result if chain is not properly maintained.

⚠WARNING

Failure to follow the instructions below can result in severe injury to the saw operator, bystanders, or the person performing maintenance.

△ Always turn off your saw's engine before handling the chain, guide bar or sprocket.

△ Any one of the following conditions can increase a chain's potential kickback energy, increase the risk of a chain throwing itself off the bar, increase the chance of a chain breaking, or increase the risk of other hazards associated with chainsaw use.

- △ Loose chain tension
- △ Incorrect sharpening of chain angles
- △ Dull chain
- △ Alteration of kickback-reducing chain features
- △ Excessive chain depth-gauge settings
- △ Incorrect chain depth-gauge shapes
- △ Incorrectly installed chain parts
- △ Loose rivets, or cracks or breaks in any chain component

△ When performing maintenance on saw chain, follow **all** instructions provided with the chain, or on the page in this manual pertaining to your chain. Doing so can minimize the risk of injury.

HOW TO TENSION YOUR CHAIN

Basic Chain-Tensioning Tasks				
▲ Before use	■ Often	● Daily	◆ Weekly	⃠ Never

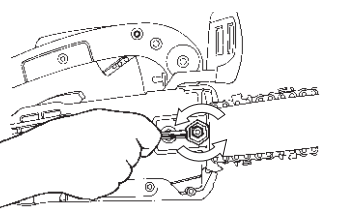
▲ Tension chain before each use
■ Tension chain often, or at each refueling
⃠ Never tension your chain right after cutting. Chain tensioned while hot can cool and shrink, causing tension to be too tight. Let chain cool first.

⚠ READ THE WARNING ON PAGE 17.

NOTE Always wear protective gloves.

1. Turn the engine off.

2. Loosen bar-mounting nuts on the side of your saw.



3. Adjust tension as follows:

If you have a ***solid-nose bar***, follow 3a (below). If you have a ***sprocket-nose bar***, follow 3b (on next page). If you have an **Intenz™ bar** with the internal tensioning feature, follow 3c (page 20).

3a. IF YOU HAVE A SOLID-NOSE BAR

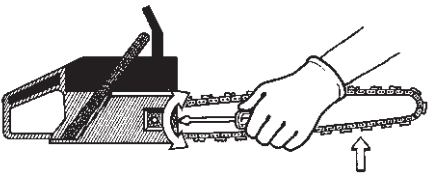
Pull the bar nose up, and keep it up as you adjust tension.

CONTINUED

HOW TO TENSION YOUR CHAIN

(3a CONTINUED)

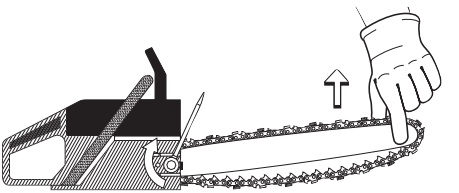
Turn your saw's tension-adjustment screw until the bottoms of the lowest tie straps and cutters come up and ***just*** touch the bottom of the bar rail.



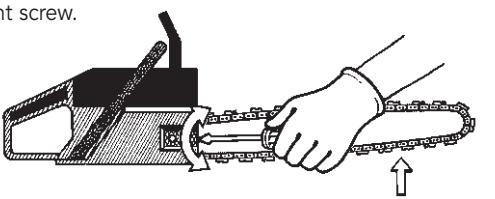
While still holding the nose up, tighten your saw's rear bar-mounting nut first, then tighten the front mounting nut.

3b. IF YOU HAVE A STANDARD SPROCKET-NOSE BAR

Pull the bar nose up, and keep it up as you adjust tension.



Tension must be tighter on a sprocket-nose bar than on a solid-nose bar. Turn your saw's tension-adjustment screw until the bottoms of the lowest tie straps and cutters come up and ***solidly*** **contact the bottom of the bar rail.** Then add an additional 1/4 turn of the adjustment screw.



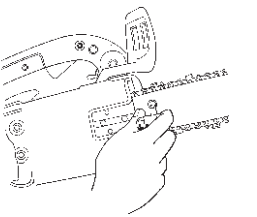
While still holding the nose up, tighten your saw's rear bar-mounting nut first, then tighten the front mounting nut.

CONTINUED

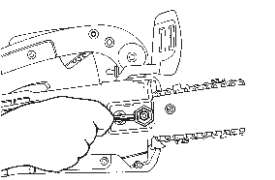
HOW TO TENSION YOUR CHAIN (CONTINUED)

3c. If you have an Intenz® sprocket-nose bar

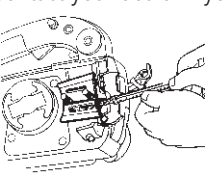
Turn the tension-adjust slot until the bottoms of the lowest cutters and tie straps come up and ***solidly*** contact the bottom of the bar rail.

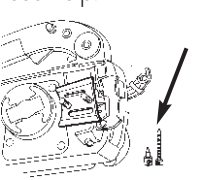


Tighten your saw's rear bar-mounting nut first, then tighten the front mounting nut. **It is not necessary to hold the nose up when adjusting tension on Intenz® bars.**



NOTE When replacing a standard bar with an Intenz® bar, the saw's adjustment pin must be removed. Contact your dealer if you need help.





4.  Pull the chain by hand along the top of the bar several times, from the engine to the bar's tip. Chain should feel snug but still pull freely.

NOTE If you have a sprocket-nose bar you should now perform the snap test. Grasp the chain along the bottom of the bar, pull down, and let go. Chain should snap back to its original position, solidly contacting the bottom of the bar.

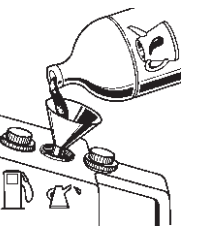
Continued...

5. Check tension often during operation, especially during the first half-hour. If chain loosens: stop, let chain cool, and readjust tension.

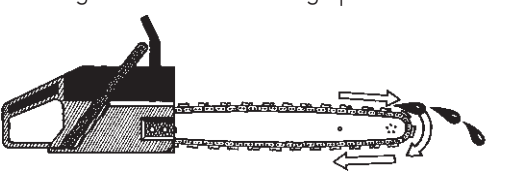
HOW TO LUBRICATE YOUR CHAIN

Basic Lubrication Tasks				
▲ Before use	■ Often	● Daily	◆ Weekly	⃠ Never

▲ Each time you fill your gas tank, fill your oil reservoir with clean bar-and-chain oil.

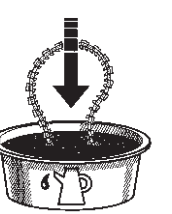


■ Be sure your chain, bar, and sprocket are always receiving oil from the saw during operation.



⃠ Never put used oil, or old motor oil, in your saw or on your chain.

▲ Before the first use, soak the chain overnight to allow oil to penetrate all chain components.



HOW TO SHARPEN CHAIN

Basic Sharpening Tasks				
▲ Before use	■ Often	● Daily	◆ Weekly	⃠ Never

▲ Sharpen chain before each use.

■ Sharpen chain often, or as needed.

⚠ READ THE WARNING ON PAGE 17.

NOTES

- Sharpening your chain while it is on the saw requires proper chain tension, as shown on pages 18-21 prior to filing.

- Pages 35-63 show the correct maintenance specifications and the correct maintenance-tool part numbers for each of the Oregon® chain types. Find the page which gives the correct filing specifications for your Oregon® chain. To do so, use the Chain Identification chart on pages 9-11.

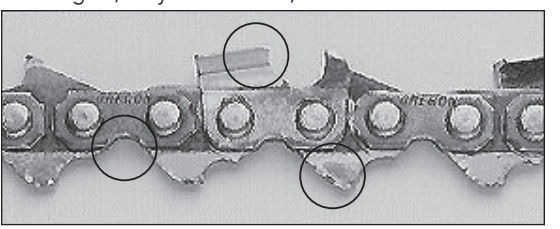
- If unsure of your Oregon® chain's type, or part number, ask your Oregon® saw chain dealer, or call the Oregon® technical services department at 503-653-4706 between the hours of 7:30 am and 4:00 pm, Pacific time, Monday through Friday.

BEFORE & AFTER SHARPENING YOUR CHAIN

1. Before sharpening your chain, clean oil and grease from the chain. This will prevent build-up in your file's teeth, or on the wheel when grinding.
2. Before sharpening, inspect, repair, or replace damaged chain.
3. During your inspection, check for each of the following:
   - Proper installation of tie straps and drive links.
   - Cracked or broken cutters, cutter top plates, or tie straps.
   - Bent, cracked or burred drive links.
   - Severe abrasive damage.

CONTINUED...

- Abnormal chain wear.
- Wear patterns on the chain that may indicate a worn bar or sprocket.
- Loose rivets (if you can rotate the rivets with your fingers, they're too loose).

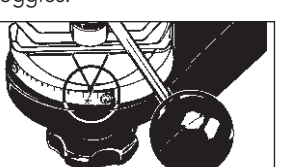


4. Use the correct sharpening specifications for your Oregon® chain type. See pages 35-63.
   - If unsure of your Oregon® chain's type, or part number, ask your Oregon® chain dealer.
   - For Sharpening Chain with a Grinder see below.
   - For Sharpening Chain with a Round File see pages 25-26.
5. After sharpening your chain, check and adjust depth gauges. See pages 26-30 for instructions.
6. After sharpening and adjusting depth gauges, clean off any particles of material, then lubricate the chain thoroughly with bar and chain oil. Soaking the chain overnight produces the best results.

SHARPENING CHAIN WITH AN OREGON® GRINDER

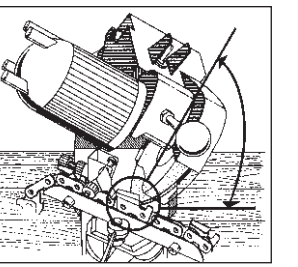
Note: Wear safety goggles.

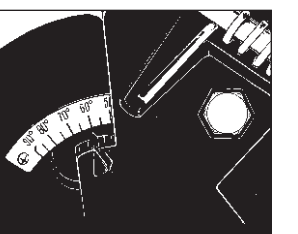
1. Set vise assembly to the proper **top plate filing angle** (*See pages 35-63 for correct angles for each Oregon® chain type.)*



TOP-PLATE FILING ANGLE

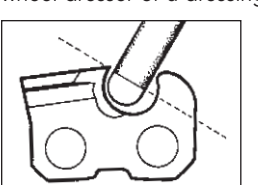
2. To set the proper grinder head angle, use the recommended **top-plate cutting angle** (*See pages 35-63 for correct angles for each Oregon® chain type.)*



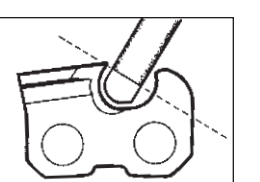


TOP-PLATE CUTTING ANGLE

3. Dress vitrified grinding wheels often to maintain correct shape (see illustration). Use either a rotary wheel dresser or a dressing brick.



Full Radius, for all round-ground chains except 11H



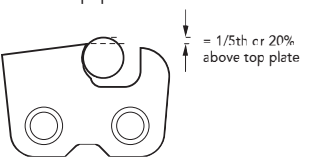
For 11H Chain Only: 3/16" Partial Radius & 1/8" Flat

NOTE:

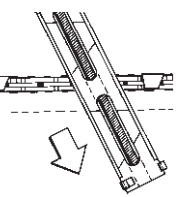
- To avoid burning cutters, use light intermittent strokes.
- Never grind into other chain components.
- If damage is present on the chrome surface of top plates or side plates, grind back until such damage is removed.
- Keep all cutter lengths equal.

SHARPENING WITH A ROUND FILE

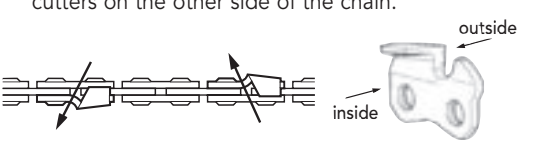
1. Be sure 1/5th, or 20%, of the file's diameter is always held above the cutter's top plate. The best way to do this is with an Oregon® File Guide. The file guide automatically keeps 20% of the file's diameter above the cutter's top plate..



2. Keep the correct Top-plate Filing Angle line on your file guide parallel with your chain.



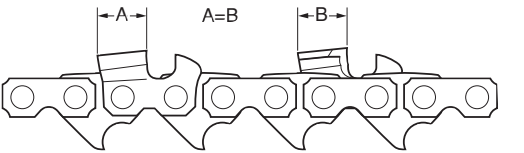
3. Sharpen cutters on one side of the chain first. File from the inside of each cutter to the outside. Then turn your saw around and repeat the process for cutters on the other side of the chain.



4. If damage is present on the chrome surface of top plates or side plates, file back until such damage is removed.

CONTINUED...

5. Keep all cutter lengths equal.



HOW TO SET DEPTH GAUGES

Basic Depth-Gauge Tasks				
▲ Before use	■ Often	● Daily	◆ Weekly	⃠ Never

■ Set depth gauges often, every 3 or 4 sharpenings, or more often if needed.

⚠ READ THE WARNING ON PAGE 17.

NOTES

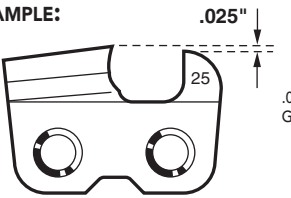
- Setting your depth gauges while the chain is on the saw requires proper chain tension, as shown on pages 18-21 prior to filing.
- Pages 35-63 show the correct depth-gauge setting and the part number of the correct depth-gauge tool for each of the different Oregon® chain types. Find the page which gives the correct filing specifications for your Oregon® chain. To do so, use the Chain Identification chart on pages 9-11.
- If unsure of your Oregon® chain's type, or part number, ask your Oregon® saw chain dealer, or call the Oregon® technical services department at 503-653-4706 between the hours of 7:30 am and 4:00 pm, Pacific time, Monday through Friday.

CONTINUED...

HOW TO SET DEPTH GAUGES (CONTINUED)

- Most Oregon® chains have a number stamped on each depth gauge indicating the correct depth-gauge setting.

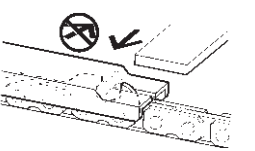
EXAMPLE:



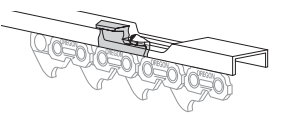
1. Use a depth-gauge tool with the correct built-in setting for your chain and check your depth gauges every 3 or 4 sharpenings or more often if needed.
2. Be sure the heel and toe of the cutter are both down, resting on the bar rail, before any filing is done. This is especially important on low-vibration chains, which have a "clipped heel" that rides above the rail slightly when the chain is properly tensioned.
3. Place the tool on top of your chain so one depth gauge protrudes through the slot in the tool.

NOTE Be aware that "standard" depth gauges and "wide-track Vanguard" depth gauges are set differently. See pages 29-30 for additional information on Vanguard depth gauges.

Standard depth gauge with drop-end gaugit tool.
(Always file from the inside out.)



Vanguard wide-track-depth gauge with drop-center depth gauge tool.



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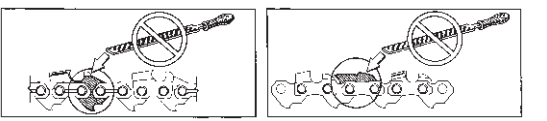
HOW TO SET DEPTH GAUGES (CONTINUED)

4. If the depth gauge extends above the slot, file the depth gauge down level with the top of the tool using a flat file. *Never file the depth gauge down so far that you exceed the depth-gauge setting specified in this manual for your Oregon® chain.*

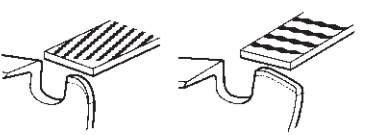
⃠ Do not file or alter the tops of kickback-reducing bumper tie straps or bumper drive links, except on 33SL, 34SL, and 35SL chains. Only 33SL, 34SL, and 35SL require filing of the bumper tie straps. See page 39.

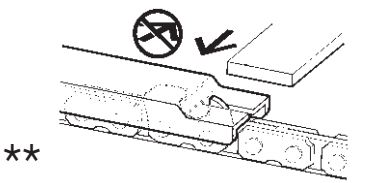


5. Rounding off depth gauges after lowering:

- The depth gauges on all non-Vanguard chains should be rounded off after they are filed down.
- Do not round off the depth gagues on Vanguard chain. See the next page for more details on setting Vanguard chain depth gauges.

After filing the depth gauge down, round off its leading edge and return the depth gauge to its original rounded or ramped shape**. On chains with bumper links, it may be necessary to move the cutter to the bar's tip, or remove the chain from the bar, in order to re-shape the depth gauge.





**

**Do not round off the depth gauges on Vanguard chain after filing them down.

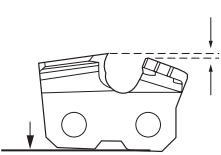
NOTE On many chains, it may be helpful to tip the depth-gauge tool on end and place it in front of the cutting corner in order to protect the cutting surfaces when rounding off depth gauges.

SETTING THE WIDE-TRACK DEPTH GAUGES ON VANGUARD CHAIN

Most experienced timber cutters know that if their newly-sharpened chain fails to cut, then the next step is to check and probably lower the depth gauges. With other Oregon® chains, there is normally sufficient margin for error that a chain with depth gauges set slightly too low will still cut well. However, with Vanguard chain, cutting performance does not improve with depth-gauge settings greater than .025". If your Vanguard depth gauges are set too low, the cutter top plates must be filed back to regain the .025" setting in order to obtain optimum cutting performance. Here are some additional points to remember when setting Vanguard depth gauges:

1. Use a .025" drop-center depth-gauge tool and follow instructions number 1 through 4 on pages 27-28.

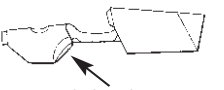
2. Vanguard is a low-vibration chain. Be sure the cutter's clipped heel is down, resting on the bar rail, before doing any filing.



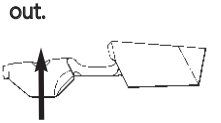
HEEL DOWN

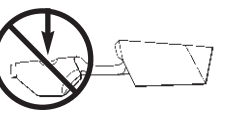
CONTINUED...

3. The area where depth-gauge filing occurs on Vanguard chain is identified by a witness mark. Do not file outside the witness mark and do not round off Vanguard depth gauges after lowering them.



3. Always file Vanguard depth gauges from the **inside out.**





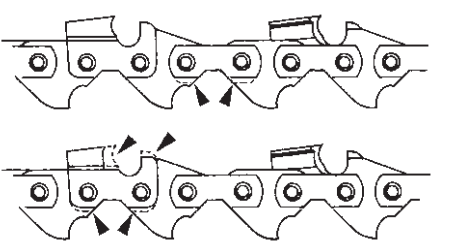
HOW TO INSTALL NEW CHAIN PARTS

⚠ READ THE WARNING ON PAGE 17.

NOTE Use only new Oregon® parts to repair Oregon® chain. And only use parts which are the correct size and type for your chain.

1. Remove rivets, and parts to be replaced, as shown under "How to Break Out Rivets," pages 32-33. Never reassemble a chain with old preset tie straps – *always use new preset tie straps.*

2. If needed, file off the bottom of new parts to match existing worn parts. File new cutters back to match worn cutters. Do not file the tops of kickback-reducing bumper tie straps or bumper drive links (except on 33-34-35SL chains, see page 39).



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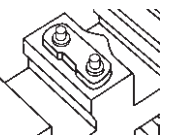
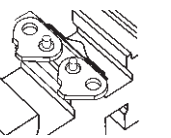
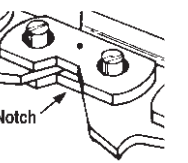
3. Place the preset tie strap on a flat outer surface of a chain-breaker anvil. Be sure the rivets are pointing up.



4. Assemble chain to the preset tie strap.

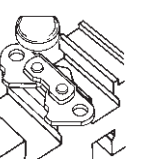


5. Assemble tie strap with dot, or Lubrilink™ contour face up, and the notch toward the drive-link tangs. Assemble bumper tie strap in the correct direction, with the notch toward the drive-link tangs.



6. Be sure parts are assembled in the correct location, sequence and direction. Check the illustrations on pages 4 and 5. If unsure, ask your Oregon® dealer.

7. To form rivet heads, we recommend use of the Oregon® Rivet Spinner, part number 24549A, available from your chainsaw dealer. Follow the instructions packaged with the rivet spinner. If you must use a hammer, strike the rivet head repeatedly with the hammer's flat end at varying angles around the head – carefully forming it as shown. Be certain to strike only the rivet head.



⚠ CAUTION

△ Rivet heads must be snug and secure while still allowing all joined parts to move freely. Rapid wear leading to possible chain breakage and personal injury can be caused by rivet heads that are either too tight, or too loose.

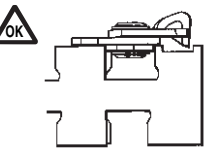
NOTE New rivet heads may be smaller and shaped differently than factory-spun heads.

HOW TO BREAK OUT RIVETS

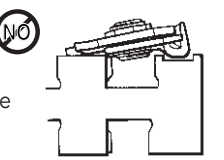
⚠ CAUTION

△ Always wear approved safety accessories for hands and face when breaking out rivets.

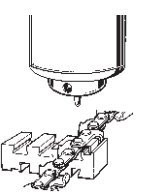
1. Place the chain segment you wish to break in the correct slot of the anvil, according to pitch.

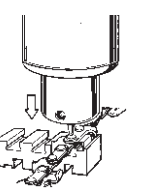


NOTE For Vanguard chain cutters with wide-track depth gauges, be sure that the depth gauge curls downward, into the recessed area of the anvil.



2. Position rivet head directly under the punch. Pull the handle down just far enough to push out the rivet, or hammer out the rivet if you're using a hand-held punch. Do not use excessive force. To avoid tight joints, replace worn or broken punches periodically and be sure the punch is centered when driving out rivets.





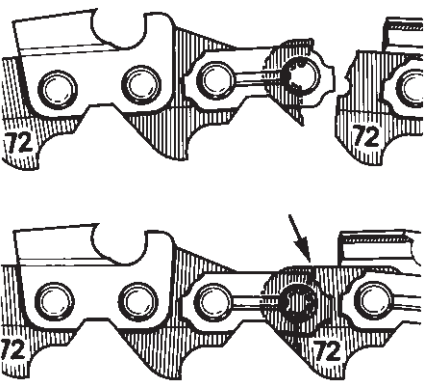
NOTE When breaking chain at a cutter, make sure the chain is positioned so that the drive links are between the anvil and the cutter.

CONTINUED...

HOW TO BREAK OUT RIVETS (CONTINUED)

REMOVING RIVETS FROM BROKEN DRIVE LINKS

1. When removing rivets from broken drive links, hold the two broken segments together in their original (unbroken) positions as you place the chain link in the anvil.



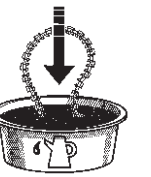
2. Perform steps 1 and 2 from "How to Break Out Rivets." on the previous page.

HOW TO BREAK IN A NEW CHAIN

Basic Break-In Tasks				
▲ Before use	■ Often	● Daily	◆ Weekly	⃠ Never

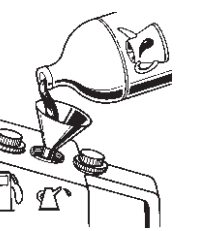
The life of your new chain can be extended by taking these few simple steps before using it.

▲1. Before the first use, soak the chain overnight to allow oil to penetrate all chain components.



▲ 2. Run new chain at half throttle for several minutes before doing any cutting in order to allow oil to reach all parts of the bar and chain. Let sprocket, bar, and chain warm up fully.

■ 3. Stop, let the chain cool, then check and ▲ adjust tension often (especially during the first half-hour of use) as shown on pages 18-21. Keep the first several cuts light. Keep extra oil on the bar and chain during these first cuts, and do not apply heavy pressure.



NOTES

⃠ Never run any chain on an overworn drive sprocket, especially a new chain.

◆ Replace drive sprocket systems after every two chains, or sooner. See page 91.