

MAINTENANCE
AND SAFETY MANUAL



Advanced Cutting Technology



INTRODUCTION

Your chainsaw is only as good as your chain, guide bar, and sprocket. They function as a team while doing the actual work of cutting wood and, therefore, 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.



CHAINSAW SAFETY

IMPORTANT SAFETY MESSAGE



SAFETY SYMBOL

This safety symbol is used to highlight safety messages. When you see this symbol, read and follow the safety message to avoid severe personal injury.



WARNING

All cutting chain can kick back, which can lead to dangerous loss of control of the chainsaw and result in serious injury to the saw operator or by standers. Follow all instructions in your chainsaw operator's manual and in this booklet for proper use and maintenance of your saw's cutting chain, guide bar, and sprocket.

■ GUARD AGAINST CHAINSAW KICKBACK

- Know your personal level of chainsaw experience.
- Know your cutting chain.

If you do not have experience and specialized training for dealing with chainsaw kickback, then OREGON® urges you to use only low-kickback saw chains.

■ WHAT IS KICKBACK?

Kickback is the violent backward and/or upward motion of the chainsaw guide bar occurring when the chain near the nose or tip of the guide bar contacts any object, such as another log or branch, or when the wood closes in and pinches the saw chain in the cut.

■ TO HELP AVOID INJURY

Kickback Awareness

- 1 Be alert at all times to guard against a possible kickback reaction. Always be aware of the position of your bar's nose.
- 2 Different models of cutting chain are available for most cutting tasks. Use the chain, suitable for your type of cutting, with the lowest kickback potential.
- 3 Narrow-nose bars such as OREGON® Double Guard™ bars are recommended for maximum kickback safety.



Potential Kickback Situation



CHAINSAW SAFETY

CLOTHING AND PROTECTIVE EQUIPMENT

Wear protective gloves to prevent slippage and to protect hands.

Wear chainsaw protective boots or safety boots and gaiters to protect feet.



Wear hard hat to protect head.

Wear ear protection to protect ears.

Wear safety goggles or face shield to protect eyes.

Wear protective trousers or leggings to protect legs

NOTE: Dress properly - do not wear clothing that is too tight or too loose.

■ MAKE PROPER WORK PRACTICES A HABIT

- Use only a right-hand grip to hold your saw (right hand on the trigger, left hand on the front handle).
- Keep your left arm straight for better control.
- Hold saw firmly with both hands. Keep thumb firmly locked around front handle.
- Stand to the side of the chainsaw, never behind it.
- Run engine at full throttle.
- Use low-kickback saw chain and a reduced-kickback guide bar.
- Keep the chainsaw, cutting chain, guide bar and sprocket properly maintained.
- Stand with feet well braced and your body balanced.
- Cut only wood with your chainsaw. Do not cut any other material.



CAUTION

- ▲ Keep yourself clear of the work. Before cutting :
 - Calculate how the object being cut will fall.
 - Determine if the saw may be thrown unexpectedly by the movement of the cut material.
 - Position yourself to avoid injury.
- ▲ Never cut above shoulder level.
- ▲ Never cut while in a tree, or while on a ladder.
- ▲ Keep others away from the cutting area.
Do not allow others to hold wood during cutting.

**INTRODUCTION**

Introduction	
Chainsaw safety	

CHAIN

Chain Terms	2
Chain Pitch	2
Chain Gauge	2
Parts of a Cutter.....	2
Cutter Sequence	2
Parts of a Saw Chain	3
Maintenance Terms	3
Chain maintenance tools	4
Chain identification chart.....	5-7
Chain drive-link number identification	8
Chain letter identification	9
Four basic rules	10-11
How to maintain the chain....	12
How to tension chain	13-15
How to lubricate chain	15
How to set depth gauges	16-17
How to sharpen cutters....	18-19
How to install chain parts	20-21
How to break out rivets ...	22-23
How to run-in a new chain....	24
End-user symbols.....	25
Filing specifications	26-48
Chain troubleshooting	49-55

GUIDE BARS

Guide bar terms	56
Guide bar maintenance tools	56
Guide bar maintenance...	57-58
How to replace Power Match® noses	59-60
Pro-Lite® noses sprockets.....	61-62
Guide bar troubleshooting	63-65

DRIVE SPROCKETS

Sprocket terms, tools, and installation	66
Sprocket maintenance	67-68
Sprocket troubleshooting	69-70

USEFUL INFORMATION

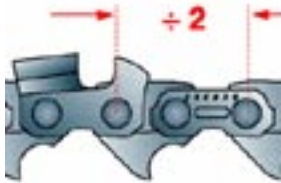
Useful information	71-72
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OREGON® CHAIN TERMS

■ 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".

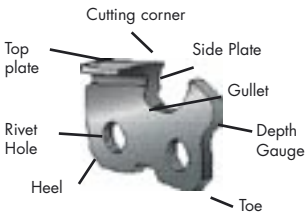


■ CHAIN GAUGE

Chain gauge is the drive link's thickness where it fits into the guide-bar groove. The industry standard for chain gauges are:

.043" (1.1mm), .050" (1.3mm), .058" (1.5mm), .063" (1.6mm)
 OREGON® chain gauges of .080" (2mm) and .122" (3.1mm) are used for Harvester applications.

■ THE PARTS OF A CUTTER



Wide-track depth gauge



■ CHAIN CUTTER-SEQUENCE TERMS

Standard



Semi-Skip



Skip

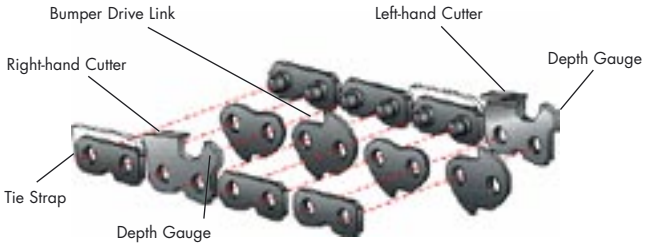
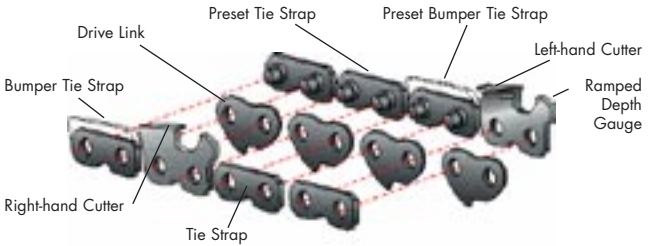




OREGON® CHAIN TERMS

THE PARTS OF A SAW CHAIN

NOTE: Highlighted parts below indicate kickback-reducing "bumper link" features: bumper tie strap, bumper drive link, and ramped depth gauge.



CUTTER MAINTENANCE TERMS

Depth-gauge Setting



Top-plate Filing Angle



Top-plate Cutting Angle



Side-plate Angle



Fileguide Angle



OREGON® CHAIN-MAINTENANCE TOOLS

FILING TOOLS

1 ASSEMBLED FILE GUIDE



2 SHARPENING KIT



3 ROUND FILE



4 FLAT FILE



5 DEPTH-GAUGE TOOL



6 BAR-MOUNTED FILING GUIDE



7 FILE HANDLE



8 FILING VISE



GRINDERS

1 SURE SHARP® 12-VOLT GRINDER



2 BENCH-MODEL CHAIN GRINDER



3 MINI GRINDER



4 GRINDING WHEELS



CHAIN-REPAIR TOOLS

1 CHAIN BREAKER



2 RIVET SPINNER



3 POCKET-CHAIN BREAKER





CHAIN IDENTIFICATION

OREGON® CHAIN PART	FILING SPEC'S	OREGON® CHAIN TYPE	CHAIN GAUGE		CUTTER TYPE		CUTTER SEQUENCE	KICKBACK REDUCING FEATURES (IF ANY)*
			IN.	MM	END VIEW	SIDE VIEW		

1/4" PITCH CHAIN

25AP	Page 26	MICRO CHISEL®	050"	1.3	MICRO CHISEL®		STANDARD	
					7			

.325" PITCH CHAINS

20BP 21BP 22BP	Page 27	MICRO CHISEL®	050"	1.3	MICRO CHISEL®		STANDARD	
			058"	1.5	7			
			063"	1.6				
20LP 21LP 22LP	Page 28	SUPER 20	050"	1.3	CHISEL		STANDARD	
			058"	1.5	7			
			063"	1.6				
M21LP M22LP	Page 31	MULTICUT	058"	1.5	CHISEL		STANDARD	
			063"	1.6	7			
33LG 34LG 35LG	Page 29	SUPER GUARD® Low vibration	050"	1.3	CHISEL		STANDARD	
			058"	1.5	7			
			063"	1.6				
95VP	Page 30	MICRO- LITE™	050"	1.3	MICRO CHISEL®		STANDARD	
					7			
95R	Page 43	RIPPING CHAIN	050"	1.3	MICRO CHISEL®		STANDARD	
					7			

KICKBACK REDUCING FEATURES





SAW CHAIN

CHAIN IDENTIFICATION

OREGON® CHAIN PART	FILING SPEC'S	OREGON® CHAIN TYPE	CHAIN GAUGE		CUTTER TYPE		CUTTER SEQUENCE	KICKBACK REDUCING FEATURES (IF ANY)*
			IN.	MM	END VIEW	SIDE VIEW		

3/8" PITCH CHAINS

72D/DP 73D/DP 75D/DP	Page 33	S-70	050"	1.3	SEMI-CHISEL		STANDARD	
			058"	1.5				
			063"	1.6				
72LG 73LG 75LG	Page 34	SUPER GUARD™	050"	1.3	CHISEL		(LG) STANDARD	
			058"	1.5				
			063"	1.6				
72LP 73LP 75LP	Page 35	SUPER 70 Low vibration	050"	1.3	CHISEL		(LP) STANDARD	
			058"	1.5				
			063"	1.6				
M73LP M75LP	Page 32	MULTICUT	058"	1.5	CHISEL		STANDARD	
			063"	1.6				
72RD 73RD 75RD	Page 36	RIPPING CHAIN	050"	1.3	SEMI-CHISEL		STANDARD	
			058"	1.5				
			063"	1.6				
90SG	Page 38	MICRO- LITE™ Low vibration	043"	1.1	CHAMFER-CHISEL		(SG) STANDARD	
91VS	Page 39	Low vibration Low profile	050"	1.3	CHAMFER-CHISEL		STANDARD	
91VG	Page 40	Low vibration XTRA GUARD™	050"	1.3	CHAMFER-CHISEL		STANDARD	
91LX	-	POWER SHARP®	050"	1.3	SPECIALIZED		STANDARD	
91R	Page 37	RIPPING CHAIN	050"	1.3	CHAMFER-CHISEL		STANDARD	
M91VS	Page 39	MULTICUT	050"	1.3	CHAMFER-CHISEL		STANDARD	



CHAIN IDENTIFICATION

OREGON® CHAIN PART	FILING SPEC'S	OREGON® CHAIN TYPE	CHAIN GAUGE		CUTTER TYPE		CUTTER SEQUENCE	KICKBACK REDUCING FEATURES (IF ANY)*
			IN.	MM	END VIEW	SIDE VIEW		

.404" PITCH CHAINS

16H 18H	Page 48	HARVESTER	063" 080"	1.6 2.0	MICRO CHISEL®		STANDARD	
					7			
26, 26P 27, 27P	Page 41	MICRO- CHISEL®	058" 063"	1.5 1.6	MICRO CHISEL®		STANDARD	P ONLY
					7			
27R, RA	Page 42	RIPPING CHAIN	063"	1.6	MICRO CHISEL®		(R) STANDARD (RA) SKIP	
					7			
59AC/CP	Page 44	MICROBIT®	063"	1.6	CHIPPER		STANDARD	CP ONLY
					7			
58L/LG 59L/LG	Page 45	SUPER GUARD™	058" 063"	1.5 1.6	CHISEL		STANDARD	
					7			

3/4" PITCH CHAINS

11H	Page 46	SEMI- CHISEL	122"	3.1	SEMI-CHISEL		STANDARD	
					7			
11BC	Page 47	CHIPPER	122"	3.1	SEMI-CHISEL		STANDARD	
					7			

KICKBACK REDUCING FEATURES



CHAIN DRIVE-LINK NUMBER IDENTIFICATION

Nearly all OREGON® chains are named by a part number made up of a number (see below), followed by one or two letters (see page 9).

OREGON® Part-number Examples: 18 H, 72LP, 91VG

The Numbers: 18 H, 72 LP, 91 VG

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

CHAIN NUMBER	PITCH	GAUGE	
		IN	MM
11	3/4"	.122"	3.1
16	.404"	.063"	1.6
18	.404"	.080"	2.0
20	.325"	.050"	1.3
21	.325"	.058"	1.5
22	.325"	.063"	1.6
25	1/4"	.050"	1.3
26	.404"	.058"	1.5
27	.404"	.063"	1.6
33	.325"	.050"	1.3
34	.325"	.058"	1.5
35	.325"	.063"	1.6
58	.404"	.058"	1.5
59	.404"	.063"	1.6
72	3/8"	.050"	1.3
73	3/8"	.058"	1.5
75	3/8"	.063"	1.6
90	3/8"	.043"	1.1
91	3/8"	.050"	1.3
95	.325"	.050"	1.3



CHAIN LETTER IDENTIFICATION

The letters: 18 [H], 72 [LP], 91 [VG]

The letters represent cutter type and sequence, safety features, or other physical traits of the chain.

- | | | | |
|------|--|------|---|
| [AC] | Chipper Cutter,
Standard Sequence | [M] | Specially built chain with
round-ground chisel cutters
(M73, 75LP, M21, 22LP)
and Bumper Drive Link or
chamfer-chisel cutter
(M91VS) and ramped
depth gauge for effective
cutting in extremely dirty or
abrasive conditions |
| [AP] | Micro Chisel [®] Cutter,
Bumper Drive Link,
Standard Sequence | [R] | Ripping Chain, Chamfer-
chisel (91R) or Micro-chisel
(95R, 27R) Cutter,
Standard Sequence |
| [BC] | Chipper cutter with
standard sequence
(11BC only) | [RA] | Ripping Chain, Micro-
chisel Cutter,
Skip Sequence |
| [BP] | Low vibration Micro
Chisel [®] Cutter,
Bumper Drive Link,
Standard Sequence | [RD] | Ripping chain with semi-
chisel cutters and standard
sequence |
| [DP] | Semi-chisel Cutter, Bumper
Drive Link, Standard
Sequence | [SG] | Low vibration chamfer-chisel
cutters, ramped depth
gauge, bumper tie strap,
standard sequence,
narrow kerf design. |
| [H] | Modified for Harvester
applications, Micro Chisel [®]
or Semi-chisel cutters
with Standard Sequence | [VG] | Low-vibration Chamfer-
chisel cutter, ramped depth
gauge, bumper tie strap,
standard sequence |
| [L] | Round-ground chisel cutters
with standard sequence
(.404" 58L & 59L) | [VP] | Low-vibration Micro
Chisel [™] cutter, ramped
depth gauge, bumper drive
link, narrow-kerf design
(95VP only) |
| [LG] | Round-ground Chisel
Cutter, Ramped Depth
Gauge, Standard
Sequence. 33LG serie
chains are low vibrations
chains. | [VS] | Low-vibration Chamfer-
chisel cutters, ramped
depth gauge, standard
sequence (91VS only) |
| [LP] | Low vibration Round-
ground Chisel Cutter,
Bumper Drive Link,
Standard Sequence | | |
| [LX] | Power Sharp [®] Chain,
Ramped Depth Gauge,
Bumper Drive Link,
Standard Sequence
(no hand maintenance
required) | | |



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 13 and 14 on how to tension your chain.



■ RULE NUMBER 2

Your chain must be well lubricated



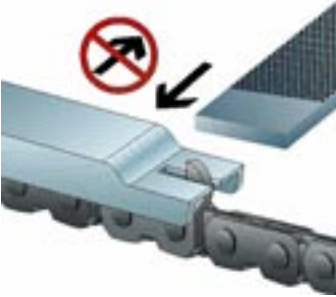
A constant supply of oil to your saw's bar, chain and sprocket is vital. Without it, excessive friction, wear, and damage will occur. See page 15 for instructions on how to lubricate your chain.



THE FOUR BASIC SAW-CHAIN RULES

■ RULE NUMBER 3

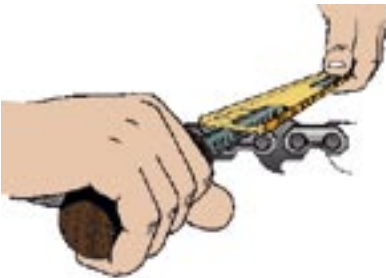
Your chain's depth gauges must be set correctly



Depth-gauge setting and depth-gauge shape are critical to performance and safety. See pages 16-17 for instructions on how to set your chain's depth gauges.

■ RULE NUMBER 4

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 18 and 19 for instructions on how to sharpen your chain. See pages 26 to 48 to find maintenance specifications for each OREGON® chain type.



HOW TO MAINTAIN CHAIN

ATTENTION: DEALERS, CHAINSAW USERS, AND ANYONE WHO SERVICES SAW CHAIN-IMPORTANT SAFETY INFORMATION.

OREGON® urges you 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, or increase the risk of other hazards associated with chainsaw use.

1. Incorrect sharpening of chain angles.
2. Dull chain.
3. Alteration of kickback-reducing chain features.
4. Excessive chain depth-gauge settings.
5. Incorrect chain depth-gauge shapes.
6. Loose chain tension.
7. Incorrectly installed chain parts.
8. Loose rivets, or cracks or breaks in any chain component.



When performing maintenance on saw chain, follow all instructions on pages 12 through 55. Doing so can minimize the risk of injury.

HOW TO TENSION YOUR CHAIN WITHOUT INTENZ™

Read the warnings on page 12.

NOTE: Always wear protective gloves.



- 1 Turn the engine off.

NOTE: Never tension your chain right after cutting. Chain tensioned while hot can cool and contract, causing tension to be much too tight. Let chain cool first.

- 2 Loosen bar-mounting nuts on the side of your saw.
- 3 Pull the bar nose up, and keep it up as you adjust tension.



- 4 Adjust tension as follows:

■ **If you have a solid-nose bar**

→ 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.





HOW TO TENSION YOUR CHAIN WITHOUT INTENZ™

■ If you have a sprocket-nose bar

- Tension must be tighter 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.
- ⑤ With either type of bar, hold the nose up and tighten your saw's rear bar-mounting nut first, then tighten the front nut.



- ⑥ 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.

- ⑦ Check tension often during operation, especially during the first half-hour. If chain loosens: stop, let chain cool, and readjust tension.



HOW TO TENSION YOUR CHAIN WITH INTENZ™

- 1 Turn the engine off.
- 2 Loosen the bar mounting nuts on the side of the saw.



- 3 Insert a combination tool blade in the Intenz™ slot of the guide bar.
- 4 Turn the combination tool to move the guide bar forwards, away from the saw as far as possible.



- 5 Tighten the back bar mounting nut, then tighten the front nut

HOW TO LUBRICATE YOUR CHAIN

- 1 Keep your saw's chain-oiling system filled with clean bar-and-chain oil.
- 2 Never put used oil, or old motor oil in your saw or on your chain.
- 3 Be sure your chain, bar, and sprocket are always receiving oil from the saw during operation.
- 4 Fill your oil reservoir each time you fill your gas tank.

HOW TO SET DEPTH GAUGES



Read the warnings on page 12.

NOTE:

- On-saw depth-gauge setting requires proper chain tension, as shown on pages 13-14, prior to filing.
- Pages 26 through 48 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 (26-48), which gives the correct filing specifications for your OREGON® chain type. To do so, use the Chain identification chart on pages 5, 6 and 7.
- If unsure of your OREGON® chain's type, or part number, ask your OREGON® saw chain dealer.
- Most OREGON® chains have a number stamped on each depth gauge indicating the correct depth-gauge setting.

EXAMPLE:

.025" (0.64mm)



.025" (0.64mm) Depth-gauge Setting

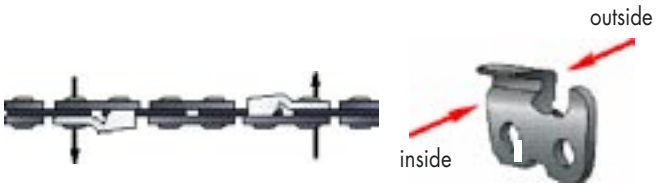
- 1 Use a depth-gauge tool with the correct built-in setting for your chain and check your depth gauges every 3 or 4 sharpenings.
- 2 Place the tool on top of your chain so one depth gauge protrudes through the slot in the tool.
- 3 If the depth gauge extends above the slot, file the depth gauge down level with the top of the tool using a flat file. Never file the depth gauge down enough to exceed the depth-gauge setting specified in this manual for your OREGON® chain.

HOW TO SET DEPTH GAUGES



NOTE: Do not file or alter the tops of kickback-reducing bumper tie straps or bumper drive links.

- ④ File from the inside of the cutter to the outside, except on 72L Vanguard series.



- ⑤ After lowering, always file off the front corner of each depth gauge parallel to its original rounded or ramped shape.



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



HOW TO SHARPEN CUTTERS



Read the warnings on page 12.

NOTE:

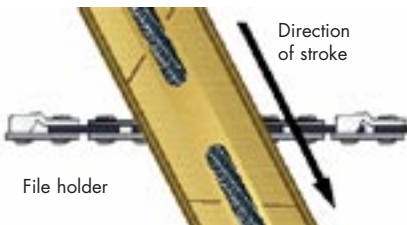
- On-saw sharpening requires proper chain tension.
- Pages 26 through 48 show the correct maintenance specifications and the correct maintenance-tool part numbers for each of the OREGON® chain types.
- Find the correct filing specifications for your OREGON® chain type.
- If unsure of your OREGON® chain's type, part number or filing specification, ask your OREGON® saw chain dealer.
- Check and adjust depth gauges.

■ ROUND-FILE CUTTER SHARPENING

- 1 Be sure $1/5$ th, or 20%, of the file's diameter is always held above the cutter's top plate. Using the correct file guide is the easiest way to hold the file in this position.



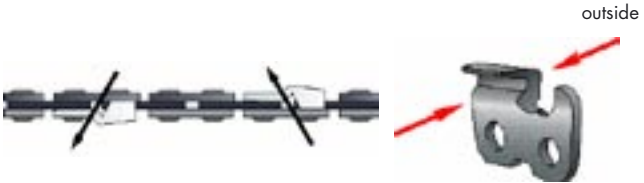
- 2 Keep the correct Top-plate Filing Angle line on your file guide parallel with your chain.





HOW TO SHARPEN CUTTERS

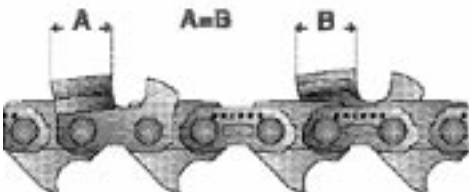
- ③ Sharpen cutters on one side of the chain first. File from the inside of each cutter to the outside. Then turn your saw around and repeat the process for cutters on the other side of the chain.



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



- ⑤ Keep all cutter lengths equal.



- ⑥ Re-check depth gauges. If re-setting of the depth gauges is necessary, follow instructions on pages 16 and 17.

NOTE: Do not file or alter the tops of kickback-reducing bumper tie straps or bumper drive links.



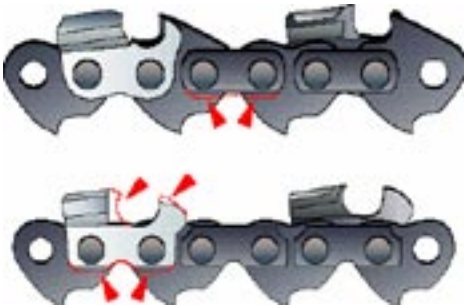
HOW TO INSTALL NEW CHAIN PARTS



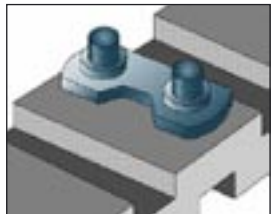
Read the warnings on page 12.

NOTE:

- Use only 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 22 to 23. Never reassemble a chain with old preset tie straps - *always use new preset tie straps*.
 - 2 If needed, file off 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.



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



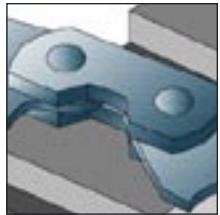


HOW TO INSTALL NEW CHAIN PARTS

- ④ Assemble chain to the preset tie strap.



- ⑤ Assemble tie strap with landmark 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 2 and 3. If unsure, ask your OREGON® dealer.
- ⑦ To form rivet heads, use an OREGON® rivet spinner. Follow the instructions packaged with the rivet spinner.

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.

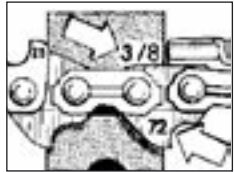


HOW TO BREAK OUT RIVETS

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



- 1 Select proper anvil slot number on chain-breaker anvil which matches the drive-link number on the chain to be broken (see Chain Drive-link-number Chart on the next page).



- 2 Insert chain portion for breaking into the proper slot of the chain anvil and push chain forward until bottom tie strap is flush with the far side of slot. (Drive link is then supported on both sides of slot.)



- 3 Position rivet head directly under punch. Pull handle down if using a bench chain breaker, or hammer out rivet if using a handheld punch. Do not use excessive force.



NOTE: Important-when breaking chain at cutter, make sure cutter is in up position.

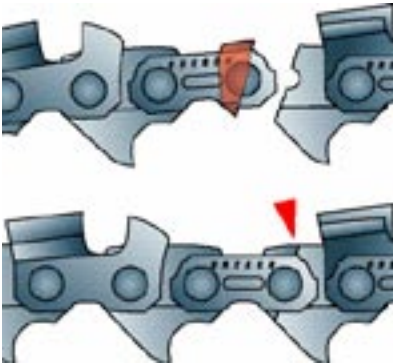




HOW TO BREAK OUT RIVETS

REMOVING RIVETS FROM BROKEN DRIVE LINKS

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



- See steps 1-3 from "How to break out rivets" on the previous page.

CHAIN DRIVE-LINK-NUMBER CHART

ANVIL SLOT NUMBER	1/4	.325	90/91	3/8	.404	3/4	18H
DRIVE-LINK NUMBER	25	20	90	72	16	11	18
		21	91	73	26		
		22		75	27		
		33			58		
		34			59		
		35					
		95					



HOW TO RUN-IN A NEW CHAIN

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

- 1 Soak the chain overnight to allow oil to penetrate all chain components.



- 2 Never run any chain on a worn drive sprocket, especially a new chain. Replace drive sprocket systems after every two chains, or sooner.



- 3 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.
- 4 Stop, check chain tension, let chain cool, and adjust tension often during operation, as shown on pages 13 and 15.
- 5 Keep the first several cuts light. Keep extra oil on the bar and chain during these first cuts, and do not apply heavy pressure.



CHAINSAW SAFETY

THE FOUR OREGON® END-USER SYMBOLS

Each of these four symbols represents a large category of saw-chain users. OREGON® chains are listed under one or more of these symbols, generally indicating the type of user for whom the chain is intended.

PROFESSIONAL CHAINSAW USERS



- Big-timber loggers
- Pulpwood loggers
- Forest firefighters

COMMERCIAL CHAINSAW USERS



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

CASUAL CHAINSAW USERS



- Homeowners
- Occasional firewood cutters
- Campers
- Hunters

MECHANICAL HARVESTER USERS



- For use on mechanical timber-harvesting 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.



OREGON® MICRO CHISEL®



Kickback Reducing Features 	End View 	Use
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CHAIN TYPE	GAUGE
25AP	.050" (1.3mm)



FILING

1 DEPTH-GAUGE SETTING:



2 TOP-PLATE CUTTING ANGLE:



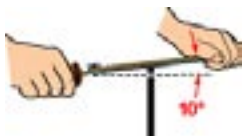
3 SIDE-PLATE ANGLE:



4 TOP-PLATE FILING ANGLE:



5 FILE-GUIDE ANGLE:



TOOLS FOR FILING

PART N°.	DESCRIPTION
70504	5/32" (4.0mm) Round File
16265	5/32" (4.0mm) Assembled File Guide
27530	.025" (0.64mm) Depth-gauge Tool
12211	Depth-gauge File (flat)
90405	Sharpening kit

Chain on this page is intended for use with saws up to 2.3 cu. in. displacement (38cc), and bars up to 16 in. length (41 cm).



OREGON® MICRO CHISEL®



Kickback Reducing Features 	End View 	Use
--------------------------------	--------------	---------

CHAIN TYPE	GAUGE	
20BP	.050"	(1.3mm)
21BP	.058"	(1.5mm)
22BP	.063"	(1.6mm)



FILING

1 DEPTH-GAUGE SETTING:



2 TOP-PLATE CUTTING ANGLE:



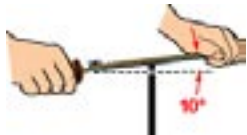
3 SIDE-PLATE ANGLE:



4 TOP-PLATE FILING ANGLE:



5 FILE-GUIDE ANGLE:



TOOLS FOR FILING

PART N°.	DESCRIPTION
70503	3/16" (4.8mm) Round File
18228	3/16" (4.8mm) Assembled File Guide
27530	.025" (0.64mm) Depth-gauge Tool
12211	Depth-gauge File (flat)
90407	Sharpening kit

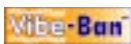
Chain on this page is intended for use with saws up to 3.5 cu. in. displacement (58cc), and bars up to 20 in. length (50 cm).

OREGON® CHISEL



Kickback Reducing Features 	End View 	Use
--------------------------------	--------------	-------------

CHAIN TYPE	GAUGE	
20LP	.050"	(1.3mm)
21LP	.058"	(1.5mm)
22LP	.063"	(1.6mm)



FILING

① DEPTH-GAUGE SETTING:



② TOP-PLATE CUTTING ANGLE:



③ SIDE-PLATE ANGLE:



④ TOP-PLATE FILING ANGLE:



⑤ FILE-GUIDE ANGLE:



TOOLS FOR FILING

PART N°.	DESCRIPTION
70503	3/16" (4.8mm) Round File
18228	3/16" (4.8mm) Assembled File Guide
27530	.025" (0.64mm) Depth-gauge Tool
12211	Depth-gauge File (flat)
90407	Sharpening kit

Chain on this page is intended for use with saws up to 3.5 cu. in. displacement (58cc), and bars up to 20 in. length (50 cm).



OREGON® CHISEL



Kickback Reducing Features 	End View 	Use
--------------------------------	--------------	---------

CHAIN TYPE	GAUGE
33LG	.050" (1.3mm)
34LG	.058" (1.5mm)
35LG	.063" (1.6mm)



FILING

1 DEPTH-GAUGE SETTING:



2 TOP-PLATE CUTTING ANGLE:



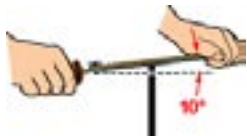
3 SIDE-PLATE ANGLE:



4 TOP-PLATE FILING ANGLE:



5 FILE-GUIDE ANGLE



TOOLS FOR FILING

PART N°.	DESCRIPTION
70511 or 70504	4.5mm round file; 5/32" round file (optional)
29192 or 16265	4.5mm Assembled File Guide or 5/32"
27530	.025" (0.64mm) Depth-gauge Tool
12211	Depth-gauge File (flat)
90403 or 90405	Sharpening kit

Chain on this page is intended for use with saws up to 3.8 cu. in. displacement (62cc), and bars up to 20 in. length (50 cm).



OREGON® MICRO CHISEL®



Kickback Reducing Features 	End View 	Use
--------------------------------	--------------	---------

CHAIN TYPE	GAUGE	
95VP	.050"	(1.3mm)



FILING

1 DEPTH-GAUGE SETTING:



2 TOP-PLATE CUTTING ANGLE:



3 SIDE-PLATE ANGLE:



4 TOP-PLATE FILING ANGLE:



5 FILE-GUIDE ANGLE:



TOOLS FOR FILING

PART N°.	DESCRIPTION
70503	3/16" (4.8mm) Round File
18228	3/16" (4.8mm) Assembled File Guide
27530	.025" (0.64mm) Depth-gauge Tool
12211	Depth-gauge File (flat)
90407	Sharpening kit

Chain on this page is intended for use with saws up to 2.8 cu. in. displacement (45cc), and bars up to 18 in. length (45 cm).



OREGON® CHISEL



Kickback Reducing Features 	End View 	Use
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CHAIN TYPE	GAUGE	
M21LP	.058"	(1.5mm)
M22LP	.063"	(1.6mm)



FILING

1 DEPTH-GAUGE SETTING:



2 TOP-PLATE CUTTING ANGLE:



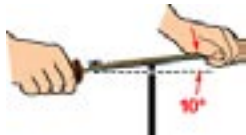
3 SIDE-PLATE ANGLE:



4 TOP-PLATE FILING ANGLE:



5 FILE-GUIDE ANGLE:



TOOLS FOR FILING

PART N°.	DESCRIPTION
70503	3/16" (4.8mm) Round File
18228	3/16" (4.8mm) Assembled File Guide
27530	.025" (0.64mm) Depth-gauge Tool
12211	Depth-gauge File (flat)
90407	Sharpening kit

Chain on this page is intended for use with saws up to 3.5 cu. in. displacement (58cc), and bars up to 20 in. length (50 cm).

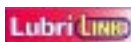


OREGON® CHISEL



Kickback Reducing Features 	End View 	Use
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CHAIN TYPE	GAUGE	
M73LP	.058"	(1.5mm)
M75LP	.063"	(1.6mm)



FILING

① DEPTH-GAUGE SETTING:



② TOP-PLATE CUTTING ANGLE:



③ SIDE-PLATE ANGLE:



④ TOP-PLATE FILING ANGLE:



⑤ FILE-GUIDE ANGLE:



TOOLS FOR FILING

PART N°.	DESCRIPTION
70502	7/32" (5.5mm) Round File
13252	7/32" (5.5mm) Assembled File Guide
27530	.025" (0.64mm) Depth-gauge Tool
12211	Depth-gauge File (flat)
90404	Sharpening kit

Up to three times the stay sharp of conventional chain. For use with saws up to 6.0 cu in displacement (98cc) and bars up to 36 in length (91 cm).

OREGON® SEMI CHISEL



Kickback Reducing Features 	End View 	Use
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CHAIN TYPE	GAUGE	
72D, DP	.050"	(1.3mm)
73D, DP	.058"	(1.5mm)
75D, DP	.063"	(1.6mm)



FILING

1 DEPTH-GAUGE SETTING:



2 TOP-PLATE CUTTING ANGLE:



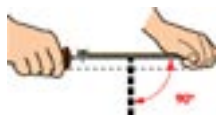
3 SIDE-PLATE ANGLE:



4 TOP-PLATE FILING ANGLE:



5 FILE-GUIDE ANGLE:



TOOLS FOR FILING

PART N°.	DESCRIPTION
70502	7/32" (5.5mm) Round File
13252	7/32" (5.5mm) Assembled File Guide
27530	.025" (0.64mm) Depth-gauge Tool
12211	Depth-gauge File (flat)
90404	Sharpening kit




Chain on this page is intended for use with saws up to 6.0 cu. in. displacement (98cc), and bars up to 36 in. length (91 cm).



SUPER GUARD® 3/8"

OREGON® CHISEL®



Kickback Reducing Features 	End View 	Use 
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CHAIN TYPE	GAUGE	
72LG	.050"	(1.3mm)
73LG	.058"	(1.5mm)
75LG	.063"	(1.6mm)



FILING

1 DEPTH-GAUGE SETTING:



2 TOP-PLATE CUTTING ANGLE:



3 SIDE-PLATE ANGLE:



4 TOP-PLATE FILING ANGLE:



5 FILE-GUIDE ANGLE:



TOOLS FOR FILING

PART N°.	DESCRIPTION
70502	7/32" (5.5mm) Round File
13252	7/32" (5.5mm) Assembled File Guide
27530	.025" (0.64mm) Depth-gauge Tool
12211	Depth-gauge File (flat)
90404	Sharpening kit

Chain on this page is intended for use with saws up to 6.0 cu. in. displacement (98cc), and bars up to 36 in. length (91 cm).



OREGON® CHISEL®



Kickback Reducing Features 	End View 	Use
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CHAIN TYPE	GAUGE	
72LP	.050"	(1.3mm)
73LP	.058"	(1.5mm)
75LP	.063"	(1.6mm)



FILING

1 DEPTH-GAUGE SETTING:



2 TOP-PLATE CUTTING ANGLE:



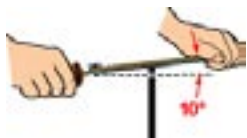
3 SIDE-PLATE ANGLE:



4 TOP-PLATE FILING ANGLE:



5 FILE-GUIDE ANGLE:



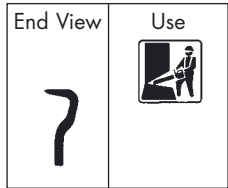
TOOLS FOR FILING

PART N°.	DESCRIPTION
70502	7/32" (5.5mm) Round File
13252	7/32" (5.5mm) Assembled File Guide
27530	.025" (0.64mm) Depth-gauge Tool
12211	Depth-gauge File (flat)
90404	Sharpening kit

Chain on this page is intended for use with saws up to 6.0 cu. in. displacement (98cc), and bars up to 36 in. length (91 cm).



OREGON® SEMI CHISEL



CHAIN TYPE	GAUGE	
72RD	.050"	(1.3mm)
73RD	.058"	(1.5mm)
75RD	.063"	(1.6mm)



FILING

1 DEPTH-GAUGE SETTING:



2 TOP-PLATE CUTTING ANGLE:



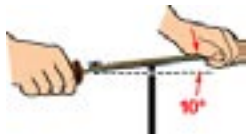
3 SIDE-PLATE ANGLE:



4 TOP-PLATE FILING ANGLE:



5 FILE-GUIDE ANGLE:



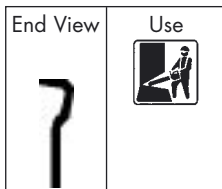
TOOLS FOR FILING

PART N°.	DESCRIPTION
70502	7/32" (5.5mm) Round File
13252	7/32" (5.5mm) Assembled File Guide
27530	.025" (0.64mm) Depth-gauge Tool
12211	Depth-gauge File (flat)
90404	Sharpening kit

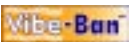
Ripping chain feature a special grind for use in ripping cuts only. Do not use these chains for any type of cutting other than ripping.



OREGON® CHAMFER CHISEL



CHAIN TYPE	GAUGE
91R	.050" (1.3mm)



FILING

① DEPTH-GAUGE SETTING:



② TOP-PLATE CUTTING ANGLE:



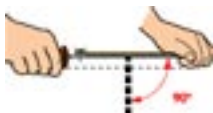
③ SIDE-PLATE ANGLE:



④ TOP-PLATE FILING ANGLE:



⑤ FILE-GUIDE ANGLE:



TOOLS FOR FILING

PART N°.	DESCRIPTION
70504	5/32" (4.0mm) Round File
16265	5/32" (4.0mm) Assembled File Guide
27530	.025" (0.64mm) Depth-gauge Tool
12211	Depth-gauge File (flat)
90405	Sharpening kit

Ripping chain feature a special grind for use in ripping cuts only. Do not use these chains for any type of cutting other than ripping.



OREGON® MICRO-LITE™



Kickback Reducing Features 	End View	Use

CHAIN TYPE	GAUGE
90SG	.043" (1.1mm)



FILING

① DEPTH-GAUGE SETTING:



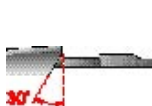
② TOP-PLATE CUTTING ANGLE:



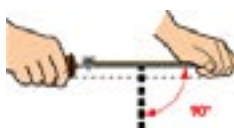
③ SIDE-PLATE ANGLE:



④ TOP-PLATE FILING ANGLE:



⑤ FILE-GUIDE ANGLE:



TOOLS FOR FILING




PART N°.	DESCRIPTION
70511	4.5mm Round File
29192	4.5mm Assembled File Guide
27530	.025" (0.65mm) Depth-gauge Tool
12211	Depth-gauge File (flat)
90403	Sharpening kit

Chain on this page is intended for use with saws up to 2.4 cu. in. displacement (40cc), bars for electric saws up to 16 in. (41 cm) and gasoline saws up to 14 in. (35cm).



OREGON® CHAMFER CHISEL



Kickback Reducing Features 	End View 	Use 
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CHAIN TYPE	GAUGE
91VS	.050" (1.3mm)



FILING

① DEPTH-GAUGE SETTING:



② TOP-PLATE CUTTING ANGLE:



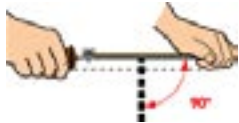
③ SIDE-PLATE ANGLE:



④ TOP-PLATE FILING ANGLE:



⑤ FILE-GUIDE ANGLE:



TOOLS FOR FILING

PART N°.	DESCRIPTION
70504	5/32" (4.0mm) Round File
16265	5/32" (4.0mm) Assembled File Guide
27530	.025" (0.64mm) Depth-gauge Tool
12211	Depth-gauge File (flat)
90405	Sharpening kit

Chain on this page is intended for use with saws up to 2.5 cu. in. displacement (41cc), and bars up to 16 in. length (41 cm).



OREGON® CHAMFER CHISEL



<p>Kickback Reducing Features</p>	<p>End View</p>	<p>Use</p>
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CHAIN TYPE	GAUGE
91VG	.050" (1.3mm)

Reduced kickback chain



FILING

1 DEPTH-GAUGE SETTING:



2 TOP-PLATE CUTTING ANGLE:



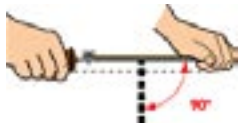
3 SIDE-PLATE ANGLE:



4 TOP-PLATE FILING ANGLE:



5 FILE-GUIDE ANGLE:



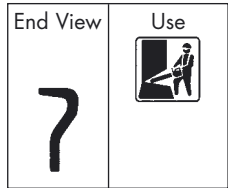
TOOLS FOR FILING

PART N°.	DESCRIPTION
70504	5/32" (4.0mm) Round File
16265	5/32" (4.0mm) Assembled File Guide
27530	.025" (0.64mm) Depth-gauge Tool
12211	Depth-gauge File (flat)
90405	Sharpening kit

Chain on this page is intended for use with saws up to 2.5 cu. in. displacement (41cc), and bars up to 16 in. length (41 cm).



OREGON® MICRO CHISEL®



CHAIN TYPE	GAUGE
26, 26P	.058" (1.3mm)
27, 27P	.063" (1.5mm)



FILING

① DEPTH-GAUGE SETTING:



② TOP-PLATE CUTTING ANGLE:



③ SIDE-PLATE ANGLE:



④ TOP-PLATE FILING ANGLE:



⑤ FILE-GUIDE ANGLE:



TOOLS FOR FILING

PART N°.	DESCRIPTION
70502	7/32" (5.5mm) Round File
13252	7/32" (5.5mm) Assembled File Guide
107488	.030" (0.75mm) Depth-gauge Tool
12211	Depth-gauge File (flat)
90406	Sharpening kit

Chain on this page are intended for use with saws 4.0 cu. in. displacement (65cc) and larger, and with bars 20 in. (50 cm) and longer.



RIPPING CHAIN .404"

OREGON® MICRO CHISEL®



End View	Use

CHAIN TYPE	GAUGE
27R,RA	.063" (1.6mm)



FILING

1 DEPTH-GAUGE SETTING:



2 TOP-PLATE CUTTING ANGLE:



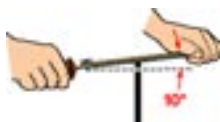
3 SIDE-PLATE ANGLE:



4 TOP-PLATE FILING ANGLE:



5 FILE-GUIDE ANGLE:



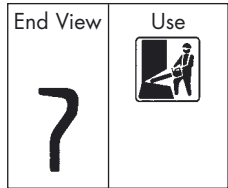
TOOLS FOR FILING

PART N°.	DESCRIPTION
70502	7/32" (5.5mm) Round File
13252	7/32" (5.5mm) Assembled File Guide
107488	.030" (0.75mm) Depth-gauge Tool
12211	Depth-gauge File (flat)
90406	Sharpening kit

Ripping chains feature a special grind for use in ripping cuts only. Do not use these chains for any type of cutting other than ripping.



OREGON® MICRO CHISEL®



CHAIN TYPE	GAUGE
95R (Micro-Lite™)	.050" (1.3mm)



FILING

① DEPTH-GAUGE SETTING:



② TOP-PLATE CUTTING ANGLE:



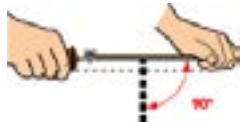
③ SIDE-PLATE ANGLE:



④ TOP-PLATE FILING ANGLE:



⑤ FILE-GUIDE ANGLE:



TOOLS FOR FILING

PART N°.	DESCRIPTION
70503	3/16" (4.8mm) Round File
18228	3/16" (4.8mm) Assembled File Guide
107488	.030" (0.75mm) Depth-gauge Tool
12211	Depth-gauge File (flat)
90408	Sharpening kit

Ripping chains feature a special grind for use in ripping cuts only. Do not use these chains for any type of cutting other than ripping.



CHIPPER



Kickback Reducing Features 	End View 	Use
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CHAIN TYPE	GAUGE
59AC	.063" (1.6mm)
59CP	.063" (1.6mm)



FILING

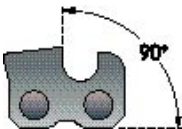
① DEPTH-GAUGE SETTING:



② TOP-PLATE CUTTING ANGLE:



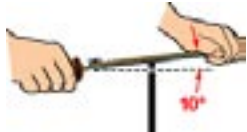
③ SIDE-PLATE ANGLE:



④ TOP-PLATE FILING ANGLE:



⑤ FILE-GUIDE ANGLE:



TOOLS FOR FILING




PART N°.	DESCRIPTION
70502	7/32" (5.5mm) Round File
13252	7/32" (5.5mm) Assembled File Guide
107488	.030" (0.64mm) Depth-gauge Tool
12211	Depth-gauge File (flat)
90406	Sharpening kit

Chains on this page are intended for use with saws 4.0 cu. in. displacement (65cc) and larger, and with bars 20 in. (50cm) and longer.



OREGON® CHISEL



Kickback Reducing Features 	End View 	Use 
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CHAIN TYPE	GAUGE	
58L	.058"	(1.5mm)
59L	.063"	(1.6mm)



FILING

1 DEPTH-GAUGE SETTING:



2 TOP-PLATE CUTTING ANGLE:



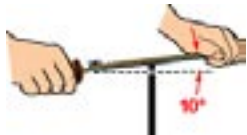
3 SIDE-PLATE ANGLE:



4 TOP-PLATE FILING ANGLE:



5 FILE-GUIDE ANGLE:



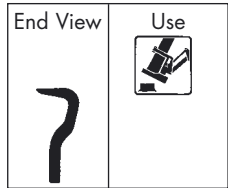
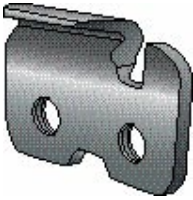
TOOLS FOR FILING

PART N°.	DESCRIPTION
70502	7/32" (5.5mm) Round File
13252	7/32" (5.5mm) Assembled File Guide
27530	.025" (0.64mm) Depth-gauge Tool
12211	Depth-gauge File (flat)
90404	Sharpening kit

Chains on this page are intended for use with saws 4.0 cu. in. displacement (65cc) and larger, and with bars 20 in. (50cm) and longer.



OREGON® SEMI CHISEL



CHAIN TYPE	GAUGE
11H	.122" (3.1mm)

HARVESTER, NO HAND-HELD APPLICATIONS



FILING

1 DEPTH-GAUGE SETTING:



2 TOP-PLATE CUTTING ANGLE:



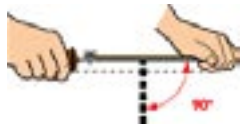
3 SIDE-PLATE ANGLE:



4 TOP-PLATE FILING ANGLE:



5 FILE-GUIDE ANGLE:



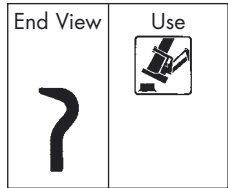
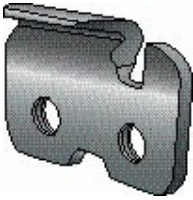
TOOLS FOR FILING

PART N°.	DESCRIPTION
90410	5/16" (7.9mm) Round File
107617	5/16" file guide
107529	.070" (1.7mm) Depth-gauge Tool
12211	Depth-gauge File (flat)

11H chain is used only on mechanical timber harvesters, processors and pond-and-deck applications.



OREGON® CHIPPER



CHAIN TYPE	GAUGE
11BC	.122" (3.1mm)

HARVESTER, NO HAND-HELD APPLICATIONS



FILING

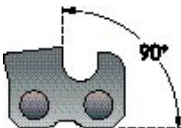
1 DEPTH-GAUGE SETTING:



2 TOP-PLATE CUTTING ANGLE:



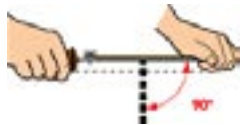
3 SIDE-PLATE ANGLE:



4 TOP-PLATE FILING ANGLE:



5 FILE-GUIDE ANGLE:



TOOLS FOR FILING

PART N°.	DESCRIPTION
90410	5/16" (7.9mm) Round File
26800	.060" (1.5mm) Depth-gauge Tool
12211	Depth-gauge File (flat)

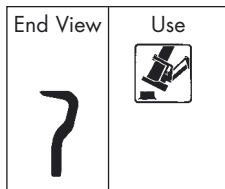
11BC chain is used only on mechanical timber harvesters, processors and pond-and-deck applications.



OREGON® MICRO CHISEL®



HARVESTER, NO HAND-HELD APPLICATIONS



CHAIN TYPE	GAUGE
16H	.063" (1.6mm)
18H	.080" (2.0mm)



18H



16H,18H



16H,18H

FILING

① DEPTH-GAUGE SETTING:



② TOP-PLATE CUTTING ANGLE:



③ SIDE-PLATE ANGLE:



④ TOP-PLATE FILING ANGLE:



⑤ FILE-GUIDE ANGLE:



TOOLS FOR FILING

PART N°.	DESCRIPTION
70502	7/32" (5.5mm) Round File
13252	7/32" (5.5mm) Assembled File Guide
39275	.050" (1.25mm) Depth-gauge Tool
12211	Depth-gauge File (flat)

WARNING: For use on mechanized harvesting equipment only. Depth gauges are set lower for harvester machinery; can cause high kickback on hand-held saws. Do not use in hand-held cutting applications as severe injury to operator or bystanders may result.

SAW-CHAIN TROUBLESHOOTING

Most chain problems are caused by four things: incorrect chain tension, incorrect filing, lack of lubrication, cutting any material other than wood. Here are the things you should look for, and the corrective actions you should take:

PROBLEM
Chain cuts slow, cuts rough, or won't hold an edge.

Look closely at your chain's cutters, and compare them to the 12 illustrations below.

1



Light abrasive damage on side plates.
Remedy: See **A.**

2



Severe abrasive damage on side plates.
Remedy: See **A.**

3



Abrasive or impact damage to the top plate or working corner.
Remedy: See **A.**

4



Too much top-plate filing angle.
Remedy: See **B.**

5



Too little top-plate filing angle.
Remedy: See **B.**

6



Too much top-plate-cutting angle.
Remedy: See **C.**

7



Too little top-plate-cutting angle.
Remedy: See **D.**

8



Too much hook in side plate.
Remedy: See **C.**

9



Backslope on side plate.
Remedy: See **D.**



SAW-CHAIN TROUBLESHOOTING (CONTINUED)

10



Low depth gauges.

Remedy: See **E**.

11



High depth gauges.

Remedy: See **F**.

12



Square or blunt depth gauges.

Remedy: See **G**.**REMEDIES:**

- A.** File cutters back until all damage is removed. (pictures 1, 2, and 3)
- B.** Resharpen cutters while holding your file at the correct top-plate filing angle for your chain. Be sure your file guide is stamped with your chain's correct top-plate angle. (pictures 4 and 5)
- C.** Either your file was too small or it was held too low. Resharpen cutters with a file of the correct size, held in the correct position. Use the correct file guide. (picture 6 and 8)
- D.** Either your file was too large or it was held too high. Resharpen cutters with a file of the correct size, held in the correct position. Use the correct file guide. (pictures 7 and 9)
- E.** In most cases, cutters cannot be filed back enough to correct for depth gauges that are too low. Replace the chain. (picture 10)
- F.** File depth gauges down to their correct height. (picture 11)
- G.** File the front corners of depth gauges parallel to their original rounded or ramped shape. (picture 12)

NOTE: See pages 18 through 21 for the proper filing techniques to use when performing the remedies above.

SAW-CHAIN TROUBLESHOOTING (CONTINUED)

PROBLEM
Cutters and tie straps wear heavily or break.

13



Excessive heel wear on cutters and opposite tie straps.
Remedy: See **H.**

14



Cracks under rear rivet holes on cutters and opposite tie straps.
Remedy: See **H.**

15



Tie straps between cutters, broken in the center.
Remedy: See **I.**

16



Bottoms of tie straps and cutters worn out of square. **Remedy:** See **J.**

REMEDIES:

- H.** Replace worn or cracked cutters and/or tie straps.
NOTE: One or more of the following may be required to prevent future wear and/or cracks: (1) Refile cutters using the correct angles. (2) Keep more lubrication on the chain and bar. (3) Reduce the amount of depth-gauge setting (may require replacement of the chain). (4) Do not force dull chain to cut. (5) Do not force chain through frozen wood. (6) Keep cutters sharp. (7) Always maintain proper tension. (pictures 13 and 14)

- I.** **NOTE:** Such breakage is usually caused by incorrect field assembly of preset tie straps. Breakage usually occurs on the tie strap opposite the factory preset tie strap. See number 7, page 21 for correctly shaped rivets. (picture 15)

- J.** Dress the tops of the guide bar's rails square. If wear is minor, file the bottoms of tie straps and cutters square. If wear is extensive, replace the chain. (picture 16)



SAW-CHAIN TROUBLESHOOTING (CONTINUED)

PROBLEM

Drive links wear heavily or break.

17



Straight bottoms.
Remedy: See **K**.

18



Concave bottoms.
Remedy: See **K**.

19



Battered and broken bottoms. **Remedy:** See **L**.

20



Peening in front or back.
Remedy: See **M**.

21



Drive-link tang is turned up. **Remedy:** See **N**.

22



Worn fronts.
Remedy: See **O**.

23



Sides worn round or thin at bottoms.
Remedy: See **P**.

REMEDIES:

- K.** Check your guide bar (grooves in bar's body or nose have worn too shallow), and check your rim or spur drive sprocket (excessive wear is allowing drive links to bottom out). Replace bar, sprocket, or both. Sharpen drive-link tangs, as shown in the illustration on page 45, if possible. If not, replace the chain.
(pictures 17 and 18)
- L.** Maintain proper tension to prevent chain from climbing out of spur drive sprocket. Replace drive links or replace entire chain if many drive links are damaged. (picture 19)



SAW-CHAIN TROUBLESHOOTING (CONTINUED)

REMEDIES: (continued)

- M.** Sprocket has worn out of pitch, replace it. Replace chain. Do not attempt to run a new chain on an old sprocket, or an old chain on a new sprocket. (picture 20, previous page)
- N.** Drive sprocket has worn down until drive link tangs hit bottom. Replace drive sprocket. Sharpen drive-link tangs as shown in the illustration below, if possible. If not, replace the chain. (picture 21, previous page)
- O.** Remove damage from sides of drive links with a flat file. Sharpen drive-link tangs as shown in the illustration below. Use a thin file to open the groove lead-in at the guide-bar's tail. (picture 22, previous page)
- P.** Bar rails have spread, or one rail has worn low, allowing chain to lean over. Have bar rails serviced by a dealer, otherwise replace bar. Replace chain if wear is extensive or if problem persists. (picture 23, previous page)

NOTE: Also check bottoms of tie straps (see picture 16, page 51), and tops of bar rails (see picture 33, page 63).

SHARPENING DRIVE-LINK TANGS



Pointed drive-link tangs help remove chips and debris from your bar groove. Sharpen damaged tangs back to original shape with a round file.



SAW-CHAIN TROUBLESHOOTING (CONTINUED)

PROBLEM
Chain has tight joints

Tight joints are caused by either: loose tension, or a worn out drive sprocket. Look closely at your chain's chassis.

24



Peening on bottoms of cutters and tie straps. **Remedy:** See **Q.**

25



Peening on front corners of cutters and tie straps. **Remedy:** See **Q.**

26



Peening in notches of cutters and tie straps. **Remedy:** See **R.**

REMEDIES:

- Q.** Chain with tight joints cannot be repaired. Replace the chain and maintain proper tension. Replace rim sprocket if worn. (pictures 24 and 25)
- R.** Replace the spur drive sprocket. Replace the chain. Always maintain proper tension and do not run chain on a worn drive sprocket. (picture 26)



SAW-CHAIN TROUBLESHOOTING (CONTINUED)

PROBLEM
Chain cuts crooked

27

Damage to cutters on one side of the chain. **Remedy:** See **S.**

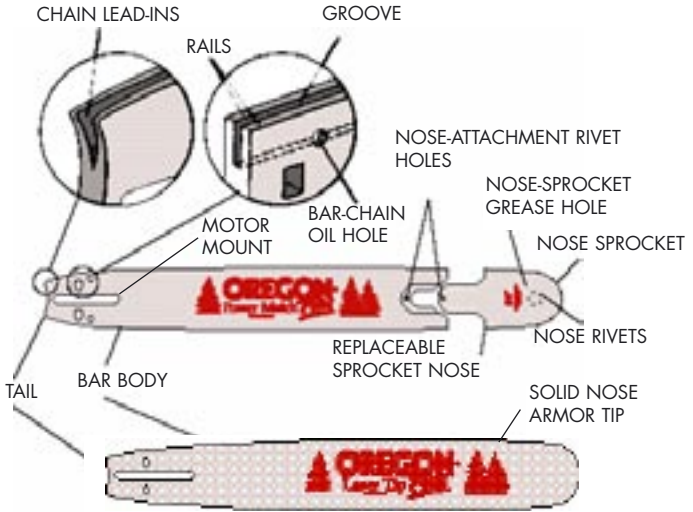
28

Inconsistent sharpening. **Remedy:** See **S.****REMEDY:**

- S.** File cutters back enough to remove all damage and incorrect angles. Keep cutter lengths and depth-gauge settings equal (pictures 27 and 28).



OREGON® GUIDE-BAR TERMS



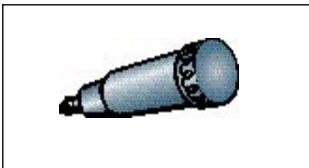
OREGON® GUIDE-BAR MAINTENANCE TOOLS



SPANNER WRENCH



FLAT FILE WITH HANDLE



GREASE GUN



OREGON® GUIDE-BAR MAINTENANCE

ATTENTION:

DEALERS, CHAINSAW USERS, AND ANYONE WHO SERVICES GUIDE BARS-IMPORTANT SAFETY INFORMATION.



WARNING

Always turn off your saw's engine before handling the guide bar. Failure to do so can result in severe injury.

For proper mounting of your guide bar, refer to the operator's manual for your chainsaw.

- NOTE:**
- Never use guide bar as a lever to lift, twist, or pry.
 - A guide bar requires constant supply of oil during operation.

BASIC GUIDE-BAR-MAINTENANCE TASKS

▲ Before each use.	● Daily.
■ Often (Hourly, or at refueling).	◆ Weekly, periodically.

1. ▲■



2. ▲●



3. ▲■



4. ● Clean bar greasehole

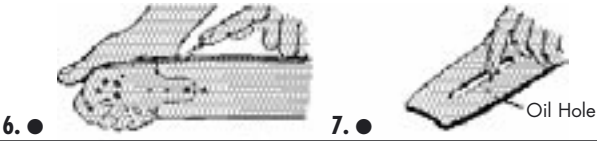


5. ● Turn nose sprocket while pumping grease until whole sprocket has new grease. Do not push dirt into the hole.

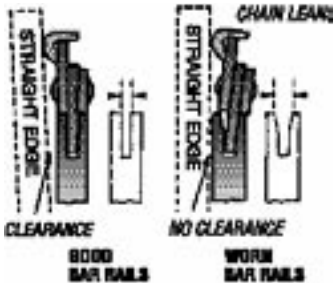




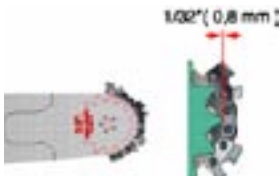
OREGON® GUIDE-BAR MAINTENANCE



10. ◆ With chain on the bar, hold a straightedge against the bar body and against a cutter side plate. A good groove will hold the chain straight, leaving a small gap between the straightedge and bar body. A worn groove will let the chain lean until straightedge is flush with bar body. Replace bar if groove is worn.



11. ◆ On sprocket-nose bars, check for clearance around the bar's tip between the tops of rails and the bottoms of cutters or tie straps. Replace nose sprockets before cutters or tie straps contact the bar rails.





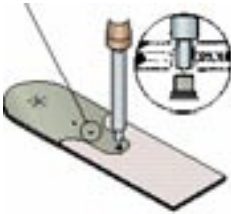
HOW TO REPLACE OREGON® POWER MATCH® BAR NOSES

NOTE: Select a new Power Match® nose with the correct pitch for your bar and chain. Reduced-kickback Double Guard® replacement noses can be installed on any Power Match® bar and can be used with the same drive-link-count loop of chain.



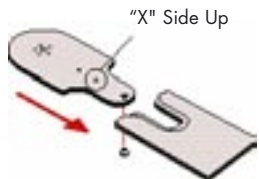
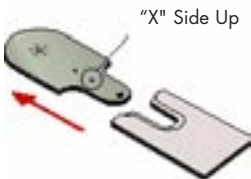
1. Note that your OREGON® Power Match bar nose is marked, on one side only, with an "X." Always strike on the "X"-stamped side of Power Match® bar noses. Striking on the wrong side will damage the nose and bar body. Use the Power Match® nose-rivet punch (part n°.35518) to drive on the single attaching rivet.

"X" Side Up



2. Remove the old nose. Clean the bar's attachment area.

3. Insert the new nose into the bar body. Insert the Power Match® rivet (part n°.34726) through the underside of the nose, opposite the "X" mark.

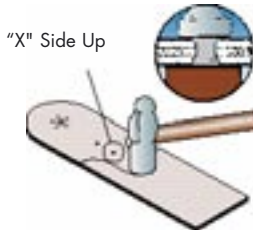


NOTE: The rivet will not fit, and cannot be secured, if inserted through the "X" side.



POWER MATCH® BAR NOSES (CONTINUED)

4. With the bar body, nose, and rivet solidly supported on a strong flat metal surface, peen the Power Match® rivet's head down with the flat end of a hammer. Do not hit the bar body, hit only the rivet head. Strike only on the "X" side; To check installation, grip the bar body in one hand, and twist. Nose and body should feel like a single, solid piece. If not (if any movement in the nose-bar joint area is felt-or if any clicking sound from the same area is heard), tighten the rivet with a few more hammer strokes.



5. File down the rails of new noses to align with the rails of old bar bodies.



6. Grease the new nose sprocket. Clean out guide-bar grease hole before using lubricant. Pump grease into hole until excess grease appears around the nose-sprocket teeth of the guide bar.





HOW TO REPLACE OREGON® PRO-LITE® NOSE SPROCKETS

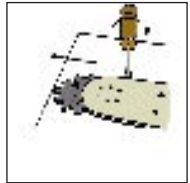
NOTE: Select a new nose sprocket with the correct pitch for your bar and chain.



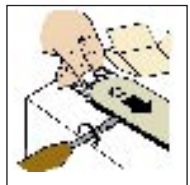
- 1 Drill or punch out heads from each of the nose-sprocket rivets. Punch out the remainder of the rivets. Use a punch narrow enough to keep from damaging rivet holes in the bar's nose.



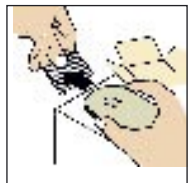
- 2 Use a small screwdriver to spread the bar-nose rails just enough to remove the old nose sprocket. Clean out debris from the sprocket area.



- 3 Inside the nose-sprocket package you'll find the new sprocket wrapped in a tissue. Be careful to keep the sprocket inside the tissue as you remove it from the package - bearings are easily lost. Slide the tissue and the new sprocket, together, into the bar's nose.



- 4 Once fully inside the nose, hold the sprocket in place, then remove the tissue.



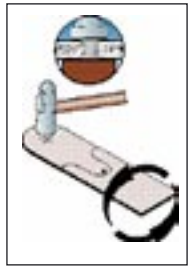


PRO-LITE® NOSE SPROCKETS (CONTINUED)

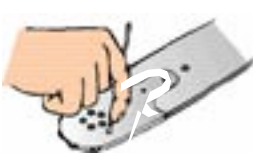
- 6 Align the sprocket's innerrace holes with the holes in the bar nose. Insert rivets into each hole through the bar. On used bars the nose rails may tend to spread apart. Use a small clamp to hold the nose rails together when inserting and securing the rivets.



- 6 With the bar and rivets solidly supported on a strong, flat metal surface, carefullypeen the rivet heads down with the flat end of a hammer. Be careful to hit only the rivet head. Do not hit the bar body-this will pinch the nose sprocket. Rivet heads must be snug and secure while still allowing the sprocket to turn freely.



- 7 Grease the new nose sprocket. Clean out guide-bar grease hole before using lubricant. Pump grease into hole until excess grease appears around the nose-sprocket teeth of the guide bar.





GUIDE-BAR TROUBLESHOOTING

Most guide bar problems occur in the bar rails, and are caused by four things: lack of lubrication, incorrect chain tension, and accidents or irregular operating techniques which pinch the rails or push the drive links sideways against the bar rails.

PROBLEM Worn Rail Conditions

31



Rails are worn down, groove becomes shallow.

Remedy: See **T**.

32



Outsides of rails develop wire edges.

Remedy: See **T**.

33



Rail on one side is worn thin, or low.

Remedy: See **U**.

34



Rails around the tip of solid-nose bars show small cracks or broken-out sections.

Remedy: See **V**.

35



Rails around the tip of solid-nose bars are split at the bottom of the bar groove.

Remedy: See **V**.

36



Rails along the bar body or around the tip of sprocket-nose bars show blue discoloration.

Remedy: See **W**.



GUIDE-BAR TROUBLESHOOTING

PROBLEM

Bar Sprocket-Nose Failure

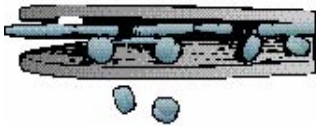
37



Chipped rails or excessive rail wear just behind the hard stellite alloy on solid-nose bars, or near the nose connection on replaceable-sprocket-nose bars.

Remedy: See X.

38



Rails in the tip of a sprocket-nose bar have spread, allowing loss of bearings.

Remedy: See Y.

39



The sprocket in a sprocket-nose bar breaks.

Remedy: See Y.



GUIDE-BAR TROUBLESHOOTING (CONTINUED)

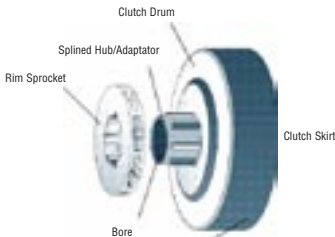
REMEDIES: (T-Y)

- T.** Shallow grooves and wire edges are the result of normal wear over time. Use a flat file to square up the bar's rails and remove wire edges promptly. Left alone, wire edges can break off, chipping away good rail material, (pictures 31 and 32)
- U.** A thin or low rail is caused by one of two things: (1) crooked-cutting chain, see pages 46, or (2) chain leaning over in a worn groove, see picture 23, page 44. Replace the bar. Replace the chain as well if chain continues to lean in the new bar. (picture 33)
- V.** Accidents or irregular operating techniques which push the drive links sideways or place excessive pressure on the side of the nose can cause breaks or cracks in the rails of solid-nose bars. Your dealer may be able to repair minor damage on a relatively new bar.
(pictures 34 and 35)
- W.** Pinched rails, lack of lubrication, or accidents and cutting techniques which push the drive links sideways in the groove can create extreme friction which causes blue discoloration. Blue spots on rails are soft and will wear rapidly. Replace the bar. (picture 36, page 63)
- X.** Such wear or chipping near the nose often accompanies heavy limbing, but can also be caused by loose chain tension. Invert the bar on the saw periodically to reduce such wear. On replaceable-nose bars with minor wear, install a new nose and file down the nose's rails as shown on pages 52 and 53 for smooth chain flow. If wear is extensive (on solid-nose or replaceable-nose bars), replace the bar. (picture 37, previous page)
- Y.** Frequent boring cuts, loose chain tension, and accidents or irregular operating techniques which twist the nose or push the drive links sideways against the nose's rails will cause such breakage. Install a new replaceable-sprocket nose if possible, otherwise replace the bar. (pictures 38 and 39, previous page)

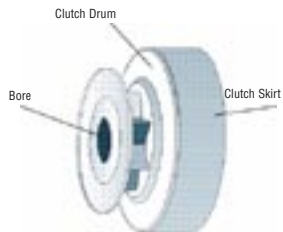


OREGON® SPROCKET TERMS

■ RIM SPROCKET



■ SPUR SPROCKET



OREGON® SPROCKET-MAINTENANCE TOOLS

■ GREASE GUN



■ INSTALLING SPROCKETS

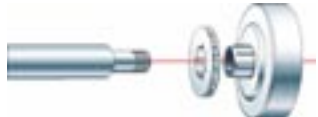
OREGON® sprockets can be installed on chainsaws having either inboard-clutch or outboard-clutch assemblies. Follow instructions in the operator's manual provided by your chain saw's manufacturer for correct sprocket installation.

The illustration below are for general reference only. Do not use them as instructions for sprocket or clutch assembly.

■ INBOARD CLUTCH



■ OUTBOARD CLUTCH





OREGON® SPROCKET MAINTENANCE

ATTENTION:

DEALERS, CHAINSAW USERS, AND ANYONE WHO SERVICES DRIVE SPROCKETS-IMPORTANT SAFETY INFORMATION.

WARNING

Always turn your saw's engine before handling the drive sprocket. Failure to do so can result in sever injury.

Your drive sprocket, the third member of the cutting team, deserves regular attention and maintenance just like your bar and chain. A misused sprocket will cause patterns of chain wear which can damage the guide bar and reduce the life of all three components. A damaged sprocket cannot be repaired, it can only be inspected and replaced. Here are the things to look for, and the steps to take.

BASIC SPROCKET-MAINTENANCE TASKS

▲ Before each use.	● Daily.
■ Often (<i>Hourly, or at refueling</i>).	◆ Weekly, periodically.



1. ▲●



2. ▲●



3. ▲●



4. ▲■



BASIC SPROCKET-MAINTENANCE TASKS

5. ▲■ Chain tension is especially important when the saw is tipped on its side during felling cuts. Loose chain (and rim-type sprocket, if used), will slide down and out of alignment with the bar. Loose chain tension is the leading cause of sprocket problems.



Note: If your saw has a chain brake, check the chain brake's action according to the instructions in your saw operator's manual. Be sure the chain-brake strap around your clutch skirt is not too light, which can lead to clutch-drum overheating and failure.

6. ● Clean any build-up of sap or debris from splined hub so rim sprocket can float freely.



7. ◆ Do not run old chain on a new sprocket, or a new chain on an old sprocket. Use two new chains in rotation with each new sprocket so all can wear together. Replace sprocket every two chains, or sooner.



8. ◆ Apply clean lithium-based grease to the clutch drum's bearings each time the sprocket is removed.



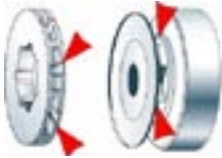
SPROCKET TROUBLESHOOTING

Most sprocket problems are caused by loose chain tension and failure to replace the sprocket or clutch drum when necessary.

Sprockets are inexpensive. One worn inexpensive sprocket can rapidly damage an expensive chain and bar. Do not try to save money by running new chains on old sprockets. Look for the conditions below and replace sprockets and clutch drums promptly.

PROBLEM Drive Sprocket Wear

40



Worn outer surfaces on rim sprockets or spur sprockets. **Remedy:** See **Z**.

41



Worn inner surface on rim sprockets or wear on the adaptor's splines. **Remedy:** See **AA**.

42



Cracks or breakage on the clutch drum. **Remedy:** See **BB**.

43



Obvious wear or discoloration around the outer circumference of the drum skirt. **Remedy:** See **CC**.

44



Excessive wear on the inside surface of the drum skirt. **Remedy:** See **DD**.



SPROCKET TROUBLESHOOTING

■ **REMEDIES: (Z-DD)**

- Z.** Such outer surface wear is normal over time. Replace rim sprockets and spur sprockets when wear is 1/64" (0,4mm) deep. Never run chain on severely worn sprockets. Severely worn sprockets could break during operation. (picture 40)

- AA.** Such wear indicates that chain drive links are bottoming out on the adaptator's splines. Replace the clutch drum. Replace the rim sprocket. (picture 41)

- BB.** Do not attempt to repair cracked or broken clutch drums. Replace the drum. (picture 42)

- CC.** Replace the drum. Have your chainsaw dealer adjust the chain-brake strap. (picture 43)

- DD.** Replace the drum. Have your chainsaw dealer service the saw's clutch. (pictures 44)



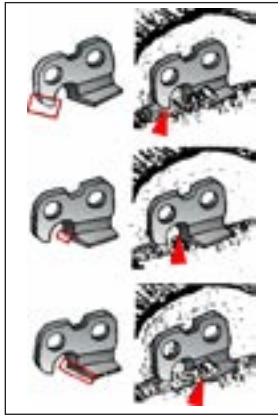
■ HOW A CUTTER WORKS

Understanding how cutters work can help you see why proper chain maintenance is so important.

❶ The depth gauge rides on the wood and controls the depth at which the working corner bites in.

❷ The working corner and side plate sever the cross grains. This is the hardest part of the work.

❸ The top-plate cutting angle chisels out the severed wood fibers, lifting them up and out of the kerf.



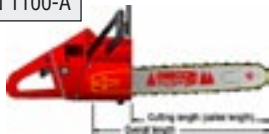
■ HOW TO ORDER REPLACEMENT CHAIN

For the best possible service, have the following saw information ready for your OREGON® dealer.

❶ Make and model

SAW MAN 1100-A

❷ Guide bar's cutting length.



NOTE: Your bar's called length is different from its overall length. The called length is the distance from the front of the saw to the tip of the farthest cutter.

❸ Chain part number and drive link count for chain length.

EXAMPLE:

OREGON® chain 72LG-68E

↓	↓
PART N°.	DRIVE LINK COUNT



CUTTING IN COLD WEATHER

Cutting frozen wood will cause rapid wear and possible breakage around the rear rivet hole of cutters. Follow the steps below to keep cold-weather wear to a minimum.



■ OIL

Dilute bar-chain oil 25 percent with clean kerosene or diesel oil. Use twice as much of this diluted oil during operation, and be certain your chain is receiving oil from the saw.

■ TENSION

Keep your chain correctly tensioned.
Check and adjust often.

■ CUTTERS

Keep cutters sharp. Touch up every hour, more often if needed.
Do not force dull chain to cut.

■ DEPTH GAUGES

Check and adjust your cutter's depth gauges at every sharpening.

■ BAR

Keep the bar groove clean and the oil hole open.
Turn symmetrical* bars over to equalize rail wear.

*Do not turn Guard Tip® bars over.

■ DRIVE SPROCKET

Replace the sprocket after every three chains, or sooner.



SOME GOOD SAW CHAIN ADVICE

- 1.** Saw chain is made to cut only one thing: wood. Do not use saw chain to cut other materials, and never let your chain contact rocks or dirt during operation. Dirt may seem soft. But, in fact, dirt is extremely abrasive and will wear away your chain's vital chrome plating within seconds.
- 2.** Never force dull chain to cut. When it is sharp, saw chain is designed to feed itself into the wood, and needs only light pressure to cut efficiently. Dullness, or sharpness, is also indicated by the sawdust your chain is producing. Dull chain produces fine wood dust, which can clog your saw's air filter. Sharp chain produces wood chips.



