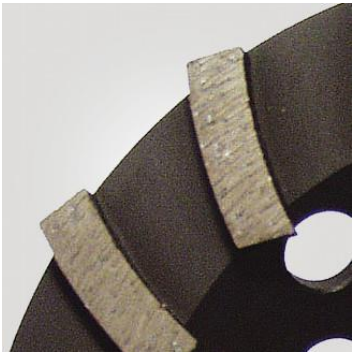
Husqvarna Group





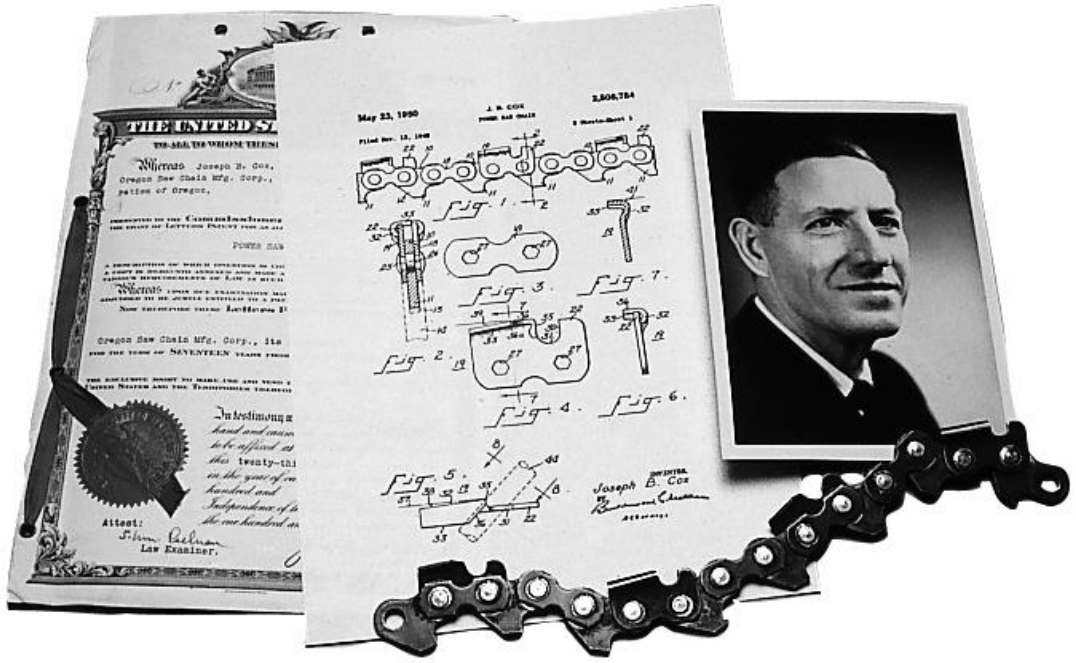
# Bar and Chain – The Basics

South Africa

The contents of this presentation are at times graphic and may be offensive to sensitive viewers.

The Purpose of this is to create the necessary awareness that these tools, when used carelessly, can be

# Joseph Buford Cox




**1947**

# Timber Beetle Larvae

# Timber Beetle Larvae

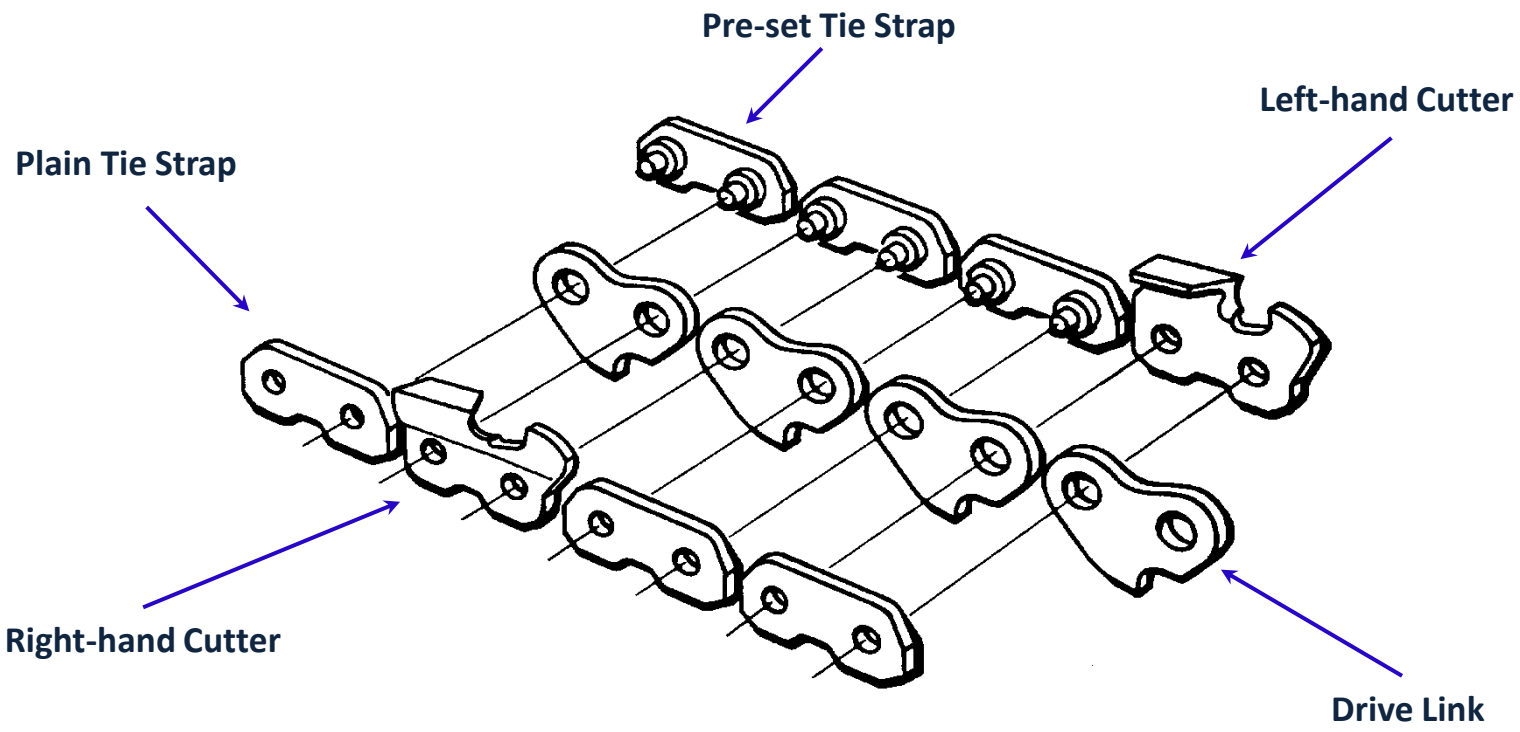
Husqvarna Group

# Timber Beetle Larvae

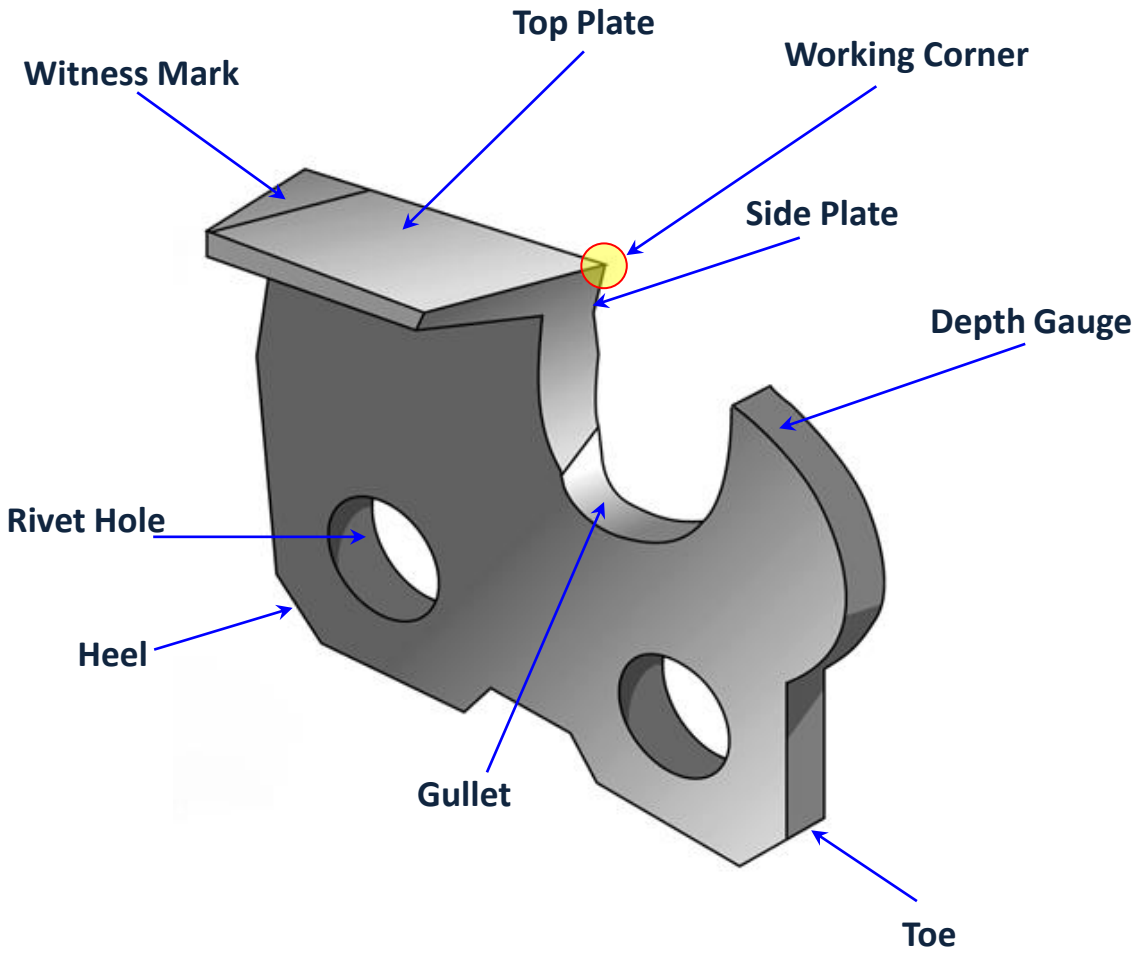
Right Cutter

Left Cutter

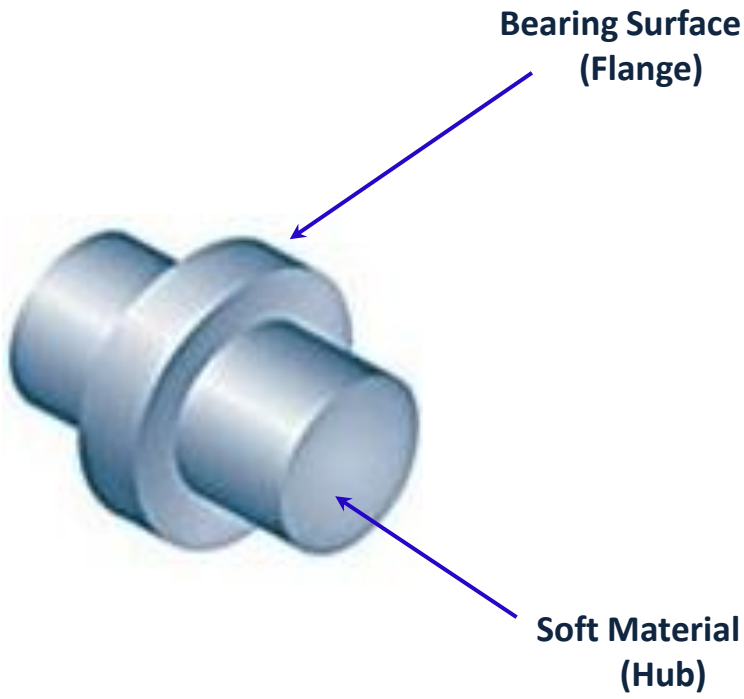
# Parts of The Chain



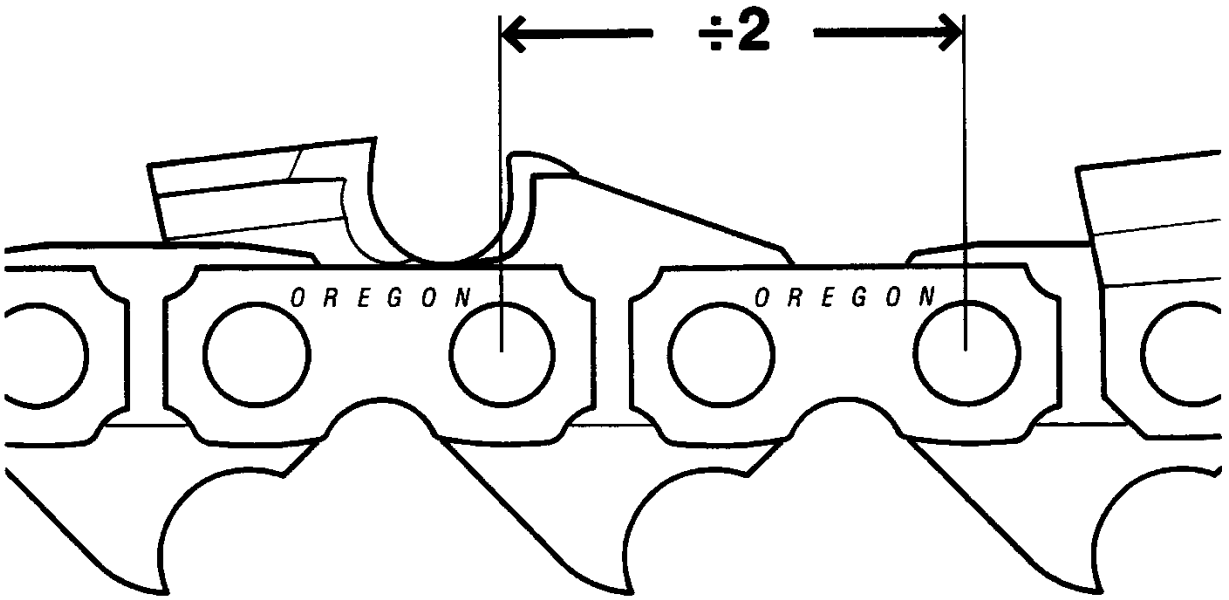
# Parts of The Cutter



# The Rivet



# Chain Pitch




1/4” 0.325” 3/8” 0.404” 3/4”

# Chain Guage

## Common Sizes

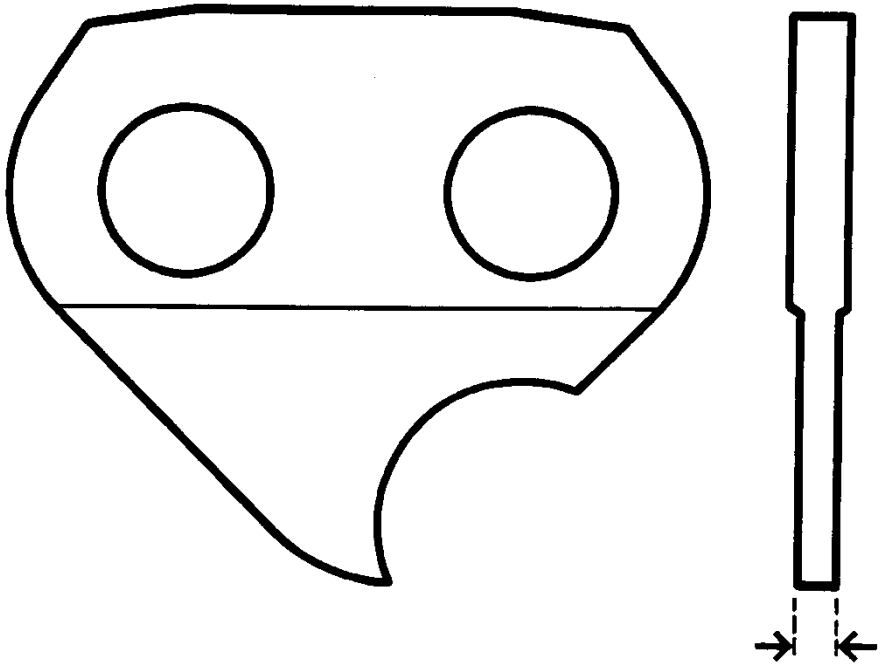
**0.042” or 1.1mm**

**0.050” or 1.3mm**

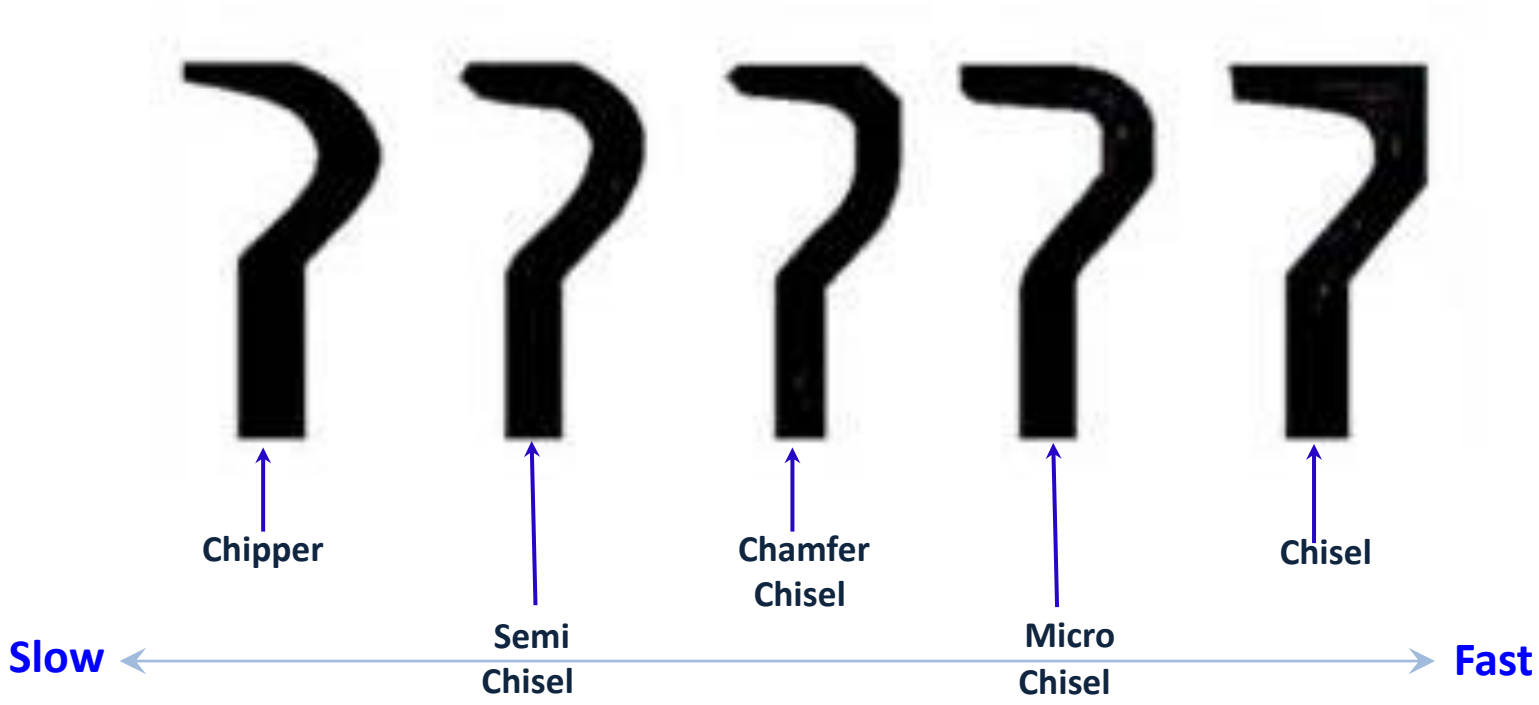
**0.058” or 1.5mm**

**0.063” or 1.6mm**

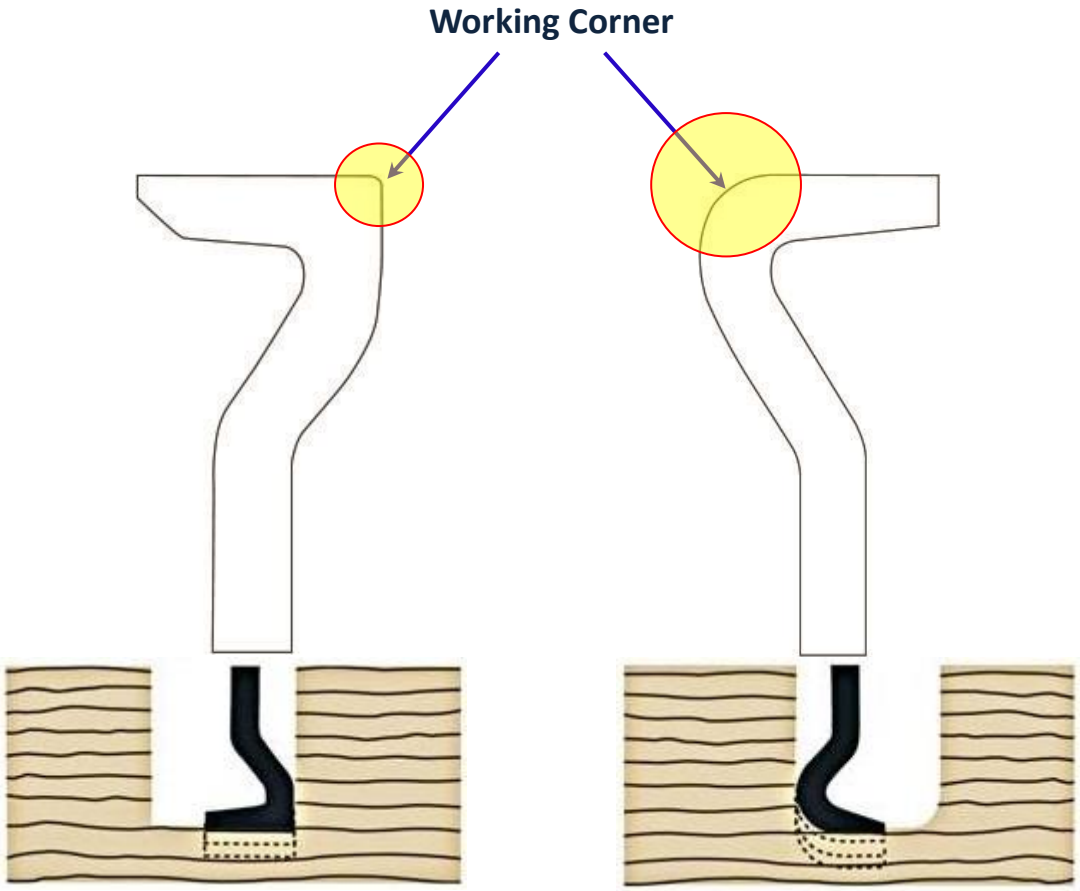
**0.080” or 2.0mm**



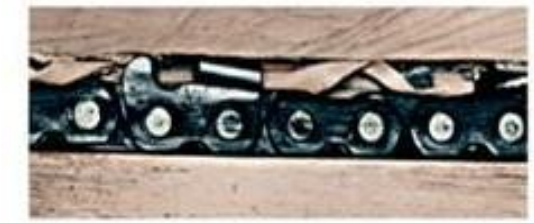
# Different Cutter Types



# Best Performance



# How The Cutter Works



Transporting the chips

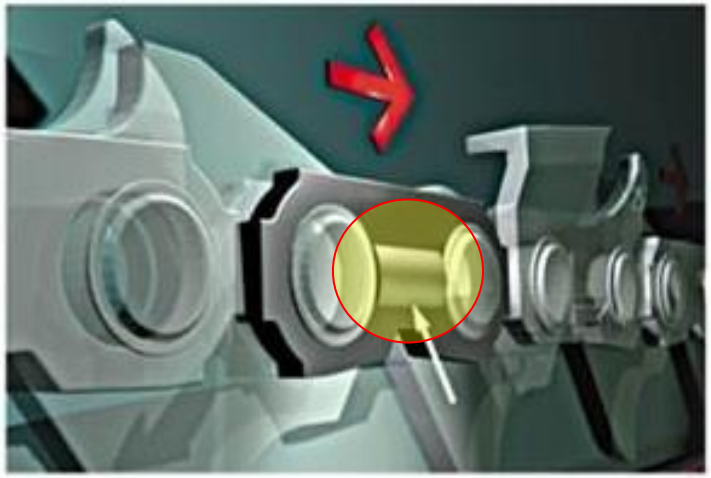
1. **The depth gauge rides on the wood and controls the depth at which the working corner bites in.**

2. **The working corner and side plate sever the cross grain. This is the hardest part of the work.**

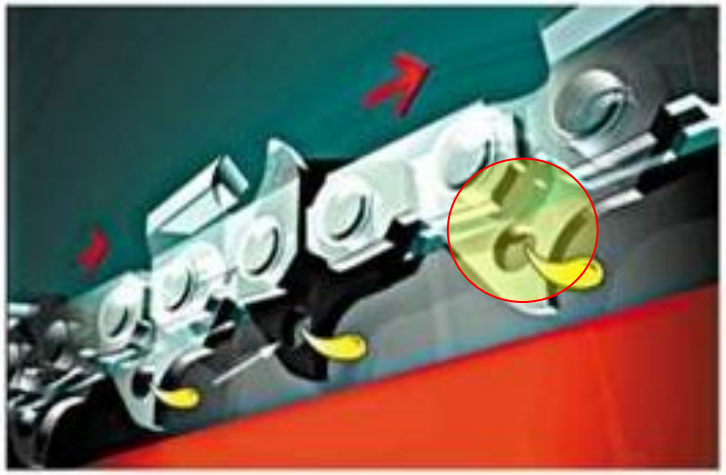
3. **The top-plate cutting angle chisels out the severed wood fibers, lifting them up and out of the kerf**

# Oil Delivery

**The cavity in the tie strap that acts like a reservoir, preventing the oil being thrown off the chain. It also delivers oil to the chain parts.**

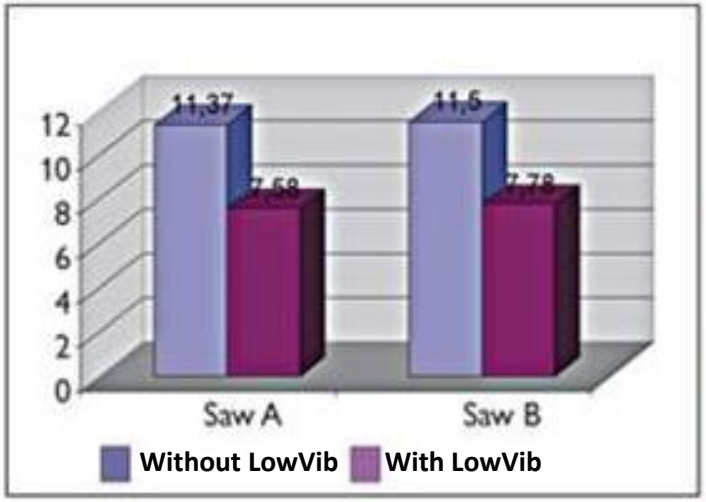


**A hole in the drive links helps carry oil around the entire length of the bar.**



# Vibration

**By removing small amount of material from the heels on the cutters it´s stopped becoming trapped between the wood and the rail bar.**

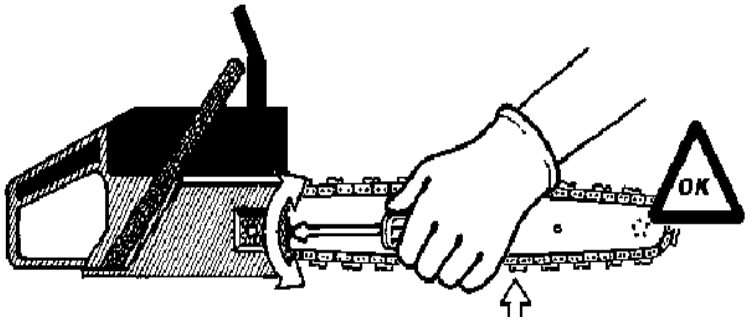





- **LowVib reduces the vibration levels by up to 40%**
- **Old Husqvarna patent**

# The 5 Basic Chainsaw Rules

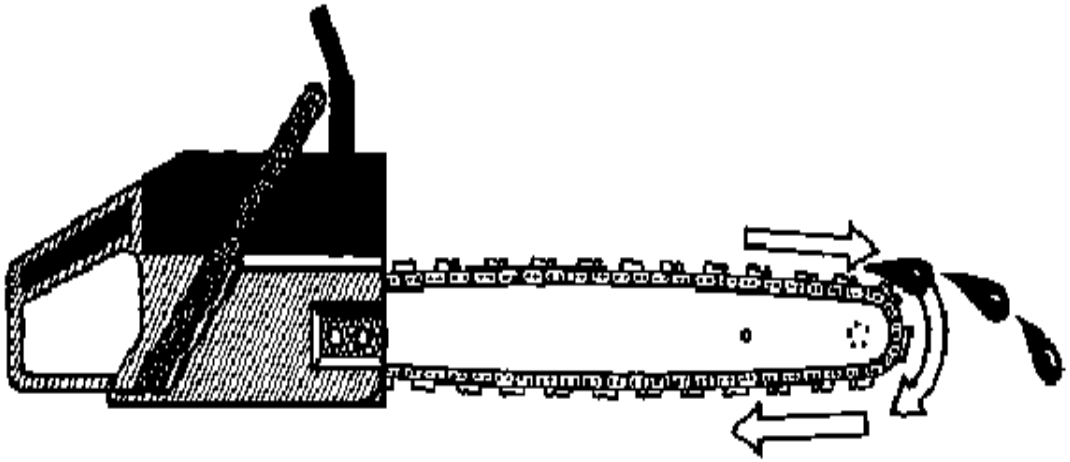
## Rule # 1.  Correct Chain Tension



# The 5 Basic Chainsaw Rules

Husqvarna Group

## Rule # 2. Good Chain Lubrication



# The 5 Basic Chainsaw Rules

Husqvarna Group

## Rule # 3. Correct Chain Sharpening

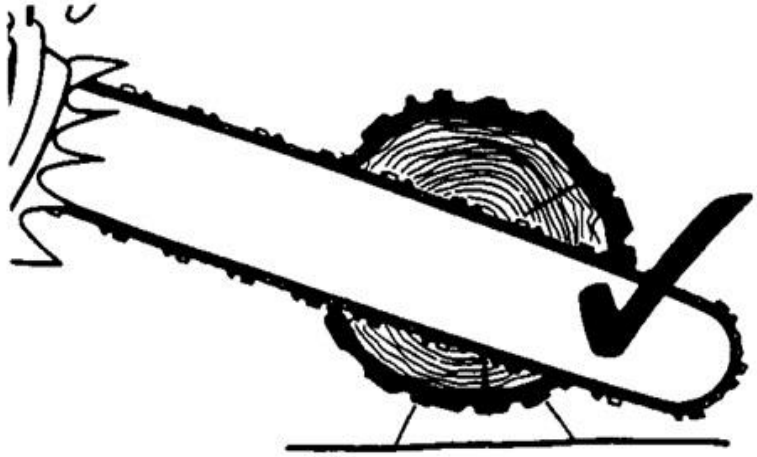
# The 5 Basic Chainsaw Rules

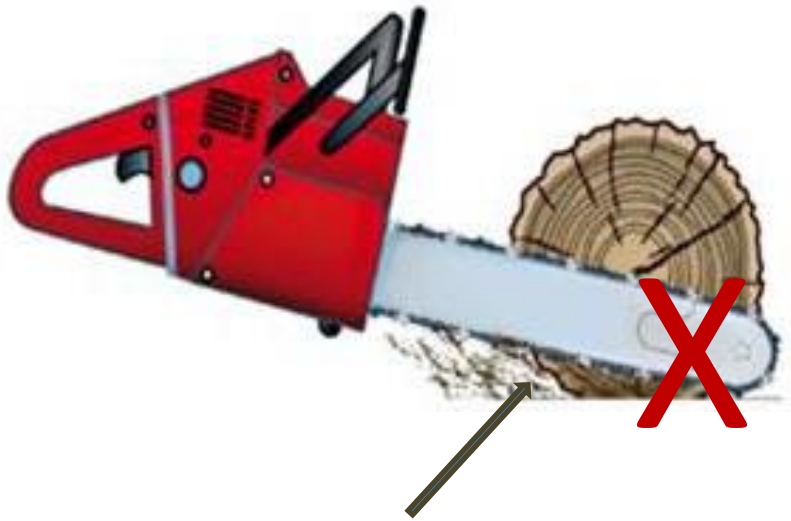
Husqvarna Group

## Rule # 4. Proper Depth Gauge Setting

# The 5 Basic Chainsaw Rules

## Rule # 5.  Cut Only Wood

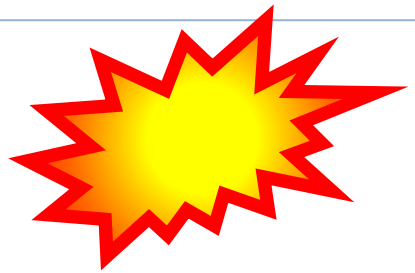




# Chainsaw Safety


Follow all instructions provided with the chain. Doing this can minimize the risk of injury

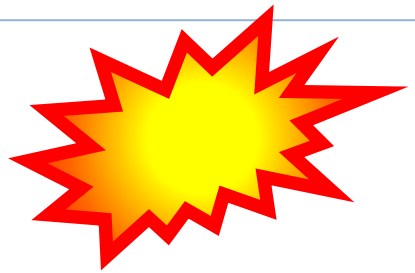
# Chainsaw Safety



- Loose chain tension
- Incorrect sharpening of chain angles
- Dull chain
- Alteration of kickback-reducing chain features
- Excessive depth-gauge settings

Follow all instructions provided with the chain. Doing this can minimize the risk of injury

# Chainsaw Safety



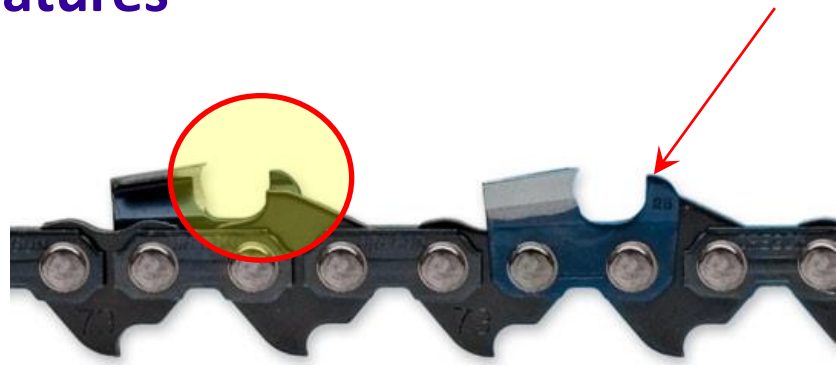
- **Incorrect depth-gauge shapes**
- **Incorrectly installed chain parts.**
- **Loose rivets, or cracks or breaks in any chain component**
- **Stretched chain**

Follow all instructions provided with the chain. Doing this can minimize the risk of injury

Husqvarna Group

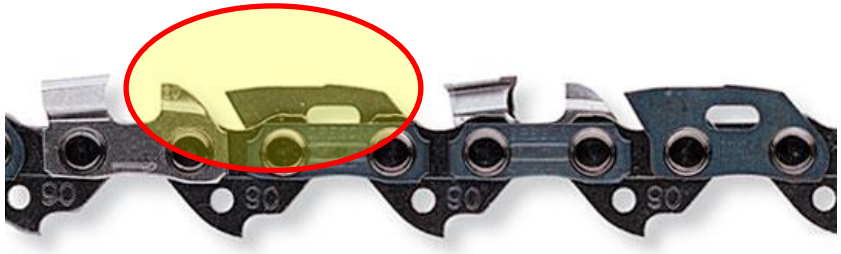
## Kick-back Reducing Features

Bumper Drive Link



Ramped Depth Gauge

Ramped Depth gauge and Bumper Tie Strap



## File Sizes

What Determines the File size?

**The Size and Height of the Cutter**

## File Sizes

### What File To Use with What Chain

**.325” - 3/16” or 4.8mm Round File**

**3/8” - 7/32” or 5.5mm Round File**

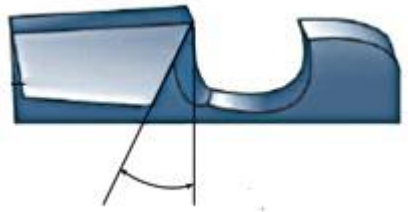
**.404” - 7/32” or 5.5mm Round File**

**3/8” Low Profile - 5/32” or 4.0mm Round File**

# General Maintenance

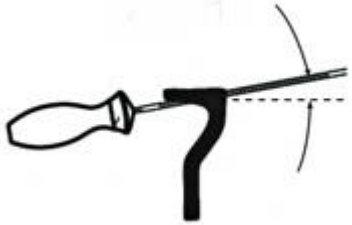
## Terminology

Depth Gauge Setting



Top plate filing angle

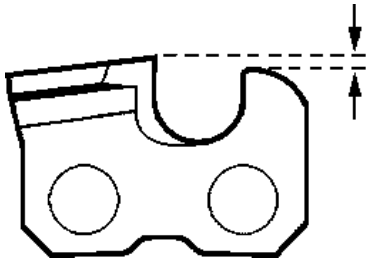
Side plate Cutting angle

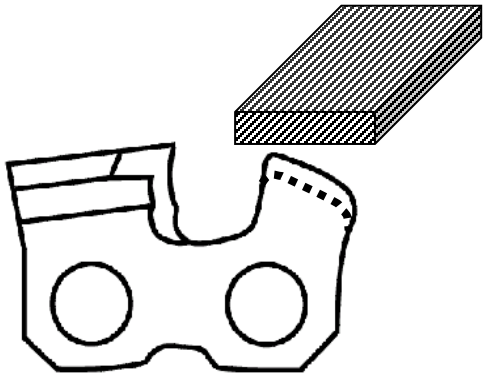


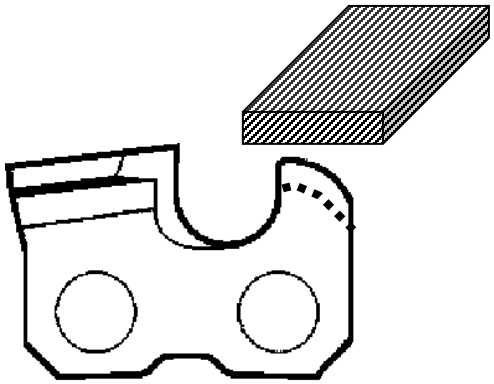
File-guide angle (down angle)

# General Maintenance

## Depth Gauge

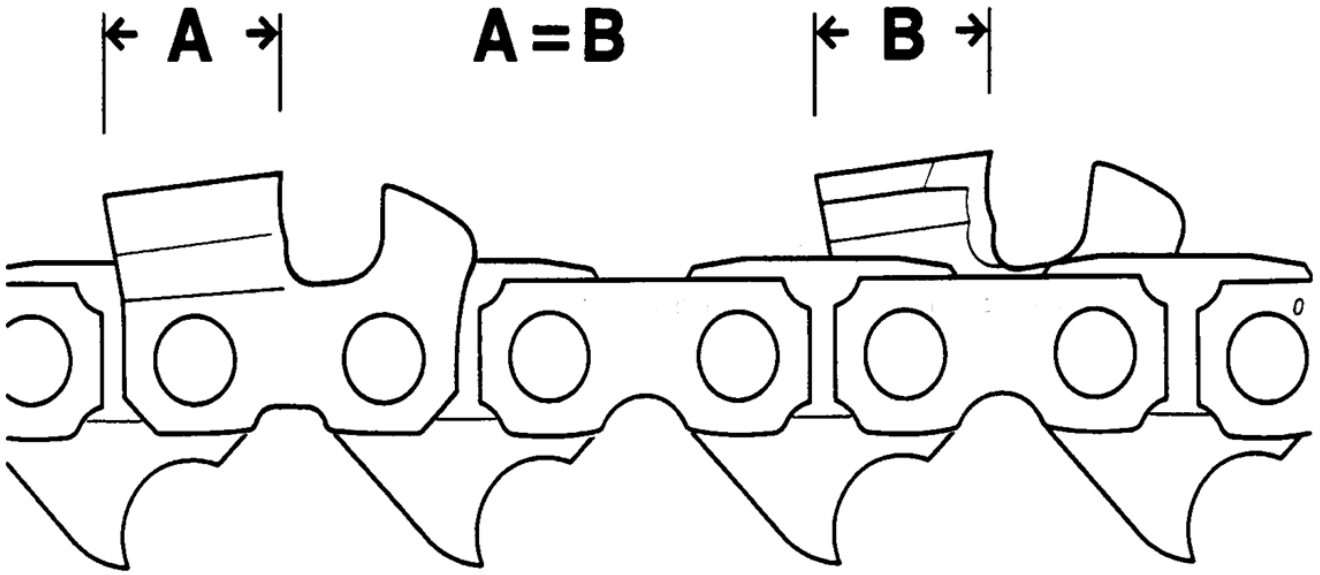






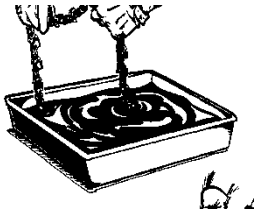
# General Maintenance

## Chain Balance

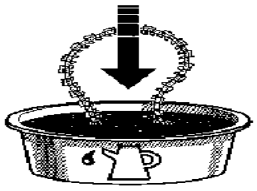


# General Maintenance

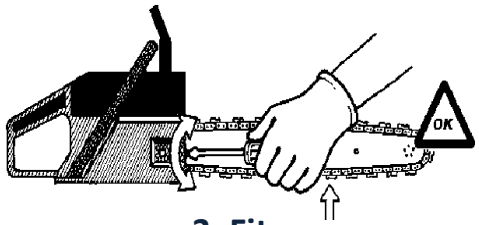
## Running In A New Chain



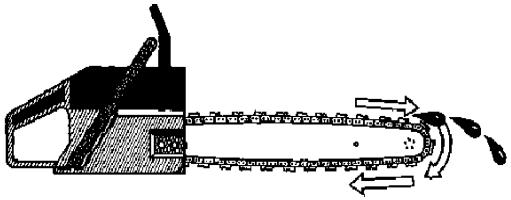
1. Rinse



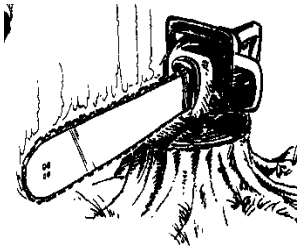
2. Soak



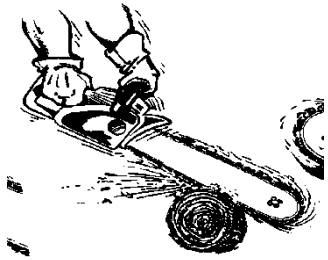

3. Fit



4. Lubricate



5. Cool

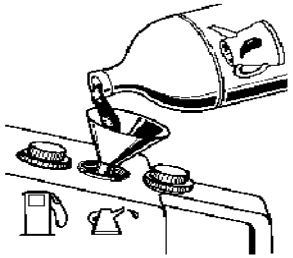


6. Cut

# General Maintenance

## Chain Lubrication

Black Oil



Fill Oil First

Check Oil Pump

# General Maintenance

## Chain Tension

### Do's:

- Check tension chain before each use, adjust where necessary
- Check tension chain often, or at each refuelling, adjust where necessary

### Don'ts:

- Never tension your chain right after cutting.

*A cooling chain will contract which will apply tremendous stress to other components on the chainsaw. Allow the chain and bar to cool first.*

## Sharpening Method

Creating Powder Means Time To Sharpen

A blunt chain

A sharp chain

Husqvarna Group

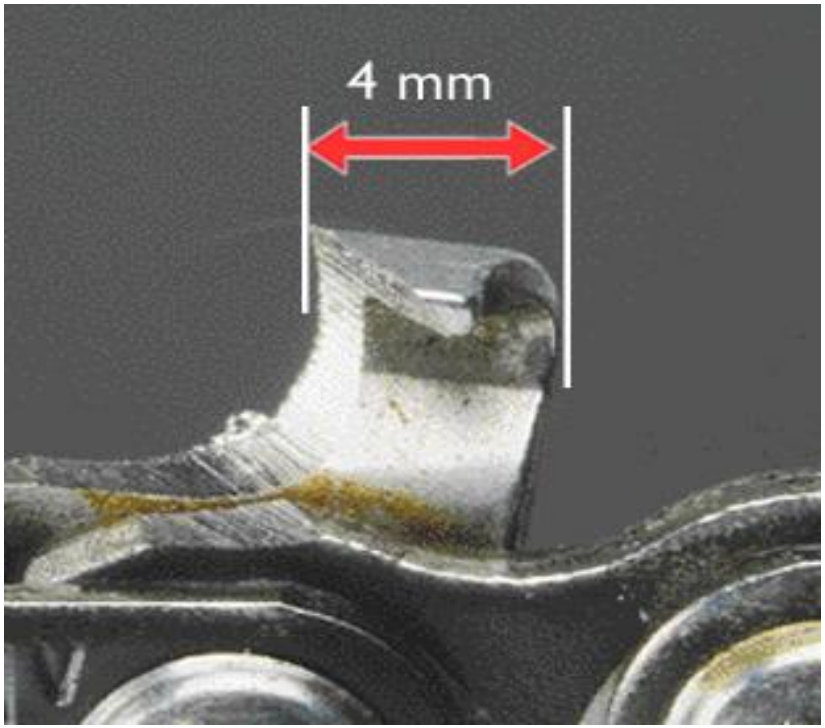
## The Cutting Equipment

- Check the chain tension regularly.
- File the chain regularly for efficiency, precision and safety.
- Use a file gauge.
- Note that the file gauge is specific for the type of chain.

Husqvarna Group

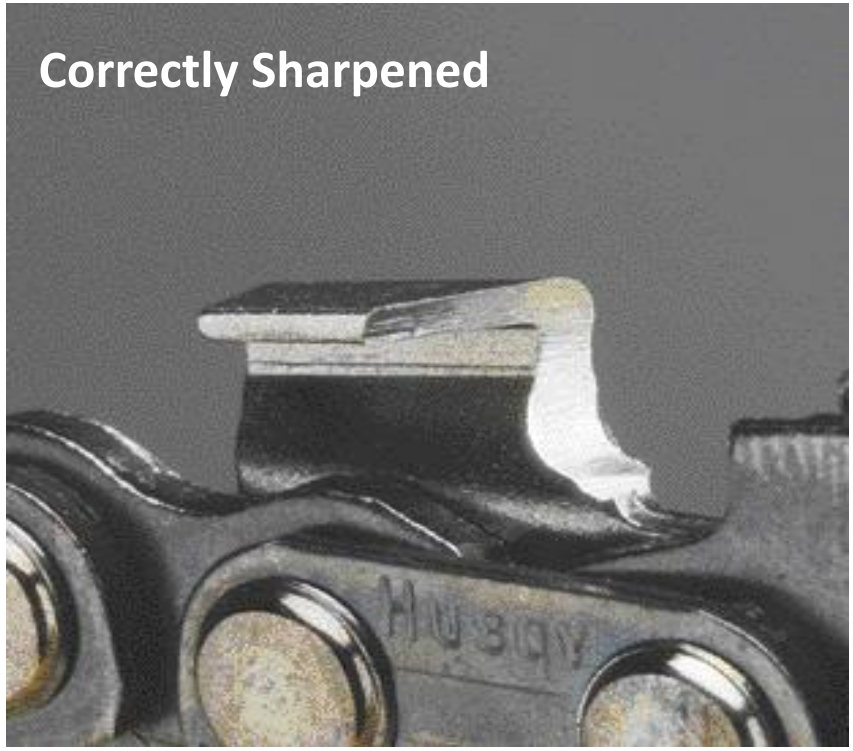
## Maintaining the Cutting Equipment

- When to replace the chain



## Filing the Chain

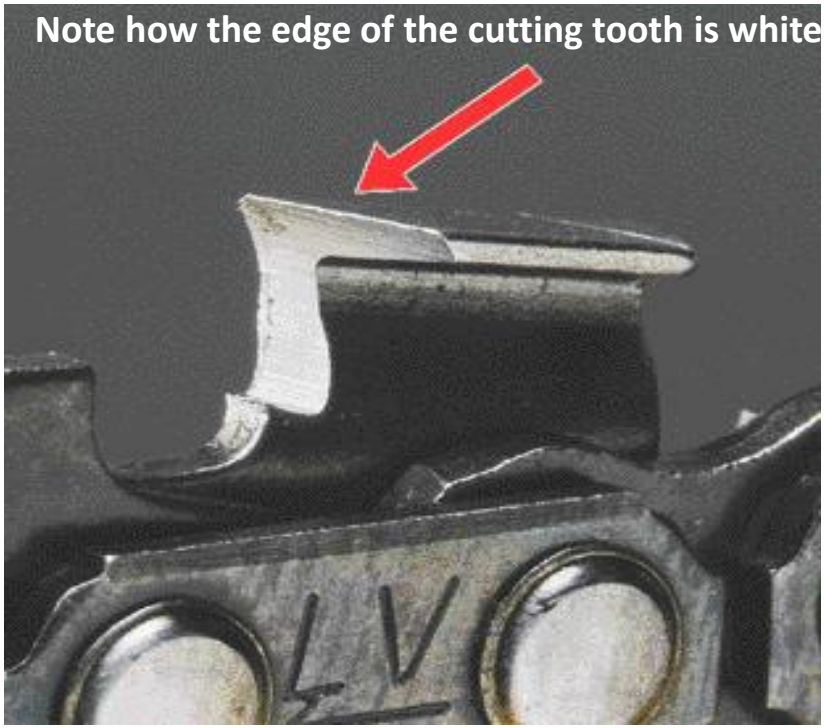
- **Sharpen the chain with a few very light strokes of the file every time you refuel.**



Husqvarna Group

## Filing the Chain

- This is what it looks like after some time of normal wear.
- Sharpen the chain!



Husqvarna Group

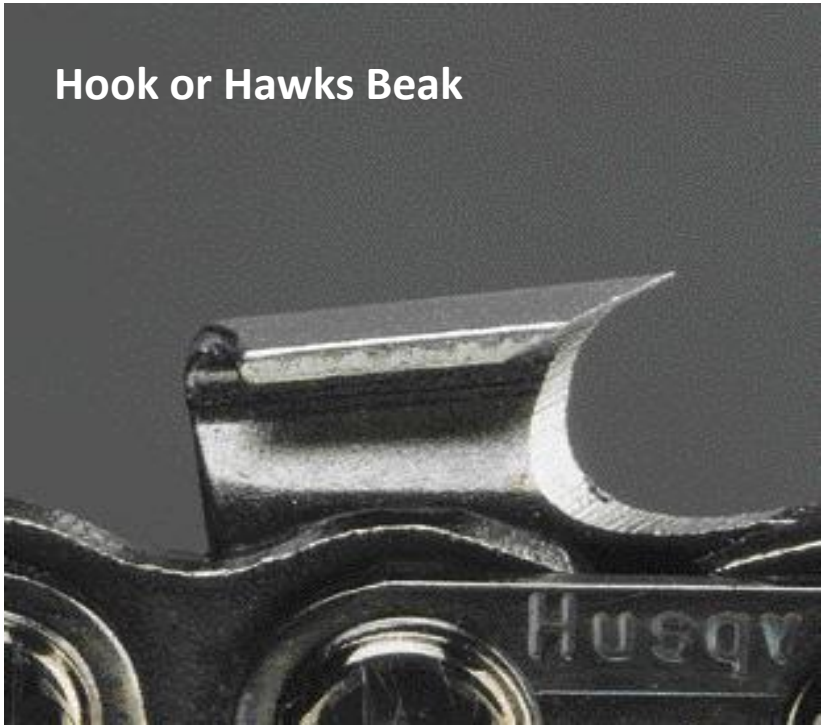
## Filing the chain

- The cutter has an uneven edge and the top surface is damaged.
- A stone damaged chain must be repaired and sharpened immediately.
- Remember to keep the chain balanced

# General Maintenance

## Filing the chain

- The cutter has been filed too deep. Holding the file too low
- Using a wrong sized file
- The cutter tip may bend or becomes brittle
- The chain will cut too aggressively which leads to higher vibrations and increased risk of kickback.



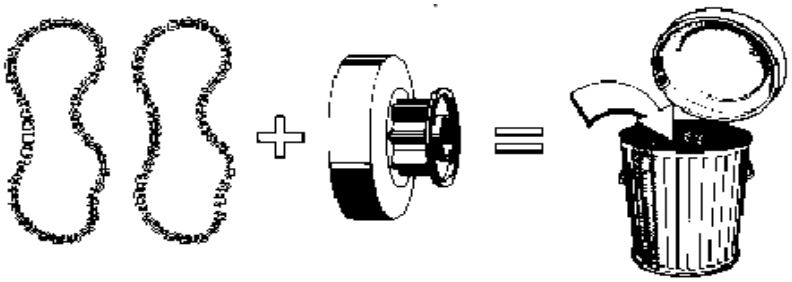
# General Maintenance

## Filing the chain

- The cutter has been filed too high
- Using the wrong size file
- This makes the chain cut poorly and the operator may try to force the chain to cut

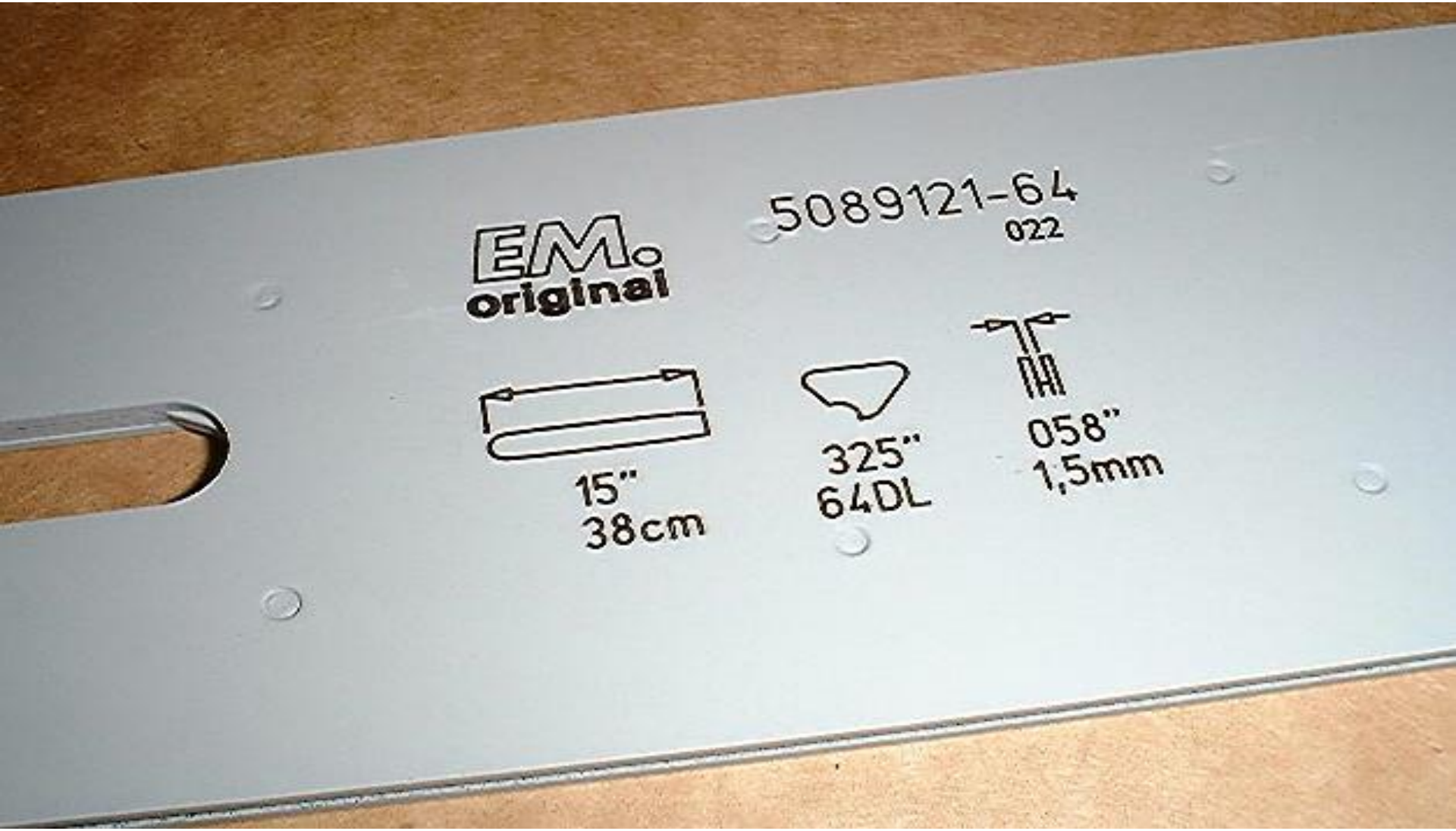
# General Maintenance

## Chain Life



A worn component will rapidly wear a new component so always replace new on new.

# Guide Bars



# Guide Bars

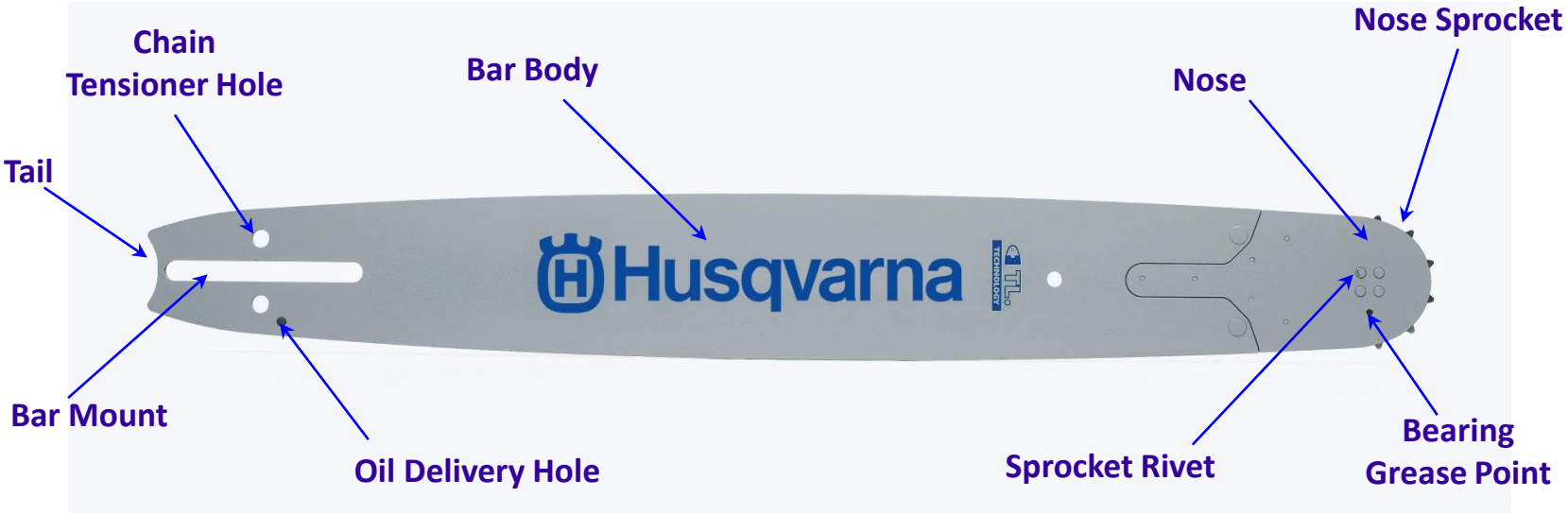
## Three Types of Guide Bar

Sprocket Nose


Replaceable Sprocket Nose

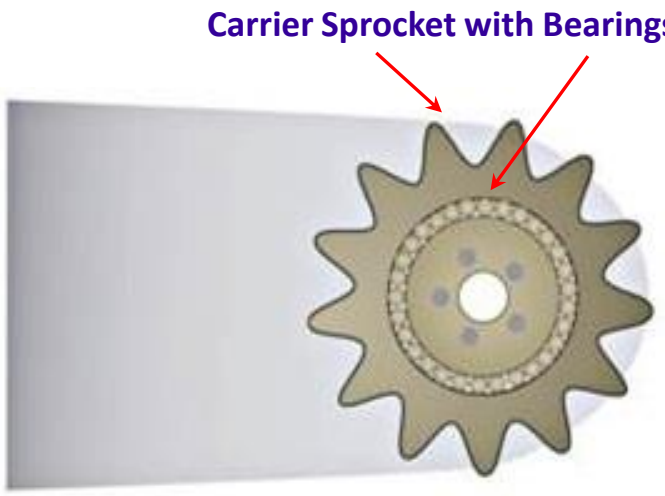

Solid Nose or Armour Tip

# Terminology

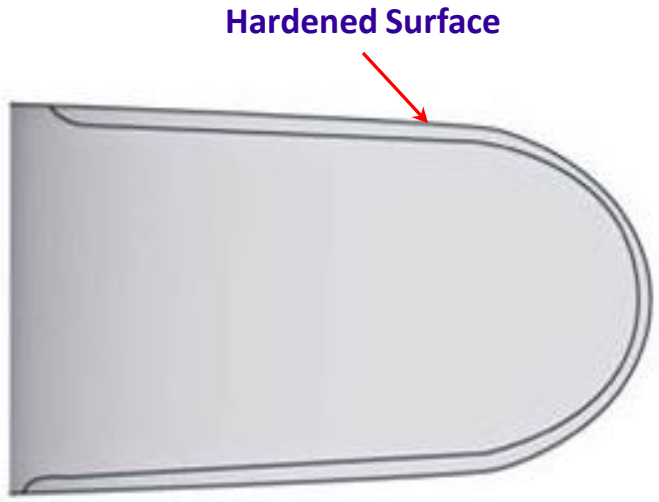


# Terminology

## Guide Bar Type




Sprocket Nose




Solid Nose

# General Rules

Husqvarna Group

## To Be Safe You Need To Think Safe

- Never use guide bar as a lever to lift, twist or pry
- A guide bar requires a constant supply of oil during operation
- For proper mounting of your guide bar, refer to the operator's manual for your chainsaw

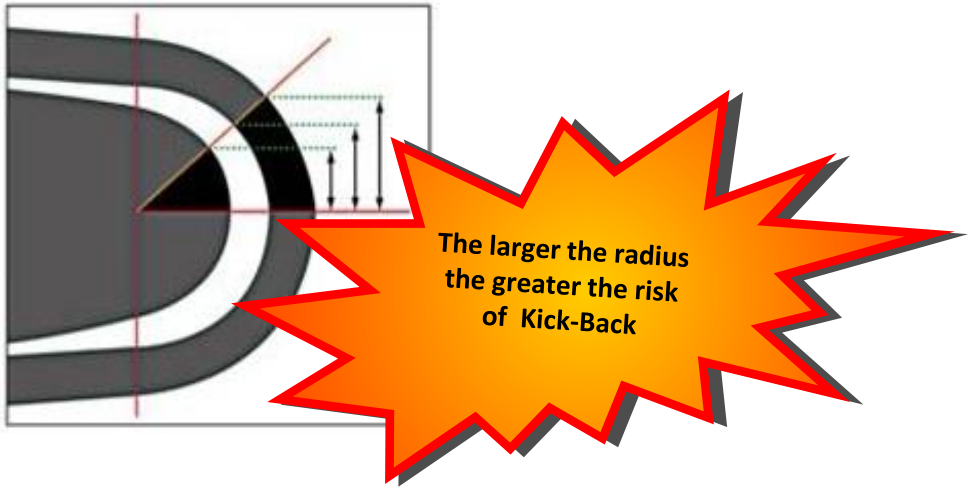
## Chain Tension

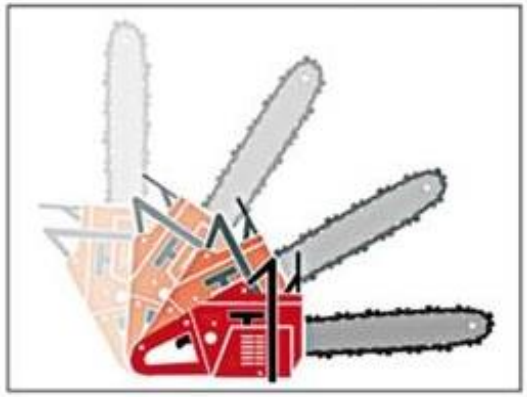
- Failure to tension chain correctly can cause a loose chain to jump off the bar resulting in serious injury to the saw operator or bystanders

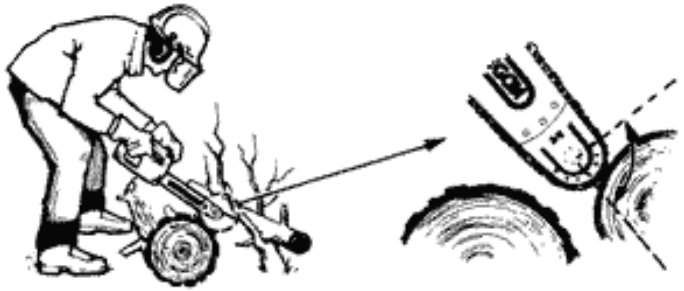
- Always turn the chainsaw off before handling the chain, guide bar or sprocket. Failure to do so can result in severe injury.

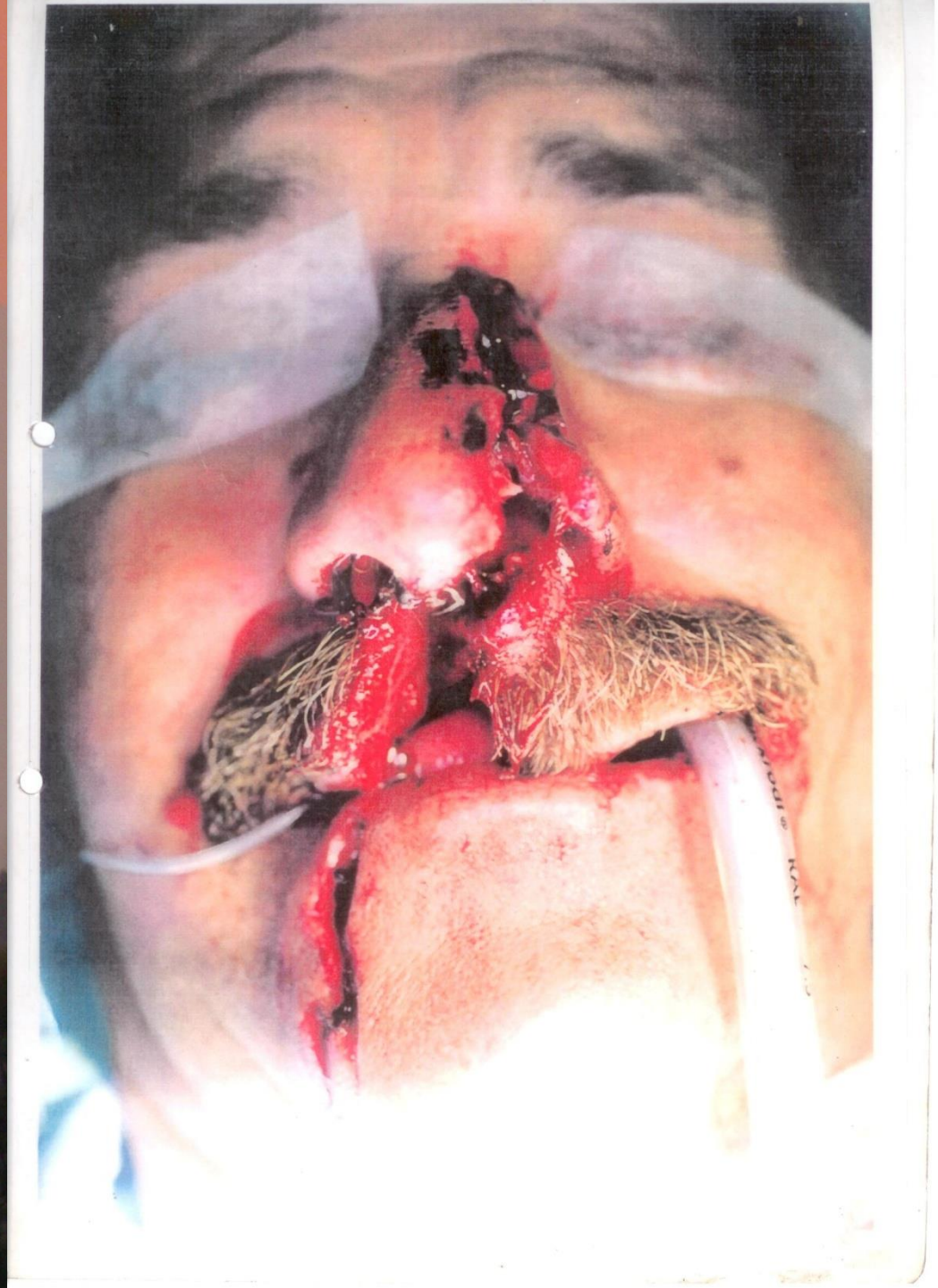
# General Safety

## Kick Back



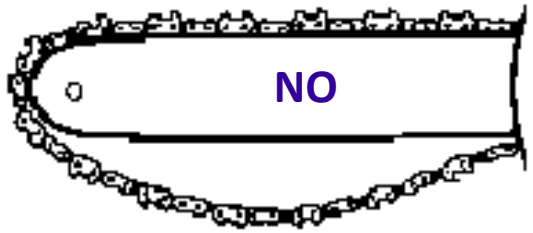





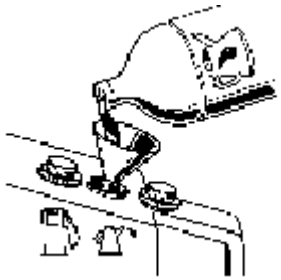


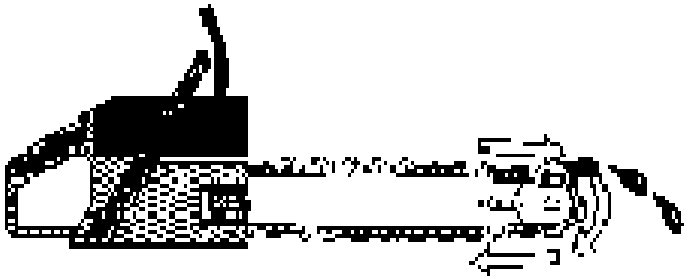
# General Maintenance


Chain Tension

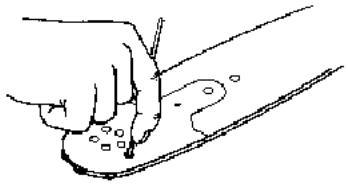



Don’t forget to fill the oil tank





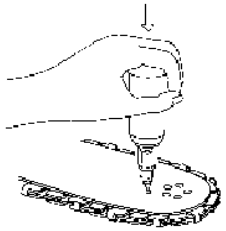
Check oiling regularly



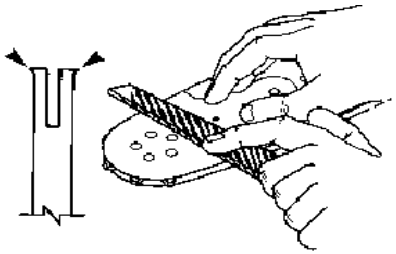
Clean the grease point (hole) often

# General Maintenance

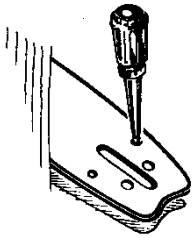
## Basic Maintenance



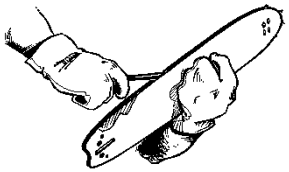
Grease the Nose Sprocket every day




Remove the burrs off the Guide-Bar Rail and ensure rails are square

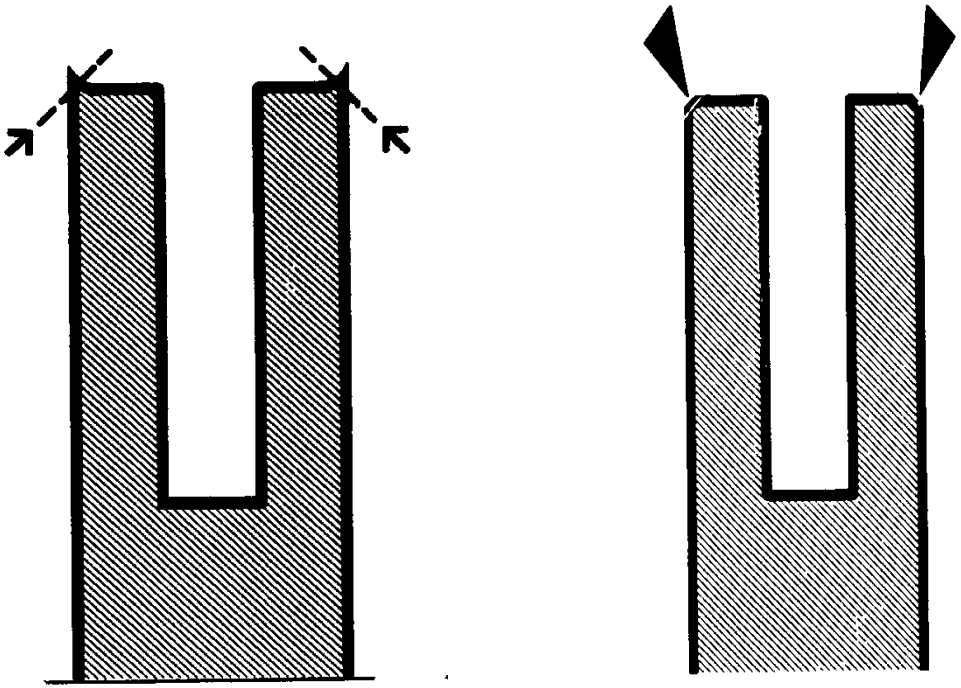


Clean oil entry holes often during work



Clean dirt out of Guide Bar Rails Daily

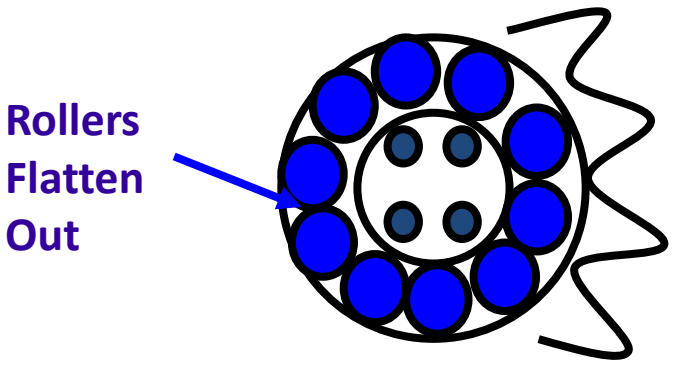
## Rail Dressing

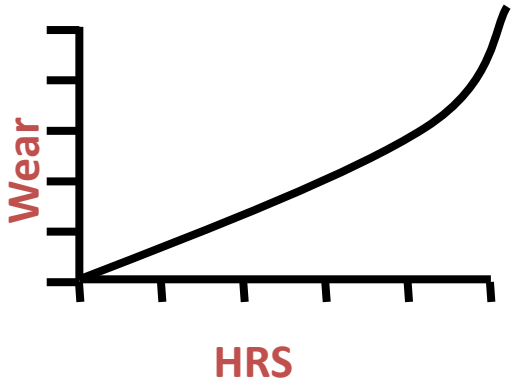


A DRESSED GUIDE BAR IS STRONGER THAN A NEW BAR.

## Nose Sprocket Wear

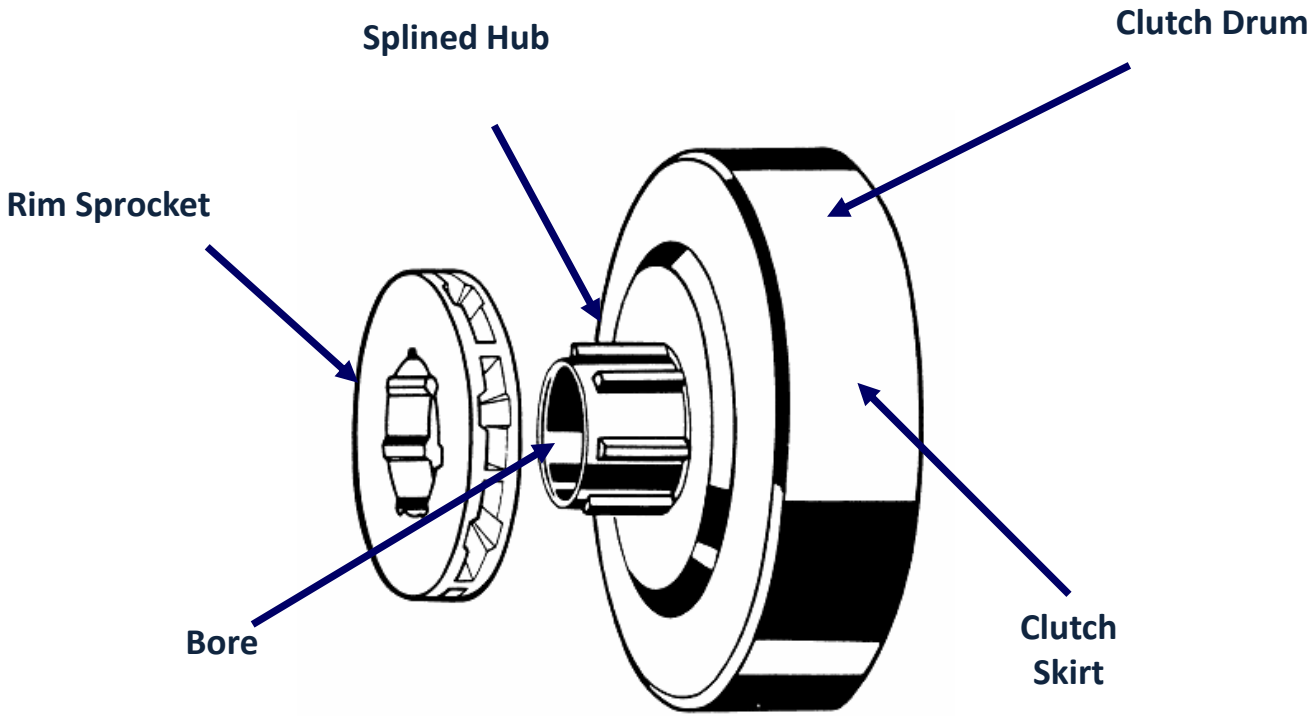
- The sprocket should be replaced when the wear reaches 15%, a knocking should be felt/heard at this stage.
- Friction causes the rollers to flatten out resulting in an up and down movement of the sprocket.
- The first 15% of the wear is gradual but thereafter it wears rapidly



# Drive Systems

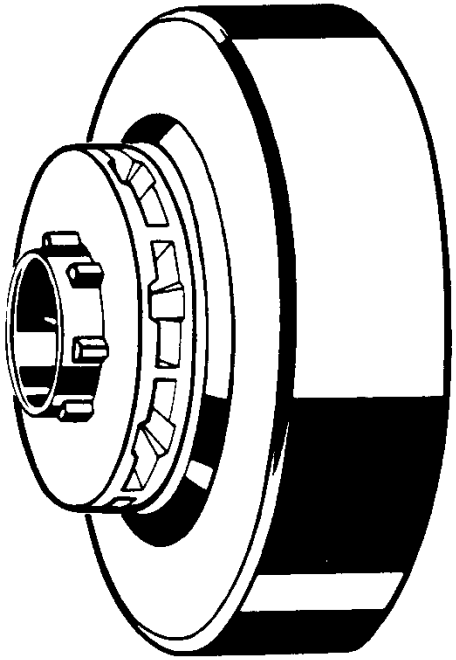
# Terminology



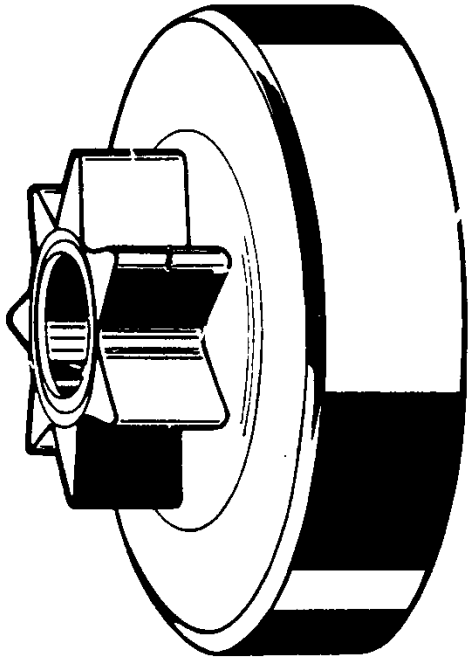

**Clutch Drum/Rim Combination**

# Terminology

## Drive Systems



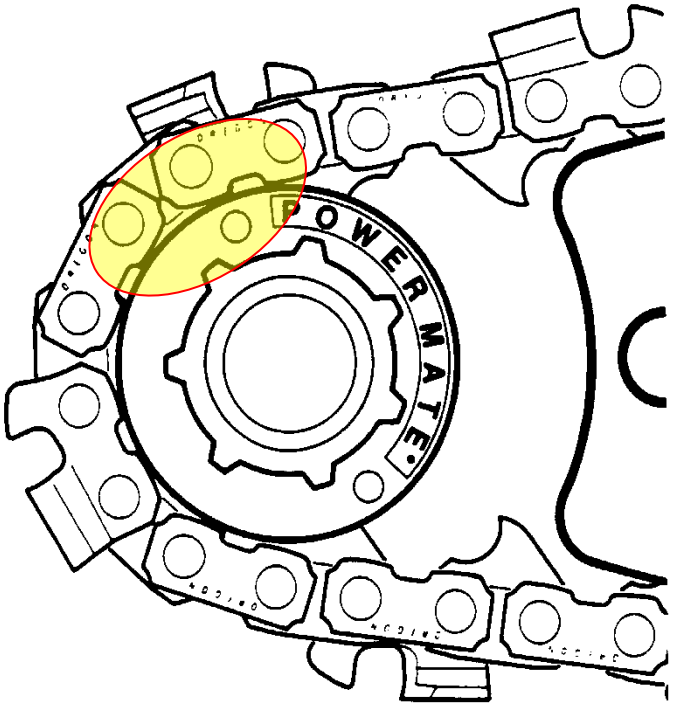
Rim Combination



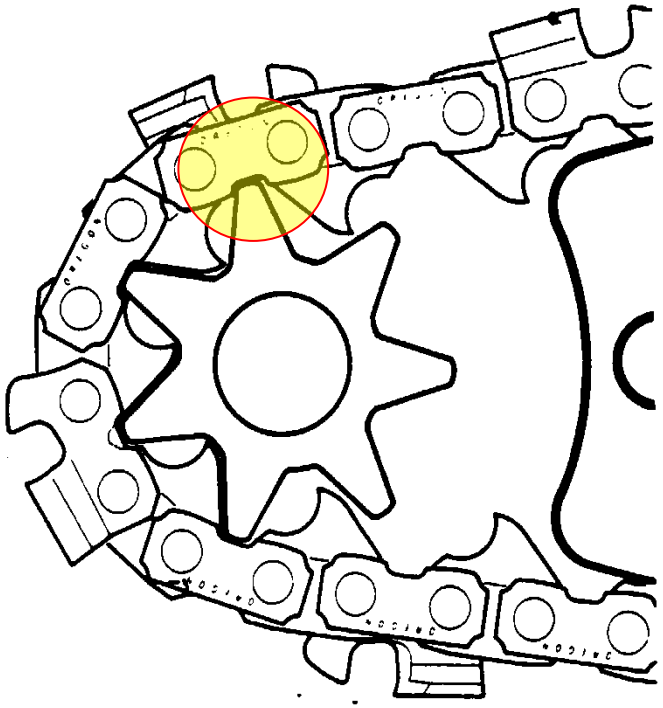
Spur

# Drive Systems

## Comparison



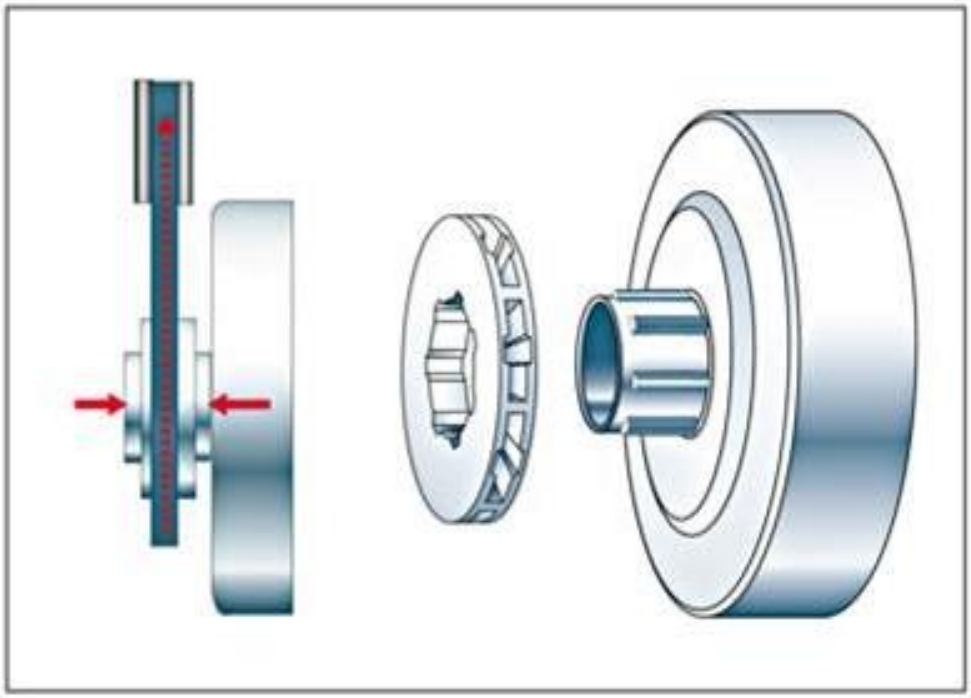

Rim



Spur

Husqvarna Group

## Why a Rim Sprocket




The End


www.husqvarnagroup.com