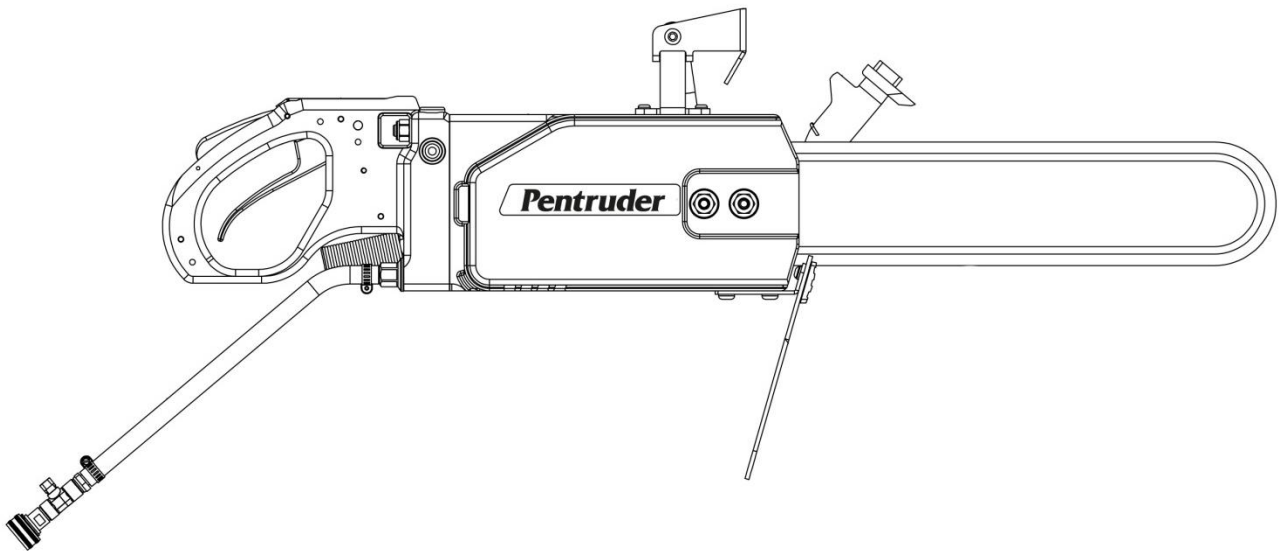


Operator's Manual

Pentruder[®] CW630 HF Chain Saw



Pentruder[®]
Concrete Cutting Systems

**Operator's Manual for
Pentruder® CW630 HF Chain Saw for use with
Pentpak HF-power packs**



Version: 1.0 Date: 2015-03-24
Support & Service document
Original instructions



Copyright © 2015 Tractive AB.
Pentruder is a registered trademark belonging to Tractive AB.

Contents

1	Introduction.....	3
1.1	Validity of this Operator's Manual	3
2	Description of The Machine	4
2.1	List of complete machine	4
2.2	Signs and data plates on the machine	5
2.3	Pentruder CW630.....	6
2.4	Pentruder HF drive system	7
3	Safety Instructions.....	8
3.1	Safety instructions which are used in this Operator's Manual.....	8
3.2	Intended use of the machine.....	8
3.3	General safety instructions	9
3.4	Safety precautions at site	10
4	Preparations.....	11
4.1	Guide bar and diamond chain installation.....	11
4.2	Determining proper chain tension.....	13
4.3	Connection to water supply	13
4.4	Pre-cut checklist.....	14
4.5	Planning the cut	14
5	Cutting.....	15
5.1	Starting and stopping the Pentruder CW630	15
5.2	Cutting tips.....	16
5.3	Cutting ductile iron pipe with the PowerGrit® Utility Saw Chain	17
6	Maintenance and Trouble Shooting.....	18
6.1	System clean-up	18
6.2	Sprocket inspection and installation	19
6.3	Troubleshooting.....	20
6.4	Transport and storage of the machine	20
7	Technical Data.....	21
7.1	Approximate cutting rates	21

1 Introduction

Thank you very much for your confidence in our product! You have chosen to invest in a product which will give you many years of efficient and profitable production. The Pentruder CW630 has been developed based on more than 30 years of experience in this specialized field. With correct handling it offers outstanding performance, safety and reliability.



It is essential that all personnel working with or in close proximity of the machine have read and understood the contents of this manual before commencing operations. Please take careful note of the Safety Precautions.

The Operator's Manual should be kept where the machine is.

To avoid serious or even fatal injury to the operator and persons in close proximity of the machine, it is important that the machine always is operated by trained, responsible personnel.

By reading and understanding the manual the operator will be able to get the maximum benefit from the Pentruder CW630 HF Chain Saw. Be sure to read this manual thoroughly and periodically review safety instructions.

We are confident that your investment in this equipment and its many design features will enhance your competitive edge and profitability!

1.1 Validity of this Operator's Manual

This Operator's Manual is only valid for the Pentruder CW630 as described in Chapter 2 Description of The . Please also refer to the Operator's Manual for the Pentpak high frequency power pack being used.

Tractive AB always strives to improve the products. Therefore we reserve the right to make technical changes without prior information.

In the following Operator's Manual, "the machine", "chain saw" or "Pentruder CW630" is used to refer to the complete machine as listed in Chapter 2 Description of The .

Should questions arise, please contact our sales distributor. The address can be found at www.pentruder.com.

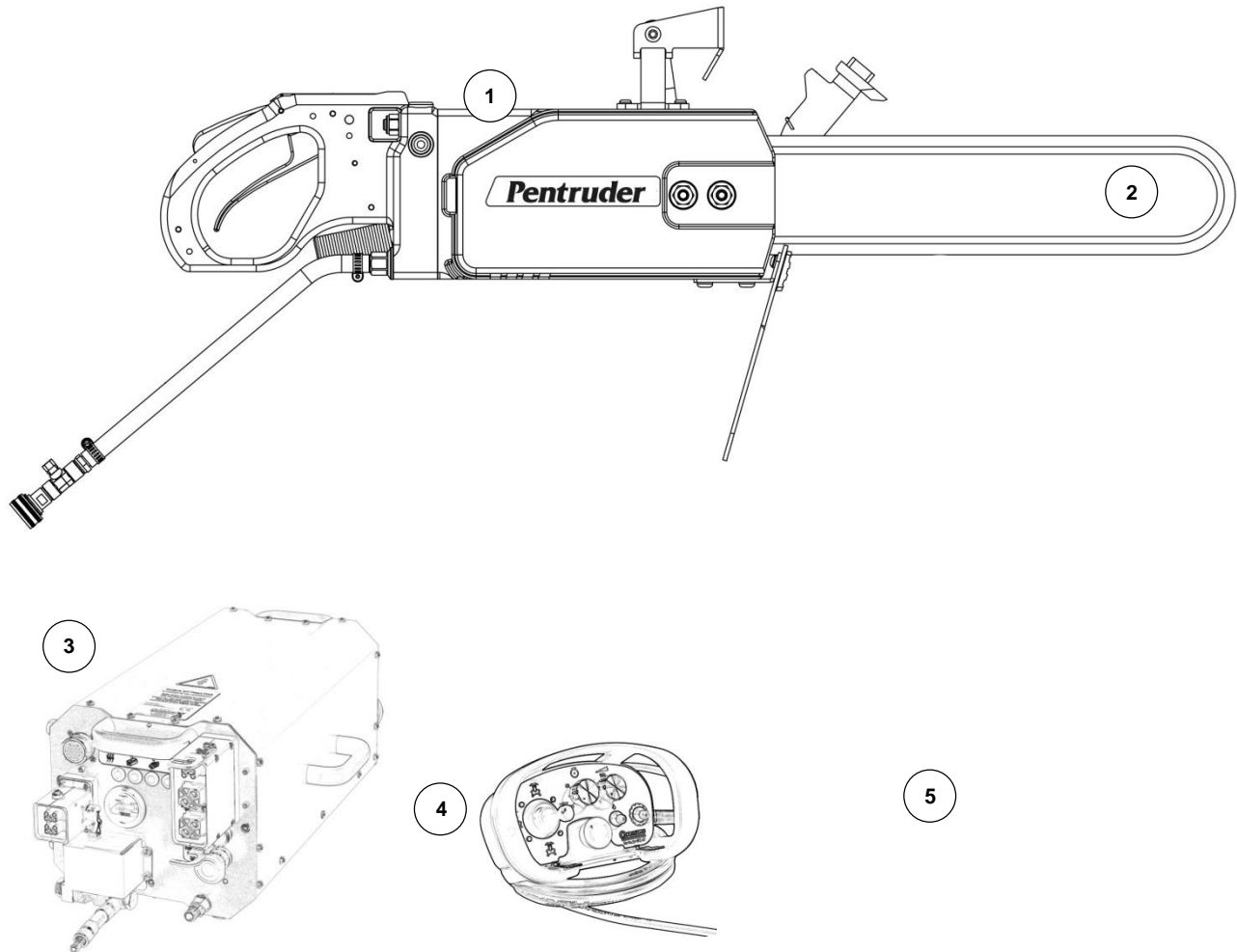
Product	Description	Serial number
Category:	HF Chain Saw	
Make and type:	Pentruder CW630-HF400	_____
Drive system:	Pentpak High Frequency Power Pack	
Type of drive system:	427 / 422 / 418	_____
Drive motor:	High Frequency electric motor	
Manufacturer		Pentruder Distributor
Tractive AB		
Gjutargatan 54		
S-781 70 Borlänge		
Sweden		
Phone: +46 (0)243 - 22 11 55		
Fax: +46 (0)243 - 22 11 80		
E-mail: info@tractive.se		
Web: www.tractive.se		

2 Description of The Machine

The Pentrunder CW630 is developed and manufactured by **Tractive AB** in Sweden in a process where safety awareness, performance and reliability were the most important design parameters.

The Pentrunder CW630 is designed to cut concrete, stone and masonry when used with the appropriate Diamond Chain. Other materials including ductile iron, cast iron or PVC pipe require a special chain. Follow the manufacturer's recommendations. Tractive recommends using genuine ICS® diamond chains, guidebars and drive sprockets.

2.1 List of complete machine



The Pentrunder CW630 is used with the Pentrunder HF drive system to be a complete machine.

1. Pentrunder CW630 HF Chain Saw
2. Bar and diamond chain
3. Pentrunder high frequency power pack
4. Remote control
5. High voltage cable

Please note that a Pentrunder CW630 is not complete without the modules listed in this paragraph. Please also refer to the Operator's Manual for the Pentpak HF-drive system being used.

The manufacturer cannot take responsibility for diamond consumables used with the Pentrunder CW630. Please refer to the technical documentation of the diamond tool in question before using it with the Pentrunder CW630.

2.2 Signs and data plates on the CW630 HF Chain Saw and/or in this Operator's manual

The following signs can be found on the Pentruder CW630 HF Chain Saw and/or throughout this Operator's manual and are designed to make you aware of potential hazards or unsafe practices.



Safety alert

This machine is a professional tool and can be dangerous if not used correctly.



Read instructions

The Operator's manual of the CW630 and the Pentruder HF-drive system contain important safety and operating information. Read and follow the instructions carefully.



Wear eye, hearing and respiratory protection. Wear head protection

All persons working with, or in the proximity of the machine should wear safety equipment.



Wear long pants

Wear long pants when operating the saw.



Wear foot protection

Wear appropriate closed-toe boots when operating the saw.



Wear hand protection

Wear hand protection when operating the saw.



Kerf width

Do not insert tool into slot narrower than chain.



Beware of kickback

Kickback can cause severe injuries.



Two-handed hold

Operate the saw with two hands, securely gripping both handles.



One-handed hold

Do not operate the saw with one hand.



Do not use a ladder

Never stand on a ladder when using the saw.



Slippery surface

Unsure footing can lead to accidents.



This product is in accordance with applicable EC-directives.



The trash bin symbol is an environmental marking and indicates that this machine contains electrical/electronic equipment which should be recycled.



Noise emission to the environment according to the European Community's Directive. The noise levels can be found in Chapter 7 Technical Data.



Cutting in a power line

Cutting in a power line which is energized can result in serious injury and even to fatal injuries.

Disconnect from power supply

Before any kind of service on the machine is commenced, the machine must always be disconnected from the electric power supply.

Safety label



Nameplate label



Meaning of abbreviations

S/N: Serial Number

YoM: Year of Manufacture

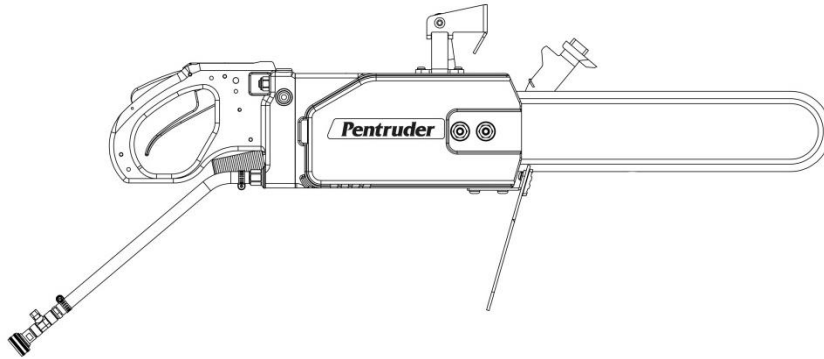
Model: CW630-HF400, 380-480V version -

Warning label

WARNING	<ul style="list-style-type: none"> • Do NOT operate saw without side cover. 	<ul style="list-style-type: none"> • Connect only to Pentpak® High Frequency Power Packs.
	<ul style="list-style-type: none"> • Do NOT use this saw cover on any other saw model. 	<ul style="list-style-type: none"> • Failure to observe these precautions can result in serious injury.

2.3 Pentrunder CW630

- Pentrunder CW630 HF Chain Saw
 - CW630-HF400, 380-480V version
- ICS® Diamond Chain and guide bar combinations
 - Bar 25 cm (10 in), 38 cm (15 in), 50 cm (20 in), 63 cm (25 in)



Pentrunder CW630 HF Chain Saw

2.4 Pentrunder HF drive system

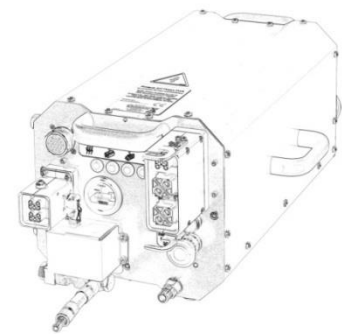
2.4.1 Pentrunder high frequency (HF) power pack with cable remote control

The CW630-HF400, 380-480V Input voltage is powered by the Pentpak 427 , 422 or 418 equipped with digital communication connectors.

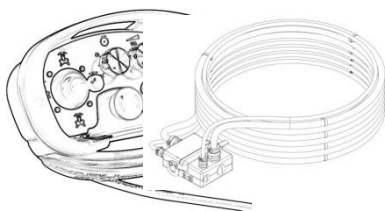
- PP427, Pentpak 427 (50-60 Hz)
- PP422, Pentpak 422 (50-60 Hz)
- PP418, Pentpak 418 (50-60 Hz)

In the following Operator's Manual Pentpak HF power pack or just Pentpak is used to refer to all of the Pentpak HF power packs listed above.

The Pentrunder CW630 HF Chain Saw is used with the CRC cable remote control or RRC radio remote control (available autumn 2015). The chain saw has a fixed cable with connector attached to the machine that connects directly into the Pentpak. The high voltage cable HF400-9-30 can be used as an extension cable.



Pentrunder 427, 422, 418



CRC Cable Remote Control

HF400-9-30

3 Safety Instructions

3.1 Safety instructions which are used in this Operator's Manual

**WARNING!**

Here we inform about risks connected with use of the machine, and, if the safety precautions are not respected, can result in serious injury and even to fatal injuries to persons in close proximity of the machine.

**Important!**

Here we inform about risks connected with use of the machine, and, if the safety precautions are not respected, can result in damage to property and persons in close proximity of the machine.

**Note!**

This sign indicates technical specifics and methods which will facilitate the job.

3.2 Intended use of the machine

**Important!**

- Please observe that Tractives responsibility as a manufacturer can only be accepted when the Pentruder CW630, is used together with the HF drive system described in this Operator's Manual. If the machine is used with non-original equipment the warranty and Tractives CE-marking will be void.
- The manufacturer cannot take responsibility for diamond consumables used with the Pentruder CW630.
- Please refer to the manufacturer of the diamond consumable in question before using it with the Pentruder CW630.

The Pentruder CW630 HF Chain Saw is designed to cut concrete, stone and masonry when used with an appropriate genuine ICS® Diamond Chain. Other materials including ductile iron, cast iron or PVC pipe require the use of ICS® PowerGrit® Utility Saw Chain. Tractive recommends using genuine ICS® diamond chains, guidebars and drive sprockets.

This machine may not be used unless the operator is fully familiar with the contents of this manual as well as the Operator's Manuals for the high frequency drive system and has been trained in its operation by an authorised distributor of Tractive AB's products. The operator is fully responsible for the manner in which the machine is operated. It is the responsibility of the purchaser of the machine that the operator has received the information needed to operate and handle the machine in a safe and correct way.

Good working practice should always be used along with common sense. Tractive cannot foresee every possible situation and this manual is not a substitute for professional skills and experience.

The Pentruder CW630 HF Chain Saw is powered by a Pentruder HF-power pack and remote control. The Pentruder CW630 cannot be used with any other type of drive system.

The manufacturer cannot take responsibility for diamond consumables used with the Pentruder CW630. Please refer to the technical documentation from the manufacturer of the diamond consumable in question before using it with the Pentruder CW630.

3.3 General safety instructions

WARNING - DANGER OF LIFE!



- Cutting in a power line which is energized can result in serious injury and even to fatal injuries. The chain saw can get energized. A circuit breaker cannot protect against this danger.
- Diamond chain breakage can result in high-speed ejection of parts, which can result in death or serious personal injury to operators or bystanders. The items listed below are critical to minimizing the risk of diamond chain breakage and injury.



WARNING!



- The machine is state of the art and follows the present regulations. However, incorrect handling of the machine can result in serious or even fatal injury to the operator and persons in proximity of the machine.
- All persons which are operating or in any way working on the machine has to read and understand the whole Operator's Manual and especially the safety instructions, before any work is commenced. It is the obligation of the employer to make sure that the operator really has received the information necessary to operate and take care of the machine in a correct and safe way.
- Good working practice should always be used along with common sense. Tractive cannot foresee every possible situation and this manual is not a substitute for professional skills and experience.
- The machine may only be operated and serviced by authorized and trained personnel. The personnel should be trained by personnel authorized by Tractive.
- A Pentruder machine used in the correct way is a safe and efficient tool. If the machine is used improperly this can expose the operator and other persons staying in the same area to extreme danger or even risk of fatal injuries.
- The user is liable that the machine is in faultless condition and that all functions are in order before work is commenced.
- To maintain the level of safety inherent in the design of this machine, only Tractive original parts may be fitted. Tractive AB disclaims all responsibility for damages occurring as a result of use of non-original parts.
- Modifications or changes on the machine are not allowed.
- Before any kind of service on the machine is commenced, the machine must always be disconnected from the electric power supply.
- The machine may not be used in an environment where explosion protected equipment is demanded.
- Tractive AB disclaims all responsibility for damages to persons and / or property resulting from use of the machine, whether they are caused by faulty handling or from damages that have occurred as a consequence of negligent or faulty maintenance, or as a consequence of failure to check and control the machine with regard to damages and / or faults.
- DO NOT operate a diamond chain saw with a damaged, modified, broken or missing side cover or mud flap. The side cover and mud flap provide protection against contact with moving parts, ejected debris, broken diamond chain, thrown water and concrete slurry.
- DO NOT insert the saw into a slot narrower than the chain segments. Rapid pushback might occur. Reference: Most diamond segments are 5.72 mm (.225) wide.
- DO NOT use the side cover as a replacement cover for another saw.
- DO NOT use damaged, modified or improperly repaired chain.



3.4 Safety precautions at site

WARNING! BEFORE CUTTING

Before cutting is commenced, make sure that;

- There are no power lines, gas or piping which can be damaged by the CW630 chain saw.
- The statics of the building are not compromised because of the cut openings.
- No damage is done on the other side of the concrete when cutting through.
- Check with the foreman responsible that all necessary precautions have been performed before commencing work. Await the approval of the safety precautions and position of the machine from the foreman before work is commenced.
- Safety and health regulations at the work place must be followed.
- No work should be commenced which cannot be judged to be safe. Always use common sense and good working practice.
- Always check that the machine, diamond chain and guidebar are in faultless condition and that all functions are in order before work is commenced.
- Never use a diamond chain for material which it is not intended for.
- Before cutting is commenced all persons involved must know how the emergency stop buttons are working.
- Insufficient water supply may result in excessive wear to the diamond chain, which can lead to loss of strength and chain breakage, and/or damage to the guidebar nose sprocket. Assure that the water supply is capable of delivering 1.5 bar (20 psi) pressure to the chain saw at a minimum flow rate of 4 lpm (1 gpm).
- Only use PowerGrit® Utility Saw Chain when cutting ductile iron pipe or like materials with the saw. Using chain platforms not specifically designed for this type of material may cause segment loss or diamond chain breakage.

WEAR SAFETY EQUIPMENT



- All persons working with, or in the proximity of the machine should wear safety equipment, i.e. protection helmet, protection shoes, gloves, eye and ear protectors and long pants.
- The noise level during cutting might lead to permanent hearing disorders if ear guards are not worn.
- Find out what material is cut and wear appropriate dust mask or respirator protection if necessary.
- Avoid loose fitting clothing.

MOUNT ACCORDING TO THE INSTRUCTIONS



- Before any kind of service including chain tensioning, on the machine is commenced, the machine must always be disconnected from the electric power supply.
 - Never start the saw unless the guide bar, diamond chain and side cover are properly installed.

CUTTING



- Follow the instructions for cutting in Chapter 5.
- Do not run the saw upside-down. Concrete debris can fly back into the operator's face.
- Always operate the saw with solid footing and with both hands firmly gripping the handle. Do not stand on a ladder when using the saw.

LIFTING AND TRANSPORTING

- Always lift the tool ergonomically correct and in a safe way.



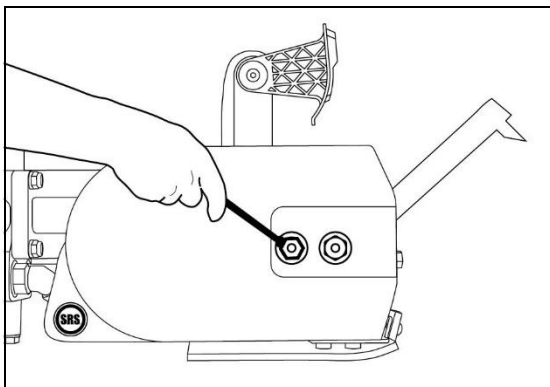
WARNING!

RISK AREA

- The risk area must be roped off and the operator must make sure that no unauthorised persons enter the risk area.
- Clear the working area and make sure no unauthorized persons are within the risk area before the machine is allowed to be started.
- Remember always to cover cut openings so that no person falls down and hurts himself.
- Secure the concrete before starting work to make sure there is no possibility that concrete blocks may fall down causing injury or damage to persons or property.

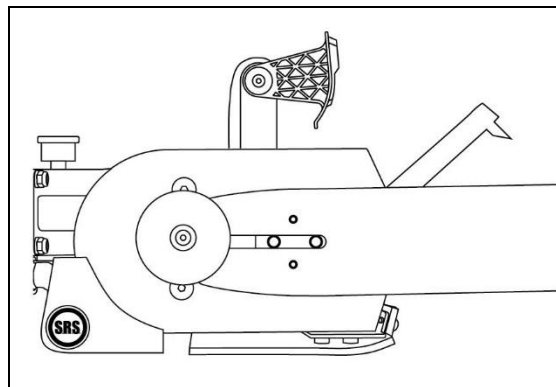
4 Preparations

4.1 Guide bar and diamond chain installation



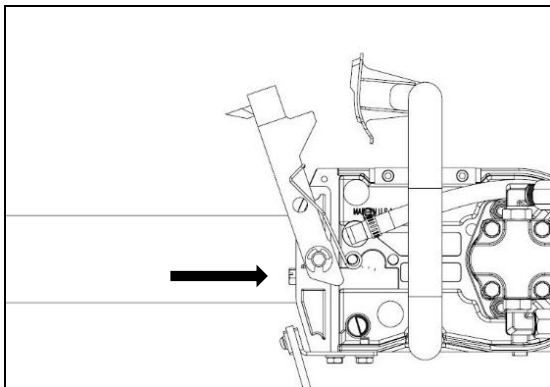
STEP 1

Loosen the side cover nuts and remove the side cover and bar clamp plate.



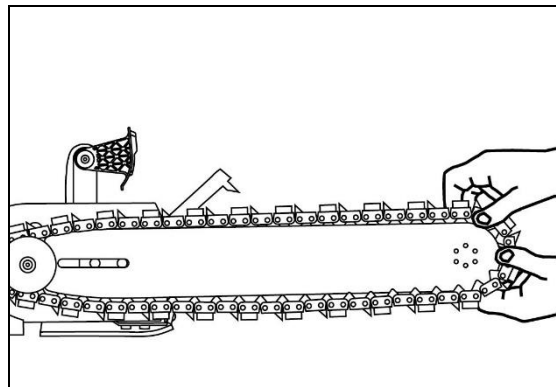
STEP 2

Place the bar onto the studs and the chain adjustment pin.



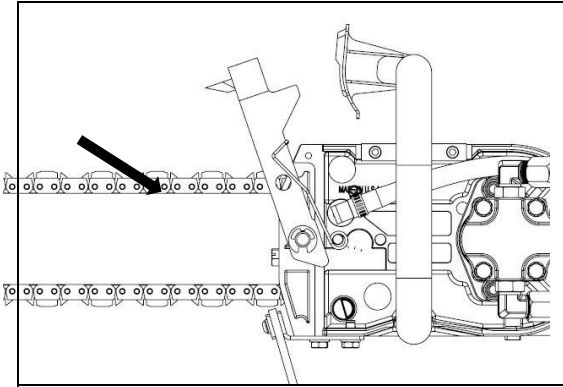
STEP 3

Turn the chain-tensioning screw counter clockwise until the bar comes into contact with the drive sprocket.



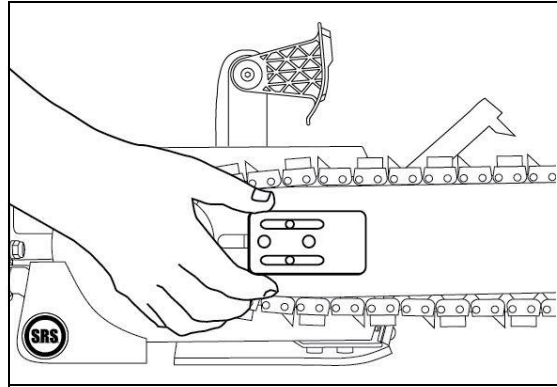
STEP 4

Mount the chain on the bar starting at the drive sprocket & continue over the bar nose.



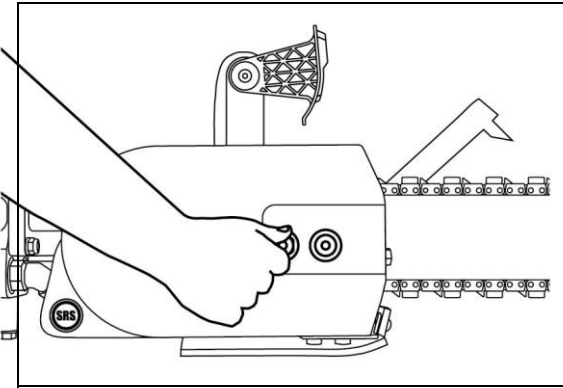
STEP 5

Make sure all of the drive links are inside the bar groove, then pre-tension the chain.



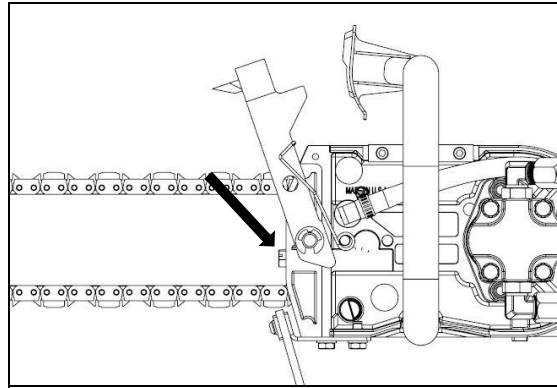
STEP 6

Install the bar clamp plate over the bar studs.



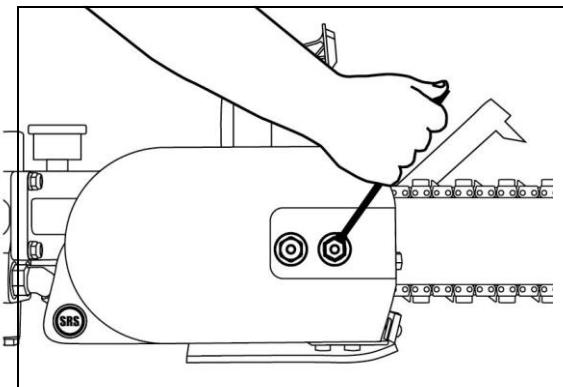
STEP 7

Install the side cover over the bar studs and install side cover nuts. Finger tighten only.



STEP 8

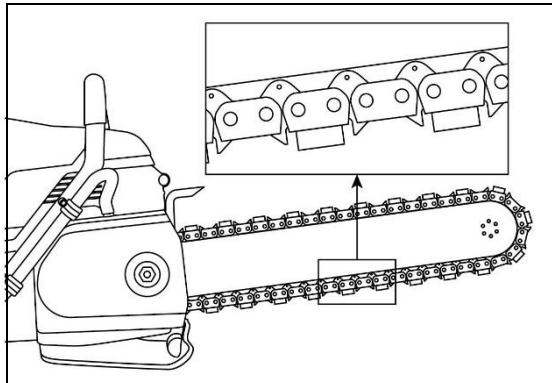
Tension the chain. Do not over tension the diamond chain. Loss of power will result.



STEP 9

Lift up on the nose of the bar and firmly tighten the side cover nuts. To prevent chain tensioner breakage, be sure the side cover nuts are tightened to approximately 27 Nm (20 ft-lbs).

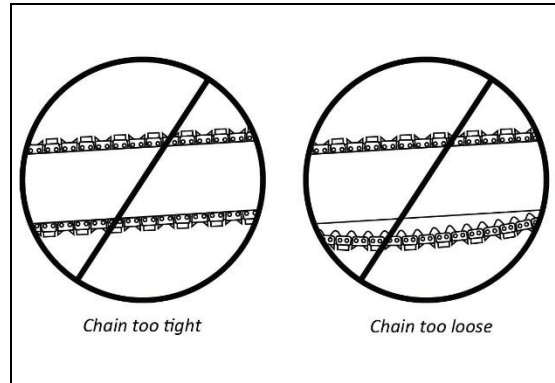
4.2 Determining proper chain tension



Correct Chain Tension

All chains have a tendency to stretch when used. Diamond chains stretch more than wood cutting chains because of the abrasive materials they are cutting.

If the chain is too tight, a lot of the saw's power goes into turning the chain rather than into the cut. In extreme over-tightened cases, the saw may not be able to turn the chain at all. In addition, damage can occur to the bar nose and premature stretch may occur.



Chain too tight

Chain too loose

Chain Too Loose

If the chain is too loose, it could come off the bar.

When a chain stretches to a point where the drive links are hanging approximately 12 mm (1/2 in) to 18 mm (3/4 in) below the bar, it is time to tension the chain.

4.3 Connection to water supply



Important!

- The HF-power pack and HF-chain saw have to be drained from water in sub zero temperatures. The HF-chain saw is self draining if put on a flat surface with the chain side down and with the water hose open.
- Insufficient water supply will result in excessive wear to the chain, which can lead to loss of strength and chain breakage, and/or damage to the guide bar nose sprocket.

Cooling water is supplied through the HF-drive system to the Pentruder CW630.

The Pentruder CW630 is equipped with an efficient electric motor cooling system. At least 4 litres/minute (1 gpm) of cool water is required to keep the temperature down when maximum power is used

Please refer to the Operator's Manual for the Pentruder HF-drive system being used for information regarding water flow, pressure, etc. for the HF-power pack.

- Adequate water supply and pressure
Minimum flow: 4 lpm (1 gpm)
Minimum water pressure: 1.5 bar (20 psi)

4.4 Pre-cut checklist

- Ensure proper chain tension: The chain should be easily pulled around the guide bar by hand.
- Ensure all safety devices are properly mounted and functional and that all controls are in proper working order.
- Be sure there are no obstructions (plumbing, electrical conduit, air ducts, etc.) and no unnecessary people present.
- Always wear protective clothing, including hard hat, eye protection, hearing protection, non-slip safety boots, gloves. Avoid wearing loose fitting clothing.

4.5 Planning the cut

- Outline the cut with a permanent marker for a visual cutting guide.
- Avoid pinching the guide bar and diamond chain. Always cut the bottom of an opening first, then top, and then the sides. Save the easiest cut for last.
- For the straightest cuts use the "Step Cut" method. First score the entire cut line approximately 12 mm (1/2 in) deep using the nose of the guide bar. Next, deepen the cut by about 50 mm (2 in). Then plunge all the way through and complete the cut using the WallWalker®.



Warning!

- Be sure cut concrete cannot fall and injure operator or bystanders. Concrete is very heavy, one cubic foot = 30 cm x 30 cm x 30 cm = 68 kg (12 in x 12 in x 12 in = 150 lbs).



- Check for live electrical wiring near the cutting area or in the concrete to avoid electrocution.
-

5 Cutting



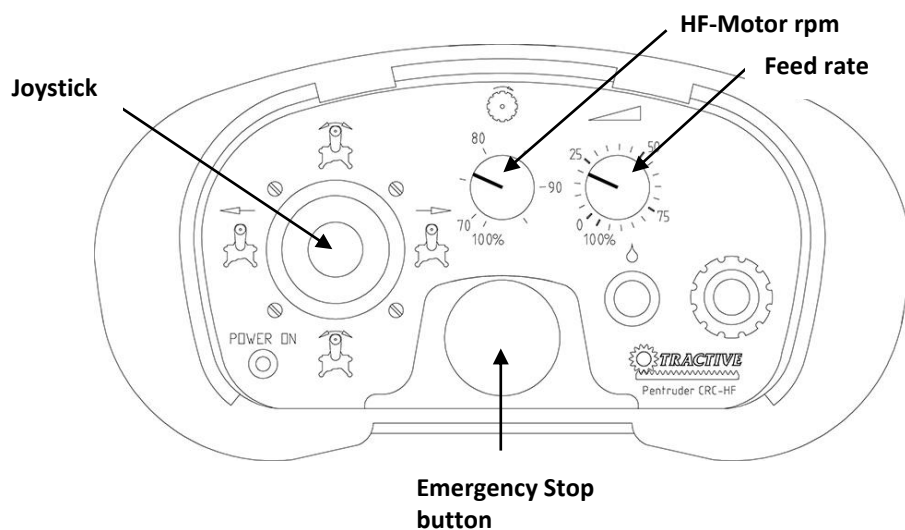
Warning!

- Before cutting, it is essential that all personnel working with or in close proximity of the machine have read and understood the contents of this Operator's Manual and the Operator's Manual for the HF-drive system and that the instructions are followed.
- If the safety precautions are not respected, this can result in serious injury and even fatal injuries to persons in close proximity of the machine.

When all safety precautions are taken as described in chapter 3 and the Pentruder CW630 is prepared as described in chapter 4, the operation can start. Please refer to the Operator's Manual for the Pentpak HF-drive system being used for detailed information on how to connect and start the HF-power pack.

5.1 Starting and stopping the Pentruder CW630

The remote control must be connected to the Pentpak for being able to operate the CW630. It is part of the emergency stop safety system.



- Make sure that both the emergency stop buttons on the remote control as well as on the Pentpak is out and the green start button on the Pentpak is on.
- Turn the HF-motor rpm and feed rate potentiometer to zero and put the joystick in neutral position.
- To start the motor, press and hold the trigger on the Pentruder CW630. As long as the trigger is pressed, the motor (chain) will be running.
- The water flow will be switched on automatically as long as motor is running.
- To stop the motor (chain), release the trigger. The water flow will be switched off automatically after 15 seconds.

5.2 Cutting tips



Warning!

- Do not run the saw upside-down. Concrete debris can fly back into the operator's face.
- Always operate tool with solid footing and with both hands firmly gripping the handles.



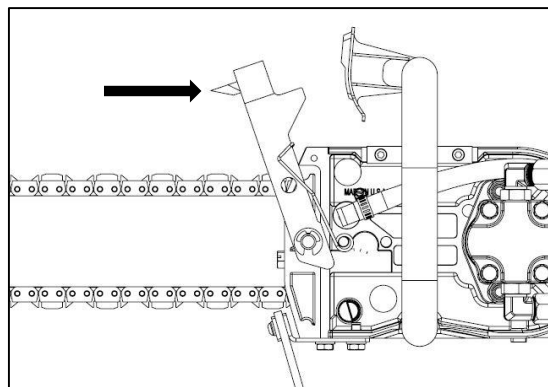
Important!

- To avoid overheating, the HF-motor will be switched off automatically if the motor winding temperature is over 140°C (284°F). The coolant water should then be left running through the HF-power pack and HF-chain saw to avoid terminal overheating.
- If the water is turned off immediately after the HF-motor has been switched off automatically, for instance due to overload and the warning light is on, terminal damage to the motor windings may occur.
- Rebar must be encased in concrete. Never cut bare rebar with a Diamond Chain.



Note!

- If one of the emergency stop buttons is pressed or the unit has been unplugged from the power supply, both the blade speed and the feed and travel potentiometers must be returned to zero before the machine is operational again.
- The single most important factor an operator can control to increase chain life is to use adequate water pressure and flow.



- To start a cut, hold trigger and slowly plunge the nose of the guide bar straight into the wall. Use the fixed WallWalker® as a pivot point and pull up on the rear handle to rotate the guide bar into the cut.
- Always operate the saw at full speed. If too much force is applied, the saw will lug or stall. The chain will not have enough speed to cut effectively. If too little feed force is applied, the diamonds will skid and glaze over.
- For straighter cuts use the "Step Cut" method. First score the entire cut line with the nose of the guide bar approximately 12 mm (1/2 in) to 25 mm (1 in) deep. Next, deepen the cut by about 50 mm (2 in). This groove will help guide the guide bar for a straight cut. Then plunge all the way through and complete the cut using the WallWalker®.
- Use the WallWalker® to help cut more efficiently and reduce operator fatigue. The WallWalker® is a fulcrum that converts inward force to downward force and will develop a 4-to-1 mechanical advantage. To use correctly, plunge into the wall and simply engage the point of the WallWalker® into the cut and push straight in. The WallWalker® will force the saw to feed down.

- Apply upward force on the trigger handle to keep the WallWalker® engaged properly, otherwise the WallWalker® spike will skid, which will reduce the effectiveness. As the saw begins to rotate up, feed force is developed down the line of the intended cut. Once the saw is fully rotated upwards, pull the saw out of the cut a few inches and re-engage the WallWalker® to the wall and repeat.
- When cutting rebar, slowly rock the saw so that you're always cutting concrete as well as steel. This will help keep the diamonds exposed. Also, expect less chain life when cutting rebar.
- Expect more chain stretch and guide bar wear when making "nose buried" cuts for extended periods of time, as the chain does not have a chance to throw the slurry away from the nose of the guide bar.
- If the saw begins to cut consistently crooked, turn the guide bar over and use the other side. Dress worn rails with belt sander.

Note: The normal life of a guide bar is two to three diamond chains.

Rebar can shorten guide bar life.

- When using a new chain, you can increase the cutting speed by opening up the diamonds by making a few cuts in an abrasive material such as a brick.

5.3 Cutting ductile iron pipe with the PowerGrit® Utility Saw Chain

NEVER cut ductile iron pipe with the saw unless using ICS® PowerGrit® Utility Saw Chain. The following are safety precautions that should always be followed when using PowerGrit chain.



Warning!

- Before cutting, make sure the pipe is in a safe condition to be cut. Support the work piece in such a way that the cut remains open during the cutting operation and when the cut is finished. Pinching the chain during the cut could cause chain breakage and could result in death or serious injury to the operator.
 - If using the pipe clamp accessory from ICS®, the clamp must be attached in such a way that it does not move during the cutting operation and/or when the cut is finished. Unexpected movement of the clamp could cause loss of control of the saw and could result in death or serious injury to the operator.
-

6 Maintenance and Troubleshooting



WARNING!



No service or maintenance may be performed on the machine unless it is disconnected electrically from the mains.

For maintenance and troubleshooting of the Pentruder HF-power pack and HF-motor please refer to the Operator's Manual for those products.

For the machine to remain in a condition which is safe for operation at all times, certain maintenance is needed.

6.1 System clean-up



Important!

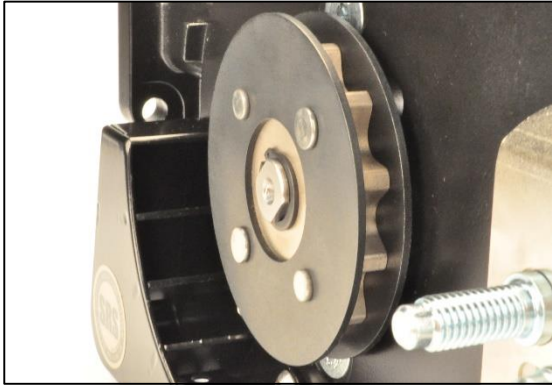
- The machine should be carefully cleaned and all functions checked and found normal before use of the machine. If a high pressure cleaner is used, the nozzle may NOT be pointed at any of the rotating parts or connectors on the machine.
-

- After cutting, run the saw for at least 15 seconds with the water on to flush slurry and debris from diamond chain, guide bar and drive sprocket.
- Wash concrete slurry from saw assembly.
- Remove guide bar and chain. Flush out the chain tensioner and side cover with water. Lubricate tensioner with grease.
- After cleaning the saw, spray the entire saw body, chain, guide bar, and drive sprocket with lightweight oil. Using lightweight oil on the saw will minimize rust and help reduce slurry build up.
- Inspect and tighten all fasteners as necessary.

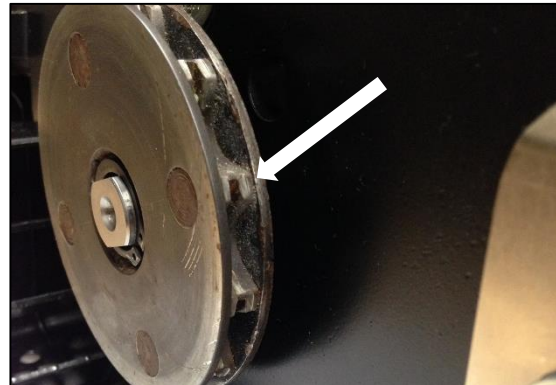
6.2 Sprocket inspection and installation

Sprocket Wear

- Inspect sprocket after each usage.
- Replace when grooves in the drive teeth are worn more than half way through (approximately every 2-3 chains) and resembles the photo on the right ("WORN SPROCKET").



New Sprocket



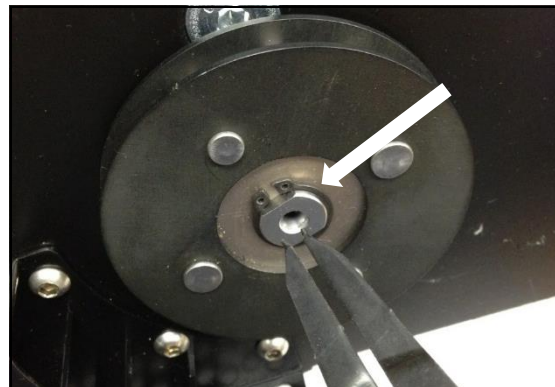
Worn Sprocket

Sprocket Installation



STEP 1

Remove snap ring
Remove sprocket
Install new/replacement sprocket
Install snap ring



STEP 2

Ensure snap ring is fully seated in snap ring groove.

6.3 Troubleshooting

PROBLEM	Possible Cause
SLOW DIAMOND CHAIN SPEED	Chain tension too tight. Diamond chain should always be able to be pulled around the guide bar by hand. It is normal for the diamond chain links to hang below the guide bar.
POOR CUTTING SPEED	Diamonds may be glazed over. Make a few cuts in an abrasive material to expose the diamonds.
PREMATURE CHAIN STRETCH	Not enough water pressure. The minimum water pressure required is 1.5 bar (20 psi). Insufficient water supply may result in excessive wear to the diamond chain, which can lead to loss of strength and diamond chain breakage.
	A worn sprocket on new chain can cause drive link damage, wear and chain stretch.
CHAIN TENSIONER BREAKAGE	Side cover nut is not tight enough. Torque to 27 Nm (20 ft-lbs).
WATER NOT FLOWING	Water hose is kinked or water supply not turned on
	Water ports in guide bar plugged with debris
DIAMOND CHAIN BREAKAGE	Improper chain tension
	Inserting saw into slot narrower than diamond chain segments
	A worn sprocket can allow the chain to jump over the sprocket tooth causing excessive stretch, stress and possible chain breakage.
	Not enough feed pressure while cutting. Avoid letting the saw bounce and chatter.

6.4 Transport and storage of the machine

- Disconnect the cable from the Pentruder CW630 before transporting the machine.
- Make sure no unauthorized persons can get access to the machine when in transport and storage.
- If there is a risk of freezing, the machine has to be drained from water. Place the Pentruder CW630 on a flat surface with chain side down with the hose disconnected and open for the chain saw to drain itself.
- Drainage of the Pentpak HF-power pack, please refer to the Operator’s Manual for detailed instructions. See also instruction below.
- Store the machine in a dry place, preferably above freezing temperature.
- For transport and storage of the Pentpak HF-power pack please refer to the Operator’s Manual for that product.



In sub zero temperatures, and if electrical power to the unit is not available, blow with compressed air or an air pump in this coupling to remove water from the heat sink and tubing inside the power pack.

7 Technical Data

For technical data for the Pentruder HF-power pack please refer to the Operator's Manual for that products.

	Pentruder CW630-HF Chain Saw
RECOMMENDED GENERATOR SIZE	See Operator's Manual for HF-drive system.
WATER FITTING	Tema series 1800
LENGTH	58.5 cm (23 in)
HEIGHT	26.5 cm (10.5 in)
WIDTH	24 cm (9.5 in)
WEIGHT	15 kg (33 lbs)
WATER COOLING	Min. 4 litres (1 gallon) of cool water per minute at full power output. Water pressure: Min 1.5 bar (20 PSI) Max 6 bar (90 PSI)
NOISE LEVEL (SOUND PRESSURE LEVEL)	94 dB @ 1 m (3 ft) (Kpa=3dB)
NOISE LEVEL (SOUND POWER LEVEL)	103 dB @ 1 m (3 ft) (Kwa=3dB)
VIBRATION	2.4 m/sec ² (front handle) (Uncertainty K=1.5 m/sec ²) 4.5 m/sec ² (rear handle) (Uncertainty K=1.5 m/sec ²)
TORQUE	13.0Nm (9.5 ft-lbs)
HORSEPOWER	9.0 kW (12.0 hp)

7.1 Approximate cutting rates

MATERIAL	Cutting rate
CONCRETE – 15 cm (6 in)	12 cm/min (5 lineal in/min)
RED BRICK – 15 cm (6 in)	25 cm/min (10 lineal in/min)
REBAR - #4 (12 mm)	10–20 seconds through each piece Rebar must be encased in concrete, NEVER cut bare rebar with a Diamond Chain.