



# CHAIN SAW OPERATOR MANUAL

## **MODEL HCH50**

SEPT 2014

Part# 1801446



## **Table of Contents**

<b>Description</b>	<b>Page No.</b>
1. Product description	
Main Components .....	4
Usage Information .....	5
Technical Data .....	6
2. Safety Instructions	
General .....	8
Safety Principles .....	9
General Safety Rules .....	10
Personal Protective Equipment .....	11
Information and Symbols .....	12
General Warnings .....	13
Responsibility .....	14
3. Design and Function	
Overview .....	16
Chain Saw Unit .....	16
Chain Saw Bar .....	17
Diamond Chain .....	19
4. Controls and Display	
Controls .....	21
Displays .....	21
5. Operation	
General .....	22
System Requirements .....	26
Preparatory Operations .....	26
Working with the HCH50 Chain Saw .....	31
After Use .....	33
6. Maintenance	
General .....	34
Maintenance and Service Table .....	36
7. Servicing	
General .....	38
Tensioning the Diamond Chain .....	40
Changing the Diamond chain .....	41
Changing the Bar .....	42
Changing the Drive .....	43
Troubleshooting .....	44
8. Taking out of service and storage	
General .....	46
Storage .....	47
9. Transport	
Transporting the HCH50 .....	48

# 1 Product description

## The HCH50 Chain Saw

### Main Components

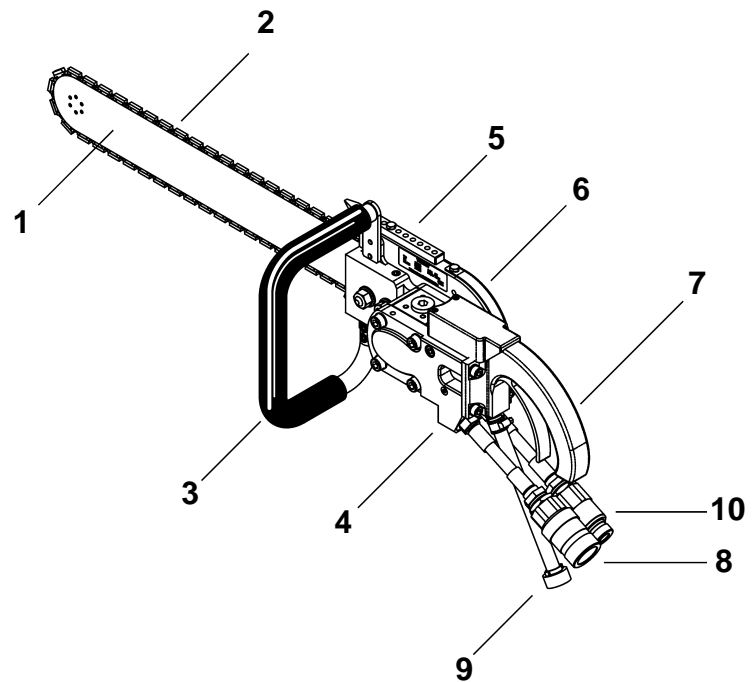


Fig. 1-1 Main components

- |                   |                       |
|-------------------|-----------------------|
| 1 Bar             | 7 Rear Handle         |
| 2 Chain           | 8 Coupling FD (flow)  |
| 3 Front handle    | 9 Water Hose Assembly |
| 4 Valve block     | 10 Nipple FD (return) |
| 5 Cutting mandrel |                       |
| 6 Chain guard     |                       |

## Usage Information

### Intended purpose

The HCH50 Chain Saw is designed and built for the following applications:

- Cutting of concrete (including reinforced), masonry and natural stone
- Cutting of severance cuts, flush cuts and cross-cuts in ceilings, floors and walls
- Only original Diamond Products Chain should be used

### Safety measures

Any use other than for the intended purpose constitutes improper use or misuse.

Since improper use or misuse can result in considerable danger, here are some examples of what we believe constitute improper use or misuse.

#### **The following applications are prohibited:**

- Cutting without the safety devices provided
- Cutting wood, glass and plastics
- Cutting without system and tool cooling
- Cutting in explosion-protected areas
- Cutting loose parts
- Incorrect or absence of waste water disposal (saw sludge)

### Workplace Safety

Allow enough room for maneuvering to ensure danger-free working.

Make sure you have sufficient lighting at your workplace.

Clearly cordon off the danger area so that no person can enter the danger area during sawing.

The front, underneath and rear of the sawing area must be protected so that persons or equipment cannot be harmed by falling objects, concrete slurry, or by the protruding cutting tool.

Secure pieces of concrete that have been loosened to prevent falling.

Breathing in the water vapor that is created is a health hazard. Ensure adequate ventilation in sealed-off areas.

The slurry resulting from cutting is slippery. Remove the slurry or ensure that you or other people do not slip on it.

## Technical data

### HCH50 Chain Saw

- Can be used with any hydraulic actuator (use a flow divider with pressure limiter > 11 gpm or > 2000 psi)
- Flush cutting possible without removing the protective cover

#### Hydraulic system

Maximum pressure	2,000 psi
Maximum flow	12 gpm
Hydraulic hose	Length 6.5ft

#### Water

Minimum working pressure	36 psi
Minimum flow	2 gpm

#### Weight

**HCH50 Chain Saw** with bar and chain 23 pounds

#### Dimensions of the HCH50 Chain Saw

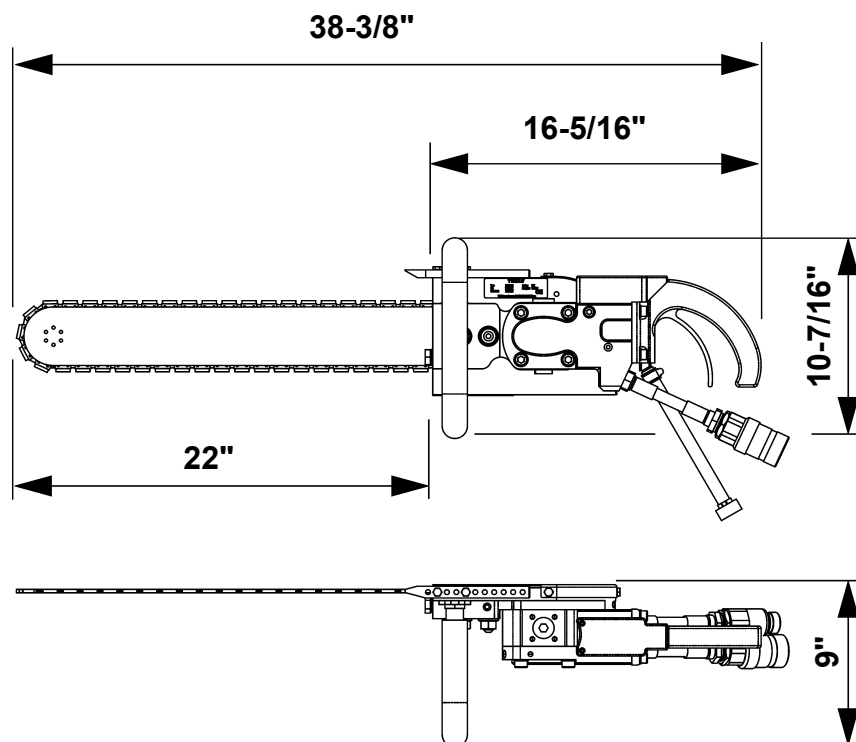


Fig. 1-3 Dimensions of HCH50 Chain Saw

## Noise level

Depending on the working environment, the **HCH50 Chain Saw** can cause excessive noise during operation.

The noise can permanently harm the hearing of operating personnel and of other people nearby within a short time.

**Ear protection must therefore always be worn while working.**



### **Danger**

#### **Noise danger**

**When using the HCH50 Chain Saw hearing protection must be worn.**

**If this instruction is not followed irreparable hearing damage may result.**

## **2 Safety instructions**

### **General**

#### **Target audience**

This chapter describes the safety instructions that are essential to follow when using the HCH50 Chain Saw

All persons who work on and with the HCH50 Chain Saw, have a duty to read and understand the chapters of the Operating instructions relevant to their particular activities.

This applies in particular to the “Safety instructions” chapter which is mandatory for all persons and activities.

#### **Observance of the safety instructions**

No work must be performed on or with the HCH50 Chain Saw before the safety instructions contained in the Operating instructions have been read and understood. The Operating instructions are mandatory for all work – abridged instructions should only be used in the form of checklists.

The HCH50 Chain Saw has been inspected before being shipped and is delivered in perfect condition. Diamond Products does not accept any liability for damage caused by the failure to observe the instructions and information provided in the Operating instructions. This applies in particular to:

- Damage caused by improper use and operator error.
- Damage caused by failure to observe safety-related information in the Operating instructions or shown on the warning signs fitted to the machine.
- Damage caused by defective or absence of maintenance work.

Independently performed conversions and alterations may affect safety and are not permitted.

#### **Use for intended application**

The intended application is described in chapter one.

#### **Observance of workplace safety and the danger area**

The workplace and danger area are described in chapter one.



## **Safety principles**

### **Safety Boundaries**

The HCH50 Chain Saw has no effect on the safety concept of the connected systems, apparatus and installations.

### **Safety elements**

Protection from personal injury is based primarily on a safety concept and design safety.

### **Passive safety elements**

#### **Protection from live parts**

All functional units that contain parts which carry hazardous voltages, are shock-protected by suitable covers.

### **Removing protective devices**

Protective devices should only be removed when the device is turned off, disconnected from the mains and at a standstill. Safety components in particular should only be removed and refitted by authorised personnel.

Before using the HCH50 Chain Saw again, the safety elements must be checked for correct operation.

## **Safety measures (organisational)**

### **Product monitoring obligation**

Operating personnel must notify changes in the operational behaviour or safety-related components to a responsible person or the manufacturer immediately.

### **Location of Operating instructions**

A copy of the Operating instructions must be available at all times to staff where the HCH50 is in use.

## **General safety rules**

### **Statutory provisions**

The generally applicable national and local safety and accident prevention provisions and the supplementary operator regulations must be followed and complied with.

### **Inspection and maintenance obligation**

The operator is under an obligation to only use the HCH50 Chain Saw when it is in a perfect and undamaged condition. The maintenance intervals shown in the Operating instructions must be adhered to without fail. Malfunctions and mechanical damage must be rectified without delay.

### **Spare parts**

Only Diamond Products original spare parts should be used. Otherwise damage may be caused to the HCH50 Chain Saw or to other property and persons.

### **Power connections**

The HCH50 Chain Saw must be connected and coupled to the drive assembly used in accordance with the Operating instructions.

### **Modifications**

No technical alterations should be made to the apparatus in the form of additions or conversions without the written consent of Diamond Products

### **Safety instructions in the individual chapters**

The chapters of these Operating instructions contain additional safety instructions. These make reference to specific potential dangers (residual dangers). The instructions must be followed closely and require that the actions described are taken.

## Personal Protective Equipment

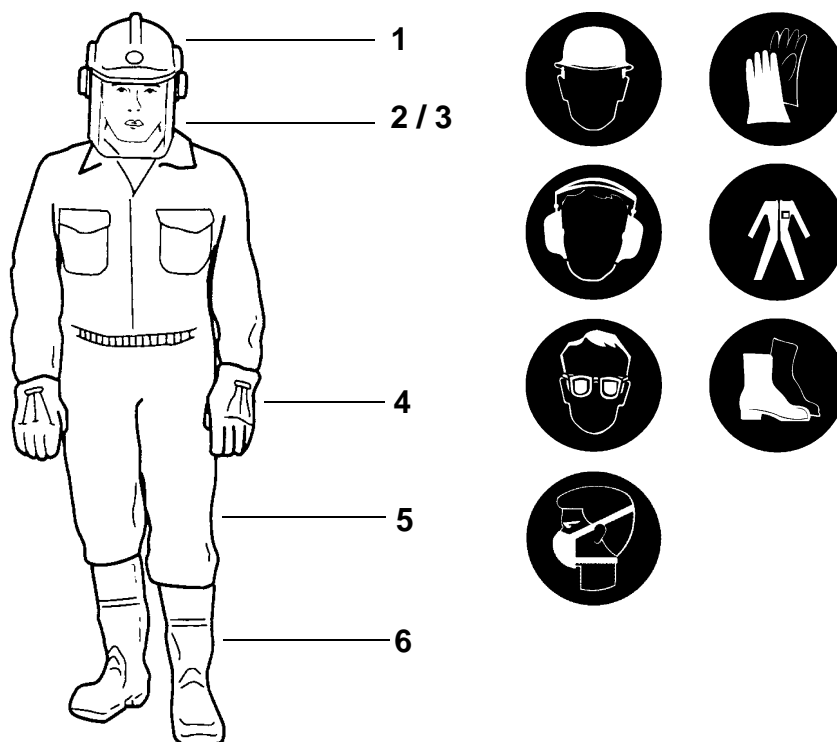


Fig. 2-1 Personal Protective Equipment

- |                               |   |
|-------------------------------|---|
| 1. Helmet with ear protectors | 5. Waterproof, sturdy, comfortable clothing         |
| 2. Visor or goggles           | 6. Work boots with steel toecaps and non-slip soles |
| 3. Breathing mask             |   |
| 4. Waterproof gloves          |   |

Personal Protective equipment must always be worn when drilling, sawing, hammering or compressing concrete or stone in order to protect against the following dangers:

Sources of danger	Safety clothing
Falling parts:	Helmet, steel-capped safety shoes
Moving, sharp-edged parts:	Safety gloves
Flying pieces of concrete and stone, flying sparks:	Goggle or helmet with visor
Slipping:	Anti-slip shoes
Noise	Ear protectors
Contamination of respiratory tracts	Respiratory mask

## Information and symbols

In these Operating instructions information panels are used to draw attention to residual dangers and to point out important technical requirements.

### Danger symbols in the Operating instructions



#### **Danger**

**Warning of danger, where failure to comply could lead to death or serious injury.**



#### **Warning**

**Warning of danger, where failure to comply could lead to injury or damage to property.**

Fig. 2-2 Danger and warning notices

### Information symbol



#### **Information**

Text displayed in this way is practical information and is aimed at achieving optimum use of the installation or apparatus. Failure to take note of this information may mean that the performances shown in the technical data can no longer be guaranteed.

Fig. 2-3 Information notice

## General Warnings

The following warnings shown are generally applicable to all work (with and on the saw systems and during all phases of the life of the systems).



### Danger

**Electric shock due to defective electronic equipment.**

The electrotechnical equipment must be checked prior to each use and from time to time during prolonged usage. Defective parts such as cables and plugs must be exchanged by electrotechnically trained personnel in the powered down state.

Failure to comply with this regulation may lead to serious physical injury or death. Secondary damage such as fires may also occur.



### Warning

**Danger from sharp tool edges.**

Touching a tool while it is still in motion is prohibited.

When touching tools at a standstill it is recommended that protective gloves are worn.

Failure to adhere to this regulation may result in personal injury.



### Warning

**Danger of allergic reactions if skin comes into contact with hydraulic oil.**

Persons who have an allergic reaction to hydraulic oil must wear protective gloves and goggles when carrying out work where they come into contact with hydraulic oil. Any areas of the skin affected must be rinsed immediately with copious amounts of water.

Failure to adhere to this regulation may result in allergic reactions or injuries.

## Responsibility

### Authorised personnel

Work on or with **Diamond Products** machines or systems should only be performed by authorised personnel. Personnel are considered by **Diamond Products** to be authorised if they meet the necessary training and know-how requirements and they have been assigned a precise functional role.

The personnel qualifications for the corresponding work are contained in the introduction under "General" of the respective chapters.

### The manufacturer

Diamond Products or a company expressly nominated by Diamond Products is deemed to be the manufacturer of the products supplied by Diamond Products. Within the context of an integrated quality and safety control system the manufacturer is entitled to request from the operator information on the products.

### Operator

The operator named by Diamond Products is the primary, legal entity responsible for the correct use of the product and for the training and use of the authorised personnel. The operator sets out the mandatory skills and level of training of the authorised personnel for his company.

### Operative (user)

User is the term employed by Diamond Products to designate a person who independently performs the following work:

- Setup Diamond Products machines or systems for tasks according to the intended purpose.
- Performs tasks independently and monitors these.
- Locates malfunctions and initiates or performs troubleshooting.
- Carries out servicing and simple maintenance.
- Observes the correction functioning of the safety devices.

### Service engineers

Service engineer is a term used by Diamond Products to designate a person who independently performs the following work:

- Installs Diamond Products machines and systems and controls their correct application.
- Makes adjustments to machines and system for which special access rights are required.
- Performs repairs, complex service work and corrective work.

## **Qualification and training**

### **Operator**

- A technical trained person in a specialist role.
- Has extensive experience in personnel training and danger assessment.
- Has read and understood the “Safety instructions” chapter.

### **User**

- Has completed concrete expert training or has professional experience.
- Has received an introduction (basic training) to operation of the HCH50 Chain Saw from a service engineer.
- Has read and understood chapter 2 “Safety instructions”.

### **Service engineers**

- Specialist professional training (mechanical / electrotechnical).
- Has attended specialist courses at Diamond Products.
- Has read and understood the “Safety instructions” chapter.

### 3 Design and function

#### Overview

The HCH50 Chain Saw is comprised the following components.

- Chain Saw unit
- Chain Saw Bar
- Diamond chain
- Chain guard (Safety component)

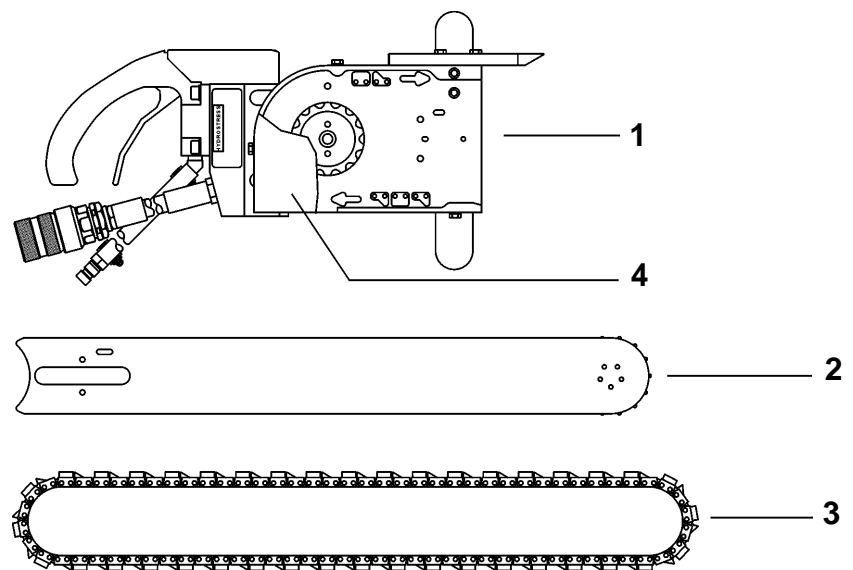


Fig. 3-1 HCH50 Chain Saw design

1. Chain saw unit
2. Bar
3. Diamond chain
4. Chain guard

#### Function

The overall function of the HCH50 Chain Saw remains exactly the same. The HCH50 Chain Saw is powered by a hydraulic drive assembly. The chain is driven by the hydraulic motor incorporated into the chain saw unit. The driven chain is inserted into the material to be cut.



## Component description

### Chain saw unit

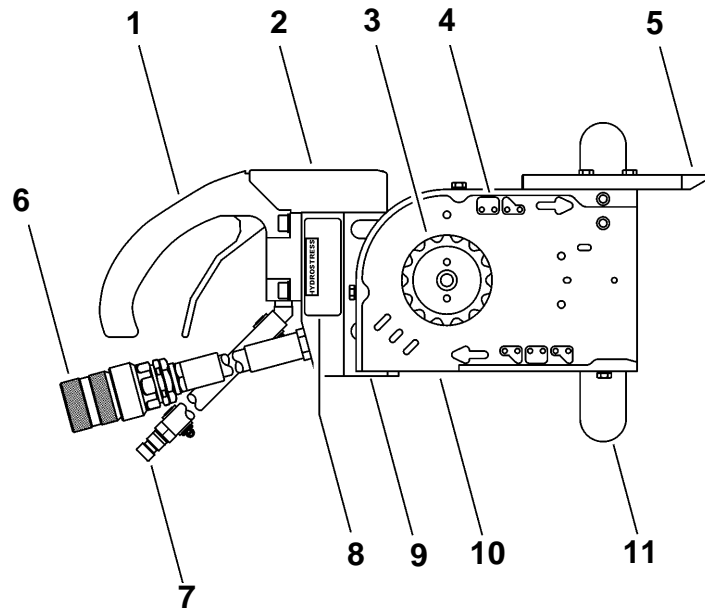


Fig. 3-2 Chain saw unit

- |   |                     |
|---|---------------------|
| 1. Operating handle with manual starter | 7. Water connection |
| 2. Water level housing                  | 8. Name plate       |
| 3. Drive wheel                          | 9. Valve block      |
| 4. Fitting aid (chain-engraving)        | 10. Chain guard     |
| 5. Cutting mandrel                      | 11. Front handle    |
| 6. Hydraulic connection                 |                     |

### Function

The chain saw unit is the central component of the HCH50 Chain Saw. The chain saw unit incorporates the drive motor and the operating handle and front handle for using the HCH50. The unit along with its valve block and the hydraulic and water connections also constitutes the interface with the power source (drive assembly).

## Chain Saw Bar

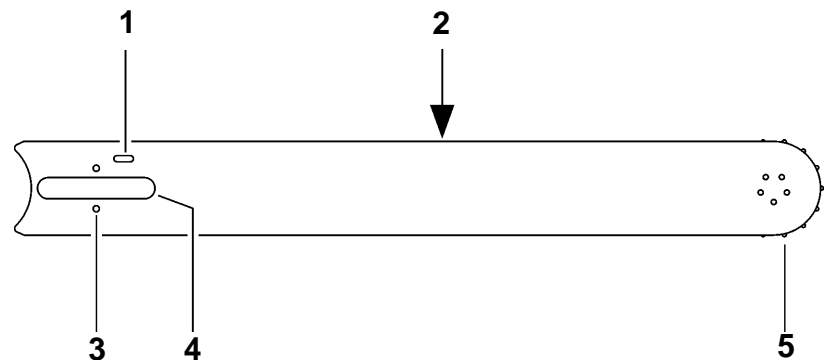


Fig. 3-3 Bar

- |  |                     |
|--|---------------------|
| 1. Water inlet                               | 4. Assembly opening |
| 2. Chain guide                               | 5. Reversing wheel  |
| 3. Assembly bore hole<br>for chain tensioner |                     |

## Function

The bar is securely fixed to the chain saw unit. The chain runs and is guided on the bar. The bar provides lateral support for the chain. The cutting pressure is absorbed via the bar.



### Information

The bar serves solely to guide the diamond chain. Never use the bar as a lifting tool or a crow bar.

## Diamond chain

### Dimensions of a new chain

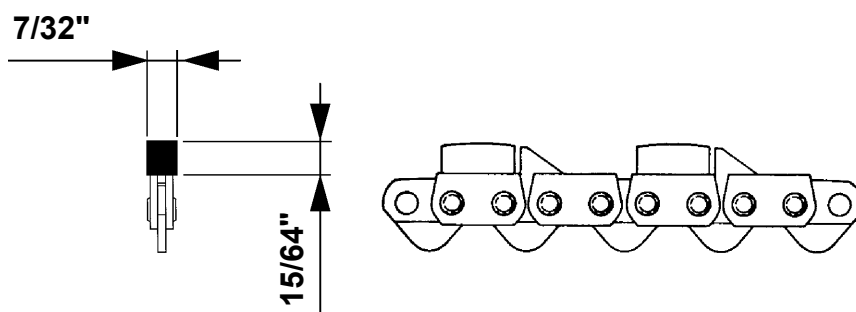


Fig. 3-4 Dimensions of new chain

### Dimensions of a worn chain

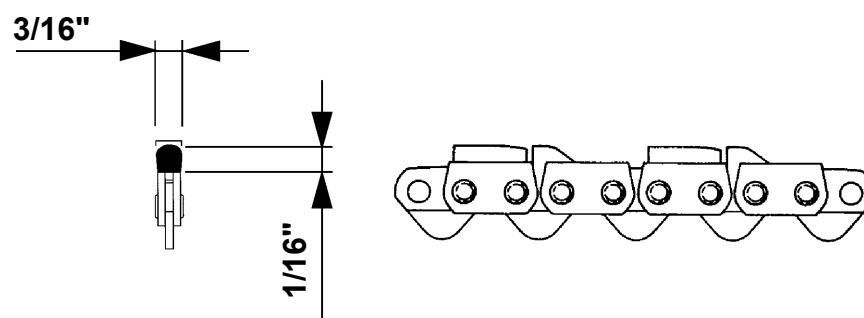


Fig. 3-5 Dimensions of worn chain



## Danger

**When working with a worn chain there is a danger of the chain breaking.**

**A worn chain must be replaced by a new chain.  
Do not take any notice of the fact that some segments are not completely worn.**

**Failure to comply with this regulation may lead to serious physical injury or death.**

### Direction of travel and position of diamond chain

Ensure the correct position and direction of travel when fitting a chain. The engraved mark on the chain saw unit is intended as a fitting aid.

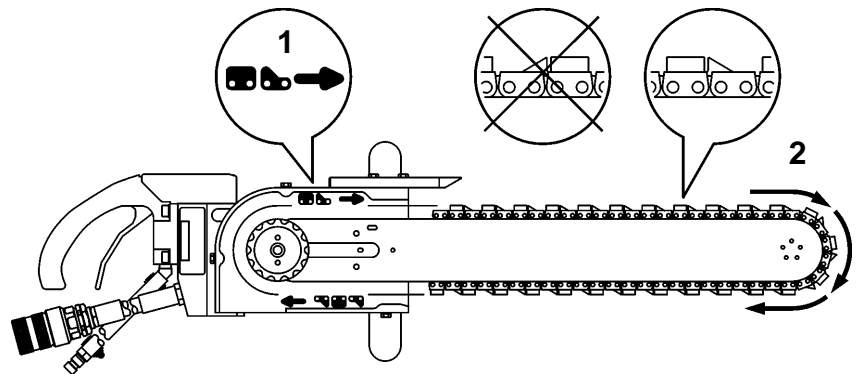


Fig. 3-6 Diamond chain position and direction of travel

1. Fitting aid (engraving)
2. Chain direction of travel



## Danger

**Working with an incorrectly fitted chain will reduce the lifetime of the chain and there is a danger of the chain breaking.**

**Insert the chain correctly according to the engraved mark.**

**Failure to comply with this regulation may lead to serious physical injury or death.**

### Function

The diamond chain constitutes the tool for the HCH50 Chain Saw. It is with the help of the chain that the cut is performed.

## 4 Controls and displays

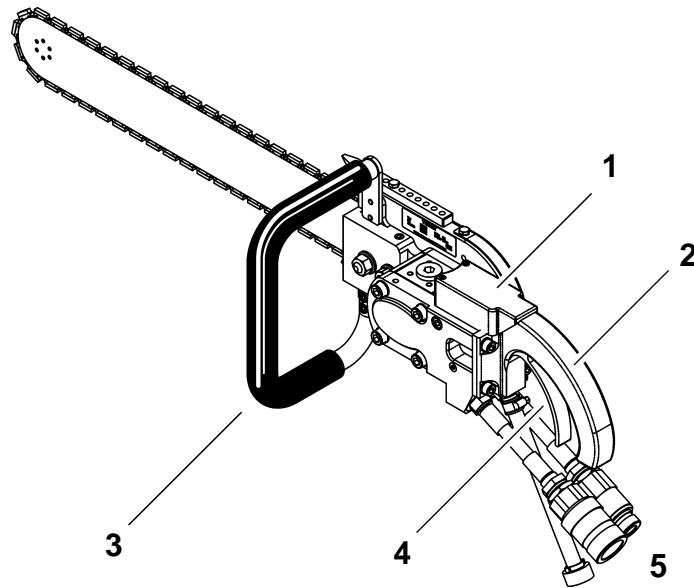


Fig. 4-1 Controls

- |                        |   |
|------------------------|---|
| 1. Water level housing | 4. Operating handle with manual starter |
| 2. Locking cut-out     | 5. Couplings                            |
| 3. Front handle        |   |

### Controls

#### Locking cut-out

Pressing the locking cut-out enables the ON/OFF function. This cut-out ensures secure locking of the HCH50 Chain Saw

#### Front handle

The front handle is used to hold and carry the HCH50 Chain Saw.

#### Operating handle with manual starter

The operating handle with manual starter is secured by the locking cut-out against unintentional activation. This must be operated before the HCH50 Chain Saw can be switched on.

#### Couplings

The HCH50 Chain Saw is connected to the power source (power unit) and water source via the couplings.

### Displays

#### Water level housing

The water level housing contains three bubble levels for alignment and control of the direction of cut.

## 5 Operation

### General

Before proceeding read Chapter 2, "Safety instructions". Take note of all danger information given in this operator manual and follow the instructions to avoid physical injury and damage to property.

### Safety instructions

It is essential to observe the following safety instructions, in particular in relation to the operation of the HCH50.



#### **Danger**

**Danger of falling heavy parts.**

**When performing the types of work described in this chapter, it is essential to wear the following individual protective equipment: helmet, goggles, protective gloves and safety shoes. (See Chapter 2)**

**It is essential that the work instructions and procedures described in this safety manual are followed.**

**Failure to observe this regulation may lead to serious physical injury, property damage, and possibly even death.**



#### **Danger**

**Danger from machine suddenly starting up.**

**Before switching on the HCH50 Chain Saw the operator must ensure that no other person is present in the danger areas.**

**Failure to observe this regulation may lead to serious physical injury, property damage, and possibly even death.**



#### **Danger**

**When working with a worn chain there is a danger of the chain breaking.**

**Worn chains must be replaced with new ones.**

**Failure to comply with this regulation may lead to serious physical injury or death.**



## Danger

Working with an incorrectly fitted chain will reduce the lifetime of the chain and there is a danger of the chain breaking.

Use the fitting aid (chain engraving) to correctly insert the chain.

Failure to comply with this regulation may lead to serious physical injury or death.



## Danger

Noise danger

When using the HCH50 Chain Saw hearing protection must be worn.

If this instruction is not followed irreparable hearing damage may result.



## Danger

Danger from uncontrolled movements

When the HCH50 Chain Saw is switched on, always hold it with both hands using the handles. Thumbs and fingers must be closed around the handles. Otherwise you may lose control of the Chain Saw. Handles must always be clean and dry.

Failure to observe this regulation may lead to serious physical injury, property damage, and possibly even death.



## Danger

Danger from working at excessive chain speed or with insufficient water feed.

This can lead to excessive wear of the chain, which in turn can result in loss of stability and the chain breaking.

Operate the HCH50 Chain Saw at the correct speed and with sufficient water feed.

Do not exceed a hydraulic flow of 45 l / min and 140 bar. The working pressure of the water should be a minimum of 2.5 bar and the flow a minimum of 7.5 l / min.

Failure to observe this regulation may lead to serious physical injury, property damage, and possibly even death



## **Danger**

**Danger from segments or stone chips flying off from the tool.**

**The danger area must be properly secured.**

**Failure to observe this regulation may lead to serious injury to body parts, and possibly even death.**



## **Danger**

**Danger of the HCH50 Chain Saw restarting in the event of an accident**

**Ensure that you can quickly stop the HCH50 Chain Saw (see Emergency Stop in the Operating instructions of the drive assembly you are using).**

**Failure to observe this regulation may lead to serious physical injury, property damage, and possibly even death**





## Warning

### Warning of slippery floors

The water feed and abrasion can make standing surfaces smooth and slippery. You should therefore always ensure you have a firm footing.

Failure to adhere to this regulation may result in personal injury.



## Warning

### Warning against working when not in a fit state to do so.

Do not use the HCH50 Chain Saw if you are under the influence of sedatives, alcohol or if you are overtired.

Failure to adhere to this regulation may result in personal injury.

## Personnel qualifications

The HCH50 Chain Saw should not be operated by unauthorised personnel. Personnel are only authorised where they meet the following requirements.

- Completion of concrete expert training or having professional experience.
- Receipt of an introduction (basic training) to the operation of the HCH50 Chain Saw from a service engineer.
- Have read and understand this operator manual.

## System requirements

In order to use the HCH50 Chain Saw, a hydraulic drive assembly is needed.

Drive assembly power requirements:

Minimum power:	Minimum flow 9.25 gpm Max. pressure 2,000 psi
Maximum power:	Maximum flow 12gpm Max. pressure 2,000 psi

If the basic power of the drive assembly used is higher, a flow divider / pressure limiter or a pressure relief valve can be used.

Operation of the individual system components is described in the corresponding Operating instructions.

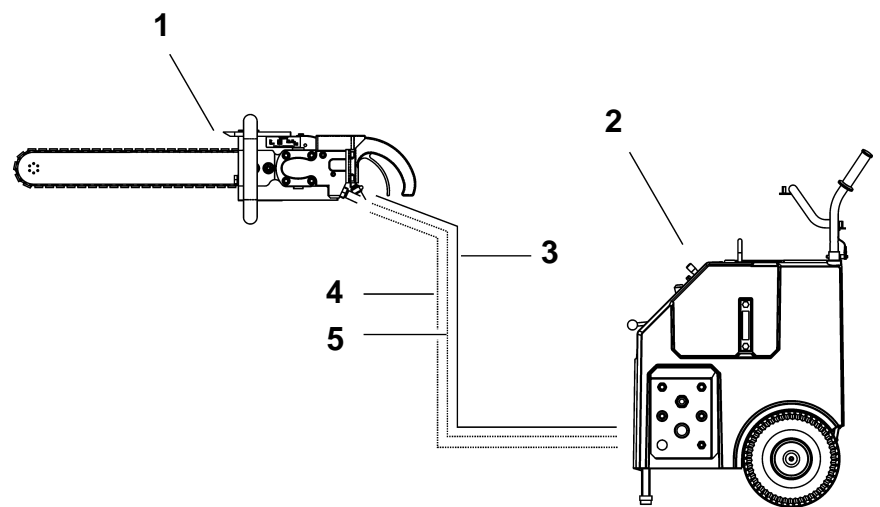


Fig. 6-1 HCH50 Chain Saw with drive assembly

- |                               |                              |
|-------------------------------|------------------------------|
| 1. HCH50 Chain Saw            | 4. Main oil circuit (inlet)  |
| 2. Drive assembly             | 5. Main oil circuit (outlet) |
| 3. Water feed (cooling water) |                              |

## Preparatory operations

**Always proceed as follows:**

- Sort out fundamental conditions
- Securing the site
- Securing cutouts
- Decide on position and sequence of the cuts
- Perform a visual inspection of the HCH50 Chain Saw
- Connect the HCH50 Chain Saw to the drive assembly

## Sawing Conditions

- Determine the position of pipes and cables in walls, floors and ceilings.
- Where does the cooling water used for sawing flow to? (Think about water damage to the electrical supply).

## Securing the site

- See “Chapter 1” Workplace and danger areas.

## Securing cutouts

Secure cutouts from walls and especially from ceilings and floors by suitable means, e.g. crane, supports, etc.

**Check the weight of concrete. ( $1\text{ft}^3 = 150\text{lbs}$ )**

## Decide on position and sequence of the cuts

### Position of cuts

Find out about the concrete or masonry to be sawed:

- Where does the reinforcement run?
- Is the concrete heavily or lightly reinforced?

Cut across the reinforcement if possible.

### Cutting sequence

Decide on the sequence of cuts before starting work. For example, for a window cutout carry out the bottom cut first, then the side cuts, and finally the top cut.

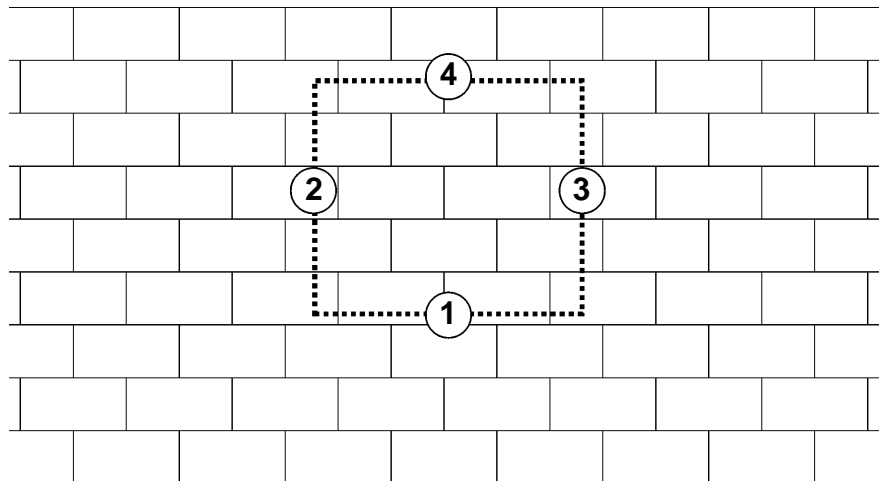


Fig. 6-2 Sequence of cuts for a window cutout



### Information

The wrong sequence of cuts can lead to jamming of the bar or damage to the chain.

## Perform a visual inspection of the HCH50 Chain Saw

### Check the chain tension

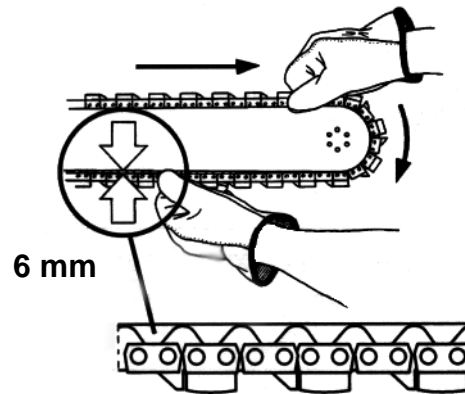


Fig. 6-3 Chain tension

- The chain tension is correctly set if with a moderate pull the chain can be pulled away from the bar by a maximum of 1/4"
- It must be possible to turn the chain one full rotation with ease by hand.

**For chain tensioning see “Chapter 7”**

### Check the diamond chain for wear

If chain is worn see “Chapter 3”

**To replace the chain see “Chapter 7”**

### Check the bar for wear

- The bar has been designed so that both sides can be used for working. Rotate the bar if one side is worn.

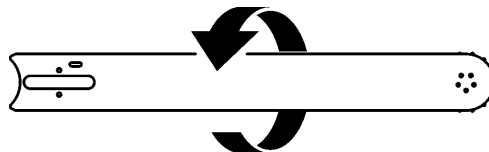


Fig. 6-4 Rotating the bar

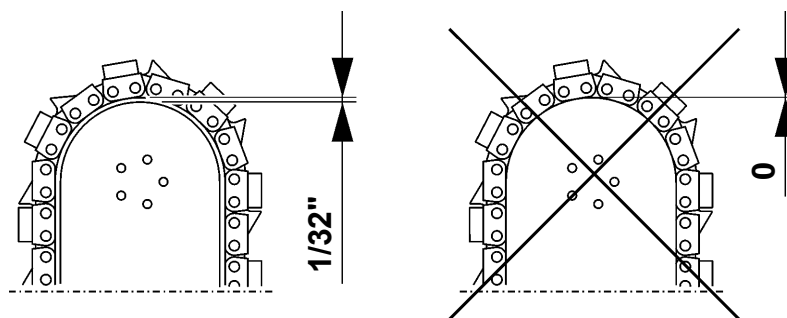
**Check the reversing wheel on the bar for wear**

Fig. 6-5 Worn reversing wheel

When the reversing wheel is in the new condition the distance between the chain and bar edge is 1/32". If the chain is running on the bar edge, the reversing wheel must be changed.

**Connecting the HCH50 Chain Saw****Connecting the hoses****Warning**

**Danger from uncontrolled movements of the HCH50**  
**Never connect or disconnect hoses when the unit is running.**  
**Failure to adhere to this regulation may result in personal injury and property damage.**

**Warning**

**Danger from uncontrolled escaping of oil.**  
**Never connect or disconnect hoses when the unit is running.**  
**Failure to adhere to this regulation may result in personal injury and property damage.**

## Hose connections

Before connecting, check couplings, the HCH50 and feed lines for cleanliness.

The following hose connections must be established:

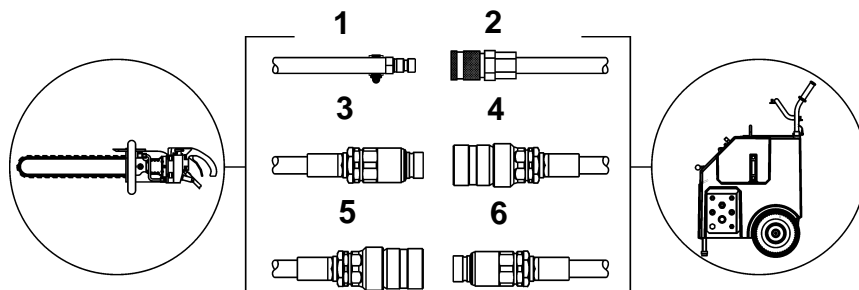


Fig. 6-6 Hose connections

HCH50 Chain Saw Hoses	Drive assembly hoses
Water inlet (1) (Coupling – male connector)	Water outlet (2) (Coupling – female connector)
Return (3) (Coupling – male connector)	Main circuit oil return (4) (Coupling – female connector)
Flow (5) (Coupling – female connector)	Main circuit oil flow (6) (Coupling – male connector)

### Proceed as follows:

- Visual inspection  
Check:
  - Oil leaks from hoses and couplings
  - Couplings for damage and contamination
  - Hoses for damage
- Push the hose coupling onto its counterpart until you hear it "click"
- Twist the locking ring of the coupling



### Information

If the hoses cannot be connected or this cannot be done easily, they are under pressure. Depressurise the hoses by means of the pressure relief.

**Never use force couplings to connect.**

## Working with the HCH50 Chain Saw

Following the preparatory operations, see "Chapter 6".  
The HCH50 Chain Saw is ready for use.

### Areas of use

The HCH50 Chain Saw is suited to the following cutting work:

- Small cutouts / cutting throughs
- Flush cuttings
- Narrow corner cuts
- Irregular shaped cuts

### Starting the HCH50 Chain Saw

**Always proceed as follows:**

- Start the drive assembly (see Operating instructions for the drive you are using).
- Open the water valve on the drive assembly and check the water outlet on the HCH50 Chain Saw



#### Information

The water outlet on the HCH50 Chain Saw is released by pressing the locking cut-out and the manual starter.

- Set the required operating pressure.
  - Maximum flow 12gpm.
  - Max. pressure 2,000psi
- Hold the HCH50 Chain Saw securely with both hands
- Press the locking cut-out and operate the manual starter
- Check the direction of travel of the chain (if this direction of travel of the chain is wrong, connect the HCH50 Chain Saw properly).
- Perform the desired cut

### Cutting sequence

Begin the cutting work taking into account the instructions of "Chapter 6", Position and sequence of cuts.

## Working with cutting mandrel

The cutting mandrel (1) has been developed as a mechanical aid that can be used for horizontal and vertical cuts.

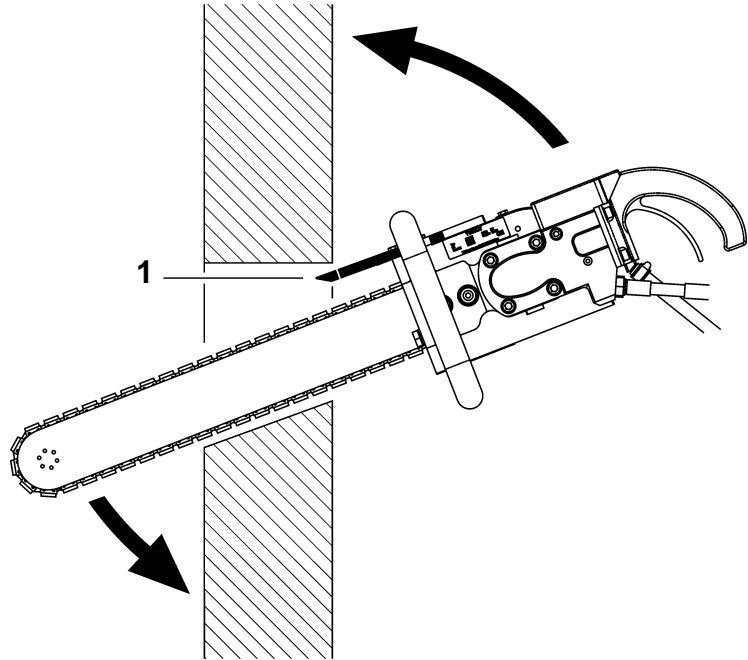


Fig. 6-7 Cutting mandrel



## After Use

### Proceed as follows:

- Close off and decouple the water feed
- Blow out water from all lines
- Remove plug from mains (drive assembly)
- Uncouple hydraulic hoses
- Clean the HCH50 Chain Saw with water
- Lubricate the chain and the bar

### Chain and bar lubrication

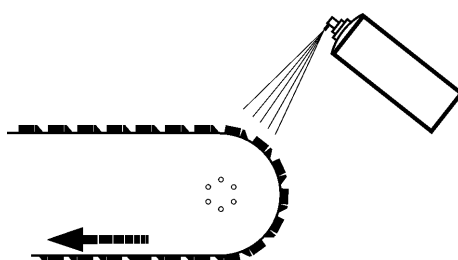


Fig. 6-8 Chain and bar lubrication

### Proceed as follows:

- After final use rinse chain and bar with water. Allow chain to run for 5 seconds without water
- Disconnect the HCH50 Chain Saw from the drive assembly
- Lubricate the chain and bar (chain spray)
- Store the HCH50 Chain Saw in the dry state



### Information

Frequent lubrication will extend the life of the diamond chain and the bar.



### Information

In order to avoid frost damage, if there is a danger of frost once work is complete or prior to extended breaks in work the entire water system must be emptied and blown out.

## 6 Maintenance

### General

Before proceeding read Chapter 2 (Safety instructions) in these Operating instructions. Be sure also to take note of all the danger information given and follow the instructions on how to avoid physical injury and damage to property.

### Safety instructions

It is essential to observe the following safety instructions, in particular in relation to the maintenance of the HCH50.



#### **Danger**

**Danger of falling heavy parts.**

**When performing the types of work described in this chapter, it is essential to wear the following individual protective equipment: helmet, goggles, protective gloves and safety shoes (see Chapter 2)**

**It is essential that the work instructions and procedures described in this safety manual are followed.**

**Failure to observe this regulation may lead to serious physical injury, property damage, and even death.**



#### **Danger**

**Danger from segments flying off from the tool.**

**In no event should diamond chains have new segments fitted by unauthorised operators.**

**Failure to observe this regulation may lead to serious physical injury, property damage, and even death.**



#### **Warning**

**Danger from uncontrolled movements of the HCH50!**

**Never connect or disconnect hoses when the unit is running.**

**Failure to adhere to this regulation may result in personal injury and property damage.**



## Warning

**Danger from uncontrolled escaping of oil.**

**Never connect or disconnect hoses when the unit is running.**

**Failure to adhere to this regulation may result in personal injury and property damage.**

### Personnel qualifications

The **HCH50 Chain Saw** should not be maintained by unauthorised persons. Personnel are only authorised where they meet the following requirements.

- Have completed concrete expert training or professional experience.
- Have received an introduction (basic training) to the operation of the **HCH50 Chain Saw** from a service engineer.
- Have read and understood chapter 2 “Safety instructions”.

## Maintenance and servicing table

The following maintenance work must be performed according to the prescribed cycles. Wear parts that are not subject to particular maintenance intervals should also be checked regularly for wear and adjusted or exchanged as necessary.

Maintain the system within the indicated intervals in order to ensure:

- Safety for the operator
- Optimum performance
- Optimum reliability at all times

		before each start-up	upon completion of work	weekly	annually	in the event of malfunction	in the event of damage
Hydraulic system	Hydraulic hose inspection (Tightness / cleanliness)	X	X			X	X
	Coupling inspection (Tightness / cleanliness)	X	X			X	X
Water economy	Water line (Tightness / cleanliness)	X	X			X	X
	Blow out water (frost hazard)		X				
Chain saw unit	Tightness / cleanliness	X	X				
	Retighten accessible screws and nuts			X		X	
Bar	Water cleaning		X				
	Lubrication	X	X				
	Check for wear	X	X			X	X
Diamond chain	Water cleaning		X				
	Lubrication	X	X				
	Chain tension	X					
	Check for wear	X	X			X	X
Major service	May only be carried out by <b>Diamond Products</b> or an authorized representative				X		

**Information**

Wear in the drive and reversing wheel / diamond chain and bar is highly dependent upon the thickness, condition and degree of reinforcement of the concrete being worked.

**Information**

In order to achieve an optimum balance between the diamond chain and the drive wheel, whenever the chain is exchanged due to wear the drive wheel should also be replaced.

**Information**

In order to achieve an optimum balance between the diamond chain and the bar, every other time the chain is exchanged due to wear the bar should also be replaced.

## 7 Servicing

### General

Before proceeding read Chapter 2 (Safety instructions) in these Operating instructions. Be sure also to take note of all the danger information given here and follow the instructions on how to avoid physical injury and damage to property.

### Safety instructions

It is essential to observe the following safety instructions when servicing the HCH50.



#### **Danger**

**Danger of falling heavy parts.**

**When performing the types of work described in this chapter, it is essential to wear the following individual protective equipment: helmet, goggles, protective gloves and safety shoes (see Chapter 2)**

**It is essential that the work instructions and procedures described in this safety manual are followed.**

**Failure to observe this regulation may lead to serious physical injury, property damage, and even death.**



#### **Danger**

**Danger from segments flying off from the tool.**

**In no event should diamond chains have new segments fitted by unauthorised operators.**

**Failure to observe this regulation may lead to serious physical injury, property damage, and even death.**



#### **Warning**

**Danger from uncontrolled movements of the HCH50!**

**Never connect or disconnect hoses when the unit is running.**

**Failure to adhere to this regulation may result in personal injury and property damage.**



## Warning

**Danger from uncontrolled escaping of oil.**

**Never connect or disconnect hoses when the unit is running.**

**Failure to adhere to this regulation may result in personal injury and property damage.**

### Personnel qualifications

The HCH50 Chain Saw should not be serviced by unauthorised persons. Personnel are only authorised where they meet the following requirements.

- Have completed concrete expert training or professional experience.
- Have received an introduction (basic training) to the operation of the HCH50 Chain Saw from a service engineer.

Have read and understood chapter 2 (Safety instructions).

## Tensioning the diamond chain

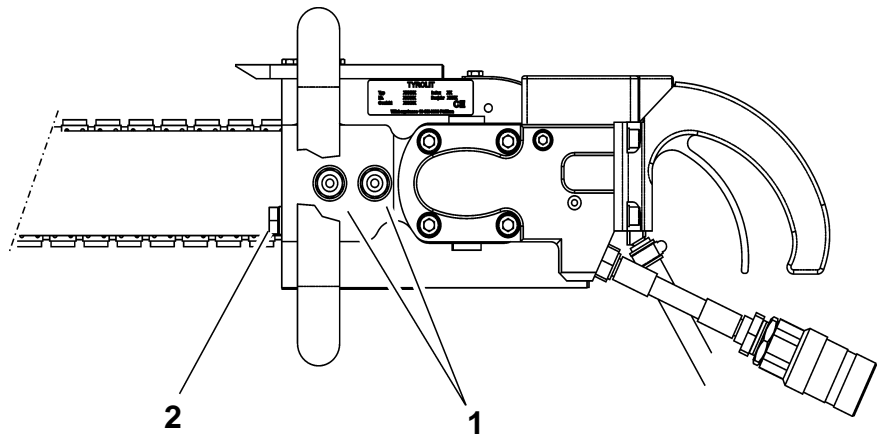


Fig. 8-1 Tensioning the diamond chain

### Proceed as follows:

To tension the diamond chain you will need the wrench supplied with the HCH50.

- Loosen both nuts (1)
- Adjust the adjusting screw (2) for the correct chain tension
- Tighten both nuts (1)

### Correct chain tension

1. The chain tension is correctly set if, in the middle of the bar, with a moderate pull the chain can be pulled away from the bar by a maximum of 1/4".
2. The chain must be able to be pulled around the bar by hand once tensioned.

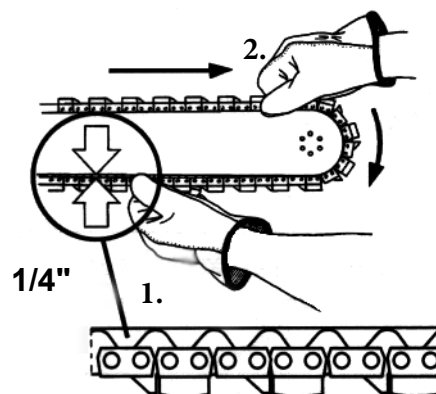


Fig. 8-2 Chain tension



## Changing the diamond chain

To change the diamond chain you will need the wrenches supplied with the HCH50.

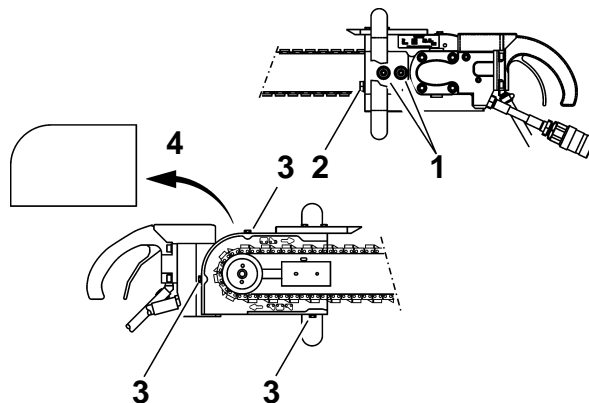


Fig. 8-3 Changing the diamond chain

## Removing the diamond chain

### Proceed as follows:

- Loosen the three chain guard securing screws (3)
- Remove the chain guard (4)
- Loosen both nuts (1)
- Release the tension in the diamond chain via the adjusting screw (2)
- Remove the diamond chain

## Fitting the diamond chain

### Proceed as follows:

- Place the diamond chain around the drive and reversing wheel and in the chain guide of the bar. Note the direction of travel and installation position of the diamond chain. (See Chapter 3)
- Tension the diamond chain (see "Chapter 8")
- Tighten both nuts (1)
- Fit the chain guard (4) with the fixing screws (3)

## Changing the bar

To change the bar you will need the wrenches supplied with the HCH50.

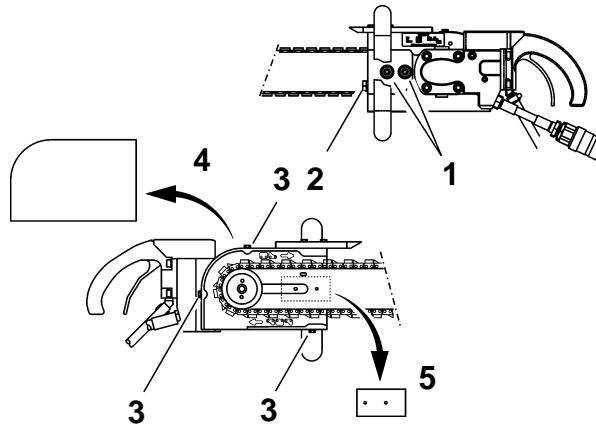


Fig. 8-4 Changing the bar

## Dismantling the bar

### Proceed as follows:

- Loosen the three chain guard securing screws (3)
- Remove the chain guard (4) and the chain bar plate (5)
- Loosen both nuts (1)
- Release the tension in the diamond chain via the adjusting screw (2)
- Remove the diamond chain
- Remove the nuts (1) from the chain bar plate (5)
- Remove the bar

## Fitting the bar

### Proceed as follows:

- Place the bar in the chain saw unit
- Fit the chain bar plate (5) and tighten nuts (1) slightly
- Place the diamond chain around the drive and reversing wheel and in the chain guide of the bar. Note the direction of travel and installation position of the diamond chain. (See Chapter 3)
- Tension the diamond chain.
- Tighten both nuts (1) with wrench
- Fit the chain guard (4) with the fixing screws (3)

## Changing the drive wheel

In order to be able to change the drive wheel you must first dismantle the bar.

To change the drive wheel you will need the wheel stop and Allen key supplied with the HCH50

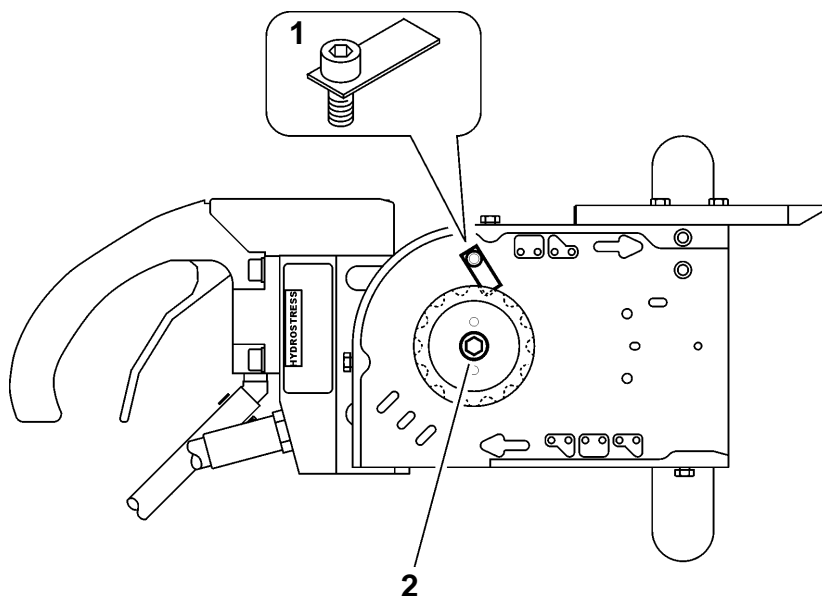


Fig. 8-5 Changing the drive wheel

### Dismantling the drive wheel

**Proceed as follows:**

- Fit the drive wheel stop (1)
- Loosen the left-hand thread Allen screw (2)  
Allen key
- Remove the drive wheel and the V-seal

### Fitting the drive wheel

- Fit the V-seal (grease the seal)
- Push drive wheel onto drive shaft
- Fit the drive wheel stop (1) and nuts (1)
- Secure the drive wheel with the Allen screw (2)  
and Loctite 243
- Remove the drive wheel stop

## Troubleshooting

Proceed systematically when looking for the causes of a fault. Refer to the operating instructions of the drive assembly you are using when doing this.

The following table will help you to narrow down and rectify the source of the fault.

Fault	Possible cause	Solution
HCH50 Chain Saw cannot be started	Drive assembly is switched off	Switch on drive assembly
	Emergency stop on drive assembly has been activated	Release emergency stop on the drive assembly
	Chain tension too high	Tension diamond chain correctly
	Reversing wheel bearing rusted or reversing wheel worn	Free-up bearing with chain spray or replace reversing wheel
	Diamond chain has excessive contact with building structure	Withdraw from cut and insert into building structure with chain running
	Drive wheel incorrectly mounted	Check drive wheel
Diamond chain broken	Loose metal or stone in building structure	Remove metal or stones or position cut at another point
	Diamond chain incorrectly assembled	Assemble diamond chain correctly (see Chapter 3)
	Diamond chain worn	Replace diamond chain (see Chapter 3)
	Chain speed is too high	Drive assembly power is too high. Use a pressure relief valve (140 bar) or a flow divider (pressure limiter 40 l/min at 140 bar).
Diamond chain seriously worn on cutting segment	Highly reinforced building structure	Cannot be removed
	Chain speed too low	Use hydraulic unit at min. 35 l/min
	Insufficient water	Min. pressure 2bar
Diamond chain vibrates heavily	Diamond chain inadequately tensioned	Tension diamond chain correctly
Diamond chain sticks in cut	Block being cut-out moves	Insert wood or steel shims in the cut so that the block no longer moves
	Incorrect cutting sequence	Observe cutting sequence (see Chapter 6)
Diamond chain can no longer be tensioned, since the chain tensioner is at its limit	Diamond chain has stretched through normal wear	Lift bar from tensioning cam A and tension using tensioning cam B

Fault	Possible cause	Solution
No water coming from the bar and diamond chain	Water line is blocked	Clean water line
	Water valve on feed line is closed	Open water valve.
	Insufficient water pressure	Ensure a minimum water pressure of 36psi and 2gpm flow
Diamond chain jumps from bar	Chain tension too low	Tension diamond chain correctly
	Worn chain guide on bar	Replace bar
	Worn chain wheels	Replace chain wheels

If you are unable to remedy a fault, please call our service centre (see manufacturer's address on the reverse of the title page).

To guarantee a rapid and professional solution to the problem, it is important that you have prepared as follows before calling:

- Try to describe the fault as accurately as possible
- Have your serial number

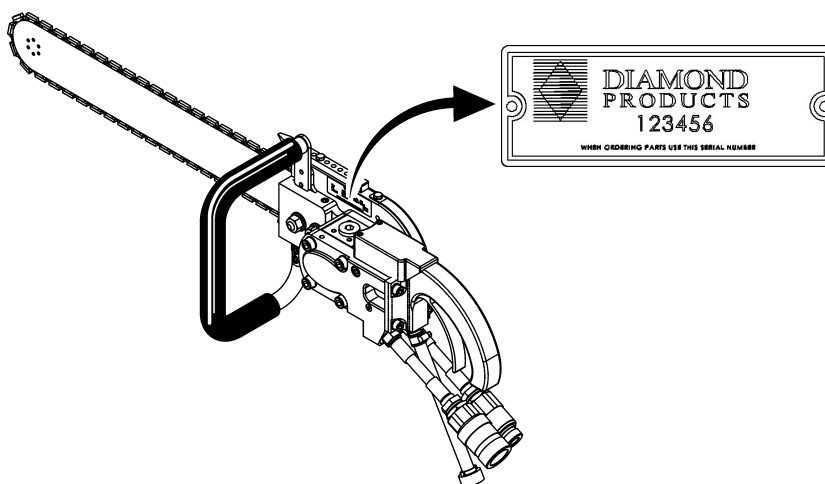


Fig. 8-6 Serial number plate location

- Have the operating instructions close to hand

## 8 Taking out of service and storage

### Taking out of service

#### General

Before proceeding, read Chapter 2, "Safety instructions" in these Operating instructions. Be sure also to take note of all the danger information given here and follow the instructions on how to avoid physical injury and damage to property.

#### Safety instructions

It is essential to observe the following safety instructions when taking the HCH50 out of service.



#### **Danger**

**Danger of falling heavy parts.**

**When performing the types of work described in this chapter, it is essential to wear the following individual protective equipment: helmet, goggles, protective gloves and safety shoes (see Chapter 2)**

**It is essential that the work instructions and procedures described in this safety manual are followed.**

**Failure to observe this regulation may lead to serious physical injury, property damage, and possibly death.**



#### **Warning**

**Danger from uncontrolled movements of the HCH50!**

**Never connect or disconnect hoses when the unit is running.**

**Failure to adhere to this regulation may result in property damage or personal injury.**



#### **Warning**

**Danger from uncontrolled escaping oil.**

**Never connect or disconnect hoses when the unit is running.**

**Failure to adhere to this regulation may result in personal injury and property damage.**

## **Personnel qualifications**

The HCH50 Chain Saw should not be taken out of service by unauthorised persons. Personnel are only authorised where they meet the following requirements.

- Have completed concrete expert training or professional experience.
- Have received an introduction (basic training) to the operation of the HCH50 Chain Saw from a service engineer.

Have read and understood chapter 2 "Safety instructions".

## **Storage**

Some components of the HCH50 Chain Saw consist of materials which may corrode. If unused for lengthy periods, take the following action:

- Blow the water out of the water lines
- Lightly oil the Bar and moving parts
- Store in a dry location

## 9 Transport

### Transporting the HCH50

Protect the HCH50 against transport damage:

- Do not place anything on or against the HCH50 Chain Saw
- Protect the HCH50 Chain Saw from impacts
- Secure the HCH50 for transport to help prevent damage



## Notes

[illegible]

## Notes

[illegible]

## Notes

[illegible]

## EQUIPMENT AND PARTS WARRANTY

Diamond Products warrants all equipment manufactured by it against defects in workmanship or materials for a period of one (1) year from the date of shipment to Customer.

The responsibility of Diamond Products under this Warranty is limited to replacement or repair of defective parts at Diamond Products' Elyria, Ohio factory, or at a point designated by it, of such parts as shall appear to us upon inspection at such parts, to have been defective in material or workmanship, with expense for transportation and labor borne by Customer.

In no event shall Diamond Products be liable for consequential or incidental damages arising out of the failure of any Product to operate properly.

Integral units such as engines, electric motors, batteries, transmissions, etc., are excluded from this Warranty and are subject to the prime manufacturer's warranty.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, AND ALL SUCH OTHER WARRANTIES ARE HEREBY DISCLAIMED.



333 Prospect Street, Elyria, Ohio 44035  
(440) 323-4616 • (800) 321-5336 • Fax (440) 323-8689  
[www.diamondproducts.com](http://www.diamondproducts.com)