

Bench Saw CTS•81, L, XL

Operating Manual and Safety instructions



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Preface

Thank you for choosing a CEDIMA® product.

The operating manual provides important information on how to use the machine safely, properly and economically. Following the instructions is necessary for your safety, for reducing repair costs and downtimes and to maintain reliability and extend the useful life of the machine

Read through this manual carefully before you start working with your new machine.

The manual must be kept close to the machine at all times and must be read and applied in practice by anyone who will be working with or on or handling the machine. The operating manual are to be supplemented by any instructions contained in the regulations of your country concerning accident prevention and environmental protection. Besides the operating manual and local regulations on accident prevention that apply in the user's country and place of use, the user must observe general technical regulations such as the regulations of trade associations on safety and proper working.

This operating manual provides full information as required for the proper use of the machine, but should you feel the need to approach us with any queries, please do not hesitate to contact one of our field representatives, or CEDIMA® directly at:

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Uniform Statement of Conformity

This is to certify, that on the basis of the Directive 98/37/EC (their modifications inclusive) of the European Parliament and Community of 22.06.1998

the Bench Saw CTS•81, L, XL starting from year of manufacture 1999

of CEDIMA® GmbH

Lärchenweg 3

D-29227 Celle/Germany

complies with the following standards and regulations EN 12100-1, EN 12100-2, EN 12418,
2000/14/EC

Einheitliche Konformitätsaussage

Hiermit wird bestätigt, daß auf Grundlage der Richtlinie 98/37/EG (inklusive deren Änderungen) des Europäischen Parlaments und des Rates vom 22.06.1998

der Tischsäge CTS•81, L, XL ab Baujahr 1999

der CEDIMA® GmbH

Lärchenweg 3

D-29227 Celle

mit folgenden Normen und Richtlinien EN 12100-1, EN 12100-2, EN 12418, 2000/14/EC
übereinstimmt.

Annonce Uniforme de Conformité

Le présent document a pour but de certifier que sur la base de la directive 98/37/CE (inclus leurs modifications) de la Parlement et de la Communauté en date du 22.06.1998

les scie à table CTS•81, L, XL à partir de l'année de construction 1999

de CEDIMA® GmbH

Lärchenweg 3

D-29227 Celle/Allemagne

est conforme aux normes et directives EN 12100-1, EN 12100-2, EN 12418, 2000/14/EC


W. Rudolf (Managing Director)

1. General Product Information

1.1 Description of the Bench Saw

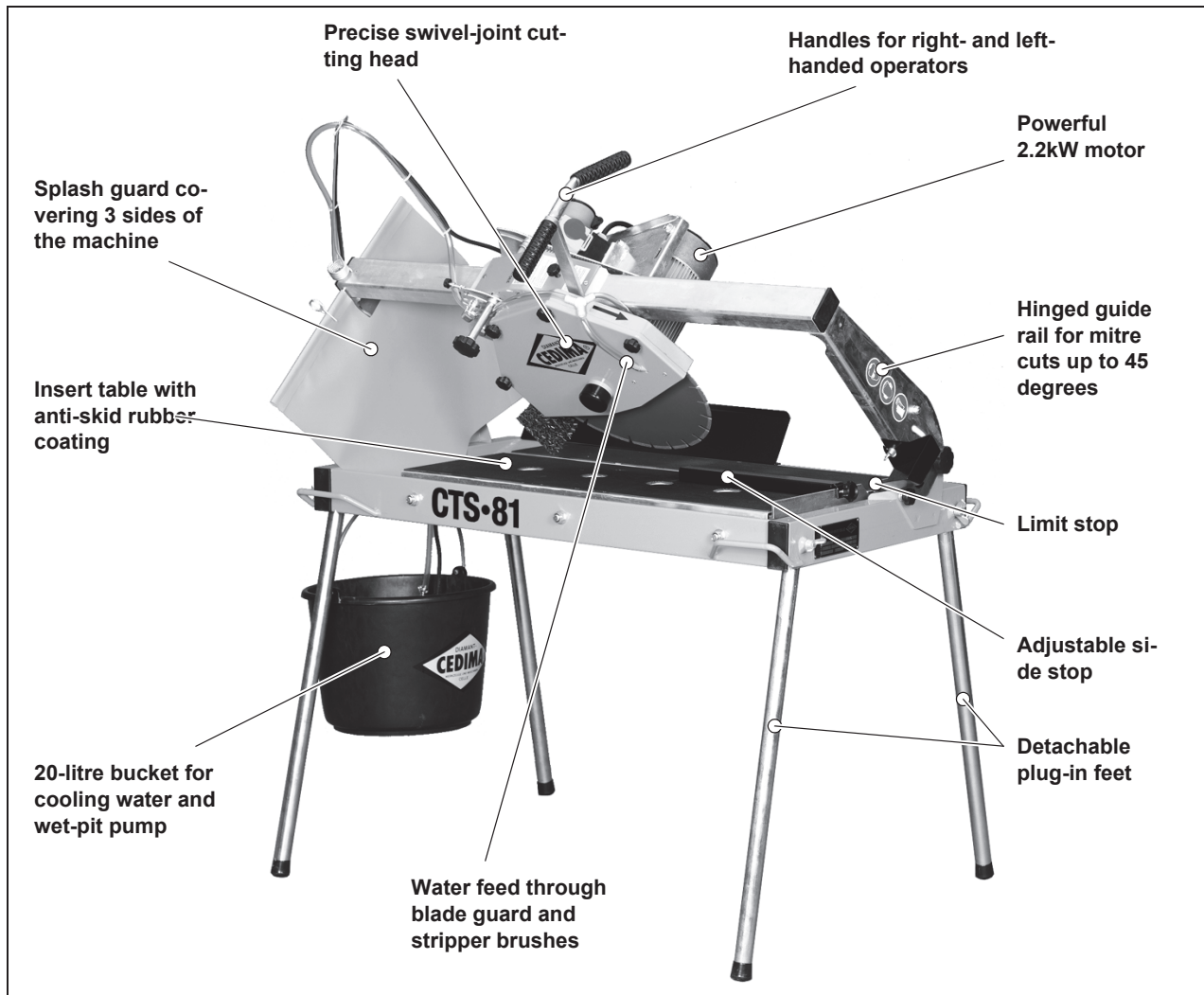


Fig. 1.1 Features of the Bench Saw CTS•81

The Bench Saw CTS•81 (fig. 1.1) is a professional multi-purpose saw that can be used for cutting floor tiles, paving stones, stairs, large-sized natural stone plates, and similar materials.

The Bench Saw is characterized by its sophisticated, practice-oriented design:

- The workpiece rests on the rubber-coated anti-skid work table while the swivel-joint cutting head is pulled along a guide rail during the cutting operation.
- A limit stop and an adjustable side stop ensure the precise alignment of the workpiece.
- The work table hanging in the frame can be removed easily for cleaning or transporting the saw.
- A 20-litre bucket hanging below the frame collects the cooling water used during the cutting operation. This allows the contaminated cooling water to be replaced quickly and easily.
- A wet-pit pump conveys the cooling water from the bucket direct to the saw blade. It is also possible to put the pump into the water trough.

Bench Saw CTS•81, L, XL

- Stripper brushes mounted inside the blade guard ensure that the water is properly distributed over the entire saw blade face.
- Powerful blade drive (2.2 kW, 230 V / 50 Hz).
- The saw is designed to support mitre cuts up to 45 degrees.
- The plug-in feet, hinged guide rail and work table can be disassembled, thereby allowing the saw to be transported easily to other storeys or onto scaffolds.

- Carrying handles mounted on all four corners make it easy to quickly relocate the entire saw when mounted completely.

The Bench Saw is available in the versions CTS•81, CTS•81 L and CTS•81 XL for different cutting lengths (850 mm, 1250 mm and 1640 mm, respectively). Figure 1.2 illustrates the CTS•81 XL for cutting lengths up to 1640 mm.



Fig. 1.2 Bench Saw CTS•81 XL for cutting lengths up to 1640 mm



1.2 Technical specification

	CTS•81	CTS•81 L	CTS•81 XL
Saw blade diameter	350-400 mm		350 mm
Bore hole diameter	25.4 mm		
Max. cutting depth	130 mm		110 mm
Max. cutting length (as blade enters the work-piece)	850 mm	1250 mm	1640 mm
Max. cutting length in front of the blade (50 mm high work-piece)	630 mm	1030 mm	1430 mm
RPM of cutting shaft	2770 min ⁻¹		
Power supply	230 V / 50 Hz		
Power consumption	12 A		
Drive motor output (S6 operation)	2.2 kW		
Sound pressure level at the workplace (L _{pA})*	81.4 dB(A)		
Sound power level (L _{WA})*	96.5 dB(A)		
Contents of water tub/bucket	25 l / 20 l	35 l / 20 l	45 l / 20 l
Transport dimensions (length x width x height) w/o plug-in feet	1,150 x 670 x 610 mm	1,550 x 670 x 610 mm	1,950 x 670 x 610 mm
Weight	78 kg	94 kg	110 kg

* Higher levels are possible during cutting operations!

1.3 Scope of delivery

- 1 x Bench Saw CTS•81, incl. drive motor, work table, splash guard, bucket and wet-pit pump
- 4 x plug-in feet
- 1 x 30-mm open-jawed spanner
- 1 x mandrel
- 1 x limit stop
- 1 x plug for the water trough
- 1 x overflow pipe for the water trough
- 1 x operating manual

2. Basic Safety Instructions

2.1 Warnings and symbols

In the operating instructions, the following terms and symbols are used for particularly important information:



Note

Special information regarding cost-effective use. Messages which appear after the "NOTE" symbol contain important information which is distinguished from the rest of the text!



ATTENTION

Special information, rules and prohibitions for preventing damage. Messages which appear after the "ATTENTION" symbol contain instructions which must be precisely observed in order to avoid damage to equipment and material and injuries to the user and third party!



DANGER

Information, rules and prohibitions for preventing personal injury or extensive material damage. Messages which appear after the "DANGER" symbol warn of the fact that non-adherence to the relevant instruction or procedure may lead to injuries to the user or third party.

Important text sections are emphasised by being written in italics!

The text pertaining to safety is written in bold italics

2.2 Designated uses

- The Bench Saw CTS•81, L, XL- hereinafter referred to as “the machine” - is exclusively designed for the wet-cutting of natural and artificial stone materials using diamond saw blades. Using the machine for purposes other than those mentioned above is considered contrary to its designated use; in particular the use of the machine with cutting tools other than

those approved by the manufacturer/distributor is prohibited. The manufacturer/distributor cannot be held liable for any damage resulting from such use. The risk of such misuse lies entirely with the user.

- Operating the machine within the limits of its designated use also involves observing the instructions set out in the operating manual and complying with the inspection and maintenance directives.
- The machine has been designed in accordance with state-of-the-art standards and recognised safety rules. Nevertheless, its use may constitute a risk to life and limb of the user or of third parties, or cause damage to the machine or other material property.
- The machine must only be used in technically perfect condition in accordance with its designated use, the instructions set out in the operating manual and the relevant national safety regulations, and only by safety-conscious persons who are fully aware of the risks involved in operating the machine! Any functional disorders, especially those affecting the safety of the machine, must therefore be rectified immediately!

2.3 Organizational measures

- This operating manual must always be at hand at the place of use of the machine and must be accessible to the personnel operating the machine!
- In addition to this operating manual, all other generally applicable legal and other mandatory regulations relevant to accident prevention and environmental protection must be observed! Such obligations may also comprise the handling of hazardous materials, provisioning and/or wearing of personal protective equipment.
- This operating manual must be supplemented by instructions covering the duties involved in supervising and notifying special organizatio-



nal features, such as job organization, work flows or the personnel entrusted with the work.

- Personnel entrusted with work on the machine must have read the operating manual prior to taking up work. This applies especially to persons working only occasionally on the machine, e.g. during set-up or maintenance activities.
- Check - at least from time to time - whether the personnel is carrying out the work in compliance with the operating manual and paying attention to risks and safety-relevant factors.
- For reasons of safety, long hair must be tied back or otherwise secured, garments must be close-fitting and no jewellery - including rings - may be worn. Severe injury may result from being caught by moving parts of the machine.
- Personal protective equipment must be used wherever required by the circumstances or by law (e.g. safety glasses, ear protectors, safety boots, suitable safety clothing). Observe the regulations for the prevention of accidents!
- Observe all safety precautions and warnings attached to the machine and always keep them in good and perfectly legible condition.
- In the event of safety-relevant modifications or changes in the behaviour of the machine, stop the machine immediately and report the malfunction to the competent authority/person.
- Do not remove or make inoperative any safety devices the machine is equipped with.
- Never make any modifications, additions or conversions which might affect safety without the manufacturer's/distributor's prior consent! This also applies to the installation and adjustment of safety devices as well as to welding and drilling work on supporting structures.
- Damaged or worn parts of the machine must be replaced immediately. Use genuine spare parts only.
- All spare parts and tools must comply with the technical requirements specified by the manufacturer/distributor.

- Adhere to the legally prescribed preventive maintenance and inspection intervals or those specified in this operating manual!
- All maintenance and repair activities must be performed by qualified personnel using suitable tools and other suitable workshop equipment.

2.4 Selection and qualification of personnel

- Any work on and with the machine must be executed by reliable personnel only. Statutory minimum age limits must be observed!
- The machine must be operated or serviced by trained or properly instructed personnel only. Clearly define the individual responsibilities of the personnel for operation, set-up, maintenance and repair.
- Make sure that only authorized personnel work on or with the machine.
- Do not allow persons to be trained or instructed or persons taking part in a general training course to work on or with the machine without being permanently supervised by an experienced person.
- Work on the electrical system and equipment of the machine must be carried out only by a skilled electrician or by properly instructed persons working under the supervision and guidance of a skilled electrician and in accordance with electrical engineering rules and regulations.

2.5 Normal operation of the machine

- Before you start working, make yourself familiar with the surroundings and circumstances of the site, such as obstacles which might impede work, the soil bearing capacity and the required safety measures, e.g. barriers separating the work site from public traffic.
- Never use the machine in a way that might be contrary to safe working practices!
- Make sure that the machine is used only when it is in a safe and reliable condition. Operate the

machine only if all protective and safety-oriented devices (e.g. guards, emergency shut-off equipment, etc.) are in place and fully operative.

- Each time before you start working, check the machine for obvious damage and defects. Any changes (including changes in the performance or behaviour of the machine) must be reported to the competent authority/person immediately.
- In the event of malfunctions or changes in the machine's behaviour, stop the machine immediately and secure it against restarting. Have any defects rectified immediately!
- Before you start performing cutting operations, check that the diamond saw blade is
 - in proper condition and
 - securely attached.
- The cutting operation must be performed using the wet cutting method in order to prevent the formation of hazardous clouds of fine dust and to improve the service life of the cutting tool.
- Follow the startup and shutdown instructions given in the operating manual.
- Before you start up the machine or set it to motion, make sure that the starting or running machine does not create any hazard to other persons' health.
- Hearing protectors must be used throughout the cutting operation.
- The machine is designed for use in daylight environments. When working in unlighted areas the user/operator must ensure a sufficient illumination of the site.
- Before leaving the machine always secure it against inadvertent movement and unauthorized use!

2.6 Special work related to the maintenance and repair of the machine

- Observe the adjustment, maintenance and inspection activities and intervals set out in the operating manual, including information on the

replacement of parts or assemblies! These activities may be performed by skilled personnel only.

- Brief the operating personnel before initiating special repair or maintenance activities. Appoint a person to supervise such activities.
- In any work concerning the operation, adaptation to production requirements, conversion or adjustment of the machine and its safety-oriented devices or any work related to inspection, maintenance and repair, always observe the start-up and shut-down procedures described in the operating manual as well as the instructions on maintenance activities!
- Maintenance and repair work may be carried out only if the machine is placed on level and solid ground and secured against inadvertent movement.
- If the machine is completely shut down for maintenance or repair work, it must be secured against inadvertent restarting.
- When using a lifting gear for replacing individual parts or large assemblies make sure that the parts/assemblies are carefully attached to the lifting gear and secured in place to avoid hazardous conditions. Use only suitable and technically perfect lifting gear and suspension systems with adequate lifting capacity! Never work or stand under suspended loads!
- The fastening of loads and the instructing of crane/industrial truck operators should be entrusted to experienced persons only! The instructor must be within sight or sound of the operator. Use an intercom system if necessary.
- Before performing any maintenance/repair activities clean the machine, especially the connectors and screwed joints, and remove any oil, dirt and preservative agents. Never use aggressive detergents! Use lint-free cleaning rags!
- Before cleaning the machine with water or other cleaning agents cover or tape up all openings which -for safety and functional reasons- must be protected against the ingress of water/



steam/cleaning agents. Special care must be taken with bearings, electric motors and electronic systems. After cleaning, make sure to remove all covers/tapes from the openings.

- After cleaning, check all cables and hose couplings for leaks, loose connections, chafe marks and damage! Have any defects found rectified immediately!
- Always retighten any screwed connections that have been loosened during maintenance/repair activities!
- Any safety devices removed for set-up, maintenance or repair purposes must be refitted and checked immediately upon completion of the set-up, maintenance or repair work.
- Avoid any operation that might affect the stability of the machine. Always keep a sufficient distance from the edges of excavations, ditches and slopes!
- Before leaving the machine always secure it against inadvertent movement and unauthorized use!
- Ensure that all process materials and replaced parts are disposed of safely and with minimum environmental impact!
- All pipes, hoses and screwed joints must be checked for leaks and visible damage at regular intervals! Clear any defect immediately or have the defect rectified immediately!

2.7 Information about special risks related to electric energy

- Observe the relevant national regulations or standards.
- Electrical connections must always be kept free from dirt and moisture.
- Switch off the machine immediately if trouble occurs in the electric power supply!
- Make yourself familiar with the prescribed safety distances!

- Work on the electrical system or equipment may only be carried out by a qualified electrician or by properly instructed personnel working under the supervision of a qualified electrician and in accordance with the applicable electrical engineering rules.
- The power supply to machine parts, on which inspection, maintenance or repair work is to be carried out, must be cut off!
- The electrical equipment of the machine must be inspected and checked at regular intervals. Any defects such as loose connections or scorched cables must be rectified immediately.
- If it is necessary to carry out work in the vicinity of live parts, a second person must be present to cut off the power supply in case of emergency by actuating an emergency shut-off or main power switch. Secure the working area with a red-and-white safety chain and a warning sign.
- If mobile electrical equipment, connecting cables and/or extension/appliance cords with plug connectors are used, ensure that such equipment, cables and cords are checked for correct function at least once every six months by a qualified electrician or -if suitable testing equipment is available- by a properly instructed person.
- Protective installations with fault-current protection units used in non-stationary equipment must be checked for correct operation at least once a month by a properly instructed person.
- Fault-current and fault-voltage protection units must be checked for correct operation by actuating the testing facility
 - once on every working day in the case of mobile equipment,
 - at least once every six months in the case of stationary equipment.

2.8 Information about the handling of fluids and lubricants

- When handling hydraulic fluids, lubricants, greases or preservation agents (hereinafter re-

ferred to as fluids or lubricants), follow the safety instructions that are relevant to the respective product!

- Avoid any prolonged contact between fluids or lubricants and your skin. Carefully clean your skin to remove all fluids or lubricants adhering to it.
 - Be careful when handling hot fluids or lubricants. Risk of serious injuries or burns! Especially when handling fluids or lubricants with temperatures exceeding 60 °C make sure to avoid any contact between the fluid and your skin!
 - If fluids or lubricants have come into contact with your eyes, rinse your eyes immediately and thoroughly with clean drinking water and consult a doctor.
 - Spilled fluids or lubricants must be removed immediately using binding agents.
 - Fluids or lubricants must not penetrate into the soil or public sewage system.
 - Used fluids or lubricants must be collected, stored and disposed of properly.
 - Follow all relevant legal instructions and provisions regarding the handling and disposal of fluids or lubricants. In case of doubt, contact the competent authorities for detailed information.
- Use only suitable transport vehicles with sufficient load capacity!
 - Secure the load carefully. Use suitable fastening points for securing it!
 - Parts which had to be removed for transporting the machine must be refitted and secured carefully before the machine is used again!
 - The recommissioning procedure must be strictly in accordance with the operating manual! Observe the instructions given in the operating manual when reassembling and operating the machine.

2.9 Transporting the machine

- It is not allowed to transport the machine using a lifting gear.
- Before relocating the machine, make sure that the mains plug is unplugged and all movable parts are locked mechanically.
- Always disconnect the machine from the mains supply even when performing minor relocations!
- Use only load suspension devices with sufficient load capacity while performing loading/unloading operations!

3. Installation and Operator's Controls of the Bench Saw



Note:

Read operating instructions carefully!

You are not ready to operate the Bench Saw if you have not read and understood the operating and safety instructions.

3.1 Notes relating to the installation of the Bench Saw

- Plug the four feet from below into the frame and secure the feet using the wing screws. Firmly tighten the wing screws to ensure that the plug-in feet are properly fastened.
- The Bench Saw must always be placed level on firm ground.
- While installing the Bench Saw, make sure to avoid any hazard/nuisance to other persons or obstacles impeding the proper operation of the machine.
- Install the lateral splash guard as shown in fig. 3.1. Use the wing screws to fasten the guard to the frame.



Fig. 3.1 Lateral splash guard

- Hook in the front splash guard as shown in fig. 3.2.
- Verify that the swivel-joint cutting head is free to move. For that purpose, loosen the quick-release handle at the cutting head (fig. 3.3) and move the cutting head up and down.



Fig. 3.2 Installing the front splash guard

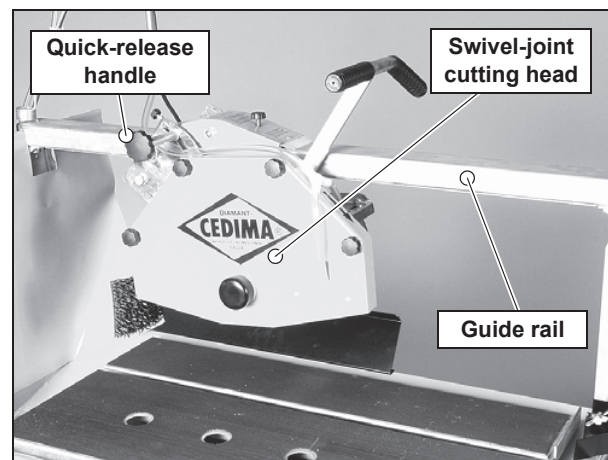


Fig. 3.3 Swivel-joint cutting head

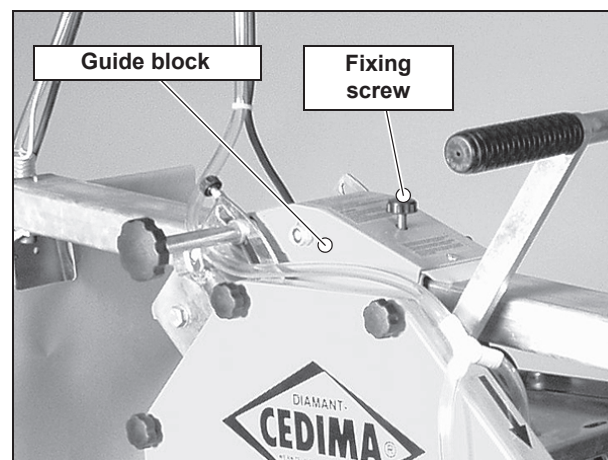


Fig. 3.4 Guide block with fixing screw

- Loosen the fixing screw securing the guide block (fig. 3.4) and verify that the block is free to move.



Attention: Always lock the guide block prior to transporting the saw!

Use the fixing screw to lock the guide block before you transport the saw.

3.2 Notes relating to the electrical connection



Attention: Observe the regulations concerning electrical connections!

Work on electrical systems or equipment may only be carried out by electricians or trained staff under the direction and supervision of an electrician in accordance with the local electrical engineering regulations.

For use on a construction site, the equipment must be connected to the power supply in accordance with DIN VDE 0100, § 55a.

The power outlet must be protected by an (FI or DI) fault current breaker.

All electrical connections must be free of moisture.

Figure 3.5 illustrates the power supply (230 V / 50 Hz) to the Bench Saw.

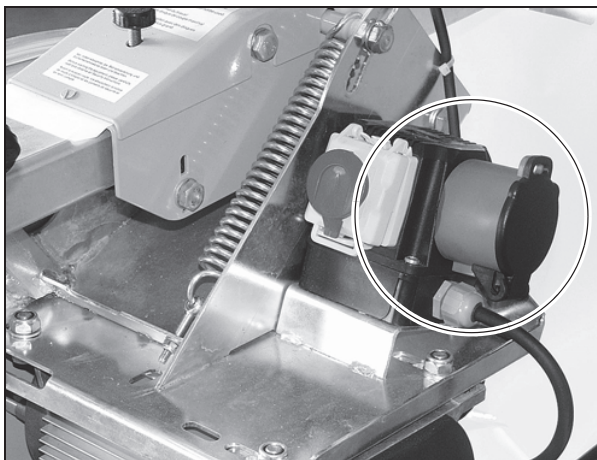


Fig. 3.5 Power Supply to the Bench Saw



Note: Check for possible power losses in the supply cable!

When using a cable drum or a power supply cable, please observe the following:

- Never use a drum with the cable wound onto it as this can cause loss of power at the machine.
- Do not exceed a cable length of 50 meters as this can cause loss of power at the machine.

3.3 The mains switch

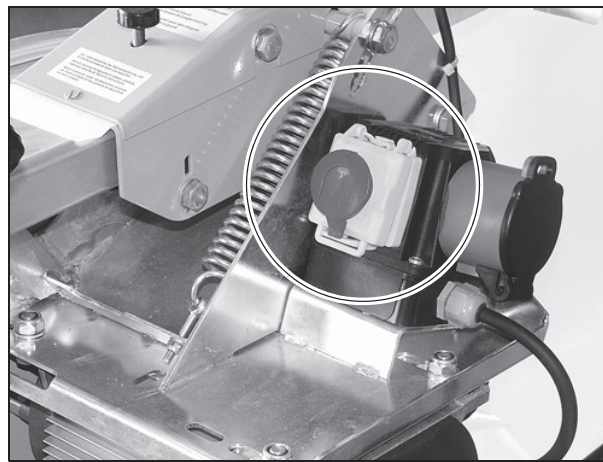


Fig. 3.6 Mains switch with emergency stop button

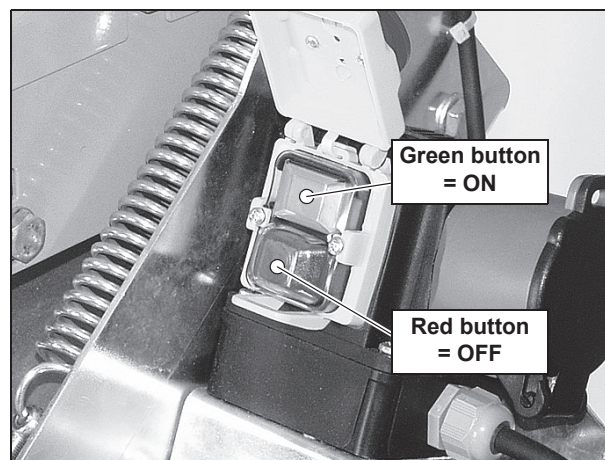


Fig. 3.7 ON and OFF button for starting and stopping the saw

The mains switch (fig. 3.6) switches the wet-pit pump and blade drive motor on and off.

- To switch the pump and motor ON, open the yellow lid with the red emergency stop button and press the green button (fig. 3.7).

Bench Saw CTS•81, L, XL

- Push the red button (fig. 3.7) to stop the saw.
- While the saw is operating, the buttons are covered by the flap (fig. 3.6). This allows the operator to quickly stop the saw by pushing the emergency stop button in the event that a danger or fault condition occurs. To unlock the red emergency stop button, push the button upwards until the lid springs open.

3.4 The wet-pit- (water-) pump

The electrical wet-pit- (water-) pump, which conveys the cooling water through hoses to the saw blade, can be put into the bucket (fig. 3.8) or into the water trough.



Fig. 3.8 Wet-pit- (water-) pump in the bucket hanging below the frame

If you want the mud produced during the cutting operation to be collected in the water trough instead of the bucket, you may use the overflow pipe that comes with the machine.

When putting the pump into the water trough, be sure to plug the drain hole (fig. 3.9).

The case of the wet-pit pump is sealed hermetically. It will not be possible to perform any repairs on the components of the pump. The pump is provided with a screen which serves to filter out coarse dirt particles from the water. For instructions on how to clean the pump, please refer to sect. 5.4.



Fig. 3.9 Drain hole in the water trough (with plug)

Attention:
Never allow the wet-pit pump to run dry!

The electrical wet-pit pump must never run dry, as this would cause the overheating and destruction of the pump. Make sure that the pump will always be covered with water. Refill the bucket or water trough in due time to ensure that the pump will not run dry.

Attention: Prevent the cooling system from freezing!

To prevent the wet-pit pump and cooling system from freezing, drain the water after each use and - in case of hard frost - even before longer breaks.

3.5 The blade drive motor

The windings of the blade drive motor are provided with temperature sensors which turn off the motor in case of overload or overheating conditions. After the blade drive motor has been allowed to cool for a short period of time, the Bench Saw can be restarted.

The repeated triggering of the thermal protection may be due to the following reasons:

- Problem: Cutting pressure too high.
Remedy: Reduce the cutting pressure.
- Problem: Wrong saw blade type.
Remedy: Use the correct saw blade that is suitable for the material to be cut.

- Problem: Electrical defect in the Bench Saw.
Remedy: Have the Bench Saw revised by a qualified electrician.

3.6 Saw blade

3.6.1 Choosing the right type of saw blade



Attention:

Use only approved saw blades!

The blade shaft speed of the Bench Saw is exclusively designed for cutting with diamond saw blades. The Bench Saw may only be used for cutting natural and artificial stone materials! Never use the saw blades for cutting wood or metal.

The Bench Saws CTS•81 / CTS•81 L are designed for the use of diamond saw blades with diameters ranging from 350-400 mm. The CTS•81 XL is designed for saw blade diameters not exceeding 350 mm. Saw blades with larger diameters must not be installed on the Bench Saw.

The blade shaft speed of the Bench Saw is intended to provide optimum conditions for cutting with CEDIMA® diamond saw blades.

Choose the correct type of saw blade for the material to be cut and the required cutting depth. (Ask CEDIMA® customer service for detailed information on the right type.)



Note:

No guarantee in case of incorrect use!

Where CEDIMA® diamond saw blades have been used incorrectly, the guarantee becomes invalid. Complaints concerning diamond saw blades can only be entertained if at least 20% of the height of the diamond segments remains.



Note:

Resharpen blunt saw blades!

Diamond saw blades are designed to be self-sharpening in operation. However, they can become blunt through frequent cutting in hard material that is only slightly abrasive. Blades can be resharpened by cutting in an abrasive material such as chalky sandstone.

3.6.2 Installing the saw blade

To install the saw blade, proceed as follows:

1. Loosen the knurled nuts (fig. 3.10) securing the blade guard and remove the guard.

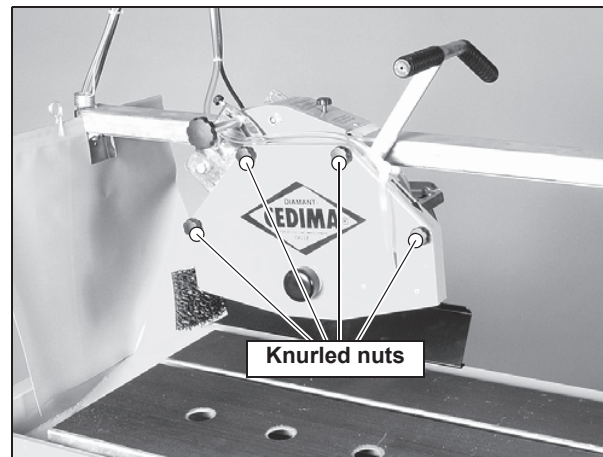


Fig. 3.10 Knurled nuts securing the blade guard

2. Loosen the cutting shaft nut from the blade clamping flange using the open-jawed spanner and mandrel that come with the machine (left-hand thread!)
3. Remove the blade clamping flange (fig. 3.11).

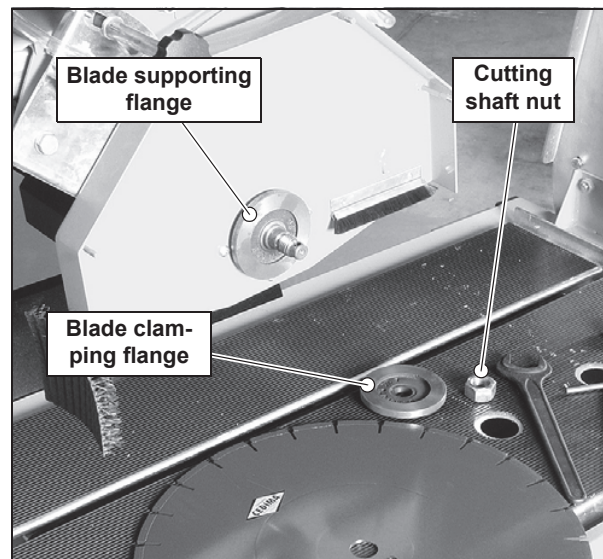


Fig. 3.11 Blade guard removed

Bench Saw CTS•81, L, XL



Attention: Check the blade holder and saw blade for proper condition!

The contact area between the blade holder assembly and the diamond saw blade must be kept in a clean condition to ensure that the blade can be mounted properly.

Never use damaged or untrue saw blades or blades with missing diamond segments.

4. Install the diamond saw blade on the supporting flange, ensuring the correct sense of rotation (fig. 3.12). The sense of rotation of the cutting shaft is marked by an arrow on the blade guard (fig. 3.13).



Fig. 3.12 Sense-of-rotation arrow on the blade

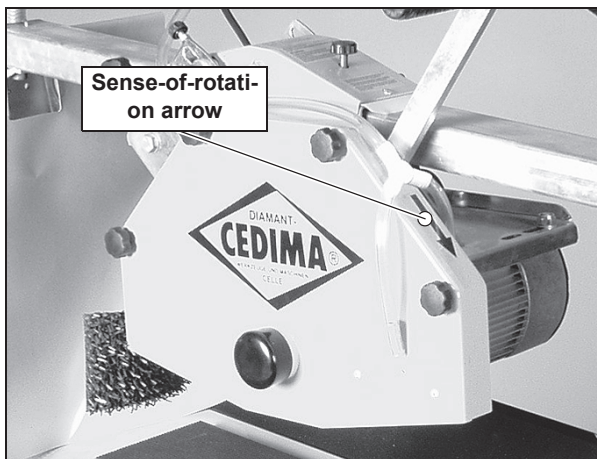


Fig. 3.13 Sense-of-rotation arrow on the blade guard



Note:

Determine the correct sense of rotation!

If the arrow on the diamond saw blade is not visible, the cutting direction of the saw blade can be determined in the following way: a “tail” forms behind each diamond particle during cutting and the diamond particle is always at the front in relation to the direction of rotation (fig. 3.14).

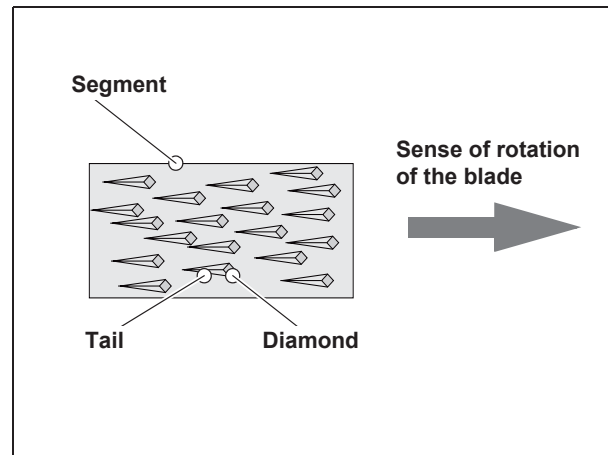


Fig. 3.14 Tails forming behind the diamonds

5. Install the blade clamping flange.
6. Firmly re-tighten the cutting shaft nut (fig. 3.15).



Fig. 3.15 Locking the saw blade using the mandrel and spanner

7. Lightly turn the installed saw blade by hand and check the blade for true running.
8. Mount the blade guard.

3.7 The depth stop



Attention:

Set the depth stop to 3 mm!

Before the cutting operation is initiated, the depth stop must be set in such a way that the diamond saw blade penetrates approx. 3 mm into the table (measured from the top face of the table, see fig. 3.16), in order to prevent damage to the table or saw blade during operation.

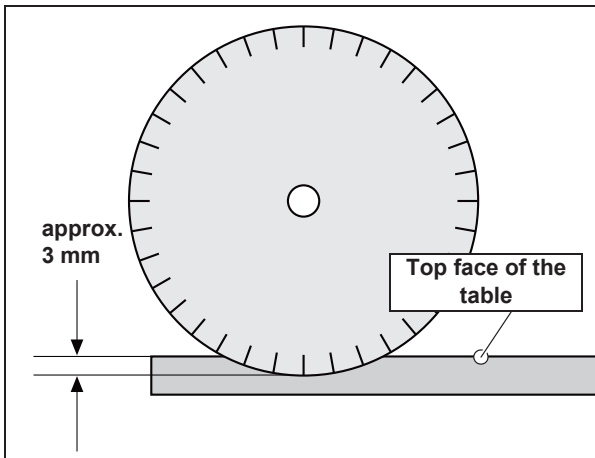


Fig. 3.16 Setting the saw blade to the required depth

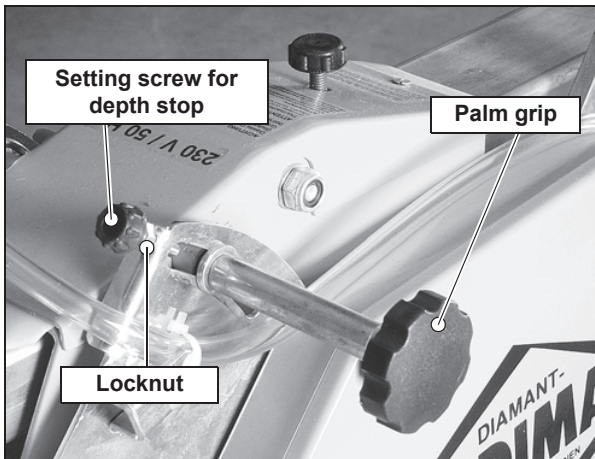


Fig. 3.17 Setting the depth stop

To set the depth stop, proceed as follows:

1. Loosen the palm grip (fig. 3.17) at the swivel-joint cutting arm.
2. Lower the cutting head to the desired depth setting and re-tighten the palm grip.

3. Use the setting screw and locknut (fig. 3.17) to secure the depth stop.

3.8 Mitre cuts adjuster

The Bench Saw CTS•81 is equipped with a hinged guide rail (fig. 3.18) that allows the user to make accurate mitre cuts (angled cuts).



Fig. 3.18 45-degree mitre cut

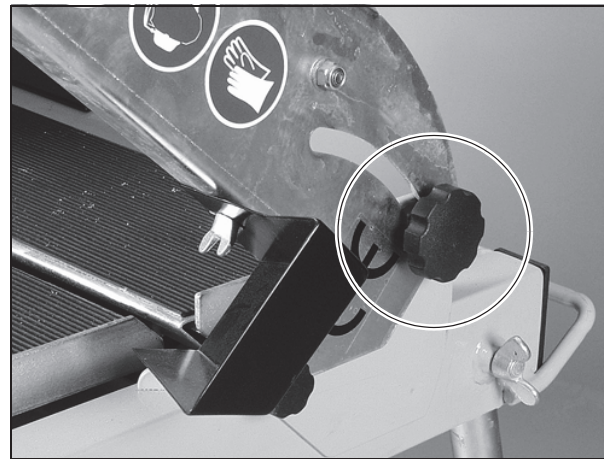


Fig. 3.19 Front-side palm grip

To pivot the guide rail, lightly loosen the palm grips at both front sides of the saw (fig. 3.19) and set the rail to the desired angle. Firmly re-tighten the palm grips after setting the guide rail.

3.9 Guide rail limit stop

The guide rail is equipped with a limit stop determining the end-position of the swivel-joint cutting head (fig. 3.20). This limit stop prevents the saw blade from cutting into the edge of the Bench Saw.

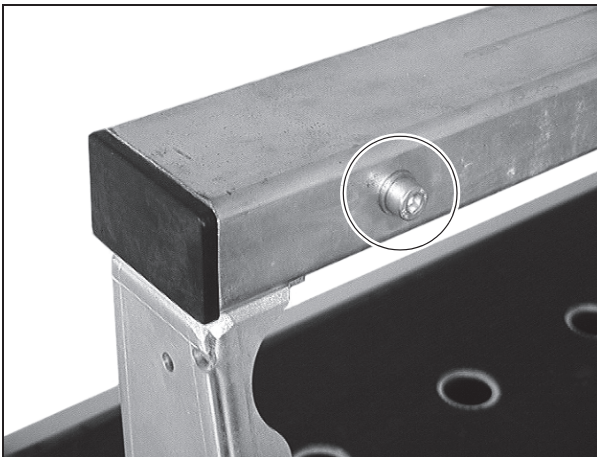


Fig. 3.20 Guide rail limit stop

3.10 Bench Saw accessories

3.10.1 Optional angle stop for angled cuts



Fig. 3.21 Adjustable angle stop for angled cuts

An adjustable angle stop (order no. 40 009 001 00, fig. 3.21) for making any desired angled cuts is available as an optional accessory. This angle stop is mounted on the stop rail and fixed using a star grip.

4. Operating the Bench Saw

After you have made yourself familiar with the components of your Bench Saw, the machine has been set up properly, the bucket or water trough is filled with water, and the electrical connection is established in accordance with the relevant safety regulations, you may now begin with the cutting operation. The following safety precautions must be observed by all means:



DANGER: Risk of injury through rotating saw blade!

The rotating saw blade, when handled carelessly, could result in serious injuries!

Never operate the Bench Saw with the blade guard removed from the machine, in order to minimize the risk of serious cuts!



Attention:
Use protective equipment!

The following protective equipment is to be used throughout the cutting operation:



Hearing protectors,



eye shield,



protective gloves.



Attention:
Use for wet cutting only!

All cuts must be performed using the wet-cutting method, in order to avoid the formation of harmful fine dusts and increase the tool life of the saw blade.

- During the cutting operation, the user must stand at the front side of the saw, holding the handle of the swivel-joint cutting head with his right hand. The workpiece must rest on the work table and should be pressed tightly against the side and limit stops with the left hand.

- Always turn off the Bench Saw before you leave the machine unattended (even in case of short breaks).
- After the cutting operation is finished, prevent accidental restarting of the saw by pushing the emergency stop button and unplugging the power cable.

4.1 Notes relating to the cutting at constant depth

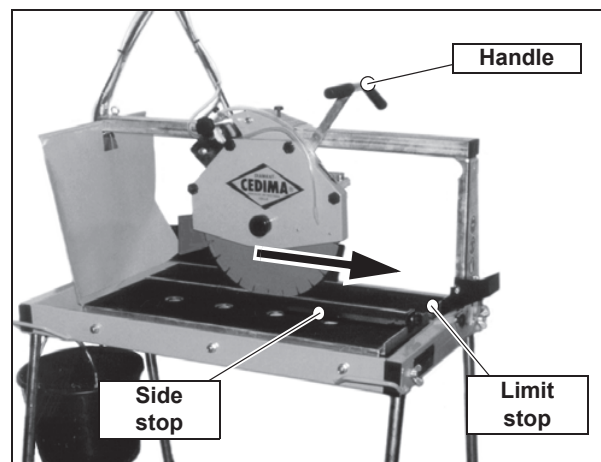


Fig. 4.1 Cutting at constant depth

When cutting at constant depth, the cutting head must be pulled against the workpiece.

Before you start cutting, set the cutting head to the desired fixed cutting depth (cf. sect. 3.7). Then use the handle to pull the cutting head slowly and uniformly along the guide rail and across the workpiece (fig. 4.1). Push the cutting head fully back after you finished the cut.

4.2 Notes relating to seesaw cuts

The handling of larger cutting depths can be simplified using the seesaw cutting method; in this case, the cutting head will not be set to a fixed position while performing the cut.

As you have not fixed the saw at a defined depth, the cutting head is freely movable during seesaw cutting operations. Hold the handle of the cutting head with your right hand and move it to and fro

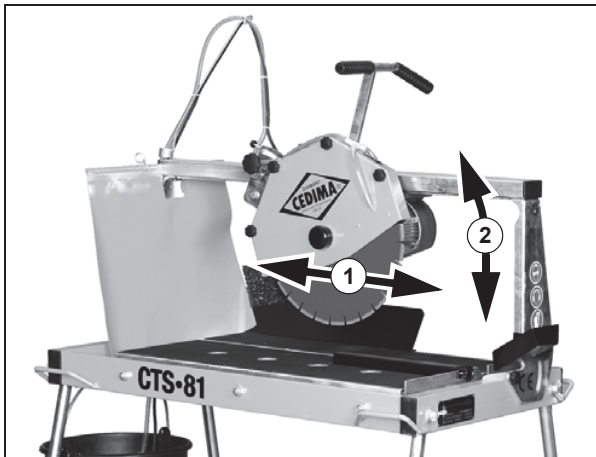


Fig. 4.2 „Seesaw cut“

across the workpiece ① while lightly pressing the cutting head downwards in a discontinuous movement ② (fig. 4.2).

5. Care and maintenance

The general safety instructions included in this operating manual (see sect. 2) must be followed while performing maintenance and care activities. In addition to that, observe the following provisions:



Attention:

Unplug the mains plug!



Unplug the mains plug before you perform any maintenance or cleaning activities!



Attention: Do not use any aggressive cleaning agents!

Do not use aggressive cleaning fluids (e.g. solvents), and do not clean the machine using liquids with a temperature exceeding 30 °C.



Attention:

Do not use high-pressure cleaners!

For safety and functional reasons, make sure that no water, steam, or cleaning agents are allowed to penetrate into electrical components (e.g. motors, switches, plug connections, etc.) or bearings. The use of high-pressure cleaners for cleaning the saw is therefore not admissible.



Attention:

Do not grease the guide rail!

Do not apply grease or other lubricants to the guide rail! This would cause the buildup of dirt on the guide rail and could result in damage to the bearings!

5.1 Dry cleaning

- Use a slightly damp cloth to remove dust and dirt particles from the machine.
- Use only lint-free cleaning cloths.
- Remove any hardened buildup of dirt using a brush.

5.2 Wet cleaning

- Prior to wet-cleaning the Bench Saw, cover all plug connectors with suitable protective caps in order to prevent the ingress of humidity.
- If necessary, remove dirt and other residues using a brush and a low-pressure water jet.
- After cleaning the Bench Saw with water, connect the machine to a mains supply that is protected by an FI fault current breaker. If the FI fault current breaker is tripped, the Bench Saw must not be restarted until after a thorough inspection by a qualified electrician.

5.3 Regular cleaning and maintenance activities

The Bench Saw must be cleaned after each use and before performing any maintenance/repair activities. Clean the machine as follows:

- Remove the work table before you clean the water trough. The work table only hangs in the frame (fig. 5.1) and can be taken out easily.

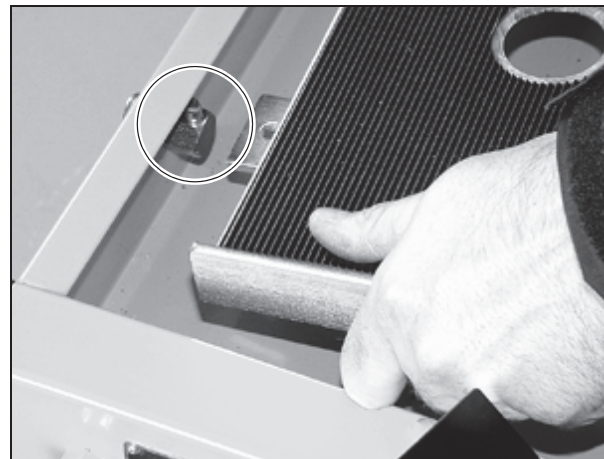


Fig. 5.1 Seat of the work table

- Remove the contaminated water and any buildup of mud from the bucket and water trough.
- Clean the filtering screen of the wet-pit pump. Flush the pump with clean water in order to prevent the pump from blocking due to hardened accumulations of mud. (For more informa-

tion on how to clean the pump, see also sect. 5.4.)

- Completely drain the cooling system if a danger of frost exists.
- Lightly grease all movable parts (except the guide rail) before storing the machine for prolonged downtime periods.

5.4 Cleaning the wet-pit- (water-) pump

After storing the machine for a prolonged period of time, it may happen that the pump impeller is blocked by hardened accumulations of mud. Turning on the Bench Saw would inevitably destroy a blocked pump within a few minutes due to overheating. To remove such buildup of mud, both the filtering screen and cover of the pump can be removed (fig. 5.2 and 5.3)..

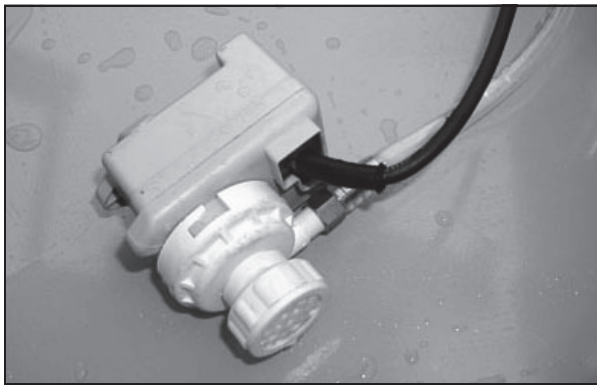


Fig. 5.2 The wet-pit- (water-) pump

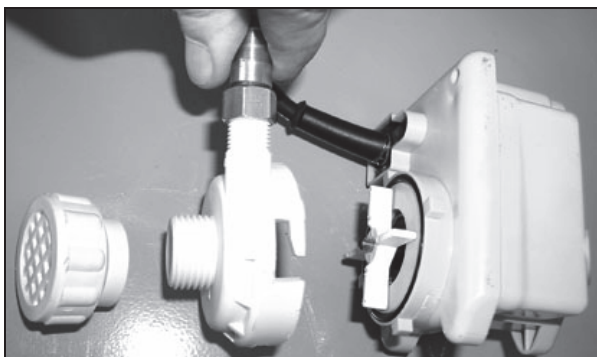


Fig. 5.3 Exploded view of the wet-pit- (water-) pump

To open and clean the wet-pit- (water-) pump, proceed as follows:

1. Remove the filtering screen from the pump.
2. Remove the cover (fig. 5.3). (Attention: Make sure not to damage the sealing side due to the use of sharp-edge tools!)
3. Clean the cover of the pump.
4. Remove any buildup of mud from the pump impeller.
5. Verify that the pump impeller is free to move.
6. Re-assemble the wet-pit- (water-) pump and check the pump for proper function.

5.5 Correcting the 90-degree stop of the mitre cuts adjuster

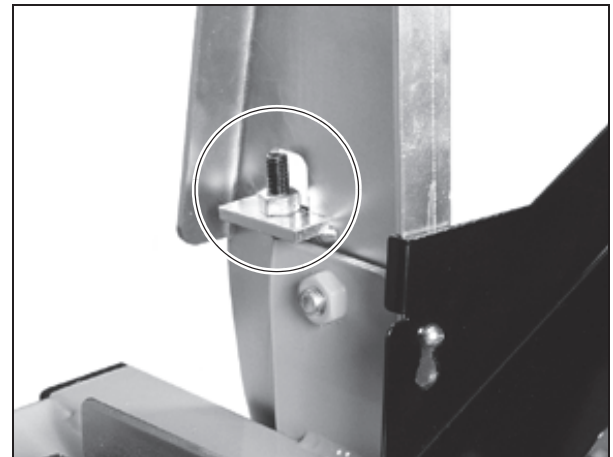


Fig. 5.4 90-degree stop of the mitre cuts adjuster

Inside the two swivel plates there is one hex-socket set screw each serving as a 90-degree limit stop for the mitre cuts adjuster (fig. 5.3). These set screws allow the 90-degree setting of the adjuster to be corrected if and when required.

6. Troubleshooting

6.1 General problems affecting the Bench Saw

Problem	Possible cause	Remedy
Bench Saw won't start after pushing the ON button	Mains cable not properly connected	Check connection to mains.
	Mains cable defective	Have mains cable replaced by qualified electrician.
	Mains switch defective	Have mains switch replaced by qualified electrician.
	Internal wiring of Bench Saw defective	Have internal wiring inspected and repaired by qualified electrician.
	Blade drive motor defective	Have motor replaced by qualified electrician.
Blade drive motor will switch off automatically	Cutting pressure too high	Reduce cutting pressure.
	Wrong saw blade type	Install correct saw blade type.
	Defect in electrical installation	Have Bench Saw inspected and repaired by qualified electrician.
Blade drive motor will provide insufficient power	Power loss resulting from excessive length of mains cable	Use shorter mains cable.
	Power loss resulting from wound-up cable drum	Unwind cable from drum.
	Blade drive motor defective	Have motor replaced by qualified electrician.
Insufficient or missing cooling water supply	Wet-pit pump is running dry	Verify that wet-pit pump is fully submerged in the water.
		Fill in more water.
	Filtering screen of wet-pit pump is clogged	Clean filtering screen.
	Pump impeller of wet-pit pump is dirty	Open wet-pit pump and clean impeller (see sect. 5.4).
	Wet-pit pump defective	Have wet-pit pump replaced by qualified electrician.



6.2 Problems during cutting operation

Problem	Possible cause	Remedy
Irregular run of the saw blade	Poor blade tension	Return blade to manufacturer.
The saw blade shows lateral and/or eccentric movement (wobble) when running	Saw blade is damaged or bent	Have blade aligned/flattened.
		Solder diamond segments onto a new blade.
		Install new saw blade.
	Blade flange(s) very dirty	Clean blade flange(s).
	Blade flange(s) damaged	Replace blade flange(s).
The diamond segments will come off	Blade overheated	Resolder diamond segments.
		Optimize cooling water supply.
Excessive wear on segments	Wrong saw blade installed	Use harder saw blade type.
	Drive shaft out of true	Have blade drive motor replaced by qualified electrician.
	Blade overheated	Optimize cooling water supply.
The saw blade won't cut	Saw blade not suitable for material to be cut	Use correct saw blade type.
	Saw blade does not meet power requirements	Use correct saw blade type.
	Diamond segments are blunt	Resharpen saw blade.
Poor quality of cut	Blade tension is insufficient	Return blade to manufacturer.
	Excessive load on saw blade	Use correct saw blade type.
	Diamond segments are blunt	Resharpen saw blade.
Saw blade mounting bore is worn	Saw blade has turned on drive shaft	Machine out saw blade mounting bore and fit accurate adapter ring.
		Check and, if necessary, replace blade flanges.
Saw blade will show discoloration from overheating	Blade overheated	Optimize cooling water supply.
	Lateral friction on blade too high	Reduce feed rate.
Cracks on saw blade centre	Saw blade too hard	Use "softer" saw blade.
Eccentric wear on diamond segments	Blade mounting flange is worn	Replace blade mounting flange.
	Play in bearings of blade shaft	Have blade drive motor replaced by qualified electrician.

In most cases, the problems and their possible causes result from the natural wear and from **improper use** of the table saw or diamond saw blades.

Therefore we recommend you to read this operating manual carefully!

7. Electrical connection diagram

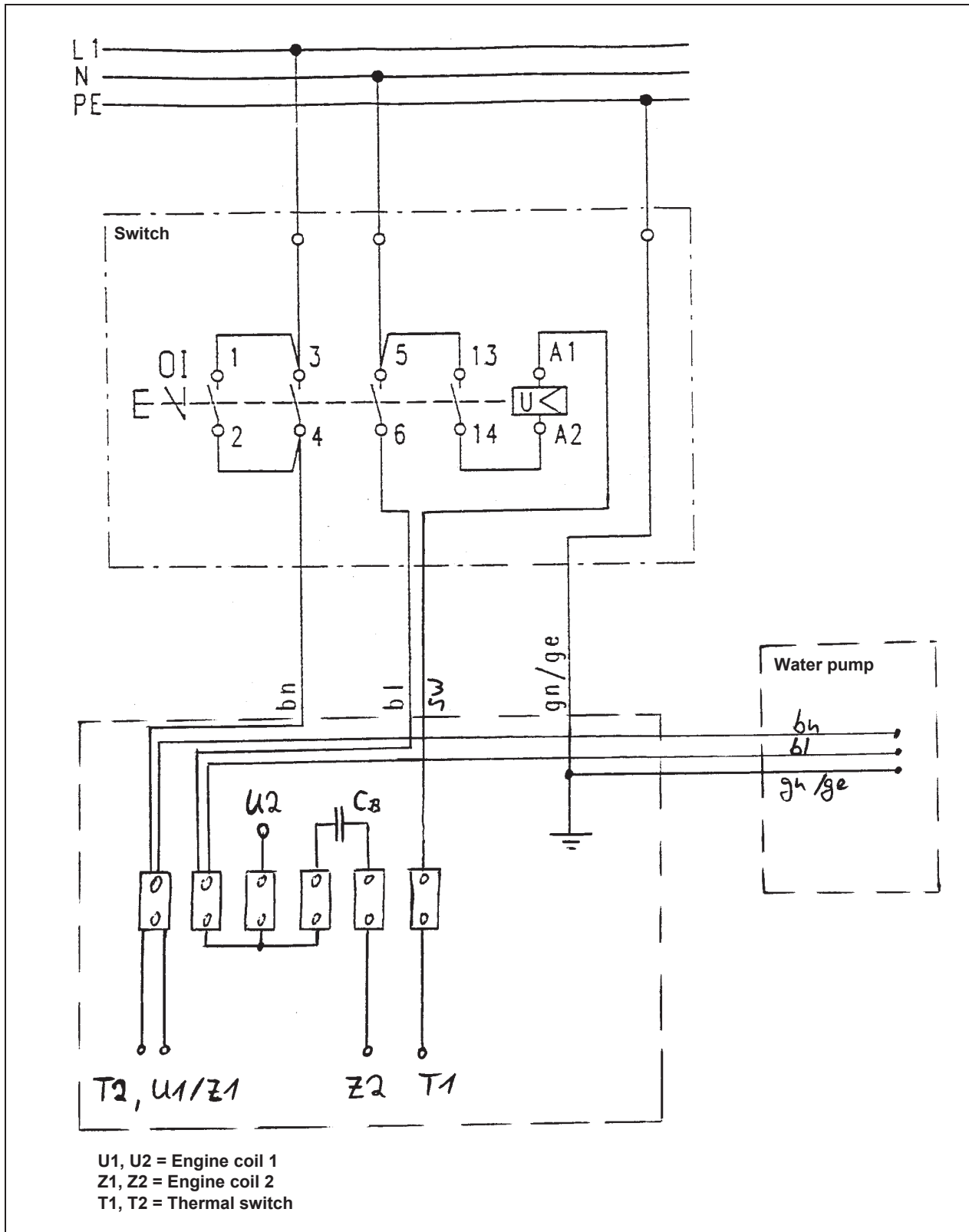


Bild 7.1 Electrical connection diagram CTS•81



8. Terms of Warranty

1. Complaints must be submitted without delay, however, within 14 days following the arrival of the device at the latest. If this deadline has expired, or if the device complained about is put into operation and used for work, then the device complained about shall be considered accepted and therefore free of faults. Hidden defects must be reported in writing immediately after being discovered, however at the latest within 6 months of the receipt of the device.
2. We guarantee the agreed usability of the device delivered by us for a period of 12 months, the term beginning on the day the device arrives with the buyer. Irrespective of this, our obligation shall be considered as fulfilled, as soon as the goods are despatched from our works/warehouse. In no case do we assume a producer's guarantee. The mandatory regulations of the law for product liability remain untouched.
3. Wearing parts are subject to a limited warranty. Wearing parts are parts subject to operation-related wear during proper use of the device. The rate of wear cannot be uniformly defined and differs according to the intensity of use. The wearing parts must be adjusted, maintained and, if necessary, replaced for the specific device in accordance with the manufacturer's operating manual. Operation-related wear is not a reason for claims to defects.
 - bearings, sliding protection supports
 - Clamping elements for quick-release systems
 - Flushing head seals
 - Slide and roller bearings that do not run in an oil bath
 - Shaft oil seals and sealing elements
 - Friction and safety clutches, braking devices
 - Carbon brushes, collectors / armatures
 - Consumable operating materials such as fuels, lubricants, coolants etc.
 - Easy-release rings
 - Control potentiometers and manual switching elements
 - Securing elements such as dowels, anchors, screws and bolts
 - Fuses and lamps
 - Bowden cables
 - Commutators
 - Diaphragms
 - Spark plugs, glow plugs
 - Parts of the reversing starter such as the starting rope, starting pawl, starting roller and return spring
 - Sealing brushes, rubber seals, splash protection cloths
 - Filters of all kinds
 - Drive and guide wheels/pulleys and associated rubber tyres
 - Cable wire protection elements
 - Drive and travel wheels
 - Water pumps
 - Cut-material transport rollers
 - Drilling, separating and cutting tools
 - Energy storage devices.

Wearing parts for the construction devices such as core drilling and sawing machines and special machinery as well as related general assemblies (if available):

- Feed and drive elements such as toothed racks, gearwheels, pinions, spindles, spindle nuts, spindle bearings, wires, chains, sprockets, belts
- Seals, cables, hoses, packings, gaskets, plugs, couplings and switches for pneumatic, hydraulic, water, electricity, fuel systems
- Guide elements such as guide strips, guide bushes, guide rails, rollers,

4. In case of a justified complaint, we can choose to repair the device and/or to provide a replacement against return of the device. Replaced parts or devices become our property.
5. A complaint has to be filed in writing, stating machine number, invoice number and date.
6. Improvements shall always be carried out at the delivery plant. Repair work requested by the buyer to be carried out on his or a third party's premises, needs prior consent by us. The resulting costs of the mechanic and any

Page 1 of 2 Pages

other assistants are borne by the buyer. The warranty expires, if the customer or any other, unauthorized person, interfere with the purchased device.

7. If the replacement of assemblies or components by the buyer or others has been expressly arranged with us, any possible recognition of the warranty case cannot be given by us until after the defective parts have been returned to us and inspected by us.
 8. According to the statutory regulations the buyer is only entitled to cancel a contract, if we refuse improvements or the supply of replacements acc. to fig. 4 even though a defect has been proven, or a deadline that we have been given has elapsed unfulfilled. If only a minor defect has occurred, the buyer is merely entitled to an abatement of the purchase price, which in any other case is excluded. We are not liable for compensation on account of a defect or damages subsequent to a defect, unless these occur on account of an intention or a negligence which we are responsible for.
 9. No guarantee is assumed for damages that have arisen of the following reasons:
 - a) faulty installation,
 - b) improper use or overstressing,
 - c) permanent overload, leading to damages to coils or the windings of armatures,
 - d) extraneous causes, e.g. transport damages, climatic influences or other natural phenomena,
 - e) use of integral or accessory parts that are not suitable/adjusted to our devices.
 10. If there is reason for complaint about a diamond tool(s), this tool(s) must be removed from the machine immediately! To protect your interest and to conduct a proper inspection, a segment height of at least 20 % (of height in new condition) is required. Failure to observe this will lead to any claims to replacement that you may have being voided!
 11. If warranty claims are satisfied by us, then this neither extends the warranty period nor
- does it begin a new warranty period for the device. The warranty period for installed spare parts shall end no sooner or later than the warranty period for the device.
12. Otherwise, our complete terms of sale and delivery apply.
 13. The place of performance and venue for both parties is Celle.

**CEDIMA® Diamantwerkzeug- und Maschinenbaugesellschaft mbH,
Celle, Germany**

January 2005





**Diamond-saw blades • Diamond drill bits • Joint cutters • Drilling machines
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