

Operating Instructions

Capstan Winch Model 2000

KE-SP 2010
KE-SP 2020
KE-SP 2030



Jakob Thaler GmbH

Cable Laying Machinery and Equipment
Hunenkamp 6-12
D-24576 Bad Bramstedt /Germany

Congratulations on choosing your THALER Machine.

You have decided to invest in a **THALER** Machine. We would like to thank you for your trust in us.

You have made a good choice, because you benefit from our many years of experience in the development and manufacturing of equipment and machinery for cable laying.

When it comes to construction, materials selection and production, aspects such as occupational safety, durability and universal applicability must especially be considered.

We hope that your new **THALER** Machine will become an indispensable tool whenever you use it and wish you the best of success in working with it.

This machine complies with the Machinery Directive 2006/42/EC for delivery to EU member states.

For any questions, feel free to call us or e-mail us at info@jakobthaler.com.

These operating instructions corresponded to the latest state of this series at the time of printing this model. Given technical developments, we reserve the right to make changes at any time to the machines. It is also possible that the descriptions, including the illustrations in these instructions, may not correspond exactly to your machine.

We wish you much success.

Yours sincerely,

Jakob Thaler GmbH
Cable Laying Machinery and Equipment

Before beginning to work with your **THALER** Machine, we ask that you read these operating instructions carefully to avoid any unnecessary problems and to use your machine in the most efficient way.

In addition to these operating instructions, you also have received documentation from the manufacturer, regarding the machine parts. These instructions describe the function, handling and servicing of the equipment, and should be read carefully. Some of the information in these instructions also appears in the manufacturer's documentation. Should there be any discrepancies in the information, the manufacturer's documentation takes precedence.

The operating instructions shall be provided to the following groups of people who:

- **operate** the machine
incl. preparation, care, simple troubleshooting
- **service** the machine
(maintenance, repairs)
- **transport the machine**
(e.g., as a trailer towed behind a tractor vehicle or as cargo)

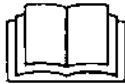
In addition to the operating instructions, and to the mandatory and effective rules and regulations for accident prevention in effect in the country and place of use, the generally recognized technical rules for safe and proper working must also be observed.

Note:

Since the extent of the delivery depends on your order, the descriptions and illustrations may slightly differ for your machine or equipment.

Subject to technical changes, factual errors und printing errors.

General Safety Instructions



Please carefully read and heed the operating instructions and safety instructions before operating the machine.

The machine with its design and construction, as well as in the specific configuration we have placed on the market, comply with the relevant and essential safety and health requirements of the Machinery Directives 2006/42/EC.

However, there is still a considerable risk with the machine that the body and life of the user or a third party may be endangered.

The machine described herein must only be used by trained personnel. * Improper use can impair safety! Anyone working with the machine must not be wearing any loose clothing, have loose long hair or be wearing jewellery, including rings.

If regulations require the wearing of protective equipment, it should be used.

To ensure proper functioning and operational safety, when using or servicing the machine, general safety precautions, as well as the special safety instructions in the operating instructions must be followed. Special warnings and precautions are clearly marked on the corresponding place on the machine. These warnings and precautions must be kept in good condition.

If, for any reason, safety is impaired, the equipment must be taken out of service and labelled as such, so that a third party does not put it into operation.

Any malfunction shall be reported to the appropriate site.

The machine shall not be altered without the manufacturer's consent; therefore, only original replacement parts shall be used.

Work on specialized components, such as electrical equipment, shall only be carried out by specialized professionals.

All users must be trained in the use and storage of fire extinguishers, as well as on fires and the potential for fighting fires.



Please note, that for commercially used cable winches, an annual **UVV Safety Check must be made to the rules and may only be carried out by technical personnel!**

*For more information, see the use guidelines in accordance with the EC requirements.

Trailer approval

The trailer approval is country-specific. Please find out how and where you can obtain approval for your trailer.

The following applies in Germany:

You must insure your trailer and obtain approval for road driving before you can drive on the roads.

Vehicle Inspection

The regulations for vehicle inspections are country-specific. Please find out

- when a vehicle inspection is required and
- where a vehicle inspection can be carried out for your vehicle.

Driving Licence

Depending on the country, a specific driving licence may be needed for towing a trailer. Please find out about the requirements in your country.

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1 Product Information

1.1 Machine Designation:

Please write below of the characteristics, machine model, vehicle identification number and manufacturing year of the machine.

Machine model :

Machine identification number :

Year of manufacture :

1.1.1 Chassis Type Plate

The chassis type plate is mounted on the chassis of the machine.



1.2 Manufacturer:

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 Cable Laying Machinery and Equipment
 Hunenkamp 6-12
 D-24576 Bad Bramstedt /Germany
 Tel.: +49(0)4192/81 601-0; Fax +49-(0)4192/81 601-60

2 Safety Instructions

2.1 Definition of Designated Use

The machine must only be operated in technically perfect condition, in accordance with its intended use, with full observance of the instruction manual and included technical safety instructions in a safe and environmentally friendly way.

Any malfunction, which may impair safety, must be immediately corrected in an authorized professional workshop.

2.1.1 Field of Application or Use:

The operational safety is only ensured with intended use.

2.2 Safety Instructions

To safely handle the machine, a few safety instructions must be followed. Please read these instructions carefully.



Note

The machine has a few highly visible information and warning stickers. Do not remove information/warning stickers. If they are missing, you or others may not recognize dangers and may therefore become injured.

2.2.1 Safe Operation

The machine is operationally reliable. It is built according to state-of-the-art science and technology.

However, the machine can be dangerous in the following circumstances:

- The machine is not used in accordance with its intended use
- The machine is used improperly
- The machine is operated in inappropriate conditions

The following note is valid for anyone who works on or with the machine:

- During repair or conversion work, precautions must be taken that, no one can be injured by dangerous machine parts.
- The engine will warm up during operation.
- All protective covers must be installed
- Changes in operating behaviour (altered movements, malfunctions) shall be reported immediately
- Do not wear clothing or carry anything that could get caught in moving assemblies (e.g., necklaces or bracelets)

2.2.2 Unacceptable Operating Conditions

When operating conditions are unacceptable, work safety cannot be guaranteed. Therefore, it is essential to avoid unacceptable operating conditions.

In the following conditions, the machine must not be operated when:

- People or objects are found in the danger zone
- Safety devices are not working or have been removed.
- Malfunctions are detected.
- Damages are detected.
- Servicing intervals have been exceeded.

2.2.3 Information on Operating the machine

Preventive measures and a security-conscious and precautionary behaviour on the part of the personnel prevent dangerous situations from arising during machine operation.

The following points must be considered when handling the machine:

- The machine must only be set up and installed by qualified personnel.
- The machine must only be operated by qualified personnel.
- Faults or malfunctions must only be fixed when the machine has been switched off and is in "Safe Off" state. In this case, use the emergency stop switch.
- Safety devices should not be altered, dismantled, bypassed or taken out of service.
- Structural modifications to the machine are not allowed
- Work areas must not be altered.
- Any alteration to the machine shall be immediately reported to those responsible.
- The danger zone must be kept free of obstacles. Only when the machine is powered off, should personnel enter the danger zone. Objects must not be put in the danger zone.
- Ensure that during the, operation of the machine that no unauthorized person can enter the work or danger zone. Secure the areas concerned as needed with safety barriers or similar devices.

2.2.4 Note on Using Accessories and Aids

When installing accessories or aids, e.g., the swivel, safety devices must not be deactivated or taken out of service.

2.2.5 Note on Environmental Protection

Safety conscious conduct and foresight means avoiding environmentally hazardous effects.

The following principles apply for environmentally responsible behaviour:

- Environmentally hazardous substances should not touch the ground or the sewer system.
- Regulations for prevention, disposal and processing of waste are to be respected.
- Environmentally hazardous substances must be stored in sealed containers.
- Containers with environmentally hazardous substances must be clearly labelled.

2.2.6 Additional Provisions

The proper functioning of the machine is, in addition to these instructions, governed by laws and provisions.

The following regulations must be followed for the use of the machine:

- Provisions on the use of the machine (including laws and provisions not expressly mentioned in these instructions)
- Accident prevention rules
- Binding corporate rules
- Notes on the machine

2.3 Operator's Obligations

2.3.1 Planning and Checking Safety Measures

The operator is required to plan safety measures and ensure they are followed.

2.3.2 Minimizing the Risk of Injury

The following principles apply for minimizing the risk of injury:

- Work on the machine must only be carried out by qualified personnel.
- Personnel must have been authorized by the operator to perform a given duty.
- Personnel must familiarize themselves with all safety devices before beginning work.
- Ensure that the safety devices are never overridden. Check regularly if your personnel has also followed this!
- Personnel must familiarize themselves with the operating elements before beginning work.
- For the machine, the work station and its surroundings a must be kept neat and clean.
- Personnel must wear the required protective equipment for this machine
- During operation, an on-call qualified first aid worker, who has the requirements for providing first aid, must be available.
- Procedures, competences and responsibilities regarding the machine are unambiguously clear. Operating behaviour in the event of machine malfunction or fault must also be clear to everyone.
- Personnel must be regularly instructed on this.
- Warning signs and instructions on the machine that are complete and perfectly legible. Therefore, the warning signs and instructions are to be cleaned regularly or replaced.

2.3.3 Trouble-Free Operation of the machine

The following principles apply for the trouble-free operation:

- The operating instructions are complete, perfectly legible and be kept on hand at the site of use of the machine.
- The machine is used only as intended.
- The machine is operated exclusively in fault-free, fully functional condition.
- Before beginning work, the operating condition of the machine is checked.
- The functioning of the machine and safety devices is regularly monitored.



Carry out regular inspections. This ensures that this measure will be followed.

2.4 Qualifications of Personnel

In this section, you will find information on how personnel must be trained to work on the machine.

All work on the machine requires that personnel have special knowledge and skills.

Everyone who works on the machine must meet the following requirements:

- Personally suited for the given work.
- Sufficiently qualified for the given work.
- Trained in handling the machine.
- Familiar with the safety devices and their functions.
- Familiar with the operating instructions especially safety notices and sections relevant to the given work.
- Familiar with the basic rules of occupational safety and accident prevention.
- In principle, all people must have the following minimum qualifications:
- Trained as a qualified worker on carrying out independent work on the machine.
- Sufficient training to be able to work under the supervision and guidance of a qualified specialist in how to carry out work on the machine.

In these operating instructions, we shall differentiate between the following user groups

User Groups

Personnel	Qualifications
Operating personnel	Adequate training in the areas of: • Operating sequences of the machine • Operating procedures on the machine
	Knowledge of: • Skills and competence for the work • Behaviour during malfunction
Servicing personnel	Authorization to carry out the work (according to the safety technology standards): • Commissioning of devices • Labelling of devices
	Worn and strongly contaminated steel cables may break under a load.
	Sound knowledge of the design and function of the machine

The following duties must only be carried out by personnel with specialized knowledge:

Activities and Knowledge

Job	Qualifications
Work on hydraulic equipment	Specialized knowledge and experience related to hydraulics
Work on mechanical equipment	Industrial mechanics or Training, with work done strictly under the guidance and supervision of an industrial mechanic in accordance with good engineering practices.

2.5 First Aid Instructions

This section contains specific first aid measures to be taken in case of an accident.

Safety notice: The material to be processed can be hazardous to your health!

Please pay attention to the instructions in the corresponding safety data sheets.

Should you or another person be injured when working on the machine:

- Keep calm
- Give First Aid
- In all cases, contact the company first-aid worker
- Report it to the appropriate supervisors or their representatives

If you must set off an emergency call, think about the following points:

- What happened?
- Where did it happen?
- Who reported it?
- How many injured?
- Answer questions



TIP

Be familiar with the emergency call system and life-saving devices in your area, e.g.:

What is the emergency number?

Where is the nearest telephone?

Where is the nearest fire alarm?

Where can I find a fire extinguisher?

Where do I find the nearest first aid kit?

Attend a first aid course to be able to immediately help in cases of emergency.

2.6 Safety Devices

2.6.1 Overview

Safety devices should be placed at the dangerous sections of the machine. Without properly configured safety devices, people can sustain life-threatening injuries with the machine. Safety devices shall not be altered, dismantled or taken out of operations. All safety devices must be freely accessible at all times.

The machine is equipped with safety devices at its danger points. Become familiar with all safety devices, since they ensure that, in the event of an accident, any injury to people and/or damage to machinery will be prevented or minimized.

2.6.2 Fixed Safety Devices

Fixed safety devices prevent or restrict direct access to rotating or moving parts or components of the machine. They must only be removed during servicing or repair work and are replaced before restarting the equipment.

2.6.3 Mobile Safety Devices

Moving safety devices include the protective covers and flaps that open.

2.6.4 Regard to the use of accessories and tools

Upon insertion of accessories or aids the safety devices of the machine must not be rendered inoperative

2.6.5 Remaining Dangers

The safety devices for the machine effectively protect personnel from injury. However, certain types of activities make it unavoidable to work in dangerous areas. Other types of hazards cannot be completely eliminated in these areas. By having employees wear personal protective equipment and behave in a safe and conscientious manner, dangerous situations can be avoided.

Danger	Cause	Measure
Danger of injury	Pivoting the loading frame	Never reach into the zone as long as the loading frame is still moving! Maintain adequate safety clearance
Environmental damage	Liquid operating fluid could leak	Collect liquid operating fluid in suitable containers and dispose of in accordance with valid local regulations.

2.6.6 Warning Signs

Dangerous areas on the machine are marked with warning/danger signs in accordance with DIN 4844 and BGV A8 (VBG 125).

Overview of Warning Signs

Warning Sign	Meaning
	Warning: Entanglement hazard
	Warning: Hot surfaces

Overview of Danger Signs

Danger Sign	Meaning
	Danger: Follow instructions
	Danger: Wear work boots
	Danger: Use head protection
	Danger: Wear work gloves

2.6.7 Emergency Stop Devices

The emergency stop button triggers the emergency stop function. The capstan winch will safely stop.

The capstan winch features an emergency stop button on the control panel.

Triggering the Emergency Stop

Press the emergency stop button in an emergency, in order to stop the capstan winch. Follow the steps below:

➔ Press the **EMERGENCY STOP BUTTON**.

- The **EMERGENCY STOP BUTTON** engages in the pressed position.
- The capstan winch stops all movements.
- The **PULL** indicator lamp will turn off.
- The **STOP** indicator lamp will light up.
- The capstan winch engine will turn off.
- All hydraulic functions will stop.

✓ The emergency stop is activated.

Resetting the Emergency Stop

When there is no more danger: Before restarting the capstan winch, reset the emergency stop function.

Follow the steps below:

➔ **Stretch out and pull** the knob of the **EMERGENCY STOP BUTTON** at the same time into its original position.

- The **PULL** indicator lamp lights up.

✓ The emergency stop is reset.



TIP

If the emergency stop function does not reset, stop all work on the capstan winch. Inform the servicing personnel and your supervisors.

3 Machinery Overview

3.1 Intended Use

The capstan winch is exclusively designed to pull cables and empty pipes in and out on a horizontal plane. Depending on the machine model, the maximum pulling force can reach

Type	Pulling force
KE-SP 2010	10 KN
KE-SP 2020	20 KN
KE-SP 2030	30 KN

Any other or exceeding use is considered improper use.

The capstan winch is not intended specifically for:

- hosting loads
- lifting people



TIP/Information

The manufacturer does not accept liability for any improper use of the capstan winch.

3.2 Technical Data

	Briggs & Stratton Petrol Engine	Lombardini Diesel Engine	Kubota Diesel Engine
Leistung	11,8 kW	11 kW	15,4 kW

	KE-SP 2010	KE-SP 2020	KE-SP 2030
Max. pulling force	10 KN	20 KN	30 KN
Cable	Ø 6,5 mm 6x19+SE znk 1960 sZ	Ø 8 mm 6x19+1SE znk 1960 sZ	Ø 9,5 mm 6x19+1SE znk 2160 sZ
Min. breaking load of the cable	33 KN	47,7 KN	72 KN
Length with towbar (straight)	ca. 3250 mm		
Length with towbar (height-adjustable)	ca. 3550 -3900 mm		
Width	ca. 1650 mm		
Height	ca. 1400 mm		
Lighting	StVZO		

3.2.1 Standard Accessories

Various accessories come with the capstan winch. The accessories are found in a separate box inside the capstan winch.

The following accessories come with the capstan winch:

- Swivel
- Toolbar and on-board accessories for the capstan winch

3.2.2 Documentation Included

The following plans are found in the documentation delivered:

- E-circuit diagram for taillight installation
- Hydraulic diagram
- Engine manufacturer's handbook
- Handbooks for the chassis

3.3 Description of the Function of the Capstan Winch

Two people are required for operation of the capstan winch. One person operates the capstan winch from the control panel. The second person moves the steel cables during unwinding as well as monitoring the steel cable during the winding process.

Before being put into operation, the capstan winch must be set down and positioned properly.

After the capstan winch has been turned on, the steel cable is unwound, and placed along the pulling route. A swivel is attached to the steel cable loop. The swivel is connected to the pulled cable with the provided fasteners.

Now the pulling operation is started and controlled via the operating controls of the capstan winch.

A Pulling Force Tester monitors the pulling force, pulled length and pulling speed parameters. The monitored parameters appear on the monitoring unit, and can be stored and printed out.

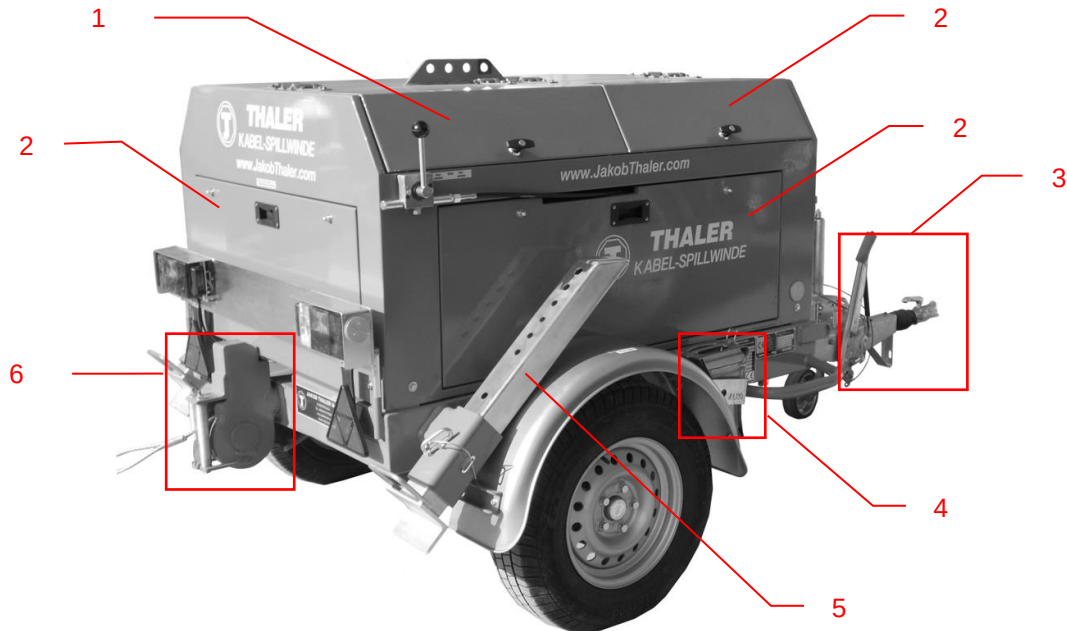
The cable pulling area and pulled cable must be monitored by the operators during the pulling operation.

After completing the pulling operation, the capstan winch is once again set down and positioned properly.

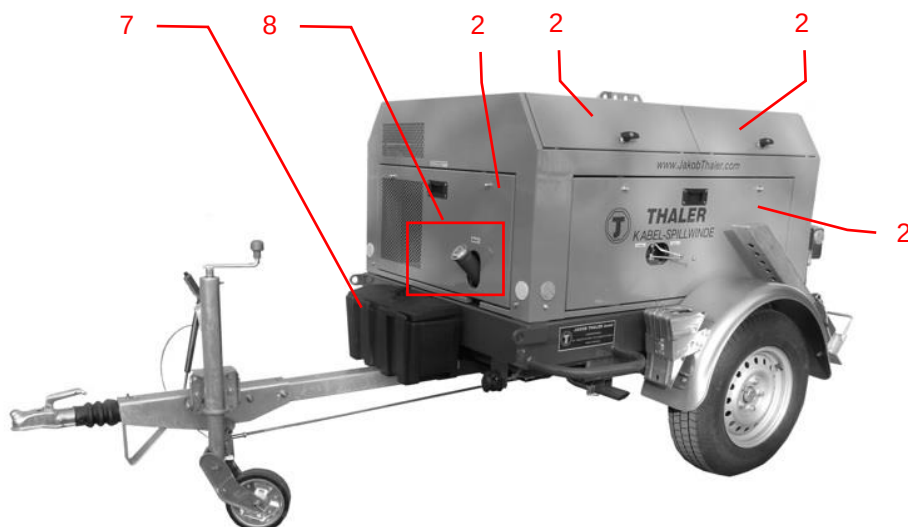
Then the steel cable can be unwound and laid along the pulling route again.

3.4 Parts of the Capstan Winch

3.4.1 Overview

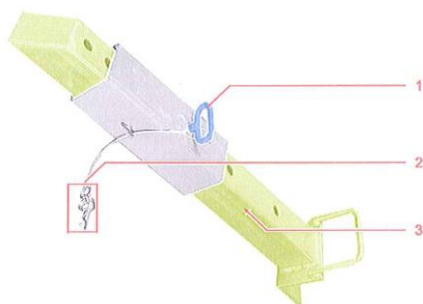


No.	Description	Function
1	Protective Cover Operating Area	The protective cover protects the control panel and the operating control of the capstan winch. The operating area is located under this protective cover.
2	Safety Guards Servicing Area Repair Area	The protective covers protect the parts inside the capstan winch. The protective cover must be opened to allow or servicing and repair work on this capstan winch.
3	Pulling device	The capstan winch is fitted to a trailer with overrun braking with the option of a straight or height-adjustable towbar. More information is found in the separate towbar operating instructions. These instructions are found in the documentation provided with the capstan winch.
4	Chock	The chock provides roll-away protection for the capstan winch. Depending on the conditions, the chocks must be positioned in front of or behind the tires of the capstan winch. In addition, the chocks stabilize the capstan winch during cable pulling.
5	Support	Serves to support the winch when pulling cables and is incrementally adjustable.
6	Cable pulling area	See the section on Cable Pulling Area



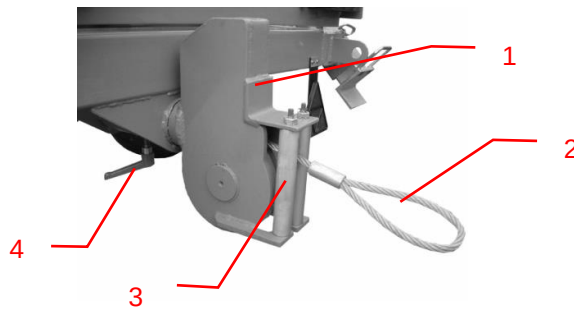
No.	Description	Function
2	Safety Guards Servicing Area Repair Area	The protective cover protects the parts inside the capstan winch. The protective cover must be opened to allow or servicing and repair work on this capstan winch.
7	Accessory Box	The accessory box contains the standard accessories provided with this capstan winch.
8	Filler neck	Filler neck for fuel tank When handling fuel at the filling station, respect the displayed safety instructions.

3.4.2 Support for Capstan Winch



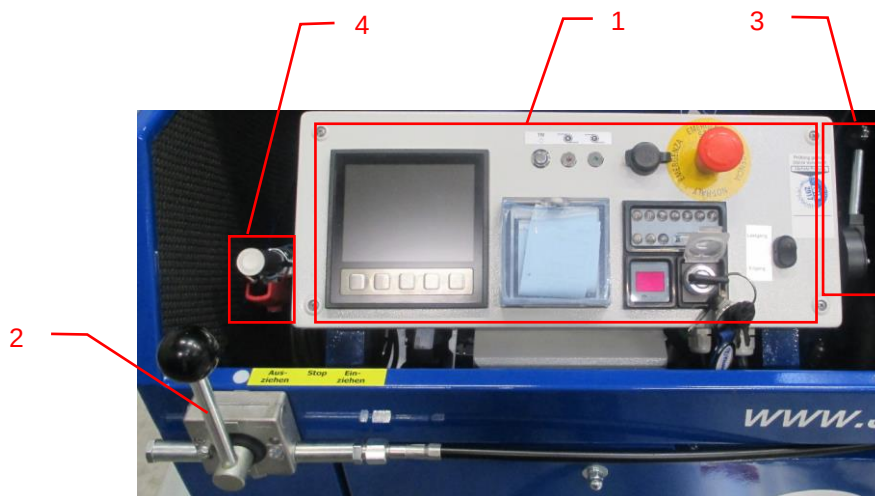
No.	Description	Function
1	Safety bolt	The safety bolt allowed to secure the support leg to the rear support assembly of the capstan winch.
2	Cotter pin	Secures the safety bolt and prevents it from accidentally being pulled out.
3	Support leg	Serves to support the capstan winch during cable pulling operations.

3.4.3 Cable Pulling Area



No.	Description	Function
1	Pivoted cable roller	Correctly guides the steel cable und power intake during the cable pulling.
2	Steel cable	The steel cable is fastened to the pulled cable.
3	Guide pulley	The guide pulley correctly guides the steel cable over the cable roller.
4	Locking lever for the cable roller	The locking lever allows to remove or lock in place the pivoted cable roller.

3.4.4 Operating Area

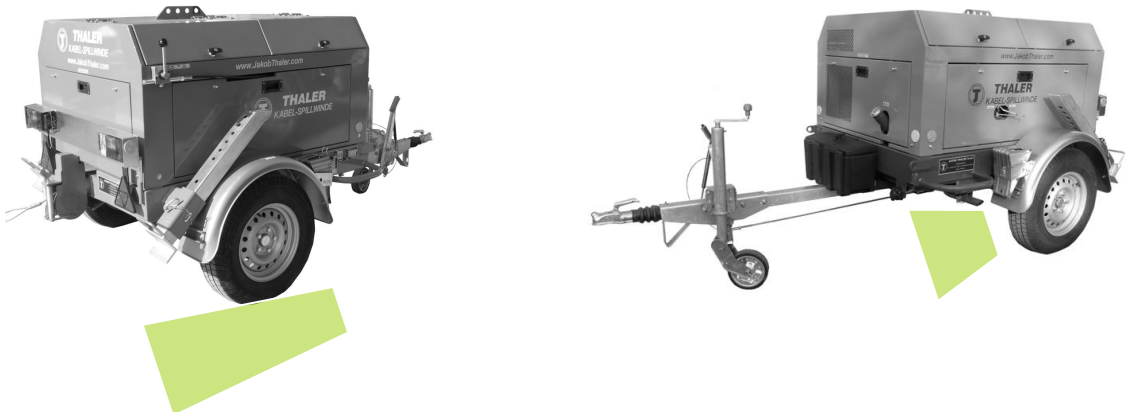


Nr.	Bezeichnung	Funktion
1	Control panel	
2	Operating lever	Lever to control and regulate the direction of rotation, speed and the applied pulling force of the winch.
3	Regulation lever	The regulation lever allows to adjust speed of the drive engine.
4	Dead man's button	Serves as a safety device for the capstan winch. The red knob must be pressed during pulling operations. If the operator releases the red button, the hydraulic drive of the capstan winch will automatically shut off.

4 Work and Danger Areas for the Capstan Winch

4.1 Work Areas

Work areas must be kept obstacle free for service staff. Make sure that there are no objects in this area.



4.2 Danger Areas

The mechanical danger areas for this capstan winch are secured through structural and control-related measures. Nevertheless, some parts can become very hot. Do not touch these parts.



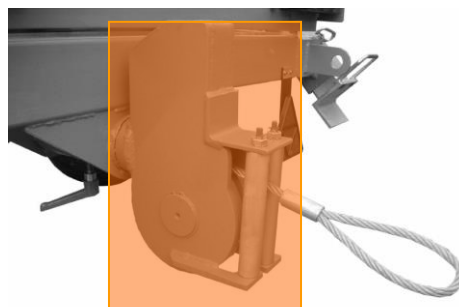
Risk of poisoning!
Exhaust gases are poisonous and can result in unconsciousness and/or death.

When running the engine, ensure there is sufficient ventilation, and never leave the engine running in a closed room without a suitable exhaust system



Danger area: exhaust

In addition, there is a risk of entanglement in the entire cable pull area. You should never touch into the area during cable pulling operations. 5 Setting up the Capstan Winch

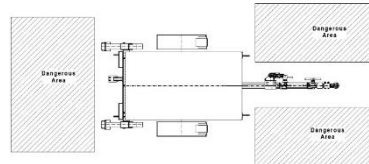


Danger area: Cable pulling area

5 Setting up the Capstan Winch

Depending on the type of transportation used, the capstan winch must always be properly and safely set up. This section contains information on, you will find information on the safe setting up of the capstan winch.

Around the capstan winch, the area must at all times be free of any obstacles and easily accessible.



Follow the steps below:

1. Adjust the capstan winch in the pull direction.



When aligning the capstan winch, pay attention to the cable pulling area.

2. Pull out the safety bolt of the support legs of the capstan winch.
3. Lower both support legs of the capstan winch.



The support legs must be lowered until they make contact with the ground.

4. Place the chocks under the tires of the capstan winch.



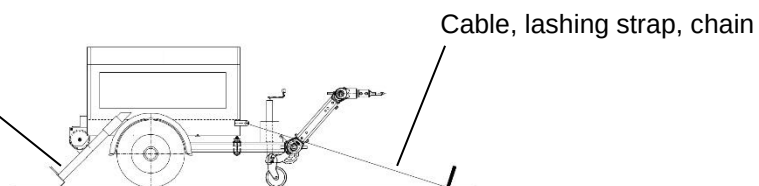
The chocks must not be used to level the winch on non-level ground.

- 5.



The winch must be attached to the towing vehicle or be secured using the appropriate lashing devices (cable, lashing strap, etc.) through the holes provided. Non-compliance can result in tipping!

Support completely lowered to the ground



Cable, lashing strap, chain

- ✓ The capstan winch is secured against unintended rolling away.
- ✓ The capstan winch is adjusted.
- ✓ The capstan winch is securely in place.
- ✓ Ready

5.1 Information on the Cable Pulling Area

Safety Information: Risk of tearing the cable roller!



Vertical cable pulling is not possible with this capstan winch.
For vertical cable pulling, the capstan winch must be supported with a special angled mast.
A suitable angled mast is available from Jakob Thaler GmbH.

The capstan winch has a delimited cable pulling range. The cable must only be pulled using this capstan winch within this cable pulling range. Before setting up the capstan winch, make sure that the capstan winch is safely set up, so that the capstan winch can be positioned within this cable pulling area.

The cable roller has a deflection angle of **180°**. The capstan winch is only suitable for horizontal pulling. Therefore, the cable roller must always be set up in the required pulling direction. At full pulling power, the deflection over the chain roller must be no more than **30°**.

In no case shall the deflection of the pulling chains be done over the guide plies!



Prohibited deflection of the pulling cable over the guide pulleys.

The following pictures show the allowable sites for the cable roller.



Normal position for horizontal pulling – deflection angle over cable rollers: **30° maximum**.



Pull cable rollers turned 90° to the right – deflection angle over cable rollers: **30° maximum**.



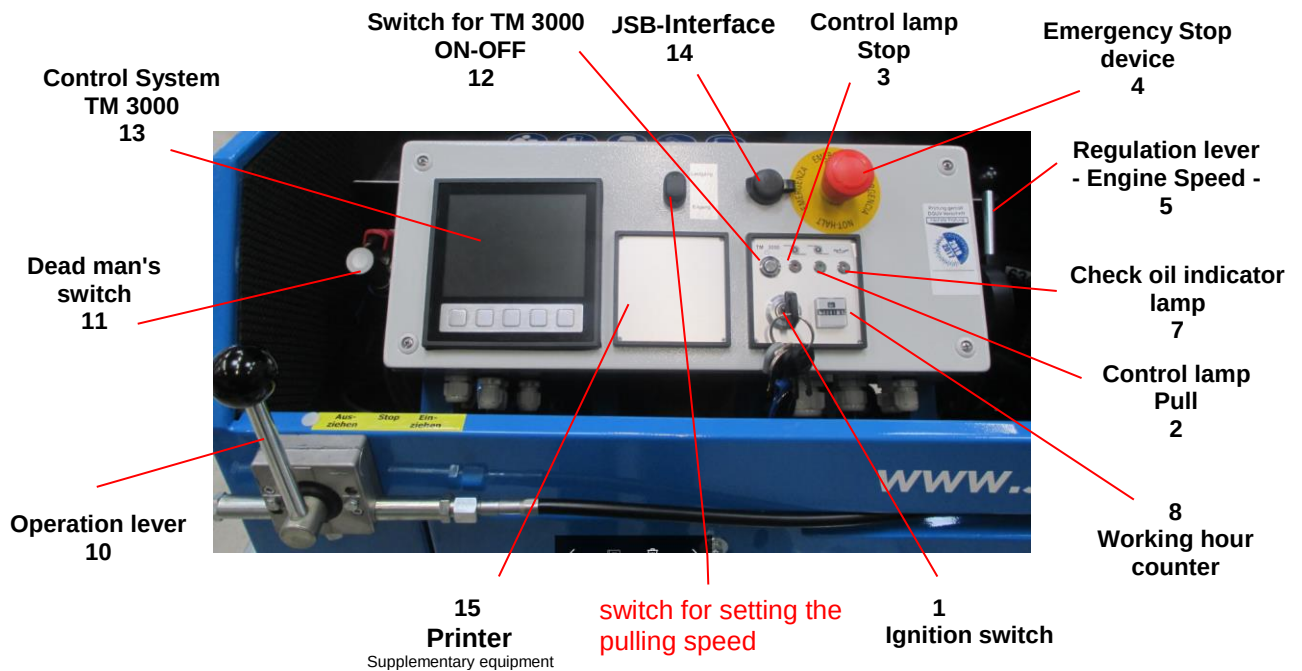
Pull cable rollers turned 90° to the left – Deflection angle over cable rollers: **30° maximum**.

6 Operating the Capstan Winch

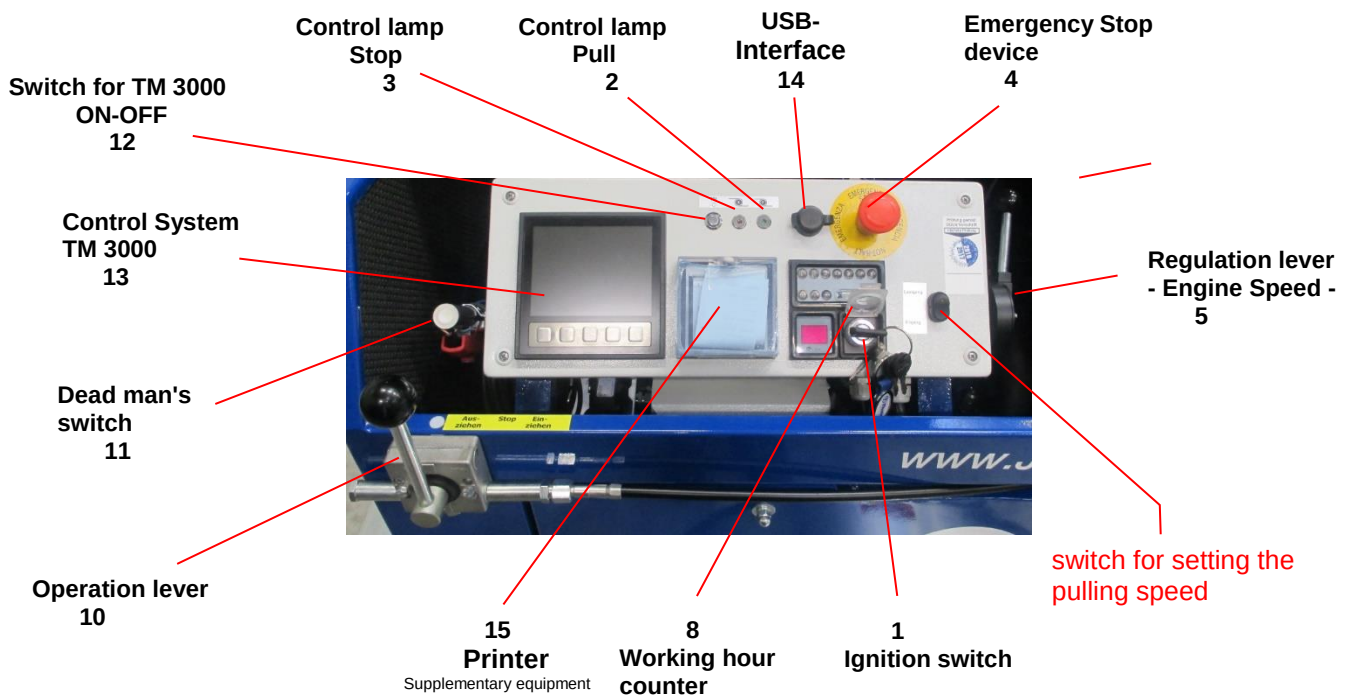
Two people are required to operate the capstan winch. One person operates the capstan winch from the control panel. The second person moves the steel cables during unwinding as well as constantly monitors the steel cables during the winding process.

6.1 Operation Panel

Briggs & Stratton Petrol engine



Lombardini / Kubota diesel engine



Setting the Pulling Speed

Through simple manual switching, the pulling speed can be preselected (depending on the preset pulling force).

Load speed
Rapid traverse



Operation Panel



Never remove safety equipment!

Do not touch into running machine!

Read the separate operating instructions of manufacturer, before the starting the engine.



Pos. 1 Ignition switch-petrol engine

Before starting the engine, read the separate operating instructions of the engine manufacturer

Set the winching lever (10) into "zero-position"

Turn ignition key clockwise to "ignition position", then further in "start position", as soon as the engine is running release the ignition key.



Never leave the ignition key for longer than 8 seconds in the start position in order to save battery and starter.

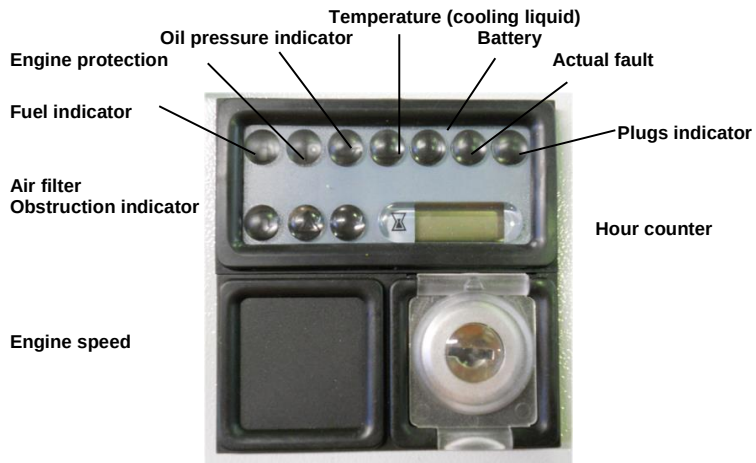
Never turn the ignition key on -start- when engine is running.

Operation Panel



Pos. 1 Ignition switch diesel engine

Indicators



Before starting the engine, read the separate operating instructions from the engine manufacturer.

The hand lever (10) is in "zero"-position.

Turn the ignition key to the right into the ignition position, the engine starts to warm up.



Wait until the warming up indicator lamp goes out, and then turn the key further to the start position; release the ignition key as soon as the engine starts up.



i Never turn the ignition key on -start- when engine is running.

The indicator lamp lights up when the engine has started and all other indicator lamps are turned off.

Operation Panel



Pos. 2 Control lamp, green - Operation –

The green control light indicates proper function of the electric control circuit.

The red handle of the dead man's switch (11) must be pressed.

The emergency stop button (4) has to be reset.



Pos. 3 Control lamp, red - Stop-

The red control light is switched on when the Emergency-stop button is pressed, the dead-man's handle switch is not pushed or the trip-off contact of the TM 3000 has stopped the winching process.



Pos. 4 Emergency Stop device

By pressing the emergency stop button the winching process get out of order immediately. Unlock by turning left.



Pos. 5 Regulation lever - Engine Speed –

This lever regulates the speed of the drive engine. The engine speed must be adjusted on the actual pulling force of the winch. Start the cold engine with approximately half speed. When the operation temperature is reached adjust the speed accordingly.



Pos. 7 Control lamp - Temperature monitoring – of the engine

This lamp must be off when the engine is running. If not, the engine must be stopped immediately. Check the engine oil level.

If required top-up the oil level. Start the engine again. If the control lamp still burns, contact a service station of the engine's manufacturer.



Do not try to start the engine if the indicator lamp illuminates again. Damages or destruction of the engine are possible.



Pos. 8 Working hour counter

The working hour counter displays the accrued operation hours of the winch.

This is important for maintenance intervals.

Operation Panel



Pos. 10 Operation lever

For pay-out the wire rope, turn the lever to the left. For pulling-in turn the lever to the right. The grade of deflection of the lever increases or decreases the line speed of the winch. For winching-in keep the lever in a position that there is a proper balance between required pulling force and line speed.



The red handle (dead-man's handle) must always be switched on for winching-in or out!



Pay-out the rope only until the color marked end of the rope appears! Stop pulling out immediately to avoid that the rope will be pulled off the capstan unit!



When pressing the emergency-stop (if the limited value of the measuring system - pulling force and length - are exceeded and the winching operation is stopped automatically) this lever must set back into "Zero" position to allow a re-start of the winching function.



Pos. 11 Dead man's switch

The red handle of the dead man's switch must be pressed during the pulling operating process; otherwise the hydraulic drive switches off. To restart the machine first put the operating lever to "Zero" – position



Pos.12 ON-OFF button for Control system TM 3000

For monitoring the winching process with the TM 3000 (13) press the button.



Pos.13 Control system TM 3000

please read detailed description in chapter 7

Operation Panel



Pos. 14 USB - Interface

USB interface to the analysis of the winching process data on the PC / laptop.



Pos. 15 Printer (Supplementary equipment)

By means of the protocol printer, the possibility exists to print the data of the winching process immediately

6.2 Putting into Operation

In the following sections, you will find information on putting the capstan winch into operation.

INFO

Before starting the capstan winch, you must make sure that the following questions can be answered with a “Yes”:



- Are all safety devices, as intended by the manufacturer, assembled and working correctly?
- Is the working area free of materials and objects that are not necessary for operations?
- Are only authorized people in the working area of the capstan winch?
- Are no people in the danger area of the capstan winch?
- Can no one be injured during the operation of the capstan winch?
- Do I know what to do if there is any malfunction?

6.2.1 Turning on the Capstan Winch

Prerequisites:

- The capstan winch is correctly adjusted and positioned.
- All protective covers are assembled and closed.
- Operating controls are not damaged.
- The safety devices are working correctly.
- The emergency stop button/stop button is not activated.
- The ignition key is in the ignition switch.
- The fuel tank has sufficient fuel.

1. Set the **CONTROL LEVER – ENGINE SPEED** at half speed.



2. Set the **«OPERATION LEVER»** in zero position



3. Select the setting for the pulling speed.

Load speed or rapid traverse



4. Turn the **Ignition key** clockwise to start the engine.



? *The oil level indicator lamp is not turning off?*

- Immediately stop the engine.
- Fill with a suitable motor oil.

? *The alternator indicator lamp for the light machine is not going out?*

- Have an electronic specialists inspect the electrical system.

? *The engine does not start?*

- You have not allowed the diesel engine to warm up. Wait until the indicator lamps for the glow plug to turn off and turn the **IGNITION KEY** further to the right.
- Check the level of the fuel tank and top off with fuel if required.
- For more information, see the Operating Instructions for this engine.

5. Change the engine speed using the **CONTROL LEVER – ENGINE SPEED**.

! As long as there is no cable pulling being carried out, the engine speed can be adjusted.

✓ Ready



IMPORTANT

After repair work or long periods of non-use, carry out a test run before working with the capstan winch.

6.2.2 Unwinding the Steel Cable and placing it along the Pulling Route

Two people are required for the cable pulling operation. The first person (OPERATOR), operates the capstan winch and the second person (ASSISTANT). is responsible for the steel cable

Starting the winch.

Follow the steps below:

1. ASSISTANT: Take the **«EYELET»** of the rope at the **«PIVOTABLE ROPE PULLEY»**.

2. ASSISTANT: For safety reasons, always keep the tow **«ROPE»** rope under tension.

3. OPERATOR: Take the **«DEAD MAN'S SWITCH»** and press the red lever permanently during the unwinding process.

→ The function of the **«OPERATING-LEVER»** is activated. As soon as the lever red lever is released, the operating process stops.

4. OPERATOR: Press and hold the **«OPERATING-LEVER»** in position 'take-off'.

! The winding speed is continuously adjustable.

5. ASSISTANT: Pull and place the rope along the pulling route

6. OPERATOR: Put the **«OPERATING-LEVER»** to Zero position and release the **«DEAD MAN'S SWITCH»**.

→ The unreeling process stops.

The wire rope is unreeled and placed along the pulling route.



4.

→ The wire rope is unreeled.



4.

6.2.3 Assembling the Swivel and Connecting the Cable to the Steel Cable

Follow the steps below:

1. Install the swivel on the steel cable eye.

2. Connect the cable to be pulled to the swivel using the provided fasteners.

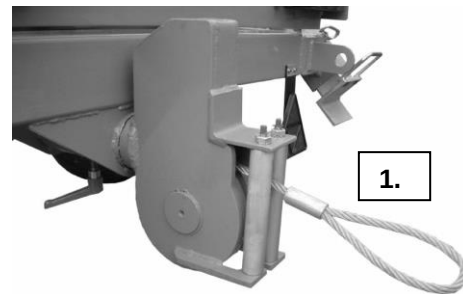
Only use perfect and undamaged cable pull grips, swivels and shackles.

The swivel is assembled and the cable is connected to the steel cable that are in perfect and undamaged condition.

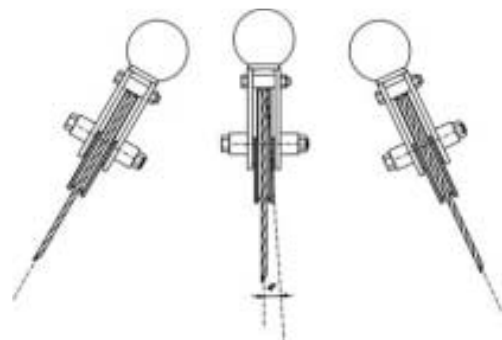
6.2.4 Applying the pulling force Follow the steps below:

1. Adjust the **« PIVOTED CABLE ROLL »**.

! Make sure that the steel cable is only pulled over the **« PIVOTED CABLE ROLL »** and not over the lateral guide rollers. If necessary, pull the **«PIVOTED CABLE ROLL»**.



Always place the cable roll in the cable pulling direction!



A maximum fleet angle of 4° allowed!

2. **OPERATOR:** Press the button **«ON/ OFF»** the **THALER- Pulling Force Control System TM 3000**

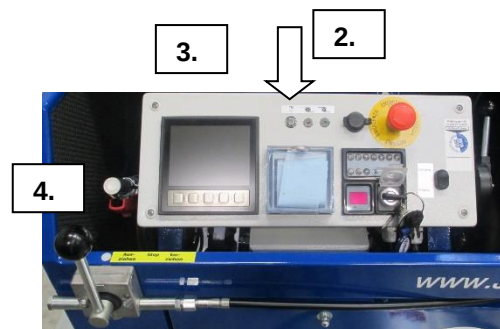
→ The **« Pulling Force Control System TM 3000»** is switched on. It monitors during the operating process the parameters tensile forces, pulling length and the pulling speed.

→ All data can be saved as PDF-files on an USB memory stick or print out (the printer is an optional equipment)

3. **OPERATOR:** Set the required parameters on **«TM 3000»**.

4. **OPERATOR:** Take the **« DEAD MAN'S SWITCH »** and press the red lever permanently during the winding process.

→ The function of the **«OPERATING-LEVER»** is activated. As soon as the lever red lever is released, the operating process stops.



5. OPERATOR: Press and hold the **«OPERATING-LEVER»** in position 'pull-in'.

! The winding speed is continuously adjustable.

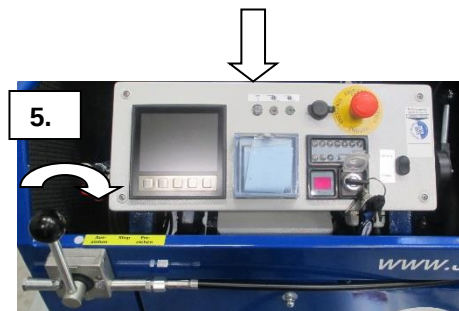
? *The wire rope is not reeled?*

This may have the following causes:

- The engine usually runs too slow.
- The **«OPERATING-LEVER»** is not enough deflected.

→ Adjust the engine speed to the pulling load by **«Regulation lever»**

→ Push the **«OPERATING-LEVER»** again.



6. ASSISTANT: Pay attention to the pulling cable.

→ The wire rope is reeled.

7. OPERATOR: Pay Attention! Don't pull the wire rope eyelet through the **«PIVOTED CABLE ROLL»**.

8. OPERATOR: Put the **«OPERATING-LEVER»** to Zero position. The pulling operation is finished.

✓ Finished



→ The wire rope is not be reeled any more.

6.2.5 Eliminating Operational Malfunctions

When malfunctions to operations occur, indicator lamps will light. Follow the steps below:

1. Fix malfunctions as soon as possible if you are authorized to.
2. Consult repair personnel for major malfunctions.
3. If necessary, inform your supervisors.

✓ Ready

6.2.6 Taking the Capstan Winch out of Service

Turn off the capstan winch.

Follow the steps below:

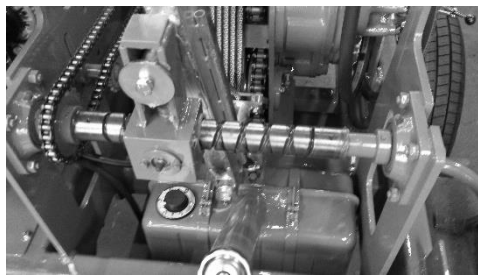
1. Push the EMERGENCY STOP button.
 - Unintentional restarting of the capstan winch is now prevented.
2. Turn the ignition key counter-clockwise to the 0/Off position.
 - The engine is turned off.

The capstan winch is turned off.

Clean the Capstan Winch

Follow the steps below:

1. Open the hood and cover flap of the capstan winch.
2. Thoroughly clean the cross-shaft.



3. Close the hood and cover flap of the capstan winch.

The capstan winch is now clean.

Checking and Replacing Fluids and Consumables

Follow the steps below:

1. Check the oil level of the engine.
 - If the measured oil level deviates from the specified level, top up the oil to the filling capacity with a suitable motor oil.
2. Check the fuel level in the fuel tank.
 - Top up the fuel to the filling capacity.
3. Check the lubrication points in the capstan winch.

Grease the lubrication points as needed.

Fluids and consumables have been checked and filled.

✓ Done

7 Pulling Force Control System TM 3000

7.1 Recording the pulling job

After switching on the TM 3000 the start windows appears.



The max. admissible pulling force particular pulling job is pre-selected as a limit value by using the + and – buttons.

+/- = small steps

++/-- = big steps

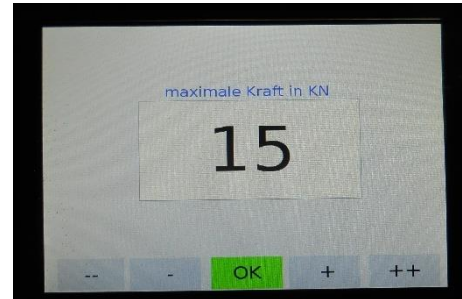
Confirm the selected limit value by operating the „OK“ button.

To stop the line-pull for a pre-selected distance press the + or - button.

+/- = small steps

++/-- = big steps

Confirm the selected limit value by operating the „OK“ button.



Picture 1 (example)

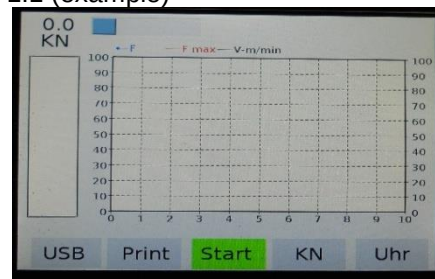


Picture 1.1 (example)

Press the „Start“ button for activating the TM.

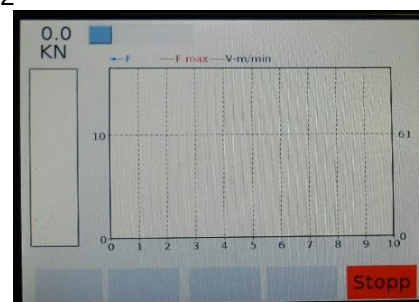
Attention!

If „Start“ is not pressed, the flashing button indicates that the TM does not record and store a pulling job! For recording make sure, the „start“ button has been pressed!



Picture 2

During the pulling job you will find this picture. In the upper part the pulling force, speed and the pulled-in length are shown in figures. The left window shows the actual pulling force as a green bar. In the middle you find a graphically indication of the pulling job. When the job is finalized press button „Stop“ TM 3000 has now saved, the job picture 2 appears again. In case the pre-selected limit value is reached during the pulling job, the TM 3000 is cutting off the pulling job of the winch. In the lower window you find „Contd.“ and „Stop“. After pressing the button „Contd.“ the pulling job can be continued. After pressing the button „Stop“ the pulling job is finished.



Picture 3

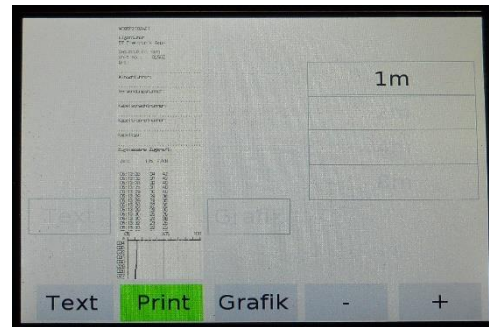
By pressing the „Print“-button the thermal printer is started.

Using the buttons + and – the length of the protocol can be selected i.e. you select if the print out of the values has to be effected every 2, 4 or 8 meter.

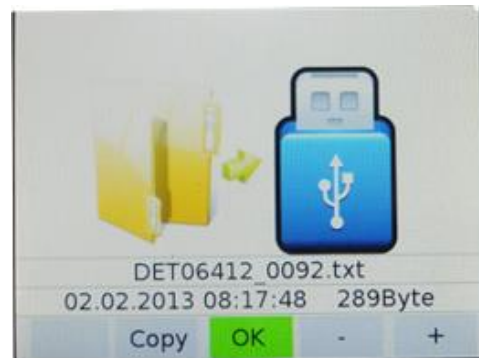
Using the buttons „Text“ and „Diagram“ the details of the protocol are determined

After finishing the print out the device is showing again picture 2.

If a USB stick is fit into the port and the „USB“-button is pressed the values which are stored into the device can be transmitted to the USB stick. The description field is always showing the last pull. Using the buttons + and – you can read back the stored pulls according to date. By pressing the „OK“ button the pull which has been read back is transmitted to the stick. Using the button „Copy“ and pressing the „OK“ button all stores pulls are transmitted to the stick. After finishing the transmission, the device is showing again picture 2.



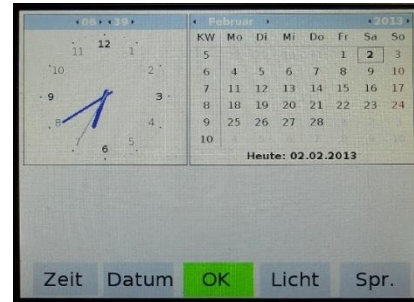
Picture 4



Picture 5

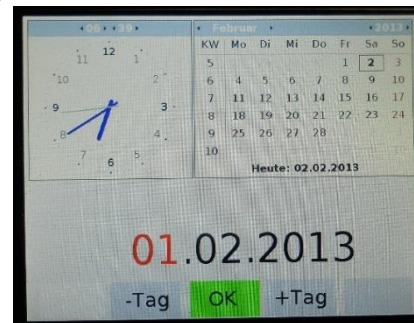
7.2 Adjustments

Pressing button „Clock“ picture 6 appears. In this mode time, date, screen brightness and language can be modified



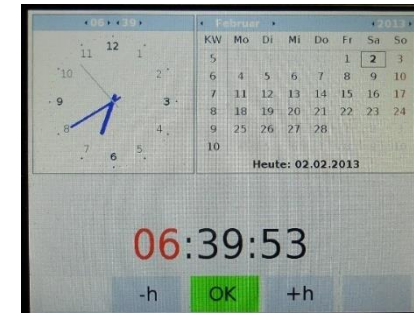
Picture 6

Pressing button „Date“ picture 7 will appear. Using the buttons „-Day“ and „+Day“ the day can be selected and has to be confirmed by pressing the „OK“ button. The indication jumps to month. The month can be adjusted by using „-Month“ and „+Month“ and confirmed by pressing the „OK“ button. The indicator jumps to the year. Finish the adjustment by using the „OK“ button.



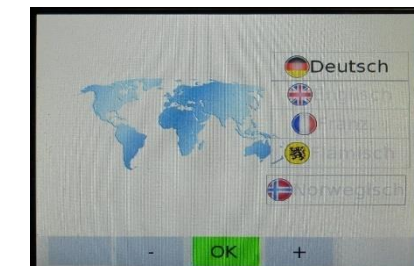
Picture 7

By pressing the button „Time“ the time can be adjusted – analogue to the adjustment of the date.



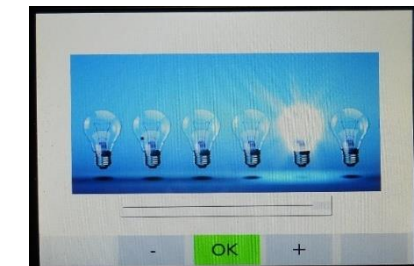
Picture 8

By pressing the button „Spr.“ you arrive to the language adjustment and can select the requested language by using the buttons + and –



Picture 9

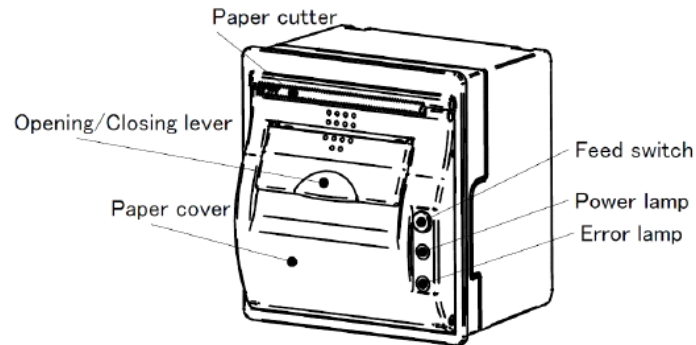
By pressing the button „Brightness“ you reach the adjustment of the brightness. Using the buttons + und – the brightness can be defined and confirmed by using button „OK“.



Picture 10

7.3 Printer DPU-D2/D3 / Feeding of printer paper

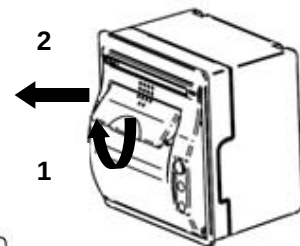
Front



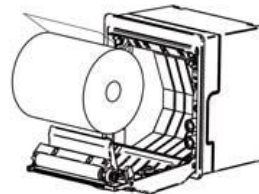
Paper change

Switch off the printer.

1. Pull the Opening/Closing lever up to release the paper cover lock.
2. Pull the Opening/Closing lever toward to open the paper cover.



Insert the thermal paper coil as shown



Leave the thermal paper edge from the printer, press the centre at the top face of the paper cover and close it.



Maintenance

Switch off the printer.

Clean the printer's surface with a dry and soft cloth or a cloth with a weak neutral detergent after switching off the electricity.

Attention!

DO NOT use abrasive liquids such as thinner or benzene

DO NOT allow that any liquids drop into the internal part or slot of the printer.

8 Transporting

8.1 Basic Principles

Safety-conscious and foresighted employee behaviour is required to avoid dangerous situations during transport.

The following principles apply to transporting the capstan winch:

- Transportation must only be carried out by qualified personnel.
- Moving parts must be properly secured.
- For transportation, suitable, ideal lifting equipment and hoist must be used.
- When transporting, take into account the weight of the capstan winder as well as the location of the centre of gravity.

Prepare the capstan winch for transportation as follows:

- The capstan winch must be taken out of service before transporting.

During transportation, observe the following guidelines:

- Comply with sections on accident prevention as well as local regulations.
- No person should be under a suspended load.
- Lifting equipment must only be used in the intended way.
- Lifting equipment must be designed and approved for the weight of the capstan winch.
- Only use lifting equipment in perfect condition.
- The capstan winch must be carefully transported.

8.2 Type of Transportation

The capstan winch can be coupled to and drawn by a towing vehicle. In addition, there is the possibility of loading the capstan winch using a crane. In the following sections, you will find information on the means of transporting the capstan winch.

8.2.1 Transportation Using a Towing Vehicle



Safety Information

Please carefully read the following information!

- Check the authorized support load and towing capacity of the towing vehicle.
- Ensure that no person is between the capstan winch and the towing vehicle.
- Ensure that the coupling height of the towing vehicle corresponds to that of the capstan winch.
- The trailer coupling must only be adjusted when in an uncoupled position.
- Before starting the trip, check that the capstan winder is correctly coupled to the towing vehicle.

Connecting the Winch to the Towing Vehicle

When connecting the winch to the towing vehicle, many accidents unfortunately happen involving injuries and often also damage to the winch and/or to the towing vehicle. Therefore, here are some tips.



Safety Information:

For safety reasons, make sure that no one is between the winch and towing vehicle.

The pulling device with towing eye or ball and socket coupling must be set to the height of the coupling of the towing vehicle. This is achieved by the support wheel and, depending on the capstan winch specifications, the height-adjustable overrun coupler.

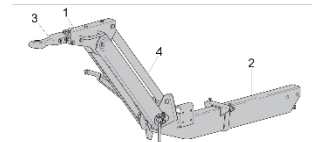


Safety Information:

In order to have faultless driving and braking performance of the winch, it is essential that the coupling height of the towing vehicle and trailer correspond.

Adjusting the height of the overrun coupler:

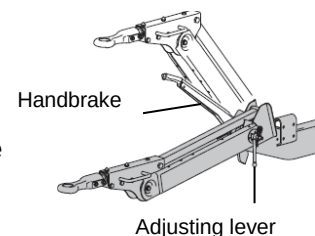
- 1 Overrun coupling
- 2 Spacer with towing bar section
- 3 Coupler
- 4 Control rod



Safety Information:

Adjust only in an uncoupled position.
In all cases, secure the winch with chocks.
Release the handbrake to make adjustments.

- Pull out the cotter pin from the locking lever
- Loosen the adjusting lever so that the adjustment can be made
- Adjust the overrun coupling to the height
- Tighten the locking lever again and bang with a mallet to put in place (hard rubber mallet)
- Reinsert the cotter pin



Safety Information:

When adjusting it is imperative that you ensure that the overrun coupling is parallel to the towing bar and the cotter pin has been reinserted. Otherwise, the braking system will not work properly.

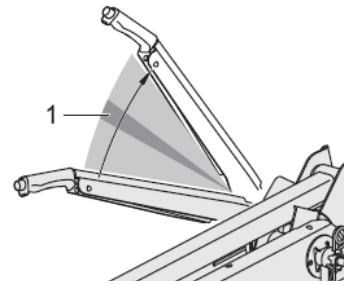
Handbrake

Applying the Handbrake:

Firmly pull the handbrake beyond dead center (1).

Releasing the Handbrake:

Bring the handbrake lever back to its original place.
Dead center is clearly noticeable.



Coupling

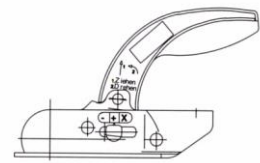
The trailer coupling of the towing vehicle must be free of grease, dirt and paint.

- Connecting to the Towing Eye

Release the ball and socket coupling with its open catch and back up the towing vehicle until the coupling locks. If necessary, seek assistance.

- Connecting to the Ball and Socket Coupling

To couple, place the opened traction ball coupling (X position) on the ball of the towing vehicle until you hear it lock into place. Once the traction ball coupling is correctly locked in place, the indicator moves to the green area of the marking, which is identified with a "+". After coupling, it must absolutely be checked on the indicator that the traction ball coupling is correctly locked in place:



If the display is in the green + area, then the traction ball coupling is correctly closed and locked, which shows that the coupling to the towing vehicle still has sufficient capacity for wear and tear.

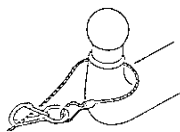
If the display is in the red "-" area, then the coupling has not correctly closed, and in no case should the vehicle be driven.



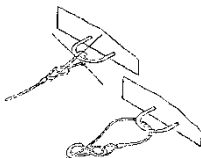
Safety Information:

- Risk of accidents and injuries if the winch breaks!
- Improper coupling can cause the winch to become loose from the towing vehicle and serious accidents with potentially fatal consequences could happen.
- After every coupling to the right place, test the coupling and the strong, secure connection of the two vehicles.

Attaching the breakaway cable of the capstan winch to the towing vehicle:



Thread the breakaway cable through the towing eye of the towbar, or hook it around the ball neck and hang the karabiner on the cable.



Driving without a breakaway cable in place.

The winch will not be braked if it detaches from the vehicle. It may hit into people or other objects. This can lead to injuries or even death.

Install the breakaway cable before towing the winch with a vehicle.

The safety eye should be in directly near the coupling point; otherwise, when cornering, the emergency brake will be applied.

Connect the support cable to the towing vehicle

Completely crank up the support wheel until it is completely folded away, then secure it in place.

**Safety Information:****Danger to Life!**

Driving without completely cranking up and folding away the support wheel. The support wheel can tear off and end up hitting a person. This can lead to injury or even death.

Ensure that the support wheel is completely raised for towing.

Release the parking brakes, stow and secure the chocks.

Before each drive, check the condition of the capstan winch and its operational safety, which must be in technically perfect condition:

- Test the lighting of the capstan winch.
- Clean the reflectors.
- At frequent intervals, test the tire condition (tire pressure, damage), lug nuts and tread depth.
- Before driving off, carry out a brake test to check the operation.

Uncoupling the Winch from the Towing Vehicle**Danger to Life!**

Uncoupling the winch without applying the handbrake and using chocks. The winch can roll away, and a person could be seriously injured.

Always apply the handbrake and use chocks under the tires when you uncouple the winch.

**Danger of Injury!**

Uncoupling the winch without cranking down the support wheel. The winch can tip downward and injure a person.

Lower the support wheel before uncoupling the winch.

**Property Damage!**

Uncoupling the winch. The breakaway cable or electrics must not be removed. When driving away in the towing vehicle, the cable will be torn off.

Before driving away in the towing vehicle, make sure that the winch is correctly uncoupled.

The capstan winch must be secured against rolling away. The handbrake must be applied, and, if required, the provided chocks used (this is prescribed for total weights of 750 kg and up!)

Pull out the lighting connection from the socket of the towing vehicle and insert it into the plug holder.

Remove the breakaway cable from the trailer coupling (only when the winch is braked!).

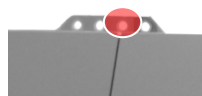
Lower the support wheel. Open the coupling by pulling the lever forward and up (or by previously unlocking the lever by pressing the safety button!) and, at the same time, lifting the winch towbar from the ball and socket coupling of the towing vehicle.

8.2.2 Transporting with a Crane

The capstan winch can be lifted using a crane and loaded onto a trailer. The capstan winch can also be positioned using a crane in an inaccessible place in a building.

For hoisting, the capstan winch comes equipped with crane lifting eyes.

In accordance with the legal cargo securing provisions, the capstan winch must be tied down in the trailer.



9 Servicing and Repair

To maintain operational safety and preserve warranty claims, follow the information below and carry out the work deemed necessary.

The warranty does not cover natural wear and tear, or unauthorized modifications.

9.1 Note on Servicing and Repair



Safety Information

Servicing and repair work on the winch must only be done by specially trained personnel!

Danger of injury if the capstan winch is unintentionally started up.

Unintentionally starting up the capstan winch may entail a risk of injury to people. Pay attention to the following points when carrying out servicing work on the capstan winch:

- Turn off the capstan winch before starting servicing work.
- Place warning signs around the servicing or repair work.

Before servicing or repair work

- Block entry to the work area of the winch for unauthorized people.
- Disconnect the power supply.
- Depressurize the hydraulic equipment of the machine!

For all work on and using the machine, all legal obligations for waste prevention and proper recovery/disposal must be complied with.

During servicing or repair work, the following:

- Grease and lubricating oil
- Hydraulic oil
- Solvent-containing cleaning agents

must not infiltrate the ground nor reaches the sewage system!

This material must be kept in suitable containers, transported and disposed of.

Before starting up, after servicing or repair work

- Check all the screw connections that have been loosened during servicing and repair for a firm seat.
- Ensure that all removed container cover, screen or filter have been reinstalled.
- Ensure that all required materials, tools and special equipment required for the servicing or repair work have been removed from the vicinity of the winch.
- Ensure that any spilled or escaped liquids have been removed.
- Ensure that all safety devices are working perfectly.

Dispose of environmentally dangerous grease, cooling and cleaning products properly



Damaged components must be immediately replaced by original parts.



The hydraulic hose is to be replaced regardless of the condition, six years after the manufacturing date.

9.2 Servicing Plan



Safety Information:

Carry out the described servicing tasks after the first start-up.
Ensure to follow the recommended servicing intervals.

In this section, you will find information on carry out servicing on the capstan winch.

Carefully follow the steps in order to ensure a problem-free operation of the capstan winch.

Servicing Plan – Before Every Start-up

Who	Machine Part	Steps	Tool
Operating personnel	Hydraulic system	Carry out the following steps: • Check the oil level in the hydraulic system. • Fill with oil if necessary	Hydraulic oil HLP 46
Operating personnel	Operating component	Check that all operating components and indicator lamps of the capstan winch are working correctly. The winch must only be operated when all operating components and indicator lamps are working.	-
Operating personnel	Cross shaft	Check the cleanliness of the cross shaft and clean it if necessary	Cloth
Operating personnel	Steel cable	Before starting work and with every use, the steel cable must be checked for external damage as well as any clearly visible alterations.	

Servicing Plan – After the first 50 hours in operation after the initial start-up

Who	Machine Part	Steps	Tool
Servicing personnel	Hydraulic system	Carry out the following steps: • Check the oil level in the hydraulic system. • Fill with oil if necessary	Hydraulic oil HLP 46
Servicing personnel	Lubrication points	Lubricate the lubrication points	-
Servicing personnel	Drive chains	Follow the steps below. • Check all drive chains for damage. • Tighten all drive chains.	-
Servicing personnel	Screw connections	Check that all screw connections are properly seated and tighten the loose screws.	-

Servicing Plan – After another 50 Hours of Operation

Who	Machine Part	Steps	Tool
Servicing personnel	Lubrication points	Lubricate the lubrication points	-
Servicing personnel	Screw connections	Check that all screw connections are properly seated and tighten the loose screws.	-

Servicing Plan – After another 500 Hours of Operation

Who	Machine Part	Steps	Tool
Servicing personnel	Hydraulic system	Carry out the following steps: • Check the oil level in the hydraulic system. • Fill with oil if necessary	Hydraulic oil HLP 46



Regularly have a specialist check the steel cables within 12 months at the most in accordance with the legal requirements.



Servicing or adjusting of the brake assembly must only be done by a specialized workshop.
Even with slight use should the overrun coupler, wheel brakes, wheel bearings and axles have servicing work done during the year.



Damaged components or parts of the brake assembly or chassis are to be immediately replaced by original parts.

9.3 Servicing the Capstan Winch

9.3.1 Cleaning the Cross Shaft

Should the steel cable be wound or unwound, remove any dirt from the chain (e.g., grains of sand)
This dirt falls on the greased cross shaft. For this reason, the cross shaft must be regularly cleaned.

Prerequisite: The capstan winch is turned off and secured from being turned off again.

Required: Cloths

Follow the steps below:

1. Open the servicing hole above the cross shaft.
2. Using a cloth, wipe the contaminated grease from the lead roll of the cross shaft.
3. Clean the guide grooves of the cross shaft with a cloth to remove the contaminated grease.
4. Properly grease the lubrication nipples on the cross shaft.
5. Dispose of the cloths correctly.
6. Close the servicing hole over the cross shaft.

✓ Ready

9.3.2 Changing the Steel Cable

Safety, reliability and service life of a steel cable depend not least on the professional installation.

Safety Information: look at personal qualifications!



Only qualified personnel can change the steel cable.

Before starting work and with every use, the steel cable must be checked for external damage as well as any clearly visible alterations.

Regular testing by a competent person must be done within 12 months according to the legal requirements.



Warning: If lacking, the steel cable should be removed from further use; it should be discarded.

Safe changes of:

- Cable diameter
- Cable lay length

Or the presence of:

- Deformations
- Wire breaks
- Violent impacts

A steel cable must be changed if:

- Along a length of cable measuring diameter x 6 there are at least three wire breakages.
- Along a length of cable measuring diameter x 30 there are at least six wire breakages.
- The steel cable diameter has been reduced by 20% due to flattening.
- The steel cable has deformations and kinks.

Cable Handling

Through improper unwinding, there can be changes in the pulling direction of the cable and the structure can be altered. Incorrect handling when unwinding can cause the steel cable to become twisted, causing curves and making it difficult to use.

9.3.3 Maintenance work on the drawbar

The information on the maintenance of the coupling device are in a separate document. This document is available in the supplier documentation of this cable capstan winch.

9.3.4 Maintenance work on the drive motor

The information on engine maintenance are in a separate document. This document is available in the supplier documentation of this cable capstan winch.

9.4 Lubrication Points

The capstan winch has bearings and rollers. These must be regularly lubricated (every 50 hours of operation).

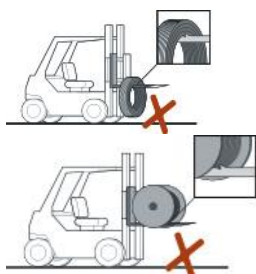
Lubricating grease:

- Aral HL 2
- An equivalent lubricant

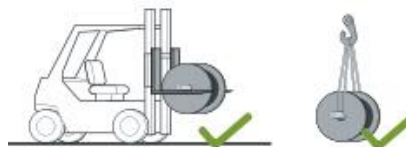
The grease nipples have a red cap

10 Cable Handling

Transportation



Avoid contact between the cable and hard surfaces. The cables should be loaded with their own weight as little as possible.



Transport the cable preferably on a spool. Use the appropriate aid to safely transport the spool.

Storage

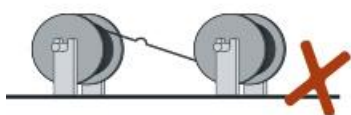


Cables must be clean, dry, protected from strong sunlight and as much as possible stored on pallets.

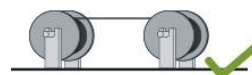


For short-term storage outdoors, the foil cover should be regularly checked for condensation and water ingress.

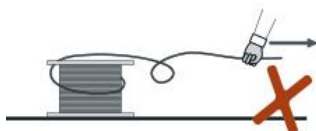
Rewinding



Avoid rewinding with counter curves.



Keep the cable off the floor as much as possible. Make sure that a certain amount of cable tension is maintained.



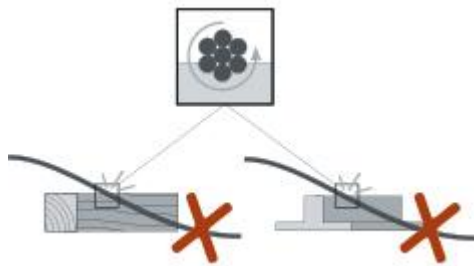
Be careful when rolling the cable that there are no loops.



Do not roll out the cable on a dusty, dirty ground.

The best thing is to roll the cable around a spool. To make turning the cable around the spool easier, it is recommended to use a suitable tool serving as a shaft.

Pulling

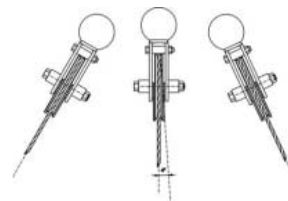


Where possible, allow the cable to run over a spool or a roller during pulling in



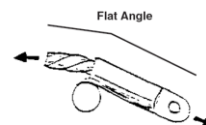
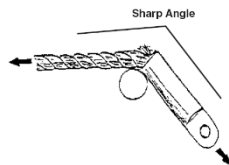
Do not pull the cable over edged parts, since this can potentially damage the cable and unexpected torque in the cable may result.

Store cable rolls always in the direction of the cable!

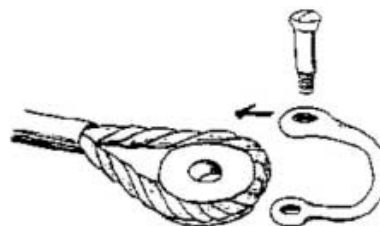


Deviation angle max. 4° permitted!

Pull the cable pull eye only over long elongated arches! If the radii are too sharp, the cable strands can rip or be pulled out of the compression joint.

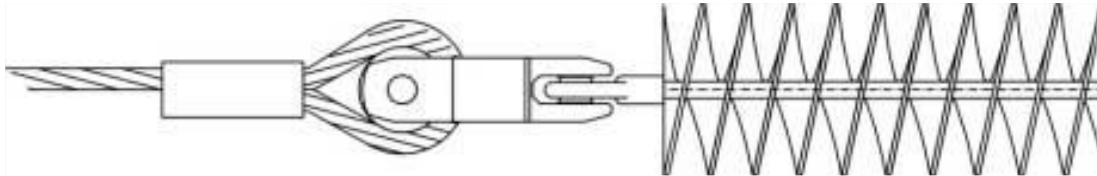


Cable loops must be passed in round spool pieces or pulled around objects with large radiuses! By not complying, the loops develop breaking point occurs.



Objects, which during pulling have a rotational movement must be connected to the pulling cable via a swivel!

Rotating objects that are connected to the pulling cable are, for example, a helical-shaped Sewer cleaning brush, must be chosen so that the direction of the rotation of the brush will turn in the direction of the cables own winding, and in this case you need a swivel between the brush and the cable.



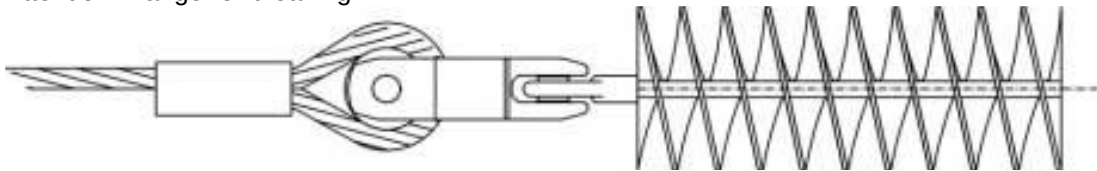
Right-handed cable

Swivel

Left-handed brush

Rotating objects that can unwind the winding of the cable can cause the cable to break open. The use of a swivel only partially avoids this. The cable's wound structure loosens.

Attention: Danger of breaking!



Right-handed cable

Swivel

Right-handed brush

To avoid rotation caused by the cable, a rotation-resistant cable should be use. Even with proper use a swivel, the brush and the cable can slightly twist, the brush and the cable can cause the rotating brush or other twist-causing objects to slightly imprint the twist on the cable. And this is why no loops should be present during the pulling in long lengths on the cable. The loops should be manually removed when cable pulling. When these guidelines are not followed, then serious cable damage will ensure. The loose loops will become steadily smaller, and will require excessive force when pulled through tight areas (e.g., cable pickup roll/hoist).

11 Checking Tires / Replacing parts

11.1 Checking Tire Condition



Info

Only mount tires that are released and/or recommended by THALER.
Other tires may negatively affect the road handling.
Tire type, condition and pressure influence the road handling.
Worn tires performance are especially bad in wet conditions on handling.

- Check tires for cuts, embedded objects and other types of damage
 - » If the tires show signs of cuts, embedded objects or other damage:
 - Change tires
- Check the tread depth



Info

Check the country-specific legal minimum tread depth.

Legal Minimum Tread Depth

The legal limit for minimum depth of the tread on your tires is 1.6 millimetres, across the central $\frac{3}{4}$ of the tread around the complete circumference of the tire.
For safety reasons it is recommended that you replace your tires before the legal limit is reached.

- » If the tread depth is less than the legal minimum:
 - Change tires
- Checking tire age



Info

The tire manufacturing date is found on the side wall of the tire after the inscription "DOT"; these are the last four numbers.
The first two figures refer to the manufacturing week ranging from 0 to 52. The last two numbers stand for the manufacturing year. Example: A tire with the label "DOT XXXXXX2709" would have been manufactured the 27th week in the year of 2009).

- » If the tires are older than five years:
 - Change tires

11.2 Checking Tire Pressure



Info

Low tire pressure leads to abnormal tire wear.
Correct tire pressure provides maximum driving comfort and extends tire life.

Tire Pressure

185 R 14 C 4.5 bar

- » If tire pressure does not correspond to this number:
 - Adjust the tire air pressure

11.3 Replacing Parts

11.3.1 Lamps and Lighting

Lamp and lighting components are an essential element of road safety. Therefore, the appropriate care must be carried out when handling these components THALER recommends to have a qualified workshop carry out this type of work if you are not familiar with it.



Info/Tip

Do not touch the bulb of new lamps with bare hands, because impurities will burn on the bulb and reduce the life of the lamp

11.3.2 Changing Wheels



Safety measures to take in case of a breakdown or when changing a wheel:
 Position the towing vehicle with the capstan winch as far away as possible from the traffic and on solid ground.
 Possibly use warning triangle or hazard lights.
 Obey the local regulations.
 Tires should only be changed on even, firm and non-slippery surfaces.
 On soft or slippery ground, for example, snow, ice, tiles, etc., the capstan winch or the jack may slip.
 The jack must be placed on firm ground.
 Do not place wooden blocks or similar items under the jack, otherwise it will not reach its load carrying capacity because of the limited height.
 If the capstan winch is raised, do not lie under it, given the risk of serious injury or death

What is required?

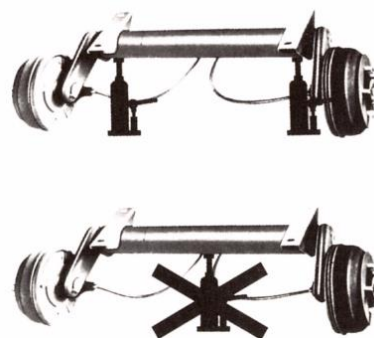
- Chock
- Jack
- Wheel wrench

Procedure:

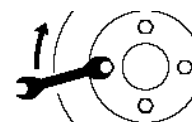
Follow the safety measures.

If you do not have an appropriate jack, you must go to a specialized workshop. Uncouple the capstan winch. Pull the handbrake. Secure the capstan winch against rolling way with a chock that you will place under the good tire located on the side opposite of the capstan winch. Loosen each o wheel nuts/screws of the wheel to be changed $\frac{1}{2}$ turn. Place the jack near the wheels. Raise the jack until the wheel is raised off the ground.

Remove the wheel nuts/screws. Change the wheel. Screw them by hand cross-wise. Lower the capstan winch and remove the jack. Tighten screws and nuts crosswise using, if possible, a torque wrench, set at the proper torque setting.



Wrench Opening	Thread	Tightening Torque
17 or 19 mm	M 12 x 1.5	80 - 90 Nm
19 mm	M 14 x 1.5	110 - 120 Nm
24 mm	M 18 x 1.5	270 - 280 Nm



After each wheel change, as well as for brand-new winch, the wheel nuts should be checked for tightness, and tightened if necessary.

11.3.3 Batteries

The battery is totally maintenance-free. This means that the electrolyte it contains will last for the life of the battery under normal climatic conditions.



Before any work is to be done on the electrics, the negative battery cable should be removed. If not, there is a risk of short circuits causing fire or injury.



Do not remove the battery cables when the engine is running. Otherwise the electronic system will be destroyed because of surges.

Disposal:



Old batteries should be brought to a recycling site in accordance with the local laws. Filled batteries should be transported and stored upright. During transportation, make sure the battery cannot tip over.

11.4 How do I dispose of the capstan winch or part of the capstan winch?

You must always dispose of the capstan winch or its parts in the appropriate manner. Always bring the capstan winch or its parts to a car recycler. The capstan winch or its parts must be disposed in accordance with the current relevant laws.

12 Malfunctions and Corrections

Troubleshooting and Elimination of Faults on the Overrun Brakes

Malfunction	Possible Cause	Corrective Measure
The winch brakes when backing up	The handbrake is not released. The reverse shift locks because the driver is backing up too fast. The brakes are not correctly lubricated.	Release the handbrake. Move forward a bit, and then back up slowly. Lubricate all lubricating points.
The hand brake lever is stuck	The lever is insufficiently lubricated or not at all lubricated. The lever is frozen.	Lubricate the lever while trying to move it. Thaw the brakes.
The winch is continuously braked	The brake system is not lubricated or incorrectly lubricated. The braking system was not properly serviced. The reverse shift lock did not release. The hand brake was not released.	Lubricate the assembly. Go to a specialized shop and have the brake system serviced. Go to a specialized shop. Release the hand brake.
The winch does not brake or brakes poorly	The braking assembly is adjusted too loosely. The brake linkage is stuck. The brake is worn.	Have the brakes adjusted in a specialized shop. Release the brake linkage. Go to a specialized workshop.
The winch brakes when closing the throttle	The shock absorber of the overrun coupling is defective	Go to a specialized workshop
The hand brake is not very efficient	The gas spring is defective. The brake is set too loosely.	Go to a specialized workshop. Have the brakes adjusted in a specialized workshop.
The coupling is not clicking in place	The coupling shell or head is dirty. The coupling is not sufficiently lubricated. The ball or the shell is worn. Look for signs of wear.	Clean the parts. Lubricate the coupling. Go to a specialized workshop.
The winch pulls slightly to the right or left	The tire pressure is uneven. The size of the towing vehicle is not suitable for this size and weight. The brake of one of the wheels is incorrectly set and brakes.	Add or release air until the tire pressures are the same and correspond to the level they should be. Use the winch with another towing vehicle. Go to a specialized workshop.
The winch quickly starts to "tail wag"	The tire pressure is too high The driving speed is too fast for the road conditions.	Let some air out of the tire until the normal tire pressure is reached Driver slower.

13 Service und Warranty Conditions

The Warranty Covers:

During normal, appropriate use of the winch, any defects that attributable to construction or material faults. Repairs done during the warranty period do not prolong the period of warranty.

Conditions:

Servicing instructions and regulations of the manufacturers in this instruction manual must be observed. During repairs, original replacement parts must be used during repairs. Repairs must be carried out by a specialized shop.

Defects must not be attributable to:

Non-compliance with the legal and technical requirements set up in the operating manual. Inappropriate use of the winch or lack of experience on the part of the user.

Authorized modifications to the winch or attachments that are not authorized by Jakob Thaler GmbH will render warranty null and void. Non-compliance with the current legal requirements.

Small defects are:

Each winch is a manually manufactured product. Despite our best care, small superficial scratches may occur, which have no effect on the performance. Production-related surface hairline cracks are unavoidable. These hairline cracks have no effect on stability or effectiveness of the winch. Pay attention to the fact that you UV rays age rubber parts, which can cause cracking or fading of the surface. Galvanized parts are usually not glossy. They quickly lose their gloss over a short period of time. Not only is this not a defect, but it is normal, because oxidation is required for the metal parts to be fully protected.

Since winches are not usually insulated, condensation may build under the hood cover due to variations in temperature. In this case, sufficient ventilation is required in order to prevent mold formation.

The warranty becomes null and void:

In cases of non-compliance of the operating, servicing and inspection requirements.

In cases of technical modifications of the winch.

Independently carry out additions or modifications that are not authorized by Jakob Thaler GmbH.

Overloading the winch and inappropriate use.

Not using original replacement parts.

Non-compliance with the security instructions regarding the winch.

Not observing the service intervals. This also applies to the parts installed by Jakob Thaler GmbH such as axles, brakes, overrun couplers, hydraulic components, etc.

Faulty surface treatment of the material used.

The winch was continued to be used although the defects are known and reported, and the manufacturer prohibited using the winch until repairs have been made.

Continued use of the winch when defects are known with the result that it now makes repairs impossible or more complicated or will be possible at a far greater expense, and the performance of the winch is reducing.

The warranty does not cover:

Expenses for routine servicing.

Costs related to normal wear and tear or if the winch is not used for a prolonged period.

Faults that are attributable to improper handling of the winch.

Defects that are attributable to the use of non-original replacement parts.

Defects that are attributable to repairs that were not done by a specialized workshop.

Defects that are attributable to structural modifications or added assemblies to the winch.

Structural modifications that can only be done by Jakob Thaler GmbH.



When pulling, only the anti-twist swivel delivered with this winch may be used or a product which has been approved by Jakob Thaler GmbH.

Therefore, Jakob Thaler GmbH cannot accept liability for any damages to the steel wire rope.

Jakob Thaler GmbH

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