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Introduction

This manual forms part of the documentation required for CE certification. The GERENUK 500 is developed in accordance with the machinery, low voltage and EMC directives and satisfies the requirements for full CE certification.

This manual contains a number of instructions for the safe and correct use of the GERENUK 500, and it is important for operators to familiarise themselves with these, and to always follow the manufacturer's safety and operating instructions.

Intended use

GERENUK 500 is designed with a view to providing a better working environment, and to enable implementation of heavy and difficult lifting operations without compromising safety.

GERENUK 500 is designed for mounting on a host machine (telescopic loaders, fork lift trucks, etc.) and is supplied with a remote control that gives the operator complete manoeuvrability with all types of lifting and installation operations.

GERENUK 500 is certified for handling loads up to 500 kg and can be used at any height within the host machine's certified load chart.

GERENUK 500 is an independent unit with a closed hydraulic system and a 2-circuit vacuum system powered from its own integrated battery. The unique 3-dimensionally manoeuvrable head enables loads to be manipulated from all angles and with precision to the millimetre, for example over balconies and inclines.

GERENUK 500 lifts and handles most smooth-surfaced building materials such as glass, stone, façade elements, steel, aluminium and wood.

Prohibited use:

The following activities are classified as prohibited:

- Any activities not described under "Intended use" above and all operations that exceed the technical limitations of the GERENUK 500, unless approval for such use is given in writing by HH-Intellitech ApS.
- All operations that exceed the host machine's technical limitations or load chart.
- All operations that involve modifications to the GERENUK 500 without HH-Intellitech ApS's prior approval.
- Any breach of safe working practices or the operating and safety instructions provided in this manual or given by the health and safety authorities is regarded as prohibited.

Technical specifications and limitations:

Operating temperature range:	-10°C - +40°C
Battery voltage:	24 volts
Battery capacity:	135 Ah (2 x 12 volts 135 Ah)
Specifications for charging:	120 V PE+ N +G, 16A, 50/60 Hz
Noise level:	72 dB under normal operation (alarm 78 dB).

EU Certificate of Conformity:

The undersigned representative of:

Danilift A/S
Søndergården 34
DK-9640 Farsø
Denmark
Tel.: +45 98 63 15 99

hereby declares that:

Machine type: Gerenuk 500
Serial no.: GLM500 14 0019
Year: 2014

is produced in compliance with the requirements of:

**Directive 2006/42/EC of the European Parliament and of the Council on machinery
- the Machinery Directive 2006/42/EC**

Applied directives:

**Directive 2004/108/EC of the European Parliament and of the Council on electromagnetic
compatibility – the Electromagnetic Compatibility (EMC) Directive 2004/108/EC**

Applied standards:

See following page.

The machine is thoroughly tested by the manufacturer. It is hereby declared that the tests show that all requirements to safety and functionality are satisfied.

The machine is identified by the CE marking shown below. The identification plate is located top-left on the rear of the machine.



Søren N. Olesen

Søndergården 34 –DK9640 Farsø

Applied standards:

DS/EN ISO 12100-1:

Safety of machinery – Basic concepts, general principles for design.
Part 1: Basic terminology, methodology.

DS/EN ISO 12100-2

Safety of machinery – Basic concepts, general principles for design.
Part 2: Technical principles.

EN ISO 14121-1

Safety of machinery – Principles of risk assessment.

DS/EN 13155 – A2:2009

Crane safety – Non-fixed load lifting attachments.

DS/EN 982:1999

Safety of machinery - Safety requirements for fluid power systems and their components -
Hydraulics.

In addition, the following instructions from the Danish Working Environment Authority (AT) apply:

- AT instruction no. 2.3.0.3 (March 1998) Belastningsprøve af hejse- og løfteredskaber.
- AT instruction no. 2.02.10 (October 1996) Anhugningsgrej.
- AT instruction no. 2.02.11 (January 1999) Anvendelse af hejse-, løfte-, og transportredskaber.

The manufacturer shall keep copies of the technical drawings and maintain a file for the Gerenuk 500 for a period of 10 years.



Any queries relating to the documentation should be addressed to: HH INTELLITECH APS.

Design:



CE marking and adhesive labels

 <p>INTELLITECH Danish Building Equipment</p> <p>HH Intellitech ApS. Nykøbing Landevej 21. DK-4200 Slagelse. Danmark Telefon +45 58 26 70 17. info@hh-intellitech.dk. www.hh-intellitech.dk</p> <p>Type no: Gerenuk 500</p> <p>Serie no: GLN500 10 0002</p> <p>WLL: 500 Kg Year: 2010</p> <p>Volt: 230/24 kW: 0.9 Hz: 50</p> <p>Produced by: KRANTEKNIK A/S. Sendergården 32. DK-9640 Farsø</p> <p>GL-31</p>	<p>CE certification: Plate with unique ID tag</p> <p>Working load limit (WLL) = 500 kg. / 1100 Lb.</p>
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	<p>Main ON-OFF switch.</p> <p>The main switch must be in the OFF position in order to charge the battery.</p>
	<p>Machine name Gerenuk 500 WLL = 500 kg / 1100 Lb.</p>

Safety precautions:

To operate the GERENUK 500 safely and correctly the following safety precautions must be taken:

- All safety protection must be activated during operation of the machine.
- The main switch must be set in the OFF position before making any adjustments. The main switch must also be in the OFF position when carrying out maintenance work that does not require the machine to be on.
- The main switch must NOT be turned on before the maintenance work is completed and all safety protection is back in place.
- GERENUK 500 shall be operated by qualified personnel only.
- GERENUK 500 is certified for lifting items up to a maximum of 500 kg. / 1100 Lb.
- Always use all four suction cups when lifting loads. If this is not feasible, follow the guidelines on page 22 of this manual.
- The GERENUK 500 "machine unit" must not be tipped more than ± 30 degrees from the vertical position. If this limit is exceeded, oil will leak out of the tank.
- The two vacuum circuits must always be mounted diagonally in relation to the four suction cups. This ensures stable suction power in the event of one of the circuits failing.

-
- Always ensure that the surface of the suction cups and item to be lifted are clean and dry before lifting.
 - Always show caution with all operations.
 - GERENUK 500 must never be left unattended with a load in place – no matter how long.
 - GERENUK 500 must never be used with defective suction cups.
 - GERENUK 500 must never be used with a defective lifting bracket.
 - Before starting any lifting operations, always ensure that the GERENUK 500 is properly attached to the host machine.
 - It is prohibited to lift loads over the heads of personnel.
 - Before lifting or lowering a load, always check that nobody is standing within the working angle of the machine.
 - GERENUK 500 must never be used to lift or transport people.
 - When the GERENUK 500 is used in conjunction with a host machine, local and national safety regulations for the operating of trucks/cranes shall always be followed.
 - The status of the vacuum must always be monitored and any necessary measures implemented. A permanent green light indicates that the vacuum function is ON and is fully operational in both circuits, while a flashing red light means that the vacuum function is ON but insufficient to lift the load.
 - Before lifting with the GERENUK 500, all loose articles must be removed from the safety covers, etc.
 - The maximum continuous operating time for the vacuum pumps is 15 minutes. If this is exceeded there is a risk of the pumps overheating. This is particularly applicable when the surface of the item being lifted is not completely smooth and airtight, such as plasterboard, wood or concrete.
 - When not in operation the main switch should be turned OFF to ensure the longest possible life of the battery.
 - Maintenance should only be carried out with the GERENUK 500 standing on solid and even ground.
 - The hydraulic oil can be under high pressure and hot. Be careful when carrying out maintenance on the hydraulic system.
 - Show particular caution when using the GERENUK 500 in windy conditions.
 - GERENUK 500 must never be used during a thunder storm.
 - The weight of the load shall always be released before the vacuum suction is switched off in order to avoid accidental sudden movements (whiplash).

Operation of the Geranuk 500 with a telehandler.

The operator of a telehandler mounted with a Geranuk 500 must pay attention to the following:

The Geranuk 500 can only be operated in a working area where the telehandler have a lifting capacity of min. 1400 kg. It is the operators responsibility, to ensure this. The Telehandlers overload system are not able to secure the stability of the telehandler in combination with a Geranuk 500.

- Check that the load control system on the telehandler is OK.
- The operator must read and understand the operators manual of the telehandler that is used together with the Geranuk 500.
- The Geranuk 500 must be mounted directly on the telehandlers attachment, it is not allowed to have a rotation part mounted between the telehandler and the Geranuk 500.
- It is not allowed to lift more than 500 kg. / 1100 Lb. with the Geranuk 500, it can course stability problems.
- The Geranuk 500 is not electric isolated from the telehandler.
- The Geranuk 500 mounted on a telehandler can only be operated at vindspeeds up to 10 m/s.

Operation of the Geranuk 500 with a forklift.

The operator of the forklift mounted with a Geranuk 500 must pay attention to the following:

- The Geranuk 500 must only be operated in combination with a forklift that have a min. lifting capacity of 1400 kg.
- The operator must read and understand the operators manual of the forklift that is used together with the Geranuk 500.
- The Geranuk 500 must be securely fastend to the forks on the forklift.
- It is not allowed to lift more than 500 kg. / 1100 Lb. with the Geranuk 500, it can course stability problems.
- The Geranuk 500 is not electric isolated from the forklift.
- The Geranuk 500 mounted on a forklift can only be operated at vindspeeds up to 10 m/s.

CAUTION!

The operator is responsible for ensuring the safe and proper transport, lifting and handling of loads.

WARNING!

Do not operate Geranuk 500 if the host machine stops due to overloading.

Personnel:

Personnel working on or with the GERENUK 500 should have been introduced to all relevant safety, operating and maintenance instructions before working on or operating the machine.

Personnel are divided into three categories:

Operator:

GERENUK 500 should only be operated by qualified personnel. With necessary training and practice, the operator will be able to operate GERENUK 500 properly and safely. Operators must familiarise themselves with all relevant safety and accident prevention regulations and local work instructions. The operator is at all times responsible for safe operation of the GERENUK 500 and for training other personnel working with the operator.

Host machine driver:

The host machine driver must hold all necessary crane/truck driving certification and should have been introduced to all safety regulations relating to the driving and handling of the host machine.

The host machine driver must comply with all safety regulations during the transportation and lifting of loads with the GERENUK 500, in cooperation with the operator. There should always be a two-way communication system established between the host machine drive and GERENUK 500 operators.

Authorised maintenance personnel:

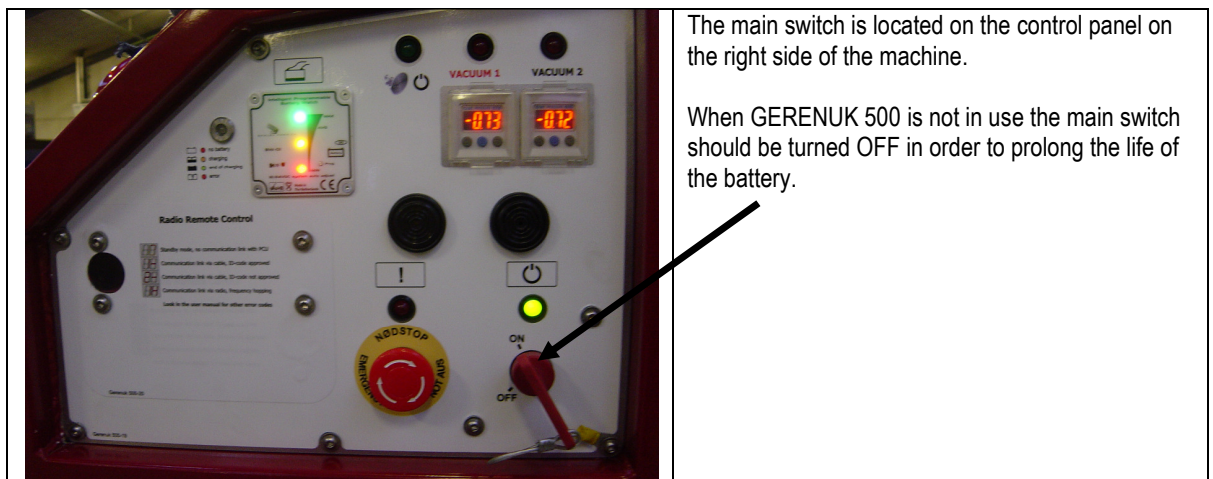
All servicing of the GERENUK 500 should be carried out by authorised maintenance personnel.

Safety equipment:

Protective footwear should be used when working with the GERENUK 500.

Compliance with national and local regulations relating to personal protective equipment is mandatory.

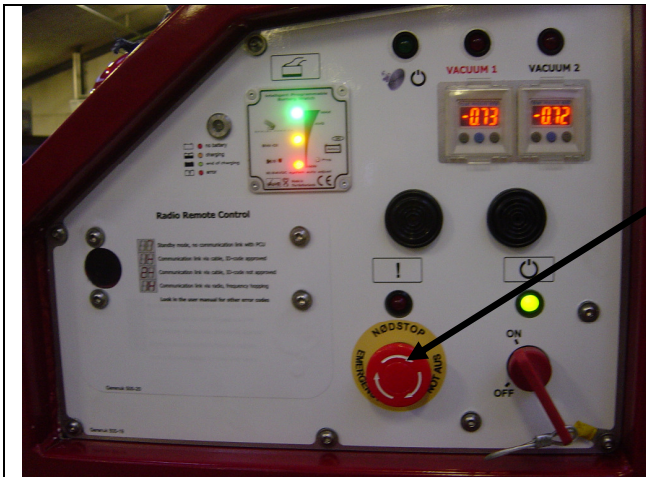
Location of main switch:



The main switch is located on the control panel on the right side of the machine.

When GERENUK 500 is not in use the main switch should be turned OFF in order to prolong the life of the battery.

Location of emergency stop button:



The emergency stop button is located on the control panel on the right side of the machine.

The emergency stop button is activated by pushing it in and deactivated by turning it clockwise.



The emergency stop button on the remote control unit is the large red button in the centre of the consol.

The emergency stop button is activated by pushing it in and deactivated by turning it clockwise.

Technical specifications:

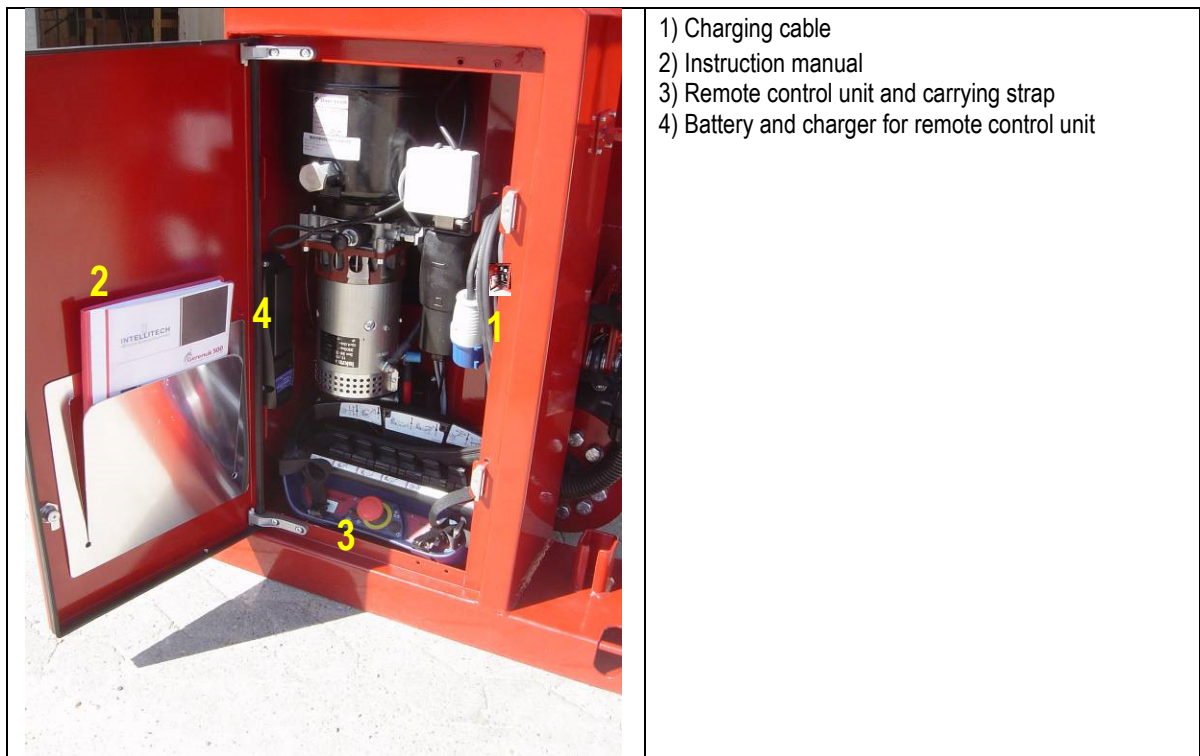
Working load limit	WLL = 500 kg /1100 Lb.
Net weight without mounting bracket	720 kg / 1585 Lb.
Length	90 cm
Width of unit / vacuum cup arm	110 cm / 180 cm
Height	175 cm
Power supply	120 V
Battery	24 V (2x12 V)
Charging time (approx.)	8 hours (25-100 %)
Operating time with fully charged battery	8 hours with normal use

Remove original packaging:

Remove the protective packaging carefully to avoid causing dents or scratches to the protective panels, boom, etc.

After removing the packaging, the GERENUK 500 should be checked for damage or technical faults. If any damage or functional defects are found, HH-Intellitech ApS should be contacted as soon as possible.

Layout of the technical cabinet:



- 1) Charging cable
- 2) Instruction manual
- 3) Remote control unit and carrying strap
- 4) Battery and charger for remote control unit

Operating instructions:

Gerenuk 500 should never be used in poor lighting conditions. Use work lamps as required.

Never exceed the Working Load Limit (WLL).

Instructions applicable before and on start-up:

Before starting the GERENUK 500 the operator should have received instructions about proper use and handling of the lifter and should be familiar with the safety regulations.

The batteries should be fully charged before first-time use.

Activate the power to the vacuum system by turning the main switch (see page 10) and the ON-OFF key switch for vacuum suction (item 5 below) to ON.



Pull out/turn the emergency stop button (item 6 below) to ON to activate the 2-circuit vacuum system.

Pull out the emergency stop button on the remote control (item 7 below).

Activate the remote control unit by pushing the ON button on the unit one time.

Note: When the vacuum system is not in operation, all the switches should be OFF and the emergency stop button pushed in.

Switches and remote control:

	<p>Gauges and switches</p> <ol style="list-style-type: none"> 1. Battery charge status 2. Battery level indicator 3. Vacuum status and adjustment (vacuumstat) 4. Socket for remote control cable 5. Audio alarm for vacuum loss 6. Emergency stop button
	<p>GERENUK 500 is equipped with a remote control unit to enable the operator to choose the best vantage point for manoeuvring lifts into position. The emergency stop button must be turned clockwise, and the remote control's main switch (item 8) must be activated by pushing once. The red diode shows that the remote control is now active.</p> <p>Remote control unit</p> <ol style="list-style-type: none"> 7. Emergency stop button 8. Remote control ON button 9. Vacuum ON-OFF

Flash code's on remote control



Look inside the window. The error codes are being shown here.

If the error codes are not on the label on the machine, then on the next page there are multiple codes.

	OFF, deactivated
	Standby mode, no communication link with PCU
	Communication link via cable, ID-code approved
	Communication link via cable, ID-code not approved
	Communication link via radio, frequency hopping
	Communication link via radio, frequency locked on channel 1
	Communication link via radio, frequency locked on channel 2
	Communication link via radio, frequency locked on channel 3
	Communication link via radio, frequency locked on channel 4
	Communication link via radio, frequency locked on channel 5
	Communication link via radio, frequency locked on channel 6
	Communication link via radio, frequency locked on channel 7
	Communication link via radio, frequency locked on channel 9
	Communication link via radio, frequency locked on channel 10
	Communication link via radio, frequency locked on channel 11
	Communication link via radio, frequency locked on channel 12
	Communication link via radio, frequency locked on channel 13
	Radio communication deactivated via program setting(WinSCI)
	ID-programming procedure is active(See chapter 12 for further info)
	ID-programming procedure rejected(See chapter 12 for further info)

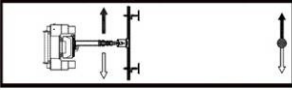
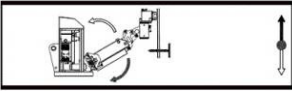
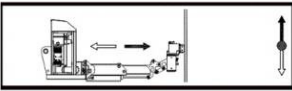
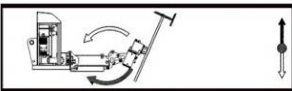
Daily testing of the vacuum system before start-up



The vacuum system must be tested daily before use in accordance with the following procedure.

- 1) **Check the vacuum pressure:** Ensure that the system has a vacuum pressure of -0.7 bar. The vacuum pressure is shown on the vacuum gauge on the control panel (item 3 above).
- 2) **Check the pumps and pressure:** The two vacuum pumps start automatically when the main switch and key switch are set to ON.
Disconnect the two red and two black quick-release vacuum couplings from the vacuum manifold. The vacuum pumps will stop after a brief period if the system is safe to use. The pressure must be at least -0.7 bars. After two minutes the pressure should be at least -0.65 bars. If the pressure is lower than this, the Gerenuk 500 needs checking before use.
- 3) **Check the alarm:** Reconnect one of the red rapid vacuum couplings. This will generate a visual and audio warning signal when the vacuum falls below -0.5 bars. Repeat this for one of the black rapid couplings. If the warning signals are not generated the Gerenuk 500 needs repairing before use.
- 4) **Check the vacuum valves and the remote control:** Push in both vacuum buttons simultaneously on the remote control. The vacuum valves close. The vacuum pumps run until the pressure reaches -0.7 bars.
- 5) **Check the vacuum hose and vacuum pressure:** Carry out a suction test on a flat surface with all four suction cups. Press one of the vacuum buttons on the remote control and wait until the vacuum pressure reaches -0.7 bars. After two minutes the pressure must be at least -0.65 bars. If the pressure is lower than this, the Gerenuk 500 needs repairing before use.

If a fault is found in the vacuum system, only HH INTELLITECH ApS or a certified technician is qualified to carry out repairs.

Toggle controls on the remote control unit:

Function:	Toggle from left:	Movement of the telescopic boom:	Symbol:
Telescopic boom	1	Forward = Left Back = Right	
Telescopic boom	2	Forward = Down Back = Up	
Telescopic boom	3	Forward = Out Back = In	
Lifting head	4	Forward = Tilt forward Back = Tilt backward	

Lifting head	5	Forward = Swing left Back = Swing right	
Rotation	6	Forward = Rotate load anti-clockwise Back = Rotate load clockwise	

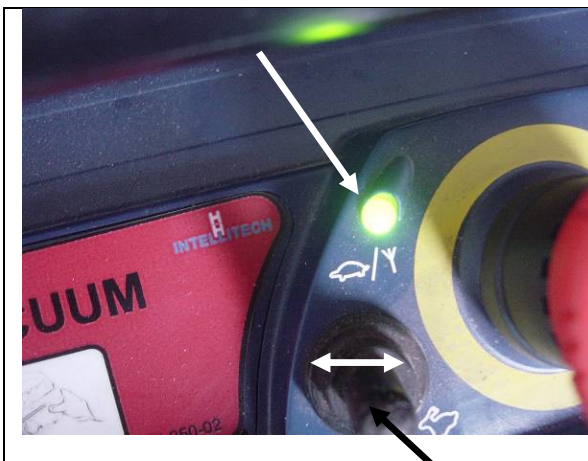
Remote control and connection cable:



If the remote control has been accidentally disconnected, the following must be checked:

- If the remote control is deactivated, check that the red diode is illuminated (white arrow). If the light is on, reset the remote control by holding in the main button switch (black arrow) for 2 seconds.
- If the red diode is off, press the main button switch once.
- If the red diode remains off, the battery in the remote control needs changing. A spare battery may be charged up in the technical cabinet on the GERENUK 500.
- If it is not possible to establish radio communication with the remote control, there could be a fault with the transmitter/receiver. If this happens, the remote control cable stored in the technical cabinet may be used for communication between the remote control and GERENUK 500.

Adjusting the speed:



GERENUK 500 can handle loads at 5 different speeds.

The speed is altered by pushing the speed button towards the left. Each push to the left selects a lower speed. Push the button towards the right once and the speed returns to 100%.




Caution: Operating at maximum speed might result in undesirable quick movements and should be used with caution.

The speed indicator diode shows which speed is selected according to the following matrix:

- No light = 100%
- 1 flash = 60%

	<p>2 flashes = 50% 3 flashes = 40% 4 flashes = 30% 5 flashes = 20%</p>
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Mounting the Gerenuk 500 on the host machine:

	<p>Mount the GERENUK 500 on the host machine (Manitou type) by feeding the front-end clamp device of the host machine under the main lifting bar. Ensure that the clamp device is securely attached to the lifting bar before continuing. When GERENUK 500 is correctly mounted on the clamp device, feed the steel securing pins through the holes, as shown in the illustration.</p>
	<p>Ensure that the securing pins are properly inserted and securely fastened.</p>
	<p>The host machine with the GERENUK 500 attached may now be driven to the work location. The host machine driver is always responsible for ensuring that the host machine is operated safely and correctly, and that all lifts made with the GERENUK 500 are within the host machine's technical specifications and loading chart.</p>

Mounting the bracket on the Gerenuk 500



On the rear of the Gerenuk 500 are two anchorages for attaching a hanging bracket.

Warning! Only use original components for lifting the Gerenuk 500 and always use the correct bracket to suit the host machine.



Clean the anchor points before mounting the bracket.

The GERENUK 500 hanging bracket is secured by 8 bolts and washers.

Tighten the bolts with a torsion wrench to 300Nm.

Preparing the vacuum arm:



The vacuum arm must be readied for operation in accordance with the following guidelines:

1. Remove the two booms with the suction cups attached from their respective holders and lay them on the ground.
2. Ensure that the surfaces of the suction cups are kept free from sand, dirt, etc.



Set the main switch to ON, activate the remote control (ON) and drop the main arm to enable attachment of the side booms.

NOTE: The main arm should be horizontal to make it easier to attach the side booms.



Unscrew the four locking levers on the main arm.



Position the side booms over the internal fixing nuts and screw in the locking levers through the coupling plate, as shown in the illustration.

Adjust the side booms to the required distance by sliding them along the main arm.



When the side booms are correctly positioned tighten up the locking levers and clamp them down so that the side arms are firmly and securely attached to the main arm. The vacuum arm is now ready.



Attach the vacuum hoses to the vacuum arm by pressing down over the valve nozzles fixed to the main arm until you hear a "click".



For safety reasons the vacuum system comprises two independent circuits.

It is important to ensure that the two circuits (red and black hoses) are connected diagonally so that if one of the circuits fails suction power will still be provided by the other circuit.



You can adjust the vertical distance between the suction cups on the side arms by loosening the positioning clamps to the individual cups and sliding the cup up or down as required. When the correct position is achieved, tighten up the position clamps again.



The vacuum system is now correctly mounted and ready for use.

Attaching the vacuum hoses:



The main switch and the vacuum key must be set to ON. The vacuum is on and the status for each circuit is shown by the lamps on the top (red and green lamps) and on the right-hand side (red and green diodes) of the machine.

RED LAMP/DIODE:

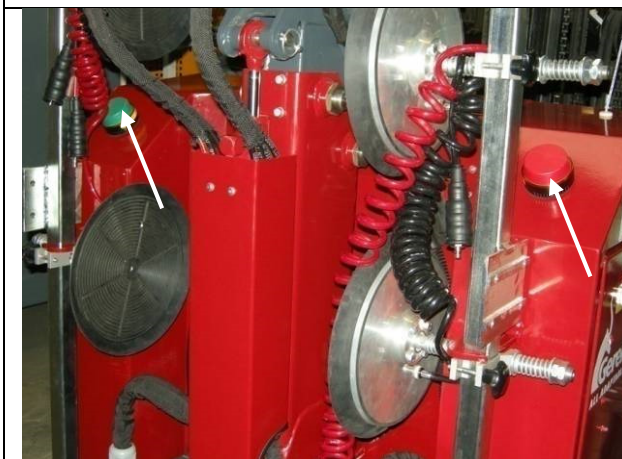
Flashes when the vacuum system is activated - but the vacuum has not yet reached its required level for lifting the load.

GREEN LAMP/DIODE:

Lights up when the vacuum system is activated and the vacuum in both circuits reach the required level for lifting the load.

WARNING!

Do not alter the vacuum pressure shown in vacuumstat gauge.



The status of the vacuum suction is also shown by the two process lights (arrowed here):

RED:

A red flashing light means that the vacuum system is not ready for lifting the load.

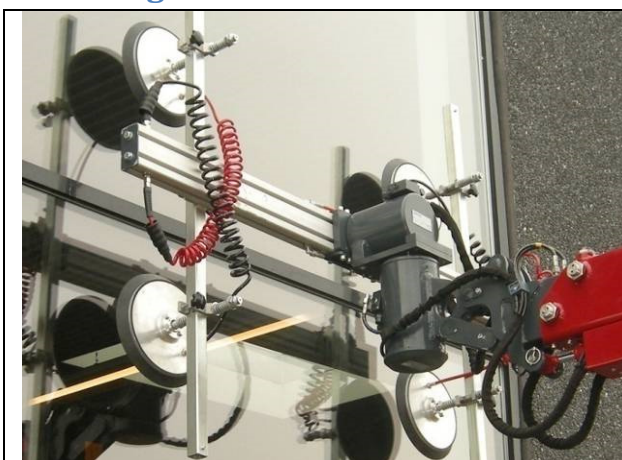
GREEN:

A green light means that the vacuum system is ready for lifting the load.

WARNING!

Do not attempt to lift the load before the green light is on.

Activating the vacuum suction:




When all four suction cups are position against the load, the following procedure must be followed:

	<p>Press the two vacuum buttons on the remote control (but only once!).</p> <p>The load is ready for lifting when the green process light on the GERENUK 500 is permanently on.</p> <p>WARNING! Do not attempt to lift objects that have dirty, greasy or wet surfaces.</p>
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GERENUK 500 is equipped with four suction cups. All four suction cups should be used with every lift wherever possible.

When lifting smaller loads that do not offer sufficient space to attach all four suction cups, the item may be lifted with two suction cups. When only two suction cups are used the maximum permitted working load is 250 kg, and you must ensure that both vacuum circuits are used (red and black).

Deactivating the vacuum suction:

	<p>When the operator is certain that the load is properly installed/mounted in place and securely fastened, the vacuum suction may be deactivated. This is done by pressing in the two black vacuum buttons (arrowed) simultaneously for approx. 3 seconds. The suction cups will then release the load. They may then be drawn away from the load when the green light goes out.</p> <p>Before deactivating the vacuum system you <u>MUST</u> ensure that the load is properly fixed in place!</p> <p>WARNING! Be careful when pulling the suction cups away from the load as the rubber cups may still have a residual vacuum. Rapid withdrawal could result in damage.</p>
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Charging the battery:



The male connection is located behind the white plastic cover on the rear of the GERENUK 500

Leave the main switch in the OFF position to facilitate charging.



The charging cable has a blue plug and is located on the back of the door of the technical cabinet.

Connect the female plug on the charging cable to the male plug on the GERENUK 500.

Plug in the charging cable to the nearest 230-volt socket.

It takes around 8 hours to fully charge the battery.

Battery Maintenance:

If the machine out of operation, the batteries must be recharged.

The batteries must be charged at least every 4 week.



The status of the charging process can be monitored using the charging diode.

The battery is fully charged when the green light is constantly on.

The battery level can be monitored using the battery level diodes.

CAUTION!

Avoid draining the battery completely. This reduces the capacity and shortens the life of the battery.

Preparing GERENUK 500 for transportation:



Disconnect the vacuum hoses from the vacuum arm.

Remove the two side booms with the suction cups from the main arm by releasing and screwing out the locking lever screws.

Store the side booms in their respective holders with the suction cups facing inwards towards each other.



Slide the lowest suction cup on each boom up to the fastening bracket on the GERENUK 500 and tighten up the positioning clamps so that the side booms are held firmly in place.

Transportation:



GERENUK 500 has a net weight of 870 kg.

For transporting short distances on site the GERENUK 500 can be moved by a fork lift truck using the integrated lifting cavities specifically designed for lifting by a fork lift.

During transportation, all hydraulic cylinders must be in their pulled-in position.

To avoid damage, the GERENUK 500 must be bolted or strapped to the vehicle used to transport the machine.



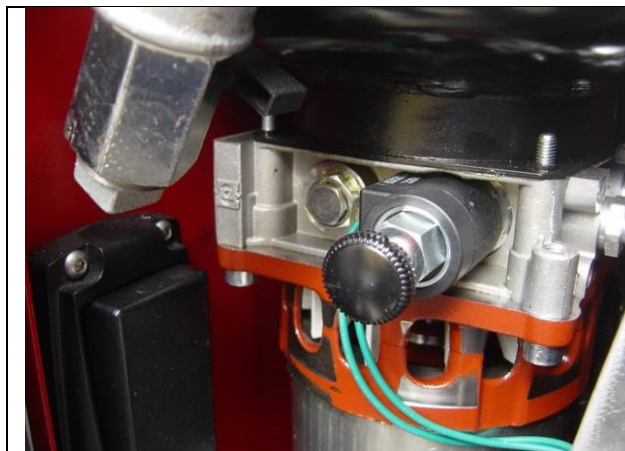
Use the following points to strap down the Gerenuk 500 on the transporting vehicle:

1. The fork-lift cavities.
2. The consol.
3. The holes behind the rotation cylinder.

CAUTION:

Fastening straps round the protective panelling can result in damage to the cabinet.

Operating the machine manually in an emergency:



Operating the Gerenuk 500 manually requires two operators.

The first operator deactivates the safety system by manually pushing in the valve on the hydraulic pump. The valve must be held in while at the same time pressing the yellow hydraulic pump button shown in the photograph below.



The valve button and yellow button must be held in simultaneously for as long as it is necessary to operate the hydraulic system.



The second operator operates the valves manually. The valves are operated by respectively pushing in or pulling out the red buttons on the valve block.

The instruction diagram (pictogram) shows which movements the respective valves control.

WARNING!

When operating the machine manually it is not possible to adjust the operating speed – all movements happen at maximum speed.

Maintain good distance from all obstructions and operate with extreme care.

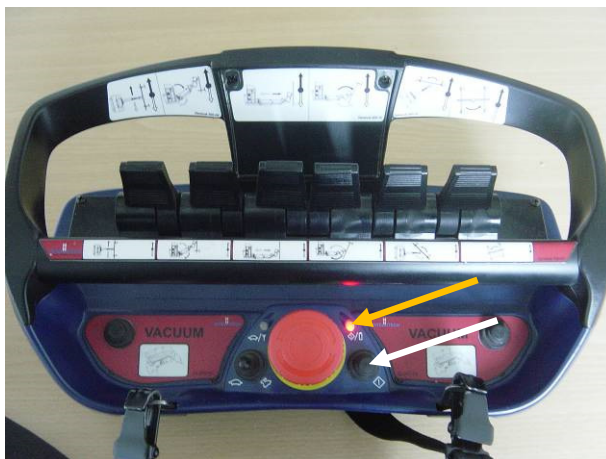
Faultfinding:

GERENUK 500 is a state-of-the-art machine that requires the operator’s full concentration with a view to safe and correct use of the machine.

Faults shall be rectified only by, or with detailed guidance from, certified service technicians. When a fault arises, the operators must always start by giving the machine’s ID number to the service technician. The ID number is found on the CE plate located on the rear of the GERENUK 500.

Changing the frequency:

If another remote controlled machine is being operated on the same frequency within a radius of approx. 500 metres of the Gerenuk 500, the Gerenuk 500 may stop or you may lose response from the remote control. This problem can be solved by changing the operating frequency.



Changing frequency:

The remote control must be on with the red diode in the ON position (yellow arrow).

Press the ON button (white arrow) twice quickly in succession. You will hear a small "pip". This means the frequency is changed.

There are 12 possible frequencies that can be used. Repeat the process until you find a frequency that solves the problem.

If the Gerenuk 500 or the remote control is switched OFF, the operating frequency will automatically return to the original setting.

Procedure with loss of vacuum/suction power:

If the GERENUK 500 fails to maintain the minimum required vacuum level when lifting a load, an alarm is sounded and the red vacuum lamps will start to flash. The load must be placed on the ground as quickly and safely as possible, and a certified service technician contacted.

Maintenance:

The following pages describe the correct maintenance procedure for the GERENUK 500. It is important to follow the guidelines for the maintenance and service intervals in order to take care of safety, and to ensure fault-free and optimum use of the machine.

The right-hand column of the maintenance schedule contains a set of numbers. These refer to the numbered illustrations and accompanying descriptions of the specific maintenance procedures that follow.



Service and maintenance should only be carried out when the GERENUK 500 is positioned on a firm, even surface.

During servicing, maintenance and cleaning the main switch should be set to OFF and should not be turned on again until the work is complete, unless the maintenance procedure requires the machine to be running.

Following servicing, maintenance or cleaning it is important to ensure that no foreign objects are left in or on the machine.

Maintenance schedule:

Description:	50 operating hours	150 operating hours	500 operating hours	750 operating hours	1500 operating hours	As required	Daily	Lubricated with:	Lithium grease	Hydraulic oil- Texaco, RANDO HD32	See illustration no.
Tightening of adjusting screws or wear plates	X										1
Tightening of bolts and screws	X										
Greasing of nipples			X						X		2
Hydraulic station:											
Checking oil level			X								3
Oil change					X					X	4
Checking hoses							X				
Changing oil filter			X								5
General inspection of the entire hydraulic system		X									
Vacuum system:											
Inspecting suction cups							X				6
Checking hoses and couplings							X				7
Check/replacement of vacuum filters			X								8
General:											
Cleaning							X				
Inspection of electrical system		X									
Control of labels/markings and pictograms			X								
Annual service (max. 12 months)											

Maintenance illustrated:



Illustration 1:

All six wear blocks must be tightened up regularly.

Loosen the locking nut on the six adjusting screws. Tighten the adjusting screws equally on both sides of the telescopic boom, so that the boom is centrally positioned and not pressed over to one side.

The inner boom must be in continuous movement (moved in and out) while the adjusting screws are tightened (max. 70 Nm).

Re-tighten the locking nuts when the adjustment is complete.



Illustration 2.0:

All the greasing nipples show in illustrations 2.0 to 2.6 inclusive must be lubricated with grease through the grease nipples.

Remove any excess grease.



Illustration 2.1:

Grease nipples on both sides of the bearings.

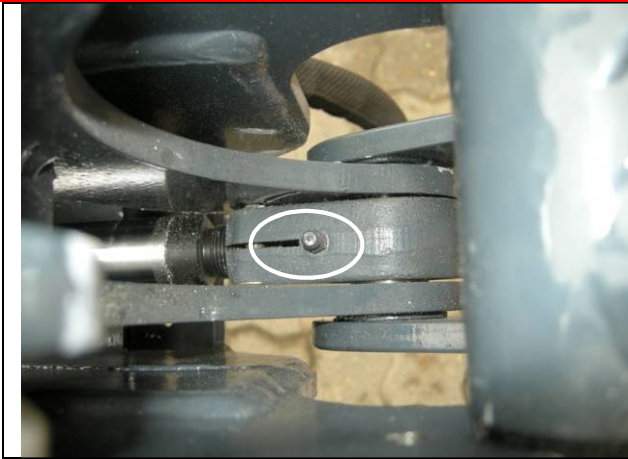


Illustration 2.2:



Illustration 2.3:



Illustration 2.4:

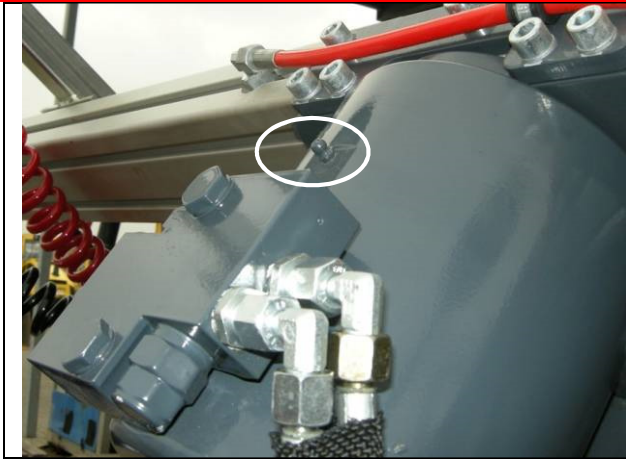


Illustration 2.5:



Illustration 2.6:



Illustration 3.0:
Hydraulic station fill screw.



Illustration 4.0:
Draining valve for the hydraulic oil.



Illustration 5:

Oil filter



Illustration 6
All four suction cups must be regularly inspected for wear and tear.
Never operate the machine with damaged suction cups.

The suction cups must be kept clean.

CAUTION!
Use only water and standard liquid soap for cleaning the suction cups. Other cleaning agents may dry out and damage the suction cups.



Illustration 7

Check hoses and rapid couplings for leaks.
The Gerenuk 500 should never be used with damaged hoses or couplings.

Faults in the vacuum system should only be repaired by certified technicians.

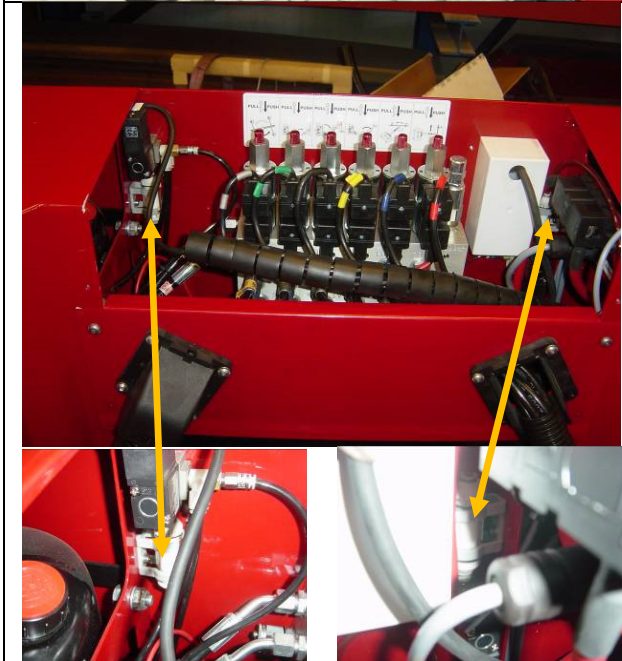


Illustration 8

Changing the vacuum filter

12-month service:

A full service should be carried out every 12 months or when the machine changes hands. It is mandatory that this service is carried out by the supplier or some other authorised personnel. The manufacturer can supply authorised service technicians with all maintenance checklists.

When the Gerenuk 500 is certified for use following a service, the distributor will attach a note or tag showing the date of the next service.

Servicing should be booked via the local distributor. See the note about this on the machine. The owner of the machine is responsible for booking a service. The service is also a condition for maintaining the warranty on the machine.

Spare parts and warranty:

Parts:

Original parts can be ordered from the local distributor or from HH-Intellitech ApS direct if a local distributor cannot be found. When ordering spare parts you must state the serial number.

Warranty:

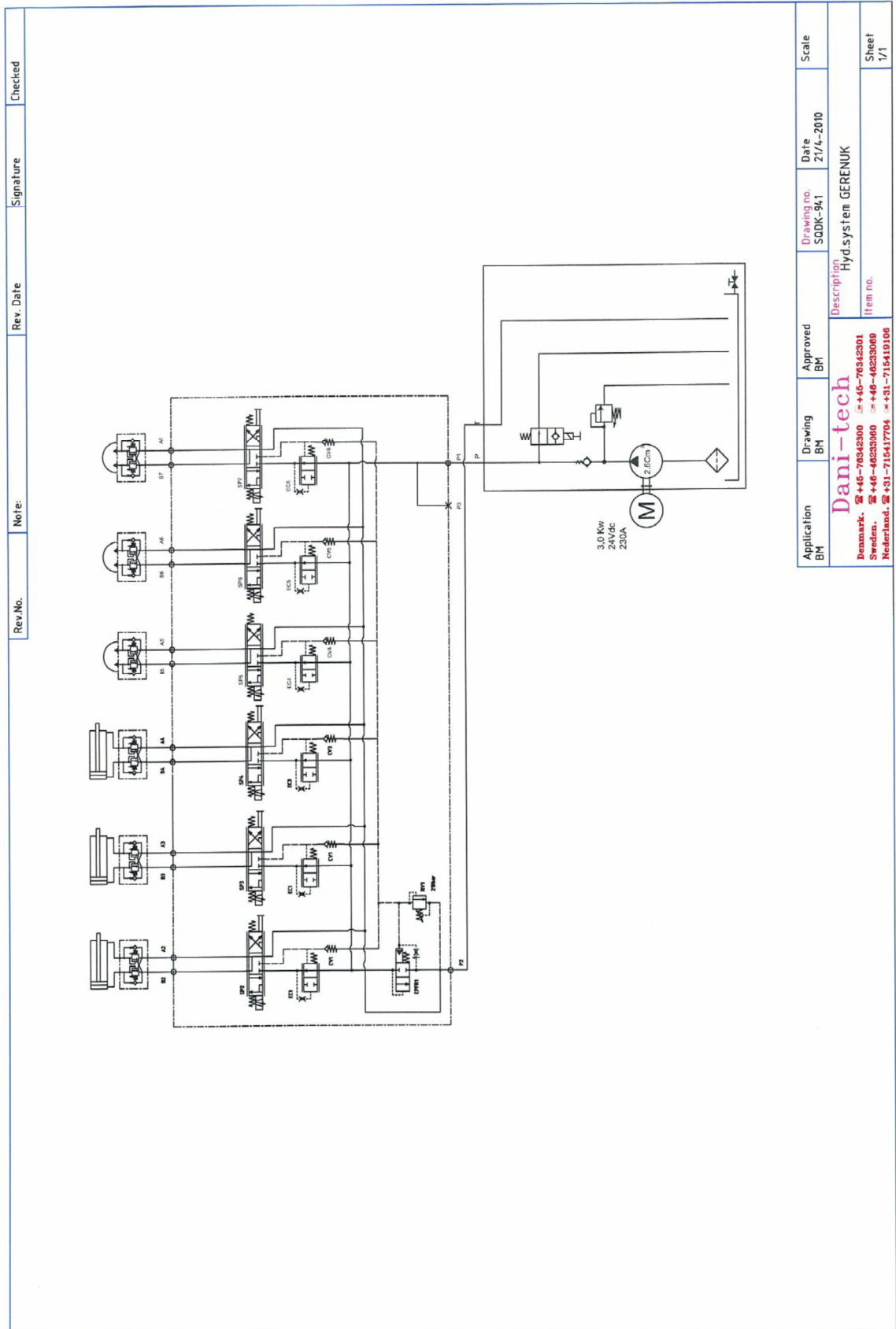
Gerenuk 500 is purchased with a 1-year warranty. The warranty does not cover normal wear and tear and is invalid if the Gerenuk 500 is not operated and maintained in accordance with these instructions.

Spare parts, electrical components:

ID. CODE	DESCRIPTION	TYPE	MAKE
-10S1	MAIN SWITCH	180203	CARGO
-11K1	RELAY	SW200-2 24V	ALBRIGHT
-11M1	HYDRAULIC PUMP	MC4-3.0T12-013	DANI-TECH
-11S1	OP. BUTTON, YELLOW	181252	CARGO
-12K1	RELAY	160215	CARGO
-12K1	SOCKET BASE	190766	CARGO
-12S1	KEY SWITCH	ASW2K10	IZUMI
-14S1	EMERGENCY STOP	AVW401-R	IZUMI
-14P1	LED	590-238	RS-KOMPONENTER
-14P2	LED	590-238	RS-KOMPONENTER
-14P3	VOLTAGE INDICATOR	BW-01	UNITEK
-15P1	LED	590-238	RS-KOMPONENTER
-15P2	ALARM	430-091	RS-KOMPONENTER
-15P3	LED	590-238	RS-KOMPONENTER
-15P4	ALARM	430-091	RS-KOMPONENTER
-15P5	LED	590-244	RS-KOMPONENTER
-15P6	FLASHING LED RED	45-716453	SYSTEM TEKNIK
-15P7	FLASHING LED GREEN	45-716413	SYSTEM TEKNIK
-20P1	VACUUMSTAT	ZSE 40-01T	SMC
-20P2	VACUUMSTAT	ZSE 40-01T	SMC
-30K1	SAFETY RELAY	NST3 24VDC	DUELCO
-40K1/-			
42K1	CPU	4885.27.307	INTERCONTROL
-40K1/-			
42K1	INTERFACE CABLES	4306.10.001	INTERCONTROL
-44K1	I/O MODULE	4885.64.021	INTERCONTROL
-44K1	CABINET	4585.27.001	INTERCONTROL
-44K1	INTERFACE CABLES	4306.10.001	INTERCONTROL
-44K1	CABINET COVER	4585.27.011	INTERCONTROL
-54K1	RELAY	RT114024	SCHRACK
-54K1	SOCKET BASE	RT78624	SCHRACK
-54K1	CLAMP	RT16016	SCHRACK
-54K1	DIODE	RP ML0024	SCHRACK
-60K1	ELECTRONICS BOX	RC400 609	SCANRECO
	REMOTE CONTROL	RC400 888	SCANRECO
		RC400/TR02	
	RECEIVER	1500	SCANRECO
-61T1	CHARGER	434	SCANRECO
-70K1	RELAY	RH2BLDC24	IZUMI
-70K1	BASE	SH2B05C	IZUMI
-F1	FUSE HOLDER	192421	CARGO
-F1	FUSE 30 A	191250	CARGO
-F2	FUSE HOLDER	192055	CARGO
-F2	FUSE 200 A	192053	CARGO
-F1	FUSE HOLDER	282-698/281-434	WAGO
-F2	FUSE HOLDER	282-698/281-434	WAGO
-F3	FUSE HOLDER	282-698/281-434	WAGO
-F4	FUSE HOLDER	282-698/281-434	WAGO
-F5	FUSE HOLDER	282-698/281-434	WAGO
-F6	FUSE HOLDER	282-698/281-434	WAGO
-F7	FUSE HOLDER	282-698/281-434	WAGO
-F8	FUSE HOLDER	282-698/281-434	WAGO
-F9	FUSE HOLDER	282-698/281-434	WAGO

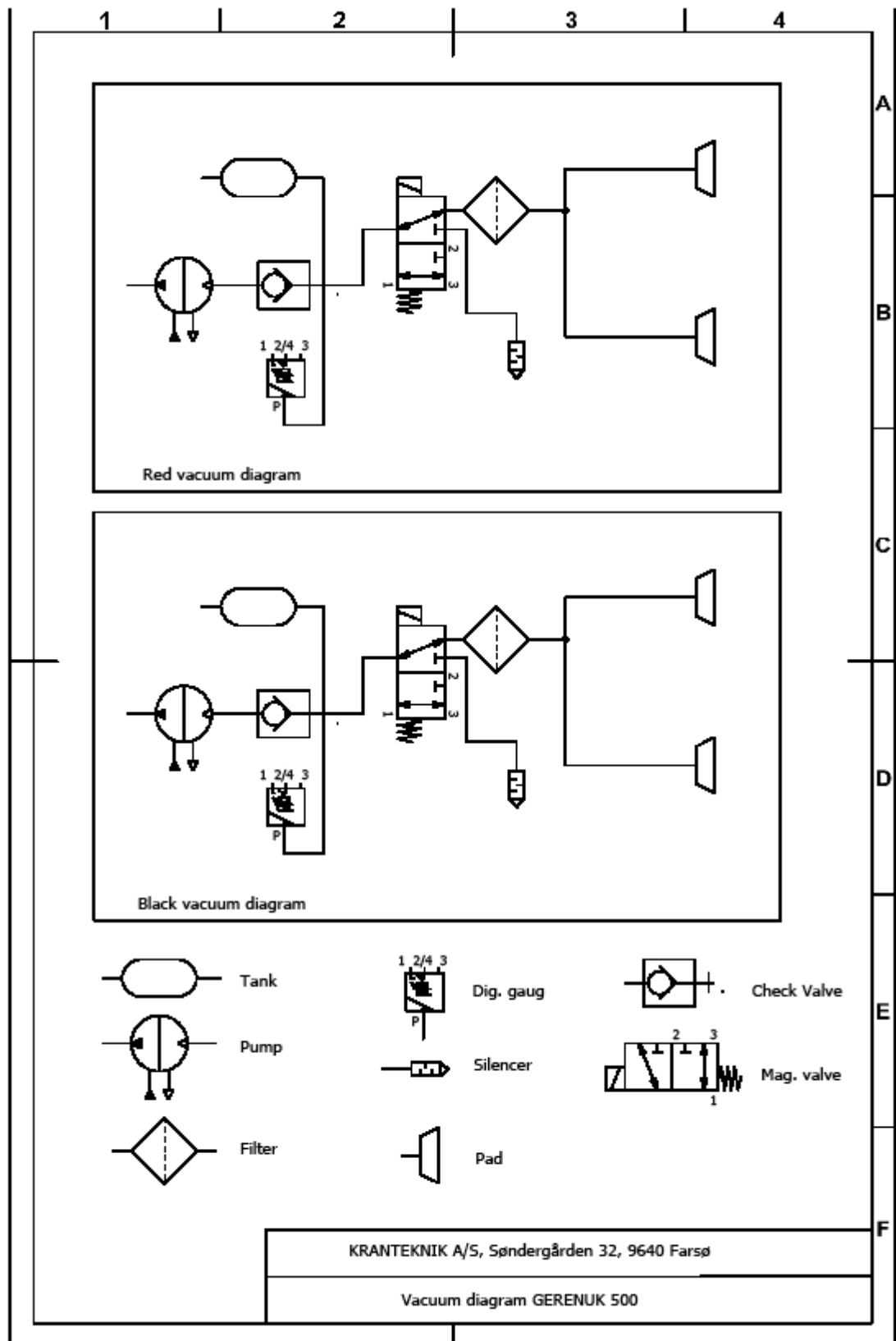
-F10	FUSE HOLDER	282-698/281-434	WAGO
-F11	FUSE HOLDER	282-698/281-434	WAGO
-F12	FUSE HOLDER	282-698/281-434	WAGO
-F13	FUSE HOLDER	282-698/281-434	WAGO
-F14	FUSE HOLDER	282-698/281-434	WAGO
-F15	FUSE HOLDER	282-698/281-434	WAGO
-F16	FUSE HOLDER	282-698/281-434	WAGO
	FUSE 3A	190053	CARGO
	FUSE 5A	190055	CARGO
	FUSE 7.5A	190056	CARGO
	FUSE 10A	190057	CARGO
	FUSE 15A	190058	CARGO
	END PLATE	282-334	WAGO
	SCREWLESS END STOP	249-116	WAGO
-X0	TERMINAL BLOCK	282-901	WAGO
	END PLATE	282-325	WAGO
	SCREWLESS END STOP	249-116	WAGO
-X1	TERMINAL BLOCK	280-631	WAGO
	END PLATE	280-324	WAGO
	SCREWLESS END STOP	249-116	WAGO
-X2	TERMINAL BLOCK	280-631	WAGO
	END PLATE	280-324	WAGO
	SCREWLESS END STOP	249-116	WAGO
-X3	TERMINAL BLOCK	280-631	WAGO
	END PLATE	280-324	WAGO
	SCREWLESS END STOP	249-116	WAGO
-X4	TERMINAL BLOCK	280-631	WAGO
	DIODE TERMINAL BLOCK	280-673/281-410	WAGO
	END PLATE	280-324	WAGO
	SCREWLESS END STOP	249-116	WAGO
-X5	TERMINAL BLOCK	280-631	WAGO
	END PLATE	280-324	WAGO
	SCREWLESS END STOP	249-116	WAGO
-X6	TERMINAL BLOCK	280-631	WAGO
	END PLATE	280-324	WAGO
	SCREWLESS END STOP	249-116	WAGO

Hydraulics diagram



Application BM	Drawing no. SDDK-9K1	Date 21/4-2010	Scale 1/1
Approved BM	Description Hyd.system GERENUK		
Dani-tech Denmark. ☎ +46-76542300 ☎ +46-76542301 Sweden. ☎ +46-46230000 ☎ +46-46230000 Netherlands. ☎ +31-716417704 ☎ +31-716410100		Item no.	Sheet 1/1

Vacuum diagram



Eldiagram