

# CLYDESDALE

Powering the Future

User Instructions: CLY 750 2-3000    Underground Cable Winch

## Underground Cable Winch 3300



# CLYDESDALE

## Powering the Future

### User Instructions: CLY 750 2-3000    Underground Cable Winch

Thank you for purchasing a SAHLINS product.

We want you to be satisfied with your Underground Cable Winch, and this manual has been written to help you to handle and take care of the machine, enabling you to bring the machine into operation so that you become well acquainted with the safety measures you need to adopt before you use it.

#### GENERAL

Great care has been put into the design and manufacture of this equipment to ensure there will be no health or safety risks.

There are risks in all work connected with cables and ropes, and to eliminate these risks it is important that:

- you study and follow the instructions
- all personnel continuously receive training in maintenance and safety
- functional equipment and tools are made available
- the owner and the supervisory team are responsible for making sure effective safety programmes and instructions are drawn up and followed by all personnel.

Our instructions contain important information which all users should know and understand before they use the equipment. For your safety and the safety of other people, you should pay special attention to the items/sections that have the following headings:

#### WARNING

Gives important information to warn of the risks of serious personal injury or danger if the instructions are not followed.

#### CAUTION

Gives important information that describes how you should prevent damage to the machine and equipment, or how you should avoid a situation that could cause personal injury.

#### REMARKS

Gives advisory information concerning operation, care and maintenance of the machine and equipment.

# CLYDESDALE

## Powering the Future

### User Instructions: CLY 750 2-3000    Underground Cable Winch

#### Safety regulations

#### GENERAL SAFETY MEASURES

##### Safety for personnel

1. Read and familiarise yourself with all warnings, precautionary measures, and instructions in the operating and care manual, and read and learn the significance of all signs which attached to and located around the equipment. If there is any doubt, ensure that all questions are answered before work begins.
2. Do not work with machines or equipment if you are under the influence of alcohol, strong medicines, tranquilisers or other drugs which may make you less alert, or which could affect your judgement.
3. Observe safety measures to avoid hair or loose articles of clothing becoming trapped in moving parts or control equipment.
4. If possible, protective gloves should be worn at all times to protect hands and fingers against cuts an abrasions, burns and solvents.
5. Always use eye protection if there is a risk of flying particles, splinters, dust or other objects which may injure the eyes, and where the safety instruction require it. Take care of your eyes.
6. Always use a safety helmet and protective footwear when the work requires it.
7. Use hearing protection at all times in working areas with high noise levels.
8. Do not carry out any unnecessary lifting which may cause back injury, use lifting equipment instead. Use your legs not your back when you are forced to lift by yourself.

##### Safety at work

9. Keep the working area clean and free from accumulations of material.
10. Do not permit unauthorized personnel to remain in or around the working area.
11. Surfaces which are touched by hands or feet must be kept clean, dry and free from oil or grease.
12. Store parts and tools in the intended place when they are not in use.
13. Carry out an inspection of warning equipment in the work area, and ensure that each individual unit functions satisfactory before starting the equipment.
14. Do not stand under, or permit anyone else to stand under, the equipment when it is raised or suspended.
15. Find out the weight limits of ropes and lifting equipment, and the free movement which these require.
16. Pay attention to conditions which may obstruct visibility in and around the working area. Safety of the equipment
17. Warning, prohibitor and information signs must not be concealed, changed, damaged or removed.
18. Never climb onto the equipment during operation, or when it is moving or being lifted. Do not permit anyone else to do this.

# CLYDESDALE

## Powering the Future

### User Instructions: CLY 750 2-3000    Underground Cable Winch

19. Check the components in the equipment before each operation period, to ensure that no parts are damaged or are suspected of being damaged. Repair or replace damaged components, or any which are suspected of damage. Repair or replace damaged parts before starting and operating the equipment. Use only genuine SAHLINS parts.
20. Before starting and operating the equipment, it is essential to ensure that no persons, animals, tools, components or other foreign objects are in, on, under or around it. Check that all protective and safety equipment is correctly installed and in satisfactory condition.
21. Ensure before starting the machine that all staff and visitors in the work area have been informed that the equipment is about to be started. Use suitable warning equipment to warn them.
22. Do not permit untrained personnel to start or run any equipment without the supervision of a trained operator.
23. Never leave the equipment unattended during operation.
24. Watch out when starting an operating the equipment for any defective measuring instruments, visible defects, smells or unusual sounds which may give a warning of a fault. Stop the equipment immediately if a fault is suspected.
25. Carry out all inspections, maintenance, lubrication and adjustments with great care, and in accordance with the manufacturer's recommendations. Safety regarding flammable and environmentally-hazardous substances.
26. Store flammable, combustible and dangerous substances in a safe place and in the appropriate containers. There must be clearly marked in accordance with current regulations.
27. Do not permit smoking or open flames in the vicinity of fuel and oil tanks or other flammable regulations.
28. Shut down all engines when filling with oil and fuel. Follow the instructions and recommendations which apply to the handling of these substances.
29. Never start a diesel or petrol engine in a confined space unless it is properly ventilated. Dangerous gases can kill.
30. Do not use flammable and/or combustible substances, such as petrol, paraffin or diesel oil to clean components. Always use non-flammable solvents which are intended for cleaning.

#### **DESCRIPTION OF PRODUCT AND OPERATING AND MAINTENANCE INSTRUCTIONS UNDERGROUND CABLE WINCH 3300**

The Underground Cable Winch 3300 is a hydraulically-operated 3-tonne winch with variable pulling speed and force. The winch is equipped with double bull wheels and an auto layering system on the collecting drum. By having double bull wheels, this winch differs from a drum winch as follow's: - always the same uniform pulling force and speed no matter how much cable/rope there is on the collecting drum. -fixed input point, that is, no lateral wander of the cable/rope. -no problems with winding up the cable. The winch features infinite control of speed and pulling force, both forwards and backwards.

# CLYDESDALE

## Powering the Future

### User Instructions: CLY 750 2-3000    Underground Cable Winch

#### Technical Data

Pull force:	Max. 3000 kp
Speed:	Max. 55 m/min.
Pull cable:	Standard: Steel cable 6x36SW+IWR, 500 m 12 mm
Operation:	Hydraulic.
Engine:	Diesel engine 28 Hp
Chassis:	Push brake, spring suspended wheel axle, adjustable support legs and wheels.
Dimensions:	Length 3630 mm, width 1850 mm, height 1250 mm.
Weight:	1290 kg

#### HANDLING

##### Setting up:

Screw the support wheel up as far as it will go (1). Then lower the support legs down and pin them at a suitable height. Screw the support down until the machine is standing firmly on the support legs (2). When necessary, anchor the machine also in the special anchor point (when pulling thicker ropes/cables).



(1)



(2)

Anchor point

You should observe the following in order to achieve the longest service life of the cable/rope:

- When using a new cable/rope, you should not use a pull force higher than about 700 kp for the first 2-4 pulls.
- Make sure the cable rollers which are used do not have too small a diameter or that they are defective in any way.
- Make sure the cable/rope is not pulled over any sharp edges such as on stones, corners or suchlike.



# CLYDESDALE

## Powering the Future

### User Instructions: CLY 750 2-3000    Underground Cable Winch

A swivel journaled in a ball bearing must NOT be used when pulling as this could cause the cable/rope to untwist and thus become badly damaged. As there are requirements relating to the swivel, only a friction swivel of type SAHLINS 7200- 1400 may be used.  
The winch must NOT be used for hanging loads.

#### BEFORE STARTING

Check the oil-level (make sure the winch is horizontal).

The engine: Top up with oil if necessary -up to the 'Full' mark on the dipstick. Pour slowly and carefully.

Push the dipstick down properly until the cover is flush with the tube when checking.

The oil dipstick must always be fully inserted into the tube when the engine is running.

Hydraulic tank: the oil level should be between the 'min' and 'max' marks on the level glass.

Check to make sure that all hydraulic hoses and pipes are not damaged in any way.

#### STARTING AND STOPPING THE ENGINE

Fill up with fuel

Put the winch control into the 'zero' position (straight up).

Pull out the choke control.

Start the engine by turning the ignition key to the 'ON' position. Run the engine for about 5-10 minutes before pulling the cable/rope. Always run at full throttle when pulling a cable/rope. When stopping the engine, turn the ignition key to the 'OFF' position. See also separate instruction book for Lombardini 9 LD 625-2.

#### OPERATION

You perform the control forward-backward by moving the lever close to the hydraulic tank..

Operate by moving the lever forward or backward from the 0-point (straight up). When subjected to a load, the lever will try to return to the 'zero point'.

In order to increase the pulling force when the engine is already under maximum load, you must reduce the winding-in speed by reducing the lever travel. When starting from a stationary position, the lever travel is increased until sufficient force is achieved.

When pulling the cable/rope out, the control lever is pushed forward to the detent. You can then pull the cable/rope out with a light pull or tug



# CLYDESDALE

## Powering the Future

### User Instructions: CLY 750 2-3000 Underground Cable Winch

#### PULL FORCE LIMITATION

The winch is fitted with a manometer from which you can read off the pulling force. The short-circuiting contact from the manometer on the winch is connected to operation of the pump. When the pre-set maximum pull force is reached, the variable pump is unloaded. You can set the maximum pull force on the manometer by turning the red indicator by means of the key which is attached. You press the key down whilst turning it. Reset by pressing the emergency stop button rapidly. As an alternative you can restart by the ignition key. When using Electronic measuring device type 4500-1000, see separate instructions manual. If "wire out" locks the hydraulic system, it can be caused by damaged wire. Inspect the wire condition! The hydraulic device stops when pulling in the wire if overloaded. Reset in both cases.



#### MAINTENANCE

Engine: See separate instruction book for Lombardini 9 LD 625-2

Cooling system:

Grass and other litter can easily clog the cooling system after operation over a long period. Remove the fan shroud once a year or after every 100 hours of operation and clean it to prevent the engine from overheating and overrevving. Always keep the silencer and the area immediately around it free from grass, dirt and litter.

Air cleaner: See separate instruction book for Lombardini 9 LD 625-2

#### HYDRAULIC SYSTEM:

Hydraulic oil should be analysed or changed at least once a year.

The tank should be cleaned if the oil deposits a layer of dirt.

Hydraulic oil: OK Delta Oil 32, Shell Tellus T32 or equivalent.

Tank capacity: approx. 130 litres.

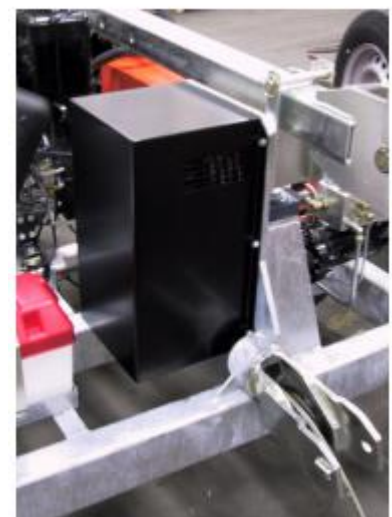
Hydraulic oil filter: Replace the filter after about 200 hours of operation, but at least every 6 months. (For position see page 11 part no. 65)

In addition, you should replace the oil filter when changing the oil or whenever you make any major adjustment or repair to the hydraulic system. The filter cartridges must on no condition be washed,

as reusing washed cartridges could cause serious damage to the system. Always change to a new cartridge.

Check the control and all hydraulic connections for signs of any leakage. If there is leakage, tighten the connections.

Filter cartridge: Sahlins 9671-003.



# CLYDESDALE

## Powering the Future

### User Instructions: CLY 750 2-3000    Underground Cable Winch

#### Winch housing:

Grease the bearing next to the wheels.

Tighten the drive chain when necessary by placing shims between the bearing bracket and the support. Check to make sure the protective casing for the wheels not damaged in any way but actually covers the wheels fully.

#### Planetary gear:

##### Oil change:

You should change the oil the first time after between 50 and 100 hours of operation. The recommended oil change interval after that is every 12 months. The oil should be changed when it is warm to prevent sludge from forming.

##### Amount of oil:

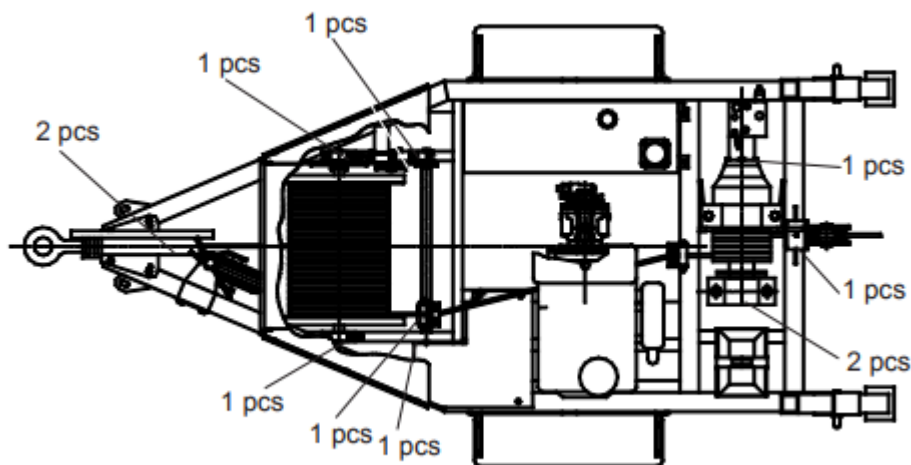
1 litre.

**Oil level:** The level should be up to the level plug at the centre line on the gear. You should check this at least once a year.

**Type of oil:** gearbox oil SAE 90.

##### Collecting drum and auto laying head.

Check, lubricate and tighten the chain for the auto layering head when necessary. Grease the bearing brackets and auto layering head screw and lubricate the bearings on the guide rollers.





# CLYDESDALE

Powering the Future

## User Instructions: CLY 750 2-3000    Underground Cable Winch

### Guide assembly:

Clean and lubricate all rollers with oil to enable them to run easily and smoothly.

Pull cable/rope:

Check at regular intervals to ensure there is no damage.

Fitting the cable/rope bull wheels:

- Make five loops.
- Fit the outgoing cable/rope of the final loop into the input roller on the winch.
- Fit the cable/rope around all grooves of the bull wheels, through the guide assembly
- Move the auto layering head to the end position where the fixing point of the cable/rope on the drum is located.
- Move the auto layering head until it has precisely passed the end position and starts to move towards the centre of the drum and remains there.
- Fit the cable/rope through the auto layering head and fit cable / rope to drum.
- Fit the protective casing over the bull wheels ensuring correct alignment of rope.



**NOTE** that you must be extremely careful when fitting the casing. Always check to make sure that the steel cable is in the correct position in the grooves.

### General:

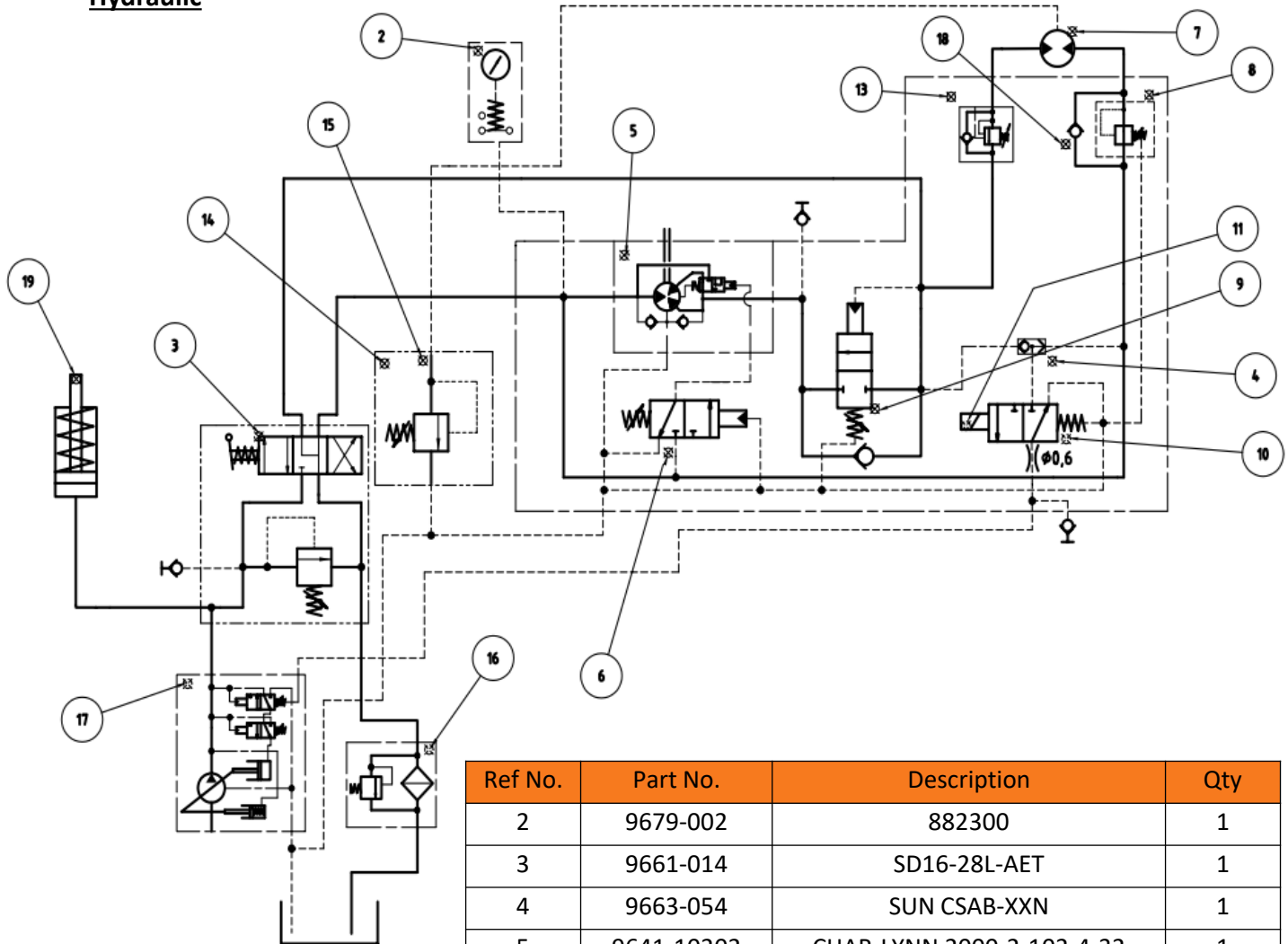
Lift the winch by the front lifting eye and in the upper holes on the support legs using an approved lifting device.

# CLYDESDALE

## Powering the Future

### User Instructions: CLY 750 2-3000 Underground Cable Winch

#### Hydraulic



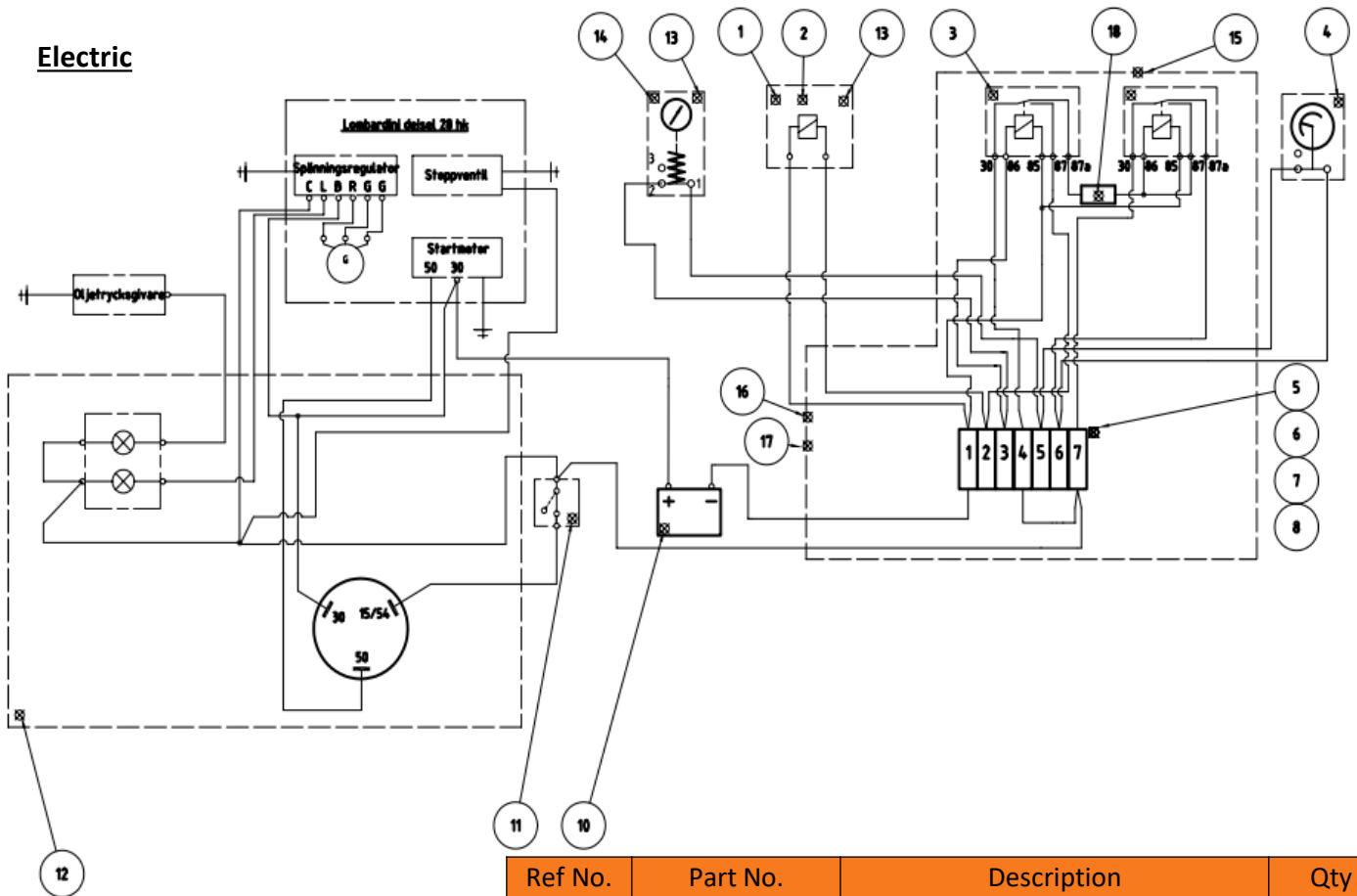
Ref No.	Part No.	Description	Qty
2	9679-002	882300	1
3	9661-014	SD16-28L-AET	1
4	9663-054	SUN CSAB-XXN	1
5	9641-10202	CHAR-LYNN 2000-2-102-4-32	1
6	9663-040	SUN DPBC-LBN	1
7	9641-03201	CHAR - LYNN J31.6-16-3	1
8	9663-080	PBDB-LAN	1
9	9663-071	SCGA-LAN	1
10	9663-041	SUN DMDA-MAN	1
11	9669-011	SUN 770212 12 VDC	1
13		CCCA-LHN	1
14	9663-023	RDBA-LDN	1
15	9668-008	ACT (HUS 1/4")	1
16	9671-006	TTF 102R1/TTX30D-10T	1
17	9642-00401	EATON 70411-RCG-SPEC 1"	1
18	9663-051	SUN CXDA-XAN	1
19	9651-032/12/1	BROMSCYLINDER	1

# CLYDESDALE

## Powering the Future

### User Instructions: CLY 750 2-3000    Underground Cable Winch

#### Electric



Ref No.	Part No.	Description	Qty
1	9663-041	SHUT OFF VALVE	1
2	9669-011	SOLENOID 12 VDC	1
3	9711-003	RELAY CLOSING	2
4	9672-011	LOAD INDICATOR	2
5	9711-069	CONNECTION BLOCK 2.5	7
6	9711-070	END SOCKET	2
7	9711-072	MARKING TAPE	1
8	9711-071	DIN-RAIL	1
9	9711-062	8 AMP DIOD	1
10	9713-001	BATTERY 12V 60 AH	1
11	9711-009	EMERGENCY SWITCH	1
12	IGNITION LOCK	MOVED TO PANEL	1
13	9669-010	HIRSCHMAN CONNECTOR	2
14	9679-002	PRESSOSTAT	1
15	3300-5072	CONNECTION BOX	1
16	9711-0001	SCREW CAP PG-11	4
17	9711-0004	NUT PG-11	4
18	9711-076	RESISTOR 27 OHM	1

# CLYDESDALE

## Powering the Future

### User Instructions: CLY 750 2-3000    Underground Cable Winch

All pressure settings must be adjusted at working temperature.

#### **Directional valve**

Main relief is set at 175 bar for extra precaution

#### **Pump**

The big hexagon is the maximum setting set at 150 bar (3- ton).

The smaller hexagon is the delta P setting (difference between P and LS) set at 13 bar. If increased above 14 bar the pump starts getting noisy and causes a decrease in life time of the pump.

#### **Manifold**

Pos 4.

Set at 120 bar, only effects wire out. If it locks the system, it indicates that the wire is in a bad condition or that the wire is wrongly assemble. To reset hit the emergency button on-off rapidly then the engine doesn't stop.

Pos 8b.

Closest to the Manifolds B-port, adjusted to approx. 7 bar.

Pos 13.

Biggest cartridge adjusted to 50 bar. Combined with Pos 8b. to keep up the wire tensioning. If Pos 13 needs more than 50 bar to keep the wire straight Pos 8b is to high in setting.

Pos 8a.

Closest to the manifolds B-port, adjusted to 120 bar.

Pos 14.

Dead ended to eliminate two-speed control.

Pos 65.

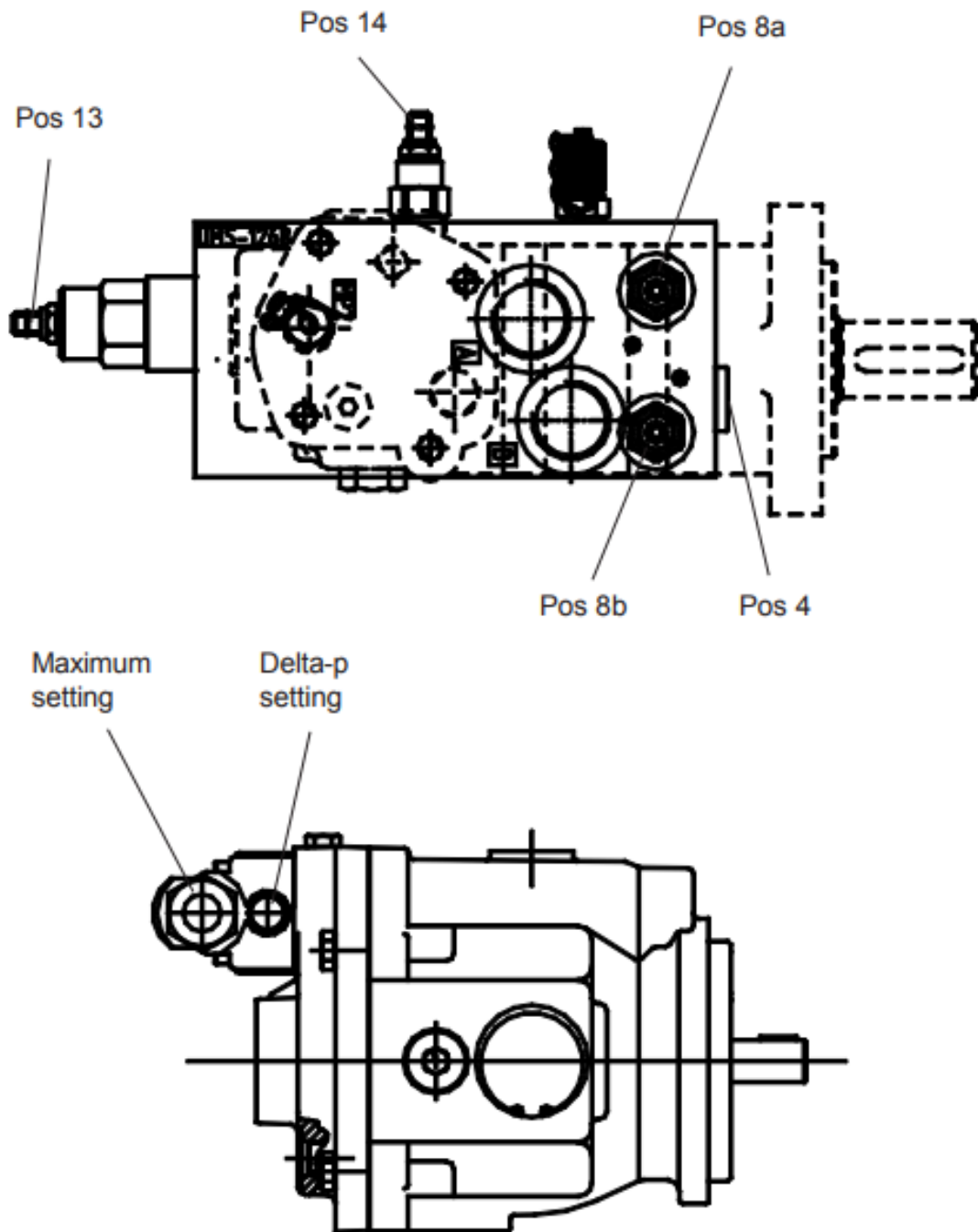
Adjusted to 60 bar . Don't exceed 70 bar because of the shaft seal on the small motor.



# CLYDESDALE

## Powering the Future

### User Instructions: CLY 750 2-3000    Underground Cable Winch



# CLYDESDALE

## Powering the Future

### User Instructions: CLY 750 2-3000    Underground Cable Winch



#### EG-declaration of conformity

(Directive 98/37/EG Annex II, Sub A)

**Manufacturer:** Sahlins Maskin AB  
Hedbovägen 42  
511 02 Skene

**Declare under our sole responsibility that the product**  
Overhead line winch 3300

to which this declaration relates is in conformity  
with the following standard

DIRECTIVE 98/37/EG

and that the following harmonized standards have  
been applied

EMC Directive 89/336/EEG,  
92/31/EEG & Low Voltage Directive  
73/23/EEG.

Skene 20021028  
Sahlins Maskin AB

A handwritten signature in black ink, appearing to read "Gunnar Sahlin", written over a horizontal line.

Gunnar Sahlin  
Managing Director