

OPERATION AND MAINTENANCE MANUAL FOR THE HYDRAULIC WINCH LIFTSTAR 2000 H - 1 AND LIFTSTAR 2000 HGC - 1

READ THIS MANUAL BEFORE USING THESE PRODUCT. This manual contains important safety, installation, operation and maintenance information. Make the manual available to all persons responsible for the operation, installation and maintenance of these product.

WARNING

Do not use this winch for lifting, supporting, or transporting people or lifting or supporting loads over people.

Always operate, inspect and maintain this winch in accordance with National Standards Safety Code of the country where the material is used and respect the other applicable safety codes and particular regulations.

Refer all communications to the nearest IR/SAMI/A Material Handling Products Office or Distributor.



B.P 59
59450 SIN LE NOBLE - FRANCE
TEL (33) 27.93.08.08
TELEX 820 221
TELEFAX (33) 27.93.08.00

TREUIL DE LEVAGE HYDRAULIQUE
HYDRAULIK HUBWINDE
HYDRAULIC WINCH

LIFTSTAR 2000 H -1

NUMERO DE NOMENCLATURE

L 615

NUMERO DU DOCUMENT

94,05,1,5 | B | 1 / 1

LE CHEF DU BUREAU D'ETUDES

SUMMARY

DESCRIPTION	N° DOCUMENT	FOLIOS
A - SAFETY INFORMATION AND TRAINING Danger, Warning, Caution and Notice Safety Summary	94 05 12	2
B - SAFE OPERATING INSTRUCTIONS	94 05 12	2
C - LABELLING - MARKING	94 05 12	1
D - SPECIFICATIONS Technical sheet	96 11 12	1
E - INSTALLATION Mounting Wire Rope Hydraulic Fluid Supply Motor Initial Operating Checks	94 05 13	4
F - OPERATION Controls	94 05 13	1
G - LUBRICATION Wire Rope Reduction Gear Assembly Seals and Bearings	94 05 13	1
H - INSPECTION Records and Reports Frequent Inspection Periodic Inspection Winches not in Regular Use	94 05 12	3
K - PARTS Winch Assembly Drawing Winch Assembly Part List Hydraulic Bored Block Drawing and Part List	94 05 05 94 05 05 94 05 08	1 3 1
L - RECOMMENDED SPARE PARTS LIST	94 10 01	1

A - SAFETY INFORMATION AND TRAINING

This manual provides important information for all personnel involved with the safe installation, operation and proper maintenance of this product. Even if you feel you are familiar with this or similar equipment, you must read understand this manual before operating the product.

Training must be done by a qualified person to any personnel involved with an hydraulic man-riding winch

Danger, Warning, Caution and Notice

Throughout this manual there are steps and procedures which, if not followed, may result in a hazard. The following signal words are used to identify the level of potential hazard.

DANGER

Danger is used to indicate the presence of a hazard which *will* cause *severe* personal injury, death, or substantial property damage if the warning is ignored.

WARNING

Warning is used to indicate the presence of a hazard which *can* cause *severe* personal injury, death, or substantial property damage if the warning is ignored.

CAUTION

Caution is used to indicate the presence of a hazard which *will* or *can* cause *minor* personal injury or property damage if the warning is ignored.

NOTICE

Notice is used to notify people of installation, operation, or maintenance information which is important but not hazard-related.

Safety Summary

WARNING

• Do not use this winch for lifting, supporting, or transporting people or supporting loads over people.

The supporting structures and load-attaching devices used in conjunction with this winch must provide an adequate safety factor to handle the rated load, plus the weight of the winch and attached equipment. This is customer's responsibility. If in doubt, consult a qualified structural engineer.

Employees who work near cranes or assist in hooking on or arranging a load should be instructed to keep out from under the load. From a safety standpoint, one factor is paramount : conduct all lifting operations in such a manner that if there were an equipment failure, no personnel would be injured.

This means keep out from under a raised load and keep out of the line of force of any load.

To the best of our knowledge, IR/SAMIIA Material Handling winches are manufactured in accordance with the latest standards in effect at time of manufacture.

"It is the owner's responsibility and user's responsibility to determine the suitability of a product for any particular use. Check all applicable industry, trade association, federal, state and local regulations. Read all operating instructions and warnings before operation."

Rigging : It is the responsibility of the operator to exercise caution, use common sense and be familiar with proper rigging techniques.

NOTICE

Using other than genuine IR/SAMIIA Material Handling parts will result in the void of warranty.

B - SAFE OPERATING INSTRUCTIONS


Safe Operating Instructions are provided to make an operator aware of dangerous practices to avoid and are not necessarily limited to the following list. Refer to specific sections in the manual for additional safety information.

- 1 - Only allow qualified personnel (trained in safety and operation) to operate and maintain a winch.
- 2 - Only operate a winch if you are physically fit to do so.
- 3 - When a "DO NOT OPERATE" sign is placed on the winch, do not operate the winch until the sign has been removed by designated personnel.
- 4 - Before each shift, check the winch for wear or damage.
- 5 - Never lift a load greater than the rated capacity of the winch. See warning labels attached to winch.
- 6 - Keep hands, clothing, etc..., clear of moving parts.
- 7 - Never place your hand in the throat area of a hook or in the vicinity of the wire rope as it spools onto the drum.
- 8 - Always rig loads properly and carefully.
- 9 - Be certain the load is properly seated in the saddle of the hook. Do not tipload the hook as this leads to spreading an eventual failure of the hook.
- 10 - Do not "side pull" or "yard".
- 11 - Make sure everyone is clear of the load path. Do not lift a load over people.
- 12 - Never allow anyone to stand on a suspended load.

- 13 - Ease the slack out of wire rope when starting a lift. Do not jerk the load.
- 14 - Do not swing a suspended load.
- 15 - Never suspend a load for an extended period of time.
- 16 - Never leave a suspended load unattended.
- 17 - Pay attention to the load at all times when operating the winch.
- 18 - After use, properly secure winch and all loads.
- 19 - The operator must maintain an unobstructed view of the load at all times.
- 20 - Never use the winch wire rope as a sling.

C - LABELLING - MARKING

The maximal lifting rated capacity of the winch is noticed on one part of the winch.

		B.P. 127 - 59506 DOUAI FRANCE	
		Tel. (33) 27.87.11.11 - Tél. 820221	
		Téléfax (33) 27.96.03.29	
TREUIL HYDRAULIQUE DE LEVAGE - HYDRAULIC LIFTING WINCH			
TYPE	<input type="text"/>	CODE	<input type="text"/>
N° DE SÉRIE SERIAL No.	<input type="text"/>	<input type="text"/>	<input type="text"/>
PRESSION UTILE RATED PRESSURE	<input type="text"/> bars	EFFORT MAXI LINE PULL	<input type="text"/> kN COUCHE LAYER
DEBIT MAXI MAXI FLOW	<input type="text"/> l/mn	VITESSE MAXI ROPE SPEED	<input type="text"/> m/s
DIMENSIONS TAMBOUR DRUM SIZE	<input type="text"/> x <input type="text"/> x <input type="text"/>		mm
CABLE RECOMMANDE RECOMM. ROPE SIZE	<input type="text"/> mm	CAPACITE CABLE DRUM CAPACITY	<input type="text"/> m

Each winch is supplied from the factory with the warning label shown. If the label is not attached to your unit, order a new label and install it. See the parts list for the part number. Read and obey all warnings and other safety information attached to this winch. Label may not be shown actual size :

WARNING

Failure to follow these warnings may result in death, severe injury or property damage :

- . Do not operate this winch before reading operation and maintenance manual.
- . Do not lift people or loads over people.
- . Do not lift more than rated load
- . Do not allow less than three wraps of wire rope to remain on drum at all times.
- . Do not operate a damaged or malfunctioning winch.
- . Do not remove or obscure warning labels

H - INSPECTION

There are two types of inspection, the frequent inspection performed by the operator while using the winch and periodic inspections performed by qualified personnel. Careful inspection on a regular basis will reveal potentially dangerous conditions while still in the early stages, allowing corrective action to be taken before the condition becomes dangerous.

Any deficiency revealed through inspection must be reported to an appointed person. A determination must be made as to whether a deficiency constitutes a safety hazard before resuming operation of the winch.

Records and Reports

Some form of inspection record must be maintained for each winch, listing all points requiring periodic inspection. A written report should be made monthly on the condition of the critical parts of each winch. These reports should be dated, signed by the person who performed the inspection, and kept on file where they are readily available to authorized personnel.

FREQUENT INSPECTION

On a winch in continuous service, frequent inspection should be made at the beginning of each shift. In addition, visual inspections should be conducted during regular service for any damage or evidence of malfunction.

1 - OPERATION. Check for visual or abnormal noises which could indicate a defect. Do not operate a winch unless the wire rope feeds onto the winch drum smoothly. If wire rope binds or jumps, clean and lubricate the wire rope. If problem persists, replace the wire rope. Do not operate the winch until all defects have been corrected.

2 - HYDRAULIC CIRCUIT. Check hydraulic lines and components for leakage. Repair if necessary - The hydraulic circuit and the tank must be very clean, without any metallic particule. Do not introduce impurities in the circuit when mounting the fittings.

3 - WIRE ROPE. Wire rope is a consumable item which must be replaced when worn. The following list is a guide to the accepted standards by which wire rope must be judged and is not presented as a substitute for an experienced inspector :

- a . Damage, such as bird cages, kinking, core protrusion, crushing, heat damage, and main strand displacement.
- b . Corrosion and nicking
- c . Wear of crown wires. Replace at 1/3 wear of any crown wire.
- d . Broken wires or strands, particularly at connections. Replacement is necessary if one wire is broken at a connection ; six wires broken within one lay ; three wires broken in one strand within one lay.
- e . Lubrication.

Replace wire rope if any doubt exists as to wire rope serviceability.

4 - WIRE ROPE REEVING. Check reeving and ensure wire rope is properly secured to the drum.

5 - CONTROLS. See that controls function properly and return to neutral when released.

PERIODIC INSPECTION

The frequency of periodic inspection depends on the severity of usage : NORMAL, yearly ; HEAVY, semiannually ; SEVERE, quarterly.

Disassembly may be required for HEAVY or SEVERE usage. Keep accumulative records of periodic inspections to provide a basis for continuing evaluation. Inspect all the items in a frequent inspection plus the following :

1 - FASTENERS. Check, capscrew, nuts, pins and other fasteners on winch and hydraulic system. Replace if missing and tighten or secure if loose.

2 - ALL COMPONENTS. Inspect for wear, damage, distortion, deformation and cleanliness. If external evidence indicates the need, disassemble. Check gears, shafts, bearings, springs and covers. Replace worn or damaged parts. Clean, lubricate and reassemble.

3 - DRUM AND SHEAVES. Check for damage or excessive wear. Replace if necessary.

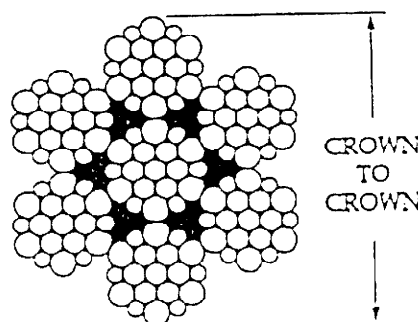
4 - BRAKE. Perform functional load test on winch. Check ability of the brake to hold rated load.

5 - LABELS AND TAGS. Check for presence and legibility. Replace if necessary.

6 - WIRE ROPE

a - Loose or damaged end connection. Replace if loose or damaged.

b - Changes in the size of the rope cross section. Measure crown-to-crown.





B.P 59
59450 SIN LE NOBLE - FRANCE
TEL. (33) 27.93.08.08
TELEX 820 221
TELEFAX (33) 27.93.08.00

TREUIL DE LEVAGE HYDRAULIQUE
HYDRAULIK HUBWINDE
HYDRAULIC WINCH

LIFTSTAR 2000 H -1

NUMERO DE NOMENCLATURE

NUMERO DU DOCUMENT

94,0,5,1,2 | | 6/6

12/10/01
LE CHEF DU BUREAU D'ETUDES

7 - FOUNDATION. Check for the continued ability to sustain the imposed loads.

Winches Not in Regular Use

A winch which has been idle for a period of one month or more, but less than six months, shall be given an inspection conforming with the requirements of "Frequent Inspection" before being placed into service.

A winch which has been idle for a period of over six months shall be given a complete inspection conforming with the requirements of "Periodic Inspection". Standby winches shall be inspected at least semiannually in accordance with the requirements of "Frequent Inspection". If abnormal operating conditions apply, winches may require a more frequent inspection.



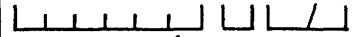
B.P 59
59450 SIN LE NOBLE - FRANCE
TEL. (33) 27.93.08.08
TELEX 820 221
TELEFAX (33) 27.93.08.00

TREUIL DE LEVAGE HYDRAULIQUE
HYDRAULIK HUBWINDE
HYDRAULIC WINCH

LIFTSTAR 2000 H -1

NUMERO DE NOMENCLATURE

NUMERO DU DOCUMENT



P. Pichin
LE CHEF DU BUREAU D'ETUDES

D - SPECIFICATIONS

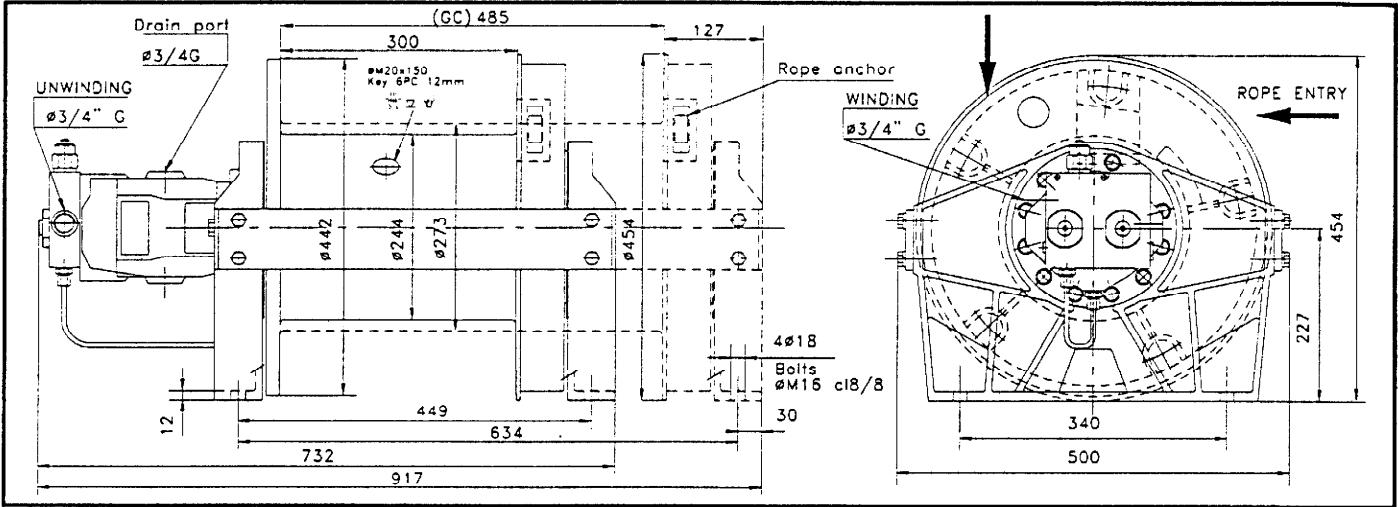
IR/SAMIA
 BP 59
 59450 SIN LE NOBLE
 TEL: (33) 27.93.08.08
 FAX: (33) 27.93.08.00
 TELEX: 820 221

HYDRAULIC LIFTING WINCH

LS2000 H1 and LS2000 H1-GC

NUMERO DE NOMENCLATURE
L 615
 NUMERO DU DOCUMENT
96/11/12 A 1/1
Ph. Demeese
 Le chef du bureau d'études

Copyright © 1997
 Ingersoll-Rand Company
 All Rights Reserved



SPECIFICATIONS	Standard	Long drum
Rated pressure (bar)	150	150
Nominal load (kN)	20	19
Max. rated flow (l/mn)	60	60
Gear ratio	76	76
Max. torque at drum (m.daN)	370	370
Weight of standard model without rope (kg) =	210	235
Recommended rope diameter (mm)	11,5/13	11,5/13

PERFORMANCE with max. torque and speed and rope Ø11,5							
Layer nbr		1	2	3	4	5	6
Standard	Max. load (kg)	2900	2660	2450	2280	2130	2000
	Max. speed (m/mn)	21	23	24,8	26,7	28,6	30,5
Long drum	Max. load (kg)	2590	2380	2190	2000	1900	
	Max. speed (m/mn)	23,5	25,7	27,7	29,8	32	

Performance measured with mineral oil 37cSt at 40°C.

CUMULATIVE ROPE CAPACITY									
Number of layers		1	2	3	4	5	6	7	8
Standard (m)	rope Ø11,5mm	19	40	63	88	114	142	172	203
	rope Ø13 mm	17	36	57	79	103	129	156	
Long drum (m)	rope Ø11,5mm	35	73	114	158	205	254	307	
	rope Ø13 mm	31	65	102	142	185	230		

DESIGNATION and options

LS2000H	--	1	G
Hydraulic series	Drum	Regulation connect.	Options
LS2000	-- = Standard GC = Long drum	1 = with Pilot control 2 = without	G = Drum guard P = marine Paint

DESCRIPTION

- Conform with safety rules for lifting winches FEM (1BM). Monobloc conception.

DESIGN

- GS cast iron and steel construction. especially compact design.
- Plain drum between ribbed flanges with distance pieces. Rope is anchored by a vertical wedge box on the flange.
- Planetary gear box is enclosed within drum for protection and space saving.
- All rotating parts are supported on ball bearings.
- Fail safe automatic multi-disc brake springs applied, pressure released.
- Dynamic braking is by a counter balance valve avoiding the permanent friction of the discs brake.

WINCH MOUNTING

- Winch designed for installation on a rigid support. Quick fastening by 4 bolts, grade 8/8.
- Use in any position, provided the drum is horizontal.

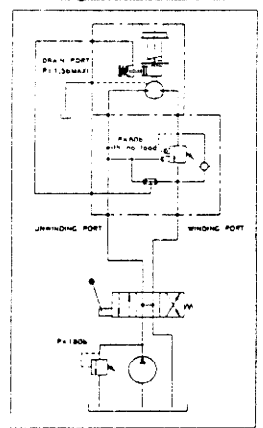
LUBRIFICATION

- Oil bath gear box, Oil grade SAE 80 W 90. Kinematic viscosity 145 cSt at 40°C.

OPTION

- "GS" version (great capacity) with long drum.

Hydraulic scheme



The equipment described on this sheet is subject to the general sales and warranty conditions of INGERSOLL-RAND company. Because of the constant evolution of technology INGERSOLL-RAND company reserves the right to modify without notice the specifications contained in this document.

E - INSTALLATION

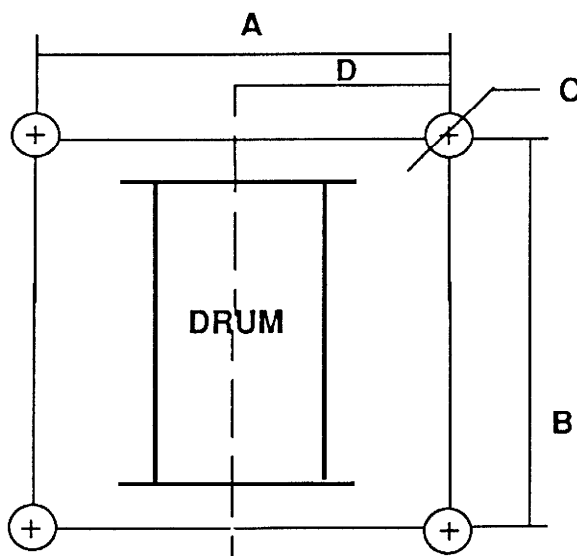
Prior to installing the winch, carefully inspect it for possible shipping damage.

CAUTION

Owner and users are advised to examine specific, load or other regulations, which may apply to a particular type of use of this product before installing or putting winch to use.

Mounting

- 1 - If product is to be mounted in one position be sure the mounting surface is even and of sufficient strength to handle the rated load and prevent possible binding of the winch.
- 2 - Make sure the mounting surface is flat to within 1/32 inch (0,8 mm). Shim if necessary
- 3 - Mounting bolts must be 5/8 in. (16 mm) diameter, Grade 8.8 (classe 8.8) or better. Use self-locking nuts or nuts with lockwashers.
- 4 - Torque mounting bolts evenly.
- 5 - Maintain a fleet angle between the sheave and winch of no more than 1-1/2 degrees. For every inch of drum length, the lead sheave must be at least 1.6 feet (0.5 m) from the drum.
- 6 - Do not weld to any part of the winch

**Bolt Hole Dimensions****Standard Drum**

"A" 340 mm
 "B" 449 mm
 "C" \varnothing 18 mm
 "D" 170 mm

Long Drum

"A" 340 mm
 "B" 634 mm
 "C" \varnothing 18 mm
 "D" 170 mm

Wire rope

CAUTION

- *Maintain at least 3 wraps of wire rope on the drum at all times.*
- *Install the wire rope to come off the drum in an overwind position as indicated on the direction of rotation tag.*

Wire rope selection

Consult a reputable wire rope manufacturer or distributor for assistance in selecting the appropriate type size of wire rope and, where necessary, a protective coating. Use a wire rope which provides an adequate safety factor to handle the actual working load and meets all applicable industry, trade association, state and local regulations. When considering wire rope requirements the actual working load must include not only the static or dead load but also loads resulting from acceleration, retardation and shock load. Consideration must also be given to the size of the winch wire rope drum, sheaves and method of reeving. Wire rope diameter for lifting or lowering 1/2 in. (13 mm) imperative.

Installing Wire Rope

- 1 - Cut wire rope to length in accordance with the wire rope manufacturers instructions.
- 2 - Feed the end of the wire rope into the smaller anchor hole in the wire rope drum and pull through approximately one foot (0,3 m) of wire rope.
- 3 - Truck the end of the wire rope back into the wire rope anchor pocket forming a loop in the wire rope.
- 4 - Insert the wire rope wedge and pull the wire rope through the slot tightening the wire rope around the wire rope wedge.

CAUTION

Make sure the first wrap of wire rope is flush against the drum flange.

- 5 - Pull the wire rope wedge into position in the drum anchor pocket.

Safe Wire Rope Handling Procedures

- 1 - Always use gloves when handling wire rope.
- 2 - Never use wire rope which is frayed or kinked.
- 3 - Never use wire rope as a sling
- 4 - Always ensure wire rope is correctly spooled and first layer is tight.

Wire Rope Spooling

To compensate for uneven spooling and decrease in line pull capacity as the drum fills up, use as short a cable as practical. To rewind wire rope apply tension to eliminate slack. This helps achieve level winding and tight spooling.

Rigging

Make sure all wire rope blocks, tackle and fastenings have sufficient safety margin to handle the required load. Do not allow wire rope to contact sharp edges or make sharp bends which will cause damage to wire rope, use a sheave. Refer to wire rope manufacturers handbook for proper sizing, use and care of wire rope.

Safe Installation Procedures

- 1 - Do not use wire rope as a ground for welding
- 2 - Do not attach a welding electrode to winch or wire rope
- 3 - Never run the wire rope over a sharp edge. Use a correctly sized sheave.
- 4 - When a lead sheave is used, it must be aligned with the center of the drum. The diameter of the lead sheave must be at least 18 times the diameter of the wire rope.
- 5 - Always maintain at least three full wraps of wire rope on the drum.

Hydraulic Fluid Supply

The hydraulic circuit and the tank must be very clean, without any metallic particule. Do not introduce impurities in the circuit when mounting the fittings. For a continuous use do not exceed a temperature of 80°C as well for the hydraulic circuit as for the winch. The maxi filtration of the circuit must be 10 microns . We recommend to use an open centre control valve "H".

Supply lines should be as short and straight as installation conditions will permit. Long transmission lines and excessive use of fittings, elbows, tees, globe valves, etc, cause a reduction in pressure due to restrictions and surface friction in the lines.

CAUTION

We recommend to use for the hydraulic fluid a mineral oil viscosity 37 to 68 cSt at 40°C.

Motor

For optimum performance and maximum durability of parts, operate hydraulic motor at 130 bar oil pressure - Oil supply : 60 l/mn. The hydraulic motor should be installed as near as possible to the hydraulic power pack



B.P 59
59450 SIN LE NOBLE - FRANCE
TEL. (33) 27.93.08.08
TELEX 820 221
TELEFAX (33) 27.93.08.00

TREUIL DE LEVAGE HYDRAULIQUE
HYDRAULIK HUBWINDE
HYDRAULIC WINCH

LIFTSTAR 2000 H -1

NUMERO DE NOMENCLATURE

NUMERO DU DOCUMENT

9,4,0,5,1,3 | | | 45 |

no / 2011
LE CHEF DU BUREAU D'ETUDES

Initial Operating Checks

Winches are tested for proper operation prior to leaving the factory. Before the winch is placed into service the following initial operating checks should be performed.

When first operating the winch it is recommended that the motor be driven slowly in both directions for a few minutes.

The winch is now ready to work.

F - OPERATION

The four most important aspects of winch operation are :

- 1 - Follow all safety instructions when operating the winch.
- 2 - Allow only qualified people to operate the winch
- 3 - Subject each winch to a regular inspection and maintenance procedure
- 4 - Be aware of the winch capacity and weight of load at all times.

WARNING

The LIFTSTAR 2000H Winch is not designed or suitable for lifting, lowering or moving persons. Never lift loads over people.

Winch control

We recommend to use an open centre control valve "H" type with minimum size of 10 or CETOP 5 .

CAUTION

To avoid damage to the rigging, the structure supporting the rigging and the winch, do not "two-block" the end of the wire rope.

G - LUBRICATION**Wire rope**

Refer the wire rope manufacturers recommendations. At a minimum observe the following :

1 - Clean with a brush or steam if there is dirt, rock dust or other foreign material on the surface of the rope

CAUTION

Do not use an acid-based solvent or other cleaning fluid.

2 - Apply a wire rope lubricant or SAE 30W oil.

3 - Brush, drip or spray lubricant weekly, or more frequently, depending on severity of service.

Reduction Gear Assembly

Replace the oil in the reduction housing at least once every year. If the winch is used at a normal frequency, the oil in the reduction housing is suitable for one years operation without changing. However, when the winch is used at a high frequency, the oil may need to be changed on a more frequent basis.

To ensure correct performance, highest efficiency and long life, it is essential that the lubricating oil be maintained at the correct level. The recommended grade of oil must be used at all times since the use of unsuitable oil may result in excessive temperature rise, loss of efficiency and possible damage of the gears.

The reduction gear assembly is filled and shipped with oil from the factory. Use only high quality lubricants in the reduction gear assembly such as high grade EP type oil or their equivalents. Fill the reduction gear assembly until the working rim is covered.

Oil capacity : 3 litres.

Recommended oil :

GRADE SAE 80 W 90 - Kinematic

Viscosity : 145 mm²/s at 40°C

Seals and Bearings

If winch is disassembled, clean all parts thoroughly and coat bearings and seals with clean grease. Use sufficient grease to provide a good protective coat.

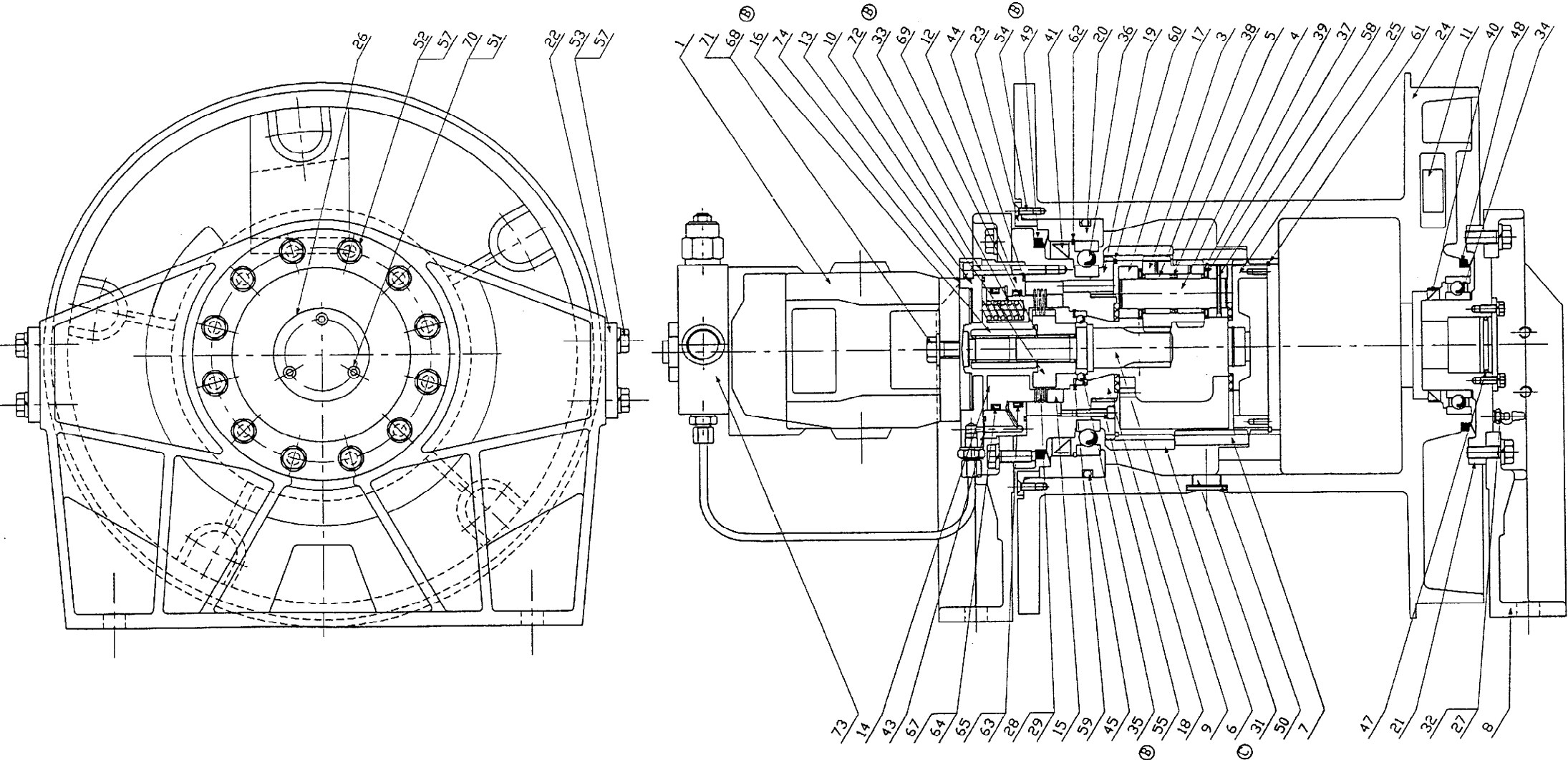
Grease features : semi-fluid extreme pressure for ambient temperature from -15°C to +40°C, ASTM at 25°C penetration.

Motor

Since all the motor parts subject to friction are lubricated by the fluid carried, no maintenance and no corrective action is to foreseen on this unit except the monitoring of the hydraulic liquid used and the protection mechanisms.

NUMERO DE NOMENCLATURE	
76150061	
NUMERO DU DOCUMENT	
94/05/05	1 / 4
<i>Squero</i>	
LE CHEF DU BUREAU D'ETUDES	

- Ⓐ LOCTITE INSTAJOINT 574
- Ⓑ LOCTITE FREIN FILET 243
- Ⓒ LOCTITE TUBE ETANCHE 577



P. 59
19450 SIN LE NOBLE FRANCE
TEL. (33) 27.93.08.08
TELEX 820 221
TELEFAX (33) 27.93.08.00



B.P 59
59450 SIN LE NOBLE - FRANCE
TEL. (33) 27.93.08.08
TELEX 820 221
TELEFAX (33) 27.93.08.00

NOMENCLATURE DU TREUIL DE LEVAGE HYDRAULIQUE
DRUCKLUFT WINDETEILLISTE
WINCH ASSEMBLY PART LIST

NUMERO DE NOMENCLATURE

L 615

NUMERO DU DOCUMENT

914105105 A 214


LE CHEF DU BUREAU D'ETUDES

REPERE ITEM HINWEIS	DESIGNATION	DESCRIPTION	BEZEICHNUNG	Quantité Quantity Anzahl	CODE	CPN
1	Moteur hydraulique	hydraulic motor	hydraulik motor	1	6400-0903	38543013
2						
3	Satellite	Satellite	Trabant	4	9573-0018	38527941
4	Axe de satellite	Satellite axle	Trabantenachse	4	9573-8019	38531208
5	Entretoise	Distance ring	Distanzring	4	9573-0021	38527966
6	Couronne 60 dents	60 teeth-ring gear	Zahnkranz 60 Zähne	1	9573-0055	38527974
7	Couronne 57 dents	57 teeth-ring gear	Zahnkranz 57 Zähne	1	9573-0056	38527990
8	Flasque	Flange	Flansch	2	9615-7002	38531232
9	Pignon moteur	Driving pinion	Abtriebszahnrad	1	9615-0006	38533055
10	Manchon de liaison	Coupling sleeve	Kupplungsmuffe	1	9615-0016	38543039
11	Coin	Wedge	Keil	1	9615-0009	38528014
12	Corps de frein	B rake housing	Bremsgehäuse	1	9611-0005	38530572
13	Flasque bride	Flange	Flansch	1	9611-0007	38543039
14	Piston	Piston	Kolben	1	9611-0003	38530580
15	Entretoise	Distance ring	Distanzring	1	9615-0017	38543047
16	Bague de liaison	Connecting ring	Verbindungsring	1	9615-0018	38543062
17	Porte satellite	Satellite support	Satellitenträger	1	9615-0023	38528022
18	Palier avant	Front bearing	Vorwärtslager	1	9615-8042	38531240
19	Porte couronne	Ring gear support	Zahnkranzträger	1	9615-0043	38528048
20	Palier de roulement	Rolling bearing	Walzlager	1	9615-0044	38528055
21	Palier arrière	Rear bearing	Lager hinten	1	9615-8049	38531257
22	Entretoise (standard)	Distance ring (standard)	Distanzring (standard)	2	9615-0005	38528196
	Entretoise (GC)	Distance ring (GC)	Distanzring (GC)	2	9615-0050	38529822
23	Butée	Stop	Anschlag	1	9615-0051	38528071
24	Tambour (standard)	Drum (standard)	Trommel (standard)	1	9615-7001	38539458
	Tambour (GC)	Drum (GC)	Trommel (GC)	1	9615-7052	38543732
25	Sous ensemble clabot	Claw of positive clutch	Klaue einer Fuppelmuffe	1	3573-0001	38529764

Pour toute commande de pièces de rechange, il est recommandé de rappeler le numéro porté sur la plaque d'identification de l'appareil

For each demand of spare parts, it is recommended to specify the number written on the identification plate of the device

Bei Bestellung von Ersatzteilen bitte Sereinnummer auf dem Identifizierungsschild des Geräte angeben



B.P 59
59450 SIN LE NOBLE - FRANCE
TEL. (33) 27.93.08.08
TELEX 820 221
TELEFAX (33) 27.93.08.00

NOMENCLATURE DU TREUIL DE LEVAGE HYDRAULIQUE
DRUCKLUFT WINDETEILLISTE
WINCH ASSEMBLY PART LIST

NUMERO DE NOMENCLATURE

L 615

NUMERO DU DOCUMENT

914105105 3/4

JM
LE CHEF DU BUREAU D'ETUDES

REPERE ITEM HINWEIS	DESIGNATION	DESCRIPTION	BEZEICHNUNG	Quantité Quantity Anzahl	CODE	CPN
26	Obturateur	Blind washer	Dichtung	1	9619-0013	38528816
27	Bouchon	Plug	Stopfen	1	6101-7128	38528329
28	Disque de friction	Friction disc	Reibcheibe	4	6305-9932	38528352
29	Disque acier	Steel disc	Stahlscheibe	3	6306-0032	38528360
30	Plaque d'identification	Identification plate	Typenschild	1	6676-7232	38529970
31	Bouchon	Plug	Stopfen	2	6516-0932	38528337
32	Graisseur hydraulique	Hydraulic greaser	Hydraulischer Schmiernippel	1	6730-1727	38528345
33	Ressort	Spring	Feder	9	6915-9432	38530689
34	Roulement à billes	Ball bearing	Kugellager	1	5005-0015	38523346
35	Roulement à billes	Ball bearing	Kugellager	1	5080-0007	38526208
36	Roulement à billes	Ball bearing	Kugellager	1	5080-0024	38528477
37	Butée à aiguilles	Needle stop	Nadelanschlag	8	5605-4225	38528485
38	Cage à aiguilles	Needle cage	Nadelkäfig	8	5650-3324	38528493
39	Contre plaque	Thrust washer	Druckscheibe	8	5731-2632	38528501
40	Bague d'étanchéité	Sealing ring	Dichtring	1	5800-0830	38528519
41	Bague d'étanchéité	Sealing ring	Dichtring	1	5801-9230	38528527
42						
43	Joint torique	O'ring	O'ring	1	5821-2529	38522660
44	Joint torique	O'ring	O'ring	2	5821-6929	38528535
45	Bague	Ring	Ring	1	5821-7929	38528543
46						
47	Joint torique	O'ring	O'ring	1	5822-4229	38528592
48	Joint V-ring	Joint	Dichtung	1	5840-4831	38528550
49	Joint V-ring	Joint	Dichtung	1	5840-5831	38528568
50	Joint cuivre	Copper joint	Kupferdichtung	2	5840-8031	38528576
51	Vis H	Screw	Schraube	3	4100-0201	38522751
52	Vis H	Screw	Schraube	24	4100-0401	38528667

Pour toute commande de pièces de rechange, il est recommandé de rappeler le numéro porté sur la plaque d'identification de l'appareil

For each demand of spare parts, it is recommended to specify the number written on the identification plate of the device

Bei Bestellung von Ersatzteilen bitte Sereinnummer auf dem Identifizierungsschild des Geräte angeben



B.P 59
59450 SIN LE NOBLE - FRANCE
TEL (33) 27.93.08.08
TELEX 820 221
TELEFAX (33) 27.93.08.00

NOMENCLATURE DU TREUIL DE LEVAGE HYDRAULIQUE

DRUCKLUFT WINDETEILLISTE
WINCH ASSEMBLY PART LIST

NUMERO DE NOMENCLATURE

L 615

NUMERO DU DOCUMENT

9,4,0,5,0,5 L 4/4

LE CHEF DU BUREAU D'ETUDES

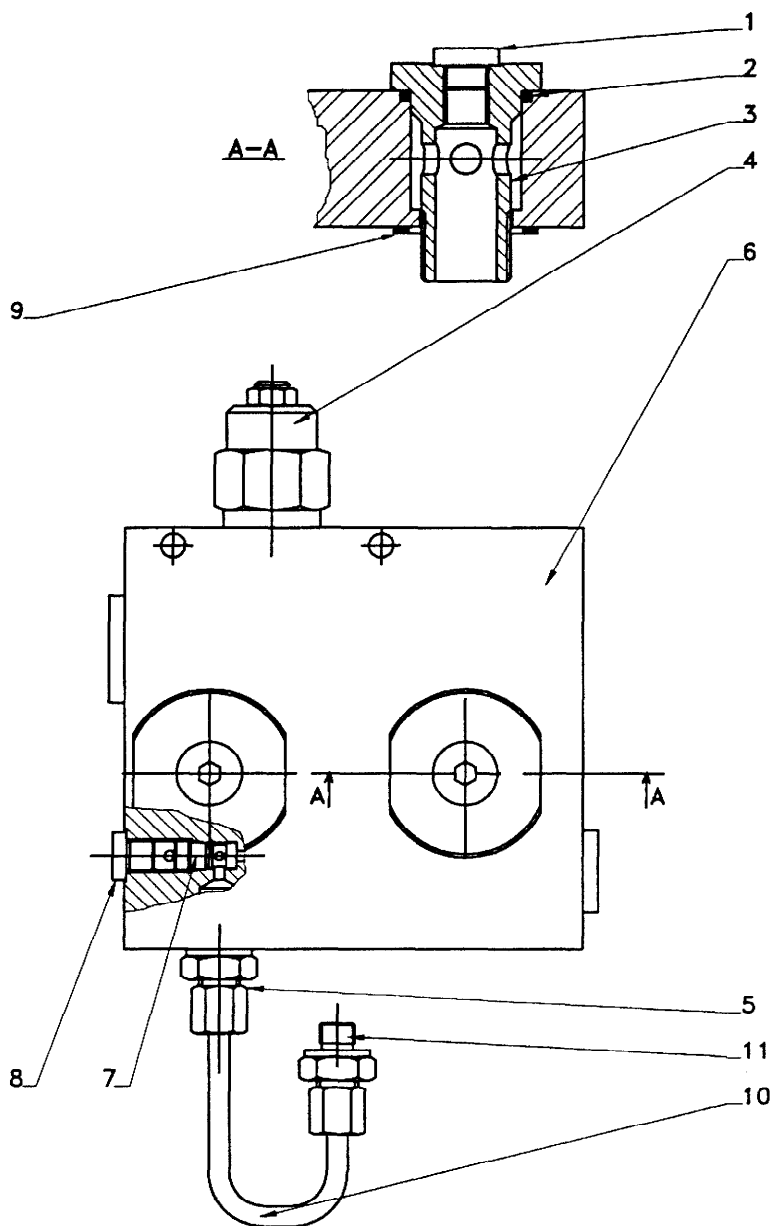
REPERE ITEM HINWEIS	DESIGNATION	DESCRIPTION	BEZEICHNUNG	Quantité Quantity Anzahl	CODE	CPN
53	Vis H	Screw	Schraube	8	4100-6701	38533071
54	Vis FHc/90	Screw	Schraube	6	4110-1603	38528675
55	Vis CHc	Screw	Schraube	4	4130-1006	38523593
56	Rivet	Rivet	Niete	4	4460-0821	38528683
57	Rondelle grower	Split washer	Scheibe	32	4520-0010	38522223
58	Goupille élastique	Elastic pin	Elastisches Stift	4	4650-4220	38528709
59	Circlips intérieur	Circlips	Seegerring	1	4770-3062	38527149
60	Anneau expansif	Expansive ring	Expansives Ring	1	4783-6832	38528717
61	Anneau expansif	Expansive ring	Expansives Ring	1	4784-7832	38528758
62	Anneau expansif intérieur	Internal expansive ring	Inneres Expansives Ring	1	4785-3932	38528725
63	Joint torique	O'ring	O-ring	1	5822-2429	38530705
64	Joint torique	O'ring	O-ring	1	5822-2529	38530713
65	Bague anti-extrusion	Back-up ring	Ring	1	5822-2629	38530812
67	Bague anti-extrusion	Back-up ring	Ring	1	5822-2729	38530820
68	Vis H	Screw	Schraube	2	4100-3401	38530028
69	Circlips extérieur	Circlips	Seegerring	1	4770-0022	38536405
70	Rondelle grower	Split washer	Scheibe	3	4520-0006	38522819
71	Rondelle plate	washer	Scheibe	2	4500-0112	38525523
72	VIS CHc	Screw	Schraube	12	4130-2206	38530036
73	bloc foré	Bored block	Geböhrter block	1	3598-0033	
74	Joint papier	Joint	Dichtung	1	9584-0088	38543070

Pour toute commande de pièces de rechange, il est recommandé de rappeler le numéro porté sur la plaque d'identification de l'appareil

For each demand of spare parts, it is recommended to specify the number written on the identification plate of the device

Bei Bestellung von Ersatzteilen bitte Sereinnummer auf dem Identifizierungsschild des Geräte angeben

BLOC FORE
PLAN D'ENSEMBLE
ASSEMBLY DRAWING



ITEM N°	DESIGNATION	DESCRIPTION	BEZEICHNUNG	QTY	CODE
1	Bouchon 1/4"G	Plug		2	65110741
2	Joint torique	O'ring		2	58210229
3	vis creuse	Screw		2	95980056
4	Valve d'équilibrage	Counterbalance valve		1	68453632
5	Union 1/4"G	Union		1	68231428
6	Bloc foré	Block		1	95980064
7	Sélecteur de circuit	Shuttle valve		1	68402441
8	Bouchon 1/8"G	Plug		1	65110441
9	Bague Usit ring	Joint Usit ring		2	58410231
10	Tube ø6	Pipe ø6		1	35980034
11	Union M10x100	Union		1	68209128

RECOMMENDED SPARE PARTS LIST

LS 2000 H-1 & LS 2000 HGC-1

Spare parts first level

Spare parts second level

Spare parts third level

First emergency for 1 at 10 equipments

Quantity

ITEM	DESCRIPTION			
76150061	Assy winch			1
35980033	Assy hydraulic Block			1
64000903	Hydraulic motor		1	
95730018	Satellite		4	
95730019	Satellite axle		4	
96150016	Coupling sleeve		1	
96150009	Wedge	3		
96110005	Brake housing		1	
96110003	Piston		1	
63059932	Friction disc		4	
63060032	Steel disc		3	
65160932	Plug	5	2	
50050015	Ball bearing		1	
50800007	Ball bearing		1	
50800024	Ball bearing		1	
56054225	Needle stop		8	
56503324	Needle cage		8	
57312632	Trust wascher		8	
58000830	Sealing ring		1	
58019230	Sealing ring		1	
58212529	O'ring		1	
58216929	O'ring		2	
58217929	ring		1	
58224229	O'ring		1	
58404831	Joint		1	
58405831	Joint		1	
58408031	Copper joint	10	2	
41101603	Screw		6	
46504220	Elastic pin		4	
58222429	O'ring		1	
58222529	O'ring		1	
58222629	Back-up ring		1	
58222729	Back-up ring		1	
95840088	Joint		1	
58210229	O'ring		2	
68453632	Counterbalance valve			1
68402441	Shuttle valve			1
58410231	Joint		2	
35980034	Pipe	3		