OPERATION AND MAINTENANCE MANUAL

FOR THE

HYDRAULIC MAN-RIDING WINCH

LS500HLP AND LS1000HLP

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

WARNING

"As regards man-riding winches, it is the responsiblity of the owner or user of the winch to determine whether the winch conforms with local regulations for personel use"

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/SAMIIA Material Handling Products Office or Distributor.

Form SAM0004
Edition 3
May 1996

INGERSOLL-RAND®
PRODUCTION EQUIPMENT

SAMIIA®
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 "PERSONNEL" HYDRAULIQUE
HYDRAULIK-HUBWINDE FUER PERSONENTRANSPORT
HYDRAULIC MAN-RIDING WINCH

LS500HLP AND LS1000HLP

NUMERO DE NOMENCLATURE
L615
NUMERO DU DOCUMENT
9 1 0 7 1 1 | A | 1 / 1

LE CHEF DU BUREAU D'ETUDES

SUMMARY

SAMIIA®
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TREUIL DE LEVAGE"PERSONNEL"HYDRAULIQUE
HYDRAULIK HUBWINDE FUER PERSONENTRANSPORT
HYDRAULIC MAN-RIDING WINCH

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LE CHEF DU BUREAU D'ETUDES

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* personnal 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

"As regards manriding winches, it is the responsibility of the owner or user of the winch to determine the winch conforms with local regulations for personel use"

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 an 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

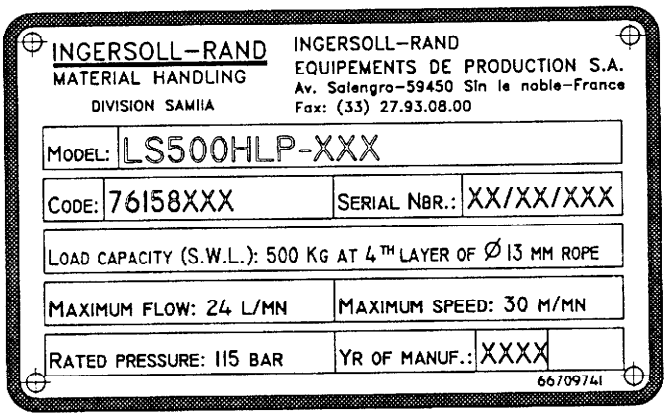
Safe Operating Instructions are provided to make an operator aware of dangerous practices to avoid and are not necessarily limited to the following list. Refer to specific sections in the manual for additional safety information.

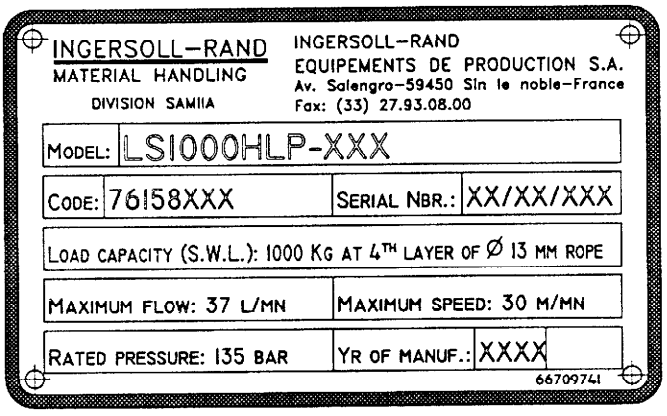
1 - Only allow qualified personnel (trained in safety and operation) to operate and maintain a winch.
2 - Only operate a winch if you are physically fit to do so.
3 - When a "DO NOT OPERATE" sign is placed on the winch, do not operate the winch until the sign has been removed by designated personnel.
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 extented 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.
On every hydraulic man-riding winch a sheet is clinched as this model :





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 :

MANRIDING WINCH 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.

. It is responsibility of the owner or user to determine whether the winch conforms with local regulations for personel use

. 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

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HYDRAULIK HUBWINDE FUER PERSONENTRANSPORT
HYDRAULIC MAN-RIDING WINCH

LS500HLP

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LE CHEF DU BUREAU D'ETUDES

D - SPECIFICATIONS

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LS 500 HLP

TREUIL HYD. LEVAGE PERSONNEL
HYDRAULIC MAN-RIDING WINCH

NUMERO DE NOMENCLATURE
7 615 8033
NUMERO DU DOCUMENT
95/01/03 A 1 / 4
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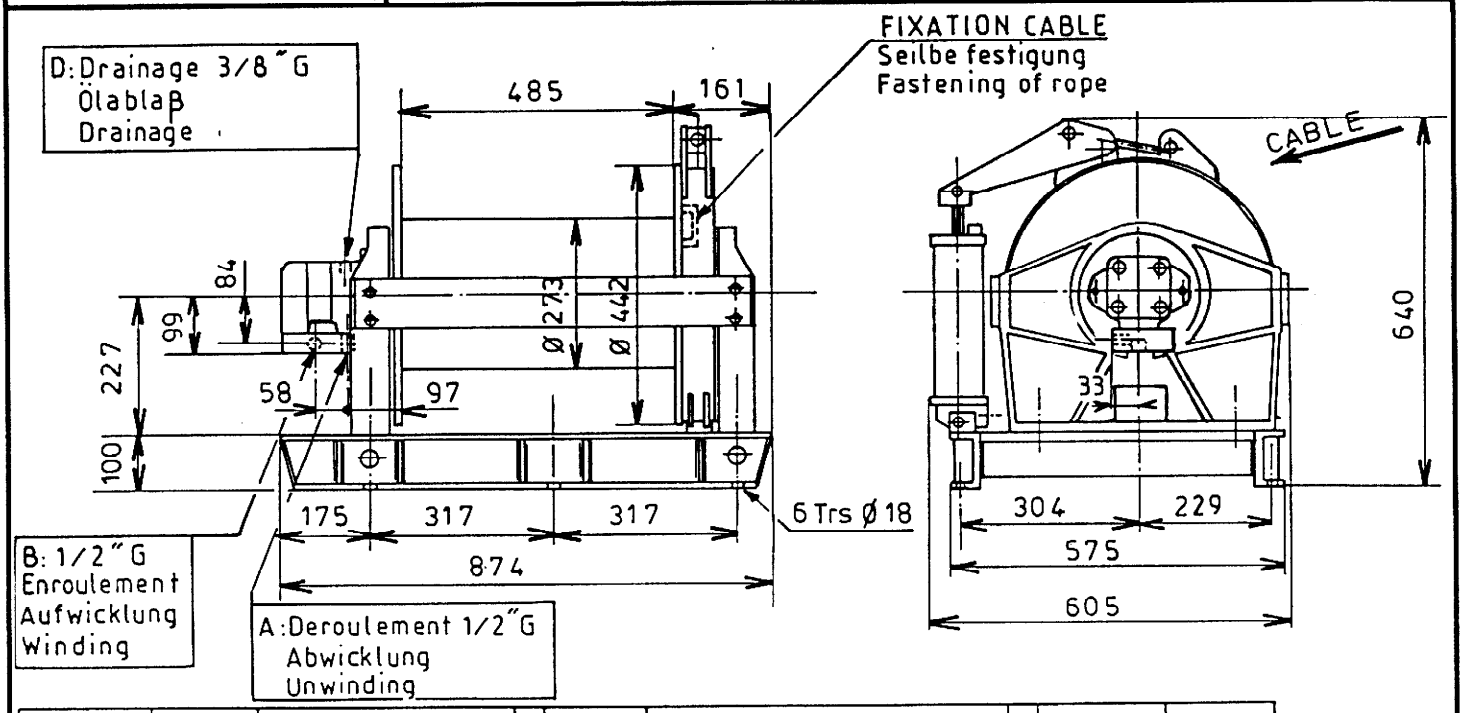

N° DE FABRICATION	PRESSION UTILE	EFFORTS 1ère COUCHE	EFFORTS DERNIERE COUCHE	DEBIT UTILE MAXI	VITESSES MAXI. TAMBOUR	VITESSES MAXI. 1ère COUCHE	VITESSES MAXI. DERNIERE COUCHE	DEBIT MINI CONSEILLE	VITESSE 1ère COUCHE
FABRIKATION NUMMER	*BETRIEBS-DRUCK*	*HUBKRAFT ERSTE SEILAUFLAGE*	*HUBKRAFT AUSSERSTE SEILAUFLAGE*	*SCHLUCK VOLUMEN*	*MAXIMALE SEILGESCHWINDIGKEIT TROMMEL*	*MAXIMALE SEILGESCHWINDIGKEIT ERSTE SEILAUFLAGE*	*MAXIMALE SEILGESCHWINDIGKEIT AUSSERSTE SEILAUFLAGE*	*EMPFAHLENE MINI EINSPEISUNG*	*GESCHWIN-DIGKEIT 1e SEILAGE*
FACTORY NUMBER	WORKING PRESSURE	LINE PULL FIRST LAYER	LINE PULL LAST LAYER	OIL SUPPLY	MAXIMUM LINE SPEED DRUM	MAXIMUM LINE SPEED FIRST LAYER	MAXIMUM LINE SPEED LAST LAYER	MINIMUM ADVISED OIL SUPPLY	LINE SPEED 1st LAYER
76158033	bar 100	daN 635	daN 500	L/mn 24	tr/mn 26	m/mn 23.5	m/mn 30	l/mn	m/mn

. **Couple maxi au tambour** - *Maxi Trommeldrehmoment* - Maximum drum torque : 91 m daN
. **Vitesse maxi au tambour** - *Maximale Trommelgeschwindigkeit* - Maximum drum speed : 26 t/mn
. **Rapport de réduction du treuil** - *Windenuntersetzungsverhältnis* - Winch gear ratio : 1/76
. **Poids du treuil (sans cable)** - *Windengewicht (ohne Seil)* - Weight of winch (without rope) : ~ 290 kg

voir schéma de branchement réf. H 364_43
performances mesurées avec huile minérale 37cSt à 40°C

Anschlußzeichnung sehen : H 364_43
Leistungen gemessen mit Mineralöl 37cSt bei 40°C

see scheme of connections ref. H 364_43
performances calculated with mineral oil 37cSt at 40°C

CAPACITE DE CABLE CUMULEE SELON LES DIFFERENTES COUCHES, en mètres
GESAMTE SEILAUFNAHME GEMÄß DEN VERSCHIEDENEN LAGEN, in meter
SUMMING UP OF CABLE CAPACITY, in metres

ømm	1	2	3	4	5	6	7	8	9	10
13	31	65	102	142	185	230				

- Performances à couple et vitesse maxi au tambour (avec cable ø 13)
- *Betriebsdaten für maximale Drehmoment und Geschwindigkeit (mit Seil ø 13)*
- Winch data at maxi drum torque and drum speed (with cable ø 13)

Couche n° / *Seilauflage* / Layer nbr	Effort daN / *Hubkraft daN* / Line pull daN	Vitesse m/mn / *Geschwindigkeit m/mn* / Line speed m/mn
1	635	23.5
2	583	25.7
3	538	27.8
4	500	30

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TREUIL HYD. LEVAGE PERSONNEL
HYDRAULIC MAN-RIDING WINCH

NUMERO DE NOMENCLATURE
7 615 8033
NUMERO DU DOCUMENT
95/01/03 A 2 / 4
LE CHEF DU BUREAU D'ETUDES

DESCRIPTION

The "Manrider" winches have been designed and built for the "oil and offshore" industry and more specifically to conform with specifications asked for the Norwegian Oil Ministry and the British Department of Energy.
There are no norms for the use of "Manriders" except those currently demanded by the offshore industry.
Thus it is the responsibility of the user to determine the adaptability of this material for specific use and to ensure that it conforms to any rules which may be applicable.

Nomenclature of winch : FEM 4 M (ISO M 7) - Safety load of stress FEM 2 (ISO L 2)
This winch is supplied with a Tracability list for the main parts which are under load together with a DNV "Type Approval Certificate" number S-886.
Construction : the winch has 4 constituent parts designed for the most difficult tasks :
a) an motor assy with hydraulic regulation block directly fanged on the motor
b) a brake-control reducer block within the drum
c) a frame constructed mainly of two strutted flanges
d) a drum
Motor : hydraulic with two ways of rotation 11,7cm^3/ turn
Filtration maxi 10 µm
Reducer : rotary gear system with gears of specially treated high grade steel mounted on roller bearings. This mecanism is enclosed within the winch drum forming the oil sump.
Brake : multidisc in large oil bath ensuring constant control of the load when lowering. It works by decompression thus ensuring automatic function of the brake in case of feeding failure. This "wet brake" ensures a constant level of braking and is unaffected by exterior conditions. This brake is only open in the lowering direction.
Brake : direct on to a large drum ensuring constant control of the load while lifting or lowering. It works by decompression thus ensuring automatic function of the brake in case of feeding failure. This brake is open in the two ways of rotation of the drum.
Drum : made of steel with cable fixing by a wedged box.
Frame : made of two strutted flanges. Ground fixing 4 18 mm diameter holes.
Feeding of motor : B orifice in the winding direction : 1/2" BSP
A orifice in the unwinding direction : 1/2" BSP
D orifice in the direction of drainage of the motor : 3/8" BSP
Chassis skid : made of welded steel with 6 18 diameter fixing holes and 4 40 diameter holes for handling.
Anti-spin device : a free wheel within the multidisc brake. It prevents all drum sliding when setting the load in the lifting direction.
Hydraulic regulation bloc : in steel directly flanged in the motor component :
- a counterbalance valve ensuring control of the load when lowering
- a relief valve ensuring the protection of the winch against overload in the rising direction - Adjustment 1,1 SWL < F < 1,3 SWL
- a circuit selector ensuring the direct brake opening of the drum when rising and the both brakes when lowering.

NB : All this components are controled and plumbed in the manufacture after trial.

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95/01/03 A 3 / 4
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Accessories :

DESIGNATION	CODE	CPN
13 mm diameter anti-giratory cable (breaking load 111 KN at 1770 N/mm2)	6974-0013	38531000
13mm diameter high resistance cable (breaking load 153 KN at 2160 N/mm2)	6975-0013	38531018
thimble sleeved loop, fixed at end of cable	6972-9999	38520672
safety hook fixed onto thimble-sleeved loop	6612-7932	38520664

Options :

* manual spindle locking of drum
* marine paint protection
* Detection device for cable over capacity
* low level stoplift (detecting device with at lesat 3 coils)
* load lowering device in case of power failure
* emergency stop system
* protecting wire casing fixed on to the distance pieces of the winch

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95/01/03 A 4 / 4
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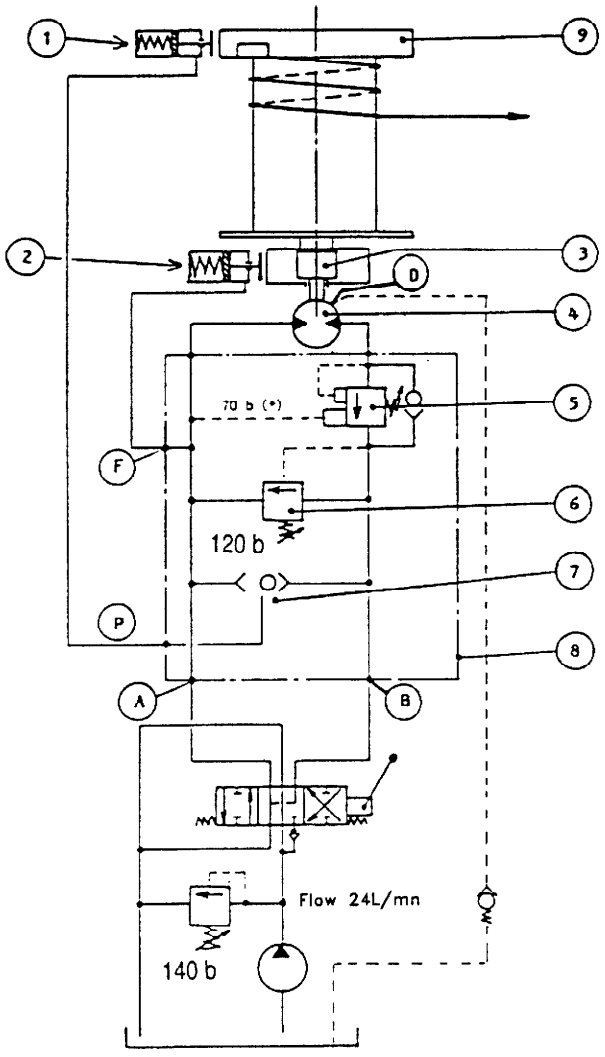
HYDRAULIC CIRCUIT SCHEME (H 364 - 43)



(*) Pressure 70 bar measured at no load (unwinding direction)

DIMENSIONS OF OUTLETS

A : Unwinding direction ϕ 1/2" BSP (cylinder gas)
B : Winding direction ϕ 1/2" BSP (cylinder gas)
D : Drainage of motor ϕ 3/8" BSP (cylinder gas)
authorised back pressure 1,2 bar minimum
F : Feeding of multidisc brake ϕ M10 x 100
P : Feeding of band brake ϕ 1/4" BSPP (cylinder gas)

IDENTIFICATION OF COMPONENTS

1 - Direct band brake on drum
2 - Multidisc brake on quick gear shaft
3 - Anti-spin device with free wheel on motor shaft
4 - Hydraulic motor with 2 ways of rotation
5 - Counterbalance valve adjusted at 70 bar (*)
6 - Overload protection device
7 - Circuit selector feeding the direct brake on drum
8 - Hydraulic bored block (steel)

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HYDRAULIK-HUBWINDE FUER PERSONENTRANSPORT

HYDRAULIC MAN-RIDING WINCH

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7.615.8008

NUMERO DU DOCUMENT

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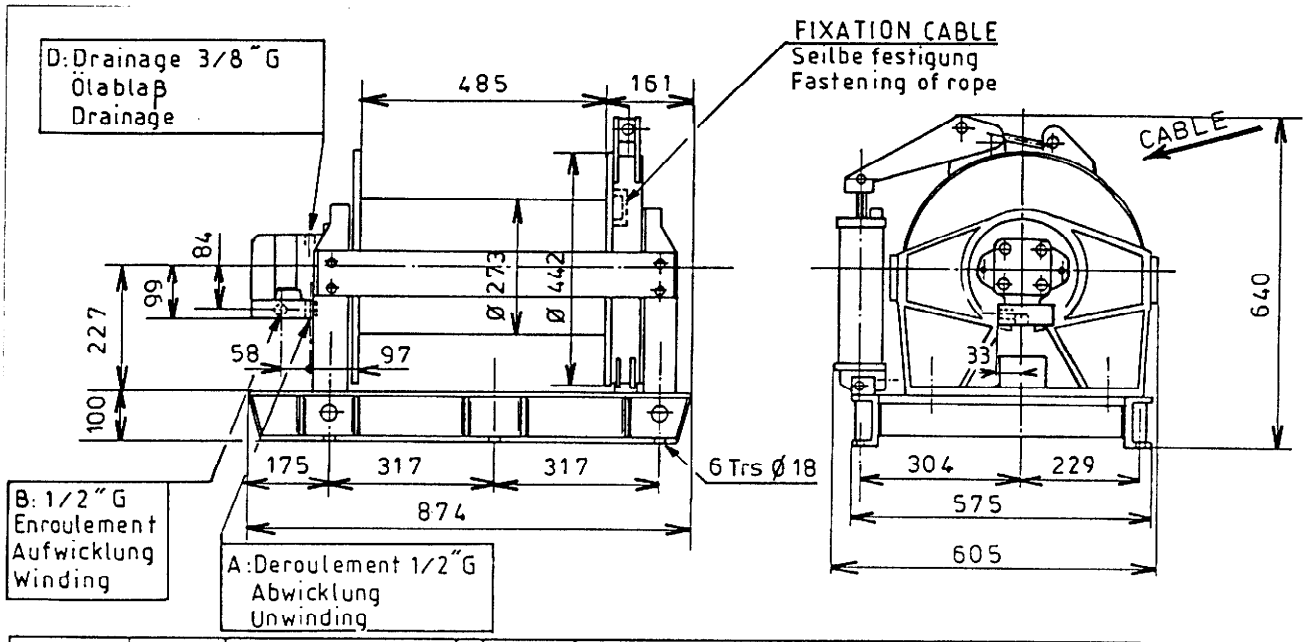

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	bar	daN	daN	l/mn	l/mn	m/mn	m/mn	l/mn	m/mn
76158008	135	1270	1000	37	26	23,5	30	/	/

. **Couple maxi au tambour** - *Maxi Trommeldrehmoment* - Maximum drum torque : 182 mdaN
. **Vitesse maxi au tambour** - *Maximale Trommelgeschwindigkeit* - Maximum drum speed : 26 l/mn
. **Rapport de réduction du treuil** - *Windenuntersetzungsverhältnis* - Winch gear ratio : 1/76
. **Poids du treuil (sans cable)** - *Windengewicht (ohne Seil)* - Weight of winch (without rope) : ~ 290 kg

voir schéma de branchement réf. H 364_43
performances mesurées avec huile minérale 37cSt à 40°C

Anschlußzeichnung sehen : H 364_43
Leistungen gemessen mit Mineralöl 37cSt bei 40°C

see scheme of connections ref. H 364_43
performances calculated with mineral oil 37cSt at 40°C

CAPACITE DE CABLE CUMULEE SELON LES DIFFERENTES COUCHES, en mètres
GESAMTE SEILAUFNAHME GEMÄß DEN VERSCHIEDENEN LAGEN, in meter
SUMMING UP OF CABLE CAPACITY, in metres

ømm	1	2	3	4	5	6	7	8	9	10
13	31	65	102	142	185	230				

- **Performances à couple et vitesse maxi au tambour (avec cable ø 13)**
- *Betriebsdaten für maximale Drehmoment und Geschwindigkeit (mit* Seil ø 13)
- Winch data at maxi drum torque and drum speed (with cable ø 13)

Couche n° / *Seilauflage* / Layer nbr	Effort daN / *Hubkraft daN* / Line pull daN	Vitesse m/mn / *Geschwindigkeit m/mn* / Line speed m/mn
1	1270	23,5
2	1166	25,7
3	1077	27,8
4	1000	30
5		

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a) an motor assy with hydraulic regulation block directly fanged on the motor
b) a brake-control reducer block within the drum
c) a frame constructed mainly of two strutted flanges
d) a drum
Motor : hydraulic with two ways of rotation 19 cm^3 / turn
Filtration maxi 10 µm
Reducer : rotary gear system with gears of specially treated high grade steel mounted on roller bearings. This mecanism is enclosed within the winch drum forming the oil sump.
Brake : multidisc in large oil bath ensuring constant control of the load when lowering. It works by decompression thus ensuring automatic function of the brake in case of feeding failure. This "wet brake" ensures a constant level of braking and is unaffected by exterior conditions. This brake is only open in the lowering direction.
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Drum : made of steel with cable fixing by a wedged box.
Frame : made of two strutted flanges. Ground fixing 4 18 mm diameter holes.
Feeding of motor : B orifice in the winding direction : 1/2" BSP
A orifice in the unwinding direction : 1/2" BSP
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Chassis skid : made of welded steel with 6 18 diameter fixing holes and 4 40 diameter holes for handling.
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- a circuit selector ensuring the direct brake opening of the drum when rising and the both brakes when lowering.

NB : All this components are controled and plumbed in the manufacture after trial.

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Accessories :

DESIGNATION	CODE	CPN
13 mm diameter anti-giratory cable (breaking load 111 KN at 1770 N/mm2)	6974-0013	38531000
13mm diameter high resistance cable (breaking load 153 KN at 2160 N/mm2)	6975-0013	38531018
thimble sleeved loop, fixed at end of cable	6972-9999	38520672
safety hook fixed onto thimble-sleeved loop	6612-7932	38520664

Options :

* manual spindle locking of drum
* marine paint protection
* Detection device for cable over capacity
* low level stoplift (detecting device with at lesat 3 coils)
* load lowering device in case of power failure
* emergency stop system
* protecting wire casing fixed on to the distance pieces of the winch

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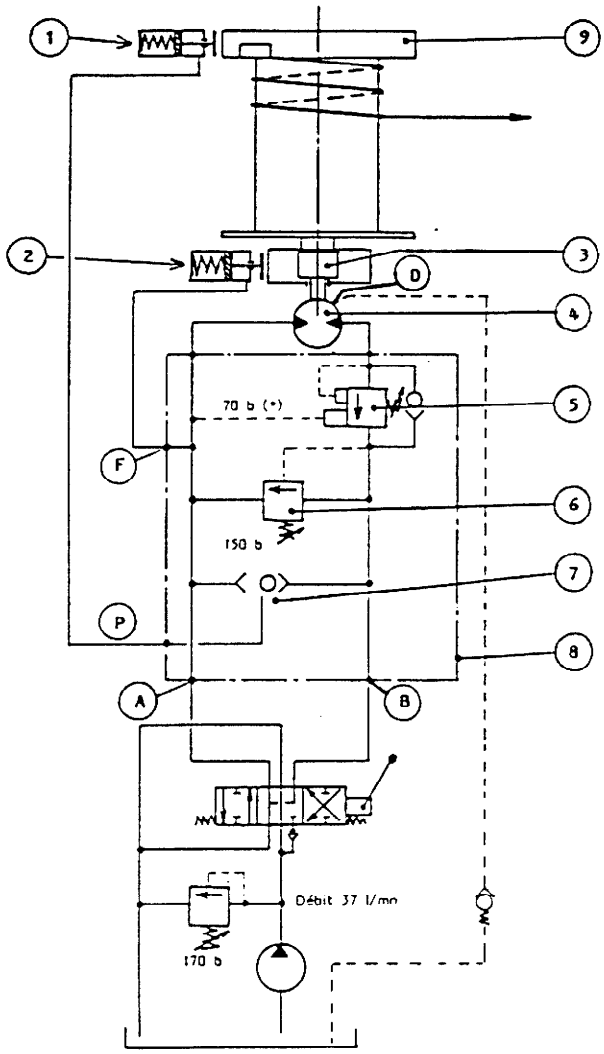
LE CHEF DU BUREAU D'ETUDES

HYDRAULIC CIRCUIT SCHEME (H 364 - 43)



(*) Pressure 70 bar measured at no load (unwinding direction)

DIMENSIONS OF OUTLETS

A : Unwinding direction ϕ 1/2" BSP (cylinder gas)
B : Winding direction ϕ 1/2" BSP (cylinder gas)
D : Drainage of motor ϕ 3/8" BSP (cylinder gas)
authorised back pressure 1,2 bar minimum
F : Feeding of multidisc brake ϕ M10 x 100
P : Feeding of band brake ϕ 1/4" BSPP (cylinder gas)

IDENTIFICATION OF COMPONENTS

1 - Direct band brake on drum
2 - Multidisc brake on quick gear shaft
3 - Anti-spin device with free wheel on motor shaft
4 - Hydraulic motor with 2 ways of rotation
5 - Counterbalance valve adjusted at 70 bar (*)
6 - Overload protection device adjusted at 150 bar
7 - Circuit selector feeding the direct brake on drum
8 - Hydraulic bored block (steel)

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HYDRAULIK HUBWINDE FUER PERSONENTRANSPORT
HYDRAULIC MAN-RIDING WINCH

LS500HLP AND LS1000HLP

NUMERO DE NOMENCLATURE
L 615
NUMERO DU DOCUMENT
9107122 A 122
LE CHEF DU BUREAU D'ETUDES

E - INSTALLATION

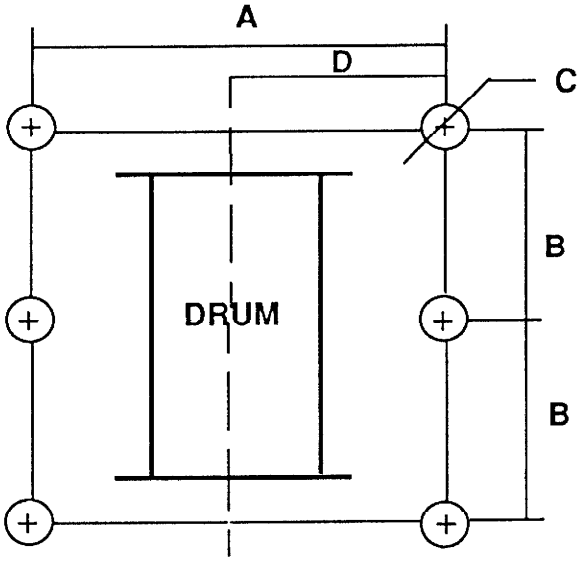
Prior to installing the winch, carefully inspect it for possible hipping damage.

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 lengh, 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 (SKID FRAME)
"A" 29.99 in. (533 mm)
"B" 12.48 in. (317 mm)
"C" 0.71 in. (18 mm)
"D" 9.02 in. (229 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 anchor and pull the wire rope through the slot tightening the wire rope around the wire rope anchor.

CAUTION

Make sure the first wrap of wire rope is flush against the drum flange.
5 - Pull the wire rope anchor 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 allow 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" type with minimum size of 10 or CETOP 5 and feeding hoses of 1/2" in.

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 according to the datas mentioned on the technical sheet of the corresponding winch. The hydraulic motor should be installed as near as possible to the hydraulic power pack

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

"As regard manriding winches, it is responsibility of the owner or user of the winch to determine wether the winch conforms with local regulations for personnel use"

Winch control

We recommend to use an open centre control valve "H" type with minimum size of 10 or CETOP 5 and feeding hoses of 1/2" in.

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.

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NUMERO DE NOMENCLATURE
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NUMERO DU DOCUMENT
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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 : 4 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 250°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.

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

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 périodic 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.

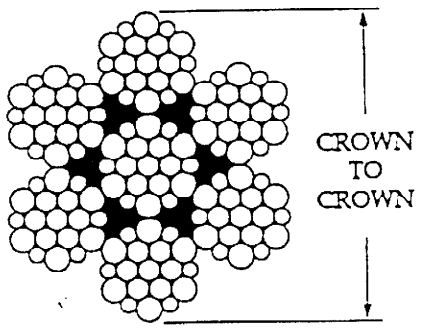
3 - DRUM AND SHEAVES. Check for damage or excessive wear. Replace if necessary.

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.



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 adnormal operating conditions apply, winches may require a more frequent inspection.

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NUMERO DU DOCUMENT
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I - TROUBLE SHOOTING

This section provides the information necessary for trouble shooting this winch. The trouble shooting guide provides a general outline of problems which could be experienced with normal use of this winch. It lists the trouble, the possible cause, and the possible solution for the trouble experienced.

SYMPTOM	TROUBLE	POSSIBLE REMEDY
Winch will not operate	No hydraulic fluid supply to winch	Check connections and hoses in hydraulic fluid supply line
	Winch is overloaded	Reduce load to within rated capacity
The winch doesn't run at no load when lifting	The free wheel is mounted upside down	Check the mounting of the free wheel See "MAINTENANCE" section
Load continues to move when winch is stopped	Brake is slipping	Check brake friction discs, springs and band brake See "MAINTENANCE" section
Winch will not lift load or does not lift rated capacity	Winch is overloaded	Reduce load to within rated capacity
	Motor maybe damaged	Inspect motor. Please contact your nearest IR/SAMIIA agent
	Brake is not releasing	Check brake release pilot hole is not restricted Check seals on cylinder piston are not damaged
	Insufficient hydraulic fluid supply	Check hydraulic fluid supply
	Relief valves are disturbed or the using conditions of the winch are not respected	Check relief valves and make their adjustments if necessary See "MAINTENANCE" section
Oil leaks from drum bushing area	Reduction assembly is leaking	Disassemble winch and inspect reduction assembly seals
Low power	Low oil pressure at the inlet	Check oil pressure at the inlet
	Worn or damaged motor	Inspect motor. Please contact your nearest IR/SAMIIA agent
	Dirt building up in the motor	Check hydraulic circuit and the tank See "INSTALLATION" section
Motor does not operate smoothly		Inspect motor. Please contact your nearest IR/SAMIIA agent
	Cavitation phenomenon	Check the oil level of the tank

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NUMERO DE NOMENCLATURE
L 615
NUMERO DU DOCUMENT
|9|1|0|7|1|2| |A| |7|2|2|
LE CHEF DU BUREAU D'ETUDES

J - MAINTENANCE

WARNING

. Never perform maintenance on the winch while it is supporting a load.
. Before performing maintenance, tag controls : DANGER - DO NOT OPERATE - EQUIPMENT BEING REPAIRED.
. Only allow qualified service personnel to perform maintenance.
. After performing any maintenance on the winch, test winch to 125% of its rated capacity before returning to service.
. Do not use Trichloroethylene to clean parts.

General Disassembly Procedures

The following instructions provide the necessary information to disassemble, inspect, repair, and assemble the winch. Refer the winch assembly drawing provided in the Parts Section.
If a winch is being completely disassembled for any reason, follow the order of the topics as they are presented.

It is recommended that all maintenance work on the winch be performed on a bench.
In the process of disassembling the winch, observe the following :

1 - Never disassemble the winch any further than is necessary to accomplish the needed repair. A good part can be damaged during the course of disassembly.

2 - Never use excessive force when removing parts. Tapping gently around the perimeter of a cover or housing with a soft hammer, for example, is sufficient to break the seal.

3 - Do not heat a part with a torch to free it for removal, unless the part being heated is already worn or damaged beyond repair.

In general, the winch is designed to permit easy disassembly and assembly. The use of heat or excessive force should not be required.

4 - Keep the work area as clean as practical, to prevent dirt and other foreign matter from getting into bearings or other moving parts.

5 - All seals and O'rings should be discarded once they have been removed. New seals and O'rings should be used when assembling the winch.

6 - When grasping a part in a vise always use leathercovered or copper-covered vise jaws to protect the surface of the part and help prevent distortion. This is particularly true of threaded members and housings.

7 - Do not remove any part which is press fit in or on a subassembly unless the removal of that part is necessay for repairs or replacement.

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LS500HLP AND LS1000HLP

NUMERO DE NOMENCLATURE
L 615
NUMERO DU DOCUMENT
9 1 0 7 1 2 A 8 22
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DISASSEMBLY INSTRUCTIONS (Direct Brake on Drum)

- Unwind drum cable
- Position at the top the holes ϕ 40 mm for handling forecast on the drum

1 - Disassembly of brake cylinder

1.1 - Stripping down of the whole of brake cylinder

1.1.1 - Release nut ITEM 147 (wrench : 27 mm on flat sides)

1.1.2 - Slightly pilot the drum on the lowering direction and unscrew the adjustment screw

1.1.3 - Remove nut ITEM 143 (wrench 22 mm on flat sides)

1.1.4 - Disconnect the hydraulic feeding and drainage pipes of the hydraulic motor (ITEM 40)

1.1.5 - Disconnect tube ITEM 27 from pipe connection ITEM 46

1.1.6 - Remove one split pin ITEM 153

1.1.7 - Remove cover axle ITEM 91

1.1.8 - Strip down the whole of brake cylinder

1.2 - Disassembly of the whole of brake cylinder

1.2.1 - Removal of spring ITEM 89
- Remove 2 to the 4 tension pieces ITEM 97
(wrench : 19 mm on flat sides)
- Assembly 2 screw rods M12 Lg 400 mm with nuts M12
- Remove the 2 last tension pieces ITEM 97
(wrench : 19 mm on flat sides)
- Decompress spring ITEM 89
- Remove the 2 screw rods
- Remove cylinder nose ITEM 94
- Remove spring ITEM 89

1.2.2 - Strip down the whole of the cylinder rod ITEM 114, Nut ITEM 117, Cylinder casing ITEM 112 and stop ITEM 115.

NB : Nut ITEM 117 will be fixed and tightened with BLUE LOCTITE (ref. 243) and with 3 mkg torque.
Flat surfaces are forecast on ITEM 112 and ITEM 117 for the assembly and disassembly operations

1.2.3 - Drain oil from cylinder casing (ITEM 97)

1.2.4 - Expel cylinder casing ITEM 97 from the whole of cylinder bottom ITEM 100 and Piston ITEM 118

NB : To change joint ITEM 126 or to remove Piston ITEM 118 :
- Remove Pipe connection ITEM 46
- Remove Gear ITEM 123
- Remove Pin ITEM 28 (use a screw rod M5)

When reassembling the pin ITEM 28, use the SAMIIA tool Code M6151400 for a correct positionning.

2 - Disassembly of band brake

2.1 - Stripping down of the winch from skid frame

2.1.1 - Strip down the whole of brake cylinder (see 1.1)

2.1.2 - Disconnect hoses ITEM 121 from the bored block ITEM 88

2.1.3 - Remove nuts ITEM 142, washers ITEM 152 and fixing screws ITEM 134 from winch on skid frame (ITEM 111) (wrench : 24 mm on flat sides)

2.1.4 - Strip down the winch from skid frame (ITEM 111)

2.2 - Stripping down of the whole of the both half brake band

2.2.1 - Open the brake band unscrewing the setting screw ITEM 98

2.2.2 - Strip down the whole of the both half brake band ITEM 109 and ITEM 110 from the winch

2.3 - Disassembly of the whole of the both half brake band

2.3.1 - Remove brake band axle ITEM 90

2.3.2 - Removal of smooth wheel ITEM 102

- Remove nut ITEM 147 from setting screw (ITEM 98) (wrench : 27 mm on flat sides)
- Remove Distance ring ITEM 108
- Remove Setting screw ITEM 98
- Remove Smooth wheel ITEM 102

2.3.3 - Disassembly of the both half lever ITEM 101 and ITEM 107

- Remove srews ITEM 71 (wrench : 19 mm on flat sides)
- Remove sprocket wheel ITEM 103
- Remove Smooth wheel ITEM 106
- Remove the both half lever ITEM 101 and ITEM 107

Inspection and repair

Use the following procedures to inspect, and repair the components of the winch.

CAUTION

A bearing that appears loose or rotates roughly must be replaced. Failure to observe this precaution will result in bearing and/or winch component damage.

All disassembly parts should be inspected to determine the fitness for continued use. Pay particular attention to the following :

1 - Inspect the whole of self-lubricating ring - All internal diameter ovalisations requires the replacement

IMPORTANT NOTE : Every self)-lubricating rings are stopped in translation by several needle valve blows.

2 - Inspect the whole of axle :

- Smooth wheel (ITEM 102)
- Smopth wheel (ITEM 106)
- Sprocket wheel (ITEM 103)
- Brake band axle (ITEM 90)
- Cover axle (ITEM 91)
- Cylinder rod (ITEM 95)

All external diameter damage requires their replacement

3 - Inspect soldering axles on half lever - All external diameter damage requires their replacement

4 -Inspect half brake bands

- Nominal thickness of linings = 5 mm
- Minimum thickness = 2 mm

If this dimension is lower, change the half brake band (ITEM 109, ITEM 110)

5 - Inspect brake cylinder joints and the internal diameter surface condition of cylinder casings ITEM 97 and ITEM 112. Replace them if necessary.

6 - Inspect the surface condition and slipring thickness ITEM 116 of the stop ITEM 115
Theoretical thickness = 1,5 mm

A wear ≥ 0,5 mm requires its replacement

7 - Check the spring condition ITEM 89 - If after a large period of use an important diminution of its efficiency is established, make its replacement.
(F theoretical = 100 daN under deflection f=76 mm)

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NUMERO DE NOMENCLATURE
L 615
NUMERO DU DOCUMENT
9,1,0,7, 1,2 | A | 12/22
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ASSEMBLY INSTRUCTIONS (Direct Brake on Drum)

1 - Assembly of brake cylinder

1.1 - The reassembling of the brake cylinder has to be carried out in the opposite direction to the one used for dismantling
(see : 1.2 - Disassembly of the whole of brake cylinder)

NB : - Sealing between cylinder casing ITEM 97 and cylinder bottom ITEM 100 will made by joint of "SILICOMET" (chamfer 2x45°)
- See NB on 1.2.2 for nut ITEM 117
- Position the slipring ITEM 116 with flat surface in contact with groove bottom of the stop ITEM 115.
- Before closing the brake cylinder, full in the spring housing with oil SP 150 type (see winch assembly drawing 2/3) Level H=30 mm and stock brake cylinder in vertical position for the following operations
- Grease the inside of the sealing ring ITEM 130
- Nuts ITEM 148 will be tightened with 4,5 m kg torque

1.2 - The reassembling of the whole of brake cylinder has to be carried out in the opposite direction to the one used for dismantling (see : 1.1 - Stripping down of the whole of brake cylinder)

NB : - Sealing of all nipples will made by "LOCTITE TUBETANCHE 577"

2 - Assembly of band brake

Reassembly will have to be carried out in the opposite direction to the one used for dismantling (see 2 - Disassembly of hand brake)

NB : - Grease all axles
- Screws ITEM 71 will be fixed and tightened with BLUE LOCTITE (ref. 243) and with 6,8 m kg torque, only after light tensioning of brake cylinder
- Stop screws ref 139 before the mounting of the winch on this skid frame
- Screws ITEM 134 will be tightened with 16 m kg torque
- Srews ITEM 70 from housing ITEM 12 will be tightened with 4 m kg torque

3 - Adjusting of band brake

The adjusting dimensions are pointed out on the winch assembly drawing 2/3
- Y=33° 3 (mm) : his adjusting is done by using the adjusting screw ITEM 98 and of the clamping of the nut ITEM 147 at the couple of 10 m kg
- X=18 mm : his adjusting is done by the slightly guidance of the brake jackscrew in the lowering direction and by blocking the nuts ITEM 143 and 146.
- Z=1,5 (mm) : Clearance of both half brake band
(wrench : 17 mm on flat sides and hexagonal-hollow head wrench 5 mm)

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L 615
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9 1 0 7 1 2 | A | 13/22
LE CHEF DU BUREAU D'ETUDES

DISASSEMBLY INSTRUCTIONS (Winch)

- Unwind drum cable

- Point drum plug downwards in order to empty the reducer

- Strip down the whole of the winch and skid frame from its support

- Strip down band brake (cf. Diasassembly Instructions for Direct brake on drum)

- Drain oil from reducer ; use hexagonal-hollow head wrench 14 mm

- Tip the winch on the rear flange

1 - Stripping down of motor

1.1 - Remove Tube ITEM 26

1.2.1 - Remove screws ITEM 73 and washers ITEM 78 from motor (ITEM 40) (hexagonal-hollow head wrench 8 mm)

1.2.2 - Strip down the whole of hydraulic motor ITEM 40 and Bored block ITEM 88

NB : - Reassembly will have to be carried out in the opposite direction to the one used for dismantling
- Sealing between ITEM 22 and ITEM 40 will be made by "Loctite Instajoint 574"
- Screws ITEM 73 will be fixed and tightened with BLUE LOCTITE (réf. 243)

2 - Stripping down of brake system

2.1 - Strip down pneumatic motor (see § 1)

2.2.1 - Remove screws ITEM 75 from flange (ITEM 22) except 2 diametrically opposite (hexagonal-hollow head wrench 6 mm)

2.2.2 - Progessively unscrew the both last screws to release the springs ITEM 51

2.2.3 - Remove flange ITEM 22

2.3 - Remove springs ITEM 51

2.4 - Remove O'rings ITEM 61 and ITEM 62

2.5.1 - Strip down the whole of the brake housing ITEM 11 and Piston ITEM 13

2.5.2 - Remove O'rings ITEM 62

2.5.3 - Expel piston ITEM 13 from ITEM 11

2.6 - Remove Distance ring ITEM 14

2.7 - Remove circlips ITEM 155

2.8 - Strip down the whole of free wheel : ITEM 120, ITEM 128, and ITEM 119

2.9 - Strip down the whole of brake set ITEM 38 and 39

NB : - Reassembly will have to be carried out in the opposite direction to the one used for dismantling
- Direction of assembling of the free wheel : external ring ITEM 120 blocked in rotation with free rotation of gear ITEM 6 in counterclockwise (side view of hydraulic motor)
- Screws ITEM 75 will be fixed and tightened with blue LOCTITE (ref. 243)

3 - Stripping down of gear reducer

3.1 - Strip down hydraulic motor (see § 1)

3.2 - Strip down braking system (see § 2)

3.3.1 - Remove screws ITEM 70 and washers ITEM 79 from Distance ring ITEM 9 (wrench : 17 mm on flat sides)

3.3.2 - Remove screws ITEM 70 and washers ITEM 79 from Front Flange ITEM 8 (wrench : 17 mm on flat sides)

3.3.3 - Remove front flange ITEM 8

3.4 - Remove circlips ITEM 83

3.5 - Remove circlips ITEM 82

3.6 - Strip down the whole of driving pinion ITEM 6 and ball-bearing ITEM 53

3.7.1 - Remove screws ITEM 72 from stop ITEM 20
(Hexagonal-hollow head wrench 4 mm)

3.7.2 - Remove stop ITEM 20

3.8.1 - Strip down the whole of the front bearing ITEM 16, Rolling bearing ITEM 18 and Ring gear support ITEM 17
(Extraction equipment - Samiia Code M 615-1300)

3.8.2 - Remove screws ITEM 74 from Ring gear support (ITEM 17)
(Hexagonal-hollow head wrench 5 mm)

3.8.3 - Remove ring gear support ITEM 17

3.8.4 - Remove front bearing ITEM 16 and joint ITEM 67

3.8.5 - Expel Sealing ring ITEM 59 from Rolling bearing (ITEM 18)

3.8.6 - Remove circlips ITEM 86

3.8.7 - Expel Ball bearing ITEM 54 from Rolling bearing (ITEM 18)

3.9 - Remove Expansive ring ITEM 84 and Ring gear ITEM 4

3.10.1 - Strip down the whole of the satellite support ITEM 15 and satellite ITEM 1

3.10.2 - Push out pins ITEM 81 from satellite support (ITEM 15) (pin punch ϕ4)

3.10.3 - Push out satellites axles ITEM 2

3.10.4 - Remove satellites ITEM 1

3.10.5 - Remove needles bearings ITEM 56 and Distance rings ITEM 3

3.10.6 - Remove needles stop ITEM 55 and thrust-washers ITEM 57

3.11 - Remove ring gear ITEM 5

3.12 - Remove claw of positive cluth ITEM 87

3.13 - Remove expansive ring ITEM 85

4 - Dismantling of rear side of winch

Dismantling of rear side of winch is separate from the rest of the dismantling of the winch

4.1 - Remove screws ITEM 70 and Waschers ITEM 79 from Distance ring (ITEM 9)
(Wrench : 17 mm on flat sides)

4.2.1 - Remove screws ITEM 70 and Waschers ITEM 79 from Rear flange (ITEM 8)
(Wrench : 17 mm on flat sides)

4.2.2 - Remove rear flange ITEM 8

4.3 - Strip down the whole of the rear bearing ITEM 19 and blind washer ITEM 29

4.4 - Remove Joint ITEM 66

4.5 - Remove Ball bearing ITEM 52

4.6 - Remove Sealing ring ITEM 58

N.B. - Reassembly will have to be carried out in the opposite direction to the used for dismantling
- Screws ITEM 70 from rear Flange ITEM 8 will be tightened with 4,83 m kg torque
- Screws ITEM 70 from Distance ring ITEM 9 will be tightened to torque 4,83 m kg only after winch has been put on skid frame.

Cleaning, Inspection and Repair

Use the following procedures to clean, inspect, and repair the components of the winch.

Cleaning

CAUTION

A bearing that appears loose or rotates roughly must be replaced. Failure to observe this precaution will result in bearing and/or winch component damage.

Clean all winch component parts in solvent. The use of a stiff bristle brush will facilitate the removal of accumulated dirt and sediments in the drum and reduction assembly.

Inspection

All disassembly parts should be inspected to determine the fitness for continued use. Pay particular attention to the following :

1 - Inspect all gears for worn, cracked, or broken teeth.
2 - Inspect all bushings for wear, scoring, or galling.
3 - Inspect all bearings for play, distorted races, pitting and roller or ball wear or damage. Inspect bearings or freedom of rotation.
4 - Inspect shafts for ridges caused by wear. If ridges caused by wear are apparent on shafts, replace the shaft. Inspect all surfaces on which oil seal lips seat. These surfaces must be very smooth to prevent damage to the seal lip.
5 - Inspect all threaded items and replace those having damaged threads.
6 - The multidisc brake does not require any adjustment. The maintenance being limited to the check of brake discs.
- nominal size of piling up 10,2 ± 0,3 mm
- wearing size of brake discs : 8,7 mm at minimum

Important nota :
. No friction disc must have a smooth friction surface
. Grooves have a nominal depth of 0,2 mm on each face of the discs

Repair

Actual repairs are limited to the removal of small burrs and other minor surface imperfections from gears and shafts. Use a fine stone or emery cloth for this work. Do not use steel wool.

1 - Worm or damaged parts must be replaced. Refer to the apllicable Parts Listing for specific replacement parts information.
2 - Inspect all remaining parts for evidence of damage. Replace or repair any part which is in questionable condition. The cost of the part is often minor in comparison with the cost of redoing the job.
3 - Smooth out all nicks, burrs, or galled spots on shafts, bores, pins, or bushings.
4 - Examine all gear teeth carefully, and remove nicks or burrs.
5 - Polish the edges of all shaft shoulders to remove small nicks which may have been caused during handling.
6 - Remove all nicks and burrs caused by lockwashers.
7 - Replace all gaskets, oil seals, and O'rings any time the winch is disassembled for repair.

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TREUIL DE LEVAGE"PERSONNEL"HYDRAULIQUE
HYDRAULIK HUBWINDE FUER PERSONENTRANSPORT
HYDRAULIC MAN-RIDING WINCH

LS500HLP AND LS1000HLP

NUMERO DE NOMENCLATURE
L 615

NUMERO DU DOCUMENT
9 1 0 7 1 2 | A | 18/22

LE CHEF DU BUREAU D'ETUDES

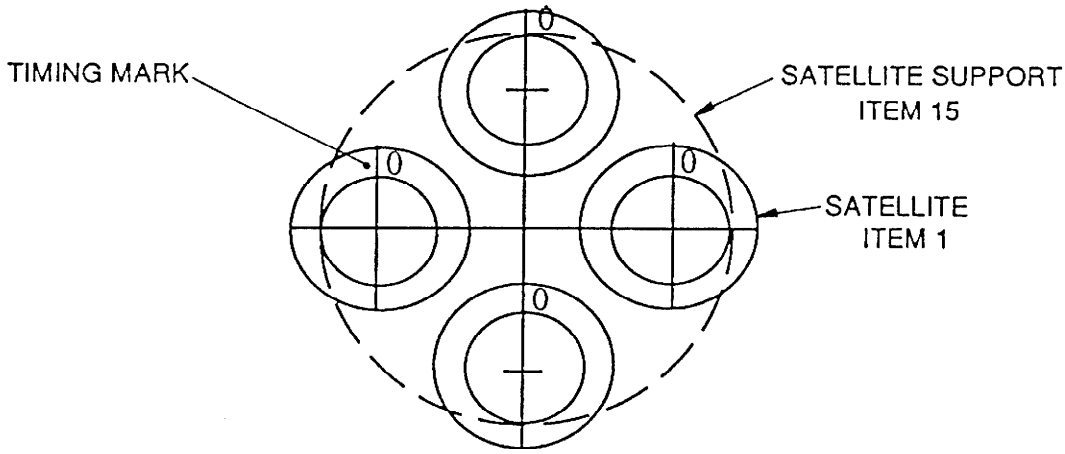
ASSEMBLY INSTRUCTIONS (Winch)

1 - Reducer assembly

1.1 - Orientation of satellites

1.1.1 - Assemble the 4 satellites on to the support

1.1.2 - Adjust the 4 satellites as shown on drawing below



1.1.3 - Clutch in Ring gear ITEM 4

1.1.4 - Assemble driving pignon ITEM 6 to adjust the 4 satellites then remove ring gear ITEM 4

1.2 - The reassembling of the reducer has to be carried out in the opposite direction to the one used for dismantling

N.B. - Screws ITEM 72 and 74 will be be fixed and tightened with blue LOCTITE (ref. 243)

- Screws ITEM 70, from front Flange ITEM 8, will have to be tightened with 4,83 mkg torque

- Screws ITEM 70, from Distance ring ITEM 9, will have to be tightened to torque 4,83 mkg only after winch has been put on skid frame

2 - Brake system assembly

(see 2 - Stripping down of brake system).

3 - Motor assembly

(see 1 - Stripping down of motor)

4 - Winch assembly

4.1 - Reassemble Reduction Gear

4.2 - Reassemble pneumatic brake system

4.3 - Reassemble the whole of hydraulic motor and bored block

4.4 - Reassemble band brake

4.5 - Reassemble winch on skid frame

4.6 - Connect all hydraulic hoses as described in hydraulic scheme (see datas sheets)

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NUMERO DU DOCUMENT
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LE CHEF DU BUREAU D'ETUDES

DISASSEMBLY INSTRUCTIONS (Hydraulic bored block)

Dismantling of bored block is separate from the rest of the dismantling of the winch.

- Loosen the rope
- Disconnect the motor feeding hoses

1 - Stripping down of the whole of hydraulic bored block

1.1 - Disconnect hose ITEM 121 and tube ITEM 26 from bored block (ITEM 88)

1.2 - Remove screws ITEM 76 from bored block (ITEM 88)

1.3 - Strip down the whole of bored block ITEM 88

1.4 - Remove O'rings ITEM 6

NB : - Reassembly will have to be carried out in opposite direction to the one used for dismantling
- Screws ITEM 76 will be fixed and tightened with BLUE LOCTITE (ref. 243)

2 - Dismantling of bored block (see hydraulic bored block drawing code 3598-0019)

2.1 - Remove relief valve ITEM 3
(wrench : 0,88" in. on flat sides)

2.2 - Remove counterbalance valve ITEM 4
(wrench : 0,88" in. on flat sides)

2.3 - Remove valve cone ITEM 1
(Screwdriver with hexagonal shank for split screw)

2.4 - Remove roller ITEM 5

NB : All other components which are fastened on the regulation block ITEM 2 cannot be dismounted because they are stuck with "LOCTITE BLOCPRESSE 601"

Inspection

- Relief valve ITEM 3 and counterbalance valve ITEM 4 cannot be dismounted. Each damage requires their replacement.

- Each disassembling of a joint requires its replacement

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HYDRAULIC MAN-RIDING WINCH

LS500HLP AND LS1000HLP

NUMERO DE NOMENCLATURE
L 615
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9107 12 A 21/22
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ASSEMBLY INSTRUCTIONS (Hydraulic bored block)

- Reassembly will have to be carried out in opposite direction to the one used for dismantling

- Oil the joint support before any reassembling of parts.

- Valve cone ITEM 1 will be fixed and tightened with "LOCTITE TUBETANCHE 577"

- Relief valve ITEM 3 and counterbalance valve ITEM 4 will be tightened with 30 to 35 Ft. lbs. torque

1 - Adjustment of counterbalance valve ITEM 4

The adjustment of cutting-in pressure of counterbalance valve is made at load when unwinding.

1.1 - Factory adjustment conditions

- Adjustment pressure : $70\ ^{0}_{-10}$ bar
- Mineral oil - kinematic viscosity 37 cSt at 40°C
- Oil temperature from 30°C to 50°C

NB : Control is made in following conditions :

- Unblock the nut (wrench : 9/16" in. on flat sides)
- Screw OUT to increase pressure setting (hexagonal-hollow head wrench 5/32" in.)
- Screw IN to release load (hexagonal-hollow head wrench 5/32" in.)
- Block the nut

1.2 - Other control

1.2.1 - Conform the requirements of factory control (cf. 1.1)

1.2.2 - For all different values of viscosity and oil temperature check the cutting-in pressure of the counterbalance valve and perform to his adjustment if necessary (see NB above)

2 - Adjustment of Hydraulic overload protection (relief valve ITEM 3)

The hydraulic overload protection is adjusted in the factory as it arrives at the test benches of each winch for following condition :

$$1{,}1\ SWL < F4 < 1{,}3\ SWL$$

F4 : The load of release of the overload limiter at the fourth layer of wire rope ϕ 13 mm
SWL : SAFE WORKING LOAD

siginifing in first lay of wire rope ϕ 13 mm

7 KN <F1 < 8,25 KN for LS 500 HLP
14 KN <F1 < 16,5 KN for LS 1000 HLP

2.1 - Factory adjustment conditions
- Mineral oil with kinematic viscosity 37 cSt at 40°C
- Oil temperature from 30°C to 50°C
- Oil delivery : (see datas sheets)

2.1.1 - Load of release F1 = 8,25 KN for LS 500 HLP
Load of release F1 = 16,5 KN for LS 1000 HLP

2.1.2 - Control of the release of the overload limiter by operating progressively the winch inlet in the rise direction and by ensuring that the hanging load remains stationary

NB : Control is made in following conditions :
- Take-off the safety plumbing of the relief valve
- Remove nut (wrench : 9/16 " in. on flat sides)
- Unblock the counternut (wrench : 9/16" in. on flat sides)
- Screw IN to increase pressure setting (hexagonal-hollow head wrench 5/32" in.)
- Block the counternut and the nut
- Put again the safety plumbing of relief valve

2.2 - Other control

2.2.1 - Conform the requirements of factory control (cf. 2.1)

2.2.2 - For all different values of load, viscosity or oil temperature, control the release of the hydraulic overload limiter and perform to his adjustment if necessary (see NB above)

Testing
Operational Tests

Prior to initial use, all new, altered or repaired winches shall be tested to ensure proper operation.
1 - Operate winch in both directions with no load
2 - Check operation of free wheel and brake
3 - Check operation of limit switches and other safety devices when provided
4 - Check all tir-downs are secure

Load Test
Prior to initial use, all new, extensively repaired, or altered winches shall be load tested by or under the direction of a qualified person, and a written report furnished confirming the rating of the winch.

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HYDRAULIC MAN-RIDING WINCH

LS500HLP AND LS1000HLP

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H - PARTS

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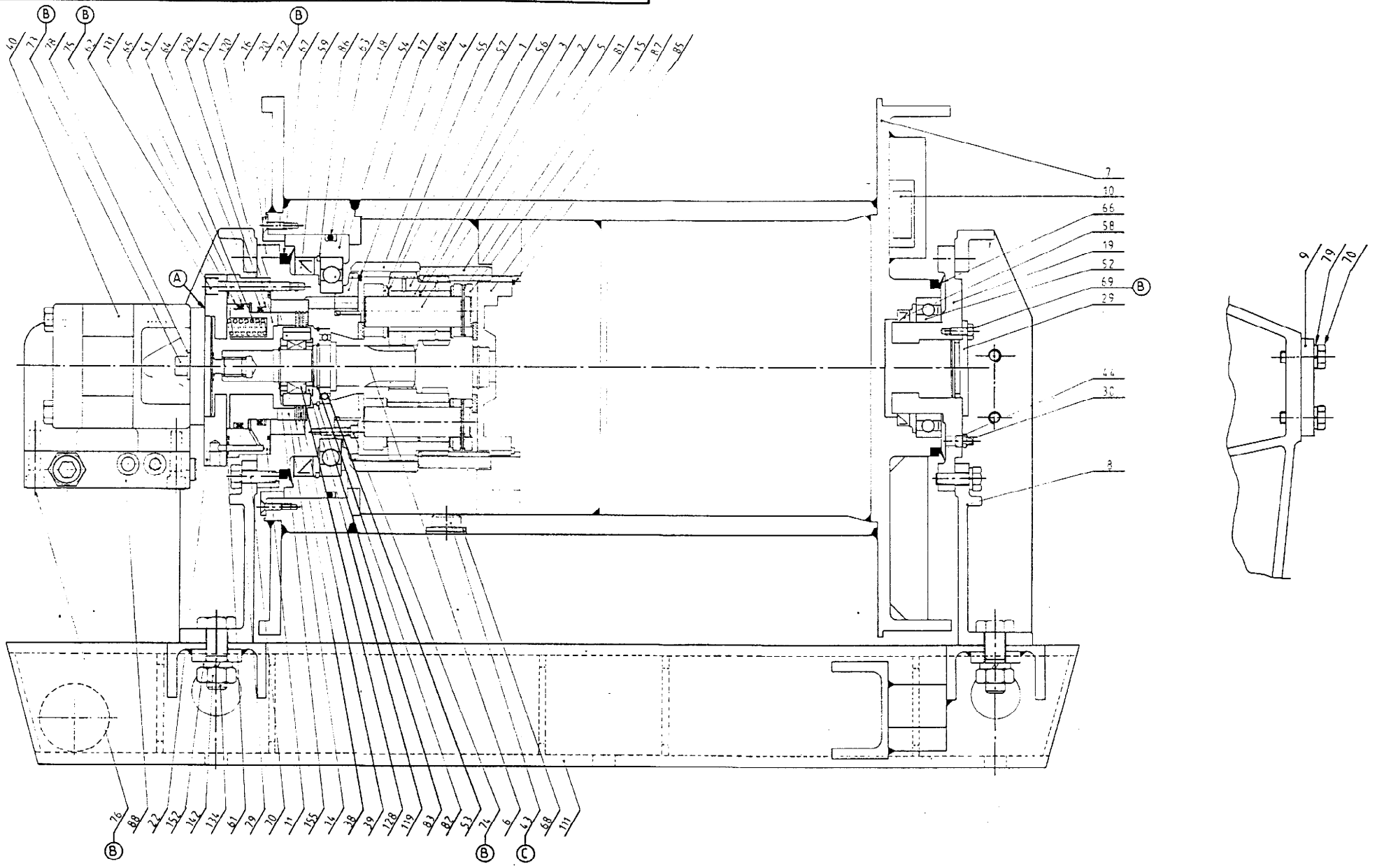
9 1 0 7 1 3 A 1 /3

LE CHEF DU BUREAU D'ETUDES

Ⓐ LOCTITE INSTAJOINT 574
Ⓑ LOCTITE FREIN FILET 243
Ⓒ LOCTITE TUBETANCHE 577



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HYDRAULIC MAN-RIDING WINCH

LS500HLP AND LS1000HLP

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9 1 0 7 1 3 | A | 2 /3

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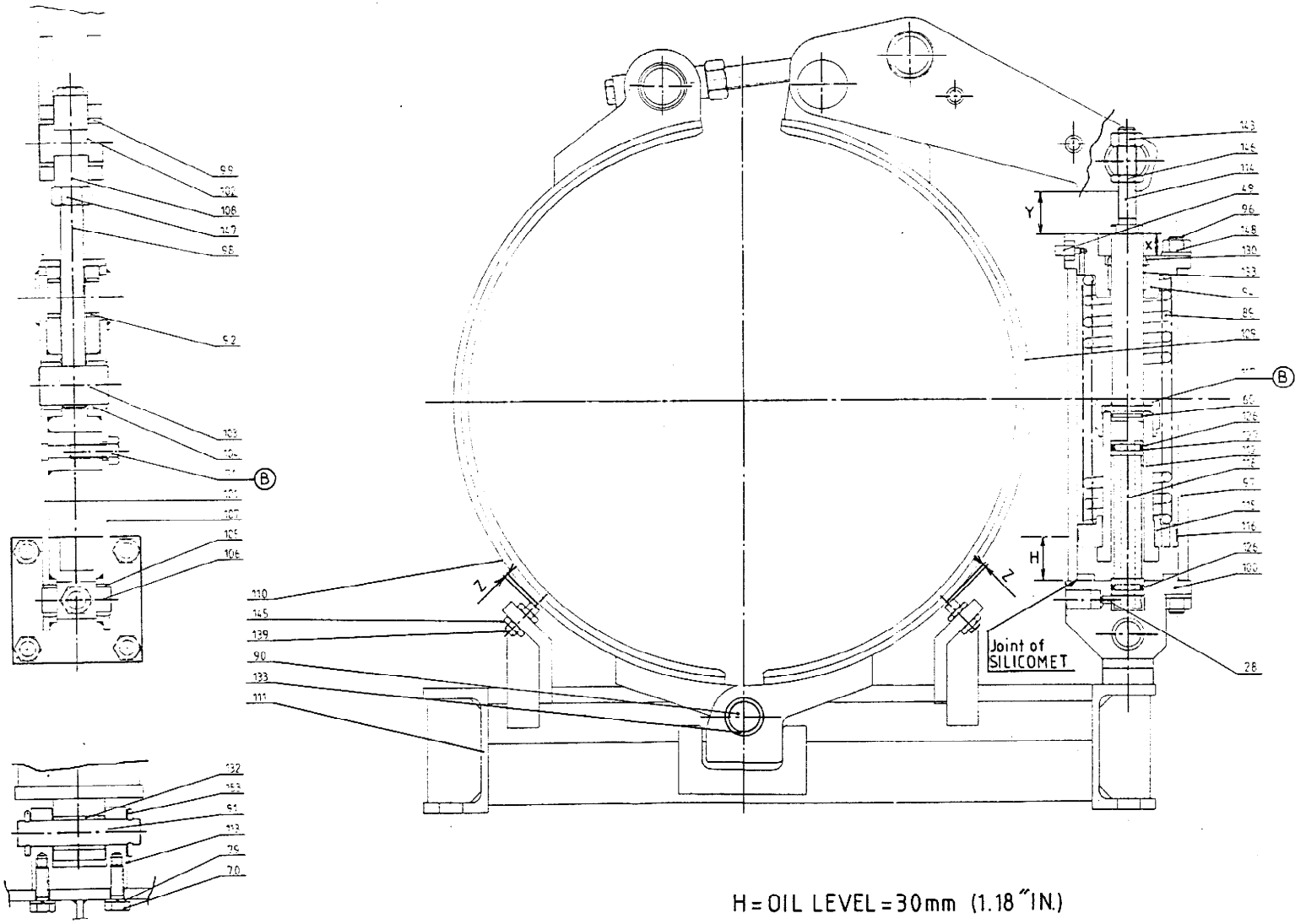
Ⓑ LOCTITE FREIN FILET 243



H = OIL LEVEL = 30mm (1.18 "IN.)

ADJUSTING DIMENSIONS

Y = 33 $^{0}_{-3}$ mm (1.3 $^{0}_{-0,12}$ " IN.)
X = 18 mm (0.71 " IN.)
Z = 1.5 mm (0.059 " IN.)

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HYDRAULIC MAN-RIDING WINCH

LS500H LP AND LS1000HLP

NUMERO DE NOMENCLATURE
L615
NUMERO DU DOCUMENT
9107133 A 3/3
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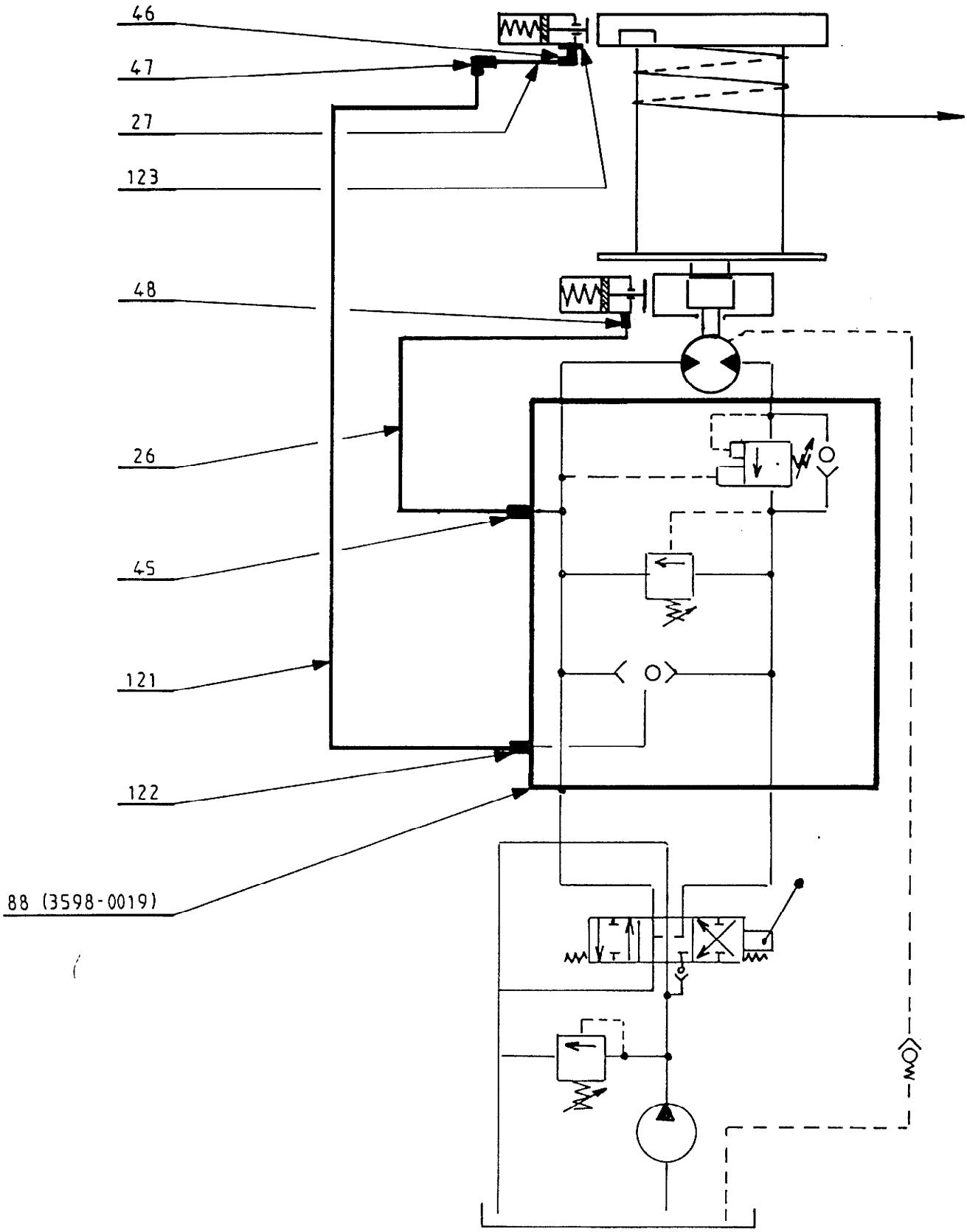

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HYDRAULIC MAN-RIDING WINCH

LS500HLP AND 1000HLP

NUMERO DE NOMENCLATURE
L615
NUMERO DU DOCUMENT
9107141 B 1/5
LE CHEF DU BUREAU D'ETUDES

REPERE ITEM HINWEIS	DESIGNATION	DESCRIPTION	BEZEICHNUNG	Quantité Quantity Anzhal	CODE	CPN
1	Satellite	Satellite	Trabant	4	9573-0018	38527941
2	Axe de satellite	Satellite axle	Trabantenachse	4	9573-8019	38531208
3	Entretoise	Distance ring	Distanzring	4	9573-0021	38527966
4	Couronne 60 dents	60 teeth-ring gear	Zahnkranz 60 Zähne	1	9573-0055	38527974
5	Couronne 57 dents	57 teeth-ring gear	Zahnkranz 57 Zähne	1	9615-0056	38527990
6	Pignon moteur	Driving pinion	Abtriebszahnrad	1	9615-8110	38531216
7	Tambour long	Long drum	Lange Trommel	1	9615-8052	38531224
8	Flasque	Flange	Flansch	2	9615-7002	38531232
9	Entretoise	Distance ring	Distanzring	2	9615-0050	38529822
10	Coin	Wedge	Keil	1	9615-0009	38528014
11	Corps de frein	Brake housing	Bremsgehäuse	1	9611-0005	38530572
13	Piston	Piston	Kolben	1	9611-0003	38530580
14	Bague entretoise	Distance ring	Distanzring	1	9584-0108	38530598
15	Porte satellite	Satellite support	Satellitenträger	1	9615-0023	38528022
16	Palier avant	Front bearing	Vorwärtslager	1	9615-8042	38531240
17	Porte couronne	Ring gear support	Zahnkranzträger	1	9615-0043	38528048
18	Palier de roulement	Rolling bearing	Wälzlager	1	9615-0044	38528055
19	Palier arrière	Rear bearing	Lager hinten	1	9615-8049	38531257
20	Butée	Stop	Anschlag	1	9615-0051	38528071
22	Flasque bride	Flange	Flansch	1	9615-0103	38530606
26	Tube	Tube	Rohr	1	3615-0044	
27	Tube	Tube	Rohr	1	3615-0045	
28	Goupille	Pin	Stift	1	46501220	38530838
29	Obturateur	Blind washer	Dichtung	1	9619-0013	38528816
30	Bouchon	Plug	Stopfen	1	6101-7128	38528329
38	Disque de friction	Friction disc	Reibcheibe	4	6305-9932	38528352
39	Disque acier	Steel disc	Stahlscheibe	3	6306-0032	38528360

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

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TREUIL DE LEVAGE "PERSONNEL" HYDRAULIQUE
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HYDRAULIC MAN-RIDING WINCH

LS500HLP AND 1000HLP

NUMERO DE NOMENCLATURE
L615
NUMERO DU DOCUMENT
9107114 B 2/5
LE CHEF DU BUREAU D'ETUDES

REPERE ITEM HINWEIS	DESIGNATION	DESCRIPTION	BEZEICHNUNG	Quantité Quantity Anzhal	CODE	CPN
40	Moteur hydraulique LS500	hydraulic motor LS 500	hydraulik motor LS 500	1	6400-0606	38544359
	Moteur hydraulique LS1000	hydraulic motor LS 1000	hydraulik motor LS 1000	1	6400-7838	38530630
42	Plaque d'identification	Identification plate	Typenschild	1	6676-7432	38531026
43	Bouchon	Plug	Stopfen	2	6516-0932	38528337
44	Graisseur hydraulique	Hydraulic greaser	Hydraulisher Schmiernippel	1	6730-1727	38528345
45	Equerre orientable	Adjustable square	Einstellbarer winkel	1	6810-9628	38530648
46	Coude	Pipe connection	Krämmer	1	6811-9028	38530655
47	Coude	Pipe connection	Krämmer	1	6811-9128	38530663
48	Union male	Union	Verschraubung	1	6820-9128	38530671
49	Silencieux	Muffler	Schalldämpfer	1	6848-9232	38529996
51	Ressort	Spring	Feder	12	6915-9432	38530689
52	Roulement à billes	Ball bearing	Kugellager	1	5005-0015	38523346
53	Roulement à billes	Ball bearing	Kugellager	1	5080-0007	38526208
54	Roulement à billes	Ball bearing	Kugellager	1	5080-0024	38528477
55	Butée à aiguilles	Needle stop	Nadelanschlag	8	5605-4225	38528485
56	Cage à aiguilles	Needle cage	Nadelkäfig	8	5650-3324	38528493
57	Contre-plaque	Thrust washer	Druckscheibe	8	5731-2632	38528501
58	Bague d'étanchéité	Sealing ring	Dichtring	1	5800-0830	38528519
59	Bague d'étancheité	Sealing ring	Dichtring	1	5801-9230	38528527
60	Joint torique	O'ring	O-ring	1	5822-0129	38530697
61	Joint torique	O'ring	O-ring	1	5821-2529	38522660
62	Joint torique	O'ring	O-ring	2	5821-6929	38528535
63	Bague	Ring	Ring	1	5821-7929	38528543
64	Joint quadring	Joint	Dichtung	1	5822-2429	38530705
65	Joint quadring	Joint	Dichtung	1	5822-2529	38530713
66	Joint V-ring	Joint	Dichtung	1	5840-4831	38528550
67	Joint V-ring	Joint	Dichtung	1	5840-5831	38528568
68	Joint cuivre	Copper joint	Kupferdichtung	2	5840-8031	38528576

Pour toute commande de pièces de rechange, il est recommandé de rappeler le numéro porté sur la plaque d'identification de l'appareil
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Bei Bestellung von Ersatzleilen bitte Sereinnummer auf dem Identifizierungsschild des Geräte angeben

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TREUIL DE LEVAGE "PERSONNEL" HYDRAULIQUE
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HYDRAULIC MAN-RIDING WINCH

LS500HLP AND 1000HLP

NUMERO DE NOMENCLATURE
L615
NUMERO DU DOCUMENT
9107147 B 3/5
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REPERE ITEM HINWEIS	DESIGNATION	DESCRIPTION	BEZEICHNUNG	Quantité Quantity Anzhal	CODE	CPN
69	Vis H	Screw	Schraube	3	4100-0201	38522751
70	Vis H	Screw	Schraube	26	4100-0401	38528667
71	Vis H	Screw	Schraube	2	4100-3401	38530028
72	Vis FHc/90	Screw	Schraube	6	4110-1603	38528675
73	Vis CHc	Screw	Schraube	2	4130-2706	38530986
74	Vis CHc	Screw	Schraube	4	4130-1006	38523593
75	Vis CHc	Screw	Schraube	12	4130-2206	38530036
76	Vis CHc	Screw	Schraube	4	4132-4506	38530721
77	Rivet	Rivet	Niete	4	4460-0821	38528683
78	Rondelle Mu	washer	Scheibe	2	4500-0110	38530994
79	Rondelle grower	Split washer	Scheibe	26	4520-0010	38522223
81	Goup. Elastiq.	Elastic pin	Elastisches Stift	4	4650-4220	38528709
82	Circlips exterieur	Circlips	Seegerring	1	4770-0035	38524070
83	Circlips intérieur	Circlips	Seegerring	1	4770-3062	38527149
84	Anneau expansif	Expansive ring	Expansives Ring	1	4783-6832	38528717
85	Anneau expansif	Expansive ring	Expansives Ring	1	4784-7832	38528758
86	Anneau expansif intérieur	Internal expansive ring	Inneres Expansives Ring	1	4785-3932	38528725
87	Sous ensemble clabot	Claw of a positive cluth	Klaue einer Fuppelmuffe	1	3573-0001	38529764
88	bloc foré	Bored block	Gebohrter block	1	3598-0019	38530853
89	Ressort	Spring	Feder	1	9430-0046	38530044
90	Axe de bande de frein	Brake band axle	Bremsbandachse	1	9539-7022	38531273
91	Axe de chape	Cover axle	Abdeckungsachse	1	9539-8024	38531265
92	Bague	Ring	Ring	2	9539-0048	38530051
94	Nez de vérin	Cylinder nose	Zylindersnase	1	9539-0054	38530077
96	Tirant	Tension piece	Spannstange	4	9539-8057	38531281
97	Chemise de vérin	Cylinder casing	Zylinderbüchse	1	9539-0058	38530085
98	Vis de réglage	Setting screw	Stellschraube	1	9539-7061	38531299
99	Bague	Ring	Ring	2	9539-0071	38530093

Pour toute commande de pièces de rechange, il est recommandé de rappeler le numéro porté sur la plaque d'identification de l'appareil
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Bei Bestellung von Ersatzleilen bitte Sereinnummer auf dem Identifizierungsschild des Geräte angeben

SAMIIA®
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 "PERSONNEL" HYDRAULIQUE
HYDRAULIK-HUBWINDE FUER PERSONENTRANSPORT
HYDRAULIC MAN-RIDING WINCH

LS500HLP AND 1000HLP

NUMERO DE NOMENCLATURE
L615
NUMERO DU DOCUMENT
9107 14 B 4/5
LE CHEF DU BUREAU D'ETUDES

REPERE ITEM HINWEIS	DESIGNATION	DESCRIPTION	BEZEICHNUNG	Quantité Quantity Anzhal	CODE	CPN
100	Fond de vérin	Cylinder bottom	Zylinderboden	1	9539-0087	38530101
101	Demi levier	Half lever	Halbhebel	1	9615-8028	38531307
102	Noix lisse	Smooth wheel	Glatte Nuß	1	9615-7029	38531315
103	Noix filetée	Screwed sprocket wheel	Schrausennuß	1	9615-7030	38531323
104	Bague	Ring	Ring	2	9615-0031	38530119
105	Bague	Ring	Ring	2	9615-0032	38530127
106	Noix lisse	Smooth wheel	Glate nuß	1	9615-7033	38531331
107	Demi levier	Half lever	Halbhebel	1	9615-8034	38531349
108	Entretoise	Distance ring	Distanzring	1	9615-0035	38530135
109	Demi bande de frein	Half brake band	Halbbremsband	1	9615-8036	38531356
110	Demi bande de frein	Half brake band	Halbbremsband	1	9615-8037	38531364
111	Chassis	Frame	Rahmen	1	9615-8038	38531372
112	Chemise de vérin	Cylinder casing	Zylinderbüchse	1	9615-7097	38531380
113	Chape	Cover	Abdeckung	1	9615-0057	38530150
114	Tige de vérin	Cylinder rod	Zylinderspindel	1	9615-7098	38531398
115	Butée	Stop	Anschlag	1	9615-0099	38530739
116	Bague de glissement	Slipring	Schleifring	1	9615-0100	38530747
117	Ecrou	Nut	Mutter	1	9615-7101	38531406
118	Piston	Piston	Kolben	1	9615-0102	38530754
119	Bague de centrage	Eccentric ring	Zentrierring	2	9619-0017	38530218
120	Bague extérieure de roue libre	External ring of free wheel	Außenring des Freilaufes	1	9619-0018	38530226
121	Flexible	Hose	Schlauch	1	6811-9228	38530762
122	Adapteur	Adapter	Anpassungsglied	1	6811-9328	38530770
123	Reduction	Gear	Getriebe	1	6811-9428	38530788
126	Joint quadring	Joint	Dichtung	2	5822-4529	38530796
127	Bague anti-extrusion	Back-up ring	Ring	1	5822-4629	38530804
128	Roue libre	Free wheel	Freilauf	1	5596-5932	38530283

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NUMERO DE NOMENCLATURE
L615
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9107 14 B 5/5
LE CHEF DU BUREAU D'ETUDES

REPERE ITEM HINWEIS	DESIGNATION	DESCRIPTION	BEZEICHNUNG	Quantité Quantity Anzhal	CODE	CPN
129	Bague anti-extrusion	Back-up ring	Ring	1	5822-2629	38530812
130	Bague d'étancheité	Sealing ring	Dichtring	1	5810-5830	38530309
131	Bague anti-extrusion	Back-up ring	Ring	1	5822-2729	38530820
132	Bague auto-lubrifiante	Self-lubricating ring	Selbstschmierender Ring	2	5910-5226	38530325
133	Bague auto-lubrifiante	Self-lubricating ring	Selbstschmierender Ring	2	5910-5426	38530333
134	Vis H	Screw	Schraube	4	4100-3901	38530341
139	Vis Hc	Screw	Schraube	2	4200-4207	38530390
142	Ecrou H	Nut	Mutter	4	4300-1011	38526893
143	Ecrou H	Nut	Mutter	1	4300-5811	38530408
145	Ecrou Hm	Thin nut	Mutter	4	4320-2112	38530416
146	Ecrou Hm	Thin nut	Mutter	1	4320-2312	38530424
147	Ecrou H	Thin nut	Mutter	1	4320-5911	38530432
148	Ecrou frein	Lock nut	Bremsschraube	8	4370-1411	38530440
152	Rondelle Grower	Split washer	Scheibe	4	4520-0016	38526901
153	Goupille fendue	Split pin	Stift	2	4630-1119	38530457
155	Circlips extérieur	Circlips	Seegerring	1	4770-0028	38520465

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

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BLOC FORE HYDRAULIQUE
HYDRAULISCHER GEBOHRTER BLOCK
HYDRAULIC BORED BLOCK

LS500HLP AND LS1000HLP

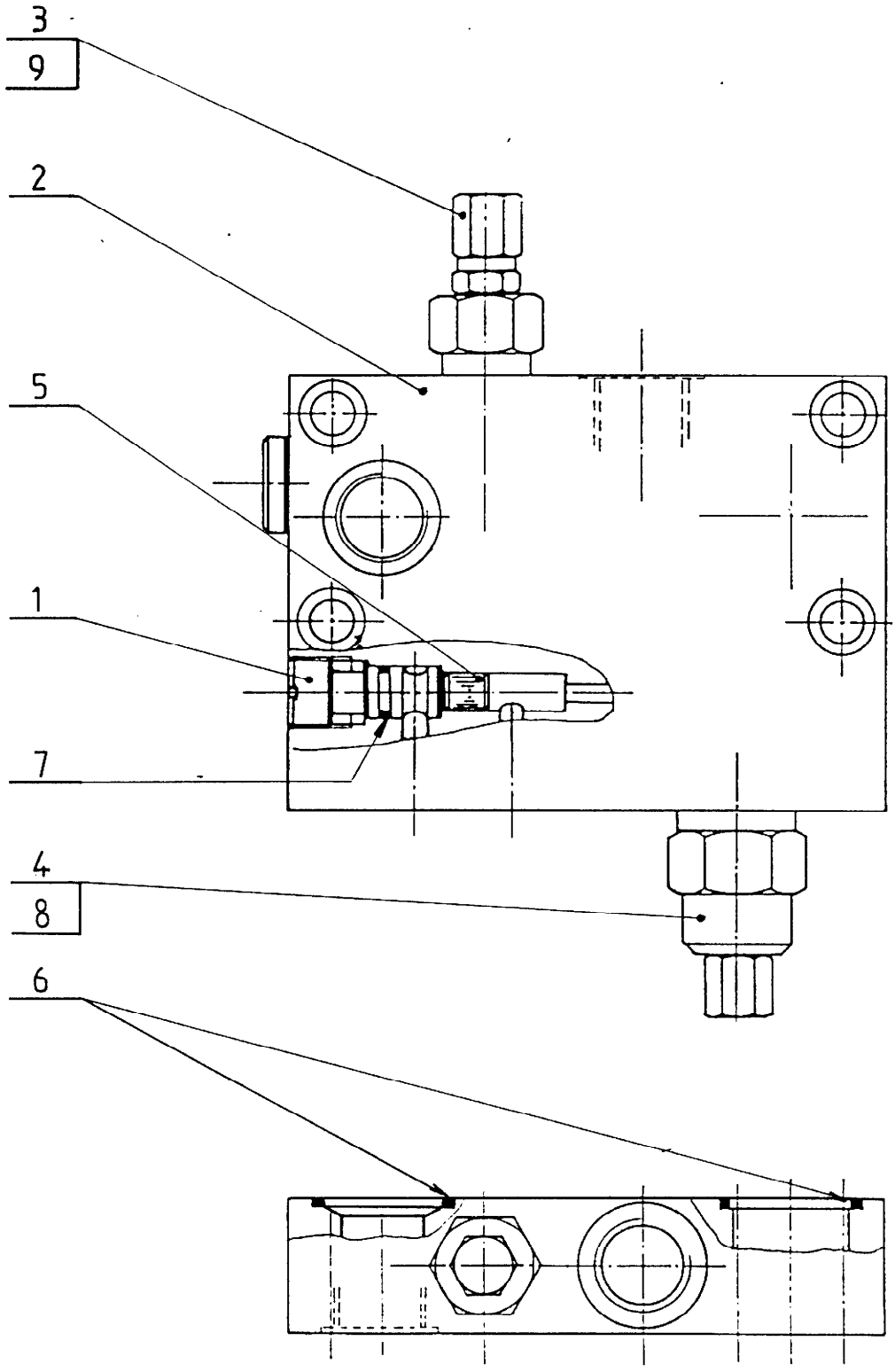
NUMERO DE NOMENCLATURE

L615

NUMERO DU DOCUMENT

19 07 15 A 1/2

LE CHEF DU BUREAU D'ETUDES



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BLOC FORE HYDRAULIQUE
HYDRAULISCHER GEBOHRTER BLOCK
HYDRAULIC BORED BLOCK

LS500HLP AND LS1000HLP

NUMERO DE NOMENCLATURE
3598-0019
NUMERO DU DOCUMENT
9107 15 A 2/2

LE CHEF DU BUREAU D'ETUDES

REPERE ITEM HINWEIS	DESIGNATION	DESCRIPTION	BEZEICHNUNG	Quantité Quantity Anzhal	CODE	CPN
1	Clapet	Stopper	Klappe	1	9598-0024	
2	Bloc de régulation	Control block	Regelungsblock	1	9580-0042	
3	Limiteur de pression	Relief valve	Druckbegrenzungsventil	1	6849-1832	
4	Soupape d'équilibrage	Counterbalance valve	Ausgleichventil	1	6846-3432	
5	Rouleau	Roller	Rolle	1	6940-0625	
6	Joint torique	O'ring	O-Ring	2	5820-6529	
7	Joint torique	O'ring	O-Ring	1	5821-4429	
8	Pochette de joints	Set of joints	Dichtungssatz	1	5840-9031	
9	Pochette de joints	Set of joints	Dichtungssatz	1	5840-9331	

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

The use of replacement parts other than IR/SAMIIA Material Handling will invalidate the Company's warranty. For prompt service and genuine IR/SAMIIA Material Handling parts, provide your nearest Distributor with the following :

1 - Complete model number with code as it appears on the name plate
2 - Part code and part description as shown in this manual.
3 - Quantity required.

Return Goods Policy

Ingersoll-Rand will not accept returned goods for warranty or service unless prior arrangements have been made written authorization has been provided from the location the goods were purchased.

NOTICE

Continuing improvement and advancement of design may cause changes to this winch which are not included in this manual. Manuals are periodically revised to incorporate changes. Always check the manual edition number on the front cover for the latest issue.

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TREUIL DE LEVAGE"PERSONNEL"HYDRAULIQUE
HYDRAULIK HUBWINDE FUER PERSONENTRANSPORT
HYDRAULIC MAN-RIDING WINCH

LS500HLP AND LS1000HLP

NUMERO DE NOMENCLATURE

NUMERO DU DOCUMENT
9107041 A 89

LE CHEF DU BUREAU D'ETUDES

M - GUARANTEE

See our general conditions of sales mentioned on our proposal,acknowledgement receipt, invoice.

IR/SAMIIA guarantees the equipment sold and supplied by itself against any defect or flaw in manufacture or operation under the conditions and within the limits hereafter.
- the guarantee is only valid if the customer has satisfied the general obligations of the present contract and, in particular, of settlement.
- the guarantee is strictly limited to IR/SAMIIA equipment. It does extend to supplies and accessories which are not of its manufacture.
- the guarantee does not extend to assemblies or machines in winch IR/SAMIIA equipment is incorporated and in particular to the performances of these assemblies or machines.
- When IR/SAMIIA equipment is incorporated into one or other assembly or machine by the customer, he alone is responsible for the adaptation, the choice and the suitability of the IR/SAMIIA equipment, IR/SAMIIA 's diagrams, surveys and layouts being given only for guidance, unless there is a special stipulation in the acceptance of order, defined in the acknowledgment of receipt.
- IR/SAMIIA does not guarantee components and accessories it does not sell.
Defects in fitting, adaptation, design, connection and running of the assembly or part of the assembly put together by the customer are not covered by the guarantee.
IR/SAMIIA equipment and material as well as the assemblies or machines set up by the customer or by a third party are assumed to be operated and used under the sole control of the customer or third party.
- The duration of the guarantee is for 6 months from the start up of the equipment by the customer. The start up must be made at the latest three months after dispatch of the equipment or its being made available.
- IR/SAMIIA has the right to demand from its customer proof of the date of start up.
- The guarantee period is reduced to half if the equipment is used day and night.
- The lenght of guarantee is neither prolonged nor interrupted by either amicable or litigous claims by the customer.
- At the expiry of this period, the guarantee ceases incontestably.
- The obligations of the IR/SAMIIA guarantee will only come into effect if the customer proves that the defect or flaw appeared during normal operating conditions for this type of material, or in the course of normal use as specified by IR/SAMIIA.
- It does not apply in the event of user's mistake, negligence, imprudence, faultly superintendence or maintenance, inattention to the instructions or directions for use of low quality lubricants.
IR/SAMIIA' liability is disclaimed for all damage brought about by loss or leaks of oil.
- No guarantee applies either for fortuitous incidents or force majeure, or for wear, replacements or repairs caused by normal use of the equipment.
- The guarantee is restricted to reconditioning in IR/SAMIIA's premises at its expense and as soon as possible the equipment and parts recognized as faulty by its technical or after sales services, which are sent carriage paid and packing free, without there being any claim for damage arising, such as injury to personel, damage to property other than that covered by the present contract, loss of possession, of production, commercial detriment or loss of profit.

- During the guarantee period, the cost of labour for dismantling and reassembling equipment outside IR/SAMIIA's premises, the cost of moving faulty, replaced or repaired equipment and the travelling and living expenses of IR/SAMIIA's engineers are covered exclusively by the customer.
- In order to obtain the advantages of the guarantee, the customer must advice IR/SAMIIA without delay and in writing of the defects and flaws in his equipment of which he is complained and furnish proof of their genuine nature. He must give IR/SAMIIA or its agents or technicians every facility to verify the defects or flaws and to put them right.
- The guarantee does not apply if the equipment is returned to IR/SAMIIA in a condition other than in which it broke down or if the seal has been removed, or if it has been dismantled, repaired or modified by a third party, or by the user or the customer.
- After having been duly informed of the defect or flaw in its equipment, IR/SAMIIA will put it right as quickly as possible, whilst reserving the right, in certain cases, to modify the whole or part of the equipment so as to meet its obligations.
- The customer agrees that IR/SAMIIA will not be responsible for damage in the event that the customer has not fulfilled one or other of the obligations set out above.
- Parts replaced free of charge remain the property of IR/SAMIIA.
- The guarantee does not apply to wearing parts.

IMPORTANT NOTICE

It is our policy to promote safe delivery of all orders.
This shipment has been thoroughly checked, packed and inspected before leaving our plant and receipt for it in good condition has been received from the carrier. Any loss or damage which occurs to this shipment while enroute is not to any action or conduct of the manufacturer.

Visible loss or damage

If any of the goods called for on the bill of lading or express receipt are damaged or the quantity is short, do not accept them until the freight or express agent makes an appropriate notation on your freight bill or express receipt.

Concealed loss or damage

When a shipment has been delivered to you in apparent good condition, but upon opening the crate or container, loss or damage has taken place while in transit, notify the carrier's agent immediatly.

Damage claims

You must file claims for damage with the carrier. It is the transportation company's responsibility to reimburse you for repair or replacement of goods damaged in shipment. Claims for loss or damage in shipment must not be deducted from the IR/SAMIIA invoice, nor should payment of IR/SAMIIA invoice be withheld awaiting adjustment of such claims as the carrier guarantees safe delivery. You may return products damaged in shipment to us for repair, which services will be for your account and form your basis for claim against the carrier.