PNEUMATIC WINCH USER MANUAL

ELEPHANT LIFTING PRODUCTS™

ATS PNEUMATIC

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This operation manual edition 05/2016 covers Elephant Lifting Winches.

It must be read carefully and in its entirety before operating any trolley.

Serial No.

Please enter the Serial No. of your ELEPHANT LIFTING winch here.

THIS MANUAL MUST BE READ BEFORE USING OR REPAIRING THESE PRODUCTS.

This manual contains important safety, installation, operation, and maintenance and repair information. Make this manual available to all persons responsible for the operation, installation, maintenance and repair of these products.

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

It is the responsibility of the owner/user to install, inspect, test, maintain, and operate a winch in accordance with ANSI/ASME B30.7, “Safety Standard for Winches”, OSHA regulations.

It is the responsibility of the owner/user to have all personnel that will install, inspect, test, maintain, and operate a winch read the contents of this manual and applicable portions of ANSI/ASME B30.7, “Safety Standard for Winches” and OSHA Regulations.

If the winch owner/user requires additional information, or if any information in the manual is not clear, contact Elephant Lifting or the distributor of the winch. Do not install, inspect, test, maintain, or operate this winch unless this information is fully understood.

A regular schedule of inspection of the winch in accordance with the requirements of ANSI/ASME B30.7 should be established and records maintained.

Preface

ELEPHANT LIFTING warrants to the user its winches, and other products to be free from defects in material and workmanship for a period of one year from the date of purchase.

ELEPHANT LIFTING will repair, without cost to the user, any product found to be defective, including parts and labour charges, or at ELEPHANT LIFTING 's option, will replace such products or refund the purchase price less a reasonable allowance for handling in exchange for the product. Repair and replacements are warranted for the remainder of the original warranty period.

If any product proves defective within its original one year warranty period, it shall be returned to ELEPHANT LIFTING with proof of purchase and the original test certificate.

This warranty does not apply to products which ELEPHANT LIFTING has determined to have been misused or abused, improperly maintained by the user, or where the malfunction or defect can be attributed to the use of non-genuine ELEPHANT LIFTING parts.

ELEPHANT LIFTING, LLC makes no other warranty and its maximum liability is limited to the purchase price of the product and in no event will ELEPHANT LIFTING, LLC not be liable for any consequential, indirect, incidental or special damages of any nature arising from the sale or use of the product whether based on contract or otherwise.

It is ELEPHANT LIFTING, LLC policy to promote safety of all persons and equipment in the workplace. All equipment manufactured is thoroughly checked, packed and inspected before dispatch. Any loss or damage which occurs during shipment while en-route must be reported to ELEPHANT LIFTING immediately. Should any item be delivered to you in apparent good condition, but upon opening the container, loss or damage has taken place while in transit; notify ELEPHANT LIFTING, LLC immediately. Should any items be delivered back to ELEPHANT LIFTING, LLC all transport costs will be for the account of the user.

These instructions are prepared by ELEPHANT LIFTING, LLC for the purpose of maintenance, repair and the use of its air winches.

No responsibility for failure of equipment due to manufacturing procedure will be assumed if these instructions are not carried out. Only original ELEPHANT LIFTING supplied spares are to be used in all repairs.

Safety Information

This manual will refer to existing legal requirements and engineering practices as known when this document was written. Should any such legislation or practices change or be "enlarged" upon then due consideration must be taken. Various standards have been used to assist in compiling this document and will be listed where applicable.

The use of powerful lifting equipment is subject to certain hazards that cannot be overcome by mechanical means but only by the exercise of intelligence, care and common sense. It is therefore essential that personnel involved in the use and operation of equipment must be competent, careful, physically and mentally qualified, and trained in the safe operation of equipment and the handling of the loads. Serious hazards are overloading, dropping or slipping of the load caused by improper hitching or slinging, obstructing the free passage of the load and using equipment for a purpose for which it was not intended or designed. The above can lead to fatal consequences.

Operators of ELEPHANT LIFTING Winches are also under obligation to ensure safe and hazard-free operation. This can be achieved through the following measures:

- Keep the operation manuals available at the winch operating site,
- Performing regular training,
- Performing regular inspections (at least once annually),
- Implement an inspection log and make regular entries,
- And regularly check personnel for safety and hazard awareness during work.

ELEPHANT LIFTING, LLC fully realizes the importance of proper design factors, minimum and maximum sizes and other limiting dimensions of the rope and its fastenings, drums and similar equipment all of which are designed with safety in mind.

The various conditions of the equipment or material can vary depending on the environment they are used in which may cause corrosion or wear and any other variables that may arise in each individual application. It is in the light of this that the winch be maintained and repaired under the supervision of a competent person who is:

1. qualified by virtue of his knowledge, training, skills and experience to organize the work and its performance;

2. familiar with the legal requirements which apply to the work to be performed;

3. has been trained to recognize any potential or actual danger to health and safety in the performance of the work.

The instructions given in this manual must be interpreted accordingly and sound judgment used in determining their application.

This operation manual is intended to help the operator to become familiar with ELEPHANT LIFTING trolleys and how to use them properly.

This operation manual contains important information for the safe, proper and efficient operation of ELEPHANT LIFTING Air winches. Observance of the manual helps to avoid hazardous situations, to reduce repair costs and downtimes and to ensure the specified service life of the ELEPHANT LIFTING Air Winches.

Always keep the manual readily available at the location where the ELEPHANT LIFTING winch is being used.

All persons charged with operating, maintaining or repairing ELEPHANT LIFTING winches must read and follow the instructions in this manual.

Danger, Warning, Caution and Notice

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

DANGER

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

NOTICE

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

Safety Summary

WARNING

- **Do not use this winch or any equipment attached to it for lifting, supporting, or transporting people or lifting or supporting loads over people.**

- **ELEPHANT WT Tugger series of winches are designed to provide a MINIMUM of 5 to 1 safety factor. It is the responsibility of the customer to ensure that the structure to which the winch is attached and any load attaching devices are capable of handling the static and dynamic loads imposed on the structure by the winch and its attachments when pulling the rated load. If in doubt, consult a registered professional structural engineer.**

NOTICE

- **Winch equipment is subject to different regulations in each country. These regulations may not be specified in this manual.**

- **Whenever a conflict arises between the contents of this manual and any other applicable legislation, standard or procedure, the more stringent of the two must be applied.**

The Occupational Health and Safety Act and Mine Health and Safety Act and other recognized safety sources make a common point: From a safety standpoint, one factor is paramount: conduct all lifting or load hauling 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, keep out of the intended path of any load and stay clear of the wire rope.

Elephant Lifting winches are manufactured in accordance with the latest ISO9001 standards.

The Occupational Safety and Health Act of 1993, section 10 states:

10. (1) Any person who designs, manufactures, imports, sells or supplies any article for use at work shall ensure, as far as is reasonably practicable, that the article is safe and without risks to health when properly used and that it complies with all prescribed requirements.

(2) Any person who erects or installs any article for use at work on or in any premises shall ensure, as far as is reasonably practicable, that nothing about the manner in which it is erected or installed makes it unsafe or creates a risk to health when properly used.

(3) Any person who manufactures, imports, sells or supplies any substance for use at work shall –

(a) ensure, as far as is reasonably practicable, that the substance is safe and without risks to health when properly used; and

(b) take such steps as may be necessary to ensure that information is available with regard to the use of the substance at work, the risks to health and safety associated with such substance, the conditions necessary to ensure that the substance will by safe and without risks to health when properly used and the procedures to be followed in the case of an accident involving such substance.

(4) Where a person designs, manufactures, imports, sells, or supplies an article or substance for or to another person, and that other person, and that other person undertakes in writing to take specified steps sufficient to ensure, as far as is reasonable practicable, that the article or substance will comply with all prescribed requirements and will be safe and without risks to health when properly used, the undertaking shall have the effect of relieving the first mentioned person from the duty imposed upon him by this section to such an extent as may be reasonable having regard to the terms of the undertaking.

It is the owner's and user's responsibility to determine the suitability of a product for any particular use. It is recommended that all applicable industry, trade association and legislation be checked. Read all operation instructions and warnings before operation.

This manual has been produced by **ELEPHANT LIFTING** to provide agents, fitters, and company personnel with the information required to install, operate, maintain and repair the products described herein.

It is extremely important that fitters and operators be familiar with the servicing procedures of these products, or similar products, and is physically capable of conducting the procedures. These personnel shall have a general working knowledge that includes:

1. Proper and safe use and application of fitter's common hand tools as well as special or recommended tools.
2. Safety procedures, precautions and work habits established by accepted industry standards.

ELEPHANT LIFTING cannot know of, nor provide all the procedures by which product operations or repairs may be conducted and the hazards and/or results of each method. If operation or maintenance procedures not specifically recommended by the manufacturer are conducted, it must be ensured that product safety is not endangered by the actions taken. If unsure of an operation or maintenance procedure or step, personnel should place the product in a safe condition and contact supervisors and/or the factory for technical assistance.

Identification

The nameplate mounted on the side plate identifies the type of ELEPHANT LIFTING winch and contains important rating data.

If you have any questions concerning the operation of ELEPHANT LIFTING winches which are not addressed in this operation manual, please contact us at the following address:

Elephant Lifting Products, LLC
38381 N Robert Wilson Rd
Gonzales, LA 70737 USA
e-mail: sales@elephantlifting.com

Main Components

ELEPHANT LIFTING winches and running gears consist of the following main components:

1 Side plates
2 Rope Drum
3 Distance spacers
4 Air motor drive

Product Description

The air winch is mounted by bolting down the base to a suitably robust structure.

The winch utilizes an air powered vane motor to drive an epicyclic gearbox. The power is transmitted from the motor to the gearbox through a direct coupling shaft. The gearbox drives the drum via a free spool clutch, which can be disengaged to allow unloading of the wire rope. The winch motor has a spring loaded brake to ensure that the load does not slip while the motor is not running. Air pressure from the motor supply releases the brake and allows for free running of the motor once the control is operated. If air pressure is lost, the brake is automatically applied. The maximum load that the winch can pull is limited by a delta-p load limiter.

ELEPHANT LIFTING Winches are designed to comply with ASME B30.7 standards.

Intended Use

ELEPHANT LIFTING winches are intended to be for pulling horizontal loads or lifting vertical loads. The winches are designed to have a safety factor of 5:1 for lifting and 3,5:1 for pulling.

Any other use or use outside these stipulations is deemed to be impermissible. For applications requiring this type of use please consider the ELEPHANT LIFTING range of hoists. ELEPHANT LIFTING cannot be held liable for any damage resulting from incorrect usage. The entire risk is borne by the operator.

The following situations, among others, are regarded as improper use:

- Exceeding the permitted load-carrying capacity
- Oblique pulling of loads
- Catching of falling loads
- Carrying people
- Jog control over longer distances
- Switching to the opposite direction with load in motion
- Operation reaching of the end stop

See also **Rules for the safe operation of winches,** page 11.

Intended use also includes observance of the operation manual and compliance with the inspection and maintenance conditions.

Operating Conditions

ELEPHANT LIFTING Air Winches are extremely robust and require little maintenance. They are suitable for use in explosion-hazardous areas (see rating on winch for details), as well as in areas with increased concentrations of soot and dust, high humidity and at

ambient temperatures of – 20° C up to approx. + 70° C if they are not heated above this level due to external influences. The thermal endurance of chains and hooks is + 150° C.

CAUTION

When touching metallic hand controls which are colder than 0° C, skin could freeze within a few seconds, and at temperatures above 43° C, burns may occur. As a protective measure, please wear suitable gloves.

For stationary outdoor operation, winches must be protected against weathering and the maintenance intervals must be shortened.

Depending upon the version, ELEPHANT LIFTING Air Winch must be operated at a system pressure of 4 bar or 6 bar (see information on the nameplate). If the system pressure is too low, important functions of the winch will be impaired:

- The brake will drag and is thus subject to a high degree of wear. An impermissibly high degree of warming could take place.
- The controls become noticeably less sensitive.

DANGER

Warning against excessive system pressures

Operating with excessive system pressures results in danger due to overloading. Therefore, the pressure must be limited to that specified on the nameplate.

ELEPHANT LIFTING Air Winch must be operated with a sufficiently clean and dry air supply. The air supply must fulfil the following quality requirements:

- Particle size less than 40 µm
- Particle density less than 10 mg/m³
  (corresponds to Class 7 in accordance with ISO 8573-1:2001)

In order to provide adequate compressed air quality, operation with a service unit is recommended. Usually an oiler is not required in the service unity, as the motor is provided with internal permanent lubrication.
Also see **Lubrication**, page 9.

Do not operate ELEPHANT LIFTING Air Winches with other gases.

With moist air and ambient temperatures at or below 0° C, there is danger of icing in the motor.
Icing can be prevented by:

- The use of an upstream air dryer or using a service unity with oiler,
- Adding anti-icing agent to the lubrication oil (depending upon moisture content of compressed air),
- Or using air motor oil (Art. No. 11900) with anti-icing agent for relevant temperatures.

Transport and Storage

Safe Transportation

If you wish to transport your ELEPHANT LIFTING Air Winch to another site, please observe the following points:

- Carefully detach winch from base mounting.
- Set the entire winch down carefully; do not allow it to drop.
- Lay control and supply hoses (if applicable) together in such a way that they are not kinked.
- Please ensure that the controls are not damaged. (Risk of malfunction).
- Reel in the wire rope in such a way that loops cannot form and the rope cannot become kinked or twisted.
- Secure the rope.

Storage Conditions

Breaks in Operation

- In the case of longer operational breaks, coat the rope and hook with a light oil film.
- Motor conservation: if the motor lubrication is not renewed at the specified intervals, a protective coating must be applied to the motor. For this purpose, use a non-resinous and non-sticky conserving oil with a conserving protection duration which corresponds to the length of the planned operational break.

Storage

- If the winch is to be stored for a long time, spray anti corrosion spray or SAE 10W or 27-32 centistoke oil into the air inlet port and run the winch slowly for a few seconds. This will

compensate for the slight delay of the oil coming from the lubricator, and stop moisture rusting the bearings.

- Plug winch air inlet port.
- Always store the winch in a no load condition.
- Wipe of all dirt and water.
- Oil the rope, hook pins and hook latch.
- Store the winch in a clean dry environment.
- Before returning the winch to service, follow instructions for winches not in regular service in the “INSPECTION” section.

Initial Operation

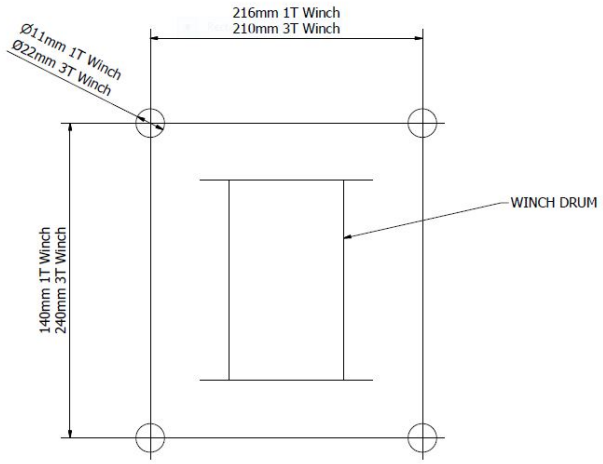
The four most important aspects of winch operation are:

1. Follow all safety instructions when operating winch.
2. Allow only people trained in safety and operation of this product to operate winch.
3. Subject each winch to a regular inspection and maintenance as outlined in this manual under the section ‘Inspection’.
4. Be aware of the winch capacity and weight of load at all times.

Operators must be physically competent. Operators must have no health condition which might affect their ability to act, and they must have good hearing, vision and depth perception. The winch operator must be carefully instructed in his duties and must understand the operation of the winch, including a study of manufacturer’s literature. The operator must thoroughly understand proper methods of hitching loads and should have a good attitude regarding safety. It is the operator’s responsibility to refuse to operate the winch under unsafe conditions.

Mounting the Winch

The winch must be mounted such that the axis of the drum is horizontal. The mounting surface should be sufficiently strong to handle the loads generated by mounting bolts. If the surface is not sufficiently flat, use shims where necessary. Use Grade 8-8 bolts or better. See illustration below for relevant mounting layout.



Selecting Wire Rope

Consult a specialist supplier for details of wire rope requirements to match loading conditions. Requirements must include rope type, size and protective coating. Take note to consider the size of the drum, load sheave and rope reeving methods, as well as potential accelerations experienced by the load. Please ensure that relevant standards are consulted for lifting requirements and safety factors.

Installing the Rope

Cut the wire rope to the required length and treat the ends to prevent fraying.

For winches with Grub Screw Lock (see drawing):

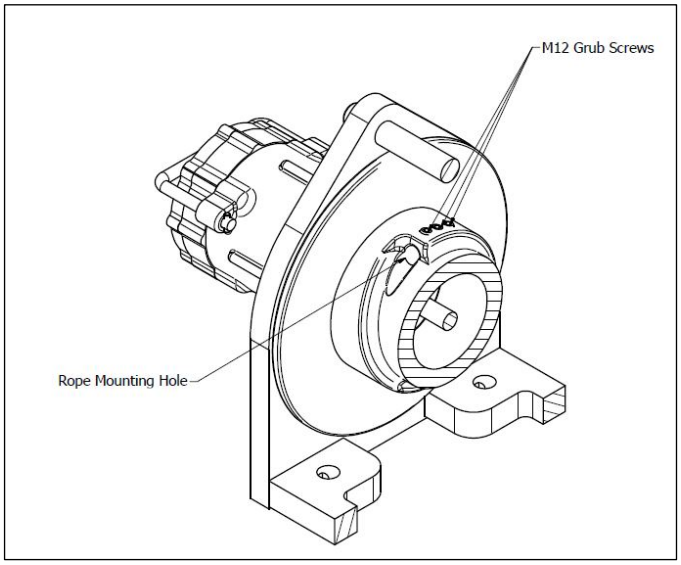
- Insert the end of the rope into the rope mounting hole so that approximately 25mm protrudes through the hole.
- Tighten the three M12 Grub Screws so that the rope is firmly secured.
- Maintain at least 3 wraps of wire rope on the drum at all times.

For winches with Rope Clamp Drum (see drawing):

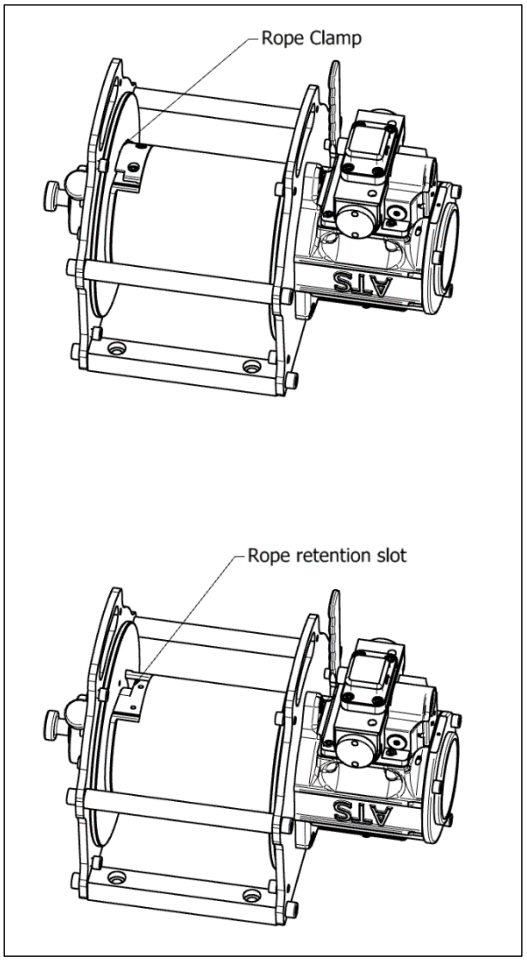
- Remove the clamp by loosening the two retaining screws;
- Feed the end of the rope into the Rope retention slot;
- Re-fit the clamp and fasten the two retaining screws so that the rope is securely fastened;
- Maintain at least 3 wraps of rope on the drum at all times.

Spooling the Rope

Ensure that the first few wraps of the rope are tight and that the rope does not overlap. Use as short a length of rope as possible and always ensure that there is tension applied to the rope when rewinding.



Grub Screw Lock Drum



Rope Clamp Drum

Connecting the Controls

Connecting the Control Hoses

In case the control device is delivered separately, for your guidance short hose pieces have been put into the plug-in connections at the factory. Their colour or numbering corresponds to that of the hoses to be connected, enabling you to connect the hoses one after the other.

Removing the Hose Pieces

- Press down the locking ring with a suitable tool (for example screwdriver), pulling out the hose piece at the same time.

1 Air connection on the left
2 Main air connection
3 Air connection 2nd travel speed
4 Control port on the right

ATTENTION!
Please ensure that the hose is not bent when inserted.

- Put the loop of the strain relief (wire rope) into the existing eyebolt.
- Put the end of the corresponding hose into the hole of the corresponding plug-in connection.
- Push the hose in as far as the stop.
- Check the connection by pulling on the hose.

If air escapes from the connection during operation, try to push the hose concerned even further in.

Connecting to the Main Air Supply

- Check air connection for contamination and clean if necessary.
- Blow through compressed air hose in order to remove foreign bodies.
- Attach the compressed air hose to the connection on the winch or on the service unity. Tighten the union nut.

Lubrication

To ensure continued satisfactory operation of the winch, all points requiring lubrication must be serviced with the correct lubricant at the proper time interval.

Correct lubrication is one of the most important factors in maintaining efficient operation.

The lubrication intervals recommended in this manual are based on intermittent operation of the winch eight hours each day, five days per week. If the winch is operated almost continuously or more than the eight hours each day, more frequent lubrication will be required. Also, the lubricant types and change intervals are based on operation in an environment relatively free of dust, moisture, and corrosive fumes. Use only those lubricants recommended. Failure to observe this precaution may result in damage to the winch and/or its associated components.

1. Coat all motor parts with a light film of SAE 10W or 27 – 32 centistoke or good quality hydraulic oil before assembling.

CAUTION

- **Do not use automotive type detergent oil. Detergents will de-laminate the motor vanes and cause motor failure.**

2. Apply a coating of grease to all gearing before assembly. Neglect of proper lubrication will lead to bearing failure. The recommended greases are as follows: DIMOL GR-2-EP, CASTROL SHEEROL EP2 and SHELL ALVANIA EP2. If these specific greases are not available use equivalent grease.
3. Drum wear rings must be greased at frequent intervals, using the same grease as that applied to the gearing.

Inspection

Careful inspection on a regular basis will reveal potentially dangerous conditions while still in the early stages, allowing corrective actions 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.

The results of the inspection must be recorded in the inspection log.

Inspection before Initial Operation

The winch will be inspected for proper operation after being assembled. Before placing the winch into service, it must still be checked so that safe operation can be ensured. The following checks should be performed:

- Make sure that there are no air leaks once the air hoses have been connected.
- Cycle the control and make sure that the buttons return to their static position, or the lever returns to centre. The motor should not run without user input on the control.
- Add a small amount of light oil to the motor and run it in both directions for 2 minutes with no load.
- Make sure that the brake is operating correctly.
- Make sure that the free spool clutch is operating correctly.
- Ensure that the winch is securely mounted.

Frequent Inspection

On winches 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 signs or abnormal noises (grinding etc.) which could indicate a potential problem. Make sure all controls function properly and return to neutral when released. Check rope feed through the rope guides and the wrap of the rope around the drum. If rope is poorly wrapped, slippages could occur. Do not operate the winch until all problems have been corrected.

2. ***Air System.***
   Visually inspect all connections, fittings, hoses and components for indication of air leaks. Repair any leaks found.

3. ***Controls.***
   During operation of the winch, check the response of the winch to the pendant is smooth and not sticky. Ensure that the control handle switches to its maximum position in both directions. The control handle must return to neutral when released. If winch responds slowly or movement is unsatisfactory, do not operate winch until all deficiencies have been corrected. If fitted with an E-Stop button, ensure when activated winch does not operate.

4. ***Wire Rope***
   Inspect the rope for buildup of dirt and corrosion. Clean where possible or replace the rope if corrosion is excessive. Ensure that the ends of the rope are kept in good order and that they are not frayed. Check that the rope is securely fastened to the drum before operating the winch. Make sure that the rope has not stretched. Verify this by measuring the diameter of the rope at various points along its length. Record these measurements and look for decreasing sizes over time as an indication of stretching.

Operation

Rules for the Safe Operation of Winches

The following rules have to be observed to ensure safe operation of ELEPHANT LIFTING Winches:

If several winches are working together, the customer has to set up the conditions for safe operation.

If the local conditions or the work to be performed make it necessary, the customer has to define operating instructions.

Maintenance and inspection work may only be performed once the people in charge are convinced that the winch is cut off from the energy supply and that measures have been taken to prevent the unauthorized supply of energy.

The same applies to maintenance work and any changes in case personnel in the working area of the winch may be exposed to danger. If there is a danger that parts may fall down, the corresponding area has to

be barricaded and protected by guards. Other risks from neighboring installations also have to be safeguarded against. After completion of the work, operation may only recommence following release by the operator. Before release, the operator must be convinced that all work has finally been completed, that the whole winch system is in a safe condition again, and that all personnel involved have cleared the installation.

If components other than ELEPHANT LIFTING components are used, danger may occur. Such an application can only be allowed after having received ELEPHANT LIFTING agreement.

Controls

The winch is operated via a control lever mounted onto the motor. Move the lever in the opposite direction to the desired rope travel direction to operate the winch.

Free Spool

The drum can be allowed to rotate independently of the gearbox if a free spool device is fitted. This must only be operated when there is no load on the winch. The free spool is operated as follows:

- To disengage the drum, two lockout knobs are used. The first, the lock knob travels in a direction perpendicular to the drum axis. The second, the clutch pull knob travels parallel to the drum axis.
- First, pull the lock knob outward. This will allow the clutch pull knob to be free. Pull this knob away from the drum and release the lock knob. When the clutch is disengaged, the lock knob will return to its original position. The drum will now be locked free.
- To re-engage the drum, pull the lock knob out and push the clutch pull knob back in until the lock knob returns to its original position.

Taking out of Operation

Shutting Down

If the winch is to be taken out of operation for a longer period of time it must be protected against corrosion and dirt.

- Coat the wire rope with a light oil film.
- Move the load sheave out of the working area, in order to avoid hazardous situations.
- Reel in or remove the wire rope.
- Depressurise the air line.

Dismantling

DANGER

ELEPHANT LIFTING Winch must only be dismantled by qualified personnel.

WARNING

Disconnect the air supply hose before performing any maintenance or repairs on this winch.

1. Check fault list for problem solving.

2. Do not disassemble the winch any further than necessary to replace or repair damaged parts, unless major service is due.

3. Whenever grasping a component in a vice, always use aluminum covered or copper covered vice jaws to protect the surface of the component and help prevent damage. This is particularly true of threaded members and housings.

4. Do not disassemble this winch unless you have a complete set of new gaskets, O-rings and seals on hand for replacement. These are available in the Overhaul Seal and Gasket Kit and parts list.

5. Do not attempt to recondition by washing out sealed bearings. We recommend that all bearing, vanes & O-rings be replaced when the winch is reassembled.

Dismantle of the Control Valve (Lever Control)

1. Unscrew the four bolts attaching the control valve to the motor housing. Remove the control valve from the winch. Remove the gasket.

2. Examine all components for wear, replacing damaged or worn components. Replace all gaskets and O-rings before re-assembly.

3. Remove all sharp edges and burrs from components. Wipe all components with SAE 10W oil before re-assembling in the reverse order to stripping.

Disposal
ELEPHANT LIFTING Winches contain a range of materials which, on expiry of the service life, must be disposed of or recycled where appropriate, in accordance with statutory regulations.

Please note the following list of materials used:
Winch

- Ferrous materials
  Steel
  Nodular cast iron
- Non-ferrous metals
  Bronze
- Plastics
  Polyethylene
  Polyurethane
  Polyamide
  Natural rubber
  Epoxy resin
  Polyacetal
  Thermoset moulding compound
  (Asbestos-free brake lining)

Filter Silencer/Service Unit:
Zinc die cast
Brass
Nitrile rubber
Aluminium
Polypropylene
Polyurethane
Glass-fibre reinforced plastic
Steel
Polyacetal
Polythylene

Maintenance

Maintenance and Inspection Intervals

ELEPHANT LIFTING Winches are extremely robust and require little maintenance. Compliance with maintenance and inspection intervals is of great importance, in order that the winch operates safely and reliably over a period of many years. If the winch is being operated in a harsh environment that leads to accelerated wear, then the intervals should be reduced.

CAUTION

Maintenance work on ELEPHANT LIFTING winch must only be performed by trained and qualified personnel.

In the case of maintenance work exceeding normal service and maintenance, please contact ELEPHANT LIFTING.

Cleaning and Care

If your ELEPHANT LIFTING winch has to work in dirty surroundings, remove coarse dirt from the winch.

Spare Parts

If, during repair work, the replacement of components is necessary, only original ELEPHANT LIFTING spare parts may be installed.

Inspection and Repairs

ELEPHANT LIFTING recommends two types of inspection:

a) The frequent inspection performed by the operator as pre-work inspection.

b) The periodic inspections performed by personnel trained in the operation and repair of this winch.

Careful inspection on a regular basis will reveal potentially dangerous conditions while still in the early stages, allowing corrective actions 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

An inspection record should 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 each person who performed the inspection, and kept on file where they are readily available to authorized personnel.

Periodic Inspection

Frequency of periodic inspection depends on the severity of usage:

NORMAL	HEAVY	SERVERE
Yearly	Biannually	Quarterly

NOTICE

- **Please note the requirements of the Occupational Health and Safety Act of South Africa (Act 85 of 1993), Driven Machinery (Regulation 18) Lifting Machines and Lifting Tackle regarding the examination and testing of lifting machines and lifting tackle.**

Disassembly may be required for HEAVY or SEVERE usage. Keep accumulative written records of periodic inspections to provide a basis for continuing evaluation. Inspect all the items in “Frequent Inspection”. Also inspect the following:

1. ***Fasteners.***

   Check cap screws and nuts. Replace if missing or tighten if loose.

2. ***All Components.***

   Inspect for wear, damage, distortion, deformation and cleanliness. If external evidence indicates the need, disassemble. Check gears, shafts, bearing, load sheaves, springs and covers. Replace worn or damaged parts. Clean, lubricate and reassemble.

3. ***Load Sheaves.***

   Check for damage or excessive wear. Replace if necessary.

4. ***Motor***

   If performance is poor, disassemble the motor and check for wear or damage to bearings, vanes, cylinder end plates and other parts. The parts should be cleaned, lubricated and reassembled. Replace worn or damaged parts.

5. ***Supporting Structure.***

   Check for distortion, wear and continued ability to support the load.

6. ***Nameplate.***

   Check for presence and legibility. Replace if necessary.

Winches Not in Regular Use

1. A winch which has been idle for period of one month or more, but less than one year, should be given an inspection conforming with the requirements for “Frequent Inspection” prior to being placed into service.

2. A winch which has been idle for a period of more than one year should be given an inspection conforming with the requirements of “Periodic Inspection” prior to being placed into service.

3. Standby winch should be inspected at least biannually in accordance with the requirement of “Frequent Inspection”. In abnormal operating conditions winch should be inspected at shorter intervals.

Filtration

Should the airline filtration not be integrated into the motor housing a proper high capacity filter is required with a 100 micron screening and should were possible include a water separator. Do not use tap water screens as they pass particles of between 0,25 - 0,50 mm which will cause excessive wear in the motor.