

20HL/R - E1 Harbor Tug Winch

Description:

The 20HL/R-E1 Harbor Tug Winch was designed specifically for small pushboats and harbor tugs to save time in making up tows. The entire winch is designed with only 3 bushings, resulting in reduced maintenance and more up time. L= Left Hand turn. R= Right hand turn.

Standard Features:

- 5 Horsepower TEFC Motor and Brake
- 230/460 Volt - 3 Phase - 60 Hz Power
- Spring set - Electric release holding brake
- Fully enclosed gearbox with open final gear set
- Machine cut gearing with protective guarding
- Brake release and manual crank for emergency operation

Performance:

Brake Holding Capacity	20 Tons
Rated Continuous Linepull	6,000 lbs
Rated Stall Linepull	16,500 lbs
Mid Drum Linespeed	30 FPM



Drum Capacity			
5/8"	3/4"	7/8"	1"
380 ft	275 ft	194 ft	132 ft

Dimensions and Weight:

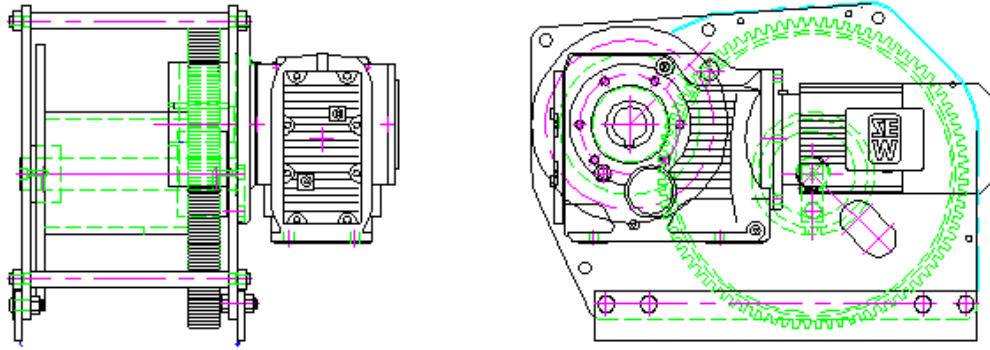
Overall Length	32-1/2"
Overall Width	26-1/2"
Overall Height	23-1/2"
Overall with Deck Pivot Pin	875 lbs

Due to our policy of continuing development, all specifications are subject to change without notice. Users of these products are responsible for ensuring their suitability for the application in which they are being used.

Made in the USA



Operation and Maintenance Manual



Model 20HL-E1 & 20HR-E1 Electric Winches

NOTICE

READ THIS MANUAL BEFORE USING THESE PRODUCTS!

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 products.

⚠ WARNING

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

Always operate, inspect and maintain this winch in accordance with American National Standards Institute Safety Code (ANSI B30.7) and any other applicable safety codes and regulations.

Refer all communications to Wintech International, LLC or your nearest Distributor.

Wintech International, LLC
Phone: 1-888-946-8325
Fax: 1-318-929-1245
Email: winches@wintech-winches.com

SPECIFICATION SHEET

MODEL NUMBER: 20HR-E1 & 20HL-E1

SERIAL NUMBER:

DESCRIPTION ELECTRIC DECK WINCH

DATE MFD.: 06JUL2012

APPLICATION: HAULING / MOORING

CUSTOMER: STANDARD WINCH

SUPPLY POWER: 230/460 VOLT / 3 PHASE / 60 HZ

PERFORMANCE : 6,000 LBS CONT. RUNNING LINE PULL @ 1ST LAYER

16,500 LBS STALL LINE PULL

HOLDING BRAKE RATED FOR 20 TONS

30 FPM APPROXIMATE LINE SPEED AT MID DRUM

MOTOR: 5.4 HP HIGH EFF., TEFC ELECTRIC MOTOR WITH BRAKE

BRAKE: SPRING APPLIED / ELECTRIC RELEASE (230V COIL)

GEARING: HELICAL- BEVEL GEARING

DRUM SIZE: 8.63" SMOOTH CORE X 10" WIDTH DRUM

CABLE CAPACITY: 250 FT OF 3/4" DIAMETER WIRE ROPE

CONTROLS: OPTIONAL

SPECIAL OPTIONS: SR RELAY

ENGINEERING JOB FILE: NA

REFERENCE DWGS: B01-0901 - WINCH GENERAL ASSEMBLY (LH)

B01-0902 – WINCH GENERAL ASSEMBLY (RH)

SAFETY INFORMATION

Inspection and safety information contained in this manual is based, in part, on the American National Standards Institute Safety Code (ASME B30.7). However, it should be noted that ASME B30.7 covers "Base Mounted Hoists" and does not specifically apply to winches used as barge pullers or in horizontal pulling applications.

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 should read this manual before operating the product.

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 a 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 is important but not hazard-related.

Safety Summary

⚠ WARNING

- **Do not use this winch for lifting or lowering loads or for supporting, or transporting people.**
- **The supporting structures and load-attaching devices used in conjunction with this winch must provide an adequate safety factor to handle the rated load, plus the weight of the winch and attached equipment. This is the customer's responsibility. If in doubt, consult a registered structural engineer.**
- **Electrical installation should be performed by licensed electricians in accordance with the latest edition of the National Electrical Code (ANSI/NFPA 70) and any applicable local, state and national electrical codes and ordinances.**

The National Safety Council, Accident Prevention Manual for Industrial Operations, Eighth Edition and other recognized safety sources make a common point: Employees who work near material handling equipment or assist in hooking on or arranging a load should be instructed in safe rigging procedures. From a safety standpoint, one factor is paramount: conduct all pulling operations in such a manner that if there were an equipment failure, no personnel would be injured. This means keep out of the line of force of any load.

The Occupational Safety and Health Act of 1970 generally places the burden of compliance with the owner/employer, not the manufacturer. Many OSHA requirements are not concerned or connected with the manufactured product but are, rather, connected with the final installation. It is the owner's responsibility and user's responsibility to determine the suitability of a product for any particular use. Check all applicable

industry, trade association, federal, state and local regulations. Read all operating instructions and warnings before operation.

Rigging: It is the responsibility of the operator to exercise caution, use common sense and be familiar with proper rigging techniques. See ANSI/ASME B30.9 for rigging information, American National Standards Institute, 1430 Broadway, New York, NY 10018.

This manual has been produced by Wintech to provide dealers, mechanics, operators and company personnel with the information required to install, operate, and maintain the products described herein.

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

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

Wintech can not 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.

The following warnings and operating instructions have been adapted in part from American National (Safety) Standard ASME B30.7 and are intended to avoid unsafe operating practices which might lead to injury or property damage.

Wintech recognizes that most companies who use winches have a safety program in force at their facility. In the event that some conflict exists between a rule set forth in this publication and a similar rule already set by an individual company, the more stringent of the two should take precedence.

SAFETY 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 personnel trained in safety and operation of this product to operate and maintain the 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, or controls, do not operate the winch until the sign has been removed by designated personnel.
4. Before each shift, the operator should inspect the winch for wear or damage. Never use a winch that inspection indicates is worn or damaged.
5. Do not use winch if hook latch on a hook has been sprung or is broken. Check that the hook latches are engaged before using.
6. Only pull loads less than or equal to the rated capacity of the winch.
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. Position load correctly. Only pull in a straight line. Do not "side pull" or "yard".
9. Keep hands, clothing, etc., clear of moving parts.
10. Do not force a hook into place by hammering.
11. Be certain the load is properly seated in the saddle of the hook.
12. Do not pull the load on the tip of the hook.
13. Never run the wire rope over a sharp edge. Use a sheave.
14. Pay attention to the load at all times when operating the winch.
15. Make sure all people are clear of the load and its path.
16. Never use the winch for lifting or lowering loads and never allow anyone to stand on a moving load.
17. Ease the slack out of the wire rope when starting a pull.
18. Never weld or cut on a load held by the winch.
19. Do not operate winch if jamming, overloading, or binding occurs.
20. After use, properly secure winch and all loads.
21. Always rig loads properly and carefully.



WARNING LABELS

Each winch is supplied from the factory with the warning labels shown. If the labels are not attached to your winch, order new labels and install. Read and obey all warnings and other safety information attached to this winch. Labels are shown are not actual size.

⚠ WARNING

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

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

Read the latest edition of ASME B30.7.
Comply with other federal, state and local rules.

P/N 71060529/E
for winches

WINTECH

⚠ WARNING

Do not use for lifting, lowering or suspending loads over people.

B14-0609

⚠ WARNING

Keep away from all moving parts, personal injury could result.

B592727

INSTALLATION

Prior to installing the winch, carefully inspect it for possible shipping damage. Winches are supplied fully lubricated from the factory.

⚠ CAUTION

• **Owners and users are advised to examine specific, local and other regulations, including American National Standards Institute and/or OSHA Regulations which may apply to a particular type of use of this product before installing or using winch.**

Mounting

1. Mount the winch on a rigid surface capable of supporting the winch and that will prevent deflecting or distortion of the winch when operated at maximum capacity.
2. Choose a site that uses as short a wire rope as practical.

⚠ WARNING

• **The winch is not a balanced load. Use extreme care when lifting winch into position.**

3. When a lead sheave is used, it should be aligned with the center of the drum. It is recommended that the diameter of the lead sheave be at least 18 times the diameter of the wire rope.
4. Maintain a fleet angle between the sheave and winch of no more than 1-1/2° for smooth cored drums (3° for grooved core drums). For smooth core drums every inch (25 mm) of drum length requires the lead sheave to be at least 1.6 feet (0.5 m) from the drum.
5. Make sure the mounting surface is flat to within 1/16 in (1.6 mm). Shim as necessary.
6. Position the winch so there is enough space for manual operation and for maintenance personnel to access the winch for inspection and maintenance.
7. Mounting bolts or screws must be Grade 8 (metric 10.9) or better. Secure using nuts with lockwashers or self-locking nuts.
8. Tighten mounting bolts evenly. For Grade 8 dry thread fasteners torque to 380 ft. lbs (515 Nm) for 3/4 inch bolts and 900 ft. lbs. (1220 Nm) for 1 inch bolts. If the Grade 8 fasteners are plated, lubricated or a thread locking compound is used, torque to 280 ft. lbs. (380 Nm) for 3/4 inch bolts and 680 ft. lbs. (922 Nm) for 1 inch bolts.

Safe Installation Procedures

1. Do not use wire rope as a ground (earth) 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. Refer to the "MOUNTING" section for specific instructions.
4. Do not weld on or to any part of the winch.
5. Always maintain at least six full, tight wraps of wire rope on the drum.
6. Verify the gears and winch components are lubricated before using winch. Refer to the "LUBRICATION" section for specific information.

Wire Rope

Wire Rope Selection

Consult a reputable wire rope manufacturer or distributor for assistance in selecting the appropriate type and 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 that meets all applicable industry, trade association, federal, 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.

NOTE: The maximum wire rope diameter is limited by the size of the wire rope anchor slot in the drum flange. Cable anchors are sized for a specific size of wire rope. If the cable anchors provided with the winch are not correct for the wire rope you intend to use, contact Wintech for the proper size prior to installing wire rope.

⚠ CAUTION

- **Ensure the wire rope diameter provides an adequate safety factor for the loads anticipated.**

Safe Wire Rope Handling Procedures

1. Always use gloves when handling wire rope.
2. Never use wire rope which is twisted, frayed or kinked.
3. Never use wire rope as a sling.
4. Always ensure wire rope is correctly spooled and first layer is tight.
5. Always maintain at least six or more full wraps of wire rope on the drum.

Installing Wire Rope

⚠ CAUTION

- **Maintain at least 6 wraps of wire rope on the drum at all times.**

1. Cut wire rope to length. To prevent fraying of strands, fuse wire rope ends in accordance with the wire rope manufacturer's instructions.
2. Feed the end of wire rope through the hole in the drum flange. Secure the wire rope to the drum flange via the cable anchor blocks supplied. Make sure the cable anchor blocks are the proper size for the wire rope you are using.
3. Pull tension on the wire rope until the cable is pulled tight against the winch drum core.
4. While keeping the wire rope under tension, wind the wire rope onto the drum.

⚠ CAUTION

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

Wire Rope Spooling

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

Rigging

Make sure all wire rope blocks, tackle and fasteners have a sufficient safety margin to handle the required load under all conditions. 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 the wire rope manufacturer's handbook for proper sizing, use and care of wire rope.

Electrical Component Installation

Electrical Wiring

The motor and brake voltage, phase and cycle must match the electrical power supply source. Ensure the power supply is properly grounded. Insulate and enclose all electrical connections.

⚠ WARNING

- **Electrical installation should be performed by licensed electricians in accordance with the latest edition of the National Electrical Code (ANSI/NFPA 70) and any applicable local, state and national electrical codes and ordinances.**
- **Never use a 230V motor with a 115V power supply. The motor can be permanently damaged.**
- **Switches and starter enclosures must be properly grounded.**

NOTE: Electrical installation must be performed by a qualified electrician who is knowledgeable with the NEC article 430 and any applicable local, state and national electrical codes and ordinances.

Electrical power supply voltage must be within 5% (+/-) of motor requirements.

1. For a 230V motor, the power supply required range is 218V to 242V.
2. For a 460V motor, the power supply required range is 437V to 483V.

Brake Connections

Brake power connections depend upon winch motor, brake coil design voltage, and type of controls used to operate the winch. Winches controlled by Variable Frequency Drives (VFD's) normally have brake coils that match line voltage. Brakemotors used in conjunction with VFD controls must have a separate contactor to control the brake. Winches controlled by across-the-line starters may have a brake coil that matches the main line voltage, but sometimes they do not. For example a winch with a 230V brake coil can be powered by 230V or 460V line voltage, when controlled by a reversing starter. However, a winch with 230V brake coil can only be powered by 230V when controlled by a VFD and in this instance the brake must be operated by a separate contactor.

For more information on brake control voltages reference:

'Gear/motor Reducer' and 'Motor/Brakemotor' manuals included within this manual binder.
Contact the **Wintech** factory for assistance on specific applications.

Electrical Controls

A momentary contact, reversing drum switch is recommended for the winch control, unless wireless remote or special automated control of the winch is required.

If remote or automatic control is required, an electro-magnetic reversing starter is recommended. The starter can be used with either a hand held pendant control or with a wall mounted remote control station. Variable speed and automatic winch control vary depending on the application.

Contact the Wintech factory for assistance on control selection for specific applications.

Initial Operating Checks

1. Prior to initial winch operation verify oil level in reduction gear and grease components as described in the "LUBRICATION" section.
2. Ensure all winch mounting fasteners are tight and wire rope is spooled correctly onto the drum.
3. Operate winch, without load, slowly in both directions. During operation inspect winch components for abnormal noises, indications of binding and misalignment of parts.
4. Operate winch, with light load, slowly in both directions. During operation inspect winch components for abnormal noises, indications of binding and misalignment of parts.
5. Test brake; when motor is stopped, brake should hold load without slipping.
6. If equipped, test disengaging clutch to ensure it properly releases the power pinion from the drum gears.

GENERAL WINCH OPERATION

The four most important aspects of winch operation are:

1. Follow all safety instructions when operating the winch.
2. Allow only people trained in safety and the operation of this winch to operate this product.
3. Subject each winch to a regular inspection and maintenance procedure.
4. Be aware of the winch capacity and load being applied to the winch at all times.

⚠ WARNING

- Only allow personnel trained in safety and operation of this winch to operate this product.
- To avoid damage to the rigging, the structure supporting the rigging, and the winch, do not “two-block” the end of the wire rope.
- A creeping load can cause death or injury. Do not rely on the reducer assembly or brake to hold a load.

Inspection

Before each shift inspect winch as described in "Frequent Inspection" of the "INSPECTION" section.

Power Operation

⚠ WARNING

- This winch is equipped with a single holding brake and is not intended for lifting a suspended load. In the event of brake failure with tension on the winch cable, the electric motor and gear reducer would be back-driven and the load would fall.

⚠ CAUTION

- Installation of electrical wiring to the winch and controls should be completed by a certified electrician prior to attempting to operate the winch. Improper wiring can damage equipment and potentially produce a dangerous situation for the operator and people around the winch.

Operation of winches controlled by a magnetic reversing starter with momentary controls is relatively straightforward. To wind cable onto the winch drum the operator presses the PULL IN button or switches the winch control switch to PULL IN. To unwind cable from the winch drum the operator presses PAY OUT or switches the control switch to PAY OUT. Once the proper amount of cable has been pulled in or paid out the operator should release the button or switch.

⚠ CAUTION

- The winch motor is designed for continuous duty operation. When operating the winch avoid unnecessary 'jogging' of the controls as much as possible

Brake Operation

The primary holding brake for this winch is a spring applied / electric release type brake. The brake is located on the fan end of the electric motor. Electric power is supplied to release the brake when the winch is in powered operation. When powered operation of the winch is stopped, the brake is automatically applied by springs to prevent the winch drum from turning.

The holding brake is supplied with hand-operated manual release mechanism. This manual release feature allows the operator to release the brake without energizing the motor. The lever for releasing the brake is a short steel rod with threads on one end and it is stored on a clip within the exterior cooling fins of the electric motor.

To manually release the holding brake, screw the brake release lever into the brake release fork on the brake. This fork is accessible via a slot in the fan cowling of the motor. Pulling the lever away from the motor (towards the fan end) will open/release the brake. The brake will reset automatically, once the lever is released.

For more Specs Reference:

'Gear/motor Reducer' and 'Motor/Brakemotor' manuals included near the end of this manual binder.

⚠ CAUTION

- To prevent friction disc overheating, wear and possible damage, do not energize and operate motor with the brake engaged.

⚠ WARNING

- Discontinue winch operation any time it is suspected that the holding brake is not holding or releasing properly. Adjustment of the holding brake is described in the Maintenance section of this manual.

INSPECTION

Inspection information is based in part on the American National Standards Institute Safety Codes (ASME B30.7). However, it should be noted that ASME B30.7 applies specifically to “Base Mounted Drum Hoists” and not to winches used as barge pullers or in horizontal pulling applications.

⚠ WARNING

• **All new, altered or modified equipment should be inspected and tested to 110% of rated capacity by personnel trained in safety, operation and maintenance of this equipment to ensure safe operation at rated specifications before placing equipment in service.**

Frequent and periodic inspections should be performed on equipment in regular service. Frequent inspections are visual examinations performed by operators or personnel trained in safety and operation of this equipment and include observations made during routine equipment operation. Periodic inspections are thorough inspections conducted by personnel trained in the safety, operation and maintenance of this equipment. Inspection intervals depend upon the nature of the critical components of the equipment and the degree of their exposure to wear, deterioration or malfunction.

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. Deficiencies revealed through inspection, or noted during operation, must be reported to designated personnel trained in safety, operation and maintenance of this equipment. A determination as to whether a condition constitutes a safety hazard must be decided, and the correction of noted safety hazards accomplished and documented by written report before placing the equipment in service.

Records and Reports

Inspection records, listing all points requiring periodic inspection should be maintained for all load bearing equipment. Written reports, based on severity of service, should be made on the condition of critical parts as a method of documenting periodic inspections. These reports should be dated, signed by the person who performed the inspection, and kept on file where they are readily available for review by authorized personnel.

Wire Rope Reports

Records should be maintained as part of a long-range wire rope inspection program. Records should include the condition of wire rope removed from service. Accurate records will establish a relationship between visual observations noted during frequent inspections and the actual condition of wire rope as determined by periodic inspections.

Frequent Inspection

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

1. **OPERATION.** During operation visually inspect and listen for abnormal noises which could indicate potential problems. Do not operate the winch unless the wire rope feeds onto the drum smoothly. If wire rope binds or jumps, clean and lubricate wire rope. If problem persists, check wire rope fleet angle or replace the wire rope. Make sure the drive mechanism operates properly, check for sticking or other signs of malfunction. Repair if necessary. Do not operate the winch until all defects have been corrected. To test the brake, apply a pull to the end of the wire rope and check that the brake does not slip.

2. WINCH. Prior to operation, visually inspect winch shafts, gears, brakes, motor, electrical wiring, side plates and drum for indications of damage. Do not operate winch until noted discrepancies have been reviewed and inspected further by personnel trained in the operation, safety and maintenance of this winch.
3. WIRE ROPE. Visually inspect all wire rope which can be expected to be in use during the day's operations. Inspect for damage indicated by distortion of wire rope such as kinking, "bird caging," core protrusion, main strand displacement, corrosion, broken or cut strands. Check for wear of crown wires. Replace at 1/3 wear of the original diameter of any crown wire. If any damage is evident, do not operate winch until the discrepancies have been reviewed and inspected further by personnel trained in the operation, safety and maintenance of this winch.

NOTICE

• **The full extent of wire rope wear cannot be determined by visual inspection. At any indication of wear inspect the wire rope in accordance with instructions in "Periodic Inspection."**

4. LUBRICATION. Visually inspect wire rope and winch components. Clean and lubricate as necessary.
5. BRAKE. Before loading winch operate the brake release lever to ensure brake is not stuck or corroded. During operation, with a load, stop winch in position. Brake should hold load up to maximum winch capacity.
6. MOTOR. Before loading winch, operate motor in both directions. Motor and winch should operate smoothly without sticking or binding.

Periodic Inspection

Periodic inspection intervals for equipment use under various operating conditions are listed below:

NORMAL	HEAVY	SEVERE
YEARLY	6 MONTHS	3 MONTHS

Disassembly may be required as a result of initial indications of inspections or in order to properly inspect the individual components. Maintain written records of periodic inspections to provide an accumulative basis for continuing evaluation. Inspect all items listed in "Frequent Inspection." Also inspect the following:

1. FRAMES. Check for deformed, cracked or corroded main components. Replace damaged parts.
2. FASTENERS. Check retainer rings, split pins, capscrews, nuts, and other fasteners on winch, including mounting bolts. Replace if missing or damaged and tighten if loose.
3. DRUM AND SHEAVES. Check for cracks, wear or damage. Replace if necessary.
4. WIRE ROPE. Additionally inspect for the following:
 - a. Build-up of dirt and corrosion. Clean with steam or a stiff wire brush to remove dirt and corrosion if necessary.
 - b. Loose or damaged end connection. Replace if loose or damaged.
 - c. Check wire rope anchor is securely mounted in drum.
 - d. Verify wire rope diameter. Measure the diameter of the wire rope from crown-to-crown throughout the life of the wire rope. Recording of the actual diameter should only be done with the wire rope under equivalent loading and in the same operating section as accomplished during previous inspections. If the actual diameter of the wire rope has decreased more than 1/64 in. (0.4 mm) a thorough examination of the wire rope should be conducted by an experienced inspector to determine the suitability of the wire rope to remain in service.
5. GEARMOTOR. Visually inspect exterior for damage, wear and cleanliness. Inspect wiring for damaged, frayed or exposed wires. Verify motor operation is smooth, without sticking or binding, in both directions. Inspect and lubricate as described in the "LUBRICATION" section.
6. ALL COMPONENTS. Inspect for wear, damage, distortion, deformation and cleanliness. If external evidence indicates damage, disassemble as required to conduct a detailed inspection. Inspect gears,

- shafts, bearings, sheaves, springs, chain and covers. Replace worn or damaged parts. Clean, lubricate and reassemble.
7. BRAKE. Ensure proper operation. Visually inspect brake during operation. If indicated by poor operation or visual damage, disassemble and repair brake. Check all brake surfaces for wear, deformation or foreign deposits. Clean and replace components as necessary. Replace friction discs when thickness is less than 1/8 inch (3 mm).
 8. SUPPORTING STRUCTURE. Check for distortion, wear and continued ability to support winch. Ensure winch is firmly mounted and that fasteners are in good condition and tight.
 9. LABELS AND TAGS. Check for presence and legibility of labels. Replace if damaged or missing.
 10. ELECTRICAL COMPONENTS. Check for loose wires, corrosion and indications of deterioration.

Winches Not in Regular Use

1. Winches which have been idle for a period of one month or more, but less than six months, shall be given an inspection conforming to the requirements of "Frequent Inspection" before being placed in service.
2. Winches which have been idle for a period of over six months shall be given a complete inspection conforming with the requirements of "Periodic Inspection" before being placed in service.
3. Standby winches shall be inspected at least semi-annually in accordance with the requirements of "Frequent Inspection". In abnormal operating conditions winches should be inspected at shorter intervals.

Testing

Prior to use, all new, altered or repaired winches shall be tested to insure proper operation.

LUBRICATION

Lubrication intervals are based on intermittent operation of the winch eight hours each day, five days per week. If the winch is operated continuously, more than eight hours per day, or under heavy or severe environments lubrication should be performed more frequently. Use only recommended lubricants. Other lubricants may affect the performance of the winch. Recommended lubricants are based on winch operation in environments relatively free of dust, moisture, and corrosive fumes. Approval for the use of other lubricants, or recommendations on the proper lubricant use in specific environmental situations should be obtained from Wintech. Failure to observe this precaution may result in damage to the winch and/or the associated components.

INTERVAL	LUBRICATION CHECK
Start of each shift / day	Check for evidence of oil leakage from gearbox.
Monthly	Lubricate all grease fittings. Inspect wire rope for damage. Lubricate & clean as necessary. Check gearbox oil level.
Every 2 Years	Drain & refill gearbox oil to proper level.

Recommended Lubricants

Gear Reducer Oil

Winches are shipped from the factory with the gearbox filled with **Mobilgear 630 gear oil**.

For more acceptable substitute oils for gear reducer:

'Gear/motor Reducer' manuals included near the rear of this manual binder.

Grease

Temperature	Type Grease
1. -20° to 50 °F (-30° to 10 °C)	EP 1 multipurpose lithium-based grease
2. 30° to 120 °F (-1° to 49 °C)	EP 2 multipurpose lithium-based grease

General Lubrication

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

1. 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 to the gears. Refer to the 'Recommended Lubricants' section.
2. Drain and replace oil according to the operating environment as defined by the **Periodic** inspection interval table in the "INSPECTION" section, or more frequently if desired.
3. Always inspect removed oil for evidence of internal damage or contamination (metal shavings, dirt, water, etc.).
4. Always drain oil into a suitable container.
5. Add oil slowly to prevent spilling.

Bearings and Pivot Points

Components with grease fittings should be lubricated monthly with 2 or 3 pumps from a grease gun, or more frequently, depending on severity of service. Rotate components slowly as grease is applied. When the winch is disassembled, clean all parts thoroughly and coat bushings and shafts with clean grease. Apply sufficient grease to provide a good protective coat. Refer to 'Recommended Lubricants' for grease type.

Wire Rope

Follow the wire rope manufacturer's instructions. At a minimum, observe the following guidelines.

1. Clean with a brush or steam to remove dirt, rock dust or other foreign material on the surface of the rope.

⚠ CAUTION

• Do not use an acid-based solvent. Only use cleaning fluids and lubricants specified by the wire rope manufacturer.

2. Apply a wire rope lubricant, or SAE 30 oil.
3. Brush, drip or spray lubricant weekly, or more frequently, depending on severity of service.

Reduction Gear

The reducer assembly is shipped with the correct grade and quantity of lubricating oil from the factory. Check oil level before initial operation. If the winch is used at a normal frequency replace the oil in the reducer assembly once every two years. To ensure correct performance, highest efficiency and long life, it is essential that the lubricating oil be maintained at the correct level. The oil level can be checked by removing the oil level plug. The oil level must be even with the bottom of the threaded hole.

Note:

Drain and replace oil in the reduction gear after the first 50 hours of initial winch operation. Thereafter, replace reduction gear oil yearly if operated in normal conditions or more frequently in severe conditions. Always replace fluid if assembly has been repaired or disassembled.

NOTICE

• Drain oil into a suitable container and recycle or dispose of properly.

Motor

The motor ball bearings are pre-packed with grease and do not require periodic greasing. Ensure replacement bearings are of the same type and are packed with grease capable of withstanding temperature ranges of -20 °F to +329 °F (-29 °C to +165 °C). Contact Wintech for assistance in determining replacement motor parts.

Brake

The brake does not require lubrication. Care should be taken to ensure lubricants do not come into contact with the brake internals. Brake friction discs that are contaminated with oil or grease must be replaced.

For more Specs Reference:

'Gear/motor Reducer' and 'Motor/Brakemotor' manuals included within this manual binder.

MAINTENANCE

⚠ WARNING

• Before performing maintenance, remove all loads from the winch. Isolate the winch electrically by pulling fuses, opening circuit breakers and disconnecting wires from the power source to the motor and brake. Tag winch motor controller and power source:

**DANGER - DO NOT OPERATE
EQUIPMENT BEING REPAIRED**

- Only allow service personnel trained in maintenance and operation of this equipment to perform maintenance.
- After performing maintenance on load bearing parts, test unit to 110% of its rated capacity before returning to service. (Testing to more than 110% might be required to comply with standards and regulations set forth in areas outside the USA.)

Adjustments

Brake Adjustments (Eurodrive Motors Only)

The following brake adjustment procedures are suitable for Eurodrive motor brakes. Consult the factory for brake adjustment procedures on other models. If the brake lining and brake coil are satisfactory, then check brake adjustment. A properly adjusted brake air gap is critical for correct operation.

Prolonged use of the brake will wear the brake disc lining.

This wear increases the air gap. When the air gap approaches its maximum value, the brake must be re-adjusted. To re-adjust the brake, use the following procedures:

1. Remove the fan guard, fan retainer ring, fan, rubber seal and any accessories mounted on the motor at the fan end.
2. Insert a feeler gauge between the brake coil body and the stationary disc, tighten the brake adjustment nuts until the minimum value for the air gap is reached equally around the brake.

For more Specs Reference:

(REF: 'Motors & Brakemotors' Instruction Manual) - Included within this manual binder.

3. If correct air gap adjustment cannot be achieved the brake disc may be worn beyond the acceptable limits. Measure the thickness of the brake disc to determine if this has occurred. If the brake disc is worn below the minimum thickness it must be replaced.

For more Specs Reference:

(REF: 'Motors & Brakemotors' Instruction Manual) - Included within this manual binder.

4. Re-install accessories, rubber seal, fan, fan retainer ring and fan guard.
5. Since the stationary disc will move away from the coil body during the brakes operation it is important there is free play in the release arm. Ensure a play of 0.06 to 0.08 in. (1.5 to 2 mm) in the release arm. The springs should be placed between the release arm and nuts to eliminate noise.

General Winch Disassembly

The following instructions provide the necessary information to disassemble, inspect, repair, and assemble the winch. Drawings of the winch and associated components are provided in the rear of this manual to assist in part identification. It is recommended that all maintenance work on the winch be performed in a clean, dust free work area.

During winch disassembly 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 part with a soft hammer should be sufficient to loosen the part.
3. Do not heat a part with a flame to free it for removal, unless the part being heated is already worn or damaged beyond repair and no additional damage will occur to other parts. In general, the winch is designed to permit easy disassembly and assembly. The use of heat or excessive force should not be required.
4. To prevent dirt and other foreign matter from getting into bearings or other moving parts keep the work area as clean as practical.
5. When grasping a part in a vise always use leather or copper-covered vise jaws to protect the part. This is especially important when clamping threaded areas and machined surfaces of parts.

Motor/Reduction Gear Assembly

NOTICE

- **Motor/reduction disassembly is not recommended or discussed in this manual. For additional information on motor/reduction disassembly reference the: 'Gear/motor Reducer' and 'Motor/Brakemotor' manuals included within this manual binder.**
- **To prevent damage to components, do not use excessive force when removing the motor/reduction assembly.**

⚠ CAUTION

- **To prevent possible equipment damage and/or injury support the motor/reduction gear before removing from winch assembly.**

NOTICE

- **Disassemble the motor/reduction gear only if repairs are required. To prevent damage to components, do not use excessive force when removing the motor/reduction gear assembly.**

For more information on brake adjustment, replacement, and disassembly:

See the 'Gear/motor Reducer' manuals and other literature from SEW Eurodrive included near the rear of this manual binder.

Cleaning, Inspection and Repair

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

Cleaning

Clean all winch component parts in solvent (except for internal brake and motor parts). The use of a stiff bristle brush will facilitate the removal of accumulated dirt and sediments on the gears, frames and drum. Dry each part using low pressure, filtered compressed air.

Inspection

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

1. Inspect all gears for worn, cracked, or broken teeth.
2. Inspect all bearings for wear, scoring, or galling.
3. Inspect all electrical wires, connections and covers. Replace damaged, frayed and broken wires. Connections must be tight. Remove corrosion at connections using a wire brush. Covers and seals must provide an air-tight seal.
4. Inspect shafts for ridges caused by wear. If ridges caused by wear are apparent on shafts, replace the shaft.
5. Inspect all threaded items and replace those having damaged threads.

Repair

Component repairs are limited to the removal of small burrs and other minor surface imperfections from gears, bushings and shafts. Use a fine stone or emery cloth for this work.

1. Inspect all parts for evidence of damage. Worn or damaged parts must be replaced. Contact Wintech International for specific replacement parts information.
2. Using a fine stone or emery cloth, smooth out all minor nicks, burrs, or galled spots on shafts, bores, pins, and bushings.
4. Examine the gear teeth carefully. Using a fine stone or emery cloth, remove any small nicks or burrs. Replace the gear if any teeth are chipped, cracked, stretched or missing.
5. Using a fine stone or emery cloth, polish the edges of all shaft shoulders to remove small nicks which may have been caused during handling.
6. Remove any nicks and burrs caused by capscrews, nuts and lockwashers.
7. Disassemble corroded electrical connections and individually clean items, or replace fasteners, clamps and wires as necessary.

Bearings

⚠ WARNING

- **Bearings that are loose or worn must be replaced. Failure to observe this precaution will result in additional component damage.**

Inspect the new bearing. Remove minor nicks and burrs using fine emery cloth or a stone. Lightly lubricate the bearing with grease recommended in the "LUBRICATION" section.

General Winch Assembly

1. Position frame on a flat and sturdy surface or workbench.
2. Wipe clean and lightly lubricate bearing shaft(s) on the drum. Install one bearing on each drum shaft.
3. Using an overhead hoist with sufficient capacity to safely support the weight of the drum/shaft assembly. Position the drum/shaft assembly on the frame.
4. Align the bearing mounting holes with mounting holes on frame.
5. Install drum mounting bolts, locknuts, lockwashers and torque to specifications. For proper bolt torque specifications refer to Machinery Handbook or other SOP for various bolt size and grades.
6. Using an overhead hoist with sufficient capacity to safely support the weight of the motor/reduction assembly. Position the motor/reduction assembly on the frame.

⚠ CAUTION

- **To prevent possible damage to equipment and/or injury support the motor/reduction gear assembly during installation onto winch.**

7. Align the motor/reduction mounting holes with mounting holes on frame.
8. Loosely install mounting bolts, locknuts, lockwashers.
9. Install key and drum onto the gear reducer output shaft. Make sure all burrs, corrosion, and loose materials are removed from the ID of the drum bore and the OD of the reducer shaft. This mating connection should be a slip fit. It is suggested that the connection be coated with anti-seize compound prior to jointing the two components.

NOTICE

- **Do not force a component such as sprocket, gear, or winch drum onto output shaft of the gear reducer by hammering. Doing so may cause premature bearing failure or other damage to the gear reducer.**

10. Install setscrews with Loctite® 609 or equivalent in drive sprocket, pinion gear, or winch drum (depending on the winch model being assembled) and tighten securely.
11. Tighten and torque motor/reduction gear assembly bolts to frame. For proper bolt torque specifications refer to Machinery Handbook or other SOP for various bolt size and grades.
12. When assembled, lubricate as described in the "LUBRICATION" section.
13. When completely assembled verify winch operation as described in 'Testing' in the "MAINTENANCE" section.
14. Check all warning labels and tags are clearly visible.

Testing

Operational Tests

Prior to initial use, all new, altered or repaired winches should be tested to ensure proper operation.

- a) Check all mounting bolts are in good condition and properly secured.
- b) Check operation of limit switches, and locking or safety devices when provided.
- d) Operate winch in both directions with no load.

Load Test

Prior to initial use, all new, extensively repaired, or altered winches shall be load tested by or under the direction of a person trained in safety, and the operation and maintenance of this winch. A written report must be completed confirming the testing and rating of the winch. Test loads should not be more than **110%** of the rated line pull.

PARTS ORDERING INFORMATION

The use of other than **Wintech International** replacement parts may damage or impair the operation of this winch.

For your convenience and future reference it is recommended that the following information be recorded.

Model Number: _____

Serial Numbers

Winch: _____

Motor: _____

Brake: _____

Date Purchased: _____

When ordering replacement parts, please specify the following:

1. Complete model number and serial number(s) as they appear on the nameplates.
2. Part number(s) and part description as shown in this manual.
3. Quantity required.

The winch nameplate is located on the winch frame. The motor nameplate is located on the motor housing, and the brake nameplate is located on the brake housing.

If a nameplate is not attached to your unit, order a new nameplate and install it. See the parts list included at the end of this manual for the Wintech component part numbers.

NOTICE

• **Continuing improvement and advancement of design may cause changes to this equipment 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.**

Return Goods Policy

Wintech International will not accept any returned goods for warranty or service work unless prior arrangements have been made and written authorization has been provided from the location where the goods were purchased.

When the life of the unit has expired, it is recommended that it be disassembled, degreased and parts separated as to materials so that they may be recycled.

For additional information contact:

Wintech International, LLC
5319 Shreveport/Blanchard Hwy.
Shreveport, LA, 71107 USA
Phone: (318) 929-1242
Toll free: 1-888-946-8325
Fax: (318) 929-1245



WARRANTY

Winch Limited Warranty

Wintech International (Wintech) warrants to the original user of its Hoists and Winches (Products) to be free of defects in material and workmanship for a period of one year from the date of purchase. Wintech will repair, without cost, any Product found to be defective, including parts and labor charges, or at its option, will replace such Products or refund the purchase price less a reasonable allowance for depreciation, in exchange for the Product. Repairs or replacements are warranted for the remainder of the original warranty period.

If any Product proves defective within its original one year warranty period, it should be returned to any Authorized Hoist and Winch Service Distributor, transportation prepaid with proof of purchase or warranty card.

This warranty does not apply to Products which Wintech 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 Wintech parts.

Wintech makes no other warranty, and all implied warranties including any warranty of merchantability or fitness for a particular purpose are limited to the duration of the expressed warranty period as set forth above.

Wintech's maximum liability is limited to the purchase price of the Product and in no event shall Wintech be liable for any consequential, indirect, incidental, or special damages of any nature rising from the sale or use of the Product, whether based on contract, tort, or otherwise.

Note: Some states do not allow limitations on incidental or consequential damages or how long an implied warranty lasts so that the above limitations may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which may vary from state to state.

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 due 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 immediately.

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 Wintech invoice, nor should payment of Wintech 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.

