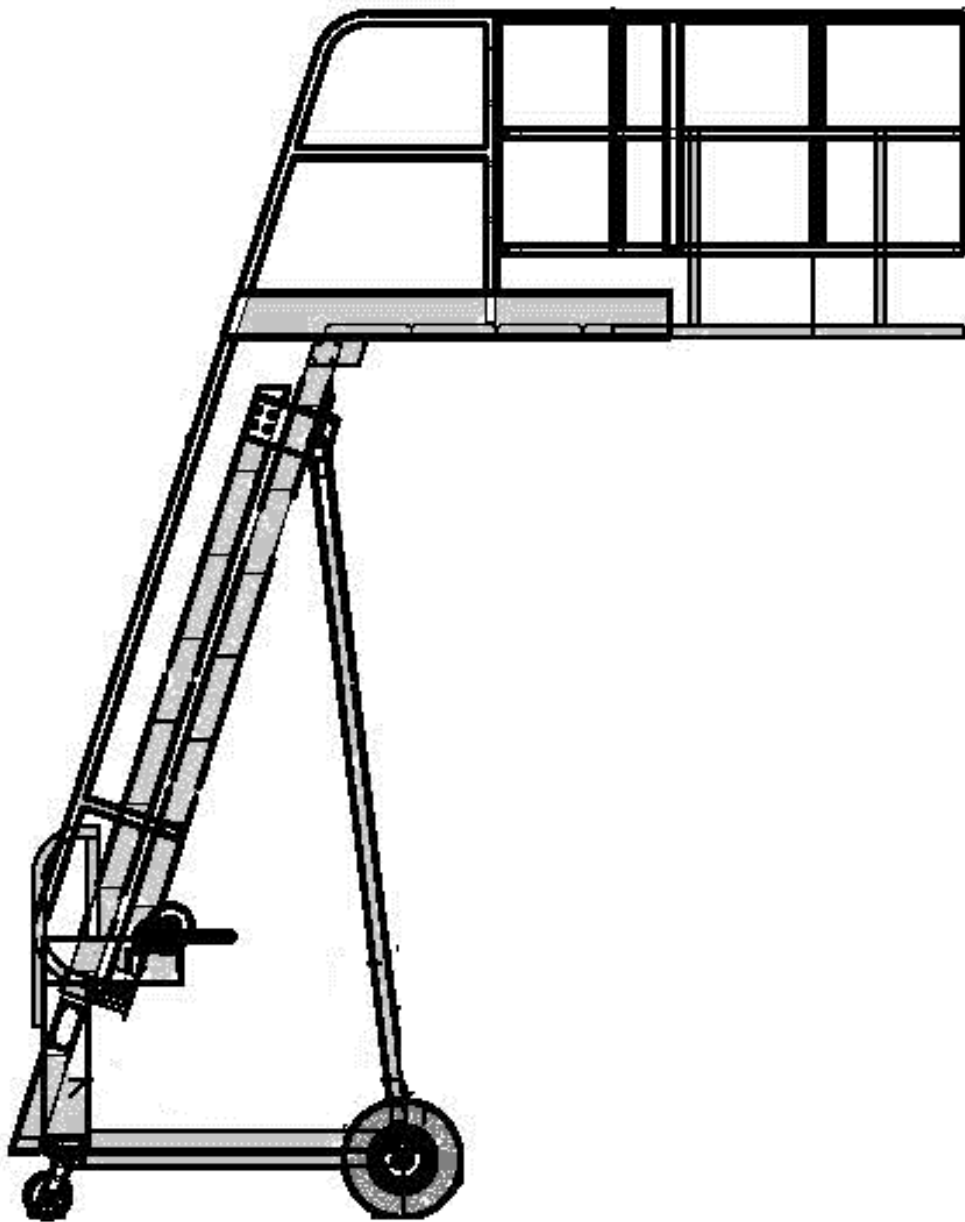


# INSTRUCTION MANUAL

## FOR

# TTX-1 PORTABLE TRUCK ACCESS FALL PROTECTION PLATFORM



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## **1) INTRODUCTION**

### **a) PLEASE READ THIS FIRST PRIOR TO INSTALLATION OR OPERATION**

- i) On behalf of Sam Carbis Solutions Group LLC., thank you for your purchase of our safety equipment. It is our pleasure helping you with all your fall protection and product handling needs. We value our customer relationships and to ensure you get the most out of your equipment, our experienced support team is available for you to contact throughout your equipment service life. While this manual fully covers our product, if you should you have any questions or concerns please contact us at 1-800-948-7750 or 1-843-669-6668 for international customers.
- ii) Please carefully read this Installation, Operation, and Maintenance Manual as it is an integral part of your purchased Carbis equipment. It is the Owner's responsibility ensuring all personnel who operate and or maintain the Carbis equipment receive comprehensive training. It is also the Owner's responsibility ensuring appropriately documented maintenance and inspection activities including: any abnormal operating condition and its associated root cause evaluation, followed by corrective actions implemented to eliminate recurrence. Any identified abnormal operating conditions should be cause for discontinuing use until contacting Sam Carbis Solutions LLC for further assistance.
- iii) As equipment ages, associated service life-limiting variables will occur such as corrosion, fatigue, wear, etc., Correct these discrepancies as soon as possible during periodic maintenance to prevent operational failure
- iv) This manual provides maintenance personnel safe operating guidance and recommended maintenance practices. However, it is not, and cannot be, a substitute for well-trained personnel. Great reliance must be placed upon the knowledge, background, and experience of the operating and or maintenance personnel with this manual serving as a guide. Willfully or inadvertently disregarding the information contained in this equipment manual automatically voids the warranty.
- v) This product was inspected prior to shipment and meets Carbis' Quality Control Standards. It is important the information contained in this manual be completely reviewed before operating the unit, in addition to:
  - 1) Upon delivery, inspect the equipment for shipping damage or any loose or missing hardware. All factory installed fastening hardware has been tightened prior to shipment. If loosening any fastening hardware whether factory or field installed, it must be re-tightened accordingly before use.
- vi) It is imperative operating and maintenance personnel become familiar with the safety information contained in section **3) SAFETY LANGUAGE** prior to using the equipment
- vii) Visually inspect all safety signs and labels for serviceability, visibility, and legibility. Operating personnel must be familiar with the contents of such signs and labels. See **Section 3) b) for SAFETY LABEL AND SIGN DESCRIPTIONS** for the description of all safety label and signs that appear on the equipment described in this manual.
- viii) The equipment shown in this manual is protected by U.S. Patent 8,746,403.

**b) VEHICLE POSITIONING**

Carbis designs equipment in a variety of styles, sizes, and materials accommodating specific customer-requirements in applications including varying heights and types of vehicles. Prior to operational use refer to the specific vehicle dimensional relationships in determining required for proper vehicle positioning.

- i)  **WARNING** **Incorrect TTX-1 positioning on top of the vehicle can cause a dangerous condition leading to a potential for serious injury or death. The access equipment when extended over the vehicle protrudes into the standard vehicle clearance envelope. Always wait until the intended underneath positioned vehicle comes to a complete stop and proper permission to access is given before positioning the TTX-1 over the vehicle to be accessed.**

ii) RAIL CAR POSITIONING

With a railcar centerline considered as a fixed constant relationship with Carbis equipment, correct TTX-1 positioning requires correct operator input. Carbis' TTX-s require the rail car spotted with the railcar access area centered on the platform.

iii) TRUCK POSITIONING

Given the portable nature of a truck, the truck driver's abilities largely determine correct spotting. Therefore, consider using visual spotting aids such as bollards, curbs, painted guidelines, suspended markers (i.e., tennis balls), etc. enhancing the driver's positioning ability.

iv) DEVIATIONS

Deviations from standard vehicle configurations can cause a hazard even when proper positioning has taken place. Training for hazard recognition by all operators is required for fall protection equipment (Ref: OSHA 1910.30 and European Equivalent).

## **2) PRODUCT DESCRIPTION:**

### **TTX-1 PORTABLE CART**

**SEE PROJECT-SPECIFIC DRAWINGS, FIGURES WITHIN THIS SECTION,  
AND SECTION 8) PARTS LISTS DRAWINGS AND SPECIFICATIONS**



#### **WARNING**


Only the person performing the work shall operate Carbis equipment. No other personnel are authorized to operate at any time. Failure to adhere to this caution may cause a person to fall risking injury or damage to equipment. All other personnel should maintain a 10-foot/3-meter clearance while Carbis Equipment is in motion.



#### **CAUTION**

Do not operate Carbis Equipment for any other purpose other than its intended design. Do not modify Carbis equipment to perform beyond its factory settings. Failure to do so could cause a malfunction possibly damaging equipment and causing injury. Contact Carbis for service.

#### **a) GENERAL**

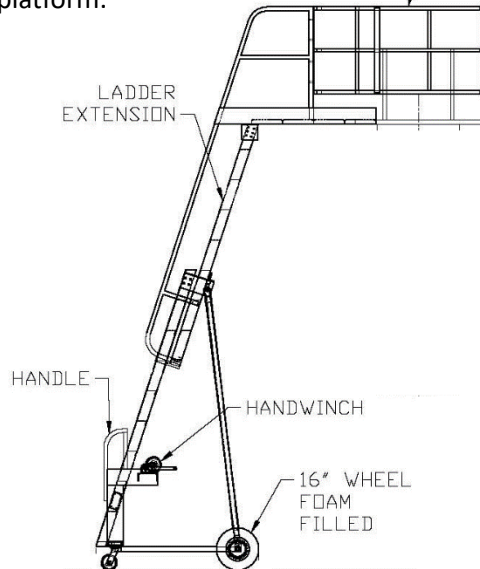
- i) The TTX-1 tank car access system is a versatile, universal, hand winch operated base and ladder system for safely accessing the tops of a variety of truck vehicles, and includes a fall protection safety cage allowing operators to safely perform the work on the top of vehicles.
- ii) For any TTX-1 that includes the addition of ancillary components not otherwise identified in this manual, see project-specific drawings that reflect the addition. Such addition(s) are considered integral with the equipment as described herein.
- iii) The TTX-1 requires assembly before use. See section **7) INSTALLATION AND SET UP** for instructions.
- iv)  **WARNING** The TTX-1 design load capacity is 300 lbs./126 Kg. when supported by the vehicle. The unit is not self-supporting and must rest on a vehicle before accessing the unit. Failure to so could cause sever injury or even death.

#### **b) MECHANICAL EQUIPMENT (SEE FIGURE 2-1)**

Features of the TTX-1 cart are as follows:

- 1) The basic cart consists of a galvanized steel base and a telescoping aluminum ladder fly section with handrails on the sides, an aluminum ladder platform at the top with handrails and toe board, and an aluminum safety cage with bumpers mounted along the bottom rail each side of the platform.
- 2) The base incorporates the following features:
  - a) An aluminum fixed ladder bolted to the base frame and to struts.
  - b) A set of foam-filled pneumatic wheels at the cart rear.
  - c) Casters with brakes, mounted on the underside of the base at the front, beyond the rails of the ladder; the brakes are to be used for storage only and not during normal operation.
  - d) Steel counterweight bars contained within a frame mounted above the front casters each side
- 3) Leveling jacks mounted on front outrigger bars of the steel base beyond the counterweight frames each side.
- 4) All walk surfaces are slip-resistant.

- 5) A steel cable attached to the inside bottom of the telescoping ladder running over pulleys mounted on the fixed ladder attached to a hand winch mounted on the base frame. The winch raises and lowers the telescoping ladder platform.





**FIGURE 2-1**

### **3) SAFETY LANGUAGE**

#### **a) HAZARDS**

The following safety notes are grouped by hazard and used throughout this manual. Please carefully read and understand these notes before performing any task contained in this manual.

- i) ** DANGER** Failure to comply with these **DANGER** warnings **WILL** result in serious injury or death.
  - 1) This equipment **CAN** conduct electricity.
  - 2) Perform required grounding procedures per the owner's safety code.
  - 3) Do **NOT** allow this unit to contact live electrical wires.
- ii) ** WARNING** Failure to comply with these warnings **COULD** result in serious injury or death.
  - 1) Correct vehicle positioning is imperative to ensure proper deployment and function of Carbis equipment. Incorrect vehicle positioning or improper use of this equipment increases the risk of serious injury or death. Carbis equipment is designed to function only as described in this manual and depicted on applicable drawings. **IT IS THE SOLE RESPONSIBILITY OF THE OWNER TO ENSURE PROPER USE OF CARBIS EQUIPMENT. IF ANY QUESTIONS, PLEASE CONTACT CARBIS BEFORE PROCEEDING.**
  - 2) Before accessing Carbis equipment, **correctly** spot a vehicle then ensure Carbis equipment is properly deployed, supported, and secured.
  - 3) Operator must ensure nonessential personnel are clear of Carbis equipment during any controlled operation.
  - 4) No personnel including the operator must not occupy Carbis equipment while it is in motion.

- 5) Do not force Carbis equipment by any means to overcome any seen or unseen obstacle or obstruction. You must use Carbis Equipment within its designated operating limits.
- 6) Keep hands clear of equipment while in motion.
- 7) If the equipment will not function as intended, discontinue use, and immediately contact maintenance.
- 8) Never make repairs of damaged or missing parts. Replace missing parts only with Carbis approved suitable parts.
- 9) Material loaded onto or unloaded from vehicles may present a health hazard. It is the sole responsibility of the owner ensure operating personnel are familiar with any associated material hazards and implement appropriate safety measures to protect personnel against such hazards.
- 10) **The TTX-1 MUST rest on a vehicle before accessing the unit. Failure to do so could cause severe injury or even death.**

iii) **⚠ CAUTION** Failure to comply with these cautions **COULD** result in personnel injury or damage to equipment

- 1) Carefully read this manual before unpacking and installing Carbis equipment.
- 2) Only permit personnel in good physical condition and trained in the proper operation of this equipment to operate it.
- 3) When operating Carbis Equipment personnel should always wear appropriate Personal Protective Equipment (PPE), such as gloves, safety glasses, safety shoes, helmet etc.
- 4) For operator safety, Carbis recommends the equipment be stored and not used when wind speed gusts exceed 35 mph/56 kph.

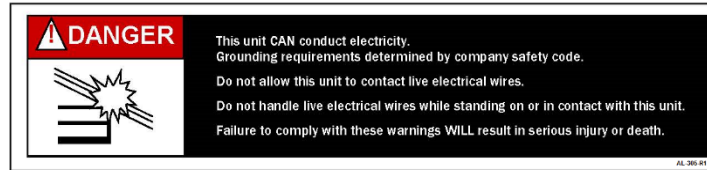
iv) **NOTICE** Failure to comply or adhere to these notices **COULD** result in equipment damage or degradation.

- 1) Qualified maintenance personnel must be familiar with manual instructions as well as all accompanied system schematics and drawings before performing component adjustments.
- 2) Ensure local safety **LOCKOUT-TAGOUT** procedures are correctly adhered before performing work on Carbis Equipment.
- 3) Whenever the unit is transported, ensure the ladder is in the lowest stored position and the leveling jacks are in the horizontal stored position.

b) **SAFETY LABEL AND SIGNS DESCRIPTIONS**

Please ensure the following safety labels below are eligible and properly affixed on the equipment as described in this manual before use. Contact Carbis when requiring replacement labels

**AL-305-R1 (Front of ladder tread one on each ladder section)**



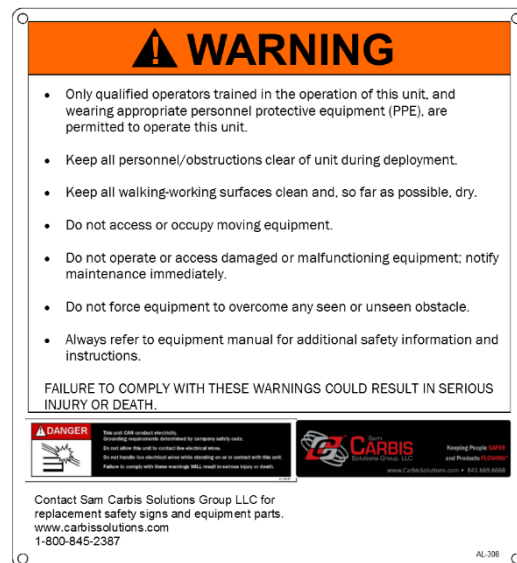
**AL-403 (Bottom ladder section front of tread eye level)**



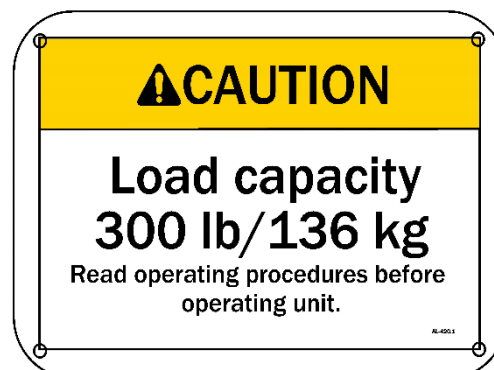
**AL-422 (Bottom ladder section front of tread eye level)**



**AL-308 (Right Platform Support Upright Eye Level)**

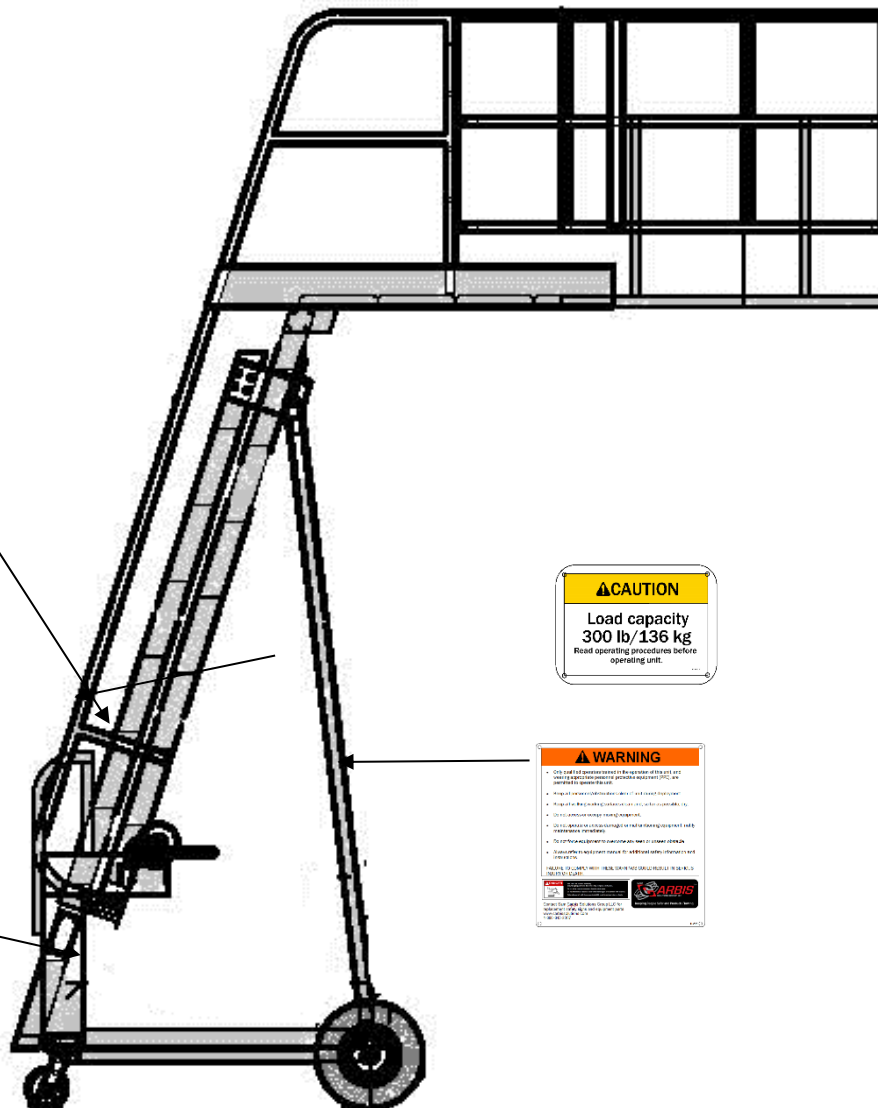


**AL-420.1 Left Vertical C4 Brace Eye Level Mounted to Plate with Shipping Tag)**








**AL-425 Attach to New 1/4" Cross Bars Between Platform Support Uprights Eye Level**




### FIGURE 3-1 (SIGN AND LABEL PLACEMENT)

## **4) OPERATION**

### **a) PRE-USE INSPECTION**

- i)  **DO NOT USE Carbis Equipment if wind speed gusts exceed 35 mph/56 kph.**
- 1) TC-10 weight limit design is for single person occupancy with PPE, tools and must not exceed 300 lbs./126 kg.
  - 2) Visually inspect the assemblies before use. If discovered damaged or broken components replace before returning to service. If component replacement requires any disassembly, refer to Section **7) INSTALLATION AND SETUP** for restoring the system to operational status.
  - 3) Make certain the unit is kept clean and free of dirt and debris.
  - 4) Verify all safety signs and labels are clearly visible, legible, and in good repair. Operating personnel must be familiar with the contents of such signs and labels. See section **3 SAFETY LANGUAGE** b) **SAFETY LABEL DESCRIPTIONS** for all safety labels and signs appearing on the equipment described in this manual.
  - 5) Before operating the equipment, inspect between the equipment and the vehicle for any obstruction that would impede correct movement or create a tripping hazard. Remove any obstructions before proceeding.
  - 6) Do not overload the unit; the ladder is designed for one person.
  - 7)  **The TTX-1 is not self-supporting and must rest on a vehicle before accessing the unit. Failure to do so could cause severe injury or even death.**
- ii)  **Before spotting any vehicle, the TTX-1 must always be in full up position before proceeding.**

### **b) OPERATING SEQUENCE**

- i)  If the TTX-1 will not raise or lower, **immediately discontinue** use and contact Maintenance. Failure to follow instructions or attempt to dislodge obstructions may result in severe injury or death.
- 1) Leveling jacks are engaged for storage. Disengage the jacks allowing the wheels to contact the ground surface. Otherwise, remove wheel chocks. If the caster brakes are locked for storage, release the brakes.
  - 2) With the ladder in the lowest stored position, move the unit into approximate position at the vehicle.
  - 3) Using the hand winch, extend the ladder and platform full height to be certain the unit will clear any point on the vehicle.
  - 4) Move the unit closer to the vehicle so the safety cage is in the approximate desired area.
  - 5) Lower the ladder so the protective bumpers on the underside of the safety cage rest on the vehicle. Verify the bumpers or any part of the enclosure are not resting on any vehicle component subject to damage when applying a load.
  - 6) Deploy the leveling jacks to stabilize the base on an uneven ground surface.
  - 7) After deploying the leveling jacks, the ladder, and platform, the cage may require lowering so the bumpers of the cage rest on the vehicle as noted in step 5.

- 8) Face the ladder when climbing or descending. Maintain center of gravity; i.e., belt buckle between ladder side rails.
- 9) Maintain a firm grip using both hands when climbing or descending.
- 10) When finished with the work, remove any tools from the cage area, platform, or ladder stand.
- 11) Face the ladder to descend, maintain center of gravity, and firmly grip the ladder with both hands when descending.
- 12) When finished with the unit, extend the ladder and cage full height to clear any point on the vehicle when the wheels engage the ground and the unit is moved away from the vehicle.
- 13) Retract the leveling jacks (if used) to engage the wheels on the ground and rotate the jacks to the horizontal stored position.
- 14) Move the unit clear of the vehicle.
- 15) Lower the ladder to its lowest position for transport.
- 16) **⚠ WARNING** If the unit will not move when pushed or pulled, or if the ladder will not extend or retract when using the hand winch, or if any leveling jack will not function as needed, discontinue use and contact Maintenance immediately. Failure to follow instructions, or any attempt to dislodge obstructions, may result in severe injury or death.
- 17) Steer the unit to its stored location. Chock the wheels or extend the jacks to disengage the casters from the ground to keep the unit immobile or depress the brake levers to lock the casters.
- 18) If towing the unit, connect the tow bar to the towing vehicle, and do not exceed a tow speed of 5 mph/8 kph.

## **5) TROUBLESHOOTING**

### **a) GENERAL**


- i) **⚠ WARNING** Failure to comply with these warnings **WILL** result in serious injury, death, or damage to equipment. It is the Owner's responsibility to ensure procedures in this manual are correctly followed.
  - 1) Ensure maintenance personnel troubleshooting Carbis equipment are completely familiar with the equipment, have thoroughly read this manual, and possess the necessary maintenance skillset to work on this equipment. Contact Carbis if requiring further troubleshooting assistance.
  - 2) Discontinue equipment use until maintenance issues are correctly resolved.

### **b) SPECIFIC COMPONENT TROUBLESHOOTING**

- i) The TTX-1 components are listed in section **2) PRODUCTION DESCRIPTION**, Section **4) OPERATION**, and Section **6) MAINTENANCE**. Refer to the specific component in these sections when performing required troubleshooting procedures. If troubleshooting exceeds maintenance personnel capabilities or if questions still arise, please contact Carbis for further troubleshooting assistance

## **6) MAINTENANCE**

### **a) GENERAL**

- i)  **WARNING** Before performing any maintenance on a Carbis system, ensure the Carbis equipment is locked and tagged out according to local safety directives. Ensure the platform and cage is fully retracted in the stored position. Do not stand or walk under the work stand.
- ii) Carbis mechanical equipment is designed and built to minimize periodic maintenance and does not require extensive inspection and maintenance other than noted in this manual. The following are recommended inspection procedures for incorporating into an inspection program. Any parts needing replacement must be replaced with equally rated parts to ensure product integrity. Contact Carbis for guidance and parts information.

### **b) PERIODIC INSPECTION AND CLEANING**

- i) As a minimum, Carbis recommends a monthly inspection of the assemblies. Harsh atmosphere and/or heavy use may dictate more frequent inspection and maintenance.
- ii) When inspecting the TC-10, ensure the equipment is properly “locked out and tagged” per safety regulations. As an added safety precaution when the TC-10 is fully raised, ensure the unit is self-supporting or is safely supported before beginning maintenance.
- iii) Thoroughly clean the equipment ensuring walk surfaces are free of material that would otherwise interfere with the safe, slip- resistant feature of the walk surface. The walking-working surfaces should be kept clean and as dry as possible preventing inadvertent tripping hazards.
- iv) Carbis does not advocate pressure washer use for cleaning as it could damage surfaces and inadvertently remove safety labels.
- v) Use proper fall protection equipment prior to conducting periodic maintenance.
- vi) Using a wrench or ratchet socket, check all bolted connections for a secure snug fit. Do not over torque.
- vii) Check all rotating/pivoting connections for proper fit, corrosion, and excessive wear or play. Repair or replace as required.
- viii) Inspect component surface welds including those hidden from view for cracks, distortion, and corrosion. If found discontinue use until items are addressed. Contact Carbis for guidance.
- ix) Remove the foam-filled wheels and thoroughly check for excessive tread wear. Remove all debris caught in the treads. If any wheel has been punctured, remove the object and externally repair the wheel.

Replace any wheel whose condition is beyond repair or excessively worn. Install wheels and lubricate wheel bearings with lithium-based grease. **NOTE:** The caster wheels and brakes are maintenance-free.

- x) Wire rope and associated components maintenance procedures:
  - 1) Refer to the hand winch manufacturer's literature to let out the wire rope sufficient to slip the rope away from the sheaves for inspection.
  - 2) Never inspect a wire rope by passing bare hands over the rope body. )
  - 3) Clean the rope with a cloth or wire brush to thoroughly inspect.
  - 4) Check the entire length of the wire rope, and replace if any distortion such as kinking, crushing, un-stranding, bird-caging, main strand displacement, or core protrusion is found.
  - 5) Replace any end connection that is severely corroded, cracked, bent, worn, or broken per **Section 7 INSTALLATION AND SETUP c) iii) 8)**:

## **7) INSTALLATION AND SET UP**

### **a) GENERAL**

- i) **NOTICE** **AVOID PROBLEMS WITH STAINLESS STEEL BOLTS.** Keep bolts and nuts free of grime and other contaminants from entering threads. Lubricate stainless steel bolts and nuts prior to tightening. Avoid the use of impact speed wrenches. The impact wrench will introduce heat and cause the bolt to seize. Note: This unit ships fully assembled except for cage.
- ii) Carbis must approve any alterations required to this system.
- iii) It is the Owner's responsibility to:
  - 1) Ensure that their existing area supports new Carbis equipment
  - 2) Identify to Carbis any conditions or obstructions that may interfere with the location or proper operation of Carbis equipment
  - 3) Remove or relocate any obstructions in preparation for use of the new Carbis equipment

### **b) PRE- INSTALLATION INSPECTION AND OFF-LOADING**

- i) Care has been taken to package Carbis equipment and components in the best manner possible for safe shipping and practical off-loading purposes.
- ii) It is the owner's responsibility to inspect the shipment for completeness by comparing the shipment with the parts identified in the Parts Lists, including the items identified in the Hardware and Component Lists. Check for any shipping damages or missing components, and report the same to Carbis.
- iii) It is also the owner's responsibility to provide the appropriate off-loading devices to safely and effectively rig and handle the Carbis equipment and components during the off-loading process, paying attention to eccentric loading conditions such as counterweighted components, including those whose eccentric loads are visually apparent.

- iv) Some components may ship pre-assembled.

c) **ASSEMBLY**

i) **REQUIRED BOLT TENSIONING FOR STRUCTURAL CONNECTIONS**

1) **A325 Bolts - Snug Tight Condition**

- a) The snug tight condition is defined as the tightness that exists when all plies in a joint are in firm contact. This may be attained by a few impacts of an impact wrench or the full effort of a man using an ordinary spud wrench. Carbis' standard bolt installation is snug tight in a bearing type connection. Different requirements will be specifically detailed on the drawings.
- b) Any bolts less than 1/2"/1.27 cm diameter, torque to 60 in.-lbs./6.77 NM.

2) **Stainless Hardware - Snug Tight Condition**

- a) The snug tight condition is defined as the tightness that exists when all plies in a joint are in firm contact. This may be attained by the full effort of a man using an ordinary spud wrench. Carbis' standard bolt installation is snug tight in a bearing type connection. Different requirements will be specifically detailed on the drawings.
- b) Keep bolts and nuts free of grime and other contaminants that may get into threads. Lubricate stainless steel bolts and nuts prior to tightening.
- c) Any bolts less than 1/2"/1.27 cm diameter, torque to 60 in.-lbs./6.77 NM.

- ii) A qualified erector should perform the assembly and installation of the Carbis equipment in conformity with industry standards and local building code requirements, and in accordance with the most recent industry practices for safe rigging. The procedures outlined in this section describe safe and practical sequences. Any deviation preferred by the erector/rigger must be in conformance with the above-referenced standards, codes, and practices. **NOTE:** Some parts may be pre-assembled.

- iii) Unless noted otherwise, use Carbis-supplied hardware to assemble the components listed in the Parts Lists per the following sequence:

- 1) Where applicable, assemble the ISO knock down platform and handrail system, including the rotating panel or flip-up panels as required.
- 2) Where applicable, assemble the platform or cage to the top of the telescoping ladder.
- 3) Where applicable, assemble any modified or additional ancillary component.
- 4) Assemble the aluminum handrails to the telescoping ladder platform.
- 5) Assemble the aluminum fixed ladder to the front of the steel base.
- 6) Assemble screw jacks to the ends of each steel outrigger bar.
- 7) Run the wire rope from the hand winch up over the two block pulleys on the steel base down between the steel base and the extension ladder. Loop the thimble through the hole in the bracket mounted on the inside of the bottom step of the telescoping ladder.
- 8) Install wire rope clips per the following steps:



**STEP 1**

Apply the first clip one base width from the rope dead end. Place the U-bolt over the dead end with the wire end resting in the clip saddle. Tighten the nuts evenly to the recommended torque.



**STEP 2**

Apply the second clip nearest the loop as possible, with the U-bolt over the dead end. Turn on nuts evenly. Turn on the nuts, take up the rope slack, and tighten all clips to the recommended torque.

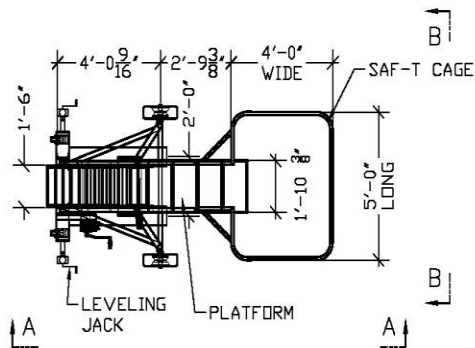


**STEP 3**

Space other clips equally between the first two no more than one base clip apart. Turn on the nuts, take up the rope slack, and tighten all clips to the recommended torque.

**WIRE ROPE CLIP INSTALLATION**

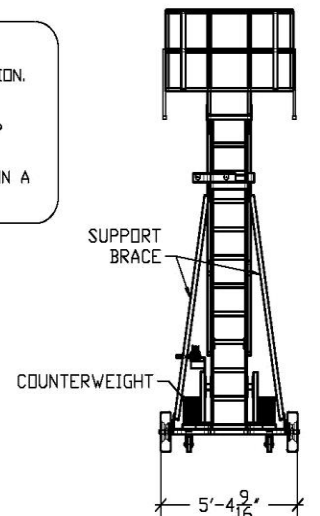
**8) SPECIFICATION SHEETS**



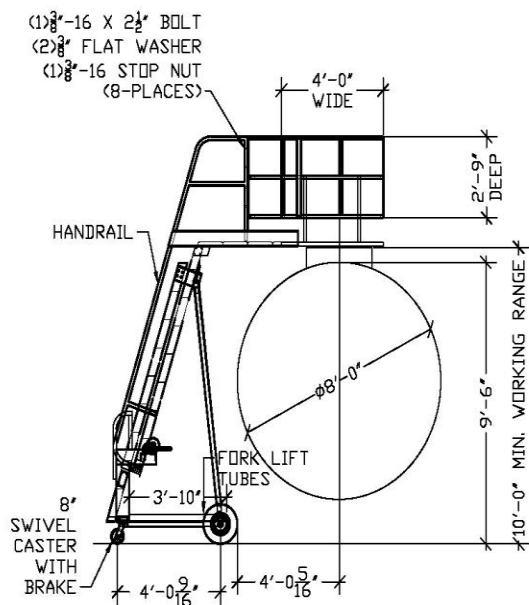
**PLAN VIEW**

**NOTES:**

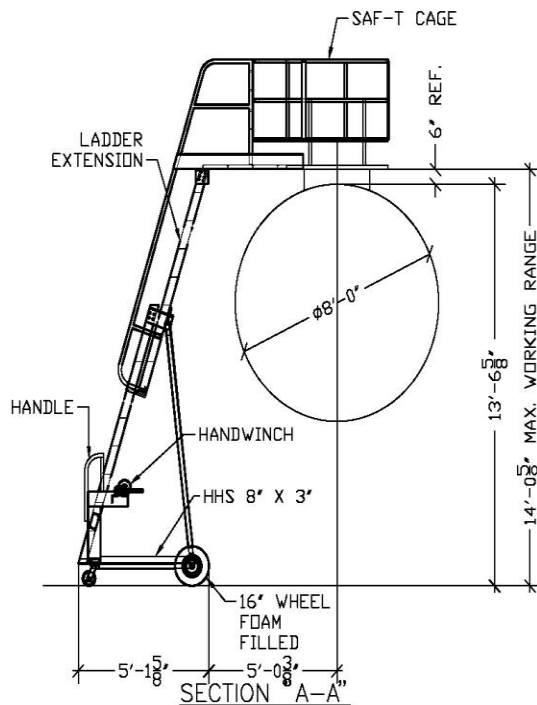
- 1) LADDER & PLATFORM TO BE ALUMINUM CONSTRUCTION.
- 2) BASE TO BE GALVANIZED STEEL CONSTRUCTION.
- 3) WALK SURFACE ON BASE & PLATFORM TO BE SLIP RESISTANT.
- 4) UNIT IS NOT SELF SUPPORTING AND MUST REST ON A VEHICLE.



**SECTION "B-B"**



**SECTION "A-A"**

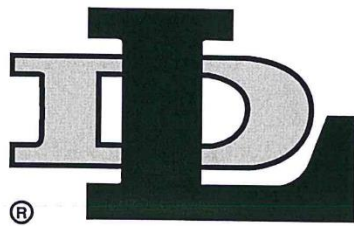


**SECTION "A-A"**

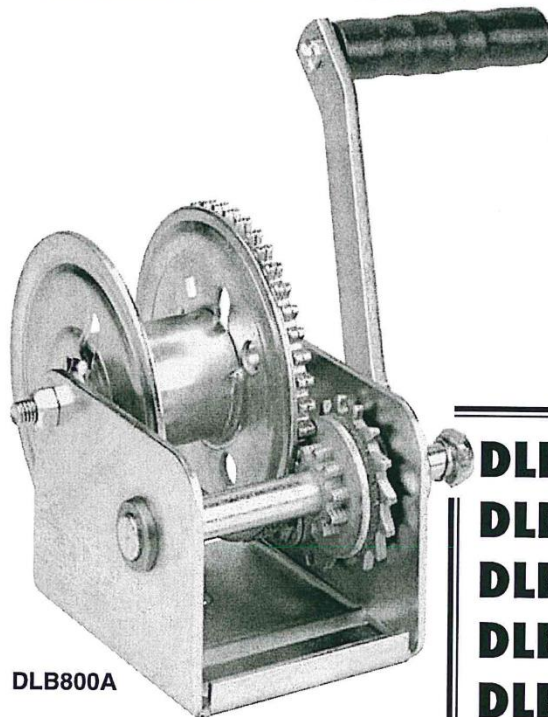


Sam  
**CARBIS**

Solutions Group, LLC Keeping People **SAFER** and Products **FLOWING**®



## **BRAKE WINCHES**



DLB800A

**DLB350A**  
**DLB350AG**  
**DLB800A**  
**DLB800AG**  
**DLB 1200A**  
**DLB 1200AG**  
**DLB 1500A**  
**DLB 1500AG**  
**DLB2000AG**  
**DLB2500A**

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**ISO 9001: 2000 REGISTERED Q.M.S.**

ENGLISH

**⚠ WARNING** READ INSTRUCTIONS CAREFULLY BEFORE ATTEMPTING TO INSTALL, OPERATE OR SERVICE THIS WINCH. FAILURE TO COMPLY WITH INSTRUCTIONS COULD RESULT IN SERIOUS OR FATAL INJURY. RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE.



**IMPORTANT SAFETY INFORMATION**

- This brake winch is built for multi-purpose hauling and lifting operations. It is not to be used as a hoist for lifting, supporting or transporting people, or for loads over areas where people could be present.
- Respect this winch. High forces are created when using a winch, creating potential safety hazards. It should be operated and maintained in accordance with instructions. Never allow children or anyone who is not familiar with the operation of the winch to use it. A winch accident could result in personal injury.
- Check winch for proper operation on each use. Do not use if damaged. Seek immediate repairs.
- Never exceed rated capacity. Excess load may cause premature failure and could result in serious personal injury. This winch is rated on first layer of cable on the hub. Using more layers of cable increases the load on the winch.
- Never apply load on winch with cable fully extended. Keep at least three full turns of cable on the reel.
- Secure load properly. When winching operation is complete, do not depend on winch to support load.
- Operate with hand power only. This winch should not be operated with a motor of any kind. If the winch cannot be cranked easily with one hand, it is probably over-loaded.
- If winch will be used in freezing, icy conditions, apply silicone spray to ratchet pawl and spacer items V, W, X or Y. Do not spray other brake mechanism parts.

**ASSEMBLY** — Thread the handle onto the winch drive shaft and be certain that a clicking noise is produced when the handle is turned clockwise. Install the spring and locknut (Items E and G) on the end of the drive shaft as shown on parts drawing. These parts may appear to serve no function, but they provide several important fail-safe features, and should not be altered or removed.

**WINCH MOUNTING AND CABLE**

**ATTACHMENT** — For maximum strength and safety, this winch should be mounted with three 3/8" bolts (M10), washers and lock washers. (See parts drawing). Using fewer bolts or alternate locations will result in damage to the winch base and the winch may malfunction.

Attach cable or rope by either method shown in sketch.

**OPERATING INSTRUCTIONS** — Wind cable on winch reel by turning winch handle in clockwise direction. This should produce a loud, sharp, clicking noise. The load will remain in position when the handle is released. Wind cable off the winch reel by turning winch handle counterclockwise (no noise will be produced). The load will remain in position when the handle is released, but for extra security it is recommended that the handle be turned clockwise until at least two clicks are heard. This will add extra tightness to the brake mechanism. Always satisfy yourself that the winch is holding the load before releasing the winch handle.

**⚠ IMPORTANT:** Sufficient load must be applied to the cable to overcome internal resistance and operate the brake properly, otherwise turning the crank handle counterclockwise will only remove the handle from the shaft — the reel will not turn. The minimum operating load

requirement is 50 lb (23 kg) for Models DLB350A, DLB350AG, DLB800A, DLB800AG, DLB1200A and DLB1200AG, 75 lb (34 kg) for DLB1500A and DLB1500AG, 175 lb (80 kg) for DLB2000AG and DLB2500A.

Models DLB805A, DLB1205A, & DLB1505A, are equipped with a lockout lever for the purpose of 'freewheeling' cable out when there is no load on the winch. To 'freewheel' cable out, simply turn the handle counterclockwise until lockout lever can be engaged behind handle hub. In this condition cable can be easily pulled from the winch drum.

**⚠ WARNING:** Never put winch in freewheel mode if any potential for a load on the cable exists. Engaging the lockout lever keeps the winch from stopping in the event that a load is accidentally applied.

**WINCH MAINTENANCE** — In order to insure maximum performance, a periodic inspection for any necessary preventive maintenance should be made. Check at least once annually and more frequently when the winch is exposed to an environment which is particularly dirty or wet. For continued smooth performance and increased life, occasionally grease gears, reel shaft and handle threads. An occasional drop of oil on the drive

shaft bearings is also recommended. If winch will be used in freezing, icy conditions, apply silicone spray to ratchet pawl and spacer items V, W, X or Y. **Note:** Do not oil or grease brake mechanism items H and J.

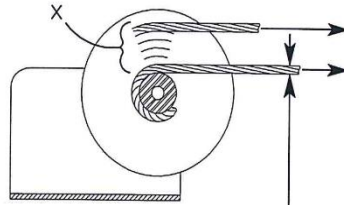
Keep winch in good working order. Damaged or severely-worn parts create unnecessary dangers and could result in personal injury or property damage.

**NOT FOR THE MOVEMENT OF HUMAN BEINGS**



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DLB350A	3.2:1
DLB350AG	
DLB800A	4.4:1
DLB800AG	
DLB1200A	5.4:1
DLB1200AG	
DLB1500A	5.4:1
DLB1500AG	
DLB2000AG	17.3:1
DLB2500A	



	X	
DLB350A, DLB350AG	10	110 lb/50kg
	1	350 lb/160kg
DLB800A, DLB800AG	9	330 lb/150kg
	1	800 lb/360kg
DLB1200A, DLB1200AG	8	551 lb/250kg
	1	1200 lb/545kg
DLB1500A, DLB1500AG	6	728 lb/330kg
	1	1500 lb/680kg
DLB2000AG	5	959 lb/435kg
	1	2000 lb/905kg
DLB2500A	5	1308 lb/593kg
	1	2500 lb/1134kg

DLB350A	1/8" (2000 lb) x 84'
DLB350AG	3mm (590kg) x 22.5m
DLB800A	3/16" (4200 lb) x 68'
DLB800AG	4mm (1080kg) x 23.0m
DLB1200A	7/32" (5600 lb) x 69'
DLB1200AG	5mm (1640kg) x 19.7m
DLB1500A	1/4" (7000 lb) x 60'
DLB1500AG	6mm (2350kg) x 15.1m
DLB2000AG	7mm (3200kg) x 8.9m
DLB2500A	5/16" (9800 lb) x 34'

**ENGLISH - EC DECLARATION OF CONFORMITY** - Dutton-Lainson Company, Hastings, NE 68902-0729 U.S.A. manufactures and declares that this winch is in conformity with the essential health and safety requirements specified in The Supply of Machinery (Safety) Regulations 1992 and the provisions of The Machinery Directive (89/392/EEC). This declaration does not apply to other machinery using this winch.

**DANSK - EØF OVERENSSTEMMELSESERKLÆRING** - Dutton-Lainson Company, Hastings, NE 68902-0729 USA, fremstiller og erklærer, at dette skraldespil er i overensstemmelse med de væsentlige sundheds- og sikkerhedsregler som er specificeret i The Supply of Machinery, Sikkerhedsregulativer af 1992, og Maskinedirektiv (89/392/EØF). Denne erklæring gælder ikke andet maskineri, der benytter skraldespillet.

**SUOMI - EY:N VAATIMUSTENMUKAISUUSVAKUUTUS** - Dutton-Lainson Company, osoite Hastings, NE 68902-0729, USA, vakuuttaa tämän vintturin valmistajana, että vintturi noudattaa vuoden 1992 koneidentoimittussäännösten (Supply of Machinery [Safety] Regulations) olennaisia työterveys- ja turvallisuusvaatimuksia sekä konedirektiivin (89/392/ETY) määräyksiä. Tämä vakuutus ei koske muita laitteita, joissa vintturia käytetään.

**NEDERLANDS - EG VERKLARING VAN OVEREENSTEMMING** - Dutton-Lainson Company, Hastings, NE 68902-0729 VS, fabrikant, verklaart dat deze lier voldoet aan de fundamentele gezondheids- en veiligheidselen zoals vastgelegd in de Machineryrichtlijn (89/392/EEG) en de nationale wetgeving ter uitvoering van deze richtlijn. Deze verklaring is niet van toepassing op andere machines die gebruik maken van deze lier.

**FRANÇAIS - DÉCLARATION DE CONFORMITÉ CE** - Dutton-Lainson Company, Hastings, NE 68902-0729 U.S.A. construit ce treuil et déclare qu'il est conforme aux exigences de sécurité et de sûreté essentielles spécifiées dans «The Supply of Machinery (Safety) Regulations 1992» (règlements de sécurité relatifs à la fourniture de machinerie) et dans «The Machinery Directive» (directive relative à la machinerie) (89/392/CEE). Cette déclaration ne s'applique pas aux autres machines utilisant ce treuil.

**DEUTSCH - EU-KONFORMITÄTSERLÄRUNG** - Dutton-Lainson Company, Hastings, NE 68902-0729 USA, der Hersteller der Winde, erklärt, daß das Produkt mit den grundlegenden Gesundheits- und Sicherheitsanforderungen übereinstimmt, die in den Bestimmungen zum Inverkehrbringen von Maschinen (Sicherheit) 1992 und den Bestimmungen der Maschinenrichtlinie (89/392/EWG) spezifiziert sind. Diese Erklärung gilt nicht für andere Maschinen, die diese Winde verwenden.

**ITALIANO - DICHIARAZIONE DI CONFORMITÀ ALLE DIRETTIVE DELLA COMUNITÀ EUROPEA** - La Dutton-Lainson Company, con sede a Hastings, NE 68902-0729 USA, produce verricelli e dichiara che questo verricello è conforme ai requisiti essenziali di sicurezza e tutela della salute specificati nella normativa sulla sicurezza delle macchine emessa nel 1992 e nella Direttiva Macchine 89/392/CEE. Questa dichiarazione non è valida per altre macchine che utilizzino questo verricello.

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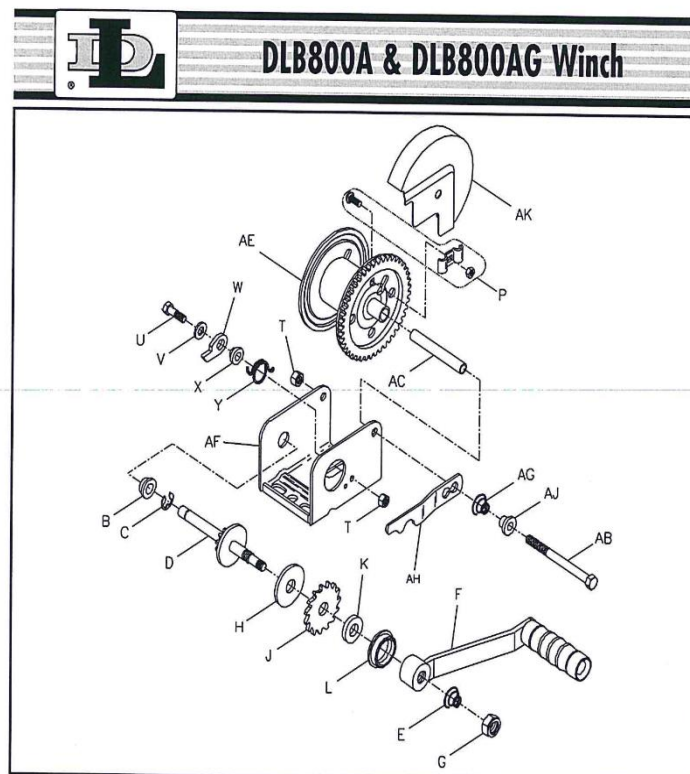
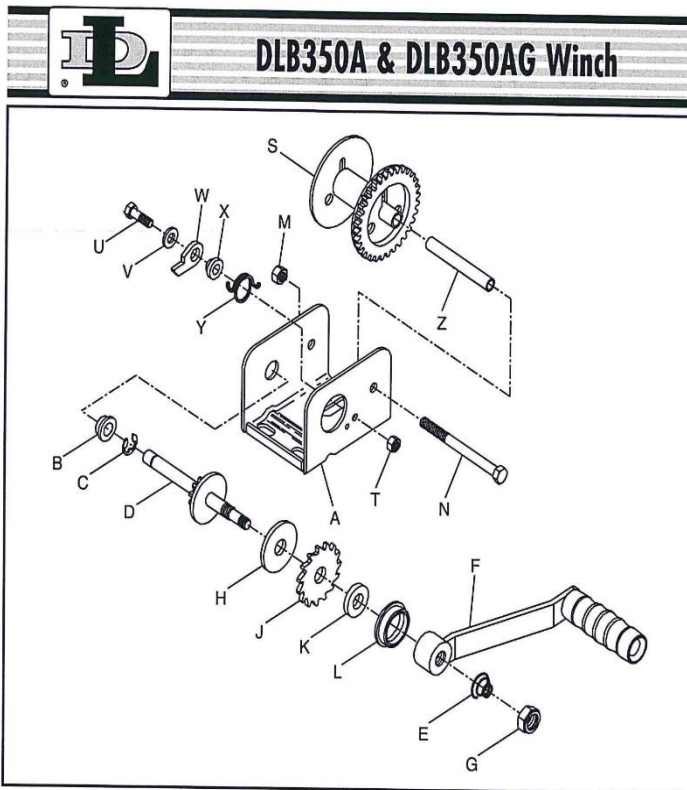
**PORTUGUÊS - DECLARAÇÃO DE CONFORMIDADE COM A CE** - A empresa Dutton-Lainson Company, Hastings, NE 68902-0729, nos E.U.A., fabrica este guincho e declara que este está em conformidade com os requisitos essenciais de saúde e segurança, tal como especificados nos Regulamentos (de Segurança) para o Fornecimento de Máquinas de 1992 e como previsto na Directiva relativa a Máquinas (89/392/CEE). Esta declaração não se aplica a outras máquinas que utilizem este guincho.

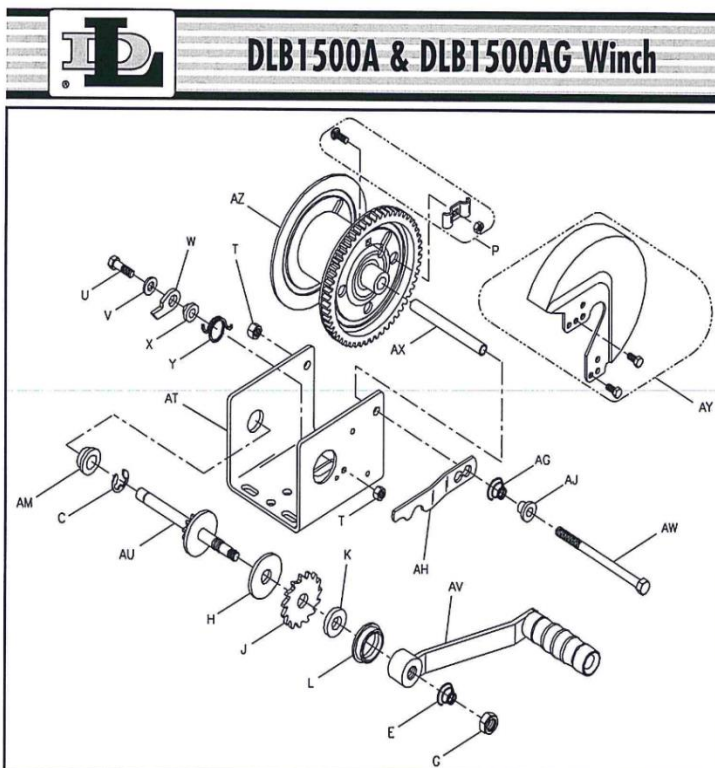
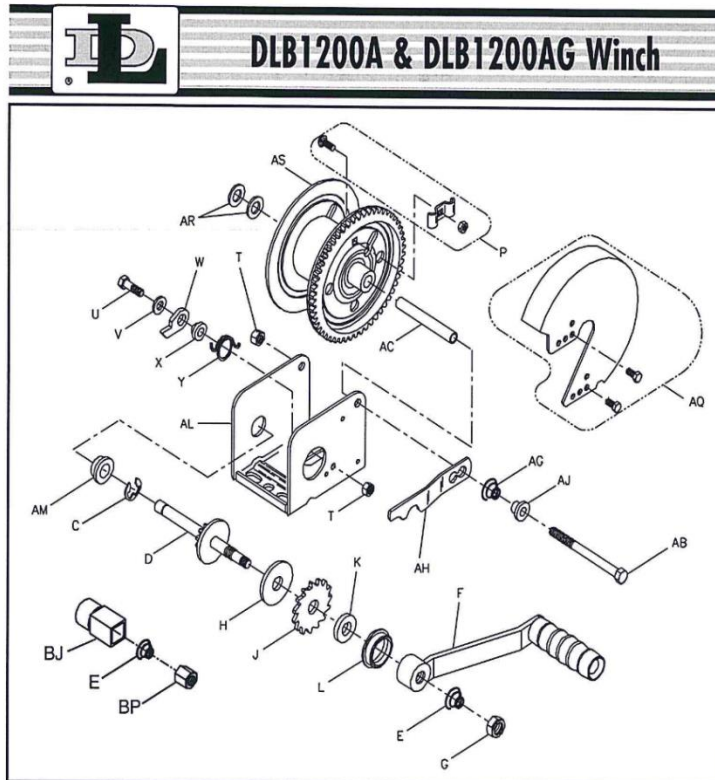
**ESPAÑOL - DECLARACION DE HOMOLOGACION PARA CE** - Dutton-Lainson Company, de Hastings, NE 68902-0729, EE.UU., fabrica y declara que este cabrestante satisface los requisitos esenciales de salubridad y seguridad especificados en el Reglamento (de Seguridad) para Suministro de Maquinarias de 1992 y en las disposiciones de la Directriz de Maquinarias (89/392/EEC). Esta declaración no incluye los demás equipos que utilicen este cabrestante.

**SVENSKA - FÖRSÄKRAN OM ÖVERENSSTÄMMELSE** - Dutton-Lainson Company, Hastings, Nebraska 68902-0729 U.S.A. tillverkar och försäkrar att denna vinsch överensstämmer med de väsentliga hälso- och säkerhetskrav som specificerats i Maskinerieförordningar (säkerhet) 1992 och bestämmelserna i Maskineridirektiv (89/392/EEC). Denna försäkran gäller inte andra maskiner som använder denna vinsch.

**ΕΛΛΗΝΙΚΑ - ΔΗΛΩΣΗ ΣΥΜΜΟΡΦΩΣΗΣ ΕΟΚ** Η Dutton-Lainson Company, Hastings, NE 68902-0729, U.S.A δηλώνει ότι κατασκευάζει το παρόν βαρούλκο σε συμμόρφωση με τις βασικές απαιτήσεις υγιεινής και ασφαλείας που προβλέπονται από τους Κανονισμούς Διάθεσης Μηχανημάτων (Ασφαλείας) 1992 και τις διατάξεις της Κοινοτικής Οδηγίας για Μηχανήματα (89/392/ΕΟΚ). Η δήλωση αυτή δεν ισχύει για άλλα μηχανήματα που χρησιμοποιούν το παρόν βαρούλκο.

*Ron Haase*





## PARTS LIST

Ref	Description	Part No.	Ref	Description	Part No.
A	Base	404900*	AH	Lockout Lever (optional)	404579
A	Base – DLB 350AG	404945*	AJ	Spacer (optional)	404166
B	Bushing	204012	AK	Gear Cover (optional)	
C	"E" Ring	205116		Painted Bronze	5240346
D	Drive Shaft	306061		Plated	5240361
E	Spring	204364	AL	Base	404896*
F	Handle – 7"	5703061		Base – DLB 1200AG	404897*
	Handle – 9-3/8"	5703103	AM	Bushing	204009
G	Nut	205033	AQ	Gear Cover (optional)	
H	Pressure Plate	204362		Painted Bronze	5240122
J	Ratchet Wheel	404164		Plated	5240221
K	Pressure Washer	404163	AR	Spacer Washer	204360
L	Bushing	206328	AS	Reel	304754*
M	Nut	205316	AS	Reel – 1-7/8" (optional)	304768*
N	Bolt	205332	AT	Base	404891*
P	Rope Clamp Kit	304221		Base – DLB 1500AG	404892*
S	Reel	306075*	AU	Drive Shaft	304760
T	Locknut	204803	AV	Handle – 9-3/8"	5703103
U	Bolt	205167		Handle – 12"	5703111
V	Flat Washer	205055	AX	Reel Spacer	204808
W	Pawl	404409	AY	Gear Cover (optional)	
	Pawl – "G" Series	404190		Painted Bronze	5240387
X	Spacer	404166		Plated	5240403
	Spacer – "G" Series	404191	AZ	Reel	304755*
Y	Spring	204363	BA	Base – DLB2500A	406047*
	Spring – "G" Series	204460		Base – DLB 2000AG	404899*
Z	Reel Spacer	207183	BB	Spacer	404434
AB	Bolt	203161	BC	Bolt	205006
AC	Reel Spacer	204807	BD	Flat Washer	205139
AE	Reel	306062*	BE	Intermed. Drive Shaft	306035
AF	Base	404893*	BF	Nut	205014
	Base – DLB 800AG	404895*	BG	Bolt	204804
AG	Spring (optional)	204364	BH	Reel	304756*
			BJ	Drive Hub (Optional)	304562
			BL	Handle Brk. Assy (Opt)	304795
			BM	Handle (Optional)	304638
			BN	Handle Hub (Optional)	304630
			BP	Slotted Nut (Optional)	404970
			BQ	"E" Ring	206162
			BR	Bushing	206163
			BS	Bolt	205335

To order replacement parts contact:

**Dutton-Lainson Company**

www.dlco.com  
Tel: 800-569-6577  
Fax: 402-460-4612  
e-mail: DLsales@dutton-lainson.com

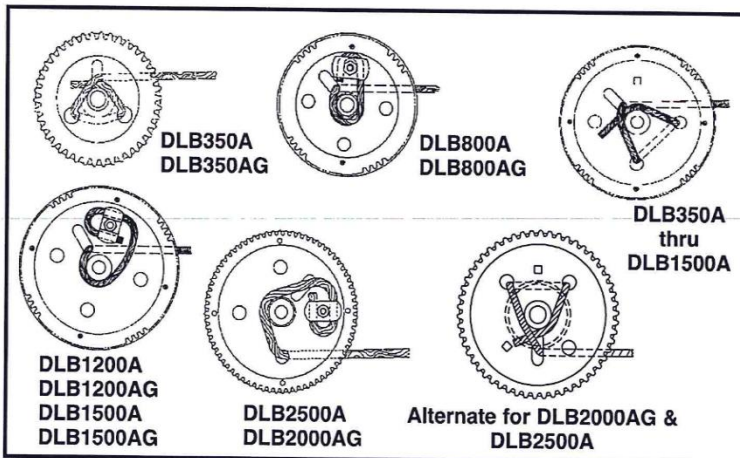
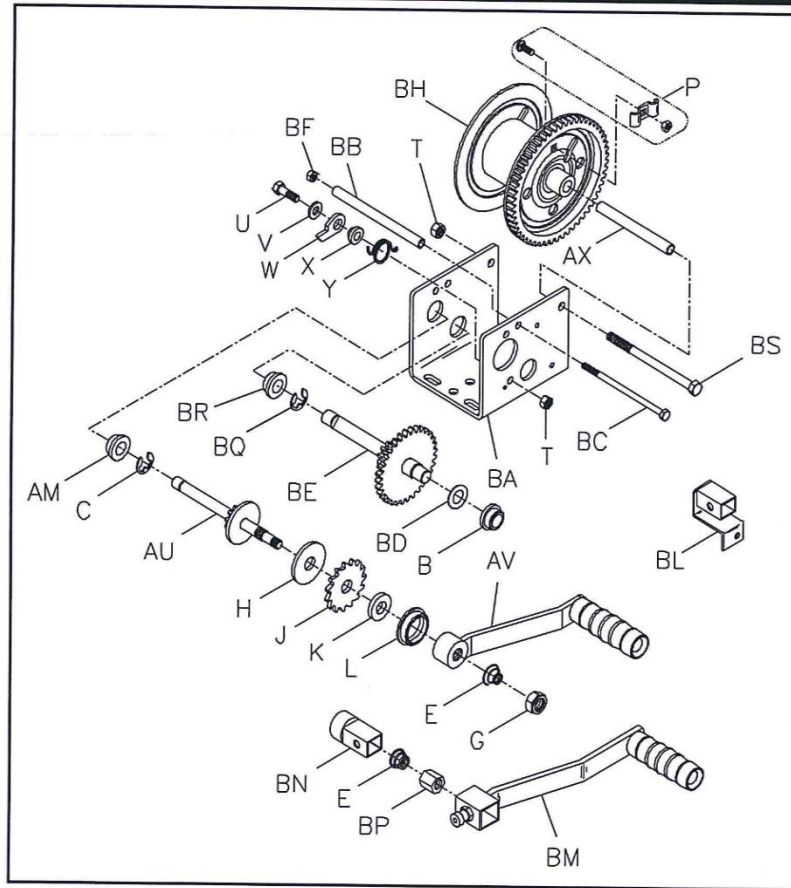
**In Europe Contact:**

**Aqua-Marine International Ltd.**  
8 Flanders Parks  
Hedge End, Southampton  
Hants, England SO30 2FZ  
Tel: +44 (0) 1489-776050  
Fax: +44 (0) 1489-776055  
e-mail: sales@aqua-marineint.co.uk

\*Specify Color When Ordering



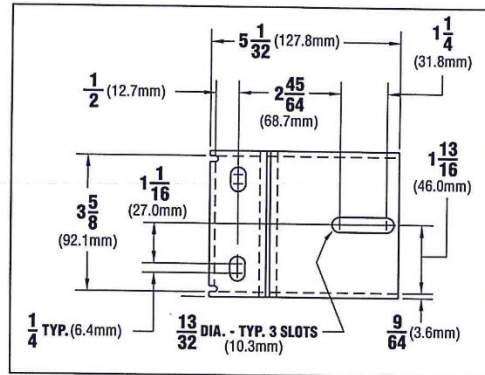
## DLB2000AG & DLB2500A Winch



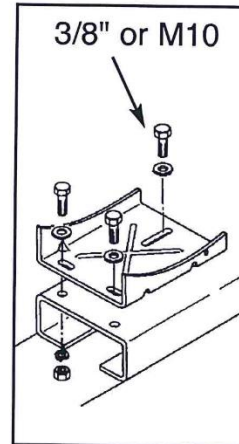
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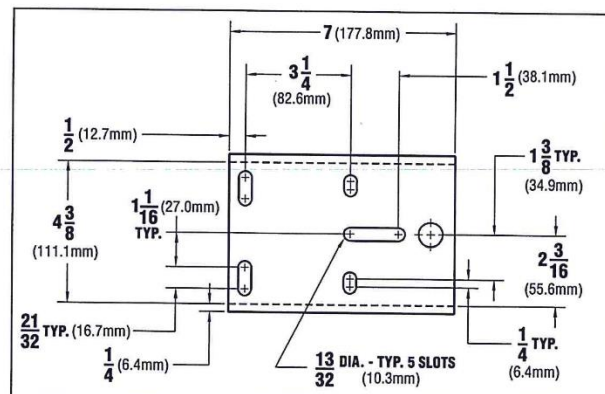
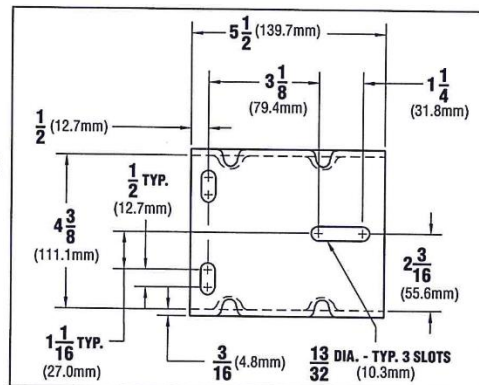
©2008



**DLB350A, DLB350AG,  
 DLB800A, DLB800AG,  
 DLB1200A, DLB1200AG**



**DLB1500A  
 DLB1500AG**















**DLB2000AG  
 DLB2500A**



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**SUOMI-**Takuutodistuksesta saa suomenkielisen kopion lähettämällä riittävällä postimaksulla ja vastaanottajan osoitteella varustetun kirjekuoren osoitteeseen Dutton-Lainson Company, P.O. Box 729, Hastings NE 68902-0729, USA.

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