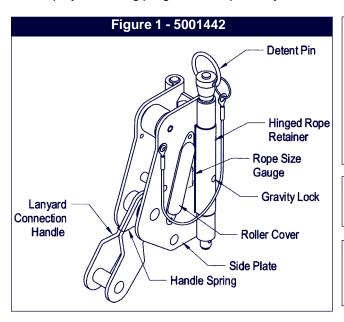


# User Instruction Manual 5001442 Rope Grab

This manual is intended to meet the Manufacturer's Instructions as required by ANSI Z359.1 and ANSI A10.14, and should be used as part of an employee training program as required by OSHA.



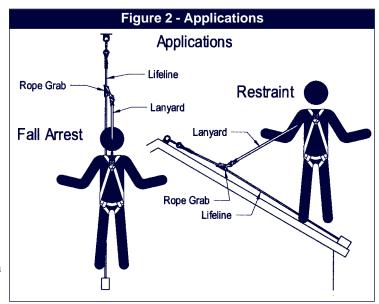
WARNING: This product is part of a personal fall arrest or restraint system. The user must follow the manufacturer's instructions for each component of the system. These instructions must be provided to the user of this equipment. The user must understand these instructions before using this equipment. Manufacturer's instructions must be followed for proper use and maintenance of this product. Alterations or misuse of this product, or failure to follow instructions may result in serious injury or death.

**IMPORTANT:** If you have any questions on the use, care, application, or suitability for use of this safety equipment, contact DBI/SALA.

**IMPORTANT:** Before using this equipment, record the product identification information found on the ID label of your rope grab in the inspection and maintenance log in section 9.0 of this manual.

#### 1.0 APPLICATION

- 1.1 PURPOSE: DBI/SALA rope grabs (fall arresters) are intended to be used as part of a personal fall arrest or restraint system. Applications for this type of product include inspection work, construction and demolition, maintenance, oil production, window washing, and other activities where there exists the need for fall arrest or restraint. See Figure 2. The following definitions describe these applications:
  - A. FALL ARREST: The rope grab is used as part of a complete fall arrest system. Such systems generally include a lifeline, rope grab, lanyard, and full body harness (body support). Applications include; protection of a worker on scaffolding, powered platforms, or riding a boatswain's chair. Maximum permissible free fall is six feet.



**B. RESTRAINT:** The rope grab is used in combination with a lifeline, lanyard or connector, and body support to restrain the user from reaching a hazard (sloped or leading edge roof work). No vertical free fall possible.

- **1.2** The following application limitations must be considered before using this product:
  - **A. CAPACITY:** This equipment is designed for use by persons with a combined weight (person, clothing, tools, etc.) of no more than 310 lbs. NOTE: No more than one person may be attached to a single lifeline.
  - **B.** FREE FALL: Restraint systems must be rigged such that there is no possible vertical free fall. Personal fall arrest systems must be rigged in such a way to limit the free fall to six feet (ANSI Z359.1) or five feet (ANSI A10.14). See associated connecting subsystem manufacturer's instructions for further information.
  - **C. FALL CLEARANCE:** Make certain that enough clearance exists in your fall path to prevent striking an object. The amount of clearance required is dependent upon the type of connecting subsystem used (lanyard, lifeline), the anchorage location, and the amount of stretch in the lifeline. See section 3.2 for more information on determining fall clearance.
  - D. CORROSION: Do not leave this equipment for long periods in environments where corrosion of metal parts could take place as a result of vapors from organic materials. Sewage and fertilizer plants, for example, have high concentrations of ammonia. Use near seawater or other corrosive environments may require more frequent inspections or servicing to ensure corrosion damage is not affecting the performance of the product.
  - **E. CHEMICAL HAZARDS**: Solutions containing acids, alkali, or other caustic chemicals, especially at elevated temperatures, may cause damage to this equipment. When working with such chemicals, frequent inspection of this equipment must be performed. Consult DBI/SALA if doubt exists concerning using this equipment around chemical hazards.
  - **F. HEAT:** This equipment is not designed for use in high temperature environments. Protection should be provided for this equipment when used near welding, metal cutting, or similar activities. Hot sparks may burn or damage this equipment. Consult DBI/SALA for details on high temperature environments.
  - **G. ELECTRICAL HAZARDS:** Due to the possibility of electric current flowing through this equipment or connecting components, use extreme caution when working near high voltage power lines.
  - **H. COMPONENT COMPATIBILITY:** The rope grab addressed by these instructions is intended for use with DBI/SALA lifelines and lifeline subsystems only. Consult DBI/SALA if you are considering using this equipment with other lifelines or lifeline subsystems. See section 2.0.
  - **I. TRAINING:** This equipment is to be used by persons who have been properly trained in its correct application and use.
- 1.3 Refer to applicable local, state, and federal (OSHA) requirements governing this equipment for more information on rope grabs and associated system components, including; ANSI A10.14, ANSI Z359.1, and OSHA 1910.66, appendix C.

#### 2.0 SYSTEM REQUIREMENTS

- 2.1 COMPATIBILITY OF COMPONENTS AND SUBSYSTEMS: DBI/SALA rope grabs are designed for use with DBI/SALA approved components or subsystems (lanyards, energy absorbers, lifelines). Use of this rope grab with nonapproved components or subsystems may jeopardize compatibility between equipment, which could affect the reliability and safety of the complete system. Contact DBI/SALA if you have questions about compatibility of components.
- 2.2 COMPATIBILITY OF CONNECTORS: Connectors (hooks, carabiners, D-rings) must be capable of supporting 5,000 lbs. (22kN) minimum. Use caution to assure compatibility between connecting hooks and the connection point on the rope grab, anchorage, or other system components. Non-compatible connectors may disengage (roll-out). Connectors must be compatible in size, shape, and strength. Self locking snap hooks are required by ANSI Z359.1. The connecting subsystem must be classified as suitable for use in your application (fall arrest or restraint). For fall arrest applications, the maximum arresting force must not exceed 1,800 lbs. See instructions supplied with other components or subsystems to determine suitability.
- **2.3 ANCHORAGE STRENGTH:** The anchorage strength required is dependent upon the application. The following lists guidelines for specific application types:

- A. FALL ARREST: Anchorages selected for personal fall arrest systems (PFAS) shall have a strength capable of sustaining static loads, applied in the directions permitted by the PFAS, of at least; (A) 3,600 lbs. (16kN)when certification exists (see ANSI Z359.1 for certification definition), or (B) 5,000 lbs. (22kN) in the absence of certification. When more than one PFAS is attached to an anchorage, the anchorage strengths set forth in (A) and (B) above shall be multiplied by the number of personal fall arrest systems attached to the anchorage. Per OSHA 1926.500 and 1910.66; Anchorages used for attachment of PFAS shall be independent of any anchorage being used to support or suspend platforms, and capable of supporting at least 5,000 lbs. (22kN) per user attached, or be designed, installed, and used as part of a complete PFAS which maintains a safety factor of at least two, and is supervised by a qualified person.
- B. RESTRAINT: Anchorages must be capable of supporting a minimum of 3,000 lbs. per system attached.

**WARNING:** Restraint anchorages may only be used where there is no possible vertical free fall. Restraint anchorages do not have sufficient strength for fall arrest. Do not connect personal fall arrest systems to restraint anchorages.

- **2.4 LIFELINES:** DBI/SALA rope grabs are to be used with DBI/SALA lifelines and lifeline subsystems. Lifelines used with the 5001442 are; 3/4 inch diameter polyester/polypropylene blend rope assembly, 3/4 inch diameter polyester/polypropylene blend rope, and 3/4 inch diameter polyester rope. See appropriate lifeline instructions for rope elongation factors. The following lifeline requirements must be followed:
  - A. SIZE: The 5001442 rope grab is designed to be used on 3/4 inch (19mm) diameter lifeline. Undersized rope may not allow the rope grab to lock properly and may cause excessive stopping distances. Oversized rope may impede rope grab mobility on the lifeline. It is recommended that lifeline diameter be within 1/32 inch (0.8mm) of 3/4 inch. A rope gauge is marked on the rope grab and is intended to be used as a reference guide to inspect for undersized or oversized rope.
  - **B. CONSTRUCTION:** Only three strand lay rope constructions are recommended. Braided, double braided, hollow braided, kernmantle, or other types of rope constructions must not be used. When selecting the lifeline, choose a rope with a firm lay. Inspect the lay of the rope by grasping it several feet from the end between the thumb and index finger. You should not be able to easily squeeze or flatten the rope. Untwisting should be difficult and the rope should spring back to its original shape.
  - C. MATERIAL: DBI/SALA recommends selecting lifeline ropes made from polyester fibers. Polyester has less stretch and less swelling due to moisture absorption than nylon. Ropes made solely of polypropylene, polyethylenes, or other olefins must not be used. Ropes made from cotton, sisal, hemp, abaca (manila), or other plant/animal fibers must not be used. Rope used in vertical lifelines shall be made of virgin synthetic materials having strength, aging resistance, abrasion resistance, and heat resistance characteristics equivalent or superior to polyamides. See ANSI Z359.1.
  - D. STRENGTH: Select a lifeline which, when terminated and installed, will retain a minimum strength of 5,000 lbs. (22kN) per ANSI Z359.1. Selection must account for strength reduction factors, such as sharp edges and degrading factors (i.e. chemicals). Remember that a lifeline must retain its strength for it's working life. NOTE: Per ANSI Z359.1; Knots shall not be used for load bearing end terminations, but may be an acceptable means of securing the free end of the lifeline at ground level.
- **2.5 LANYARD:** The 5001442 rope grab must not be used with a lanyard connecting subsystem exceeding three feet (0.9m) in length. For fall arrest systems DBI/SALA recommends using energy absorbing lanyards incorporating self locking snap hooks. Lanyards labeled ANSI A10.14 Type II must not be used for fall arrest applications. All lanyards must have a minimum breaking strength of 5,000 lbs.
- **2.6 BODY SUPPORT:** The recommended body support for fall arrest applications is a full body harness, for restraint applications a body belt may be used.

**IMPORTANT:** Only lifeline ropes which meet the size, construction, and material properties required for compatible use with this rope grab may be used.

**NOTE:** Applications such as working near high voltage may require special lifeline materials, consult DBI/SALA before using such lifelines.

#### 3.0 OPERATION AND USE

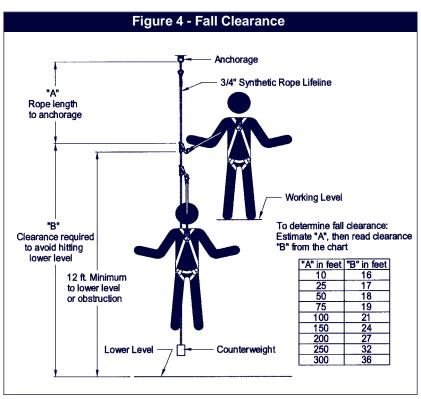
**WARNING:** Do not alter or intentionally misuse this equipment. Consult DBI/SALA when using this equipment in combination with components or subsystems other than those described in this manual. Some subsystem and component combinations may interfere with the operation of this equipment. Use caution when using this equipment around moving machinery, electrical hazards, chemical hazards, and sharp edges.

**WARNING:** Consult your doctor if there is reason to doubt your fitness to safely absorb the shock from a fall arrest. Age and fitness seriously affect a worker's ability to withstand falls. Pregnant women or minors must not use DBI/SALA rope grabs.

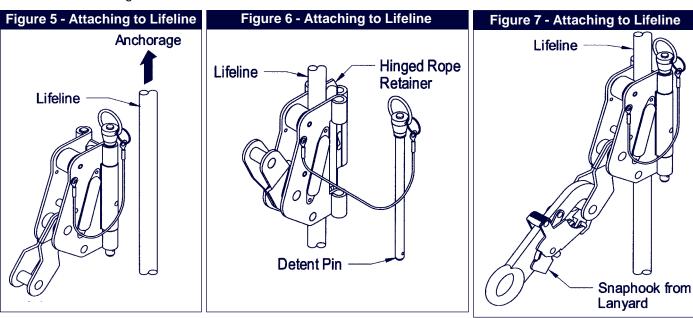
- **3.1 BEFORE EACH USE** of this equipment, carefully inspect it to ensure that it is in good working condition. See section 5.0 for inspection details. Do not use if inspection reveals an unsafe condition.
- 3.2 PLAN your fall arrest or restraint system before starting your work. Consider all factors that affect your safety before, during, and after a fall. Refer to these and related subsystem component instructions, and state and federal safety regulations for guidance in planning your system. The following list gives some important points to consider when planning your system:
  - A. ANCHORAGE: Select a rigid anchorage point that is capable of supporting the required loads. See section 2.3. The anchorage location must be carefully selected to reduce possible free fall and swing fall hazards and to avoid striking an object during a fall. For restraint systems the anchorage must be located such that no vertical free fall is possible. For fall arrest systems OSHA requires the anchorage be independent of the means suspending or supporting the user.
  - **B.** FREE FALL: Do not work above the anchorage level, increased fall distance will result. Personal fall arrest systems must be rigged such that the potential free fall is never greater than six feet. Restraint systems must be rigged such that there is no possible vertical free fall.



- **C. FALL ARREST FORCES:** The assembled fall arrest system must keep fall arrest forces below 1,800 lbs. when used with a full body harness. Do not use a body belt for fall arrest.
- D. SWING FALLS: Swing falls occur when the anchorage point is not directly above the point where a fall occurs. The force of striking an object while swinging can be great and cause serious injury. Swing falls can be minimized by working as directly below the anchorage as possible. See Figure 3.
- E. FALL CLEARANCE: Make certain enough clearance exists in your fall path to prevent striking an object. The amount of clearance needed is dependent upon the type of connecting subsystem used and anchorage location. See Figure 4 for estimating fall clearance.
- F. SHARP EDGES: Avoid working where parts of the system will be in contact with, or abrade against, unprotected sharp edges.



- G. RESCUE: The user must have a rescue plan and the means at hand to implement it if a fall occurs.
- **H. AFTER A FALL:** Components which have been subjected to the forces of arresting a fall must be removed from service immediately and destroyed.
- I. GENERAL USE CONSIDERATIONS: Avoid working where lifeline may cross or tangle with that of another worker. Do not allow the lanyard to pass under arms or between legs. Do not clamp, tie, or other wise prevent the rope grab lanyard connection handle from moving freely into the "locked" position.
- J. SLOPED ROOFS: Provisions must be made (warning lines, monitors, guardrails) to prevent swing falls from unprotected roof edges or corners. The rope grab should be connected to the body support using a locking carabiner (direct connection) or a short lanyard. If a lanyard is used for connecting to the rope grab, keep the length as short as possible, and never greater than three feet. The lifeline must be protected from contact with sharp or abrasive edges and surfaces. The rope grab locking operation must not be hindered by interference with the roof or objects on the roof surface.
- **K. UNSTABLE SURFACES:** The rope grab is not suitable for use on unstable or slowly shifting materials, such as sand or grain.



WARNING: Never connect more than one personal fall arrest or restraint system to a single lifeline or rope grab.

WARNING: Follow manufacturer's instructions for associated equipment used in your fall protection or restraint system.

**IMPORTANT:** For custom versions of this product, follow the instructions herein. If included, see supplemental instructions for additional information.

## 3.3 ATTACHING THE ROPE GRAB TO THE LIFELINE:

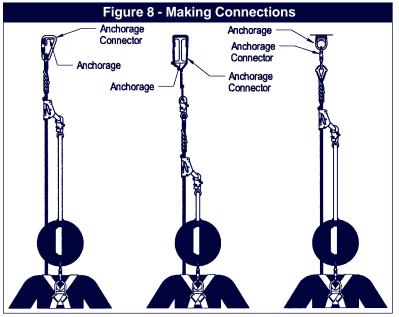
- **A.** Ensure the rope grab is in the "UP" position. An "UP" mark has been stamped onto the rope grab. The "UP" end of the rope grab must be oriented towards the anchorage when installed onto the lifeline. See Figure 5. NOTE: The rope grab hinge incorporates a stop which will prevent the hinge from closing if the rope grab is not held upright.
- **B.** Remove the detent pin and open the hinged rope retainer. Raise lanyard connection handle to full "UP" position. Insert lifeline into rope grab. See Figure 6.
- **C.** Close hinged rope retainer and replace detent pin. Ensure detent pin is locked (ball lock on end of pin). See Figure 7. Attach the lanyard to the lanyard connection handle.
- **D.** Test operation of rope grab by pulling down on the lanyard. You must not be able to pull the rope grab down the lifeline once the locking roller has fully engaged the lifeline.

#### 3.4 POSITIONING THE ROPE GRAB ON THE LIFELINE:

- **A.** Using the lanyard connected to the rope grab, pull up slightly on the rope grab to release it from its current position. Lift handle if necessary.
- **B.** Using the connected lanyard, raise or lower the rope grab to the desired new position. Tension the lifeline to assure smooth motion of the rope grab on the lifeline. To tension the lifeline; extend 50 to 75 feet of lifeline below the rope grab (12 feet minimum required); or secure the end of the lifeline at working or ground level; or use a six to ten pound counterweight. The method of tensioning used should be determined by job site conditions.
- C. After moving the rope grab to a new position, position it at or above shoulder height to reduce possible free fall. Lock the rope grab at this position by pulling the lanyard connection handle to its full "DOWN" position. NOTE: Handle must be released before attempting to reposition rope grab.
- **D.** Under special conditions, such as working on a moving platform, it is allowable to let the rope grab follow the worker as the platform is moved. The lanyard should be kept as short as possible and not exceed three feet (0.9m) in length.

**WARNING:** Rope grab attachment and positioning instructions and procedures must be followed. Improper assembly could allow rope grab to slip, or not lock onto the lifeline in the event of a fall, and may result in serious injury or death.

3.5 MAKING CONNECTIONS: When using a hook to connect to an anchorage or when coupling components of the system together, ensure roll-out cannot occur. Roll-out occurs when interference between a hook and the mating connector causes the hook's gate, or keeper, to unintentionally open and release. Roll-outs may occur when a hook is snapped into an undersized ring, such as an eye bolt or other non-compatible shaped connectors. Self locking snap hooks or self locking and self closing gate carabiners should be used to reduce the possibility of a roll-out when



making connections. Do not use hooks or connectors that will not completely close over the attachment object. For these situations, use a tie-off adaptor or other anchorage connectors to allow a compatible connection. Do not knot lanyard or lifeline in any manner, and do not hook lanyard or lifeline back into itself (choker style). Snap hooks and carabiners must not be connected to each other. Do not attach snap hooks to web loops. Always follow the manufacturer's instructions supplied with each system component. See Figure 8.

- A. CONNECTING TO ANCHORAGE OR ANCHORAGE CONNECTOR: When attaching the lifeline or lifeline subsystem to the anchorage or anchorage connector, ensure the connector used (self locking snap hook) is fully engaged and locked onto the connection point. Ensure connections are compatible in size, shape, and strength. Refer to manufacturer's instructions for the anchorage connector and lifeline for further information.
- **B. CONNECTING TO THE BODY SUPPORT:** For fall arrest applications, connect to the dorsal D-ring located between the shoulders on the back of the full body harness. For restraint applications, the dorsal or frontal harness attachment may be used. If using a body belt for restraint applications connect to the D-ring opposite the restraining load. Ensure connections are compatible in size, shape, and strength. Refer to body support manufacturer's instructions for more information on making connections.
- C. CONNECTING TO THE ROPE GRAB: When connecting an energy absorbing lanyard to the rope grab, attach the lanyard end (vs. the energy absorber end) to the rope grab to reduce possible interference with the operation of the rope grab by the energy absorber "pack". Some rope grab models may be supplied with a permanently attached lanyard or energy absorber. Do not attempt to attach additional lanyards or connectors to these subsystems. If using a carabiner to connect directly to the rope grab, ensure the carabiner will not interfere with the operation of the rope grab. Carabiners must be of the locking type.

Ensure connections are compatible in size, shape, and strength. Ensure the connector attached to the rope grab allows the handle to rotate freely, and does not interfere with the rope grab operation.

- 3.6 USE OF LIFELINES: (See Lifeline User Instruction Manual for complete details)
  - Always protect the lifeline if passing over or around sharp edges. Sharp edges can reduce rope strength by 70% or more.
  - Keep lifelines clean.
  - · Avoid twisting or kinking lifelines when coiling or uncoiling
  - Avoid using lifelines near acids or alkalines. If lifeline is used around any chemical or compound, watch for signs of deterioration.
  - Never use a knotted lifeline, knots can reduce rope strength by 50%.
  - Store lifelines properly.
- 3.7 AFTER USE of the rope grab and its subsystem components, return for cleaning or storage as described in section 6.0.

#### 4.0 TRAINING

**4.1 TRAINING:** The user, and the user's employer, must be trained in the correct use and care of this equipment. Both parties must be aware of the operating characteristics, application limits, and consequences of improper use of this equipment.

**IMPORTANT:** Training must be conducted without exposing the trainee to a fall hazard. Training should be repeated on a periodic basis.

#### 5.0 INSPECTION

#### 5.1 FREQUENCY:

- **A.** Before each use, visually inspect per steps listed in section 5.2, 5.3, and 5.4.
- **B.** The rope grab must be inspected by a competent person other than the user at least annually. See sections 5.2, 5.3, and 5.4 for guidelines. Record the results of each formal inspection in the inspection log found in section 9.0.

**IMPORTANT:** If the rope grab has been subjected to fall arrest or impact forces, it must be immediately removed from service and destroyed.

**IMPORTANT:** Extreme working conditions (harsh environments, prolonged use, etc.) may require increasing the frequency of the inspections.

#### **5.2 INSPECTION STEPS FOR ROPE GRAB:** See Figure 1.

- **Step 1.** Inspect action of locking roller, it should be free to travel the full length of the guide slots.
- **Step 2.** Inspect the lanyard connection handle for freedom of motion. There should be no binding or sticking. Inspect for wear on the nose of the handle where it contacts the roller. The lever must push the roller into the rope.
- **Step 3.** Inspect handle spring. It should be in its correct place and undamaged.
- **Step 4.** Inspect detent pin. The top button should spring back up when pushed down. The pin should easily slide through the rope grab body and hinge.
- Step 5. The rope grab hinge must pivot freely and close completely. Check that the gravity lock on the hinge works freely. When the rope grab is held upside down, the gravity lock should drop down and prevent the hinge from fully closing. Inspect the hinge for signs of rope wear. There should be no dips or depressions worn into the rope channel.

- Step 6. Inspect labels and markings. All labels and markings must be present and fully legible.
- Step 7. Inspect each system component or subsystem per associated manufacturer's instructions.
- **Step 8.** Record the inspection date and results in the inspection log. See section 9.0.
- 5.3 INSPECTION STEPS FOR LIFELINE: (See Lifeline User Instruction Manual for complete details)
  - **Step 1.** Lifeline hardware must not be damaged, broken, distorted, or have any sharp edges, burrs, cracks, worn parts, or corrosion. Ensure the connecting hooks work properly. Hook gates must move freely and lock upon closing.
  - Step 2. Inspect rope for concentrated wear. Material must be free of frayed strands, broken yarns, cuts, abrasions, burns, and discoloration. The rope must be free of knots, excessive soiling, heavy paint buildup, and rust staining. Rope splices must be tight, with five full tucks, and thimbles must be held by the splice. Cracked or distorted rope thimbles may indicate that the lifeline has been impact loaded. Check for chemical or heat damage (indicated by brown, discolored, or brittle areas). Check for ultraviolet damage, indicated by discoloration and the presence of splinters and slivers on the rope surface. All of the above factors are known to reduce rope strength. Damaged or questionable ropes must be replaced.
  - Step 3. Inspect labels. All labels must be present and fully legible. Replace labels if illegible or missing.
  - **Step 4.** Record the inspection date and results in the inspection log found in the Lifeline User Instruction Manual.
- **5.4** If inspection reveals a defective condition, remove unit from service immediately and destroy, or contact a factory authorized service center for repair.

**IMPORTANT:** Do not attempt to alter, repair, or make substitutions to the rope grab or rope grab parts. Equipment found to be in defective condition must be removed from service. Repairs may only be performed by DBI/SALA or those authorized in writing to do so.

#### 6.0 MAINTENANCE

- 6.1 Clean the rope grab and lifeline with water and a mild soap solution. Wipe off hardware with clean, dry cloth, and hang to air dry. Do not force dry with heat. An excessive buildup of dirt, paint, etc. may prevent the rope grab or lifeline from working properly, and in severe cases degrade the rope grab or rope to a point where it has weakened and should be removed from service. If you have any questions concerning the condition of the rope grab or lifeline, or have any doubt about putting them into service, contact DBI/SALA. See Lifeline User Instruction Manual for specific maintenance details.
- 6.3 Additional maintenance and servicing procedures (replacement parts) must be completed by a factory authorized service center. Authorization must be in writing. Do not attempt to disassemble the unit. See section 5.1 for servicing frequency.
- **6.4** Store the rope grab and lifeline in a cool, dry, clean environment out of direct sunlight. Avoid areas where chemical vapors may exist. Thoroughly inspect the rope grab and lifeline after any period of extended storage.

#### 7.0 SPECIFICATIONS / PERFORMANCE DATA

#### 7.1 SPECIFICATIONS:

- Material: All material used in the construction is certified to be new and free from defects.
- Construction: Riveted and welded with removable detent pin.
- Material Type:

Side Plates - 12 gauge, 316 stainless steel Hinge - 6061-T6 aluminum

Handle - 12 gauge, 316 stainless steel

Detent Pin - Stainless steel

Roller - 303 stainless steel, nitrided

Rivets - Stainless steel

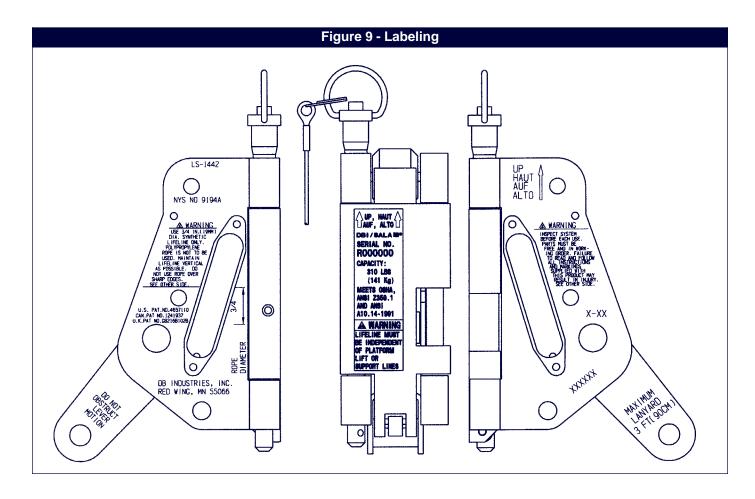
- Patent Number: U.S. 4,657,110, Can. 1,241,937, U.K. GB2,168,102B
- Approvals: New York State Approval Number 9194A (applies only to rope grab)

#### 7.2 PERFORMANCE DATA:

- **Maximum Arresting Distance:** 42 inches when dynamically tested in accordance with ANSI Z359.1. NOTE: This does not include lifeline elongation.
- Arrest Force: Designed for 1,800 lbs. maximum arresting force
- Maximum Capacity: 310 lbs.
- Requirements: Meets applicable ANSI standards including ANSI A10.14, ANSI Z359.1, and applicable OSHA standards, including OSHA 1910.66.

### 8.0 LABELING

**8.1** These labels and markings must be securely attached and fully legible:



# 9.0 INSPECTION AND MAINTENANCE LOG

DATE OF MANUFACTURE:					
MODEL NUMBER:					
DATE PURCHASED:					
INSPECTION DATE	INSPECTION ITEMS NOTED	CORRECTIVE ACTION	MAINTENANCE PERFORMED		
Approved By:		-			
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# 9.0 INSPECTION AND MAINTENANCE LOG

DATE OF MANUFACTURE:				
MODEL NUMBER:				
DATE PURCHASED:				
INSPECTION DATE	INSPECTION ITEMS NOTED	CORRECTIVE ACTION	MAINTENANCE PERFORMED	
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