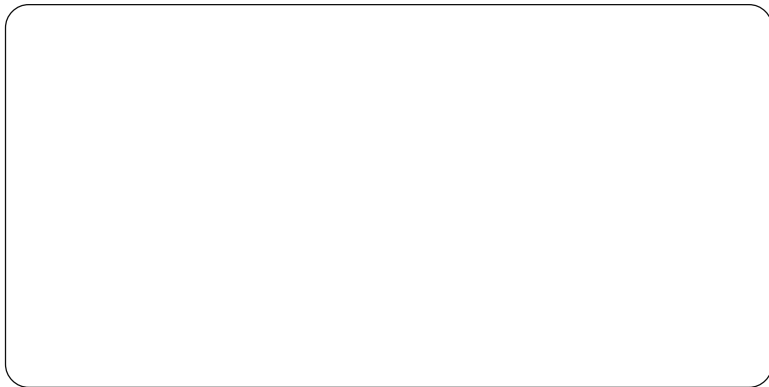


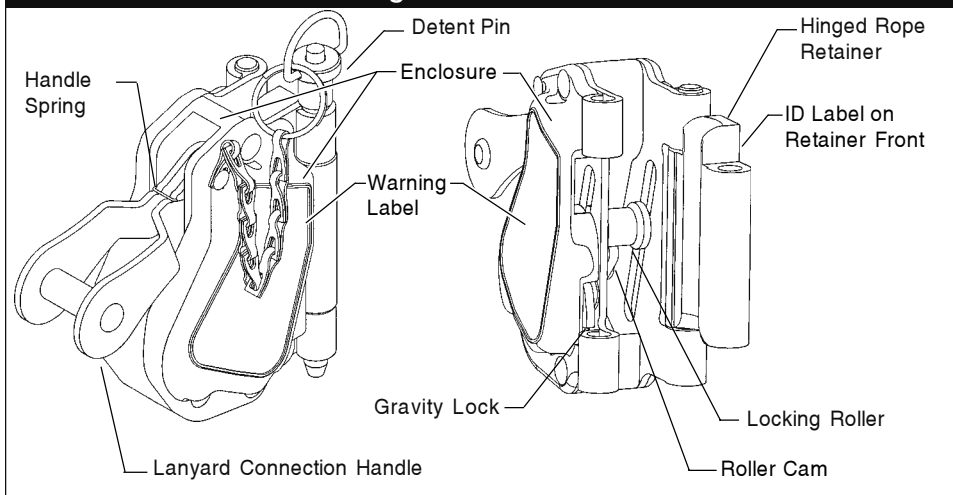


**User Instruction Manual 5000335  
Rope Grab**

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



**Figure 1 - 5000335**

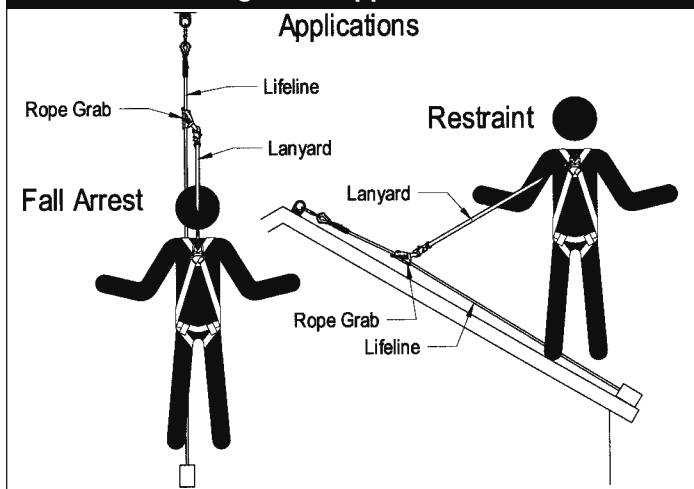


**WARNING:** This product is part of a personal fall arrest or restraint system. The user must follow the manufacturer's instructions for each component of the system. These instructions must be provided to the user of this equipment. The user must understand these instructions before using this equipment. 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.

**Figure 2 - Applications**



**1.0 APPLICATION**

**1.1 PURPOSE:** DBI/SALA rope grab 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). 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 Z359.1, and OSHA 1910.66, appendix C.

## 2.0 **SYSTEM REQUIREMENTS**

2.1 **COMPATIBILITY OF COMPONENTS:** DBI/SALA equipment is designed for use with DBI/SALA approved components and subsystems only. Substitutions or replacements made with non-approved components or subsystems may jeopardize compatibility of equipment and may effect the safety and reliability of the complete system.

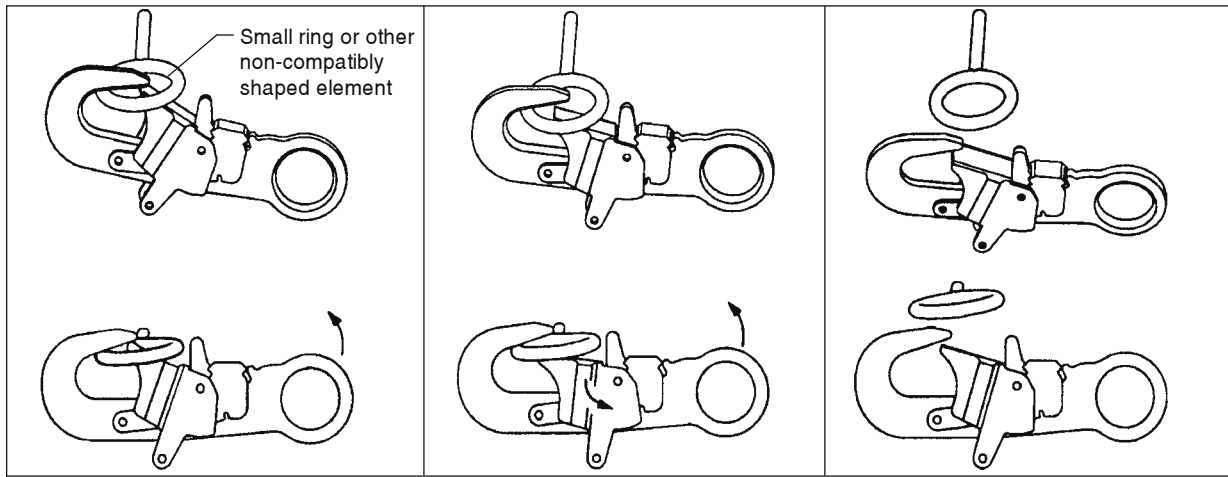
2.2 **COMPATIBILITY OF CONNECTORS:** Connectors are considered to be compatible with connecting elements when they have been designed to work together in such a way that their sizes and shapes do not cause their gate mechanisms to inadvertently open regardless of how they become oriented. Contact DBI/SALA if you have any questions about compatibility.

Connectors (hooks, carabiners, and D-rings) must be capable of supporting at least 5,000 lbs. (22kN). Connectors must be compatible with the anchorage or other system components. Do not use equipment that is not compatible. Non-compatible connectors may unintentionally disengage. See Figure 3. Connectors must be compatible in size, shape, and strength. Self locking snap hooks and carabiners are required by ANSI Z359.1 and OSHA.

2.3 **MAKING CONNECTIONS:** Only use self-locking snap hooks and carabiners with this equipment. Only use

### Figure 3 - Unintentional Disengagement (Roll-out)

If the connecting element that a snap hook (shown) or carabiner attaches to is undersized or irregular in shape, a situation could occur where the connecting element applies a force to the gate of the snap hook or carabiner. This force may cause the gate (of either a self-locking or a non-locking snap hook) to open, allowing the snap hook or carabiner to disengage from the connecting point.



1. Force is applied to the snap hook.

2. The gate presses against the connecting ring.

3. The gate opens allowing the snap hook to slip off.

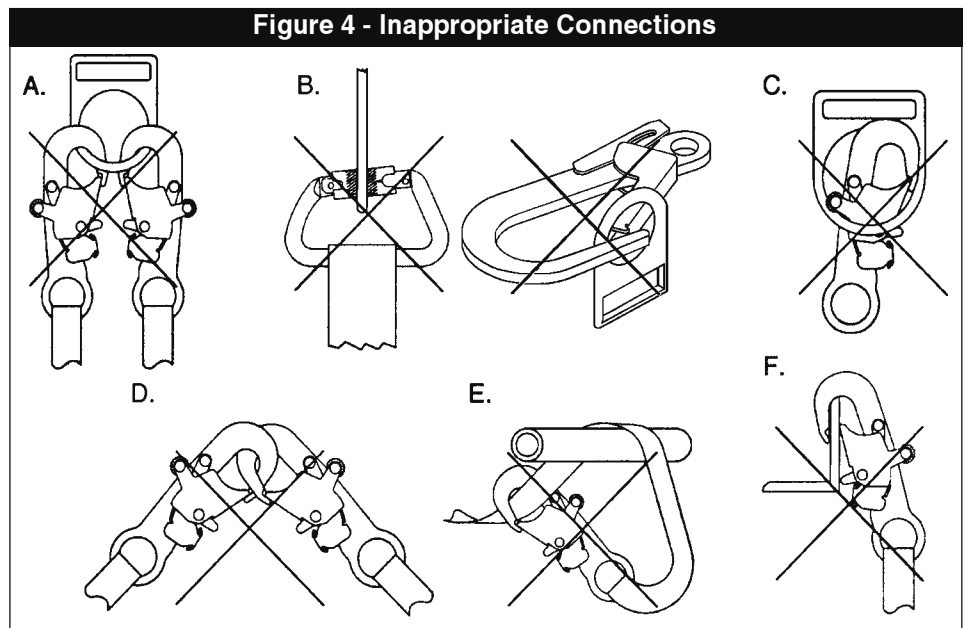
connectors that are suitable to each application. Ensure all connections are compatible in size, shape and strength. Do not use equipment that is not compatible. Ensure all connectors are fully closed and locked.

DBI/SALA connectors (snap hooks and carabiners) are designed to be used only as specified in each product's user's instructions. See Figure 4 for inappropriate connections. DBI/SALA snap hooks and carabiners should not be connected:

- A. To a D-ring to which another connector is attached.
- B. In a manner that would result in a load on the gate.

**NOTE:** Large throat opening snap hooks should not be connected to standard size D-rings or similar objects which will result in a load on the gate if the hook or D-ring twists or rotates. Large throat snap hooks are designed for use on fixed structural elements such as rebar or cross members that are not shaped in a way that can capture the gate of the hook.

- C. In a false engagement, where features that protrude from the snap hook or carabiner catch on the anchor and without visual confirmation seems to be fully engaged to the anchor point.
- D. To each other.
- E. Directly to webbing or rope lanyard or tie-back (unless the manufacturer's instructions for both the lanyard and connector specifically allows such a connection).
- F. To any object which is shaped or dimensioned such that the snap hook or carabiner will not close and lock, or that roll-out could occur.



**2.4 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.

**2.5 LIFELINES:** DBI/SALA rope grabs are to be used with DBI/SALA lifelines and lifeline subsystems. Lifelines used with the 5000335 are: 5/8-inch (16mm) diameter polyester/polypropylene blend rope assembly, 5/8-inch diameter polyester/polypropylene blend rope, 5/8-inch diameter polyester rope assembly, and 5/8-inch diameter polyester rope. See appropriate lifeline instructions for rope elongation factors. The following lifeline requirements must be followed:

**A. SIZE:** The 5000335 rope grab is designed to be used on 5/8-inch (16mm) 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 5/8 inch,  $\pm 1/32$  inch (0.8mm).

**B. CONSTRUCTION:** Three-strand lay rope constructions are recommended, but other constructions may also be acceptable. Consult DBI/SALA if you are considering using this equipment with other lifeline constructions. Braided, double braided, hollow braided, 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. ANSI Z359.1 requires rope used in vertical lifelines to be made of virgin synthetic materials having strength, aging resistance, abrasion resistance, and heat resistance characteristics equivalent or superior to polyamides.

**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).

**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.

**2.6 LANYARD:** The 5000335 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.

**2.7 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.

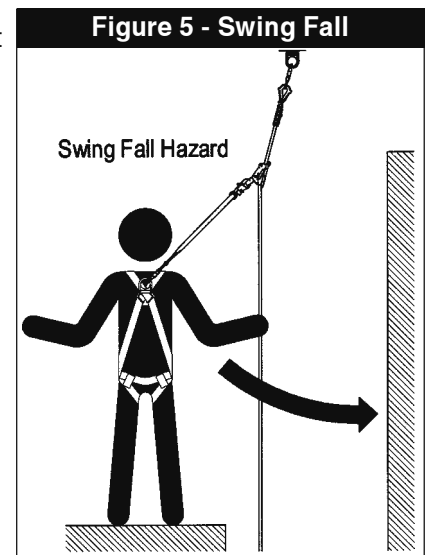
**NOTE:** Applications such as working near high voltage may require special lifeline materials, consult DBI/SALA before using such lifelines.

### 3.0 OPERATION AND USE

**WARNING:** Do not alter or intentionally misuse this equipment. Consult with DBI/SALA if using this equipment with components or subsystems other than those described in this manual. Some subsystem and component combinations may interfere with the operation of this equipment.

**WARNING:** Do not use this equipment if you are unable to tolerate the impact from a fall arrest. Age and fitness can seriously affect your ability to withstand a fall. Pregnant women and minors must not use this equipment.

- 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 2.4. 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 5.
  - 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 6 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



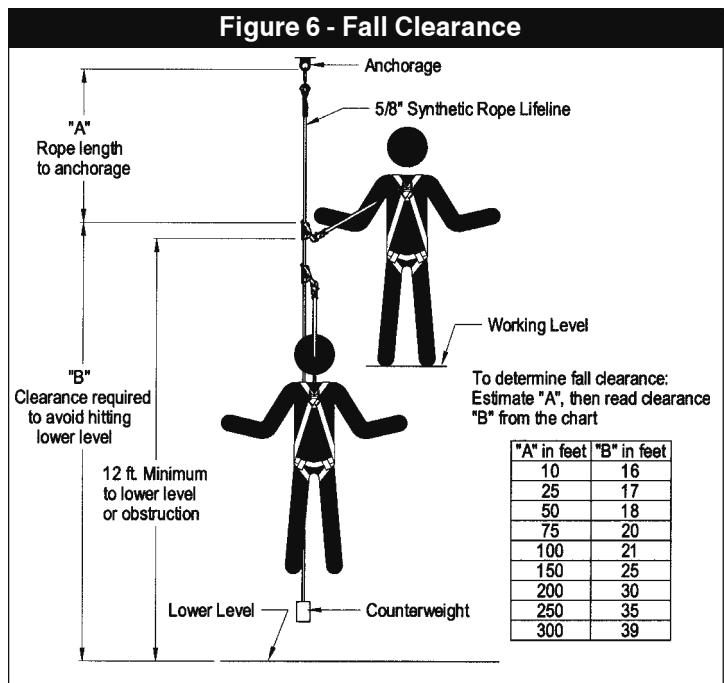
length as short as possible, and never greater than three feet. The lifeline must be protected from contact with sharp or abrasive edges and surfaces. The rope grab locking operation must not be hindered by interference with the roof or objects on the roof surface.

- 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.



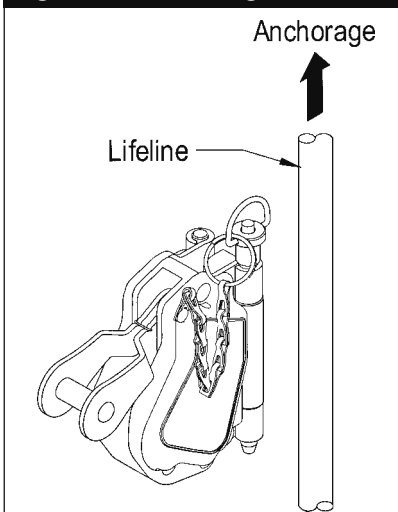
### 3.3 ATTACHING THE ROPE GRAB TO THE LIFELINE:

- Ensure the rope grab is in the "UP" position as indicated on the product label. The "UP" end of the rope grab must be oriented towards the anchorage when installed onto the lifeline. See Figure 7. NOTE: The rope grab hinge incorporates a lock which will prevent the hinge from closing if the rope grab is not held upright.
- Remove the detent pin and open the hinged rope retainer. Raise the lanyard connection handle to full "UP" position. Insert the lifeline into the rope grab. See Figure 8.
- Close the hinged rope retainer and replace the detent pin. Ensure the detent pin is locked (ball-lock on end of pin). See Figure 9. Attach the lanyard to the lanyard connection handle.
- Test the operation of the 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.

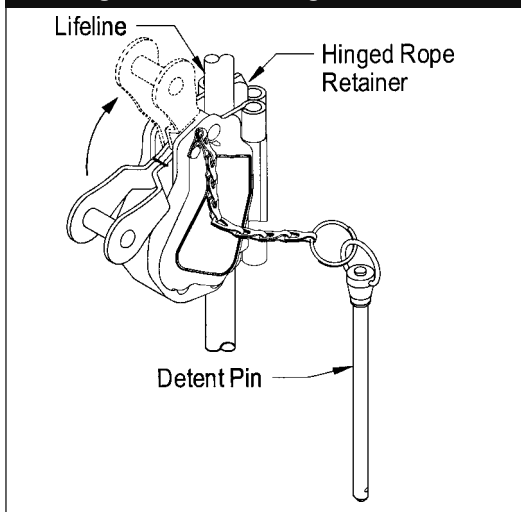
### 3.4 POSITIONING THE ROPE GRAB ON THE LIFELINE:

- Using the lanyard connected to the rope grab, pull up slightly on the rope grab to release it from its current position. Lift the handle if necessary. Keep a minimum of 12 ft. of rope below the rope grab for rope grab locking distance and fall clearance.

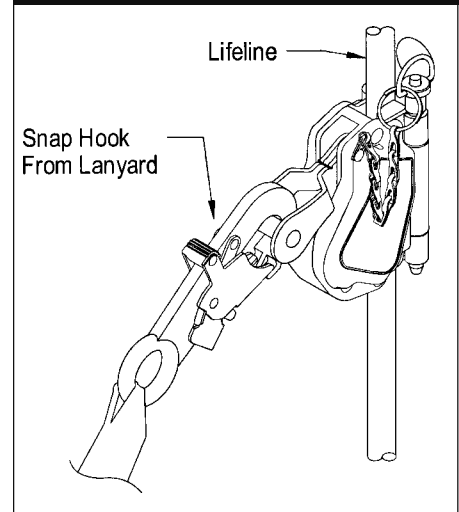
**Figure 7 - Attaching to Lifeline**



**Figure 8 - Attaching to Lifeline**



**Figure 9 - Attaching to Lifeline**

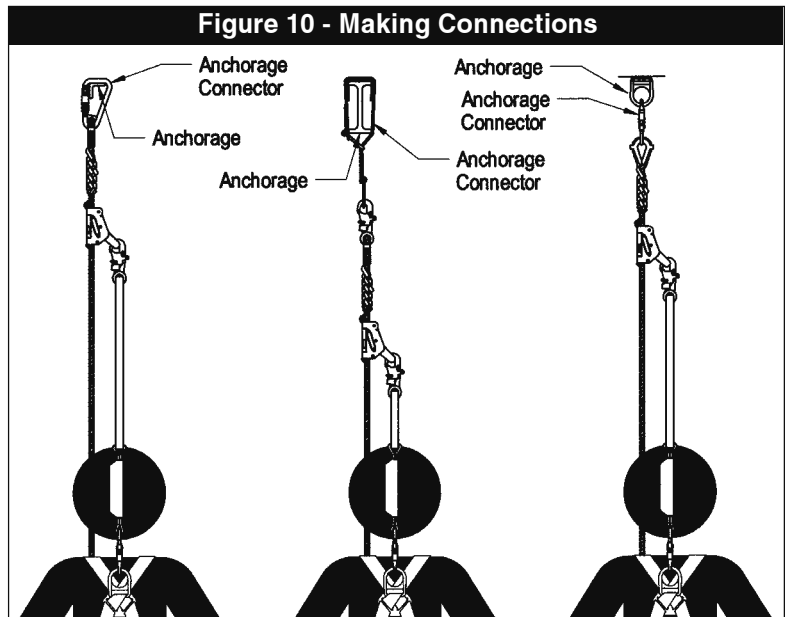


- B. Using the connected lanyard, raise or lower the rope grab to the desired new position. Tension the lifeline to assure smooth motion of the rope grab on the lifeline. To tension the lifeline, extend 50 to 75 feet of lifeline below the rope grab, or secure the end of the lifeline at working or ground 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. The handle must be released before attempting to reposition the 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 must not exceed three feet (0.9m) in length.

**WARNING:** Rope grab attachment and positioning instructions and procedures must be followed. Improper assembly could allow the 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 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. See Figure 10.

**3.6 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 the body support manufacturer's instructions for more information on making connections.



**3.7 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 self closing/self 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.

**3.8 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 the 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. See section 6.0.

**3.9 AFTER USE** of the rope grab and its subsystem components, return it 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 the equipment 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. NOTE: Cal/OSHA requires personal fall arrest systems be inspected prior to each use for wear, damage, and defects and inspected by a competent person\* at least twice a year, in accordance with the manufacturer's recommendations, with inspection dates documented.

*\*Competent person: An individual knowledgeable of a manufacturer's recommendations, instructions and manufactured components who is capable of identifying existing and predictable hazards in the proper selection, use and maintenance of fall protection.*

**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 the action of the 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 roller cam where it contacts the locking roller. The roller cam must push the locking roller into the rope.
- Step 3.** Inspect the handle spring. It should be in its correct place and undamaged.
- Step 4.** Inspect the detent pin. When pushed down and released, the top button should spring back up. The pin should easily slide through the rope grab body and hinge. The pin must lock in place when the button is released.
- Step 5.** The hinged rope retainer must pivot freely and close completely. Check that the gravity lock 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 the enclosure parts for cracks, distortion, or other damage.
- Step 8.** Inspect each system component or subsystem per associated manufacturer's instructions.



**Step 9.** Record the inspection date and results in the inspection log in section 9.0.

### **5.3 INSPECTION STEPS FOR LIFELINE:** (See the 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 the rope for concentrated wear. The 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 the 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 a 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 the Lifeline User Instruction Manual for specific maintenance details.

**6.2** 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 inspection frequency.

**6.3** 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
  - Enclosure - Nylon
- **Patent Number:** U.S. 4,657,110, Can. 1,241,937, U.K. GB2,168,102B

## 7.2 PERFORMANCE DATA:

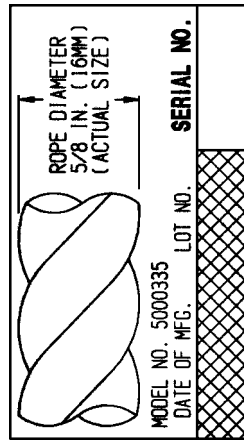
- **Maximum Arresting Distance:** 42 inches when dynamically tested in accordance with ANSI Z359.1.  
NOTE: This does not include lifeline elongation.
- **Arrest Force:** Designed for 1,800 lbs. maximum arresting force
- **Maximum Capacity:** 310 lbs.
- **Requirements:** Meets applicable ANSI standards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

## 8.0 LABELING

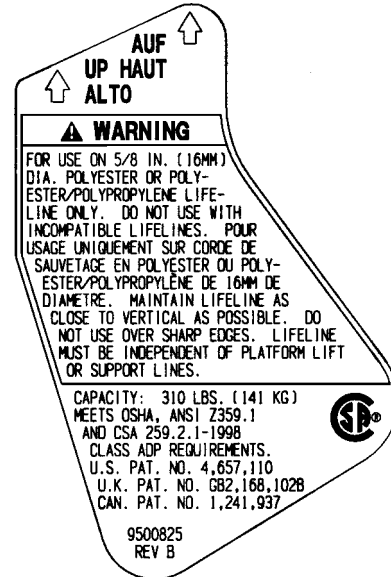
8.1 These labels and markings must be securely attached and fully legible:



Warning Label 9500823



ID Label 9500627



Warning Label 9500825

**9.0 INSPECTION AND MAINTENANCE LOG**

**DATE OF MANUFACTURE:** \_\_\_\_\_

**MODEL NUMBER:** \_\_\_\_\_

**DATE PURCHASED:** \_\_\_\_\_

INSPECTION DATE	INSPECTION ITEMS NOTED	CORRECTIVE ACTION	MAINTENANCE PERFORMED
Approved By: _____			
Approved By: _____			
Approved By: _____			
Approved By: _____			
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Distributed by Engineered Fall Protection  
Sales@EngineeredFallProtection.com  
www.EngineeredFallProtection.com  
Tel: (314) 492-4422





**Instructions for the following series products:**

EZ Stop Lanyards  
 ShockWave Lanyards  
 EZ Stop Retrax Lanyards

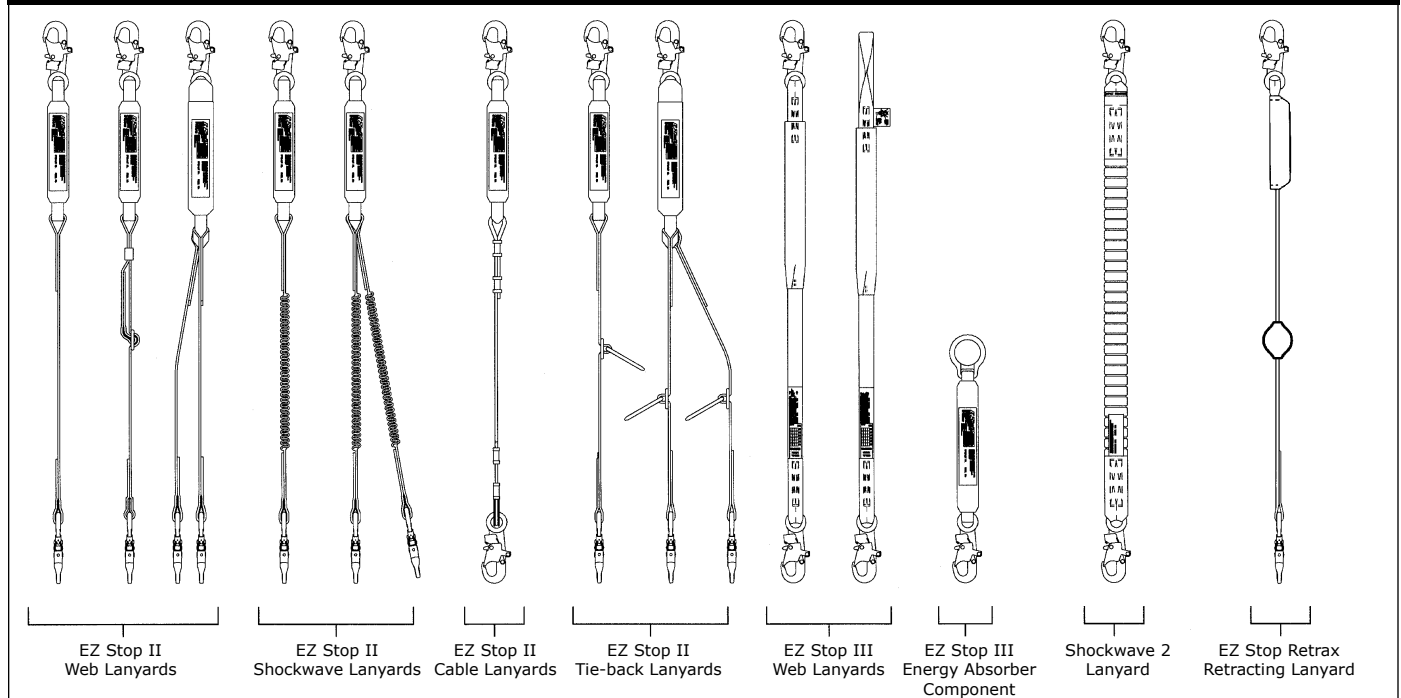
(See back pages for model numbers)

**USER INSTRUCTION MANUAL**

**LANYARDS WITH INTEGRAL ENERGY ABSORBERS AND ENERGY ABSORBER COMPONENTS USED IN PERSONAL FALL ARREST SYSTEMS (ANSI Z359.1)**

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

**Figure 1 - EZ STOP® Lanyards**



**IMPORTANT:** Before using this equipment record the product identification information (found on the I.D. label) in the inspection and maintenance log in section 10.0 of this manual.

**DESCRIPTIONS**

**EZ STOP® II WEB LANYARDS**

- 1-in. (2.5 cm) web, 9503175 hook each end.
- 1-in. (2.5 cm) web, 9503175 hook one end, 2007153 hook other end.
- 1-in. (2.5 cm) web, 9503175 hook one end, 1200049 wire pipe clamp other end.
- 1-in. (2.5 cm) web, 9503175 hook one end, 2000108 carabiner other end.
- 1-in. (2.5 cm) web, web loop one end, 2007153 hook other end.
- 1-in. (2.5 cm) web, web loop one end, 9503175 hook other end.
- 1-in. (2.5 cm) web, adjustable, 9503175 hook each end.
- 1-in. (2.5 cm) web, 100% tie-off, 9503175 hook center, 2007153 hook leg ends.
- 1-in. (2.5 cm) web, 100% tie-off, 9503175 hook center and leg ends.
- 1-in. (2.5 cm) web, 100% tie-off, 9503175 hook center, 2000108 carabiner leg ends.
- 1-in. (2.5 cm) web, 100% tie-off, web loop center, 2007153 hook leg ends.
- 1-in. (2.5 cm) web, 100% tie-off, web loop center, 9503175 hook leg ends.

## **EZ STOP® II SHOCKWAVE™ WEB LANYARDS**

- 1-in. (2.5 cm) elastic web, 9503175 hook each end.
- 1-in. (2.5 cm) elastic web, 9503175 hook one end, 2007153 hook other end.
- 1-in. (2.5 cm) elastic web, web loop one end, 2007153 hook other end.
- 1-in. (2.5 cm) elastic web, web loop one end, 9503175 hook other end.
- 1-in. (2.5 cm) elastic web, 100% tie-off, 9503175 hook center and both ends.
- 1-in. (2.5 cm) elastic web, 100% tie-off, 9503175 hook center, 2007153 hook leg ends.
- 1-in. (2.5 cm) elastic web, 100% tie-off, web loop center, 2007153 hook leg ends.
- 1-in. (2.5 cm) elastic web, 100% tie-off, web loop center, 9503175 hook leg ends.

## **EZ STOP® II CABLE LANYARDS**

- 7/32-in. (.6 cm) cable, 9503175 snap hook each end.
- 7/32-in. (.6 cm) cable, 9503175 snap hook one end, 2007153 snap hook other end.
- 7/32-in. (.6 cm) cable, 9503175 snap hook one end, 2000108 carabiner other end.

## **EZ STOP® II TIE-BACK LANYARDS**

- 1-in. (2.5 cm) web, 9503175 hook both ends, floating D-ring.
- 1-in. (2.5 cm) web, 100% tie-off, 9503175 hook center and leg ends, floating D-rings.

## **EZ STOP® III WEB LANYARDS**

- 1 3/8-in. (3.5 cm) web, 9503175 hook each end.
- 1 3/8-in. (3.5 cm) web, 9503175 hook one end, 2007153 hook other end.
- 1 3/8-in. (3.5 cm) web, 9503175 hook one end, 2000108 carabiner other end.
- 1 3/8-in. (3.5 cm) web, 9503175 hook one end, 1200049 wire pipe hook other end.
- 1 3/8-in. (3.5 cm) web, web loop one end, 2007153 hook other end.
- 1 3/8-in. (3.5 cm) web, web loop one end, 9503175 hook other end.

## **EZ STOP® II ENERGY ABSORBER COMPONENT**

- 9503175 hook one end, D-ring one end, 24-in. length.

## **SHOCKWAVE 2™ WEB LANYARD**

- 1 15/16-in. (4.9 cm) web, 9503175 hook each end.
- 1 7/8-in. (4.8 cm) web, 9502116 hook one end, 9500810 hook other end

## **EZ STOP® RETRAX™ RETRACTING WEB LANYARD**

- 1 3/8-in. (3.5 cm) web, 9503175 hook each end.
- 1 3/8-in. (3.5 cm) web, 9503175 hook one end, 9510057 hook other end.
- 1 3/8-in. (3.5 cm) web, 9503175 hook one end, 2007153 hook other end.
- 1 3/8-in. (3.5 cm) web, 100% tie-off, 9503175 hook each end.

Note: Other hook and lanyard options are available.

**Please read, understand, and follow all safety information contained in these instructions prior to the use of this Work Positioning/Travel Restraint Lanyard. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY OR DEATH.**

**These instructions must be provided to the user of this equipment. Retain these instructions for future reference.**

## **INTENDED USE:**

This Work Positioning/Travel Restraint Lanyard is intended for use as part of a complete personal fall protection system. Work Positioning/Travel restraint lanyards are used to prevent the user from reaching or being exposed to a fall hazard. Use in any other application including, but not limited to, material handling, recreational or sports related activities, or other activities not described in the User Instructions, is not approved by 3M and could result in serious injury or death. This device is only to be used by trained users in workplace applications.

## **! WARNING**

This Work Positioning/Travel Restraint Lanyard is part of a personal fall protection system. It is expected that all users be fully trained in the safe installation and operation of their personal fall protection system. **Misuse of this device could result in serious injury or death.** For proper selection, operation, installation, maintenance, and service, refer to these User Instructions and all manufacturer recommendations, see your supervisor, or contact 3M Technical Services.

- **To reduce the risks associated with working with a Work Positioning/Travel Restraint Lanyard which, if not avoided, could result in serious injury or death:**
  - Only use this device for work positioning or in travel restraint applications. Work Positioning Lanyards must be configured to limit free fall distance to two feet or less and minimize swing fall. Travel Restraint Lanyards must prevent the user from reaching or being exposed to a fall hazard.
  - Never use this lanyard (i.e., a non-energy absorbing lanyard) as a primary fall arrest device.
  - Inspect the device before each use, at least annually, and after any fall event. Inspect in accordance with the User Instructions.
  - If inspection reveals an unsafe or defective condition, remove the device from service and destroy it.
  - Any device that has been subject to fall arrest or impact force must be immediately removed from service. Refer to the User Instructions or contact 3M Fall Protection.
  - Ensure all connecting subsystems (e.g. lanyards) are kept free from all hazards including, but not limited to, entanglement with other workers, yourself, moving machinery, or other surrounding objects.
  - Ensure proper edge protection is used when the lifeline may come into contact with sharp edges or corners.
  - Ensure the device is rigged appropriately for the intended use.
  - Attach the unused leg(s) of the lanyard to the parking attachment(s) of the harness if equipped.
  - Do not tie or knot the lanyard.
  - Do not exceed the number of allowable users.
  - Ensure that fall protection systems/subsystems assembled from components made by different manufacturers are compatible and meet the requirements of applicable standards, including the ANSI Z359 or other applicable fall protection codes, standards, or requirements. Always consult a Competent or Qualified Person before using these systems.
- **To reduce the risks associated with working at height which, if not avoided, could result in serious injury or death:**
  - Ensure your health and physical condition allow you to safely withstand all of the forces associated with working at height. Consult with your doctor if you have any questions regarding your ability to use this equipment.
  - Never exceed allowable capacity of your fall protection equipment.
  - Never exceed maximum free fall distance of your fall protection equipment.
  - Do not use any fall protection equipment that fails pre-use or other scheduled inspections, or if you have concerns about the use or suitability of the equipment for your application. Contact 3M Technical Services with any questions.
  - Some subsystem and component combinations may interfere with the operation of this equipment. Only use compatible connections. Consult 3M prior to using this equipment in combination with components or subsystems other than those described in the User Instructions.
  - Use extra precautions when working around moving machinery (e.g. top drive of oil rigs), electrical hazards, extreme temperatures, chemical hazards, explosive or toxic gases, sharp edges, or below overhead materials that could fall onto you or your fall protection equipment.
  - Use Arc Flash or Hot Works devices when working in high heat environments.
  - Avoid surfaces and objects that can damage the user or equipment.
  - Ensure there is adequate fall clearance when working at height.
  - Never modify or alter your fall protection equipment. Only 3M or parties authorized in writing by 3M may make repairs to the equipment.
  - Prior to use of fall protection equipment, ensure a rescue plan is in place which allows for prompt rescue if a fall incident occurs.
  - If a fall incident occurs, immediately seek medical attention for the worker who has fallen.
  - Do not use a body belt for fall arrest applications. Use only a Full Body Harness.
  - Minimize swing falls by working as directly below the anchorage point as possible.
  - If training with this device, a secondary fall protection system must be utilized in a manner that does not expose the trainee to an unintended fall hazard.
  - Always wear appropriate personal protective equipment when installing, using, or inspecting the device/system.

## 1.0 APPLICATIONS

- 1.1 PURPOSE:** DBI-SALA Energy Absorbing Lanyards and Energy Absorbers are intended to be used as part of a personal fall arrest system. Applications for these products include inspection work, construction and demolition, maintenance, oil production, confined space rescue, and similar activities where there exists the possibility of a fall. This equipment is specially designed to dissipate fall energy and limit fall arrest forces transferred to the body.
- 1.2 LIMITATIONS:** The following application limitations must be considered before using this product:
- A. CAPACITY:** This equipment is for use by persons with a combined weight (person, clothing, tools, etc.) of no more than 310 lbs. (140.6 kg). CSA models meet Z25911-05 E4 or E6 classifications. See back cover for associated capacities and model numbers.
  - B. PHYSICAL AND ENVIRONMENTAL HAZARDS:** Use of this equipment in areas containing physical or environmental hazards may require that additional precautions be taken to reduce the possibility of damage to this equipment or injury to the user. Hazards may include, but are not limited to: high heat, strong or caustic chemicals, corrosive environments, the possibility of electric current flowing through this equipment when working near high voltage power lines, explosive or toxic gases, moving machinery, sever cold, or sharp edges. Contact DBI-SALA if you have any questions about the application of this equipment in areas where physical or environmental hazards are present.
  - C. TRAINING:** This equipment is intended to be installed and used by persons who have been properly trained in its correct application and use.
- 1.3** Refer to national standards including ANSI Z359 (.0, .1, .2, .3, and .4), family of standards on fall protection, ANSI A10.32, and applicable local, state, and federal (OSHA) requirements governing occupational safety for more information on Energy Absorbing Lanyards, Energy Absorbers and associated components. In Canada, see the Z259 group of CSA Standards.

## 2.0 SYSTEM REQUIREMENTS

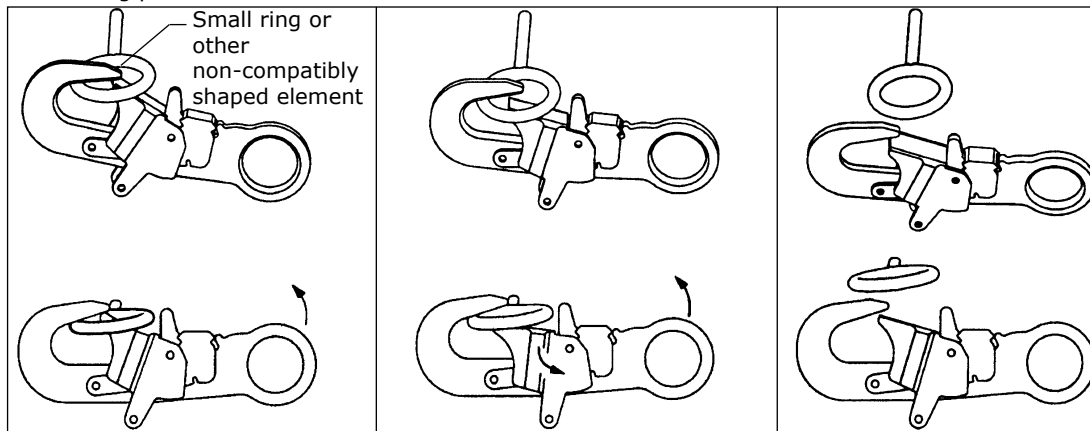
- 2.1 COMPATIBILITY OF CONNECTORS:** DBI-SALA equipment is designed for use with DBI-SALA approved components and subsystems only. Substitutions or replacements made with non-approved components or subsystems may jeopardize compatibility of equipment and may effect the safety and reliability of the complete system.

**COMPATIBILITY:** Connectors must be compatible with the anchorage or other system components. Do not use equipment that is not compatible. Non-compatible connectors may unintentionally disengage. See Figure 2. Connectors must be compatible in size, shape, and strength regardless of orientation. Self-locking snap hooks and carabiners are required by ANSI Z359.1 and OSHA. Contact DBI-SALA if you have any questions about compatibility.

Connectors ( hooks, carabiners, and D-rings) must be capable of supporting a tensile load of at least 5,000 lbs. (22.2 kN). Per ANSI Z359.1, connector gates must be able to withstand a load of 3,600 lbs (16 kN): the face of the gate must withstand 3,600 lbs (16 kN); the side of the gate must withstand 3,600 lbs (16kN), and the minor axis of a snap hook or carabiner must withstand 3,600 lbs (16 kN), except for those with captive eyes.

**Figure 2 - Unintentional Disengagement (Roll-out)**

If the connecting element that a snap hook (shown) or carabiner attaches to is undersized or irregular in shape, a situation could occur where the connecting element applies a force to the gate of the snap hook or carabiner. This force may cause the gate (of either a self-locking or a non-locking snap hook) to open, allowing the snap hook or carabiner to disengage from the connecting point.



1. Force is applied to the snap hook.

2. The gate presses against the connecting ring.

3. The gate opens allowing the snap hook to slip off.

- 2.2 MAKING CONNECTIONS:** Only use self-locking snap hooks and carabiners with this equipment. Only use



connectors that are suitable to each application. Ensure all connections are compatible in size, shape and strength. Do not use equipment that is not compatible. Ensure all connectors are fully closed and locked.

DBI-SALA connectors (snap hooks and carabiners) are designed to be used only as specified in each product's user instructions. See Figure 3 for inappropriate connections. DBI-SALA snap hooks and carabiners should not be connected:

- A. To a D-ring to which another connector is attached.
- B. In a manner that would result in a load on the gate.

**NOTE:** Large throat-opening snap hooks should not be connected to standard size D-rings or similar objects which will result in a load on the gate if the hook or D-ring twists or rotates. Large throat snap hooks are designed for use on fixed structural elements such as rebar or cross members that are not shaped in a way that can capture the gate of the hook.

- C. In a false engagement, where features that protrude from the snap hook or carabiner catch on the anchor, and without visual confirmation seems to be fully engaged to the anchor point.
- D. To each other.
- E. Directly to webbing or rope lanyard or tie-back (unless the manufacturer's instructions for both the lanyard and connector specifically allows such a connection).
- F. To any object which is shaped or dimensioned such that the snap hook or carabiners will not close and lock, or that roll-out could occur.
- G. In a manner that does not allow the connector to align with the fall arrest device (i.e., lanyard) while under load.

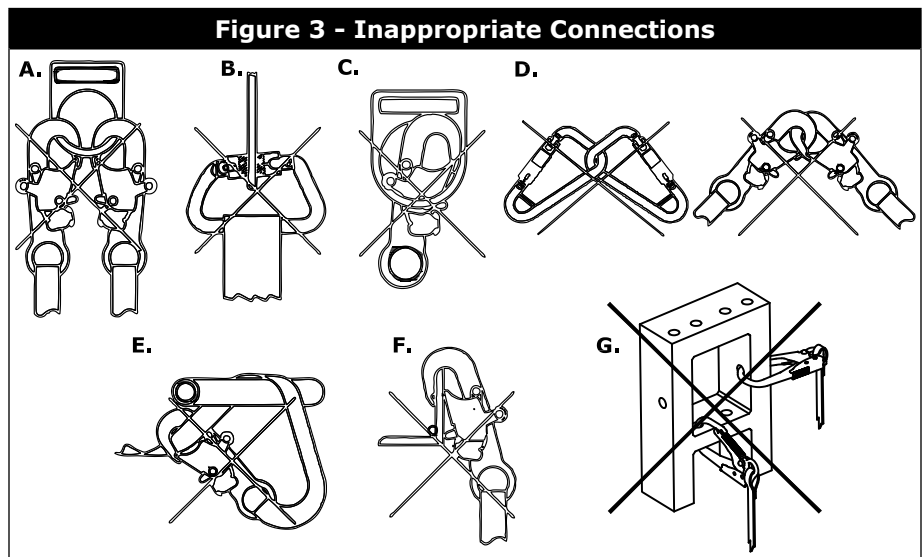
**2.3 ANCHORAGE STRENGTH:** In accordance with ANSI Z359.1, anchorages selected for fall arrest systems shall have a strength capable of sustaining static loads applied in the directions permitted by the system of at least:

- A. 5,000 pounds (22.2kN) for non-certified anchorages, or
- B. Two times the maximum arresting force for certified anchorages.

When more than one fall arrest system is attached to an anchorage, the strengths set forth in (A) and (B) above shall be multiplied by the number of systems attached to the anchorage.

**WARNING:** Anchorages must be rigid. Large deformations of the anchorage will affect system performance, and may increase the required fall clearance below the system, which could result in serious injury or death.

From 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. (22.2 kN) 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. Anchorages selected for work positioning systems shall have a strength capable of sustaining static loads applied in the directions permitted by the system of at least:



- A. 3,000 pounds (13.3kN) for non-certified anchorages, or
- B. Two times the foreseeable force for certified anchorages.

When more than one work positioning system is attached to an anchorage, the strengths set forth in (A) and (B) above shall be multiplied by the number of systems attached to the anchorage.

### 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. Do not loop the lanyard around small structural members.

**WARNING:** Working at height has inherent risks. Some risks are noted here but are not limited to the following: falling, suspension/prolonged suspension, striking objects, and unconsciousness. In the event of a fall arrest and/or subsequent rescue (emergency) situation, some personal medical conditions may affect your safety. Medical conditions identified as risky for this type of activity include but are not limited to the following: heart disease, high blood pressure, vertigo, epilepsy, drug or alcohol dependence, psychiatric illness, impaired limb function and balance issues. We recommend that your employer/physician determine if you are fit to handle normal and emergency use of this equipment

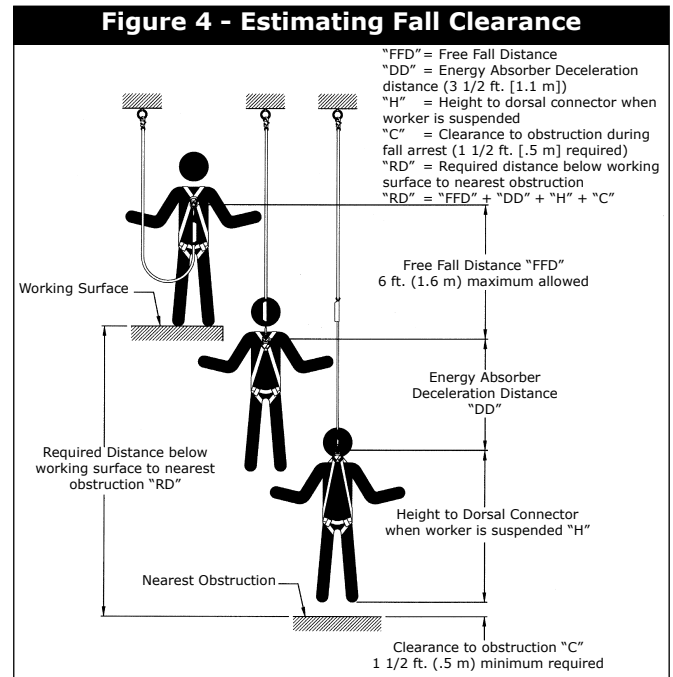
- 3.1 BEFORE EACH USE** of this equipment, carefully inspect it to assure that it is in good working condition. Check for worn or damaged parts. Ensure all hardware is present and secure, and is not distorted or have any sharp edges, burrs, cracks, or corrosion. Ensure self-locking snap hooks or carabiners work properly. Inspect rope or webbing for wear, cuts, burns, frayed edges, breaks, or other damage. See section 5.0 for further inspection details. Do not use if inspection reveals an unsafe condition.
- 3.2 PLAN** your fall protection system before starting your work. Take into consideration factors that affect your safety before, during, and after a fall. 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. The anchorage should be generally level (horizontal) to prevent the anchorage connector from sliding down an incline when in use, which could cause serious injury to the user.

- B. FREE FALL:** Personal fall arrest systems must be rigged such that the potential free fall is never greater than 6 ft. (1.8 m). Avoid working above your anchorage level to avoid an increased free fall distance.

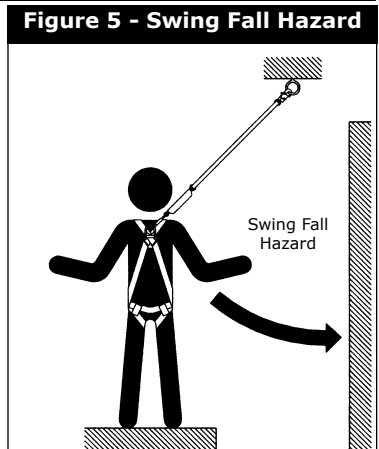
**IMPORTANT:** Some energy absorbing lanyards, such as EZ Stop® Retrax™ and the Shockwave lanyards, make use of retracting devices designed to shorten their free length. These devices do not decrease free fall distance

- C. FALL ARREST FORCES:** The assembled fall arrest system must keep fall arrest forces below 1,800 lbs. (8.0 kN) when used with a full body harness.

- D. FALL CLEARANCE:** Should a fall occur, there must be sufficient clearance in the fall area to arrest the fall before striking the ground or other object. Energy absorbers can extend the fall arrest distance by up to 42 inches (106.7 cm). Figure 4 shows how to estimate fall clearance distance when using an energy absorbing lanyard or energy absorber subsystem. Other factors may influence the required clearance distances. For example, using an energy absorbing lanyard or energy absorber with a rope grab (fall arrestor) may require additional clearance due to stretch in the lifeline or sliding of the rope grab on the lifeline during fall arrest. Some full body harness models incorporate a sliding (positional) D-ring in the back as the fall arrest attachment, movement of this D-ring during fall arrest can increase the fall clearance distance required. Use caution when assembling system components that could act to extend the fall arrest distance (and therefore fall clearance required). Refer to manufacturer's instructions for each part of the system for more information on fall clearance.



- E. 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 (horizontal speed of the user due to the pendulum affect) can be great and may cause serious injury. In a swing fall situation, the total vertical fall distance of the user will be greater than if the user had fallen vertically directly below the anchorage point. The user must therefore account for an increase in the total free fall distance and the area needed to safely arrest the fall. Swing falls can be minimized by working as directly below the anchorage point as possible. Never permit a swing fall if injury could occur. If a swing fall situation exists in your application contact DBI-SALA before proceeding. See Figure 5.



- F. SHARP EDGES:** Avoid working where the lanyard, subsystem, or other system components will be in contact with, or abrade against, unprotected sharp edges. Do not loop lanyard around small diameter structural members. If working with this equipment near sharp edges is unavoidable, protection against cutting must be provided by using a heavy pad or other means over the exposed sharp edge.

- G. RESCUE:** The user (employer) must have a rescue plan and the ability to implement it when using this equipment

- H. AFTER A FALL:** Lanyards with integral energy absorbers, or energy absorber components which have been subjected to the forces of arresting a fall must be removed from service and destroyed. See Figure 18.

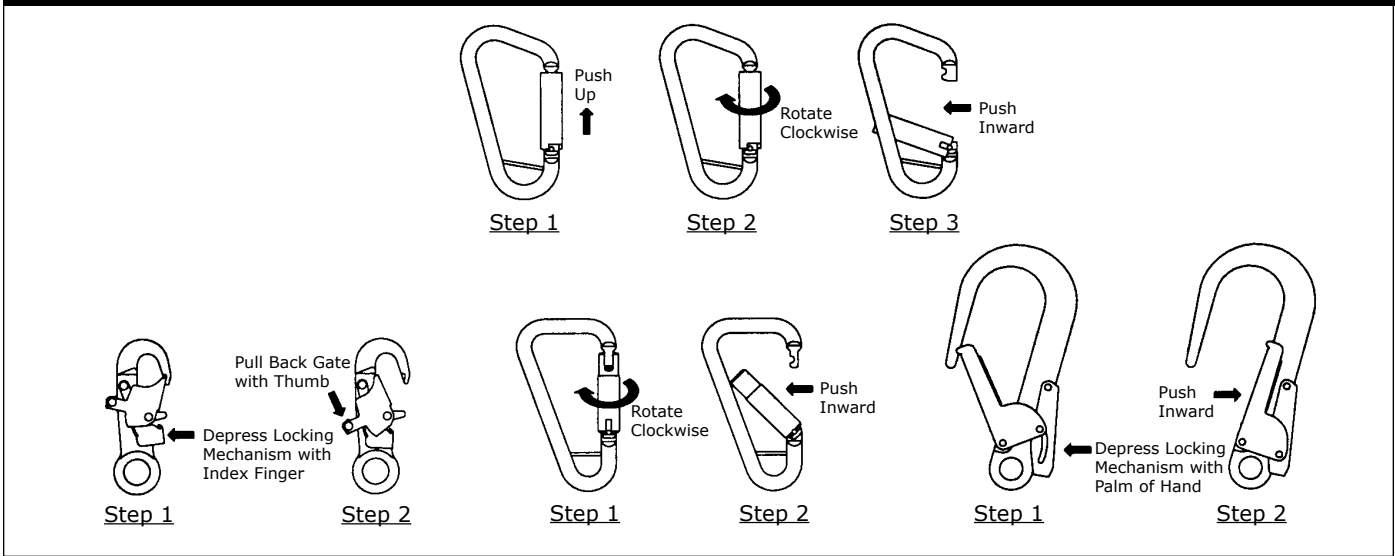
**WARNING:** Read and follow manufacturer's instructions for associated equipment (full body harness, rope grab, etc.) used in your fall protection system.

**IMPORTANT:** For special (custom) versions of this product, follow the instructions herein. If included, see supplement for additional instructions.

- 3.3 MAKING CONNECTIONS:** See Figure 6 for hook operation. When using a hook to connect to an anchorage, or when coupling components of the system together, ensure accidental disengagement (roll-out) cannot occur. Roll-out occurs when interference between a hook and the mating connector causes the hook's gate or keeper to accidentally open and release. Roll-out may occur when a hook is connected to an undersized ring such as an eye bolt or other non-compatible shaped connector. Self-locking snap hooks or self-locking and self-closing gate carabiners should be used to reduce the possibility of roll-out when making connections. Do not use hooks or connectors that will not completely close over the attachment object. For

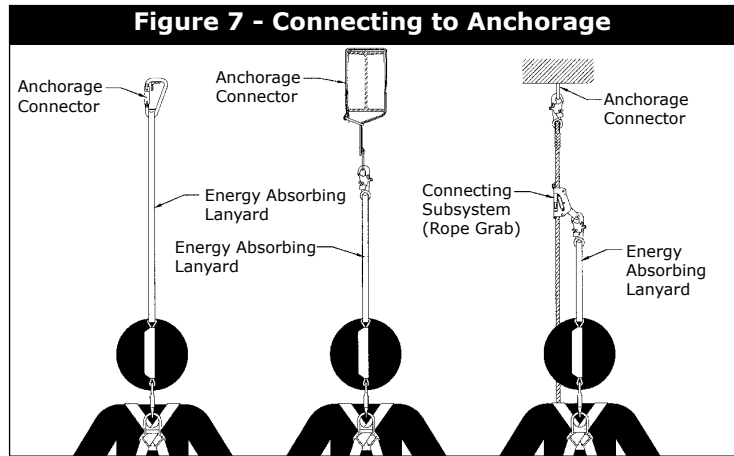
these situations, use a tie-off adaptor or other anchorage connector to allow a compatible connection. Do not knot the lanyard in any manner, and do not hook the lanyard back into itself (choker style). Snap hooks and carabiners must not be connected to each other. Do not attach snap hooks to web loops.

**Figure 6 - Making Connections**

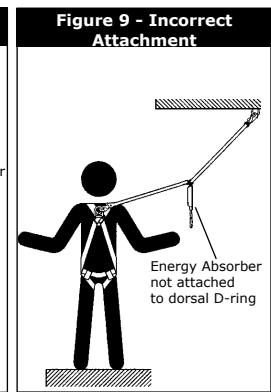
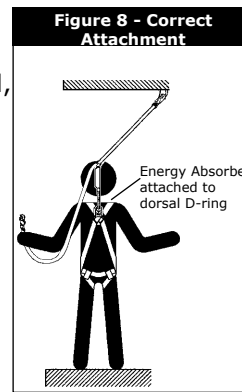


**A. CONNECTING TO ANCHORAGE OR ANCHORAGE CONNECTOR:**

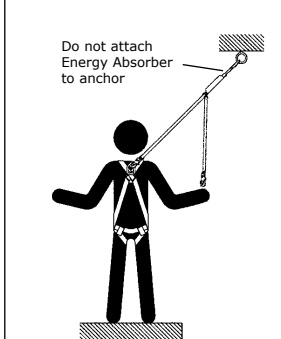
See Figure 7. Always connect the energy absorber end of the lanyard to the body support (harness). Connect the lanyard end to the anchorage or anchorage connector. Component style energy absorbers should be connected to the body support first, then coupled to the rest of the system. Some anchorage connector devices may be supplied with permanently attached energy absorber. Use of an additional energy absorber or energy absorbing lanyard with these types of subsystems is not recommended.



**100% Tie-off Lanyard Considerations:** Commonly known as 100% tie-off, "Y" type, twin leg, or double lanyards; these energy absorbing lanyards can be used to provide continuous fall protection while ascending, descending, or moving laterally. With one lanyard leg attached, the worker can move to a new location, attach unused lanyard leg, and disconnect attached leg. This procedure is repeated until a new location is reached. With the EZ Stop® II Shockwave 100% tie-off type lanyard, only one leg of the lanyard shall be attached to the anchorage or anchorage connector once a working location is reached. Other practices that must be followed in order to use a 100% tie-off type lanyard safely include:

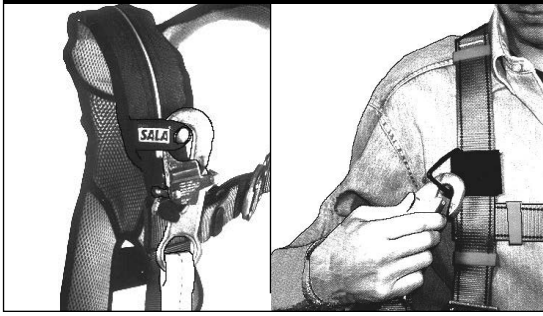


**Figure 10 - Incorrect Attachment**

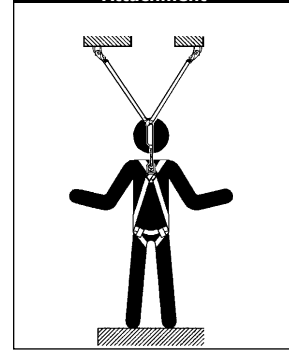


1. The energy absorber portion of the lanyard must be connected to the dorsal D-ring only. Use only the snap hook (or other connector provided) to attach the energy absorber portion directly to the harness dorsal D-ring. See Figures 8 and 9.
2. Do not connect the energy absorber to the anchorage. See Figure 10.
3. Do not attach the unused leg of the lanyard back to the harness at any location unless a specially designed lanyard retainer is provided for this purpose. See Figure 11.
4. Connection of both lanyard legs to separate anchorage points is acceptable. See Figure 12.

**Figure 11 - Acceptable Designed Retainers**

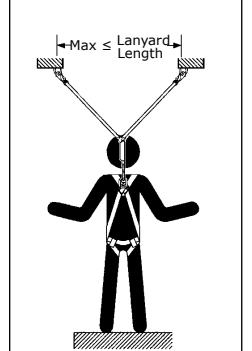


**Figure 12 - Acceptable Attachment**



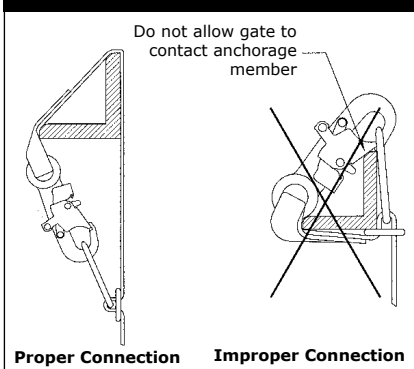
5. When leapfrogging from one anchorage point to the next (such as traversing a horizontal or vertical structure) do not connect to anchorage points that are further apart than the lanyard length (as marked on the lanyard label). See Figure 13.
6. Never connect more than one person to a "Y" type lanyard at a time.
7. Do not allow any lanyard to pass under arms or legs during use.

**Figure 13 - Max Lanyard Reach**



**Attaching a Tie-Back Lanyard:** See Figure 14. Place the tie-back lanyard over the anchoring structure. Ensure the lanyard is not twisted. Adjust the floating D-ring so it hangs below the anchoring structure. Attach the lanyard end hook to the floating D-ring.

**Figure 14 - Attaching Tie-Back**

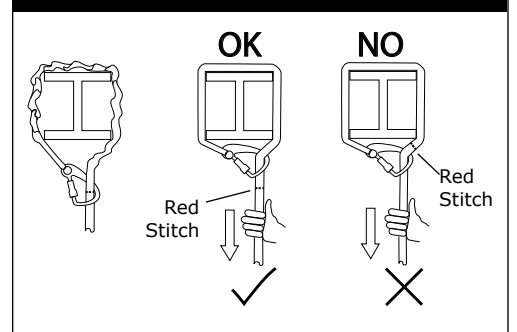


**Attaching a Shockwave 2 Tie-Back Lanyard**

Shockwave 2 Tie-back lanyards (model no. 1244650 and 1244675) are the only Shockwave models suitable for tie back applications. Do not use regular Shockwave 2 models for tie back applications.

Tie back using the captive eye carabiner only. Do not tie back using the snap hook. The snap hook must be connected to the user's harness.

**Figure 15 - Shockwave 2 Tie-Back**



Anchorage size limit: The red stitching must be outside of the captive eye carabiner when the lanyard is tight around the anchorage (under hand tension). See figure 15.

**WARNING:** Tying back beyond the red stitching will limit the amount of energy absorption in the event of a fall and could result in serious injury or death

If the stitching is located outside of the carabiner, choose an anchorage of smaller size (in accordance with the requirements in section 2.3) to prevent tying back beyond the red stitching.

Ensure the lanyard is cinched tight around the anchorage during use.

**ATTACHING A LANYARD WITH WIRE FORM PIPE HOOK:** The wire form pipe hook is intended for use with pipes up to 3 inches (7.6 cm) in diameter.

The anchorage must be geometrically compatible in size and shape. See Figure 16 for examples of proper and improper connections and intended load directions. Do not side load the pipe hook. Do not allow the pipe hook to contact electrical sources. Squeeze the handle to open the hook. Place hook around the anchorage and release handle. Only use a carabiner as the connecting element when attaching a personal fall arrest system to a pipe hook. When connecting to an anchorage, ensure the hook fully closes and closure hooks engage eye loops on hook body.

- B. CONNECTING TO THE BODY SUPPORT:** Connect the energy absorbing lanyard or energy absorber to the D-ring on the back between the shoulders (dorsal D-ring) on a full body harness. Connect so the energy absorber portion of the lanyard is on the body support side. DBI-SALA does not recommend using a body belt for fall arrest applications. If using a body belt, connect the energy absorbing lanyard or energy absorber to the D-ring and position the belt so the D-ring is located on the back side of the body.

**ATTACHING A LANYARD WITH WEB LOOPS:** See Figure 17.

1. Insert the energy absorbing lanyard web loop through the harness web loop or D-ring.
2. Insert the opposite end of the energy absorbing lanyard through the connecting web loop.
3. Pull the attached energy absorbing lanyard through the connecting web loop to secure.

**C. CONNECTING TO A ROPE GRAB (FALL ARRESTOR):** It is recommended the lanyard end (vs. the energy absorber end) be attached to the rope grab. This recommendation is made to reduce possible interference with the operation of the rope grab by the energy absorber "pack". Attaching a component style energy absorber to a rope grab is not recommended, with the exception of a "direct-coupling" between a rope grab and a harness. Some rope grabs may be supplied with a permanently attached energy absorbing lanyard. For these cases, use of an additional energy absorber connected between the rope grab and the body support is not recommended. In some cases it may be permissible to couple an energy absorber component between the anchorage (or anchorage connector) and the rope grab lifeline. In all cases, ensure the length of the energy absorber or energy absorbing lanyard does not exceed the rope grab manufacturer's recommended maximum connection length (3 feet [.9 m] maximum per ANSI Z359.1).

**D. CONNECTING TO SELF RETRACTING LIFELINE:** DBI-SALA does not recommend connecting an energy absorbing lanyard or energy absorber component to a self retracting lifeline. Special applications do exist where it may be permissible. Contact DBI-SALA if considering connecting an energy absorbing lanyard to a self retracting lifeline.

**3.4 ADJUSTING THE RETRAX™ LANYARD:** The amount of the lanyard that is retracted into the Retrax housing can be adjusted by completely extending the lanyard from the housing, then sliding the housing up or down the lanyard. See Figure 18. Adjusting the length of lanyard that is retracted into the housing will not reduce the amount of fall clearance needed to arrest a fall. See section 3.2.

**WARNING:** The Retrax lanyard is designed to retract and store the lanyard strap. It is not designed to "lock" or limit the lanyard length in a fall.

**3.5** After use, return the lanyard for cleaning or storage as described in section 6.0

## 4.0 TRAINING

**4.1** It is the responsibility of all users of this equipment to understand these instructions, and to be trained in the correct installation, use, and maintenance of this equipment. These individuals must be aware of the consequences of improper installation or use of this equipment. This user manual is not a substitute for a comprehensive training program. Training must be provided on a periodic basis to ensure proficiency of the users.

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

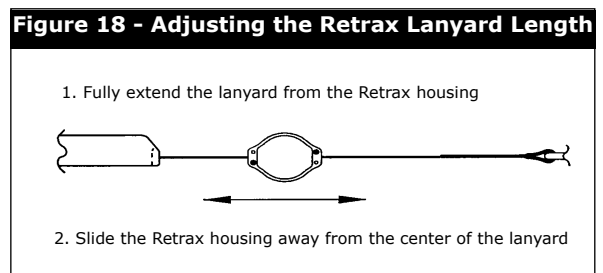
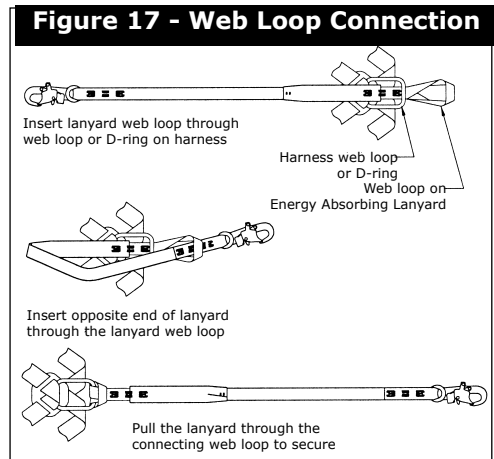
## 5.0 INSPECTION

### 5.1 FREQUENCY

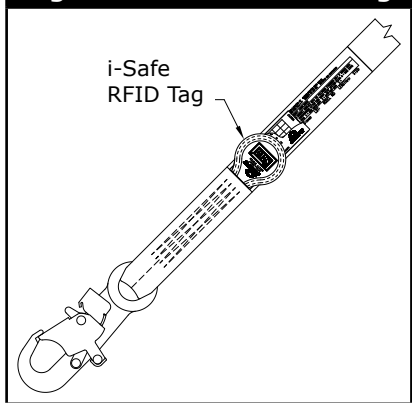
- Before each use visually inspect per steps listed in sections 5.2 and 5.3.
- Annually: The lanyard must be inspected by a competent person (see section 8 Terminology) other than the user at least annually. See sections 5.2 and 5.3 for guidelines. Record the results of each inspection in the inspection and maintenance log in section 9.0, or use the inspection web portal if an i-Safe™ RFID tag is present (see Figure 19). If you are registered i-Safe user, go to [www.capitalsafety.com/isafe](http://www.capitalsafety.com/isafe). For more information contact a Customer Service representative in the US at 1-800-328-6146 or in Canada at 1-800-387-7484.

**IMPORTANT:** If the energy absorbing lanyard or energy absorber component has been subjected to fall arrest or impact forces, the user, authorized person, or rescuer must remove it from service immediately and destroy it.

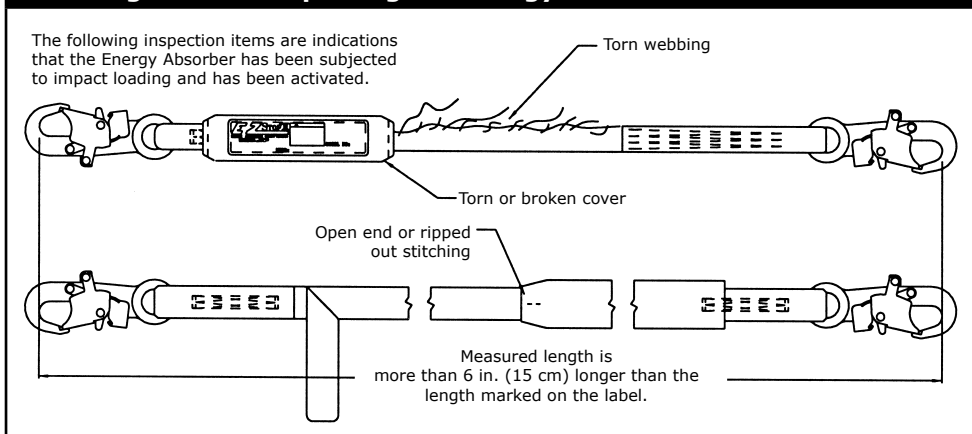
**IMPORTANT:** Extreme working conditions (harsh environment, prolonged use, etc.) may require increasing the frequency of inspections.



**Figure 19 - i-Safe RFID Tag**



**Figure 20 - Inspecting the Energy Absorber for Activation**



## 5.2 INSPECTION STEPS

**Step 1.** Inspect energy absorbing lanyard or energy absorber component hardware (snap hooks, adjusters, swages, thimbles, etc.). These items 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. Ensure adjusters (if present) work properly.

**Step 2.** Inspect the energy absorbing lanyard or energy absorber component per the following as applicable:

**WEBBING AND STITCHING:** The webbing material must be free of frayed, cut, or broken fibers. Check for tears, abrasions, mold, burns, or discoloration, etc. The webbing must be free of knots, excessive soiling, heavy paint buildup, and rust staining. 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 or slivers on the webbing surface. All of the above factors are known to reduce webbing strength. Damaged or questionable webbing should be replaced. Inspect stitching for pulled or cut stitches. Broken stitches may be an indication the energy absorbing lanyard or energy absorber component has been impact loaded and must be removed from service.

**WIRE ROPE:** Inspect entire length of the wire rope. Always wear protective gloves when inspecting wire rope. Inspect for broken wires by passing cable through gloved hands, flexing it every few inches to expose breaks. Broken wires can be removed by bending the wire back and forth parallel to the rope length. Do not attempt to pull wires out of rope. Remove the energy absorbing lanyard from service immediately and destroy if there are six or more randomly distributed broken wires in one lay, or three or more broken wires in one strand in one lay. A "lay" of wire rope is the length of wire rope that it takes for a strand (the larger groups of wires) to complete one revolution or twist along the rope. Remove the energy absorbing lanyard from service immediately and destroy if there are any broken wires within 1 inch of the metal compression sleeves (swages) at either end of the assembly. The wire rope should be free of corrosion.

**Step 3. ENERGY ABSORBING COMPONENT:** Inspect energy absorber to determine if it has been activated. There should be no evidence of elongation. See Figure 20. Ensure energy absorber cover is secure and not torn or damaged. On the Shockwave 2™ Lanyard models, the lanyard webbing will tear out to reveal the warning on the impact indicator label. See section 8.2 for label illustration.

**Step 4.** All labels should be present and fully legible. See section 8.0.

**Step 5.** Inspect each system component or subsystem per associated manufacturer's instructions.

**Step 6.** Record the inspection date and results in the inspection log in section 9.0.

**5.3** If inspection reveals an unsafe condition, remove unit from service immediately and destroy, or contact an authorized service center for repair.

**NOTE:** Only DBI-SALA or parties authorized in writing may make repairs to this equipment.

## 6.0 MAINTENANCE, SERVICING, STORAGE

- 6.1** Clean lanyard with water and a mild detergent solution. Wipe off hardware with a clean, dry cloth, and hang to air dry. Do not force dry with heat. If you have any questions regarding cleaning of this equipment, or require more information, contact DBI-SALA. An excessive buildup of dirt, paint, etc., may prevent the lanyard from working properly, and in severe cases degrade the webbing or rope to a point where it has become weakened and should be removed from service. If you have any questions concerning the condition of your lanyard, or have any doubt about putting it into service, contact DBI-SALA.
- 6.2** Additional maintenance and servicing procedures (replacement parts) must be completed by a factory authorized service center. Authorization must be in writing. Do not disassemble the unit. See section 5.1 for inspection frequency.
- 6.3** Store the lanyard in a cool, dry, clean environment out of direct sunlight. Avoid areas where chemical vapors may exist. Thoroughly inspect the lanyard or energy absorber component after extended storage.

## 7.0 SPECIFICATIONS

- The maximum arresting force of DBI-SALA Energy Absorbing Lanyards and components when dynamically tested in accordance with ANSI Z359.1 is 900 lbs. (4 kN). (EZ STOP® III and ShockWave 2 models less than 6 ft. [1.8 m] in length, maximum arresting force is 1800 lbs. [8 kN], Shockwave 2 Tie-back, maximum arresting force is 1350 lbs [6 kN]).
- The maximum elongation of the Energy Absorbing Lanyard or Energy Absorber component when dynamically tested in accordance with ANSI Z359.1 is 42 in. (1 m).
- Maximum free fall distance must be no greater than 6 ft. (1.8 m) per federal law and ANSI Z359.1
- EZ STOP® II U.S. Patent Number 5,174,410
- 9503175 Self-closing and self-locking snap hook U.S. Patent Number 4,977,647, Can. 2,027,784.

Lanyard Model	Energy Absorber Specifications	Adjustable/ Fixed Length	Lanyard Specifications
Fixed Length EZ Stop II Web Lanyards	1 3/4 in. (4.4 cm) polyester web strength member, tubular nylon web wear pads both ends, nylon outer cover, polyester thread, 8,800 <sup>^</sup> lb. (39.1 <sup>^</sup> kN) tensile strength.	Fixed	1 in. (2.5 cm) polyester web, 8,800 <sup>^</sup> lb. (39.1 <sup>^</sup> kN) tensile strength
Adjustable Length EZ Stop II Web Lanyards	1 3/4 in. (4.4 cm) polyester web strength member, tubular nylon web wear pads both ends, nylon outer cover, polyester thread, 8,800 <sup>^</sup> lb. (39.1 <sup>^</sup> kN) tensile strength.	Adjustable	1 in. (2.5 cm) polyester web, 8,800 <sup>^</sup> lb. (39.1 <sup>^</sup> kN) tensile strength
100% Tie-off EZ Stop II Web Lanyards	1 3/4 in. (4.4 cm) polyester web strength member, tubular nylon web wear pads both ends, nylon outer cover, polyester thread, 8,800 <sup>^</sup> lb. (39.1 kN) tensile strength.	Fixed	1 in. (2.5 cm) polyester web, 100% tie-off, 8,800 <sup>^</sup> lb. (39.1 <sup>^</sup> kN) tensile strength
EZ Stop II Energy Absorber Component	1 3/4 in. (4.4 cm) polyester web strength member, tubular nylon web wear pads both ends, nylon outer cover, polyester thread, 8,800 <sup>^</sup> lb. (39.1 <sup>^</sup> kN) tensile strength.	Fixed	Not Applicable
EZ Stop II Cable Lanyards	1 3/4 in. (4.4 cm) polyester web strength member, nylon web wear pads both ends, nylon outer cover, polyester thread, 8,800 <sup>^</sup> lb. (39.1 <sup>^</sup> kN) tensile strength.	Fixed	7/32 in. (.6 cm) 7x9 galvanized cable, vinyl covered. 5,600 lb. (24.9 kN) tensile strength
EZ Stop III Web Lanyards	1 3/8 in. (3.5 cm) tubular polyester web strength member, nylon web wear pads both ends, polyester thread, 8,800 <sup>^</sup> lb. (39.1 <sup>^</sup> kN) tensile strength.	Fixed	1 3/8 in. (3.5 cm) tubular polyester web strength member, 6,000 lb. (26.7 kN) tensile strength
EZ Stop II Tie-back Web Lanyard	1 3/4 in. (4.4 cm) polyester web strength member, tubular nylon web wear pads both ends, nylon outer cover, polyester thread, 8,800 <sup>^</sup> lb. (39.1 <sup>^</sup> kN) tensile strength.	Fixed	1 in. (2.5 cm) polyester web strength member, 8,800 <sup>^</sup> lb. (39.1 <sup>^</sup> kN) tensile strength with 1 3/8 in. (3.5 cm) tubular polyester web cover
EZ Stop II Tie-back 100% Tie-off Web Lanyard	1 3/4 in. (4.4 cm) polyester web strength member, tubular nylon web wear pads both ends, nylon outer cover, polyester thread, 8,800 <sup>^</sup> lb. (39.1 <sup>^</sup> kN) tensile strength.	Fixed	1 in. (2.5 cm) polyester web strength member, 8,800 <sup>^</sup> lb. (39.1 <sup>^</sup> kN) tensile strength with 1 3/8 in. (3.5 cm) tubular polyester web cover
EZ Stop II Shockwave	1 3/4 in. (4.4 cm) polyester web strength member, tubular nylon web wear pads both ends, nylon outer cover, polyester thread, 8,800 <sup>^</sup> lb. (39.1 <sup>^</sup> kN) tensile strength.	Fixed	1 15/16 in. (4.9 cm) tubular polyester web strength member, 6,000 lb. (26.7 kN) tensile strength
Shockwave 2	1 15/16 in. (4.9 cm) polyester web strength member, nylon web wear pads both ends, polyester thread, 6,000 lb. (26.7 <sup>^</sup> kN) tensile strength.	Fixed	Lanyard and energy absorber are the same material.
Shockwave 2 Tie Back	1 7/8 in. (4.8 cm) polyester web strength member, nylon web wear pads both ends, polyester thread, 8,500 lb. (37.7 <sup>^</sup> kN) tensile strength.	Fixed	Lanyard and energy absorber are the same material.
EZ Stop II Retrax Web Lanyard	1 3/4 in. (4.4 cm) polyester web strength member, nylon web wear pads both ends, nylon outer cover, polyester thread, 6,000 lb. (26.7 kN) tensile strength.	Fixed	1 3/8 in. polyester web, 6,000 lb. (26.7 kN) tensile strength



## 8.0 TERMINOLOGY

**Authorized Person:** A person assigned by the employer to perform duties at a location where the person will be exposed to a fall hazard (otherwise referred to as "user" for the purpose of these instructions).

**Rescuer:** Person or persons other than the rescue subject acting to perform an assisted rescue by operation of a rescue system.

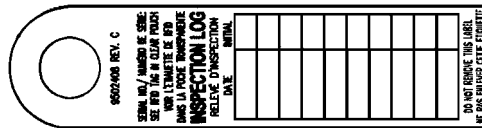
**Certified Anchorage:** An anchorage for fall arrest, positioning, restraint, or rescue systems that a qualified person certifies to be capable of supporting the potential fall forces that could be encountered during a fall or that meet the criteria for a certified anchorage prescribed in this standard.

**Qualified Person:** A person with a recognized degree or professional certificate and with extensive knowledge, training, and experience in the fall protection and rescue field who is capable of designing, analyzing, evaluating and specifying fall protection and rescue systems to the extent required by this standard.

**COMPETENT PERSON:** One who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.



## 9.0 LABELING

9.1 This label must be attached to all lanyards and be fully legible.



All Lanyards - Inspection Log

9.2 These labels must be securely attached to all Shock Wave 2™ Lanyards and be fully legible.

<p><b>INSPECT IMPACT INDICATOR FOR DAMAGED OR TORN RED STOPPING. IF STOPPING IS DAMAGED OR TORN, REMOVE FROM SERVICE. JACKET MATERIAL: NYLON</b></p> <p><b>MAX. ELONGATION: 42 IN.</b>  <b>MAX. ARRESTING FORCE:</b>  <b>MODELS AT LEAST 6 FT.: 900 LBS.</b>  <b>MODELS LESS THAN 6 FT.: 1000 LBS.</b>  <b>MAX. FREE FALL: 6 FT.</b>  <b>CAPACITY: 310 LBS.</b>  <b>CORE MATERIAL: POLYESTER</b></p> <p style="text-align: right;"><b>MADE IN U.S.A.</b></p>	<p><b>WARNING</b> <b>MANUFACTURER'S INSTRUCTIONS MUST BE READ AND UNDERSTOOD</b></p> <p><b>PRIOR TO USE, INSTRUCTIONS SUPPLIED WITH THIS PRODUCT AT TIME OF SHIPMENT MUST BE FOLLOWED. AVOID CONTACT WITH SHARP AND ABRASIVE EDGES. MAKE ONLY COMPATIBLE CONNECTIONS. NOT FLAME OR HEAT RESISTANT. DO NOT REMOVE THIS LABEL. FAILURE TO HEED WARNINGS AND INSTRUCTIONS COULD RESULT IN SERIOUS INJURY OR DEATH. ANY UNIT WHICH HAS SEE FALL ARRESTING SERVICE SHOULD NOT BE USED AFTER SUCH SERVICE.</b></p>	<p><b>PRODUCT COMPLIANCE</b></p> <p><b>THIS PRODUCT COMPLIES WITH THE FOLLOWING STANDARDS ONLY IF MARKED WITH THE CORRESPONDING LETTER CODE UNDER "STDS" SECTION BELOW</b></p> <p><b>A = ANSI Z359.1-99 B = OSHA C = ANSI A10.32-2004 D = ASTM F887-2005</b>  <b>E = ANSI Z359.3-07 F = ANSI Z359.4-07 G = ANSI Z359.1-07 H =</b></p> <p><b>MFRD(YR/MO):    LOT:    MODEL NO:    LENGTH(FT):    STDS:</b></p>
 <p><b>Shock Absorbing Lanyard</b></p>		 <p><b>www.capitalsafety.com</b>  <b>(800) 328-6146</b></p>
<p>8503050 REV A</p>		

All ShockWave 2 Lanyards - I.D. / Warning Label

9.3 These labels must be securely attached to the noted CSA approved lanyards and be fully legible.

<p><b>▲ WARNING/MISE EN GARDE</b></p> <p>ANY UNIT WHICH HAS SEEN FALL ARRESTING SERVICE SHOULD NOT BE USED AFTER SUCH SERVICE. UNE UNITÉ QUI A DÉJÀ ÉTÉ UTILISÉE POUR PRÉVENIR UNE CHÛTE NE DOIT PAS ÊTRE EMPLOYÉE À NOUVEAU.</p>	<p>THE LENGTH OF LANYARD IN FT IS LISTED AT THE END OF THE MODEL NO. PROVIDED ON I.O. LABEL.</p> <p>LANYARD MAT'L: ONE INCH WIDE POLYESTER WEB</p> <p>CSA STANDARD Z259.1 9503549 REV C</p>
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Warning Label - All CSA Approved Lanyards

<p><b>▲ WARNING/MISE EN GARDE</b> ANY UNIT WHICH HAS SEEN FALL ARRESTING SERVICE SHOULD NOT BE USED AFTER SUCH SERVICE. CERTIFICATION IS APPLICABLE TO THE DEVICE ONLY. CSA HAS NOT INVESTIGATED THE ANCHORAGE SYSTEM. UNE UNITÉ QUI A DÉJÀ ÉTÉ UTILISÉE POUR PRÉVENIR UNE CHÛTE NE DOIT PAS ÊTRE EMPLOYÉE À NOUVEAU. L'INFORMÉLATION EST APPLICABLE UNIQUEMENT AU DISPOSITIF. LA CSA N'A PAS EXAMINÉ LE SYSTÈME D'ANCORAGE. MANUFACTURER'S INSTRUCTIONS SUPPLIED WITH THIS PRODUCT AT TIME OF SHIPMENT MUST BE FOLLOWED. AVOID CONTACT WITH SHARP AND ABRASIVE EDGES. MAKE ONLY COMPATIBLE CONNECTIONS. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY OR DEATH.</p> <p><b>CONSEILS/TYPE D'ÉTIQUETTE DE CLASSIFICATION</b> SEE "CLASS" SECTION FOR E4 OR E8 CLASSIFICATION. DETAILS FOR EACH CAN BE FOUND BELOW. VOIR LA SECTION "CLASS" POUR LA CLASSIFICATION E4 OU E8. CHAQUE CLASSE EST DÉTAILLÉE CI-DESSOUS.</p> <table border="1"> <tr> <td>MAX ELONGATION/ MAX CHÛTE LIBRE MAX</td> <td>MAX FREE FALL</td> <td>WORKER MASS RANGE/ FOURCLETTE DE POIDS DU TRAVAILLEUR</td> <td>MAX ARRESTING FORCE/ FORCE D'ARRÊT MAX</td> </tr> <tr> <td>E4: 1.2 m (3.9 ft), 1.8 m (5.9 ft)</td> <td>45 kg (100 lbs)-115 kg (254 lbs)</td> <td>4.0 m (13.0 ft)</td> <td>90 kg (200 lbs)-175 kg (385 lbs)</td> </tr> <tr> <td>E8: 1.75 m (5.7 ft), 1.8 m (5.9 ft)</td> <td>90 kg (200 lbs)-175 kg (385 lbs)</td> <td>6.0 m (19.7 ft)</td> <td></td> </tr> </table>	MAX ELONGATION/ MAX CHÛTE LIBRE MAX	MAX FREE FALL	WORKER MASS RANGE/ FOURCLETTE DE POIDS DU TRAVAILLEUR	MAX ARRESTING FORCE/ FORCE D'ARRÊT MAX	E4: 1.2 m (3.9 ft), 1.8 m (5.9 ft)	45 kg (100 lbs)-115 kg (254 lbs)	4.0 m (13.0 ft)	90 kg (200 lbs)-175 kg (385 lbs)	E8: 1.75 m (5.7 ft), 1.8 m (5.9 ft)	90 kg (200 lbs)-175 kg (385 lbs)	6.0 m (19.7 ft)		<p><b>EZ STOP II SALA</b></p> <p>SHOCK ABSORBER MADE IN CANADA</p> <p>ATTACH PACK END OF SHOCK ABSORBER TO BODY SUPPORT. ATTACHEZ LE CÔTÉ ABSORBEUR AU SUPPORT DU CORPS.</p> <p>www.capitalsafety.com Ph: (800) 387-7484 U.S. PAT. 5,174,410</p> <p>MFRD (YR/MO)/ LOT: MODEL NO: LENGTH(FT): CLASS:</p>
MAX ELONGATION/ MAX CHÛTE LIBRE MAX	MAX FREE FALL	WORKER MASS RANGE/ FOURCLETTE DE POIDS DU TRAVAILLEUR	MAX ARRESTING FORCE/ FORCE D'ARRÊT MAX										
E4: 1.2 m (3.9 ft), 1.8 m (5.9 ft)	45 kg (100 lbs)-115 kg (254 lbs)	4.0 m (13.0 ft)	90 kg (200 lbs)-175 kg (385 lbs)										
E8: 1.75 m (5.7 ft), 1.8 m (5.9 ft)	90 kg (200 lbs)-175 kg (385 lbs)	6.0 m (19.7 ft)											

ID / Warning Label - CSA Approved EZ Stop® II Web Lanyards

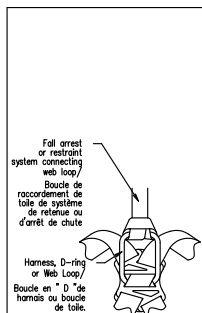
<p><b>DBI SALA</b></p> <p>DBI/SALA; 3965 PEPIN AVENUE RED WING, MN 55066, (800) 328-6146</p> <p><b>EZ Stop III</b></p> <p>SHOCK ABSORBER</p> <p>MADE IN U.S.A.</p>	<p>MEETS ANSI 110.14-1991 AND OSHA REQUIREMENTS. USE ONLY WITH ANSI 110.14-1991 TYPE I EQUIPMENT. MAX. ELONGATION: 42 IN. MAX. ARRESTING FORCE: 1800 LBS. MAX. FREE FALL: 6 FT. MAXIMUM CAPACITY: 310 LBS. MATERIAL: POLYESTER LANYARD WIDTH 1 3/8" MADE IN U.S.A.</p> <p>CSA STANDARD Z259.1</p>	<p><b>▲ WARNING/MISE EN GARDE</b></p> <p>MANUFACTURER'S INSTRUCTIONS SUPPLIED WITH THIS PRODUCT AT TIME OF SHIPMENT MUST BE FOLLOWED. AVOID CONTACT WITH SHARP AND ABRASIVE EDGES. MAKE ONLY COMPATIBLE CONNECTIONS. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY OR DEATH. FAILURE TO HEED WARNINGS AND INSTRUCTIONS COULD RESULT IN SERIOUS INJURY OR DEATH. ANY UNIT WHICH HAS SEEN FALL ARRESTING SERVICE SHOULD NOT BE USED AFTER SUCH SERVICE. UNE UNITÉ QUI A DÉJÀ ÉTÉ UTILISÉE POUR PRÉVENIR UNE CHÛTE NE DOIT PAS ÊTRE EMPLOYÉE À NOUVEAU.</p> <p>MFRD(YR/MO)/LOT: MODEL NO: LENGTH(FT):</p>	<p>→ ATTACH OPPOSITE END OF SHOCK ABSORBER TO HARNESS</p> <p>→</p>
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ID Label - CSA Approved EZ Stop® III Web Lanyards

9.4 These labels must be attached to the noted Energy Absorbing Lanyards or Energy Absorber components and be fully legible.

<p><b>DBI SALA</b></p> <p>www.capitalsafety.com USA (800) 328-6146</p> <p>U.S. PAT. 5,174,410</p>	<p><b>EZ STOP II</b></p> <p>SHOCK ABSORBER MADE IN U.S.A.</p> <p><b>▲ WARNING</b> MANUFACTURER'S INSTRUCTIONS MUST BE READ AND UNDERSTOOD PRIOR TO USE. INSTRUCTIONS SUPPLIED WITH THIS PRODUCT AT TIME OF SHIPMENT MUST BE FOLLOWED. AVOID CONTACT WITH SHARP AND ABRASIVE EDGES. MAKE ONLY COMPATIBLE CONNECTIONS. FAILURE TO HEED WARNINGS AND INSTRUCTIONS COULD RESULT IN SERIOUS INJURY OR DEATH. ANY UNIT WHICH HAS SEEN FALL ARRESTING SERVICE SHOULD NOT BE USED AFTER SUCH SERVICE.</p>	<p>ATTACH THIS END OF FALL ARREST ATTACHMENT ELEMENT OF HARNESS</p>	<p>MAXIMUM ELONGATION: 42" MAXIMUM ARRESTING FORCE: 900 LBS. MAXIMUM FREE FALL: 6 FT CAPACITY: 310 LBS MAX NYLON/POLYESTER WEB CONSTRUCTION</p> <p><b>PRODUCT COMPLIANCE</b> THIS PRODUCT COMPLES WITH THE FOLLOWING STANDARDS ONLY IF MARKED WITH THE CORRESPONDING LETTER CODE UNDER "STDS" SECTION BELOW A = ANSI Z359.1-99 B = OSHA C = ANSI A10.32-2004 D = ASTM F887-2005 E = ANSI Z359.3-07 F = ANSI Z359.4-07 G=ANSI Z359.1-07 H =</p> <p>MFRD(YR/MO): LOT: MODEL NO: LENGTH(FT): STDS:</p>
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ID Label - EZ Stop® II Web Lanyards



Warning Label - All Web Loop Energy Absorbing Lanyards Not Permanently Attached to Harness

9507096 Rev F

**▲ WARNING/AVERTISSEMENT**

Only compatible connections may be made with web loops. Snap hooks (both self locking and non-locking types) connected into web loops may result in inadvertent disengagement. Refer to separate instructions for further details. Failure to follow these instructions may result in serious injury or death. Do not remove label.

Seuls des connexions compatibles doivent être faites avec les boucles de toile. Un mouillage (de type avec ou sans verrou) raccordé à une boucle de toile pourrait se désengager par inadvertance. Pour plus de détails, référez vous aux instructions. Ne pas vous conformer à ces instructions pourrait causer des blessures graves ou la mort. Ne pas retirer l'étiquette.

**▲ WARNING**

ENSURE CONNECTIONS MADE TO LOOP OR EYE TERMINATIONS OR ATTACHMENT POINTS ARE COMPATIBLE. SNAP HOOKS (BOTH SELF-LOCKING AND NON-LOCKING TYPES) CONNECTED INTO LOOPS OR EYES MAY RESULT IN INADVERTENT DISENGAGEMENT. DO NOT MAKE MORE THAN ONE CONNECTION INTO A LOOP OR EYE TERMINATION. REFER TO SEPARATE INSTRUCTIONS FOR FURTHER DETAILS. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN SERIOUS INJURY OR DEATH. DO NOT REMOVE LABEL.

9507205 REV E

Warning Label - All Web Loop Energy Absorbing Lanyards Permanently Attached to Harness

**▲ WARNING**

WHEN MAKING CHOKER CONNECTIONS, DO NOT ALLOW SNAP HOOK TO CONTACT ANCHORAGE MEMBER. SNAP HOOK GATE MAY BE FORCED OPEN UNDER LOADING CAUSING RELEASE OF LOAD. FAILURE TO HEED THIS WARNING MAY RESULT IN SERIOUS INJURY OR DEATH. DO NOT REMOVE THIS LABEL.

CORRECT USAGE INCORRECT USAGE!

GATE IN CONTACT WITH MEMBER

9507013 REV C

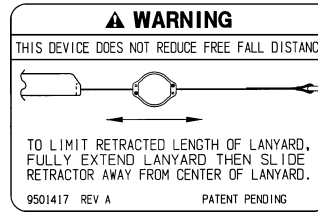
Warning Label EZ Stop® II Tie-Back Lanyards

9.4 CONTINUED . . .

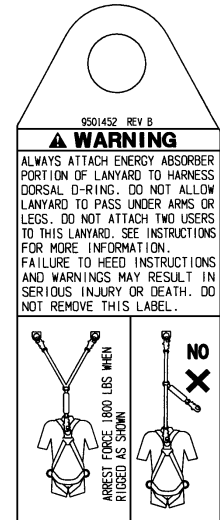
These labels must be attached to the noted Energy Absorbing Lanyards or Energy Absorber components and be fully legible.



Impact Indicator Label  
EZ Stop® Shock Wave 2 Tie-Back Lanyards  
And  
EZ Stop® Shock Wave III Lanyards



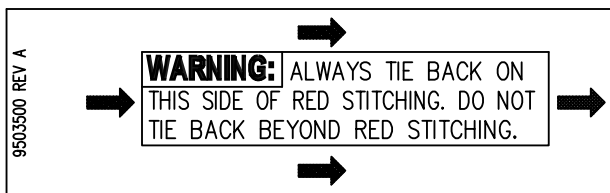
Retrax Warning Label



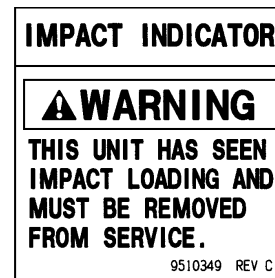
100% Tie-off Lanyard  
Warning Label



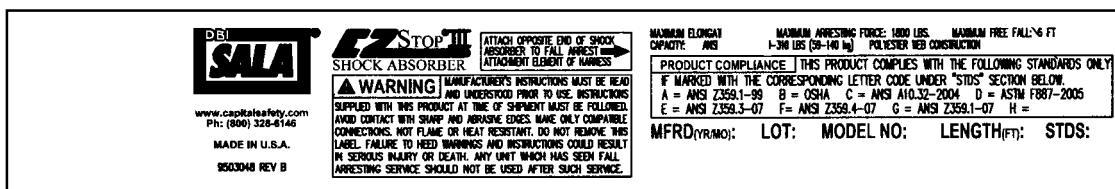
Shockwave 2 Tie Back Lanyards ID Label Front and Back



Shockwave 2 Tie  
Back Lanyards  
Warning Label



Shockwave 2 Tie Back Lanyards  
Impact Indicator Label



All EZ Stop III ANSI Approved Lanyards - I.D. / Warning Label



## Models - ANSI:

1100456	1107951	1220262	1220680	1221115	1224349	1240068	1240277	1240620	1240880	1241465	1244351
1100750	1107952	1220265	1220681	1221116	1224350	1240071	1240278	1240626	1240901	1241480	1244353
1100756	1107958	1220267	1220682	1221117	1224354	1240074	1240279	1240627	1240902	1241481	1244354
1100762	1107959	1220268	1220701	1221119	1224355	1240077	1240280	1240680	1240903	1241482	1244355
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1106902	1220186	1220563	1221031	1224329	1240046	1240263	1240560	1240863			

## Models - CSA:

CSA Class	Model Numbers									
<b>E4:</b>	<b>Max. Arresting Force</b>			<b>Max. Elongation</b>			<b>Min. Mass of Worker</b>		<b>Max. Mass of Worker</b>	
	900 lbf (4.0 kN)			3.9 ft (1.2 m)			100 lbs (45 kg)		254 lbs (115 kg)	
	1100320C	1101859C	1106062C	1108530C	1109433C	1220046C	1220296C	1220680C	1221425C	1224006C
1100321C	1101871C	1106075C	1108534C	1109434C	1220048C	1220297C	1220681C	1221426	1224306C	
1100322C	1102319C	1106203C	1108539C	1109435C	1220054C	1220299C	1220850C	1221426C	1224341C	
1100323C	1102320C	1106684C	1108540C	1109436C	1220058C	1220300C	1220851C	1221460C	1224343C	
1100447C	1102321C	1106685C	1108541C	1109437C	1220068C	1220301C	1220852C	1221461C	1224348C	
1100448C	1102967C	1106689C	1108542C	1110310C	1220071C	1220359C	1220853C	1221480C	1224405C	
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1100893C	1103268C	1107162C	1108685C	1110614C	1220092C	1220450C	1220866C	1221804C	1224438C	
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1100981C	1103388C	1107165C	1108711C	1110706C	1220105C	1220459C	1220873C	1221807C	1240256C	
1100982C	1103389C	1107837C	1108712C	1220006C	1220108C	1220461C	1220880C	1221808C	1240325C	
1100983C	1103390C	1107838C	1108713C	1220007C	1220115C	1220466C	1220906C	1221809C	1240477C	
1101166C	1103391C	1107839C	1108714C	1220012C	1220132C	1220468C	1220937C	1221810C	1240559	
1101167C	1103392C	1107840C	1108715C	1220016C	1220139C	1220526C	1220938C	1221811C	1244610C	
1101168C	1105855C	1107961C	1109025C	1220017C	1220180C	1220527C	1220939C	1221812C	1244611C	
1101169C	1106015C	1108028C	1109037C	1220024C	1220181C	1220535C	1220940C	1221813C	1244630C	
1101170C	1106040C	1108355C	1109038C	1220028C	1220182C	1220536C	1221001C	1221814C	1244631C	
1101535C	1106041C	1108356C	1109045C	1220030C	1220195C	1220539C	1221006C	1221815C		
1101536C	1106042C	1108357C	1109057C	1220035C	1220204C	1220540C	1221028C	1221816C		
1101537C	1106053C	1108358C	1109058C	1220038C	1220206C	1220553C	1221034C	1221851C		
1101538C	1106054C	1108359C	1109061C	1220040C	1220256C	1220558C	1221104C	1221852C		
1101540C	1106060C	1108528C	1109141C	1220042C	1220259C	1220572C	1221106C	1221853C		
1101851C	1106061C	1108529C	1109432C	1220043C	1220269C	1220601C	1221206C	1221854C		
<b>E6:</b>	<b>Max. Arresting Force</b>			<b>Max. Elongation</b>			<b>Min. Mass of Worker</b>		<b>Max. Mass of Worker</b>	
	1,300 lbf (6.0 kN)			5.7 ft (1.75 m)			200 lbs (90 kg)		386 lbs (175 kg)	
	1242225C	1242227C	1242229C	1242250C	1242325C	1242350C				
1242226C	1242228C	1242230C	1242275C	1242326C	1242375C					
Additional model numbers may appear on the next printing of these instructions.										

**U.S. PRODUCT WARRANTY, LIMITED REMEDY  
AND LIMITATION OF LIABILITY**

**WARRANTY:** THE FOLLOWING IS MADE IN LIEU OF ALL WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Unless otherwise provided by applicable law, 3M fall protection products are warranted against factory defects in workmanship and materials for a period of one year from the date of installation or first use by the original owner.

**LIMITED REMEDY:** Upon written notice to 3M, 3M will repair or replace any product determined by 3M to have a factory defect in workmanship or materials. 3M reserves the right to require product be returned to its facility for evaluation of warranty claims. This warranty does not cover product damage due to wear, abuse, misuse, damage in transit, failure to maintain the product or other damage beyond 3M's control. 3M will be the sole judge of product condition and warranty options.

This warranty applies only to the original purchaser and is the only warranty applicable to 3M's fall protection products. Please contact 3M's customer service department at 800-328-6146 or via email at 3MFallProtection@mmm.com for assistance.

**LIMITATION OF LIABILITY:** TO THE EXTENT PERMITTED BY APPLICABLE LAW, 3M IS NOT LIABLE FOR ANY INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES INCLUDING, BUT NOT LIMITED TO LOSS OF PROFITS, IN ANY WAY RELATED TO THE PRODUCTS REGARDLESS OF THE LEGAL THEORY ASSERTED.



Fall Protection

Distributed by Engineered Fall Protection  
Sales@EngineeredFallProtection.com  
www.EngineeredFallProtection.com  
Tel: (314) 492-4422



EU DECLARATION OF CONFORMITY:  
[3M.com/FallProtection/DOC](http://3M.com/FallProtection/DOC)



The Ultimate in Fall Protection

**Instructions for the following series products:**

Vertical Lifelines  
Vertical Lifeline Subsystems

(See back pages for specific model numbers.)

**User Instruction Manual  
Vertical Lifelines and  
Vertical Lifeline Subsystems**

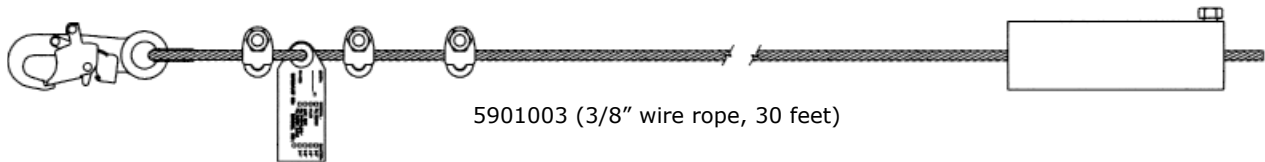
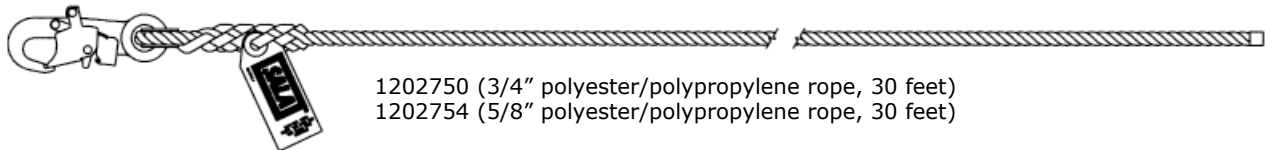
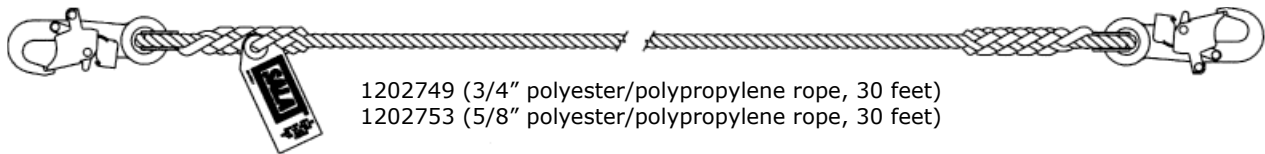
*This manual is intended to meet the Manufacturer's Instructions as required by ANSI Z359.1 & CSA Z259.2.1 and should be used as part of an employee training program as required by OSHA.*

**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 read and understand these instructions before using this equipment. Manufacturer's instructions must be followed for proper use and maintenance of this equipment. Alterations or misuse of this equipment, or failure to follow instructions, may result in serious injury or death.

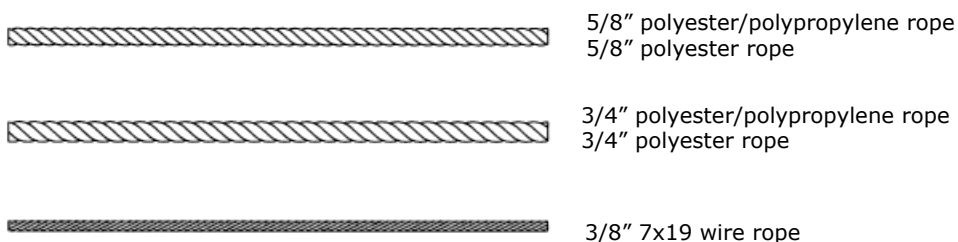
**WARNING: IMPORTANT:** If you have questions on the use, care, or suitability of this equipment for your application, contact DBI/SALA.

**WARNING:** Record the product identification information from the ID label in the inspection and maintenance log in Section 10 of this manual.

**Figure 1 - Vertical Lifeline Assemblies**



**Rope Cut to Length**





## DESCRIPTIONS

DBI/SALA Vertical Lifelines and Lifeline Subsystems are available in various styles and configurations. Following are descriptions of typical lifelines and lifeline subsystems. Your model may not be described exactly as configured:

- **VERTICAL LIFELINE ASSEMBLIES:**

**1202749:** 3/4-inch polyester/polypropylene rope, snap hook at each end, 30 feet long

**1202750:** 3/4-inch polyester/polypropylene rope, snap hook at one end, 30 feet long

**1202753:** 5/8-inch polyester/polypropylene rope, snap hook at each end, 30 feet long

**1202754:** 5/8-inch polyester/polypropylene rope, snap hook at one end, 30 feet long

**5901003** 3/8-inch 7x19 galvanized wire rope, snap hook at one end, counterweight, 30 feet long

- **ROPE MATERIALS:**

5/8-inch diameter, polyester/polypropylene rope

5/8-inch diameter, polyester rope

3/4-inch diameter, polyester/polypropylene rope

3/4-inch diameter polyester rope

5/16-inch diameter, 7x19 galvanized wire rope

3/8-inch diameter, 7x19 galvanized wire rope

12-mm diameter, nylon rope

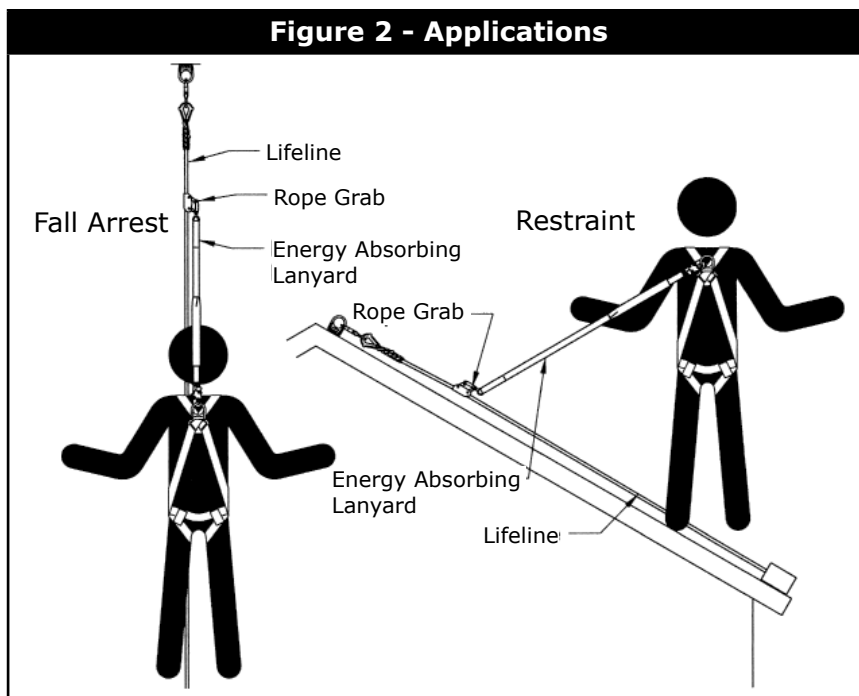
12-mm diameter, polyester rope

## 1.0 APPLICATIONS

**1.1 PURPOSE:** Vertical lifelines and vertical lifeline subsystems are intended to be used as part of a personal fall arrest or restraint system. These lifelines and lifeline subsystems (with the exception of 3/8-inch wire rope) are not designed for use in horizontal lifeline systems. Applications include: Inspection work, construction, demolition, maintenance, oil production, confined space rescue, window washing. See Figure 2.

**A. FALL ARREST:** The lifeline or lifeline subsystem is used as part of a complete fall arrest system, which typically includes a lifeline, rope grab, lanyard, and full body harness. Maximum permissible free fall is 6 ft. (1.8 m).

**B. RESTRAINT:** The lifeline or lifeline subsystem is used as part of a restraint system. Restraint systems typically include a full body harness and a lanyard to prevent the user from reaching a fall hazard (leading edge roof work). No vertical free fall permitted.



**1.2 LIMITATIONS:** Consider the following application limitations before using this equipment:

**A. CAPACITY:** This equipment is designed for use by persons with a combined weight (person, clothing, tools, etc.) of no more than 310 lbs (141 kg). No more than one person may be connected to a single lifeline.

**B. FREE FALL:** Personal fall arrest systems used with these lifelines must be rigged to limit the free fall to 6 ft. (1.8 M) (according to ANSI Z359.1). Restraint systems must be rigged such that there is no possible vertical free fall. See subsystem manufacturer’s instructions for more information.

**C. FALL CLEARANCE:** Ensure that adequate clearance exists in your fall path to prevent striking an object. The amount of clearance required is dependent on the type of connecting subsystem (rope grab, lanyard), the anchorage location, and the amount of stretch in the lifeline. See subsystem manufacturer’s instructions for more information.

**D. ENVIRONMENTAL HAZARDS:** Use of this equipment in areas where environmental hazards exist may require additional precautions to reduce the possibility of injury to the user or damage to the equipment. Hazards may include, but are not limited to; high heat, caustic chemicals, corrosive environments, high voltage power lines, explosive or toxic gases, moving machinery, or sharp edges.

**E. COMPONENT COMPATIBILITY:** The lifelines must be used with DBI/SALA rope grabs only.

**F. TRAINING:** This equipment is intended to be used by persons trained in its correct application and use.

**1.3 APPLICABLE STANDARDS:** Refer to national Standards including ANSI Z359 (.0, .1, .2, .3, and .4) family of standards on fall protection, ANSI A10.32, CSA Z259.2.1, and applicable local, state and federal (OSHA) requirements governing occupational safety for more information about work positioning systems.

## 2.0 SYSTEM REQUIREMENTS

**2.1 COMPATIBILITY OF COMPONENTS:** DBI/SALA equipment is designed for use with DBI/SALA approved components and subsystems only. Substitutions or replacements made with non-approved components or subsystems may jeopardize compatibility of equipment and may effect the safety and reliability of the complete system. See Table 1 for a list of lifeline materials and the model number of compatible equipment available from DBI/SALA.

**IMPORTANT:** The type of lifeline used is dependent upon the application and compatibility requirements of other system components. DBI/SALA rope grabs must be used with DBI/SALA lifelines.

**Table 1 - Component Compatibility**

Lifeline Material	Rope Grab Model Number						
	5001441	5000335	5001442	5001011	5006006	5000338	1224005
5/8" Polyester/Polypropylene	X	X					X
3/4" Polyester/Polypropylene			X				
5/8" Polyester	X	X					X
3/4" Polyester			X				
12 mm Nylon					X		
12 mm Polyester					X		
3/8" Wire Rope						X	
5/16" Wire Rope				X			

**2.2 COMPATIBILITY OF CONNECTORS:** Connectors are considered to be compatible with connecting elements when they have been designed to work together in such a way that their sizes and shapes do not cause their gate mechanisms to inadvertently open regardless of how they become oriented. Contact DBI/SALA if you have any questions about compatibility.

Connectors (hooks, carabiners, and D-rings) must be capable of supporting at least 5,000 lbs. (22kN). Connectors must be compatible with the anchorage or other system components. Do not use equipment that is not compatible. Non-compatible connectors may unintentionally disengage. See Figure 3. Connectors must be compatible in size, shape, and strength. Self locking snap hooks and carabiners are required by ANSI Z359.1 and OSHA.

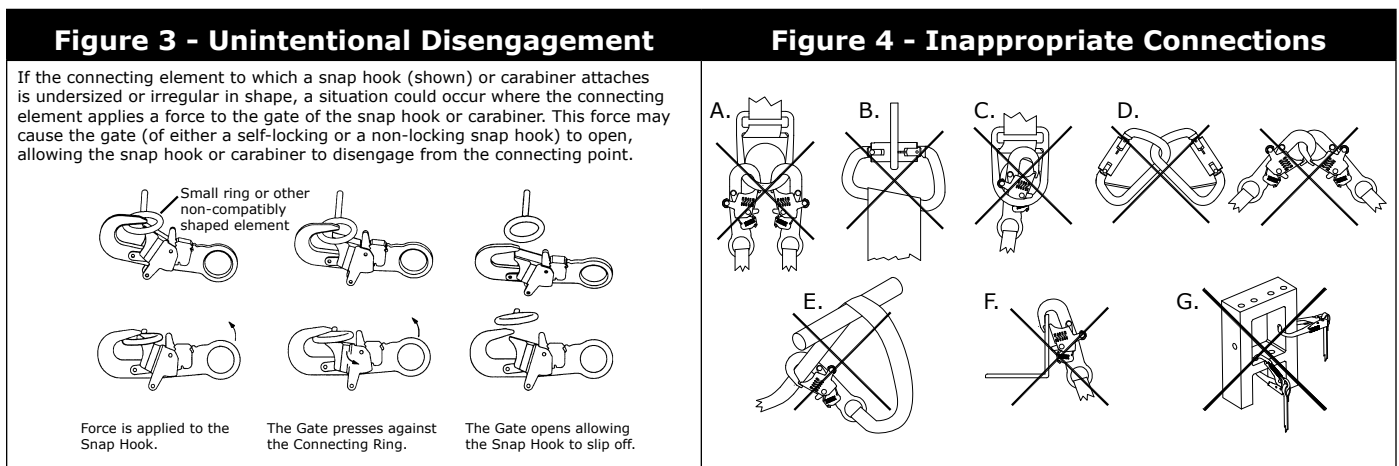
**2.3 MAKING CONNECTIONS:** Only use self-locking snap hooks and carabiners with this equipment. Only use connectors that are suitable to each application. Ensure all connections are compatible in size, shape and strength. Do not use equipment that is not compatible. Ensure all connectors are fully closed and locked.

DBI/SALA connectors (snap hooks and carabiners) are designed to be used only as specified in each product’s user’s instructions. See Figure 4 for inappropriate connections. DBI/SALA snap hooks and carabiners should not be connected:

- A.** To a D-ring to which another connector is attached.
- B.** In a manner that would result in a load on the gate.

**NOTE:** Large throat opening snap hooks should not be connected to standard size D-rings or similar objects which will result in a load on the gate if the hook or D-ring twists or rotates. Large throat snap hooks are designed for use on fixed structural elements such as rebar or cross members that are not shaped in a way that can capture the gate of the hook.

- C.** In a false engagement, where features that protrude from the snap hook or carabiner catch on the anchor and without visual confirmation seems to be fully engaged to the anchor point.
- D.** To each other.
- E.** Directly to webbing or rope lanyard or tie-back (unless the manufacturer’s instructions for both the lanyard and connector specifically allow such a connection).
- F.** To any object which is shaped or dimensioned such that the snap hook or carabiner will not close and lock, or that roll-out could occur.
- G.** In a manner that does not allow the connector to align properly while under load.



**2.4 ANCHORAGE STRENGTH:** The anchorage strength required is dependent upon the application:

**A. FALL ARREST:** In accordance with ANSI Z359.1, anchorages selected for fall arrest systems shall have a strength capable of sustaining static loads applied in the directions permitted by the system of at least:

- 5,000 pounds (22.2 kN) for non-certified anchorages; or,
- Two times the maximum arresting force for certified anchorages.

When more than one fall arrest systems is attached to an anchorage, the applicable strength requirement should be modified by the number of systems attached to the anchorage.

Per OSHA 1926.500 and 1910.66: Anchorages used for attachment of personal fall arrest systems shall be independent of any anchorage used to support or suspend platforms and capable of supporting at least 5,000 pounds (22.2 kN) per attached user; or, be designed, installed, and used as part of a complete PFAS which maintains a safety factor of at least two and is under the supervision of a qualified person.

**B. RESTRAINT:** Anchorages selected for restraint and travel restraint systems shall have a strength capable of sustaining static loads applied in the directions permitted by the system of at least:

- 1,000 pounds (4.5 kN) for non-certified anchorages; or,
- Two times the foreseeable force for certified anchorages.

When more than one fall arrest systems is attached to an anchorage, the applicable strength requirement should be modified by the number of systems attached to the anchorage.

### 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 Vertical Lifelines or subsystems.

**3.1 BEFORE EACH USE** of this equipment, carefully inspect it according to steps listed in section 5.0 of this manual.

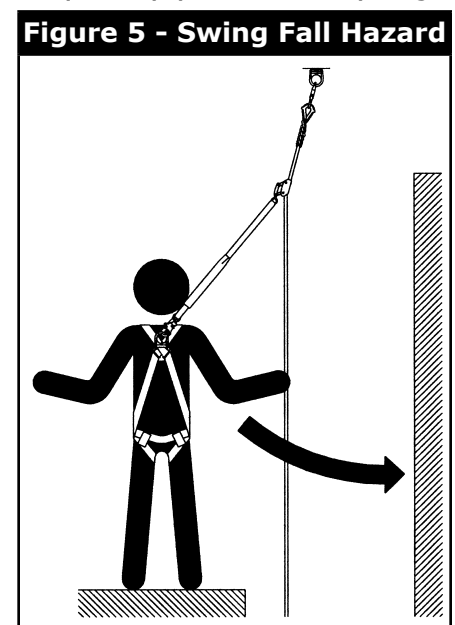
**3.2 PLAN** your fall arrest or restraint system before using this equipment. Consider all factors that will affect your safety during use of this equipment. Consider the following points when planning your system:

**A. ANCHORAGE:** Select a rigid anchorage point that is capable of sustaining the loads specified in section 2.3. For fall arrest applications, select anchorage locations that will minimize free fall and swing fall hazards. For restraint applications, locate the anchorages such that no vertical free fall is possible.

**B. FREE FALL:** To avoid increased free fall distance, do not work above the anchorage level. Rig personal fall arrest systems so that the free fall is limited to 6 ft. (1.8 m) (ANSI Z359.1). Rig restraint systems such that no vertical free fall is possible.

**C. FALL ARREST FORCES:** The personal fall arrest system must limit fall arrest forces to 1,800 lbs (8 kN). and deceleration distance must not exceed 42 in. (1 m). Do not use a body belt for fall arrest applications.

**D. SWING FALLS:** See Figure 5. Swing falls occur when the anchorage point is not directly above the point where a fall occurs. The force of striking an object in a swing fall may cause serious injury. Minimize swing falls by working as directly below the anchorage point as possible. Do not permit a swing fall if injury could occur.



**E. FALL CLEARANCE:** Ensure sufficient clearance exists in your fall path to prevent striking an object during a fall. The clearance required is dependent upon the subsystem (rope grab and lanyard, rope grab and carabiner) and lifeline properties. Table 2 shows the approximate elongation for new DBI/SALA lifelines in dry conditions. The elongation specified is for an applied static load of 1,800 lbs (8 kN). Wet ropes generally have more elongation than dry ropes. Allow for additional elongation in wet or humid conditions. Lifeline elongation must be considered when estimating fall clearance.

**Table 2 - Lifeline Elongation**

Lifeline Material	Lifeline Length ft. (m)							
	25 (7.6)	50 (15.2)	75 (22.9)	100 (30.5)	150 (45.7)	200 (61.0)	250 (76.2)	300 (91.4)
5/8" Polyester/Polypropylene	2.5 (0.8)	5 (1.5)	7.5 (2.3)	10 (3.0)	15 (4.6)	20 (6.1)	25 (7.6)	30 (9.1)
3/4" Polyester/Polypropylene	3 (0.9)	6 (1.8)	9 (2.7)	12 (3.7)	18 (5.5)	24 (7.3)	30 (9.1)	36 (11)
5/8" Polyester	2.75 (0.8)	5.5 (1.7)	8.25 (2.5)	11 (3.4)	16.5 (5.0)	22 (6.7)	27.5 (8.4)	33 (10.1)
3/4" Polyester	3.5 (1.1)	7 (2.1)	10.5 (3.2)	14 (4.3)	21 (6.4)	28 (8.5)	35 (10.7)	42 (12.8)
12 mm Nylon	6.75 (2.1)	13.5 (4.1)	20.25 (6.2)	27 (8.2)	40.5 (12.3)	54 (16.5)	67.5 (20.6)	81 (24.7)
12 mm Polyester	6.25 (1.9)	12.5 (3.8)	18.75 (5.7)	25 (7.6)	37.5 (11.4)	50 (15.2)	62.5 (19.1)	75 (22.9)
3/8" Wire Rope	—	—	—	0.43 (0.13)	0.65 (0.2)	0.86 (0.26)	1.07 (0.33)	1.29 (0.39)
5/16" Wire Rope	—	—	—	0.5 (0.2)	0.75 (0.23)	1 (0.3)	1.25 (0.38)	1.5 (0.45)

**F. SHARP EDGES:** Avoid working where your lifeline, lifeline subsystem, or other system components will be in contact with, or abrade against, unprotected sharp edges. Do not loop a lifeline around small diameter structural members. If working with this equipment around sharp edges is unavoidable, provide protection by using a heavy pad over the exposed sharp edge.

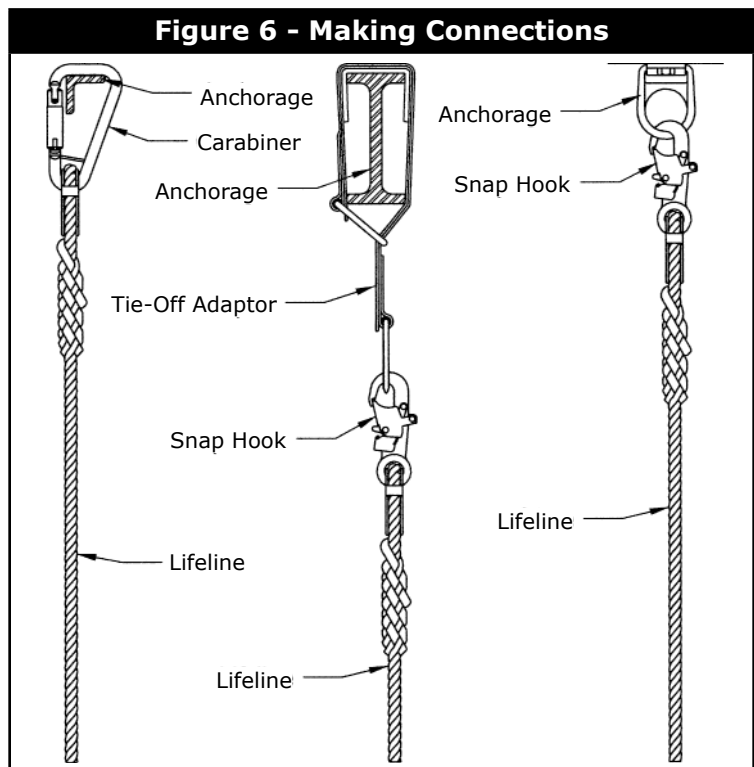
**G. RESCUE:** The employer must have a rescue plan and the ability to implement it.

**H. AFTER A FALL:** Components which have been subjected to fall arrest forces must be removed from service and destroyed.

**I. GENERAL USE CONSIDERATIONS:** Avoid working where your lifeline may cross or tangle with that of another worker. Do not allow your lifeline to pass under your arms or between your feet.

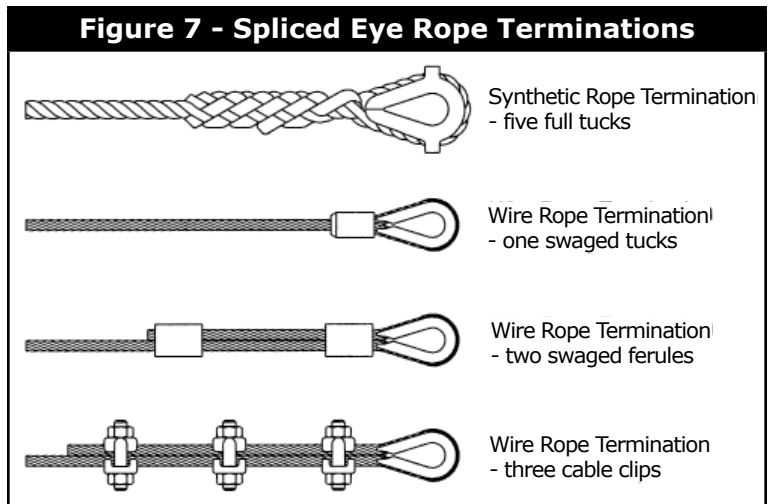
**3.3 MAKING CONNECTIONS:** See Figure 6. When using a hook to connect components or to an anchorage, ensure roll-out cannot occur. Self locking snap hooks and carabiners should be used to reduce the possibility of roll-out. Do not tie a knot in the lifeline. Do not attach a snap hook directly to a horizontal lifeline. Follow manufacturer's instructions for each component of the system.

**A. CONNECTING TO AN ANCHORAGE OR ANCHORAGE CONNECTOR:** Lifelines or lifeline subsystems supplied with connecting hooks should be connected to the anchorage in accordance with section 3.3. Lifelines supplied without hooks must have a hook or anchorage connector spliced directly to the lifeline. See Figure 7. Connectors attached to synthetic rope lifelines must be attached using a spliced eye termination and thimble. The



splice must be made with five tucks. Connectors attached to wire rope lifelines must be attached using a formed eye termination with a thimble. Acceptable methods of forming spliced eyes are: Spliced eye with one swaged ferrule; Return eye with a minimum of two swaged ferrules; Return eye with a minimum of three wire rope clips. The connection must support 5,000 lbs (22.2 kN). Follow manufacturer's instructions when forming eye with swaged ferrules or wire rope clips.

**IMPORTANT:** Knots must not be used for load bearing end terminations. See ANSI Z359.1. Some knots reduce lifeline strength fifty percent or more.



**IMPORTANT:** If the user splices or forms end terminations, proper procedures must be followed to ensure compatibility in size, shape, and strength. DBI/SALA is not responsible for subsystems not manufactured by DBI/SALA.

**B. CONNECTING ROPE GRAB TO LIFELINE:** Follow the rope grab manufacturer's instructions for connecting the rope grab to the lifeline. DBI/SALA rope grabs must be used with these lifelines.

**3.4 AFTER USE** of this equipment, clean and store according to section 6.0 of this manual.

## 4.0 TRAINING

**4.1** It is the responsibility of the user to assure they are familiar with these instructions, and are trained in the correct care and use of this equipment. User must also be aware of the operating characteristics, application limits, and the consequences of improper use of this equipment.

**WARNING:** 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:

- **Before Each Use** inspect according to steps listed in section 5.2.
- **This Equipment** must be inspected according to steps listed in section 5.2 by a competent person, other than the user, at least annually. Record the results of each inspection in the inspection and maintenance log in Section 10. NOTE: Cal/OSHA requires personal fall arrest systems be inspected prior to each use for wear, damage, and defects and inspected by a competent person<sup>1</sup> at least twice a year, in accordance with the manufacturer's recommendations, with inspection dates documented.

**WARNING:** If this equipment has been subjected to fall arrest forces remove from service and destroy.

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

<sup>1</sup> Competent person: An individual knowledgeable of a manufacturer's recommendations, instructions and manufactured components who is capable of identifying existing and predictable hazards in the proper selection, use and maintenance of fall protection.

## 5.2 INSPECTION STEPS:

**Step 1.** Inspect lifeline hardware (snap hooks, ferrules, thimbles, etc.). These items must not be damaged, broken or distorted. These items must be free of sharp edges, burrs, cracks, worn parts, or corrosion. Hook gates must move freely and lock upon closing.

**Step 2.** Inspect the lifeline per the following:

**SYNTHETIC ROPE:** 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, paint build-up, and rust staining. Rope splices must be tight, with five full tucks, and thimbles must be held firmly by the splice. Check for chemical or heat damage; indicated by brown, discolored, or brittle areas. Check for ultraviolet damage; indicated by discoloration and splinters and slivers along the rope surface. All of the above factors are known to reduce rope strength. Damaged or questionable rope should be replaced.

**WIRE ROPE:** Inspect entire length of wire rope. Always wear protective gloves when inspecting wire rope. Inspect for broken wires by passing cable through gloved hands, flexing the rope every few inches to expose breaks. Broken wires can be removed by bending the wire back and forth parallel to the rope length. Do not pull broken wires out of the rope. Replace the wire rope if there are six or more randomly distributed broken wires in one lay; or three or more broken wires in one strand in one lay. A "lay" of wire rope is the length of wire rope it takes for a strand (the larger group of wires) to complete one revolution along the rope. Replace the wire rope if there are broken wires within one inch of the swages at either end of the assembly. Wire rope should be free of corrosion.

**Step 3.** Inspect labels. All labels must be present and fully legible. See Section 9.

**Step 4.** Inspect each system component or subsystem according to manufacturer's instructions.

**Step 5.** Record the inspection date and results in the inspection log in Section 10.

**5.3** If inspection reveals an unsafe or defective condition, remove equipment from service and destroy, or contact an authorized service center for repair.

## 6.0 MAINTENANCE, SERVICING, STORAGE

**6.1** Clean the lifeline with water and a mild detergent. Wipe hardware dry with a clean, dry cloth and hang to air dry. Do not force dry with heat. An excessive build-up of dirt, paint, etc. may prevent the lifeline from working properly, and in severe cases, weaken the rope.

**6.2** Additional maintenance and servicing procedures must be completed by an authorized service center. Authorization must be in writing. Do not disassemble this equipment.

**6.3** Store the lifeline in a cool, dry, clean environment, out of direct sunlight. Avoid areas where chemical vapors may be present. Thoroughly inspect the lifeline after extended storage.

## 7.0 SPECIFICATIONS

### 7.1 LIFELINE SPECIFICATIONS:

\* The 12-mm diameter lifelines do not meet ANSI Z359.1 requirements.

Table 3 - Lifeline Specifications	
Lifeline Material	Tensile Strength
5/8" Diameter, Polyester/Polypropylene blend, 3-Strand Rope	7,000 lbs. (31.14 kN)
3/4" Diameter, Polyester/Polypropylene blend, 3-Strand Rope	8,820 lbs. (39.23 kN)
5/8" Diameter, Polyester, 3-Strand Rope	8,500 lbs. (37.81 kN)
3/4" Diameter, Polyester, 3-Strand Rope	12,000 lbs. (53.38 kN)
12 mm Diameter, Nylon Rope *	6,614 lbs. (29.42 kN)
12 mm Diameter, Polyester Rope *	5,004 lbs. (22.26 kN)
3/8" Diameter, Galvanized Wire Rope	14,400 lbs. (65.05 kN)
5/16" Diameter, Galvanized Wire Rope	9,800 lbs. (43.59 kN)
5/8" Diameter, Nylon Static Kernmantle Rope	12,000 lbs. (53.38 kN)
* - 12 mm Lifelines do not meet ANSI Z359.1 requirements.	

### 7.2 HARDWARE SPECIFICATIONS:

Snap Hook: Drop forged, alloy steel self locking snap hook, 5,000 lbs (22.2 kN). tensile strength.

## 8.0 TERMINOLOGY

**Authorized Person:** A person assigned by the employer to perform duties at a location where the person will be exposed to a fall hazard (otherwise referred to as "user" for the purpose of these instructions).

**Rescuer:** Person or persons other than the rescue subject acting to perform an assisted rescue by operation of a rescue system.

**Certified Anchorage:** An anchorage for fall arrest, positioning, restraint, or rescue systems that a qualified person certifies to be capable of supporting the potential fall forces that could be encountered during a fall or that meet the criteria for a certified anchorage prescribed in this standard.

**Qualified Person:** A person with a recognized degree or professional certificate and with extensive knowledge, training, and experience in the fall protection and rescue field who is capable of designing, analyzing, evaluating and specifying fall protection and rescue systems to the extent required by this standard.

**Competent Person:** One who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.











This instruction applies to the following models:

1202702	1202772	1202842	1202903	1202974	1203133	1210015	1212400	5900163	6130029
1202703	1202773	1202842C	1202904	1202976	1203134	1210020	1212500	5900164	6130030
1202705	1202774	1202843	1202905	1202977	1203135	1210025	1212610	5900165	6130031
1202706	1202775	1202843C	1202906	1202978	1203136	1210030	1212611	5900166	6130032
1202707	1202775C	1202844	1202907	1202979	1203137	1210035	1212612	5900167	6130033
1202708	1202776	1202844C	1202908	1202980	1203138	1210050	1212613	5900168	6130034
1202709	1202777	1202845	1202909	1202981	1203139	1210055	1212614	5901000	6130036
1202710	1202778	1202846	1202910	1202982	1203140	1210060	1212615	5901001	6130037
1202711	1202779	1202847	1202911	1202983	1203142	1210075	1213300	5901002	6130038
1202712	1202780	1202848	1202912	1202984	1203142C	1210085	1237800	5901003	6130040
1202713	1202781	1202849	1202912C	1202984C	1203143	1210090	3401000	5901004	6130041
1202714	1202782	1202850	1202913	1202985	1203144	1210100	3511000	5901005	6130044
1202715	1202784	1202851	1202914	1202986	1203145	1210120	3511001	5901006	6130045
1202716	1202785	1202852	1202915	1202987	1203146	1210125	3511002	5901007	6130050
1202717	1202786	1202853	1202915C	1202988	1203147	1210140	3511003	5901008	6130054
1202718	1202787	1202854	1202917	1202989	1203148	1210150	3511004	5901009	6130055
1202719	1202788	1202855	1202918	1202990	1203148C	1210160	3511005	5901010	6130060
1202719C	1202789	1202856	1202919	1202991	1203149	1210165	3511006	5901011	6130064
1202720	1202790	1202857	1202920	1202992	1203150	1210180	3511007	5901012	6130066
1202721	1202790C	1202858	1202920C	1202993	1203151	1210184	3511008	5901013	6130070
1202722	1202791	1202859	1202921	1202993C	1203152	1210200	3511009	5901014	6130074
1202723	1202792	1202860	1202922	1202994	1203153	1210250	3511010	5901015	6130075
1202724	1202793	1202861	1202923	1202995	1203154	1210300	3511011	5901016	6130080
1202725	1202794	1202862	1202924	1202996	1203155	1210310	3511012	5901018	6130082
1202726	1202794C	1202863	1202925	1202997	1203156	1210320	3511013	5901019	6130085
1202727	1202795	1202863C	1202926	1202998	1203157	1210350	3511014	5901020	6130090
1202729	1202795C	1202864	1202927	1202999	1203158	1210400	3511015	5901021	6130093
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1202731	1202797	1202865	1202929	1203012	1203160	1210500	3511017	5901023	6130100
1202732	1202798	1202866	1202930	1203013	1203161	1210625	3511018	5901024	6130105
1202732C	1202799	1202867	1202931	1203020	1203162	1210700	3511019	5901025	6130109
1202733	1202800	1202868	1202933	1203021	1203163	1210800	3511022	5901026	6130110
1202733C	1202801	1202869	1202934	1203022	1203164	1210850	3511023	5901027	6130114
1202734	1202802	1202870	1202935	1203023	1203165	1211000	3511024	5901028	6130115
1202735	1202804	1202870C	1202936	1203024	1203166	1211024	3900071	5901029	6130120
1202736	1202806	1202871	1202937	1203025	1203167	1211030	3900085	5901030	6130125
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1202740	1202808C	1202876	1202940	1203080	1203172	1211075	5900112	5901034	6130142
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1202746	1202816	1202882	1202948	1203106	1203180	1211200	5900120	6126050	6130165
1202749	1202817	1202883	1202950	1203107	1203181	1211250	5900121	6126060	6130170
1202750	1202818	1202884	1202951	1203108	1203182	1211300	5900122	6126090	6130175
1202751	1202819	1202885	1202952	1203109	1203183C	1211350	5900124	6126100	6130180
1202752	1202820	1202886	1202953	1203110	1203184	1211400	5900125	6126113	6130184
1202753	1202821	1202887	1202954	1203111	1203185	1211500	5900126	6126165	6130185
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1202754	1202822	1202889	1202956	1203113	1203188	1211835	5900128	6126196	6130200
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1202756	1202824	1202891	1202959	1203116	1203191	1212025	5900131	6130004	6130230
1202757	1202825	1202891C	1202960	1203117	1203192	1212027	5900132	6130005	6130240
1202759	1202826	1202892	1202961	1203119	1203193	1212030	5900133	6130010	6130245
1202760	1202827	1202892C	1202962	1203120	1203194	1212040	5900134	6130011	6130250
1202761	1202828	1202893	1202963	1203121	1203195	1212050	5900135	6130012	6130275
1202762	1202829	1202894	1202964	1203122	1203196	1212070	5900137	6130013	6130280
1202763	1202830	1202895	1202965	1203123	1203197	1212075	5900138	6130014	6130300
1202764	1202831	1202896	1202965C	1203124	1203198	1212080	5900139	6130015	6130330
1202765	1202832	1202897	1202966	1203125	1203199	1212100	5900152	6130016	6130340
1202766	1202833	1202898	1202967	1203126	1203200	1212120	5900153	6130018	6130350
1202767	1202834	1202899	1202968	1203127	1203201	1212125	5900154	6130019	6130375
1202767C	1202837	1202899C	1202969	1203128	1204100	1212150	5900155	6130020	6130400
1202768	1202838	1202900	1202970	1203129	1210001	1212180	5900156	6130022	6130427
1202769	1202839	1202900C	1202971	1203130	1210002	1212200	5900160	6130024	6130450
1202770	1202840	1202901	1202972	1203131	1210010	1212210	5900161	6130025	6130454
1202771	1202841	1202902	1202973	1203132	1210012	1212300	5900162	6130026	6130500

Additional model numbers may appear on the next printing of these instructions

This instruction applies to the following models:

6130550	6140013	6140030	6140051	6140095	6140123	6140160	6140333	6140650	6141420
6130600	6140014	6140031	6140052	6140097	6140125	6140166	6140350	6140674	6141450
6130700	6140015	6140032	6140055	6140099	6140128	6140174	6140364	6140700	6141480
6130730	6140016	6140033	6140059	6140100	6140129	6140175	6140375	6140720	6141600
6130760	6140017	6140034	6140060	6140102	6140130	6140180	6140396	6140750	6141650
6130850	6140018	6140035	6140065	6140104	6140131	6140184	6140400	6140788	6141700
6130900	6140019	6140036	6140070	6140105	6140134	6140190	6140411	6140800	6141730
6131000	6140020	6140037	6140074	6140108	6140136	6140200	6140440	6140820	6141742
6131200	6140021	6140038	6140075	6140109	6140138	6140204	6140450	6140850	6141800
6132000	6140022	6140039	6140077	6140111	6140139	6140220	6140500	6140875	6141965
6133200	6140023	6140040	6140079	6140113	6140140	6140226	6140506	6140900	6142000
6140007	6140024	6140041	6140080	6140114	6140143	6140228	6140510	6140930	6142030
6140008	6140025	6140042	6140085	6140115	6140144	6140230	6140535	6141000	6142300
6140009	6140026	6140044	6140086	6140117	6140146	6140250	6140550	6141200	6142400
6140010	6140027	6140046	6140088	6140120	6140150	6140300	6140560	6141209	6142720
6140011	6140028	6140049	6140090	6140121	6140151	6140310	6140600	6141221	6142800
6140012	6140029	6140050	6140094	6140122	6140152	6140328	6140603	6141300	

## LIMITED LIFETIME WARRANTY

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www.EngineeredFallProtection.com  
Tel: (314) 492-4422



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