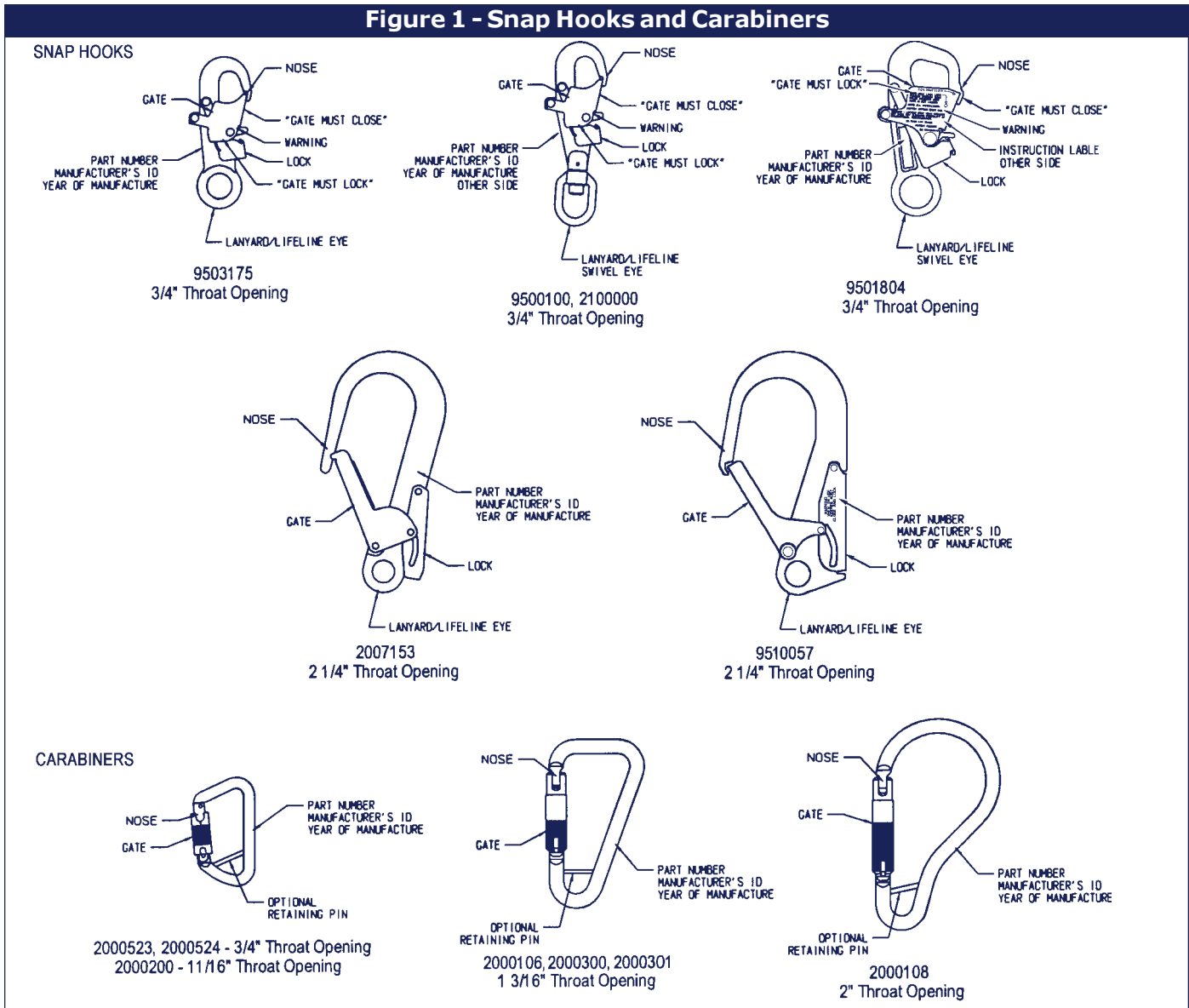




Instructions for the following series products:
 Snap Hooks and Carabiners
(See back page for specific model numbers.)

User Instruction Manual Snap Hooks and Carabiners

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.



DESCRIPTION

Snap Hooks: Snap hooks are self closing/self locking connectors. The snap hooks provide an eye for permanent attachment of a lifeline or lanyard. 9500100 and 2100000 snap hooks have an eye which swivels relative to the hook. The 2100000 snap hook is the same as the 9500100, but made of stainless steel. For specifications see section 7.0.

Carabiners: The self locking carabiners are self closing/self locking connectors. The 2000524, 2000200, 2000106, 2000300, 2000301, and 2000108 include a pin that may be used to retain a permanently connected lanyard or lifeline. For specifications see section 7.0.

DEFINITIONS

Anchorage: A properly selected means, such as a structural beam or member, to which the system is anchored.

Anchorage Connector: A component, such as a connector or subsystem, specifically intended for coupling the system to an anchorage.

Connector: A component or element used to couple parts of the system together, such as a lifeline to an anchorage using a carabiner as an anchorage connector.

Component: An assembly of parts which cannot be disassembled without mutilating, or without the use of special tools, intended to perform one function in the system. Examples of components include a full body harness, lanyard, and connector.

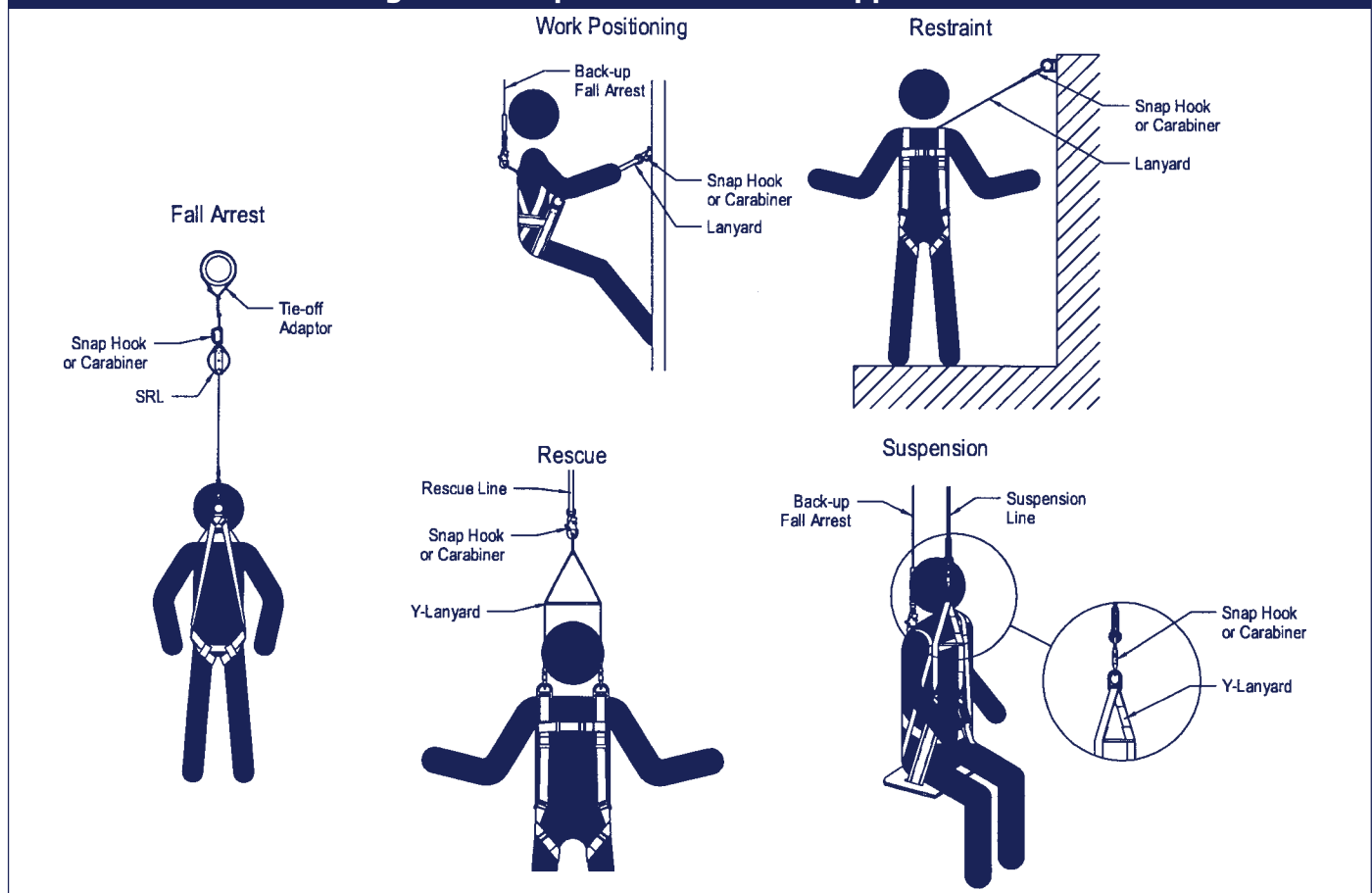
WARNING: This product is part of a personal fall arrest, restraint, work positioning, suspension, or rescue system. The user must read and understand the manufacturer's instructions for each component or part of the complete system. These instructions must be provided to the user of this equipment. The user must read and understand these instructions before using this equipment. Manufacturer's instructions must be followed for proper use, care, 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 questions on the use, care, or suitability for use of this safety equipment, contact DBI-SALA.

1.0 APPLICATIONS

1.1 PURPOSE: DBI-SALA snap hooks and carabiners are designed to be used as anchorage connectors or connectors for fall arrest, restraint, work positioning, suspension, or rescue systems. Following are descriptions of these applications. See Figure 2.

Figure 2 - Snap Hook & Carabiner Applications

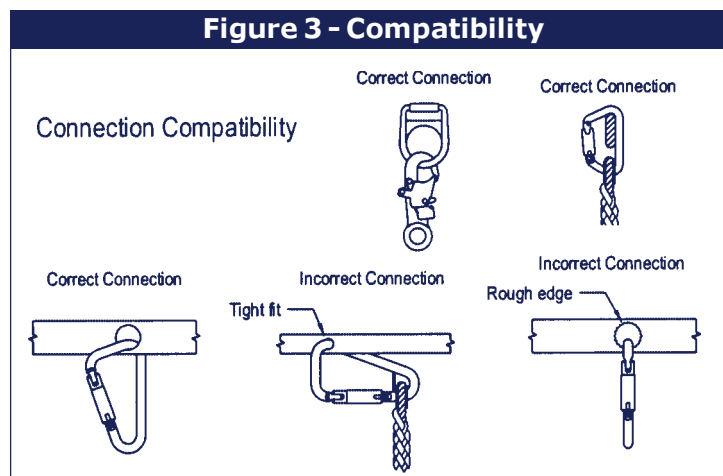


- A. FALL ARREST:** Fall arrest systems typically include a full body harness and a connecting subsystem, such as a self retracting lifeline. Maximum permissible free fall is 6 feet. This type of system is used where a free fall is possible before the fall is arrested.
- B. RESTRAINT:** Restraint systems typically include a full body harness and a lanyard or restraint line used to restrain the user from reaching a hazard (leading edge roof work). This type of system is used where no vertical free fall is possible.
- C. WORK POSITIONING:** Work positioning systems typically include a full body harness and lanyard to position or support the user at the work position. Maximum permissible free fall is 2 feet.
- D. SUSPENSION:** Suspension systems typically include a full body harness, chair, and lanyard that is used to suspend or transport the user vertically.
- E. RESCUE:** Rescue systems typically include a full body harness, and a connecting subsystem, such as a lanyard, that is used to retrieve a victim in a rescue application.

WARNING: Do not use these snap hooks or carabiners for material handling applications.

1.2 LIMITATIONS: The following application limitations must be considered before using this product:

A. COMPATIBILITY: These snap hooks and carabiners must be connected to a compatible connection, such as a properly sized D-ring. Failure to do so could cause disengagement (roll-out), or damage to snap hook or carabiner (see section 2.2). Self locking snap hooks and carabiners reduce, but cannot eliminate, the possibility of roll-out. See Figure 3 for examples of correct and incorrect connections.



- B. CAPACITY:** These snap hooks and carabiners are designed for use by persons with a combined weight (person, clothing, tools, etc.) of no more than 420 lbs. Only one personal protective system may be connected to the connectors/anchorage connectors (2000106, 2000108, 2000200, 2000300, 2000301, 2000523, 2000524) at any time except for emergency situations.
- C. PERSONAL FALL ARREST SYSTEM:** Personal fall arrest systems (PFAS) used with these snap hooks and carabiners must meet the system requirements as stated in section 2.0.
- D. FREE FALL:** PFAS used with these snap hooks and carabiners must be rigged in such a way as to limit the free fall to 6 feet (see ANSI Z359.1). See associated connecting subsystem manufacturer's instructions for further information.
- E. FALL CLEARANCE:** Ensure that 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 (energy absorbing lanyard, self retracting lifeline, etc.), and the anchorage location. Refer to manufacturer's instructions of the connecting subsystem or component for more information on fall clearance.
- F. RESTRAINT, WORK POSITIONING, SUSPENSION, AND RESCUE SYSTEMS:** Restraint, work positioning, suspension, and rescue systems selected for use with these snap hooks and carabiners must meet the requirements given in section 2.0.
- G. CORROSION:** 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.
- H. CHEMICAL HAZARDS:** Solutions containing acid or caustic chemicals, especially at elevated temperatures, may cause damage to this equipment. Consult DBI-SALA if doubt exists concerning installing this equipment where chemical hazards are present.
- I. ELECTRICAL HAZARDS:** Do not install snap hooks or carabiners where they, or the user, may come into contact with electrical power lines.

J. 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 applicable local, state, and federal (OSHA) requirements governing this equipment for more information on connectors and associated system components, including ANSI Z359.1.

2.0 SYSTEM REQUIREMENTS

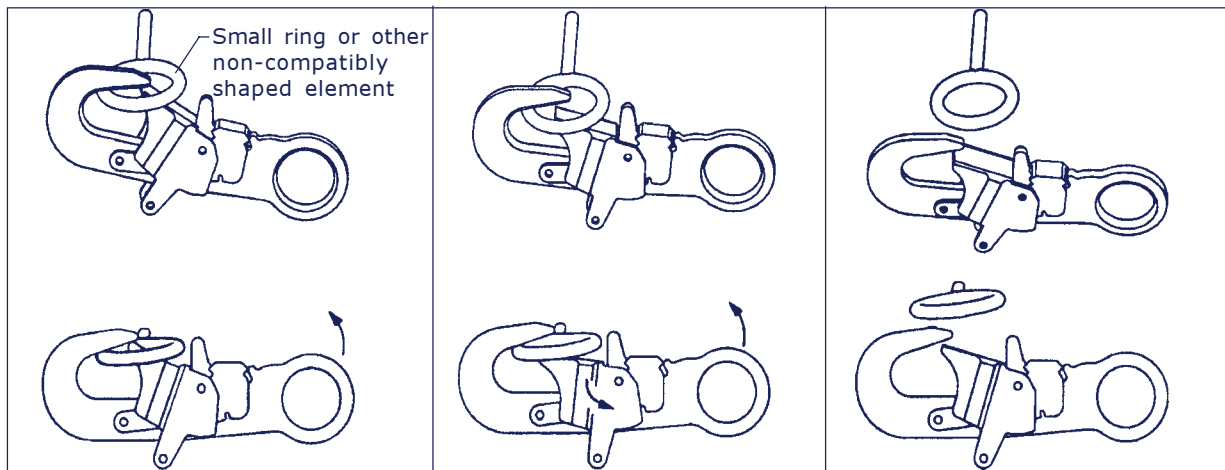
2.1 COMPATIBILITY OF COMPONENTS: DBI-SALA equipment is designed for use with DBI-SALA approved components and subsystems only. Substitutions or replacements made with non-approved components or subsystems may jeopardize compatibility of equipment and may effect the safety and reliability of the complete 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. (22.2 kN). 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 4. Connectors must be compatible in size, shape, and strength. Self locking snap hooks and carabiners are required by ANSI Z359.1 and OSHA.

Figure 4 - 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.

2.3 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 5 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.

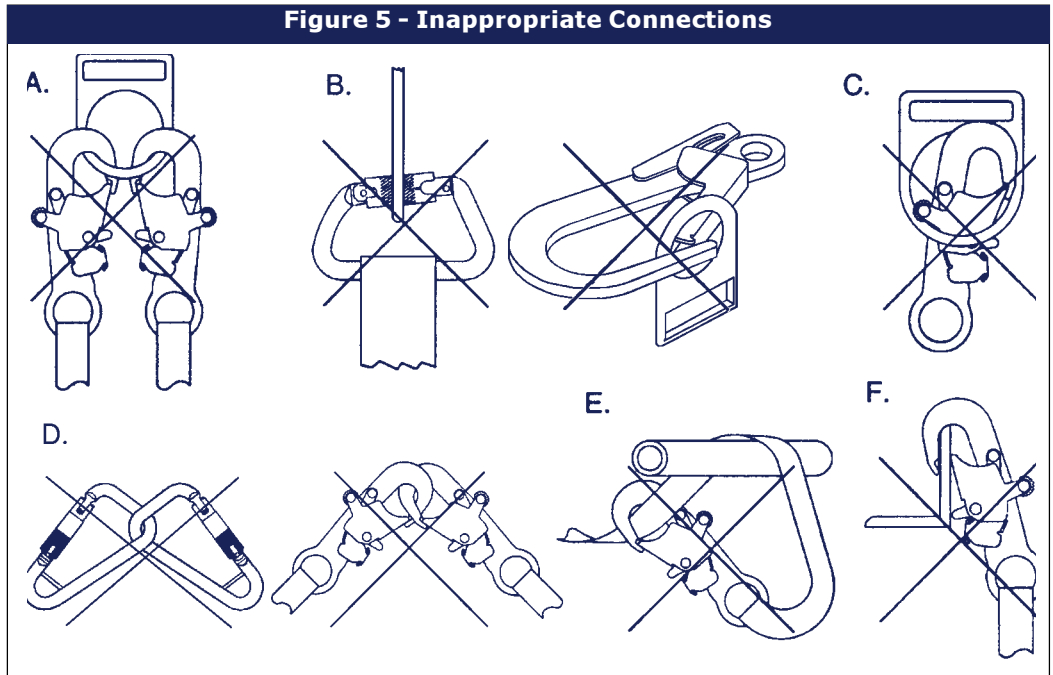
NOTE: Large throat opening snap hooks should not be connected to standard size D-rings or similar objects which will result in a load on the gate if the hook or D-ring twists or rotates. Large throat snap hooks are designed for use on fixed structural elements such as rebar or cross members that are 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: Depending on the application, the anchorage to which the connector or anchorage connector is installed must meet minimum strengths given below:

FALL ARREST: Per ANSI Z359.1: Anchorages selected for PFAS shall have a strength capable of sustaining static loads in the directions permitted by the PFAS when in use of at least; (A) 3,600 lbs. (16kN) when certification exists (see ANSI Z359.1 for certification definition), or (B) 5,000 lbs. (22.2kN) in absence of certification. When more than one PFAS is attached to an anchorage, the anchorage strengths set forth in (A) or (B) shall be multiplied by the number of PFAS 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 being used to support or suspend platforms and capable of supporting at least 5,000 lbs. (22.2kN) 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 under the supervision of a qualified person.

RESTRAINT: Anchorages for restraint applications must sustaining a static load of at least 3,000 lbs. applied in any direction permitted by the system when in use. Each installation must independently sustain this load.

POSITIONING: From OSHA 1926.502: Positioning devices shall be secured to an anchorage capable of supporting at least twice the potential impact load of an employee's fall or 3,000 lbs., whichever is greater. Each work positioning system installation must be independently capable of sustaining these loads.

SUSPENSION: Anchorages for suspension applications must support a minimum of 2,500 lbs. per person attached.

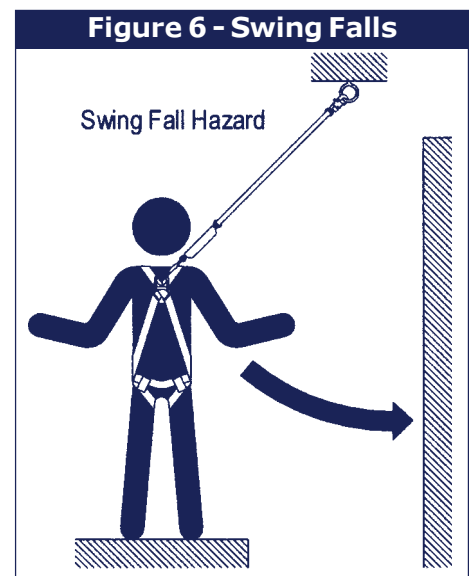
RESCUE: Anchorages for rescue applications must support a minimum of 2,500 lbs. per person attached.

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 snap hooks or carabiners.

- 3.1 BEFORE EACH USE** of this equipment, carefully inspect it to assure it is in good working condition. Check for worn or damaged parts. Inspect for sharp edges, burrs, cracks, distortion, or corrosion. Gates must close and lock. Inspect other fall arrest or restraint equipment according to manufacturer's instructions. See section 5.0 for further inspection details. Do not use if inspection reveals an unsafe condition.
- 3.2 PLAN** your fall arrest, restraint, work positioning, suspension, or rescue system before starting your work. Consider all factors affecting your safety during use. The following list gives some important points to be considered when planning your system:
- A. PERSONAL FALL ARREST SYSTEM REQUIREMENTS:** PFAS used with these snap hooks and carabiners must meet applicable state, federal, OSHA, and ANSI requirements. PFAS incorporating a full body harness must be capable of arresting a workers fall with a maximum arresting force of 1,800 lbs., and limit the free fall distance to 6 feet. The deceleration distance for a PFAS must be 42 inches (1.1m) or less. See ANSI Z359.1 and OSHA requirements.
 - B. RESTRAINT, WORK POSITIONING, AND SUSPENSION SYSTEMS:** Restraint, work positioning, and suspension systems must meet applicable state and federal requirements. See OSHA requirements.
 - C. RESCUE SYSTEMS:** Rescue systems must meet applicable state and federal requirements. See OSHA 1910.146 and ANSI Z117.1.
 - D. SWING FALLS:** Swing falls occur when the anchorage location is not directly above the point where a fall occurs. The force of striking an object while swinging can be great, and may cause serious injury. Swing falls can be minimized by working as directly below the anchorage as possible. See Figure 6.
 - E. SHARP EDGES:** Avoid working where the connecting subsystem or other system components may come in contact with unprotected sharp or abrasive edges. Do not loop lanyard around small diameter structural members. If working near sharp edges is unavoidable, protection against cutting must be provided by using a heavy pad or other means over the exposed sharp edge.
 - F. RESCUE:** If a fall occurs the employer must have a rescue plan and the ability to implement it.
 - G. AFTER A FALL:** Any equipment which has been subjected to the forces of arresting a fall must be removed from service and destroyed, or contact an authorized service center for repair.



- 3.3 RETAINING PIN INSTALLATION:** The 2000106, 2000108, 2000200, 2000300, 2000301, and 2000524 model carabiners are supplied with a roll pin, that when installed provides a captive eye for connection of a lanyard, lifeline, or similar component. To install the roll pin, drive the pin into the predrilled hole in the back bar of the carabiner using a punch. The open side of the roll pin should be facing away from the lanyard or lifeline material. Continue driving the pin through the back bar and into the front bar until the pin is flush on the outside of the back bar.

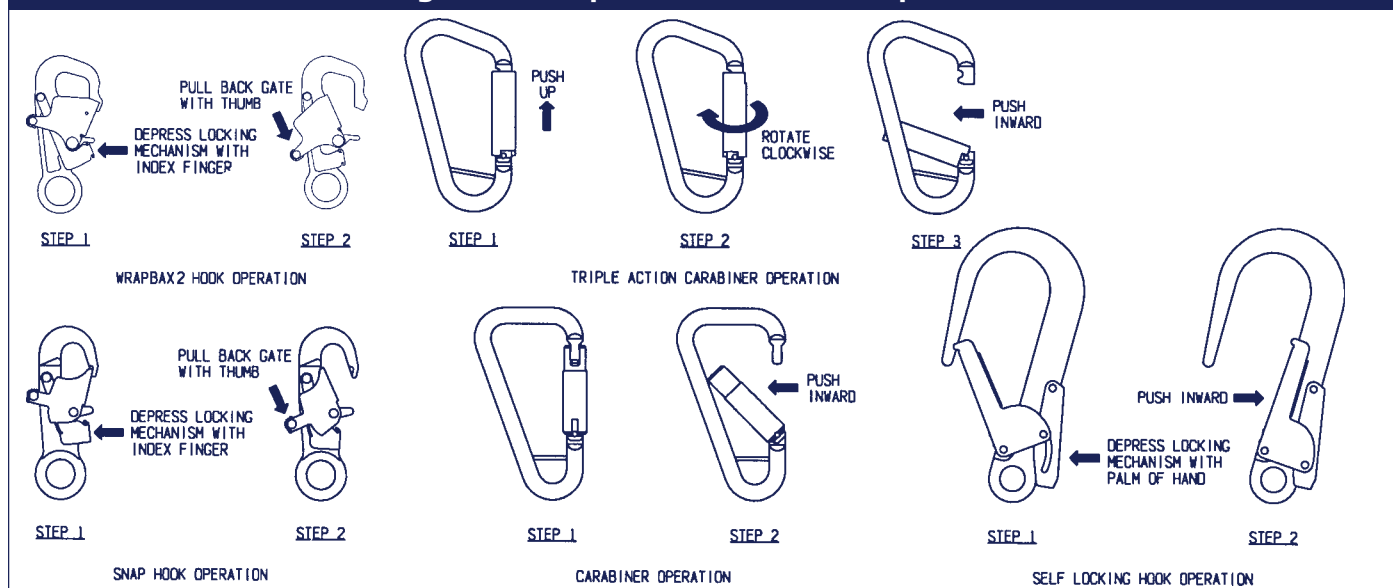
WARNING: Follow the manufacturer's instructions for associated equipment (full body harness, lanyard, lifeline, etc.) used in your personal fall arrest, restraint, work positioning, suspension, or rescue system.

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

3.4 MAKING CONNECTIONS:

- A. SNAP HOOK OPERATION:** To connect the snap hook to the connection point, depress the locking mechanism with index finger and pull back gate with thumb. To operate the 2007153 and 9510057 snap hook, squeeze the locking mechanism on the back side and press in on the gate. See Figure 7.

Figure 7 - Snap Hook & Carabiner Operation



B. CARABINER OPERATION: To connect the carabiner to the connection point, rotate the gate clockwise and push to the center of the carabiner. The 2000300 and 2000301 carabiner have a triple locking mechanism and must be pulled up before rotating it in the clockwise motion. When positioned around a connection point, release the gate to close and lock. See Figure 7.

C. USE CONSIDERATIONS: When making a connection using a snap hook or carabiner, the mating connector must be compatible in size and shape. See Figure 8 for the intended load direction for each hook. Improper loading directions can cause the hook to fail or the gate to open, releasing the load. Do not use hooks that will not completely close over the attachment object. Do not connect snap hooks to snap hooks, carabiners to carabiners, or snap hooks to carabiners. Do not install more than one snap hook or carabiner into a single connection ring or opening (except for emergency situations). Do not connect snap hooks or carabiners to objects or openings that may abrade or wear the hook material.

3.5 SUBSYSTEM ASSEMBLIES: DBI-SALA is not responsible for subsystem assemblies not manufactured by DBI/SALA. Figure 2 illustrates connection of typical fall arrest, restraint, work positioning, suspension, or rescue equipment to the connector. Following are recommended methods of attaching subsystem elements and components to DBI-SALA supplied connectors:

- When using an energy absorbing lanyard, connect the energy absorber “pack” end to the harness.
- When using a self retracting lifeline, ensure the device is properly positioned so that retraction is not hindered.
- When connecting, ensure connections are fully closed and locked.
- Ensure all connections are compatible in size, shape, and strength.

Do not use a knot to connect a lifeline to the connector. Do not pass a lanyard or lifeline through a connector and hook it back into the lanyard or lifeline. Always protect a lifeline or lanyard from abrading against sharp or abrasive surfaces. Connectors attached to synthetic rope lifelines must be attached using a spliced eye termination and thimble. See Figure 9. The splice must be made using five tucks (A). Connectors attached to wire rope lifelines must be attached using a formed eye termination utilizing a thimble. The following are accepted methods of forming spliced eyes: (B) Spliced eye with one swagged fitting; (C) Return eye with a minimum of two swagged fittings; (D) Return eye with a minimum of three

Figure 8 - Load Direction

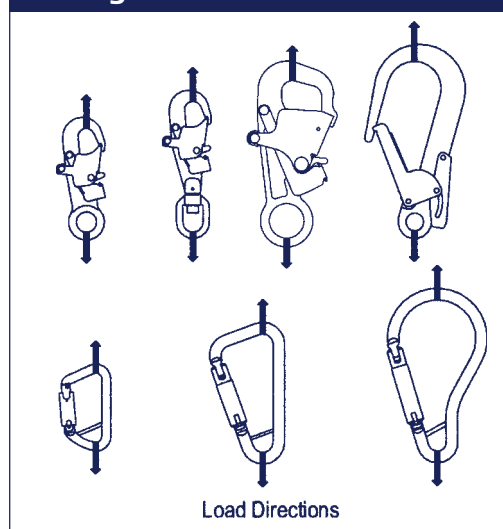
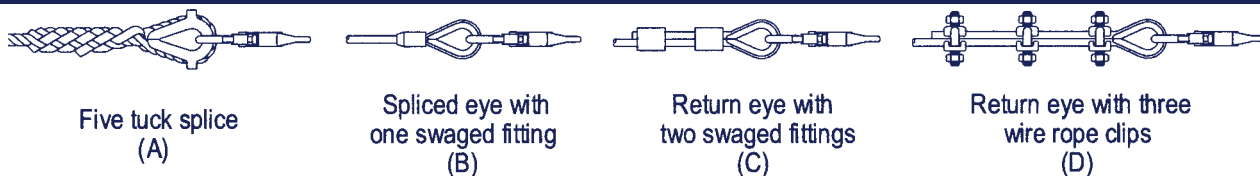


Figure 9 - Subsystem Assemblies



wire rope clips tightened according to clip manufacturer's specifications. Completed connections must support 5,000 lbs.

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.

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 according to steps listed in sections 5.2.
- The snap hook or carabiner must be inspected by a competent person, other than the user, at least annually. See sections 5.2 and 5.3 for guidelines. Record results of each formal inspection in the inspection and maintenance log in section 9.0.

IMPORTANT: If this equipment has been subjected to fall arrest or impact forces, it must be immediately removed from service and destroyed, or returned to an authorized service center for repair.

5.2 INSPECTION STEPS:

- Step 1.** Inspect the snap hook or carabiner for damage. Look carefully for cracks, sharp edges, burrs, dents, or deformities. Check for bending or distortion.
- Step 2.** Inspect the snap hook or carabiner for excessive corrosion. The gate and lock should operate smoothly, with no difficulty. Gates must fully close and engage nose of hook. See Figure 1.
- Step 3.** Inspect markings. Markings should be present and fully legible.
- Step 4.** Inspect each system component or subsystem according to manufacturer's instructions.
- Step 5.** Record the inspection date and results in the in the inspection and maintenance log in section 9.0.

5.3 If inspection reveals a defective condition, remove the unit from service and destroy it, 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 AND SERVICING

- 6.1** If gate operation is sluggish, apply a small amount of WD-40 or similar moisture repellent agent to the hinge end only. If you have questions concerning the condition of the snap hook or carabiner contact DBI-SALA.
- 6.2** Additional maintenance and servicing procedures must be completed by an authorized service center. Authorization must be in writing.

7.0 SPECIFICATIONS

7.1 9503175, 9500100, 2100000

Material: 9503175 and 9500100: Steel alloy body and gate, zinc or cadmium plated, carbon steel music wire; 2100000: Stainless steel
Minimum Breaking Strength: 5,000 lbs.
Weight: 9503175 and 9500100: 12 oz.; 2100000: 13.5 oz.
Dimensions: 9503175: 2-1/2 x 6 in.; 9500100 and 2100000: 2-1/2 x 7-1/8 in.
Capacity: 420 lbs. (one person)
Patent Number: U.S. patent number 4,977,647; Canadian patent number 2,027,784

7.2 2000200, 2000301

Material: Stainless steel
Minimum Breaking Strength: 5,000 lbs.
Weight: 2000200: 8 oz. 2000301: 13.7 oz.
Dimensions: 2000200: 2-3/8 x 4-1/4 in. 2000300: 3-13/16 x 6-5/8 in.
Capacity: 420 lbs. (one person)

7.3 2000106, 2000108, 2000300, 2000523, 2000524

Material: Steel alloy, zinc plated
Minimum Breaking Strength: 5,000 lbs.
Weight: 2000106: 19 oz.; 2000108: 24 oz.; 2000300: 13.7 oz.; 2000523 and 2000524: 8 oz.
Dimensions: 2000106: 3-11/16 x 7 in.; 2000108: 4-15/16 x 8-11/16 in.; 2000300: 3-13/16 x 6-5/8 in., 2000523 and 2000524: 2-3/8 x 4-1/4 in.
Capacity: 420 lbs. (one person)

7.4 2007153

Material: Aluminum alloy
Minimum Breaking Strength: 5,000 lbs.
Weight: 1 lb.
Dimensions: 5 x 9-1/2 inches
Capacity: 420 lbs. (one person)

7.5 9510057

Material: Steel alloy, zinc plated
Minimum Breaking Strength: 5,000 lbs.
Weight: 1 lb.
Dimensions: 4-7/8 x 9-1/4
Capacity: 420 lbs. (one person)

7.6 9501804

Material: Steel alloy, zinc plated
Minimum Breaking Strength: 5,000 lbs.
Weight: 1 lb.
Dimensions: 3 x 6-3/8
Capacity: 420 lbs. (one person)

- 7.7** The snap hooks and carabiners covered by this manual, when tested in accordance with ANSI Z359.1: Have a minimum tensile strength of 5,000 lbs. in the intended direction of the load; gates withstand a load of 220 lbs. without the gates separating from the hook or carabiner nose; gates withstand a side load of 350 lbs. without breaking or causing permanent distortion.

8.0 MARKINGS

8.1 See Figure 1 for location of markings and labels.

8.2 **2000106, 2000108, 2000200, 2000300, 2000301, 2000523, 2000524, 2007153, 9510057:** Markings show manufacturer's identification, year of manufacture, and part number.

8.3 **9503175, 9500100, 2100000:** Markings read: Warning: Locking snap hook reduces but does not eliminate possibility of unintentional disengagement. Read all instructions. Forged hook. Made in USA. Proof load 5,000 lbs. Inspect before each use. Gate must close. Gate must lock. Markings show manufacturer's identification, year of manufacture, and part number.

8.4 **9501804:** Markings read: Gate must close. Gate must lock. Light passing through gate holes indicates snap hook is not locked. Read all instructions. Inspect before each use. Warning - Locking snap hook reduces, but does not eliminate the possibility of unintentional disengagement. BS 5000 lbs (22KN). Patent pending. EN 362:2004/B.

Instruction Label:



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:			
Approved By:			
Approved By:			
Approved By:			
Approved By:			
Approved By:			
Approved By:			
Approved By:			
Approved By:			

This instruction applies to the following models:

2000106
2000108
2000200
2000300
2000301
2000523
2000524
2007153
2100000
9500100
9501804
9503175
9510057

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



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Fax: (905) 795-8777
www.capitalsafety.com

This instruction manual is available for download at www.capitalsafety.com.



Form: 5902124
Rev: J