

## HOOKS & CARABINERS INSTRUCTIONS

Do not skip this instruction manual. Read the instruction manual carefully before using the equipment. If failed in doing so it may cause serious injury or Death.

GENERAL WORK PRODUCTS LLC 4912 MEHURIN STREET JEFFERSON, LA 70121

The Instruction applies to the following MODELS:

MODEL	MATERIAL	FINISH	GATE STRENGTH	PROOF LOAD	MINIMUM BREAKING STRENGTH		GATE OPENING	APPROX. WEIGHT
					MAJOR	MINOR		
			GATE FACE GATE SIDE	LBS/ kN	LBS/ kN	LBS/ kN	INCH/ MM	LBS/ GMS
C111	Alloy Steel	Zinc Plated Galvanized	3600 lbs 3600 lbs	3600 lbs 16 kN	5000 lbs 23 kN	3600 lbs 16 kN	0.67 Inch 17 mm	0.35 lbs 160 gms
C113	Alloy Steel	Zinc Plated Galvanized	3600 lbs 3600 lbs	3600 lbs 16 kN	5000 lbs 23 kN	3600 lbs 16 kN	0.84 Inch 21 mm	0.54 lbs 265.09 gms
C134	Alloy Steel	Zinc Plated Galvanized	3600 lbs 3600 lbs	3600 lbs 16 kN	5000 lbs 23 kN	3600 lbs 16 kN	1.97 Inch 50 mm	0.46 lbs 748 gms
S00140	Alloy Steel	Zinc Plated Galvanized	3600 lbs 3600 lbs	3600 lbs 16 kN	5000 lbs 23 kN	N/A	2.36 Inch 60 mm	1.80 lbs 816 gms
SRL169	Alloy Steel	Zinc Plated Galvanized	3600 lbs 3600 lbs	3600 lbs 16 kN	5000 lbs 23 kN	3600 lbs 16 kN	1.97 Inch 50 mm	0.46 lbs 748 gms
SRL170	Alloy Steel	Zinc Plated Galvanized	3600 lbs 3600 lbs	3600 lbs 16 kN	5000 lbs 23 kN	N/A	2.36 Inch 60 mm	1.80 lbs 816 gms

This manual must be read and understood in its entirety and used as part of fall protection training program as required by OSHA or any state regularity agency. These instructions are intended to meet the manufacturer instructions as required by ANSI Z 359.12 and OSHA 1926. The user must fully understand the proper equipment use and limitations.

### 1.0 MARKINGS:

Markings read: Warning: Locking snap hook reduces but does not eliminate possibility of unintentional disengagement. Read all instructions. Made in India. Proof load 5,000 lbs. Inspect before each use. Gate must close. & must lock. Light passing through gate holes indicates snap hook is not locked, BS 5000 lbs (23KN). Conforms to ANSI Z359.12.

CCC0120 23KN 5000LBS EN 362:2004T  
ANSI Z359.12 (09) Gate 3600 LBS PT

### 2.0 GENERAL REQUIREMENTS, WARNINGS AND LIMITATIONS:

The Equipment is designed for use as a part of a personal fall protection system. Components must not be used for any other operation other than that which it has been designed and approved. Fall Arrest system are designed to comply with OSHA. Fall Restraint System must be designed by a Qualified Person, and must be installed and used under the supervision of a competent person.

All authorized persons/users must refer the regulations governing occupational safety, as well as applicable ANSI or CSA standards. Please refer to product labeling for information on specific OSHA regulations, and ANSI and CSA standards met by product.

Consult a doctor if there is any reason to doubt a user's ability to withstand and safely absorb fall arrest forces. Age, fitness, health conditions can seriously affect the worker a fall occur. Pregnant Women and minors should not use this equipment.

Proper precautions should always be taken to remove any obstructions, debris, material, or other recognized hazards from the work area that could cause injuries or interfere with the operation of the system. All equipment must be inspected before each use according to the manufacturer's instructions. All equipment should be inspected by a qualified person on a regular basis.

To minimize the potential for accidental disengagement, a competent person must ensure system compatibility.

Equipment must not be altered in any way. Repairs must be performed only by the Manufacturer, or persons or entities authorized in writing by the manufacturer.

Any product exhibiting deformities, unusual wear, or deterioration must be immediately discarded. Any equipment subject to a fall must be removed from service. The authorized person/user shall have a rescue plan and the means at hand to implement it when using this equipment. Never use fall protection equipment for purposes other than those for which it was designed. Fall protection equipment should never be used for towing or hoisting.

All synthetic material must be protected from slag, hot sparks, open flames, or other heat sources. The use of heat resistant materials is recommended in these applications.

Never use natural materials (manila, cotton, etc.) as part of a fall protection system.

Do not expose this equipment to chemicals which may have a harmful effect on the materials used to construct it. Be especially aware of caustic environment, or those that contain high levels of organic acids or bases. If you are uncertain about the safe operation of this equipment in any environment, contact Palmer Safety for instructions.

Do not use the equipment around moving machinery or electrical hazards.

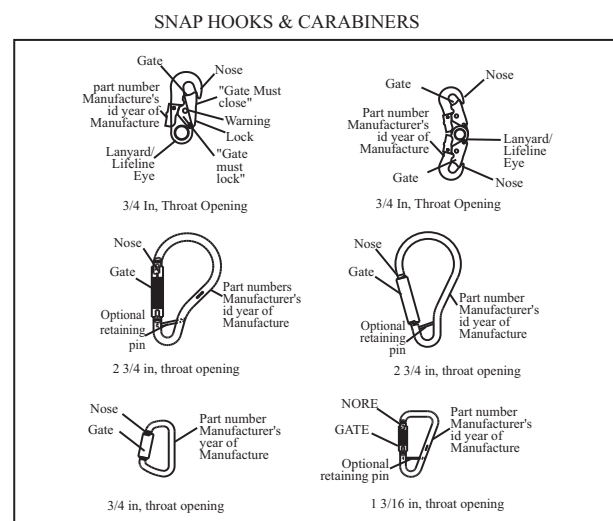
### 3.0 RESCUE PLAN:

Rescue operation must be performed by the trained and competent personal. The rescue operation must be performed under the supervision of the rescue expert team or personal. It is advised that while working on site work in pairs. Before going for the work the user must have the rescue plan according to the work.

### 4.0 IF EQUIPMENT IS SUBJECTED TO A FALL:

Remove the equipment from service immediately if it has been subjected to the forces of a fall arrest. Contact your distributor or Palmer Safety about policies regarding replacement of Palmer Safety components involved in a fall.

### 5.0 SPECIFIC INSTRUCTIONS:



### 5.1 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.

**Carabiners:** The self-locking carabiners are self-closing/self-locking connectors. All carabiners can be supplied with a captive pin that may be used to remain permanently connected to lanyard or lifeline.

### 5.2 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 restraint, work positioning, suspension, or rescue system. These instructions must be provided to the user and rescuer. The user must read and understand these instructions or have them explained to them before using this equipment. The user must read and follow the manufacturer's instructions for each component or part of the complete system. 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 questions on the use, care, or suitability for use of this safety equipment, contact Palmer Safety

### 5.3 APPLICATIONS:

**5.3.1 PURPOSE:** Palmer Safety 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.

**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.

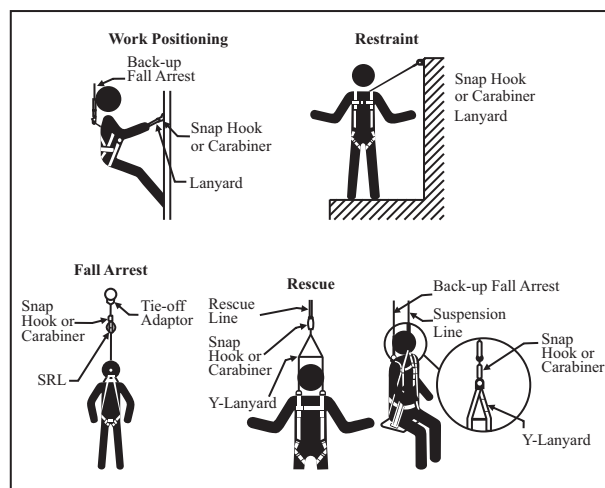
**B. Restraint:** Restraint systems typically include a full body harness and a lanyard or restraint line used to restrain the user from reaching a hazard (leading edge roof work). This type of system is used where no vertical free fall is possible.

**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.

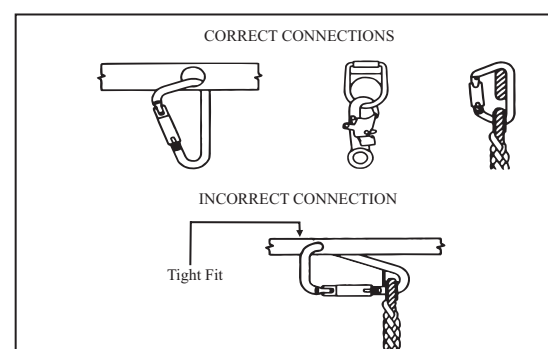
### SNAP HOOKS & CARABINERS APPLICATIONS:



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

**5.4 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. Self locking snap hooks and carabiners reduce, but cannot eliminate, the possibility of roll-out. See Figure below for examples of correct and incorrect connections. See below pic



**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 at any time except for emergency situations.

**C. Personal Fall Arrestsystem:** Personal fall arrest systems (PFAS) used with these snap hooks and carabiners must meet the system requirements given in section 8.0.

**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) or 12 feet (see ANSI Z 359.13). 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 Rescuesystems:** Restraint, work positioning, suspension, and rescue systems selected for use with these snap hooks and carabiners must meet the requirements given in section 8.0.

**G. Physical And Environmental Hazards:** Use of this equipment in areas with physical or environmental hazards 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: heat, severe cold, chemicals, corrosive environments, high voltage power lines, gases, moving machinery, sharp edges and abrasive edges. Contact Palmer Safety if you have any questions about using this equipment where physical or environmental hazards exists.

**H. 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.

**I. Chemical Hazards:** Solutions containing acid or caustic chemicals, especially at elevated temperatures, may cause damage to this equipment. Consult Palmer Safety if doubt exists concerning installing this equipment where chemical hazards are present.

**J. Electrical Hazards:** Do not install snap hooks or carabiners where they, or the user, may come into contact with electrical power lines.

**K. Training:** This equipment is intended to be installed and used by persons who have been properly trained in its correct application and use. 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 about work positioning systems.

**5.5 BEFORE EACH USE OF THIS EQUIPMENT INSPECT IT ACCORDING TO THE FOLLOWING GUIDELINES:**

A formal inspection of fall protection products/components must be performed at least every six months by a competent person other than the user. The frequency of formal inspections should be based on conditions of use or exposure. Record the inspection results in the inspection and maintenance log at the end of this manual.

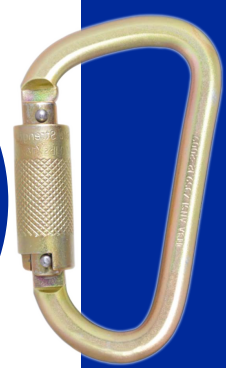
### 5.5.1 INSPECTING THE CONNECTORS:

Before each use, visually inspect according to steps listed in sections 5.5.2.

The snap hook or carabiner must be inspected by a competent person, other than the user, at least annually. Record results of each formal inspection in the inspection and maintenance log

**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.





5.5.2 INSPECTION STEPS:

**Step1:** Inspect the snap hook or carabiner for damage. Look carefully for cracks, sharp edges, burrs, dents, or deformities. Check for bending or distortion.



**Step2:** 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.



**Step3:** Inspect markings. Markings should be present and fully legible.

**Step4:** Inspect each system component or subsystem according to manufacturer's instructions.



**Step5:** 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.

6.0 OPERATION & USE:

**WARNING:** Do not alter or intentionally misuse this equipment. Consult Palmer Safety 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 Palmer Safety snap hooks or carabiners.

**6.1:** 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.. Do not use if inspection reveals an unsafe condition.

**6.2:** 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.



**E. Sharpedges:** 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:** When using this equipment, the employer must have a rescue plan and the means at hand to implement it and communicate that plan to users, authorized persons, and rescuers.

**G. After A Fall:** Any equipment which has been subjected to the forces of arresting a fall or exhibits damage consistent with the effect of fall arrest forces, must be removed from service immediately and destroyed by the user, the rescuer, or an authorized person.

6.3 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 SRL169, SRL170, C111, C134, C113, S00140 snap hook, squeeze the locking mechanism on the back side and pressin on the gate.

**B. Carabiner Operation:** To connect the carabiner to the connection point, rotate the gate clockwise and push to the center of the carabiner. The carabiner that 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.

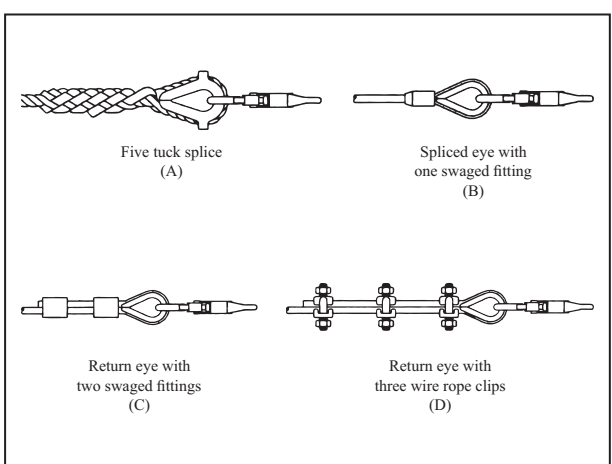
**C. Use Considerations:** When making a connection using a snap hook or carabiner, the mating connector must be compatible in size and shape. Improper loading directions can cause the hook to fail or the gate to open, releasing the load. Do not use hooks that will not completely close over the attachment 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.

**6.4 SUBSYSTEM ASSEMBLIES:** Palmer Safety is not responsible for subsystem assemblies not manufactured by Palmer Safety. Figure mentioned below 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 Palmer Safety 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 below. 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 wire rope clips tightened according to clip manufacturer's specifications. Completed connections must support 5,000 lbs.

SUBSYSTEM ASSEMBLIES



**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. Palmer Safety is not responsible for subsystems not manufactured by Palmer Safety.**

7.0 PERIODIC EXAMINATIONS:

Keep these instructions with the product and fill in the identification sheet, entering the information taken from the markings.

The periodic examination is essential to test the resistance and condition of the equipment and to guarantee the safety of the user.

A qualified person must examine this equipment at least once each year in strict compliance with the instructions of the manufacturer and the previous check must be recorded on the attached sheet. The frequency of inspection should be increased in accordance with the regulations, if the equipment is in heavy usage or if the equipment is used in harsh environments. Check also that the markings are legible.

8.0 SYSTEM REQUIREMENTS:

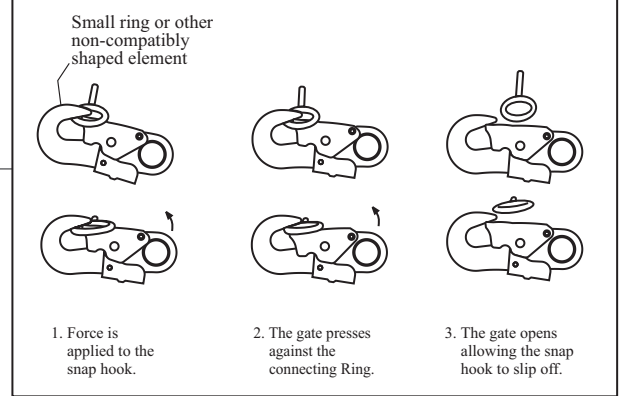
**8.1 COMPATIBILITY OF COMPONENTS:** Palmer Safety equipment is designed for use with Palmer Safety approved components and subsystems only. Substitutions or replacements made with non-approved components or subsystems may jeopardize compatibility of equipment and may effect the safety and reliability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

**8.2 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 Palmer Safety 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. Connectors must be compatible in size, shape, and strength. Self locking snap hooks and carabiners are required by ANSI Z359.12 and OSHA.

UNINTENTIONAL DIENGAGEMENT (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 (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. For ANSI Z359.12-2009 compliant hooks, there are no restrictions on size or shape of the mating connector provided the snap hook is free to align with applied load as intended.



**8.3 MAKING CONNECTIONS:** Only self-locking snap hooks and/or carabiners shall be used with this equipment. Ensure all connectors are fully closed and locked and compatible.

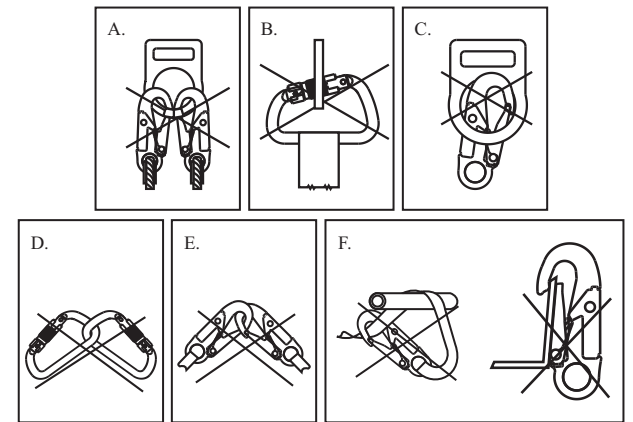
Palmer Safety connectors (snap hooks and carabiners) are designed to be used only as specified in each product's user instructions. See the Figure below for inappropriate connections. Palmer Safety snap hooks and carabiners should not be connected:

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

**NOTE: Large throat 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, unless the snap hook complies with ANSI Z359.12-2009 and is equipped with a 3,600 lbs gate. Check the marking on your snap hook to verify that it is appropriate for your application**

**C.** In a false engagement, where features that protrude from the snap hook or carabiner catch on the D-ring, and without visual confirmation seems to be fully engaged to the anchor point.

- D.** To each other.
- E.** Directly to webbing or rope lanyard for tie-back (unless specifically provided by the manufacturer).
- F.** To any object which is shaped or dimensioned such that the snap hook or carabiner will not close and lock, or where roll-out could occur. Please refer to the below picture



9.0 OTHER RESTRICTIONS:

- Do not make connections where the hook locking mechanism can come into contact with a structural member or other equipment and potentially release the hook.
- Do not connect a snap hook into a loop or thimble of a wire rope or attach in any way to a slack wire rope.
- The snap hook must be free to align with the applied load as intended (regardless of the size or shape of the mating connector).
- A carabiner may be used to connect to a single or pair of soft loops on a body support such as a body belt or full body harness, provided the carabiner can fully close and lock. This type of connection is not allowed for snap hooks.
- A carabiner may be connected to a loop or ring connector that is already occupied by a choker style connector. This type of connection is not allowed for snap hooks.

**10. ANCHORAGE STRENGTH:** The anchorage strength required is dependent on the application type. The following are the requirements of ANSI 359.1 for these application types:

**A. Fall Arrest:** 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: 1. 5,000 lbs. (22.2 kN) for non-certified anchorages, or 2. 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 (1) and (2) above shall be multiplied by the number of systems attached to the anchorage.

**B. 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.

**C. Work Positioning:** The structure to which the work positioning system is attached must sustain static loads applied in the directions permitted by the work positioning system of at least 3,000 lbs., or twice the potential impact load, whichever is greater. See OSHA 1926.502. When more than one work positioning system is attached to an anchorage, the strengths stated above must be multiplied by the number of work positioning systems attached to the anchorage.

**D. 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. 1,000 lbs. (4.5 kN) for non-certified anchorages, or 2. Two times the foreseeable force for certified anchorages. When more than one restraint and travel restraint system is attached to an anchorage, the strengths set forth in (1) and (2) above shall be multiplied by the number of systems attached to the anchorage.

**E. Rescue:** 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. 3,000 lbs. (13.3 kN) for non-certified anchorages, or 2. Five times the foreseeable force for certified anchorages. When more than one restraint and