DBI SALA®

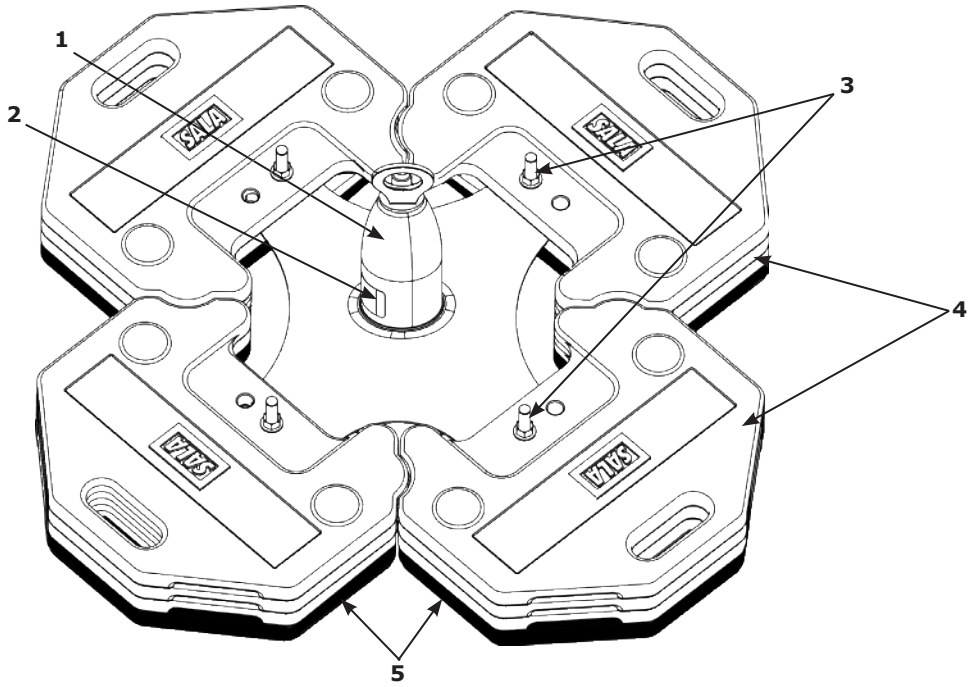
The Ultimate in Fall Protection

ROOF TOP COUNTERWEIGHT ANCHOR SYSTEM

Model Number: 2100185

USER INSTRUCTION MANUAL

Figure 1 - Assembled Roof Top Counterweight Anchor System



1 - Roof Top Anchor System 2 - ID Label 3 - L-Bolts 4 - Counterweights 5 - Black Rubber Coated Base Weights

WARNING: *This product is part of a Personal Fall Arrest and Work Positioning 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. The user must follow the manufacturer's instructions for each component of the system. 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 of this equipment for your application, contact Capital Safety. For general questions, refer to national Standards including the 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 fall protection systems. Refer to CSA Z259.13 in Canada for more information on personal fall arrest systems and associated components.*

IMPORTANT: *Prior to installation and use of this equipment, record the product identification information from the ID label in the Inspection and Maintenance Log at the back of this manual.*

FORM NO: 5903602
REV: B

1.0 PRODUCT APPLICATION

1.1 PURPOSE: The Roof Top Counterweight Anchor System is designed for use as an anchoring means for a personal fall arrest system (PFAS) for a person working on flat roofs or structures.

> ***WARNING:*** *Unless otherwise noted, Capital Safety equipment is designed for use with Capital Safety approved components and subsystems only. Substitution or replacement with non-approved components or subsystems may jeopardize compatibility of equipment and may affect safety and reliability of the complete system. Do not hang, lift, or support tools or equipment from the Anchorage System, or attach guy lines for antennas, phone lines, etc.*

1.2 SUPERVISION: Installation of this equipment must be supervised by a Qualified Person[1]. Use of this equipment must be supervised by a Competent Person[2].

1.3 TRAINING: This equipment must be installed and used by persons trained in its correct application. This manual is to be used as part of an employee training program as required by OSHA. It is the responsibility of the users and installers of this equipment to ensure they are familiar with these instructions, trained in the correct care and use of this equipment, and are aware of the operating characteristics, application limitations, and consequences of improper use of this equipment.

> ***IMPORTANT:*** *Training must be conducted without exposing the user to a fall hazard. Training should be repeated periodically.*

1.4 RESCUE PLAN: When using this equipment and connecting subsystem(s), the employer must have a rescue plan and the means at hand to implement and communicate that plan to users, Authorized Persons[3], and Rescuers[4]. A trained, on-site rescue team is recommended. Team members should be provided with the equipment and techniques to perform a successful rescue. Training should be provided on a periodic basis to ensure rescuer proficiency.

1.5 INSPECTION FREQUENCY: The Roof Top Counterweight Anchor System shall be inspected by the user before each use and, additionally, by a Competent Person other than the user at intervals of no more than one year[5]. Inspection procedures are described in Section 5 of this manual. Results of each Competent Person inspection should be recorded in the *"Inspection and Maintenance Log"* in this manual.

1.6 AFTER A FALL: If the Roof Top Counterweight Anchor System is subjected to the forces of arresting a fall, it must be removed from the field of service immediately and replaced or inspected by an Authorized Capital Safety Representative.

1.7 LIMITATIONS: The following limits apply to the installation and use of Roof Top Counterweight Anchor System. Other limitations may apply:

- **A. HORIZONTAL LIFELINE:** The Roof Top Counterweight Anchor System is not rated for use as an anchor for a horizontal lifeline.
- **B. SYSTEM CAPACITY:** The maximum capacity of the Roof Top Counterweight Anchor System is one person with a maximum combined weight including tools and clothing, of 310 lbs. (141 kg).
- **C. ROOF TYPES:** The Roof Top Counterweight Anchor System is approved for use on the following types of roofs: concrete, asphalt sanded, and asphalt stone chippings. If you want to use the system on any other type of roofing surface, contact DBI-SALA for further recommendations.
- **D. ROOF LOAD:** The roof must be able to support a static load of 720 lbs.
- **E. ROOF CONDITIONS:** The Roof Top Counterweight Anchor System must not be used in adverse weather conditions. The roof surface must be free of frost, snow, standing water, grease or oil, or any other type of lubricating or friction reducing materials.
- **F. PERSONAL FALL ARREST SYSTEM:** PFASs used with this roof anchor must meet applicable OSHA, state, federal and ANSI requirements. PFASs incorporating a full body harness must be capable of arresting a worker's fall with a maximum arresting force of no greater than 1,800 lbs. (8 kN) and limit the free fall distance to 6 ft. (1.8 m) or less. The deceleration distance for a PFAS must be 42 inches (1.1 m) or less (47 inches (1.2 m) in Canada). Reference ANSI Z359.1, OSHA and CSA Z259.11 requirements. The system must be rigged in a way that limits free fall to 6 ft. or less. Contact DBI-SALA if you have questions or concerns regarding free fall limits.
- **G. ENVIRONMENTAL HAZARDS:** Use of this equipment in areas where environmental hazards exist may require additional precautions be taken to reduce the possibility of injury to the user or damage to the equipment. Hazards may include, but are not limited to: high heat, extreme cold, caustic chemicals, corrosive environments, high voltage power lines, explosive or toxic gases, moving machinery, or sharp edges. Contact DBI-SALA if you have questions about using this equipment where environmental hazards exist.

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1 ***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 protections and rescue systems to the extent required by OSHA and other applicable standards.*

2 ***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.*

3 ***Authorized Person:*** *For purposes of the Z359 standards, a person assigned by the employer to perform duties at a location where the person will be exposed to a fall hazard.*

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

5 ***Inspection Frequency:*** *Extreme working conditions (harsh environments, prolonged use, etc.)may require increasing the frequency of competent person inspections.*

2.0 SYSTEM REQUIREMENTS

2.1 CONNECTOR COMPATIBILITY: 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 Capital 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 (see Figure 2). If the connecting element to which a snap hook or carabiner attaches 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 (Figure 2, A). This force may cause the gate to open (Figure 2, B), allowing the snap hook or carabiner to disengage from the connecting point (Figure 2, C).

Self-locking snap hooks and carabiners are required by ANSI Z359, OSHA and CSA Z259.12 in Canada.

2.2 MAKING CONNECTIONS: Snap hooks and carabiners used with this equipment must be self-locking. 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.

Capital Safety connectors (snap hooks and carabiners) are designed to be used only as specified in each product's user's instructions.

Examples of inappropriate connections are shown in Figure 3. Do not connect snap hooks and carabiners:

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 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 is equipped with a 3,600 lb (16 kN) 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 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.

G. In a manner that does not allow the connector to align properly while under load.

Figure 2 - Unintentional Disengagement

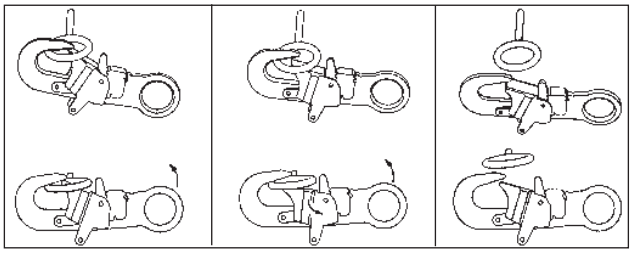
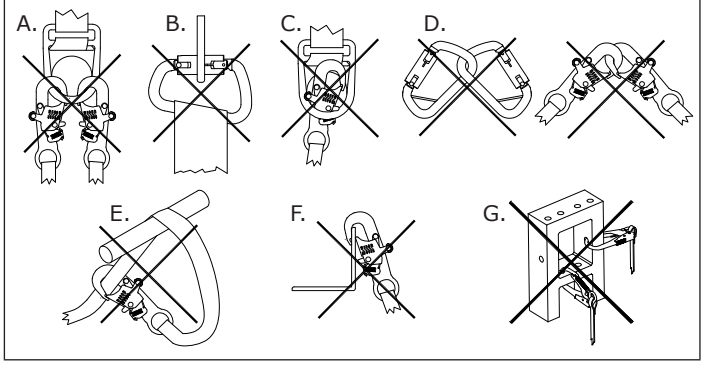


Figure 3 - Inappropriate Connections



2.3 STRUCTURE LOAD: The structure supporting these anchorage points must be rigid, flat pitch, and capable of supporting at least 5,000 lbs. (22.2 kN) in the direction of potential fall arrest.

3.0 ASSEMBLY AND USE

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

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** inspect this equipment according to steps listed in section 5.3. Do not use the Roof Top Counterweight Anchor System if inspection reveals an unsafe or defective condition. Plan your use of the fall protection system prior to exposing workers to dangerous situations. Consider all factors affecting your safety before using this system.

A. Read and understand all manufacturer's instructions for each component of the personal fall arrest system. All DBI-SALA harnesses and connecting subsystems are supplied with separate user instructions. Keep all instructions for future reference.

B. Review sections 1.0 and 2.0 to ensure system limitations and other requirements have been adhered to. Review applicable information regarding system clearance criteria and ensure changes have not been made to the system installation (i.e. length), or occurred at the job site, that could affect the required fall clearance. Do not use the system if changes are required.

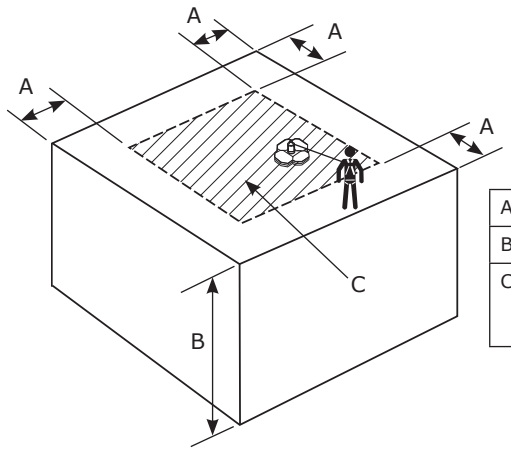
3.2 **PLAN** your fall arrest system before starting your work. Take into consideration factors affecting your safety at any time during use. The following list gives some important points you must consider when planning your system:

A. **ANCHORAGE:** Select an anchorage point that is rigid and capable of supporting the required loads. See section 2.4. Locate the roof anchor in accordance with section 3.3.

B. OTHER CONSIDERATIONS:

- Place the Roof Top Counterweight Anchor System at least 8 ft (2.5 m) away from any edge or opening. See Figure 4.
- Personal fall arrest systems must be rigged to limit any free fall to a maximum of 6 ft. (1.8 m) (OSHA and ANSI Z359.1) (see section 1.2 F).
- Avoid working above your anchorage level since an increased free fall distance will result.
- Avoid working where your line may cross or tangle with that of another worker or another object.
- Do not allow the lifeline to pass under arms or between legs.
- Never clamp, knot or otherwise prevent the lifeline from retracting or being taut, avoid slack line.

Figure 4 - Counterweight System Positioning



A	8 ft (2.5 m)
B	Clearance 17 ft. Min
C	Roof Top Counterweight Anchor System positioning zone.

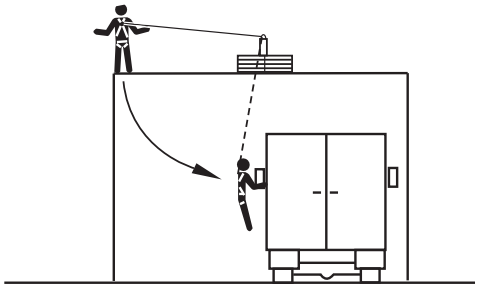
IMPORTANT: *Do not lengthen the SRL by connecting a lanyard or similar component without consulting DBI-SALA.*

C. **TOTAL FALL DISTANCE:** Should a fall occur, there must be at least 17 ft of clearance in the fall area to arrest the fall before striking the ground or other object (see Figure 4). The total fall distance is the distance measured from the onset of a fall to the point where the fall is arrested. A number of factors can influence the total fall distance including; user's weight, anchorage location relative to the fall (swing fall), body support with sliding D-ring, and the type of fall arrest equipment you attach to the Roof Top Counterweight Anchor System. Users must add 5 ft (1.5 m) into fall clearance calculations to account for any movement in the counterweight anchor base while arresting a fall. For specific clearance requirements read and follow the manufacturers's instructions for your fall arrest equipment.

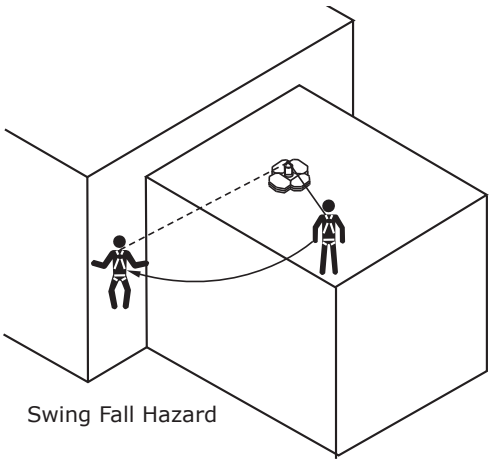
D. **SWING FALLS:** See Figure 5. Swing falls occur when the anchorage point is not directly above the point where a fall occurs. The force of striking an object while swinging (horizontal speed of the user due to the pendulum affect) can be great and may cause serious injury. Swing falls can be minimized by working as close to the anchorage point as possible. 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.

The SRL (if applicable) will activate (lock-up) regardless of it's orientation and location relative to the user's position, however, a commonly followed guideline is work as directly between the anchorage point and roof edge as possible. Do not captivate the lifeline of an SRL, it may affect the performance of its braking. If a swing fall hazard exists in your application, contact DBI-SALA before proceeding.

Figure 5 - Swing Falls



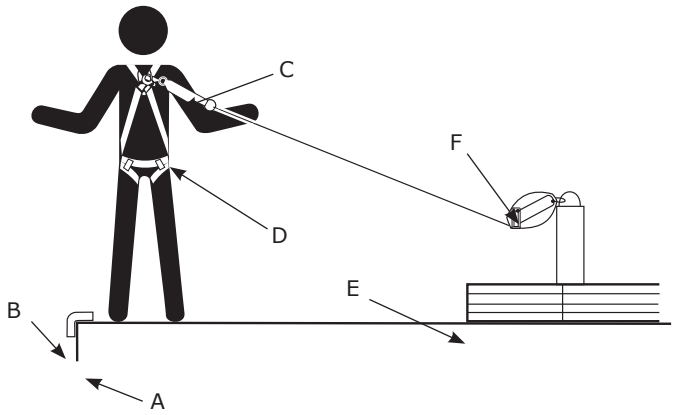
Unexpected Hazards



Swing Fall Hazard

E. SHARP EDGES: Avoid working where the connecting subsystem (i.e. SRL, full body harness, lanyard, lifeline, etc.) or other system components will be in contact with or abrade against unprotected sharp edges. See Figure 6. 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. If you are not using a Leading Edge SRL. it is recommended that an energy absorber (PN 1220362) be installed in-line between the harness and the self retracting lifeline to further protect the worker. Compatibility and total fall distance issues must be considered if this is done. Contact DBI-SALA before using in-line energy absorbing components or lanyards with self retracting lifelines.

Figure 6 - Sharp Edges



A	Sharp Edge	D	Full Body Harness
B	Padding	E	Roof Top Counterweight Anchor System
C	In-line Shock Absorber	F	SRL

WARNING: *Read and follow the manufacturer's instructions for associated equipment (i.e. SRL, full body harness, lanyard, lifeline, etc.) used in your personal fall arrest system.*

3.3 SYSTEM ASSEMBLY: Figure 1 shows the assembled Roof Top Counterweight Anchor System.

Step 1. Determine the proper location of the Roof Top Counterweight Anchor System. It must be flat and at least 8 ft. (2.5 m) away from the edge of the structure (or any openings such as skylights) and as close as possible to the work area. (See Figure 4)

Step 2. Sweep the installation location to remove loose materials. Lay out four rubber coated base weights on the flat surface as shown in Figure 7. L-Bolts will be inserted through one of the two holes in each of the base weights.

Step 3. Lift each base weight and, from the bottom of the weight, insert an L-Bolt through one of the two holes in each weight. Alternate the direction of each L-bolt as shown in Figure 8.

Figure 7 - Lay Out Base Weights and L-Bolts

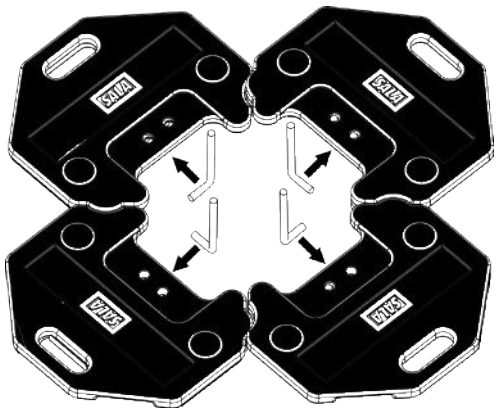
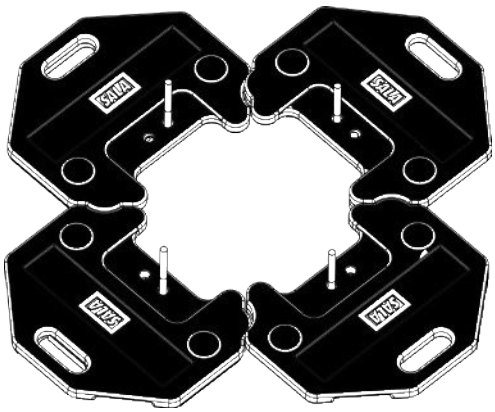


Figure 8 - Insert L-Bolts in Base Weights



Step 4. Temporarily position the Roof Top Anchor on the base weights and L-Bolts to confirm that the L-Bolts are oriented correctly in the base weights. (See Figure 9)

Step 5. Remove the Roof Top Anchor. Stack two additional weights on each base weight with the L-Bolts protruding through the matching holes in each weight. (See Figure 10)

Figure 9 - Confirm "L" Bolts are Assembled Correctly

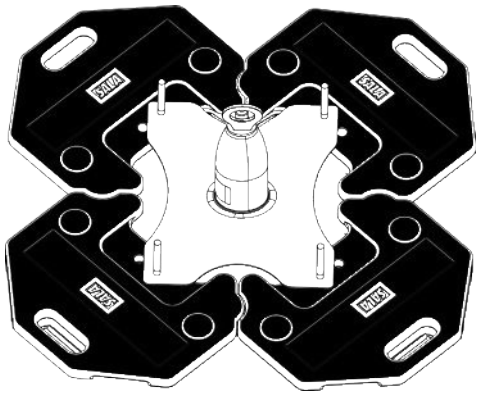
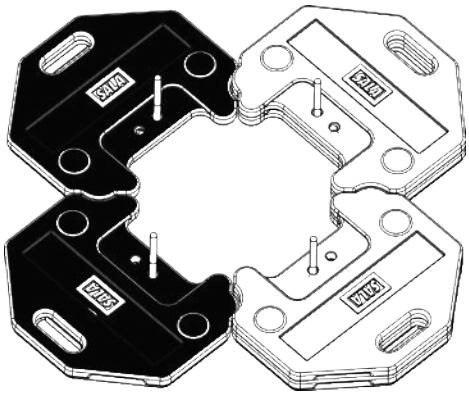


Figure 10 - Stack Two Weights on each Base Weight



Step 6. Position the Roof Top Anchor on the L-bolts and weights. Make sure each L-Bolt passes through one of the mounting holes in the Roof Top Anchor base plate. (See Figure 11)

Step 7. Add an additional layer of weights. A total of sixteen weights are used in the Roof Top Counterweight Anchor System. Each of the four weight stacks will contain four weights (base weight plus three additional weights in each stack). Install a washer and nut on each of the L-Bolts. Hand tighten all four nuts snugly. (See Figure 12)

Figure 11 - Place Anchor on "L" Bolts

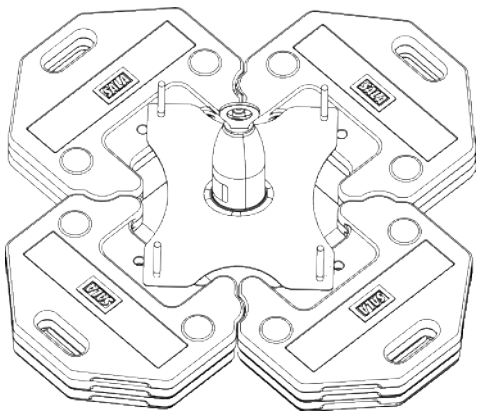
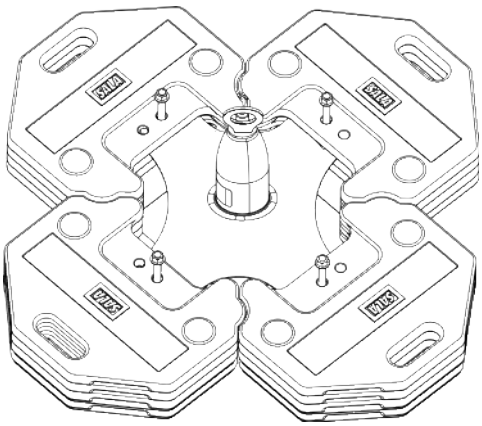


Figure 12 - Final Layer of Weights; Secure with Washers and Nuts



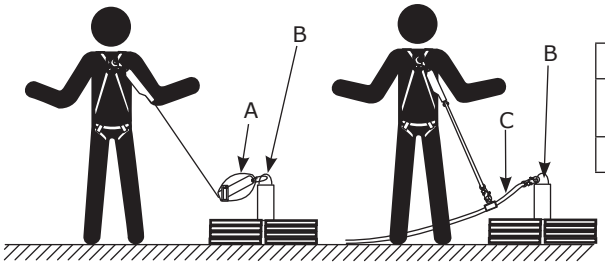
3.4 BODY SUPPORT: When using the DBI-SALA Roof Top Counterweight Anchor System, it is recommended that a full body harness be worn. For general fall protection use, connect to the D-ring on the back between the shoulders (dorsal D-ring).

IMPORTANT: *Body belts are not allowed for free fall situations. Body belts increase the risk of injury during fall arrest in comparison to a full body harness. Limited suspension time and the potential for improperly wearing a body belt may result in added danger to the user's health.*

3.5 CONNECTING TO THE ROOF TOP ANCHOR: Figure 13 illustrates proper connection of typical fall arrest equipment to the swiveling D-Ring at the center of the Roof Top Anchor. Always protect the lifeline from abrading against sharp or abrasive surfaces on the roof. Make sure all the connections are compatible in size, shape and strength. Never connect more than one personal protective system to any single Roof Top Anchor.

SRL: Connection to the installed Spriatech Anchor may be made by attaching the self locking snap hook at the end of the SRL lifeline to the back dorsal D-ring (fall arrest attachment point) of the user's body support (i.e. full body harness). When connecting, make sure the connections are fully closed and locked. Review section 3.2 if using an SRL near sharp edges.

Figure 13 - Connections to Roof Top Counterweight Anchor System



A	SRL
B	Roof Top Anchor D-Ring
C	Vertical Lifeline

ENERGY ABSORBING LANYARDS OR LIFELINE: Connect the energy absorbing end of the lanyard to the back D-ring on the full body harness (see section 3.4). See manufacturer's instruction for more information.

3.6 NORMAL OPERATION: Once attached, the worker is free to move about within the recommended working areas.

SRL: Should a fall occur, a speed sensing brake system will activate, stopping the fall and absorbing much of the energy created. Sudden or quick movements should be avoided during the normal work operation since this may cause the SRL to lock-up.

ENERGY ABSORBING LANYARD: If a fall occurs the energy absorber with deploy, stop the fall and absorb much of the energy created.

IMPORTANT: *If the Roof Top Counterweight Anchor System is subjected to the forces of arresting a fall, it must be removed from the field of service immediately and replaced or inspected by an Authorized Capital Safety Representative. See Section 5.2.*

5.0 INSPECTION

5.1 BEFORE EACH INSTALLATION: Inspect the counterweight components and other system components according to these or other manufacturer's instructions. System components must be formally inspected by a Qualified Person (other than the user) at least annually. Formal inspections should concentrate on visible signs of deterioration or damage to the system components. Items found to be defective must be replaced. Do not use components if inspection reveals an unsafe or defective condition. Record results of each inspection in the *Inspection And Maintenance Log* in this manual.

5.2 INSPECTION STEPS:

Step 1. Check the counterweights for excessive dents or deformations. Check the base weights for delamination of the rubber coating. If the coating has loose edges that may catch or double back on itself, the base weight should be replaced.

Step 2. Inspect the Anchor Post and Base for physical damage. Look carefully for any signs of cracks, dents or deformities in the metal. If the Anchor has been subjected to fall arrest forces the upright post will be tipped over to one side. Do not use an Anchor that has been subjected to fall arrest forces.

Step 3. Inspect the Roof Top Counterweight Anchor System for signs of excessive corrosion.

Step 4. Ensure the condition of the roof will support the Roof Top Counterweight Anchor System loads. See section 2.4.

Step 5. Ensure that the L-Bolts and nuts are in good condition and tightened securely.

5.3 If inspection reveals an unsafe or defective condition, remove the unit from service and destroy, or contact DBI-SALA for possible repair.

5.4 USER EQUIPMENT: Inspect each system component or subsystem (i.e. SRL, full body harness, lanyard, lifeline, etc.) per associated manufacturer's instructions. Refer to manufacturer's instruction supplied with each system component for inspection procedures.

6.0 MAINTENANCE, SERVICE, STORAGE

6.1 The Roof Top Counterweight Anchor System components require no scheduled maintenance, other than repair or replacement of items found defective during inspection. See section 5.0. If components become heavily soiled with grease, paint, or other substances, clean with appropriate cleaning solutions. Do not use caustic chemicals that could damage system components.

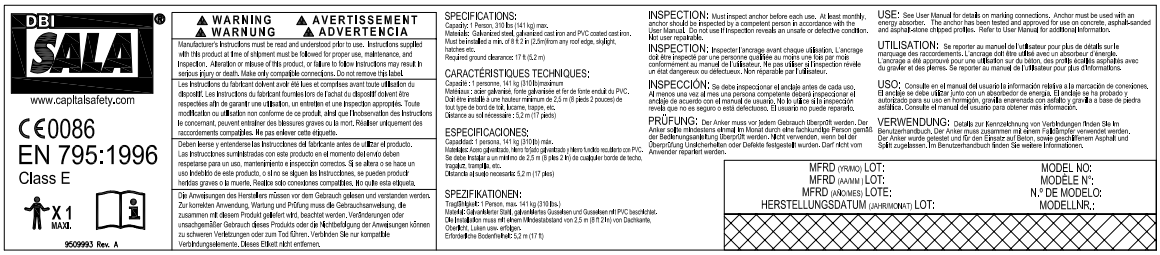
7.0 SPECIFICATIONS

7.1 MATERIALS:
Base Weight: Rubber coated cast iron
Counterweights: Galvanized cast iron
L-bolts: Steel

7.2 WEIGHT:
Each Counterweight: 45 lbs.

8.0 LABELING

8.1 This label must be present on the Anchor and fully legible (item 2 in Figure 1):



INSPECTION AND MAINTENANCE LOG

SERIAL NUMBER:	
MODEL NUMBER:	
DATE PURCHASED:	**DATE OF FIRST USE:**

INSPECTION DATE	**INSPECTION ITEMS NOTED**	**CORRECTIVE ACTION**	**MAINTENANCE PERFORMED**
Approved By:			
Approved By:			
Approved By:			
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INSPECTION DATE	**INSPECTION ITEMS NOTED**	**CORRECTIVE ACTION**	**MAINTENANCE PERFORMED**
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LIMITED LIFETIME WARRANTY

Warranty to End User: D B Industries, Inc., dba CAPITAL SAFETY USA ("CAPITAL SAFETY") warrants to the original end user ("End User") that its products are free from defects in materials and workmanship under normal use and service. This warranty extends for the lifetime of the product from the date the product is purchased by the End User, in new and unused condition, from a CAPITAL SAFETY authorized distributor. CAPITAL SAFETY'S entire liability to End User and End User's exclusive remedy under this warranty is limited to the repair or replacement in kind of any defective product within its lifetime (as CAPITAL SAFETY in its sole discretion determines and deems appropriate). No oral or written information or advice given by CAPITAL SAFETY, its distributors, directors, officers, agents or employees shall create any different or additional warranties or in any way increase the scope of this warranty. CAPITAL SAFETY will not accept liability for defects that are the result of product abuse, misuse, alteration or modification, or for defects that are due to a failure to install, maintain, or use the product in accordance with the manufacturer's instructions.

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