

LADDER MAST

Top Bracket & Bottom Bracket Anchorage Connectors

INSTRUCTION MANUAL

Fall Protection

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

WARNING: This product is part of a personal fall arrest, work positioning, personnel riding or rescue system. The user must read and follow 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 or have them explained to them 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 immediately.

DESCRIPTION

- 6116038: Ladder Mast
- 6116026: Top Bracket
- 6116027: Bottom Bracket

1.0 APPLICATIONS:

1.1 PURPOSE: The top bracket is intended to be used as a portable/removable anchorage for the connection of a personal fall arrest or rescue retrieval system. The ladder mast is intended to be used as a portable/ removable anchorage or support member for the connection of a personal fall arrest, work positioning, personnel riding or rescue and evacuation system. The ladder mast includes provision for the connection of a back-up personal fall arrest system (PFAS) when used for personnel riding applications. Both the top bracket and the ladder mast are intended to be used in conjunction with the bottom bracket which is permanently mounted above the work area.



- **1.2 LIMITATIONS:** The following application limitations must be recognized and considered before using this product:
 - **ANCHORAGE:** These anchorage connector systems are intended to be installed on a fixed ladder and must meet the anchorage strength requirements as set forth in section 2.4.
 - **CAPACITY:** These Anchorage Connector Systems are designed for use by persons with a combined weight (person, clothing, tools, etc.) of no more than 310 lbs. for PFAS and 350 lbs. for work positioning and personnel riding systems. Only one personal protective system may be connected to the anchorage connector at any time.
 - **FREE FALL:** Personal fall arrest systems must be rigged in such a way as to limit the free fall to a maximum of 6 feet (Refer to ANSI Z359.1) or five feet per ANSI A10.14. See the associated connecting subsystem manufacturer's instructions for further information.
 - **FALL CLEARANCE:** Make certain that enough clearance exists in your fall path to prevent striking an object. The amount of clearance needed is dependent upon the type of PFAS used. Refer to the manufacturer's instructions of the connecting subsystem for more information on fall clearance.
 - **BACK-UP FALL ARREST:** Some personnel riding and work positioning applications of this equipment may require a back-up fall arrest system. Consult OSHA guidelines when planning a system.
 - **ENVIRONMENTAL HAZARDS:** Use of this equipment in areas with environmental hazards may require that 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 caused by welding or metal cutting, caustic chemicals, seawater, high voltage power lines, explosive or toxic gases, moving machinery, sharp edges.
 - **ARRESTING FORCE:** Personal fall arrest systems used with this product must maintain fall arrest forces below 1,800 lbs.
 - **TRAINING:** This equipment is intended to be used by persons who have been properly trained in its correct application and use.
- **1.3 STANDARDS:** Refer to national consensus standards (including ANSI Z359.1 and ANSI A10.14), applicable local, state, and federal (OSHA) requirements governing this equipment for more information on anchorage connectors, and associated system components.

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 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). Connectors must be compatible in size, shape, and strength. Self-locking snap hooks and carabiners are required. 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 (A). This force may cause the gate to open (B), allowing the snap hook or carabiner to disengage from the connecting point (C).
- **2.3 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. See Figure 3 for examples of inappropriate connections. 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. 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 is equipped with a 3,600 lb (16 kN) gate.
 - C. In a false engagement, where size or shape of the mating connectors are not compatible and, without visual confirmation, the connectors seem fully engaged.
 - 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.
- **2.4 ANCHORAGE STRENGTH:** Depending on the application, the anchorage (fixed ladder) to which the anchorage connector is installed must meet the following requirements:
 - 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 (Reference ANSI Z359.1 for certification definition), or (B) 5,000 lbs. (22.2kN) 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.
 - Work Positioning: Anchorages selected for work positioning applications must be capable of sustaining a static load of at least 5,000 lbs. applied in any direction permitted by the work positioning system when in use.
 - **Personnel Riding:** Anchorages selected for personnel riding applications must be capable of sustaining a static load of at least 2,500 lbs. applied vertically which is the only direction permitted by a personnel riding system when in use.
 - **Rescue:** Anchorages selected for rescue applications must be capable of sustaining a static load of at least 2,500 lbs. applied in any direction permitted by the rescue system when in use.

WARNING: Anchorage connectors which are installed for personnel riding or rescue applications only must be labeled for that specific application to prevent the anchorage connector from being used for fall arrest or work positioning applications which require greater anchorage strengths.

3.0 OPERATION AND USAGE:

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 this equipment.

- **3.1 BEFORE EACH USE:** Before each use of this equipment, carefully inspect it to assure that it is in serviceable condition. Check for worn, bent or damaged parts; ensure all hardware (i.e. bolts, pulleys, etc.) are present and secure and are not distorted, or have any sharp edges, burrs, cracks, or corrosion. Refer to section 5.0 for further inspection details. Do not use if inspection reveals an unsafe condition.
- **3.2 PLAN:** Plan your fall arrest, work positioning, personnel riding or rescue system before starting your work. Take into consideration factors that affect your safety at any time during use. The following list gives some important points to consider when planning your system:

- ANCHORAGE: Select an anchorage point (fixed ladder or structure) that is rigid and capable of supporting the required loads. See section 2.4. Note: For fall arrest systems, OSHA requires that the anchorage be independent of the means supporting or suspending the user.
- FREE FALL: Personal fall arrest systems must be rigged to limit any free fall to a maximum of 6 feet (Federal Law and ANSI Z359.1) or 5 feet (ANSI A10.14). Avoid working above your anchorage level since an increased free fall distance will result.
- **BACK-UP FALL ARREST:** Some personnel riding and work positioning applications of this equipment may require a back-up fall arrest system. Consult OSHA guidelines when planning your system.
- **PERSONAL FALL ARREST SYSTEM REQUIREMENTS: PFAS's** used with this equipment must meet applicable OSHA, state, federal and ANSI requirements. PFAS's 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. and limit the free fall distance to 6 feet or less. DBI/SALA does not recommend using a body belt for fall arrest, work positioning, or rescue applications. The deceleration distance for a PFAS must be 42 inches (1.1m) or less. Reference ANSI Z359.1, ANSI A10.14 and OSHA requirements.
- 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 objects. The actual clearance required is dependent upon the type of PFAS used (self retracting lifeline, shock absorbing lanyard, etc.), see Figure 4.



- **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 much greater than if the user had fallen vertically (directly below the anchorage point) thus increasing the total free fall distance and the area needed to safely arrest the fallen worker. Swing falls can be minimized by working as directly below the anchorage point as possible, not exceeding 10 degrees from vertical below the ladder mast or the top bracket suspension point, see Figure 4. Never permit a swing fall if injury could occur. If a swing fall situation exists in your application, contact DBI/SALA before proceeding.
- **SHARP EDGES:** Avoid working where the connecting subsystem (i.e. winch, self retracting lifeline, etc.) or other system components will be in contact with, or abrade against, unprotected sharp edges. Do not loop the lifeline 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.
- **RESCUE:** Should a fall occur, the user (employer) must have a rescue plan and the means at hand to implement it.
- **AFTER A FALL:** Anchorage connectors which have been subjected to the forces of arresting a fall must be removed from service immediately and destroyed or inspected per section 5.2. Contact a factory authorized service center for repair and recertification

3.3 INSTALLATION REQUIREMENTS::

- **A. SUPERVISION:** It is recommended that this equipment be installed under the supervision of a qualified person as defined by OSHA 1910.66 Appendix C.
- **B. ANCHORAGE CONNECTOR LOCATION:** Select a fixed ladder or structure with suitable strength (reference section 2.4). The following are some considerations that should be made when choosing an anchorage location: accessibility when connecting to or disconnecting from, swing falls should the user fall, other equipment or moving parts in the area, total fall distance, and rescue.
- **C. INSTALLATION:** Install the eyebolt, shock absorber, washer, nut, cotter pin and rain cap onto the top bracket as shown in Figure 5. Secure the fixed bottom bracket to the structure using the bolts and fasteners supplied with it (the bottom bracket must be attached to three rungs on the ladder). Once the bottom bracket has been attached to the ladder, the ladder mast or top bracket may be slid into the bottom bracket. The top bracket or ladder mast must be fully seated. See Figure 5 for specific installation details



WARNING: Read and follow the manufacturer's instructions for associated equipment (i.e. full body harness, lanyards, self retracting lifelines, winches, etc.) used in your fall arrest, ladder climbing, work positioning, personnel riding or rescue system.

IMPORTANT: For special (CUSTOM) versions of this product, follow the instructions herein. If enclosed, see attached supplement for additional instructions to be followed when using a customized product.

- **3.4 CONNECTING TO TOP BRACKET:** The top bracket is typically used as an anchorage for a Self Retracting Lifeline (SRL), or other types of PFAS (i.e. rope grab and lifeline). The top bracket however, may also be used as an anchorage for various rescue or descent devices that do not require the use of a back-up PFAS, contact DBI/SALA for further information on these types of systems. The connection of the system to the eye bolt (see Figure 6), must be made using a self locking and self closing carabiner. Make sure the connector (i.e. self locking and self closing carabiner) is fully engaged and locked onto the anchorage connector. Make sure all connections are compatible in size, shape, and strength.
- **3.5 CONNECTING TO LADDER MAST:** The ladder mast has been designed specifically for use with DBI/SALA's fall arrest, rescue and personnel riding systems. The following details the connection of this equipment to the ladder mast: (See Figures 6, 7 and 8.)
 - **Step 1:** (For the ladder mast only.) Adjust the bracket up or down the mast as required for optimum operation and tighten until secure.
 - **Step 2:** Pull out the detent pin on the winch or the SRL mounting bracket. Lift the device into place and position the slot in the mounting bracket from the winch or the SRL over the fixed pin on mounting bracket the ladder mast.
 - **Step 3.** Inspect the anchorage (ladder) for signs of damage, corrosion, etc. Look for cracks, deformity or wear areas which could effect the strength and operation.



- **Step 4.** Inspect the labels, all labels should be present and fully legible. See section 8.0.
- **Step 5.** Inspect each system component or subsystem per the associated manufacturer's instructions.
- **Step 6.** Record the inspection date and results in the inspection log. See section 9.0.



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

4.0 TRAINER:

4.1 It is the responsibility of the user and the purchaser of this equipment to assure they are familiar with these instructions, trained in the correct care and use of, and are aware of the operating characteristics, application limits and the 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

• Before each use, visually inspect per steps listed in section 5.2 and 5.3.

• The Anchorage Connector must be inspected by a competent person other than the user at least annually. See section 5.2 and 5.3 for guidelines. Record the results of each formal inspection in the inspection log found in section 9.0.

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

IMPORTANT: If the anchorage connector has been subjected to forces resulting from the arrest of a fall, it must be immediately removed from service and inspected. See section 5.2.

5.2 INSPECTION STEPS

- **Step 1.** Inspect the anchorage connector system or signs of damage or corrosion. Look for cracks, bends or wear areas which could effect the strength and operation. Make sure the pulleys on the ladder mast work freely and the detent pins are present. Remove the rain cap from the top of top bracket and check to make sure the eyebolt, securing washer, nut, and cotter pin are in place and secure.
- **Step 2.** Inspect the attaching fasteners of the bottom bracket. Make sure they are secure. Check the torque of all fasteners. Look for corrosion or other signs of damage.
- **Step 3.** Inspect the anchorage (ladder) for signs of damage, corrosion, etc. Look for cracks, deformity or wear areas which could effect the strength and operation.
- Step 4. Inspect the labels, all labels should be present and fully legible. See section 8.0.
- **Step 5.** Inspect each system component or subsystem per the associated manufacturer's instructions.
- Step 6. Record the inspection date and results in the inspection log. See section 9.0.
- **5.3** If the inspection reveals a defective condition, remove the unit from service immediately and destroy or contact a factory 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 the anchorage connector with a mild soap detergent solution. Excessive build-up of dirt, paint, etc. may prevent the anchorage connector from working properly. If you have any questions concerning the condition of the anchorage connector, or have any doubt about putting it into service, contact DBI/SALA.
- **6.2** Additional maintenance and servicing procedures (i.e. replacement parts) must be completed by a factory authorized service center. Authorization must be in writing.
- **6.3** Store the top bracket, bottom bracket and or ladder mast in a cool, dry, clean environment out of direct sunlight. Avoid areas where chemical vapors may exist. Thoroughly inspect this equipment after any period of extended storage.

7.0 SPECIFICATIONS:

6116038 Ladder Mast:

Material: Carbon Steel Finish: Galvanized Size: LxWxH - 95"x9"x4" Weight: 50 lbs. Capacity: 310 lbs. (one person) for fall arrest applications, 350 lbs. (one person) for personal riding or work positioning applications Strength: 5,000 lbs.

6116026Top Bracket:

Material: Carbon Steel Finish: Galvanized Size: LxWxH - 94.5"x7.5"x2.75" Weight: 41 lbs. Capacity: 310 lbs. (one person) for fall arrest applications, 350 lbs. (one person) for personal riding or work positioning applications Strength: 5,000 lbs.

6116027 Bottom Bracket:

Material: Carbon Steel Finish: Galvanized Size: LxWxH - 41"x5"x4" Weight: 21 lbs. Capacity: 310 lbs. (one person) for fall arrest applications, 350 lbs. (one person) for personal riding or work positioning applications Strength: 5,000 lbs.

The ladder mast/bottom bracket and top bracket/bottom bracket when used in combination together meet the requirements of ANSI Z359.1, ANSI A10.14 and OSHA.

8.0 LABELS:





Figure 1 – INSPECTION AND MAINTENANCE LOG				
SERIAL NUMBER:				
DATE PURCHASED:		DATE OF FIRST USE:		
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:				
Approved By:				

	INSPECTION AND	MAINTENANCE LOG	3		
SERIAL NUMBER:					
DATE PURCHASED: DATE OF FIRST USE:					
INSPECTION DATE	INSPECTION ITEMS NOTED	CORRECTIVE ACTION	MAINTENANCE PERFORMED		
Approved By:	1				
Annual Dur		_			
Approved By:					
Approved By:		_			
Approved By:	1	_			
Approved By:	1				
Assessed Days		_			
Approved By:					
Approved By:		_			
Approved By:	1	-			
Approved By:	I				
Assessed Days		_			
Approved By:					
Approved By:		_			
Approved By:		_			
Approved By:	Ι				
Approved Deer		_			
Approvea By:					
Approved By:		-			
,					
Approved By:					
		_			
Approved By:					
Approved Bv:		-			
······································					
Approved By:					

LIMITED LIFETIME WARRANTY

Warranty to End User: D B Industries, LLC 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.

CAPITAL SAFETY'S WARRANTY APPLIES ONLY TO THE END USER. THIS WARRANTY IS THE ONLY WARRANTY APPLICABLE TO OUR PRODUCTS AND IS IN LIEU OF ALL OTHER WARRANTIES AND LIABILITIES, EXPRESSED OR IMPLIED. CAPITAL SAFETY EXPRESSLY EXCLUDES AND DISCLAIMS ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND SHALL NOT BE LIABLE FOR INCIDENTAL, PUNITIVE OR CONSEQUENTIAL DAMAGES OF ANY NATURE, INCLUDING WITHOUT LIMITATION, LOST PROFITS, REVENUES, OR PRODUCTIVITY, OR FOR BODILY INJURY OR DEATH OR LOSS OR DAMAGE TO PROPERTY, UNDER ANY THEORY OF LIABILITY, INCLUDING WITHOUT LIMITATION, CONTRACT, WARRANTY, STRICT LIABILITY, TORT (INCLUDING NEGLIGENCE) OR OTHER LEGAL OR EQUITABLE THEORY.







Fall Protection

Canada

260 Export Boulevard Mississauga, ON L5S 1Y9 Phone: 905.795.9333 Toll-Free: 800.387.7484 Fax: 888.387.7484 info.ca@capitalsafety.com

EMEA (Europe, Middle East, Africa)

EMEA Headquarters: 5a Merse Road North Moons Moat Redditch, Worcestershire B98 9HL UK Phone: + 44 (0)1527 548 000 Fax: + 44 (0)1527 591 000 csgne@capitalsafety.com

France: Le Broc Center Z.I. 1re Avenue - BP15 06511 Carros Le Broc Cedex France Phone: + 33 04 97 10 00 10 Fax: + 33 04 93 08 79 70 information@capitalsafety.com

Australia & New Zealand

95 Derby Street Silverwater Sydney NSW 2128 Australia Phone: +(61) 2 8753 7600 Toll-Free : 1800 245 002 (AUS) Toll-Free : 0800 212 505 (NZ) Fax: +(61) 2 8753 7603 sales@capitalsafety.com.au

Asia

Singapore: 69, Ubi Road 1, #05-20 Oxley Bizhub Singapore 408731 Phone: +65 - 65587758 Fax: +65 - 65587058 inquiry@capitalsafety.com

Shanghai: Rm 1406, China Venturetech Plaza 819 Nan Jing Xi Rd, Shanghai 200041, P R China Phone: +86 21 62539050 Fax: +86 21 62539060 inquiry@capitalsafety.cn

USA

3833 SALA Way Red Wing, MN 55066-5005 Toll Free: 800.328.6146 Phone: 651.388.8282 Fax: 651.388.5065 solutions@capitalsafety.com

Brazil

Rua Anne Frank, 2621 Boqueirão Curitiba PR 81650-020 Brazil Phone: 0800-942-2300 brasil@capitalsafety.com

Mexico

Calle Norte 35, 895-E Col. Industrial Vallejo C.P. 02300 Azcapotzalco Mexico D.F. Phone: (55) 57194820 mexico@capitalsafety.com

Colombia

Compañía Latinoamericana de Seguridad S.A.S. Carrera 106 #15-25 Interior 105 Manzana 15 Zona Franca - Bogotá, Colombia Phone: 57 1 6014777 servicioalcliente@capitalsafety.com

www.capitalsafety.com

