

User Installation and Instruction Manual for The Portable Truss Anchor

This manual shall be used as part of an employee training program and is intended to meet the Instructions required by ANSI Z359.1 and OSHA 1926.502 *Fall Protection Systems Criteria and Practices*. All personal fall arrest systems and their use shall comply with the provisions set forth by these agencies, this manual, and any applicable local or state regulations.

[WARNING]

Failure to follow all of the manufacturer's instructions or altering the product in any way could result in death or serious injury. As a part of a personal fall arrest system the user of the system must follow all of the manufacturer's instructions. These instructions are intended for the instruction of the Portable Truss Anchor as well as for use of the Portable Truss Anchor therefore these instructions must be provided to all users and installers of this equipment. All users and installers must read the instructions and understand them. Manufacturer's instructions must be followed for maintenance of this fall arrest system.

Attention/Notice: Contact **Diversified Fall Protection (DFP)** if there are questions of any kind concerning installation, use or maintenance.

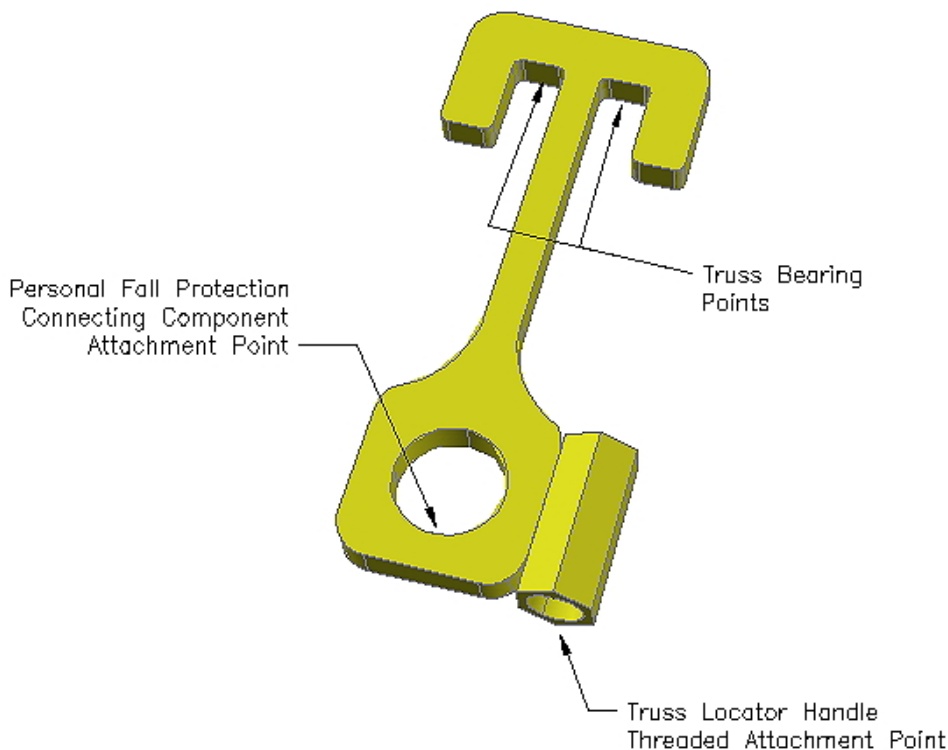


Figure 1 – Portable Truss Anchor

Attention/Notice: Do not throw away this manual. Installation must follow the provided guidelines to ensure correct system installation and safe operation. Installation and use outside of these guidelines may invalidate system warranty and insurance coverage.

I. Applications:

A. Purpose:

The purpose of the portable truss anchor is to be used as an anchor point of a personal fall arrest system. It is designed to be used with a full body harness with back D-Ring, a carabiner, and a connecting subsystem consisting of a self-retracting lifeline (SRL).

B. Limitations:

- Capacity – The portable truss anchor is not to be used by persons with a total weight over 420 pounds. This total weight includes body weight, and the weight of any clothing, tools, and equipment.
- Fall Clearance – In general industry, when working on a surface 4 feet or higher from ground level, per OSHA, fall protection is required. This system is designed to prevent serious injury or death in the event of a fall. There must be sufficient clearance below the user to arrest a fall before the user strikes the ground or other obstruction. Clearance required may increase depending on but not limited to some of the following factors: worker height, worker weight, movement of attachment element, elevation of anchorage connector, SRL length, other obstructions, deceleration distance and free fall distance.

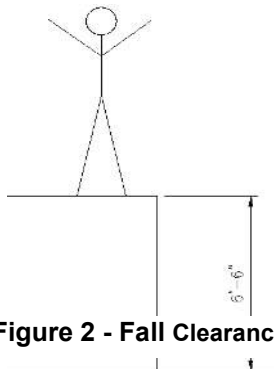


Figure 2 - Fall Clearances

• **WARNING: Working surface must be at least 6'6" from the ground surface when user is in upright standing position to prevent serious injury and/or death.**

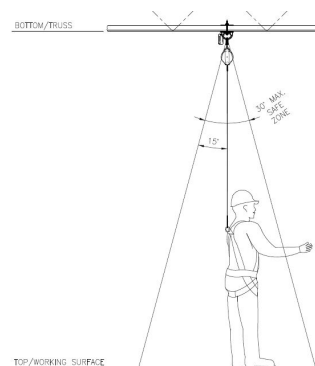


Figure 3 - Safe Work Area

- Swing Falls – A swing fall occurs when the anchor point is not directly above where a fall occurs. Minimize this hazard by working with the anchor overhead as much as possible. The suggested safe work area is within a 30° downward facing cone from an overhead anchor point to harness D-Ring (See Figure 3). The extra force of striking an object in a swing fall may cause serious injury or death and should therefore be avoided whenever possible. The required clearance significantly increases when a variable length subsystem such as a web lanyard is used.
- Environmental Hazards – Extra precautions may be required to safely use this system if other hazards in the surrounding environment exist. Such hazards include, but are not limited to: extreme temperatures, power lines, moving machinery, sharp edges, corrosion, and toxic fumes. Please contact DFP if you have concern of any such conditions existing where this equipment is being used.
- Training – This equipment is only permitted to be installed and used by competent persons that have been trained in the correct use and application of the portable truss anchor.

C. Standards:

- Please refer to all families of standards regarding occupational safety for more information on work positioning systems and fall protection. These include ANSI, OSHA, and any applicable local or state requirements.

II. System Requirements:

A. Compatibility:

- Compatibility shall follow all requirements of OSHA 1926.502 (d) as well as these instructions and those of the SRL, harness, and other components.
- The design of the portable truss anchor is made for use only with approved components and subsystems. Non-approved components and subsystems may jeopardize the compatibility of equipment and affect the safety and reliability of the complete system.

- A connector is considered compatible with the portable truss anchor when they have been designed to work together in a manner that the gate mechanism cannot accidentally be opened no matter how they become oriented.
- Connectors must be compatible with the attachment point and must be capable of supporting a minimum of 5000 pounds. Do not use a non-compatible connector as it may unintentionally disengage. Connectors must be compatible in strength, size, and shape. Self-locking snap hooks and carabiners are required by ANSI and OSHA.

B. Connections:

- Only use of snaphooks and carabiners meeting ANSI Z359.1-2007 3.2.1.4 are permitted for use with this equipment. This requires that “snaphooks and carabiners shall be self-closing and self-locking and shall be capable of being opened only by at least two consecutive deliberate actions”. Furthermore, “the gate of a snaphook or carabiner shall be capable of withstanding a minimum load of 3,600 pounds without the gate separating from the nose of the snaphook or carabiner body by more than .125 inches”. All connectors must be compatible in size, strength, and shape. Ensure all connectors are fully closed and locked.
- Snap hooks and carabiners shall never be connected:
 - To an attachment point where another connector is already attached.
 - In a way that would result in a load on a gate.
 - In false engagement where features that protrude from the connector catch on the anchor and seems to be fully engaged without visual confirmation.
 - To each other.
 - Directly to webbing, rope lanyard, or tie-back.
 - To any object which will not allow the connector to close and lock or which a roll-out could occur.

C. Personal Fall Arrest System:

- A full body harness must be worn when this equipment is used as a component of the fall arrest system.
- OSHA requires that a fall arrest system must be capable of arresting the user’s fall with a max arresting force (MAF) of 1800 pounds. DFP designed this system with a max limit of 900 pounds.
- OSHA requires that the free fall limit is 6 feet or less.
- This system has been designed for use with a web or cable style self-retracting lifeline. Lanyards are not permitted to be used with this system.

D. Anchorage Strength:

- The required strength is dependent on the type of application that is being used. ANSI Z359.1 requires systems to have a strength capable of sustaining static loads as follows:
 - Fall Arrest:
 - (a) 5000 pounds for non-certified anchorages
 - (b) Two times the MAF for certified anchorages.
 - Rescue:
 - (a) 3000 pounds for non-certified anchorages
 - (b) Five times the foreseeable force for certified anchorages
- If multiple systems are being attached to the same anchorage point in any of the prior applications, the strengths defined shall be multiplied by the number of systems attached to the anchorage.
- **WARNING: The anchorage connector shall be marked or labeled with its intended application. Use of equipment for an application that does not meet the strength requirements can result in serious injury or death.**

III. Installation and Use:

- **WARNING:** Prior to install, all instructions must be read and understood for each component of this personal fall arrest system.
- **WARNING:** Do not alter or misuse this equipment. Consult DFP before using the portable truss anchor with any other component or subsystem than designed for. Other components may interfere with the proper operation of this equipment. Use extra caution around electricity, moving machinery, chemical hazards, and sharp edges.
- **WARNING:** Pregnant women and minors must not use the portable truss anchor system. Age and fitness also affect the ability to withstand falls. Consult your doctor if you have any doubts regarding your ability to safely absorb a shock from a fall arrest.
- **WARNING:** Proper Personal Protective Equipment must be worn throughout the entire installation process. OSHA 1910.135(a)(1) states “each affected employee wears a protective helmet when working in areas where there is a potential for injury to the head from falling objects.” Protective eyewear is also required as part of this system.
- **WARNING:** Avoid power lines and any other potential overhead hazards when extending and raising the extension pole. Maintain a minimum 10 foot distance from any electrical hazard.

A. Plan your system prior to installation. Consider any factor that may affect a user’s safety. Key points to consider are: anchorage, sharp edges, post-fall lock out, and rescue.

B. Installation Requirements:

- **Anchor Locations** - Truss anchorage locations must be approved by a safety engineer or a qualified person and must meet all of the requirements of these instructions.
 1. May not be at the end of a truss.
 2. May not be between the first and second panel point.
 3. Must be located between two panel points.
 4. Should be as close to a panel point as possible.

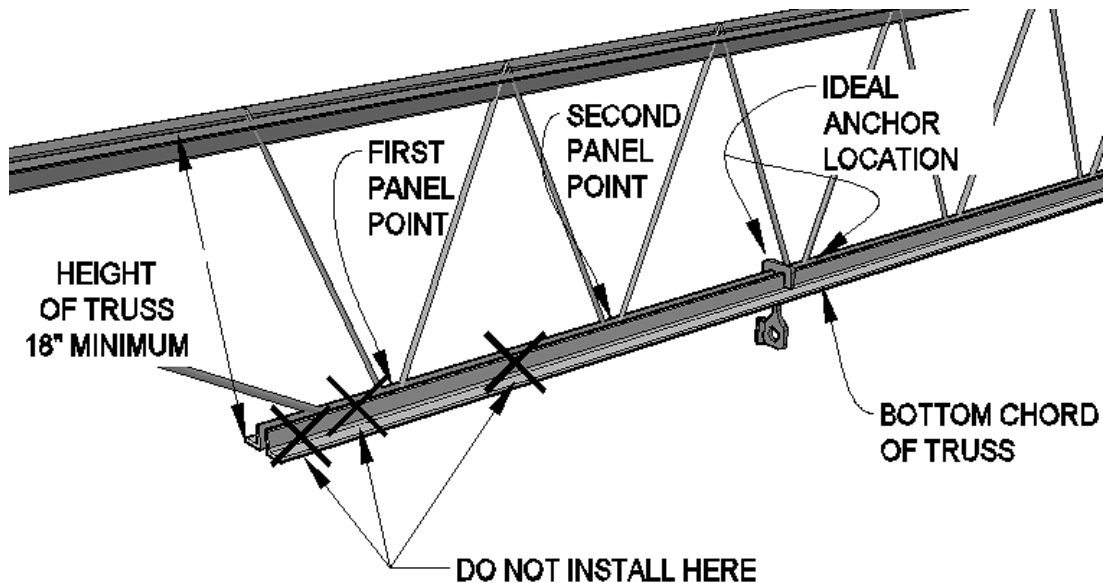


Figure 4 – Anchor Locations

- **Truss Requirements**

1. Bottom Chord (See Figure 5):

- Depth, D, of bottom chord vertical leg of angles must be between 1 1/4 inch and 3 inch.
- The thickness, Y, of the bottom chord must be a minimum of 1/4 inch.
- The gap, S, must be a minimum of 3/4 inch.
- The width of the space and legs, X, must be a maximum of 2".
- Must be hot rolled steel with minimum tensile yield strength of 36 ksi.

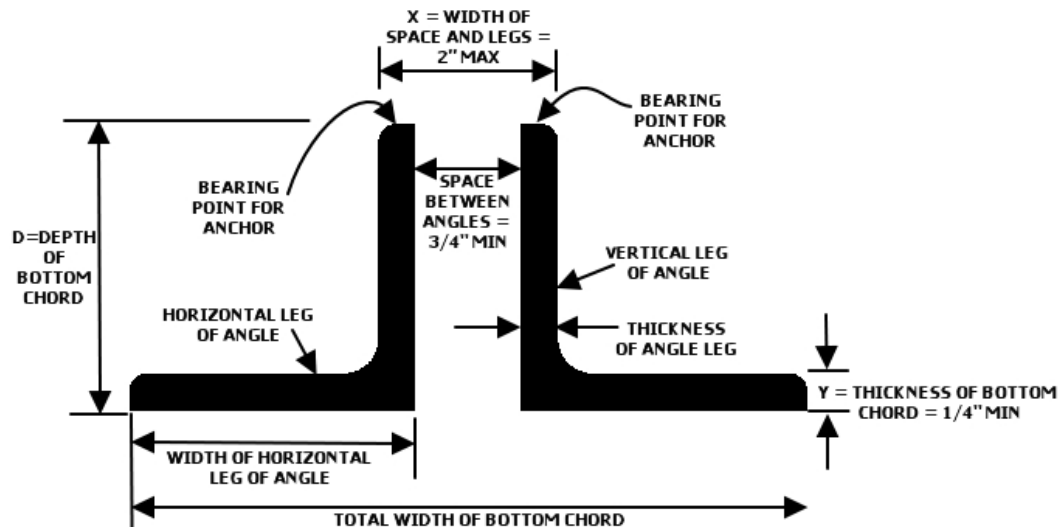


Figure 5 – Bottom Chord Detail

2. Truss Span

- Bracing shall be straight, undamaged, and meet the original design intent.
- The span and loading of the truss affects the allowable concentrated load that may be applied to the truss. It must be capable of withstanding a concentrated load of 900 pounds with a safety factor of two (2) for certified anchorages and 5000 pounds for non-certified anchorages.
- No more than one user is permitted at a time per truss.
- Do not attach to a truss that is smaller than 18" in height (See figure 4).
- An acceptable truss must be designed according to the Steel Joist Institute (SJI) and be a K, KCS, LH, or DLH series truss.
- **The truss must be inspected by an engineer or qualified person for structural integrity which includes but is not limited to corrosion, end connections, size, load capacity, welds, existing loading, bracing, span, or any other unsafe conditions.**

C. Installation

1. Attach anchor to pole by rotating anchor clockwise. Ensure that anchor is attached securely. See Figure 6.



Figure 6 - Attach Anchor to Pole

2. Connect SRL to anchor using the caribineer provided. Also refer to SRL manufacturer instructions. See Figure 7.



Figure 7 - SRL Attached to Anchor via Carabiner

3. Visually inspect connection to make sure the anchor is secured to the pole.
4. Test attachment by pulling SRL away from anchor to ensure they are connected.
5. Pull out SRL snap hook and attach to eye bolt at the bottom of pole. See Figure 8.



Figure 8 - Snap Hook Attached to Eye Bolt

6. Adjust pole to the proper length and lock in place.

7. Use Included Base Plate to stand pole straight up.



8. With the pole, raise the anchor above you. Keep the pole as vertical as possible. See Figure 9.

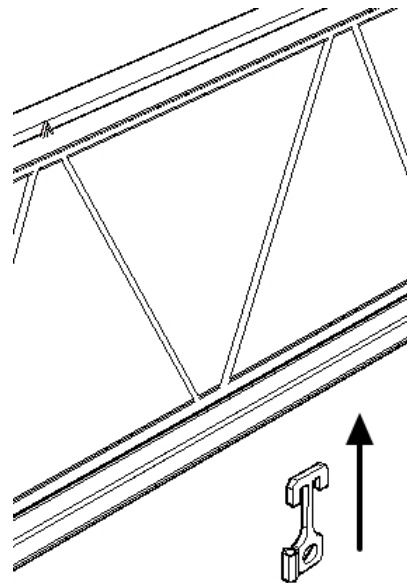


Figure 9 - Raise Anchor

9. Insert anchor between the bottom chord angles. See Figure 10.

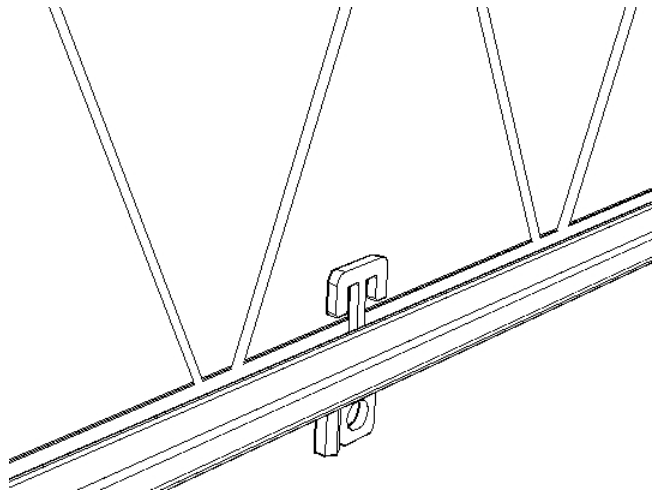
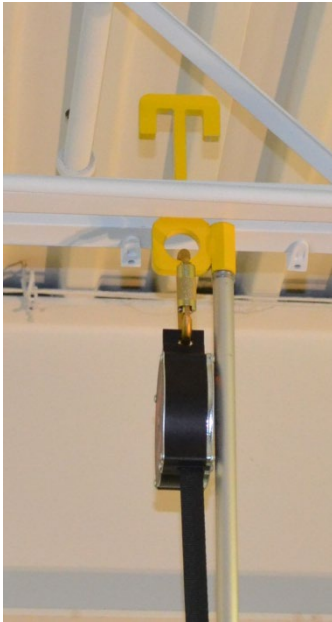


Figure 10 - Insert Anchor

10. Raise anchor, rotate 90° clockwise. See Figure 11.

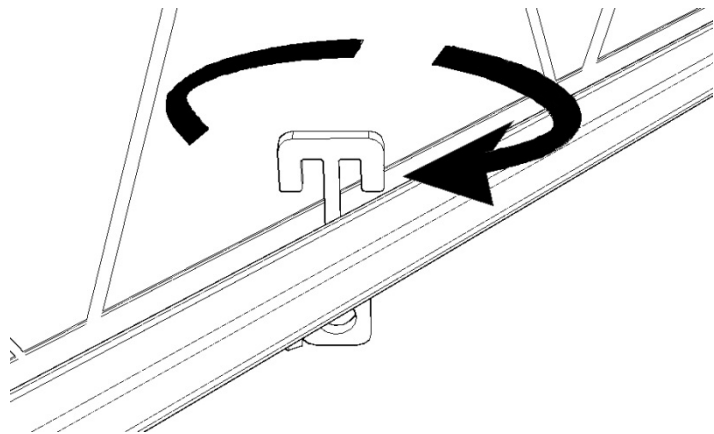
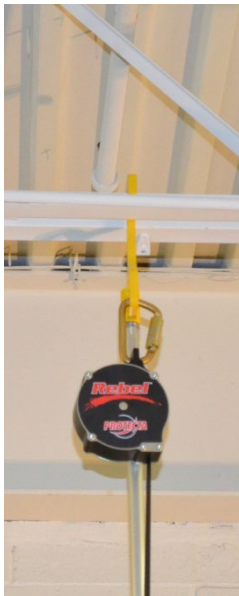


Figure 11 – Rotate 90 Degrees

11. Lower anchor so bearing points sit squarely on vertical legs of the bottom chord of building truss (See figure 12).

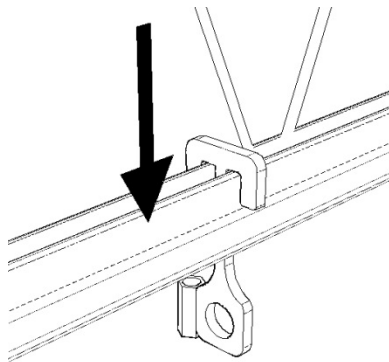


Figure 12 – Lower Anchor on Truss

12. Check visually to make sure anchor is properly sitting on the truss.

➤ **PROPER ANCHOR PLACEMENT (Figure 13)**

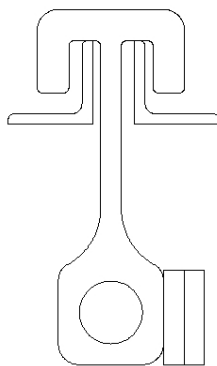


Figure 13

YES!!

➤ **INPROPER ANCHOR PLACEMENT (Figures 14 – 17)**

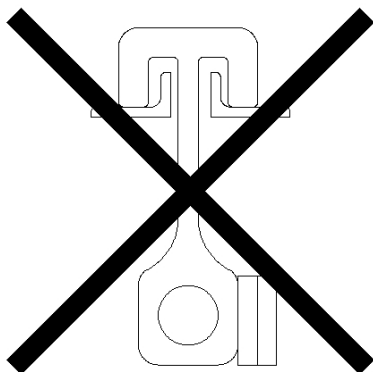


Figure 14 - Anchor bearing points do not rest on truss legs

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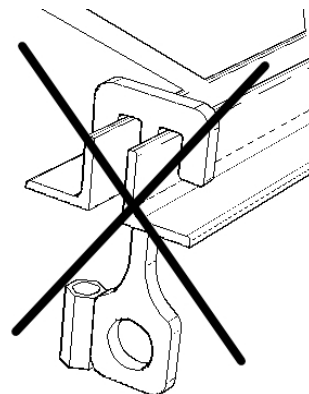


Figure 15 - Anchor is too close to end of truss

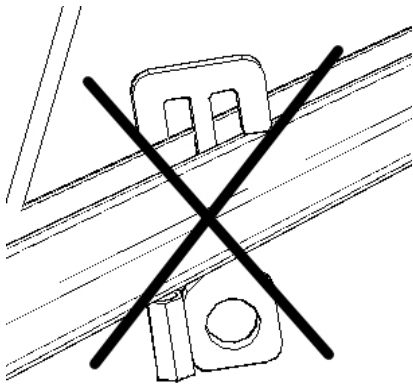


Figure 16 - Anchor is not properly rotated

NO!!

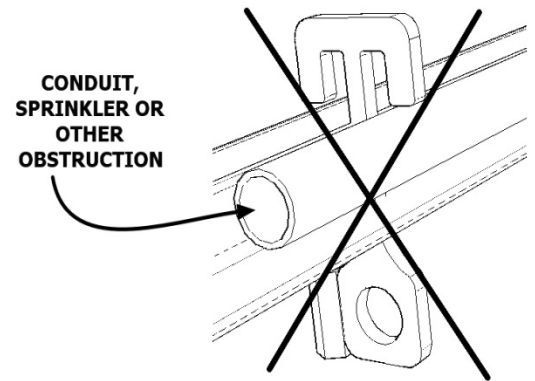


Figure 17 - Obstruction preventing anchor from sitting on truss

13. Check connection physically by pulling downwards on the pole.
14. Disconnect snap hook from eye bolt. See Figure 18.

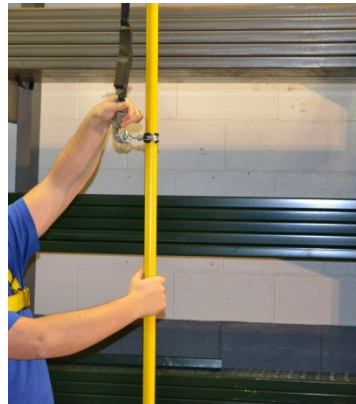


Figure 18 - Disconnect Snap Hook

15. While standing on the ground, connect to back D-Ring of full body harness following the manufacturer's instructions. See Figure 19.



**Figure 19 - Connect Snaphook to Harness
Anchor Rated for 420 Pound Capacity
Entire System Rated for 310 Pound Capacity**

16. It is now safe to ascend up ladder, steps, or stairs.

17. To disconnect, descend to ground level. Then repeat steps 1 - 16 in reverse.

D. Thoroughly inspect equipment for damage before each use.

E. The anchor must be above the user's head. Keeping the anchor directly above the user will help prevent swing falls. This will minimize injury and prevent death in the event of a fall.

IV. Training:

A. It is the responsibility of the end user to be familiar with these instructions regarding use of the portable truss anchor system. The end user is also responsible for the correct care, use, characteristics, limitations, and consequences of misuse of this equipment.

B. Training is to be conducted prior to initial installation of the system. It should also be repeated on a regular basis. Training must be performed without the user being exposed to an actual fall hazard. The end user is to keep training documentation on file.

V. Inspection:

A. The portable truss anchor is to be inspected for damage (bends, cracks, excessive wear, signs of permanent deformation) **before each use**.

B. A formal inspection of the entire system shall be conducted at least annually. This inspection shall be performed by a competent or qualified person that is not the end user. The results are to be recorded in the inspection and maintenance log.

C. Inspection Procedure:

- Inspect portable truss anchor for any damage or corrosion. Pay close attention for any signs of permanent deformation such as cracks or wear that could jeopardize the integrity of the strength of the system.
- Inspect the truss attachment points. The anchor must be securely positioned on the truss.
- Inspect all system components.
- Make copies of the inspection log included at the end of this manual. Use it to record inspection results of all components used with the anchor.

D. If inspection reveals any damage or unsafe conditions, immediately remove anchor from service and contact Diversified Fall Protection for further instructions.

VI. Maintenance

- Clean the portable truss anchor with a mild solution of soap and water. This will prevent excessive build-up of dirt and other debris that could prevent proper operation.
- Store equipment in a secured clean, dry, and non-corrosive environment.
- Keep equipment records which contain data pertaining to any maintenance or incidents.

VII. Specifications and Parts

A. System as an assembly is rated for a 310 pound user. Contact DFP if 420 pound capacity is required

B. Portable Truss Anchor (See Figure 20)

Main Body

- Material : ½" Thick A36 Steel
- Finish: Powder Coat Safety Yellow

Threaded Attachment

- Material: Plain Steel – Rockwell Hardness B75
- Right hand thread
- ¾" Diameter
- Finish: Powder Coat Safety Yellow

Weld

- Weld by AWS D1.1 Certified welder in conjunction with the requirements of OSHA
- Electrode has a minimum tensile strength of 70 ksi

Maximum Allowable loading

- **One (1) 420 Pound User**
 - **When used independently of this system**
- Mass Arresting Force of 900 Lbs

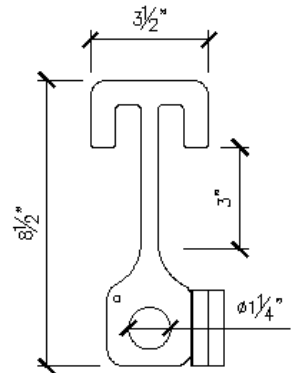


Figure 20 - Anchor Dimensions

C. Extension Pole (See Figure 21)

Main Body

- Material: smooth 1-¼" round fiberglass handle
- Color: Yellow
- Reach: 6'-18' (1.8m-5.4m) 3-section extension pole

Telescoping Slider Tubes

- Size: 1" (2.5 cm) and 7/8" (2.2 cm) diameter round
- Material: aluminum
- Finish: Clear anodized

Threaded End

- Material: Cast Aluminum

External Locking Device x2 (See Figure 22)

- Material: Plastic
- Mechanism: Compression lock with coarse threads
- Color: Outer sleeve is black
Internal sleeve is red

Handle Grip

- Black rubber grip

Clamp and Eyebolt

- Body: Zinc plated steel
- Liner: UV-resistant EPDM Rubber , ASTM E-84
- Meets Buy America Act
- Eyebolt: 3/8"-16 Steel Zinc Plated 144 pound work load Limit
- Screw Protector: Black pliable vinyl with a durometer of 75A



Figure 21 - Extension Pole



Figure 22 - External Locking Device on Pole

D. Self-Retracting Lifeline (Figure 23)

- 20ft Rebel Part Number 3100431 with AJ520A hook on lifeline, AJ514A carabineer on housing (See Figure 18)
- Webbing: 20 feet of 1" wide polyester webbing (shock absorber is nylon)
- Housing: Anodized aluminum
- Stainless Steel: Drum spring, pawls, pawl springs and external fasteners
- Alloy Steel/Plated: Shaft, ratchet plate, and end plates
- Snap Hook: AJ520A, zinc plated alloy steel
- 5000 lb. min. tensile strength.
- **Capacity: 310 pounds when used independently of the system.**
- Weight: 5.1 lbs. with AJ520A hook & Carabineer
- Size: 5.5" diameter x 2" thick
- Max. Arresting Force: 900 lbs.



Figure 23 - Rebel SRL

D. Full Body Harness (See Figures 24 & 25)

Repel Technology Webbing:

- Material = Polyester
- Width = 1.75 in (4.45cm)
- T. Strength
- Stan = 6,000lbs (2,722 kg)
- Belt = 11,000lbs (4,990 kg)
- T&B = 8,800lbs (3,992 kg)
- Treatment: Nanosphere

Comfort Padding

- Hip padding
- Materials (where applicable)
- Nylon & Polyester
- Dri-Lex® Aerospace Mesh
- EVA Foam
- 420D PVC fabric



Figure 24 -Delta Harness, Front View



Figure 25 - Delta Harness, Back View

Tech Lite™ Quick Connect Buckle (See Figure 27)

- Materials
- 7075 & 6061 Aluminum Alloy
- Stainless Steel per ASTM A240
- Alloy Steel SAE AMS 6350 (zinc plated finish)
- T. Strength = 4,000lbs (1,815kg)



Figure 26 - Quick Connect Buckle

Revolver™ Vertical Torso Adjustor (See Figure 26)

- Materials
- Alloy Steel AISI 4140 (zinc plated finish)
- Stainless Steel
- Nylon 6-6
- T. Strength = 4,000lbs (1,815kg)



Figure 27 - Torso Adjuster

D-rings (See Figure 28)

- Material = Heat treated Alloy Steel with zinc plate finish
- T-Strength = 5,000 lbs (2,268 kg)

No-Tangle D-ring Pad (See Figure 28)

- Material = Urethane

Labels

- Material = Vinyl

Thread

- Material = High Strength Polyester



Figure 28 - D-Ring & No-Tangle Pad

Rated for 420 Pound Capacity when used independently of the system.

VIII. Labeling

The following label must be present and fully legible:

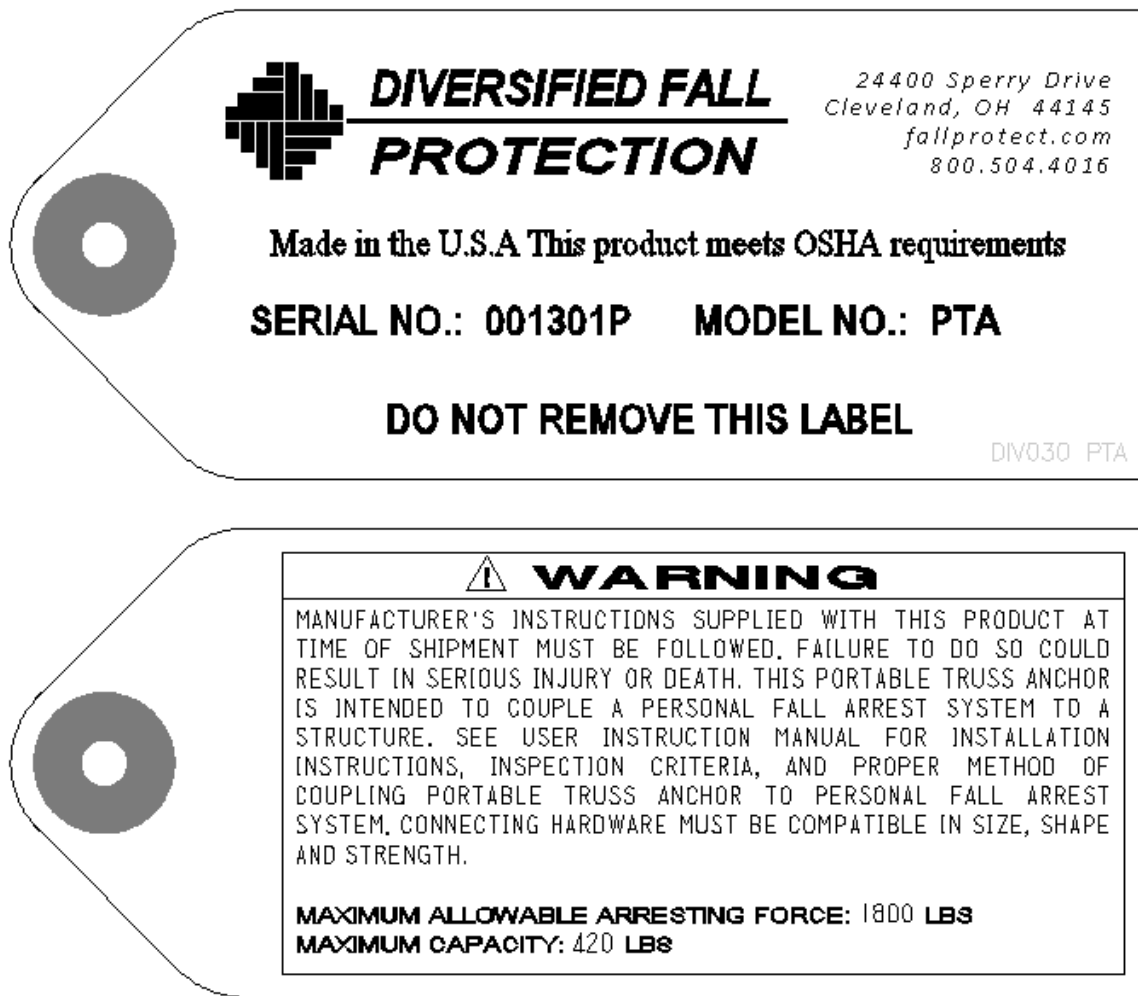


Figure 32 – Required Tags

- **WARNING:** If label is missing from anchor, remove from service and contact DFP immediately.

IX. Inspection and Maintenance Log

Inspection Date	Inspection Items Noted	Corrective Action	Maintenance Performed
Approved by:			
Approved by:			
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DIVERSIFIED FALL PROTECTION

Portable Truss Anchor Manual