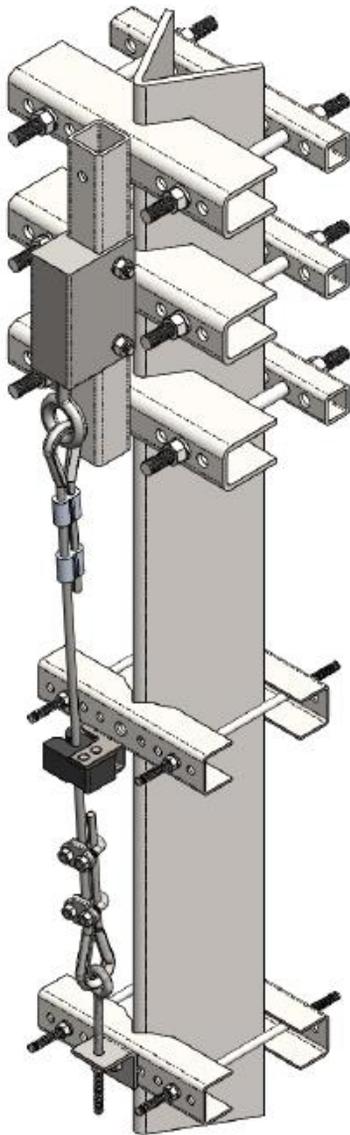




## **Angle Climbing Leg Cable Safe Climb System for 4" to 8" Legs**

**(Optional 60° and 90° Attachments)**

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**Universal angle leg head adaptor bracket with fasteners for 4" to 8" legs**

**Universal angle leg adaptor channels with cable guide \*For leg sizes up to 6"**

**Universal angle leg adaptor with base anchor assembly**

**\*Special oversized leg adaptors available and quoted upon request**

**\*All fasteners required for installation included**

**CONFORMS TO THE FOLLOWING SPECIFICATIONS & RECOMMENDATIONS:**

- ANSI Z359.16
- OSHA 1910/1926
- TIA- 222



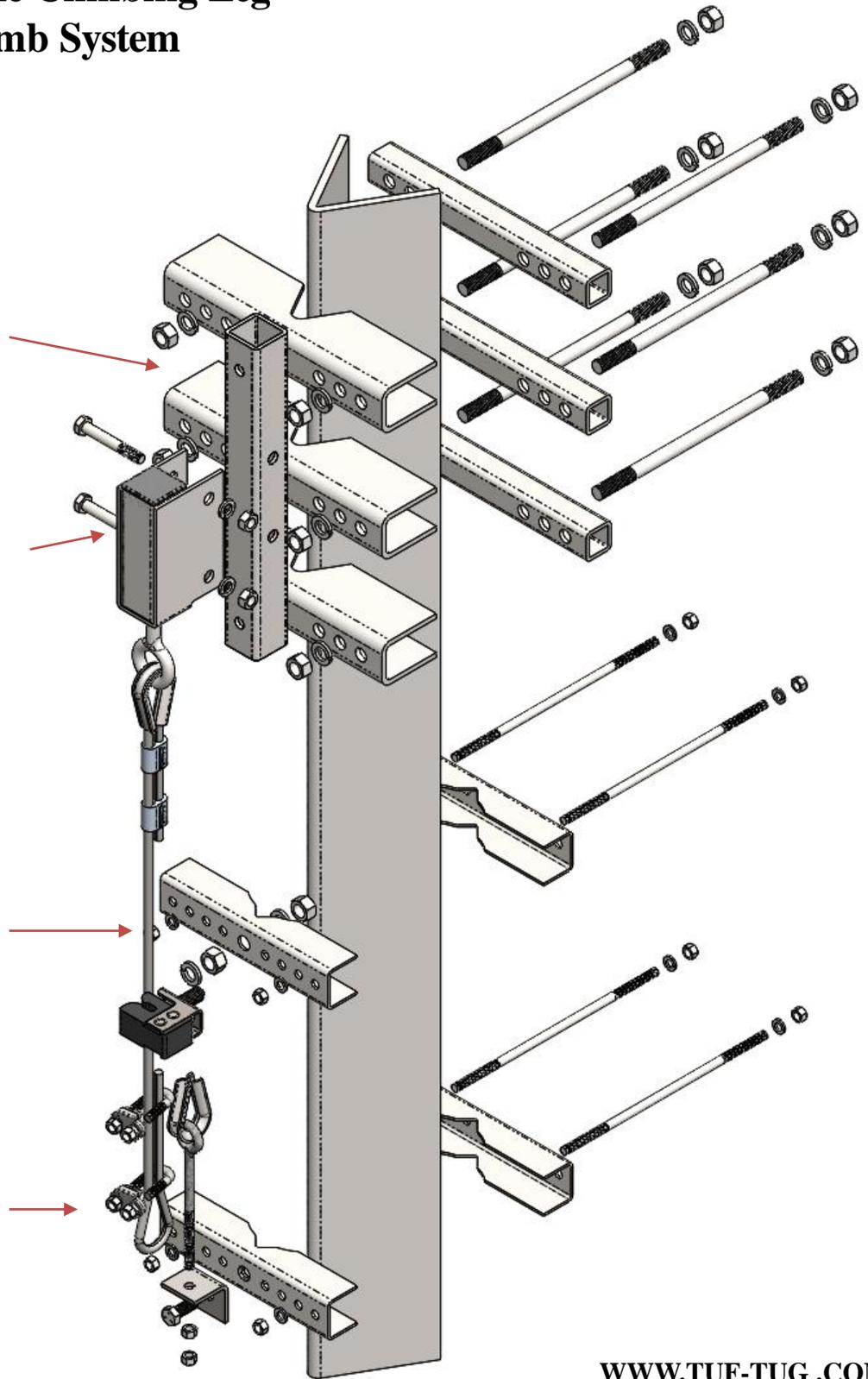
# Universal Angle Climbing Leg Cable Safe Climb System

120-214, Universal angle  
leg head adaptor  
bracket with fasteners  
for 4" to 8" legs

115-302  
Cable and head assembly

120-205/115-317  
Universal angle leg  
adaptor channels with  
cable guide \*For leg  
sizes up to 6" (Supplied  
every 25 ft.)

120-205/115-107 Universal  
angle leg adaptor with base  
anchor assembly



TUF-TUG PRODUCTS

3434 Encrete Lane, Moraine, Ohio

WWW.TUF-TUG.COM

(Phone) 937-299-1213

**WARNING!** YOU MUST READ AND FULLY UNDERSTAND OR HAVE THESE INSTRUCTIONS EXPLAINED TO YOU BEFORE USING THIS EQUIPMENT. FAILURE TO OBSERVE THE LIMITATIONS, CAUTIONS AND WARNINGS IN THESE INSTRUCTIONS COULD RESULT IN SEVERE PERSONAL INJURY OR DEATH.

Equipment users must be fully trained as a competent climber and conversant with all regulatory requirements applicable to the workplace in which the fall protection equipment is to be used. If in doubt, contact your local OSHA office for clarification. These instructions are not a substitute for a formal climbing and Fall Protection Training program. Such training should include information about local circumstances, rules and regulations applicable to the work situation, a hands-on opportunity to learn how to wear and attach equipment properly, instructions about adequate anchor points and proper techniques for securing and connecting lanyards, drop lines or lifelines, and guidance and demonstration on how to inspect and maintain the equipment.

**System Requirements:** Tuf-Tug Cable Safety Climb Systems are designed to meet the performance requirements of OSHA/ANSI for personnel fall arrest on fixed ladders. It utilizes a 3/8” wire rope with factory swaged sleeves to provide an anchorage capable of maintaining a min. 5,000 lb. tensile load. An impact attenuator is incorporated in the anchor head to help dampen any extreme shock loads that may occur as a result of a fall. Cable stand offs are provided with systems over 25 ft. to stabilize and maintain the cable in a good operable condition. Base anchor bracket is supplied with a line adjustment mechanism for a 220 lb. – 420 lb. system tension load.

**NOTE:** This cable safety climb system is intended to be used as part of a complete personal fall protection system. All components, subsystems and connectors should be compatible and meet the appropriate ANSI/OSHA requirements for the intended application. Substandard or non-approved components could compromise the reliability of the system and jeopardize the safety of the user. **USE ONLY TUF-TUG SUPPLIED OEM COMPONENTS TO ASSEMBLE THE COMPLETE CABLE SAFE CLIMB SYSTEM. DO NOT ATTACH TO OTHER MANUFACTURER’S, NON-APPROVED SAFE CLIMB MOUNT BRACKETS TO TUF-TUG CABLE AND HEAD ASSEMBLY. ALTERING SYSTEM DESIGN WILL VOID ALL CLAIMS AND WARRANTY.** The Tuf-Tug wire rope grab (TTWG-500 -BSEN) and climbers/positioning full body harness (TTFBH-C/P), should be used in conjunction with the cable safety climb system to assure maximum reliability.

**Safe Climb Loading:** Factored live loads +75 lb. Average Tuf-Tug system weight = minimum top anchorage load calculations. For 2-4 climbers per OSHA/ANSI, TIA :

- (2) Person factored live loads = 3,240 lbs.
- (3) Person factored live loads = 3,705 lbs.
- (4) Person factored live loads = 4,170 lbs.

**KNOW YOUR WORKPLACE:** Assess the workplace for hazards such as heat, flames, chemical, electrical, environmental, sharp objects, moving equipment, unstable/uneven or slippery surfaces. Identify the potential hazards and plan for the installation to avoid dangerous paths, obstructions and zones. Have an emergency rescue/contingency plan in place in the event that an accident may occur per rescue/retrieval section.

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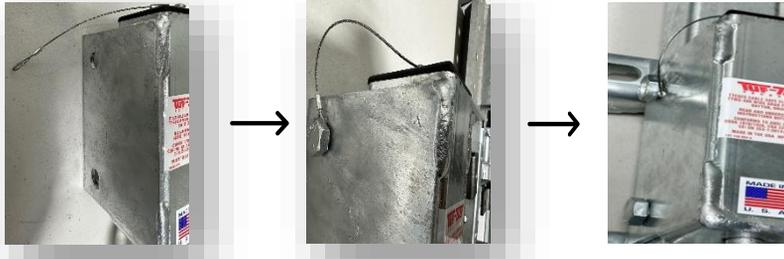
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# UNIVERSAL ANGLE CLIMB LEG CABLE SAFE CLIMB SYSTEM FOR 4" TO 8" LEGS WITH OPTIONAL 60° AND 90° ATTACHMENT

## INSTALLATION INSTRUCTIONS

- A. Identify specific leg type (60° or 90°) and size for installation. Confirm that the intended tower leg is capable of supporting a minimum 5000 lb. load. If not, consult a qualified person to review the application and/or installation.
- B. Start at the top of the angle climb leg and work down tower.
- C. Attach PN 120-214 universal angle leg head adaptor as shown with clamp bars on the rear of the mount connected with 5/8" threaded rods and fasteners.
- D. Keep threaded rod as close to the angle leg as possible. Torque 5/8" fasteners to 50 ft-lb. to secure 120-214 to climb leg. Be sure to torque evenly, do not crush leg with connection fasteners and brackets. Torque mark fasteners after installation.
- E. Connect cable and head assembly to 120-214 head adaptor with 1/2" bolts and fasteners.



- F. Torque 1/2" bolts to 40 ft-lb. and mark fasteners with torque check.
- G. Slowly lower cable down tower, allowing all kinks and loops to unravel freely.
- H. Attach PN 115-317 cable guides to the structure every 20-25 ft. via factory welded clip or added PN 120-205 adaptor bracket. Alternate left to right down tower.
- I. If the 120-205 adaptor is required, connect opposing channels (as shown) with 3/8" threaded rod and fasteners, and torque to 30 ft-lb and mark.
- J. Snap wire rope into guide openings going down tower.
- K. Make sure wire rope does not wear against any structural steel or appurtenance.
- L. If so, make provisions to realign safe climb cable with extensions and guides to assure an unobstructed climb path.
- M. Connect PN 115-107 base anchor and PN 115-110 tension adjustment eyebolt to lowers 120-205 channel assembly with 1/2" fasteners. Torque to 40 ft-lb. and mark.
- N. Thread wire rope through thimble on eyebolt and attach cable clips to form a turned-back eye. (Never saddle a dead horse.) Torque to 40 ft. lb. and mark fasteners.
- O. Tension cable on system with fasteners on 3/8" eyebolt until the climb has line tension of approximately 220 lb. for Tuf-Tug to 420 lb. for others. Torque to 45 ft.lb. and mark fasteners.
- P. Check alignment and security of system. If not, repeat N & O until tensioned.
- Q. Date and sign ID tag and attach to bottom of climb with a suitable weatherproof means.
- R. Photograph top, middle and base brackets and provide an overall view up and down tower showing complete install for close-out.
- S. Submit photos to customer for approval if applicable.



**BEFORE EACH USE:** Reference specific installation application for the climb facility in question. Inspect installation for obvious miscues from the ground, and/or refer to the SEMC document for detailed information. Points of caution may include one or more of the following: excessive corrosion, loose cable, loose brackets, over tensioned system/deployed eyebolt, etc. If any of these items are encountered and cannot be remedied, climb with extreme caution. A secondary fall protection system may be warranted until the issue can be identified, classified and/or corrected. Also, be aware of the current environmental hazards that these elements represent and plan for a safe climb accordingly with approved JHA/JSA documentation.

**USE:** Cable safety climb system should be used in accordance to the PPE inspection outlined with the TTWG-500-BSEN Wire Rope Grab instructions that are supplied with specific bracket pack installation information. A climb log of the system's use should be kept per the specific climb facility's installation.

If the system arrests a fall, it should be removed from service and replaced to assure maximum reliability. If this is not immediately feasible, a qualified person/climber can make an assessment to the damage and provide short term recommendations/remediation.

**INSPECTION:** Inspect system before each use for corrosion, wear, damage and/or defects during each climb per SEMC document. Record findings per the climb log. If system shows signs of any hazards, contact owners for corrective action immediately. It is recommended an annual or regular scheduled inspection should be made of the Cable Safety Climb System along with the supporting structure to assure its functionality.

**RESCUE/RETRIEVAL:** For a safety climb that is subjected to a fall, and rescue is required, the competent rescuer executing the rescue shall be required to assess the means available to efficiently and safely rescue the climber to avoid suspension trauma. If the best means is to use the existing wire rope safety climb that has been exposed to a fall, then the competent rescuer shall be required to, at a minimum:

- A) Verify that the equipment utilized, including but not limited to the safety climb, meets the intended requirements for rescue as outlined by the manufacture(s).
- B) Visually inspect the safety climb for changed conditions from the last written PPE inspection in compliance with section 5 of the SEMC document to assess the usability of the safety climb.
- C) Communicate the plan to use the safety climb system with others involved with rescue procedures.
- D) The competent rescuer shall ensure that use of the system will not create a greater hazard than other means.
- E) Once the rescue is complete, the wire rope safety climb is to be reported and tagged out until corrective action has been taken.

**\*Always keep these instructions and records with the system in a place that is easily accessible to all users\***



**WARNING:** All users of fall protection equipment must be in good health, must not have a medical history of conditions that could be aggravated by a fall, must be mentally fit and must not be under the influence of alcohol or drugs. Inattention to these factors could cause falls, serious injury or death.

**WARNING:** Any component which has arrested a fall should be removed from service and replaced.

**WARNING:** Never alter or use a Safety Climb System that has been altered – the potential malfunctions could result in serious injury.

**WARNING:** Do not attempt to repair damaged equipment. Remove from service and replace.

**WARNING:** Discard equipment if there is any evidence of excessive wear, damage or malfunction.

**ALWAYS BE CAREFUL!** Your Safety is important to us. If a situation is questionable, consult a qualified professional for proper procedures or reference appropriate specification.

**WARRANTY:**

“Limited 1 Year Warranty to Original Using Buyer” - TUF-TUG Cable Safe Climb Systems are warranted for 1 year against defects when operated under normal conditions, within their rated capacities and in accordance with the operating instructions and use considerations.

Any part or mechanism that is recognized as defective by TUF-TUG Products will be replaced or repaired Free of Charge during the warranted period if it is returned, prepaid, to the factory with a return authorization. Claims for labor, delays, or damages are not covered by this warranty. This warranty does not apply if the unit has been altered, modified, or repaired by any source other than TUF-TUG Products.

**Environmental / Corrosion considerations**

- A) Macro-environmental: Installation exposure warranty for normal macroscopic rural, suburban, and temperate marine environments with moderate chemical, salinity, sulfur dioxide, and relative humidity, equals 10 years.
  
- B) Micro-environmental: Tuf-Tug safety climbs with increased exposure to near coastal (within 25 miles), tropical marine environments, high winds, chemical exposure, salinity exposure, sulfur dioxide exposure, and high humidity locations, anticipated time to first maintenance is 5 years.
  
- C) Extreme Micro-environmental: Direct exposure within 5 miles of the corrosive catalyst, to the aforementioned microscopic extreme environments, including, but not limited to; direct coastal exposure, continuous exposure to tropical marine environments, high winds, caustic chemicals, high salinity, streaming sulfur dioxide, and extreme high humidity could reduce the first time to maintenance warranty period to TIA inspection requirements. These sites shall be identified and targeted for additional TIA maintenance and condition assessment to assure the validity of the safe climb system installation on the structure that has extreme environment exposure. Recommended first to maintenance inspection cycle should not exceed 2-year maximum timeline.

*“Quality is long remembered after the price has been forgotten”*

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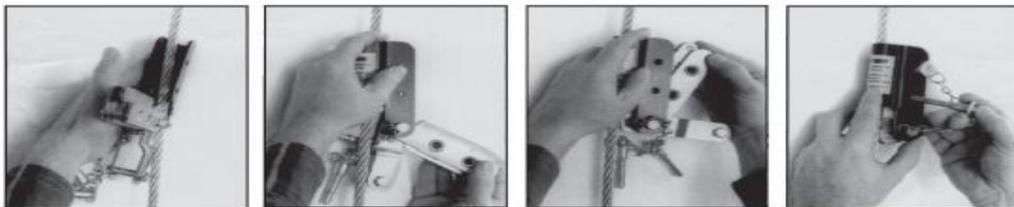
Equipment users must be fully trained in and conversant with all regulatory requirements applicable to the workplace in which the fall protection equipment is to be used. If in doubt, contact your local Safety office for clarification. These instructions are not a substitute for a formal climbing and Fall Protection Training Program. Such training should include information about local circumstances, rules and regulations applicable to the work situation, a hands on opportunity to learn how to wear and attach equipment properly, instructions about adequate anchor points and the proper techniques for securing and connecting lanyards, drop lines or lifelines, and guidance and demonstration on how to inspect and maintain the equipment. End user should have access to these instructions for reference.

**SYSTEM REQUIREMENTS:** TUF-TUG Wire Rope Grabs are designed to meet the performance requirements of ANSI Z359.16, CSA Z259.2.5 & BSEN 353-1:2014+A1:2017 for one personal fall arrest on fixed ladders with combined live loads of 50 kg min to 100 kg max with tools and equipment for EN applications. It is intended for use on  $\varnothing$  3/8" (9.5 mm) solid core cable system per EN10264-2 with an anchorage capable of maintaining a minimum of 5000 lbs. (22.2 KN) tensile load. The lower end of the lifeline shall have a termination that prevents the fall arrester from passing through that termination. When the line is installed, the bottom end shall have a counterweight (i.e. eye bolt tensioning) to provide stiffness. (NOTE: TTWG-500-BSEN fall arrester can transmit up to 6 KN load per user down on the rigid anchor line during a fall. It is recommended that the TTWG-500-BSEN be attached to a full body harness with a front/sternal "D" ring (TTFBH-C/P) with a 2" Self-Locking Carabiner/Hook that meets the proper safety requirements. The maximum length of the connector to the wire grab from the harness should not exceed 9 inches (228.6 mm). Note: Maximum of 3 users with no less than 3 m between climbers. Important: Every user can be influenced and fall due to the movement of the anchor line initiated by the other users.)

**NOTE:** This Wire Rope Grab is intended to be used as part of an individual's complete personal fall protection system. All components, subsystems, and connectors should be compatible and meet the appropriate OSHA/ANSI/CSA/EN safety requirements for the intended application. Substandard or non-approved components could compromise the reliability of the system and jeopardize the safety of the user. Use of incompatible combinations of equipment may present a danger in which the safe function of any one item is affected by or interferes with the safe function of another. The TUF-TUG TTWG-500-BSEN can only be used with TUF-TUG Cable Safe Climb System.

**BEFORE EACH USE:** Inspect mechanism for proper operation by pivoting cams back and forth. Movement should be free and easy without binding. Check units for deformation, defects, corrosion, or wear that may affect the free movement and/or operation of the mechanism. Check that all markings are legible before use. Units with signs of any of the above check items should be removed from service and disregarded.

**KNOW YOUR WORKPLACE:** Assess the workplace for hazards such as heat, flames, chemical, electrical, environmental, sharp objects, moving equipment, unstable/uneven or slippery surfaces. Identify the potential hazards and plan the installation to avoid dangerous paths, obstructions, and zones. Have an emergency rescue/contingency plan in place in the event that an accident may occur. No limitations for rigid anchor line and guided type fall arrester in rescue situations. Do not use TTWG-500-BSEN below -30° Celsius or above 50° Celsius.



- A) Release pull pins by depressing end buttons and remove from unit.
- B) Open unit by pivoting clamp bar assembly away from housing.
- C) Attach to cable as shown in Figures A/B with arrow up.
- D) Close unit by pivoting cams onto rope, making sure that arrow is pointing up as shown in Figures B/C.
- E) Reinsert pins into housing making sure that ball detent passes through assembly (Figure D).
- F) Check security of pins by trying to remove without releasing button.
- G) Work cams back and forth and run fall arrester up and down to assure functionality and freedom of movement.
- H) Test installation by pulling down sharply on the attachment eye to ensure that the mechanism locks onto the cable with full body weight to load system and avoid incorrect use.
- I) Check harness fit to assure a snug fit before and during each use. Harness should not be used if loose.

**USE:**

- A. After wire grab has been secured to safety cable, attach TTWG-500-BSEN to safety harness (conforms to EN361) front/sternal “D” Ring with an approved double locking carabiner/hook. (Installation of wire grab to safety line can take place after harness attachment if desired). Always keep wire grab above user’s center of gravity to minimize potential for falls and potential fall distance.
- B. To ascend safety cable, climb ladder in a normal fashion with torso centered and close to the mechanism. Wire grab is designed to rotate freely around cable safe climb system and will operate with the user sideways leaning up to 15° left or right off center. Therefore, the mechanism should self-align and/or follow the user up the safe climb system with a normal steady/even pull. Wire grab should also work freely up and down forward leaning on incline up to 15° off the vertical, up and down.
- C. If cable system has guides/supports, remove cable from stand-offs as they are encountered and reinsert after passing. **DO NOT REMOVE WIRE ROPE GRAB FROM SAFETY CABLE** to pass over guides, supports, or standoffs, etc., unless a secondary OSHA approved attachment is made to the structure (lanyard, rope grab, etc.) prior to doing so.
  - \*Do not handle wire grab or override lever during operation; this may compromise the function of the braking mechanism and should be done from a safe position to reduce the risk of falling.
- A. To descend safety cable, again climb down ladder in a normal fashion with torso centered and close to the mechanism. This will keep the attachment lever up, disengaging the clamping bar, and allow the wire grab to freely lead the climber.
- B. If the lever is pulled back past center by leaning back, the clamp bar will engage the cable and the wire grab will lock up. To unlock the mechanism, simply move upward to pivot the lever over center. This will allow the wire grab to operate freely.
- C. Always keep a safe distance of 10 ft. (3 m) from potential hazards to avoid contact if a fall occurs.
- D. Make sure to check security of harness and adjust for snug fit during ascent and descent from a secured position.
- E. IF THE WIRE GRAB ARRESTS A FALL, REMOVE IT FROM SERVICE AND REPLACE IT.

**CARE:**

- A. After use, always clean mechanism; wipe with a new towel and lubricate pivot points with machine oil. Inspect unit for wear, damage and/or defects. If the mechanism becomes wet, allow to air dry naturally.
- B. If wire grab shows signs of excessive wear or a defective condition, remove it from service and replace it. If in doubt, return it to the factory for evaluation.
- C. You must ensure that the product markings remain legible during the entire lifetime of the product.
- D. Keep your wire grab/fall arrester in a safe/dry storage location to prolong its service life and assure its functionality. To avoid damage during transportation, pack wire grab fall arrester in a rigid waterproof container to protect mechanism against external elements.
- E. Never alter or use a wire rope grab that has been altered; the potential malfunction could result in serious injury or death. Shock pack on wire grab fall arrester has a field service life of 5 years. Per training module, inspect for wear/damage before each use and repair/replace as required.

**WARNING:** All users of fall protection equipment must be in good health, must not have a medical history of conditions that could be aggravated by a fall, must be mentally fit, and must not be under the influence of alcohol or drugs. Inattention to these factors could cause falls, serious injury or death! Engaging the guided type fall arrester’s release function during ascent or descent could hinder the safe operation of the braking mechanism and should be done only from a safe position where there is no risk of a fall.

**WARNING:** Do not use fall arrester for work positioning; if work positioning is required, a secondary separate system shall be used for 100% tie-off.

**WARNING:** Connection and disconnection from a rigid anchor line should be done from a safe place by using a separate personal fall protection system to assure 100% tie-off safety.

**WARNING:** Any component which has arrested a fall must be immediately removed from service.

**WARNING:** Do not attempt to repair damaged equipment. Remove from service immediately.

**WARNING:** Discard equipment if there is any evidence of excessive wear, damage, or malfunction.

**WARNING:** Certification is applicable to the device only. CSA has not investigated the anchorage system.

**ALWAYS BE CAREFUL!** Your safety is important to us. If a situation is questionable, consult a qualified professional for proper procedures or reference appropriate specifications.

**NOTE:** EC Declaration of Conformity letter can be found at [www.tuf-tug.com](http://www.tuf-tug.com). (Reference EU Regulation 2016/425 PPE)

For other TUF-TUG Safety Hardware: Confined Space Tripods, Man Winches, Rope Grabs and/or Anchor Brackets and/or Full Body Harnesses, contact:

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