

# FALL ARRESTOR <sup>®</sup>

## PERSONAL LIFELINE/ROPE GRAB SYSTEM

### INSTRUCTION / SPECIFICATION MANUAL

#### USER COMPLIANCE

Fall Arrestor Lifeline/Rope Grab System is designed to be used with other safety components manufactured by SUPER ANCHOR SAFETY. The "User" will ensure component compatibility with body harnesses, lanyards, shock absorbing devices, attachment hardware, and anchorage devices.

Each "User" is required to receive training and instruction from this manual regarding the **Use**, **Inspection**, and **Maintenance** of the Fall Arrestor Lifeline System before use.

"User" is any person who purchases, employs others, trains others in safety, or uses this equipment for fall protection.

#### SPECIFICATIONS FOR USE:

The Fall Arrestor Lifeline/Super Grab is designed to be used by one person as a fall arrest or work positioning system with additional fall protection equipment; a body harness, shock absorber, lanyard and anchorage device which are also Mfg. by SUPER ANCHOR SAFETY and are referred to in this manual using our part numbers.

#### LIFELINE SPECIFICATIONS:

The 5/8" diameter Fall Arrestor lifeline is made from 12 strand poly-olefin line rated for 11,600 lbs and is colored red with a blue tracer. Special Coatings reduce abrasion, and water absorption is less than 2%. Lifelines are furnished in 30 ft., 50 ft., and Custom lengths.

#### SUPER GRAB - ROPE GRAB / DECELERATION DEVICE:

The Fall Arrestor lifeline system utilizes the Super Grab as a fall arrestor, deceleration device which locks onto the lifeline when a force is exerted in any direction. The 7/16" grab rope is made from blue colored double braided line rated for 7,370 lbs. It is coated to reduce abrasion and water absorption. The Super Grab is easily adjusted for varying fall hazards by moving the grab knot position on the lifeline. The Super Grab is a component of the lifeline system and comes pre-installed. It should not be removed from the lifeline except for replacement.

(See pages 3-4 for instructions and details.)

#### ROPE SPLICE AND EYE THIMBLE:

The lifeline attachment end is spliced using a synthetic eye thimble. A locking type carabiner is used to connect the lifeline to the anchor point. When factory supplied snaphooks are fitted onto the lifeline, the eye thimble will have an access cut. See **Fig. 3.1, Pg. 3**. The thimble is designed to break, crack, or deform when subjected to a free fall or other extreme force.

#### TERMINATION KNOT AND LIFELINE TERMINATION END:

The termination knot is required to be tied 12.0" from the "B" end of the lifeline to prevent accidental disengagement of the grab knot. See **Fig. 1, End "B"**. Lifelines are terminated using a hot knife and finished with a colored adhesive shrink tube; black for 30 ft. lines and red for 50 ft. lines.

#### WARNING AND SERIAL NUMBER LABEL:

The yellow warning label is protected with clear PVC shrink tube attached to the eye splice taper. The Date of Mfg., serial number, and the lifeline length are displayed.

REMOVE FROM SERVICE IF THE PVC SHRINK TUBING OR LABEL ARE MISSING, OR UNREADABLE.

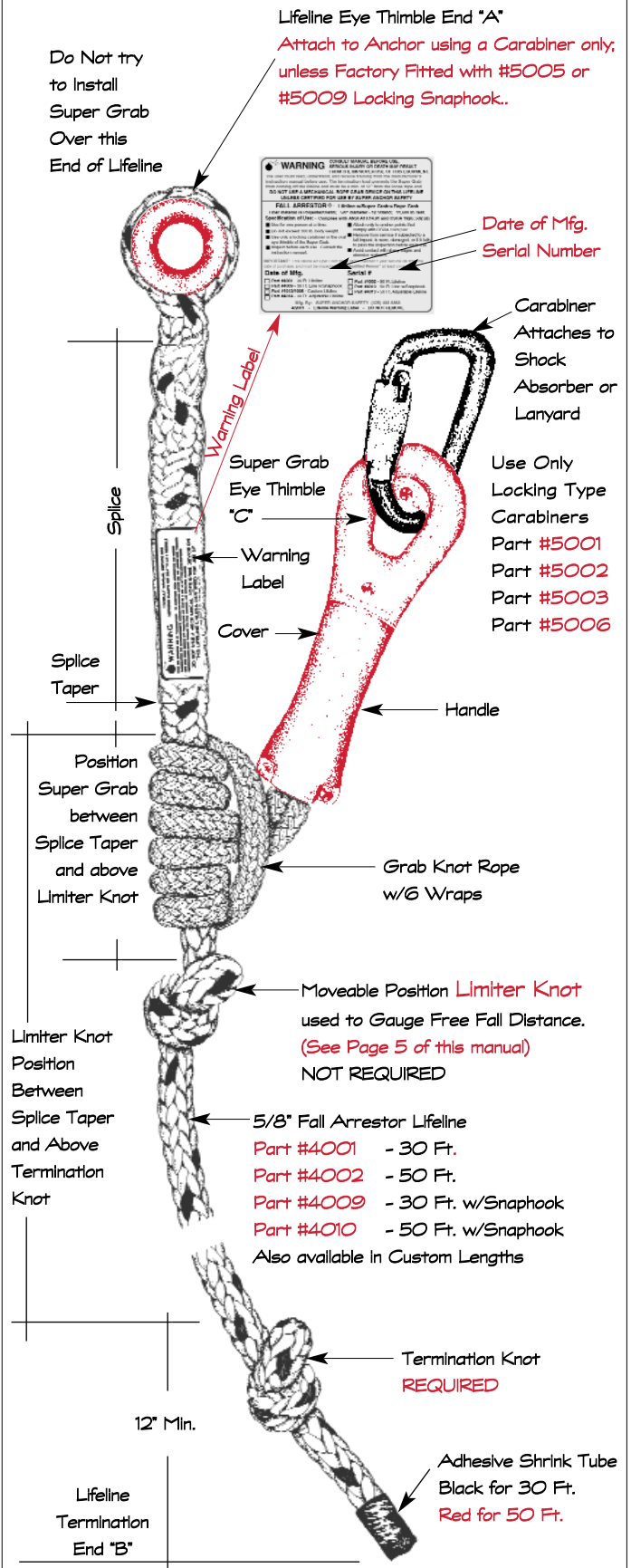
#### LIMITER KNOT:

The limiter knot is not required to arrest a fall but is used as a gauging device for free fall distance and hazard exposure. See **Fig. 5, Pg. 5**. Use no other type of knot. The limiter knot position is moved by untying and re-tying the knot in the desired position on the lifeline.

COMPLIES WITH ANSI A10.14.91

Fig. 1

Fall Arrestor Lifeline w/Super Grab



### TRAINING AND INSTRUCTION:

The contents of this manual address only the "Fall Arrestor / Super Grab" system and do not represent the entire training that a user may need in order to use fall protection equipment safely. If you do not understand how to use this equipment, you must receive instruction from someone who is competent or qualified to teach you. See **Pg. 6** for definitions. Refer to training requirements in OSHA 1926;503.

### COMPONENT COMPATIBILITY:

The equipment addressed by this manual is compatible with other equipment Mfg. by SUPER ANCHOR SAFETY, provided all instruction and compatibility charts for additional components are followed.

### COMPONENTS BY OTHER EQUIPMENT MANUFACTURERS:

The purchaser or user must ensure component compatibility with the Fall Arrestor system when using equipment manufactured by others. Unforeseen hazards created by improper connections or incompatible equipment could result in serious injury or death.

### COMPLIANCE AND TESTING:

The Fall Arrestor® Lifeline / Super Grab complies with OSHA standards for Personal Fall Protection equipment and "Non-mandatory" guidelines of Sub-Part M, appendix B. ANSI certification is not required by OSHA for use in the United States. It is the responsibility of the user to ensure that the compliance and testing noted in this manual are acceptable under the industrial safety standards in your area. Certification is ongoing. Additional certification not shown here will be noted in future revisions of this manual, and may be available by calling our office.

#### Compliance:

OSHA 1926.502 (d)(16)(iv)  
CAL-OSHA CSO 1670(m)

#### Test Standards:

Subpart M - Appendix B (l)(b)(c)(d)(e)  
ANSI A10.14.91

### ADDITIONAL INSTRUCTION

#### Spanish Language Manuals:

Lifeline Manual - Rev. 2001  
Super Grab Manual - 2001  
2x8 Anchor Manual  
Universal Anchor Manual  
ARS 3-K Anchor Manual

#### Availability:

Phone Mfg. Office  
(425) 488-8868  
Download off Website  
www.superanchor.com

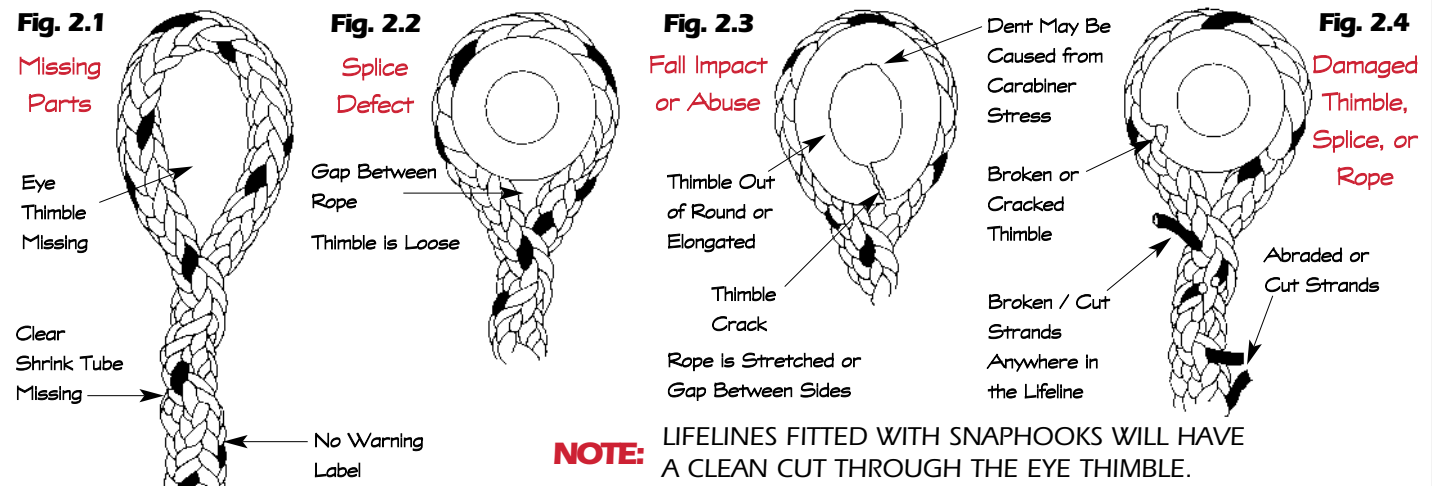
### THE FOLLOWING INSTRUCTIONS APPLY ONLY TO THE USE OF THE SUPER GRAB WHEN USED ON THE FALL ARRESTOR® LIFELINE/ROPE GRAB SYSTEM.

### VISUAL INSPECTION REQUIRED BEFORE EACH USE:

**2.a)** The Lifeline and Super Grab must not have any broken, cut, burned, worn, or otherwise damaged rope strands. The surfaces of the ropes shall be free of any loose materials such as dirt, sand, mud, sawdust, or other types of materials. The Rope surfaces shall be free of any kind of petroleum or chemical contaminants. If this type of damage occurs, **REMOVE FROM SERVICE**. Small patches of tar and caulking may be removed with warm water and mild detergents ONLY. Do not use any cleaning solvents, agents, acids, gasoline, etc. on the rope or Super Grab cover. This may seriously damage the components.

**2.b)** Warning Labels and the synthetic Rope Eye Thimble must be in place on the Lifeline. The Eye Thimble will break apart or elongate when the system is subjected to a free fall or other extreme force; such as towing or hoisting materials. The entire system; Lifeline, Super Grab, and carabiner, and any other components being used for Fall Protection, must be **REMOVED FROM SERVICE** if a fall has occurred, or if the lifeline has been used for a non-specified purpose. See OSHA 1926;502 (d)(19).

**2.c)** As shown in **Fig. 2.2** below, if the Rope Eye Splice has opened up and there is more than 1/2" between the splice joint and the synthetic Rope Eye Thimble, then the splice may be coming loose or the rope may have been subjected to an extreme force. **REMOVE FROM SERVICE IMMEDIATELY. WARNING: DO NOT TRY TO RE-SPLICE OR REPAIR THE SPLICE.**



### CARABINER / SNAPHOOK INSPECTION:

**2.d)** **Carabiners** shown in **Fig. 3.1, Pg. 3**, are equipped with threadlock or auto locking devices to prevent the gate from opening. Inspect the gate and body for any signs of bending or damage. The gate and locking device must open and close easily. Removal of debris or contaminants may be required. The autolock is opened by rotating the barrel. A spring returns the barrel to the closed position.

**2.e)** **Snaphooks** shown in **Fig. 3.2, Pg. 3**, are equipped with 2 locking devices to prevent the gate from opening. Both the Snaphook gate and Thumb Lock must be depressed to open, while closing is automatic by releasing the locking mechanisms. Inspect the snaphook gate and body for damage or deformation. Check the locking devices for smooth function.

Remove any Snaphooks / Carabiners that do not pass inspection.

**DO NOT ATTEMPT TO DISASSEMBLE, STRAIGHTEN, OR REPAIR DEFECTIVE CONNECTORS.**

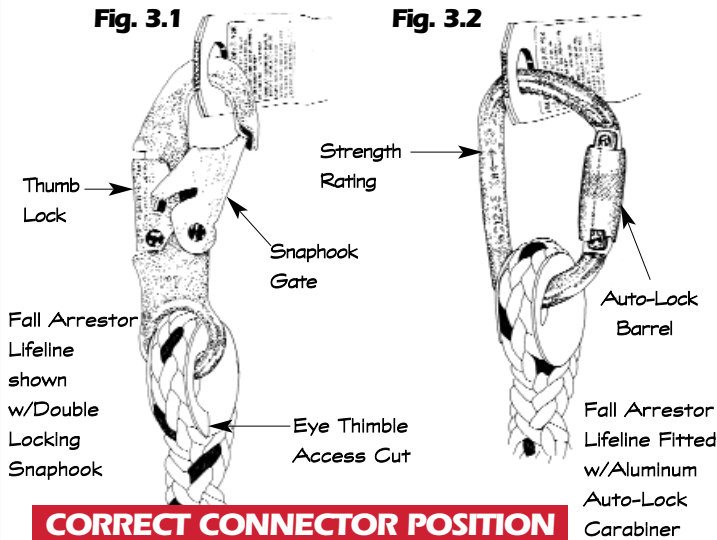
**LIFELINE ATTACHMENT TO ANCHORAGE POINT:**

**Carabiner & Snaphook - Positioning/Alignment**

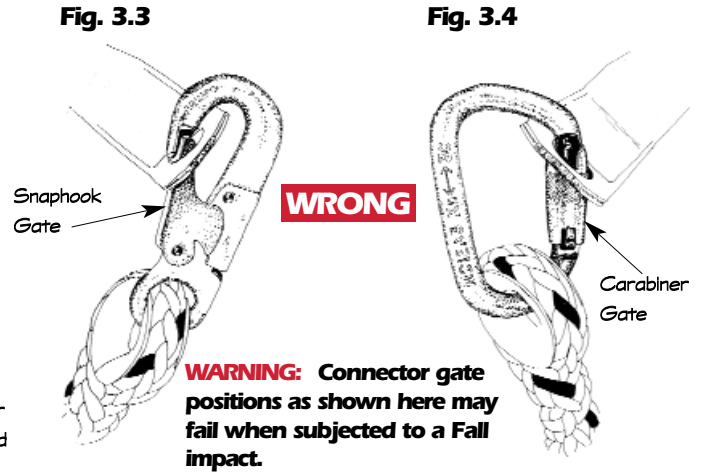
The locking mechanisms of the snaphook thumb lock and gate, and the carabiner gate, must not come into contact with the anchor point, lifeline, or any other obstruction that may cause it to jamb, bend, or unlock during use. The correct connector to anchor positions are shown in below in **Figs. 3.1 & 3.2.**

**WARNING:** IT MAY BE NECESSARY TO MANUALLY ROTATE, OR DISCONNECT AND RECONNECT THE SNAPHOOK OR CARABINER, TO PREVENT THE LOCKING GATES FROM ENGAGING THE ANCHOR AS SHOWN BELOW IN **Figs. 3.3 & 3.4.**

**ATTACHING LIFELINE TO ANCHOR POINT  
ARS 2X8 SHOWN**



**SNAPHOOK AND CARABINER GATES IMPROPERLY  
LODGED AGAINST ANCHOR ATTACHMENT HOLE**



**DO NOT ALLOW THE GATES OR LOCKING DEVICES TO COME IN CONTACT WITH ANCHOR OR OTHER OBSTRUCTIONS. CONNECTOR MUST ROTATE FREELY WHEN ATTACHED.**

**FALL ARRESTOR<sup>®</sup> SUPER GRAB - INSTRUCTIONS FOR USE**

**SPECIFICATION OF USE:**

When subjected to a free fall of no more than 6 ft., having a maximum weight of 300 lbs. (combined wt. of a single worker and tools or equipment), the Super Grab will decelerate no more than 12" before arresting a fall.

**DESCRIPTION OF COMPONENTS:**

Super Grab utilizes the Triple Sliding Hitch, or Prussic knot principle of grabbing the lifeline when a force is exerted in any direction on the eye thimble end of the cover. The red ABS plastic cover houses the grab rope and is cosmetic only and should not be removed. The grab rope is wrapped around the lifeline and forms a continuous loop that is swaged using an aluminum oval contained inside the cover. Made from 7/16" Polyester / Nylon material, the loop exceeds 7300 lbs. average tensile strength.

**COVER:**

The plastic cover is designed to crack, break in half, or deform when subjected to a fall impact which requires removal from service. This allows for easy visual inspection before each use. Improper storage, non-specified use, or stepping on the cover may also result in damage.

**GRAB ROPE:**

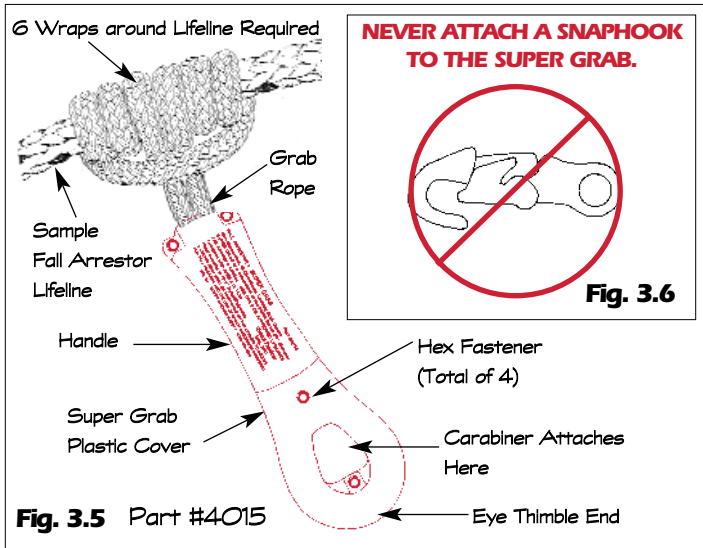
The grab knot rope must have 6 wraps around the lifeline as shown in **Fig. 3.5.** Do not untie the grab knot or use if there are less than 6 wraps. As a safety feature, the cover's length dimension will prevent the grab rope wraps from unintentional disengagement. Inspect rope wraps where it enters the cover and remove from service if any strands are cut, abraded, or damaged.

**CONNECTING HARDWARE:**

The eye thimble end of the cover is sized to accept ONLY A LOCKING TYPE CARABINER as supplied by SUPER ANCHOR SAFETY.

Type	Model Number	Strength Rating
Auto-Lock Steel	5001	8990 lbs.
Threadlock Steel	5002	8990 lbs.
Threadlock Aluminum	5003	5395 lbs.
Auto-Lock Aluminum	5006	6744 lbs.

**DO NOT ATTACH A CONNECTOR TO ANY PORTION OF THE GRAB ROPE. THIS MAY INTERFERE WITH ITS NORMAL FUNCTION.**



**Use only a carabiner to attach the Super Grab to a web loop end of a shock absorber or a connecting lanyard.**

**CARABINERS MANUFACTURED BY OTHERS:**

For carabiners not specified in this manual, component compatibility must be ensured by the user.

**DO NOT USE NON-LOCKING TYPE CARABINERS OR CARABINERS THAT HAVE A GATE OPENING THAT DOES NOT ALLOW EASY ATTACHMENT TO THE EYE THIMBLE. DO NOT FORCE A CARABINER OVER THE EYE THIMBLE.**

**WARNING: DO NOT ATTACH THE SUPER GRAB DIRECTLY TO A BODY HARNESS AND DO NOT CONNECT A CARABINER TO ANOTHER CARABINER OR SNAPHOOK.**

**NEVER ATTACH A SNAPHOOK TO THE SUPER GRAB COVER OR ANY PORTION OF THE ROPE.**

**ATTACHING SUPER GRAB REPLACEMENT PART #4015:**

If the Super grab is damaged as a result of abuse and the lifeline has not been subjected to a fall or other extreme force, the Super Grab component may be replaced. The grab rope is pre-wrapped around a small section of the 5/8" diameter "Fall Arrestor" lifeline. Do not remove the sample rope until the receiver lifeline is prepared, and do not attempt to re-wrap the grab rope if it comes undone.

**PREPARING THE LIFELINE:**

Remove the existing grab knot by undoing the "Limiter and Termination" knots. See Fig. 1, Pg. 1. Slide the grab knot off the termination end "B". Install the replacement "Super Grab" by inserting the lifeline termination end through the 6 wraps, displacing the sample piece of rope. See Fig. 3.5, Pg. 3. Re-tie the "Termination and Limiter" knots on the lifeline with the Super Grab positioned between the splice taper and the limiter knot. See Fig. 1, Pg. 1.

The grab rope should fit snugly around the lifeline and should lock on the lifeline rope when a force is exerted on the thimble end "C" of the Super Grab. Be sure to check for proper function before use. **DO NOT INSTALL OVER EYE THIMBLE END, OR ON SPLICE TAPER. USE ONLY ONE SUPER GRAB PER LIFELINE AND DO NOT INSTALL ON LINES THAT ARE NOT CERTIFIED FOR USE WITH THE SUPER GRAB.**

**LIFELINE INSPECTION FOR GRAB KNOT REPLACEMENT:**

Ensure that the lifeline passes the inspection procedures in this manual as well as the aging and removal from service recommendations on page 6. Additional inspection may be required by the purchaser or user.

**DO NOT INSTALL A NEW SUPER GRAB ONTO A LIFELINE THAT DOES NOT PASS INSPECTION, IS OUT OF SERVICE, OR HAS BEEN SUBJECTED TO A FALL OR OTHER FORCE.**

**WHEN A FALL OCCURS:**

In the event the Super Grab is subjected to a fall impact, it must be removed from service and disposed of in a way that prevents it from being used again. See Pg. 6. **WARNING: IN THE EVENT OF A FALL, DO NOT GRAB HOLD OF THE GRAB KNOT. THIS MAY RESULT IN A FAILURE TO LOCK ONTO THE LINE.**

**INSPECTION:**

Inspect the Super Grab before each use. Look for signs of cracking, deformation of the eye thimble end, missing attachment screws, or damage to the grab rope portion; such as cut or abraded strands.

**LIMITATION OF USE:**

Use only for personal fall protection. Super Grab is not intended for recreational use, hoisting, towing, or securing loads.

**DO NOT USE FOR VERTICAL OVERHEAD LINE IN CALIFORNIA. USE AS VERTICAL OVERHEAD LINE IN OTHER STATES ONLY WHEN USED WITH LIMITER KNOT.**

**HORIZONTAL USE:**

OSHA requires that horizontal lines be designed and engineered by a "Qualified Person" 1926;502 (d)(8) and that connection with a vertical line is accomplished using a device that locks in both directions (d)(7). The Fall Arrestor system may be used for the "Vertical" or Connecting lanyard portion of a horizontal line system when a compliance certificate or other supporting engineering documentation is supplied by a "Qualified Person", but may not be used as the horizontal component which may require stronger rope and connectors. **DO NOT ATTACH THE SUPER GRAB TO A HORIZONTAL LINE SYSTEM WITHOUT FACTORY AUTHORIZATION FROM SUPER ANCHOR SAFETY.**

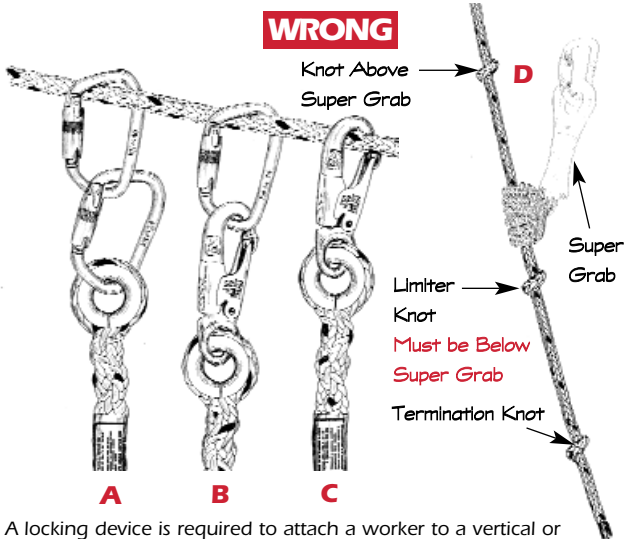
The grab rope may not be compatible with the horizontal line and could fail if subjected to a fall.

**HORIZONTAL LINE COMPONENTS:**

Custom length and larger diameter lines are available as well as custom sized Super Grabs for horizontal use. Inquire by contacting your distributor or our office.

**NON-COMPATIBILITY - Fig. 4.1**

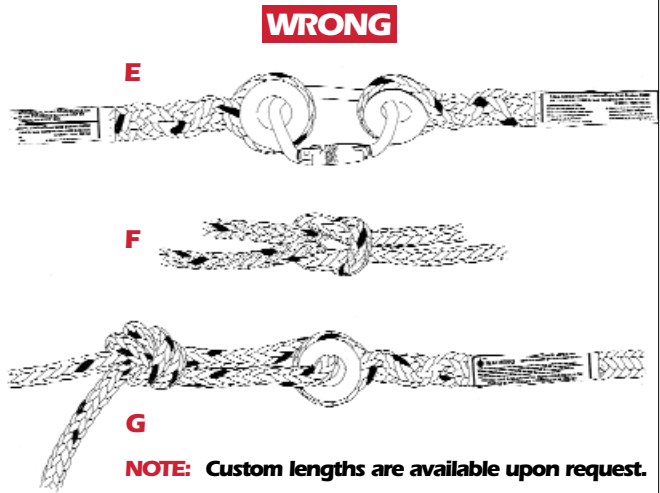
Do not link two connectors together "A" and "B" and do not attach connectors to a vertical line, "C". Do not tie a limiter knot between the anchor point and the Super Grab "D".



A locking device is required to attach a worker to a vertical or horizontal line. **Connections shown (A,B,C) will disengage if the anchor or line fails.**

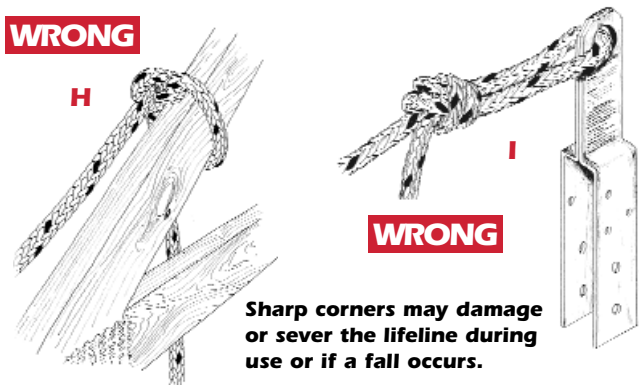
**NON-COMPATIBILITY - Fig. 4.2**

Do not link lifelines together using connecting hardware "E" by hand tied knots "F", or by tying a line through the eye splice "G". Lifelines of a continuous length should be used.



**NON-COMPATIBILITY - Fig. 4.3**

Do not tie a lifeline around an object or to framing "H". Do not tie a lifeline to an anchor. "I" Use only a compatible anchor point.



## ADJUSTING LIFELINE ROPE GRAB POSITION:

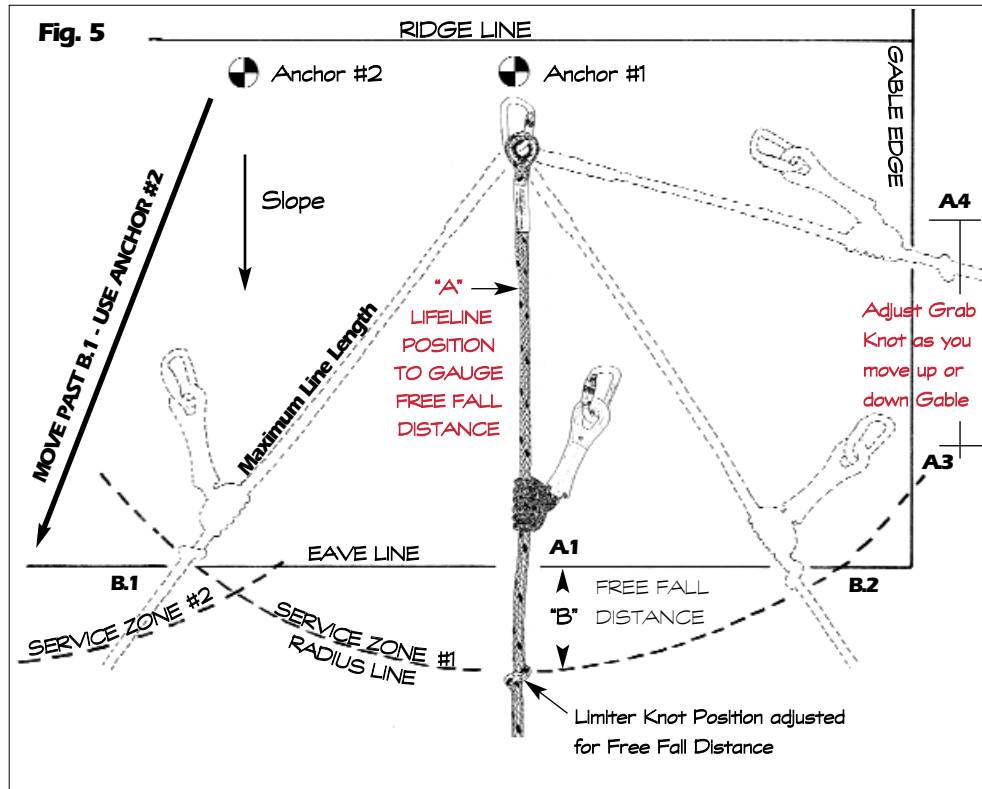


Fig. 5

### SERVICE ZONE:

The radius of a service zone, that is, the area of protection provided by a single anchor point based on a free fall distance, is proportional to the rafter length. The longer the rafter, the greater the service zone radius. It is recommended that you position anchors so that service zones overlap.

### SETTING UP THE LIFELINE:

- 1) Attach lifeline to anchor point and connect rope grab to your shock absorber using a carabiner.
- 2) Position the lifeline as shown in Fig. 5, parallel to the slope of the rafter. **Position "A"**
- 3) Walk to the eave line while sliding the grab knot down the lifeline.
- 4) At position "A.1" determine the "FREE FALL DISTANCE" and fix the limiter knot position.

**NOTE: TERMINATION KNOTS HAVE BEEN DELETED FROM FIG. 5. ALWAYS MAKE SURE YOU HAVE A TERMINATION KNOT 12" FROM THE END OF YOUR LIFELINE.**

### LIMITER KNOT USED AS A FREE FALL GAUGE DEVICE:

5) When calibrated, the limiter knot position on the lifeline can be used as a gauging or warning device. By fixing the limiter knot position based on the free fall distance "B" and the Anchor Point #1 above, an anchor "Service Zone #1" is created. See Fig. 5. The service zone defines or limits the free fall exposure to a plunge fall (straight down when standing at point A1) or by a swing fall (from points B.1 / B.2), or along a gable edge. Illustrated in Fig. 5, by a dotted radius line, the service zone limit is reached when the limiter knot intersects the eave or gable edge at points B.1 / B.2 or between points A.3 and A.4.

When the service zone limit is reached, the limiter knot will prevent any further travel along the eave or gable end. However, travel upslope would be permitted. In order to carry on work outside the service zone created by Anchor Point #1 and still maintain the free fall distance determined by the user's fall protection plan, a second anchor point with an overlapping zone must be used. **Example:** Service Zone #2 shown in Fig. 5.

### TO DETERMINE LIMITER KNOT POSITION:

6) **Two of the factors required are:** The distance between the work surface where you are standing and the connector point on the body harness (usually about 4 ft if you are standing), and the remainder when that distance is subtracted from 6 ft, (usually about 2 ft), or the maximum free fall distance permitted by your work plan. If you are sitting or crouched when working, the free fall distance may be increased. This means that for most applications when working near the eave or gable edge, the limiter knot would be positioned on the lifeline about two feet past the eave line from point A1 when the lifeline is in Position "A", as shown in Fig. 5.

To determine the exact free fall distance, you would need to calculate how far you would fall from point A1 before your equipment would begin to arrest the fall, then deduct that amount from 6 ft.

### ADDITIONAL INFORMATION:

- Where to locate anchors** - See **SUPER ANCHOR** ARS 2x8 Anchor Manual, Rev. 3/2000.
- Planning the length of fall** - See **FALL ARRESTOR** Body Harness Manual, Rev. 2000.
- Component compatibility** - See **SUPER ANCHOR** Compatibility Charts, Rev. 3/2001.

Deceleration of the grab knot, shock absorber deployment, harness stretch, or other factors that in themselves do not create additional "free fall", are not calculated as free fall distance, but are added to the overall length of a fall.

### GABLE EDGE ADJUSTMENT:

7) A worker at point A.3 can continue to work upslope provided the free fall distance does not increase. However caution is needed. If a fall occurs between points A.3 and A.4, the lifeline could jump over the eave/gable corner just below A.3, resulting in a free fall distance of more than 6 ft. It is suggested that you move the rope grab up the lifeline as far as possible and still perform your work as you travel along the gable edge. Several adjustments may be needed.

### WARNINGS / HAZARD EXPOSURES:

- 8.0 In the event of a free fall, do not grab hold of the Super Grab rope portion attached to the lifeline. This may interfere with the grabbing ability of the knot. If the limiter knot has been fixed in the correct position it will act as a failsafe.
- 8.1 Be aware of any obstacles that might occur below the eave line if you should fall.
- 8.2 Guard against any abrasion hazards at the ridge, the eave and especially at the gable edge. Sheet metal or sharp wood edges may cut the lifeline.
- 8.3 Do not allow the lifeline to become wrapped or entangled around objects above or off to your side.
- 8.4 Do not wrap the lifeline around any body parts.

### CALCULATING THE LENGTH OF A FALL:

How far will you fall before your safety equipment stops you? There are several factors to consider:

- 1) The distance between the work surface and the D-ring or harness connection
- 2) Slack in the harness fabric
- 3) The length of the lanyard or shock absorber component, and shock absorber rip out (deployment)
- 4) The distance the rope grab will travel down the lifeline, as well as any anchor deflection
- 5) When exposed to a maximum free fall of 6 ft, this "Length of Fall" can range between 11 ft. and 15 ft.

**LIFELINE AGING AND REMOVAL FROM SERVICE:**

How long can a lifeline remain in service and still comply with safety standards? The manufacturers of synthetic rope and webbing do not make recommendations as to how long fabrics will last. Environmental conditions such as ultra violet rays and prolonged exposure to the elements, storage and maintenance of equipment, all vary considerably from one user to the next.

If you are using our equipment for outside construction in roofing or framing, you can expect that a lifeline will become damaged within several months, and will not pass the inspections required in this manual. If the lifeline is over 2 years old, we recommend that you remove it from service as a good safety practice. There is no sure way to know if the fibers have deteriorated without doing destructive testing.

**INDIVIDUAL COMPONENT DAMAGE:**

If it is known or determined by inspection that the lifeline, Super Grab, or other components have not been subjected to a fall impact or other extreme force, then individual components that no longer function properly, show signs of wear, or have been damaged from abuse, may be replaced with the same or compatible components.

**DISPOSAL:**

Due to a fall Impact: a.k.a. "In service loading". The complete fall protection system must be removed from service if subjected to a fall impact. This includes the lifeline, Super Grab, carabiners or snaphooks, harness, shock absorbers, lanyards, and anchorage devices.

**Voluntary Removal: - "Due to aging of components"**

Dispose of all components and do not mix new replacement parts with old ones.

**METHOD OF DISPOSAL:**

Care must be taken to dispose of equipment in a way that prevents someone from reclaiming it and using it again. Ropes should be cut up, and other components disabled in such a way as to prevent their use, and then disposed of.

**DO NOT BURN SYNTHETIC MATERIALS.**

**TOXIC FUMES MAY RESULT.**

**NOTE REGARDING REPLACEMENT PARTS:**

A LIFELINE AS AN INDIVIDUAL COMPONENT, ALWAYS COMES FURNISHED WITH THE SUPER GRAB ATTACHED AT THE FACTORY, UNLESS ORDERED AS A CUSTOM LENGTH LIFELINE.

**INDIVIDUAL 30 FT. OR 50 FT. LIFELINES WITHOUT THE SUPER GRAB ARE NOT AVAILABLE.**

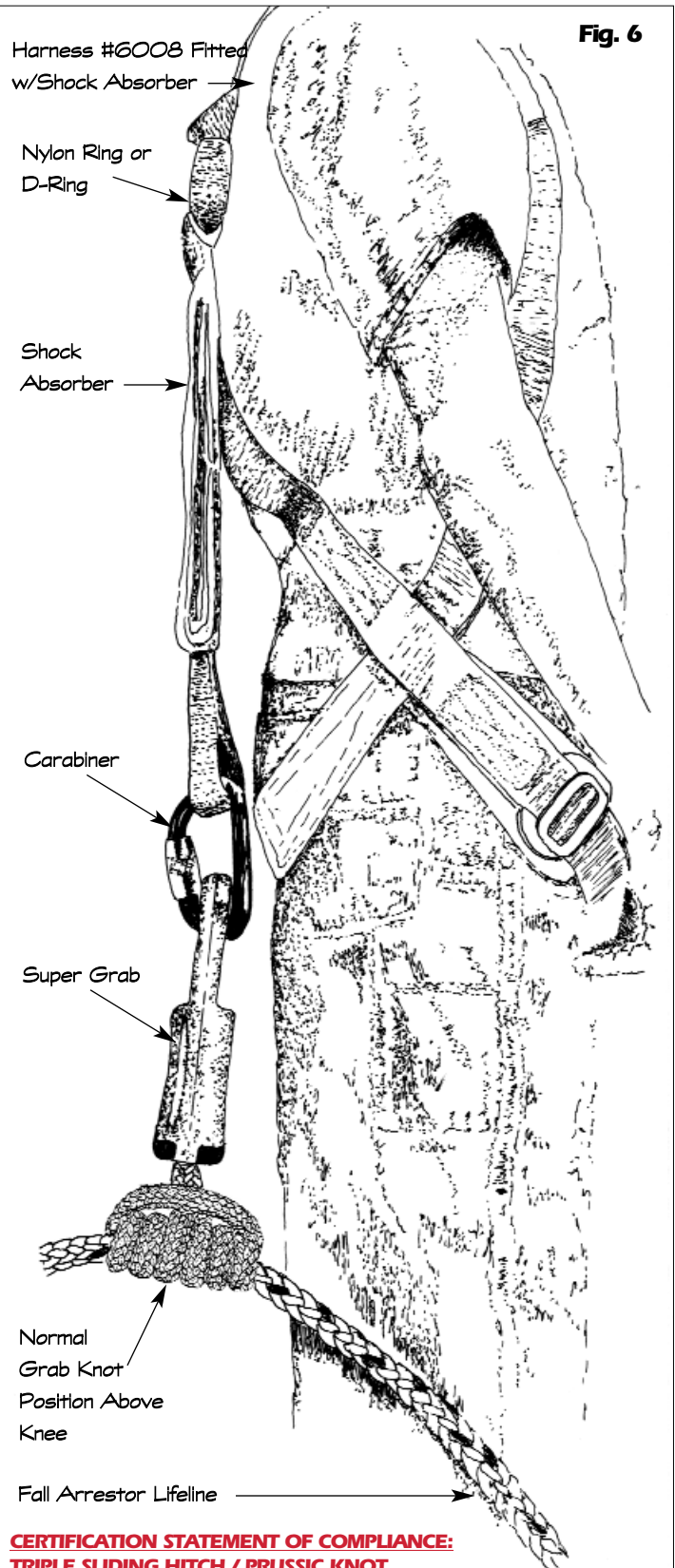
**QUALIFIED PERSON:**

One who by possession of a recognized degree, certificate, or professional standing, or by extensive knowledge, training and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter, the work, or the project. (See ANSI A10.14.91)

**COMPETENT PERSON:**

One who is capable of identifying existing and predictable hazards in the surrounding or working conditions that are unsanitary, hazardous or dangerous to employees, and who has the authority to take prompt corrective measures to eliminate such hazards. (See ANSI A10.14.91)

**Fig. 6**



**CERTIFICATION STATEMENT OF COMPLIANCE: TRIPLE SLIDING HITCH / PRUSSIC KNOT**

OSHA Non-Mandatory Appendix "C" to Sub-Part M, Section H-(8) indicates that knots should not be used for lifeline connections because knots can reduce rope strength by as much as 70%.

The Super Grab complies with certification tests of both OSHA and ANSI A.10.14.91. (EXEMPT FROM Z359 BI-DIRECTIONAL TYPE III) and no failures have been reported by our users since we first offered this device in 1992. In addition, Compliance Letters have been issued by the following agencies:

- U.S. Dept. of Labor dated 1993 and 1995,
- WISHA WAC 296-155 dated 1993, and
- CAL-OSHA CSO-1670 (m) dated 1999