# SUPER ANCHOR SAFETY

# *SAS Lifeline* Instruction Manual 2014.1

MAXFORCE™ FALL PROTECTION EQUIPMENT **3 strand w/rope grabs**

**!WARNING TO USER!**
You are required to read and use the Instruction/Specification manual supplied at the time this device was shipped. Improper use and installation can result in serious injury or death. Follow inspection requirements before each use.

| Material Specification: | Rope Grab: | Rope Grab: | ADP Fall Arrester: |
|---|---|---|---|
| **Device:** 3 strand lifeline. Fig.1<br>**Diameter:** 5/8"(16mm)<br>**Material type:** Poly-Dac.<br>**Min. Tensile:** 9,300lb(42kN)<br>**% Elongation:** 16.5% @ 44kN<br>**Compliance:** ANSI Z359.1-07<br>CSA Z259.2.5<br>**Specifications of Use:**<br>One person PFAS system w/tools.<br>Max wt.: 310lb(140kg) w/E-4 absorber<br>or 340lb(154kg) w/E-6 absorber. | **Device:** Value Grab 4015V<br>Captive bi-directional lock,<br>adjustable diameter. Fig.2<br>**Max. Deceleration:** *12"(300mm)<br>**Fabric:** 7/16"(11mm) Nylon/Poly<br>**Avg. Tensile:** 7,400lb(34kN)<br>**Strength Rating:** 5,000lb(23kN)<br>**Use For:** 5/8"(16mm) diam. rope.<br>**Compliance:** OSHA 1926:502<br>**Requires use of energy absorber.* | **Device:** Integral Adjuster 4015M<br>Captive single direction lock.<br>Fixed diameter. Fig.3<br>**Max. Deceleration:** *24"(600mm)<br>**Material:** Zinc plated steel<br>**Min. Breaking:** 3,600lb(16kN)<br>**Use For:** 5/8"-7/8"(16-22mm) diam. rope.<br>**Compliance:** OSHA 1926:502<br>ANSI Z359.1-07 CSA Z259.11-05<br>**Requires use of energy absorber.* | Nº 4015C:HARD MEC004 SST<br>Automatic single direction locking<br>function. Activated when a force is<br>applied to the attachment ring at Fig.4.<br>**Max. Deceleration:** *24"(600mm)<br>**Min. Breaking:** 3,600lb(16kN)<br>**Use For:** 5/8"(16mm) diam. rope.<br>**Compliance:** OSHA 1926:502<br>ANSI Z359.1-07 CSA Z259.2.5<br>**Requires use of energy absorber.* |

## Attaching Lifeline To Anchorage

Connect Snap-Hook "A" end of lifeline **ONLY** to an anchorage device that complies with OSHA 1926 or ANSI Z359.1-07 section 7.2.3 capable of supporting 2x the maximum arrest force of an engineered system or 5,000lb(23kN).
**Reverse Attachment:** Lifeline "A" end may be connected directly to a full body harness dorsal or side D-ring using Value Grab 4015V as specified in **SAS**-Reverse Rigging instructions.

**HAZARD WARNING!** Failure to avoid hazards and use lifeline as specified in this manual may lead to serious injury or death!

## Connector Compatibility

4015M and 4015C require class 1 connectors. Use snaphooks or carabiners that are compatible with attachments and are ANSI or CSA certified for fall protection use. Do not link two connectors together or make more than 1 attachment to a connector.

## Rigging: ADP/Rope Grab

A compatible we lanyard or energy absorber with a max. length of 30"(750mm) is required to attach the device to the dorsal D-ring of the harness.

**!WARNING!**
**DO NOT CONTACT lifeline or PPE components with:**

- Sharp or abrasive edges, cutting tools
- Electrical sources or power lines
- Open flame, high heat, hot asphalt
- Adhesives,or any type of petroleum solvents, caulking, paint, or stains

**DO NOT WRAP** or tie a lifeline around wood or steel structures, framing, to another lifeline, lanyard, scaffolding or vehicle.

**DO NOT USE** lifeline for hoisting, towing or animal tether. Do not link two lifelines together without an engineered system.

## Maintenance

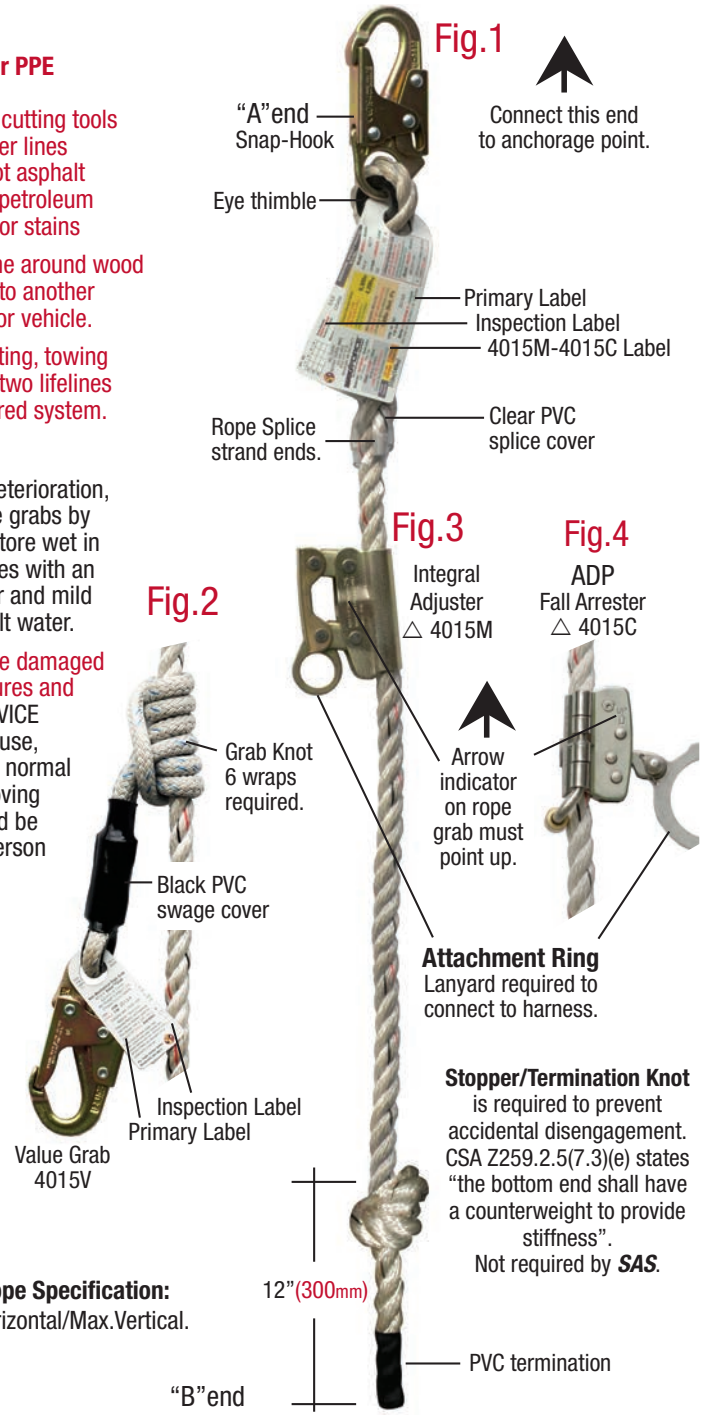
To prevent rust, mildew and deterioration, always store lifelines and rope grabs by hanging in a dry area. Never store wet in a confined space. Clean lifelines with an air hose or low pressure water and mild detergent. Keep away from salt water.

**WARNING!** Synthetic fibers are damaged by mildew, extreme temperatures and extended exposure to UV. SERVICE LIFE is based on frequency of use, environmental conditions, and normal wear and tear. A plan for removing equipment from service should be determined by a competent person or safety consultant.

| Part Numbers/Table 1 | | | Rope Grab Type | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Model | Length | | CSA | | None | 4015V | 4015M | 4015C | |
| N° | Ft | (M) | Yes | No | | | | | See |
| 4020 | 25 | 7.6 | X | | X | | | | Fig. 1 |
| 4021 | 50 | 15 | | | | | | | |
| 4022 | 75 | 24 | | | | | | | |
| 4023 | 100 | 30 | | | | | | | |
| 4016 | 25 | 7.6 | | X | | X | | | Fig. 2 |
| 4017 | 50 | 15 | | | | | | | |
| 4016M | 25 | 7.6 | X | | | | X | | Fig. 3 |
| 4017M | 50 | 15 | | | | | | | |
| 4016C | 25 | 7.6 | X | | | | | X | Fig. 4 |
| 4017C | 50 | 15 | | | | | | | |

4024 - Custom Length. Specify rope grab type and connector.

CSA Certification Nº's RMRP:POL001/ RMRP:SSR001




**ADP/Rope Grab Slope Specification:**
**Degree/Angle:** Min.Horizontal/Max.Vertical.

## Inspect Before Each Use!

Prior to each use, inspect and perform function tests for all components. Annual inspections should be done at least once a year by a competent person and recorded on the matrix label. See Fig.11. A record of inspections, repair, and removal of equipment from service should be maintained for each component. The following inspection points are a guideline of common conditions that occur as a result of abuse, poor maintenance or long service life.

### Remove equipment from service if any of the following conditions are present:

1) Subjected to a free fall or other force.
2) Obvious damage to any component.
3) Warning labels missing or not legible.
4) Has not been inspected annually.
5) Fails to pass inspection/function tests.
6) Paint, caulk, asphalt, rust or any type of material that impedes function or causes fiber or material deterioration.

**The following conditions require removal from service *or repair at SAS* factory or by a competent person.**

**ACTION REQUIRED:** ☒=Remove ☑=Repair. ❶=Inspection points

### Lifeline and Rope Grab 4015V: Figs.5-6.

❼ Strands are cut or hocked. ☒
❽ Thimble missing, broken, deformed. ☒
❾ PVC splice cover tubing is missing. ☑
❿ Grab Knot black PVC cover is missing. ☒
⓫ Splice is unravelling. ☑
⓬ Grab Knot is less than 6 wraps. ☑
⓭ Knots are tied on lifeline above termination knot. ☑
⓮ If Knots can not be removed. ☒
⓯ Termination knot is missing. ☑

### Rope Grab 4015M-4015C: Figs.7-8.

⓰ Arrow position is upside down. ☑ Remove and install correctly.
⓱ Body or Locking Cam bent, twisted or missing rivets. ☒
⓲ Won't hold static position on lifeline. ☒
⓳ Grab is locked onto lifeline or won't move position easily. Clean lifeline and retest. If no change: ☒

### Webbing Components: Fig.9.

⓴ Loop wear pads are missing or worn through to primary webbing. ☒
㉑ Stitching/webbing are cut or damaged. ☒
㉒ Webbing overlaps are separating. ☒

### Energy Absorber: Figs.10-11-12.

㉓ PVC cover is missing or damaged. ☒
㉔ Fall indicator warning "Remove From Service" is visible or missing. ☒
㉕ Fails webbing inspection. ☒

### Snaphook-Carabiner: Page 3.

㉖ Obvious damage/missing rivets. ☒
㉗ Gate is bent or won't close. ☒
㉘ Gate locking device is damaged. ☒
㉙ Carabiner won't lock closed. ☒

**ADVISORY !** Equipment removed from service should be disposed of in a way that prevents further use.

**"A" end attaches to anchorage point.**

Fig.5

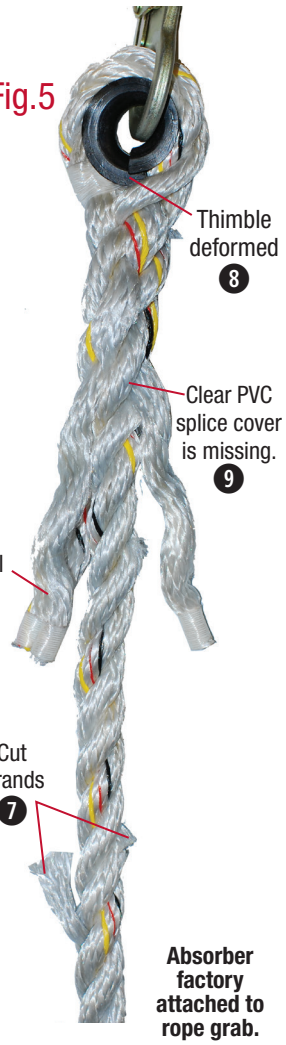



Fig.6

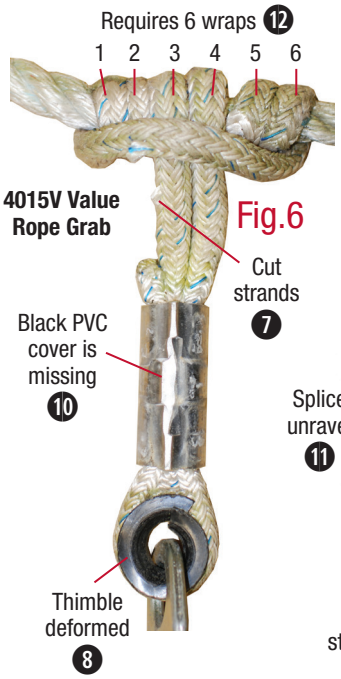
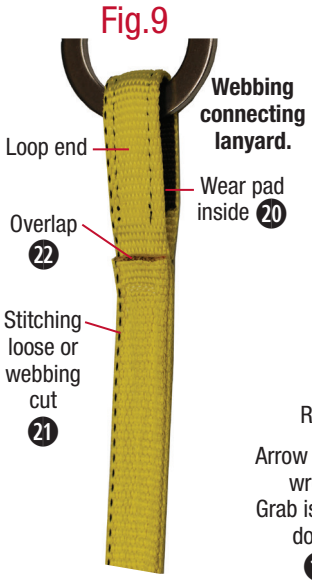



Fig.9




**Absorber factory attached to rope grab.**

Fig.7

**4015M Integral Adjuster**

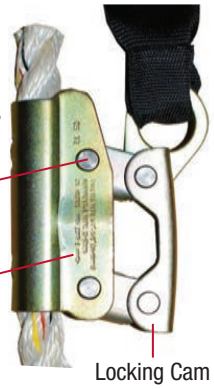



Fig.12

**Absorber serviceable condition.**


Fig.11

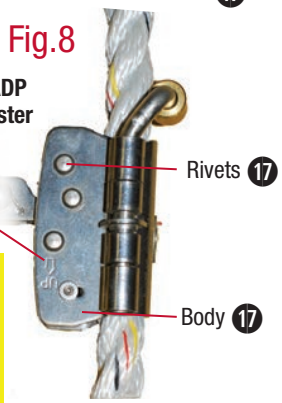
**Energy absorber has been deployed.**


Fig.10

**Inspect connector attachment points for webbing deterioration**


Fig.8

**4015C ADP Fall Arrester**




**WARNING!** 4015M-4015C are single direction locking devices that must be installed with the arrow indicator pointing up-slope to the lifeline anchorage point "A" end or they will not lock in the event of a free fall.

**Connectors:** Gates are designed to remain closed during use and are fitted with gate locks to prevent accidental disengagement.

Fig.13a **Snaphook**


Fig.13b

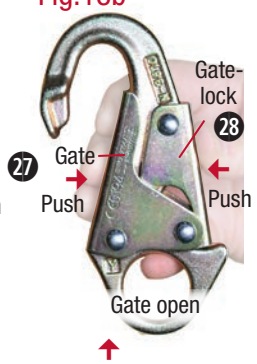



Fig.13c


**Gate Locked**

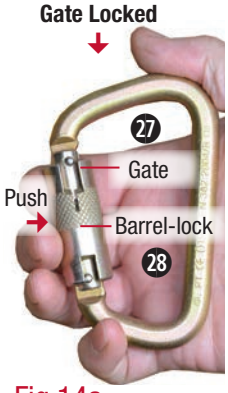



Fig.14a

**Un-lock gate**


Fig.14b


Fig.14c

## Auto-Lock Carabiner

Perform same tests for thread-lock carabiners.

## Function Tests

Test rope grabs and connectors before each use.
Remove equipment from service if any function tests fails.

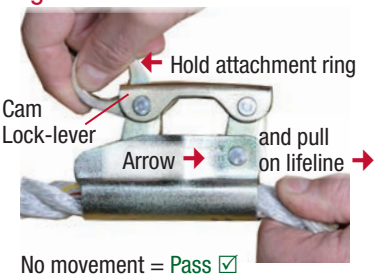
| Fig. | Test Type | Function | Pass ☑ | Fail ☒ |
|---|---|---|---|---|
| 13a-14a | Gate-lock | Push against gate only | Won't open | Opens |
| 13b | Gate-open | Push gate-lock and gate at the same time | Opens | Gate won't open |
| 13c | Gate-close | Release gate and gate-lock at same time | Snaps shut | Won't close and lock |
| 14b-14-c | Un-lock gate | Rotate barrel lock | Gate opens | Won't open |
| 14a | Gate closes | Release gate/barrel | Snaps shut | Won't close |

## Integral Adjuster 4015M Locking Test

Dual spring loaded cam-locks produce constant pressure on the lifeline that restricts movement. Mobility is achieved by pushing or pulling the adjuster up or down the lifeline. Push the cam-lock lever down to release pressure. See Fig.15b.

### Cam-Lock Test

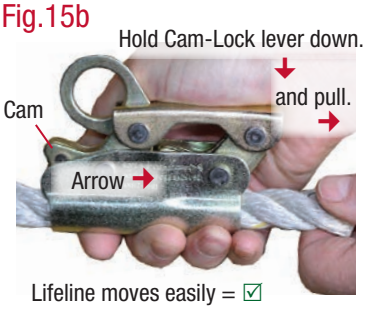
Fig.15a




No movement = Pass ☑
Any movement = Fail ☒

### Cam Mobility Test

Fig.15b




Lifeline moves easily = ☑
Release Cam-Lock lever:
Pass ☑ Lever Snaps back closed.
Fail ☒ Lever does not close.

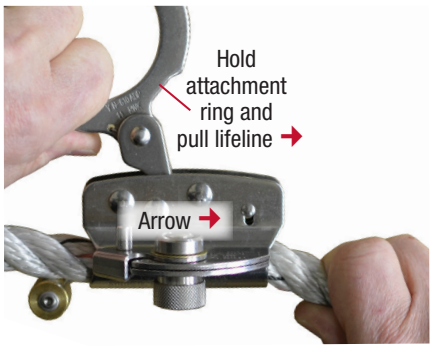
## Fall Arrester 4015C

Locking cam is activated by force applied to the connector ring. Remove by opening gate. **Mobility:** move position by pulling or pushing device up or down on the lifeline or hold cam-lock open.

## Rope-Grab 4015V: DO NOT REMOVE FROM LIFELINE!

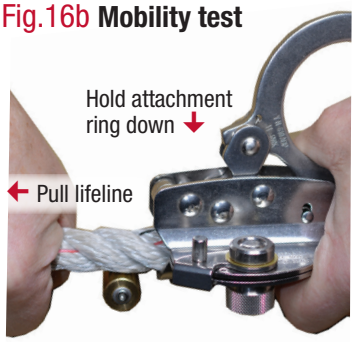
A Prussic type device locks in two directions (bi-directional) by applying force to the connector end. Move position by pushing or pulling the wraps up or down on lifeline.

Fig.16a **Cam-lock Test**




Lifeline does not move = Pass ☑
Lifeline moves = Fail ☒

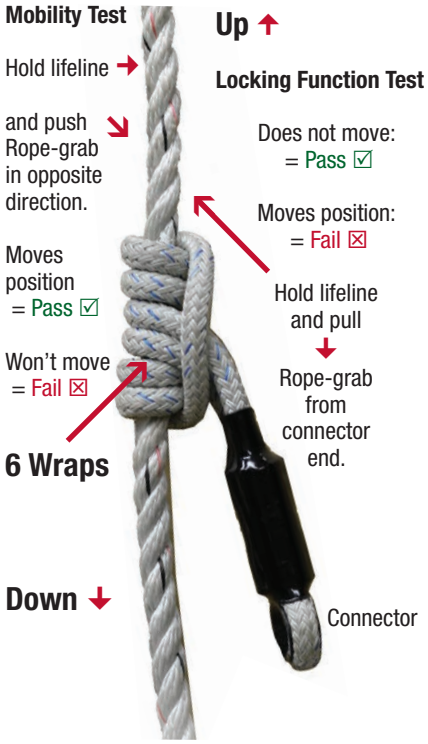
Fig.16b **Mobility test**




Easily moves = Pass ☑
Does not move = Fail ☒

**WARNING!**
**Lifeline diameter grows with use and may restrict the mobility of 4015M-4015C. Function may be restored by cleaning or replacing the lifeline.**

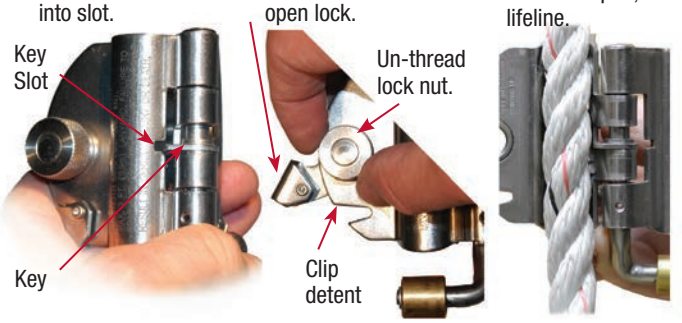
Fig.17




4015V rated for use on vertical and horizontal lines. Mobility can be reduced by tightening the wraps.

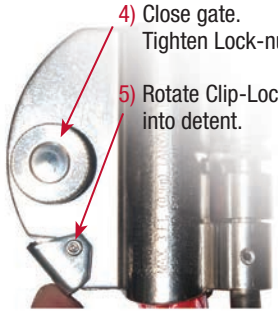
## Open/Close Gate Fig.16

1) Move Key into slot.
2) Rotate Clip to open lock.
3) Open gate and hold cam foot open, insert lifeline.




### Lock gate

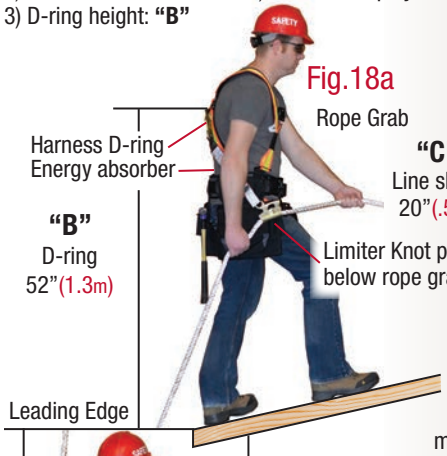
4) Close gate. Tighten Lock-nut
5) Rotate Clip-Lock into detent.



## Rigging/Length of Fall Plan

The Sample Length of Fall Plan **(LOFP)** shown here is based on the maximum stretch and deceleration values for each component, a user weight of 310lb(140kg), and a maximum free fall of 6ft(1.8m). To prevent contact with the ground or a lower level, the following factors must be calculated in your own Job Specific Length of Fall Plan:

1) Free fall length: **"A"**
2) Line slack: **"C"**
3) D-ring height: **"B"**
4) Rope grab deceleration: **"D"**
5) Absorber deployment: **"E"**
6) Harness stretch: **"F"**
7) Ground clearance: **"G"**




**Position on the lifeline** is gauged using the rope grab. A limiter knot tied below the rope grab will prevent it from creeping downslope and will allow factor **"D"** to be eliminated from the **LOF.**

### Calculate Line Slack "C"

Travel along the leading edge is limited to the amount of slack, **"C"** in the lifeline. The greater the slack, the wider the range of horizontal movement along the leading edge. Line slack is calculated by subtracting the D-ring height **"B"** from the free fall length **"A".** Figs.18a, 18b. **(A-B) = C.** The sample plan line slack value is 20"(.5m).


### Adjusting Rope Grab Position

Shown at Fig.18a, the PPE in this sample plan is rigged in tension to reduce excess slack. The vertical distance you will travel in a free fall is:

**"B"** Length from the lifeline D-ring connection to the leading edge. **"C"** The amount of slack in the lifeline.

**Option:** If the absorber and rope grab hang vertically from the D-ring at Fig.18a, the length of the two components must be added to the **"B"** value D-ring height.


### Calculate Length of Fall

**(A+D+E+F+G)=LOFP**

| **Factors:** | **Sample Plan** |
|---|---|
| **1)** Desired Free fall length **"A"** | 72"(1.8m) |
| **2)** Rope grab deceleration **"D"** | 24"(0.6m) |
| **3)** Absorber deployment **"E"** | 42"(1.06m) |
| **4)** Harness stretch **"F"** | 12"(0.3m) |
| **Total Length of Fall (LOF)** | **150"(3.8m)** |
| **5)** Ground clearance **"G"** | 52"(1.3m) |
| **Length of Fall Plan (LOFP)** | **202"(5.1m)** |

*Note: Rope grab deceleration **"D"** may be eliminated from the **LOF** by use of a Limiter Knot.*

**Insufficient Ground Clearance**
**WARNING!** A failure to calculate the **LOF** and correctly rig PPE can result in striking the ground or a lower level in the event of a fall and may lead to serious injury or death.

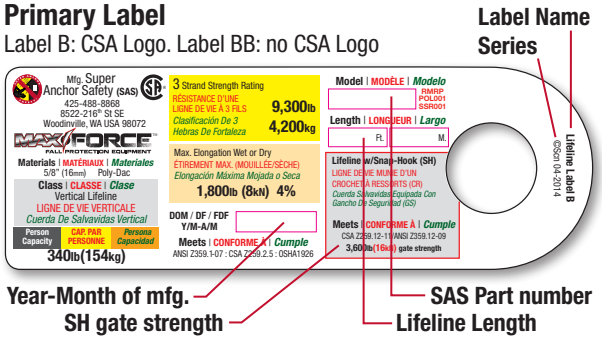
**WARNING! PROMT RESCUE!**
A plan for immediate rescue is necessary to avoid serious injury or death resulting from suspension trauma. SAS recommends that each harness is fitted with a suspension ladder and workers trained in its use. Request S.T.E.P Trauma Strap N°6060.

## Labels

Lifeline eye thimbles are fitted with a primary label, an inspection matrix label and may have an optional rope grab label. Do not use equipment if the labels are missing or not readable.

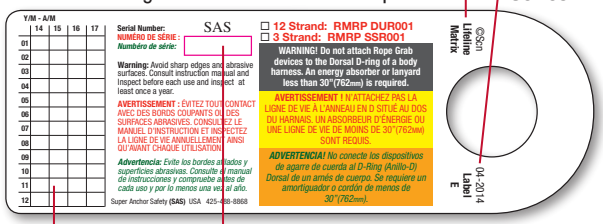
### Primary Label

Label B: CSA Logo. Label BB: no CSA Logo

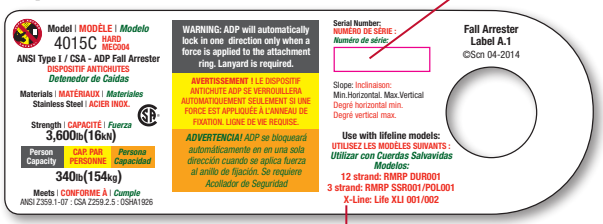



### Inspection Label

Label E: ***SAS*** Mfg- USA. Label E:1 GAWR: Imported.



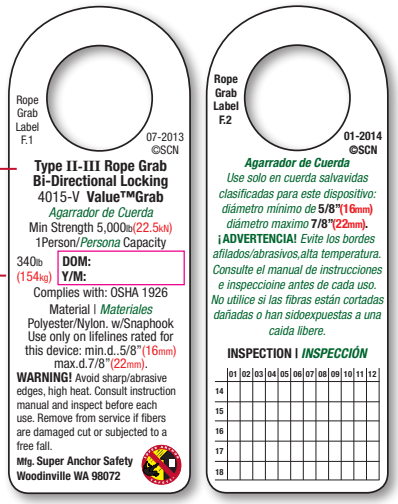

### Rope Grab Label: Fall Arrester 4015C




### Rope Grab Label: Integral Adjuster 4015M


### Rope Grab Label:

Value Grab 4015V




Year/Month of mfg.

**Note:** Rope grabs factory attached to the energy absorber have the label affixed to the absorber.