



SUPER ANCHOR SAFETY

SAS Lifeline Instruction Manual 2014.1 X-Line® Pneumatic Lifeline w/rope grabs

US Pat No.7,814,938

!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:	ADP Fall Arrester:
Device: 12 strand lifeline. Fig.1 Cord Diameter: 1/2" (12mm) Finished Diameter: 5/8" (16mm) Material type: Polyester Min. Tensile: 10,600lb(48kN) % Elongation: 4% @ 8kN Compliance: ANSI Z359.1-07 CSA Z259.2.5 Specifications of Use: One person PFAS system w/tools. Max wt.: 310lb(140kg) w/E-4 absorber or 340lb(154kg) w/E-6 absorber.	Device: Super-Grab 4015 or 4015V Captive bi-directional lock, adjustable diameter. Fig.2 Max. Deceleration: *12" (300mm) Fabric: 7/16" (11mm) Nylon/Poly Avg. Tensile: 7,400lb(34kN) Strength Rating: 5,000lb(23kN) Use For: 5/8" (16mm) diam. rope. Compliance: OSHA 1926:502 *Requires use of energy absorber.	N° 4015C:HARD MEC004 SST Automatic single direction locking function. Activated when a force is applied to the attachment ring at Fig.4. Max. Deceleration: *24" (600mm) Min. Breaking: 3,600lb(16kN) Use For: 5/8" (16mm) diam. rope. Compliance: OSHA 1926:502 ANSI Z359.1-07 Z259.2.5 *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

4015/4015V/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.

Pneumatic Air Line Component

is engineered for use w/air driven nail guns. Care must be taken to avoid punctures in the portion inside the X-Line. **Specifications:** USA mfg. reinforced Polyester tubing. 1/4" (6.5mm) d. w/brass reusable MP fittings and bend restrictors. Max. PSI: 250lb.

Part N°/Table 1	Connectors		Rope Grab						
	Length		CSA		SH	CAR	4015	4015C	See
	Ft.	M	Yes	No					
4070	30	9		X			X		Fig. 2
4071	50	15							
4072	30	9					No Rope Grab		See Note Below
4073	50	15			X				
4074C	30	9	SP						
4075C	50	15						X	Fig. 3
4076C	30	9				X			
4077C	50	15							

Custom lengths not available.

CSA Certification N°s: Life XLI-001/002

Fig.1

"A" end
May also be supplied w/ snaphook or carabiner. Δ

Eye thimble

Connect this end to anchorage point.

Buried splice w/adhesive PVC cover.

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

Fig.2

Super-Grab 4015 or Value Grab 4015V
Grab Knot 6 wraps required.

PVC cover is designed to deform or break at less than 1800lb (8kN)

4015 Snaphook Must be SAS type 3600lb(16kN) gate strength

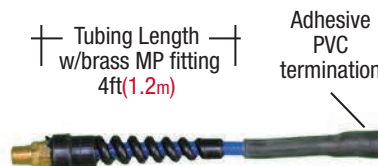
Fig.4

ADP Fall Arrester Δ 4015C

Attachment Ring
Lanyard required to connect to harness.

Termination/ Stopper Knot 12" (300mm)

Stopper/Termination Knot is required to prevent accidental disengagement. CSA Z259.2.5(7.3)(e) states "the bottom end shall have a counterweight to provide stiffness". Not required by SAS.



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. ①=Inspection points

Lifeline and Super-Grab 4015: Figs.5-6-6.1-7

- 7 Strands are cut or hocked. ☒
- 8 Thimble missing, broken, deformed. ☒
- 9 PVC cover is missing. ☒
- 10 PVC cover is cracked. ☒
- 11 Cover screws are missing. ☒
- 12 Grab Knot is less than 6 wraps. ☑
- 13 Knots are tied on lifeline above termination knot. ☑
- 14 If Knots can not be removed. ☒
- 15 Termination knot is missing. ☑

Rope Grab 4015C: Fig.8.

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

Webbing Components: Fig.9.

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

Fig.12

Absorber serviceable condition.



Fig.11

Energy absorber has been deployed.

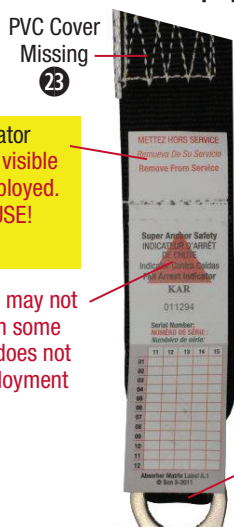


Fig.10

Inspect connector attachment points for webbing deterioration

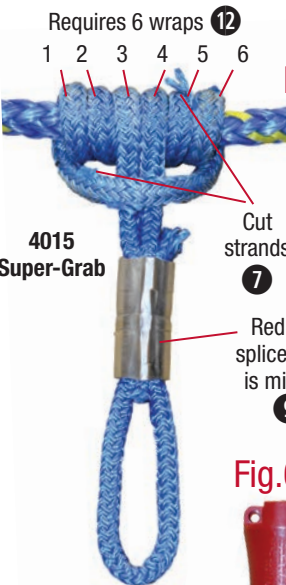


Fig.6

Fig.6.1

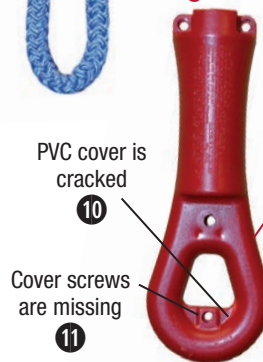


Fig.9

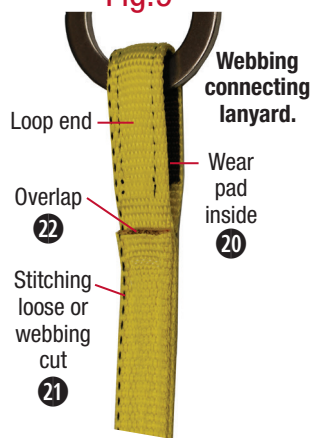
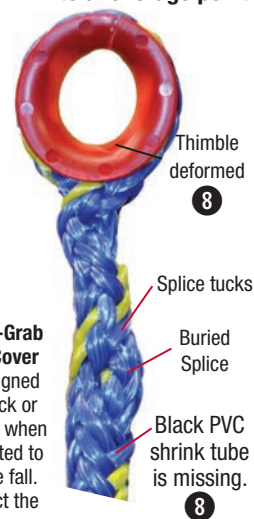


Fig.5

"A" end attaches to anchorage point.



Super-Grab PVC Cover is designed to crack or deform when subjected to a free fall. Inspect the "A" cover end and remove from service if evidence of fractures, stress marks or cracks. See Fig.6.1.

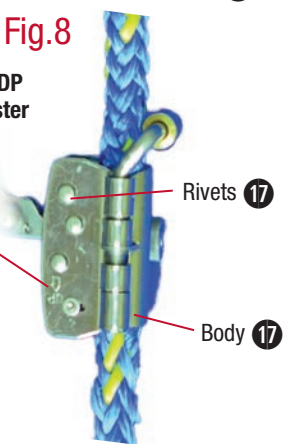
Fig.7



Fig.8

4015C ADP Fall Arrester

Arrow position wrong. Grab is upside down.



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

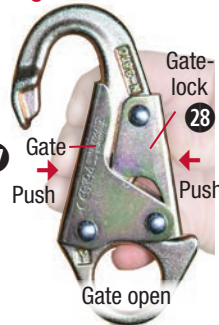
Connectors: Gates are designed to remain closed during use and are fitted with gate locks to prevent accidental disengagement.

Fig.13a Snaphook



Gate Locked

Fig.13b



Un-lock gate

Fig.13c



Gate open

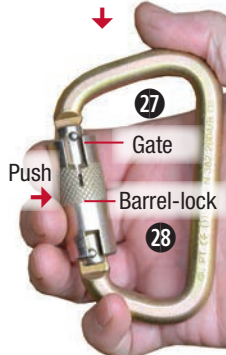


Fig.14a



Fig.14b



Fig.14c

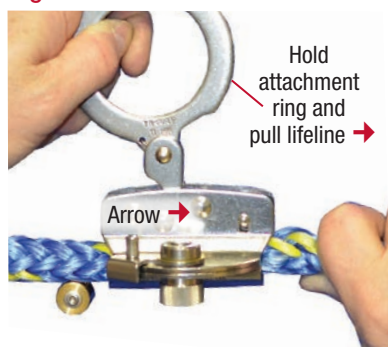
Auto-Lock Carabiner

Perform same tests for thread-lock carabiners.

Fall Arrester 4015C

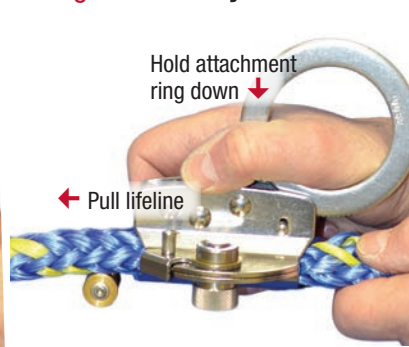
Locking cam is activated by force applied to the connector ring. Remove by opening gate. **Mobility:** move position by pulling or pushing device up or down on the lifeline or hold cam-lock open.

Fig.16a Cam-lock Test



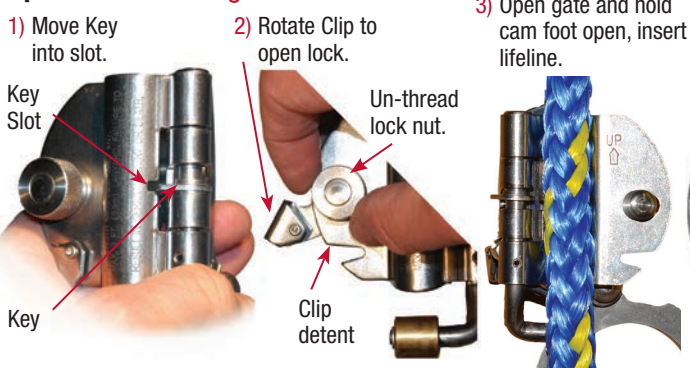
Lifeline does not move = Pass
Lifeline moves = Fail

Fig.16b Mobility test



Easily moves = Pass
Does not move = Fail

Open/Close Gate Fig.16



Function Tests

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

Fig.	Test Type	Function	Pass <input checked="" type="checkbox"/>	Fail <input type="checkbox"/>
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

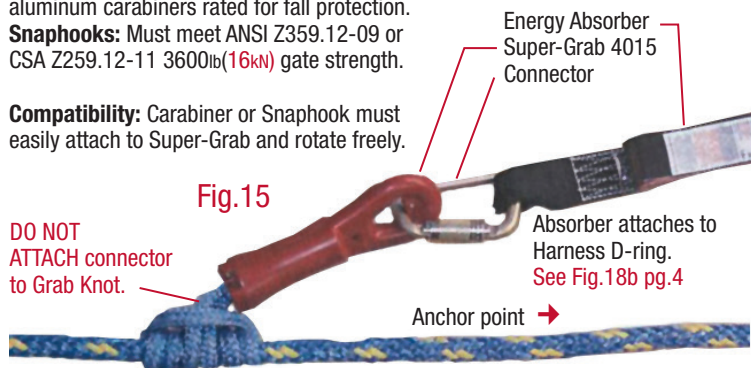
Rigging Super-Grab To Energy Absorber

Verify that energy absorber to Super-Grab connector meets the following requirements:

Carabiner: All auto-lock, thread-lock, steel or aluminum carabiners rated for fall protection.

Snaphooks: Must meet ANSI Z359.12-09 or CSA Z259.12-11 3600lb(16kN) gate strength.

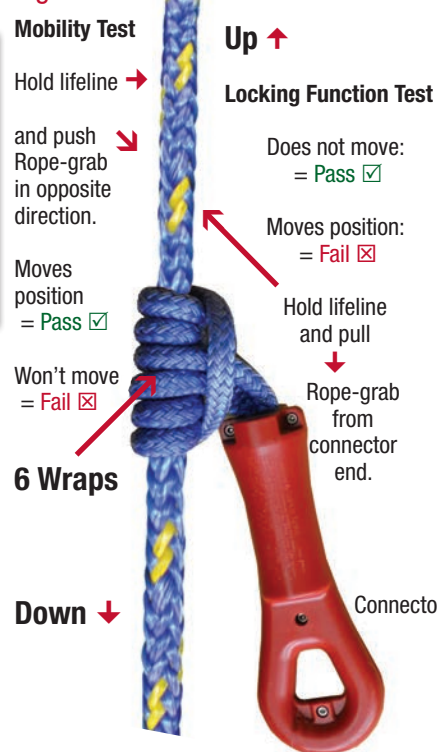
Compatibility: Carabiner or Snaphook must easily attach to Super-Grab and rotate freely.



Super-Grab 4015: 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.17



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

Mobility Test

Hold lifeline → and push Rope-grab in opposite direction. Moves position = Pass
Won't move = Fail

Locking Function Test

Does not move: = Pass
Moves position: = Fail
Hold lifeline and pull ↓ Rope-grab from connector end.

6 Wraps

Down ↓

Lock gate

- Close gate. Tighten Lock-nut
- Rotate Clip-Lock into detent.

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

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"

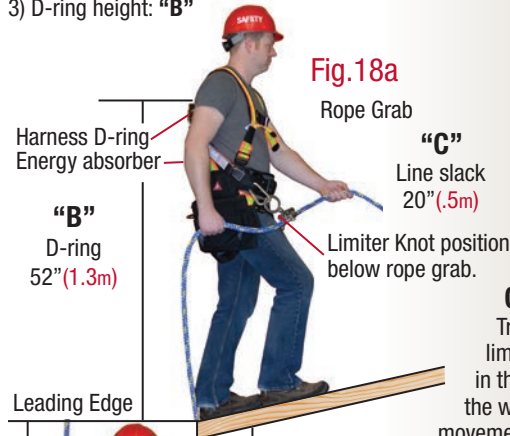


Fig. 18a

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).



18b
"A"
Free-fall
72" (1.8m)

Adjusting Rope Grab Position

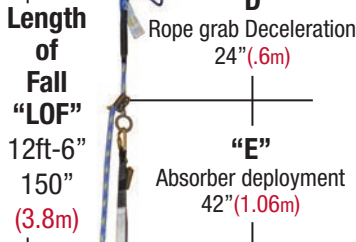
Shown at Fig. 18a, the PPE in this sample plan is rigged in tension to reduce excess slack. The vertical distance you will travel in a free fall is: "B" Length from the lifeline D-ring connection to the leading edge. "C" The amount of slack in the lifeline.

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 LOFP 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.

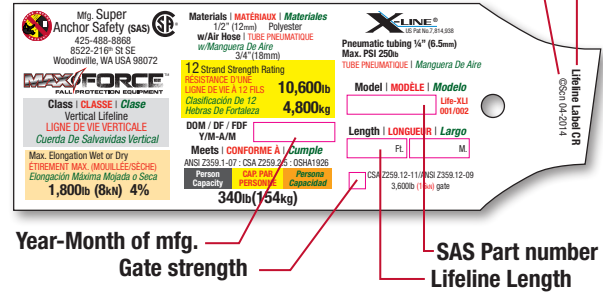
LOF + Ground Clearance
16ft-8" (5.1m)
= LOFP

Labels

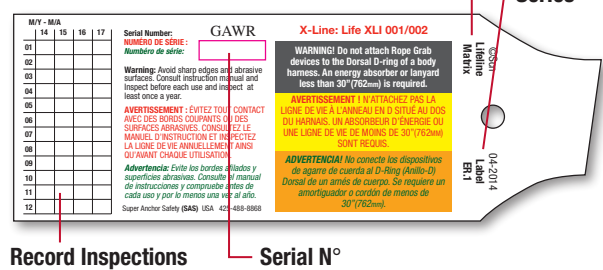
Lifeline eye thimbles are fitted with a primary label, an inspection matrix label and may have an optional rope grab label. Do not use equipment if the labels are missing or not readable.

Primary Label

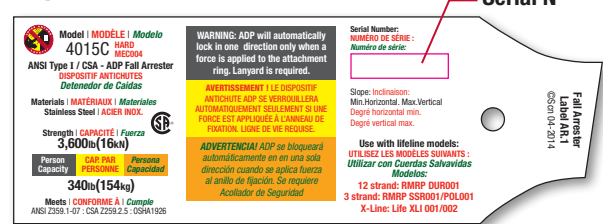
Label CR: w/snaphook CSA Logo.
Label CCR: no CSA Logo



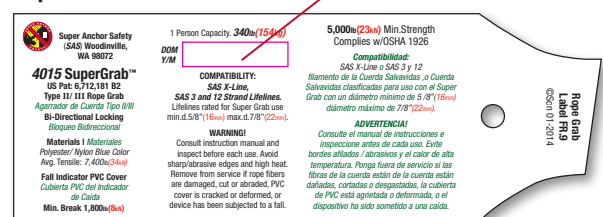
Inspection Label



Rope Grab Label: Fall Arrester 4015C



Rope Grab Label: Super-Grab 4015



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