SUPER ANCHOR SAFETY

SAS Class F Lanyard Instruction/Specification Manual 2015 Maxima™ 3 strand w/E-4+Rope Grab

ENGLISH VERSION

!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.

Lifeline Specification
5/8"(16mm) 3 strand copolymer.
Min. Tensile: 10,582lb(48kN)
% Elongation: 16.5% @ 45kN
Compliance: ANSI Z359.1-07
CSA Z259.11.05 Class F Lanyard
Swage: Aluminum oval
min. strength: 5,000lb(22.5kN)
Specifications of Use:
One person use for Personal Fall Arrest System (PFAS) including tools.

E-4 Energy Absorber
E-4 I6061/I6061k
Tear Webbing: Polyester
Cover/Backer: Polyester
Absorber Body Service Length:
Approx. 22.0"(560mm)
Max. Arrest Force: 900lb(4kN)
Max. Deployment: 42"(1.06m)
Connector Compliance
ANSI-Z359.12-09 CSA-Z259.12-11
3,600lb(16kN) gate strength.

Captive Rope Grab No. 4015M
Single direction locking function.
Fits 5/8"(16mm) diam. lifeline.
Max. Deceleration: 24"(600mm)*
Material: Zinc plated steel
Min. Breaking: 3,600lb(16kN)
Compliance: OSHA 1926:502
ANSI Z359.1-07 Type1 rope grab.
CSA Z259.11-05 Class 2 connector.
**Requires use of energy absorber.*

Absorber Compliance/User Weights
Canada: E-4,100-254lb(45-115kg)
Compliance: CSA Z259.11-05
USA: E-4,100-310lb(45-140kg)
Compliance: ANSI Z359.1-07

Attaching Lifeline* to Anchorage
Connect "A" end of lifeline to a compatible anchorage device that meets one or more of the following standards: OSHA 1926;502, ANSI Z359.1-07,CSA Z259.15-12 or 3rd party certified engineering. Must be capable of supporting 2x the maximum arrest force of an engineered system or 5,000lb(23kN).
**The term "Lifeline" used in this manual is the same as CSA Class F Lanyard.*

Personal Protective Equipment (PPE)
Fall Arrest use: Connect absorber "A" end only to a full body harness dorsal D-ring. See Fig.12a, pg. 4.
Fall Restraint use: Connect absorber to harness side D-ring. All PPE must meet current ANSI/CSA standards for fall arrest use.

Rope Grab/Integral Adjuster
Captive design not intended for removal from the lifeline. Use to adjust worker position as shown at Figs.11. Force applied to the connector ring activates the locking function and prevents further movement on the lifeline.

HAZARD WARNING!
Do not contact any PPE or Lifeline with:
- Sharp or abrasive edges, cutting tools.
- Electrical sources or power lines.
- Open flame, high heat or hot asphalt.
- Adhesives or any type of petroleum solvents, caulking, paint, or stains.

DO NOT Wrap or tie a lifeline around wood framing or steel structures, to another lifeline, lanyard, scaffolding or vehicle.
DO NOT USE lifeline for hoisting, towing or animal tether. **Failure to avoid hazards may lead to serious injury or death!**

Rope Grab Function Warning
Grasping the wraps of the rope grab or the lifeline above the rope grab position during a fall can override the locking function. Use a "Limiter Knot" to guard against this hazard. See Figs.11,12a.

Connector Compatibility Figs.3a,b,c.
Absorbers "B" ends may be attached to the rope grab connector ring Fig.3a, with Snaphook Fig.3b, or Carabiner Fig.3c. Connectors must comply with ANSI Z359.12-09 or CSA Z259.12-11 gate strength of 3,600lb(16kN).

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

Part Numbers:

N°	Ft (M)	Component
4083	50 (15)	Lifeline only
4087		E4+4015M
4088	Custom	Specify

Maxima CSA certification No. RMRP:POL002

Fig.1

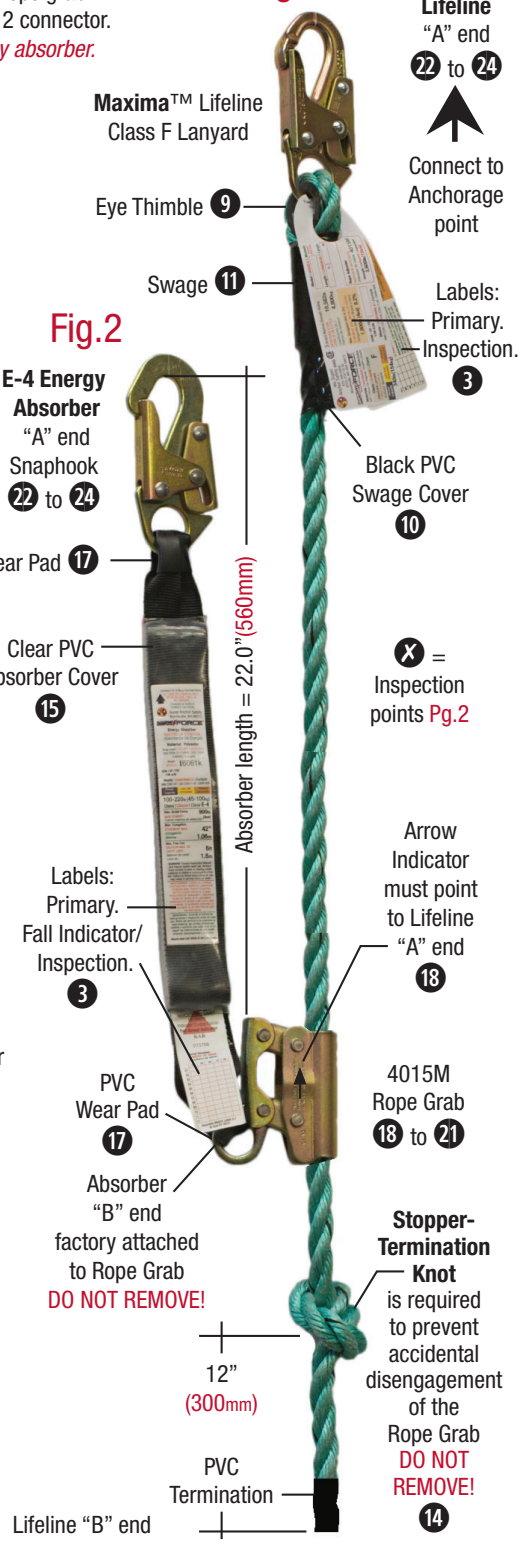
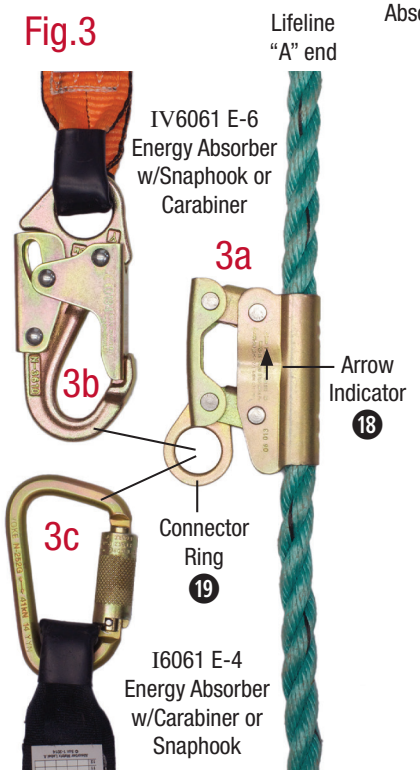


Fig.2

Fig.3



Storage/Maintenance/Service Life

PPE equipment should be hung up and stored in a warm dry area especially if it has been exposed to moisture or freezing. For cleaning the lifeline use low pressure air or mild detergent. Keep all PPE away from salt water, bleach, cleaning agents, chemicals and acids.

Service life is based on frequency of use, environmental conditions and normal wear and tear. A plan for inspecting and removing equipment from service should be determined by a competent person or safety consultant.

WARNING! Synthetic fibers are damaged by mildew extreme temperatures, extended exposure to UV, water submergence and vermin.

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.5. 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:

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

❶ Subjected to a free fall or other force. ☒
❷ Obvious damage to any component. ☒
❸ Warning labels missing or not legible. ☒
❹ Has not been inspected annually. ☒
❺ Fails to pass inspection/function tests. ☒
❻ Paint, caulk, asphalt, connector rust, petroleum or chemical contamination. ☒
❼ Webbing, cross stitches or box stitches are cut, abraded, heat damaged or evidence of chemical contamination. ☒

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

Lifeline Figs.1,10.

❽ Strands are cut or hocked. ☒
❾ Thimble missing, broken, deformed. ☒
❿ PVC swage cover is missing. ☑ Not required. May be replaced.
⓫ Swage is cracked, smashed or shows signs of damage. ☒

Note: This condition can only be observed if the PVC swage cover is missing.

⓬ Lifeline knots above rope grab. ☑ Remove knots.
⓭ If Knots cannot be removed. ☒
⓮ Termination knot is missing. ☑

Energy Absorber Figs.4,5,7.

⓯ PVC cover is missing or damaged ☒ and tear webbing is visible.
⓰ Fall indicator warning "Remove From Service" is visible or missing. ☒
⓱ Wear pads are missing or worn through to backer webbing. ☒

Rope Grab 4015M Figs.7-9.

⓲ If arrow position is upside down. ☑ Remove and install correctly.
⓳ Body, Locking Cam or Connector Ring is bent, twisted or missing rivets. ☒
⓴ Won't hold position on lifeline. ☒
㉑ Locked onto lifeline or won't move position easily. Clean lifeline and retest. If no change: ☒

Snaphook Fig.8

㉒ Obvious damage/missing rivets. ☒
㉓ Gate is bent or won't close. ☒
㉔ Gate locking device is damaged. ☒

WARNING! 4015M is a single direction locking device that must be installed with the Arrow Indicator pointing to the "A" end anchorage point of the lifeline.

Fig.4

Fig.5

Absorber in Serviceable Condition

Fig.6

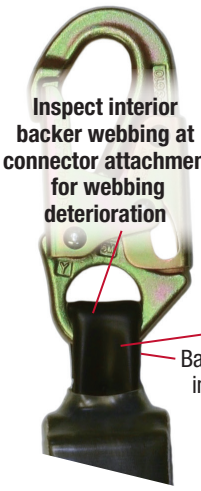
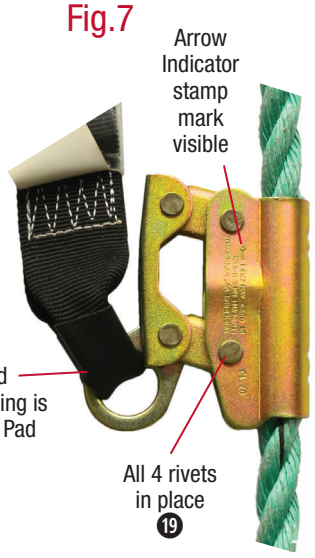


Fig.7

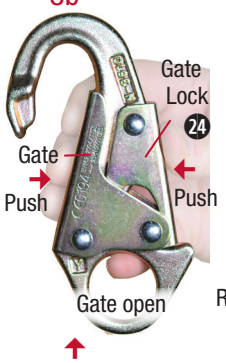


Connectors

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

Fig.8a **Snaphook**

8b



8c

Function Tests

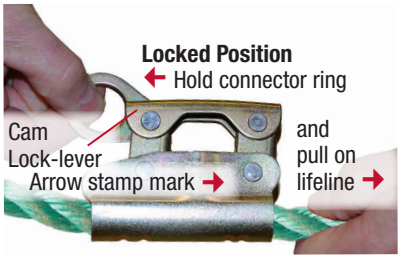
Test rope grabs and connectors before each use.
Remove equipment from service if any function test fails.

Fig.	Test Type	Function	Pass ☑	Fail ☒
8a	Gate-lock	Push against gate only	Won't open	Opens
8b	Gate-open	Push gate-lock and gate at the same time	Opens	Won't open
8c	Gate-close	Release gate and gate-lock at same time	Snaps shut	Won't close and lock

Rope Grab Locking Test

Dual cam-locks spring loaded produce constant pressure on the lifeline that restricts movement. Move the rope grab up the lifeline, by pushing in the locked position 9a. Move the rope grab down the lifeline while holding the cam lever in open position 9b.
WARNING! Lifeline diameter grows with use and may restrict mobility. Function may be restored by cleaning the lifeline using low pressure water or air.

Fig.9a **Cam-Lock Test**



No movement = Pass ☑
Any movement = Fail ☒

9b **Cam Mobility Test**

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

Fig.10a **Lifeline Inspection**

10b

Strands are cut or abraded on any part of lifeline 8

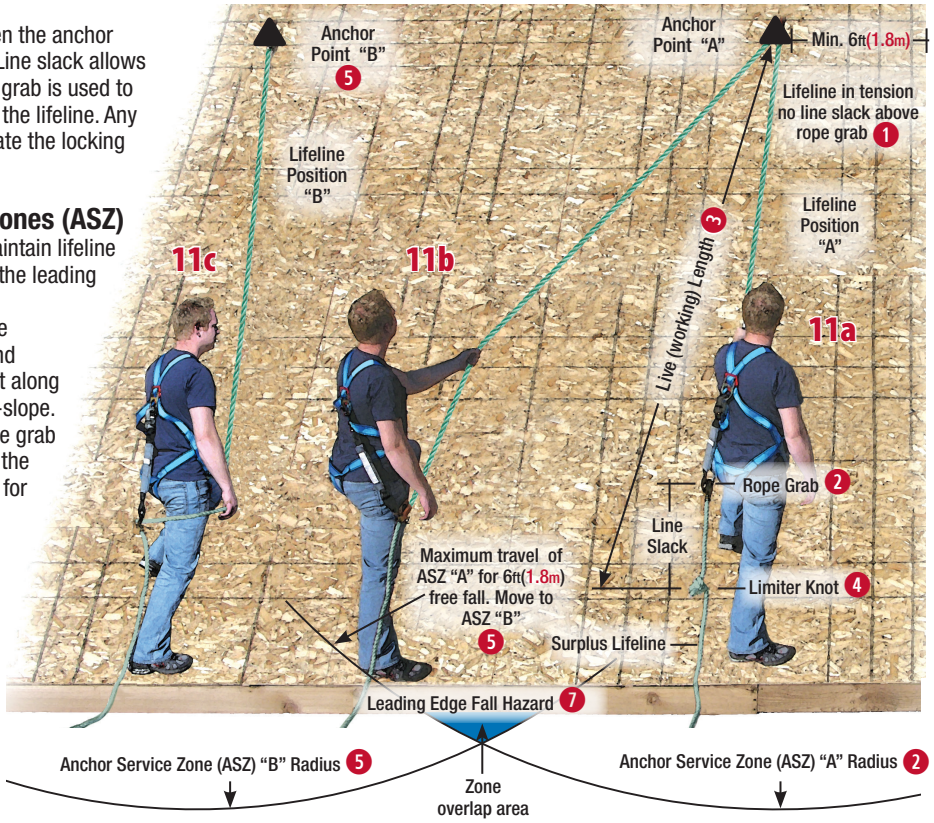
Rigging Lifeline/Length of Fall Plan (LOFP)/Line Slack

Prior to attaching a lifeline to an anchorage point, a LOFP shown on pg.4 and "Line Slack" shown at Fig.12a "C" must be calculated to prevent free falls of more than 6ft(1.8m) and to guard against fall hazards. WARNING! Too much line slack will increase the free fall length resulting in serious injury or death.

Live Length/Rope Grab/Limiter Knot
The lifeline live (working) length is the distance between the anchor point and the leading edge + the allowable line slack. Line slack allows horizontal movement along the leading edge. The rope grab is used to limit the free fall length by fixing a workers position on the lifeline. Any force applied to the rope grab connector ring will activate the locking function and arrest a fall.

Sample Rigging Method/Anchor Service Zones (ASZ)

1. Attach lifeline connector to anchor "A" end and maintain lifeline tension while sliding the rope grab down-slope to the leading edge (11a).
2. With rope grab in the locked position (9a), this is the maximum length of the lifeline without line slack and creates ASZ radius "A". Any travel to the right or left along the leading edge will force the workers position up-slope.
3. Using your own LOFP line slack calculation, the rope grab position can be moved down the lifeline increasing the ASZ radius. This is the maximum lifeline live length for a 6ft(1.8m) free fall.
4. It is recommended to tie a limiter knot at the maximum live length in order to prevent the rope grab from unintentional movement, which can result in a greater free fall.
5. After maximum travel of ASZ "A" has been reached, ascend to anchor "A", disconnect and attach to anchor "B".
6. For gable edge fall hazards, several rope grab adjustments may be required to prevent excess line slack.
7. **Common Fall Hazards:**
   Gable and leading edge. Skylight openings. Open framing. Swing falls.

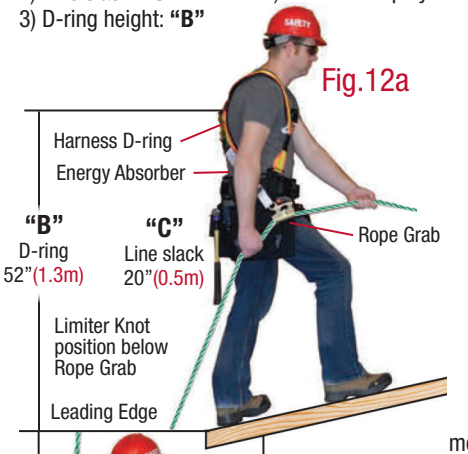


Note: Consult ARS manuals for Anchor Service Zone instructions.

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"**



Worker's Lifeline Position is gauged using the rope grab. A **Limiter Knot** tied below the rope grab will prevent unintentional movement. Use of Limiter Knot allows 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. 12a, 12b. **(A-B) = C**. The sample plan line slack value is 20"(0.5m).

Adjusting Rope Grab Position

Shown at Fig.12a, the PPE in this sample plan is rigged in tension to reduce excess slack.

Calculating Free Fall Length

"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.12a, 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.*

Length of Fall "LOF" 12ft-6" 150" (3.8m)

"D" Rope Grab Deceleration 24"(0.6m)

"E" Absorber deployment 42"(1.06m)

12c

"F" Harness stretch 12"(0.3m)

"G" Ground clearance D-ring height 52"(1.3m)

LOF + Ground Clearance 16ft-8" 202" (5.1m) = LOFP

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.

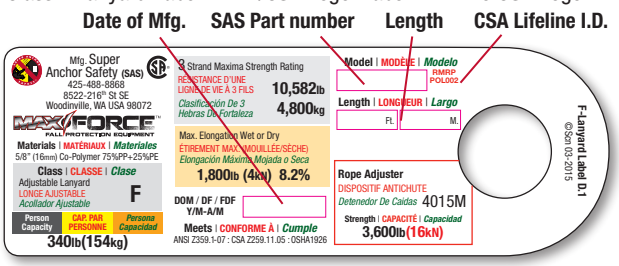
WARNING! PROMT RESCUE!
A plan for immediate rescue is necessary to avoid serious injury or death resulting from suspension trauma. SAS recommends that each harness is fitted with a suspension ladder and workers trained in its use. Request S.T.E.P Trauma Strap N°6060.

Lifeline/Absorber Labels

Lifelines are fitted with a primary label and inspection label. Do not use equipment if the labels are missing or not readable.

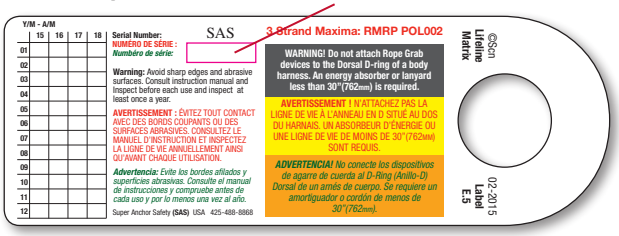
Lifeline Primary Label

Class F Lanyard Label D.1 w/CSA Logo. Label DD.1: no CSA Logo



Lifeline Inspection Label E.5

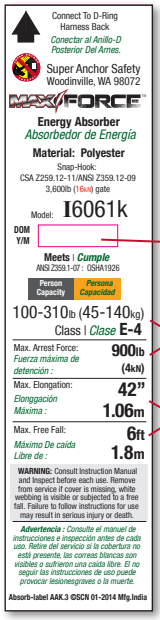
Serial Nº. SAS = mfg. USA



Absorber Labels

Absorbers are fitted with 3 labels: Primary I.D. + Specification, Rope Grab, and Fall Indicator + Inspection.

▲Absorber Label AAK.3/AA.3 USA



Date of mfg. (**DOM**) Year = YYYY Month = MM

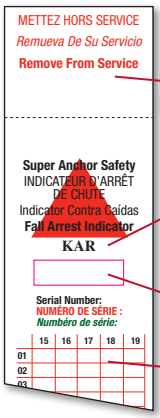
Max. user wt.

Performance Specifications

▲Absorber Label A or AK. Canada

Rope Grab Label A.4

Attached to back side of Absorber



▲Absorber Fall Indicator Label

▲ Webbing mfg. source

Serial N°

Record Inspections

Absorber CSA Mark

Class F lanyards w/E-4 absorber models I6061/k sold in Canada display the CSA logo and conform to CSA Z259.11-05 with a max. user wt. of 254lb(115kg).
Class F lanyards w/E-4 absorber models I6061/k sold in the USA do not display the CSA logo and conform to ANSI Z359.1-07 with a max user wt. of 310lb(140kg).

▲E-4 Energy Absorbers are designated part numbers I6061+ SAS for USA mfg. tear webbing and I6061k + KAR for imported tear webbing. Both webbing types conform to current ANSI and CSA standards for user weights specified in this manual.