



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. 3

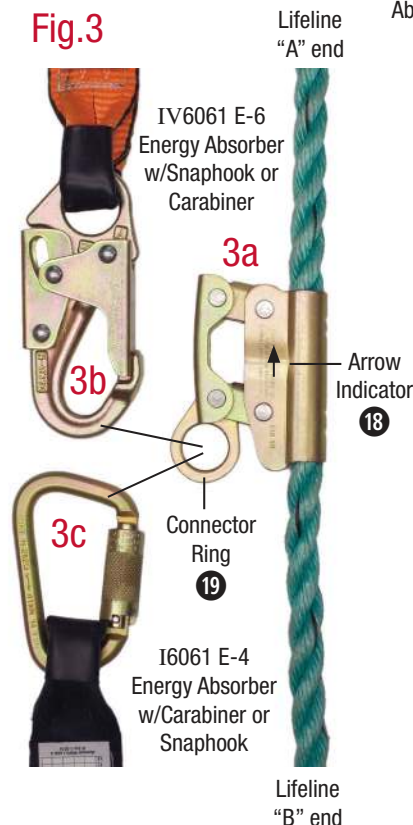


Fig. 1

Maxima™ Lifeline
Class F Lanyard

Eye Thimble 9

Swage 11

Fig. 2

E-4 Energy
Absorber
"A" end
Snaphook
22 to 24

PVC Wear Pad 17

Clear PVC
Absorber Cover
15

Labels:
Primary.
Fall Indicator/
Inspection.
3

PVC
Wear Pad
17

Absorber
"B" end
factory attached
to Rope Grab
DO NOT REMOVE!

12"
(300mm)

Lifeline "B" end

Fig. 1

Lifeline
"A" end
22 to 24

Connect to
Anchorage
point

Labels:
Primary.
Inspection.
3

Black PVC
Swage Cover
10

X =
Inspection
points Pg. 2

Arrow
Indicator
must point
to Lifeline
"A" end
18

4015M
Rope Grab
18 to 21

**Stopper-
Termination
Knot**
is required
to prevent
accidental
disengagement
of the
Rope Grab
**DO NOT
REMOVE!**
14

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.

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:

① = Inspection points **ACTION REQUIRED:** ☒=Remove ☑=Repair

- 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, connector rust, petroleum or chemical contamination. ☒
- ⑦ 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.

- ⑧ Strands are cut or hooked. ☒
- ⑨ Thimble missing, broken, deformed. ☒
- ⑩ PVC swage cover is missing. ☑
Not required. May be replaced.
- ⑪ Swage is cracked, smashed or shows signs of damage. ☒

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

- ⑫ Lifeline knots above rope grab. ☑
Remove knots.
- ⑬ If Knots cannot be removed. ☒
- ⑭ Termination knot is missing. ☑

Energy Absorber Figs.4,5,7.

- ⑮ PVC cover is missing or damaged ☒ and tear webbing is visible.
- ⑯ Fall indicator warning "Remove From Service" is visible or missing. ☒
- ⑰ Wear pads are missing or worn through to backer webbing. ☒

Rope Grab 4015M Figs.7-9.

- ⑱ If arrow position is upside down. ☑
Remove and install correctly.
- ⑲ Body, Locking Cam or Connector Ring is bent, twisted or missing rivets. ☒
- ⑳ 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.

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.

Fig.4

E-4 I6061 Energy Absorber "A" end Snaphook
㉒ to ㉔

Inspection Example

Cross Stitching
Box Stitching
⑦

PVC Wear Pad
⑰

Clear PVC Cover is not shown See Fig.5
⑮

Backer Webbing color designates absorber model:
E-4 = Black
E-6 = Orange

WARNING!
Absorber is deployed
REMOVE FROM SERVICE!
White "Tear" webbing is visible
Partial tear webbing deployment is typical
① ⑰

Surplus Tear Webbing length varies depending on force of free fall

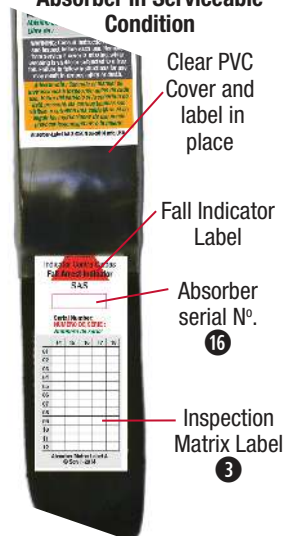
White Tear Webbing maximum deployment is 42.0" (1.06m) for E-4 model Absorber

Box Stitch
⑦

Stitching loose or Webbing cut
⑦

PVC Wear Pad
⑰

Classe F Lanyard Absorber "B" end

Fig.5**Absorber in Serviceable Condition****Fig.6**

Inspect interior backer webbing at connector attachment for webbing deterioration

**Fig.7**

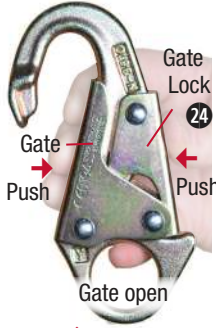
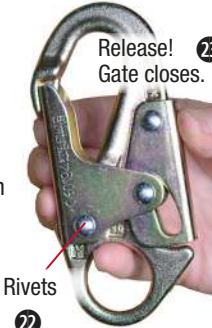
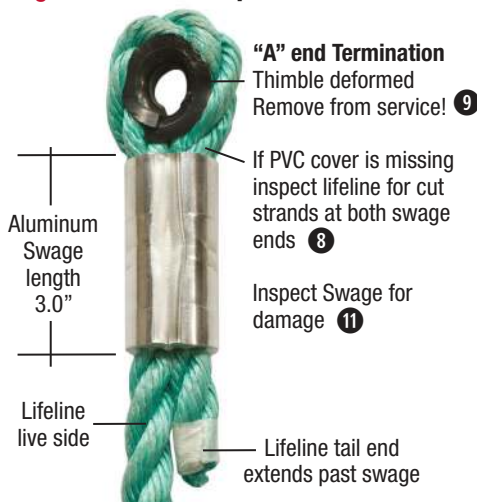
Arrow Indicator stamp mark visible



Fall Indicator **WARNING!** is visible
Absorber deployed
DO NOT USE! REMOVE FROM SERVICE
⑰

Connectors

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

Fig.8a Snaphook**Gate Locked****8b****Unlock gate****8c****22****23****Fig.10a Lifeline Inspection****10b****8****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.

Function Tests

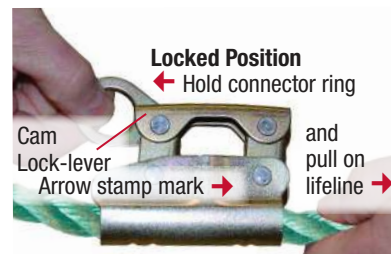
Test rope grabs and connectors before each use.

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

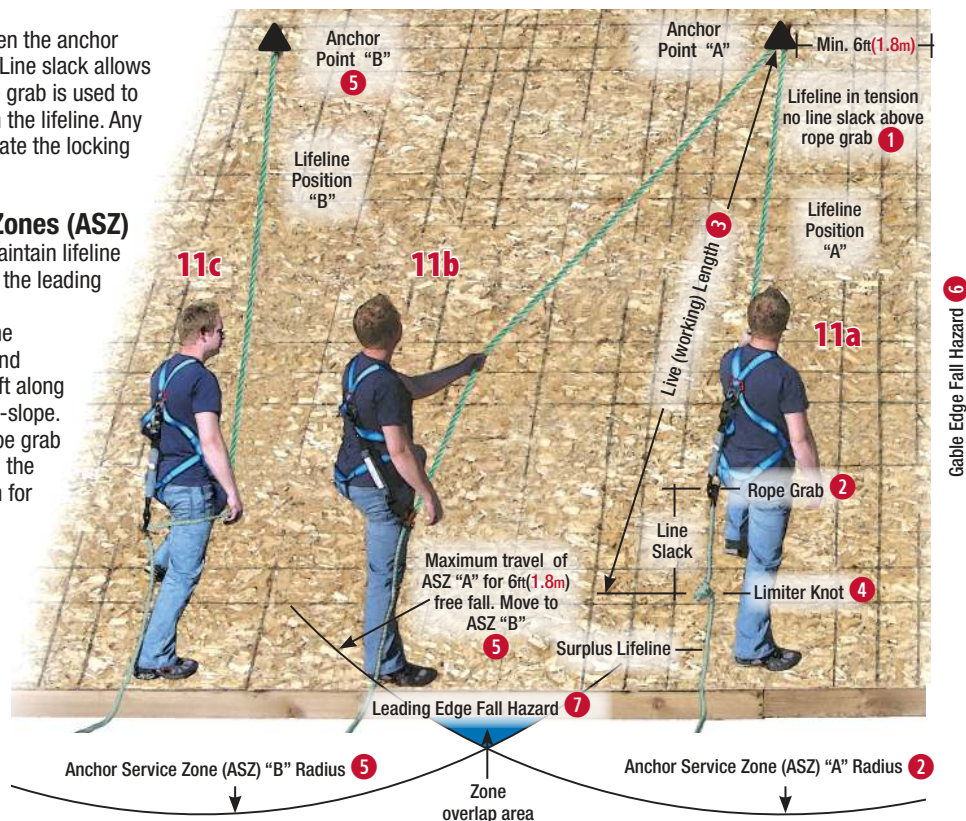
No movement = Pass ☒
Any movement = Fail ☐

9b Cam Mobility Test

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

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.**



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"

Fig. 12a



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:

- 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.

Lifeline/Absorber Labels

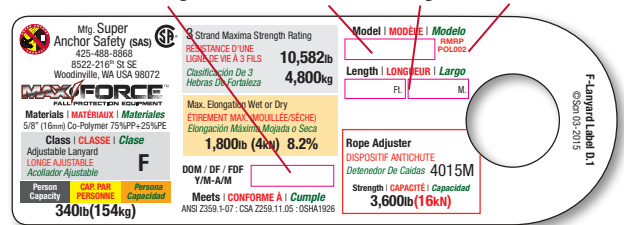
Lifelines are fitted with a primary label and inspection label.

Do not use equipment if the labels are missing or not readable.

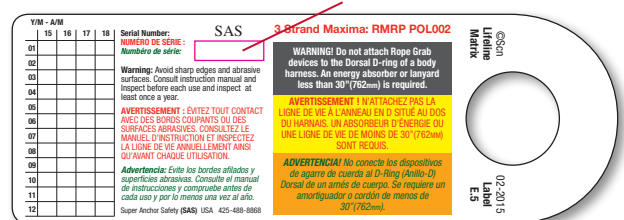
Lifeline Primary Label

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

Date of Mfg. SAS Part number Length CSA Lifeline I.D.



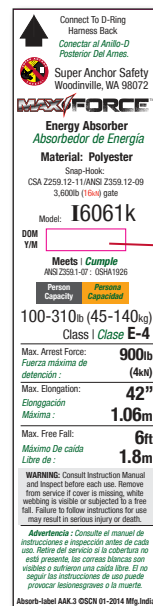
Lifeline Inspection Label E.5 Serial N° SAS = mfg. USA



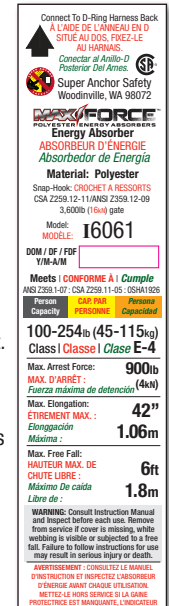
Absorber Labels

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

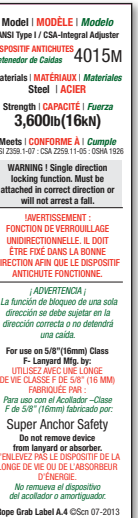
▲ Absorber Label AAK/3/AA.3 USA



▲ Absorber Label A or AK, Canada

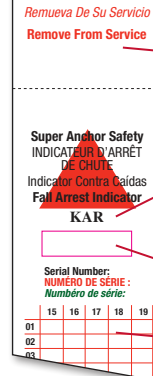


Rope Grab Label A.4



Attached to back side of Absorber

▲ Absorber Fall Indicator Label



Absorber CSA Mark

Class F lanyards w/E-4 absorber models 16061/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 16061/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 16061 + SAS for USA mfg. tear webbing and 16061k + KAR for imported tear webbing. Both webbing types conform to current ANSI and CSA standards for user weights specified in this manual.