



ANSI	Z359.14-2014
OSHA	



## SRL Instruction Manual



Cable		
FS-FSP1215-G	FS-FSP1250-G	FS-EX10-100-G
FS-FSP1220-G	FS-FSP1265-G	
FS-FSP1230-G	FS-EX1080-G	



Web
FS-FSP1420-W
FS-FSP1530-W
FS-FSP1550-W



Leading Edge (LE)
FS9020
FS9030
FS9050

This manual is intended to meet the manufacturer's instructions as required by ANSI Z359.14 and should be used as part of an employee training program as required by OSHA.

## SAFETY INFORMATION AND PRECAUTIONS

User must read, understand, and follow all safety and usage information contained within this manual prior to use of this equipment. Failure to follow all safety and usage information can result in serious injury or death.

### Intended Use:

The equipment covered in this manual is intended for use as part of a complete Personal Fall Arrest System (PFAS).

Use of this equipment for any other purpose, such as material handling, sports activities, or other action not described in these User Instructions is not approved by Safewaze. Use of this equipment in a manner outside the scope of those covered within this Manual can result in serious injury or death.

The equipment covered in this manual is only to be used by trained personnel in workplace applications.

## WARNING

Safewaze Self Retracting Lifelines (SRLs) are part of a complete PFAS. Every user must be trained in the inspection, installation, operation, and proper usage of their complete PFAS. Unapproved or inappropriate use of Safewaze SRLs could result in serious injury or death. Refer to these instructions for the proper selection, installation, maintenance, and service of this equipment. For questions regarding use of this equipment beyond the scope of this manual, contact Safewaze.

### • The actions listed below are designed to reduce the risks associated with the use of Safewaze SRLs:

- User must inspect the SRL prior to each use which includes a check for proper locking and retraction.
- If the inspection reveals an unsafe or defective condition, the SRL must be removed from service and repaired or replaced as specified in this manual.
- If a Safewaze SRL is exposed to fall arrest or impact forces, it must be immediately removed from service and labeled "Unusable".
- Never allow slack to form in the SRL lifeline constituent. Never tie or knot the lifeline.
- Utilize extra caution to keep the lifeline free from any obstructions including but not limited to; surrounding objects, tools, equipment, moving machinery, co-workers, yourself, or possible impact from overhead objects that could come into contact with the lifeline or worker.
- Avoid making sudden or quick movements as this could cause the SRL to inadvertently lock.
- Do not use a Safewaze SRL in an environment where the fall path is obstructed. Use of a Safewaze SRL on slowly shifting or unstable material such as grain or sand, or within cramped or confined spaces, may not allow the worker to reach adequate speed to make the SRL lock up.
- Unused leg(s) of a harness mounted SRL should be attached to the parking component on the front of the harness.
- If the PFAS is made up of components from different manufacturers, ensure that all components of the PFAS are compatible with each other and meet all applicable standards, regulations, or requirements. A Competent or Qualified Person should always review and approve the PFAS system prior to worker use.

### • Users should enact the precautionary measures listed below to reduce the inherent risks of working at height:

- Fall protection equipment that fails inspection must be removed from service and tagged "Unusable". This equipment should be returned to Safewaze for repair / service (if applicable), or destroyed. For questions regarding service / repair of components, contact Safewaze.
- Never exceed the maximum allowable weight capacity of your fall protection equipment.
- Never exceed the maximum free fall distance of your fall protection equipment.
- A Rescue Plan must be in place in the event of a fall. All employees should be trained and knowledgeable in the Rescue Plan and Rescue Operations.
- Fall protection equipment must never be altered or modified. Only Safewaze, or entities authorized in writing by Safewaze, may make repairs to Safewaze fall protection equipment.
- User(s) of Safewaze fall protection equipment must ensure that their health and physical condition allows them to withstand all forces and potential risks associated with working at heights.
- Use of a body belt is not authorized for fall arrest applications. Use only a Full Body Harness (FBH).
- Always wear required personal protective equipment when installing, using, or inspecting this equipment.
- If conducting training operations with this equipment, ensure that a secondary fall protection system is installed and utilized in a manner that does not expose the trainee to unintended fall hazards.
- Immediately seek medical attention in the event a worker suffers a fall arrest incident.
- Work directly under the anchor point as much as possible to minimize swing fall hazards.
- Certain subsystems may interfere with the proper operation of the equipment in this manual. Use only compatible connections. Contact Safewaze for questions regarding compatibility of equipment or components not covered in this manual.
- Avoid objects, equipment, or surfaces that could harm the user or equipment.
- User must ensure that there is adequate fall clearance when working at height.
- Extra precautions must be taken if working in the vicinity of moving machinery, electrical hazards, chemical hazards, sharp edges, explosive or toxic gases, extreme temperatures, or below overhead equipment or materials that could impact the user and his/her fall protection equipment.
- If work is conducted in a high heat environment, ensure that Arc Flash or other suitable fall protection equipment is utilized.

**TABLE 1 - PART NUMBERS AND CONFIGURATIONS  
COVERED IN THIS MANUAL**

PART NUMBER	ANSI CLASSIFICATION	LENGTH IN FEET	SWIVEL FALL INDICATING SNAP HOOK	LIFELINE MATERIAL	SEW IN FALL INDICATOR	3/4" STEEL SNAP HOOK	HOUSING MATERIAL	STEEL CARABINER	LEADING EDGE RATED	ANSI / OSHA USER CAPACITY		
FS-FSP1215-G	A	15	CABLE	✓				POLYMER	✓	ANSI: 310 lbs OSHA: Up to 420 lbs		
FS-FSP1220-G	A	20	CABLE	✓				POLYMER	✓	ANSI: 310 lbs OSHA: Up to 420 lbs		
FS-FSP1420-W	B	20	WEB				✓	✓	POLYMER	✓	ANSI: 310 lbs OSHA: Up to 420 lbs	
FS-FSP1230-G	A	30	CABLE	✓					POLYMER	✓	ANSI: 310 lbs OSHA: Up to 420 lbs	
FS-EX1530-W	B	30	WEB				✓	✓	POLYMER	✓	ANSI: 310 lbs OSHA: Up to 420 lbs	
FS-EX1550-W	B	50	WEB				✓	✓	POLYMER	✓	ANSI: 310 lbs OSHA: Up to 420 lbs	
FS-FSP1250-G	B	50	CABLE	✓					POLYMER	✓	ANSI: 310 lbs OSHA: Up to 420 lbs	
FS-FSP1265-G	B	65	CABLE	✓					POLYMER	✓	ANSI: 310 lbs OSHA: Up to 420 lbs	
FS-EX1080-G	B	80	CABLE	✓					POLYMER	✓	ANSI: 310 lbs OSHA: Up to 420 lbs	
FS-EX10-100-G	B	100	CABLE	✓					POLYMER	✓	ANSI: 310 lbs OSHA: Up to 420 lbs	
FS9020	A	20	CABLE	✓					POLYMER	✓	✓	ANSI: 310 lbs OSHA: Up to 420 lbs
FS9030	A	30	CABLE	✓					POLYMER	✓	✓	ANSI: 310 lbs OSHA: Up to 420 lbs
FS9050	B	50	CABLE	✓					POLYMER	✓	✓	ANSI: 310 lbs OSHA: Up to 420 lbs

**DESCRIPTION**

Table 1 indicates the SRL models included in the Northstar Classic series as well as their configurations. Models in the series are offered in lengths from 15 ft (2.43 m) length up to 100 ft (30.5 m).

Northstar Classic cable and LE units are equipped with 3/16" galvanized steel cable. Northstar Classic web units are equipped with 1" UHMPE webbing. Part Numbers and configurations are indicated in Table 1.

SRL units extend and retract freely with normal movement. If a fall occurs the system locks automatically, arresting the fall, and keeps the worker from falling further.

Tension should always be maintained on the lifeline during retraction of cable or web back into the housing. Never allow the lifeline to "freewheel" back into the housing in an uncontrolled manner.

## 1.0 APPLICATIONS

### 1.1 PURPOSE

Safewaze Northstar Classic SRLs are designed for use as a component of a complete Personal Fall Arrest System (PFAS). The purpose is to prevent the fall or limit the potential fall arrest forces as much as possible. A variety of connection and configuration options are available to suit any users preference or jobsite requirements.

### 1.2 STANDARDS

Safewaze SRLs conform to the national standard(s) identified on their ID label. Refer to local, state, and federal (OSHA) requirements for additional information concerning the governing of occupational safety regarding Personal Fall Arrest Systems (PFAS). Examples of Northstar Classic SRL labeling are located on (Page 15) of this manual.

**TABLE 3 - ANSI STANDARDS**

ANSI	Z359.0	Definitions and Nomenclature Used for Fall Protection and Fall Arrest
ANSI	Z359.2	Minimum Requirements for a Comprehensive Managed Fall Protection Program
ANSI	Z359.12	Connecting Components for Personal Fall Arrest Systems
ANSI	Z359.14	Safety Requirements for Self-Retracting Devices for Personal Fall Arrest and Rescue Systems
ANSI	A10.32	Personal Fall Protection use in Construction and Demolition

### 1.3 TRAINING

This equipment is intended to be used by persons trained in its correct application and use. It is the responsibility of the user to assure they are familiar with these instructions and are trained in the correct care and use of this equipment. Users must be aware of the operating characteristics, application, limits, and the consequences of improper use.

## 2.0 LIMITATIONS AND REQUIREMENTS

When installing or using this equipment always refer to the following requirements and limitations:

- **Capacity:** Safewaze Self Retracting Lifelines are designed in compliance with ANSI Z359.14 to meet the weight capacity range of (130-310 lbs), OSHA (420 lbs).
- **Anchorage:** Anchorages selected for fall arrest systems shall have a strength capable of sustaining static loads applied in the directions permitted by the system of at least:
  1. 5,000 lbs. (22.2 kN) for non-certified anchorages, or
  2. Two times the maximum arresting force for certified anchorages.

When more than one fall arrest system is attached to an anchorage, the strengths set forth in (1) and (2) above shall be multiplied by the number of systems attached to the anchorage.

#### From OSHA 1926.500 and 1910.66:

Anchorages used for attachment of personal fall arrest systems shall be independent of any anchorage being used to support or suspend platforms, and capable of supporting at least 5,000 lbs (22.2 kN) per user attached, or be designed, installed, and used as part of a complete personal fall arrest system which maintains a safety factor of at least two, and is under the supervision of a qualified person.

- **Locking Speed:** The nature of this equipment requires sufficient space in the working area to allow for the SRL to lock. Working in small or confined spaces may keep the user's body from reaching the speed needed to lock the SRL during a fall. Working on slowly shifting materials, such as grain or sand, may not allow the speed needed to cause the SRL to lock.
- **Free Fall:** Safewaze SRLs when used correctly with the unit anchored directly overhead and no slack in the lifeline, will limit the free fall distance to 0 ft. (0 cm). In order to limit free fall distances, keep attachment of the SRL below Dorsal D-ring height to as minimal a distance as possible. Safewaze Northstar Classic SRLs are designed to allow for foot level tie-off, but never anchor the SRL at a level below the users feet.
- **Swing Falls:** As the user moves laterally away from an overhead anchor point, the risks related to swing falls increase. The force of striking an object involving swing fall can in some instances generate more forces than a fall with the user wearing no fall protection equipment. Minimize swing falls by working as directly below the anchorage point as possible.
- **Fall Clearance:** Figure 4 Illustrates a Fall Clearance Calculation. Fall Clearance (FC) is the total combined values of Free Fall (FF), Deceleration Distance (DD), and a Safety Factor (SF). Safety Factor calculations may differ by manufacturer, but for the purposes of this manual, the Safety Factor is calculated at 1.5 ft.. The Safety Factor includes D-ring shift and Harness Stretch.

Tables 7 and 8 in this manual indicate the Minimum Fall Clearance when the Northstar Classic LE SRLs are anchored overhead. For falls from a kneeling or crouched position an additional 3 ft (1 m) of Fall Clearance is required. If a Swing Fall Hazard exists, the total vertical fall distance will be greater than if the user had fallen directly under the anchor point. Section 3 and Table 9 in this manual provide information regarding Swing Fall hazards and additional Fall Clearance Requirements.



- **Hazards:** Extra precautions should be taken if this equipment is used in an environment where hazards exist. Hazards can include but are not limited to: moving machinery, high voltage equipment or power lines, caustic chemicals, corrosive environments, toxic or explosive gases, or high heat. Avoid working in an area where overhead equipment or personnel could fall and contact the user, fall protection equipment, or the lifeline. Areas where the user's lifeline may cross or tangle with the lifeline of another user should be avoided. Do not allow the lifeline to pass under arms or between the user's legs.
- **Sharp Edges:** Safewaze Northstar Classic LE SRLs are designed for use in Leading Edge Environments. In the event that a specific work area has extremely sharp edge(s) that may come into contact with the lifeline constituent of the SRL, the sharp edge(s) should be covered with a protective material.

## 2.1 INSPECTION FREQUENCY

Either the Authorized Person<sup>1</sup> (User) or the Rescuer<sup>2</sup> must inspect this equipment prior to each use. The Inspection table (Table 4), should be used to determine proper inspection frequency. The Inspection Form (Page 17) describes proper inspection procedures. The Competent Person should record inspection results in the Inspection Form and retain a copy for records. (NOTE: User is advised to make copies of the Inspection Form on Page 17 of this manual prior to filling out the form for the first time). Copies of the Inspection Form can be used for later Inspections. Annual inspections by a Competent Person other than the user must be recorded in the Inspection Log (Page 18).

1. **Authorized Person:** A person assigned by the employer to perform duties at a location where such person will be exposed to a fall hazard.
2. **Rescuer:** Person or persons other than the rescue subject acting to perform an assisted rescue by operation of a rescue system.



**NOTE:** Special rescue measures may be required for a fall over an edge.

**TABLE 4 - INSPECTION SCHEDULE PER ANSI Z359.14**

Type of Use	Application Examples	Conditions of Use	Inspection Frequency Competent Person
Infrequent to Light	Rescue and Confined Space, Factory Maintenance	Good Storage Conditions, Indoor or Infrequent Outdoor Use, Room Temperature, Clean Environments	Annually
Moderate to Heavy	Transportation, Residential Construction, Utilities, Warehouse	Fair Storage Conditions, Indoor and Extended Outdoor Use, All Temperatures, Clean or Dusty Environments	Semi-Annually to Annually
Severe to Continuous	Commercial Construction, Oil and Gas, Mining	Harsh Storage Conditions, Prolonged or Continuous Outdoor Use, All Temperatures, Dirty Environment	Quarterly to Semi-Annually

## 2.2 FALL PROTECTION & RESCUE PLAN

When using this equipment, employers must create and maintain a Fall Protection and Rescue Plan, and provide the means to implement those plans. The plans must be communicated to equipment users, authorized persons, and rescuers. These plans must meet ANSI Z359.2 "Minimum Requirements for a Comprehensive Managed Fall Protection Program." They should include the requirements and guidelines for the employer's managed Fall Protection Program. This would include eliminating and controlling fall hazards, duties and training, policies, fall protection procedures, rescue procedures, incident investigations, and evaluation of the programs effectiveness.

## 2.3 NORMAL OPERATIONS

During normal operations, the lifeline constituent of the SRL will extend and retract freely with no slack or hesitation as the worker moves at normal speeds. In the event of a fall, Safewaze SRLs are equipped with a speed sensing braking system. The braking system will activate, stopping the fall, and absorbing much of the energy created by the fall. Due to the speed sensing braking system, user(s) should avoid quick or sudden movements, as this may cause the SRL to inadvertently lock. If the user is performing operations near the end of the working length of the SRL, a reserve line is incorporated within the SRL to reduce fall arrest forces.

## 2.4 COMPATIBILITY OF COMPONENTS

Safewaze Fall Protection Equipment is designed for use with Safewaze components and subsystems only. A Qualified Person should make the determination of Safewaze equipment compatibility with equipment not manufactured by Safewaze. Replacement or substitution of equipment not manufactured by Safewaze, may degrade or reduce the safety and reliability of the complete system.



**IMPORTANT:** Read and follow manufacturer's instructions for associated components and subsystems in your personal fall arrest system.

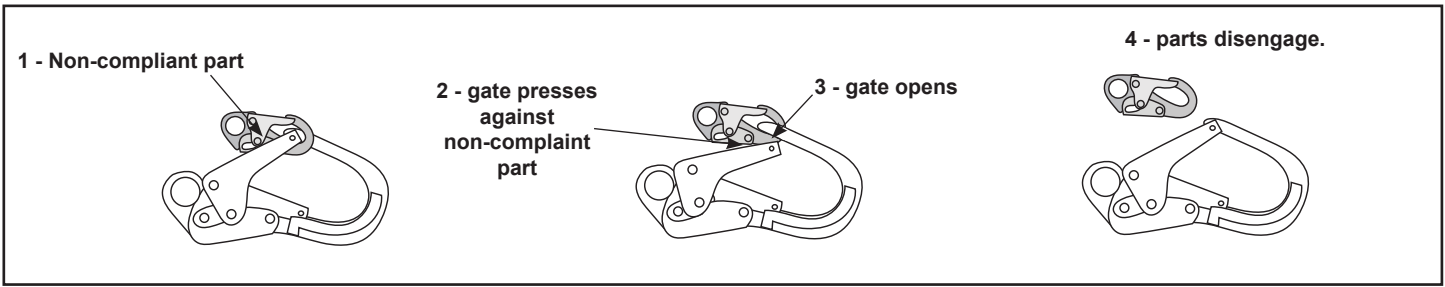
## 2.5 COMPATIBILITY OF CONNECTORS

Connectors are compatible with connecting elements when they have been designed to work together in such a way that their sizes and shapes do not cause their gate mechanisms to inadvertently open, regardless of how they become oriented. Connectors (hooks, carabiners, and D-rings) must be capable of supporting at least 5,000 lbs. (22.2 kN). Connectors must be compatible with the anchorage or other system components (See Figure 1). Do not use equipment that is not compatible. Non-compatible connectors may unintentionally disengage (See Figure 1). Connectors must be compatible in size, shape, and strength. Self-locking snap hooks and carabiners are required by ANSI Z359 and OSHA guidelines. Contact Safewaze if you have any questions about compatibility.



**NOTE:** SOME SPECIALTY CONNECTORS HAVE ADDITIONAL REQUIREMENTS. CONTACT SAFEWAZE WITH QUESTIONS.

**FIGURE 1 - UNINTENTIONAL DISENGAGEMENT**



Using a connector that is undersized or irregular in shape (1) to connect a snap hook or carabiner could allow the connector to force open the gate of the snap hook or carabiner. When force is applied, the gate of the hook or carabiner presses against the non-compliant part (2) and forces open the gate (3). This allows the snap hook or carabiner to disengage (4) from the connection point.

## 2.6 MAKING CONNECTIONS

Snap hooks and carabiners used with this equipment must be double locking and/or twist lock. Ensure all connections are compatible in size, shape and strength. Do not use equipment that is not compatible. Ensure all connectors are fully closed and locked.

Safewaze connectors (snap hooks and carabiners) are designed to be used only as specified in each product's user's instructions. (See Figure 2) for examples of inappropriate connections. Do not connect snap hooks and carabiners:

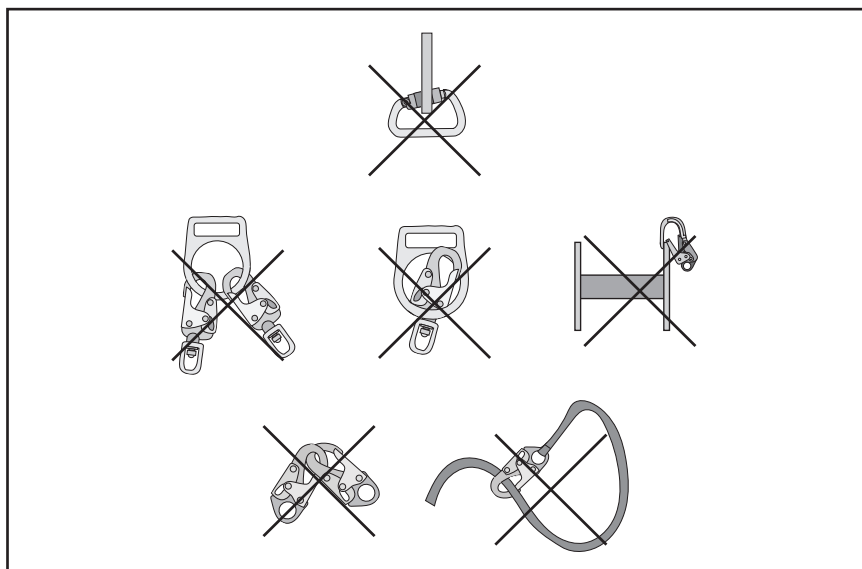
- To a D-ring to which another connector is attached.
- In a manner that would result in a load on the gate (with the exception of Tie-Back hooks). NOTE: Large snap hooks must not be connected to objects which will result in a load on the gate if the hook twists or rotates, unless the snap hook complies with ANSI Z359.12 and is equipped with a 3,600 lb (16 kN) gate. Check the marking on your snap hook to verify its compatibility.



**NOTE:** Large throat snap hooks must not be connected to standard size D-rings or similar objects which will result in a load on the gate if the hook or D-ring twists or rotates, unless the snap hook complies with ANSI Z359.12 and is equipped with a 3,600 lb (16 kN) gate. Check the marking on your snap hook to verify that it is appropriate for your application.

- In a false engagement, where features that protrude from the snap hook or carabiner catch on the anchor, and without visual confirmation seems to be fully engaged to the anchor point.
- To each other.
- By wrapping the web lifeline around an anchor and securing to lifeline except as allowed for Tie-Back models
- To any object which is shaped or sized in a way that the snap hook or carabiner will not close and lock, or that roll-out could occur.
- In a manner that does not allow the connector to align properly while under load.

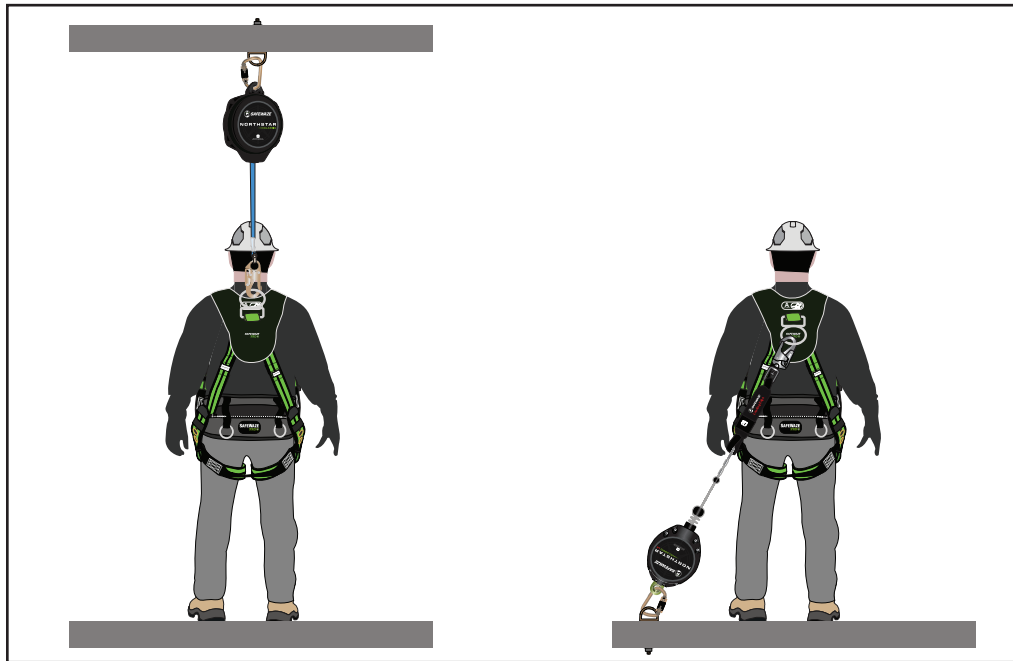
**FIGURE 2 - INAPPROPRIATE CONNECTIONS**



## 2.7 BODY SUPPORT

Only a Full Body Harness (FBH) may be used with this equipment. The Full Body Harness must connect to the SRL via the dorsal D-ring. Safewaze SRLs are not rated for use with a body belt. Use of Safewaze SRLs with a body belt may result in injury. Figure 3 illustrates typical connection of Safewaze SRLs to the Dorsal D-ring of the Full Body Harness.

**FIGURE 3 - SRL TO HARNESS CONNECTION EXAMPLES**

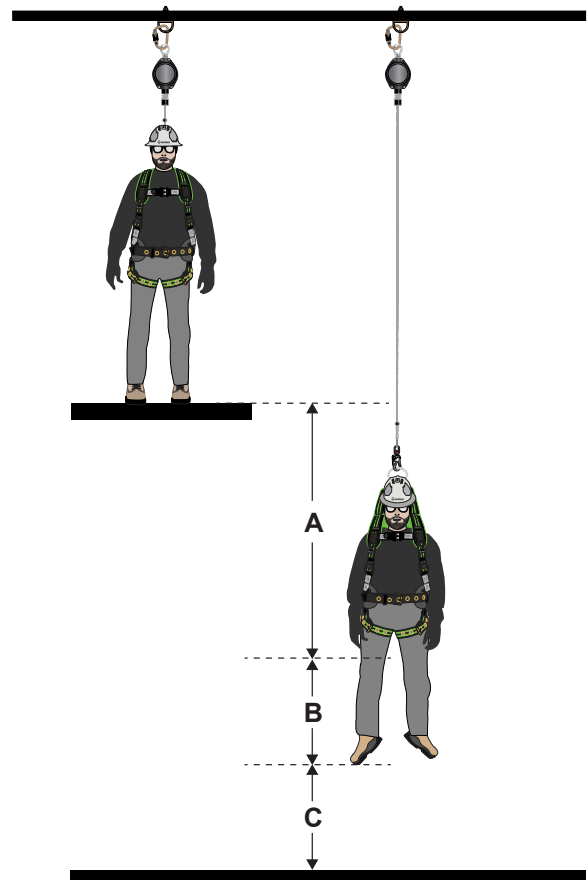


**Minimum Required Fall Clearance Northstar Classic SRL's**

**FIGURE 4 - DETERMINING MINIMUM REQUIRED FALL CLEARANCE CLASS A & B (OVERHEAD USE)**

Northstar Classic SRL Minimum Required Fall Clearance		
<b>A</b>	2 ft (CLASS A)  4.5 ft (CLASS B)	SRL Deceleration Distance
<b>B</b>	1 ft	Harness Stretch / D-ring Shift
<b>C</b>	1 ft	Safety Factor
<b>D</b>	= 4 ft (CLASS A)  = 6.5 ft. (CLASS B)	Sub-Total for Minimum Required Fall Clearance
<b>E</b>		*Additional Fall Clearance for Swing Fall (If swing fall hazard exists refer to Table 7, Page 13)
<b>F</b>		Total Fall Clearance Required

**NOTE:** The chart above does not include fall clearance calculations for the FS9020, FS9030 & FS9050 LE units.



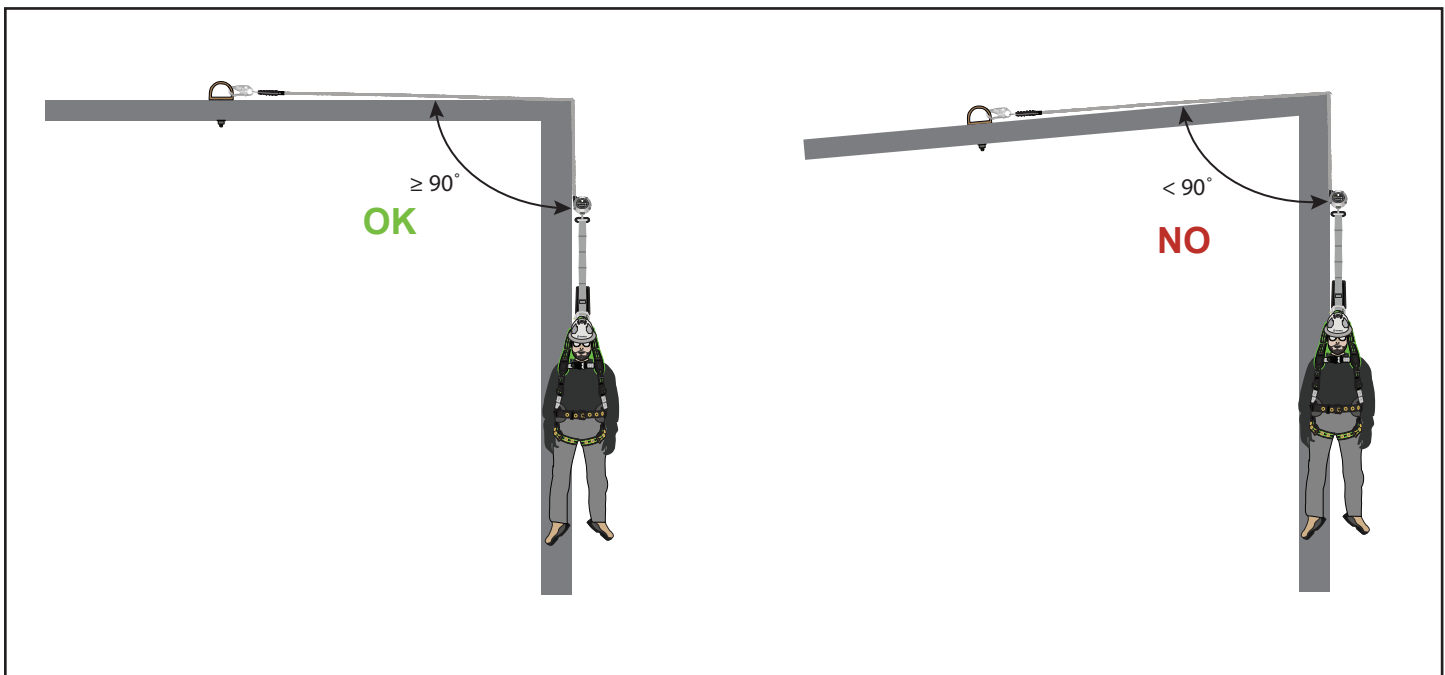
## 2.8 LEADING EDGE SRLs

The Northstar Classic LE FS9020, FS9030 & FS9050 have Leading Edge capabilities and are tested in accordance with ANSI Z359.14 - 2014. Leading Edge SRLs are tested for horizontal use and falls over a steel edge without burrs. They have been designed for use in situations where a fall may occur over steel edges.

**Use of a Leading Edge SRL requires extra precautions which the user must observe:**

- A fall over an edge may require specialized rescue measures.
- The anchor point for Leading Edge SRLs must be situated at the same height, or higher than the edge over which a fall may occur. An anchor point below the level of the edge is dangerous, as they cause the lifeline to redirect at a sharper than 90 degree angle (See Figure 4).
- Individuals whose weight is over 310 lbs. (140 kg) must not use these devices in Leading Edge applications.
- The user(s) must not work on the far side of an opening opposite the Leading Edge SRL anchor point.
- The redirection angle of the lifeline at an edge over which a fall may occur shall be at least 90 degrees (See Figure 4).
- In evaluating your Leading Edge operations, ensure that work parameters are within the Maximum Free Fall Distance, Minimum Setback Distance, and Minimum Fall Clearance Required in a fall over an edge. These parameters are indicated on the Northstar Classic LE Labeling.
- Refer to Section 2.0 of this manual for information on the limitations regarding use of this equipment. Work area relative to the anchor point, swing fall hazards, abrasion of the lifeline constituent on the edge, and a single anchor point, rather than an anchor point that allows horizontal movement, must all be considered.

**FIGURE 4 - ALLOWABLE CABLE REDIRECTION**



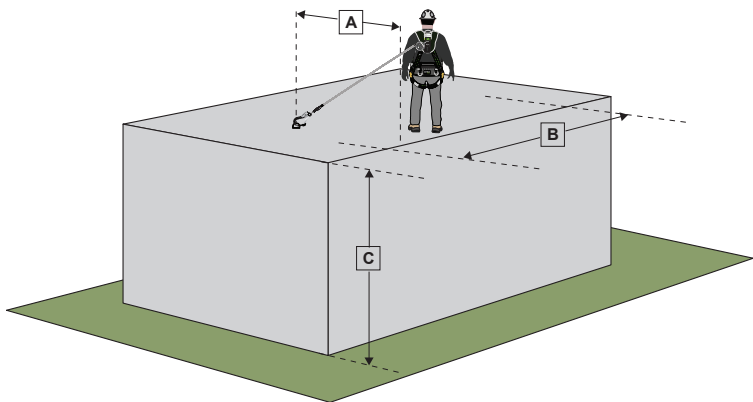
**LE SRL COMPONENT SPECIFICATIONS**

<b>HOUSING</b>	High-strength polymer housing
<b>DRUM</b>	Aluminum
<b>LIFELINE</b>	3/16" Galvanized Steel Cable
<b>SWIVEL</b>	Aluminum
<b>FASTENERS</b>	Aluminum / Steel / Stainless Steel
<b>LOCKING PAWLS</b>	Steel
<b>MAIN SHAFT</b>	Steel
<b>SPRINGS</b>	Carbon Steel

## Fall Clearance Calculation for Northstar Classic LE SRLs:

- Figure 5 illustrates a typical Leading Edge Hazard with key distances represented by the Letters A, B, and C. The Letter A represents the Setback Distance of the anchor point to which the Leading Edge SRL is attached. Letter B represents the distance along the Leading Edge where the user could be performing work operations. Finally, Letter C represents the Fall Clearance distance required based upon the values of Letters A and B.
- Table 5 provides Fall Clearance distances required when using a Northstar Classic LE SRL. To determine your Fall Clearance requirements, find the value for your Setback Distance for Letter A on the left side of the chart. Determine your distance along the edge where work operations will be performed and select the appropriate value (B) at the top of the chart. The point where these two values intersect within the chart, is the required Leading Edge fall clearance distance.

**FIGURE 5 - LEADING EDGE FALL CLEARANCE**



**TABLE 5 - LEADING EDGE FALL CLEARANCES  
(Maximum Free Fall - 5 ft.)**

A=Setback Distance  
 B=Working Distance Along Edge  
 C=Clearance Required

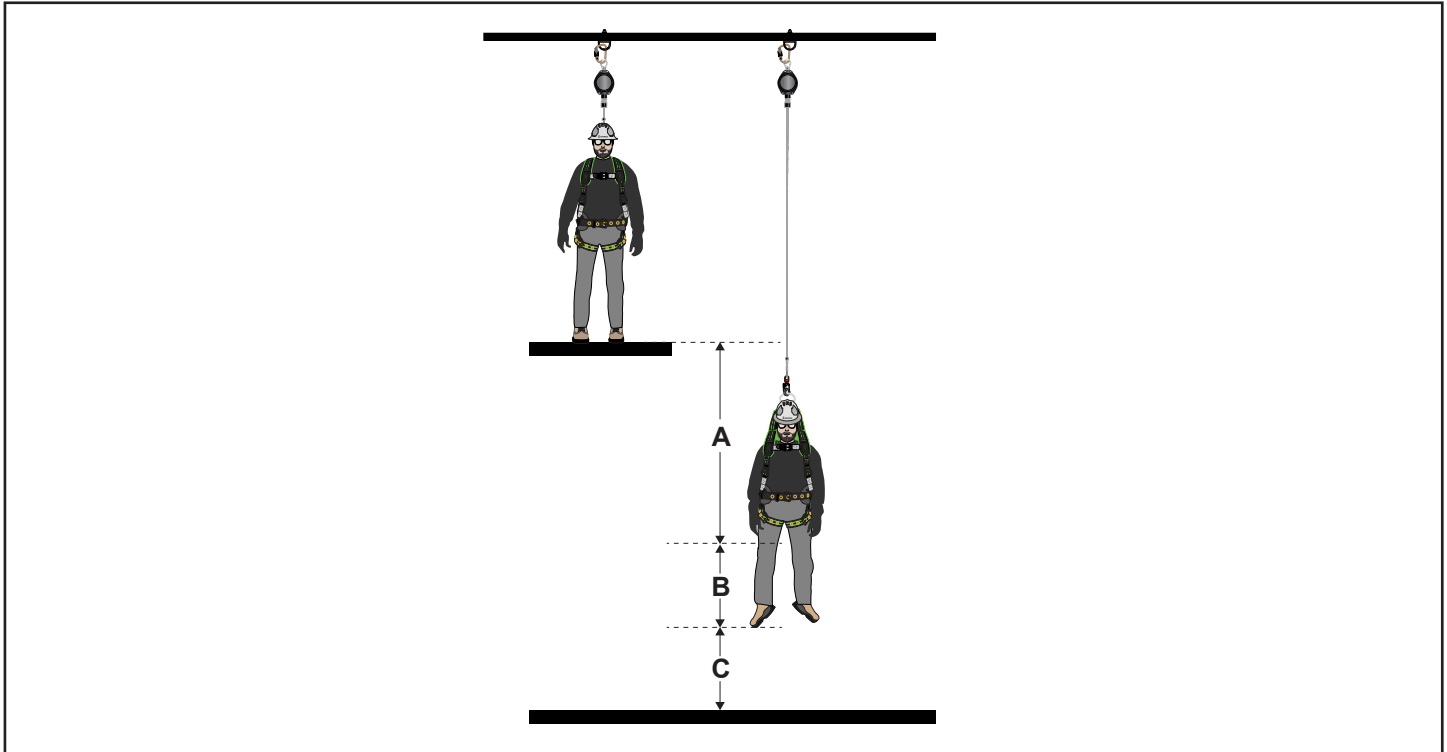
\*\*\*\*\* (Indicates distance along edge is outside safe work radius for setback distance)

		B					
		0 ft (0.00 m)	2 ft (0.61 m)	5 ft (1.52 m)	10 ft (3.05 m)	15 ft (4.57 m)	20 ft (6.1 m)
A	5 ft (0.61 m)	16.5 ft (5.03 m)	16.9 ft (5.15 m)	18.6 ft (5.67 m)	*****	*****	*****
	10 ft (1.52 m)	16.5 ft (5.03 m)	16.7 ft (5.09 m)	17.7 ft (5.39 m)	20.6 ft (6.28 ft)	*****	*****
	15 ft (4.57 m)	16.5 ft (5.03 m)	16.6 ft (5.06 m)	17.3 ft (5.27 m)	19.5 ft (5.94 m)	22.7 ft (6.92 m)	*****
	20 ft (6.1 m)	16.5 ft (5.03 m)	16.6 ft (5.06 m)	17.1 ft (5.21 m)	18.9 ft (5.76 m)	21.5 ft (6.55 m)	24.8 ft (7.55 m)
	25 ft (7.62 m)	16.5 ft (5.03 m)	16.6 ft (5.06 m)	17 ft (5.18 m)	18.4 ft (5.61 m)	20.7 ft (6.31 m)	23.5 ft (7.16 m)
	30 ft (9.14 m)	16.5 ft (5.03 m)	16.6 ft (5.06 m)	16.9 ft (5.15 m)	18.1 ft (5.52 m)	20 ft (6.10 m)	22.6 ft (6.89 m)
	35 ft (10.67 m)	16.5 ft (5.03 m)	16.6 ft (5.06 m)	16.9 ft (5.15 m)	17.9 ft (5.46 m)	19.6 ft (5.97 m)	21.8 ft (6.64 m)
	40 ft (12.19 m)	16.5 ft (5.03 m)	16.5 ft (5.03 m)	16.8 ft (5.12 m)	17.7 ft (5.40 m)	19.2 ft (5.85 m)	21.2 ft (6.46 m)
	50 ft (15.24 m)	16.5 ft (5.03 m)	16.5 ft (5.03 m)	16.7 ft (5.10 m)	17.5 ft (5.33 m)	18.7 ft (5.70 m)	20.4 ft (6.22 m)
			C				

**TABLE 6 - MINIMUM FALL CLEARANCE  
(LEADING EDGE MODELS FS9020, FS9030 & FS9050 / LEADING EDGE USE)  
WORKER 130 LB TO 310 LB**

FREE FALL (FF) + DECELERATION DISTANCE (DD) + SAFETY FACTOR (SF) = FALL CLEARANCE (FC)	
Northstar Classic LE Performance Specifications	ANSI 130 lb.-310 lb. (59 kg-140 kg)
Maximum Arresting Force	1,350 lbf (6.0 kN)
Average Arresting Force	900 lbf (4.0 kN)
Claimed Maximum Arresting Distance	47 in (1.2 m)
Minimum Fall Clearance Required	14.5 ft. (4.41 m)
Maximum Free Fall	5 ft. (1.5 m)
Minimum Setback Distance	3 ft. (0 m)

**FIGURE 6 - DETERMINING MINIMUM REQUIRED FALL CLEARANCE  
(LEADING EDGE MODELS FS9020, FS9030 & FS9050 / OVERHEAD USE)  
WORKER 130 LB TO 420 LB**



**TABLE 7 - MINIMUM FALL CLEARANCE  
(LEADING EDGE MODELS FS9020 & FS9030 / OVERHEAD USE)  
WORKER 130 LB TO 420 LB**

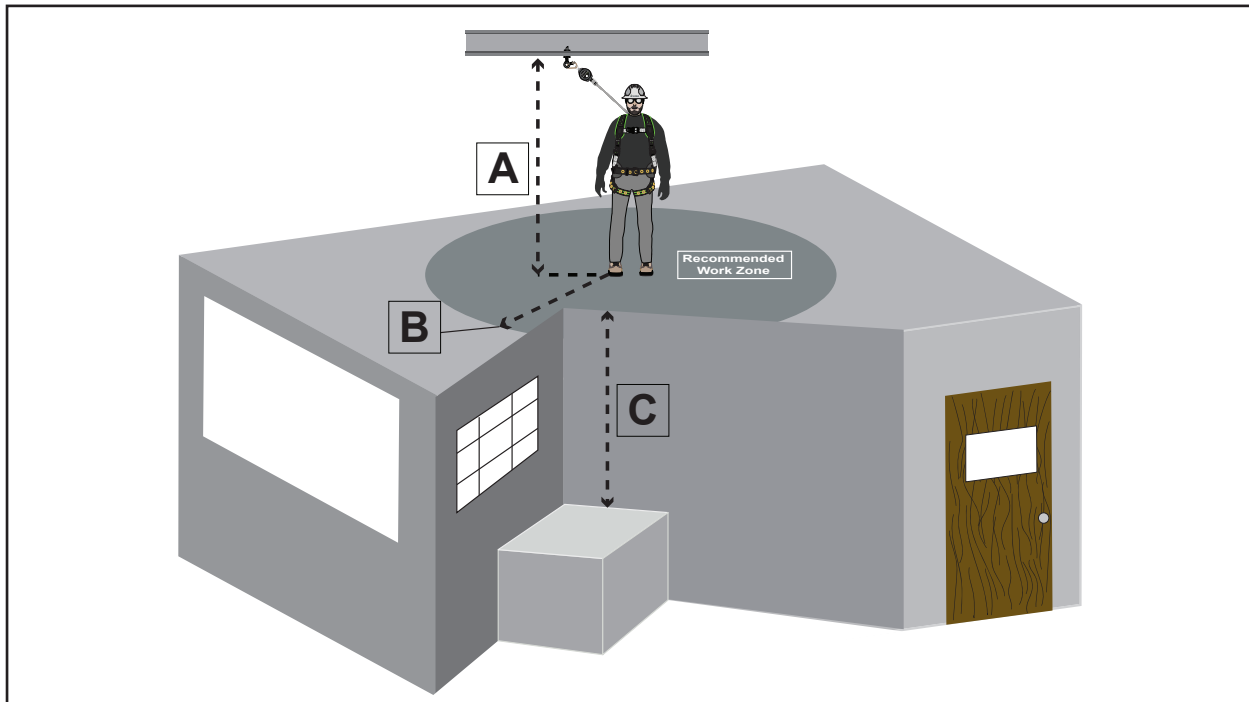
<b>FREE FALL (FF) + DECELERATION DISTANCE (DD) + SAFETY FACTOR (SF) = FALL CLEARANCE (FC)</b>	
<b>Northstar Classic Series Performance Specifications</b>	<b>ANSI 130 lb. - 310 lb. (59 kg - 140 kg) / OSHA 420 lb.</b>
Maximum Arresting Force	1,800 lbf (8.0 kN)
Average Arresting Force	1,350 lbf (6.0 kN)
Claimed Maximum Arresting Distance	24 in (.6 m)
Minimum Fall Clearance Required	6.5 ft. (1.52 m)
Maximum Free Fall	0 ft. (0 m)

**TABLE 8 - MINIMUM FALL CLEARANCE  
(LEADING EDGE MODEL FS9050 / OVERHEAD USE)  
WORKER 130 LB TO 420 LB**

<b>FREE FALL (FF) + DECELERATION DISTANCE (DD) + SAFETY FACTOR (SF) = FALL CLEARANCE (FC)</b>	
<b>Northstar Classic Series Performance Specifications</b>	<b>ANSI 130 lb. - 310 lb. (59 kg - 140 kg) / OSHA 420 lb.</b>
Maximum Arresting Force	1,800 lbf (8.0 kN)
Average Arresting Force	900 lbf (4.0 kN)
Claimed Maximum Arresting Distance	54 in. (1.5 m)
Minimum Fall Clearance Required	8.5 ft (2.05 m)
Maximum Free Fall	0 ft. (0 m)



**FIGURE 7 - ALLOWABLE WORK RADIUS WITH OVERHEAD ANCHORAGE**



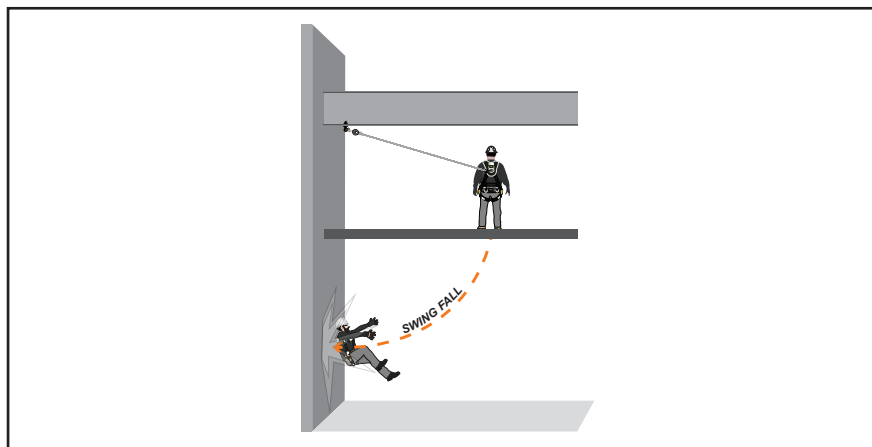
Northstar Classic SRL 130 - 310 lbs (59 - 140 kg)		C							
		<4 ft (1.2 m)	4 ft (1.2 m)	5 ft (1.5 m)	6 ft (1.8 m)	7 ft (2.1 m)	8 ft (2.4 m)	9 ft (2.7 m)	>10 ft (3 m)
A	8 ft (2.4 m)	X	0 ft (0 m)	2.5 ft (0.76 m)	3.9 ft (1.19 m)	5 ft (1.52 m)	6.2 ft (1.88 m)	7.2 ft (2.19 m)	8.2 ft (2.50 m)
	10 ft (3 m)	X	0 ft (0 m)	3.3 ft (1 m)	4.8 ft (1.46 m)	6 ft (1.83 m)	7.3 ft (2.22 m)	8.4 ft (2.56 m)	9.5 ft (2.90 m)
	20 ft (6.1 m)	X	0 ft (0 m)	5.5 ft (1.67 m)	7.9 ft (2.41 m)	9.8 ft (2.98 m)	11.5 ft (3.50 m)	13 ft (3.96 m)	14.4 ft (4.38 m)
	30 ft (9.1 m)	X	0 ft (0 m)	7.1 ft (2.16 m)	10.2 ft (3.10 m)	12.5 ft (3.81 m)	14.6 ft (4.45 m)	16.4 ft (4.99 m)	18.2 ft (5.54 m)
	50 ft (15.2 m)	X	0 ft (0 m)	9.6 ft (2.92 m)	13.5 ft (4.11 m)	16.7 ft (5.09 m)	19.2 ft (5.85 m)	21.7 ft (6.61 m)	23.9 ft (7.28 m)
	70 ft (21.3 m)	X	0 ft (0 m)	11.6 ft (3.54 m)	16.3 ft (4.96 m)	20 ft (6.09 m)	23.1 ft (7.04 m)	26 ft (7.92 m)	29 ft (8.83 m)
		B							

Northstar Classic SRL 310 - 420 lbs (140 - 191 kg)		C					
		<6 ft (1.8 m)	6 ft (1.8 m)	7 ft (2.1 m)	8 ft (2.4 m)	9 ft (2.7 m)	>10 ft (3 m)
A	8 ft (2.4 m)	X	0 ft (0 m)	2.5 ft (0.76 m)	3.9 ft (1.19 m)	5 ft (1.52 m)	6.2 ft (1.88 m)
	10 ft (3 m)	X	0 ft (0 m)	3.3 ft (1 m)	4.8 ft (1.46 m)	6 ft (1.83 m)	7.3 ft (2.22 m)
	20 ft (6.1 m)	X	0 ft (0 m)	5.5 ft (1.67 m)	7.9 ft (2.41 m)	9.8 ft (2.98 m)	11.5 ft (3.50 m)
	30 ft (9.1 m)	X	0 ft (0 m)	7.1 ft (2.16 m)	10.2 ft (3.10 m)	12.5 ft (3.81 m)	14.6 ft (4.45 m)
	50 ft (15.2 m)	X	0 ft (0 m)	9.6 ft (2.92 m)	13.5 ft (4.11 m)	16.7 ft (5.09 m)	19.2 ft (5.85 m)
	70 ft (21.3 m)	X	0 ft (0 m)	11.6 ft (3.54 m)	16.3 ft (4.96 m)	20 ft (6.09 m)	23.1 ft (7.04 m)
		B					

**3.0 SWING FALLS**

An anchorage point located in a position that is not directly over the user's fall location results in a Swing Fall (See Figure 8). Swing falls may result in the user striking an object with enough force to cause serious injury. Greater clearance is needed to ensure safety during a swing fall as vertical fall distance will be greater than a fall originating directly below the anchorage point. For help determining additional required fall clearance due to Swing Fall, (See Table 9).

**FIGURE 8 - SWING FALLS**



**TABLE 9 - ADDITIONAL FALL CLEARANCE FOR SWING FALL HAZARDS (OVERHEAD USE)**



Allowable Work Zone



Allowable Work Zone with Enhanced Caution



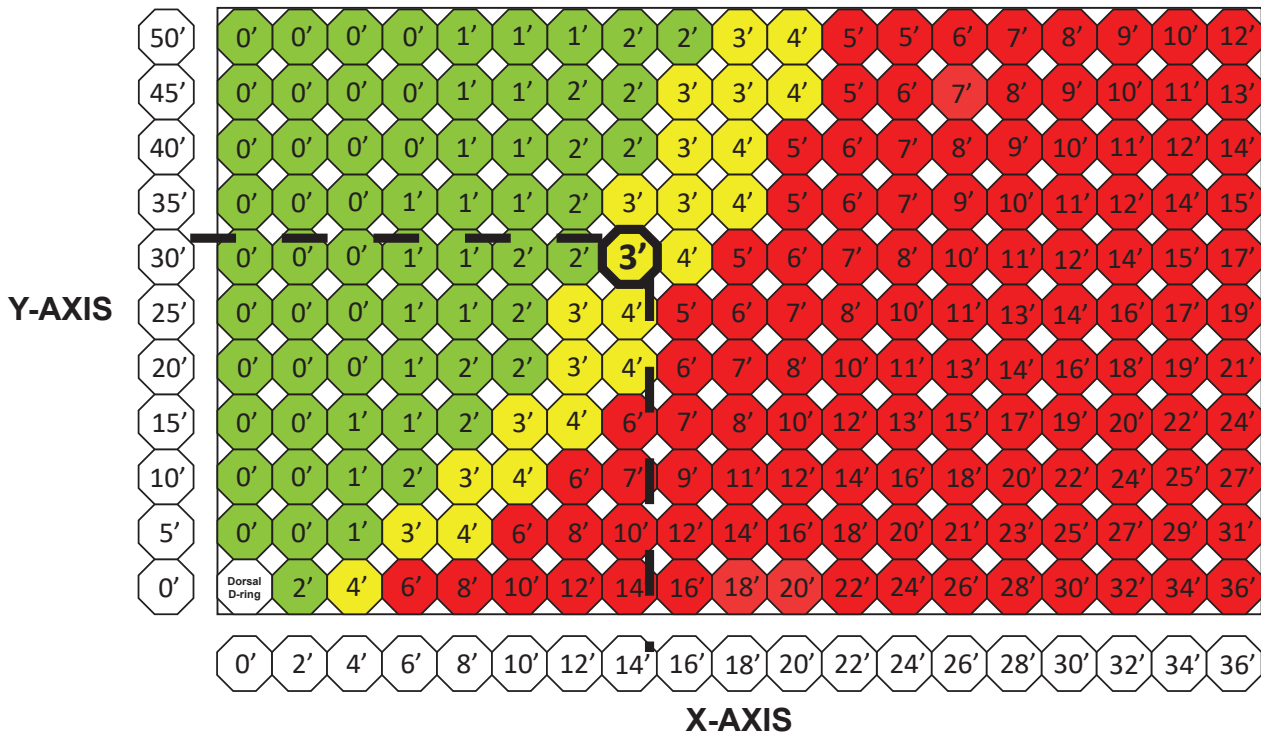
Not Allowed Work Zone

**Using Table 9:**

Table 9 provides the ability for the user to determine additional fall clearance requirements if a Swing Fall Hazard is present when using the a Northstar Classic SRL in an overhead application. The Y-Axis represents the height the SRL is anchored above the user's Dorsal D-ring. The X-Axis represents lateral movement of the worker in relation to the SRL.

**Example - Northstar Classic SRL Anchored Overhead:**

This example represents the user anchored 30' Overhead (Up along the Y Axis) and 14' Laterally (Along the X Axis). The intersection of these distances on the chart indicate an additional 3' of fall clearance required. This additional required fall clearance must be added to total fall clearance calculations.



**5.0 USE**



**WARNING:** Contact Safewaze if you have questions regarding compatibility of this equipment that are not covered in this manual. Do not alter or misuse this equipment. Some subsystem components could affect the performance of the operation of this equipment. Do not anchor this product to moving machinery, hazards that include chemical, electrical or gaseous characteristics. Failure to comply with this warning could result in injury or death.



**WARNING:** Consult your doctor if there is reason to doubt your fitness to safely absorb the shock from a fall arrest. Age and fitness seriously affect a worker's ability to withstand falls. Pregnant women or minors must not use Safewaze SRLs. Failure to heed this warning may result in serious injury or death.

**5.1 OPERATION**

Inspect the SRL, as described in Section 8, before using the equipment. Refer to Figure 10 for common system connections used with SRL applications. Mount the SRL either to an approved anchor point. Ensure connections are compatible in size, shape, and strength. Ensure hooks are fully closed and locked. When the worker is fully attached, the worker is then free to move about within the recommended working area. If a fall occurs, the SRL will lock and arrest the fall. Upon rescue, remove the SRL from use. When working with an SRL, always allow the lifeline to retract back into the device in a controlled manner. Do not release the unit to "free-spin" back into itself.



**WARNING:** Do not tie or knot the lifeline. Avoid lifeline contact with sharp or abrasive surfaces. Inspect the lifeline frequently for cuts, fraying, burns, or signs of chemical damage. Dirt, contaminants, and water can lower performance of the lifeline. Use caution near power lines. Failure to comply with this warning may result in serious injury or death.

## 5.2 AFTER A FALL

Equipment exposed to the force of a fall, or that shows damage consistent with the effects of a fall, must be removed from service immediately. Equipment must then be repaired (See Section 7.1) if applicable, or disposed of (See Section 8.5).

## 5.3 BODY SUPPORT

A full body harness must be worn when using Safewaze SRLs.



**IMPORTANT:** Do not use a body belt for free fall applications. See OSHA 1926.502 for guidelines.

## 5.4 SYSTEM CONNECTIONS

Figure 10 illustrates some typical examples of harness and anchorage connections for Northstar Classic SRLs. When using a snap hook to make a connection, ensure roll-out cannot occur (See Figure 1). Do not use snap hooks or carabiners that will not completely close over the anchor point. This includes traditional overhead anchor point tie-off, housing attachment to dorsal D-ring, and 100% tie-off. Follow the manufacturer's instructions supplied with each system component.

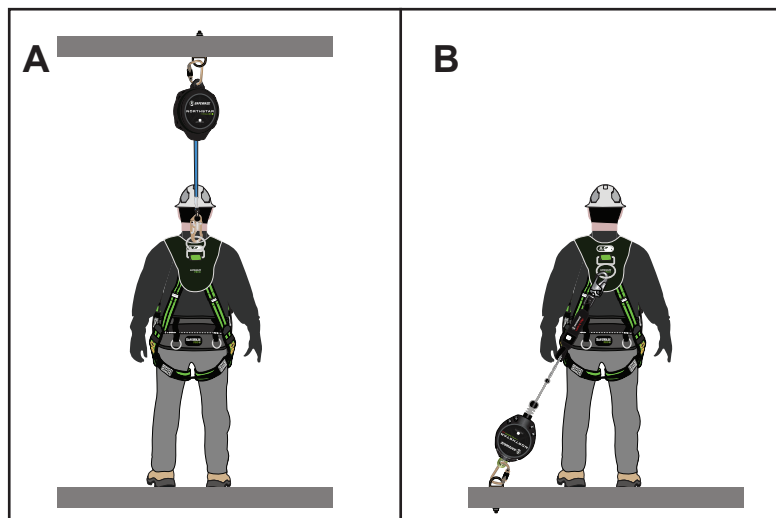


**WARNING:** Never connect the snap hook of one SRL to the lifeline of another SRL or lanyard. Failure to comply with this warning may result in equipment malfunction, serious injury or death.

## 5.5 ANCHORAGE

Select an anchorage location with minimal free fall and swing fall hazards (See Section 2.0). Select a rigid anchorage point capable of sustaining static loads as defined in Section 2.0. Where anchoring overhead is not feasible, Safewaze SRLs may be secured to anchorage points below the level of the user's dorsal D-ring, but never below the user's feet. NOTE: ANCHORAGE BELOW THE DORSAL D-RING WILL REQUIRE ADJUSTMENT OF THE TOTAL FREE FALL AND MAXIMUM ARREST DISTANCE OF A FALL.

**FIGURE 9 - SYSTEM CONNECTIONS**



**IMPORTANT:** Never connect more than one person at a time to the dual-leg system.

**IMPORTANT:** Do not allow the lifelines to pass under arms or between legs.

## 6.0 SPECIFICATIONS

### 6.1 PERFORMANCE

Safewaze SRLs have been tested and certified to the performance requirements of the standard(s) identified on their ID labels. See Tables 10 and 11 for performance specifications.

### 6.2 MAXIMUM ARREST FORCE AND MAXIMUM ARREST DISTANCE

SRLs documented in this instruction manual meet the following Arrest Force and Arrest Distance maximums when tested in accordance with Section 4.2.1 of ANSI Z359.14. These calculations are based upon overhead anchorage of the SRL.

**TABLE 10 - CLASS A**

Average Arresting Force	≤ 1,350 lbs (6.0kN)
Maximum Arresting Force	≤ 1,800 lbs (8.0 kN)
Maximum Arrest Distance	24 in (0.61 m)

**TABLE 11 - CLASS B**

Average Arresting Force	≤ 900 lbs (5.0kN)
Maximum Arresting Force	≤ 1,800 lbs (8.0 kN)
Maximum Arrest Distance	54 in (1.37 m)

## 7.0 MAINTENANCE, SERVICING, AND STORAGE

### 7.1 SERVICE

Remove the SRL from use if the SRL has been subjected to fall arrest forces or inspection reveals an unsafe or defective condition. If unrepairable dispose of the SRL as recommended in Section 8.5.

### 7.2 CLEANING

Cleaning procedures for Safewaze SRLs are as follows:

Periodically clean the exterior of the SRL using water and a mild soap solution. Clean labels to maintain readability.

An excessive buildup of debris on the cable may prevent the cable lifeline from fully retracting back into the housing and create a potential free fall hazard.

Clean cable using an acid-free oil or petroleum jelly at regular intervals. Always wear gloves when servicing/inspecting steel cable SRLs.



**IMPORTANT:** If the lifeline comes in contact with acids or other caustic chemicals, remove the SRL from service and wash with water and a mild soap solution. Inspect the SRL (using the Inspection Form on Page 17) before returning to service.

### 7.3 STORAGE

Store Safewaze SRLs in a cool, dry, clean environment out of direct sunlight. Avoid areas where chemical vapors may exist. Thoroughly inspect the SRL after any period of extended storage.

## 8.0 INSPECTION

### 8.1 BEFORE EACH USE

Before each use ensure that the equipment is in good working condition. Inspect the unit to ensure it has not been damaged and that the unit pays out and retracts properly. Prior to each use, the braking system must be inspected. Grasp the body of the unit in one hand and the cable/web in the other. With a quick, jerking motion, pull down on the web/cable. The brake should engage, stopping movement almost immediately. Inspect the webbing and/or cable (using the Inspection Form on Page 17) and ensure that all connection hardware is working properly. Brake failure or unsatisfactory results during any portion of the inspection requires immediate removal of the SRL from service. Figure 12 points out key inspection areas of the Northstar Classic series of SRLs.

### 8.2 INSPECTION FREQUENCY

Safewaze SRLs must be inspected at the intervals defined in Section 2.1. Inspection procedures are covered in the "Inspection Form" (See Page 17). Annual inspections by a Competent Person other than the user must be recorded in the Inspection Log on (Page 18) of this manual.

### 8.3 UNSAFE OR DEFECTIVE CONDITIONS

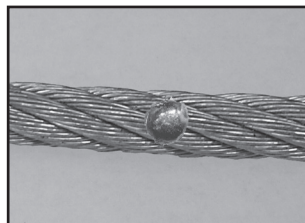
Figure 10 shows examples of equipment damage. Equipment inspectors must be trained to look for damage as illustrated in Figure 10, as well as other damage that may occur. If inspection reveals an unsafe or defective condition remove the SRL from service.

**FIGURE 10 - EXAMPLES OF EQUIPMENT DAMAGE**

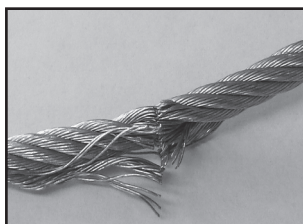
#### Cable Damage Examples



Kinked Wire Rope



Welding Spatter

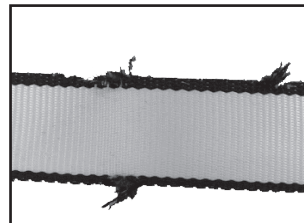


Broken Wires

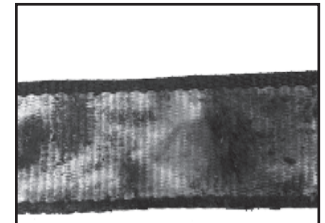


Bird-Caging

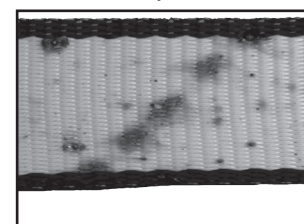
#### Webbing Damage Examples



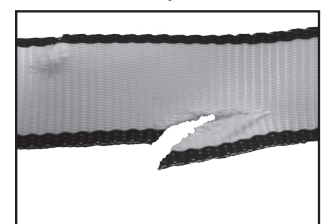
Frayed



Heavily Soiled



Welding Burns



Cut

### 8.4 PRODUCT LIFE

The working life of Safewaze SRLs are determined by work conditions, care, maintenance and proper inspections. As long as the SRL passes inspection, it may remain in service.

# 8.5 DISPOSAL

Dispose of the Safewaze SRL if it has been damaged by fall arrest forces or inspection reveals an unsafe or defective condition that cannot be repaired by an authorized Safewaze Service Center. Before disposing of the SRL, cut the lifeline in half so that it is not mistakenly reused.

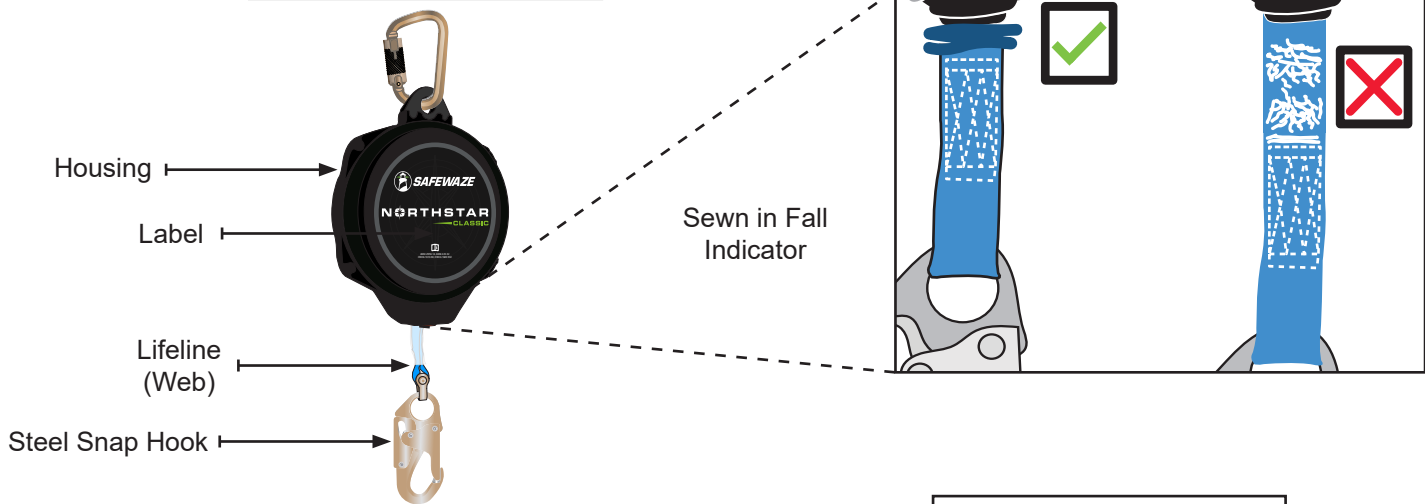
# 9.0 LABELING

**FIGURE 11 - NORTHSTAR CLASSIC LABELING**



**FIGURE 12 - INSPECTION DIAGRAMS**

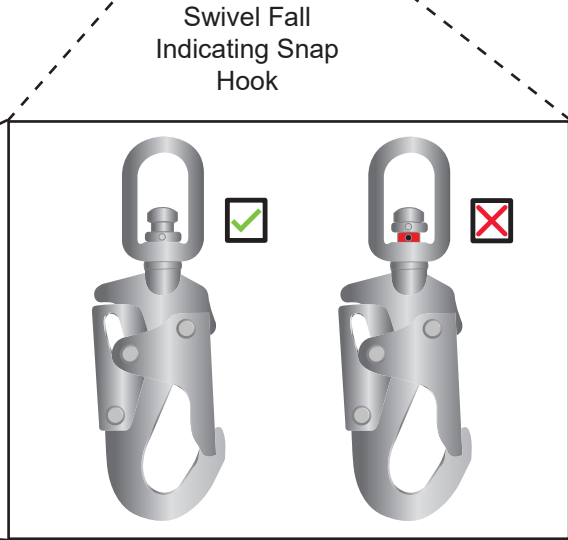
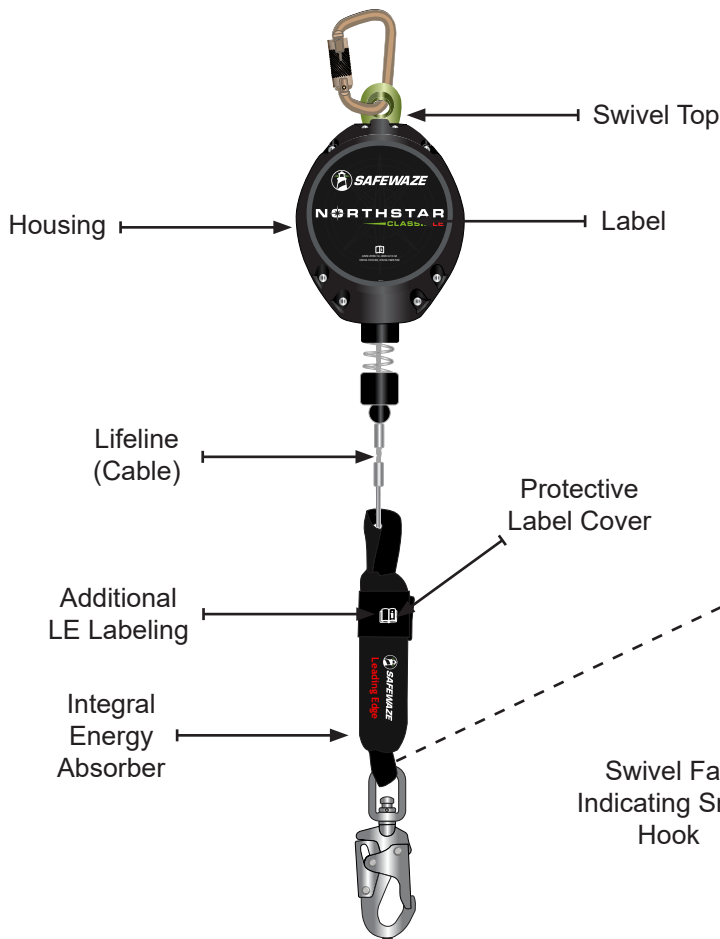
**NORTHSTAR CLASSIC WEB UNITS**



**NORTHSTAR CLASSIC CABLE UNITS**



**NORTHSTAR CLASSIC LEADING EDGE UNITS**

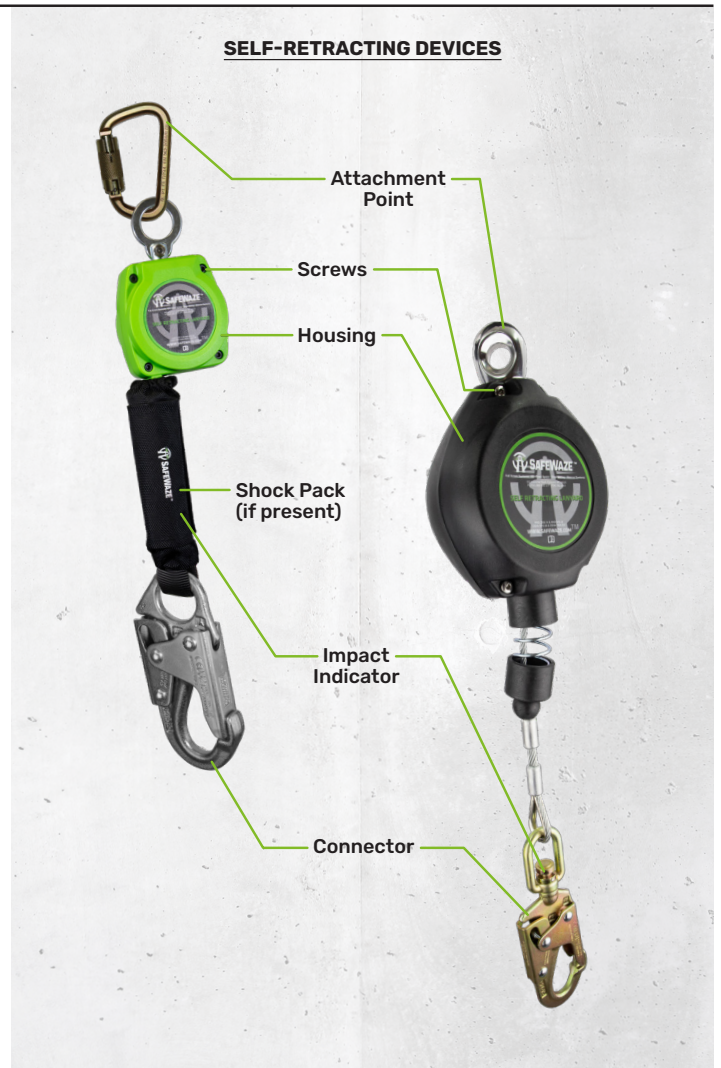




Manufacturer: \_\_\_\_\_  
 Model Number: \_\_\_\_\_  
 Description: \_\_\_\_\_  
 Serial Number: \_\_\_\_\_  
 Lot Number: \_\_\_\_\_  
 Date of Manufacture: \_\_\_\_\_

Company: \_\_\_\_\_  
 Name of Inspector: \_\_\_\_\_  
 Signature: \_\_\_\_\_  
 Date of Inspection: \_\_\_\_\_  
 In-Service Date: \_\_\_\_\_  
 Lifeline Material:  Galvanized Steel  Stainless Steel  Web

<b>LABELS &amp; MARKINGS</b>	<b>PASS</b>	<b>FAIL</b>	<b>NOTE</b>
Label (Intact and Legible)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appropriate ANSI / OSHA / CSA Markings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inspections are Current / Up-to-Date	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Date of First Use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>SHOCK PACK (IF PRESENT)</b>	<b>PASS</b>	<b>FAIL</b>	<b>NOTE</b>
Cover / Shrink Tube (Don't Cut or Remove)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Damage / Fraying / Broken Stitching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Impact Indicator (Signs of Deployment)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>HOUSING</b>	<b>PASS</b>	<b>FAIL</b>	<b>NOTE</b>
Attachment Point	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nuts / Bolts / Rivets / Screws	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Evidence of Damage (Dents / Cracks / Rust)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>LIFELINE (WEB OR CABLE)</b>	<b>PASS</b>	<b>FAIL</b>	<b>NOTE</b>
Termination (Stitch, Splice, or Swage)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cuts / Fraying / Broken Stitching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Excessive Wear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cable Separating / Bird-Caging	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Entire Length Retracts Smoothly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Test Braking / Locking Function	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>CONNECTORS</b>	<b>PASS</b>	<b>FAIL</b>	<b>NOTE</b>
Connector (Self-Closing & Locking)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Impact Indicator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hook Body / Rivets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Corrosion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pitting / Nicks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



**NOTES**

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# INSPECTION LOG

Date	Inspection Items Noted	Corrective Action	Initials



***SAFEWAZE***

**Safewaze  
225 Wilshire Ave SW  
Concord, NC 28025**

**PHONE: 1-800-230-0319  
FAX: 1-704-262-9051**

**WEB: [safewaze.com](http://safewaze.com)  
EMAIL: [info@safewaze.com](mailto:info@safewaze.com)**