



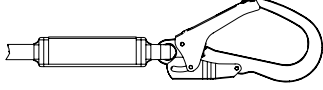
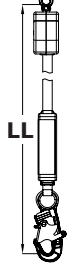

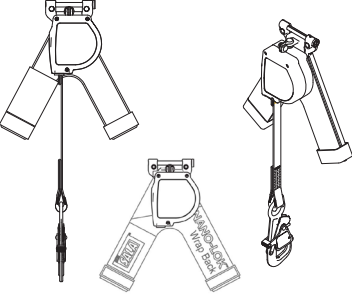
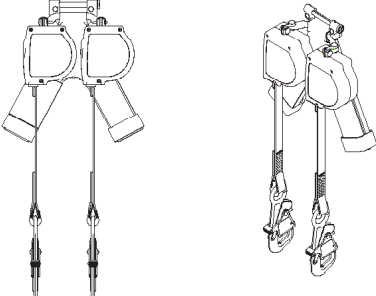

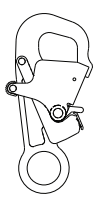
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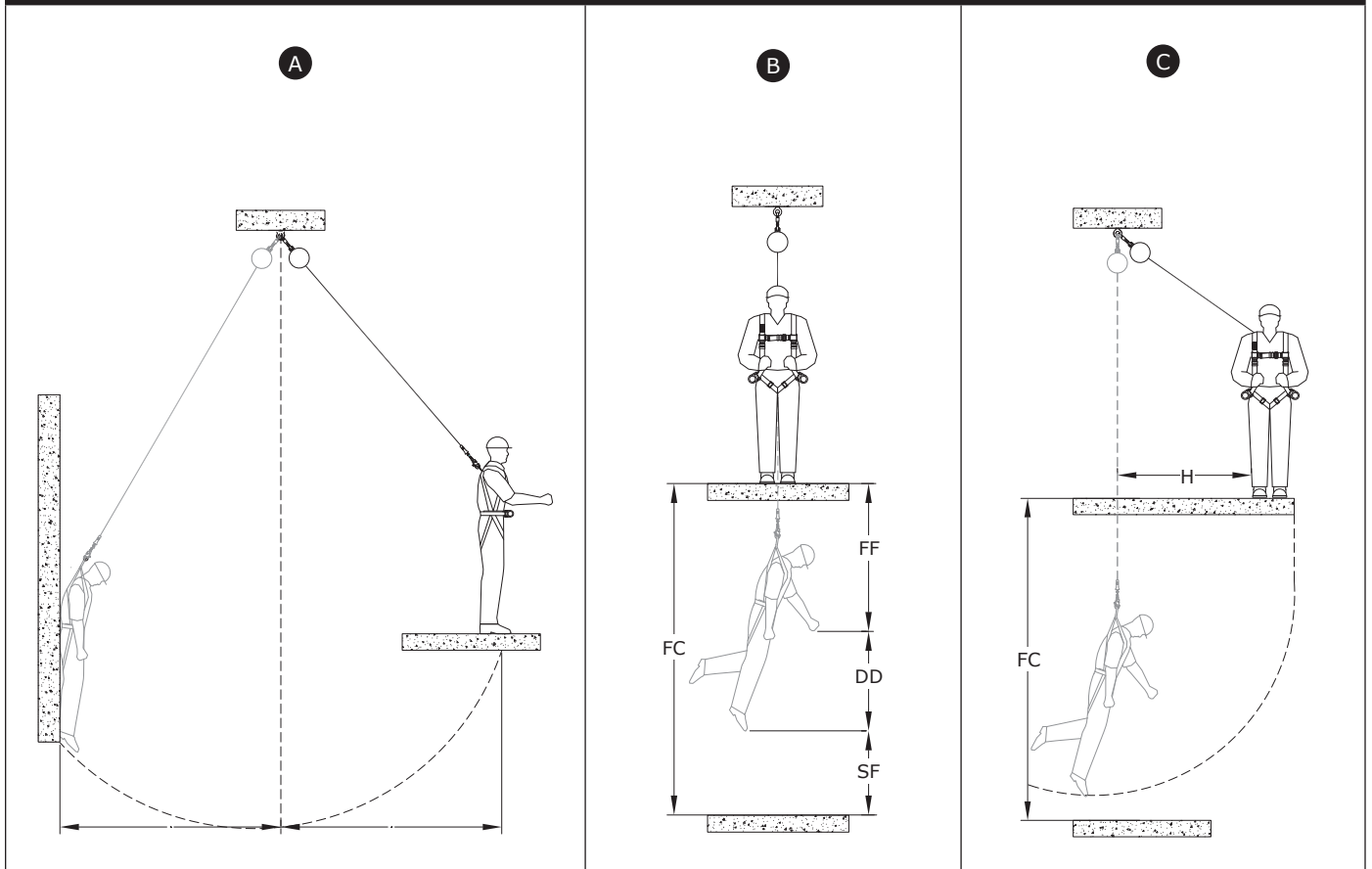
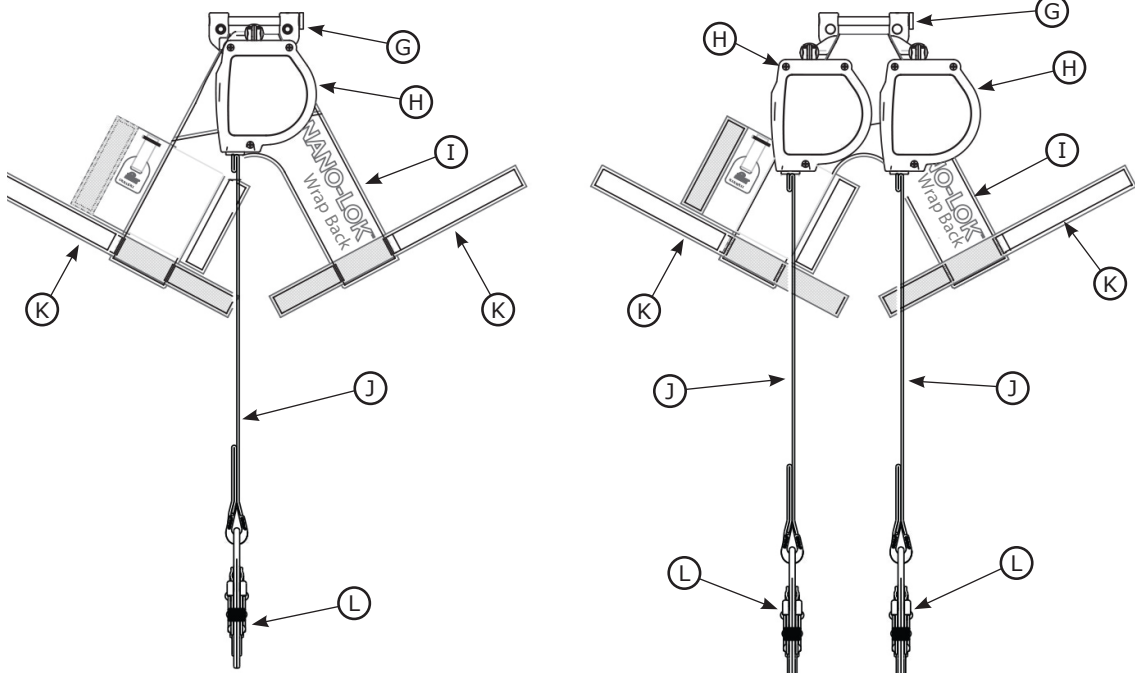
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Nano-Lok™ WrapBack SELF-RETRACTING DEVICE

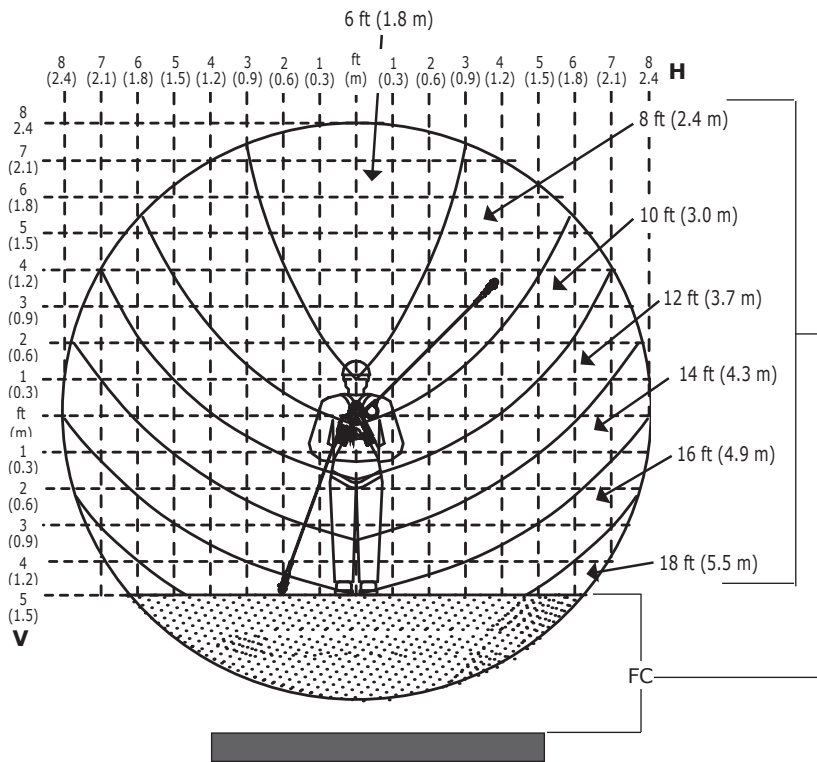
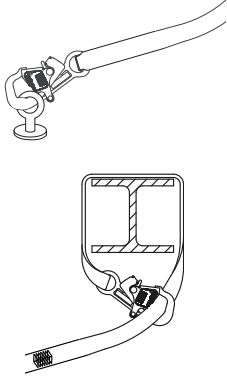
INSTRUCTION MANUAL 5903949 REV. B

Fall Protection

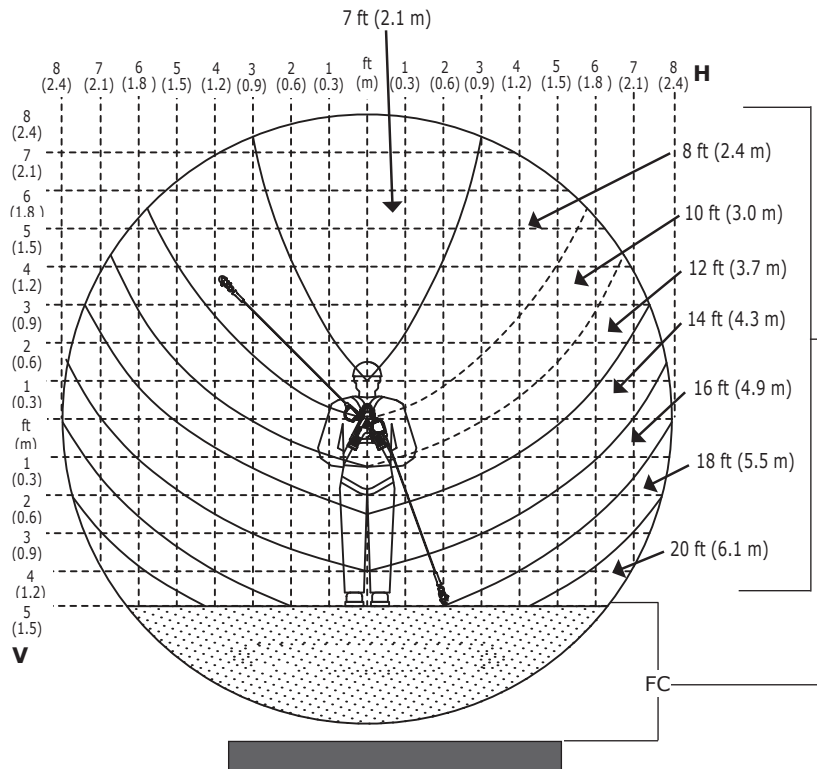
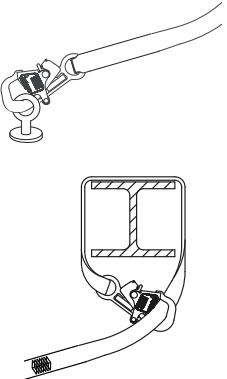
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			2000210 ①	9501804 ②		ANSI	OSHA
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	3101654	Ⓐ		1	8 ft (2.44 m)	310 lbs (140 kg)	420 lbs (191 kg)
	3101659	Ⓑ	2		8 ft (2.44 m)	310 lbs (140 kg)	420 lbs (191 kg)
	3101653	Ⓑ		2	8 ft (2.44 m)	310 lbs (140 kg)	420 lbs (191 kg)
			 				



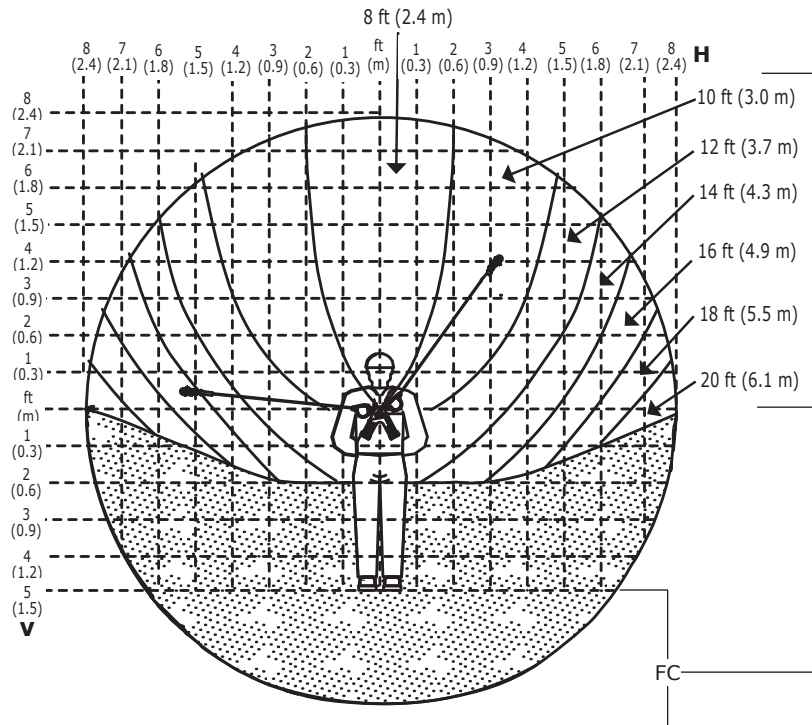
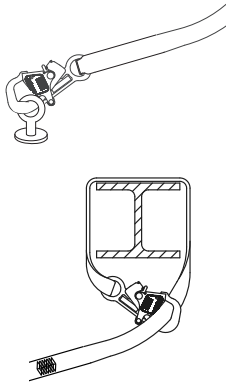
130-220 lbs (59-100 kg)



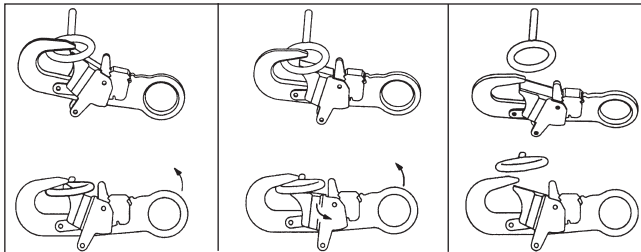
221-310 lbs (101-140 kg)



311-420 lbs (141-191 kg)



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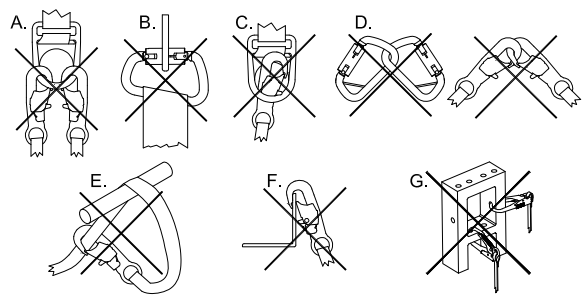


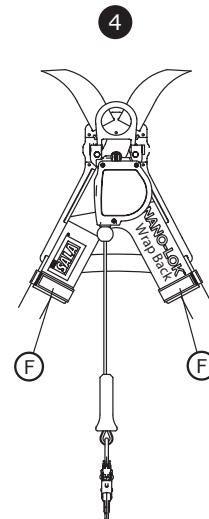
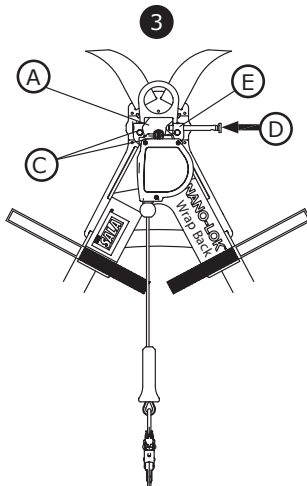
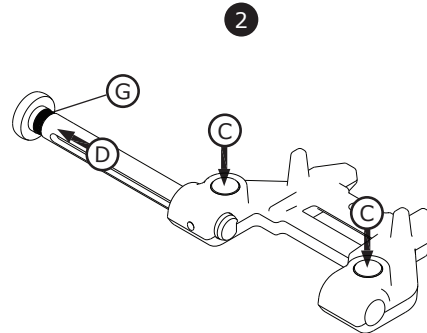
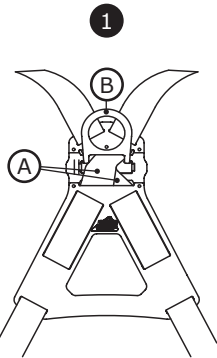
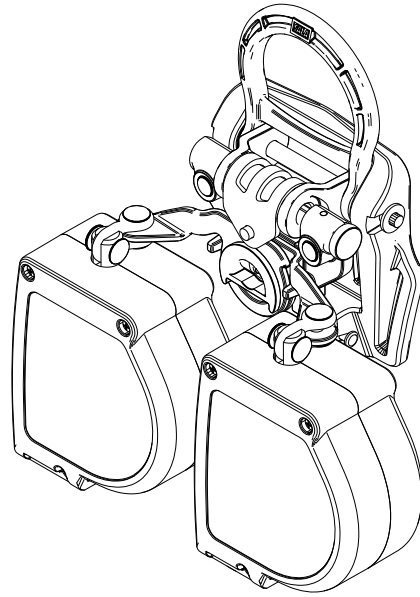
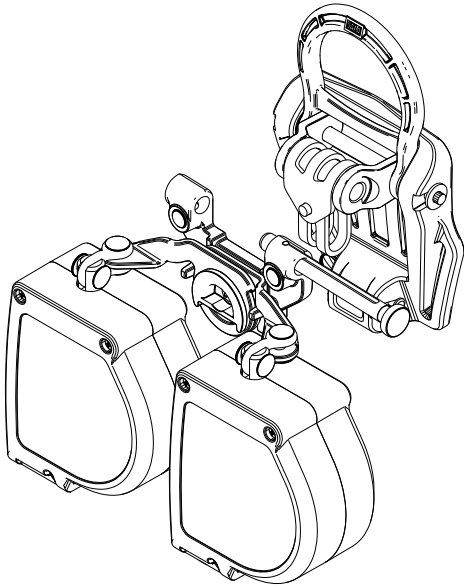
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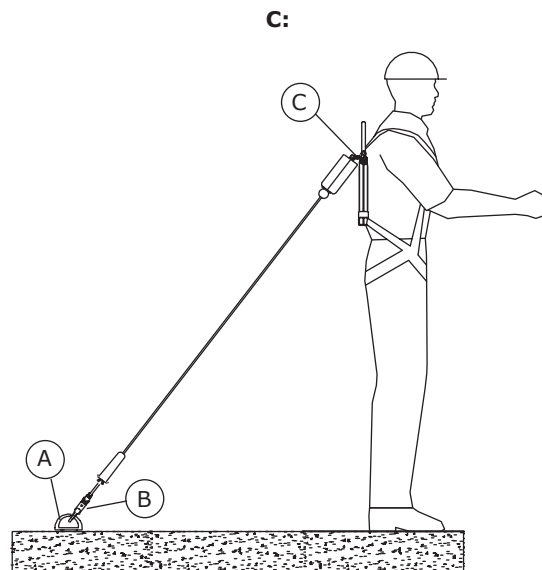
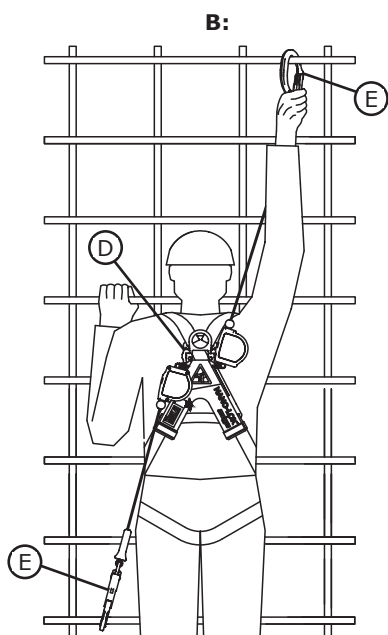
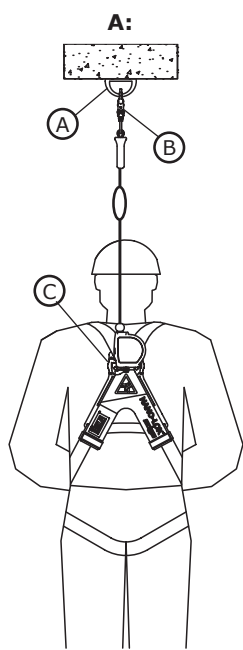
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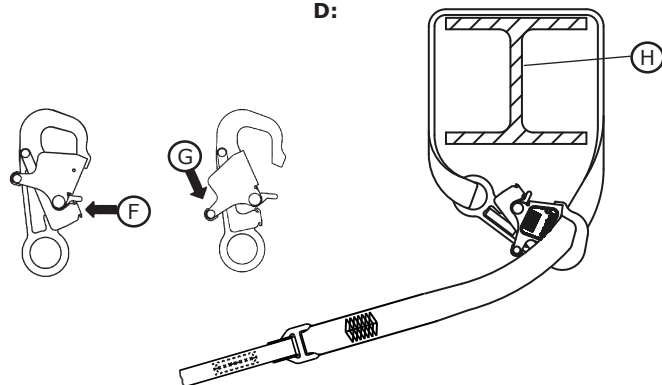




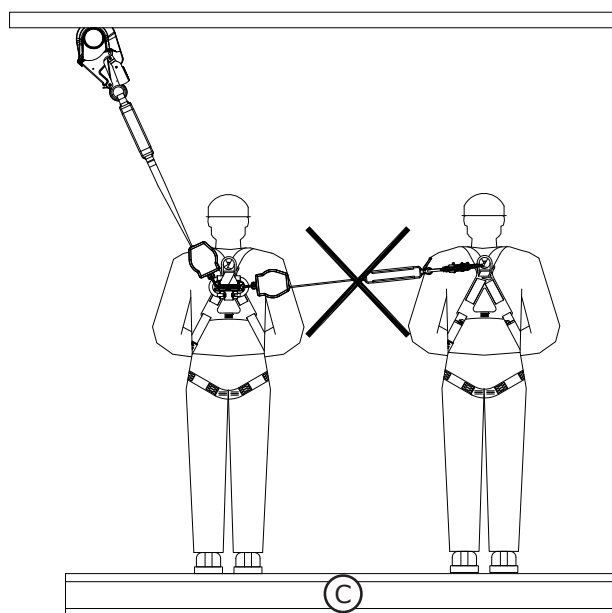
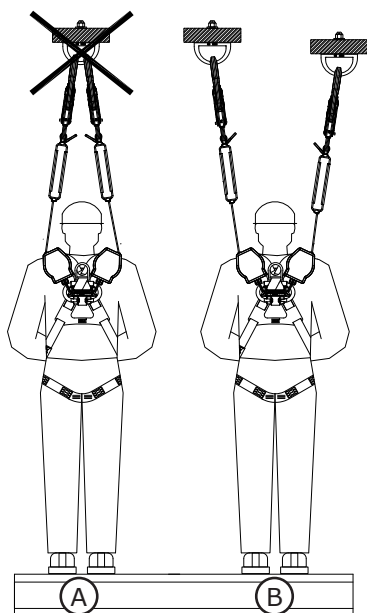
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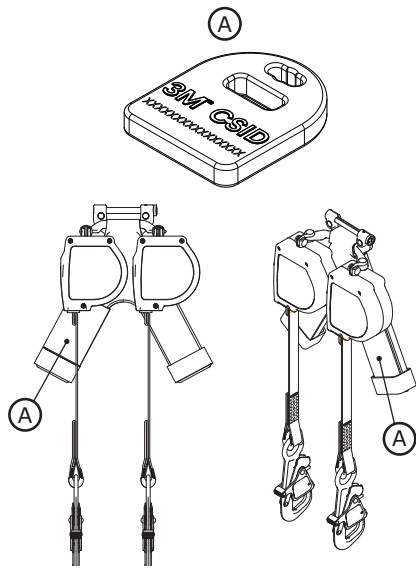
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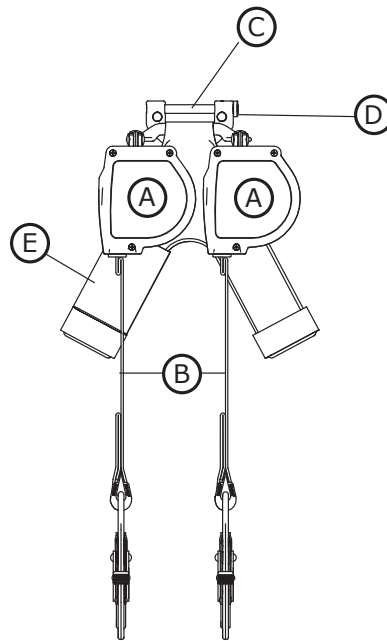
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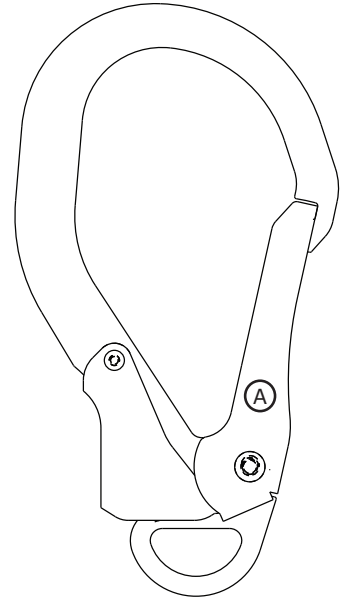
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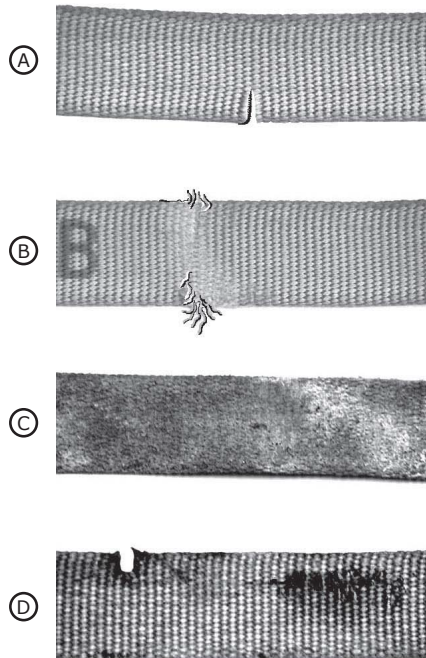
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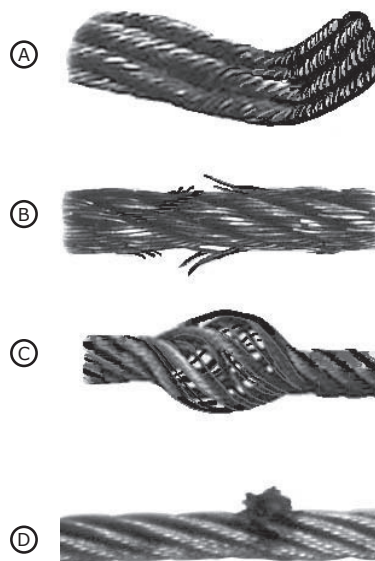
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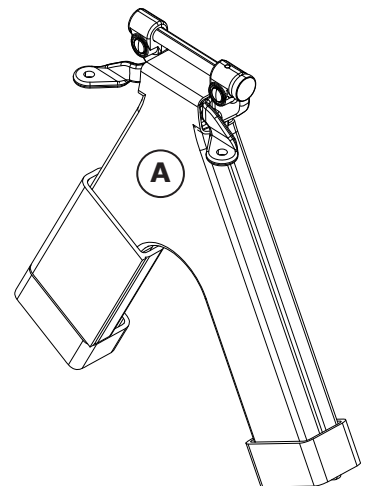
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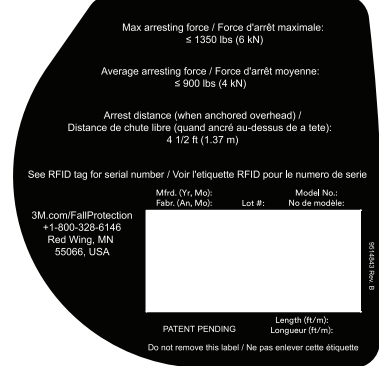
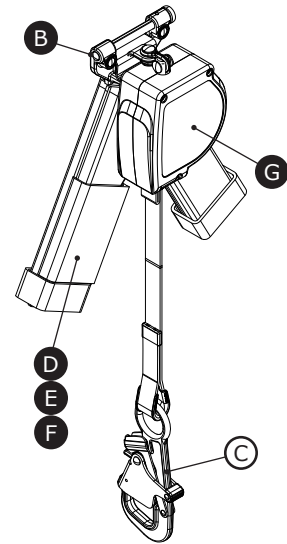
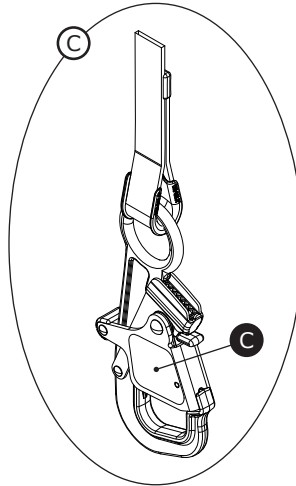
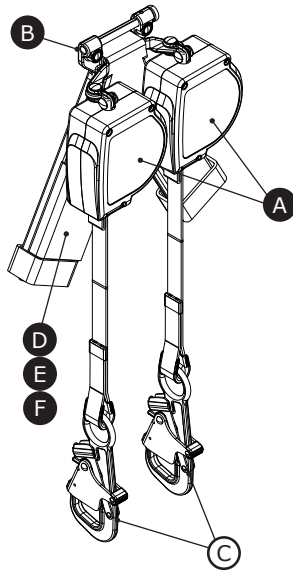


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16





DO NOT REMOVE THIS LABEL / Ne pas enlever cette étiquette 9508061 Rev. D

SPECIFICATIONS / CARACTÉRISTIQUES:

Lifeline Material: Material: 3/16 in (5mm) dia. 7x19 galvanized steel cable

Matériau de la corde d'assurance: Câble de diam. 3/16 po (5 mm) 7 x 19 en acier galvanisé

Capacity (when anchored overhead): 75 - 420 lb (34 - 191 kg)
Capacité (quand ancré au-dessus de la tête): 75 à 420 lb (34 à 191 kg)

Capacity (when anchored at foot level): 75 - 310 lb (34 - 141 kg)
Capacité (quand ancré au niveau de pied): 75 à 310 lb (34 à 141 kg)

Free fall limit: 75 - 310 lb (34 - 141 kg) users = 5 ft (1.52 m)
310 lb - 420 lb (141 kg - 191 kg) users = 3 ft (.91 m)

Line of chule libre: 75 à 310 lb (34 à 141 kg) utilisateurs = 5 ft (1.52 m)
310 lb à 420 lb (141 kg à 191 kg) utilisateurs = 3 ft (0.91 m)

Average locking speed: 4.5 ft/s (1.4 m/s)
Vitesse de blocage moyenne: 4.5 ft/s (1.4 m/s)

This product is I-Safe enabled and contains an electronic tag that can be read by compatible readers - providing inspection logs, inventory management and other safety information. Ce produit est validé dans I-Safe et contient une rondelle d'identification électronique qui peut être lue par des lecteurs compatibles - en fournissant des registres d'inspection, de l'information sur la gestion des stocks et d'autre information relative à la protection.

INSPECTION LOG

RELEVÉ D'INSPECTION		
DATE	INITIAL	DATE

iSafe

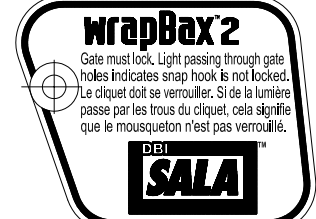
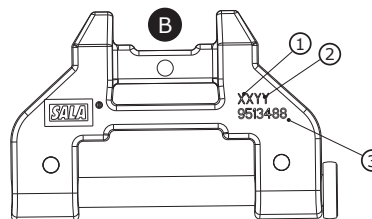
DO NOT REMOVE THIS LABEL / Ne pas enlever cette étiquette 9508061 Rev. D

USE/UTILISATION: Anchorage strength requirement 22 kN (5000 lb). Anchor unit as directly above work area as possible to reduce swing fall hazard. Users over 310 lb (141 kg) must not use this device for leading edge work. Do not work above anchorage level. Full body harness required for use with this device. Capacity is single user only. For use by trained persons only. This unit is suitable for use with horizontal lifelines. See user manual for additional information including suitability for horizontal use. Contact Capital Safety with any questions about the proper use of this product. L'ancrage doit avoir une résistance de 22kN (5000 lb). L'ancrage doit être aussi directement que possible au-dessus de la zone de travail pour réduire le risque de chute par balancement. Les utilisateurs plus de 310 lb (141 kg) ne doivent pas utiliser cet appareil pour travail de pointe. Ne pas travailler au-dessus du niveau de l'ancrage. On doit porter un harnais de sécurité avec ce dispositif. Capacité un seul utilisateur. Doit être utilisé seulement par des personnes formées. Cette unité est conçue pour être utilisée avec des lignes de vie horizontales. Pour en savoir plus, y compris sur l'efficacité d'une utilisation horizontale, référez-vous au manuel d'utilisateur. Pour de plus amples renseignements au sujet de l'utilisation de ce produit, veuillez communiquer avec Capital Safety.

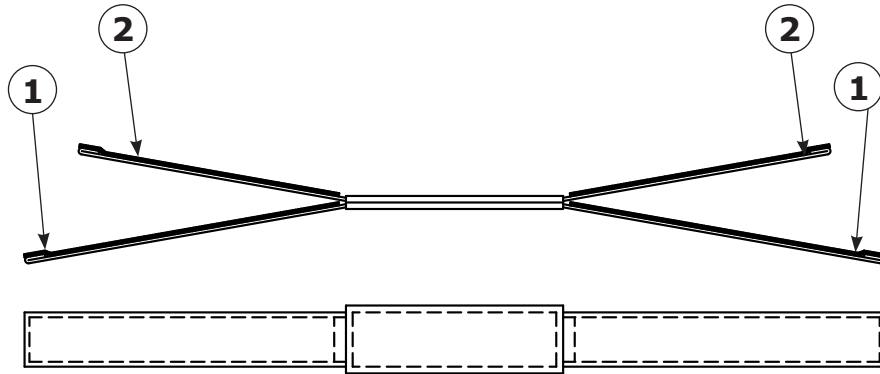
WARNING/AVERTISSEMENT Read instructions before use. Manufacturer's instructions supplied with this product must be followed for proper use. Failure to follow instructions may result in serious injury or death. This device shall be removed from service when the impact indicator is deployed. Lisez les instructions avant utilisation. Pour bien utiliser ce produit, on doit observer les instructions du fabricant fournies avec le produit. Négliger d'observer les instructions peut occasionner des blessures graves, voire mortelles. On doit mettre ce dispositif hors de service lorsque l'indicateur de charge est déployé.

DO NOT REMOVE THIS LABEL / Ne pas enlever cette étiquette 9508061 Rev. D

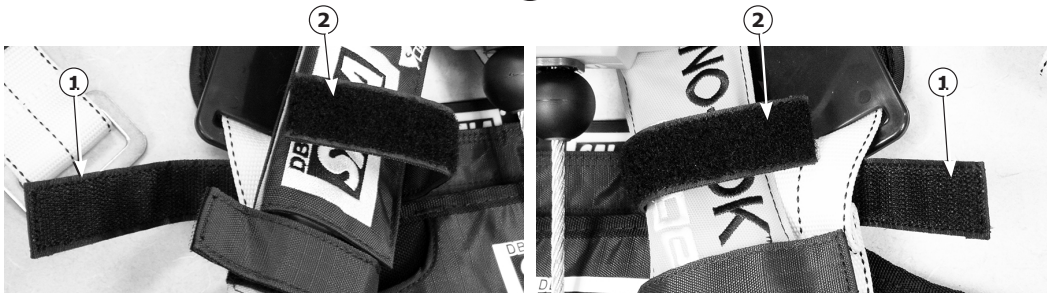
INSPECTION: Before each use, and at least monthly, inspect in accordance with the User Manual including locking function (pull sharply to test), retraction, lifeline condition, function and condition of connector, housing and fasteners, legibility of labels, and any evidence of defects, damage or missing parts. Inspect for ruptured or torn webbing extending from load indicator cover. Ruptured or torn webbing is an indicator that an impact has occurred and the unit must be removed from service. Inspection by a competent person required at least annually. See User Manual. Do not use if inspection reveals an unsafe condition. Not user repairable. Avant chaque utilisation et au moins une fois par mois, procédez à l'inspection du matériel conformément au manuel de l'utilisateur, ce qui inclut la fonction de verrouillage (tirez fermement pour la tester), le mécanisme de rétraction, l'état de la corde d'assurance, le fonctionnement et l'état du connecteur, du boîtier et des dispositifs de fixation et la lisibilité des étiquettes. Assurez-vous en outre qu'il n'y ait aucun défaut, dommage ou aucune pièce manquante. Vérifiez s'il y a une rupture ou déchirement de la sangle qui dépasse du couvercle de l'indicateur de charge. Une rupture ou un déchirement de la sangle indique qu'un impact s'est produit et qu'on doit mettre le dispositif hors de service. Une inspection par une personne compétente doit être réalisée au moins une fois par an. Reportez-vous au manuel de l'utilisateur. Si lors d'une inspection il est remarqué que l'équipement peut représenter un danger, ne l'utilisez pas. N'est pas réparable par l'utilisateur. This product is I-Safe enabled and contains an electronic tag that can be read by compatible readers - providing inspection logs, inventory management and other safety information. Ce produit est validé dans I-Safe et contient une rondelle d'identification électronique qui peut être lue par des lecteurs compatibles - en fournissant des registres d'inspection, de l'information sur la gestion des stocks et d'autre information relative à la protection.



(A)

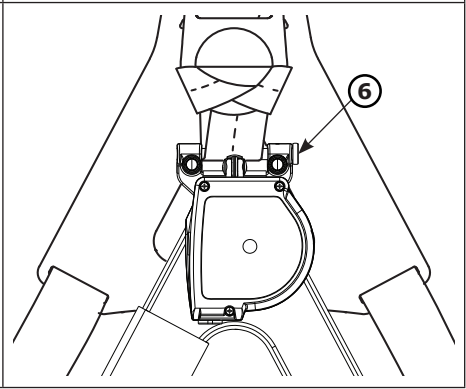
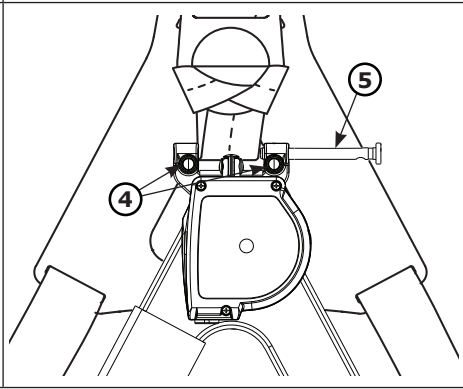
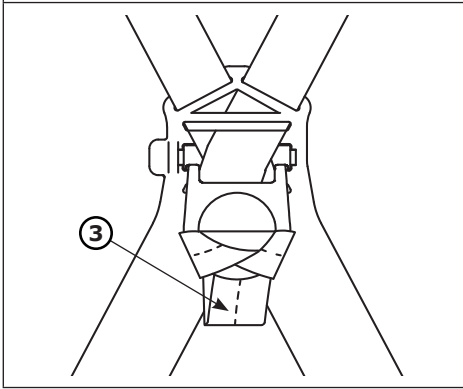
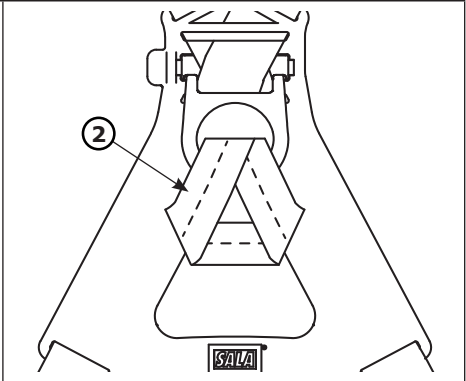
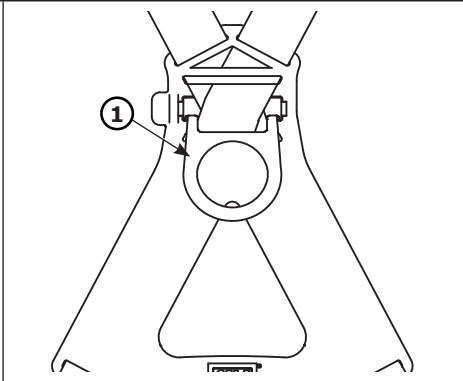
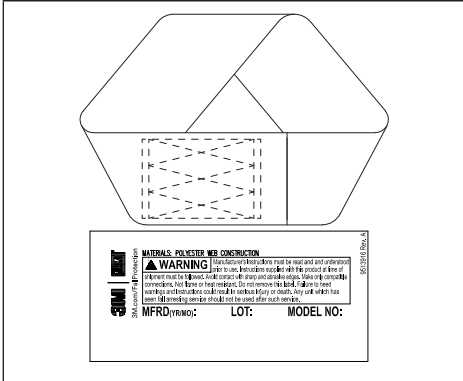


(B)



(C)





Please read, understand, and follow all safety information contained in these instructions prior to the use of this Self-Retracting Device (SRD). FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY OR DEATH.

These instructions must be provided to the user of this equipment. Retain these instructions for future reference.

Intended Use:

This Self-Retracting Device is intended for use as part of a complete personal fall protection system.

Use in any other application including, but not limited to, material handling, recreational or sports related activities, or other activities not described in the User Instructions, is not approved by 3M and could result in serious injury or death.

This device is only to be used by trained users in workplace applications.



WARNING

This Self-Retracting Device is part of a personal fall protection system. It is expected that all users be fully trained in the safe installation and operation of their personal fall protection system. **Misuse of this device could result in serious injury or death.** For proper selection, operation, installation, maintenance, and service, refer to these User Instructions including all manufacturer recommendations, see your supervisor, or contact 3M Technical Services.

- **To reduce the risks associated with working with an SRD which, if not avoided, could result in serious injury or death:**
 - Before each use, inspect the SRD and check for proper locking and retraction.
 - If inspection reveals an unsafe or defective condition, remove the device from service and repair or replace according to the User Instructions.
 - If the SRD has been subjected to fall arrest or impact force, immediately remove the SRD from service and label the device 'UNUSABLE'.
 - Ensure the lifeline is kept free from any and all obstructions including, but not limited to; entanglement with moving machinery or equipment (e.g., the top drive of oil rigs), other workers, yourself, surrounding objects, or impact from overhead objects that could fall onto the lifeline or the worker.
 - Never allow slack in the lifeline. Do not tie or knot the lifeline.
 - Attach the unused leg(s) of the Harness Mounted SRD to the parking attachment(s) of the harness if equipped.
 - Do not use in applications that have an obstructed fall path. Working on slowly shifting material, such as sand or grain, or within confined or cramped spaces, may not allow the worker to reach sufficient speed to cause the SRD to lock. A clear path is required to assure positive locking of the SRD.
 - Avoid sudden or quick movements during normal work operation. This may cause the device to lock up.
 - Ensure that fall protection systems/subsystems assembled from components made by different manufacturers are compatible and meet the requirements of applicable standards, including the ANSI Z359 or other applicable fall protection codes, standards, or requirements. Always consult a Competent and/or Qualified Person before using these systems.
- **To reduce the risks associated with working at height which, if not avoided, could result in serious injury or death:**
 - Ensure your health and physical condition allow you to safely withstand all of the forces associated with working at height. Consult with your doctor if you have any questions regarding your ability to use this equipment.
 - Never exceed allowable capacity of your fall protection equipment.
 - Never exceed maximum free fall distance of your fall protection equipment.
 - Do not use any fall protection equipment that fails pre-use or other scheduled inspections, or if you have concerns about the use or suitability of the equipment for your application. Contact 3M Technical Services with any questions.
 - Some subsystem and component combinations may interfere with the operation of this equipment. Only use compatible connections. Consult 3M prior to using this equipment in combination with components or subsystems other than those described in the User Instructions.
 - Use extra precautions when working around moving machinery (e.g. top drive of oil rigs) electrical hazards, extreme temperatures, chemical hazards, explosive or toxic gases, sharp edges, or below overhead materials that could fall onto you or your fall protection equipment.
 - Use Arc Flash or Hot Works devices when working in high heat environments.
 - Avoid surfaces and objects that can damage the user or equipment.
 - Ensure there is adequate fall clearance when working at height.
 - Never modify or alter your fall protection equipment. Only 3M or parties authorized in writing by 3M may make repairs to the equipment.
 - Prior to use of fall protection equipment, ensure a rescue plan is in place which allows for prompt rescue if a fall incident occurs.
 - If a fall incident occurs, immediately seek medical attention for the worker who has fallen.
 - Do not use a body belt for fall arrest applications. Use only a Full Body Harness.
 - Minimize swing falls by working as directly below the anchorage point as possible.
 - If training with this device, a secondary fall protection system must be utilized in a manner that does not expose the trainee to an unintended fall hazard.
 - Always wear appropriate personal protective equipment when installing, using, or inspecting the device/system.

☑ Before using this equipment, record the product identification information from the ID label in the 'Inspection and Maintenance Log' at the back of this manual.

DESCRIPTION:

Figure 2 identifies key components of the 3M™ DBI-SALA® Nano-Lok Wrap Back Self-Retracting Devices (SRD). Nano-Lok Wrap Back SRDs are Wrap Back webbing lifelines (J) that retract into a Nylon Housing (H). Nano-Lok Wrap Back SRDs include an integral Energy Absorber (I). A Harness Interface (G) allows attachment to a Full Body Harness and Hook and Loop Straps (K) stabilize the Energy Absorber to the Full Body Harness. Figure 1 identifies available Nano-Lok Wrap Back models and their Connector (L) configurations. See Table 1 for Nano-Lok Wrap Back SRD and connector specifications.

The standard SRD contain 8 ft (2.4 m) long web lifelines of which 6 ft (1.82 m) retracts within the SRD housing.

Table 1 – Specifications

Component Specifications:

SRL Housings	Super Tough Nylon, UV Resistant
Drum	Aluminum Alloy
Internal Components	Stainless Steel, Alloy Steel
Lifeline	Lifeline: Kevlar/Dyneema
Energy Absorber	Cover: Polyester and Nylon Fabric, Web: Vectran/Polyester, Stitching: Nylon Thread
Swivel	Zinc Plated Steel
Harness Connector	Aluminum Alloy Frame and Stainless Steel Locking Pin
Fasteners	Zinc Plated Alloy Steel Screws; Stainless Steel Rivets
Locking Pawls	Stainless Steel
Main Shaft	Stainless Steel
Motor Springs	Stainless Steel

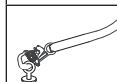
Connector Specifications:

	Description	Model Number	Material	Gate Opening	Gate Strength	Tensile Strength
①	Rebar Snap Hook	2000210	Steel	2-1/2 in (63 mm)	3,600 lbs (16 kN)	5,000 lbs (22.2 kN)
②	WrapBack Rebar Snap Hook	9501804	Steel	3/4 in (19 mm)	5,000 lbs (22.2 kN)	5,000 lbs (22.2 kN)

Lifeline Tensile Strength: 9513161 - 25/32 in. Web, Dyneema/Kevlar, Black, Min. Tensile Strength 4,900 lb (21.8 kN)



Represents wrapped Nano-Lok Wrap Back connection.



Represents straight line Nano-Lok Wrap Back connection.

Performance Specifications:

SRL Specifications	ANSI/OSHA Models	OSHA
Capacity Range	130 lbs - 310 lbs (59 kg - 140 kg)	311 - 420 lbs (141 kg - 191 kg)
Maximum Arresting Force	1,350 lbs (6.0 kN)	1,800 lbs (8 kN)
Average Arresting Force	900 lbs (4.0 kN)	N/A
Claimed Maximum Arresting Distance¹	54 in (1.4 m)	54 in (1.4 m)
Minimum Fall Clearance Required¹	6 ft (1.8 m)	8 ft (2.4 m)
Maximum Free Fall²	5 ft (1.5 m) ²	5 ft (1.5 m) ²

¹ Assumes the SRL is mounted directly above (overhead) the end user.

² **Free Fall:** Correct application of the SRL, with the user working directly below the anchorage point and no lifeline slack, will eliminate Free Fall. Free Fall should be limited to 2 ft (0.6 m) where the user is not directly under the SRL or minimal slack exists in the lifeline.

1.0 APPLICATIONS

- 1.1 PURPOSE:** Self-Retracting Devices (SRDs) are designed to be a component in a personal fall arrest system (PFAS). Figure 1 illustrates SRDs covered by this instruction manual. They may be used in most situations where a combination of worker mobility and fall protection is required (i.e. inspection work, general construction, maintenance work, oil production, confined space work, etc.).
- 1.2 STANDARDS:** Your SRD conforms to the national or regional standard(s) identified on the front cover of these instructions. Refer to the local, state, and federal (OSHA) requirements governing occupational safety for additional information regarding Personal Fall Protection.
- 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 also be aware of the operating characteristics, application limits, and the consequences of improper use.
- 1.4 LIMITATIONS:** Always consider the following limitations when installing or using this equipment:

- **Capacity:** SRDs are for use by one person with a combined weight (clothing, tools, etc.) meeting the *Capacity Range* specified in Table 1 for your standard(s). Make sure all of the components in your system are rated to a capacity appropriate to your application.
- **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 1926.502 and 1910.140:** 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. per user attached, or be designed, installed, and used as part of a complete personal fall arrest systems which maintains a safety factor of at least two, and is under the supervision of a qualified person.

- **Locking Speed:** Situations which do not allow for an unobstructed fall path should be avoided. Working in confined or cramped spaces may not allow the body to reach sufficient speed to cause the SRD to lock if a fall occurs. Working on slowly shifting material, such as sand or grain, may not allow enough speed buildup to cause the SRD to lock. A clear path is required to assure positive locking of the SRD.
- **Free Fall:** When used correctly with the SRD anchored directly overhead and no slack in the lifeline, SRDs will limit the free fall distance to 0 ft (0 cm)¹. To avoid increased fall distances, do not work above the anchorage level. **Do not lengthen SRDs by connecting a lanyard or similar component without consulting 3M.** Never clamp, knot, or prevent the lifeline from retracting or staying taut. Avoid slack line.
- **Swing Falls:** Swing Falls occur when the anchorage point is not directly above the point where a fall occurs. The force of striking an object in a swing fall may cause serious injury (see Figure 3A). Minimize swing falls by working as directly below the anchorage point as possible (Figure 3B). The greater the Maximum Work Radius (H) of the user, the larger the necessary Fall Clearance (FC) will be (Figure 3C).
- **Fall Clearance:** Figure 3B illustrates Fall Clearance Calculation. Fall Clearance (FC) is the sum of Free Fall (FF), Deceleration Distance (DD) and a Safety Factor (SF): $FC = FF + DD + SF$. D-Ring Slide and Harness Stretch are included in the Safety Factor. Fall Clearance values have been calculated and are charted in Figure 4. A Safety Factor of 1.5 ft (0.45 m) was used for all values in Figure 4.

For falls from a standing position where the SRD is anchored directly overhead (Figure 3B), SRD Fall Arrest Systems should have the minimum Fall Clearances specified in Table 1. Falls from a kneeling or crouching position will require an additional 3 ft (1 m) of Fall Clearance. In a swing fall situation (Figure 3C), the total vertical fall distance will be greater than if the user had fallen directly below the anchorage point and may require additional Fall Clearance. Figure 4 and the accompanying table define the Maximum Work Radius (H) for various SRD Anchorage Heights (V) and Fall Clearances (FC). The Recommended Work Zone is limited to the area located within the Maximum Work Radius.

- **Hazards:** Use of this equipment in areas where surrounding hazards exist may require additional precautions to reduce the possibility of injury to the user or damage to the equipment. Hazards may include, but are not limited to: high heat, caustic chemicals, corrosive environments, high voltage power lines, explosive or toxic gases, moving machinery, or overhead materials that may fall and contact the user or fall arrest system. Avoid working where your lifeline may cross or tangle with that of another worker. Avoid working where an object may fall and strike the lifeline; resulting in loss of balance or damage to the lifeline. Do not allow the lifeline to pass under arms or between legs.
- **Sharp Edges:** Sharp edges the SRD lifeline can contact during a fall must have a minimum radius of 0.125 in. (0.3 cm). Where contact with a sharp edge is unavoidable, cover the edge with a protective material.

¹ **Free Fall:** Correct application of the SRD, with the user working directly below the anchorage point and no lifeline slack, will eliminate Free Fall. Free Fall should be limited to 5 ft (1.5 m) for a 310 lb (141 kg) capacity where the user is not directly under the SRD or minimal slack exists in the lifeline. See Figure 4 for acceptable anchorage locations.

2.0 Use

- 2.1 FALL PROTECTION AND RESCUE PLAN:** The employer must have a Fall Protection and Rescue Plan in place that meets *ANSI Z359.2 Minimum Requirements for a Comprehensive Managed Fall Protection Program*. The plan should provide guidelines and requirements for an employer's managed fall protection program, including policies, duties and training; fall protection procedures; eliminating and controlling fall hazards; rescue procedures; incident investigations; and evaluating program effectiveness.
- 2.2 INSPECTION FREQUENCY:** SRDs shall be inspected by the authorized person¹ or rescuer² before each use (See Table 3). Additionally, inspections shall be conducted by a competent person³ other than the user. Extreme working conditions (harsh environment, prolonged use, etc.) may necessitate more frequent competent person inspections. The competent person shall use the *Inspection Schedule (Table 2)* to determine appropriate inspection intervals. Inspection procedures are described in the *Inspection & Maintenance Log (Table 3)*. Results of the Competent Person inspection should be recorded in the *Inspection and Maintenance Log* or recorded with the Radio Frequency Identification (RFID) system (see *Section 5*).
- 2.3 NORMAL OPERATIONS:** Normal operation will allow the lifeline to extend and retract with no hesitation or slack as the worker moves at normal speeds. If a fall occurs, a speed sensing brake system will activate, stopping the fall and absorbing much of the energy created. Sudden or quick movements should be avoided during normal work operation, as this may cause the SRD to lock up. For falls which occur near the end of the lifeline travel, a reserve lifeline system or Energy Absorber has been incorporated to reduce the fall arrest forces.
- 2.4 BODY SUPPORT:** A Full Body Harness must be used with the Self-Retracting Device. The harness connection point must be above the user's center of gravity. A body belt is not authorized for use with the Self-Retracting Device. If a fall occurs when using a body belt it may cause unintentional release or physical trauma from improper body support.
- 2.5 COMPATIBILITY OF COMPONENTS:** Unless otherwise noted, 3M equipment is designed for use with 3M approved components and subsystems only. Substitutions or replacements made with non approved components or subsystems may jeopardize compatibility of equipment and may affect safety and reliability of the complete system.
- 2.6 COMPATIBILITY OF CONNECTORS:** Connectors are considered to be 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. Contact 3M if you have any questions about compatibility. 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. Do not use equipment that is not compatible. Non-compatible connectors may unintentionally disengage (see Figure 5). Connectors must be compatible in size, shape, and strength. Self-locking snap hooks and carabiners are required. If the connecting element to which a snap hook or carabiner attaches is undersized or irregular in shape, a situation could occur where the connecting element applies a force to the gate of the snap hook or carabiner (A). This force may cause the gate to open (B), allowing the snap hook or carabiner to disengage from the connecting point (C).
- 2.7 MAKING CONNECTIONS:** Snap hooks and carabiners used with this equipment must be self-locking. 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. 3M connectors (snap hooks and carabiners) are designed to be used only as specified in each product's user's instructions. See Figure 6 for examples of inappropriate connections. Do not connect snap hooks and carabiners:
- A. To a D-ring to which another connector is attached.
 - B. In a manner that would result in a load on the gate. Large throat snap hooks should 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 is equipped with a 3,600 lb (16 kN) gate.
 - C. In a false engagement, where size or shape of the mating connectors are not compatible and, without visual confirmation, the connectors seem fully engaged.
 - D. To each other.
 - E. Directly to webbing or rope lanyard or tie-back (unless the manufacturer's instructions for both the lanyard and connector specifically allows such a connection).
 - F. To any object which is shaped or dimensioned such that the snap hook or carabiner will not close and lock, or that roll-out could occur.
 - G. In a manner that does not allow the connector to align properly while under load.

Table 2 – Inspection Schedule

Type of Use	Application Examples	Conditions of Use	Inspection Frequency
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
Sever to Continuous	Commercial Construction, Oil and Gas, Mining	Harsh Storage Conditions, Prolonged or Continuous Outdoor Use, All Temperatures, Dirty Environment	Quarterly to Semi-Annually

1 Authorized Person: A person assigned by the employer to perform duties at a location where the 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.

3 Competent Person: An individual designated by the employer to be responsible for the immediate supervision, implementation, and monitoring of the employer's managed fall protection program who, through training and knowledge, is capable of identifying, evaluating, and addressing existing and potential fall hazards, and who has the employer's authority to take prompt corrective action with regard to such hazards.

3.0 Installation

3.1 PLANNING: Plan your fall protection system before starting your work. Account for all factors that may affect your safety before, during, and after a fall. Consider all requirements and limitations defined in Section 2.

3.2 ANCHORAGE: Figure 9 illustrates typical SRD anchorage connections. Select an anchorage location with minimal free fall and swing fall hazards (see Section 1). Select a rigid anchorage point capable of sustaining the static loads defined in Section 1. Where anchoring overhead is not feasible, Nano-Lok SRDs may be secured to an anchorage point below the level of the user's Dorsal D-Ring. For users up to 310 lbs (140 kg), the anchorage point must not be more than 5 ft (1.5m) below the Dorsal D-Ring. Refer to Figure 4 for approved Anchor locations.

☒ Do not tie off in dotted area of clearance charts (Figure 4).

3.3 HARNESS MOUNTING: The Nano-Lok Wrap Back SRDs include an interface for mounting on a Full Body Harness just below the Dorsal D-ring. The worker can then connect the lifeline end of the SRD to anchorage points located throughout the work site. To mount the Wrap Back SRD on a Full Body Harness (see Figure 8):

☒ Some Full Body Harnesses are equipped with a Personal SRD Link (PSRD Link) that integrates the Dorsal D-Ring with attachment elements for Harness Mounted Self-Retracting Devices (Figure 7).

- 1. Loosen the Harness Webbing:** Pull out on both Shoulder Straps (A) where they pass through the bottom of the Dorsal D-Ring (B) until there is sufficient space to slide the locking pin between the Shoulder Straps and Back Pad.
- 2. Open the Harness Interface:** Push down on the Locking Buttons (C) simultaneously and slide the Locking Pin (D) out.

☒ Both locking pins must be fully depressed to allow the locking pin to slide out. To slide the locking pin open, apply firm pressure to both locking buttons with the thumbs while simultaneously pulling on the locking pin head with an index finger.

- 3. Insert the Locking Pin Through the Shoulder Straps:** With the Locking Buttons (C) facing out and Locking Pin facing up, insert the Detent Pin (D) of the Harness Interface (E) behind both Shoulder Straps (A) and lock in place. Pull the shoulder Straps back through the Dorsal D-Ring and Back Pad to remove slack.
- 4. Connect Hook and Loop Straps around the Shoulder Straps:** Open the hook and loop straps (F) located on the bottom of the Energy Absorber Pack. Wrap the hook and loop straps around the Shoulder Straps and secure.

☒ The Red Band (G) on the knob end of the Harness Interface Locking Pin will be exposed if the Harness Interface is unlocked. To avoid accidental release of the connection, always make sure the Harness Interface is locked before using the Harness and attached SRD. Failure to do so could result in injury or death.

- 5. Alternate Attachment Strap:** The Nano-Lok Wrap Back SRD Attachment Strap (3100184), can be used as an alternative means of securing the bottom of the Nano-Lok Pack when the harness geometry precludes the use of the integral hook and loop straps. (See Figure 18) and refer to Placement Instructions below.

A. Placement Instructions: Figure 18A, shows the Nano-Lok Wrap Back SRD Attachment Strap.

- Note that the Nano-Lok SRD Attachment Strap uses hook and loop closures: Hook ends (1), loop ends (2).
- Position Attachment Strap hook ends (1) under the harness shoulder straps and loop ends (2) over energy absorber covers, as seen in Figure 18B.
- Wrap loop straps over energy absorber cover and harness shoulder straps. Secure snugly with hoop straps as seen in Figure 18C.

☒ First time or infrequent users of Self-Retracting Devices (SRDs) should review the "Safety Information" at the beginning of this manual prior to use of the SRD.

- 6. Web Loop Harness Adapter:** The Nano-Lok SRL Web Loop Harness Adapter (P/N 3500046) (see Figure 19) is a web loop that allows the SRD to be used on harnesses that are not compatible with the SRD Harness Interface connector. This applies primarily to harnesses with fixed D-Rings that do not have enough slack in the harness web to allow the pin of the connector to pass through.

Step 1: Position harness D-Ring (1) as shown.

Step 2: From behind and at the bottom of the D-Ring, insert the Web Loop up through the D-Ring and fold the top of the loop down (2).

Step 3: Pull the top of Web Loop (3) down through the bottom of the Web Loop.

Step 4: Open the Nano-Lok SRL Harness Interface. Push down on the Locking Buttons (4) simultaneously and slide the Locking Pin (5) out. Position the Web Loop between the sides of the Harness Interface as shown.

Step 5: Insert the Locking Pin (6) Through the Web Loop. Confirm that the Locking Pin has locked in the closed position. If properly closed, the Red Band on the Locking Pin will not be visible.

4.0 Use

- 4.1 BEFORE EACH USE:** Before each use of this fall protection equipment carefully inspect it to assure it is in good working condition. Check for worn or damaged parts. Ensure all bolts are present and secure. Check that the lifeline is retracting properly by pulling out the line and allowing it to slowly retract. If there is any hesitation in retraction the unit should be removed from service and destroyed. Inspect the lifeline for cuts, frays, burns, crushing and corrosion. Check locking action by pulling sharply on the line. See the Inspection and Maintenance Log (Table 3) for inspection details. Do not use if inspection reveals an unsafe condition.
- 4.2 AFTER A FALL:** Any equipment which has been subjected to the forces of arresting a fall or exhibits damage consistent with the effect of fall arrest forces as described in Table 3, must be removed from service immediately and destroyed.
- 4.3 BODY SUPPORT:** A full body harness must be worn when using SRDs.
- 4.4 MAKING CONNECTIONS:** Figure 9 illustrates harness and anchorage connections for SRD Fall Arrest Systems. When using a hook to make a connection, ensure roll-out cannot occur (see Figure 5). Do not use hooks or connectors that will not completely close over the attachment object. Do not use non-locking snap hooks. The anchorage must meet the anchorage strength requirements stated in Section 1. Follow the manufacturer's instructions supplied with each system component.
- 4.5 WRAP BACK ATTACHMENT:** Wrap Back snap hooks operate in the same manner as many conventional snap hooks. See Figure 9D: Gripping the hook in one hand, the index finger depresses the locking mechanism (F). With the thumb, the gate latch is pulled back (G). As the gate latch is pulled back, the gate will open. Release the grip and the gate will close. Wrap the Wrap Back portion of the lifeline around an appropriate anchor (H), then open the gate of the Wrap Back snap hook and pass the Wrap Back web portion of the lifeline through the snap hook. The lifeline may only pass through the Wrap Back hook once. Make sure the Wrap back portion of the lifeline is captured and the gate closes completely.
- ☒ Only the Wrap Back hook may be used to snap back onto the Wrap Back portion of the SRD Lifeline. When installed, the Wrap Back hook must contact the heavy web section (Wrap Back portion of the lifeline). If the anchor structure is so large that the Wrap Back hook contacts the lifeline above the Wrap Back portion of the lifeline, a different anchor structure must be used. Failure to heed this warning may result in equipment malfunction, serious injury, or death.
- ☒ A minimum setback distance of 2 ft (0.6 m) is required when using Nano-Lok Wrap Back SRDs.
- ☒ Never connect the Wrap Back snap hook of one SRD to the lifeline of another SRD or lanyard. Failure to heed this warning may result in equipment malfunction, serious injury or death.
- 4.6 OPERATION:** Prior to use, inspect the SRD as described in the "Inspection and Maintenance Log" (Table 3). Figure 9 shows system connections for typical SRD applications. Connect the SRD on the back of a Full Body Harness per the instructions in Section 3. For harness-mounted SRDs, connect the Snap Hook (B) to a suitable anchorage (A), while a Harness Interface (C) is used to secure the SRD to the Full Body Harness. For climbing applications, a Twin SRD (D) should be used in conjunction with two Rebar Hooks (E), which will secure the user to anchorage. Ensure connections are compatible in size, shape, and strength. Ensure hooks are fully closed and locked. Once attached, the worker is free to move about within the recommended working area at normal speeds. If a fall occurs the SRD will lock and arrest the fall. Upon rescue, remove the SRD from use. When working with an SRD, always allow the lifeline to recoil back into the device under control.
- 4.7 TWIN SRD INTERFACE 100% TIE-OFF:** When two SRDs are mounted side-by-side on the back of a Full Body Harness, the SRD Fall Arrest System can be used for continuous fall protection (100 % tie-off) while ascending, descending, or moving laterally (see Figure 9B). With the Lanyard Leg of one SRD attached to an anchorage point, the worker can move to a new location, attach the unused Lanyard Leg of the other SRD to another anchorage point, and then disconnect from the original anchorage point. The sequence is repeated until the worker reaches the desired location. Considerations for Twin SRD 100% tie-off applications include the following:
- Never connect both SRD Lanyards to the same anchorage point (see Figure 11A).
 - Connecting more than one connector into a single anchorage (ring or eye) can jeopardize compatibility of the connection due to interaction between connectors and is not recommended.
 - Connect each SRD Lanyard to a separate anchorage point (see Figure 11B).
 - Each connection location must independently support 2,248 lbs (10 kN) or be an engineered system, as with a Horizontal Lifeline.
 - Never connect more than one person at a time to the Twin SRD system (see Figure 11C).
 - Do not allow the Lanyards to become tangled or twisted together as this may prevent them from retracting.
 - Do not allow any Lanyard to pass under arms or between legs during use.
- 4.8 HORIZONTAL SYSTEMS:** In applications where the SRD is used in conjunction with a horizontal system (i.e. Horizontal Lifeline, Horizontal I-Beams Trolley), the SRD and horizontal system components must be compatible. Horizontal systems must be designed and installed under the supervision of a qualified engineer. Consult the horizontal system equipment manufacturer's instructions for details.

5.0 Inspection

- 5.1 RFID TAG:** The Self-Retracting Device includes a Radio Frequency Identification Device (RFID) tag (see Figure 11). The RFID tag (A) can be used with the handheld reading device and web based portal to simplify inspection and inventory control and provide records for your fall protection equipment. For details, contact a 3M Customer Service representative (see back cover). Follow the instructions provided with your handheld reader, or on the web portal, to transfer your data to your web log.
- 5.2 INSPECTION FREQUENCY:** The Self-Retracting Device must be inspected at the intervals defined in Section 2. Inspection procedures are described in the "Inspection & Maintenance Log" (Table 3).

☒ *Extreme working conditions (harsh environments, prolonged use, etc.) may require increasing the frequency of inspections (see Table 2).*

- 5.2 UNSAFE OR DEFECTIVE CONDITIONS:** If inspection reveals an unsafe or defective condition, remove the SRD from service immediately and discard (see Section 6).

☒ *Only 3M or parties authorized in writing may make repairs to this equipment.*

- 5.3 PRODUCT LIFE:** The functional life of 3M Self-Retracting Devices is determined by work conditions and maintenance. As long as the product passes inspection criteria, it may remain in service.

6.0 MAINTENANCE, SERVICE, AND STORAGE

- 6.1 CLEANING:** Cleaning procedures for the SRD are as follows:

- Periodically clean the exterior of the SRD using water and a mild soap solution. Position the SRD so excess water can drain out. Clean labels as required.
- Clean the Lifeline with water and mild soap solution. Rinse and thoroughly air dry. Do not force dry with heat. The lifeline should be dry before allowing it to retract into the housing. An excessive buildup of dirt, paint, etc., may prevent the lifeline from fully retracting back into the housing causing a potential free fall hazard.

- 6.2 SERVICE:** SRDs are not repairable. If the SRD has been subjected to fall force or inspection reveals an unsafe or defective condition, remove the SRD from service and discard (see "Disposal").

- 6.3 STORAGE/TRANSPORT:** Store and transport SRDs in a cool, dry, clean environment out of direct sunlight. Avoid areas where chemical vapors may exist. Thoroughly inspect the SRD after any period of extended storage.

- 6.4 DISPOSAL:** Dispose of the SRD if it has been subjected to fall arrest forces or if inspection reveals an unsafe or defective condition. Before disposing of the SRD, cut the lifeline in half or otherwise disable the SRD to eliminate the possibility of inadvertent reuse.

7.0 LABELS

Figure 17 illustrates labels on the Self-Retracting Devices and their locations. All labels must be present on the SRD. Labels must be replaced if they are not fully legible.

A	Twin Models. Wrap Back Type SRD (1).
B	Harness Interface Stampings. XX=Year Manufactured (1), YY=Heat Lot/Batch Code (2), Supplier Part Number (3).
C	WrapBack label, located on lifeline connector.
D	Specifications/Inspection Label
E	Inspection Label
F	Anchorage and Use Label
G	Single Models. Wrap Back Type SRD (1).

Table 3 – Inspection and Maintenance Log

Serial Number(s):		Date Purchased:	
Model Number:		Date of First Use:	
Inspection Date:		Inspected By:	
Component:	Inspection: (See Section 2 for <i>Inspection Frequency</i>)	Pass	Fail
SRD (Figure 12)	Inspect for loose fasteners and bent or damaged parts.	<input type="checkbox"/>	<input type="checkbox"/>
	Inspect the Housing (A) for distortion, cracks, or other damage.	<input type="checkbox"/>	<input type="checkbox"/>
	Inspect the Harness Interface (C) for distortion, cracks, or other damage. The interface should pivot freely.	<input type="checkbox"/>	<input type="checkbox"/>
	The Web or Cable Lifeline (B) should pull out and retract fully without hesitation or creating a slack line condition.	<input type="checkbox"/>	<input type="checkbox"/>
	Ensure the SRD locks up when the Lifeline is jerked sharply. Lockup should be positive with no slipping.	<input type="checkbox"/>	<input type="checkbox"/>
	All labels must be present and fully legible (see Figure 18).	<input type="checkbox"/>	<input type="checkbox"/>
	Inspect the entire SRD for signs of corrosion.	<input type="checkbox"/>	<input type="checkbox"/>
	Inspect the Harness Locking Pin (D) to ensure it is securely closed and locked around the harness shoulder straps.	<input type="checkbox"/>	<input type="checkbox"/>
	Inspect the Hook and Loop Straps (E) for excessive wear.	<input type="checkbox"/>	<input type="checkbox"/>
End Connectors (Figure 13)	Table 1 identifies the End Connectors that should be included on your Nano-Lok SRD model. Inspect all Snap Hooks, Carabiners, Rebar Hooks, Interfaces, etc. for signs of damage, corrosion, and proper working condition. Where present: Gates (A) should open, close, lock, and unlock properly.	<input type="checkbox"/>	<input type="checkbox"/>
Web Lifelines (Figure 14)	Inspect Webbing and/or Rope Lifelines; material must be free of cuts (A), frays (B), or broken fibers. Check for tears, abrasions, heavy soiling (C), mold, burns (D), or discoloration. Inspect stitching; Check for pulled or cut stitches. Broken stitches may be an indication that the Energy Absorber has been impact loaded and must be removed from service.	<input type="checkbox"/>	<input type="checkbox"/>
Wire Rope Lifelines (Figure 15)	Inspect wire rope for cuts, kinks (A), broken wires (B), bird-caging (C), welding splatter, (D) corrosion, chemical contact areas, or severely abraded areas. Slide the cable bumper up and inspect ferrules for cracks or damage and inspect the wire rope for corrosion and broken wires. Replace the wire rope assembly if there are six or more randomly distributed broken wires in one lay, or three or more broken wires in one strand in one lay. A "lay" of wire rope is the length of wire rope it takes for a strand (the larger groups of wires) to complete one revolution or twist along the rope. Replace the wire rope assembly if there are any broken wires within 1 inch (25 mm) of the ferrules.	<input type="checkbox"/>	<input type="checkbox"/>
Energy Absorber (Figure 16)	Verify that the integral Energy Absorber has not been activated. An open cover or torn cover (A), webbing pulled out of the cover, torn or frayed webbing, ripped stitching, etc. are indicators of an activated Energy Absorber.	<input type="checkbox"/>	<input type="checkbox"/>

Corrective Action/Maintenance:	Approved By:
	Date:
Corrective Action/Maintenance:	Approved By:
	Date:
Corrective Action/Maintenance:	Approved By:
	Date:
Corrective Action/Maintenance:	Approved By:
	Date:
Corrective Action/Maintenance:	Approved By:
	Date:
Corrective Action/Maintenance:	Approved By:
	Date:
Corrective Action/Maintenance:	Approved By:
	Date:

U.S. PRODUCT WARRANTY, LIMITED REMEDY AND LIMITATION OF LIABILITY

WARRANTY: THE FOLLOWING IS MADE IN LIEU OF ALL WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Unless otherwise provided by applicable law, 3M fall protection products are warranted against factory defects in workmanship and materials for a period of one year from the date of installation or first use by the original owner.

LIMITED REMEDY: Upon written notice to 3M, 3M will repair or replace any product determined by 3M to have a factory defect in workmanship or materials. 3M reserves the right to require product be returned to its facility for evaluation of warranty claims. This warranty does not cover product damage due to wear, abuse, misuse, damage in transit, failure to maintain the product or other damage beyond 3M's control. 3M will be the sole judge of product condition and warranty options.

This warranty applies only to the original purchaser and is the only warranty applicable to 3M's fall protection products. Please contact 3M's customer service department at 800-328-6146 or via email at 3MFallProtection@mmm.com for assistance.

LIMITATION OF LIABILITY: TO THE EXTENT PERMITTED BY APPLICABLE LAW, 3M IS NOT LIABLE FOR ANY INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES INCLUDING, BUT NOT LIMITED TO LOSS OF PROFITS, IN ANY WAY RELATED TO THE PRODUCTS REGARDLESS OF THE LEGAL THEORY ASSERTED.



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EU DECLARATION OF CONFORMITY:
3M.com/FallProtection/DOC