

ANSI Z359.13	OSHA 1910.140
ANSI Z359.3	OSHA 1926.502

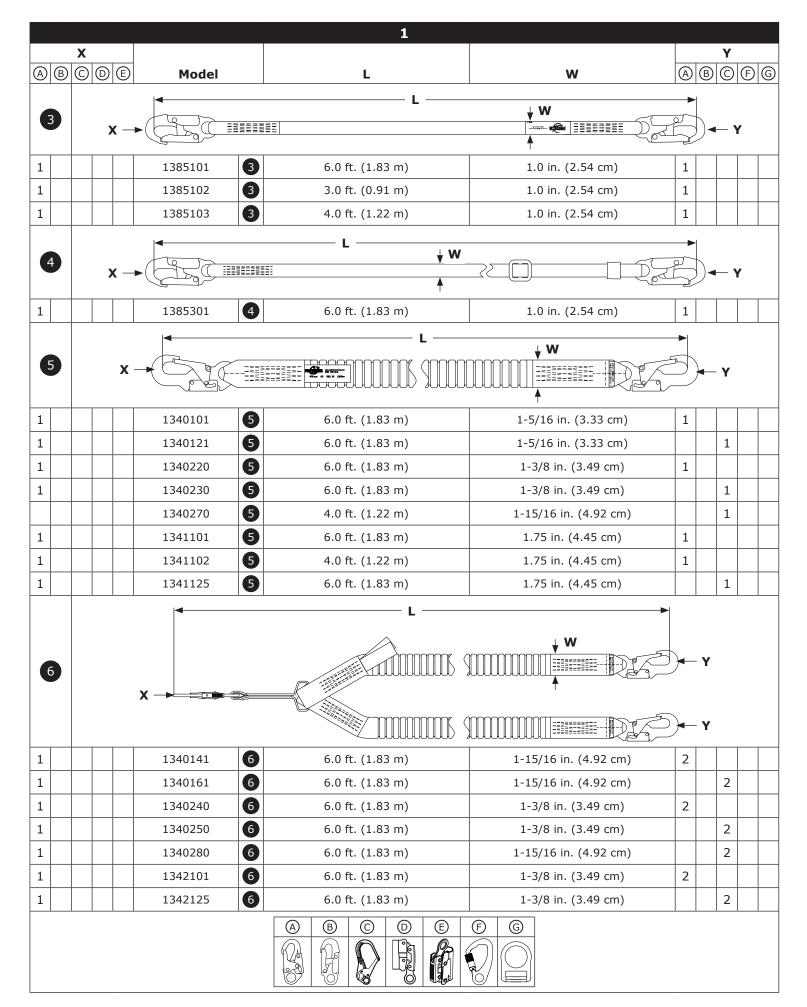
# Pro Series Lanyards

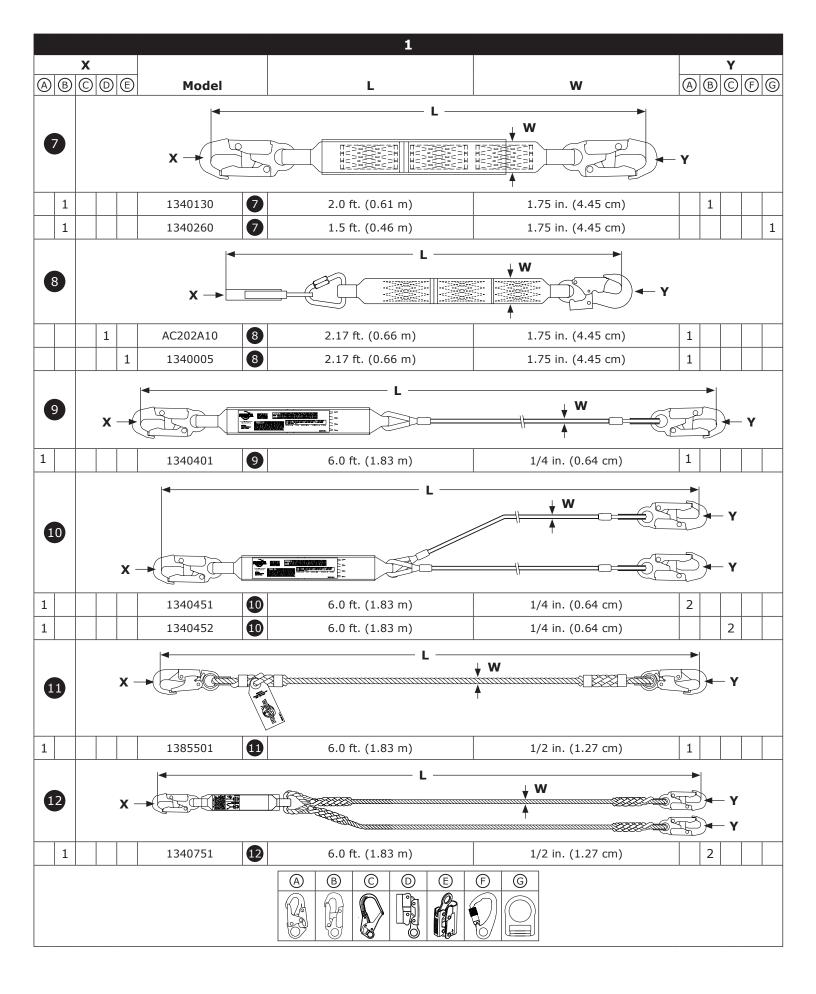
# USER INSTRUCTIONS

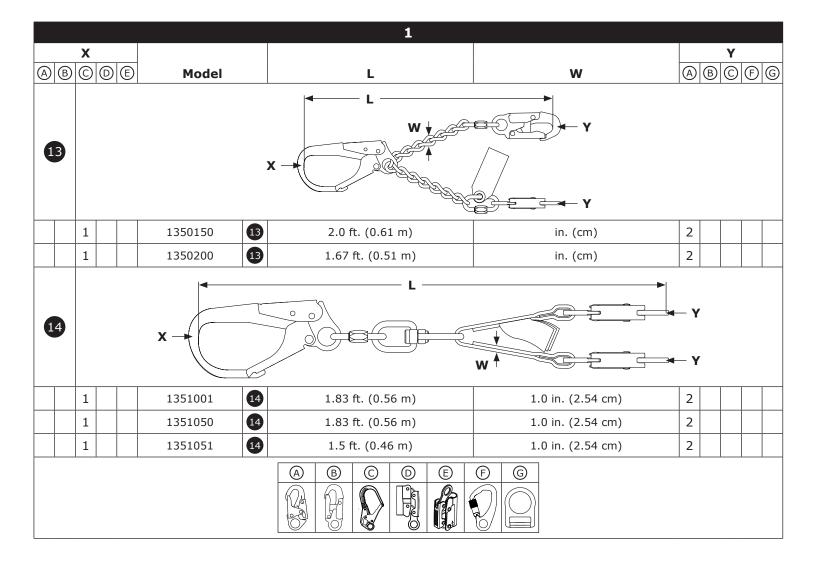
5902281 Rev. J

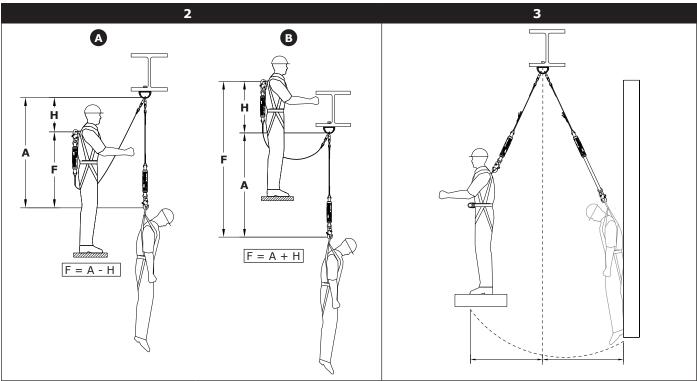
# DBI SALA

Fa	II P	rotection								
				1		1				
A	B	X C D E	Model	L	w	A	B	<b>Y</b> ©	FG	)
				L		•				
							- <b>Y</b>			
1			1340040	6.0 ft. (1.83 m)	1.75 in. (4.45 cm)				1	
1				6.0 ft. (1.83 m)	1.95 in. (4.95 cm)			1		
	1		1340200	6.0 ft. (1.83 m)	1.75 in. (4.45 cm)		1			
1			1341001	6.0 ft. (1.83 m)	1.95 in. (4.95 cm)	1				1
1			1341002	3.0 ft. (0.91 m)	1.95 in. (4.95 cm)	1				
1			1341004	4.0 ft. (1.22 m)	1.95 in. (4.95 cm)	1				
1			1341050	6.0 ft. (1.83 m)	1.75 in. (4.45 cm)	1				
1			1341051	6.0 ft. (1.83 m)	1.75 in. (4.45 cm)			1		
			Х → ि			Y				
	1		1340060	6.0 ft. (1.83 m)	1.75 in. (4.45 cm)				1	-
1			1340180	6.0 ft. (1.83 m)	1.95 in. (4.95 cm)			2		
1			1340181	5.0 ft. (1.52 m)	1.95 in. (4.95 cm)			2		
1			1340182	4.0 ft. (1.22 m)	1.95 in. (4.95 cm)			2		
1			1340183	10.0 ft. (3.05 m)	1.95 in. (4.95 cm)			2		
1			1340187	6.0 ft. (1.83 m)	1.95 in. (4.95 cm)	2				
1			1342001	6.0 ft. (1.83 m)	1.95 in. (4.95 cm)	2				
1				6.0 ft. (1.83 m)	1.75 in. (4.45 cm)	2				
1				6.0 ft. (1.83 m)	1.75 in. (4.45 cm)			1		
1				6.0 ft. (1.83 m)	1.75 in. (4.45 cm)	1				
1			1342275	6.0 ft. (1.83 m)	1.75 in. (4.45 cm)			1		
				A     B     C     D     E       Image: A state of the stateo						

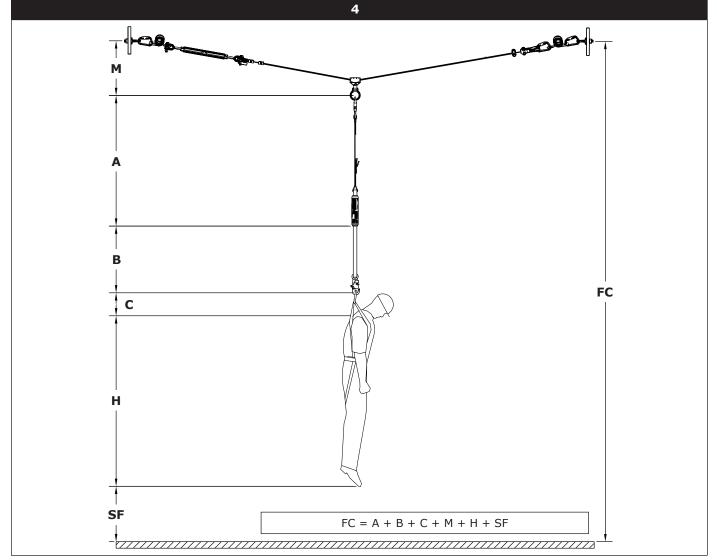


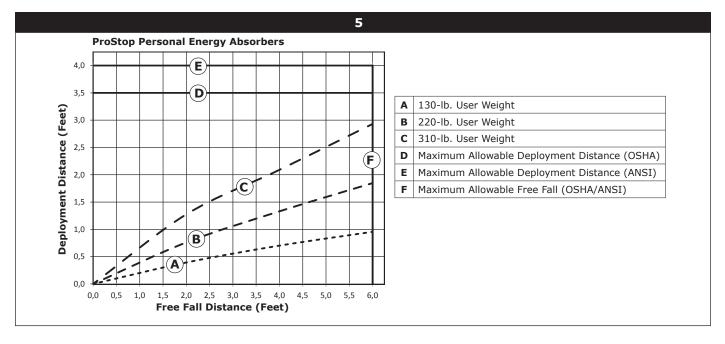


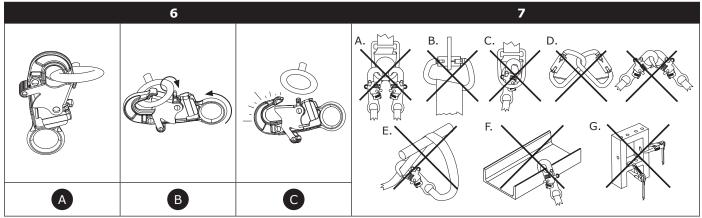


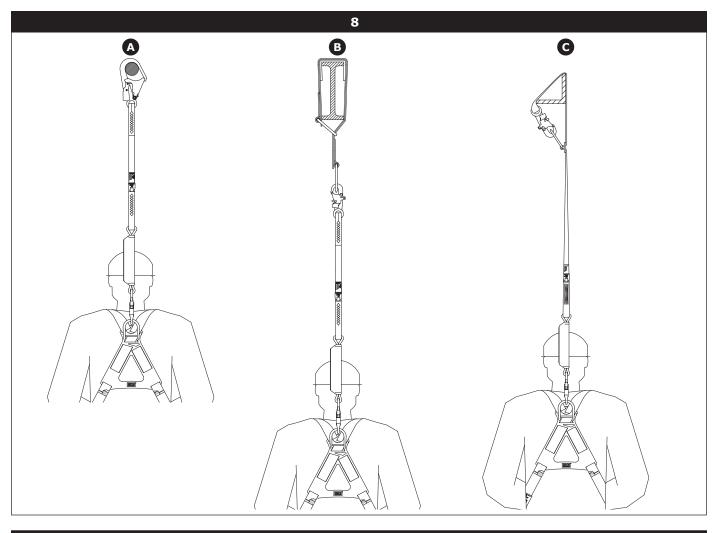


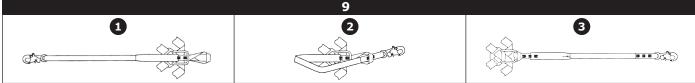


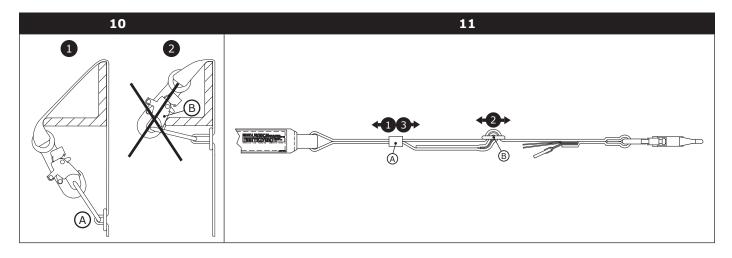


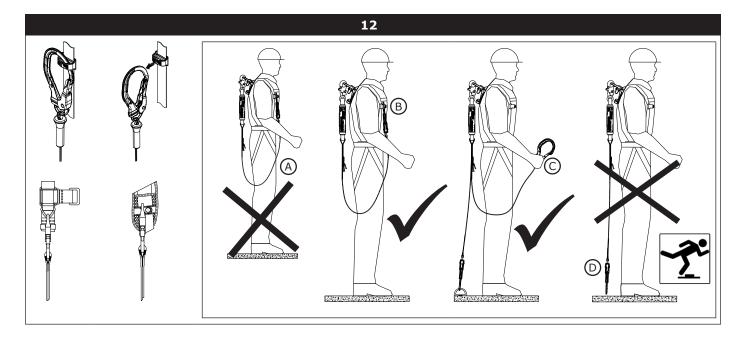


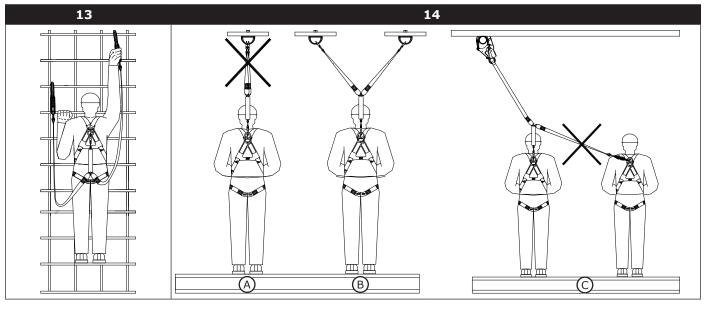


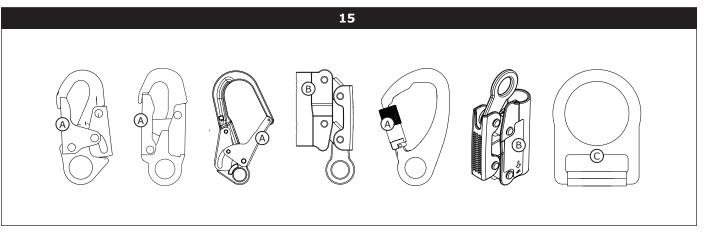


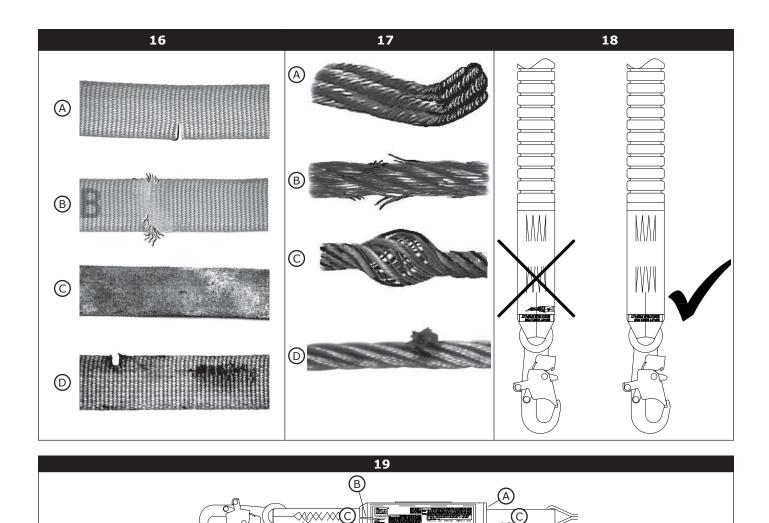




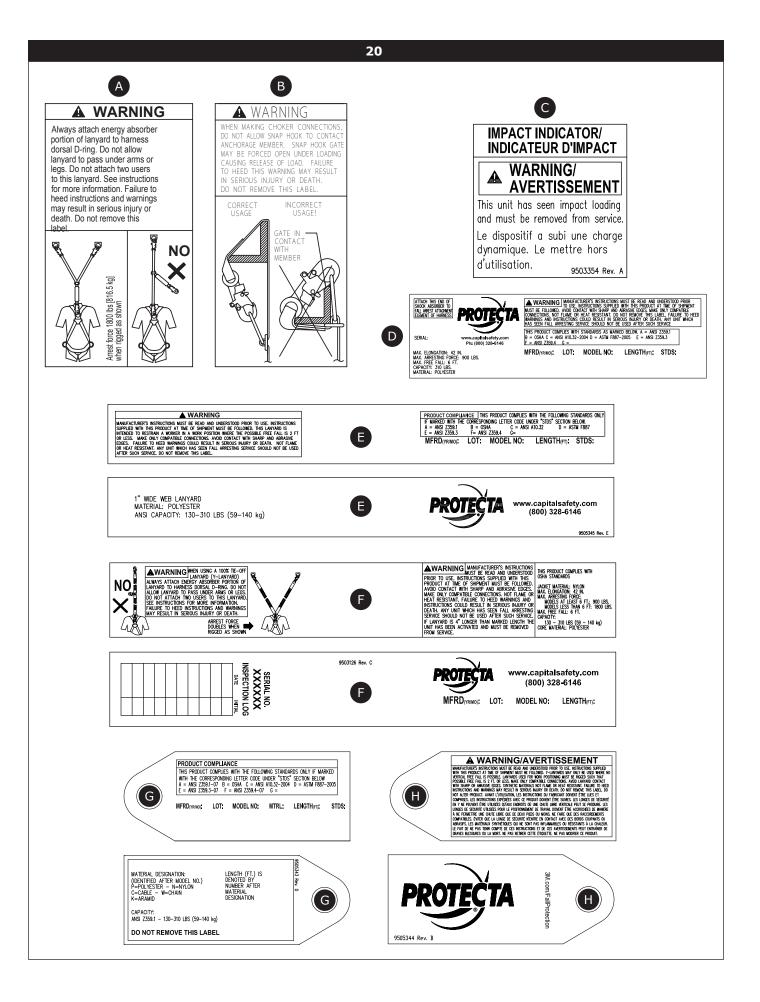


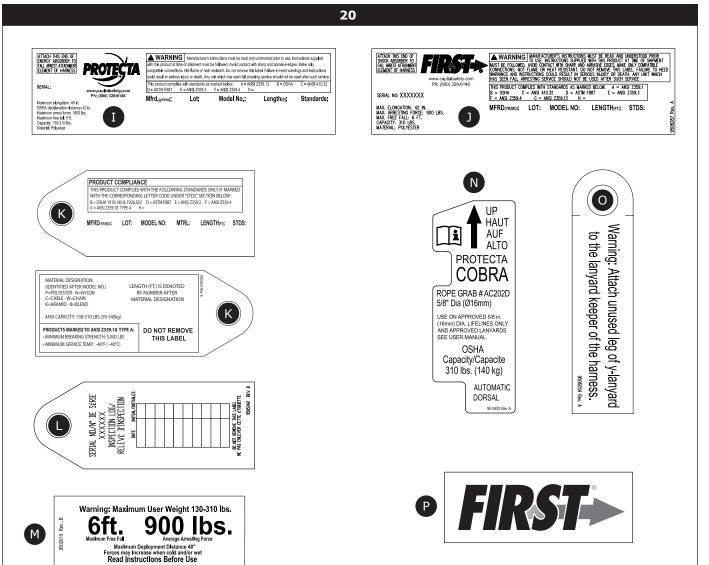






Ē





AE57610	P	1385301	e	1340121	<b>O</b> , <b>F</b>	1340130	D
AC202A10		AE57630	P	1340220	<b>G</b> , <b>F</b>	1340260	D
1340005	D	1340060		1340230	<b>GF</b>	1340401	D
1340040	<b>B</b> , <b>D</b>	1340180		1340270	<b>O</b> , <b>F</b>	1340451	A, D
1340125	<b>D</b> , <b>M</b>	1340181		1341101	D	1340452	A D
1340200	B,D	1340182		1341102	D	1385501	G, C, C
1341001	<b>D</b> , <b>M</b>	1340183		1341125	D	1340751	A, D
1341002	<b>D</b> ,M	1340187		1340141	<b>O</b> , <b>F</b>	1350150	-
1341004	<b>D</b> ,M	1342001		1340161	<b>O</b> , <b>F</b>	1350200	K
1341050	D	1342200		1340240	<b>G</b> , <b>F</b>	1351001	G, H, C
1341051	D	1342201		1340250	<b>G</b> , <b>F</b>	1351050	G, H, C
1385101	e	1342250	A,D	1340280	<b>O</b> , <b>F</b>	1351051	G, H, C
1385102	e	1342275	<b>A D</b>	1342101			
1385103	e	1340101	<b>O</b> , <b>P</b>	1342125	A,D		

## EN SAFETY INFORMATION

Please read, understand, and follow all safety information contained in these instructions prior to the use of this Energy Absorbing Lanyard. 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 Energy Absorbing Lanyard 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 Energy Absorbing Lanyard 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 and all manufacturer recommendations, see your supervisor, or contact 3M Technical Services.

- To reduce the risks associated with working with an Energy Absorbing Lanyard which, if not avoided, could result in serious injury or death:
  - Inspect the device before each use, at least annually, and after any fall event. Inspect in accordance with the User Instructions.
  - If inspection reveals an unsafe or defective condition, remove the device from service and destroy it.
  - Any device that has been subject to fall arrest or impact force must be immediately removed from service. Refer to the User Instructions or contact 3M Fall Protection.
  - Ensure all connecting subsystems (e.g. lanyards) are kept free from all hazards including, but not limited to, entanglement with other workers, yourself, moving machinery, or other surrounding objects.
  - Ensure proper edge protection is used when the device may come into contact with sharp edges or corners.
  - Attach the unused leg(s) of the lanyard to the parking attachment(s) on the harness if equipped.
  - Do not tie or knot the lanyard.
  - Do not exceed the number of allowable users.
  - 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 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 the 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.

## SAFETY INFORMATION

Please read, understand, and follow all safety information contained in these instructions prior to the use of this Work Positioning/Travel Restraint Lanyard. 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 Work Positioning/Travel Restraint Lanyard is intended for use as part of a complete personal fall protection system. Work Positioning/ Travel restraint lanyards are used to prevent the user from reaching or being exposed to a fall hazard.

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.

# \land WARNING

This Work Positioning/Travel Restraint Lanyard 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 and all manufacturer recommendations, see your supervisor, or contact 3M Technical Services.

- To reduce the risks associated with working with a Work Positioning/Travel Restraint Lanyard which, if not avoided, could result in serious injury or death:
  - Only use this device for work positioning or in travel restraint applications. Work Positioning Lanyards must be configured to limit free fall distance to two feet or less and minimize swing fall. Travel Restraint Lanyards must prevent the user from reaching or being exposed to a fall hazard.
  - Never use this lanyard (i.e., a non-energy absorbing lanyard) as a primary fall arrest device.
  - Inspect the device before each use, at least annually, and after any fall event. Inspect in accordance with the User Instructions.
  - If inspection reveals an unsafe or defective condition, remove the device from service and destroy it.
  - Any device that has been subject to fall arrest or impact force must be immediately removed from service. Refer to the User Instructions or contact 3M Fall Protection.
  - Ensure all connecting subsystems (e.g. lanyards) are kept free from all hazards including, but not limited to, entanglement with
    other workers, yourself, moving machinery, or other surrounding objects.
  - Ensure proper edge protection is used when the lifeline may come into contact with sharp edges or corners.
  - Ensure the device is rigged appropriately for the intended use.
  - Attach the unused leg(s) of the lanyard to the parking attachment(s) of the harness if equipped.
  - Do not tie or knot the lanyard.
  - Do not exceed the number of allowable users.
  - 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 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.

 $\mathbf{V}$  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.

 $\mathbf{V}$  Always ensure you are using the latest revision of your 3M instruction manual. Visit the 3M website or contact 3M Technical Services for updated instruction manuals.

## **PRODUCT DESCRIPTION:**

Figure 1 lists the  $3M^{\text{TM}}$  DBI-SALA<sup>®</sup> Pro Series Lanyards covered by this instruction manual. Lanyards covered in this instruction may be used for Restraint or Work Positioning applications. Energy-Absorbing Lanyards may be used for Fall Arrest applications as well.

Lanyards are web or cable tethers with connectors on either end. Connectors wil vary per model, as will the presence of an energy absorber. Only Energy-Absorbing Lanyards will include energy absorbers for Fall Arrest.

One end of the lanyard will secure to the designated attachment element on the user's harness, while the other end secures to anchorage connection point or anchorage structure. For Energy-Absorbing Lanyards, the end with the energy absorber should always connect to the user's harness. Twin Leg Lanyard models provide 100-percent tie-off while moving from point to point. See Table 1 for Lanyard and Connector specifications.

☑ Only specific models covered by this instruction include energy absorbers. See Table 1 for more information. Only lanyard models that include an integral energy absorber should be used for Fall Arrest applications. All other models are limited to Restraint or Work Positioning applications and should not be used to arrest a fall.

## Table 1 – Specifications

#### Lanyard Specifications:

Figure 1 Reference	Description	Material	Energy Absorber	ANSI Standard Certification
1	Protecta Energy-Absorbing Lanyard	Web - Polyester	Shock Pack	ANSI Z359.13
2	Protecta Energy-Absorbing Lanyard 100% Tie-Off	Web - Polyester	Shock Pack	ANSI Z359.13
3	Protecta Lanyard	Web - Polyester		ANSI Z359.3
4	Protecta Adjustable Lanyard	Web - Polyester		ANSI Z359.3
5	Protecta Energy-Absorbing Lanyard	Web - Elastic Polyester	Tubular Web	ANSI Z359.13
6	Protecta Energy-Absorbing Lanyard 100% Tie-Off	Web - Elastic Polyester	Tubular Web	ANSI Z359.13
7	Protecta Lanyard	Web - Polyester	Shock Pack	ANSI Z359.13
8	Protecta Lanyard with Rope Grab	Web - Polyester	Shock Pack	ANSI Z359.13
9	Protecta Energy-Absorbing Lanyard	Cable - Galvanized	Shock Pack	ANSI Z359.13
10	Protecta Energy-Absorbing Lanyard 100% Tie-Off	Cable - Galvanized	Shock Pack	ANSI Z359.13
1	Protecta Lanyard	Nylon Rope		ANSI Z359.3
12	Protecta Energy-Absorbing Lanyard 100% Tie-Off	Nylon Rope	Shock Pack	ANSI Z359.13
13	Protecta Rebar Assembly	Zinc-Plated Steel Chain		ANSI Z359.3
14	Protecta Rebar Assembly	Web - Polyester		ANSI Z359.3

### **Connector Specifications:**

Figure 1 Reference	Model Number	Description	Material	Gate Opening	Gate Strength	Tensile Strength
A	2000161	Snap Hook	Zinc-Plated Steel	3/4 in. (19 mm)	3,600 lbf (16 kN)	5,000 lbf (22.2 kN)
B	9502573	Snap Hook	Zinc-Plated Steel	2-3/8 in. (60 mm)	3,600 lbf (16 kN)	5,000 lbf (22.2 kN)
C	2000164	Rebar Hook	Alloy Steel	2-3/8 in. (60 mm)	3,600 lbf (16 kN)	5,000 lbf (22.2 kN)
D	9501908	Rope Grab	Steel			
Ē	1300021	Rope Grab	Steel			
F	9504413	Carabiner	Zinc-Plated Steel	1-1/8 in. (28.6 mm)	5,000 lbf (22.2 kN)	5,000 lbf (22.2 kN)
G	9000047	D-Ring	Alloy Steel			

#### **Performance Specifications:**

Capacity:	One person with a combined weight (including clothing, tools, etc.) within the range of 130 lb. to 310 lb. (59 kg to 140 kg).
Average Arresting Force:	900 lbf (4.0 kN)
Maximum Free Fall:	6.0 ft. (1.83 m)

## Table 1 – Specifications

## Energy Absorber Deployment (Figure 5)

Figure 5 illustrates Free Fall and Deployment Distance of Energy Absorbers at different user weights. To use the graph, look up your required Free Fall Distance along the 'X' axis, find the User Weight graph line nearest to your applicable value, and then determine the Deployment Distance of that graph line by reading the 'Y' axis. Deployment Distance and Free Fall Distance should never exceed the limits of your applicable standard (see below). If your weight falls between the user weights displayed on the graph, refer to the higher of the two lines when determining Deployment Distance.

Figure 5 Reference Description	
A	130 lb. User Weight
B	220 lb. User Weight
©	310 lb. User Weight
D	Maximum Deployment Distance (OSHA)
E	Maximum Deployment Distance (ANSI)
F	Maximum Free Fall (OSHA/ANSI)

## **1.0 PRODUCT APPLICATION**

**1.1 PURPOSE:** Lanyards are designed for use in Restraint or Work Positioning applications. Energy-Absorbing Lanyards include an energy absorber and may be used for Fall Arrest applications as well. Figure 1 identifies the Lanyard models covered by this instruction. See Table 1 for more information on system applications available for your specific lanyard model.

☑ Only Energy-Absorbing Lanyards (which include an integral energy-absorber) may be used for Fall Arrest.

- **1.2 STANDARDS:** Your product conforms to the national or regional standards identified on the front cover of these instructions. If this product is resold outside the original country of destination, the re-seller must provide these instructions in the language of the country in which the product will be used.
- **1.3 TRAINING:** This equipment must be installed and used by persons trained in its correct application. This manual is to be used as part of an employee training program as required by national, regional, or local standards. It is the responsibility of the users and installers of this equipment to ensure they are familiar with these instructions, trained in the correct care and use of this equipment, and are aware of the operating characteristics, application limitations, and consequences of improper use of this equipment.
- 1.4 **REQUIREMENTS:** Always consider the following limitations when installing or using this equipment:
  - **Capacity:** Lanyards are for use by one person with a combined weight (clothing, tools, etc.) meeting the capacity requirements specified in Table 1. 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 lbf (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 lbf 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.

• Free Fall: Fall Arrest systems incorporating Energy-Absorbing Lanyards covered in this instruction must be rigged to limit free fall to 6.0 ft. (1.8 m) or less. Free Fall Distance changes with lanyard slack and orientation of the Harness Connection Point to the Anchorage Connection Point (see Figure 2):

	If the Harness Connection Point is <b>below</b> the Anchorage Connection Point (Figure 2A): $F = A - H$ If the Harness Connection Point is <b>above</b> the Anchorage Connection Point (Figure 2B): $F = A + H$									
	F Free Fall Distance									
<b>H</b> Vertical Distance from the Harness Connection Point to the Anchorage Connection Point.										
	A Lanyard Length									
1	_									

**Do not lengthen lanyards:** Do not lengthen Lanyards by connecting to another lanyard, energy absorber, or similar component without consulting 3M.

- **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 3). Minimize swing falls by working as directly below the anchorage point as possible.
- **Fall Clearance:** Figure 4 illustrates calculation of the required clearance below the Lanyard System Anchorage. Required clearance will vary with the amount of deployment of the Energy Absorber (B). The graph in Figure 5 illustrates Energy Absorber Deployment based on Worker Weight and Free Fall Distance. For more information on Figure 5, refer to Table 1.

To calculat	e Required Fall Clearance (FC): FC = M + A + B + C + 1.5 m (5 ft.) + 0.6 m (2 ft.)				
FC	Amount of Fall Clearance required below the working surface				
МА	Maximum Anchorage System Deflection				
Α	Lanyard Length				
В	Deployment Distance Deployment Distance should always be 4.0 ft. (1.2 m) or less. For ANSI/OSHA lanyards with Free Fall Distance values of 6.0 ft. (1.8 m) to 12.0 ft. (3.7 m), or for user weights of 310 lb. (140 kg) to 420 lb. (191 kg), add an additional 1.0 ft. (0.3 m) to Deployment Distance.				
С	Estimated Harness Stretch				
н	Distance from Dorsal D-Ring to Toes; typically 1.5 m (5.0 ft.)				
SF	Safety Factor; 0.6 m (2.0 ft.)				

- **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 Lanyard may cross or tangle with that of another worker. Avoid working where an object may fall and strike the Lanyard; resulting in loss of balance or damage to the Lanyard. Do not allow the Lanyard to pass under arms or between legs.
- **Sharp Edges:** Sharp edges the Lanyard 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.

## 2.0 SYSTEM REQUIREMENTS

- 2.1 FALL PROTECTION AND RESCUE PLAN: The employer must have a Fall Protection and Rescue Plan in place. 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:** Lanyards shall be inspected by the worker<sup>1</sup> before each use. Additionally, inspections shall be conducted by a Competent Person<sup>2</sup> other than the user. Extreme working conditions (harsh environment, prolonged use, etc.) may necessitate more frequent competent person inspections. The competent person shall determine appropriate inspection intervals. Inspection procedures are described in the *Inspection & Maintenance Log (Table 2)*. Results of the Competent Person inspection should be recorded in the *Inspection and Maintenance Log* or recorded with the Radio Frequency Identification (RFID) system.
- **2.3 BODY SUPPORT:** A Full Body Harness must be used with the lanyard. The harness connection point must be above the user's center of gravity. A body belt is not authorized for use with Energy-Absorbing Lanyards. If a fall occurs when using a body belt, it may cause unintentional release or physical trauma from improper body support.
- **2.4 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.
- **2.5 COMPATIBILITY OF CONNECTORS:** Connectors are compatible with connecting elements when the size and shape of either component does not cause the connector to inadvertently open, regardless of orientation. Connectors must comply with applicable standards. Connectors must be fully closed and locked during use.

3M Connectors (snap hooks and carabiners) are designed to be used only as specified in each instruction manual. Ensure connectors are compatible with the system components to which they are connected. Do not use equipment that is non-compatible. Use of non-compatible components may cause the connector to unintentionally disengage (see Figure 6). If the connecting element to which a connector attaches is undersized or irregular in shape, a situation could occur where the connecting element applies a force to the gate of the connector (A). This force could then cause the gate to open (B), disengaging the connector from the connecting element (C).

- **2.6 MAKING CONNECTIONS:** Making Connections: All connections must be compatible in size, shape, and strength. See Figure 7 for examples of inappropriate connections. Do not attach 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 standardsize D-Rings or other connecting elements, unless the snap hook has a gate strength of 16 kN (3,600 lbf) or greater.
  - C. Directly to webbing or rope lanyard or tie-back material, unless the instruction manuals for both the lanyard and connector specifically allow such a connection.
  - 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 whose size or shape does not allow the connector to fully close and lock, or that could cause connector roll-out.
  - G. In a manner that does not allow the connector to align properly while under load.

**<sup>1</sup>** Worker: Any person wo is protected from falling by an active Fall Protection system; or, in the case of a Fall Arrest system, any person who might fall while attached to the system.

<sup>2</sup> 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 AND ADJUSTMENT

- **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 1.
- **3.2 ANCHORAGE CONNECTION:** Figure 8 illustrates connection of the Lanyard to various anchorage options. Select an anchorage location with minimal free fall and swing fall hazards. Select a rigid anchorage point capable of sustaining the static loads defined in Section 1. Where anchoring overhead is not feasible, the Lanyard may be secured to an anchorage point below the level of the user's Dorsal D-Ring, but must not be anchored below the worker's feet.

The anchorage end of the Lanyard is configured with various Hook, Tie-Back, and Rope Grab options for attaching to anchorage:

- **Hook Connection:** Figure 8A shows connection to rebar with the Lanyard's Rebar Hook. Figure 8B shows connection to a Tie-Off Adapter choked around an I-Beam with the Lanyard's Snap Hook. See Section 2 for details regarding connector compatibility and proper connection.
- **Tie-Back Connection:** Figure 8C shows tie-back around a piece of angle iron with a Tie-Back Lanyard. Secure the Tie-Back Lanyard around the anchorage structure as illustrated in Figure 10:
  - 1. Hang the leg of the Tie-Back Lanyard over the anchorage structure without twisting the Lanyard. Adjust the Floating D-Ring (A) so it hangs below the anchorage structure. Secure the Lanyard Snap Hook on the Floating D-Ring. Ensure the Lanyard is cinched tight around the anchorage structure.
  - 2. Do not allow the Snap Hook Gate (B) to contact the anchorage structure.
- **3.3 HARNESS CONNECTION:** Lanyards must be used with a Full Body Harness. For Fall Arrest applications, connect the energy absorber end of the Energy-Absorbing Lanyard to the Dorsal D-Ring on the Harness (see Figure 8). Refer to the instructions included with your harness for other Fall Protection applications and recommended harness connections.

Some Lanyard models are equipped with a Choker Loop that chokes on to the Harness D-Ring or Web Loop (see Figure 9). To choke the lanyard on to the Harness D-Ring or Web Loop:

- 1. Insert the Lanyard Web Loop through the Web Loop or D-Ring on the Harness.
- 2. Insert the appropriate end of the Lanyard through the Lanyard Web Loop.
- 3. Pull the Lanyard through the connecting Web Loop to secure.

Self-Retracting Devices: Do not connect a Lanyard, Energy-Absorbing Lanyard, or Energy Absorber to a Self-Retracting Device (SRD). Special applications exist where connection to an SRD may be permissible. Contact 3M Technical Services with any questions or concerns.

- **3.4 LANYARD ADJUSTMENT:** Some Lanyard models are equipped with an Adjuster to shorten or lengthen the Lanyard Leg(s) and eliminate Lanyard slack. Keeping the Lanyard taut reduces the chance of tripping on the Lanyard or snagging the Lanyard on surrounding objects.
  - Buckle Adjuster (Figure 11): To adjust the length of the Lanyard Leg:
    - 1. Slide the Loop Keeper (A) away from the Buckle Adjuster (B).
    - 2. Slide the Buckle Adjuster up or down the webbing to shorten or lengthen the Lanyard Leg.
    - 3. Slide the Loop Keeper back to secure the webbing and Buckle Adjuster.

## 4.0 USE

First time or infrequent users of Lanyards should review the "Safety Information" at the beginning of this manual prior to use of the Lanyard.

- **4.1 BEFORE EACH USE:** Verify that your work area and Fall Protection system meet all criteria defined in these instructions. Verify that a formal Rescue Plan is in place. Inspect the product per the 'User' inspection points defined in the "Inspection and Maintenance Log". If inspection reveals an unsafe or defective condition, or if there is any doubt about its condition for safe use, remove the product from service immediately. Clearly tag the product "DO NOT USE". See Section 5 for more information.
- **4.2 AFTER A FALL:** If the product is subjected to fall arrest or impact force, remove the product from service immediately. Clearly tag the product "DO NOT USE". See Section 5 for more information.
- **4.3 SYSTEM APPLICATIONS:** Figure 8 shows system connections for typical Lanyard applications. If using an Energy-Absorbing Lanyard, always connect the end of the lanyard with the energy absorber to the Full Body Harness first and then connect the leg end to suitable anchorage. See Section 3 for details regarding harness and anchorage connection.
- **4.4 LANYARD PARKING ATTACHMENT:** Figure 12 illustrates Harness Lanyard Parking Attachments. The Lanyard Parking Attachment is for attaching the free end of a Lanyard Leg when not connected to an Anchorage Connection Point for purposes of fall protection. Lanyard Parking Attachments must never be used as an attachment element on the Harness for connecting a Lanyard (A).

When not connected to an Anchorage Connection Point, an unconnected Lanyard Leg must be properly parked on the harness (B) or secured in the user's hand as in 100% Tie-Off applications (C). Free-hanging Lanyard Legs (D) can trip the user or catch on surrounding objects resulting in a fall.

**4.5 TWIN LANYARD INTERFACE 100% TIE-OFF:** Twin-Leg Lanyards can be used for continuous fall protection (100% tie-off) while ascending, descending, or moving laterally (see Figure 13). With one Lanyard Leg attached to an anchorage

point, the worker can move to a new location, attach the unused Lanyard Leg to another anchorage point, and then disconnect from the original anchorage point. The sequence is repeated until the worker reaches the desired location. See Figure 14 for Twin-Leg Lanyard 100% tie-off applications. Considerations for Twin Lanyard 100% tie-off applications include the following:

- Never connect both Lanyard Legs to the same anchorage point (see Figure 14A).
- Connecting more than one connector into a single anchorage connection point (ring or eye) can jeopardize compatibility of the connection due to interaction between connectors and is not recommended.
- Connection of each Lanyard Leg to a separate anchorage point is acceptable (Figure 14B).
- Each connection location must meet the Anchorage Requirements defined in Section 1.
- Never connect more than one person at a time to the Twin Leg Lanyard (Figure 14C).
- Do not allow the Lanyard Legs to become tangled or twisted together as this may prevent them from retracting.
- Do not allow Lanyard Legs to pass under arms or between legs during use.

# 5.0 INSPECTION

 $\checkmark$  After equipment has been removed from service, it may not be returned to service until a Competent Person confirms in writing that it is acceptable to do so.

- **5.1 INSPECTION FREQUENCY:** The product shall be inspected before each use by the user and, additionally, by a Competent Person other than the user at intervals of no longer than one year. A higher frequency of equipment use and harsher conditions may require increasing the frequency of Competent Person inspections. The frequency of these inspections should be determined by the Competent Person per the specific conditions of the worksite.
- **5.2 INSPECTION PROCEDURES:** Inspect this product per the procedures listed in the "Inspection and Maintenance Log". Documentation of each inspection should be maintained by the owner of this equipment. An inspection and maintenance log should be placed near the product or be otherwise easily accessible to users. It is recommended that the product is marked with the date of next or last inspection.
- **5.3 DEFECTS:** If the product cannot be returned to service because of an existing defect or unsafe condition, then it must be destroyed.
- **5.4 PRODUCT LIFE:** The functional life of the product 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

Equipment that is in need of maintenance or scheduled for maintenance should be tagged "DO NOT USE". These equipment tags should not be removed until maintenance is performed.

- 6.1 **CLEANING:** Cleaning procedures for Lanyards are as follows:
  - Periodically clean the exterior of the Lanyard using water and a mild soap solution. Position the Lanyard so excess water can drain out. Clean labels as required.
  - Clean the Web 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:** Lanyards are not repairable. If the Lanyard has been subjected to fall force or if inspection reveals an unsafe or defective condition, remove the Lanyard from service and discard.
- **6.3 STORAGE AND TRANSPORT:** Store and transport Lanyards in a cool, dry, clean environment out of direct sunlight. Avoid areas where chemical vapors may exist. Thoroughly inspect the Lanyard after any period of extended storage.

# 7.0 LABELS and MARKINGS

**7.1 LABELS:** Figure 20 illustrates labels present on the models covered by this instruction, as well as which labels are present on which models. All labels must be present on any applicable models. Labels must be replaced if they are not fully legible.

Serial Number(s):			Date Purchased:	1			
Model Number:							
			Date of First Use:				
Inspected By:	Γ		Inspection Date	i 	1		
Component:	Inspection:			Before Each Use	Competent Person		
End Connectors	Inspect Snap Hooks, Carabiner, Reb	oar Hooks, D-Rings, etc. for s	signs of damage,				
(Figure 15) corrosion, and proper working condition. Gates (A) should open, close, lock, and u		lition. Where present: Carabi and unlock properly. Inspect ope Grab or Vertical Lifeline.	Where present: Carabiner and Snap Hook unlock properly. Inspect Rope Grabs (B) per Grab or Vertical Lifeline. D-Rings (C) should be				
Web Lanyards Webbing and Stitching (Figure 16)	Inspect webbing; material must be for tears, abrasions, heavy soiling ( stitching; Check for pulled or cut st harness has been impact loaded an	C), mold, burns (D), or disco itches. Broken stitches may	bloration. Inspect be an indication that the				
Cable Lanyards Wire Rope (Figure 17) Gable Lanyards (Figure 17) Minimum Cable Splatter, (D) corrosion, chemical contact cable bumper up and inspect ferrules for for corrosion and broken wires. Replace t randomly distributed broken wires in one strand in one lay. A "lay" of wire rope is t (the larger groups of wires) to complete		ntact areas, or severely abra es for cracks or damage and lace the wire rope assembly n one lay, or three or more l pe is the length of wire rope plete one revolution or twist	oken wires (B), bird-caging (C), welding areas, or severely abraded areas. Slide the r cracks or damage and inspect the wire rope the wire rope assembly if there are six or more e lay, or three or more broken wires in one the length of wire rope it takes for a strand one revolution or twist along the rope. Replace broken wires within 1 inch (25 mm) of the				
Energy Absorber (Figure 19)	Verify that the integral Energy Absorber has not been activated. An open cover (A) or torn cover (B), webbing pulled out of the cover (C), torn or frayed webbing (D), and ripped or missing stitching (E). are indicators of an activated Energy Absorber.						
Tubular Web Impact Indicator Label (Figure 18)	Indicator Label the Impact Indicator Label, the Lanyard has experienced impact loading and must be						
Labels (Figure 20) All labels should be present and fully		ly legible.	gible.				
Corrective Action/Maintenance:		Approved By:	Next ins	spection due:			
-		Date:					
Corrective Action/Ma	aintenance:	Approved By:	Next ins	inspection due:			
		Date:		• -			
Corrective Action/Ma	aintenance:	Approved By:	Next ins	t inspection due:			
		Date:		t inspection due:			
Corrective Action/Ma	aintenance:	Approved By:	Next ins				
		Date:					
Corrective Action/Ma	aintenance:	Approved By:	Next ins				
		Date:					
Corrective Action/Ma	aintenance:	Approved By:	Next ins	Next inspection due:			
		Date:					
Corrective Action/Ma	aintenance:	Approved By:	Next ins	Next inspection due:			
-		Date:					
Corrective Action/Ma	aintenance:	Approved By:	Next ins	Next inspection due:			
		Date:					
Corrective Action/Ma	aintenance:	Approved By:	Next ins	spection due:			
		Date:					
Corrective Action/Maintenance:		Approved By:	Next ins	Vext inspection due:			
		Date:		wext inspection due:			
Corrective Action/Ma	aintenance:	Approved By:	Next inc	Next inspection due:			
		Date:					
Corrective Action/M	aintenance:	Approved By:	Nevt inc	spection due			
Corrective Action/Maintenance:		Date:		Next inspection due:			

## GLOBAL 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 local laws, 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 in your region for assistance.

**LIMITATION OF LIABILITY:** TO THE EXTENT PERMITTED BY LOCAL LAWS, 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.



# Fall Protection

#### Canada

600 Edwards Blvd, Unit #2 Mississauga, ON L5T 2V7 Phone: 905.795.9333 Toll-Free: 800.387.7484 Fax: 888.387.7484 3Mfallprotection-ca@mmm.com

#### **EMEA (Europe, Middle East, Africa)** EMEA Headquarters:

Le Broc Center Z.I. 1re Avenue - BP15 06511 Carros Le Broc Cedex France Phone: + 33 04 97 10 00 10 Fax: + 33 04 93 08 79 70 informationfallprotection@mmm.com

#### Australia & New Zealand

137 McCredie Road Guildford Sydney, NSW, 2161 Australia Toll-Free : 1800 245 002 (AUS) Toll-Free : 0800 212 505 (NZ) 3msafetyaucs@mmm.com

### Asia

Singapore: 1 Yishun Avenue 7 Singapore 768923 Phone: +65-6450 8888 Fax: +65-6552 2113 TotalFallProtection@mmm.com

China: 38/F, Maxdo Center, 8 Xing Yi Rd Shanghai 200336, P R China Phone: +86 21 62753535 Fax: +86 21 52906521 3MFallProtecton-CN@mmm.com

## Korea:

3M Koread Ltd 20F, 82, Uisadang-daero, Yeongdeungpo-gu, Seoul Phone: +82-80-033-4114 Fax: +82-2-3771-4271 TotalFallProtection@mmm.com

Japan: 3M Japan Ltd 6-7-29, Kitashinagawa, Shinagawa-ku, Tokyo Phone: +81-570-011-321 Fax: +81-3-6409-5818 psd.jp@mmm.com

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

#### USA

8833 SALA Way Red Wing, MN 55066-5005 Toll Free: 800.328.6146 Phone: 651.388.8282 Fax: 651.388.5065 3Mfallprotection@mmm.com

#### Brazil

Rodovia Anhanguera, km 110 Sumaré – SP CEP: 13181-900 Brasil Phone: 0800-013-2333 falecoma3m@mmm.com

#### Mexico

Av. Santa Fe No. 190 Col. Santa Fe, Ciudad de Mexico CP 01219, Mexico Phone: 01 800 120 3636 3msaludocupacional@mmm.com

> WEBSITE: 3M.com/FallProtection

