

**PALMER  
SAFETY**

**FULL BODY HARNESS**  
INSTRUCTION MANUAL



**THESE INSTRUCTIONS APPLY TO  
THE FOLLOWING MODELS:**

H11110005, H11110105, H11210005, H112100341,  
H11210105, H134200021, H21110002, H211100052,  
H211101031, H21210003, H212100031, H212100031.LG,  
H212100031.SM, H21210003123, H212100061,  
H212100062, H212100062.2XL, H212100062.3XL,  
H212100062.SM, H21210006223, H21210006224,  
H212100072, H212100072.2XL, H212100072.3XL,  
H212100072.SM, H21210007223, H21210007224,  
H212100162, H212100162.2XL, H212100162.3XL,  
H212100162.SM, H212100172, H212100172.2XL,  
H212100172.3XL, H212100172.SM, H212100574,  
H212100574.2XL, H212100574.3XL, H212101031,  
H21210111, H212101131, H212101131.SM,  
H212101131.XXL, H21210115, H21210116, H212110031,  
H212111031, H212300031, H2130111051, H222100041,  
H222100081, H222100111, H222100123, H222100141,  
H222100141.2XL, H222100141.SM, H222100181,  
H222100181.2XL, H222100181.SM, H222100421,  
H222101121LG, H222101121MD, H222101121SM,  
H222101121XLG, H222101123LG, H222101123MD,  
H222101123SM, H222101123XLG, H222101125LG,  
H222101125MD, H222101125SM, H222101125XLG,  
H222101126LG, H222101126MD, H222101126SM,  
H222101126XLG, H222101521, H222101631.2XL,  
H222101631.3XL, H222101631LG, H222101631MD,  
H222101631XLG, H22310052, H223100521,  
H223100521.XL, H22311162, H223111621,  
H223111621.LG, H223111621.Med, H223111621.XLG,  
H22312162, H22312162.L/XL, H22312162.S/M,  
H234300021, H234302122, H234302522

**Do not skip this instruction manual. Read the instruction manual carefully before using the equipment. If failed in doing so it may cause serious injury or Death.**

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This manual must be read and understood in its entirety and used as part of fall protection training program as required by OSHA or any state regularity agency. These instructions are intended to meet the manufacturer instructions as required by ANSI Z 359.11 and OSHA 1926. The user must fully understand the proper equipment use and limitations.

## **1. GENERAL REQUIREMENTS, WARNINGS AND LIMITATIONS:**

- The Equipment is designed for use as a part of a personal fall protection system. Components must not be used for any other operation other than that which it has been designed and approved. Fall Arrest system are designed to comply with OSHA. Fall Restraint System must be designed by a Qualified Person, and must be installed and used under the supervision of a competent person.
- All authorized persons/users must refer the regulations governing occupational safety, as well as applicable ANSI or CSA standards. Please refer to product labeling for information on specific OSHA regulations, and ANSI and CSA standards met by product.
- Consult a doctor if there is any reason to doubt a user's ability to withstand and safely absorb fall arrest forces. Age, fitness, health conditions can seriously affect the worker a fall occur. Pregnant Women and minors should not use this equipment.
- Proper precautions should always be taken to remove any obstructions, debris, material, or other recognized hazards from the work area that could cause injuries or interfere with the operation of the system. All equipment must be inspected before each use according to the manufacturer's instructions. All equipment should be inspected by a qualified person on a regular basis.
- To minimize the potential for accidental disengagement, a competent person must ensure system compatibility.
- Equipment must not be altered in any way. Repairs must be performed only by the Manufacturer, or persons or entities authorized in writing by the manufacturer.
- Any product exhibiting deformities, unusual wear, or deterioration must be immediately discarded. Any equipment subject to a fall must be removed from service. The authorized person/user shall have a rescue plan and the means at hand to implement it when using this equipment.
- Never use fall protection equipment for purposes other than those for which it was designed. Fall protection equipment should never be used for towing or hoisting.
- All synthetic material must be protected from slag, hot sparks, open flames, or other heat sources. The use of heat resistant materials is recommended in these applications.
- Never use natural materials (manila, cotton, etc.) as part of a fall protection system.
- Do not expose this equipment to chemicals which may have a harmful effect on the materials used to construct it. Be especially aware of caustic environment, or those that contain high levels of organic acids or bases. If you are uncertain about the safe operation of this equipment in any environment, contact Palmer Safety for further instructions.

**Lanyard Parking attachment is for parking unused leg of the lanyard and should not be used for any other purpose. Refer product label for locating the lanyard parking attachment point.**

**Palmer Safety Full Body Harness should be used only with the combinations of components, sub-systems or both which may affect or interfere with the safe function of one another. Be certain that connecting devices are compatible and that other elements of the PFAS are safe to use and compatible before use.**

# FULL BODY HARNESS

- Avoid contact with sharp edges and abrasive surfaces.
- Do not use the equipment around moving machinery or electrical hazards.
- Do not expose the PPE to UV light to avoid UV degradation.

**Palmer Safety Full Body Harness should be used only with the combinations of components, sub-systems or both which may affect or interfere with the safe function of one another. Be certain that connecting devices are compatible and that other elements of the PFAS are safe to use and compatible before use.**

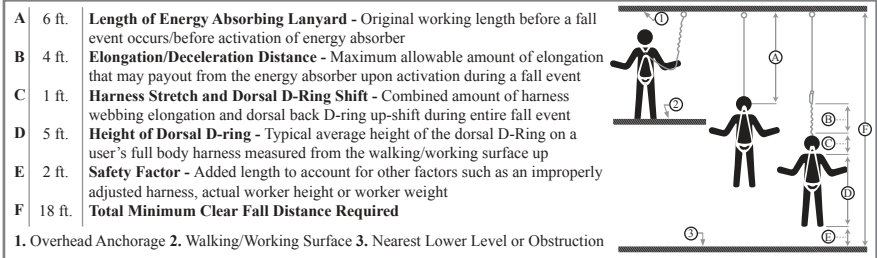
Contact Palmer Safety for further instructions.

## 2. SYSTEM LIMITATIONS & REQUIREMENTS:

Consider the following limitations/requirements prior to installing or using this equipment:

**Capacity:** Palmer Safety Full Body Harnesses are designed for use by persons with a combined weight (clothing, tools, etc.) of no more than 310 lbs. Make sure all of the components in your system are rated to a capacity appropriate to your application.

**Free Fall:** Personal fall arrest systems used with this equipment must be rigged to limit the free fall to 6 feet (1.8 M) per ANSI Z 359.11. Restraint systems must be rigged so that no vertical free fall is possible. Work positioning systems must be rigged so that free fall is limited to 2 feet (.6 m) or less. Personnel riding systems must be rigged so that no vertical free fall is possible. Climbing systems must be rigged so that free fall is limited to 18 in. (.46 cm) or less. Rescue systems must be rigged so that no vertical free fall is possible. See subsystem manufacturer's instructions for more information. Below figure illustrates fall clearance



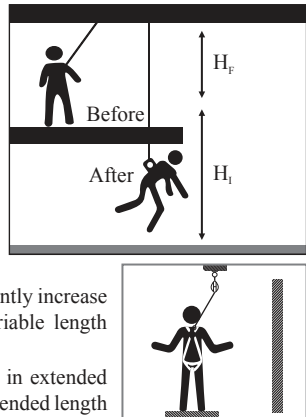
requirements. There must be sufficient clearance below the user to allow the system to arrest a fall before the user strikes the ground or other obstruction. Clearance required is dependent on the following factors:

### Harness Stretch:

$$H_s = H_f - H_i \text{ (Harness Stretch should be } \leq 18 \text{ inches)}$$

**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 or death. Minimize swing falls by working as close to the anchorage point as possible. Do not permit a swing fall if injury could occur. Swing falls will significantly increase the clearance required when a self retracting lifeline or other variable length connecting subsystem is used.

**Extended Suspension:** A full body harness is not intended for use in extended suspension applications. If the user is going to be suspended for an extended length



Contact Palmer Safety for more information on these items.

**Environmental Hazards:** Use of this equipment in areas with environmental hazards may require additional precautions to prevent injury to the user or damage to the equipment. Hazards may include, but are not limited to; heat, chemicals, corrosive environments, high voltage power lines, gases, moving machinery, and sharp edges.

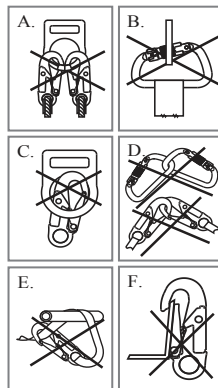
**Compatibility of Components:** Unless otherwise noted, Palmer Safety equipment is designed for use with Palmer Safety approved components and subsystems only. Substitutions or replacements made with non-approved components or subsystems may jeopardize compatibility of equipment and may affect safety and reliability of the complete system.

**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. Connectors (hooks, carabiners, and D-rings) must be capable of supporting at least 5,000 lbs. 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 6). Connectors must be compatible in size, shape, and strength. Self-locking connectors are required by ANSI Z359.11 and OSHA.

**3. MAKING CONNECTIONS:** Use only self-locking connectors with this equipment. Only use connectors that are suitable to each application. 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.

Palmer Safety connectors (snap hooks and carabiners) are designed to be used only as specified in each product's user's instructions. See Figure below for illustration of the inappropriate connections stated below.

- A. Never connect two active components (snap hooks or carabiners) to a single D-ring at the same time.
- B. Never connect in a way that would produce a condition of loading on the gate.
- C. Never attach in a manner where an element of the connector (gate or release lever) may become caught on the anchor thereby producing additional risk of false engagement.
- D. Never connect two active components (snap hooks or carabiners) to each other.
- E. Never attach explicitly to a constituent subcomponent (webbing, cable or rope) unless specifically provided for by the manufacturer's instructions for both subcomponents (snap hook or carabiners and webbing, cable or rope).
- F. Never attach to an object in a manner whereby the gate (of the snap hook or carabiner) would be prevented from fully closing and locking. Always guard against false connections by visually inspecting for closure and lock.



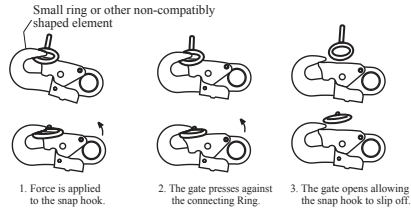
**Note:** Other than 3,600 lbs. gated hooks, large throat opening snap hooks should not be connected to standard size D-rings. Large throat snap hooks are designed for use on fixed structural elements such as rebar or cross members that are not shaped in a way that can capture the gate of the hook.

**4. RESTRICTIONS REGARDING MAKING CONNECTIONS:**

- Do not make connections where the hook locking mechanism can come into contact with a structural member or other equipment and potentially release the hook.
- Do not connect a snap hook into a loop or thimble of a wire rope.

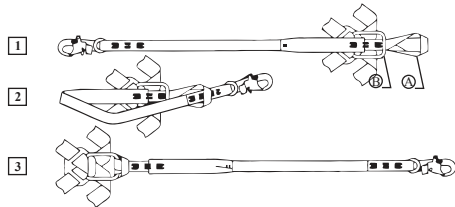
# FULL BODY HARNESS

If the connecting element to which a snap hook (shown) 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. This force may cause the gate (of either a self-locking or a non-locking snap hook) to open, allowing the snap hook or carabiner to disengage from the connecting point.



- The snap hook must be free to align with the applied load as intended (regardless of the size or shape of the mating connector)
- A carabiner may be used to connect to a single or pair of soft loops on a body support such as a body belt or full body harness, provided the carabiner can fully close and lock. This type of connection is not allowed for snap hooks.
- A carabiner may be connected to a loop or ring connector that is already occupied by a choker style connector. This type of connection is not allowed for snap hooks.

1. Insert Lanyard Web Loop (A) through Web Loop or D-ring on harness (B).
2. Insert opposite end of lanyard through the Lanyard Web Loop.
3. Pull the Lanyard through the connecting Web Loop to secure.



**5. CONNECTING SUB-SYSTEMS:** Connecting subsystems (self-retracting lifeline, lanyard, rope grab and lifeline, cable sleeve) must be suitable for your application. See subsystem manufacturer's instructions for more information. Some harness models have web loop connection points. Do not use snap hooks to connect to web loops. Use a self-locking carabiner to connect to a web loop. Ensure the karabiner cannot cross-gate load (load against the gate rather than along the backbone of the carabiner). Some lanyards are designed to choke onto a web loop to provide a compatible connection. See Figure 5. Lanyards may be sewn directly to the web loop forming a permanent connection. Do not make multiple connections onto one web loop, unless choking two lanyards onto a properly sized web loop.

## 6. RESCUE PLAN:

Rescue operation must be performed by the trained and competent personnel. It is advised to work in pairs while working on site. Before going to the work site, the user must have the rescue plan according to the job.

## 7. IF EQUIPMENT IS SUBJECTED TO A FALL:

Remove the equipment from service immediately if it has been subjected to the forces of a fall arrest. Contact your distributor or Palmer Safety about policies regarding replacement of Palmer Safety components involved in a fall.

## 8. SPECIFIC INSTRUCTIONS:

Palmer Safety harnesses are designed to arrest the victim in the event of a fall arrest. The whole fall arrest system must be used by trained/competent personnel.

**9. USE OF FALL ARREST SYSTEM:**

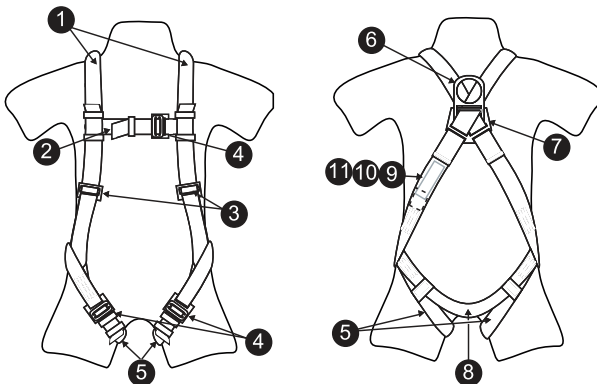
The fall arrest system **MUST ONLY** be connected to the back attaching element on the harness provided for the purpose ("D" ring or webbing attachment extension) or to the chest anchorage points ("webbing link" or "D" link). The chest anchorage points must imperatively be used together. The D-rings on the belt and the ventral anchorage point must only be used for the attachment of a work positioning or retaining system and never with a fall arrest system.

During use, check regularly the adjustment and/or attachment points.



**10. PRODUCT LABELING:**

**Harness Components**




1	Shoulder Strap
2	Chest Strap
3	Torso Adjustment
4	Parachute/Tongue Buckle/ Quick-Connect Fastener
5	Thigh Strap
6	Dorsal D-Ring
7	Back Plate
8	Sub-Pelvic Strap
9	Inspection/ID Label
10	Warning/Instruction Label
11	Standards Label



**11. FULL BODY HARNESS APPLICATIONS**

Application	Class	Description
Personal Fall Arrest	 <b>Class A</b>	The full body harness is used as a component of a personal fall arrest system. Personal fall arrest systems typically include a full body harness and a connecting subsystem (energy absorbing lanyard). Maximum arresting force must not exceed 1,800 lbs. Palmer Safety harnesses are rated for 900 lbs. per ANSI Z359.11-2014. For fall arrest applications connect the fall arrest subsystem (example: lanyard, SRL, energy absorber, etc.) to the D-ring or attachment element on your back, between your shoulder blades.
Controlled Descent	 <b>Class D</b>	For controlled descent applications, harnesses equipped with a single sternal level D-ring, one or two frontal mounted D-rings, or a pair of connectors originating below the waist (such as a seat sling) may be used for connection to a descender or evacuation system (reference in Z259.10 in Canada).

# FULL BODY HARNESS

Application	CSA Class	Description
Rescue	 <b>Class E</b>	The full body harness is used as a component of a rescue system. Rescue systems are configured depending on the type of rescue. For limited access (confined space) applications, harnesses equipped with D-rings on the shoulders may be used for entry and egress into confined spaces where worker profile is an issue.
Ladder Climbing	 <b>Class L</b>	The full body harness is used as a component of a climbing system to prevent the user from falling when climbing a ladder or other climbing structure. Climbing systems typically include a full body harness, vertical cable or rail attached to the structure, and climbing sleeve. For ladder climbing applications, harnesses equipped with a frontal D-ring in the sternal location may be used for fall arrest on fixed ladder climbing systems.
Work Positioning	 <b>Class P</b>	The full body harness is used as a component of a work positioning system to support the user at a work position. Work positioning systems typically include a full body harness, positioning lanyard, and a back-up personal fall arrest system. For work positioning applications, connect the work positioning subsystem (example: lanyard, Y-lanyard, etc.) to the lower (hip level) side or belt mounted work positioning attachment anchorage elements (D-rings). Never use these connection points for fall arrest
Restraint	<b>None</b>	The full body harness is used as a component of a restraint system to prevent the user from reaching an unprotected edge or floor opening. Restraint systems typically include a full body harness and a lanyard or restraint line.

**12. ANCHORAGE STRENGTH:** Anchorage and anchorage strength requirements are dependent on the full body harness application (see below figure). In accordance with ANSI Z 359.11, anchorage selected for fall Arrest Systems must meet the anchorage strength requirements defined in Table 2.

**A. Fall Arrest:** 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. 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.

**B. Per OSHA 1926.500 and 1910.66:** Anchorages used for attachment of personal fall arrest systems shall be independent of any anchorage being used to support or suspend platforms and capable of supporting at least 5,000 lbs. per user attached, or be designed, installed and used as part of a complete PFAS which maintains a safety factor of at least two, and is under the supervision of a qualified person.

**C. Work Positioning:** The structure to which the work positioning system is attached must sustain static loads applied in the directions permitted by the work positioning system of at least 3,000 lbs., or twice the potential impact load, whichever is greater. See OSHA 1926.502. When more than one work positioning system is attached to an anchorage, the strengths stated above must be multiplied by the number of work positioning systems attached to the anchorage.



**D. Restraint:** Anchorages selected for restraint and travel restraint systems shall have a strength capable of sustaining static loads applied in the directions permitted by the system of at least: 1. 1,000 lbs. (4.5 kN) for non-certified anchorages, or 2. Two times the foreseeable force for certified anchorages. When more than one restraint and travel restraint 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.

**E. Rescue:** Anchorages selected for Rescue shall have a strength capable of sustaining static loads applied in the directions permitted by the system of at least: 1.) 3,000 lbs. for non-certified anchorages, or 2.) Five times the foreseeable force for certified anchorages. When more than one restraint and travel restraint 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.

**Table 2 - Anchorage Strength Requirements**

<b>Fall Arrest</b>	Non-Certified Anchorage:	5,000 lbs.
	Certified Anchorage <sup>2</sup> :	2 Times the Maximum Arresting Force for Certified Anchorage
<b>Restraint</b>	Non-Certified Anchorage	1,000 lbs.
	Certified Anchorages <sup>2</sup> :	2 times the foreseeable for certified anchorages.
<b>Work Positioning</b>	Non-Certified Anchorages	3,000 lbs.
	Certified Anchorage <sup>2</sup> :	2 times the foreseeable force for certified anchorage.
<b>Rescue</b>	Non-Certified Anchorage	3,000 lbs.
	Certified Anchorage <sup>2</sup> :	5 times the foreseeable force for certified anchorage.
<b>Climbing</b>	The structure which a climbing system is attached must sustain the loads required by that particular system. See the instructions for the climbing for requirements.	

**13. DESCRIPTION OF PRODUCT:**

Palmer Safety Harnesses are designed and tested to comply with applicable OSHA and ANSI standards for fall protection equipment. When used as a component in a personal fall arrest system, or a personal restraint system, the Palmer Safety harnesses work with the full body harness system designed to allow the body to help absorb the impacts of a fall should one occur.

**14. INSPECTION:**

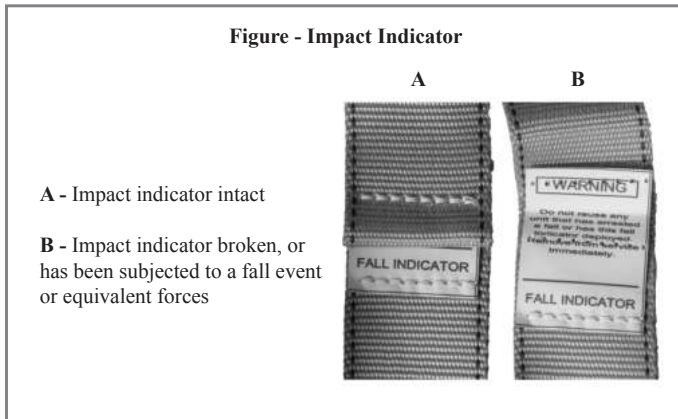
Before each use, proceed with thorough visual examination to ensure that the PPE is intact (the same applies for the equipment used with the harness (connectors, lanyard...)) and take all necessary steps concerning the implementation of a rescue plan. In the event of your product being contaminated, consult the manufacturer or his agent. If you have any doubts regarding the safe state of the product or if the product has been used to arrest a fall, for your personal safety, it is essential to withdraw the PPE from service and send it back to the manufacturer or a qualified repair centre for checking or destruction. Check for Fall Indicator provided on back shoulder straps of Harness for deployment. If found deployed then should be taken out of service immediately.

# FULL BODY HARNESS

## Before each use of this Equipment Inspect it according to the following guidelines:

Palmer Safety requires that the following steps be taken during each inspection prior to use of this Full Body Harness.

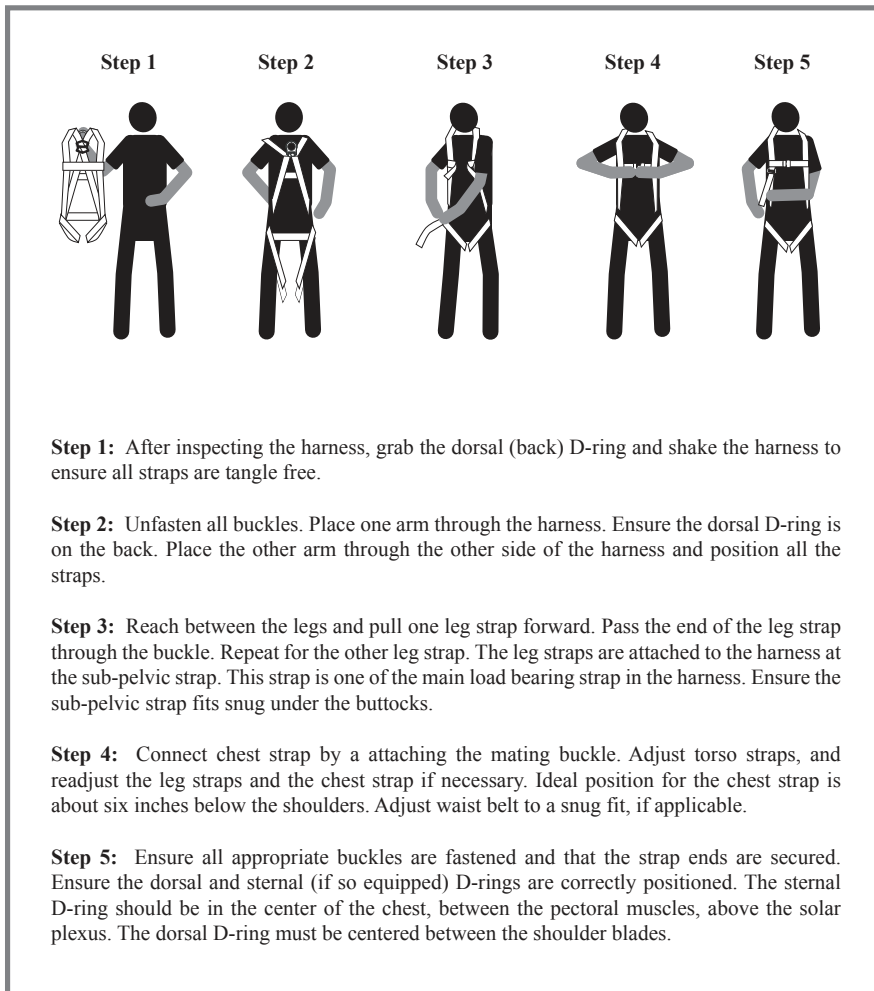
1. Check the webbing for cuts, fraying, and signs of damage from excessive wear or abrasion. Also check for excessive dirt, grease, oil, paint, or other surface contamination or discoloring. If any of these conditions are discovered during the inspection, remove the full body harness from service.
2. Check all stitch locations. Ensure that each stitch is intact with no loose, frayed, or torn threads. If any of the stitch locations shows signs of damage or excessive wear, remove the harness from service.
3. Look for signs that the harness has been exposed to fall arrest forces. Every Palmer Safety full body harness has two load-indicating safety pleats with labels stitched on the back torso straps, below the back D-ring. If these stitched pleats are torn or if the warning is exposed on the safety tabs, remove the harness from service. See figure below.



4. Ensure that the labeling is present and legible. If the labels and warnings are missing or illegible, remove the harness from service.
5. Inspect all metal hardware (D-rings, buckles, adjusters, grommets, etc.). Look for hardware that is bent, cracked, or deformed. Look for sharp edges and burrs. Also, check for signs of corrosion. Ensure that none of the metal hardware has an excessive build-up of dirt, grease, oil, paint, or any other substance or contaminant. If any of these conditions exist, remove the full body harness from service.
6. Check the buckles and adjusters for proper function. Ensure that all buckles can be easily and securely fastened and that all adjusters can be operated allowing the webbing to pass through when loosened, and to be held tight when under tension. If the buckles and/or adjusters do not pass inspection, remove the full body harness from service.
7. If the full body harness fails to pass inspection on any of these points, or if there is any doubt as to whether it is in proper working order, remove the full body harness from service.

**15. DONNING THE HARNESS:**

A Full Body Harness must be worn with all fasteners and adjusters connected and should be adjusted to fit the user snugly. Failure to properly don, wear, and adjust the FBH can result in severe injury or death in the event of a fall. To ensure proper donning and adjustment, follow the steps in the figure below.

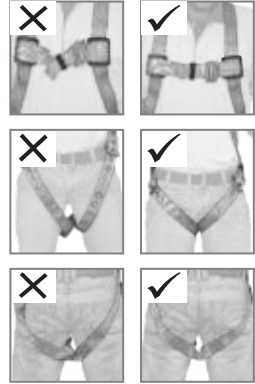


# FULL BODY HARNESS

## 16. PROPER HARNESS FIT:

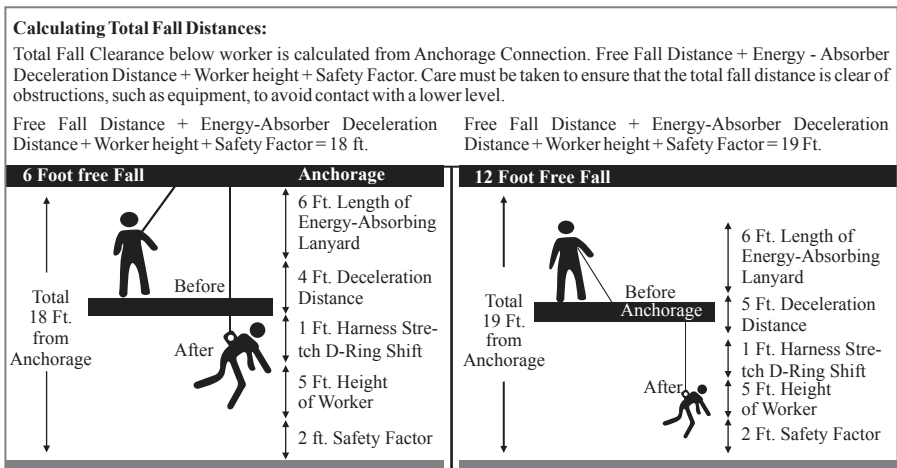
Confirm torso length adjustment so the shoulder straps are not applying unnecessary pressure on the shoulders. Worker should be able to move around freely without the harness causing restriction in movement.

- Chest strap is six inches below the throat
- Torso length adjustment does not apply unnecessary pressure on the shoulders or allows leg straps to sag
- Dorsal D-ring is in between the shoulder blades
- Leg straps tightened to allow no more than a flat hand to pass through



## 17. FALL CLEARANCE:

If there is a risk of fall or if the only anchorage is below the attachment points on the harness, it is essential to use a lanyard provided with an energy absorber. Before using a shock-absorbing lanyard, check that there is sufficient fall clearance below the user to prevent any collision with a structure on the ground.



## 18. PERIODIC EXAMINATION:

Keep these instructions with the product and fill in the identification sheet, entering the information taken from the markings. Palmer Safety recommends that a competent person inspects every component of the fall arrest system annually. The periodic examination is essential to test the resistance and condition of the equipment and to guarantee the safety of the user.

A competent person must examine this equipment at least once each year in strict compliance with the instructions of the manufacturer, and the annual inspection must be recorded. The frequency of inspection should be increased in accordance with the regulations, if the equipment is in heavy usage or if the equipment is used in harsh environments. Check also that the markings are legible.

#### **19. MATERIAL & CONSTRUCTION:**

##### ■ **Webbing Materials:**

- Made up of high tenacity polyester; Breaking strength 5000 lbs Tensile Strength
- Made up of Aramid, breaking strength 5000lbs tensile strength

##### ■ **Pad and Label Cover Materials:**

- Blend of Nylon and Polyester.

#### **20. SYSTEM REQUIREMENTS:**

- **Compatibility of Components:** Palmer Safety Fall Protection equipment is designed to be used with Palmer Safety approved components. Please contact Palmer Safety if you have a question regarding compatibility. Making substitutions without approval from Palmer Safety Fall Protection may lead to injuries and or death by compromising the safety and reliability of the complete system. A competent person can make a determination on compatibility of equipment from different manufacturers.
- **Compatibility of Connectors:** Connectors (D-rings, hooks, karabiners) must be capable of supporting at least 5,000 lbs. Do not use equipment that is not compatible. Non-compatible connectors may unintentionally disengage. Self-locking connectors are required by ANSI and OSHA. Connectors must be compatible in size, shape, and strength.
- **Making Connections:** Only use self-locking connectors and carabiners with any Palmer Safety Fall Protection equipment. Do not use equipment that is not compatible.

#### **21. OTHERS:**

- **Maintenance & Cleaning:** Repairs to equipment can be made only by a Palmer Safety representative or person or entity authorized by Palmer Safety. Contact Palmer Safety for maintenance and repair. Cleaning after use is important for maintaining the safety and life of the equipment. Cleanse the equipment of all dirt, corrosives, and contaminants. If the equipment cannot simply be wiped clean use a mild soap and water. Rinse, wipe, and hang to dry in a well ventilated area.
- **Storage:** Store the harness in a cool, dry and clean place out of direct sunlight. Avoid areas where heat, moisture, light, oil, and chemicals or their vapors or other degrading elements may be present. Equipment which is damaged or in need of maintenance should not be stored in the same area as usable equipment. Heavily soiled, wet, or otherwise contaminated equipment should be properly maintained (e.g. dried and cleaned) prior to storage. Prior to using equipment which has been stored for long periods of time, a Formal Inspection should be performed by a competent person. For harnesses with Dielectric buckles, pass-thru buckles or Quick Connect Buckles, store the harness with the buckles connected.
- **Training:** It is the responsibility of the competent person to ensure that the user can read, understand, and follow all instructions and are trained in the care and use of this device. Training should be repeated periodically and any time there is a change of components within the system. Training must be conducted without exposing the trainee to a fall hazard.



# FULL BODY HARNESS

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5. Suspension Intolerance, also called suspension trauma or orthostatic intolerance is a serious condition that can be controlled with good harness design, prompt rescue and post fall suspension relief devices. A conscious user may deploy a suspension relief device allowing the user to remove tension from around the legs, freeing blood flow, which can delay the onset of suspension intolerance. An attachment element extender is not intended to be attached directly to anchorage or anchorage connector for fall arrest. An energy absorber must be used to limit maximum arrest forces to 1800 pounds. The length of the attachment element extender may affect free fall distances and free fall clearance calculations.
6. Full Body Harness (FBH) Stretch, the amount the FBH component of a personal fall arrest system will stretch and deform during a fall, can contribute to the overall elongation of a system in stopping a fall. It is important to include the increase in fall distance created by FBH Stretch, as well as the FBH connector length, the settling of the user's body in the FBH and all other contributing factors when calculating total clearance required for a particular fall arrest system.
7. When not in use, unused lanyard legs that are still attached to the Full Body Harness D-ring should not be attached to a work positioning element or any other structural element on the Full Body Harness unless deemed acceptable by the competent person and manufacturer of the lanyard. This is especially important when using some types of "Y" style lanyards, as some load may be transmitted to the user through the unused lanyard leg if it is not able to release from the Harness. The lanyard parking attachment is generally located in the sternal area to help reduce tripping & entanglement hazards. Lanyard parking attachment is marked with "Park Lanyard here see instructions." to help easy identification.
8. Loose ends of straps can get caught in machinery or cause accidental disengagement of an adjuster. All Full Body Harnesses shall include keepers or other components which serve to control the loose ends of straps.
9. Due to the nature of soft loop connections, it is recommended, it is recommended that soft loop attachments only be used to connect with other soft loops or karabiners Snap hooks should not be used unless approved for the application by the manufacturer.

**Sections 11-17 provided additional information concerning the location and use of various attachments that may be provided on this FBH.**

10. **Dorsal**-The dorsal attachment element shall be used as the primary fall arrest attachment, unless the application allow the use of an alternate attachment. The dorsal attachment may also be used for travel restraint or rescue. When supported by the dorsal attachment during a fall, the design of the Full Body Harness shall direct load through the shoulder straps supporting the user and around the thighs. Supporting the user, post fall, by the dorsal attachment will result in an upright body position with a slight lean to the front with some slight pressure to the lower chest. Considerations should be made when choosing a sliding versus fixed dorsal attachment element. Sliding dorsal attachments are generally easier to adjust to different user sizes, and allow a more vertical rest position post fall, but can increase FBH Stretch.
11. **Sternal**-The sternal attachment may be used as an alternative fall arrest attachment in applications where the dorsal attachment is determined to be inappropriate by a competent person, and where there is no chance to fall in a direction other than feet first. Accepted practical uses for a sternal attachment include, but are not limited to, ladder climbing with a guided type fall arrester, ladder climbing with an overhead self-retracting lifeline for fall arrest, work positioning and rope access. The sternal attachment may also be used for travel restraint or rescue.

When supported by the sternal attachment during a fall, the design of the Full Body Harness shall direct load through the shoulder straps supporting the user, and around the thighs. Supporting the

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user, post fall, by the sternal attachment will result in roughly a sitting or cradled body position with weight concentrated on the thighs, buttocks and lower back. Supporting the user during work positioning by this sternal attachment will result in an approximate upright body position.

If the sternal attachment is used for fall arrest, the competent person evaluating the application should take measures to ensure that a fall can only occur feet first. This may include limiting the allowable free fall distance. It may be possible for a sternal attachment incorporated into an adjustable style chest strap to cause the chest strap to slide up and possibly choke the user during a fall, extraction, suspension, etc. the competent person should consider full body harness models with a fixed sternal attachment for these applications.

- 12. Frontal-**The frontal attachment serves as a ladder climbing connection for guided type fall arresters where there is no chance to fall in a direction other than feet first, or may be used for work positioning. Supporting the user, post fall or during work positioning, by the frontal attachment will result in a sitting body position, with the upper torso upright, with weight concentrated on the thighs and buttocks. When supported by the frontal attachment the design of the Full Body Harness shall direct load directly around the thighs and under the buttocks by means of the sub pelvic strap.

If the frontal attachment is used for fall arrest, the competent person evaluating the application should take measures to ensure that a fall can only occur feet first. This may include limiting the allowable free fall distance.

- 13. Shoulder-** The shoulder attachment elements shall be used as a pair and are an acceptable attachment for rescue and entry/retrieval. The shoulder attachment elements shall not be used for fall arrest. It is recommended that the shoulder attachment elements be used in conjunction with a yoke which incorporates a spreader element to keep the Full Body Harness shoulder straps separate.
- 14. Waist, Rear-** The waist, rear attachment shall be used for travel restraint. The waist, rear attachment element shall not be used for fall arrest. Under no circumstances is it acceptable to use the waist, rear attachment for purposes other than travel restraint. The waist, rear attachment shall only be subjected to minimal loading through the waist of the user, and shall never be used to support the full weight of the user.
- 15. Hip-** The hip attachment elements shall be used as a pair, and shall be used solely for work positioning. The hip attachment elements shall not be used for fall arrest. Hip attachments are often used for work positioning by arborists, utility workers climbing poles and construction workers tying rebar and climbing on form walls. Users are cautioned against using the hip attachment elements (or any other rigid point on the Full Body Harness) to store the unused end of a fall arrest lanyard, as this may cause a tripping hazard, or, in the case multiple leg lanyards, could cause adverse loading to the Full Body Harness and the wearer through the unused portion of the lanyard.
- 16. Suspension Seat-** The suspension seat attachment elements shall be used as a pair, and shall be used solely for work positioning. The suspension seat attachment elements shall not be used for fall arrest. Suspension seat attachments are often used for prolonged work activities where the user is suspended, allowing the user to sit on the suspension seat formed between two attachment elements. An example of this use would be window washers on large buildings.









