

How To Choose And Use A Body Harness



Image from Guardian Fall Protection's - The ABCs of Fall Protection video

- A is for Anchorage Point**
- B is for Body Harness**
- C is for Connecting Device**
- D is for Descent & Rescue**

B is for Body: Safe Anchorage Is Two-Sided

This is the second of a four-part series on the ABCD's of Fall Arrest. The second inspection task for physically distanced workers prior to working in elevated locations is to check their own anchorage. Following the determination of safe anchorage in their work area, workers need to turn their attention to the other end of their Personal Fall Arrest System (PFAS) - the body harness.

It's important not to let familiarity lead to complacency. A body harness requires just as stringent inspection procedures as determining anchorage points. Often due to newly enacted jobsite movement restrictions, safety directors may not have as many opportunities to review how solo workers are conducting their harness inspections.

A Virtual Start

There are several innovative approaches to improving the PFAS inspection process. Harness Hero is a fall protection video developed by SimCoachGames that instructs users of the key elements of PFAS's. The gaming app allows the user to encounter a virtual fall, and the outcome is determined by how well they performed their inspection tasks.

Another tool that aids in remote harness inspections can be the use of digital inspection checklists. The Safesite app offers inspection checklists.

The SafeSite app offers self-guided safety templates for checklists, inspections, and audits, allowing workers to easily conduct thorough inspections. "Fall Protection Equipment Inspection: Harness & Lanyard" prompts the user to look at key points with a series of 10 questions. The templates can also be edited to comply with a contractor's own program or specific site conditions. Below are three more inspection checklists from top manufacturers.

GUARDIAN CHECKLIST

3M CHECKLIST

MILLER CHECKLIST

Body Harnesses vs. Safety Belts

One of the first, and most important steps in getting a harness is proper selection. Workers must first be certain which type of body harness, or safety belt, is required for the task at hand. There are strict OSHA regulations around wearable device designs, as well as the safety tools that can be used with them.

OSHA defines a body harness as:

A device with "straps that secure about the employee in a manner to distribute the fall arrest forces over at least the thighs, pelvis, waist, chest, and shoulders, with a means for attaching the harness to other components of a personal fall protection system."

OSHA allows three attachment designs.

When the free fall distance is limited to 2 feet (0.6 m) or less. The harness attachment point may be located in the pre-sternal position.

When the harness is to be used by workers in confined spaces, manufacturers can locate D-rings on each shoulder strap to allow an upright rescue.

But the most common body harness is for general fall arrest, is a device with the back D-ring, with the attachment point located in the center of the employee's back near shoulder level.

OSHA defines a safety belt as:

“A strap with means both for securing about the waist and for attaching to other components.” For almost three decades, OSHA has prohibited the use of a body belt as part of a personal fall arrest system.

In a letter dated Sept. 25, 1995, OSHA stated that:

“[Safety belts with] side D-rings are acceptable for work positioning devices, such as those used by linemen, employees doing rebar work, or tree trimmers, but are not acceptable for fall arrest systems.”

Examples of these very work-specific belt-type harnesses include:

Ladder climbing harnesses have a front D-ring that allows connection to a ladder climbing safety system.

The work positioning harness design includes positioning D-rings located on the hips that are used with positioning devices, allowing workers to use both hands. These are commonly used on rebar tying and concrete wall-form installation.

Restraint belt designs typically have a single, back D-ring attached to a system that restricts workers reaching an area where a fall hazard exists.

Reference the Owner's Manual

A PFAS body harness is more than a woven collection of straps, rings, and buckles. It's a highly engineered safety device, manufactured to exacting standards, and designed to perform to specific levels of safety. Like an automobile, each body harness is delivered with an owner's manual.

A harness owner manual outlines the tool's proper use, maintenance, and inspection. It's important to review the manual, as there can be distinct differences between harness manufacturers. Knowing these differences not only increases safety, but aids in worker fit and comfort.

Check the tag

The information published in the manual is so important, that manufacturers summarize key points on a collection of tags woven into the fabric of each harness. Tags identify the harness type, model, date of manufacture, name of manufacturer, limitations and warnings.

Workers are required to inspect and review these tags prior to each use. If the tags are missing, damaged, or unreadable, the harness must be immediately removed from service. Another key tag check is its date of manufacture and prescribed removal from service. When users follow the practices outlined in the owner's manual, a body harness

can have an anticipated safe-life of almost five years.

One of the factors that influence the effectiveness of a full-body harness is its exposure to ultraviolet rays. Visually identifying UV-degradation can be difficult, but there may be flaking on the surface of the safety harness and discoloration, if dyed. Other signs of chemical damage such as burn marks and fibers with a glazed appearance also weaken webbing strength.

Key Inspection Check Points

A thorough inspection of a harness is more than a casual look. Err on the side of caution, removing any harness exhibiting defects or concerns.

The inspection starts with an overall view of the safety device. Ensure that all straps are in place. There can be no modifications made to the harness manufacturer's design. And look for any discoloration of the fabric's color that could indicate damage from excessive heat or prolonged exposure to ultraviolet rays.

Also check for any previous harness conditions. Look for inspection markings, that would indicate previously noted web damage. And look for stretch marks or differences in web thickness that might indicate the harness has experienced a fall.

Then check all D-rings. They must not show any damage or abrasion. The D-ring anchor points on the harness must be free of tears, defects or wear.

Next, workers should physically grasp and bend the webbing, checking both sides. This manipulation creates surface tension making damaged fibers or cuts easier to see. Try to pay close attention to harness areas that may have rubbed on structures, scaffolding, and railings.

A quick hand touch of the entire harness is also important. Workers might identify areas that aren't as stiff as others, indicating the need for further inspection.

Common harness defects can include cuts, nicks or tears, and broken, frayed or cracked fibers. Finally, check for any missing or cut stitches.

End of Shift Maintenance

Treat these safety devices with respect by practicing the proper daily maintenance outlined in their owner manuals. Most manuals suggest a post-use cleaning with a wetted sponge. Many manufacturers suggest a sponge dipped in a solution mild water and mild detergent to wipe off all surface dirt. Following the cleaning, wipe the harness dry

with a clean cloth.

Harnesses should be stored in areas that are clean, dry and free of exposure to fumes, heat, direct ultraviolet light, sunlight and corrosive elements.

Following a Fall Experience

Manufacturers recommend immediate removal of a safety harness if it has arrested a fall. The unit should have its impact indicators, or fall arrest load indicators, inspected

by the manufacturer prior to reuse. Trained professionals can determine if the harness received enough force for permanent service removal. These indicators include popped stitches on the backstrap, loose D-rings with an exposed alert color, or plastic rings designed to break.

Harnessing Your Safety Efforts

Workers should remember that their safety harnesses are tools, and should receive their full attention before, during and after each use.

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