User Instruction Manual
Full-Body Safety Harnesses
Installation, Operation, and Maintenance
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Full Body Harnesses

i. Basic Harness Parts Identification and Location

Typical Basic Harness Parts

Some other styles of harnesses offer Nomex sleeved welding webbing, extra strength webbing for larger weight styles, side positioning D-rings, padded seats, removable and attached tool belts, padded shoulders, front sternal D-rings, and grommet leg straps in a number of combinations as options.

To the Equipment User:
You must read and fully understand or have the following instructions explained to you before using this equipment. Failure to do so could result in serious or fatal injury.
ii. Higher End Harness Parts Identification and Location

Higher End Harness with Belt, Shoulder and Back Pads and side D-Rings

- Adjustable chest strap
- Lanyard keeper
- Adjustable side straps
- Leg size adjusting straps
- Polyester high strength webbing
- Comfort shoulder pad
- Dorsal D-Ring
- Fall Indicator
- Tool belt
- Large back pad for support
- Waist D-Rings for positioning
- Label under protective cover
- Fall Indicator
- Back View with Back Pads with Side D-Rings for Positioning and Tool Belt

Front View showing chest straps, comfort shoulder pad, and padded leg straps.

Elavation Full Body Harness.
Safety Information

iii. WARNINGS!

To the Equipment User:
You must read and fully understand or have the following instructions explained to you before using this equipment. Failure to do so could result in serious or fatal injury.

Under Penalty of Law
These instructions are not to be removed except by the user of this equipment. Current instructions must always be available to any potential user. Note: Because of continuous developments in the application and use of AO Safety/SafeWaze equipment and our desire to serve your best interests, these instructions are invalid 10 years after the effective date on these instructions. If these instructions are out of date, call AO Safety/SafeWaze customer service and request current instructions. Dial toll free (800) 560-1094 (U.S. and Canada).
If you have difficulty or experience any problem with AO Safety/SafeWaze equipment or the instructions, call the above toll-free number immediately and ask the customer service department for assistance. The equipment purchased is designed to be used as a part of a complete fall protection system. It is to be inspected and maintained regularly. It is the responsibility of the user’s management to review these instructions periodically, and to ensure compliance with every requirement to maintain the integrity of the system. You assume complete liability if you fail to follow these instructions and are injured. Use this equipment only as instructed.

Warning:
All AO Safety/SafeWaze equipment should be a part of a complete fall protection or emergency rescue system. If the buyer or user chooses to disregard this warning, he is solely responsible for the safety of the entire system and all users. Before replacing or adding components to a fall protection or emergency escape system, consult the original manufacturer. Federal OSHA further states that any unauthorized substitution or change to a system by the buyer should be fully evaluated or tested by a qualified person before the new system is put into use (see OSHA 1926.500). Management must read and understand all instructions fully; failure to do so could result in serious or fatal injury. No fall arrest system can guarantee that you will not sustain injuries if a fall occurs. The most you can expect is that injuries will be substantially reduced. Improper use of this equipment builds false security thus increasing the chance of serious injury or death. To achieve the maximum level of safety that this equipment is capable of providing, all instructions must be followed diligently. This means careful planning of your application and work method.
iv. Fall Protection System Components -
General

System Components
A complete fall protection system consists of the following components, Anchorage, Body Support, and Connecting Devices.

• Anchorage
An anchorage, as defined by OSHA, "shall be independent of any anchorage being used to support or suspend platforms and capable of supporting at least 5,000 pounds per employee attached, or shall be designed, installed and used as follows: as part of a complete personal fall arrest system which maintains a safety factor of at least two; and under the supervision of a qualified person."

For all lifelines it is important to remember that the anchorages must be designed and installed according to the instructions provided using a safety factor of at least two. Anchorages for lifelines require anchorage strengths 5,000 lb. or better, if not an engineered system. Engineered arrangements require at least a 2 times safety factor for the anchorage strength per OSHA. Refer to the information provided by AO Safety/SafeWaze for each lifeline for anchorage requirements.

• Body Support
A body support is the component of a personal fall protection system that is worn on or around the body. Full body harnesses must be used for all fall arrest systems.

• Connecting Method
A connecting method is the link between the body support and anchorage. It can be a shock-absorbing lanyard, rope grab, self-retracting lanyard or retrieval system. Connecting methods will vary depending on the application. The user must also have a rescue plan and the means at hand to implement it in the event of a fall. Note: For continuous protection, more than one system may be needed.

WARNING! DO NOT ATTEMPT TO USE ANY FALL PROTECTION SYSTEM WITHOUT FULL UNDERSTANDING OF HOW TO USE ALL COMPONENTS, AND WITHOUT ADEQUATE TRAINING IN THE SPECIFIC APPLICATION TO WHICH IT IS BEING APPLIED.
1.0 Selecting Proper Harness

1.1 All AO Safety/SafeWaze harnesses meet applicable OSHA requirements for fall arrest and are designed to be used with AO Safety/SafeWaze lifeline devices. Our full body harnesses are designed for workers up to 310 lbs including tools. For workers weighing between 310 and 400 pounds, AO Safety/SafeWaze also offers the Apache and Elavation series harnesses incorporating extra-strength webbing.

AO Safety/SafeWaze supplies several types of full-body harnesses. The location and type of the D-ring indicates a specific application and the harness must be used for that application only. See Table 1 for correct use of each D-ring. The correct type of equipment and model must be chosen after careful consideration of the application. Correct use of the equipment is mandatory for safety. Do not use front D-ring for fall arrest.

Note: Rescue loops are for rescue use only. Never use for fall arrest (including ladder climbing applications).

1.2 Each worker must have a fall-arrest system comprised of a full body harness and a fall arrestor attached to an appropriate anchorage. One fall arrest system per worker is sufficient as long as the worker maintains his or her balance. If there is a possibility that balance will be lost, additional protection that includes a work positioning device is required.

2.0 Characteristics of Full-Body Harnesses

2.1 AO Safety/SafeWaze full body harnesses are simple to adjust, easy to put on, and comfortable to wear all day. These harnesses are made of lightweight, chemical-resistant polyester webbing. A sub pelvic strap is included to provide extra comfort and support during and after a fall arrest. A sliding D-ring on the back of the harness helps absorb shock during fall arrest and properly position the body upright for prolonged suspension and retrieval. For certain situations, a sliding D-ring is not desired, an option that can be selected when ordering.

There is no waist strap across the soft, vulnerable midsection, allowing for more ease and comfort for work tasks requiring bending and kneeling. The streamlined design allows for lineman’s tools and tool belts to be worn over the top of the harness. The color-coded straps help workers put on the harness easier, faster, and properly.

Harnesses are available with tongue-buckles or quick-attach, mating buckle leg-straps. Incorporated into the back shoulder straps is the exclusive stress indicator that gives positive visual proof when the harness has experienced the excessive forces of a fall arrest. The stress indicator unfolds to display the message “Caution! Stressed! Do not use!” All AO Safety/SafeWaze harnesses meet or exceed the requirements of OSHA 1926.50, Subpart M; OSHA 1910.129, Fall Protection Equipment Requirements for Body Support; OSHA 1910.66, Appendix C; and ANSI Z359.1-1992 and CSA Z259.10-M90-R2003.

<table>
<thead>
<tr>
<th>D-Ring Location</th>
<th>Approved Application</th>
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<tbody>
<tr>
<td>Back</td>
<td>A, D, E, L, P</td>
</tr>
<tr>
<td>Chest / Front</td>
<td>D, E, L, P</td>
</tr>
<tr>
<td>Shoulders</td>
<td>E</td>
</tr>
<tr>
<td>Side/Climbing</td>
<td>L</td>
</tr>
<tr>
<td>Hip</td>
<td>P</td>
</tr>
<tr>
<td>A=Fall Arrest</td>
<td>L=Ladder Climbing</td>
</tr>
<tr>
<td>D=Controlled Descent</td>
<td>P=Work Positioning</td>
</tr>
<tr>
<td>E=Confined Space Entry and Exit</td>
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</tbody>
</table>
Models, Operating Instructions

3.0 Available Models

-AO Safety has a full line of standard, universal fit, as well as multi-size standard and higher end styles. Specialty harnesses are also available for welding, tower applications, aerial applications, utility, and other applications.

4.0 Operating Instructions

4.1 Harnesses must be inspected before every use. See Section 7.0 for inspection instructions. Full body harnesses must fit securely between the legs and around the body, but allow you to move freely. All buckles must be properly adjusted and have the D-ring located between the shoulder blades. Hard hats can be worn and will stay on during a fall arrest if fitted closely. Long hair should be worn up to avoid catching it in the sliding D-ring during a fall arrest. Loose ends must be secured with loops of elastic band, plastic web clip, or stored in a pocket.

4.2 Buckle Adjustment

4.2.1 Sliding Bar Buckles: Tighten snugly and feed loose end under elastic keeper or use plastic web clips to position webbing straps. hen, pass the smaller inner buckle through the outer buckle frame until it is seated (interlocked) firmly in place.

4.2.2 Quick-Attachment Buckles: First adjust (loosen or tighten) the length of the leg strap by working the webbing through the inner buckle in either direction. Once the length is correct, push the two plastic web clips out in opposite directions to smooth out the webbing and to keep the loose end from dangling. Then, pass the smaller inner buckle through the outer buckle frame until it is seated (interlocked) firmly in place.

4.2.3 Attachment of Tongue Buckles: Adjust the length by passing the webbing through the buckle frame and passing the tongue of the buckle securely through the right grommet hole, resting it tightly against the outer frame. Make sure the same grommet hole is used on each leg strap so that the harness leg straps are adjusted evenly. The webbing leg straps should not be twisted and the extra strap through the buckle should be neatly tucked away in the loops or web keepers provided. Always keep the straps under tension and the excess strap stored neatly so that the tongue does not become loose in the grommet.
5.0 Donning Instructions

1. Hold the harness by back D-ring. Shake Harness to allow all straps to fall into place.

2. If chest, leg, and/or waist straps are buckled, release straps and unbuckle them at this time.

3. Slip straps over shoulder so D-ring is located in middle of your back between the shoulder blades.

4. Pull leg straps between legs and connect to opposite end. Repeat with second leg strap. If belted harness, connect waist strap after leg straps.
5.0 Donning Instructions (Cont.)

4. (Continued) Use the two buckles located at the lower end of the shoulder straps to adjust the shoulder straps. Position the extra seat strap just below the buttocks. These buckles adjust the body (torso) length of the harness. The tail ends of these straps have been secured so they will not unintentionally pull out. Use the plastic web clips to flatten out and position the webbing straps. For the quick attachment buckles, once adjusted, one web clip should be pushed down against the buckle.

5. Fasten the chest strap across the upper portion of the chest about halfway between the nipple line and the collar bones. The chest strap should be comfortably snug. Use the plastic web clips located on the vertical straps to position the chest strap. The chest strap should not be close to your neck since it might contact the neck as the back D-ring of the harness slides up during a fall arrest.

Allow five inches minimum distance from strap to the collar bones. Women must make sure the chest strap is above the bust line and positioned halfway between the collar bones and nipple line. Never wear the chest strap below the bust line because it may cause pain during a fall arrest.

6. After all straps have been buckled, tighten all buckles so that the harness fits snugly, but also allows full range of movement. Pass excess strap through strap keepers.
5.2 Donning Instructions, cont.

5.2.1 To Fit Front D-Ring Style Harness

Step 1: Grasp harness by the back D-ring. The back D-ring is located next to the plastic D-ring pad. Shake the harness straps loose so that they are not twisted.

Step 2: Locate the openings for the head and arms. The head is placed between the front and back D-rings through the shoulder straps. The arms are placed through the openings on each side of the shoulder straps. The shoulder straps are color coded for easy identification.

Step 3: Raise harness over head placing head and arms through openings.

Step 4: Use buckles located on the front of the harness to adjust the height of the front D-ring and the length of the harness. Position the back D-ring between your shoulder blades. Position the front D-ring at least 5" below the collar bone by adjusting the lower right buckle. The front D-ring should be positioned so that it will not contact the neck or chin when it is lifted to the upright position. Then adjust the length of the harness by adjusting the lower left buckle. These buckles allow independent adjustment of the front D-ring height and the overall length of the harness.
5.2.1 Donning Instructions, cont.

Step 5: Reach back through your legs and grab one leg strap at a time to fasten. The leg straps should be snug, but allow you to stand up straight and move your legs comfortably.

5.3 How to use for fall arrest

5.3.1 For use with Lanyards: Attach the lanyard to the back D-ring located between the shoulder blades. The maximum allowable free fall is 6 feet. The anchorage point must support a minimum of 5000 pounds. When not in use, the loose ends of the lanyard can create a tripping/fall hazard if left dangling. AO Safety/SafeWaze offers lanyard clips to enable the user to safely stow these loose ends to the harness when the lanyard is not in use. When using a continuous protection Y style lanyard, the unused snaphook must be attached to a detachable keeper. The lanyard clip must never be used as an attachment point for fall protection or retrieval purposes. Call AO Safety/SafeWaze Customer Service for more information.

5.5 How to use for climbing ladders

5.5.1. For use with Self-Retracting Lanyards: Attach the retracting lifeline to the back D-ring located between the shoulder blades. The anchorage point must support a minimum of 5000 pounds.

5.4 How to use for work positioning

5.4.1 Attach the AO Safety/SafeWaze work positioning device to the side D-rings at the 3 and 9 o’clock positions. This device is for work positioning only and is not for fall arrest or climbing. (See figure below)
6.0 Training

6.1 All training must be conducted under careful and qualified supervision. Live hands-on training for all users is essential to help understand the capabilities and limitations of their personal protective equipment. Training also helps promote confidence and should be conducted as an initial introduction as well as periodically for review and additional practice. Also, this instruction booklet should be stored where users can easily review it whenever necessary. Following is a suggested list of training objectives. Training should be site specific and may need to cover more topics than are listed here.

Training Topics suggested:
- Recognize fall hazards, and eliminate the hazard where possible.
- Know the three parts of a fall arrest system: Anchorage, Body Support, and Connection.
- Select the proper equipment for each application.
- Consider environmental and other workplace factors.
- Avoid incompatible connections and snap hook roll-out (burst out).
- Determine and reduce free fall distances.
- Lower the maximum arresting force.
- Properly fit a harness.
- Select an appropriate anchor point.
- Implement a pre-determined rescue plan.
- Inspect and maintain equipment.
- Understand the limitations and requirements of the equipment.
- Understand the consequences of not following or understanding these instructions.

7.0 Inspection

7.1 Inspection Frequency: All equipment must be inspected visually by the user before each use and at least monthly by a competent person other than the user. (ANSI Z359.1) Detailed inspection records must be kept. An inspection chart is provided at the end of these instructions for your convenience. Equipment used in harsh environments may require more frequent formal inspection. (For example, caustic or corrosive environments.)

7.2 Corrective Action: If damage is found as described below, remove the item from service immediately and replace it. If any damage or questionable conditions are apparent that are not described below, remove the item from service, mark “DO NOT USE”, replace it and call AO Safety/SafeWaze Customer Service 800-560-1094.

7.3 Failure to remove equipment that has been damaged or where its condition is questionable could lead to serious or fatal injury. A detailed record of inspection dates must be maintained.

7.4 Webbing and construction of harness: The entire length of webbing and all of the assembled harness parts should be inspected for tears, cuts, fraying, rust, corrosion, or other signs of wear and damage. Sewn terminations should be secure, complete and not visibly damaged. Begin at one end and bend a portion (6–8 inches) into a U-shape between your hands. Check both sides, back, straps, D-rings, buckles, grommets, leg and side straps, and all parts of the harness. Any harness with noticeable cuts or abrasions must be removed from service. Contact AO Safety/SafeWaze Customer Service to arrange for replacement.
Table 1: Type of Exposure—Visual Signs of Harmful Exposures

<table>
<thead>
<tr>
<th>Type of Webbing</th>
<th>Heat</th>
<th>Chemicals</th>
<th>Flame or Molten Metals</th>
<th>Paint and Solvents</th>
<th>Dirt and Grit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyester</td>
<td>Fibers will become brittle, shrivel, turn brown in color, and break when flexed. Should not be used above 140°.</td>
<td>Fibers change color and texture similar to a brownish smudge, or smear. Will become less elastic with traverse cracks resulting from bending.</td>
<td>Fiber strands fuse together, become hard, brittle and shiny in appearance.</td>
<td>Paint can penetrate into the weave and dry, causing the webbing to become hard, brittle, and eventually break the fibers. Solvents and drying agents with paint cause damage similar to chemical exposure.</td>
<td>Particles work their way into the weave and can cut and fray fibers.</td>
</tr>
</tbody>
</table>

Detailed examples of visual signs of harmful exposure are summarized in Table 1.

7.5 Snaphooks and Carabiners:
7.5.1 Snaphook and Carabiner Body: All snaphooks and carabiners must operate smoothly and open and close completely. Check snaphook or carabiner body for sharp edges, burrs, distortion, cracks, and corroded or pitted surfaces.
7.5.2 Snaphook Rivets: Should be checked for cracks, and broken, loose, or bent conditions.
7.6 Labels: Labels must be secure and legible. Each size and shape of harness has an appropriate label.
7.7 Full Body Harness: Follow AO Safety/SafeWaze Instructions for proper inspection of full body harnesses.
7.8 Fall Indicators: The appropriate fall indicator should be intact. If any portion of the warning message is showing, the harness must be removed from service and replaced. Call Customer Service at for information on replacement.

8. Reserved

Reserved for future use.
Maintenance, Questions.

9.0 Maintenance

9.1 Personal protective equipment should be maintained regularly to help make sure that the equipment will operate properly when needed. Failure to maintain and store equipment carefully can result in poor operation that could lead to serious or fatal injury.

9.2 All equipment should be part of a periodic maintenance program, including detailed records. A minimum of every six months is suggested or more if the equipment is heavily used. Never make any adjustments or repairs to or substitute any parts of an AO Safety/SafeWaze system; call Customer Service at for further information as needed.

9.3 Cleaning:
Harnesses can be washed with a mild soap detergent using a brisk back and forth motion. Then, they must be thoroughly rinsed with clear water and hung up to dry in a cool place out of the sun and away from exposure to high heat and steam. Wash and clean the hooks regularly. Oil or grease the hook so it will not attract dusts/powders, etc. Make sure that oil/grease has correct temperature range and viscosity for location; generally use -60°C to +250°F silicone sprays. Aim lubricant at rivet pivot points. A dry low temperature silicone lubricant can be used on the snap hooks to help ensure smooth operation and complete closure.

9.4 Storage:
Harnesses should be hung up or placed loosely (in a container) in a clean, dry area free from exposure to harmful fumes, corrosive agents or light (artificial or sunlight).

9.5 Equipment instructions also should be stored where all users can quickly find them when needed.

Questions?

If you have any questions about these instructions or about the proper use of any AO Safety/SafeWaze equipment, call AO Safety/SafeWaze Customer Service Toll Free 1-800-560-1094.
Use this form to maintain records for inspections on all products requiring inspections in a given period. Equipment must be inspected prior to each use by the user, and removed from service, recertified-if applicable, destroyed or discarded, if it does not pass inspection. Once a year, all equipment must be inspected and passed by a Competent Person (other than the user). Fill out Fall Protection Equipment Inspection Checklist forms daily to monitor product condition.

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Serial #</th>
<th>Date in Service</th>
<th>Inspection Date</th>
<th>Employee Name</th>
<th>Pass</th>
<th>Fail</th>
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