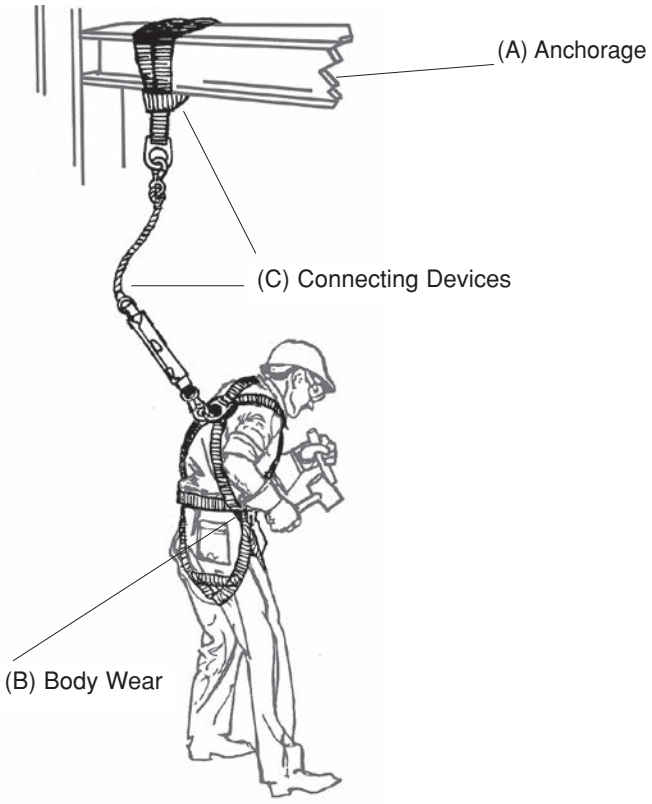
KLEIN TOOLS
For Professionals…Since 1857®

Instructions for the Proper Use and Care of Klein® Occupational Protective Connecting Devices

Introduction



⚠WARNING: Save these instructions. Klein connecting devices must NOT be used by anyone who has not read, understood and followed all instructions and inspection procedures contained in this booklet. Failure to observe these warnings, instructions, and inspection procedures could lead to serious injury or death. Training and instruction review should be repeated at regular intervals by the user and his or her employer.

These instructions apply to all Klein rope lanyards, aircraft-cable lanyards, nylon webbing lanyards, deceleration lanyards, deceleration units, and V-sling harness attachments.

NOTE: For clarity, illustrations in this instruction booklet do not show any warning tags or labels, which are attached to each product. Warning information for V-slings and all lanyards is printed on a durable label wrapped around the product.

Klein makes a full line of Occupational Protective Equipment (OPE). Each OPE product is part of an OPE system for fall arrest, positioning, suspension, retrieval, or combination application.

Follow the **A-B-C Rule** when assembling an OPE system. All personal OPE systems are made up of three (3) major components: **(A)** Anchorage, **(B)** Bodywear (for example, a full body harness), and **(C)** Connecting Device(s).

Klein's Lanyard Connecting Devices are used to attach the harness (the "B" component) to a suitable anchorage (the "A" component) in order to provide one of the four OPE functions (Fall Arrest, Positioning, Suspension, and Retrieval).

Note: A personal fall-arrest system only becomes active in a fall. If equipment is required to help hold or place a worker in position, you must use other OPE systems in addition to the fall-arrest system.

A personal fall-arrest system is designed only to aid a worker once a fall occurs, and must be used whenever there is a danger of falling. Where there is a danger of being killed or injured from a fall, only use equipment specifically designed for fall arrest.

Introduction (continued)

When using any OPE system, you must be sure the entire system meets OSHA regulations. Be sure the primary anchorage is identified and evaluated by a competent person, as defined by OSHA, at the job site. A competent person must also determine that the type of OPE connecting device and harness are appropriate for the job.

Many connecting devices can be used properly in more than one OPE system application. For example, a Klein rope lanyard can be used as a component in a positioning, suspension, or retrieval system. Other connecting devices, such as deceleration lanyards and deceleration units, can only be used for fall arrest. All Klein OPE connecting devices meet or exceed all pertinent OSHA regulatory requirements.

The symbols shown above indicate that a particular


Fall Arrest


Positioning


Suspension


Retrieval

connecting device is appropriate for use in one or more of the following systems:

• **in a fall-arrest system**, where there is danger of falling from an elevated position;

• **in a positioning system**, where it is necessary to have your hands free while working on an elevated surface;

• **in a suspension system**, where it is necessary to be positioned and supported from above; or

• **in a retrieval system**, where it is necessary to have a quick means of being lifted out of, or pulled from, a working environment.

⚠WARNING: Double-check the intended function of any Klein connecting device before using it. Proper OPE system applications are identified in the Klein OPE catalog and are printed clearly on the warning tags, labels and other literature provided with each product. Misuse of a connecting device or any other piece of OPE equipment can result in serious injury or death.

⚠WARNING: It is imperative that qualified people select OPE system components to fit the specific job requirements. Incorrect component choices can cause serious injury or death.

Note: This table lists working heights for which OSHA requires the use of a fall-arrest system.

Heights at Which Guarding or Fall Protection is Required by Federal OSHA:

Industry	Height or Depth	OSHA Standard
General Industry	4 feet	1910.23 1910.66 (Appendix C)
Construction - Fall Protection - Scaffolding	 6 feet 10 feet	 1926.500-.503 1926.450-.454
Steel Erection	15 - 30 feet	1926.750
Perimeters and Over Water	25 feet maximum at perimeter	1926.105

To measure height:

- Measure the distance from the working/walking surface to grade or lower level.
- The worst fall hazard should be considered in each particular application.

Types of Klein OPE Connecting Devices

Rope Lanyards

Rope Lanyards are designed for use in positioning, suspension, or retrieval systems. They are made of long-filament nylon or safety-orange polypropylene and are available in fixed or adjustable lengths. They have locking snap hooks (Klein-Lok®) permanently attached at both ends. Special-length lanyards are available through special order at your authorized Klein distributor.

Nylon-Filament Rope Lanyards are designed for use in positioning, suspension, or retrieval systems. They have excellent elasticity. These lanyards also have good abrasion resistance.

Polypropylene-Rope Lanyards are designed for use in positioning, suspension, or retrieval systems. Polypropylene has excellent dielectric properties and is ideal for use around live electrical lines, energized equipment and other electrical OPE applications. However, take care to keep metal snap hooks away from live electrical lines or energized equipment.

Note: Rope lanyards can be used with a deceleration unit for fall arrest.

Aircraft-Cable Lanyards

Aircraft-Cable Lanyards are designed for use in positioning, suspension, or retrieval systems. They are vinyl covered for protection from abrasion. They have locking snap hooks (Klein-Lok®) permanently attached at both ends. Common users include welders and others who must tie off on objects with sharp edges.

Aircraft-cable lanyards must NOT be used around live electrical lines or energized equipment. NEVER use aircraft-cable lanyards alone for fall arrest. Always use a deceleration unit with aircraft-cable lanyards for fall arrest.

⚠WARNING: Do not use aircraft-cable lanyards near energized equipment.

Nylon-Webbing Lanyards

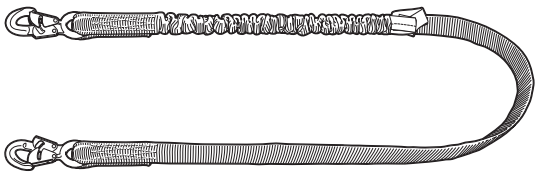
Nylon-Webbing Lanyards are designed for use in positioning, suspension, or retrieval systems. They are made of orange nylon webbing impregnated with resin for greater durability. Locking snap hooks are permanently attached at both ends. These lanyards are available in fixed or adjustable lengths.

Note: Nylon-webbing lanyards can be used with a deceleration unit for fall arrest.

Types of Klein OPE Connecting Devices (continued)

Deceleration Lanyard

The Deceleration Lanyard is designed solely for use in fall-arrest systems. It features an energy-absorbing inner core made of polyester, protected by an outer shell made of orange tubular nylon webbing. Locking snap hooks are permanently attached at both ends.

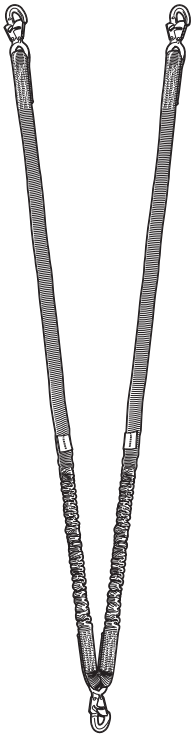


⚠WARNING: On Klein deceleration lanyards, the uncovering of a red-lettered warning label indicates that the unit was subjected to a severe impact force; therefore, the unit must not be used and must be disposed of immediately.

Dual Deceleration Lanyard

The Dual Deceleration Lanyard is designed solely for use in fall-arrest systems. This "two-legged" lanyard can be used when 100% tie-off is required. It allows the user to attach to a new fall-arrest anchorage with one lanyard leg, while staying connected to the original fall-arrest anchorage with the remaining lanyard leg.

The Dual Deceleration Lanyard has an energy-absorbing inner core made of polyester, surrounded by an outer shell made of orange tubular nylon webbing. Locking snap hooks are permanently attached at the ends of both legs and at the deceleration end.



⚠WARNING: On Klein dual deceleration lanyards, the uncovering of a red-lettered warning label indicates that the unit was subjected to a severe impact force; therefore, the unit must not be used and must be disposed of immediately.

Deceleration Units

Deceleration Units are designed solely for use in fall-arrest systems. They are made of overlapped nylon webbing, heavily cross-stitched together with nylon thread and sewn into a protective breakaway jacket. Available separately or with permanently-attached lanyards made of nylon rope, aircraft cable, or nylon webbing.

⚠WARNING: On Klein deceleration units, the uncovering of a red-lettered warning label inside the leather jacket indicates that the unit was subjected to a severe impact force; therefore, the unit must not be used and must be disposed of immediately.

Types of Klein OPE Connecting Devices (continued)

Deceleration Units with Dual Lanyards of Nylon Rope or Nylon Webbing

Deceleration units with dual lanyards are designed solely for use in fall-arrest systems, and they can be used when 100% tie-off is required. They allow the user to attach to a new fall-arrest anchorage with one lanyard, while still being connected to the original fall-arrest anchorage with the remaining lanyard.

The deceleration unit is made of overlapped nylon webbing, heavily cross-stitched together with nylon thread and sewn into a protective breakaway jacket. Two lanyards are permanently attached to the deceleration unit. Also, locking snap hooks are attached to the free end of the deceleration unit and to the free ends of both lanyards.

Available in either nylon rope or nylon webbing.

⚠WARNING: On Klein deceleration units, the uncovering of a red-lettered warning label inside the leather jacket indicates that the unit was subjected to a severe impact force; therefore, the unit must not be used and must be disposed of immediately.

V-Slings

V-Slings are used in suspension and retrieval systems. They include two permanently-attached, locking snap hooks. These hooks connect to the shoulder D-rings of retrieval harnesses or to the seat-strap D-rings of suspension harnesses. Klein V-slings are made of high-quality, nylon-filament rope.

V-slings are designed for retrieval and suspension purposes only, and are NOT to be used for fall arrest.

Klein OPE connecting devices are constructed according to OSHA system criteria for occupational protective equipment.

NOTE: Other types of Klein connecting devices, not shown here, include rope grabs, boom straps, anchorage connectors, and retractable lifelines. Information on their proper use and care is contained in separate instruction booklets provided with each product.

NOTE: Special-length lanyards are available. Contact your authorized Klein distributor.

⚠WARNING: When working with a lanyard, keep the amount of slack between the anchorage and the fall-arrest harness at an absolute minimum to reduce impact forces in the event of a fall.

Construction of Klein Connecting Devices

① Nylon rope used in Klein rope lanyards, deceleration units, rope grabs and V-slings is a 1/2" (13 mm) diameter filament-nylon type with long strands for very high tensile strength, excellent elasticity and good abrasion resistance.

② Polypropylene rope used in Klein rope lanyards is a 9/16" (14 mm) diameter safety-orange type with excellent dielectric characteristics, ideal for working near live electrical lines and equipment. It also has good elasticity.

③ Nylon webbing used in Klein webbing lanyards, deceleration units, deceleration lanyards and boom straps is a high-quality, commercial-grade nylon sling webbing. It is impregnated with latex or resin for extra durability, and it provides extra abrasion resistance.

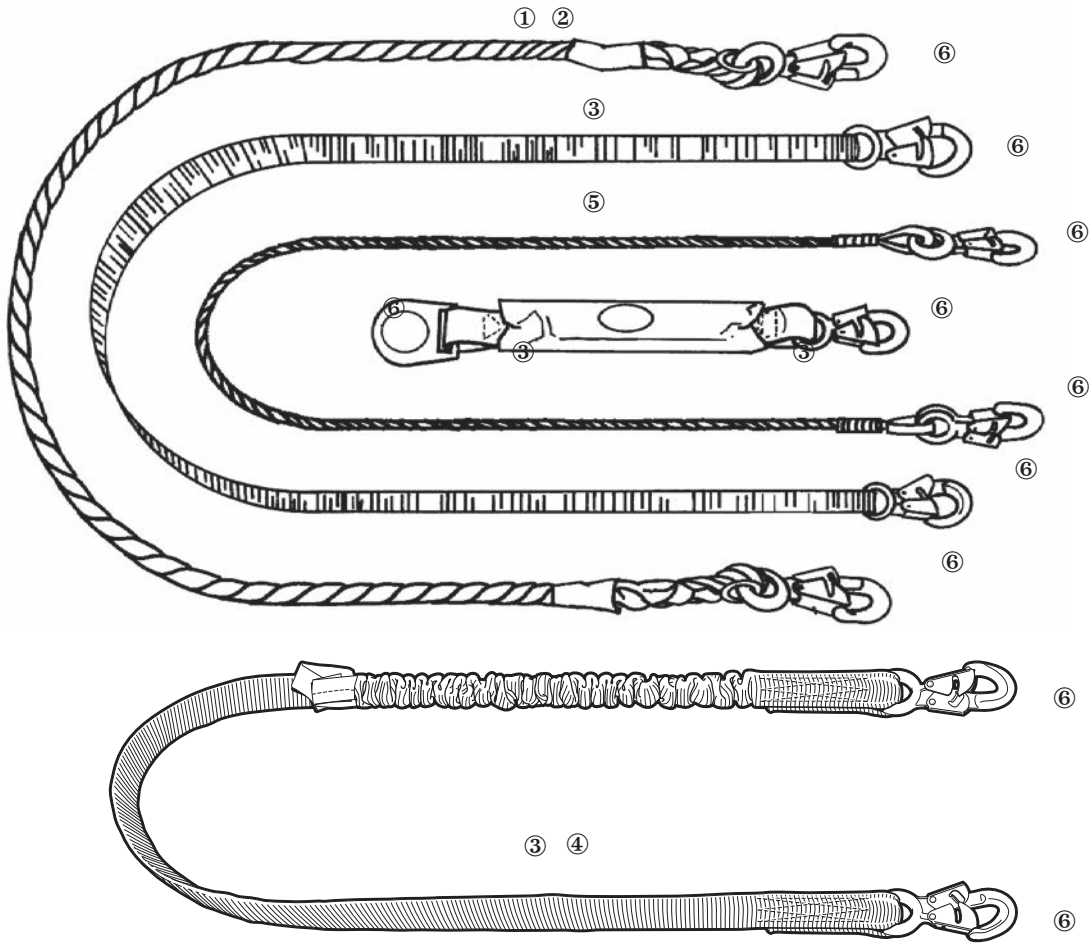
④ Polyester core used in Klein deceleration lanyards resists a wider variety of chemicals than nylon does.

⑤ Aircraft cable used in Klein aircraft-cable lanyards and deceleration units is made of 7/32" (5.6 mm) diameter galvanized steel cable that is vinyl covered for protection against abrasion. Provides excellent resistance to heat, chemicals, paints and solvents. Also resists molten metal splatter and open flame, although the vinyl coating may melt or char. It will not resist the flame of a torch.

⑥ Drop-forged steel used in Klein connecting devices has a corrosion-resistant finish. Examples of Klein hardware include locking snap hooks and D-rings. All Klein hardware meets or exceeds applicable OSHA standards.

Quality Assurance

Thorough testing of all Klein connecting devices assures durability and quality construction. Klein connecting devices and accessories meet or exceed all applicable regulatory requirements.



Construction of Klein Connecting Devices (continued)

Physical Properties of Materials*

Type of Material	Exposure to Excessive Heat	Exposure to Chemicals	Exposure to Molten Metal or Flame	Exposure to Paints or Solvents	Exposure Near Live Electrical Lines and Equipment
Nylon	Poor resistance. Becomes brittle, has a shriveled brown appearance. Fibers will break when flexed. Weakens at 300°F (149°C).	Generally good resistance, except around strong acids and phenolic compounds (phenol is present in coal tar and wood tar), which cause it to become brittle.	Poor resistance. Strands fuse together and form hard shiny spots. Has hard and brittle feel. Will not support combustion.	Generally offers good resistance. However, paint can penetrate into the weave and dry. This can cause webbing to become hard and brittle and can eventually break the fibers. Some solvents may affect fibers (see “Exposure to Chemicals”).	Poor protection (no dielectric strength). Provides no protection to exposure to live electrical lines or equipment.
Polyester	Poor resistance. Fibers become brittle and will shrivel, turn brown in color, and break when flexed. Should not be used above 180°F (82°C).	Good resistance to most chemicals, including hydrochloric acid, aqueous alkalies and many solvents. Exposure to incompatible chemicals may change fiber color and texture, similar to a brownish smudge or smear. Also, fibers will become less elastic, with transverse cracks caused by bending.	Poor resistance. Fiber strands fuse together and become hard, brittle, and shiny.	Generally offers good resistance. However, paint can penetrate into the weave and dry. This can cause webbing to become hard and brittle and can eventually break the fibers. Some solvents may affect fibers (see “Exposure to Chemicals”).	Poor protection (no dielectric strength). Provides no protection to exposure to live electrical lines or equipment.
Polypropylene	Poor resistance. Same as nylon, except weakens at 230°F (110°C).	Excellent resistance to most chemicals, but is attacked by chlorinated hydrocarbons at elevated temperatures.	Poor resistance; same as nylon.	Good resistance. However, may be attacked by chlorinated hydrocarbons.	Good protection (high dielectric strength).Generally provides good protection, when in dry, clean condition, on exposure to live electrical lines and equipment.
Metal (Aircraft Cable, Vinyl Coated)	Excellent resistance.	Excellent resistance.	Good resistance. However, coating may melt or char.	Excellent resistance.	Poor protection (no dielectric strength). Provides no protection against exposure to live electrical lines or equipment.

* Due to the wide variety of conditions in the workplace, this chart should only be considered as a general guide, and a qualified person should evaluate the specific applications and hazards to which the material will be exposed. For more information, call Klein Tools at 1-800-553-4676.

Choose the Proper Length Lanyard for the Job

Note: Before choosing the proper length connecting-device lanyard, you must determine the distance between the work position and the anchorage. This is true for all OPE system applications, but accuracy is most important in fall-arrest situations. (See "How to Size an OPE Connecting Device", on the next page.)

1. In fall-arrest applications, OSHA requires that the free-fall distance must never exceed 6' (1.8m). OSHA also requires the maximum impact force for an OPE harness be under 1800 lbs.

The major factor affecting the severity of the impact force is the free-fall distance. Therefore, when choosing connecting devices, it is important to select the correct length in order to minimize the slack and thus limit the free-fall distance and impact force in a fall. When multiple connecting-device components are used, you must consider the total slack for all connecting devices. (For greater user control of length, Klein offers adjustable-length rope and webbing lanyards in addition to fixed-length rope and webbing lanyards.)

Another factor that influences the impact force is the elasticity of the lanyard. The greater the elasticity, the less the impact force. Other factors affecting impact force are the age and material of the lanyard and the rigidity of the anchorage.

2. In positioning applications, choose the correct lanyard length to hold you at a comfortable distance to perform the work.

3. In suspension applications, choose the lanyard length that will vertically position you at the correct height to perform the work.

4. In retrieval applications, choose the correct lanyard length with minimum slack to allow your fast removal in a potentially dangerous situation, while not interfering with your ability to do the job.

How to Size an OPE Connecting Device

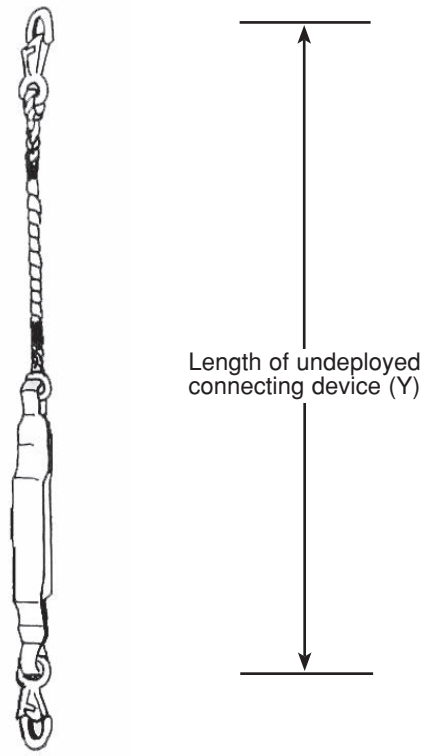
Connecting devices are measured from bearing point to bearing point (see Figure A on this page). The undeployed length (or range of lengths, if the connecting device is adjustable) is clearly printed on the warning tag or label. This is the undeployed connecting device length.

The distance between the harness bearing point (the fall-arrest D-ring) and the anchorage connector bearing point (the anchorage connector D-ring) must be determined before choosing the proper length connecting device (see Figure B on the next page). This is true for all OPE applications, but accuracy is most important in fall-arrest systems.

Always rig connecting devices so that you avoid contact with structures below in a fall. As a general rule, allow an additional 3.5 feet (1 m) to each fall-arrest connecting device to account for the following connecting-device extension factors:

- **elasticity (stretch) upon impact or load (rope or web lanyards)**
- **extension upon impact (deceleration units or deceleration lanyards)**

Figure A



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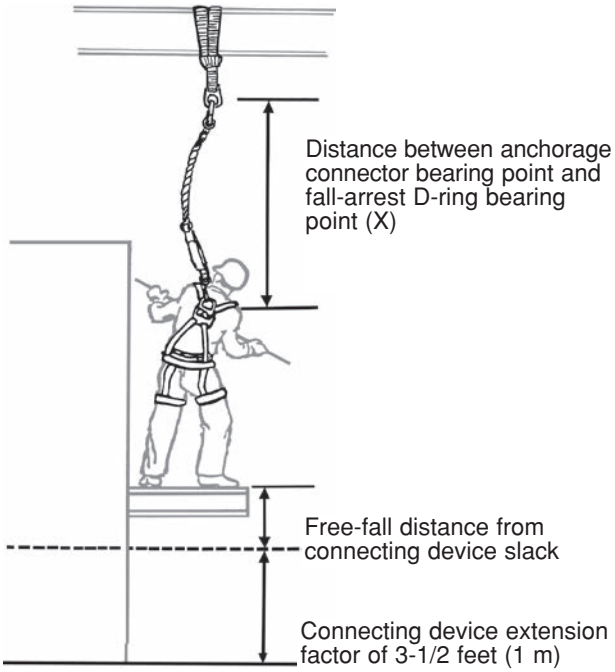
How to Size an OPE Connecting Device (continued)

Any free-fall distance (slack in the connecting device) must also be added to this 3.5 feet (1 m) connecting-device extension factor to determine the minimum distance to any structure below.

To determine the free-fall distance, subtract the distance between the harness and anchorage connector bearing points (X) from the undeployed connecting device length (Y). In any situation, the total free-fall distance must not exceed 6 feet (1.8 m).

For example, if the undeployed connecting device length is 5 feet and the distance between the harness and anchorage bearing points is 4 feet, the free-fall distance is 1 foot (5 feet minus 4 feet equals 1 foot). Thus, in this example, a minimum 4.5 feet must be allowed as the distance between the support position and any structure below (1 foot plus 3.5 feet equals 4.5 feet).

Figure B



How to Use an OPE Connecting Device

1. Read all warning labels and instructions provided with or attached to Klein connecting devices for important information on use and care. Keep all this material for future reference.

2. For fall-arrest applications, attach one end of the connecting device to the fall-arrest D-ring on the OPE harness. This D-ring is in the upper middle of a harness wearer's back.

For positioning applications, attach one end of the connecting device to one of the side D-rings. Then, properly engage the anchorage and attach the loose end to the unused side D-ring.

For suspension applications, attach the connecting device to the suspension D-rings(s). Be sure to select the proper connecting device to fit the harness, bosun's chair, or other suspension equipment.

For retrieval applications, attach the connecting device to the retrieval D-rings, usually found on the shoulders of the harness.

For all applications, make sure by visual inspection that all snap hooks engage freely and that their keepers are closed completely after each hookup.

3. Connect the other end of the connecting device to a proper anchorage. (Examples of proper anchorages include approved pad eyes, bolt holes, life lines, beams, pillars, or other approved structural members.) In fall-arrest applications, keep the anchorage above the rear fall-arrest D-ring or overhead, and allow as little slack as possible to limit the impact force of a fall. Rig to avoid contact with structures below in case of a fall. Free fall distance must not exceed 6 ft. (1.8 m). If using a deceleration lanyard or a deceleration unit, add 3.5 ft (1 m) to the free-fall distance to allow for unit extension.

When attaching any snap hook to the anchorage, **make sure by visual inspection that the snap hook freely engages the anchorage and the keeper is closed completely after each hookup**. Make sure each snap hook is positioned so that its keeper is never load bearing.

4. Never connect anything to the fall-arrest, positioning, suspension, or retrieval D-rings other than the proper connecting device. Also, never attach more than one connecting device to a single anchorage.

5. In a fall-arrest application, where work position changes, reposition the connecting device whenever necessary to make sure the fall-arrest anchorage is above the rear fall-arrest D-ring or overhead, and allow as little slack in the connecting device as possible. Failure to follow this procedure can result in serious injury or death.

General Inspection Procedures

1. Check for wear and deterioration.

Before each use, carefully inspect your complete OPE system for signs of wear or deterioration, or evidence of impact loading. Visually inspect for loose threads, pulled rivets, burns, cuts, distortions, abrasions, or other evidence of chemical or physical deterioration that may have weakened the material or assembly.

2. Inspect hardware for malfunctions or cracks.

Check all snap hooks, buckles, and D-rings. Check that snap hooks are not distorted or cracked, and that the keepers are free of burrs, functioning properly, clean, and not bent.

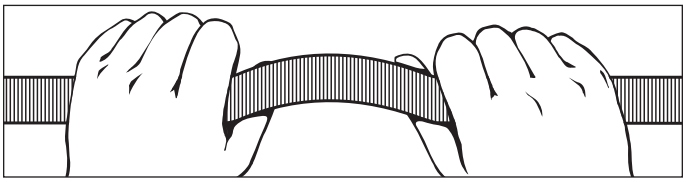
3. Destroy and replace all worn or damaged equipment.

Immediately destroy and replace any component which does not pass inspection.

⚠WARNING: Should any unusual conditions be noted during the inspection which are not specified here, do not use the suspect equipment until a qualified individual has made a decision as to its usability.

⚠WARNING: Always inspect your equipment before using. Destroy and replace all worn or damaged equipment immediately.

Connecting Device Inspection Procedures



1. Inspect stitching and webbing.

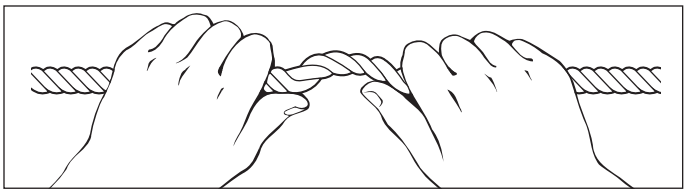
Check stitching for broken, burned, cut or pulled stitches. Broken strands of webbing appear as tufts on the webbing surface. To visually check for damage caused by corrosives, heat, chemicals and other conditions, hold the connecting device with your hands six to eight inches apart. Bend the webbing in an inverted "U" to cause surface tension and to expose problem areas. Inspect entire length.

For deceleration units, check the stitching for broken, burned, cut or pulled stitches, and the breakaway jacket for cuts, tears, broken stitches, stretch marks or other evidence of impact load. **Note: On Klein deceleration units, the uncovering of a red-lettered warning label inside the leather jacket indicates that the unit was subjected to a severe impact force; therefore, the unit must not be used and must be disposed of immediately.**

For deceleration lanyards, check the stitching for broken, burned, cut or pulled stitches, and/or other evidence of impact load. **Note: On Klein deceleration lanyards, the uncovering of a red-lettered warning label indicates that the unit was subjected to a severe impact force; therefore, the unit must not be used and must be disposed of immediately.**

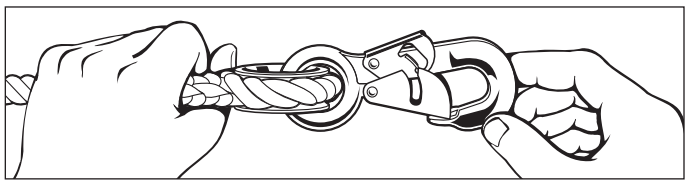
For aircraft-cable lanyards, check the full length for breaks, burns, or cuts in the vinyl covering and the aircraft cable.

2. Check for broken strands.



Inspect rope lanyards for broken strands by twisting the rope slightly to undo the braiding. Inspect entire lanyard in this manner. Lanyards with broken strands must be discarded.

Note: Twisted rope, such as the nylon filament and polypropylene rope used in Klein lanyards, is subject to a condition known as "hockling", which is similar to the reverse twisting often seen in a telephone handset cord. This can be caused by a repetitive twisting movement such as normal hand rotation in hooking and unhooking a lanyard dangling freely, or by using the lanyard to suspend equipment. Preventative measures include: (1) never using a lanyard for towing or hoisting, (2) inspecting and smoothing out after each use, and (3) storing neatly.



3. Inspect snap hooks, D-rings, and other metal parts.

Check hardware for sharp edges and cracks. Rollers should not be distorted in shape and should roll freely. Check all parts, especially corners and attachment points, for wear and cracks.

4. Destroy and replace all worn or damaged OPE equipment.

If evidence of excessive wear, deterioration or mechanical malfunction is observed, replace the equipment immediately. **Never work with worn or damaged OPE equipment. Using damaged or worn equipment can cause injury or death.**

5. The inspector is the most important part of any inspection procedure.

Check all equipment thoroughly and follow all safety procedures and guidelines. Do not take any shortcuts; they could result in injury or death.

Important Note: OSHA specifies that all employers covered by the Occupational Safety and Health Act are responsible for inspection and maintenance of all tools and equipment used by employees — whether owned by the employees or by the company. Personal-protective equipment should be inspected before each use, and immediately removed from service if any sign of wear or damage is found.

Maintenance Procedures

A written log of all servicing and inspection dates for this equipment should be maintained by the company safety officer or other competent person.

Clean and maintain equipment in accordance with recommended practice. Wash nylon and polyester straps in warm water and mild detergent. Avoid harsh chemical agents such as degreasing compounds, turpentine, paint thinner, gasoline and other solvents. Allow nylon and polyester objects to dry naturally. Do not use heat to speed up the process.

Inspect and lubricate all snap hooks after cleaning to make sure they operate properly and close securely. Use an all-purpose spray lubricant or light motor oil.

Warnings: Klein OPE Connecting Devices

⚠ WARNING: The use of occupational protective equipment without the proper instructional materials and training could result in serious injury or death. Klein Tools will supply additional instructional material, warning tags or labels, or will answer questions on any piece of Klein occupational protective equipment free of charge. Call Klein Tools, Inc. toll-free at 1-800-553-4676.

⚠ WARNING: Never work in a potential fall situation without using separate fall-arrest protection.

⚠ WARNING: Understand and follow all regulations, warnings, and safe work practices pertaining to the job you are performing and to the equipment or machinery you are using or working near.

⚠ WARNING: It is imperative that qualified people select OPE system components to fit the specific job requirements. Incorrect component choices can cause serious injury or death.

⚠ WARNING: Double-check the intended function of any Klein connecting device before using it. Proper OPE system applications are identified in the Klein OPE catalog and are printed clearly on the warning tags, labels and other literature provided with each product. Misuse of a connecting device or any other piece of OPE equipment can result in serious injury or death.

⚠ WARNING: Care should be taken to keep metal snap hooks away from live electrical lines or energized equipment.

⚠ WARNING: Never use an aircraft-cable lanyard by itself for fall protection. Always use a deceleration device with aircraft cable.

⚠ WARNING: Never tie knots in lanyards. Knots reduce the strength by 50%.

⚠ WARNING: Always inspect your equipment before using. Destroy and replace all worn or damaged equipment immediately.

⚠ WARNING: Snap hooks should only be attached to an approved anchorage capable of supporting at least 5,000 lbs. per each attached worker.

⚠ WARNING: OSHA requires that all personal OPE equipment must be taken out of service immediately after being subjected to a fall impact.

⚠ WARNING: Do not rely on the feel or sound of a snap hook engaging. Always check visually for proper engagement of the snap hook.

⚠ WARNING: Klein strongly recommends that Klein components NOT be interchanged with other components made by other manufacturers, because Klein cannot guarantee that other manufacturers' components are free of defects in materials or workmanship.

(Continued on the next page)

Warnings: Klein OPE Connecting Devices (continued)

⚠ WARNING:

Read, understand and follow all information contained on warning tags, labels and literature furnished with all Klein OPE equipment.

• Connecting devices are for use by **properly trained professionals only.**

• **Employer** — instruct employee as to proper use and warnings before use of equipment.

• **Use only locking snap hooks.** The use of connecting devices without locking snap hooks in any fall protection system is strictly prohibited by OSHA.

• OPE equipment **must only** be used for the specific purpose for which it is designed and intended.

• Connecting devices **must be destroyed** if subjected to impact loading.

• **Always visually check that: 1)** each snap hook freely engages D-ring or anchorage, **2)** the snap-hook keeper (gate) is completely closed with each use. **Never** rely solely on the feel or sound of a snap hook engaging.

• **Before each use check that: 1)** unit is free of burns, cuts, abrasions, kinks, knots, broken strands and excessive wear, **2)** hooks, D-rings and buckles (if any) are not distorted or cracked, **3)** hook keepers are not bent, and are free of burrs, clean and functioning properly, **4)** breakaway jacket on deceleration units has no broken stitches, tears, stretch marks or other evidence of impact loading, **5)** for deceleration lanyards and deceleration units, check that red-lettered warning label is not uncovered (the uncovering of this label indicates that a severe impact force has occurred), **6) Remove from service, destroy, and discard unit if it does not pass this inspection and replace it immediately.**

• Make sure each snap hook is positioned so that its keeper (gate) is **never** load bearing.

• **For personal** use only; do **NOT** use for towing or hoisting.

• **NOT** for recreational or sporting use.

• Snap hooks attached onto D-rings **must** have less than 3/4" (19 mm) throat opening. **Never** attach ladder or rebar hooks onto D-rings.

• **Only** attach connecting devices that meet government standards to D-rings.

• Do **NOT** attach a ladder or rebar hook to anything larger than the diameter indicated on keeper, so keeper can close properly.

• **Always** attach snap hook to proper anchorage for the intended use or the proper D-ring of harness or bosun's chair. **For fall arrest**, use designated rear D-ring. **For positioning**, use designated side D-rings. **For suspension**, use designated seat strap or other proper D-rings. **For retrieval**, use designated shoulder or other proper D-rings.

• **Never** disable locking keeper on hook, punch holes in, or alter a connecting device in any way.

• **Never** join snap hooks together. They are **NOT** meant to be used that way, and could twist apart.

• **Never** attach multiple snap hooks onto a D-ring.

• **Fall-arrest anchorages** must support a minimum of 5,000 lbs. (2,250 kg) per attached worker and must be independent of worker support. **Positioning, suspension and retrieval anchorages** must support at least twice the potential impact load of an employee's fall or 3,000 lbs. (13.3kN), whichever is greater.

• OSHA requires that impact force in a fall **NOT** exceed an 1,800 lb. (8 kn) limit with a harness. Minimize connecting-device slack or use a deceleration unit to limit force.

• **Rig to avoid contact with structures below in a fall.** Free-fall distance **must not** exceed 6 feet (1.8 m). **To allow for deceleration unit or deceleration lanyard extension**, add 3-1/2 feet (1 m) to free-fall distance.

• **Positioning** connecting devices must be rigged so that a worker cannot free fall more than 2 feet.

• For fall arrest, **always** keep anchorage above the rear fall-arrest D-ring and allow as little slack in the lanyard as possible. If climbing above the anchorage, attach to a new anchorage higher up.

(Continued on the next page)

Warnings: Klein OPE Connecting Devices (continued)

⚠WARNING:

• **Never** wrap a rope lanyard around a beam or other sharp structure. The rope can be cut or damaged. Instead, use an aircraft-cable lanyard or a webbing lanyard.

• **Never** attach a lanyard back onto itself.

• **Never** allow a rope or webbing lanyard to contact high-temperature surfaces, welding or other heat sources. Use an aircraft-cable lanyard.

• **Never** attach multiple lanyards together.

• **Never** tie knots in lanyards. Knots can reduce the strength of the lanyard up to 50%.

• **Never** work without independent fall-arrest protection if there is danger of a fall.

• Do **NOT** use a lanyard made of aircraft cable near electrical lines or equipment.

• Do **NOT** use aircraft-cable lanyards for fall arrest unless used with shock-absorbing device such as a deceleration unit.

• **Never** use deceleration units or similar fall-arrest devices for positioning. If activated, you could fall.

• **Never** use a fall-arrest connecting device with non-locking snap hooks on a horizontal lifeline. Movement could disengage the non-locking hook.

• **Never** allow a V-sling to straddle a beam or any other anchorage.

• **Dual Deceleration Lanyards:**

To ensure 100% tie-off of your fall-arrest protection equipment**, ALWAYS** keep at least one lanyard-end locking snap hook attached to a fall-arrest anchorage as you change your work location. Start by securing both lanyard-end locking snap hooks to separate fall-arrest anchorages. To change your work location, detach one lanyard-end locking snap hook, move to the new location, and attach locking snap hook to new fall-arrest anchorage. Establish your balance. Detach the remaining lanyard-end locking snap hook from your previous anchorage and attach to new fall-arrest anchorage. Repeat these steps as you continue to move.