

Evolution of Linemen's Personal Equipment

Presented by:

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Do you Know this Man?



Terminology Clarification



← If he's a Lineman...
...who are they?





What's Changed for Line Technicians?

- Technology
- Governing & Consensus Standards
- Personal Protective Equipment – *work practices*
- Safety



Technology

Then

Now



Governing & Consensus Standards

1. OSHA  **U.S. Department of Labor**
Occupational Safety & Health Administration
www.osha.gov
 - 1910.268
 - 29 CFR Parts 1910 & 1926
2. ASTM 
 - F887
3. ANSI 
American National Standards Institute
 - A10.14
 - A10.32
 - Z359.1





Governing & Consensus Standards

OSHA



U.S. Department of Labor
Occupational Safety & Health Administration

www.osha.gov

OSHA 1910/1926 Subpart M

1926.500: Safety Standards for Fall Protection in the Construction Industry.

- 1926.501: Duty to Have Fall Protection
- 1926.502: Fall Protection Systems Criteria
- 1926.503: Training Requirements





Governing & Consensus Standards

OSHA



U.S. Department of Labor
Occupational Safety & Health Administration

www.osha.gov

OSHA 1910/1926 Subpart M

1910.501

- January 1, 1998: The use of a body belt for fall arrest is prohibited.
- January 1, 1998: The use of a non-locking snap hook as part of personal fall arrest systems and positioning device system is prohibited.





Governing & Consensus Standards

OSHA



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Topic & Question

1926.500: This is in reference to the Final Rule of 1926.500, Fall Protection, August 9, 1994.

The standard states that snap hooks used in fall arrest and positioning must be locking after Jan. 1998. (1) Does this mean that companies had from 8-94 until 1-98 to change out all non-locking snap hooks in the field to locking? (2) Was there ever intended to be a "grandfather clause for non-locking snap hooks? (3) Is it true that any non-locking snap hook in the field after 1-98 that are used in arrest and/or positioning are not in compliance with 1926.500 and therefore are prohibited and should be replaced with locking snap hooks?





Governing & Consensus Standards

OSHA



OSHA Response(s)

In the preamble to the final rule for 29 CFR 1926.500 Subpart M “Fall Protection” (See Federal Register 59:40672-40753) OSHA required that employers either use snaphooks that are sized to be compatible with the members to which they are connected, or use locking type snaphooks which have been designed to prevent disengagement. [1926.502(d)(5)]. The provision prohibited the use of any non-locking snaphook after December 31, 1997.

A number of commenters contended that such a ban would be unreasonably expensive. The Agency had determined that it is reasonably necessary to require the use of locking snaphooks which are designed to prevent roll-out in personal fall arrest systems or in positioning device systems. In light of these safety concerns but in consideration of the expense associated with the ban, OSHA allowed the continued use of non-locking snaphooks until December 31, 1997.

After informal discussions with the manufacturers of snaphooks though, OSHA concluded that all of the nonlocking snaphooks then in use (1994) would be worn out by the 1997 deadline. By replacing worn out snaphooks with the newly required locking type, any cost burdens on employers would be minimized. As such, OSHA did not intend to grand-father in any non-locking snaphooks past the proscribed date of December 31, 1997.

After the December 31st, 1997 deadline, any snaphook that does not meet the requirements of 1926.502(d) would be prohibited and its continued use would be considered an OSHA violation.



Governing & Consensus Standards

OSHA



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1926.502: “The employer shall provide for proper rescue of employees in the event of a fall or shall assure that employees are able to rescue themselves.”

Fall Restraint vs. Fall Arrest



Governing & Consensus Standards

ASTM



The

American Society for Testing Materials

F887-94: “Standard specifications for personal climbing equipment”

- **Changes**

- **New Equipment**

- Harnesses/shock absorbing lanyards
 - Snap hooks – ‘Lockers’
 - Straight sided dee rings





Governing & Consensus Standards

ANSI



A10.32-2004: Fall Protection for Construction & Demolition Operations

- Maximum arresting force = 1000 lbs.
- Waist belts shall not be used for fall arrest.
- Training mandated for individuals exposed to a fall hazard.
- Side load test = 350 lbs.
- Service life of fall protection equipment = 5 years.



Personal Protective Equipment



Changes to Work Practices

- Work Positioning



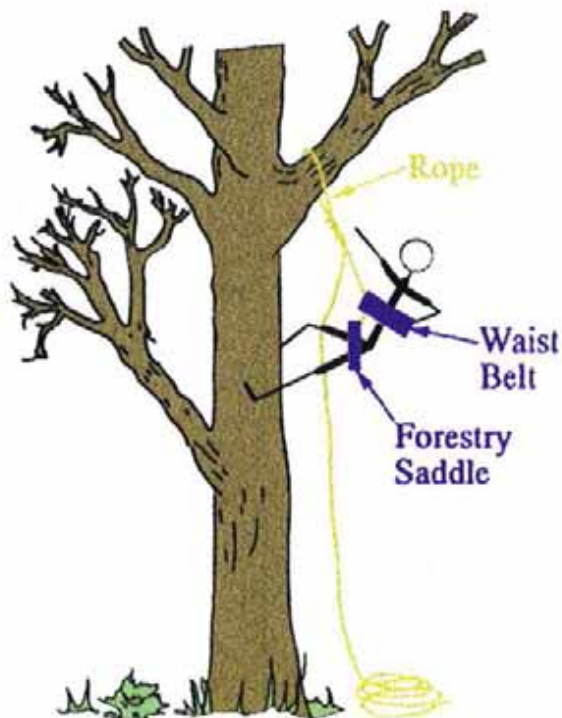
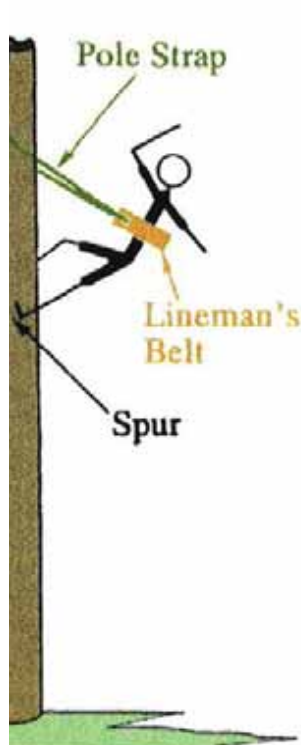
- Fall Restraint



- Fall Arrest



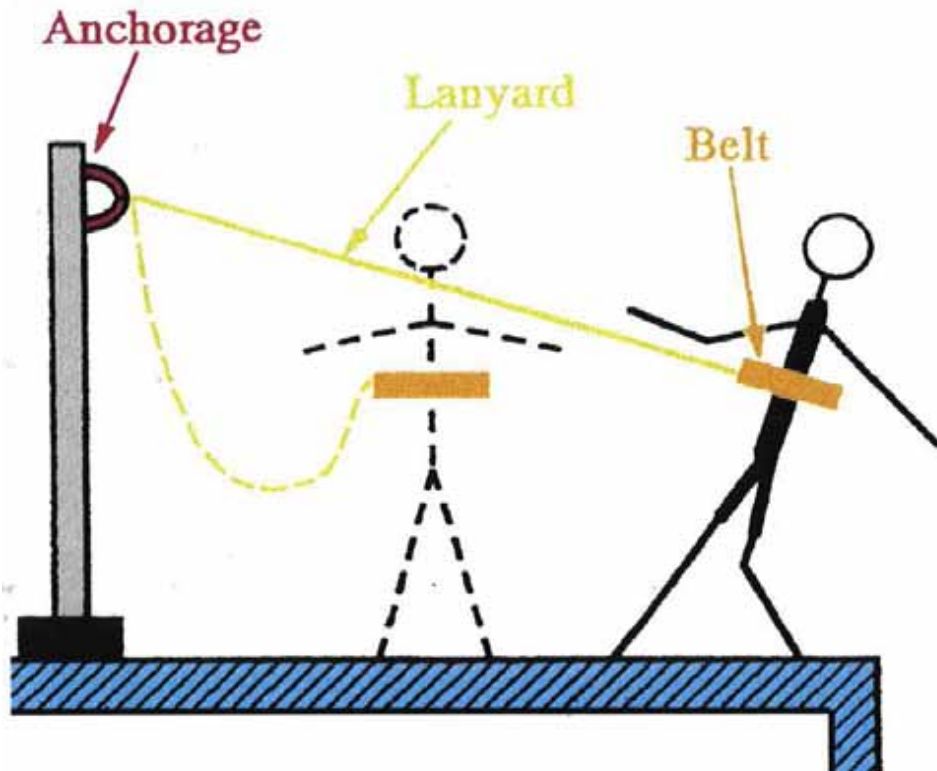
Work Positioning System



Designed to position the user at an elevated work site in order that he/she may have free use of both hands.



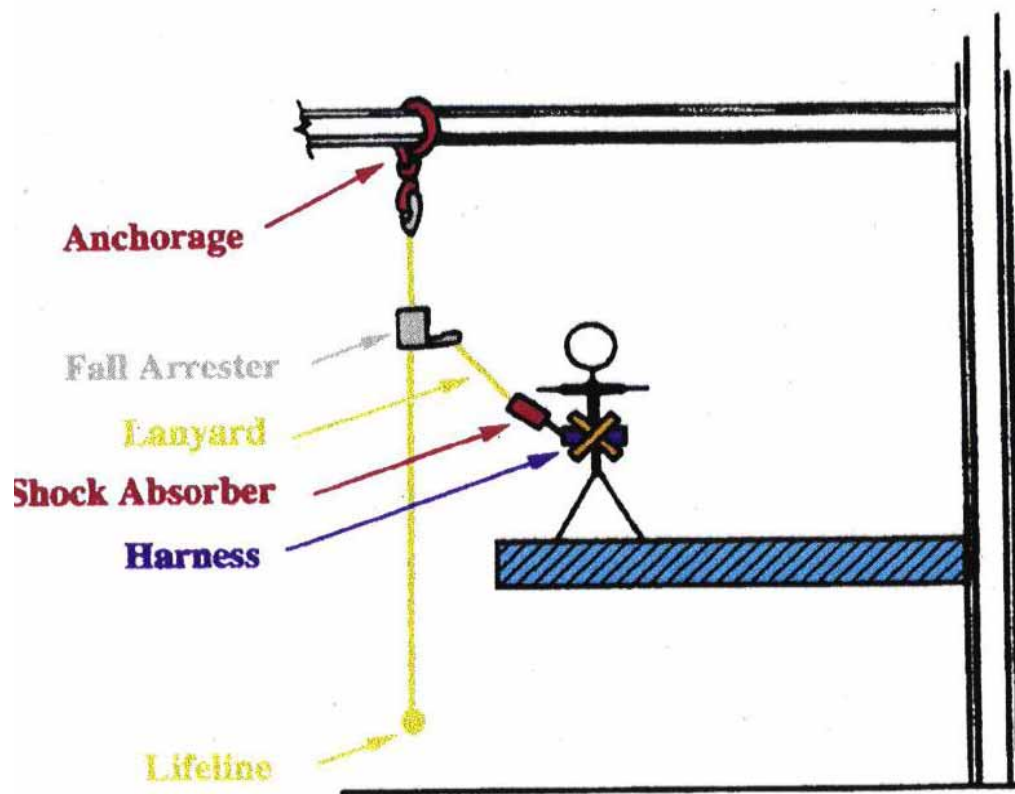
Fall Restraint System



Designed to prevent its user from moving into the fall hazard area.



Fall Arrest System



Specifically designed to arrest a fall from an elevated position.





Products Used in Work Positioning: Climbers





Climber Have Been Made Of:

- Steel
- Plastic
- Aluminum
- Titanium





Climber Changes

- Fixed Size/Permanent Gaff
- Adjustable Length/Permanent Gaff
- Adjustable Length/ Replaceable Gaff



Climber Accessories

Then



No. 39 — 2-Loop
Leather Pad.

No. 39-F — 2-
Loop Felt Lined
Pad.

No. 39-S—2-Loop
Sheepskin Lined
Pad size 4"x4".



No. 35 — 3-Loop
Leather Pad.

No. 36 — 3-Loop
Felt Lined Pads.

No. 37 — 3-Loop
Sheepskin Lined
Pads, size 4"x5".



No. 35 — 3-Loop
Leather Pad.

No. 36 — 3-Loop
Felt Lined Pads.

No. 37 — 3-Loop
Sheepskin Lined
Pads, size 4"x5".

Now





Climber Accessories

- Leather & Nylon
- Climber Footplates
- Climber Ratings
 - From no rating to 350 lb. current rating.





Products Used in Work Positioning: Body Belts

Then



Now





Evolution of Body Belts

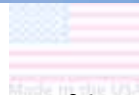
- All Leather
- 1960's - Leather with Synthetic Liner
 - Hammer Loop in Center of Back
- Hardware – 1200 lbs. to 5000 lbs.
- Semi Float – Full Float





Pole Straps

- **Leather & Synthetic Materials (woven/neoprene impregnated)**
 - Non Locking Snap Hooks; 1200 lbs. Rating
 - Non Locking Snap Hooks; 5000 lbs. Rating
 - Locking Snap Hooks
 - Various Designs ranging from difficult to easy to use
- **Wood Pole Fall Protection**
 - 100% “Ground to Ground” Fall Protection





Fall Arrest vs. Fall Restraint

With a Waist Belt and a Non Shock Absorbing Lanyard

- For a 300 lb. person, arresting force with a non shock absorbing lanyard = 2,765lbs.

With a Waist Belt/Full Body Harness & Shock Absorbing Lanyard

- For a 300 lb. person, arresting force with a shock absorbing lanyard = 900lbs.

The Benefit of Shock Absorption in Fall Arrest Systems:

- Lower Maximum Arrest Force on the user.
- Lower Maximum Arrest Force on the anchorage.
- Less damage to Fall Arrest System components.
- Decreased pendulum effect.





Safety

Two Issues Have Driven Safety

- OSHA founded in 1970
- Litigation
 - Litigations & Lawsuits cost \$\$\$\$\$
 - Employers are increasingly more accountable for workplace safety
 - Increased emphasis on employee safety





Manufacturers

- Establish Testing Criteria
 - Consensus Standards & Third Party Certification
- Develop Warning Messages
 - “Do’s & Don'ts ” of Product Use





Conclusions

- Line Technicians' Equipment Has Evolved
 - Products
 - Safer
 - More Comfortable
 - Standards
 - Evolutionary Process
 - Safety
 - Increased Awareness
 - Certification





Safety is the Answer

- Manufacturer's Responsibility
- User's Responsibility

