

Requirements for boom lift operations is to tether an adjustable 6' lanyard to 3ft while operating a boom lift.

While operating a JLG Aerial lift. LBNL best practices requirements for boom lift Operations is to tether an adjustable 6' lanyard to 3ft while operating a boom lift. January 14, 2009 OSHA Letter # 20070823-7896 - Whether a manufacturer stipulated

minimum anchor point elevation of 18½ feet precludes the use of a shock absorbing lanyard in an aerial lift. (See attached Letter)

An adjustable 6' lanyard to 3ft will keep the operator from protected from being ejected out of the lift. If a non-adjustable 6ft lanyard is used for fall restraint it is required that fall distance from the anchor point must be at a height not under 18.5 feet. A restrain fall protection system in required when anchor points are present in lift. It is LBNL best practices requirements in the Aerial lifts are a 3' - 6' adjustable landyard be used for restraint while in lifts. While moving & operating the lift the operator needs to adjust the landyard to a minimum of (3ft) & loosen the landyard when in position and working

See attached (Fall Clearance Calculation) for reference on calculations



## OSHA Home



RSS Feeds



Print This Page



Text Size



E-Mail This

Page

[Standard Interpretations - Table of Contents](#)

• **Standard Number:** [1926.453\(a\)\(1\)\(v\)](#); [1926.453\(b\)\(2\)\(v\)](#); [1926.500\(a\)\(3\)\(i\)](#); [1926.500\(b\)](#); [1926.502\(d\)](#); [1926.502\(d\)\(15\)](#); [1926.502\(d\)\(16\)\(iii\)](#)

OSHA requirements are set by statute, standards and regulations. Our interpretation letters explain these requirements and how they apply to particular circumstances, but they cannot create additional employer obligations. This letter constitutes OSHA's interpretation of the requirements discussed. Note that our enforcement guidance may be affected by changes to OSHA rules. Also, from time to time we update our guidance in response to new information. To keep apprised of such developments, you can consult OSHA's website at <http://www.osha.gov>.

January 14, 2009

Letter # 20070823-7896

Re: Whether a manufacturer-stipulated minimum anchor point elevation of 18½ feet precludes the use of a shock absorbing lanyard in an aerial lift. 29 CFR 1926.453(a)(1)(v); 29 CFR 1926.453(b)(2)(v); 29 CFR 1926.500(b); 29 CFR 1926.502(d); 29 CFR 1926.502(d)(15); 29 CFR 1926.502(d)(16)(iii)

**Question (1):** Section 1926.453(b)(2)(v) requires employees to tie off to the boom or the basket when working from an aerial lift. In addition, §1926.502(d)(16)(iii) provides that a personal fall arrest system shall be rigged such that an employee can neither free fall more than six (6) feet, nor contact any lower level. The manufacturer of a particular shock absorbing lanyard sets a minimum anchor point elevation for the lanyard of 18½ feet to prevent contact with a lower level in the event of a fall. My concern centers around the fact that, when raising an employee from a work surface, or upon returning an employee to a work surface, the employee at times will be at elevations that are less than 18½ feet.

Since at times the distance between a lift's work platform and a lower level will be less than 18½ feet, does the manufacturer's instruction regarding the minimum anchor point elevation preclude its use as part of a fall protection system in an aerial lift?

**Answer (1):** Fall protection during construction work in aerial lifts is required by 29 CFR §1926.453(b)(2)(v), which is located in Subpart L of OSHA's construction standards; it provides:

(v) A body belt [or body harness] shall be worn and a lanyard attached to the boom or basket when working from an aerial lift.<sup>1</sup>

The other standard to which you refer, 29 CFR §1926.502(d), is in 1926 Subpart M; it provides:

(16) Personal fall arrest systems, when stopping a fall, shall:  
(iii) be rigged such that an employee can neither free fall more than 6 feet (1.8 m), **nor contact any lower level**;  
... [Emphasis added]

Section 1926.502(d)(16)(iii) is made applicable to the use of personal fall arrest systems<sup>2</sup> in aerial lifts by 29 CFR §1926.500(a)(3)(i).<sup>3</sup>

As noted above, section 1926.502(d)(16)(iii) requires a personal fall arrest system to prevent the employee from contacting a lower level. The lanyard you describe would not meet that criterion when the aerial lift's work platform is at heights less than 18½ feet. Even if the working level of the aerial lift will ultimately be higher than 18½ feet, §1926.453(b)(2)(v) requires fall protection for employees in aerial lifts at lesser heights as well.<sup>4</sup> Since the fall protection system you describe would not meet the requirements of §1926.502(d)(16)(iii) under these conditions, it would be prohibited.

**Question (2):** Would the use of a retractable lanyard as part of a personal fall arrest system provide adequate fall protection to an employee working in an aerial lift, under 29 CFR 1926 Subpart M?

**Answer (2):** Section 1926.500(b) of Subpart M provides the following definition of a self-retracting lanyard:

*Self-retracting lifeline/lanyard* means a deceleration device containing a drum-wound line which can be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement, and which after onset of a fall, automatically locks the drum and arrests the fall.

There are a variety of self-retracting lanyards available for fall protection. Some provide an operating range of over 100 feet with a capability of limiting a free fall distance to less than 2 feet.

Section 1926.502(d)(16)(iii) requires that a personal fall arrest system be rigged such that an individual can neither free fall more than 6 feet, nor contact any lower level in the event of a fall (see **Question (1)**). This requirement applies irrespective of the type of lanyard used (i. e., self-retracting or other type).

Without more specific information, we can only address your question in general terms. So, for example, if the lanyard were rigged so that the free fall distance of the employee in the aerial lift was limited to 2 feet, the system would meet the requirements in §1926.502(d)(16)(iii). However, an additional factor must be considered – the vertical and lateral loads that may be placed on an aerial lift in the event of an arrested fall. Under §1926.453(b)(2)(v) (quoted above), personal fall arrest systems in aerial lifts must be anchored to the lift's boom or basket. Section 1926.502(d)(15) sets load requirements for anchorages in a fall arrest system:

Anchorage used for attachment of personal fall arrest equipment shall be... capable of supporting at least 5,000 pounds (22.2 kN) per employee attached, or shall be designed, installed, and used as follows:

(i) as part of a complete personal fall arrest system which maintains a safety factor of at least two;

\* \* \*

**Restraint System is the preferred method when working or moving under 18-1/2 feet**

The length of the free fall permitted by a self-retracting lanyard may affect whether or not a personal fall arrest system complies with §1926.502(d)(15). The longer the fall, the greater the impact forces imparted to the system. Thus, the more free-fall allowed by the self-retracting lanyard, the greater the load imposed upon the aerial lift. Some aerial lifts may lack the capacity to withstand the vertical and lateral loads caused by an arrested fall. Therefore, the length of free fall permitted by the self-retracting lanyard must be such that the aerial lift is capable of maintaining a safety factor of at least two when it arrests a fall.

A restraint system may be used instead of a personal fall arrest system if a self-retracting lanyard cannot be rigged to satisfy §1926.502(d)(15). A restraint system is a system that prevents an employee from falling any distance from a work surface. The note to §1926.453(b)(2)(v) indicates a body belt or body harness may be used as part of a restraint system. However, the system must be rigged to prevent the employee from falling.

Noah Connell, Acting Director  
Directorate of Construction

<sup>1</sup> As of January 1, 1998, 29 CFR §1926.502(d) prohibits the use of a body belt as part of a personal fall arrest system and requires the use of a body harness instead. A body belt may still be used as part of a restraint system [\[ back to text \]](#)

<sup>2</sup> "Personal fall arrest system

" is defined at §1926.500(b):

Personal fall arrest system means a system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, a body belt or body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of these.... [\[ back to text \]](#)

---

<sup>3</sup> Section 1926.500(a)(3)(i) states:

(3) Section 1926.502 sets forth the requirements for the installation, construction, and proper use of fall protection required by part 1926, except as follows:

(i) Performance requirements for guardrail systems used on scaffolds and performance requirements for falling object protection used on scaffolds are provided in subpart L of this part. [\[ back to text \]](#)

---

<sup>4</sup> Employees are "working" in the aerial lift within the meaning of §1926.453(b)(2)(v) while it is being raised and lowered.

See *Salah & Pecci Construction*

*Co., Inc.*, 78 OSHARC 50/A13, 6 BNA OSHC 1688, 1978 CCH OSHD para. 22,807 (No. 15769, 1978). [\[ back to text \]](#)

---

 [Standard Interpretations - Table of Contents](#)

[Freedom of Information Act](#) | [Privacy & Security Statement](#) | [Disclaimers](#) | [Customer Survey](#) | [Important Web Site Notices](#) | [International](#)  
| [Contact Us](#)

U.S. Department of Labor | Occupational Safety & Health Administration | 200 Constitution Ave., NW, Washington, DC 20210  
Telephone: 800-321-OSHA (6742) | TTY: 877-889-5627

[www.OSHA.gov](http://www.OSHA.gov)

# Fall Clearance Calculation

