



•Fall Protection •Training •Netting •PPE

CABLE HORIZONTAL LIFELINE SYSTEM INSTRUCTION MANUAL



These Instructions Apply to the Following Model(s):
A60160 (60'), A100160 (100')

IMPORTANT:

Do not skip this instruction manual. Read the instruction manual carefully before using the equipment. Failure to do so may cause serious injury or death. These instructions serve as the Manufacturer’s Instructions and are to be used as part of an employee training program for the system, as required by OSHA.

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Overview

You have just purchased your very own Palmer Safety Fall Protection Cable Horizontal Lifeline System (Cable HLL). This manual must be read and understood in its entirety, whereas any specified training course on fall protection can be utilized to provide the necessary knowledge.

All of these instructions need to be made available to the user of the equipment. The user needs to understand how the Cable HLL works and how to use it safely. They also need a basic understanding of fall safety equipment used in combination with the Cable HLL, such as harnesses and cables.

Safety Standards

All applicable OSHA 1926 Subpart M, OSHA 1910, ANSI Z359.6-2016, and ANSI A10.32-2012 standards for fall protection are followed when this product is used as instructed. Standards are regulated depending on the type of work being done. You can review of all regulations at regulatory agencies for more information on fall protection systems, including any of the state-specific regulations.

Worker Definitions

NOTE: It is important to know the definition of those who work near or who may be exposed to fall hazards.

Qualified Person: A person with accreditation for this position who has sufficient experience or standing in their industry. They are responsible for reviewing the effectiveness of fall prevention and rescue procedures.

Competent Person: A fall safety coordinator is a person who has been trained to manage all aspects of a company's fall safety program. This includes the actual regulation, the management thereof and its application. A person tasked with identifying existing or foreseeable hazards. They have the power to temporarily stop work to address any concerns they might have.

Authorized Person: An employee who's area of responsibility includes areas where potential or existing fall hazards exist. These employees need to be trained to understand what it takes to work safely around these hazards.

Qualified or Competent person on jobsite is responsible for training and inspection of HLL system. Please contact your local Palmer Safety Specialist if you have questions or need training. We can provide training on the jobsite.

Applications

WARNING: Using the equipment in ways other than its intended purpose may result in severe injury or death. Maximum 1 attachment per connection point.

Fall Arrest: The Cable HLL System, which can be used in Personal Fall Arrest (PFAS) applications, will hold up to two people at a time when used with the appropriate supporting structure. The supporting structure must also withstand loads applied in the advised directions of at least 5000 lbs. Maximum freefall height is 6 feet, or up to 12 feet when in combination with a harness that has been tested for such use. The D-ring needs to be in the dorsal position.

Restraint: The Cable HLL can be utilized in Restraint systems. Restraints are used to ensure workers do not get too close to the edge of any fall hazards. Up to 4 people can use a single Cable HLL System at a time when working in restraints. Make sure to account for the full length of the lanyard or SRL that you plan on using. The structure needs to guarantee that it can withstand loads that are at least 1,000 lbs in every direction. No item shall be allowed to fall without restraint. Restraint systems can only be used on surfaces where slopes are up 4/12.

D-rings that can used: Dorsal, Chest, Side, Shoulder.

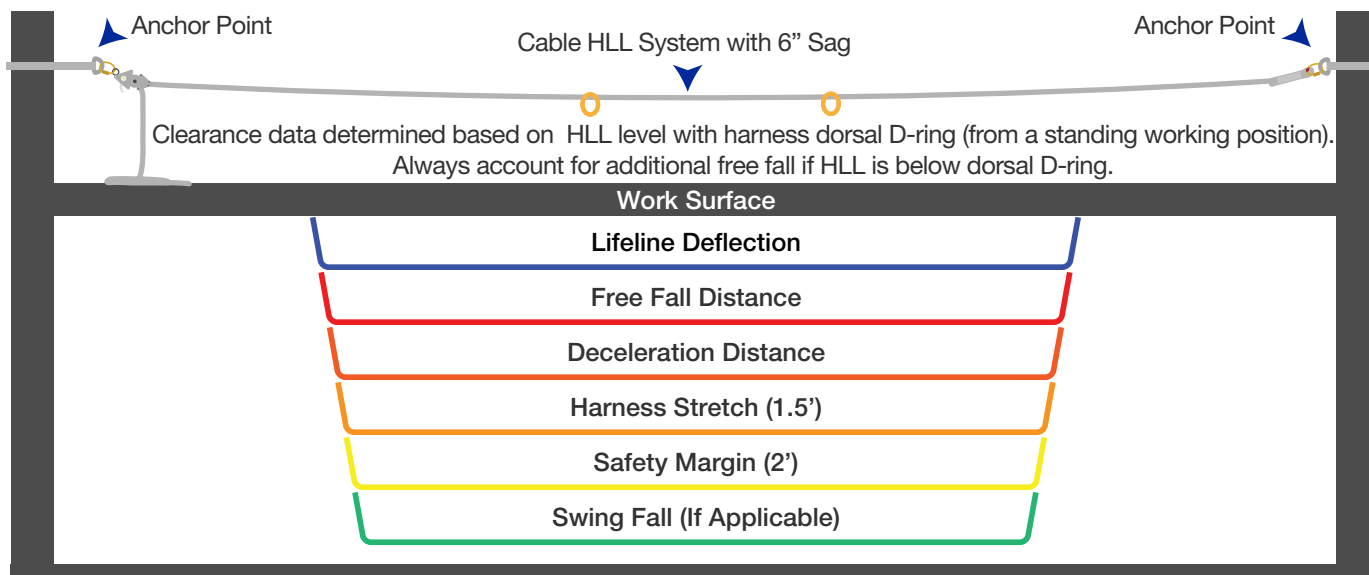
TOTAL user weight capacity range (including person, clothing, tools, and equipment) is 130-420 lbs.

Limits

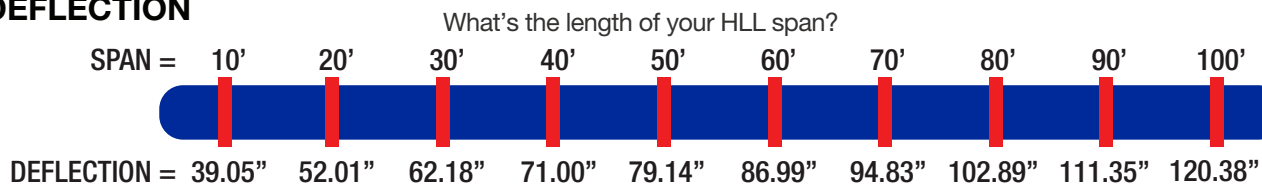
Fall Clearance: There should be enough clearance below the anchorage connector to arrest a fall before the person strikes the ground or an obstacle. When figuring out how far people might fall, there needs to be a safety buffer of 2 feet. People also need to consider the distance they are slowing down at, how tall they are, the length of their lanyard or SRL. They should also think about harness stretch and any other factors that apply.

Diagram shown below is a fall clearance calculation EXAMPLE ONLY.

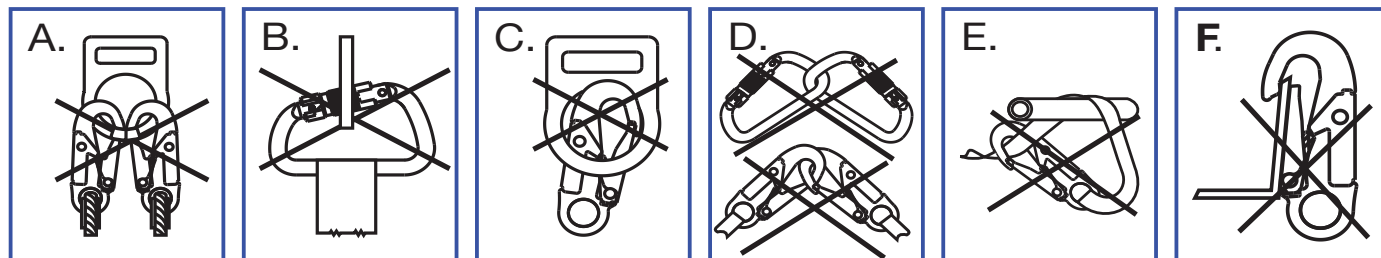
TOTAL FALL CLEARANCE = DEFLECTION + FREE FALL + DECELERATION + STRETCH + SAFETY MARGIN + SWING FALL



DEFLECTION



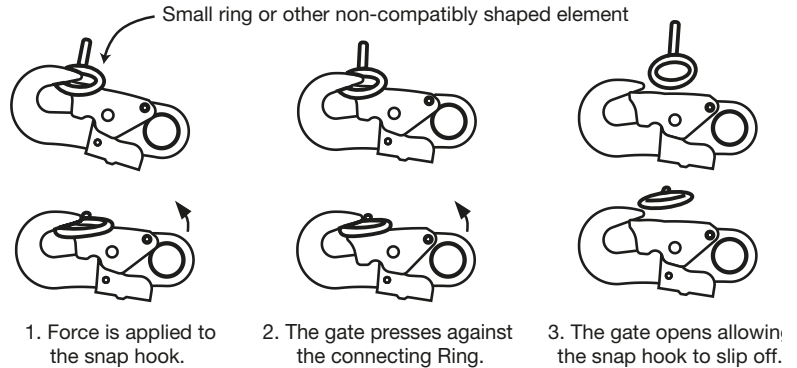
Compatibility: To avoid interference when connecting Cable HLL Systems, there must be enough space between the hook and its attachment point. This is known as “rolling out” and can cause the gate on the hook to inadvertently open and release. All cables must be compatible with Cable HLL and must be approved by a Competent Person. All connectors should be self-closing and self-locking, and should withstand a minimum load of 3,600 lbs.



- A. Two or more connectors should never be attached to a single D-ring.
- B. Never attach a connector that could result in a load on its gate.
- C. Connectors should not be connected in a false engagement. It should be visually confirmed that the connector is fully engaged to the anchor point. Avoid conditions that allow for features that protrude from the connectors to catch on the anchor, giving a false sense of being connected.
- D. Connectors should not be connected to each other.
- E. Connectors should not be connected directly to the webbing or to the rope lanyard or tie back, unless specifically allowed by the manufacturer.

Diagram 2 - Unintentional Disengagement (roll-put)

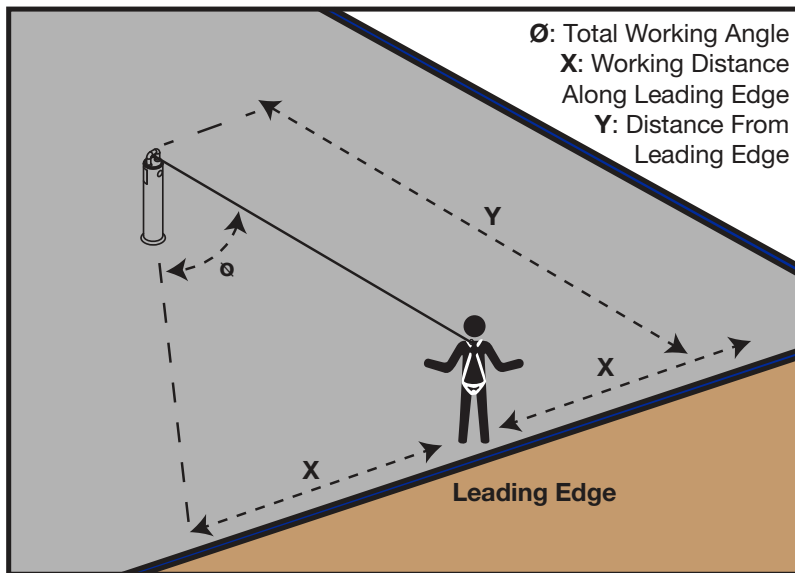
F. Connectors should not be connected to any object which does not allow the connector gate to close or lock. Anchor shapes that allow roll out to occur should never be used for connection. If the anchor, to which the snap hook or carabiner is attached, is under sized or irregular in shape, then this may allow for the gate of the connector to come in contact with the anchor, thereby causing the connector to open up and possibly disengage from the anchor. This is known as roll out of the connector. See Diagram 2.



G. Do not use connectors on an anchorage object as shown in figure A to F.

Correct Anchorage Positioning: This chart details allowable working zones required to reduce risk of swing falls and improper side loading. ALWAYS adhere to information specified by chart.

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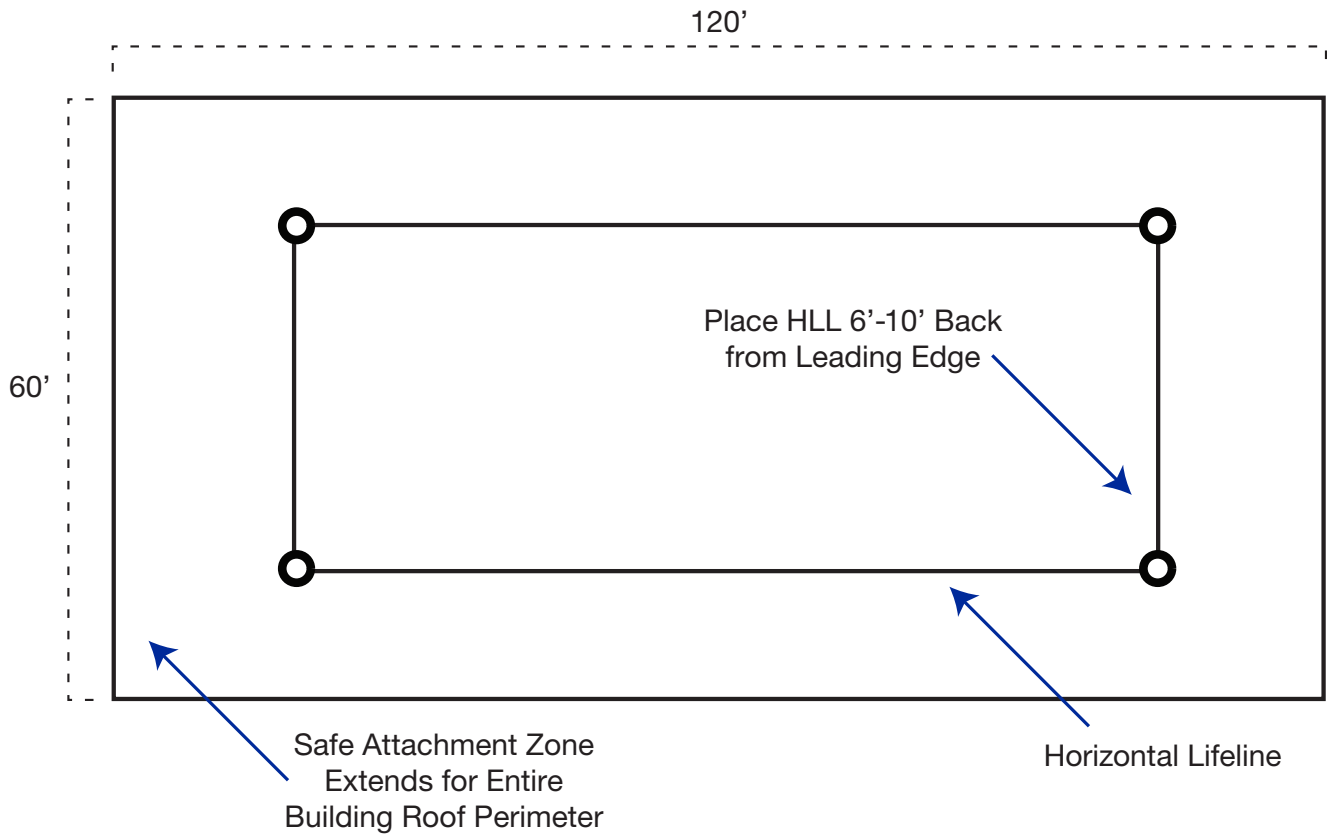
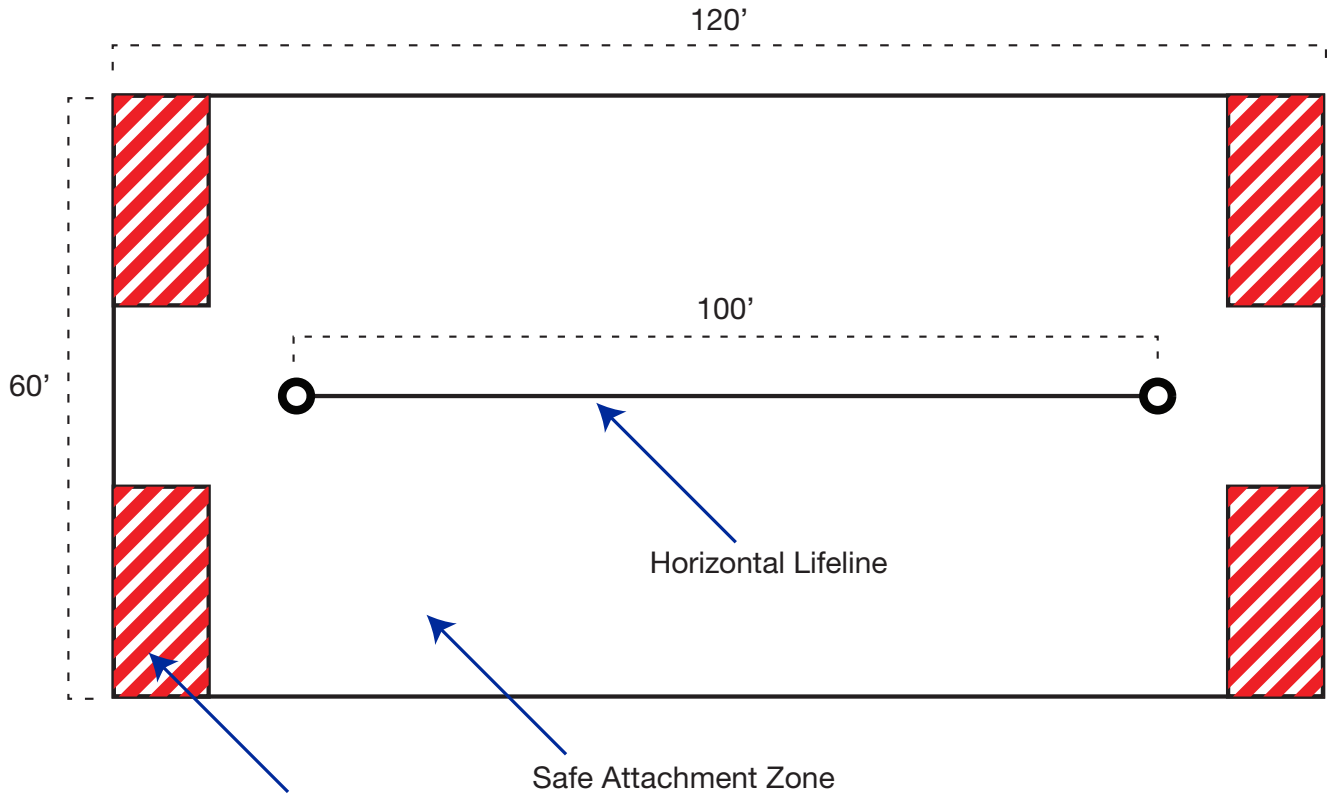


Anchor Distance From Leading Edge (Y)	Working Distance Along Roof Edge (Either Direction) (X)	Working Angle From Perpendicular (Ø)
6'	8'	53°
10'	9' - 9"	45°
15'	11' - 7"	38°
20'	13' - 3"	33°
25'	14' - 6"	30°
30'	16'	28°
35'	17' - 2"	26°
40'	18' - 3"	24°
45'	19' - 4"	23°
50'	19' - 10"	21°
55'	21' - 4"	21°
60'	22' - 3"	21°

For example, if the anchorage connector is 6' from the leading edge (Y), the working distance (X) is 8' in each direction from the perpendicular, which translates to a 53° working angle.

Swing Falls: When using or installing any anchors, think about eliminating swing fall hazards. Swing falls happen when the anchor point is not directly over the object being secured. Always make your anchors as close to perpendicular to where you are securing something as possible. Swing falls can increase the chances of serious injury or death if there is a fall.

As displayed in the following diagrams, there are danger zones when using a single HLL, and in order to be safe use multiple HLLs.



Components and Specifications

Components made from some or all of the following: galvanized steel and stainless steel.

Components Included:

- A. 6' Vinyl coated cable choker – Pieces (2)
- B. Assembled 3/8" Cable HLL System with pull loop on one end – Pieces (1)
- C. 3/8" Adjustable cable clamps – Pieces (3)
- D. Military grade backpack



Tools Needed:

- 1.) 5/16" wrench
- 2.) 3/4" wrench

Requirements:

- 1.) Two (2) 5,000 lb. (HLL Compatible) anchor points
- 2.) Weight Min / Max (120 lbs. – 420 lbs.)
- 3.) Maximum Users – Two (2)
- 4.) 0 – 60' (1 Absorber)
- 5.) 0 – 100' (2 Absorbers)

Installation and Use

- 1.) Confirm with Competent Person that anchor points are rated for 5,000 lbs.
- 2.) Measure distance between anchor points. Set the clamps to measured distance.
- 3.) Make sure turnbuckle is all the way extended.
- 4.) Attach carabiner on pull loop end to first anchor point.
- 5.) Attach carabiner on end with cable clamps to second anchor point.
- 6.) Tighten turnbuckle until line has between 2 - 6 inches of slack.

Adjustment

Efficiency ratings for wire rope end terminations are based upon the catalog breaking strength of wire rope. The efficiency rating of a properly prepared loop or thimble-eye termination for clip sizes 1/8" through 7/8" is 80%, and for 1" through 3-1/2" is 90%.

WARNING: Prepare wire rope end termination only as instructed. DO NOT use vinyl/plastic coated wire rope. Apply first load to test the assembly. This load should be of equal or greater weight than loads expected in use.

1. Refer to Torque Table in following these instructions. Turn back specified amount of rope from thimble or loop. Apply first clip one base width from dead end of rope. Use torque wrench to evenly tighten clip, alternating from one nut to the other until reaching the recommended torque.

2. When two clips are required, apply the second clip as near the loop or thimble as possible. Use torque wrench to evenly tighten clip, alternating until reaching the recommended torque. When more than two clips are required, apply the second clip as near the loop or thimble as possible, turn nuts on second clip firmly, but do not tighten.

3. When three or more clips are used, space additional clips equally between first two. Take up rope slack, use torque wrench to tighten on each clip evenly, alternating from one nut to the other until reaching recommended torque.

4. O-rings and sliders: Palmer Safety provides (2) 2-1/2" O-rings that should be applied to the cable lifeline to allow compatible attachment of snap hooks and other connecting devices. O-rings and sliders must be attached to the lifeline before the system is complete.

Torque Table				
Clip Size (in.)	Rope Size (in.)	Minimum # of Clips	Amount of Rope to Turn Back (in.)	Torque (ft. lbs.)
3/16	3/16	2	4	30
1/4	1/4	2	4	30
5/16	5/16	2	5	30
3/8	3/8	2	5¼	45
7/16	7/16	2	6½	65
1/2	1/2	3	11	65
9/16	9/16	3	12¾	130
5/8	5/8	3	13½	130
3/4	3/4	3	16	225
7/8	7/8	4	26	225
1	1	5	37	225
11/8	11/8	5	41	360
1¼	1¼	6	55	360
13/8	13/8	6	62	500
1½	1½	7	78	500
1½	1½	7	78	500

If greater number of clips than shown are used, amount of turn-back should be increased proportionately. Torque values shown are based upon the threads being clean, dry, and free of lubrication.

For systems with multiple intermediate anchor points or for any other questions, contact Palmer Safety Fall Protection.

Maintenance, Cleaning, and Storage

If Cable HLL System fails inspection in any way, immediately remove it from service, and contact Palmer Safety to inquire about its return or repair.

Cleaning after use is important for maintaining the safety and longevity of Cable HLL System. Remove all dirt, corrosives, and contaminants from Cable HLL System before and after each use. If Cable HLL System cannot be cleaned with plain water, use mild soap and water, then rinse and wipe dry. NEVER clean Cable HLL System with corrosive substances.

When not in use, store equipment where it will not be affected by heat, light, excessive moisture, chemicals, or other degrading elements.

Inspection

- 1.) System should be inspected before each use.
If any damage is found or system is involved in a fall remove from jobsite immediately.
- 2.) System should be inspected by a Competent Person at a minimum of every 6 months.
- 3.) All inspections should be documented.

Palmer Safety would be glad to help with any inspections.

Inspection Log

SERIAL NUMBER:			
MODEL NUMBER:			
DATE PURCHASED:		DATE OF FIRST USE:	

	J	F	M	A	M	J	J	A	S	O	N	D
YR												
YR												
YR												
YR												
YR												

Product lifetime is indefinite as long as it passes pre-use and Competent Person inspections. User must inspect prior to EACH use. Competent Person other than user must complete formal inspection at least every 6 months. Competent Person to inspect and initial.

This inspection log must be specific to one Cable HLL System. All inspection records must be made visible and available to all users at all times.

If equipment fails inspection or is involved in a fall **REMOVE FROM SERVICE IMMEDIATELY.**

INSPECTION DATE	INSPECTION ITEMS NOTED	CORRECTIVE ACTION	MAINTENANCE PERFORMED
Approved by:			
Approved by:			
Approved by:			
Approved by:			
Approved by:			
Approved by:			
Approved by:			

Safety Information

WARNING: Failure to understand and comply with safety regulations may result in serious injury or death. Regulations included herein are not all-inclusive, are for reference only, and are not intended to replace a Competent Person's judgment or knowledge of federal or state standards.

Notes:



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