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Operation and Maintenance Manual



LL & ELL Long Lines & Electric Long Lines

<u>For Model Numbers:</u> LLWL10-XXX; LLWL25-XXX; LLWL30-XXX ELLWL6-XXX(B); ELLWL10-XXX(B); ELLWL25-XXX(B); ELLWL30-XXX(B)

Note: All changes from the previous revision are identified with red text. Manual must be printed in color for clarity.

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SAFETY LABELS

Operating limitations are mentioned throughout this manual. The significance of such limitations provides for the safe assembly and operation of the product(s) in this manual.

The following labels are used to emphasize the significance of each operating limitation.

WARNING

OPERATING PROCEDURE, PRACTICE, ETC., WHICH MAY RESULT IN PERSONAL INJURY OR LOSS OF LIFE IF NOT FOLLOWED CAREFULLY

CAUTION

OPERATING PROCEDURE, PRACTICE, ETC., WHICH IF NOT STRICTLY OBSERVED MAY RESULT IN DAMAGE TO EQUIPMENT.

NOTE

An operating procedure, condition, etc., which is essential to emphasize.

Proprietary Statement:

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1. Introduction

1.1 Scope

This owner's manual contains instructions for installation, operation, and maintenance of the Helibasket Long Lines and Electric Long Lines (for applicable model numbers, please see Appendix A.1). Instructions for field servicing Helibasket Long Lines and Electric Long Lines is contained in Section 6.4 of this manual, however, it is encouraged that Helibasket LLC be contacted in the event that damage to these lines is discovered so that specific instructions for repair can be communicated.

1.2 Liability

The instructions contained in this document are provided for the benefit of experienced aircraftmaintenance personnel and facilities that are capable of carrying out the following procedures. Helibasket shall not be held liable for damage, misuse or failure resulting from improper repair or recertification techniques performed by the end user.

1.3 Warranty Information

Helibasket LLC extends a standard one (1) year warranty to all Long Lines and Electric Long Lines from the date of purchase on the following conditions:

- Helibasket LLC's sole obligation under this Warranty is limited to repairing or replacing, at the company's sole discretion, any product proved to be defective.
- Helibasket LLC's products are not guaranteed for any specific length of time or measure of service but are warranted only to be free from defects in workmanship and material for a period of one (1) year to the original purchaser.
- To the extent allowable under applicable law, Helibasket LLC's liability for consequential and incidental damages is expressly disclaimed. The Company's liability in all events is limited to, and shall not exceed, the purchase price paid.
- The Warranty is granted to the original purchaser of these products and does not extend to a subsequent purchaser or assignee.
- Helibasket LLC must receive notification in writing of any claims of Warranty from the original purchaser which must give details of the claimed defect in the product.
- Where the original purchaser is claiming under Warranty, the product must be returned to Helibasket LLC for inspection with all transportation and duty charges prepaid.
- The Warranty does not extend to any product that has been accidentally damaged, altered, abused, misused, or used for a purpose which has not been approved by Helibasket LLC or relevant regulatory certifications.



- This Warranty does not apply to any accessories used with the product that are not supplied by Helibasket LLC, and any Warranty on such accessories must be requested from the manufacturer or dealer of the accessories.
- In the event the original purchaser does not give notice of a Warranty claim within one year of the original purchase of the product, it is understood that the purchaser has waived the claim for Warranty and the purchaser and/or any subsequent purchaser must accept the condition of the product as it may be, without Warranty.
- Any technical information supplied by Helibasket LLC regarding the product is not a condition of Warranty but rather is information provided by the company to the best of its knowledge.
- There are no implied warranties nor is there any Warranty that can be assumed from any representation of any person, except Helibasket LLC itself.

This warranty is null and void if the product is not installed, used, and or maintained in accordance with the Operation and Maintenance Manual supplied by Helibasket LLC.

All HBLLC Long Lines and Electric Long Lines are designed and manufactured with substantial safety margins; it is the responsibility of the user to ensure that the device is maintained to a safe standard.

2.0 Service Bulletins

This product is subject to the following service bulletin(s). Service bulletin documents may be obtained from Helibasket at the user's request. Verify compliance with all service bulletins prior to maintenance. If in possession of a product with an unincorporated service bulletin, please contact the factory for additional guidance.

Service Bulletin No.	Description	Effective Date	S.N's Affected



3.0 System Overview

3.1 Description

Helibasket Long Lines and Electric Long Lines were designed to provide capabilities for helicopters to carry sling loads and provide a conduit for electric actuation of remote hooks and other electrically operated equipment., such as firefighting water buckets.

The lines are comprised of three (3) layers of material: the center is the 12-strand Plasma core lifting element (purple); covering the Plasma is a polyester jacket (white) that helps compress the rope's diameter for more protection against damage and provides a substrate for the final layer; a polyurethane coating (orange), which impregnates into the polyester jacket and provides protection of the Plasma core from sand, dirt, oils, and other foreign material.

The (E)LLWL10-XXX and (E)LLWL25/30-XXX long lines come standard with a Hawser thimble at the aircraft connection eye (*Figure A.2*) and a potted soft eye at the payload connection eye of the rope (*Figure A.3*). The potted soft eye allows for versatility with the rigging that can be connected to it. The Hawser Thimble comes coated with a rugged, abrasion-resistant coating that protects the steel Hawser from corrosion and damage. All Electric Long Lines have a full length Cordura Cover (*FigureA.4*) to help protect the electrical cable that runs the length of the lines (*Figure A.5*). Smaller long lines, such as the LLWL6-XXX and ELLWL6-XXX come standard with a stainless-steel thimble at both eyes (*Figure A.7*).

When required by the customer for short-haul capabilities, Helibasket LLC has integrated the use of D-rings in the long lines (*Figure A.6*). The D-rings provide the ability to carry loads at attachment points other than the lower eye or remote hook. The D-rings are shackles that are inserted into the rope between strands at approximately 22", 28", and 36" from the potted eye.



Figure A – Long Line Parts



Feature	ELLWL6-XXX	(E)LLWL10-XXX(B)	(E)LLWL25-XXX(B)	(E)LLWL30-XXX(B)
Rope Diameter	5/8in (16mm)	7/8in (22mm)	1-1/4in (28mm)	
Rope Core		12-Strand P	lasma (purple)	
Lbs per 100ft (Kg/100m)	10.6lb (15.8kg)	19.6lb (29.2kg)	27.5lb (40.9kg)
Working Load	6,425lb (2,915kg)	10,000lb (4,500kg)	25,000lb (11,300kg)	30,000lb (13,600kg)
MBS	51,400lb (23,300kg) 92,600lb (42,000kg) 147,000lb (66,600k		(66,600kg)	
Rope Safety Factor	8:1	9:1	5.8:1	5:1
Maximum Operating Temp.	150°F (65°C)			
Electrical Voltage Rating	600V			
Electrical Cable Diameter	Nominal dia. 0.430in (10.92mm)*			
*For Bambi Bucket ELLs, 10/2 SOOW nominal dia, Is 0.620in (16mm) and 16/5 SOOW nominal dia, Is 0.490in (12.45mm)				

3.2 Product Specifications

3.3 Compatible Equipment

HBLLC P/N	Included in Helibasket System(s)	Description
HB1000	HBSYSWL14-XXX (Heli-Basket System)	1,400lb working load Heli-Basket
		complete external load system
HB2000	HBSYSWL45-XXX (Heli-Basket System)	4,500lb working load Heli-Basket
		complete external load system
HB10K-0000	ELLSYSWL10-XXX (Long Line System)	10,000lb working load Remote
		Tactical Cargo Hook
HB30K-0000	ELLSYSWL30-XXX (Long Line System)	30,000lb working load Remote
		Tactical Cargo Hook
ELLSYS-STS	ELLSYSWLXX-XXX (Long Line System)	Cargo Hook Storage and Transport
		System
HCELL	ELLSYSWL10-XXX (Long Line System)	Electrical Remote Hand Control
		System



4.0 Installation

4.1 How to Install

The Hawser eye has the capability to either attach directly to the airframe cargo hook, or be used with an apex fitting (roller shackle) to interface between the Hawser eye and the airframe cargo hook. The potted soft eye thimble can be connected to a lifting shackle or directly to the rigging of the sling load. The interface to Helibasket's 10K and 30K Remote Tactical Cargo Hooks utilizes a rolling aluminum "soft eye adapter" that increases the bend radius of the potted end's eye and can greatly extend the life of the eye splice at the potted end of the rope.

4.2 Installation Inspection Checklist

After connecting the long line to the rigging and installing the sling load onto the aircraft, perform the following function checks:

- Ensure the Hawser eye is seated properly in the airframe cargo hook, or that the apex fitting is secured and backed up on the eye and the roller is seated properly in the airframe cargo hook.
- Verify the attachment of the rigging or slings at the potted eye end. Ensure the rigging is the proper size as not to damage the potted eye's splice. No rigging that directly attaches to the potted eye should be smaller than ³/₄" diameter in order to prevent point pressure on the soft eye splice.
- Check along the length of the line to ensure there are no kinks or knots in the rope. It is best to uncoil the line and straighten the rope as much as possible so that no twisting or kinking occurs when the aircraft takes off.
- Check for damage to the electrical cable and/or Cordura cover. If damage is found, inspect the area of damage to determine if repairs need to be made prior to flight.
- If there is a power connection, check that power runs from the aircraft to the end of the Electric Long Line. Verify there is enough slack at each end of the electrical cable so that when under load, no electrical connections risk being compromised or damaged.

5.0 Operation Instructions

5.1 Pre-flight Checklist

Prior to external load operations, perform the following functional checks of the long line. If these procedures are not successful, do not use the long line until the problem is resolved.

- 1. Ensure there is no serious damage to the rope (see Section 6.2 for inspection requirements)
- 2. Verify proper connection to the aircraft and the payload
- 3. Verify all electrical connections are secure and there is enough slack to prevent damage or disconnection
- 4. Verify power is making it to the end of the long line



5.2 Guidelines for use

The serviceability of each rope is based on condition (see *Section 6.2* for inspection requirements). Additional recertification or load testing is based on user requirements. If a user requires periodic load testing of the ropes, that can be accomplished by Helibasket LLC or a qualified local load-testing facility.

The Potted eye of the rope is a flexible eye that allows for versatility with rigging connections to the payload end of the rope. Rigging equipment should be inspected before each use. Utilize only suitable rigging equipment for connection to Helibasket Long Lines and Electric Long Lines. Rigging equipment smaller than ¾" in diameter can put point pressure on the soft eye of the rope and cause damage to the splice or the rigging.

<u>WARNING</u>

ONLY USE APPROVED EQUIPMENT WHEN CONNECTING THE LONG LINE TO THE RIGGING AND AIRCRAFT. USE OF UNAPPROVED OR DAMAGED RIGGING EQUIPMENT CAN DAMAGE THE LONG LINE OR THE AIRCRAFT, OR LEAD TO SERIOUS INJURY OR DEATH.

NOTE

All procedures and information regarding the installation and operation of Helibasket Long Lines and Electric Long Lines is superseded by customer procedures and aircraft flight manuals. Always carry loads in accordance with approved procedures.



5.3 Troubleshooting

Symptom	Probable Cause	Remedy
Inconsistent electric transmission through electrical cable	Loose wire(s) in plug or receptacle;	Open both the plug and the receptacle at either end of the electrical cable by unscrewing the two Phillips head screws at each end. Visually inspect each connection terminal to ensure wires are making contact with the plug/receptacle terminal. Gently tug on each wire to verify it is firmly gripped by the corresponding terminal. Tighten any loose connections. Check continuity of all three wires with a digital multimeter to verify electrical continuity.
Inconsistent electric transmission through electrical cable	Damaged wire(s) in electrical cable	Using a digital multimeter, verify which wire or wires are not transmitting signal. If damage is not immediately visible at one end or the other, look along the length of the rope for damaged areas that could have affected the electrical cable. If damage is not visible on either of the exposed ends of the rope, the electrical cable can be removed from the rope's cover by removing the plug and receptacle at either end of the cable. It is highly recommended to tie or tape a small diameter rope or paracord line to one end of the cable and pull the line through the jacket as the cable is removed (this line will be invaluable for fishing the electrical cable back through the long line's sewn cover). Upon removing from the cover, the electrical cable can be inspected and repaired, or replaced entirely. Verify continuity of all wires before and after fishing the cable back through the long line's cover.
Cracking discovered in the urethane coating around the eye splices of the rope or along the length of the rope.	Normal wear and tear	Inspect the crack in the urethane by bending the rope in such a way as to open the crack and expose the rope underneath. Verify the polyester jacket is intact and not damaged. If damaged, rope should be repaired by Helibasket LLC. If polyester jacket is in good condition, the crack can be repaired using premium matte cloth gaffer's tape (or equivalent) to seal up the exposed rope to help prevent debris from working its way into the core. Repaired cracks in the urethane coating should be inspected annually to ensure no further damage is occurring.



6.0 Maintenance

6.1 Storage

Ropes should be stored in a cool, dry place. It is recommended they be stored inside. For optimal service life, ropes should be coiled before storage and stored in a temperature- and humidity-controlled environment. Ropes <u>should not</u> be stored in temperatures exceeding 120°F (50°C) or excessively wet/humid environments. Minimize exposure to direct sunlight or water. Do not stack crates, equipment, or other heavy objects directly on top of ropes. Sharp corners can create focused pressure on the rope and may damage the core.

6.2 Monthly Inspection

Ropes should *always* be inspected prior to use. In addition to pre-operations inspection, it is recommended that ropes be periodically inspected throughout the year to ensure proper care is being taken to maximize the service life of the rope. The following inspection criteria should be utilized for periodic monthly inspections and prior to each use of the long line:

- Inspect the entire length of the rope for damage. Rips, tears, and abrasive damage to the Cordura cover is acceptable, however areas where the Cordura cover is damaged should be thoroughly inspected to ensure that no serious damage is present in the rope beneath the damaged cover.
- Inspect the eyes at each end of the rope for damage.
- Cracking, abrasion, and cuts in the urethane coating are acceptable, whether or not they expose the white polyester jacket beneath. Ropes that show non-critical cracking in the urethane should be repaired in accordance with Section 6.4 of this manual.
 - Ropes with an exposed core (Purple) can still be utilized, but it is highly recommended these ropes be assessed by Helibasket LLC for continued use.
 - Any rope with a damaged core (purple) *MUST* be taken out of service immediately.
- Ropes that show signs of kinking along the length are acceptable.
 - Ropes with kinked sections that show excessive cracking damage in the urethane, or that are much softer and easier to bend than the surrounding areas of the rope should be removed from service or returned to Helibasket LLC to be assessed for continued use.
- Test the electrical connection (ELLs only) via a multimeter or by performing an electrics test on the ground utilizing a power supply and the intended equipment to be connected to the electrical cable on the Electric Long Line.



6.3 Annual Inspection

In addition to routine inspection, it is recommended practice that all Long Lines and Electric Long Lines be thoroughly inspected for damage and wear in accordance with the inspection procedure outlined in the previous section *(Section 6.2)* of this manual, with the addition of the following procedures:

- Any areas where the Cordura cover shows signs of heavy abrasion, cuts, or ripping, cut a small portion of the Cordura cover's seam around the damaged area to inspect the rope beneath for cracking, kinking or other damage to the rope. These areas of the cover can be stitched back together or taped up utilizing a premium matte cloth gaffer's tape (3M GT2 or equivalent).
- Ensure the plug and receptacle of the electrical cable is undamaged (ELLs only), and that all wire connections are secure in their terminals and the terminal screws are tight. Verify there is no exposed wire or damage to the electrical cable's sheath.
- Remove any taped areas of the rope and inspect the cracks to verify there is no additional damage to the polyester jacket or rope core beneath. Clean out any debris which has collected in the cracks and apply new tape to the cracked areas.
- Inspect the black, ruggedized coating over the Hawser thimble to ensure that there are no exposed areas of the thimble that are corroding. A small amount of rust can be removed and repaired using the same repair procedure outlined in the next section (Section 6.4), however ropes showing excessive corrosion on the Hawser thimble should be taken out of service or returned to Helibasket LLC to be assessed for continued use.
- Inspect the Potted BTU around the soft eye at the other end of the long line. There should be no gap around the point where the eye of the rope enters the urethane potting. If there is separation of the urethane around the eye of the rope is still acceptable for use, however it is recommended the rope be returned to Helibasket LLC to be assessed and/or repaired for continued use.
- Clean all exposed urethane with a non-petroleum-based cleaner. Wipe down the Cordura cover to clean errant dirt, sand, etc.

CAUTION

ANY DAMAGE THAT MAY AFFECT THE CORE OF THE ROPE SHOULD BE CONSIDERED CRITICAL DAMAGE. ANY ROPE WITH A COMPROMISED CORE SHOULD BE TAKEN OUT OF SERVICE IMMEDIATELY. IF THERE IS ANY QUESTION WHETHER DAMAGE FOUND DURING INSPECTION MAY COMPROMISE THE CORE OF THE ROPE, CONTACT HELIBASKET LLC FOR ASSESSMENT ON CONTINUED USE OF THE LONG LINE.

NOTE

Depending upon climate, the urethane may become discolored. This does not affect the Long Line's capability and can be wiped off using a non-petroleum-based cleaner.



6.4 Repair / Overhaul

Helibasket LLC does not offer overhaul services on any of its long lines, however special Long Line and Electric Long Line repairs are offered on a case-by-case basis, depending on the type and extent of damage. Most damage in the form of cracking in the urethane coating is superficial and can be field repaired with a roll of premium matte cloth gaffer's tape (3M GT2 or equivalent).

If superficial cracks are found during routine inspection and it is determined this damage does not affect the core of the rope, use the following procedure to repair the affected area of the rope:

- Bend the rope in such a way as to open up the cracked area so the underlying material can be visually inspected. Verify the polyester jacket (white) and/or Plasma core (purple) are not damaged (see *Figure B* for reference). The polyester jacket can sustain minor damage, as long as the Plasma core is not compromised.
- 2. Using a non-petroleum-based cleaner, thoroughly clean the urethane around the affected area of dirt, dust, sand, etc.
- 3. Using a brush or a blast of compressed air, ensure the crack is free of foreign particulates, which may work their way into the core of the rope.
- 4. Cover the entirety of the crack in a premium matte cloth gaffer's tape (3M GT2 or equivalent). Ensure there is 1-2" (2-5 cm) on either side of the crack that is covered by the tape. (See Figure C. Please note that Figure C does not display the full extent of the required repairs and only displays an example of the technique)
- 5. For tears or cuts in the Cordura cover, the damaged area may be taped closed or wrapped entirely in a layer of gaffer's tape. Covers may also be re-sewn if there is capability.



- 1. Plasma 12-strand Core
- 2. Polyester Woven Jacket
- 3. Urethane Coating

Figure B – Long Line Structure





Figure C – Repair Reference for Long Lines

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NOTE
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This manual only covers repair techniques for the most common type of damage found during routine inspections of these Long Lines and Electric Long Lines. Repairs for any other type of damage should be assessed and performed by Helibasket LLC. See *Section 7.0* for instructions on contacting Helibasket LLC and returning equipment for inspection/repair.

6.5 Recertification (and Retirement)

Helibasket LLC offers rope inspection and re-certification testing only for ropes manufactured by HBLLC. Please email <u>info@heli-basket.com</u> for more information. Helibasket LLC reserves the right to remove any line from service which fails to meet the minimum criteria for safety and continued airworthiness.

The recommended rope life cycle is ten (10) years. At minimum, when ropes exceed ten (10) years from the date of manufacture (DOM), they must be re-certified in accordance with the acceptance test procedure outlined in the next section *(Section 6.6)* of this manual. *No visual inspection can accurately determine the residual strength of older ropes.*

Ropes must be inspected and stored in accordance with the procedures outlined in Section 6.0 of this manual. Retirement of a rope is based on condition. It is the responsibility of the owner to care for and inspect each rope to determine if there is any damage or concerning wear prior to use. Ropes with exposed polyester jackets or cracked urethane coatings may be repaired as outlined above. Ropes with exposed or damaged cores or excessive wear should be immediately taken out of service. Avoid using ropes that show signs of excessive aging and/or wear. If in doubt, contact Helibasket LLC so that the rope's condition can be properly assessed for continued use.



6.6 Acceptance Test Procedure

Helibasket LLC utilizes the following procedure for certification and acceptance of new ropes, as well as recertification of older ropes for continued use. It is highly recommended the following procedure be performed periodically throughout the rope's life to validate the strength of the core and the condition of the rope for continued use.

- Acceptance Inspection
 - Inspect the entire rope for damage. Any cracks in the urethane coating should be either spot treated with urethane touch-up or completely enclosed with a premium matte gaffer's tape.
 - Hawser thimble must have no signs of deformation.
 - Potted BTU soft eye should fully encase the eye splice.
 - Inspect the Cordura cover. Any rips or tears should either be sewn closed or completely enclosed with a premium matte gaffer's tape. Breaks or tears in the seam of the cover should be sewn closed.
 - For recertifications, HBLLC will remove the Cordura cover by ripping the primary seam down the entire length of the cover to perform a visual inspection on the concealed section of the rope in order to verify there is no hidden damage. The cover can easily be sewn back along the seam line.
 - \circ $\;$ All dirt and debris should be cleaned.
- Proof Load Test
 - Each rope must pass the following proof load test procedure prior to certification (or recertification):
 - Ropes shall be pulled to 40% of the core's minimum breaking strength (see Section 3.2 for the MBS for different size rope diameters) and held for a minimum of 5 seconds.
 - Any sections of the rope which have been repaired using gaffer's tape must be reinspected after the proof load test. Remove the tape and clean the area with a non-petroleum-based cleaner. Check the damaged area to ensure there is no further damage as a result of the proof load test. Re-cover all areas with a new piece of gaffer's tape in accordance with the repair procedures outlined in *Section 6.4* of this manual.
- Electrical Test (ELLs Only)
 - Test electrical cable for continuity across all three terminals (Hot, Neutral & Ground). Damaged electrical cables, plugs and receptacles shall be replaced.
 - Verify both ends of the electrical cable are secured properly. The Potted BTU end should have a cable clamp or equivalent keeping the lower end of the electrical cable secured to the potted end.
- Traceability Validation
 - Check the product label (found at either end of the long line) to make sure all information is clearly legible. Any damaged tags must be replaced.



7.0 Instructions for Returning Equipment

To return equipment to Helibasket LLC for inspection, recertification, repairs and/or overhaul, please take care to package the products back into the factory crate (or a crate of similar durable construction), ensuring the product is properly secured from jostling or damage during the shipping process. Contact Helibasket via phone at (864) 638-6196 or email <u>admin@heli-basket.com</u> with the following information:

- The Model, Serial Number (S/N) or Unique Identification (UID), and Manufacture Date (if available) of the equipment being returned (see *Figure G*)
- RMA Number Provided by Helibasket LLC (See note below)
- The name, address, and point of contact for the facility from which the equipment is being shipped
- All requested services to the equipment being sent, including any pictures and supplementary information pertinent to the services being requested

Shipping Information:

Attn: Equipment Service Helibasket, LLC 450 N Highway 11 West Union, SC 29696-2707 Reference: *RMA#*

NOTE

An RMA number is required for all equipment returns. Please contact Helibasket LLC as directed above to obtain an RMA number <u>before shipping equipment to us</u>. Reference this RMA number on all shipping documentation.



8.0 Parts Catalog

Item	Helibasket P/N	Description	Product Qty	Repair Kit Qty	Overhaul Kit Qty
1	(E)LLWLXX-XXX	Long Line (various lengths and WLL's)	1	-	-
2	HBH-0000-0002	12/3 SJOOW Cable (various length)	1	-	-
3	HBH-0000-0101	NEMA 5-15P 3-Pole 15A Electric Plug	1	1	-
4	HBH-0000-0201	NEMA 5-15S 3-Pole 15A Receptacle	1	1	-
5	HBH-0990-9502	Vibration Dampening Loop Clamp	1	-	-
6	HBH-10456	¼-20 S.S. Screw, 3-1/2" lg.	1	-	-
7	HBH-20401	¼" Stainless Steel Washer	1	-	-
8	HBH-30406	¹ / ₄ -20 S.S. Nylon insert lock nut	1	-	-

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Appendix A LL & ELL Part Numbering & Common P/N's

Long Line Part Numbers define specifics for each configuration of Long Line, such as working load limit, length of line, and configuration of electrics. Helibasket LLC uses the following naming conventions for part numbers:

- LL = Long Line, Standard Rope with no Electrics or Cover
- ELL = Electric Long Line, rigged for remote cargo hooks and other products requiring electricity to function. These long lines have three integrated D-rings at the payload end of the rope.
- WL = Working Load, expressed in thousands of pounds.
- -XX or -XXX = length of the long line
- Suffix P = 13' long Pendulum Line
- Suffix B = Custom electrical connectors for Bambi Bucket Power and Controls

Below is a table that outlines common long line part numbers. This list is not comprehensive and Helibasket LLC offers long lines in a variety of custom lengths, working loads, and electrical configurations. Please contact Helibasket LLC to inquire about customized Long Lines at <u>info@helibasket.com</u>

Rope Diameter (WLL)	Long Line P/Ns	Electric Long Line P/N's	Bambi Bucket LL P/N's
	LLWL6-30	ELLWL6-30	ELLWL6-30B
	LLWL6-50	ELLWL6-50	ELLWL6-50B
	LLWL6-65	ELLWL6-65	ELLWL6-65B
	LLWL6-70	ELLWL6-70	ELLWL6-70B
16mm (6.425 lb \\//1)	LLWL6-75	ELLWL6-75	ELLWL6-75B
	LLWL6-100	ELLWL6-100	ELLWL6-100B
	LLWL6-120	ELLWL6-120	ELLWL6-120B
	LLWL6-150	ELLWL6-150	ELLWL6-150B
	LLWL6-175	ELLWL6-175	ELLWL6-175B
	LLWL6-200	ELLWL6-200	ELLWL6-200B
	LLWL10-P	ELLWL10-P	ELLWL10-PB
	LLWL10-30	ELLWL10-30	ELLWL10-30B
	LLWL10-50	ELLWL10-50	ELLWL10-50B
	LLWL10-70	ELLWL10-70	ELLWL10-70B
22mm(10,000 lb W/U)	LLWL10-80	ELLWL10-80	ELLWL10-80B
	LLWL10-100	ELLWL10-100	ELLWL10-100B
	LLWL10-120	ELLWL10-120	ELLWL10-120B
	LLWL10-150	ELLWL10-150	ELLWL10-150B
	LLWL10-175	ELLWL10-175	ELLWL10-175B
	LLWL10-200	ELLWL10-200	ELLWL10-200B

A.1 List of Part Numbers – Long Lines & Electric Long Lines



	LLWL25-P	ELLWL25-P	ELLWL25-PB	
	LLWL25-30	ELLWL25-30	ELLWL25-30B	
	LLWL25-50	ELLWL25-50	ELLWL25-50B	
	LLWL25-70	ELLWL25-70	ELLWL25-70B	
28mm (25 000* lb $M/11$)	LLWL25-80	ELLWL25-80	ELLWL25-80B	
2011111 (25,000 10 WLL)	LLWL25-100	ELLWL25-100	ELLWL25-100B	
	LLWL25-120	ELLWL25-120	ELLWL25-120B	
	LLWL25-150	ELLWL25-150	ELLWL25-150B	
	LLWL25-175	ELLWL25-175	ELLWL25-175B	
	LLWL25-200	ELLWL25-200	ELLWL25-200B	
	LLWL30-P	ELLWL30-P	ELLWL30-PB	
	LLWL30-30	ELLWL30-30	ELLWL30-30B	
	LLWL30-50	ELLWL30-50	ELLWL30-50B	
	LLWL30-70	ELLWL30-70	ELLWL30-70B	
28mm (20.000** lb \\// L)	LLWL30-80	ELLWL30-80	ELLWL30-80B	
	LLWL30-100	ELLWL30-100	ELLWL30-100B	
	LLWL30-120	ELLWL30-120	ELLWL30-120B	
	LLWL30-150	ELLWL30-150	ELLWL30-150B	
	LLWL30-175	ELLWL30-175	ELLWL30-175B	
	LLWL30-200	ELLWL30-200	ELLWL30-200B	
*Represents a 5.8:1 Factor of Safety for the MBS of the 28mm Plasma Rope				
***kepresents a 4.9:1 Factor of Safety for the MBS of the 28mm Plasma Rope				