Photo: NTM Aviation, PNG

USER INSTRUCTIONS MANUAL

Document # 120914E
Revision 2
February 2020

This document contains 24 pages

⚠ WARNING

UNCONTROLLED IF PRINTED

IMPORTANT: Make sure this user instructions manual is the latest version available.
Consult the Barry website at www.barry.ca to view document revisions,
important updates and other notices.

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Congratulations on your purchase of a Barry Quality Safety Product!

Our philosophy at Barry is to offer only best quality in products. We hope that you will be completely satisfied with this product and wish to thank you for choosing Barry. We invite you to send in your comments to help us to continue improving our products and services.

REVISION HISTORY

Revision	Sections affected	Changes	Date
0		First edition	Sept. 14, 2012
1	All	Major revision covering all sections. Maximum shelf life and service life limitations added.	Jan. 21, 2019
2	1.1, 1.2, 5.2, 6, 8, inspection form	Materials and images updated, operational risks wording revised, inspection section updated, shelf and service life updated	Feb. 10, 2020

TABLE OF CONTENTS

WARNINGS AND IMPORTANT NOTICES

You will find on this page, and throughout this user instructions manual, many warnings and important notices that must be considered seriously when using this product.

DEFINITIONS:

⚠ WARNING

A WARNING note means that if the information is not thoroughly followed, there is a risk of serious injury or death to the user or surrounding people.

⚠ CAUTION

A CAUTION note means that if the information is not followed, there is a risk of injury and/or damage to the equipment.

⚠ CAUTION ***IMPORTANT: This manual is intended to meet the Manufacturer's Instructions as recommended by various standards, and should be used as part of an employee training program.***

⚠ CAUTION ***IMPORTANT: This manual contains information and instructions specific to Barry Helicopter Cargo Nets only. Make sure this User Instructions Manual is the latest version available. Consult the Barry website at www.barry.ca to view document revisions, important Updates and other notices.***

⚠ CAUTION ***IMPORTANT: Barry has a policy of continuous improvement and reserves the right to update product or components without prior notice.***

⚠ CAUTION ***IMPORTANT: Products manufactured by Barry Cordage Ltd. are intended for use by professionals trained and experienced in the use, inspection, and maintenance of these products.***

⚠ WARNING ***WARNING: This product is designed for underslung helicopter external load situations only. The user must read and understand the instructions in this manual before using this equipment. Manufacturer's instructions must be followed for the proper use and maintenance of this equipment. Alterations or misuse of this equipment, or failure to follow instructions, may result in serious injury or death. If you have questions on the use, care, or suitability of this equipment for your application, contact Barry Cordage Ltd.***

⚠ CAUTION ***IMPORTANT: This document does not replace a complete training necessary for the use of this product.***

⚠ CAUTION ***IMPORTANT: Before using this equipment, record the product identification information from the ID label in the inspection and maintenance log at the end of this document. Make sure this User Instructions Manual is readily available with the cargo net. Refer to Barry website to obtain valid version to print.***

⚠ CAUTION ***IMPORTANT: It is the responsibility of the user to document and maintain a product use, inspection and maintenance logbook. Barry supplies inspection criteria and guidelines, forms and log sheets which may be used as an example. It is the responsibility of the user to adapt and design their own inspection and maintenance system.***

1. DESCRIPTION OF BARRY HELICOPTER CARGO NETS

1.1 APPLICATIONS:

Barry cargo nets are designed for Class B helicopter external load applications as defined by:

- Canadian Aviation Regulations SOR/96-433 Part 1 - General Provisions, Subpart 1 - Interpretation, 101.01
- FAA Order 8900.1, Volume 3, Chapter 51 Part 133 External Load Operations, Section 1, 3-4083 - Classes of Authorization

Applications: The Barry cargo nets are to be used as part of an external cargo load system, for the transport of various underslung loads.

In all cases, the operator or type-certificate holder must ascertain that the rotorcraft external load attaching means and the rotorcraft comply with the conditions and operations specifications as directed by the applicable aviation authority, and that the pilot has received the appropriate training and is competent in transporting such loads.

⚠ CAUTION ***IMPORTANT: Barry cargo nets are designed to be connected to helicopter longlines or short lines only. Never connect a cargo net directly to the helicopter underbelly hook.***

⚠ WARNING ***WARNING: Barry cargo nets are not designed for use in Human External Cargo (HEC) systems. Contact Barry for specific information on such applications.***

1.2 SPECIFICATIONS:

Highlights:

- Each longline is subjected to strict in-house quality control measures and is individually serialized and supplied with a certificate of compliance

Normative references:

Refer to FAA, national standards and applicable local, state and federal requirements for your specific ruling in your jurisdiction.

Materials:

Refer to technical data sheets for specific materials and working load limit of each cargo net model.

Netting/Mesh - Knotless polyamide (nylon) with urethane coating
- Rope netting made with nylon rope (12-strand braid)
- Rope netting made with co-polymer rope (3-strand twisted)

Border rope - Polyester (3-strand twisted)
- Co-polymer (3-strand twisted)

Lanyards - Polyester (12-strand braid) rope with urethane coating

Thimbles - Stainless steel

Hooks - Self-locking eye hooks
- G-Hooks

Ring (Apex) - Forged master link

ID label - ID tag permanently attached to net provides product info:
- Model number
- Size
- Working load limit
- Serial number
- Manufacturing date
- Service life limit
- Shelf life limit

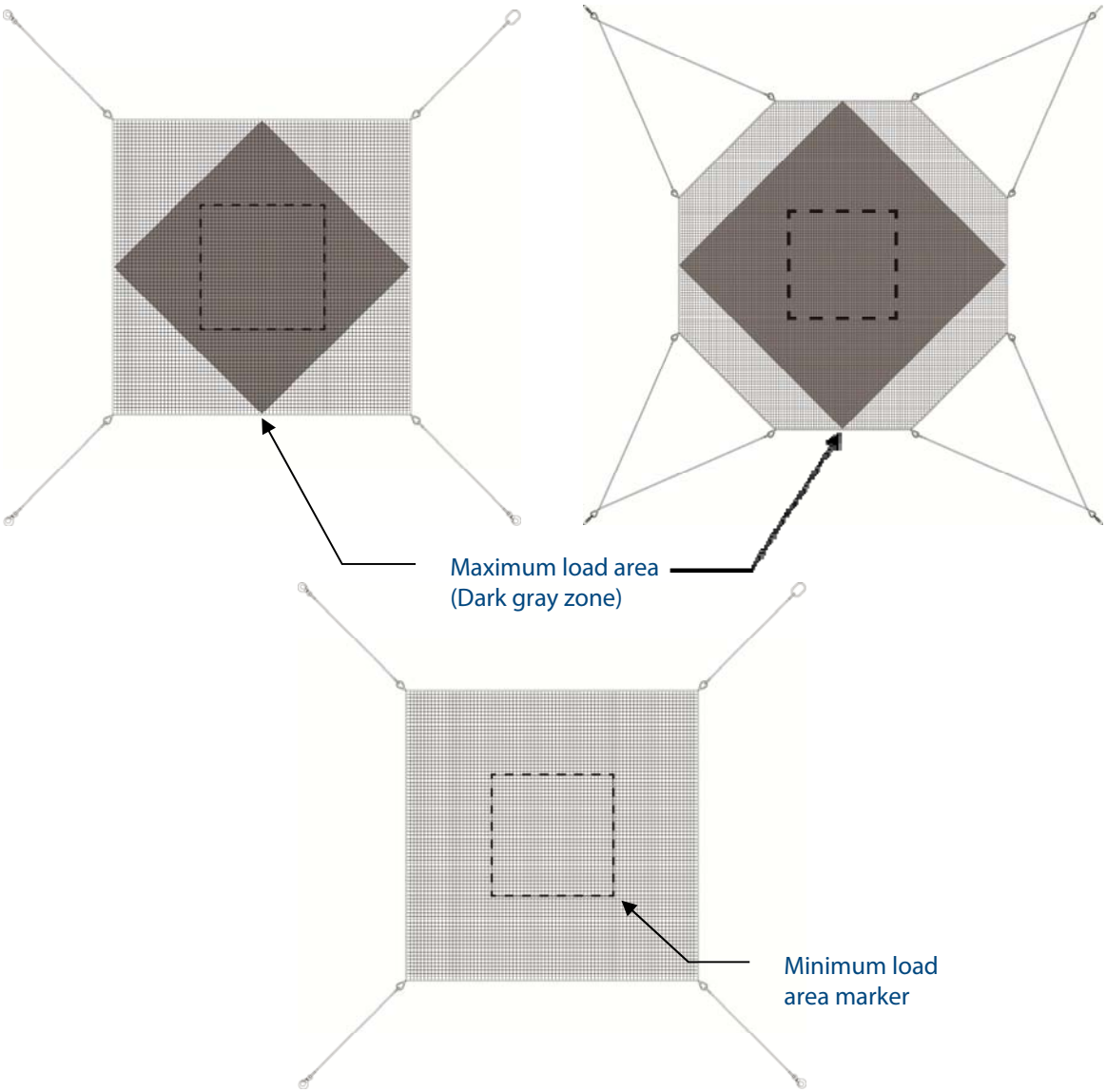
Heat and chemical resistance:

Heat and Chemical Resistance of Polyamide (Nylon) (Applies only to nylon netting, lashing twine and carry bag made of nylon fiber)	
Melting point	215°C -260°C (419°F -500°F)
Resistance to short-term heat	130°C (266°F)
UV-Resistance	Good
Resistance to alkalis	Good at low concentration
Resistance to acids	Predominantly good
Resistance to petroleum based products	Good
Resistance to bleaches and solvents	Will bleach. Degrades in mineral acids & oxidizing agents. Insoluble in organic solvents.
Creep	Slight creep under load

Heat and Chemical Resistance of Polyester (Applies only to rope made of polyester fiber)	
Melting point	225°C -240°C (437°F -464°F)
Resistance to short-term heat	170°C (338°F)
UV-Resistance	Excellent
Resistance to alkalis	Good at room temperature
Resistance to acids	Predominantly good
Resistance to petroleum based products	Excellent
Resistance to bleaches and solvents	Excellent
Creep	Hardly measurable

Heat and Chemical Resistance of Co-Polymer (Applies only to rope made of co-polymer fibers)	
Melting point	165°C -175°C (329°F -347°F)
Resistance to short-term heat	80°C (176°F)
UV-Resistance	Sufficient
Resistance to alkalis	Excellent
Resistance to acids	Excellent
Resistance to petroleum based products	Excellent
Resistance to bleaches and solvents	Excellent
Creep	At high loads

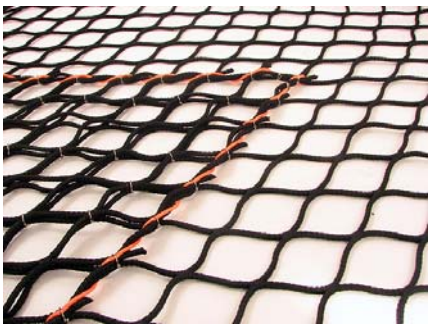
Maximum and minimum load area:



Details of netting/mesh:

Knotless polyamide (nylon)

Rope (polyester) netting



Reinforced center with marker

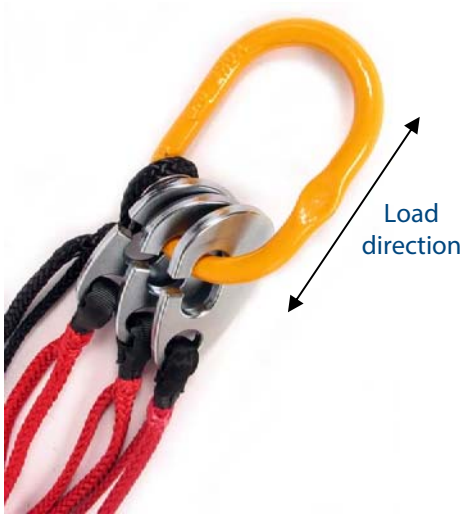
Details of lanyards:

Self-locking eye hook

G-Hook

Master link

Lanyards with self-locking hooks
correctly attached to master link



Lanyards with G-Hooks correctly
attached to master link

Labelling:

One of these labels must be permanently attached to the cargo net and the information be fully legible:

Soft ID label (closed)

Soft ID label (open)

Steel ID label

2. LIMITATIONS

Consider the following application limitations before using this cargo net:

2.1 WORKING LOAD LIMIT: The working load limit is the maximum allowable weight of the cargo at 1 "g" (static load). Refer to the product ID label of the cargo net for specific working load limit (WLL). It is up to the user to determine if the working load limit is appropriate for the intended use and conditions of the cargo net which may have deteriorated over time and as a result of use.

Reduce working load limit in consideration of the load carried (Ex: irregularly shaped equipment, sharp edges, narrow heavy load, rough landing surface, dynamic effects, etc.). Certain environmental conditions and dynamic loading situations may also require the reduction of the working load limit to take into consideration these factors of critical use conditions.

2.2 ANCHORAGE: Each anchorage point for the cargo net must be designed, installed and used under the supervision of a qualified person.

2.3 CRITICAL USE CONDITIONS: The user should always review the working load limit and frequency of inspections of cargo nets if:

- Loads are not accurately known
- Operators are poorly trained
- Operating procedures are not well defined
- Inspections are infrequent
- Abrasions, cuts and dirt are observed on the cargo net which do not pass the inspection criteria in section 6 of this document
- There is a chance of shock loads or accidental dynamic loadings
- It is used at high temperatures
- There are chemicals nearby
- It has been in service indefinitely
- It is continually under tension
- It has a manufacturing defect
- It may be subject to sharp bends or excessive wear
- If knots are present, strength is greatly reduced

⚠ WARNING ***WARNING: Never use a cargo net with knots in its lanyards.***

If one or more of the above conditions are present, it is preferable to reduce the working load, as determined by the individual responsible for cargo net safety, repair or remove the cargo net from use. Serious accidents can thus be prevented. Consult Barry for a revision if required.

2.4 ENVIRONMENTAL HAZARDS: Use of this equipment in areas with environmental hazards may require additional precautions to prevent injury to the user or damage to the equipment. Hazards may include, but are not limited to: heat, chemicals contamination, electrical fields, electrostatic discharges, moving machinery, corrosion, gases and sharp edges.

2.5 TRAINING: This cargo net must be used by persons trained in its correct application and use (see Section 4).

2.6 SERVICE TEMPERATURE LIMITS: The cargo net shall be used and stored in the temperature range between -40°C (-40°F) and +66°C (150°F).

3. SYSTEM REQUIREMENTS

⚠ CAUTION ***IMPORTANT: Do not modify the original product by altering, adding or removing components, unless approved in writing by Barry***

3.1 COMPATIBILITY OF COMPONENTS: Barry equipment is designed for use with Barry-approved components and subsystems only. Substitution or replacements made with non-approved components or subsystems may jeopardize compatibility of equipment, may affect the safety and reliability of the complete system and voids any product warranty.

3.2 COMPATIBILITY OF CONNECTORS: Connectors are considered to be compatible with connecting elements when they have been designed to work together in such a way that their size and shape do not cause their gate mechanism to inadvertently open regardless of how they become oriented. Contact Barry if you have any questions about compatibility.

3.3 MAKING CONNECTIONS: Only use connectors that are suitable to each application. Ensure all connectors are compatible in size, shape, and strength. Do not use equipment that is not compatible. Ensure all connectors are fully closed and locked.

3.4 EXTERNAL CARGO HOOKS AND OTHER CONNECTING HARDWARE: It is the responsibility of the user to ensure that cargo nets and connecting hardware are compatible with the cargo hook it will be connected to. Refer to cargo hooks operating manual for confirmation. Contact cargo hook manufacturers if you have any questions about compatibility.

3.5 REMOTE CARGO HOOKS AND OTHER REMOTE DEVICES (CAROUSELS, GRAPPLERS, ETC): It is the responsibility of the user to ensure that cargo nets and connecting hardware are compatible with the remote devices. Refer to the remote devices operating manual for instructions and limitations. Contact the hook or other remote device manufacturers if you have any questions about compatibility.

3.6 SWIVELS: If necessary and when appropriate, use a swivel that is compatible in strength and function with the other external cargo hardware. Refer to the swivel manufacturer's instructions for correct use and limitations.

4. TRAINING

It is the responsibility of the buyer/user to make sure they are familiar with this helicopter external load product, and are sufficiently trained in the correct care and use of this equipment. This product must only be used by competent persons. The user must be aware of the operating characteristics, application limits, and the consequences of improper use of this equipment.

⚠ CAUTION ***IMPORTANT: Gaining an adequate apprenticeship in appropriate techniques and methods of safety is your own responsibility. Inspection training should be repeated on a periodic basis under the supervision of competent persons*.***

** Competent person: (OSHA) One who is capable of identifying existing and predictable hazards in the surroundings or working conditions that are hazardous or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.*

5. OPERATION AND USE

Before each use of this equipment, carefully inspect it to assure that it is in serviceable condition. Refer to section 6 for further inspection details. Do not use if inspection reveals an unsafe condition.

⚠ WARNING ***WARNING: Do not alter or misuse this equipment. Consult with Barry when using this equipment in combination with components or subsystems other than those described in this manual. Use caution when using this equipment around moving machinery, electrical hazards, chemical hazards and sharp edges.***

5.1 CARGO NET PREPARATION: Follow these steps to ensure that your cargo net is properly used:

Note: Certain cargo net models can be custom made without lanyards, hooks or center marker. Use applicable instructions for these.

A. Perform the pre-use inspection as described in section 6 of this manual.
B. Make sure the load to be carried does not exceed the working load limit (WLL) of the cargo net. Refer to the cargo net ID tag to validate the WLL.
C. Spread the cargo net on the ground and pull on all 4 lanyards (or corner thimbles if model without lanyards) evenly to open the meshes and to remove folds. Make sure the lifting straps are not tangled or twisted inappropriately.
D. Position the load in the center of the cargo net, using the minimum load area marker (may not be available on some models) as a visual guide. Make sure the load covers completely the minimum load area and is evenly spread, ideally in a circular shape.

⚠ WARNING ***WARNING: Load should cover the minimum load area as defined by the minimum load area center marker or at least 1.2 meter x 1.2 meter (4 feet x 4 feet) if the cargo net doesn't have a minimum load area marker.***

E. Pull the lanyards towards the top of the load.
F. Connect the 3 lanyards with hooks to the lanyard with the apex ring. Make sure the 3 hooks are properly closed in the main ring and that the hooks are not attached one to the other.
G. Position the apex ring (with the 3 attached hooks) on top of the load with the lanyards free to position themselves when the cargo net will be picked-up.
H. When ready to pick-up the load, attach the cargo net's apex ring on the longline or short line cargo hook and lift the load.

⚠ WARNING ***WARNING: Make sure that the load connection will result in the apex ring being loaded along its long axis (refer to images on page 10 – Details of lanyards).***

⚠ CAUTION ***IMPORTANT: Barry cargo nets are designed to be connected to helicopter longlines or short lines (strops). Never connect a cargo net directly to the helicopter underbelly hook unless approved by a competent person.***

5.2 OPERATIONAL RISKS: Consider all factors that affect your safety at any time during use. The following list gives some important points to consider when planning your system:

- **Anchorage:** Select a compatible and certified anchorage point to attach the cargo net to. The anchorage point should be compatible in size and shape with the cargo net attachment ring.

- **Sharp edges:** Avoid working where the cargo net, subsystem, or other system components will be in contact with, or abrade against unprotected sharp edges. Precautions should be taken when carrying loads that could damage the cargo net, by rearranging the load or by protecting the edges of the load. Do not loop the lanyards around small diameter members.

- **Abrasion:** Take special care to protect the cargo net from abrasion. Abrasion damage is the most common cause of early cargo net retirement. This damage occurs most often when a cargo net, when under tension, comes into contact with rough surfaces such as tarmac or asphalt. Do not drag the cargo net over ground.

- **Avoid stepping or passing over a cargo net:** Besides the possibility of cutting the textile components, stepping or passing over a cargo net will grind dirt into the textile strands and increase the possibility of internal abrasion which may cut filaments and lead to cargo net failure. When using forklifts or other loading equipment, be careful not to damage the netting or other components with forks or with wheels.

- **Heat and friction:** The cargo net is made of synthetic fibre which can be easily damaged by heat. Avoid any excessive abrasion which may cause melting or glazing of the fibers and avoid contact with any source of direct heat (motors, mufflers, welding equipment, grinders, etc.)

- **Chemicals:** Protect the cargo net from exposure to harsh chemicals. Do not allow the cargo net to come in contact with any compounds containing acids or alkalines, oxidizing agents or bleaching compounds. Be especially careful to avoid contact with battery acid and acid fumes.

- **Performing underslung operations near energized apparatus:** Be extremely careful when operating a longline near energized apparatus and equipment to prevent flashover/electrical arc. In such work situations, use a clean and dry dielectric longline which has been visually inspected and electrically tested by a competent person prior to use. Never use a remote hook (electrically-activated) and remove electrical wire (or other conductive material) from your synthetic longline assembly. For qualified workers, use energized work methods, Minimum Approach Distance (MAD) industry references and appropriate personal protective equipment (PPE). All non-qualified workers should stay at least 50 feet (15 meters) from all energized apparatus. Refer to a competent person to validate work method in these situations.

⚠ WARNING ***WARNING: In accordance with industry best practice, all work near electrical apparatus and equipment should be considered energized at all times. Several forms of accidental energization can occur unpredictably through such events as lightning, static discharge, induction, generator feedback, equipment failure, dropped conductors into energized crossings, switching errors, etc.***

- **Accidental dynamic loading:** Nearly all helicopter external load work is subject to dynamic loading to some degree. Whenever a load is picked-up, stopped, moved or swung, there is an increased force due to the acceleration or dynamics of the movement. The more rapidly or suddenly such actions occur, the greater the forces.

  The cargo net is not designed to absorb the energy of an accidental dynamic loading. Accidental dynamic loading may occur when, in extreme cases, the forces sustained by the cargo net may be two, three or even more times the static load. Care must be taken to avoid this. Loads should be handled slowly and smoothly to minimize the dynamic load. If an accidental dynamic loading does occur, retire the cargo net.

  Users should also be aware that dynamic effects are greater on low elongation ropes such as Dyneema® fiber ropes, and that dynamic effects are more significant on a short longline as opposed to longer ones.

⚠ WARNING ***WARNING: "Slingshot" loading (intended dynamic loading) or dumping (releasing 2 or 3 lanyards to let go of a load) of the cargo net may cause premature failure of the cargo net and connecting hardware.***

- **Flying speed:** Adjust helicopter flying speed according to load carried. If necessary, add a weighted end-cover at the bottom end of the longline. Caged hooks and other heavy remote hardware may also help create distance from the tail rotor.

⚠ WARNING ***WARNING: The helicopter pilot should exercise extreme caution when flying with an unweighted longline. It is the pilot's responsibility to understand and control the dynamics of flying a helicopter with a weighted or unweighted longline.***

- **Unloaded cargo net:** When flying with an unloaded or very lightly loaded cargo net, the pilot must be extremely careful not to allow the cargo net and longline to fly close to the helicopter.

- **Tarpaulins:** Never use tarpaulins or liners with cargo nets, which can increase drag and could eventually fly away and/or act as a parachute and bring the cargo net close to the tail rotor (especially with empty or lightly-loaded cargo nets).

⚠ WARNING ***WARNING: When using longlines and cargo nets, there is always a risk of main or tail rotor strike if the longline, connected accessories or load fail during transport.***

- **Loose non-secured parts:** Make sure that no part of the load is loose or could loosen during flight.

- **Cargo net ditching:** When disconnecting the cargo net from the longline in flight, always do so when the cargo net is touching the ground. Dropping the cargo net from height will permanently damage the cargo net and its components and may be hazardous to ground personnel.

- **Landing:** Plan the landing zone to allow room so the helicopter will not land on the longline or cargo net.

- **High-cycle lifting:** Be extremely vigilant that every hook-up of the load is secure and that the crew does not become complacent due to the repeated nature of the work. Also be aware that the cargo net will age more rapidly and may necessitate being withdrawn from service earlier (refer to section 6 of this manual).

- **Multiple loads:** If and when permitted, extreme care should be practiced whenever multiple cargo nets (or other combinations of loads) are carried at once to avoid twisting, spinning, torsions, abrasion, friction, etc.

- **Static discharge:** Static discharge along the longline is a common occurrence, particularly in low humidity conditions. Flying dust, sand or snow can also increase static build-up. Larger helicopters as well as carrying large conductive objects (loads) will also develop more static build-up. It is a good practice to touch ground with the helicopter, longline or cargo before on-ground personnel is allowed to come in contact with the load, or to use a static discharge wand. If the ground is covered with snow, the use of a grounding rod may be necessary to ground the helicopter.

⚠ WARNING ***WARNING: Static electricity is dangerous and may cause injury or death.***

- **Personal protective equipment:** Ground personnel should always be wearing protective glasses, helmet, gloves and other required personal protective equipment specific to the task when manipulating a longline, remote hook or cargo nets.

6. INSPECTION

⚠ WARNING ***WARNING: Improper care and use of your cargo nets can result in serious injury or death. Never use these products for any other than their intended purpose.***

This document may only be used by persons who are competent in the inspection of synthetic rope and nets in accordance with the Barry recommendations found herein this manual, which is provided with each cargo net and is also available on the Barry website.

If the user notices any other fault that isn't stated in this manual and that he/she feels might compromise the mechanical integrity of the cargo net, then its use should be discontinued, and Barry should be contacted for further instructions.

6.1 INSPECTION FREQUENCY: It is important to continually monitor the condition of your cargo net by doing regular inspections.

There are three types of mandatory inspections:

- **Initial inspection** performed on a new cargo net prior to using it for the first time.
- **Pre-use inspection** performed before each use of the cargo net.
- **Formal inspection** performed at least once per year (or more frequently if deemed necessary due to intensive use, unknown use conditions, etc.).

If, for any valid reason, the user determines that the herein proposed criteria and schedule is not applicable to their specific situation, they can assume responsibility by demonstrating an acceptable equivalence through analysis and testing by a competent person.

6.2 INSPECTION CRITERIA: Cargo net inspection should be performed in a clean and well-lit place. The visual and tactile inspection should be done on the entire surface of both faces of each cargo net that is to be inspected.

It is expected that a cargo net will be left in normal service if no significant damage is identified. However, when a cargo net is considered to be damaged, in accordance with the inspection and evaluation criteria, a decision must be made to repair or retire the cargo net based on the results of inspection.

If any defect is found which can adversely affect the mechanical integrity of the product during or after inspection, it shall be removed from service, examined, repaired (if possible) and inspected before it can be returned to service.

6.2.1 IDENTIFICATION LABEL INSPECTION: The identification label must be permanently attached to the cargo net and be fully legible. Certain earlier models of Barry cargo nets have a steel ID label. These should be inspected for sharp edges or other damages.

6.2.2 TEXTILE MATERIAL INSPECTION: Every surface of mesh netting, border rope and lanyards should be inspected visually and manually for defects or damages. The following list is not exhaustive and does not exclude the possibility of other types of cargo net degradation and/or manufacturing defects.

	CARGO NET HISTORY: The cargo net's inspection record and history must be available for review.
	**NETTING MESHES CUT:** If a knotless netting mesh is cut or damaged, then this section must be repaired as per repair guidelines (see section 7.3.1 of this manual). A maximum of 6 repairs can be made to the mesh of a single net made of knotless netting, and the repaired surface must not exceed 2% of the total net surface, otherwise the cargo net must be retired from service and destroyed. A cargo net made of rope showing a torn rope joint must be retired from service and be repaired by Barry or destroyed.
	**EXCESSIVE ABRASION:** If a knotless netting strand is damaged by excessive abrasion, that section must be repaired as per repair guidelines (see section 7.3.1). A cargo net showing excessive abrasion on any mesh, border rope or rope lanyard section must be removed from service and discarded. Light external abrasion is acceptable on either the netting or the rope if no internal abrasion is observed.
	**CUT STRANDS:** Lanyards made of 12-strand rope that have cut strands should be retired from service. If the border rope has one or more partly cut strand, then this cargo net must be retired from service. If the lashing of the border rope is cut, then this cargo net should either be retired or repaired by Barry.
	**MELTING OR GLAZING:** Rope or netting showing melting or glazing caused by excessive heat, which can be the result of intensive abrasion, must be retired from service.
	**DISCOLORATION:** A change in the color of the fibers may be caused by exposure to chemicals or heat. Determine the source and if the cargo net has been in contact with damaging chemicals or heat, remove it from service.
	**COMPRESSIONS:** If the rope exhibits fiber-set due to compression, visible in the area where the rope is loaded, it often has a slight sheen on the contact area. This condition is often corrected by flexing the rope.
	**EXTERNAL AND INTERNAL ABRASION:** Picture shows example of moderate external abrasion. If moderate external abrasion and internal abrasion of the fibers are observed on the same mesh rope or border rope, then the cargo net must be retired from service.

6.2.3 SPLICE INSPECTION: Splice terminations at each end of the rope lanyards as well as on the netting border must be carefully inspected. The spliced eyes should not have opened and allow the thimbles to be easily removable. Inspect the whipping and make sure that the sewing thread is not cut.

6.2.4 HARDWARE INSPECTION: Hardware components of cargo net should not show any damage or sharp edges, any kind of permanent deformation or any corrosion.
Apex ring, hooks, metal ID tags and thimbles should be checked visually for incorrect shape, cracks, nicks, gouges, deformation, damage from chemicals and unusual wear.
Hardware components that are damaged must be replaced, if possible, or the cargo net must be retired from service.

6.3 INITIAL INSPECTION: Every cargo net, prior to being put in service, must be inspected to make sure it is complete and has not been damaged during transit between the supplier and the user.

6.3.1 INITIAL INSPECTION PROCEDURE:

- **A.** Make sure that your cargo net is as ordered (i.e. correct part number, size and working load limit), and that all parts are present and complete (lanyards, hooks, apex ring, ID tag).
- **B.** Do a visual inspection of the complete cargo net while removing it from its bag to make sure it has no apparent damages.
- **C.** Check the cargo net's ID tag and make sure it matches the info on the provided Certificate of Compliance.
- **D.** Fill the provided (or your own) inspection logbook with the cargo net's part number, serial number, date of manufacture, date of purchase and date of first use.
- **E.** Validate that the copy of the user instructions manual provided with your cargo net is the latest revision (consult the Barry website at www.barry.ca) and keep it with the cargo net.

6.4 PRE-USE INSPECTION: The pre-use visual and tactile inspection must be performed before each use of the cargo net by persons trained and/or qualified to identify damages according to this User Instructions Manual.

Use is defined as from the moment a cargo net is attached to the longline hook until the time when it is removed from the hook to terminate a continuous cycle of external load lifts. If these recommendations are not applicable due to the nature of the work being done, then the user may refer to a competent person to establish their own pre-use inspection frequency.

6.4.1 PRE-USE INSPECTION PROCEDURE:

- **A.** Make sure you have enough room to lay the cargo net on a flat and clean surface, as it should be thoroughly inspected both visually and manually over its entire surface on both faces of the net.
  Inspect the complete cargo net as per inspection criteria (section 6.2).
- **B.** If the inspection is satisfactory, and none of the retirement criteria (refer to section 6.6) are observed, then the cargo net may be used.
  If the inspection is unsatisfactory, the cargo net should not be put in service. It should be tagged accordingly and either be inspected formally (refer to section 6.5), sent to Barry for repair/refurbishing or destroyed if it appears to the inspector that it is beyond repair or meets the retirement criteria (refer to section 6.6). A note in the logbook should be made accordingly. In the case of loss or destruction, please notify Barry with the serial number identification so that Barry can update its logbook of manufactured products.

6.5 FORMAL INSPECTION: Every Barry cargo net and its documentation must be inspected at least annually by a competent person (other than the user or person who performs the pre-use inspections).

6.5.1 FORMAL INSPECTION PROCEDURE:

A. During formal inspections, the inspector should have all the significant information pertaining to the cargo net being inspected, such as:
- The manufacturer's latest product recommendations and User Instructions Manual
- Knowledge of whether a recall has been made on the product

B. Make sure you have enough room to lay the cargo net on a flat and clean surface, as it should be thoroughly inspected both visually and manually over its entire surface on both faces of the net.
Inspect the complete cargo net and accessories as per inspection criteria (section 6.2).

C. If the inspection is satisfactory, and none of the retirement criteria (refer to section 6.6) are observed, then the cargo net may be used.
If the inspection is unsatisfactory, the cargo net should not be put in service. It should be tagged accordingly, and either be sent to Barry for repair/refurbishing or destroyed if it appears to the inspector that it is beyond repair or meets the retirement criteria (refer to section 6.6). A note in the logbook should be made accordingly. In the case of loss or destruction, please notify Barry with the serial number identification so that Barry can update its logbook of manufactured products.

D. Complete the inspection form and inspection log sheet provided at the end of this manual (or use your own inspection logbook that minimally contains the inspection requirements found in this manual).

6.6 RETIREMENT CRITERIA:

When to retire your cargo net: The following is a list of general guidelines that can assist you in deciding when to retire a cargo net.

- **Age:** The cargo net has exceeded its shelf and/or service life limits.
- **Overuse:** The cargo net is simply "worn out" from use.
- **Abrasion:** Excessive external and internal abrasion is observed on mesh, border rope or rope lanyard.
- **Cut net mesh:** The knotless netting mesh surface has more than 6 cuts, or the rope netting mesh surface has at least one cut.
- **Fiber strands cut:** Lanyard rope is displaying cut strands.. Border rope has one or more partly cut strands.
- **Melting or glazing:** Caused by heat sources or intensive abrasion.
- **Dynamic loading:** Cargo net that has been subjected to accidental dynamic loading.
- **Overloading:** Cargo net that has been subjected to the kind of overload for which it was not designed, such as lifting heavy objects beyond the working load limit.
- **Chemical contamination:** Unless the chemical is specifically known to be harmless, it should be considered a contaminant.
- **Texture inconsistency:** Soft, mushy places or hard spots (localized or over an extended area).
- **Diameter inconsistency:** A visible change in diameter, localized diameter reduction, flat area, lumps and bumps in the mesh, border rope or rope lanyards.
- **Loss of confidence:** The cargo net was used by persons who you suspect may not have taken proper care of it.
- **Modifications:** The cargo net was modified or altered without the written consent of Barry.
- **Identification:** The information on the age and working load limit of the cargo net is not visible or legible anymore.

⚠ CAUTION ***IMPORTANT: A cargo net is not as valuable as human life. If for any reason you do not feel comfortable using your cargo net, retire it immediately.***

7. MAINTENANCE AND STORAGE

7.1 CLEANING: A dirty cargo net should be cleaned by hand in cold water with small amounts of mild soap only, rinsed thoroughly and then air-dried in a cool ventilated dark room. Wipe moisture from all hardware as soon as possible to prevent rusting. Do not use detergents, solvent based cleaners, bleach or bleach substitutes and do not dry the cargo net in a dryer. An excessive buildup of dirt, paint, diesel, fuel, hydraulic oil, etc. may prevent the cargo net from working properly, and in severe cases degrade the cargo net to a point where it weakens and should be removed from service. More information on cleaning is available from Barry.

7.2 STORAGE: Store the cargo net in its transport bag, in a cool, dry, clean environment out of direct sunlight. Avoid areas where chemical vapors may exist. When storing the cargo net, make sure it is not compressed. Thoroughly inspect the cargo net after extended storage.

7.3 REPAIRS: On cargo nets made with knotless netting only, damaged netting meshes can be field-repaired with the optional Helicopter Cargo Net Repair Kit available from Barry. Do not attempt to disassemble the splices of the lanyards or border rope. All other damages on rope cargo nets must only be repaired by Barry. Contact Barry if you have questions concerning the repair of your cargo nets.

7.3.1 REPAIR CRITERIA: For a repair to be possible, all of the following conditions must be met, otherwise the cargo net must be retired from service or sent back to Barry for further evaluation.

- **A.** The broken mesh strand must not be within the first 5 rows of meshes on the perimeter of the cargo net.
- **B.** A maximum of 6 repairs can be made on a cargo net.
- **C.** The repaired surface must not exceed 2% of the total net surface.

7.3.2 REPAIR GUIDELINES:

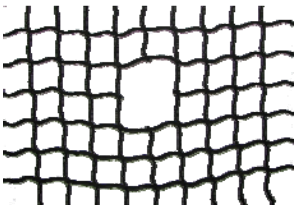
1- Make sure you have the appropriate repair kit for your specific cargo net model. Each cargo net repair kit contains the following components:

- Piece of repair knotless netting (1 unit)
- Metal crimps (1 pack of 100 units)
- Metal crimp pliers (1 unit)
- Lacing twine (1 roll)

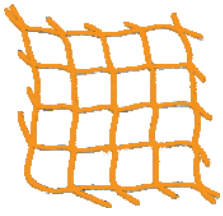
Also required, but not included in repair kit:

- Pair of scissors
- Lighter or small torch

2- Evaluate the level of damage to your net. Cut cleanly and heat seal the ends of damaged strands, in a well-ventilated area.

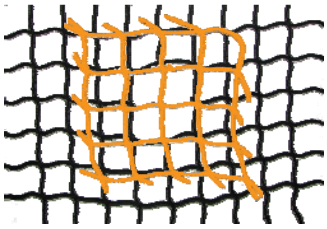


3- Cut out a patch of netting that is sufficiently large to cover the damaged section by one complete mesh around the entire area.



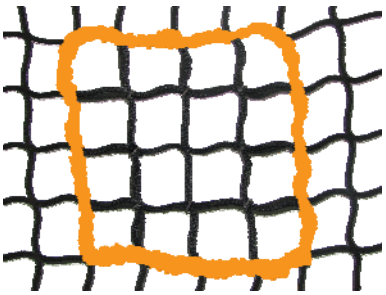
4- Fix the netting patch over the damaged area of the net with metal crimps using the metal crimp pliers. The metal crimps should be installed at each mesh joint.

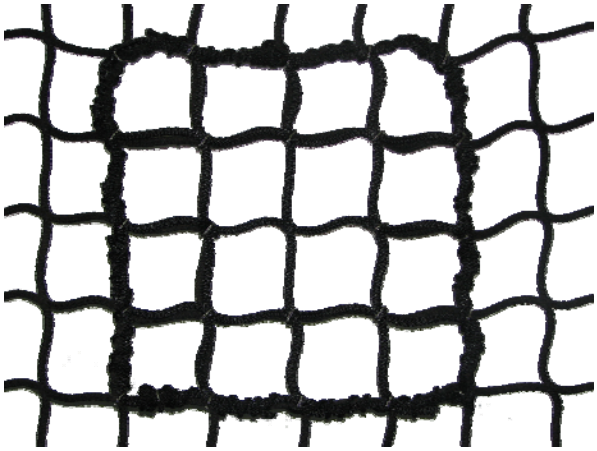
Make sure that the meshes of the repair patch and the cargo net are aligned in the same direction of braiding.



5- Secure the netting patch by circling the lacing twine around the perimeter as per images.

Make sure that it is wrapped very tight around the perimeter.
Fuse and seal all remaining ends with the lighter or small torch.





8. LIFETIME

8.1 SHELF AND SERVICE LIFE: The following best practice recommendations for Barry cargo nets apply only on the condition that regular inspections prior to each use do not reveal an anomaly. The actual lifetime depends on the intensity and the frequency of use as well as the environment. An exceptional circumstance might limit the product lifetime to a single use. A cargo net that was not formally inspected with documented results at least once per year should be removed from service and replaced, unless stated otherwise by the manufacturer after a thorough inspection and/or analysis of usage and storage. **Service life begins when the cargo net is used for the first time. Log book must be updated with date of first use. In the absence of this written information, manufacturing date must be considered as date of first use.**

	Max. shelf life	Max. service life	Max. combined life (shelf + service)
Barry cargo nets manufactured after Feb. 1st, 2020	10 years after manufacturing date	5 years	10 years
Barry cargo nets manufactured before Feb. 1st, 2020	Refer to shelf and service life info on the cargo net's ID tag		

⚠ CAUTION ***IMPORTANT: Cargo nets are considered on-condition throughout their shelf and service life and must pass inspections and maintenance recommendations found in this user manual.***

9. INCIDENT/FAILURE REPORTING

In the unfortunate situation that a Barry cargo net is involved in an incident or a failure, please notify Barry immediately so that prompt corrective measures can be taken by Barry. Product Safety Alerts are posted on the Barry website (http://www.barry.ca/center-excellence/safety-alert.htm).

Complete information concerning the incident (date, location, load quantity and type, helicopter make and model, operator information, details as to event and consequence, etc.) must be communicated to info@barry.ca and/or called in at 1-800-305-2673 and/or faxed at (514) 328-1963.

10. WARRANTY

Products made by Barry are warranted against factory defects in workmanship and materials for a period of one (1) year from date of shipment. Upon notice in writing, Barry will promptly repair or replace all defective items. Barry reserves the right to elect to have the defective item returned to its plant for inspection before making a repair or replacement. The cost of transport to deliver the product to and from Barry shall be covered by the Buyer. Warranty does not cover product damages resulting from abuse, damage in transit, normal wear and tear or other damages beyond the control of Barry. The warranty applies only to original Buyer, is the only one applicable to products made by Barry and/or under the Barry label or trademark, and is in lieu of all other warranties expressed or implied. For products made by other manufacturers and sold by Barry, only the original manufacturer's warranty shall apply.

THE FOREGOING IS BARRY'S SOLE WARRANTY, ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF FITNESS FOR PURPOSE AND MERCHANTABILITY, ARE EXCLUDED AND DISCLAIMED TO THE FULL EXTENT PERMITTED BY LAW. IN NO EVENT SHALL THE BUYER BE ENTITLED TO MORE THAN THE PRICE OF THE PURCHASED GOODS AT THAT TIME AS FINAL PENALTY AND DAMAGE. IN NO EVENT, WHETHER AS A RESULT OF CONTRACT, TORT, STRICT LIABILITY OR OTHERWISE, SHALL BARRY BE LIABLE FOR SPECIAL, INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES, INCLUDING BUT NOT LIMITED TO, LOSS OF USE, PROFIT OR REVENUE.

Notwithstanding this, and even if the recommendations and instructions are followed as per the present document, Barry makes no representation and provides no warranty, legal, contractual or otherwise, express or implied, with respect to the Barry Helicopter Cargo Nets or components. More specifically, but without limiting the generality of the foregoing, Barry makes no representation respecting the suitability or fitness of this product for any particular purpose. Use of the Barry Helicopter Cargo Nets is subject to the Barry Terms and Conditions (available at: https://www.barry.ca/termsandconditions).

Dyneema® is a trademark of DSM. Use of this trademark is prohibited unless strictly authorized.

FORMAL INSPECTION FORM
FOR HELICOPTER CARGO NETS

Model #: _____
Serial #: _____
Size: _____
WLL: _____
Manufacturer: Barry Cordage Ltd.
6110, Boul. des Grandes Prairies
Montreal, Qc, Canada H1P 1A2

User identity (company)
Name: _____
Address: _____
_____
Phone: _____
Fax: _____
E-mail: _____

Age and Service Life Information

Date of manufacture:	Date of purchase:	Date of first use (put in service):

Part A - Information Check

	Yes	No	Comment
Do you have the latest product documentation (User instructions manual)?			
Was there a recall on this product?			

Part B - Visual and Tactile Inspection

Refer to section **6.2 INSPECTION CRITERIA** of the User Instructions Manual

Part to inspect	Verify	Pass	Fail	Comment
Identification label	Must be permanently attached to cargo net, fully legible, no sharp edges (steel ID tag)			
Mesh netting	No signs of excessive abrasion, cut meshes or strands, melting, glazing, discoloration			
Rope	No signs of excessive abrasion, cut strands, melting, glazing, discoloration, compressions, external/internal abrasion			
Lashing cord	Lashing cord is not broken on net border, lashing is not loose			
Splices	Spliced eyes tight on thimbles, whipping thread not cut			
Hardware (thimbles, apex ring, hooks)	No signs of damages, sharp edges, corrosion, incorrect shape, cracks, nicks, gouges, chemical damages			

Part C - Inspection Conclusion

Refer to section **6.6 RETIREMENT CRITERIA** of the User Instructions Manual

Criteria	Verify	Pass	Fail	Criteria	Verify	Pass	Fail
Age	Shelf and/or service life limit			Overloading	Loading beyond WLL		
Overuse	Signs of overuse			Chemical contam.	Exposed to harmful chemicals		
Abrasion	Excessive external and/or any internal			Texture inconsist.	Soft, mushy or hard spots		
Cut net mesh	Max. 6 cuts on knotless mesh			Diameter inconsist.	Change in diameter of rope		
Rope fiber strands	No cut strands			Loss of confidence	Not properly taken care of		
Melting /Glazing	Caused by heat or abrasion			Modifications	Modified by other than Barry		
Dynamic loading	Accidental dynamic loading			Identification	ID tag fully legible		

Verdict: The product **is fit** to remain in service ☐ The product **is unfit** to remain in service ☐

Part D - Inspector Identification

Name: _____ Signature: _____

Company: _____ Title: _____

Date of inspection: **Date of next inspection:**

FORMAL INSPECTION LOG SHEET
FOR HELICOPTER CARGO NETS

Model #:		**User identity** (company)	
Serial #:		Name:	
Size:		Address:	
WLL:			
Manufacturer:	Barry Cordage Ltd.	Phone:	
	6110, Boul. des Grandes Prairies	Fax:	
	Montreal, Qc, Canada H1P 1A2	E-mail:	

Formal Inspection and maintenance log Note: Each log entry should have a corresponding inspection form

Inspection Date	Inspection Items Noted	Corrective Action	Maintenance Performed
Approved By:	Verdict: **Fit** ☐ **Unfit** ☐		
Approved By:	Verdict: **Fit** ☐ **Unfit** ☐		
Approved By:	Verdict: **Fit** ☐ **Unfit** ☐		
Approved By:	Verdict: **Fit** ☐ **Unfit** ☐		
Approved By:	Verdict: **Fit** ☐ **Unfit** ☐		
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