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ECONO
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TRON

HELICOPTER CARGO NET
Product Manual Rev 1

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HELICOPTER CARGO NET

Product Manual Rev 1

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LOG OF REVISIONS

REV #	REVISION DATE	REASON FOR REVISION	AFFECTED PAGES	APPROVED BY
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WARNINGS, CAUTIONS, & NOTES

The information in this manual is critical to the safe use, maintenance, and care of this equipment. Particular attention must be paid to Warnings, Cautions, and Notes presented as follows:

WARNING

AN OPERATIONAL PROCEDURE, INSTRUCTION, PRACTICE, ETC., WHICH, IF NOT CORRECTLY OBSERVED, COULD RESULT IN PERSONAL INJURY OR LOSS OF LIFE.

CAUTION

AN OPERATIONAL PROCEDURE, INSTRUCTION, PRACTICE, INFORMATION, ETC., WHICH IF NOT OBSERVED, COULD RESULT IN INJURY, DAMAGE TO OR DESTRUCTION OF EQUIPMENT, OR ENVIRONMENTAL DAMAGE.



Note: An operational procedure, instruction, practice, information, etc., which is important to emphasize or highlight. Notes will be accompanied by an “eye” icon in the left margin.



DISCLAIMER

Helicopter lifting operations inherently carry elevated risk of equipment damage, personal injury, or loss of life. It is the USER'S responsibility to ensure that the equipment used is appropriate for the operation, aircraft, and load being carried.

All personnel involved in helicopter lifting operations should be trained in helicopter operations and general rigging procedures, and must be familiar with the information in this manual.

This manual has been provided as a manufacturer's guidance for selection, use, inspection, and maintenance for Taeron Systems EconoMax helicopter cargo nets. It is not intended to be used as guidance for helicopter cargo nets from other manufacturers. Any operational comments are specific to Taeron Equipment and do not supersede any procedure, recommendation, or information in an approved Rotorcraft Flight Manual or Rotorcraft Flight Manual Supplement, regulation, or company operating procedure.

REFERENCES

The following references are provided for informational purposes. Taeron Systems assumes no liability for omissions or incorrect information in this section.

Regulatory References - Canada:

- Canada Occupational Health and Safety Regulations (SOR/86-304) - Part XIV – 14.42, 14.43
- Chapter 10 - Accident Prevention Manual for Business and Industry, 10th edition, published by the National Safety Council of the United States (1992)

Regulatory References - USA:

- OSHA Part No. 1910 "Occupational Safety and Health Standards"
- OSHA Standard No. 1910.183 "Helicopters"
- OSHA Part No: 1926 "Safety and health Regulations for Construction"
- OSHA Standard No. 1926.251 "Rigging equipment for material handling"
- OSHA Standard No. 1926.551 "Helicopters"

Regulatory References - Europe:

- EC Directive 2006/42/EC, Annex I, Part 6 (Machinery Directive)

3rd Party References & Specifications:

- ASME B30.12 – 2011 - Handling Loads Suspended from Rotorcraft

TABLE OF CONTENTS

LOG OF REVISIONS	ii
WARNINGS, CAUTIONS, & NOTES	iii
DISCLAIMER	iv
REFERENCES	iv
SECTION 1 - GENERAL INFORMATION	1
1.1 - Overview	1
1.2 - Key Figures	1
1.3 - Types of Operations.....	1
1.4 - EconoMax Net Features & Components	2
1.5 - Documentation & Tracking.....	6
1.6 - Configurations.....	7
SECTION 2 - LIMITATIONS	10
2.1 - Working Load Limit	10
2.2 - Types of Operations.....	10
2.3 - Operating Temperature	10
2.4 - Airspeed	11
SECTION 3 - NORMAL PROCEDURES	12
3.1 - Setup.....	12
3.2 - Pre-flight Inspection	12
3.3 - Loading Procedure	12
3.3 - Cleaning	13
3.4 - Storage.....	13
3.5 - Safety	13
3.6 - Stowing Technique	14
SECTION 4 - ANOMALIES & ABNORMAL OCCURRENCES	17
4.1 - Mechanical Damage	17
4.2 - High Temperature	17
4.3 - Shock Loading.....	17
4.4 - Torque Buildup.....	17
4.5 - High Voltage Environment	18
SECTION 5 - INSPECTIONS, LIFE LIMITS & RECERTIFICATION	19
5.1 - Personnel Qualifications.....	19
5.2 - Inspection Forms.....	19
5.3 - Types of Inspections.....	19
5.5 - Service Life Limit	21
SECTION 6 - LIMITED EQUIPMENT WARRANTY	23
SECTION 7 - ANOMALY REPORTING & PRODUCT FEEDBACK	25
7.1 - Anomaly Reporting	25
7.2 - Product Feedback	25
APPENDIX A - NET INSPECTION FORM	26
APPENDIX B - EQUIPMENT TECHNICAL RECORD	27

SECTION 1 - GENERAL INFORMATION

1.1 - Overview

Thank you for purchasing your Taeron Systems EconoMax helicopter cargo net. EconoMax cargo nets were developed with the following goals:

1. LOW COST
2. PROVEN - Simple and common design familiar to operators and crews
3. FIELD REPAIRABLE - Small holes can be patched with twine
4. FULL TRACEABILITY - Built with full traceability on all components
5. DOCUMENTATION - Full product documentation (COC, inspection guidance, etc)

Taeron EconoMax helicopter cargo nets are constructed of knotted twisted nylon twine with bonded fibres for abrasion resistance.

Taeron EconoMax nets were designed be a low cost alternative to our UltraLight nets made with Nylon fibre. EconoMax nets are excellent for operations where damage may be more likely and weight/bulk are not a primary concern.

1.2 - Key Figures

7:1	Minimum Safety Ratio (Load Bearing Textiles)
4:1	Minimum Safety Ratio (Hardware)
8 Years	Maximum Service Life

1.3 - Types of Operations

Taeron EconoMax helicopter cargo nets are intended for use as helicopter lifting nets during Class B external load operations only. The EconoMax cargo net should be attached to a longline of suitable length to ensure clearance from the helicopter tail rotor. Due to the risk of tail rotor entanglement, it is not recommended to fly an EconoMax net directly on the helicopter belly hook unless sufficient weight is present to maintain tail rotor safety.

WARNING

Taeron EconoMax helicopter cargo nets are NOT authorized for use for helicopter Human External Cargo (HEC Class D or Class B) operations. Use in this type of operation could result in serious injury or death.

WARNING

Never fly an unweighted EconoMax net. Flying an empty net may cause elevated risk of tail rotor entanglement. It is the pilot's responsibility to ensure loads flown do not present a hazard to the aircraft or personnel.

1.4 - EconoMax Net Features & Components

1.4.1 - Features

- Knotted bonded nylon pre-mesh netting (non-load bearing)
- 12-strand solution dyed polyester rim and lanyard rope for maximum abrasion resistance and long lasting high visibility
- Load bearing cross ropes
- Double locking snap hooks
- HD Zinc Plated primary lifting ring
- Minimum 7:1 Safety Ratio on all load bearing textile components
- Field repairable with twine. Covered by Taeron Systems' product liability insurance for aviation operations
- RFID tracking labels

1.4.2 - Components

The Taeron EconoMax helicopter cargo net is made up of the following main components:

1. Knotted Nylon Pre-Mesh Netting
2. Rim Rope
3. Cross Ropes
4. Lifting Lanyards
5. Double-locking snap hooks
6. O-Ring

A more detailed description of each main component is provided below.

1.4.3 - Knotted Nylon Pre-Mesh Netting

The knotted nylon pre-mesh netting used in Taeron EconoMax cargo nets is a low-cost, resilient material that has been used in helicopter nets, fishing equipment, and countless other netting applications. The netting is made with twisted nylon twine with bonded fibres for abrasion resistance and dyed black for maximum UV stability.

The netting in Taeron EconoMax is used for containment, and is not a primary load bearing component of the net. The load is supported by the cross ropes and must be centered on the cross ropes to realize the full Working Load Limit rating.

Nylon will lose strength through exposure to various chemicals and to UV radiation. Users must follow the use and care instructions in this manual to ensure full performance of their cargo nets.

Nylon chemical resistance is shown below in Table 1-1.

Table 1-1 - Nylon & Polyester Chemical Resistance

CHEMICAL RESISTANCE*		
Substance	Nylon	Polyester
Resistance to acids	Unsatisfactory	Satisfactory
Resistance to alkali	Unsatisfactory	Unsatisfactory
Resistance to most chemicals	Varies	Varies
Resistance to water	Satisfactory	Satisfactory
Aviation Jet A fuel (ISO 1817 test liquid F)	Satisfactory	Satisfactory
Hydraulic fluid (ISO 1817 test liquid 103)	Satisfactory	Satisfactory
Lubricating oil (ISO 1817 test liquid 101)	Satisfactory	Satisfactory
Solvents and cleaning fluid	Satisfactory	Satisfactory
De-icing fluid	Marginal	Satisfactory
Fire extinguishant	Marginal	Marginal
Caustic Soda	Marginal	Marginal
Source: Fiberbuilt Datasheet & Carlisle Solvent and Chemical Resistance Information Datasheet		



1.4.4 - Rim and Cross Ropes

EconoMax nets are constructed with structural rim and cross ropes which support the weight of the load. The rim and cross ropes are threaded through the netting and secured in place with lashing.

The cross ropes are critical structural components and must be inspected before each use for damage that could affect the net's load bearing capability.

The rim rope is constructed of single-braid 12-strand rope manufactured from a solution-dyed polyester and coated with an abrasion-resistant urethane coating to maximize protection. The polyester fibres are colourfast and resistant to fading over the lifetime of the net.

This rope provides optimal UV and weather resistance while maintaining durability and flexibility characteristics. Chemical resistance for polyester is shown in Table 1-1 above.

1.4.5 - Lifting Lanyards

EconoMax nets are constructed with corner lifting lanyards as standard. Standard lengths are 5-6 ft (1.5 m) for square nets (some variation may occur during the splicing process). Octagon nets have a two-leg lanyard which varies based on the overall net size.

Lifting lanyards are constructed of the same high performance polyester rope as the rim rope and colour coded to match the rim rope based on net Working Load Limit.

One lanyard is terminated with a forged O-Ring, into which the snap hooks lock to close the net. This is considered the "Master Lifting Lanyard".

1.4.6 - Double-Locking Snap Hooks

Standard EconoMax nets have 3 lifting lanyards terminating in a thimble and double-locking snap hook, with the fourth (master) lifting lanyard terminating in a forged O-Ring. Each snap hook takes 25% of the net Working Load limit, is individually proof tested and has a Minimum Break Strength of 5,000 lbs.

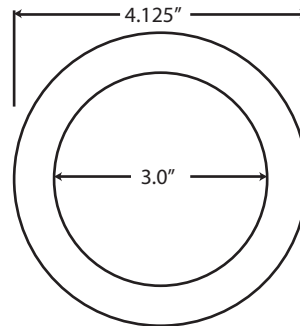
The double locking snap hook requires the user to squeeze the lock then open the gate. This can be accomplished in one action by the user with one hand, and prevents inadvertent opening. See illustration of snap hook in Fig. 1-1.

Fig. 1-1 - Double Locking Snap Hook



1.4.7 - Forged O-Ring

The Master Lifting Lanyard is terminated with a zinc plated forged alloy steel O-Ring with an Ultimate Strength of 40,000 lbs.



CAUTION

Ensure the Forged O-Ring is compatible with your remote hook to prevent "roll-out", or inadvertent release of the hook keeper. In some cases a lanyard or hardware extension may be required.

1.5 - Documentation & Tracking

1.5.1 - ID Label

Taeron EconoMax cargo nets include an RFID compatible ID label attached to the Master Lifting Lanyard under a protective heat shrink cover. The ID Label shows important information about the equipment for quick reference and traceability.

A technical record form is provided in Appendix B for tracking changes, component replacement, abnormal events, etc.

The equipment is built within a stringent quality assurance process to ensure full traceability for all components. If you have technical questions regarding your equipment please ensure the serial number of the item is available with your inquiry.

The ID label also contains quick reference information on equipment characteristics (size, Working Load Limit, etc.).

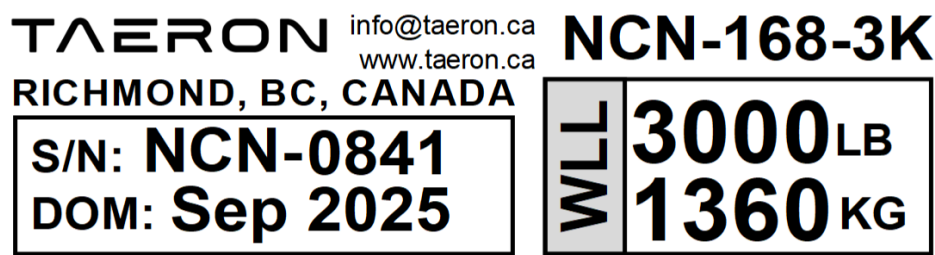
ID labels also contain a passive UHF RFID tag. This RFID tag contains a unique identifier which allows traceability within existing or future tracking systems. Please contact us for technical specifications of the RFID label.



Note: Please check the ID Label prior to the first use of the cargo net. If the information on the ID Label does not match what is expected/observed please remove the line from service and contact Taeron Systems.

If the ID label becomes damaged, goes missing, or has illegible information please contact Taeron Systems to arrange a replacement label.

Fig. 1-2 - Example ID Label



1.5.2 - Documentation

All Taeron Systems external load equipment is serialized for traceability purposes. Taeron Systems recommends maintaining a detailed history of each item through the date of purchase until retirement from service.

This record may be maintained using paper records such as that shown in Appendix B, or through a 3rd party electronic asset tracking system which maintains suitable electronic records attached to a specific asset.

At minimum, the following should be recorded as part of the technical record:

- Manufacture Date
- Date Put Into Service
- Serial Number
- Date of Inspection
- Inspection Remarks/Problems
- Inspector Signature/Initial
- Replacement of Components
- Manufacturer's Servicing

Examples of items to note in the remarks/problems section of the technical record could include the following:

- Shock loading observed by the pilot or crew,
- Exposure to chemicals or excessive abrasive material,
- Anomalies (e.g. item is landed on by the helicopter skid, or wrapped around a sharp edge under load
- Any irregularities found during inspection.
- Lifting cycles (if tracked)

1.6 - Configurations

1.6.1 - Weight Classes

To ensure the EconoMax net remains as cost-effective as possible, Taeron Systems has streamlined the available options. Other sizes/options may be available on special order - minimum quantities may apply.

The EconoMax net is currently offered in 2 standard weight class:

Intermediate: 3000 lb / 1360 kg WLL (Min 7:1 Textile Safety Ratio)

Medium: 5000 lb / 2265 kg WLL (Min 7:1 Textile Safety Ratio)

1.6.2 - Sizes

Taeron Systems endeavours to maintain stock of the following sizes of net:

WLL	16 ft (4.9 m)	18 ft (5.5 m)	20 ft (6.1 m)
3000 lb (1360 kg)	X	X	
5000 lb (2265 kg)			X

Other sizes are available on request but may require additional lead time to prepare.

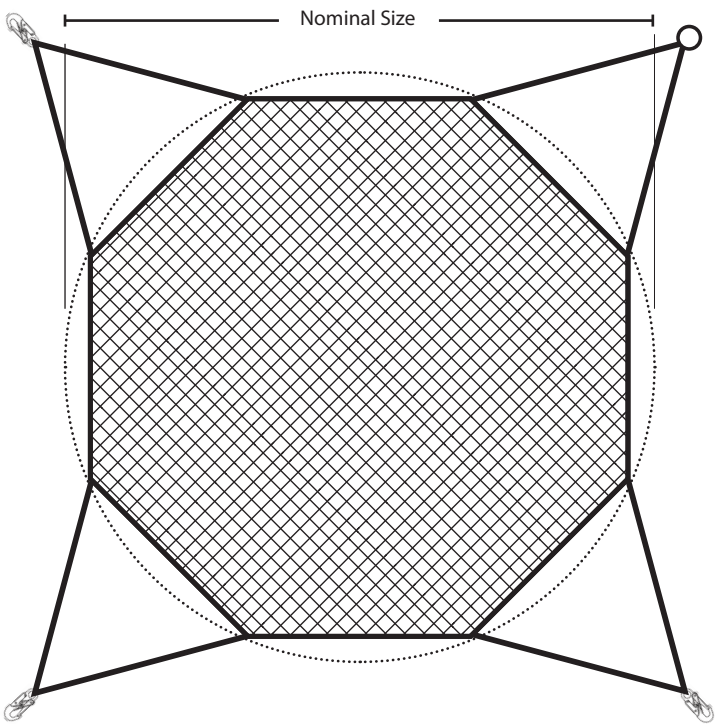


Note: Net sizes as noted on sales orders and documentation are nominal only. Final dimensions may vary by up to 10% due to manufacturing tolerances, stretch, etc.

1.6.3 - Shapes

EconoMax nets come in a 8-sided configuration as standard. See Fig. 1-3 below for an illustration of a 8-sided configuration (not to scale):

Fig. 1-3 - 8 Sided Net



1.6.4 - Mesh Size

To ensure low cost, weight, and size EconoMax nets are optimized based on assembly size, working load, fibre content, production efficiency, and other factors. For these reasons mesh sizes may vary slightly between nets.

Approximate mesh sizes are:

3000 / 5000 lb: 2.1" (53 mm) Bar Length / 4.1" (106 mm) Mesh Size

SECTION 2 - LIMITATIONS

2.1 - Working Load Limit

The Working Load Limit is the rated load for the EconoMax Net and allows the net to have adequate safety margin to account for inflight stresses, material degradation, or unknown damage.

The Working Load Limit can be found on the ID Label permanently attached to the Master Lifting Lanyard, as well as the manufacturer's Certificate of Conformance.

The design Working Load Limit is established based on the lifting a regularly shaped load of nominal size 4 ft x 4 ft (1.2 m x 1.2 m) centered on the net cross ropes. If you are lifting extremely dense, sharp, irregularly shaped, or other atypical loads that may cause localized stress on the netting, it is recommended that you distribute the loads by placing a platform in the center of the net, or reducing the load to avoid damage to the net.

Never lift more than the Working Load Limit.



When lifting a load, ground crew may pull outward on netting as load comes up to ensure full weight of load is distributed across center area of net.

2.2 - Types of Operations

Taeron EconoMax cargo nets are intended for use as helicopter lifting nets during helicopter Class B external load operations only.

The net is NOT approved for HEC operations nor is it designed or recommended for any other type of ground or marine lifting.

2.3 - Operating Temperature

Synthetic fibre experiences some degradation of breaking strength at higher temperatures. It is critical that users are aware of this characteristic and do not exceed the fibre's critical temperature.

The EconoMax net may be continuously operated in temperatures between -40°C - +65°C.

If the equipment is being operated in proximity to heat or flame (e.g. wildfire suppression, drip torching) do not allow the net to be exposed to prolonged high temperature.

2.4 - Airspeed

The EconoMax net is lightweight and can pose a risk of entanglement with the tail rotor if flown too fast. Never fly an unweighted net as the safe transit speed may be far less than the helicopter's external load V_{NE} .

WARNING

IT IS THE PILOT'S RESPONSIBILITY TO ENSURE THE HELICOPTER IS FLOWN AT A SPEED APPROPRIATE FOR THE EQUIPMENT USED AND OTHER VARIABLES. EXTREME CAUTION IS RECOMMENDED WHEN FLYING A NEW EXTERNAL LOAD EQUIPMENT CONFIGURATION FOR THE FIRST TIME.

SECTION 3 - NORMAL PROCEDURES

3.1 - Setup

Prior to loading, open the net for ease of pre-flight inspection and loading. The area should be free of snags, sharp objects, or obstacles.



If helicopters will be taking off or landing in the vicinity of the loading/unloading area, ensure that the net is weighted down so rotorwash does not blow the net into rotors/personnel.

3.2 - Pre-flight Inspection

Perform a visual and tactile inspection before each flight to ensure the equipment is fit for service. See Section 5 for inspection criteria.

3.3 - Loading Procedure

Following this loading procedure will ensure that:

- The load is evenly distributed
- Damage to the net from sharp objects is avoided
- Loose/unsecured objects are not a hazard to personnel



Loading the EconoMax net improperly may cause net failure and damage to property, injury, or death. It is the operator's responsibility to ensure the net is loaded in accordance with guidance contained in this manual and/or best practices.

It is critical that the net is in airworthy condition, the load is centered in the net, and there are no sharp/loose objects present that may be a hazard to the equipment or personnel.

1. Lay the net out in an open area free of snags, sharp objects, or other obstacles. Ensure the area allows for ground personnel movement around the load and clear flight paths for helicopter arrival/departure.
2. Ensure all items to be loaded are suitable for cargo net transport (sufficient weight/size so as to not come loose during flight, no sharp edges, within net WLL, meet Transportation of Dangerous Goods regulations, etc.). Small/light items should be placed in means of containment so as to not pose a risk of in-flight loss. Long items should be secured to other objects or transported by other means so they don't slip through the netting mesh. Load items into center of net to ensure pickup does not shift load.

4. Holding the Master Lifting Lanyard and O-Ring in one hand, clip the hooks into the O-Ring, ensuring hooks are all facing the same direction.
5. When ready to lift, attach the O-Ring to the helicopter remote hook in accordance with established company external load procedures and/or applicable regulations. Instruct the pilot to gently lift on the load to remove most slack from the lifting lanyards. Pause lift at this point.
6. Walk around load looking for any snags or loose load items. If the mesh is snagged on the load or exhibits signs of localized stress, pull outward on the mesh to attempt to clear the snag and distribute the load across all meshes. If this is not successful halt the lifting operation to remove the snag or rearrange the load.

3.3 - Cleaning

EconoMax Nets should be kept free of dust, dirt, grease, and other contaminants. If the net has been used in extremely dusty conditions or has become saturated with contaminants, cleaning is recommended.

Clean by placing in an appropriately sized container with lukewarm water and a mild detergent (e.g. dish soap) and soak. Note: Do not use cleaners containing d'Limonene (found in citrus based cleaners).

After a period of soaking, gently agitate the net to loosen dirt from fibre. Remove the net, discard water, and replace with clean water without detergent for rinsing.

Rinse to ensure fibre is completely flushed; multiple rinses may be necessary for very contaminated netting. Hang or spread out to dry, ensuring that new contaminants are not introduced through contact with floors/ground/etc.

3.4 - Storage

Store EconoMax net away from direct heating, chemicals, and batteries. Avoid storing in areas where the net may be subject to physical damage. Do not store in location exposed to UV radiation. It is recommended that the net be laid out to dry and then immediately stored in its carry bag.

3.5 - Safety

Personnel should always use appropriate PPE when performing helicopter external load operations using Taeron Systems external load equipment. Please refer to company safety manuals and/or jurisdictional occupational health and safety guidelines for minimum PPE requirements.

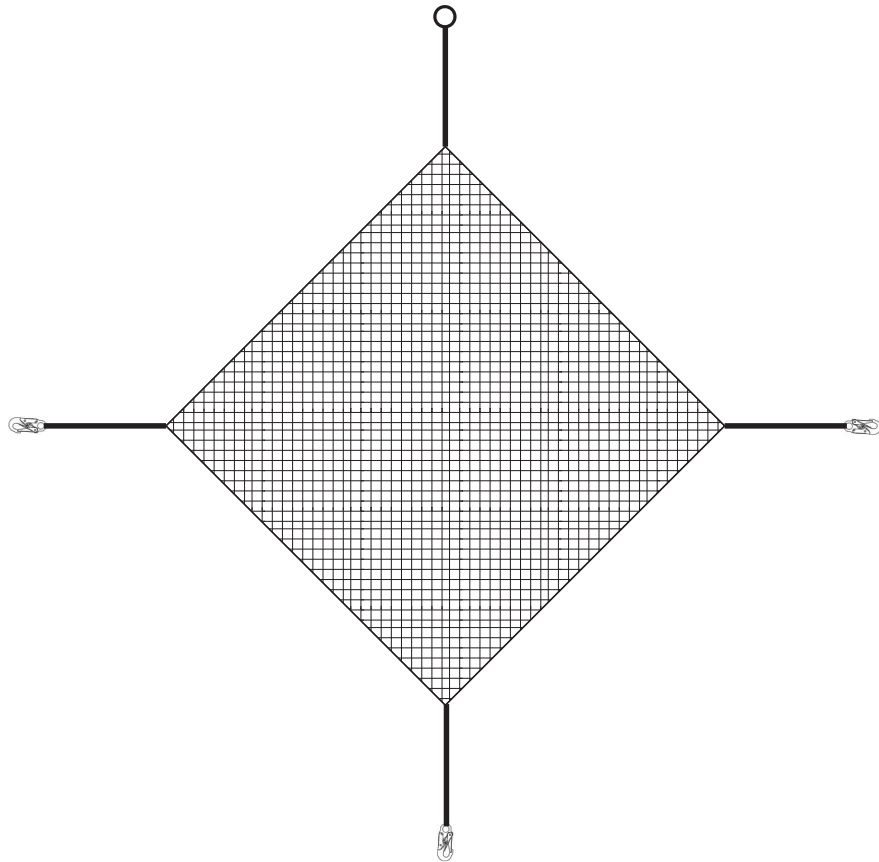
Taeron Systems recommends hearing protection, safety glasses, gloves, and steel toed boots when performing external load operations.

All personnel using helicopter external load equipment shall be properly trained in helicopter operations, external load safety, rigging techniques, and equipment specific requirements contained in this manual.

3.6 - Stowing Technique

The following technique is recommended for stowing the EconoMax net in a compact bundle which reduces the chance of loose hardware damaging the helicopter and also provides a convenient carry handle. This technique works for both 4-sided and 8-sided nets. 4 sided nets shown for clarity.

1. Spread net out on a flat surface as flat as possible.



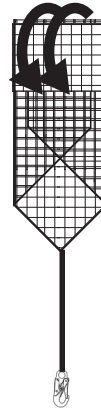
2. Pull Master Lifting Lanyard so net elongates between the Master Lanyard and opposing lanyard with snap hook. Using the other opposing set of lanyards (perpendicular to the axis of the Master Lifting Lanyard), accordion the sides (corners) of the net to overlap, laying the hooks into the centre of the bundle.



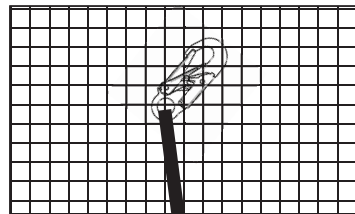
3. Fold over the Master Lifting Lanyard and top edge of net, and lay the lanyard with others with the O-ring in the centre. Stowing with all hardware in the centre of the bundle will ensure hardware does not come loose and cause damage to helicopter if stowed without carry bag.



4. Starting at the folded edge, roll the cargo net tightly toward the remaining exposed lanyard. While rolling, tuck any loose netting areas that fall outside the desired final width into bundle. This will ensure a tight, compact roll of the net.



3. Continue rolling the net tightly and continue rolling the exposed lanyard as part of the bundle. Pull the remaining lanyard tight around the bundle and clip the hook into the netting. This provides a compact, easily deployable bundle that can be carried by the lanyard as a handle or stored in the carry bag.



SECTION 4 - ANOMALIES & ABNORMAL OCCURRENCES

The following are examples of anomalies and abnormal occurrences that could damage the cargo net. If any of the following occur, perform a detailed inspection as per inspection criteria in Section 5.

4.1 - Mechanical Damage

Mechanical damage may occur in many ways, including:

- Helicopter landing on equipment
- Vehicle driving over equipment
- Netting snagging on load/obstacle during lift
- Sharp objects
- Improper use

If any of the above occur, note the occurrence in the Equipment Technical Record, remove from service, and perform an Anomaly Inspection as per Section 5.4.

4.2 - High Temperature

High temperature environments (e.g. wildfire suppression, drip torching) can expose the equipment to temperatures that may exceed the critical temperature of the rope/netting fibre. Avoid exposing the net to high temperatures by maintaining adequate distance from flames and hot surfaces. If it is suspected that the net has been exposed to high temperatures, remove from service and perform an inspection. Enter the occurrence in the cargo net Technical Record.

4.3 - Shock Loading

Shock loading occurs when the load on the equipment suddenly changes from no load or low load to high load. Shock loading may result from pilot action, a load falling, or a number of other factors.

The effects of shock loading may permanently damage rope fibre and in severe cases may cause failure at a later date while working within the Working Load Limit. Shock loading noticed by the pilot or crew should be recorded in the equipment technical record, and in severe cases the equipment should be removed from service.

4.4 - Torque Buildup

A spinning load may cause torque buildup and premature failure of a longline. This type of damage is difficult to detect during inspections and can cause premature failure of the line at low loads. The only way to completely avoid torque buildup is to use a working swivel at all times when flying loads.

4.5 - High Voltage Environment



Always use extreme caution when using the equipment near high-voltage electrical lines as arcing or discharge may occur. Consult with personnel trained in high-voltage work procedures prior to operating in a high-voltage environment to ensure work procedures will be safe.

SECTION 5 - INSPECTIONS, LIFE LIMITS & RECERTIFICATION

5.1 - Personnel Qualifications

All personnel tasked to perform inspections on external load equipment should be:

- Trained in Helicopter External Load operations
- Trained in rigging techniques
- Familiar with the applicable references provided at the front of this manual
- Familiar with the information in this manual

5.2 - Inspection Forms

An inspection form is provided in Appendix A. This form should be used to document at minimum all Type II and Type III inspections (see Types of Inspections below). All inspections should be noted in the longline technical record or equivalent. Refer to Inspection Form for specific Type I and Type II inspection requirements.

5.3 - Types of Inspections

Inspection Type	Minimum Frequency	Performed
Type I	As required	• Acceptance • Preflight • Postflight
Type II	12 Months	• Annually • Abnormal Occurrence

5.4 - Inspection & Retirement Criteria (cont'd)

No visual inspection can accurately determine residual strength of synthetic materials. Taeron EconoMax cargo nets are made from synthetic materials and are naturally subject to degradation by specific mechanisms. Environmental conditions, improper care, or operational occurrences can drastically reduce the residual strength of a cargo net.

In very remote circumstances an underslung cargo net may require removal from service due to condition after a very short in-service life, or even a single lift. Avoid using a cargo net that shows sign of aging and wear. Cargo nets should be inspected after each day of use.

Criteria	Signs	Pass/Fail Criteria
Abrasion	Each synthetic fibre contributes to netting and rope strength. When netting or rope strands are reduced by abrasion, strength is reduced. Check the cargo net ropes and mesh regularly for frayed and broken strands.	No more than 20% of original bulk abraded on ropes. On netting, continuous areas larger than 12" x 12" (30 cm x 30 cm) with more than 20% original fibre abraded.
Cut Strands / Net Bars	Netting bars or strands of rim/lanyard ropes cut through.	No more than 2 full cut strands in rim or lanyard rope. No more than 2 cut netting bars in a 3 ft (1 m) square, no more than 4 cut bars TOTAL within 4 ft. (1.2 m) of center point of net. No more than 6 cut bars on net total if further than 4 ft. (1.2 m) from center point of net.
Fraying	Cut/heat-fused ends of netting fraying	Any fraying must be stopped by heat fusing end.
Splice Slippage	Check lanyard splices and rim rope end to end splice. Loose thimbles in lanyard indicate slippage.	<1" slippage allowable. Thimbles must remain snug and contained.
Inconsistent Diameter	Localized areas of reduced or increased diameter, flat spots	None allowed
Heat	Burning or melting on any textile components, fused fibres, glassy texture.	Heat damage indicates exposure to environmental conditions exceeding temperature limits. Remove from service if evidence of heat damage detected.
Chemical	Discoloration, disintegration, petroleum/chemical smell	If any rope or netting fibre shows chemical damage, remove from service.
Knots	Knots in lifting lanyards	Remove from service if net has been loaded with knots in lifting lanyard
Cracking, dents, and corrosion	Damage (bending, cracks, dents, corrosion, etc.) on snap hooks, O-Ring, or thimbles	Any cracking, dents/corrosion pits deeper than 1/16" (1.5mm) or that impedes function
Lashing	Cut or missing lashing on edge of net	Replace any missing or cut lashing with new twine lashing

5.5 - Service Life Limit

The EconoMax is designed for a maximum service life of 8 years.

It is important to note that many factors can affect the net that may reduce its service life (damage, heat, etc.) below the maximum service life. In all cases regular inspections must be performed in accordance with the Inspection Form in Appendix A and passed to remain in service. A conservative approach to retirement is strongly recommended - early retirement may be required based on an overall combination of wear, damage, loss of life history, shock loading, etc.

5.6 - Recertification

Due to the complex interaction of components and inability to destructively test components without destroying the assembly, Taeron does not offer recertification services for cargo nets.

5.7 - Repairs & Servicing

5.7.1 - Netting Repair

EconoMax nets may be repaired with tarred or bonded #60 Nylon twine using netting industry best practice.

An excellent resource for net mending has been published by Oregon State University and is available at the following link:

<https://ir.library.oregonstate.edu/downloads/2r36tz31n>

5.7.1 - Ropes & Hardware

Repair of damaged rim and lanyard ropes and replacement of hardware by Taeron Systems is possible. In certain cases, due to age, overall condition, etc., it may not be economically viable to repair the net. To inquire about a repair, please contact us and provide the net serial number, date of manufacture, and pictures of the damaged area(s) so we can evaluate and provide an estimate prior to shipment.

Repairs must be performed by Taeron Systems or a third party authorized in writing. Taeron Systems does not assume responsibility for unauthorized repair.

SECTION 6 - LIMITED EQUIPMENT WARRANTY

Taeron Systems Inc. ("Taeron Systems") warrants that all Taeron Systems' manufactured equipment will be free of any defect in materials or workmanship for the period of (1) year. Warranty begins from the date of shipment from a Taeron Systems facility. The warranty is extended to the Buyer and applies to all Taeron Systems manufactured equipment purchased, installed, and used for the purpose for which such equipment was originally designed. For products made by other manufacturers and sold by Taeron Systems, only the manufacturer's warranty shall apply. The above warranties cover only defects arising under normal use and do not include malfunctions or failures resulting from misuse, abuse, neglect, alteration, improper storage and/or care, usage not in accordance with product instructions, acts of nature, or improper installation or repairs made by anyone other than Taeron Systems or an authorized third-party service provider. This warranty does not cover parts and/or items that are subject to wear and tear in normal use, or those items for which special warranty terms are included as part of the sale. Taeron Systems reserves the right to substitute functionally equivalent new or serviceable used parts.

Buyer understands and acknowledges that the use of the goods purchased from Taeron Systems (ether manufactured or distributed) may present a safety risk, result in injury or death, and/or present a risk of damage to property if used incorrectly. It is the responsibility of the Buyer to ensure that all products purchased from Taeron Systems or combinations thereof are suitable in condition and type for intended use. Consequently, Buyer shall comply with all applicable rules and regulations and with all use specifications and other requirements provided by Taeron Systems in any form including documents included with goods, on Taeron Systems' website, in manuals, specification sheets, Terms & Conditions, sales documentation, labels, or any other form before using the equipment or allowing use by a third party.

The Buyer shall hold harmless, indemnify and defend Taeron Systems from and against any and all claims, demands, causes of action, suits or judgments (including costs, expenses and reasonable attorney fees incurred in connection therewith) for the death or injury to any person or for loss of or damage to property arising out of or in connection with the improper use of the goods caused by Buyer's negligence and for any default hereunder. This provision shall survive the termination of this purchase. IN THE EVENT THAT THIS DISCLAIMER OF LIABILITY IS HELD BY A COURT OF COMPETENT JURISDICTION NOT TO APPLY TO BUYER, SELLER'S MAXIMUM LIABILITY TO BUYER ON ANY CLAIM IN ANY WAY CONNECTED WITH THE SALE OR USE OF ANY OF THE PRODUCTS, WHETHER LIABILITY ARISES IN CONTRACT, FROM BREACH OF WARRANTY, IN TORT OR OTHERWISE, SHALL BE LIMITED TO THE PRODUCT'S INVOICE PRICE.

WARRANTY CLAIMS AND PROCEDURES

During the applicable Limited Equipment Warranty Period outlined above, Buyer's sole and exclusive remedy for any breach of the Limited Equipment Warranty will be, at Taeron Systems' sole discretion and option, the repair or replacement of the defective product, with all transportation costs at Buyer's expense. Components that Buyer claims to be defective must be available to Taeron Systems' for inspection and evaluation. To be entitled to rights under the Limited Equipment Warranty, the customer must notify Taeron Systems in writing within thirty (30) days after discov-

ering a suspected defect in any product, but in any event prior to the expiration of the applicable Limited Equipment Warranty Period. Following its receipt of any such customer notice, Taeron Systems will determine whether the reported problem is covered by this Limited Equipment Warranty. If Taeron Systems determines that the problem is covered, Taeron Systems will authorize repair or replacement of the defective product, as deemed appropriate by Taeron Systems in its sole discretion.

EQUIPMENT WARRANTY EXCLUSIONS

Taeron Systems does not warrant or guarantee, and is not responsible for:

1. Defects, failures, damage or restrictions caused in whole or in part by (A) fires, floods, snow, ice, lightning, excessive heat or cold, highly corrosive environments, accidents, actions of third parties, or other events outside of Taeron Systems' control, or (B) Buyer or 3rd party abuse, mishandling, misuse, negligence, improper storage, servicing or operation, or unauthorized attempts to repair or alter the equipment in any way.
2. Alterations and/or Modifications to any part of the equipment, without Taeron Systems' written authorization unconditionally VOIDS the Taeron Systems Limited Equipment Warranty.
3. Equipment built to Buyer specifications that are later found not to meet Buyer needs or expectations.
4. The performance of the equipment when used in combination with equipment not purchased, specified, or approved by Taeron Systems.

LIMITATION OF LIABILITY: OTHER THAN THE LIMITED WARRANTY STATED ABOVE, TO THE EXTENT PERMITTED BY LAW, TAERON SYSTEMS DISCLAIMS ALL OTHER IMPLIED OR EXPRESS WARRANTIES, INCLUDING ALL WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR PURPOSE. THIS WARRANTY IS YOUR SOLE REMEDY AND TAERON SYSTEMS SHALL NOT BE LIABLE FOR ANY DAMAGES, WHETHER DIRECT, INDIRECT, INCIDENTAL, SPECIAL, CONSEQUENTIAL, EXEMPLARY, OR OTHERWISE, INCLUDING LOST REVENUES AND LOST PROFITS, ARISING OUT OF ANY THEORY OR RECOVERY, INCLUDING STATUTORY, CONTRACT OR TORT. NOTWITHSTANDING THE TERM OF ANY LIMITED OR IMPLIED WARRANTY, OR IN THE EVENT THAT ANY LIMITED WARRANTY FAILS OF ITS ESSENTIAL PURPOSE, IN NO EVENT WILL TAERON SYSTEMS' ENTIRE LIABILITY EXCEED THE PURCHASE PRICE OF THIS PRODUCT.

SECTION 7 - ANOMALY REPORTING & PRODUCT FEEDBACK

7.1 - Anomaly Reporting

If any Taeron Systems external load equipment is involved, or suspected to be involved, in any accident, incident or near miss please contact Taeron Systems immediately at +1-778-802-9944 or info@taeron.ca.

Please provide the following information when reporting an anomaly:

1. Occurrence Date
2. Equipment Type
3. Equipment Serial Number
4. Nature / Weight of Load
5. Type of Activity
6. Aircraft Type
7. Operating Environment
8. Equipment Purchase Date
9. Equipment History (Technical Record)
10. Pictures showing issue (if possible)

If appropriate, Taeron Systems will perform an investigation and analysis of equipment contributing factors and communicate any relevant findings, bulletins, or recalls to affected customers.

7.2 - Product Feedback

Please submit any complaints, comments, suggestions, or testimonials via e-mail to:

info@taeron.ca

APPENDIX A - NET INSPECTION FORM

Section 1 - Company Information

Company Name:	
Inspection Location:	
Inspected By:	

Section 2 - Equipment Information

Size:		S/N:	
DOM:		WLL:	

Section 3 - Initial Review

Y

N

Remarks

1. Has the equipment exceeded its service life (if applicable)?			
2. Are up-to-date manufacturer's User Manuals and/or documentation available?			
3. Is a complete and up-to-date Equipment Technical Record or equivalent usage history log available?			
4. Has the equipment been removed from service for any reason?			
5. Have there been any major repairs, modifications, or alterations to the equipment by anyone other than the manufacturer?			

Section 4 - Inspection Procedures

PASS

FAIL

Remarks

Type I	ID Label	Check to ensure ID label is present, legible, and information correct			
	Netting	Visual inspection of netting for broken strands, abrasion, chemical contamination, heat damage.			
	Ropes	Ensure no excessive abrasion, cut strands, splice slippage, or heat damage			
	Hardware	Exterior visual general condition inspection. Ensure O-Ring not oveled, no unacceptable cracks, dents, or corrosion. Check hook gate operation. Ensure thimbles are securely in rope soft eyes.			

Type II	PERFORM ALL INSPECTION STEPS IN TYPE I INSPECTION PLUS THE FOLLOWING:				
	Netting	Full visual and tactile inspection of netting for abrasion, chemical damage. Check for fraying ends of netting and missing lashing.			
	Ropes	Detailed visual and tactile inspection as per inspection criteria.			
	Overall condition	Not more than 10% of overall net area has been repaired (as counted by number of meshes).			

Section 5 - Sign Off

Inspector Name:		Signature:	
Inspection Date:		Result:	☐ RETURNED TO SERVICE ☐ REMOVED FROM SERVICE
Notes:			

APPENDIX B - EQUIPMENT TECHNICAL RECORD

Page:

_____ of _____

Page Begin Date:

Section 1 - Company Information

Company Name:	
Equipment Location:	

Section 2 - Equipment Information

Size:		S/N:	
DOM:		WLL:	
Original COC #:			
Date Entered Service:			

Section 3 - Event Log

Date	Event Type (Inspection, Anomaly, etc.)	Event Notes	Entered By: