



Donaghys Care & Usage Guide

Recommendations for
Care and Maintenance
Safety and Handling
Inspection and Retirement Criteria

For

UHMwPE 12 Strand Braids
Donaghys Winchline
Mongoose Recovery Strops

Selection

Rope selection involves the evaluation of a number of factors e.g. safety, cost, type of fittings required to carry out a job safely.

Further consideration for rope selection:-

Safety Factor

A large diameter rope will outlast a smaller one because it will be used at a lower percentage of its break strength, therefore there is less chance of the rope being overstressed and this will equate to a longer working life.

The Australian Fibre Rope Standard AS4142:1 - 1993 recommends minimum safety factors for ropes in a variety of applications. For rope slings it is 6:1 (i.e. rope subject to occasional flexing or twisting e.g. ropes in constructed articles such as slings, tow ropes etc).

Donaghys publish break load charts and other technical brochures for all products and are available to the user on request.

Working Load Percentage

When used under normal conditions the work load percentage is 20% of published tensile. This does not cover variables such as shock or sustained loads, nor with life, limb and property threatening activities. In such cases lower working loads must be used.

Safety

Safety is freedom from damage or injury to life, limb and property. Safety always centres around risk reduction which must always be considered around the conditions of use. The key to risk management is identifying the basic safe use requirements for your specific job e.g. safe working load required, appropriate splicing to line, with bearing surface protection and or steel fittings.

Abrasion

Donaghys Ocean12 & Winchline products have a very high abrasion resistant coating, however contact with sharp edges and unpolished or corroded steel surfaces should be avoided to extend the life of the line. The fitting of heavy duty Polyester tubed webbing eye protection to the bearing point is recommended, or alternatively, a metal steel thimble.

Shock loads

Shockloading must be avoided at all times. Any sudden load exceeding safe working load of the line by more than 10% is considered a shock load. The memory effect of being overloaded will be retained by the line and therefore the line may fail at a later time, even though the load is within the original tensile range.

Elongation and Backlash

Low elongation (5- 6% at break), combined with a low weight, gives a low energy storage. If the line breaks the failure is often sequential, releasing the energy in steps, further reducing the risk of backlash. Notwithstanding this, precautions should always be taken when lines are put under high strain. Never stand in direct line of any rope working under load.

Storage

Always keep lines as clean and dry as possible. Store away from heat sources and chemical contaminants, out of direct sunlight. Never store on concrete or dirt floors.

Temperature

Synthetic fibres can be damaged by heat generated through friction or the environment. Donaghys provide temperature resistances for all fibres, which vary significantly, and these should be considered in all applications. Friction generated heat can be seen in the glazed or melted fibres of the rope. Common causes can be non-rotating sheaves, ropes rubbing against themselves external heat sources or overloading. It is imperative to choose the correct fibre and construction of rope that suits the application. Contact your Donaghys representative for the appropriate advice.

Inspection and Retirement

Inspect after each use. Feel along the full length of line or grommet, removing any foreign matter penetrating the fibres or strands. Also look for broken or cut strands, excessive fibre abrasion, glossy or glazed areas, inconsistent diameter measurements and other anomalies.

Document the lines overall condition and load history to assess if retirement and replacement is required.



Visual Indicators - Example

New Rope Line in Strop form, showing original bulk and coating



Used Rope

When a rope line is first put into service, the outer filaments will quickly "feather" (fuzz up). This is a result of surface filaments breaking, this roughened surface actually forms a protective cushion and shield for the fibres below. This condition should stabilise, not progress.

If on inspection a rope line is assessed to have lost 20% of the original fibre volume, then it should be assumed that the rope line has lost 20% of its original tensile as a result of abrasion. At 25%, volume loss from abrasion the rope line should be replaced/retired.

Internal Inspection

This can be determined by pulling one strand away from the others, looking for powdered or broken fibre filaments.



Compression

When the rope exhibits fibre set from compression a slight sheen is visible, this is not a permanent condition and can be eliminated by flexing the rope.





Melting and Abrasion

Melting and abrasion are caused by excessive heat which can melt and fuse the fibres. This area is extremely stiff, unlike fibre compression this damage cannot be mitigated by flexing the rope. The melted or glazed areas must be cut out of the rope and respliced or retired.



UHMwPE Ropes with Jackets and Inspection and Retirement Criteria



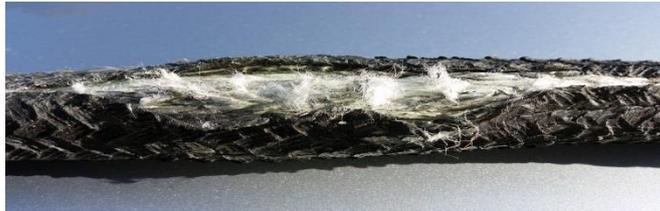
Mongoose Heavy Duty Recovery Tow Strops and UHMwPE core with Jacket Ropes are Core Dependant Lines. This means the core is the strength member and carries the total load. The jacket is an abrasion resistant cover designed to protect the core and can be of many fibres or combination of fibres; however the most economic and common is of High Tenacity Polyester.

Inspection of the jacket will provide valuable information in determining ongoing usage or retirement. The outer jacket can sustain wear and damage without compromise to the load bearing core, however if sections of jacket expose the core, via broken strands etc, careful inspection is required. If during inspection, cut strands or section of significant damage is detected then decommission the rope for suitable repairs that will continue uncompromised protection of the core. If exposed areas have allowed damage to the core, then the rope must be retired.

Mongoose Strops are protected with machine braided, urethane coated jackets and heavy eye protections. This protects the integrity of the core to ensure long life and reliable performance whilst retaining a high degree of flexibility.

IT IS RECOMMENDED YOUR STROP BE RETIRED IF:-

- Melting and Abrasion is evident on the strops body and including fused fibres, visible charring and where jacket fibres expose core and visible abrasion/damage is seen. Probable cause is exposure to excessive heat, shock or sustained load.



- Discolouration on strop body is noticeable along with fused, stiff or brittle fibres extending into the core. Probable cause is exposure to chemical contamination.



- The outer jacket can sustain wear and damage without compromise to the load bearing core, however if sections of jacket expose the core, via broken strands etc, careful inspection is required. Fusion of jacket fibres may extend to core.



- Inspection of the strops body reveals inconsistency in Diameter, Lumps/Bumps/Flat Areas with no external visible damage to jacket is probable indication of internal damage IE Shock Loaded, Broken Internal Strand/s





MONGOOSE STROP REPAIR WITH GLUED HEAT SHRINK



Step 1

Inspect, clean and prepare for repair.



Step 2

Put loose Shrink Sleeve on the strop and exert reference tension on rope.



Step 3

Whilst under tension cover damaged section* end sections with Masking tape.



Step 4

Centrally position Shrink Sleeve, heat from centre then out with Heat Gun.



Step 5

Heat Shrink sleeve one end to edge, masking tape protects fibres at ends.



Step 6

Shrink the other end until firmly shrunken onto the strop.



Step 7

The end masking tape can be removed with Stanley knife or similar.



Step 8

Final inspection of the repair, still compressed under tension. Allow Shrink to cool.



Step 9

Completed repair, the strop can be released from tension and re-used.



BACK IN ACTION



MONGOOSE FLAT NYLON BRAID REPAIR METHOD



Identify section for repair, clean and tidy to prepare.



Soak nylon braid in hot water prior to repair, wet nylon braid will shrink when dry.



Insert braid through the Mongoose strop one end of repair.



Form a loop of the nylon braid across the area to be repaired above where braid brought through the strop.



Begin tightly winding nylon braid across the repair section beginning from open loop end.



Wrap the braid to the end of the loop fully covering repair section.



Bring the end of the braid through the Mongoose strop and through the loop.



Draw the open end of the braid through the loop which pulls the loop to the centre of the whipping to lock in both ends.



This will leave some excess braid at either end of the whipping.



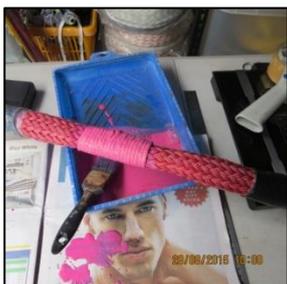
The excess braid can be neatly trimmed.



The repaired section is now left to dry. Once dry the braid will be firm on the strop and ready for coating.



Prepare for coating with Donaghys Urethane Rope Coat with a paint brush to apply.



Paint on Donaghys Rope Coat generously, and two coats overall are recommended.



Once fully dried, the strop is repaired and ready to be put back into use.