Marlow®

FAST ROPES & F.R.I.E.S CARE IN USE INSTRUCTIONS & INSPECTION MANUAL

www.marlowropes.com

SERVICING AND STORING YOUR ROPE

This document details pre and post use inspection, routine maintenance and repair.

PRODUCT DESCRIPTION

Marlow Ropes have designed and developed the original Fast Ropes as well as the FRIES multi-use product for rapid deployment and retrieval, reducing the risk to helicopters and personnel.

Each Marlow F.R.I.E.S can carry 6 fully equipped personnel with its loop and lanyard system and can also be used as a regular Fast Rope.

SPECIFICATIONS

40MM SPECIFICATIONS

MATERIAL:
Staple Nylon 6 melt spun olive drab.
CONSTRUCTION
8 strand plait
ROPE DIAMETER
40mm / 1 5/8" **(nominal)**
MINIMUM BREAK LOAD (SPLICED EYE AND MULTIFIT):
7,600 kgs (16,720 lbs)
MINIMUM BREAKLOAD (DLT)
5,100 kgs (11,200 lbs)
AVERAGE BREAK LOAD (ROPE):
11,000 kgs (24,200 lbs)
WEIGHT:
94kg / 100m (63 lbs / 100ft) measured at zero tension
SHELF LIFE:
10 years
SERVICE LIFE:
10 years

32MM SPECIFICATIONS

MATERIAL:
Spun staple Nylon in olive drab.
CONSTRUCTION
8 strand plait
ROPE DIAMETER
32mm / 1 2/5" **(nominal)**
MINIMUM BREAK LOAD (SPLICED EYE):
4,800 kgs (10,560 lbs)
MINIMUM BREAKLOAD (DLT)
3,220 kgs (7,098 lbs)
AVERAGE BREAK LOAD (ROPE):
7,380 kgs (16,236 lbs)
WEIGHT:
59kg / 100m (40 lbs / 100ft) measured at zero tension
SHELF LIFE:
10 years
SERVICE LIFE:
10 years

*** Please note: Life of the ropes will be dependent on the usage history and frequency. Fast Ropes are designed to allow up to 3 personnel at a time, including personal equipment (150kgs)**

*SHELF LIFE

The maximum shelf life from date of manufacture is 10 years. The rope should be stored before first use in the original packaging. If the rope is removed from its original packaging this date should be logged as the beginning of its service life.

After 10 years the rope should be removed from service irrelevant of its appearance.

SERVICE LIFE

Once in service, the life of Fast Ropes and the F.R.I.E.S will be dependent on the usage history and continuing satisfactory inspections. However, wear or damage can render the rope unserviceable before this time. If the rope fails an inspection for any reason given in this document the rope should be retired immediately.

TEMPORARY STORAGE

The storage on board helicopters should mimic normal storage as close as possible. The time spent stored in helicopters should be kept to a minimum. Any adverse effects caused by improper storage will decrease the service life of the rope.

STORAGE

Fast Ropes and F.R.I.E.S should be ideally stored in a dry room, out of direct sunlight and not at extreme temperatures.

- Ropes should be stored in a clean place free from dust and other foreign matter that could result in ingress of small particles which can cause inter yarn abrasion leading to strength reduction.
- Ropes should be stored away from direct sunlight. Continued exposure to Ultra-Violet light will cause a reduction of strength in Nylon over an extended period.
- High levels of humidity will have 2 negative effects. 1. A strength reduction of up to 15%. 2. The rope can shrink which reduces its flexibility making it difficult to use in operation.
- To ensure the rope isn't affected by extreme temperature the rope should be stored in ambient temperatures between -10°C and +30°C.

BEFORE AND AFTER USE

PRE USE

Before first use:

- The rope should have an initial inspection.
- The rope details, inspection dates, issues, maintenance, service life and expiry should be logged.
- The service life should be placed on the rope where possible for quick reference.

BEFORE EVERY USE

- Check that the Fast Rope or F.R.I.E.S has not exceeded its service life. If the service life has expired the rope should be removed from service. Ropes should be inspected after each use for dirt or other foreign materials.
- Examine the rope to ensure the rope remains flexible. The plaits in the rope should deform with tension and return to the original straight when relaxed.
- Check the entire length of the rope in sections for excessive marks of abrasion and cuts from foreign objects. Visually examine all strands to ensure no strand loops have developed.
- Check for dirt, oil and chemicals on the outside of the rope. Clean where necessary.

POST USE

- Cleaning the Fast Rope/F.R.I.E.S should be kept to a minimum and only performed when necessary (methods should correspond with the material to be cleaned).
- Dust and dirt can be removed with a soft brush. Oil and grease can often be spot cleaned with warm water and a detergent.
- If the rope has come into contact with salt water the rope must be rinsed thoroughly by hand in large quantities of fresh water within 24 hours.
- Ropes that are wet or damp must be air dried thoroughly before storage. This should be done by either hanging the rope from the attachment point or draping the rope above the floor over objects.
- Examine the rope to ensure the rope remains flexible. The plaits in the rope should deform with tension and return to the original straight when relaxed.
- Check the entire length of the rope in sections for excessive marks of abrasion and cuts from foreign objects.
- Visually examine all strands to ensure no strand loops have developed. Check for dirt, oil and chemicals on the outside of the rope. Clean where necessary.

DAMAGE OCCURANCE

DIRT, OIL AND CHEMICALS

Picture 1: Muddy rope should be cleaned

Issue: Dirt, oil or chemical marks. These should be removed by washing fresh water and light detergent.

HOOKED YARNS

Picture 2: Hooked yarn under 25mm

Issue: Hooked yarn (loop) under 25mm in length

Repair: Using a small blunt nose fid all loops should be worked back into the rope. Sharp nosed instruments shouldn't be used as they will cause further damage. Rope should be rechecked to ensure there is no further distortion from the pulled yarn.

Issue: Hooked yarn (loop) over 25mm in length

Repair: Cut the loop and work the ends back into the strand using a small blunt nose fid. Sharp nosed instruments shouldn't be used as they will cause further damage. Rope should be rechecked to ensure no further distortion from the pulled yarn. Up to 10 loops per rope may be repaired in this way.

END WHIPPING DAMAGED OR MISSING

Picture 3: End whipping damaged and must be replaced

Issue: End of the rope is heat sealed but whipping is damaged or missing.

Repair: Re-whip the end of the rope using 3mm Marlow 8 Plait Standard Black to a length of 150mm. Ensure the rope end is still heat sealed and not cracked.

FLUFFING AND GLAZED SECTIONS

Picture 4: Normal wear from descents

Issue: Outer surface of the rope fibres become frayed. This causes a fluffed 'fuzzy' surface on the rope. This is quite normal and the condition should stabilise.

Glazing causes the outer surface of the rope to become smooth. This is caused by excessive heat build-up and melting of the outer fibres. This should not affect more than 100mm and should only be 0.5mm thick.

Repair: There is no repair and sections should not be more than 1 x 100mm section within a 5m section of the rope.

DAMAGE OCCURANCE

MAJOR DAMAGE

If any of the issues detailed in this section have occurred, ropes should be removed from service and destroyed beyond repair.

- Manufacturer sticker or log book missing.
- More than 10 hooked yarns over 25mm height.
- Dirt, oil or chemicals which cannot be washed off.

Picture 5: Excessive wear on the rope and should be withdrawn from service

- Cut sections of yarn.
- Rope diameter decrease and does not recoil after loading.
- Heat sealed end cracked missing.
- Glazing over sections of more than 100mm

DLT (DYNALITE) TERMINATION

This rope termination is constructed from two independent loops of high strength HMPE cord. This means that there is sufficient redundancy in the termination and that it will hold the working load of the rope even with a full braid severed.

Picture 6: Cut strand on DLT termination

Any more than one strand of the HMPE braid cut completely through will require the rope be retired or re-terminated.

Picture 7: Surface abrasion of DLT termination

Abrasion that results in a complete strand being severed will require the rope to be retired or re-terminated.

Picture 8: Cut strand in eye protection

The load bearing loop in the end of the rope is protected by a polyester textile wrap. If this is damaged so that the contrasting colour HMPE is visible this should be repaired or the termination retired.

Repairs can be done by removing the damaged braid and re-applying. This should only be done by a trained personnel.

DAMAGE OCCURANCE

HEAVY WEIGHT FAST ROPE / F.R.I.E.S

Certain helicopter types may require additional weight in the rope for correct deployment. The heavy weight fast rope meets this requirement through the addition of a string of beaded lead contained within the strands of the rope. This string is contained within a braid that forms the core of the strand.

In addition to the normal inspection criteria there is the possibility of this lead becoming visible at the surface of the rope.

This can be repaired by either manipulating the lead back into the strand or in the case of a loop, cutting the white polyester string at the point where it exits the inner braid.

DAMAGE OCCURANCE

F.R.I.E.S ROPE

The F.R.I.E.S rope has additional loops spliced in at the lower end of the Fast Rope for extracting personnel and equipment. These loops are made from 8 strand Nylon (polyamide) and have an abrasion resistant PU impregnation.

The minimum strength of these loops is 1.5 tonnes (metric).

Picture 10: FRIES extraction loop pair.

Picture 11: Normal surface abrasion on extraction loop.

Picture 12: Severe wear of extraction loop.

If the extraction loops become worn such that the strands of the rope are not easily distinguished as shown in picture 12 then the loop must be retired and cut from the main rope to prevent use.

Picture 13: Cut strand in FRIES loop.

If one or more strands of the extraction loop are cut then the loop must be retired and cut from the main rope to prevent use.

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