Kingfisher Lighting

High Mast Operation & Maintenance Guide

kingfisherlighting.com

Raise & Lower High Mast Lighting System

PART OF THE LUCECO plc GROUP OF COMPANIES

Kingfisher Lighting

Contents

1.1 Definitions

» Cable:
Insulated electricity supply conductors.

» Carriage:
The supporting medium on which fittings are raised and lowered.

» Docking:
A term used to describe the correct (home) positioning of a carriage at the top of a mast.

» Flange Plate:
A structural welded plate at the base of a mast to provide a connection to the foundation bolts.

» Head Frame Assembly:
The part at the top of the mast used to support the pulleys, guides, stops, docking or any other supporting limiting device or combination.

» Mast:
A steel mast supporting fittings.

» Power Tool:
A device used to raise and lower the carriage via the winch.

» Power Tool Stand:
A device used to hold the power tool in place for the raising and lowering of the carriage.

» Security Connector:
A rope or chain used to contain other supporting ropes in the event of the rope from a single drum winch failing.

» Torque Limiting Device:
A device used to limit the tension and prevent overstretching of wire ropes and to prevent over exertion of the winch.

» Wire Rope:
A flexible cord of twisted steel strands used to support the carriage.

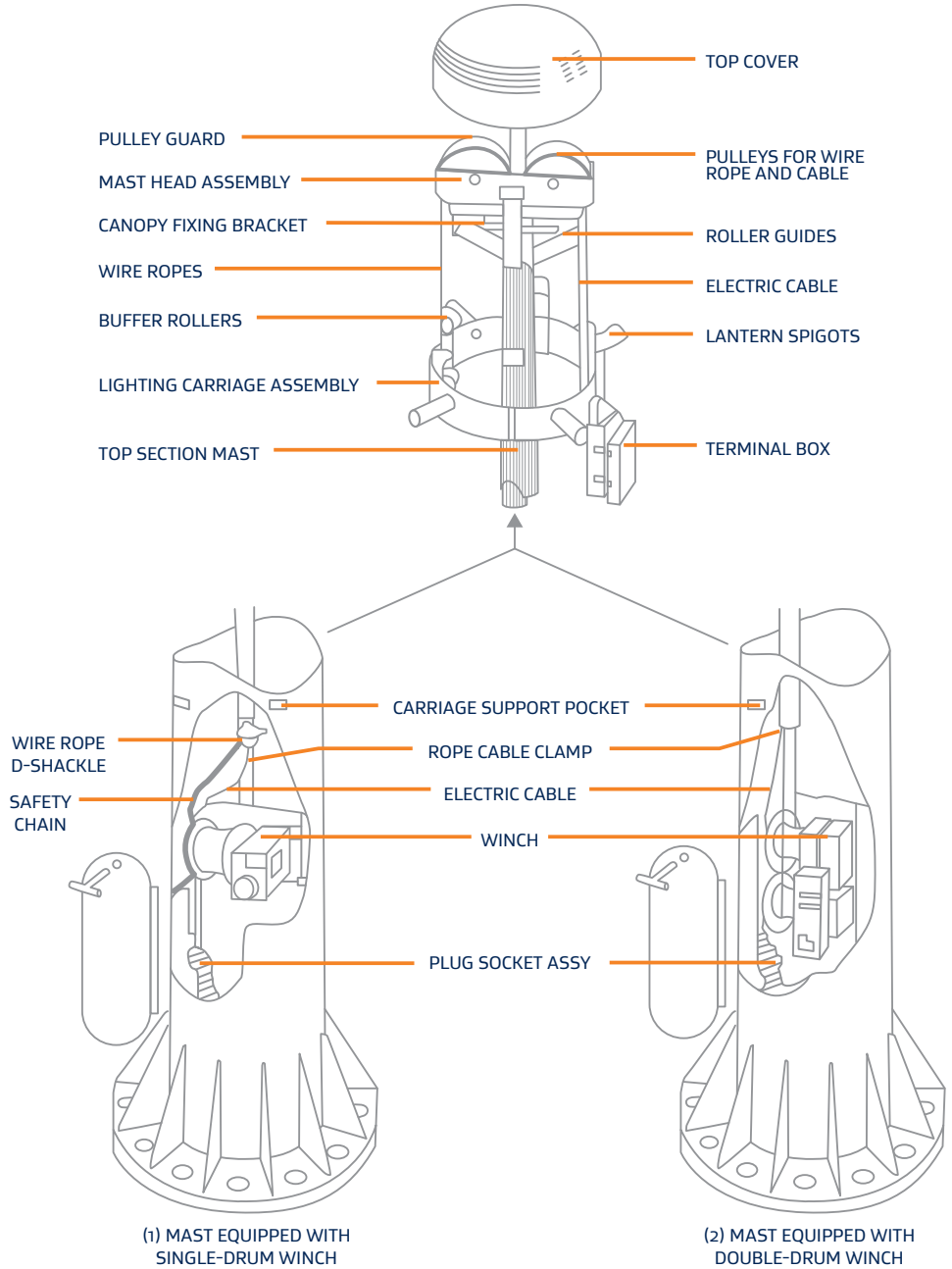
» Winch:
A geared device giving a mechanical advantage to raise and lower the fittings carriage.

» Winding Handle:
A manual winding handle supplied with the system for initial and small adjustments.

1.2 Scope

This manual covers the safety procedures and requirements of operation, visual and mechanical inspection, inspection schedules and testing of a raising and lowering mobile carriage for high mast lighting systems.

The electrical system as a whole or in part is not included in this manual with the exception of the main feed electrical cable being distributed to the floodlights.



2.1 Method of Operation

2.1.1 Safety Procedures and Considerations:

Safe working practice shall be followed at all times set out in the guidelines below. Prior to commencement of any inspection or maintenance work being carried out, a general visual inspection of the mast and its components shall be made by competent and adequately trained personnel ensuring that no obvious signs of damage or fatigue are visible. Safe working loads shall be adhered to and no additional loads to the carriage shall be applied prior to written consent and confirmation from the manufacturer.

2.1.2 General Operation:

A After a visual and general inspection of the integrity of the system, remove the door cover from the door opening of the mast and visually inspect the integrity of the winch and associated connections. All connections should be free from fraying and fatigue with no obvious signs of damage.

B Remove the security connector, if fitted. (D-Shackle constraining the wire rope Figure-1). Isolate the electrical supply on the control box and disconnect the multi-way connector.

C Lift the Gravity Catch catch in a clockwise direction to free the catch from the winch input shaft. (Figure 1).

D Attach the manual winding handle and check for disengagement of winch locking device (Gravity Catch Figure 1) and reduce tension on the suspension ropes.

Figure 1

2.1.2 General Operation (Continued):

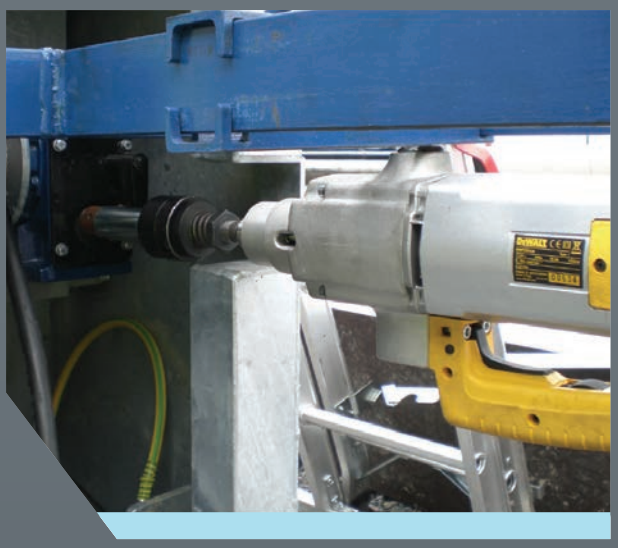
E Remove winding handle and ensure winch locking device restores to the safe position.

F Insert the carriage stands into the welded lugs on the sides of the mast.

G Check that the power tool is operating in the correct direction for raising or lowering.

H Assemble the power tool holding stand and the power tool into the door frame of the mast as shown opposite.

Ensure that the torque limiting device is securely onto the input shaft of the winch prior to operation and the holding stand is secure in the door opening.



I Take the remote of the power tool and stand back to a safe working distance of 2 metres minimum. Use the remote non-latching button to raise or lower the carriage.

NOTE! Whilst the carriage is in motion, continuously check that the carriage and all components are not catching or snagging in any areas. Particular attention should be made to the electrical cable clamping block, D-shackle and 7-pin plug upon lowering.

Any catching or snagging should be detectable by:

- The wire ropes on the drum of the winch becoming loose and untidy whilst lowering the system.
- The power tool becoming strained and the torque limiting device in a constant ratchet during raising.

2.1.2 General Operation (Continued):

J Lower the lantern carriage until the weight is supported by the carriage stands, as shown below.

NOTE! DO NOT attempt to lower the lantern carriage any further than this point, otherwise damage may occur.

K When the carriage is raised and close to the docking position remove the power tool drive and stand ensuring the winch locking device engages into position.

L Hand wind using the handle supplied until the carriage 'docks' into position.

NOTE! When raising the carriage, DO NOT dock using the power tool drive.

M Replace security connector.

N Remove electrical extension lead if required and re-connect main supply. Remove and store the carriage stands.

2.2 Winches & Mechanics

2.2.1 Winch General

Each mast is provided with a single or double drum winch suitable for the following duties:

A: Raising and lowering of the lighting carriage.

B: Supporting the lighting carriage in the docked and raised position in permanent suspension.

C: Raising and lowering the lighting equipment at the stated working loads.

2.2.2 Safe Working Load

The safe working load of the carriage and the system have been designed to 350kg maximum for the single and 700kg for the double drum winch system.

2.2.3 Drive and Speed of Operation

The winch is suitable for hand and power operation.

The maximum speed for use with a power tool and torque limiting device shall not exceed manufacturers specifications.

2.2.4 Security Against Runaway

The winch supplied is of a self-sustaining type and with a gearing ratio of 50:1. The winch is entirely self-sustaining under all normal working operation.

Whilst the carriage is in an 'In-Service' position, the drive shaft locking device (Gravity Catch) shall remain engaged onto the winch input shaft at all times.

2.2.5 Winch Gearbox Servicing

The winch gearbox provided has a life expectancy of 12000 hours.

Due to the designed service requirement for the gearbox, it is considered sealed for life for the lifetime of the system and no oil changes are required.

2.2.6 Wire Ropes

The wire ropes are of flexible stranded stainless steel with a Safe Working load of 400kg and a safety factor of 5.

2.2.7 Head Frame Assembly

The head frame assembly is designed and constructed for operation over the lifetime of the system without the necessity for maintenance attention. All steel components are protected by hot dip galvanising. The pulley wheels consist of corrosion resistant material and are fitted with maintenance free bearings. Although the head frame assembly is designed in such a manner, it is advised that a bi-annual check is made on the head.

2.2.8 Power Tool & Torque Limiting Device

The Power Tool has a non-latching remote switch with an extension. It has a forward and reverse switch at multiple speeds. The torque limiting device has been pre-set to suit the application.

For further information on operation of the Power Tool, please refer to the power tool manual provided.

2.2.9 Testing

To enable testing of the lighting with the carriage of the system being at ground level, the use of the test lead will be required unless the system is a double disconnect system.

Prior to lowering the carriage, disconnect the plug and socket in the base of the mast and replace the socket with the socket of the test lead. Lower the carriage as described in the general operation section (Pages 5 – 7). Once the carriage is in the lowered position, (Figure 2.1) carry out the testing procedure as required.

Manufactured and supplied by:

Kingfisher Lighting

Ratcher Way
Crown Farm Business Park
Mansfield
Nottinghamshire
NG19 0FS
UK
T: +44 (0)1623 415 900
F: +44 (0)1623 415 910
E: sales@kingfisherlighting.com

kingfisherlighting.com

PART OF THE
LUCECO plc
GROUP OF COMPANIES