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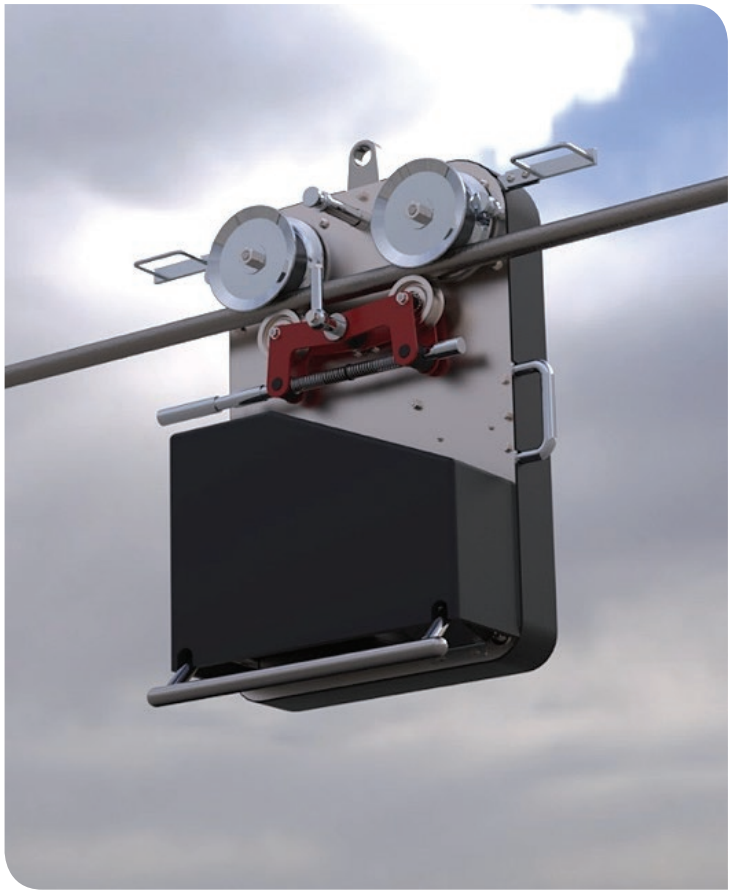


MULTI FUNCTION CABLE ROBOT (MFCRL) LARGE

OPERATION AND MAINTENANCE MANUAL

⚠ ATTENTION

DO NOT perform any service or maintenance on this tool other than described in this manual.

Read and follow the operator's manual before using this tool.

This manual should be kept available to all operating and maintenance personnel.

CONTENTS

1. IDENTIFICATION

IDENTIFICATION DATA

Manufacturer: Slingco Ltd

Product: MFCRL Tug Unit

MANUFACTURER

Slingco Ltd,
Gateway Business Park,
New Hall Hey Road,
Rawtenstall,
BB4 6JG.

TECHNICAL REMARKS SPECIFIC TO THIS OPERATING MANUAL

Version / Revision: 2021-02

Issue date: August 2021

2. USER INFORMATION

2.1. ABOUT THIS OPERATING MANUAL

The present operating manual informs about:

- Handling of the MFCR in accordance with safety requirements.
- Description of function, operation and maintenance of the MFCR.

The operating manual must always be available. It is part of the supply of the MFCR and must be handed over with the sale of the item. Slingco Ltd will not be responsible for any direct or indirect losses as a result through misuse of the MFCR.

Target group of this operating manual

Every person working with the MFCR must read and apply the procedures and safety measures described in the operating manual. This applies especially to persons performing the following tasks:

- Operation.
- Inspection, maintenance.
- Transport.

2.2. REPRESENTATION OF SAFETY NOTICES

Safety and warning notices are marked with a pictogram and a signal word. Signal words describe the seriousness of the imminent risk.

	**CAUTION**	**Warning "CAUTION"** Dangerous situation which can lead to minor injuries if the warning is not observed.

3. BASIC SAFETY INSTRUCTIONS

	**NOTE**	**Warning “NOTE”** Not observing this warning can lead to property damage.

Warning symbol for specific risk

	Risk of hand injury

3.1. INTENDED USE

The MFCR is exclusively intended for passing along existing earth wire and conductors as part of an OHL network. In certain circumstances they may be used in the proximity of live circuits and thus any local work practices/regulations must be adhered to.

Usage according to the intended use also comprises:

- Observance of all indications in this operating manual,
- Exclusive use of original parts.

3.2. REASONABLY FORESEEABLE MISUSE

Any use other than one stated under “intended use” or a use that goes beyond the defined use is considered to be improper.

For damages caused by improper use:

- The operating company is solely responsible.
- The manufacturer accepts no liability whatsoever.

WARNING
Risks can develop as a result of improper use and lead to death or severe injuries. Improper use compromises, among others:

- Exceeding technical values defined for normal mode.
- Not closing the safety gate
- Not applying the tensioning system

Conversions or modifications

In case of unauthorised conversions or modifications of the MFCR, the manufacturer liability and guarantee will be void.

Therefore, do not modify or make additions to the MFCR without consulting the manufacturer or getting his written agreement.

Spare parts and auxiliaries

Using spare parts of third parties can lead to risks. Only use original parts or parts approved by the manufacturer.

3.3. DANGERS WHEN HANDLING THE MFCR

When using the MFCR, risks and impairments can occur.

- For life and limb of operators or third persons.
- For the MFCR or other material.

A prerequisite for the safe handling and trouble-free operation of this unit is the knowledge of the basic safety instructions and operating instructions in this manual.

HAVE THE OPERATING MANUAL READY

Always keep the operating manual at the place of use of the MFCR. The operating manual must be accessible to all persons working with the MFCR.

3.4 DUTY OF THE OPERATING COMPANY

It is the duty of the operating company not to let any person work at the MFCR except those who:

- Know the basic regulations specific to occupational safety and accident prevention.
- Have been briefed successfully as to work performed by the MFCR.
- Fully understand this operating manual.

3.5. DUTY OF THE STAFF

All personnel entrusted with work at the MFCR must read and understand this operating manual completely prior to the start of any work.

- The MFCR can be used only by instructed personnel authorised by the operating company.
- Personnel still undergoing training, in the preparation phase or still being instructed may work at the MFCR only under the supervision of an experienced person.
- Only trained personnel may perform maintenance work and servicing on the MFCR.
- The operator must immediately report faults and damages noticed at the MFCR to the operating company.

Open questions must be directed to the manufacturer. Address on section 1.

3.6. PERSONAL PROTECTIVE EQUIPMENT

For using the MFCR, the operating company must make available the following personal protective equipment:

- Protective gloves.

4. DESCRIPTION

This chapter gives a complete overview of the MFCR design and function.

4.1. FEATURES

The MFCR unit is used to travel along a conductor and tow or push accessories along the conductor. The MFCR is manufactured as follows: -

a) Electrically driven using a rechargeable replaceable battery

b) Radio controlled to engage forward and reverse mode

c) Rubber lined drive wheels to provide traction on the conductor

d) Spring applied tensioning wheel system

e) Recovery mechanism that de-energises motor in the event of MFCR malfunction, applicable at either end of the MFCR

f) E stop safety button

g) Constant speed 3kph with built in slow start

h) Safety guards fitted around moving parts where appropriate

i) Quick release mechanical safety gate encapsulating the conductor

4.2. FUNCTION DESCRIPTION

MFCR on the conductor: Deployment

The schematic diagram below shows the MFCR used for the deployment of an inspection device .

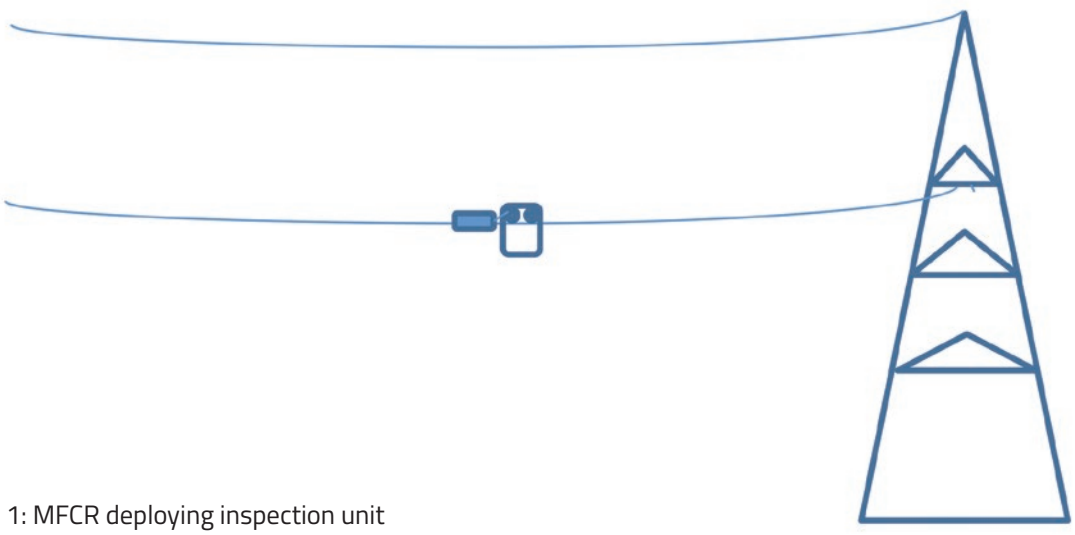
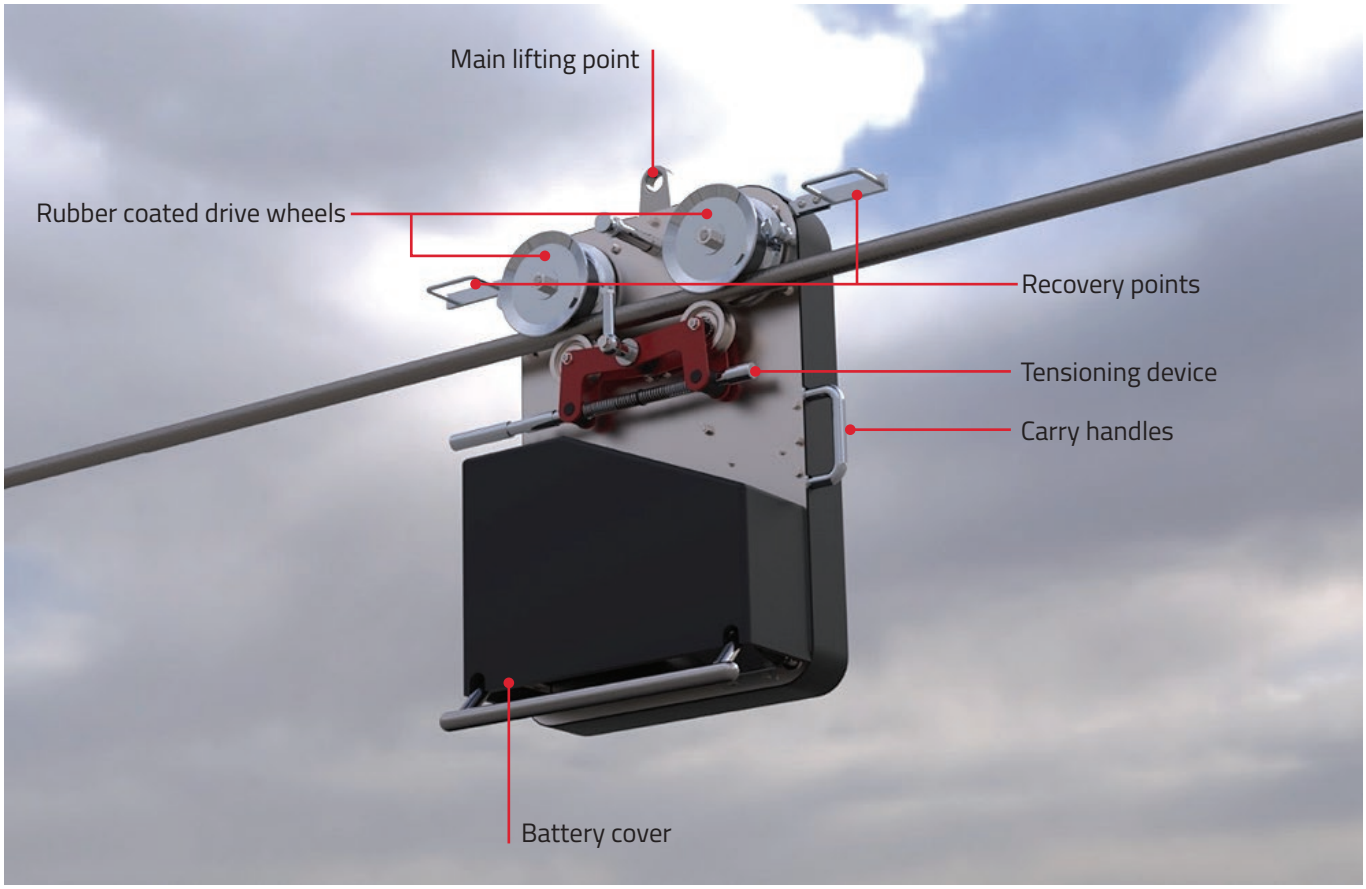


Figure 1: MFCR deploying inspection unit

4. DESCRIPTION (continued)

4.3. BUILD-UP OF THE MFCR

The figure below shows the main components.



4.4. TECHNICAL DATA

Mechanical data	
Dimensions (length x width x height)	Approx. 80 x 50 x 30 cm
Weight	31kg inc. battery (3kg)
Materials	
Frame	Aluminium
Roller	Rubber (68 Shore)
Electrics	
EMC Testing	2004/104/EEC
Rechargeable battery	18V . 12 Ah
Lodar Radio Control	433.920MHz

4. DESCRIPTION (continued)

4.5. UTILISATION

The MFCR has multi uses for the purposes of travelling along a cable/conductor ranging in Ø 14-42mm. It can also traverse over existing repair sleeves or mid-span connectors up to Ø 54mm. The drive is provided by a small brushed electric motor driving two rubber coated wheels. Upward pressure is applied by two tensioning wheels that are connected to a sprung loaded arm.

The rechargeable and replaceable battery is located behind a small guard for protection, the guard is held in place by anti-vibration quick release fasteners

5. TRANSPORT

During transport, protect the MFCR against mechanical damages by placing in the bespoke transport box and cushioning packaging material.

DURING TRANSPORT REMOVE AND RECHARGE BATTERY

6. HANDLING AND OPERATION

6.1. USING THE LODAR RADIO CONTROL

The receiver is mounted on the main chassis behind the front cover. To connect the radio control system:

- Connect battery into docking station and replace the front cover
- Check the “E STOP” button has not been depressed, if so twist and release
- Turn battery Isolator to ON
- Red lights will be illuminated on the receiver
- Press the Green 1 button on the transmitter, red LED will flash
  NOTE : after 30mins of inactivity the transmitter will AUTO POWER DOWN
- To operate MFCR press either “FWD” or “REV” and release.
- To stop MFCR press either “FWD” or “REV” again and release.
- To turn off the transmitter press the red “0” button.

6.2. INSTALLING THE MFCR ONTO A CONDUCTOR

WARNING

Incorrect use of the MFCR can cause injuries and damages.

- Do not use if any part is damaged
- Ensure there is sufficient rubber coating on both drive wheels.
- Observe the instructions specific to the intended use in this instruction manual.

CAUTION

Movable frame.

Fingers or hands can be crushed when the mounting the MFCR onto the conductor, avoid places hands near any of the wheels.

- Wear gloves

Pre-launch checks:

1. Check condition of the rubber coating on the drive wheels
2. Take a fully charge battery and connect into battery dock
3. Turn on battery isolator
4. Check red light is visible on radio receiver
5. Press “On” button on radio control transmitter
6. Press “FWD” and observe wheels rotate
7. Press “FWD” again and observe wheels stop
8. Repeat 6 & 7 for “REV”
9. Press E stop and check radio receiver lights turn off
10. Check security gate operation and wheel pressure wheel tension device is free

6. HANDLING AND OPERATION (continued)

Installing the MFCR onto the conductor:

1. Hoist/lift conductor to the conductor using the designated lifting point
2. Open security gate and land the rubber wheels onto the conductor
3. Close the security gate
4. Apply tension wheels onto the conductor
5. Check recovery device is mounted on the front
6. Attach product to be towed to the rear mounted towing point
7. Switch on battery isolator and check lights are illuminated on the radio receiver
8. Signal to operator to take control of the MFCR
9. Press “FWD OR REV” and operate MFCR, press “FWD OR REV” to stop the motion of the MFCR

MFCR Malfunction:

1) In the event of a MFCR malfunction there are two possible methods of recovery:

a) The ropes that are secured on the rear of the MFCR can be retrieved back to the launch tower thus pulling the MFCR back to its original position, where it can be repaired.

b) If the MFCR is approaching the destination tower a recovery unit can be sent along the same conductor towards the MFCR. A rope is secured to the rear of the recovery unit so that can be used to pull the MFCR along once the recovery unit has latched the two units together.

6. HANDLING AND OPERATION (continued)

Battery installation and removal:

1. The MFCR is fitted with a 12Ah Li Ion battery
2. The battery is tethered to the carabiner mounted onto the chassis
3. To remove the battery:
    a. First remove the RH side of the front cover.
    b. Unclip the battery and slide out of the battery dock
    c. Tether the battery to a rope and unclip from the carabiner
4. To install a replacement battery
    a. Check battery fuel gauge by depressing the button
    b. Tether the battery to the carabiner
    c. Slide the battery into the battery dock
    d. Re-fit RH side fastener and secure front cover

7. MAINTENANCE

The MFCR is designed to be low maintenance however some parts will need checking and periodic replacement. The following should be a minimum maintenance schedule:

Daily

- Check and charge MFCR battery
- Check wear on rubber drive wheels
- Check operation of safety gate
- Check operation of isolator switch

Monthly

- Remove rear cover and inspect timing belt condition and tension – adjust as appropriate
- Check wear on rubber drive wheels – replace as appropriate
- Check condition of al electrical cables
- Check condition and free rotation of tension wheels

Annually

- Remove front and rear cover, inspect and remove timing belt - replace as appropriate
- Check timing pulleys
- Check bearings in all locations
- Remove grey electrical enclosure cover and check condition of wiring

8. SPARE AND WEAR PARTS

Spare parts are available from Slingco Ltd, Gateway Business Park,New Hall Hey Road, Rawtenstall, BB4 6JG.

9. DECOMMISSIONING

9.1. STORING CONDITIONS

The MFCR should be stored in the stillage provided. The MFCR should be stored in a dry environment with the battery removed. An annual service will ensure the MFCR is maintained in readiness for the next season.

9.2. DISPOSAL/RECYCLING

The MFCR component parts can be disposed of with the appropriate organisations in accordance with current regulations. Observe local laws and regulations.

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