# REDCOP

# CCTV

# TOWER

## User Manual

**RedCop CCTV Tower**

**This Guide covers these products:**

**RedCop CCTV Tower**

Proud UK Design and Manufacture-----UK Service and Support

## DOCUMENT APPROVAL

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| Date: 04/07/2022 | Date: |

## DOCUMENT ISSUE RECORD

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| Revision 3 | | |

Previous issues of this document are to be destroyed or marked as **Superseded.**
This document will be re-issued in its entirety following amendment.

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## TABLE OF FIGURES

# 1. INTRODUCTION

Thank you for purchasing this RedCop CCTV tower. By observing the contents of this manual, we hope the machine gives safe and productive service. This user manual is intended for the operator to operate this machine safely and effectively. This is not a comprehensive service manual.

This machine has been through a pre-delivery inspection before leaving Redvision CCTV Ltd and is ready to use.

**Before use and as a minimum, the safety and machine operation sections must be read and understood. Failure to do so could result in serious injury or loss of life to the operator and others nearby**. Also, damage to property and this machine may occur. Please observe and obey all warning signs (decals) located on the machine.

All personnel working with this machine must be adequately trained in its use and most importantly, follow the advice on safe working practices.

Redvision CCTV Ltd endeavours to continuously develop and improve its products. It reserves the right to make changes at any time, without notice or incurring any obligation.

Continuous improvement will affect machine design and production so there may be minor discrepancies between the actual product and this manual.

This manual must remain with the machine for reference by operators and includes hiring or if the machine is resold.

# 2. SAFETY PRECAUTIONS

**WARNING!**

**Ensure safety precautions and operation instructions are always followed. Only Use the equipment as intended and described in this manual.**

## 2.1 BATTERY SAFETY

**WARNING!**

**The equipment contains secondary Lithium polymer batteries, the equipment must be disposed of in accordance with WEE directives, either by returning the complete equipment to Redvision CCTV Ltd or an electrical waste recycling facility.**

## 2.2 FUEL CELL SAFETY

**WARNING!**

**The equipment contains a Hymera Hydrogen Fuel Cell which must be operated in accordance with the manufacturer's User Guide.**

## 2.3 EQUIPMENT CONDITIONS

**WARNING!**

**If excessive wear and/or damage is found to the equipment and/or cables, do not use the equipment until the fault(s) have been rectified. The equipment contains no user replaceable parts.**

It is recommended that the equipment is inspected during setup, and periodically if left in situ for extended periods. Excessive wear to parts, or damage, should be addressed before use.

## 2.4 SAFE WORKING

**WARNING!**

Before using this machine, make sure that you are trained and fluent in its operation. Know the location of and how to use all the safety features. Know how to control raising and lowering the mast, powering down and isolating the machine if required. Be familiar with the hazards and safe working practices to prevent injury and damage to property and machine. Ensure appropriate working from height procedures are following with fall arrest system and/or safety barrier in place.

1. The minimum age for service personnel is 18 years. Personnel aged 16 can use the machine for training under supervision by a suitably trained person of 18 years or over.
2. Operators and personnel working with this machine must not be under the influence of alcohol, drugs or medication that would impair judgement, concentration, or reaction times. Excessive tiredness is also a risk.
3. Maintain an exclusion zone around the machine and clearly mark if in a public area.
4. Make sure the machine is on even, level, and stable ground and cannot move or topple when in use. Use packers and or surface protectors under the feet if necessary.
5. Keep children and animals well away from the working area.
6. Carefully site the machine so operators can work furthest from any local danger. For example, on a roadside, place the machine so operators work on the verge and not in the road exposed to traffic.

# 3. SPECIFICATION

| | |
|---|---|
| Width | 1112 mm<br>1514 mm with side wheels |
| Cabinet Height | 914 mm |
| Tower Height (Lowered) | 2150 mm |
| Depth | 1100 mm |
| Weight (Standard configuration) | 450kg |

## 3.1 POWER SUPPLY INPUT

Operating supply voltage: 240VAC (90VAC to 264VAC), 10A Max.

Fuse Rating: Observe fuse rating with manufacturer's approved parts.

## 3.2 BATTERIES

**CAUTION!**

**Only replace batteries with supplier approved parts. Risk of fire could occur fitting a battery of the wrong type.**

## 3.3 APPLICABLE STANDARDS AND APPROVALS

The apparatus is CE marked in accordance with:

1. Low Voltage Directive 2014/35/EU
2. EMC Directive 2014/30/EU
3. Safety requirements for electrical equipment for measurement, control and laboratory use BS EN 61010

The apparatus is designed in accordance with the following directives and information:

1. Low Voltage Directive. BS EN 60204-1
2. PUWER (Provision of use of work Equipment Regulation)
3. Machinery Directive 2006/42/EC
4. The Waste Electrical and Electronic Equipment Regulations 2006
5. Safety requirements for electrical equipment for measurement, control and laboratory use BS EN 61010

# 4. PURPOSE OF THE MACHINE

RedCop is designed to provide on-site CCTV security in a rapid deployable form via trailer transport or pallet delivery to site.

## 4.1 MACHINE DIMENSIONS

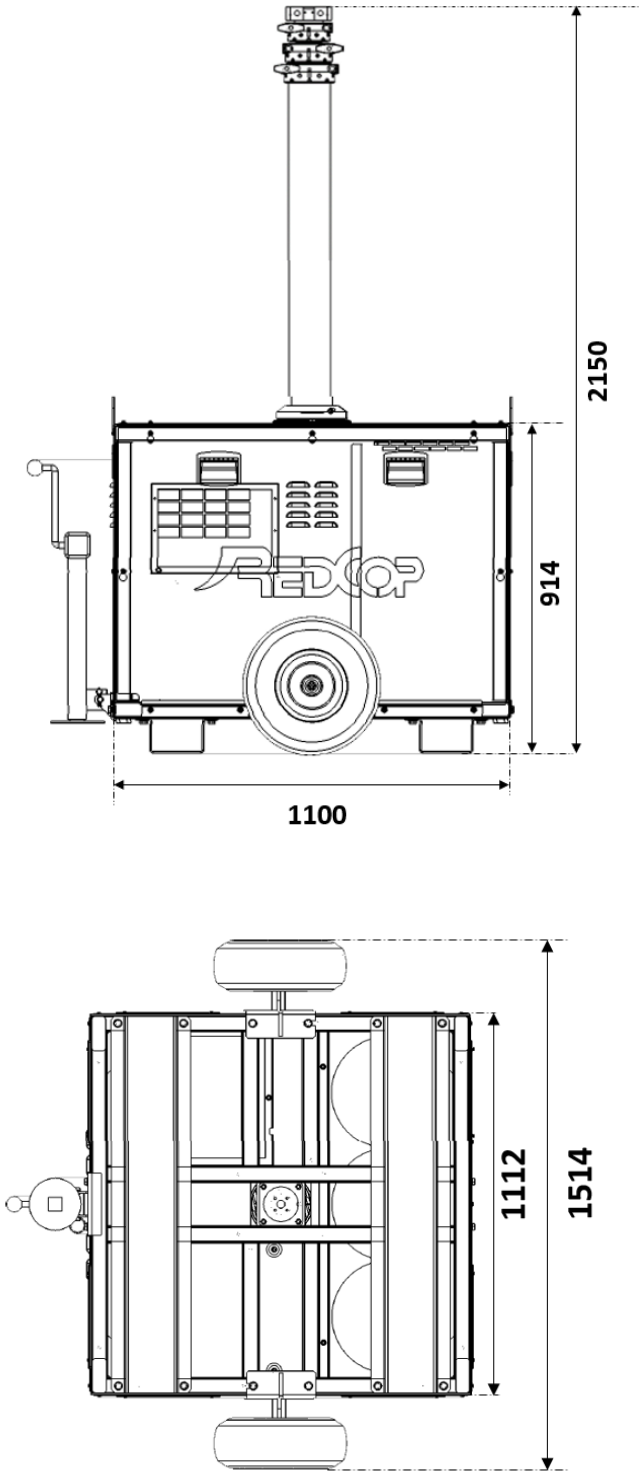



Figure 1 - Machine Dimensions

## 5. EXTERIOR COMPONENT IDENTIFICATION

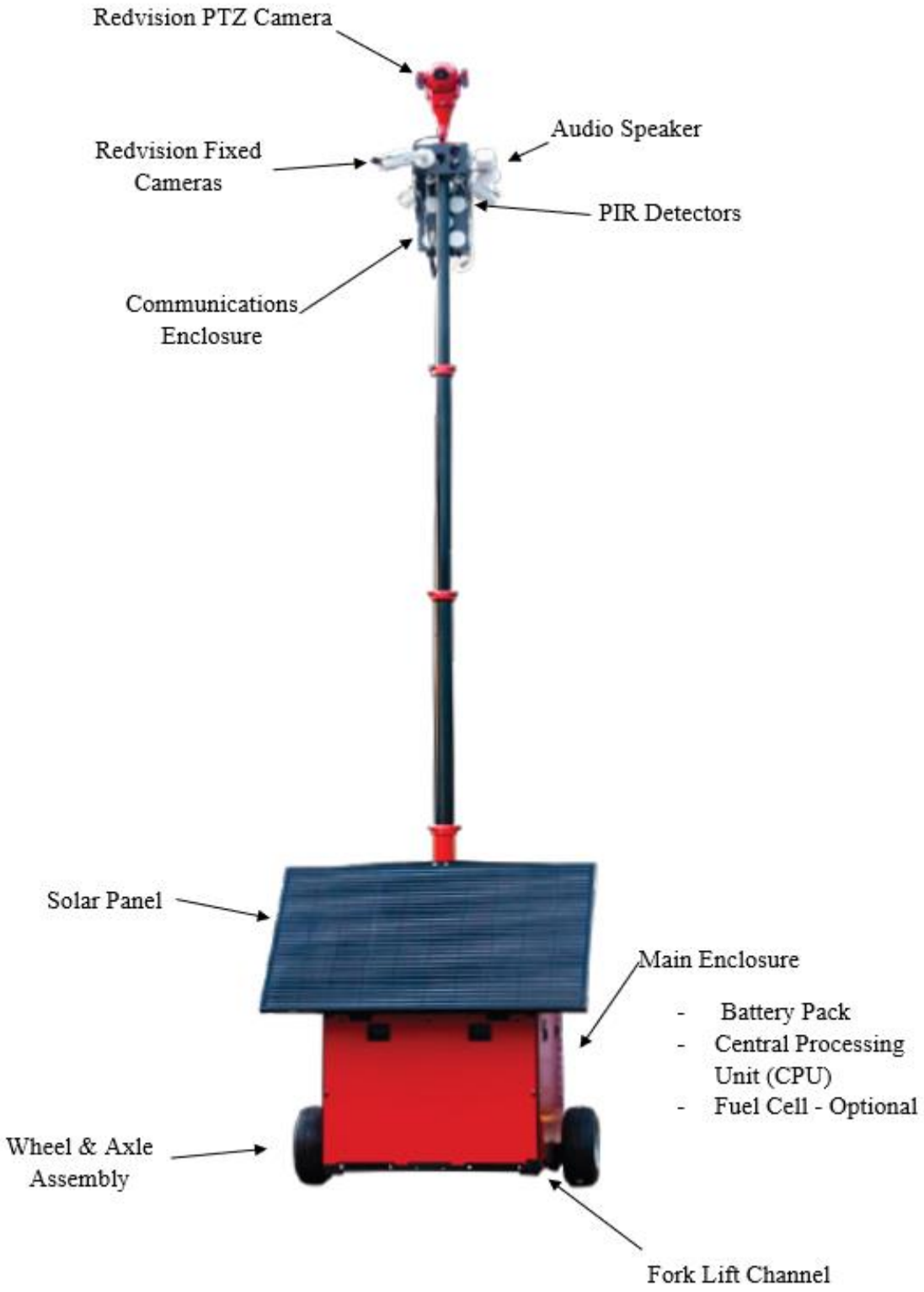



Figure 2 - Exterior Component Identification

# 6. INSTALLATION AND COMMISSIONING

## 6.1 MACHINE LIFTING

**CAUTION!**

The lifting eyes are designed for securely holding the machine's weight only when the mast is fully collapsed. Do not use hoist hook directly on the lifting eyes. Use a correctly rated safety shackle. Inspect each lifting eye before use and do not use if damaged.

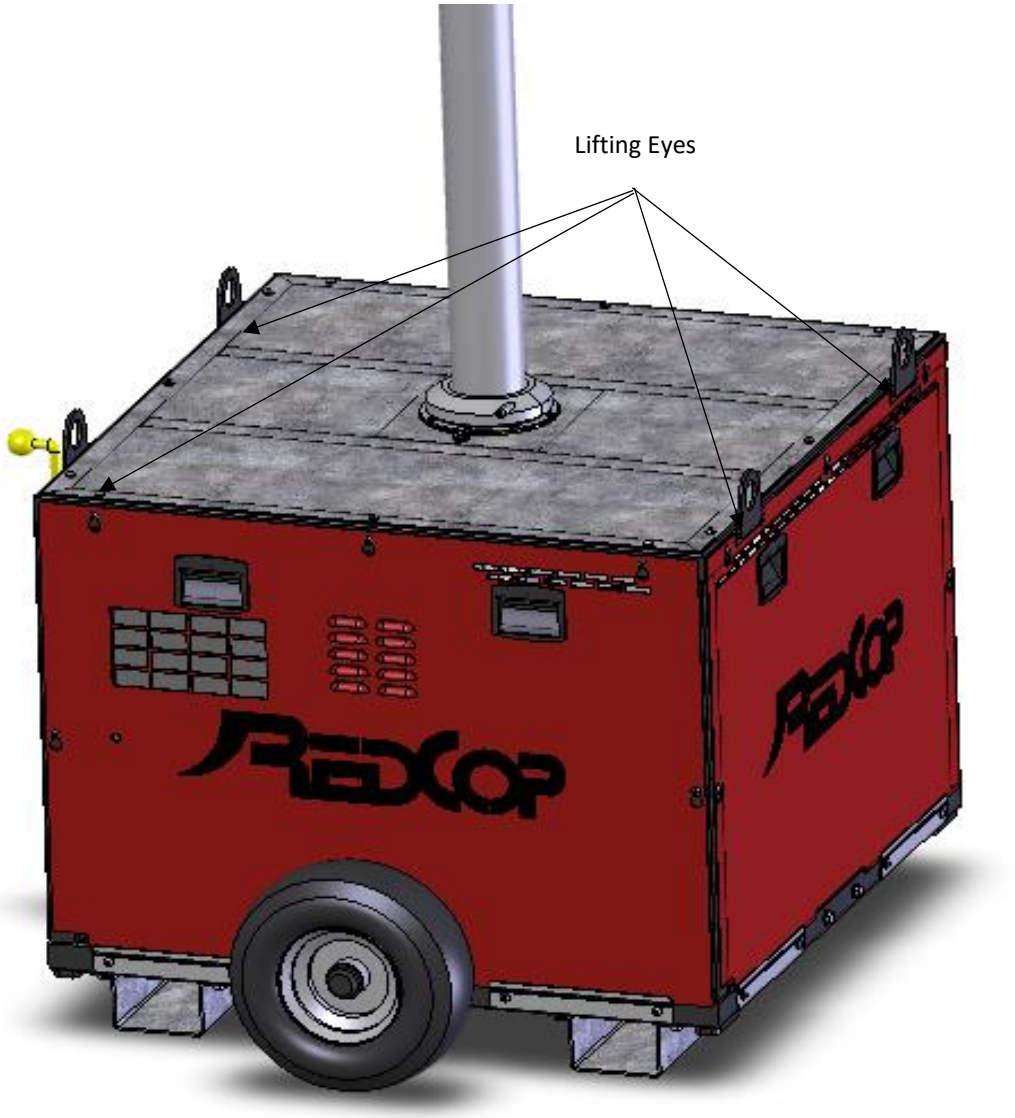



Figure 3 - Machine Lifting

## 6.2 ACCESSING THE MAIN ENCLOSURE

Remove the quick release panels by loosening the 5 off M8 x 16 Socket Button Cap Head screws (it is not required to remove the screws). Using the Pull Handles, simply lift the panel up and remove. Note, the panel will be connected to the chassis with a chassis earth wire. ENSURE THIS WIRE IS CONNECTED WHEN REPLACING THE SIDE PANEL.

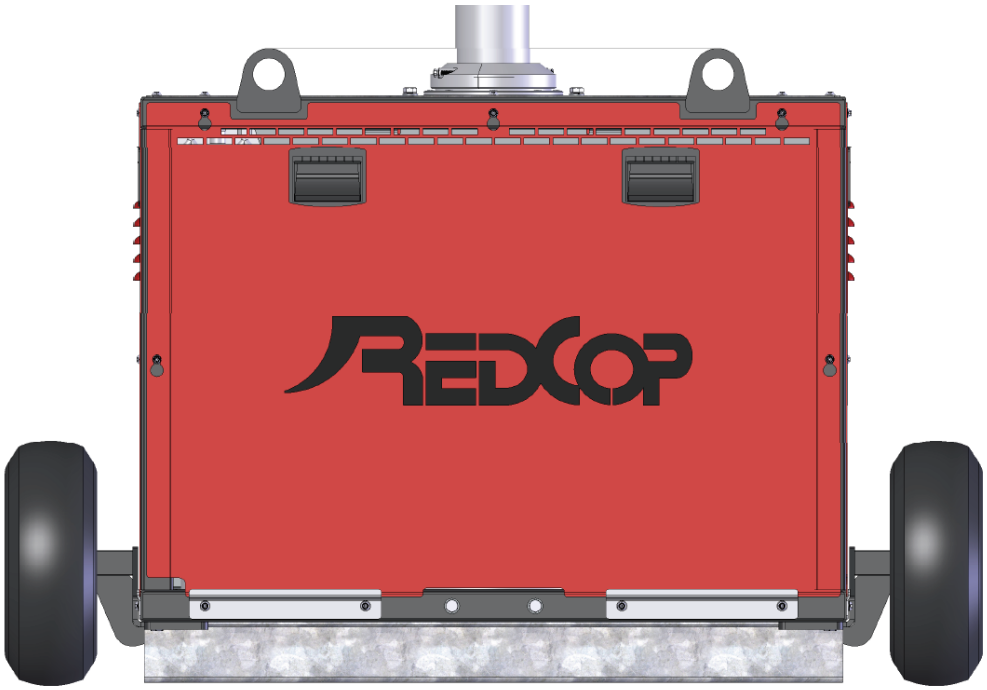



Figure 4 - Accessing the Main Enclosure

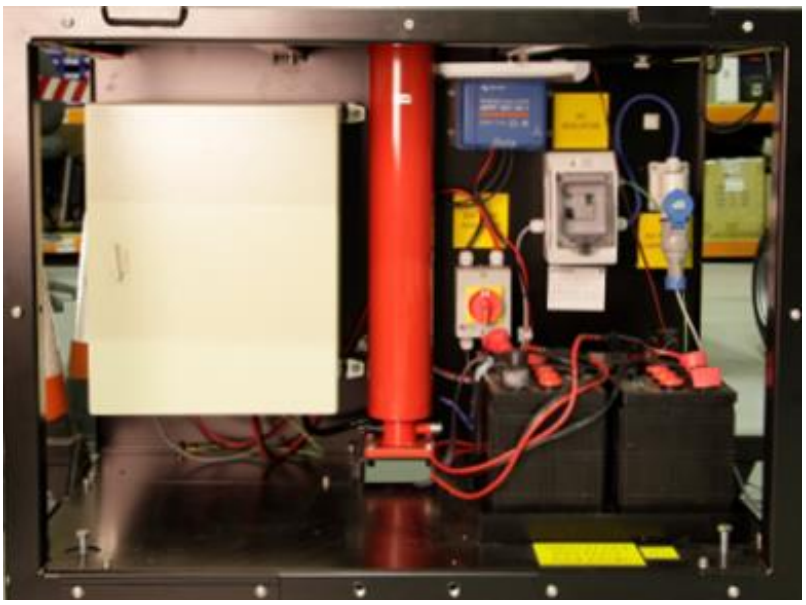


Figure 5 - Inside the Main Enclosure

## 6.3 ON SITE TRANSPORTATION

**CAUTION!**

**Ensure the tower is not sited near overhead power cables.**

Transporting the tower is achievable in four ways. ENSURE THE MAST IS LOWERED PRIOR TO MANOEVREING THE TOWER.

1) Wheel and axle assembly, along with the push bar. The Jack provided can be used to fix and remove the wheels.
2) Forklift channels – with a forklift or pallet truck.
3) Lifting eyes.
4) Trailer

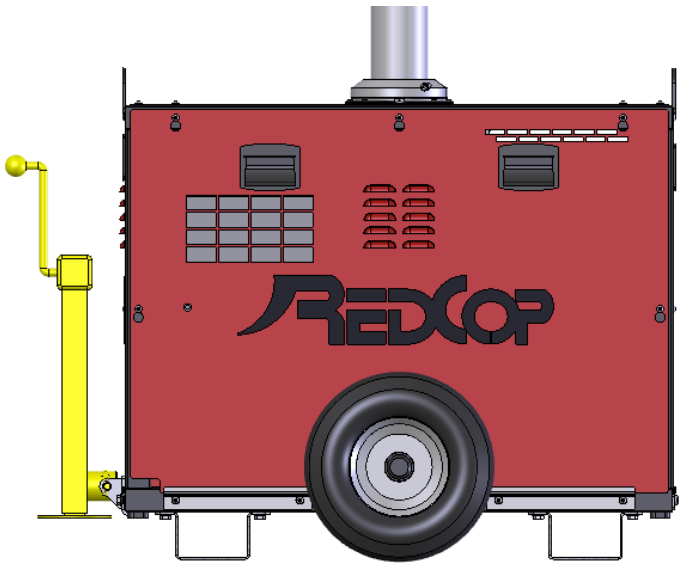



Figure 6 - On Site Transportation

## 6.4 LEVELLING

**CAUTION!**

**Ensure all levelling feet are fully engaged before extending the mast and kept as low to the ground as possible.**

**CAUTION!**

**Position the system on level stable ground. Tower must be installed on a maximum gradient of 5%.**

The tower can be easily levelled using the levelling feet in each of the 4 corners. Ensure the deployment surface is sufficiently hard for the load to avoid settlement. Use suitable load spreaders if required.

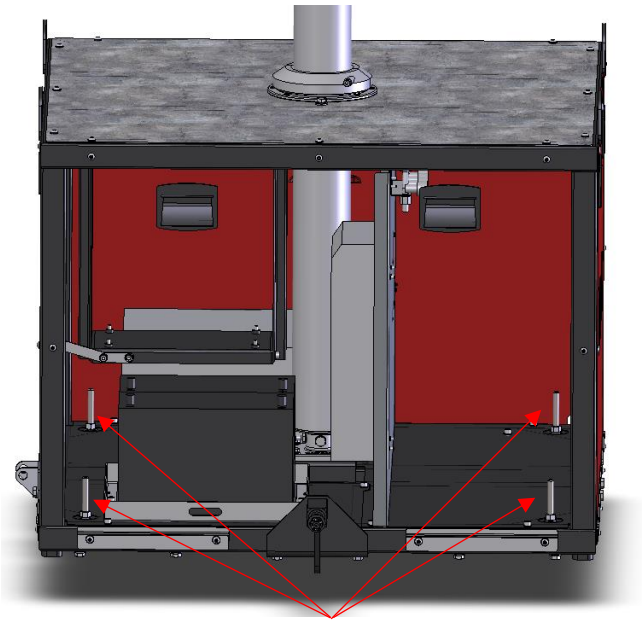



Figure 7 - Levelling

## 6.5 RAISING THE MAST

**CAUTION!**

The mast is raised and lowered with air pressure. The provided foot pump shall be used to raise and lower the mast. The mast can be raised in 5 quick steps:

Step 1 – Connect the foot pump to the base of the mast. This can be accessed via the main enclosure.

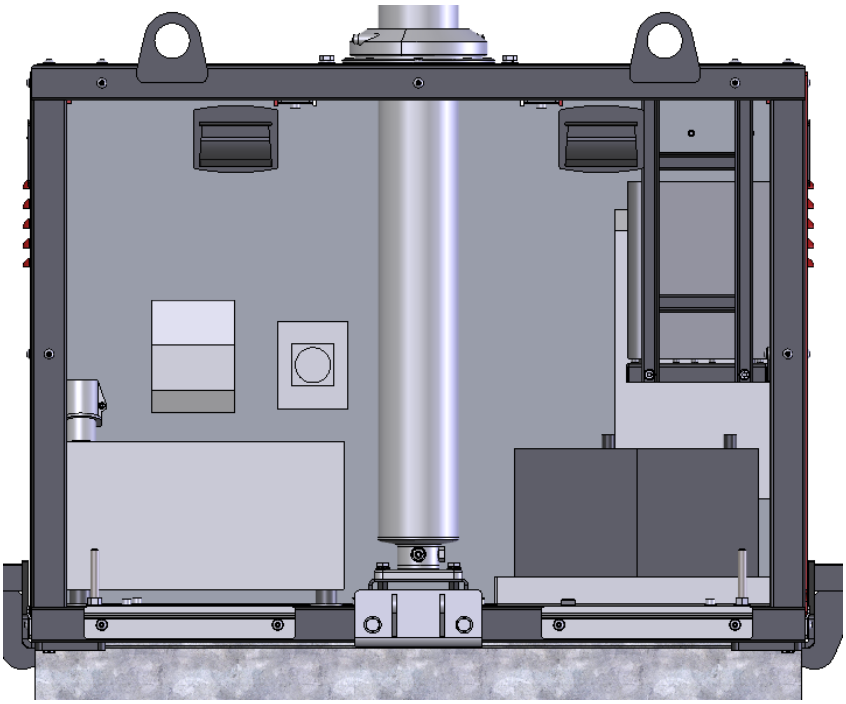


Figure 8 - Raising the Mast Step 1

Step 2 – Loosen the top mast clamp fixing.

Figure 9 - Raising the Mast Step 2

Step 3 – Use pump to raise mast until it hits the mechanical stop.

Figure 10 - Raising the Mast Step 3

Step 4 – Fix the top mast clamp fixing. This must be done before erecting the next mast section.

Figure 11 - Raising the Mast Step 4

**Step 5 – repeat steps 1 to 4 for the next following sections.**

**IMPORTANT** – please ensure all fixings are torqued appropriately.

## 6.6 LOWERING THE MAST

**CAUTION!**

The mast shall be lowered in a controlled manor using the foot pump provided. Avoid any sudden jolting of the mast when lowering as damage can occur. The mast can be lowered in 5 quick steps:

Step 1 – Connect the foot pump to the base of the mast.

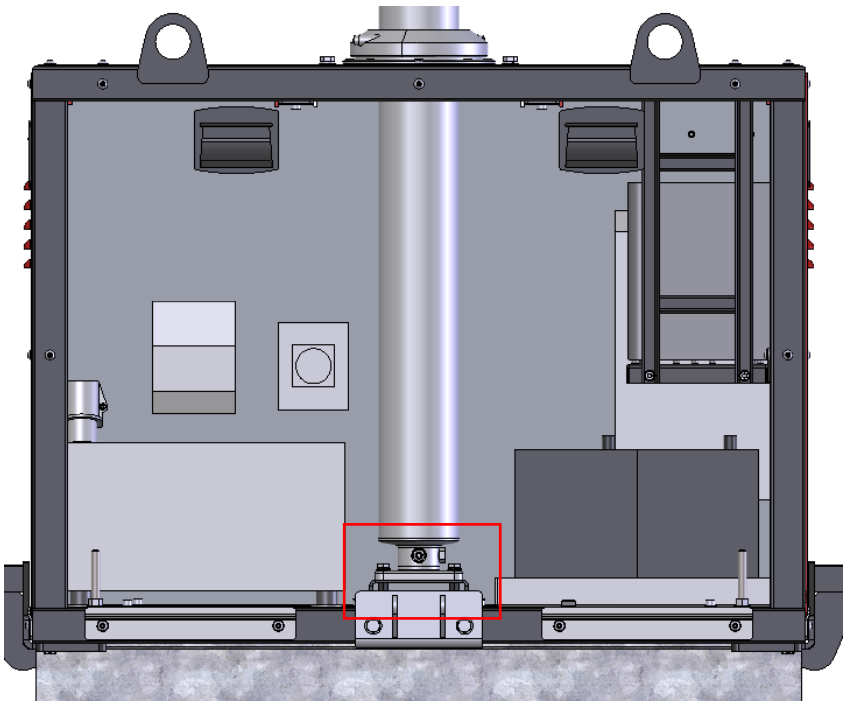


Figure 12 - Lowering the Mast Step 1

Step 2 – Loosen the bottom mast clamp fixing.

Figure 13 - Lowering the Mast Step 2

Step 3 – Carefully release the pressure relief valve within the foot pump to reduce the air pressure in the mast. Avoid any sudden jolting. Once the mast section has lowered, secure the pressure relief valve.

Figure 14 - Lowering the Mast Step 3

Step 4 – Tighten the bottom mast fixing. This must be done to ensure the mast will erect correctly.

Figure 15 - Lowering the Mast Step 4

Step 5 – repeat steps 1 to 4 for following mast sections.

## 6.7 ACCESSING THE CPU

The CPU is located within the main enclosure. The CPU is located to the left within an IP67 weather rated enclosure.

Figure 16 - Accessing the CPU

## 6.8 DO'S AND DON'TS

**DO** electrically isolate the machine before making any adjustments or cleaning.

**DO** secure and level before raising mast.

**DO** ensure that the machine is level, well supported and cannot move during use.

**DO** ensure all equipment cabinets and central covers are securely fixed before leaving unattended.

**DO** conduct regular machine checks for mechanical and electrical problems.

**DO NOT** rise the mast before levelling the unit.

**DO NOT** attempt to climb the mast when raised.

**DO NOT** tamper with the mast hydraulics or inspect while under pressure e.g., ensure Mast Clamps are securely fixed.

**DO NOT** lift machine with the lifting eye unless the mast is fully collapsed, secured with shoot bolts, and securely fastened to the rest.

**DO NOT** let anyone who has not received instruction, operate the machine.

**DO NOT** climb on the machine at any time without appropriate fall arrest systems in place.

**DO NOT** touch any exposed wiring while the machine is in operation.

# 7. CIRCUIT DIAGRAMS

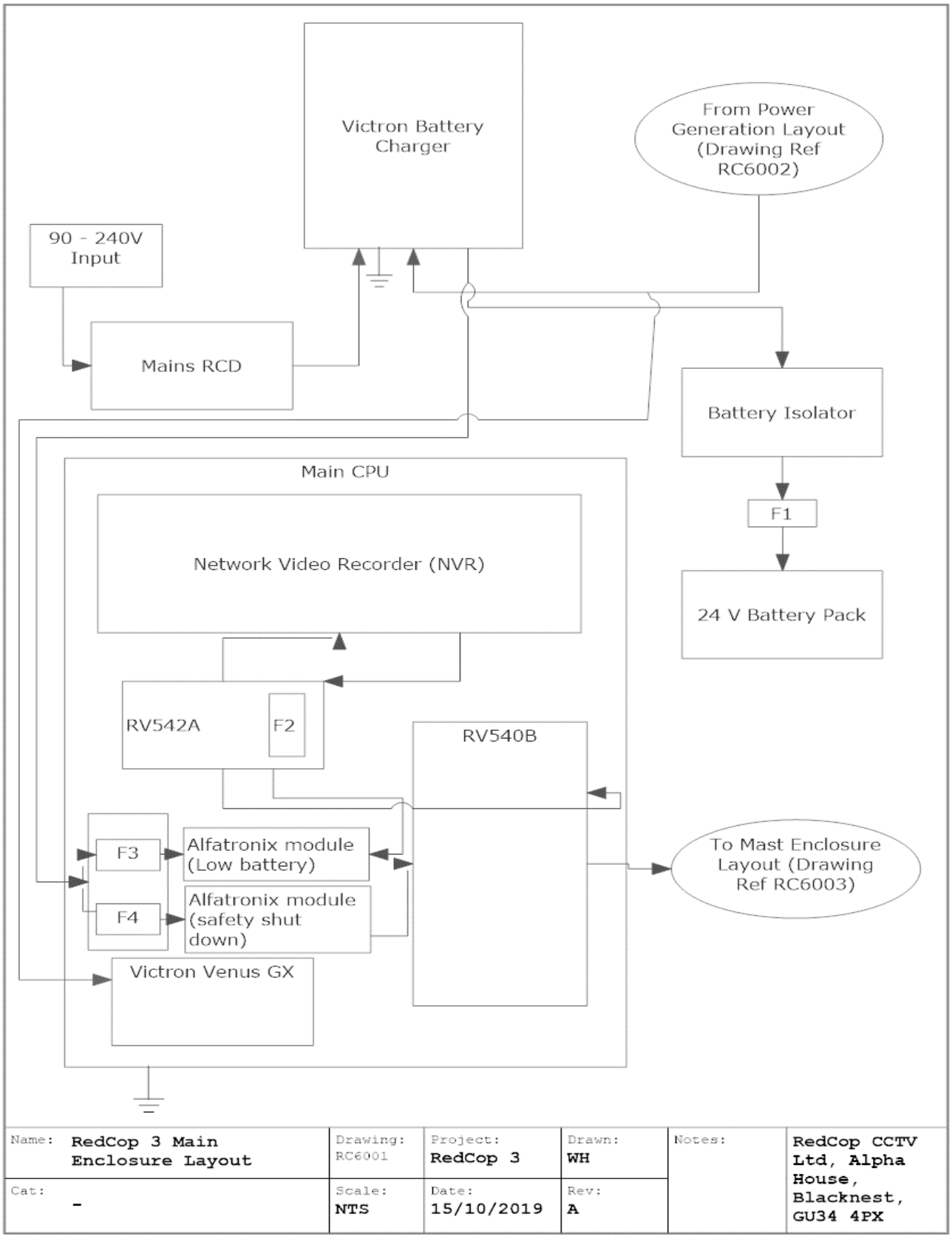
RedCop can be custom built per application, the schematics shown in this manual are intended to show all possible variations for the system. Redvision CCTV Ltd endeavour to continuously develop and improve its products. They reserve the right to make changes at any time, without notice or incurring any obligation.

## 7.1 FUSE TABLE

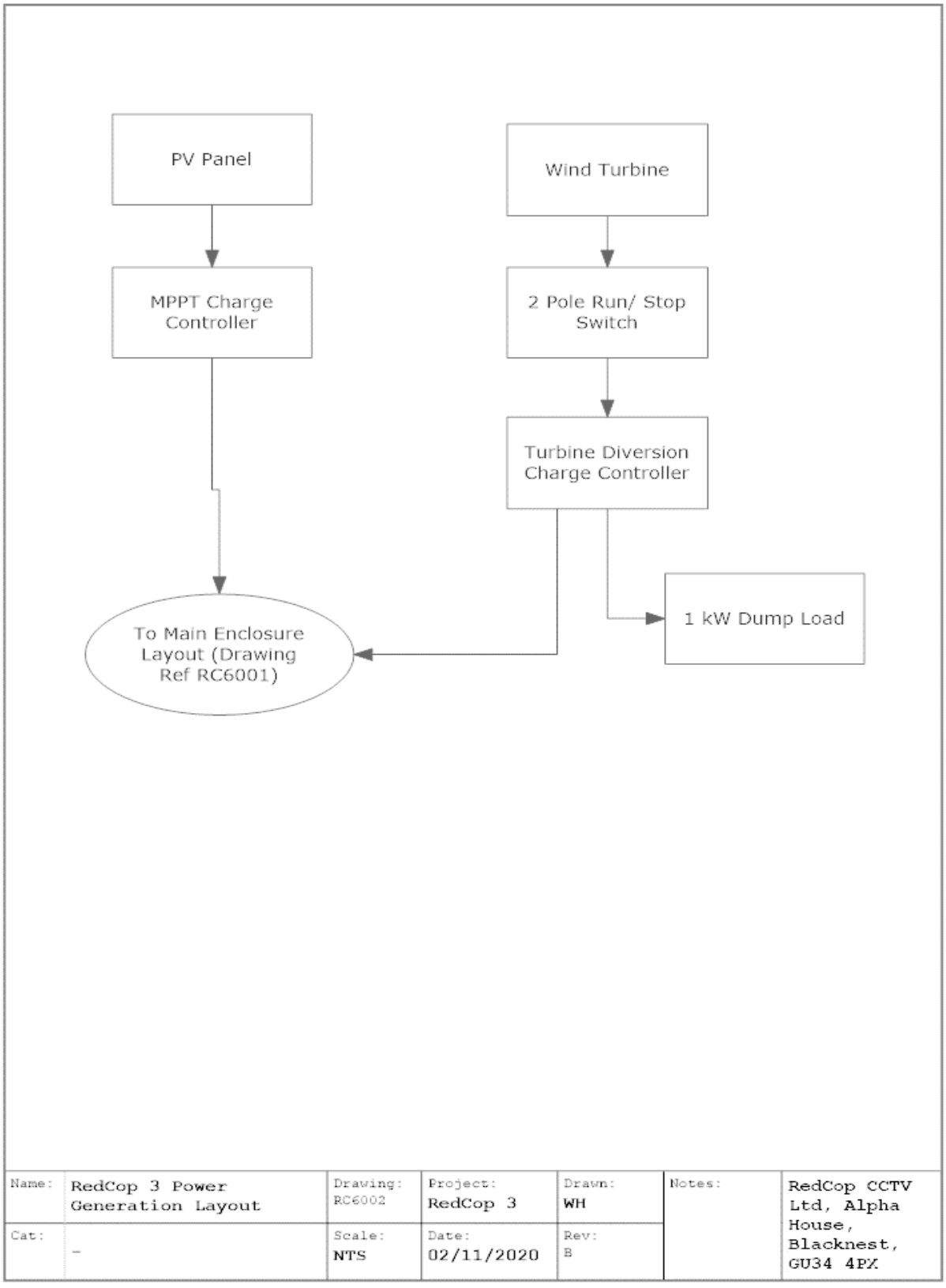
Table 1: Table to show list of all fuses in the RedCop system**.**

| Fuse Label | Rating |
|---|---|
| **F1** | 30A |
| **F2** | 1A |
| **F3** | 10A |
| **F4** | 10A |
| **F5** | 3.15A |
| **F6** | 5A |
| **F7** | 3.15A |

## 7.2 MAIN ENCLOSURE LAYOUT

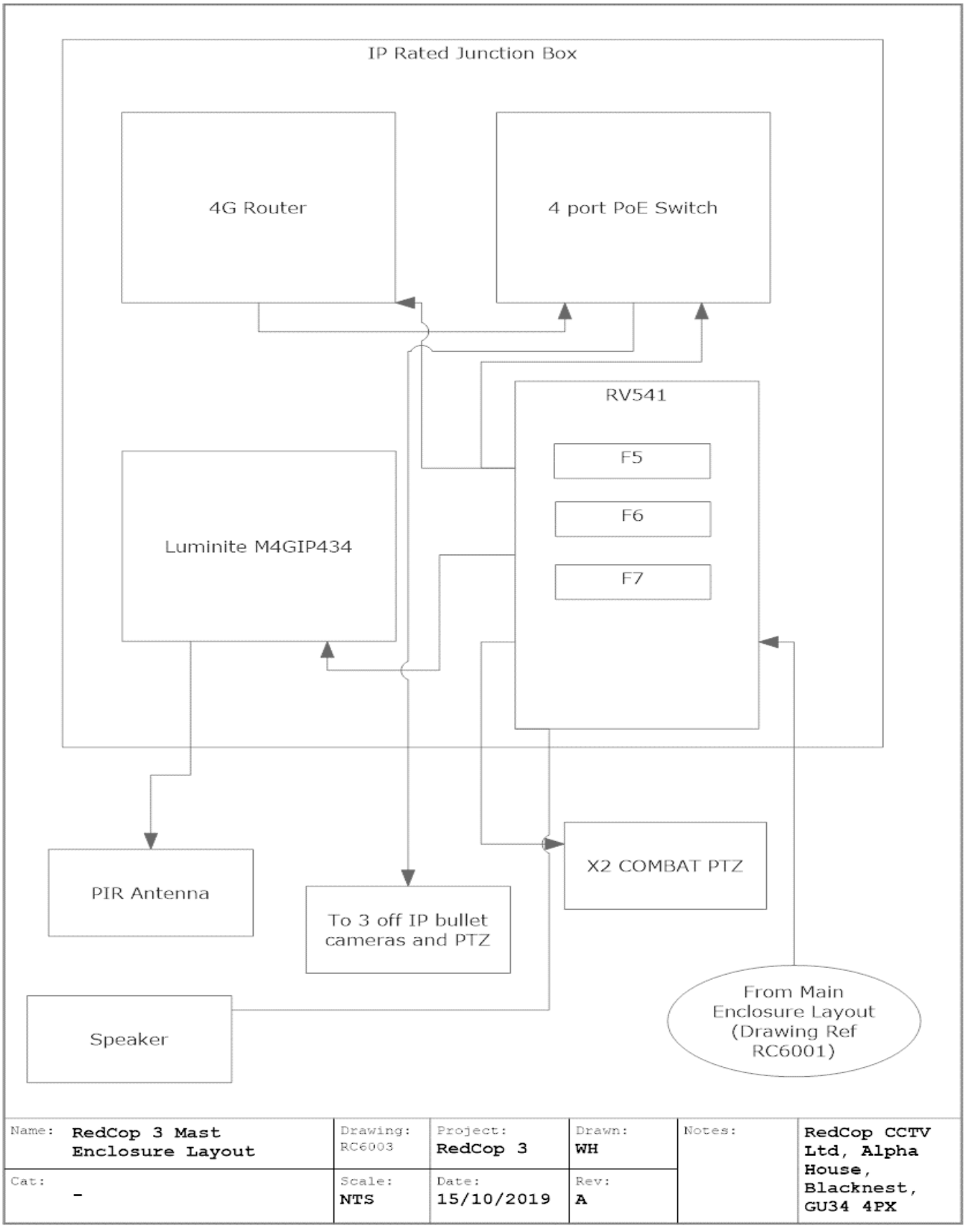


## 7.3 POWER GENERATION LAYOUT




| | | | | | | |
|---|---|---|---|---|---|---|
| Name: | RedCop 3 Power Generation Layout | Drawing: RC6002 | Project: RedCop 3 | Drawn: WH | Notes: | RedCop CCTV Ltd, Alpha House, Blacknest, GU34 4PX |
| Cat: | - | Scale: NTS | Date: 02/11/2020 | Rev: B | | |

## 7.4 MAST ENCLOSURE LAYOUT



## 8. TRANSPORTATION

**CAUTION!**

**Ensure mast is lowered before manoeuvring tower.**

- National and local speed laws must be followed while towing a trailer.
- On very rough and uneven road surfaces, reduce speed to protect the machine from undue vibration.
- Avoid steep gradients when off road.
- Avoid excessively pot holed ground.
- Exercise caution when reversing the trailer as the short wheelbase will react quickly to steering.
- Ensure the mast is collapsed, clamps are fastened, and centre panels, batteries and cabinets are secured closed before departing.
- Ensure no cameras are installed on RedCop tower when transporting the unit.

Use lifting eyes on the chassis to secure within the trailer.

# 9. MAINTENANCE INSTRUCTIONS

**CAUTION!**

**Maintenance of the system must only be carried out by trained persons.**

There are no user serviceable items on RedCop but if problems are noticed or faults occur, report these to Redvision CCTV Ltd.

## 9.1 INSPECTION OF EQUIPMENT

**CAUTION!**

**If excessive wear and/or damage is found to the equipment and/or cables do not use the equipment until the fault(s) have been rectified.**

It is recommended that the equipment is inspected every time it is setup and periodically inspections performed if the equipment is left in situ for extended periods of time. General inspections will include:

1. Check for excessive wear and/or damage to equipment covers, casings, and fixtures and fittings such as switches, batteries, and connectors.
2. Check for excessive wear and/or damage to interconnecting cables and connectors.
3. Check for wear to the telescopic tower and solar panel fixing if fitted.

## 9.2 TELESCOPIC TOWER

**CAUTION!**

**If any mechanisms are excessively worn or damaged the equipment may be unstable during use, causing injury or further damage to equipment.**

## 9.3 SERVICING

**CAUTION!**

**If excessive wear and/or damage is found to the equipment and/or cables do not use the equipment until the fault(s) have been rectified.**

## 9.4 FASTENER TIGHTENING TORQUES

| Tightening torques for class 8.8 and 10.9 fasteners | | | | |
|---|---|---|---|---|
| | Class 8.8 | | Class 10.9 | |
| | Nominal torque Nm | Max/Min torque | Nominal torque Nm | Max/Min torque |
| Size | | | | |
| M6 | 10 | 9.5/10.4 | 14.5 | 14/15.3 |
| M8 | 25 | 23.1/25.3 | 35 | 34/37.2 |
| M10 | 49 | 46/51 | 72 | 68/75 |
| M12 | 86 | 80/87 | 125 | 117/128 |
| M16 | 210 | 194/214 | 310 | 285/314 |
| M20 | 410 | 392/431 | 610 | 558/615 |
| M24 | 710 | 675/743 | 1050 | 961/1059 |

All machine fastener torques should be checked periodically to the above table. In particular, those for the mast pivot, axle fixing, outrigger and cranked support.

# 10. LEAD ACID BATTERIES

## 10.1 BATTERY SAFETY INFORMATION

1. Battery acid is highly corrosive. For safety reasons, wear eye protection when handling a battery. Do not tilt battery as acid could escape from vents.
2. Keep children away from acid and batteries.
3. Battery emits highly explosive hydrogen gas when charged. Do not allow fires, sparks, naked flames or smoking near the battery. Also avoid electrostatic discharges and electrical sparks when dealing with cables and electrical equipment.
4. First aid. If acid is splashed into eyes, immediately rinse with clean water for several minutes and consult a doctor without delay. If acid is swallowed, consult a doctor immediately. Neutralise acid splashes on the skin and clothes immediately with acid neutraliser (a solution of water and soda/baking soda) or soap suds, and rinse with plenty of clean water.
5. Battery case can become brittle. To help avoid this, do not store batteries in direct sunlight. Discharged batteries could freeze so store in a frost-free area.
6. Dispose of old batteries at an authorised collection point. Never dispose of in household waste.

## 10.2 STORAGE AND TRANSPORT

1. As batteries are acid filled, always store and transport them upright and prevent from tilting to avoid acid escape.
2. Store in a cool, dry, frost-free place.
3. Do not remove the protective positive terminal cap.
4. Run a First-in First-Out (FIFO) warehouse management system.

## 10.3 INITIAL OPERATION

1. Batteries are filled with acid at a density of 1.28g/ml at 15°C during manufacture and are ready for use.
2. Recharge in case of insufficient operating power (see charging).

## 10.4 BATTERY REMOVAL AND MAINTENANCE

To remove and replace battery:

1. Switch off all electrical equipment.
2. Access the batteries via the main enclosure.
3. Avoid short circuiting the battery terminals and from positive to any metal machine part. Loose metal parts and tools commonly cause this.
4. Remove any debris from around the battery.
5. First remove negative lead at the battery, then the positive. Battery terminals are the take-off type and fastened with an M6 screw into a ferrule on the cable end.

6. Slacken the ratchet strap securing each battery.
7. Remove battery. Clean with a moist anti-static cloth to avoid electrostatic discharge and explosion risk. Charge and check electrolyte level if appropriate.
8. Clean out battery tray. Apply a thin film of petroleum jelly to terminals to prevent corrosion.
9. Replacement is the reversal of removal. Ensure to replace/fit any vent pipes. Leave at least one vent open otherwise there is an explosion risk. This also applies to old batteries removed for disposal/recycling. Swap new battery positive terminal protective cover to the old battery positive terminal to help prevent short circuits and sparks.

## 10.5 CHARGING

1. Remove battery from machine, disconnect negative terminal first.
2. Ensure good ventilation.
3. Connect battery positive terminal to charger output positive. Connect the negative terminal accordingly.
4. After connection, switch on charger. When charging is complete, switch off charger then disconnect battery.
5. Charging current recommendation is 10% of the battery Ah power rating.
6. Use a charger with a constant charging voltage of 14.4V.
7. If the acid temperature rises above 38°C, stop charging.
8. The battery is fully charged when the charging voltage or acid specific gravity has stopped rising for two hours.

## 10.6 TAKING THE BATTERY OUT OF SERVICE

1. Charge the battery and store in a cool but frost-free place or on the vehicle with the negative terminal disconnected.
2. Check the battery charge at regular intervals. Recharge if necessary.

# 11. LITHIUM IRON PHOSPHATE BATTERIES

When specified LiFePO4 Lithium Iron Phosphate batteries are fitted and tested by Redvision CCTV Ltd at the factory.

Further manufacturer information relating to LiFePO4 batteries is detailed in the Appendix section of this User Manual.

# 12. RENEWABLE POWER OPTIONS

## 12.1 SOLAR PANEL

1.Mechanical Fitment

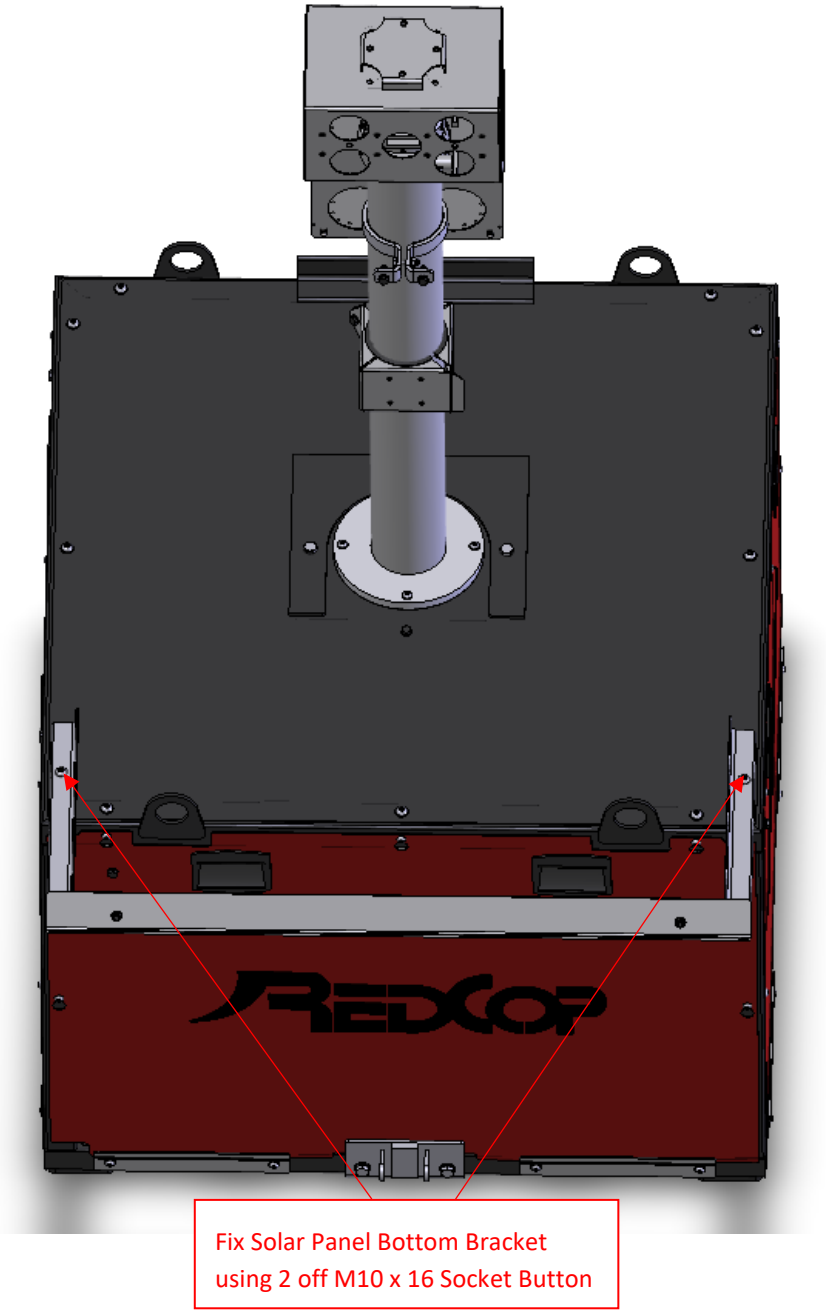



**Figure 17: Fixing Solar Panel Bottom Bracket**

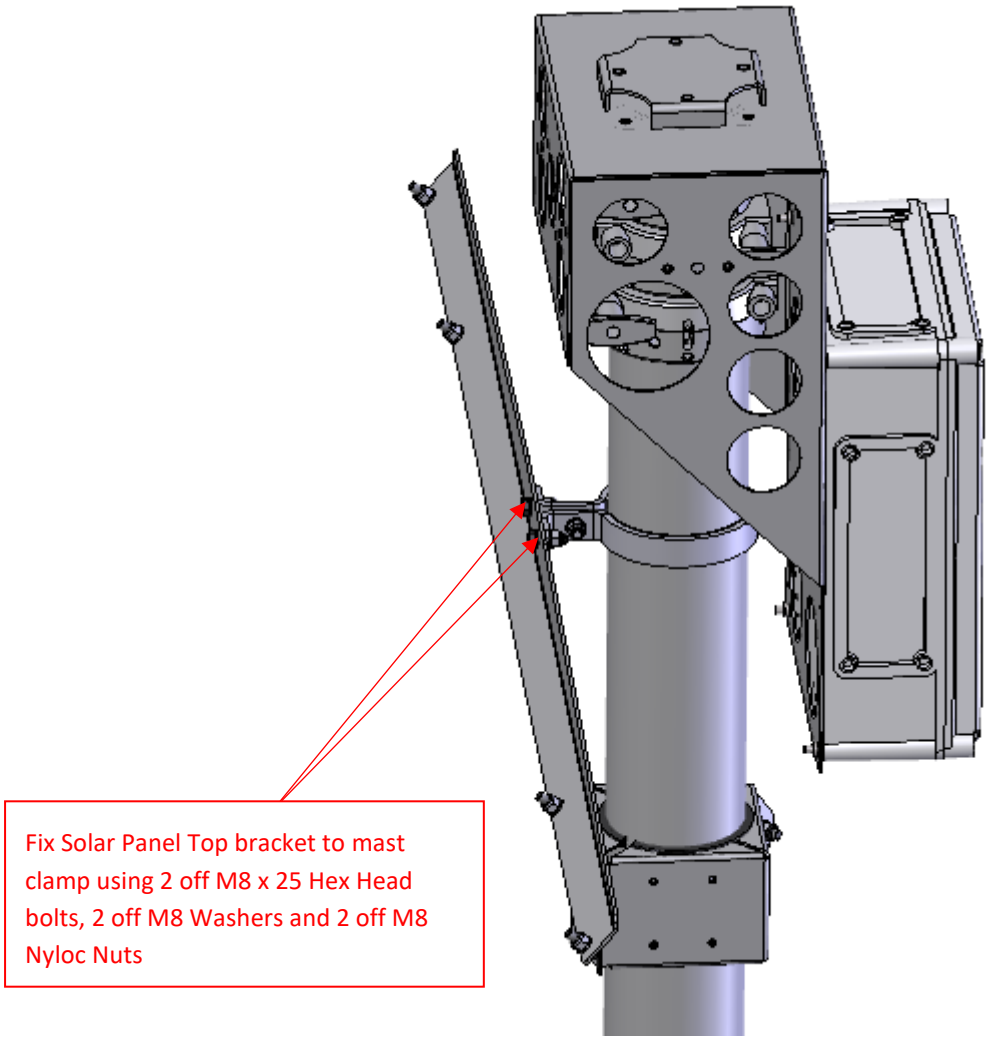



**Figure 18: Fixing Solar Panel Top Bracket**


**Figure 19: Fixing Solar Panel to RedCop**

2.Connection to Victron Charger

Connect solar panel flying lead with flying lead from the RedCop tower – NOTE male/female connections, do not force connection and do not connect/ disconnect under load.


**Figure 20: Connecting Solar Panel.**

## 12.2 HYDROGEN FUEL CELL

When specified, the Hydrogen Fuel Cell, Hydrogen Gas Manifold, tubing, and regulators are fitted and tested by Redvision CCTV Ltd at the factory.

Hydrogen gas supply is the responsibility of the Operator, and all operating personnel are required to undertake certified hydrogen handling training in accordance the Fuel Cell manufacturer's guidelines.

Further manufacturer information relating to the Hydrogen Fuel Cell is detailed in the Appendix section of this User Manual.

# 13. WARRANTY

## 13.1 WARRANTY STATEMENT

1. Redvision CCTV Ltd guarantees all RedCop equipment supplied by them against any defect in manufacture and assembly – this guarantee is for a period of 12 months commencing on the date of sale to the first end user.
2. The guarantee will not apply to a failure where normal use has exhausted the life of a component.
3. Redvision CCTV Ltd.'s liability under this guarantee is limited to repair at Redvision CCTV Ltd.'s premises or at a selected RedCop dealer.
4. No liability will be accepted for consequential lost or damage of any kind.
5. The Redvision CCTV Ltd guarantee is restricted to the first Redvision CCTV Ltd user only and is not transferable except when authorized by Redvision CCTV Ltd.
6. The owner is responsible to make sure the machine is always operated in accordance with the user manual.
7. The Redvision CCTV Ltd guarantee will be invalidated if any of the following points apply.
    - Failure to use genuine RedCop parts.
    - Failure to perform routine servicing and maintenance.
    - Failed parts or assembly have been interfered with
    - Machine has been modified without written approval from Redvision CCTV Ltd
    - Machine has been used to performed tasks contrary to those stated in the Redvision CCTV Ltd User Manual
    - Exclusions to the above warranty terms are – fair wear and tear on electronics, tyres, and paintwork.
    - Where an extended warranty has been given, this will be stated on the original machine invoice and will be subject to further conditions as stated in our supplementary warranty terms.

## 13.2 WARRANTY CLAIMS

To obtain warranty service, contact your local Redvision authorised distributor, call Redvision Customer Support on +44 (0)1420 448 448 or email returns@redvisioncctv.com for shipping details and an RMA tracking number. Redvision will send an RMA.

The following information will be required before Redvision is able to issue an RMA number:

- Model Type
- Serial Number
- Reason for return

Note: ensure returned goods are well protected during transit ideally in original packaging. Redvision will not warrant goods damaged in transit. The RMA tracking number should be clearly written on the outside of the parcel.

## 14. CE CERTIFICATE

Redvision™

ISO 9001 REGISTERED FIRM

### Declaration of Conformity

CE

**Date of issue:** March 2021

The company:

**Redvision CCTV Limited**
**Alpha House**
**Blacknest Road**
**Alton**
**Hampshire**
**GU34 4PX**

Declare that the following products are CE marked:

**RC3-STD Redcop CCTV Tower**
**RC3-OPT-RTR Redcop Trailer**

And have been fully tested and comply with the following European Directives:

**MACHINERY DIRECTIVE 2006/42/EC**
**2004/108/EEC ELECTROMAGNETIC COMPATIBILITY**
**73/23/EEC LOW VOLTAGE DIRECTIVES**
**60950:2006 SAFTEY STANDARDS**

And further conform to the following EU Harmonised Standards:

**EN13525:2005 + A2:2009**
**EN 982:1996+A1:2008**
**EN ISO 12100:2010**
**EN ISO 14982:2009**

CERTIFICATION:

I hereby certify that all the products listed above conform to the requirements of the emission and immunity standards quoted.

Signature

Paul Hucker
Managing Director
Redvision CCTV Limited

## 15. APPENDIX – HYMERA HYDROGEN FUEL CELL DOCUMENTATION

The following manufacturer's documentation relates to Hymera Hydrogen Fuel Cell Generator

**BOC HYMERA® Hydrogen Fuel Cell Generator Brochure**
https://www.boconline.co.uk/en/images/603535-INN%20H2%20fuel%20cell%20generator%20brochure_single%20pages_tcm410-253437.pdf

**BOC HYMERA® Hydrogen Fuel Cell Generator**
https://www.boconline.co.uk/en/images/Hymera-II-Data-Sheet_tcm410-138254.pdf

**Hydrogen Fact Sheet**
https://www.boconline.co.uk/en/images/Hydrogen-factsheet_tcm410-613114.pdf

**Working Safely with the GENIE® Hydrogen Cylinder**
https://www.boconline.co.uk/en/images/606425-H2%20GENIE%20safety%20guide_03_tcm410-410076.pdf