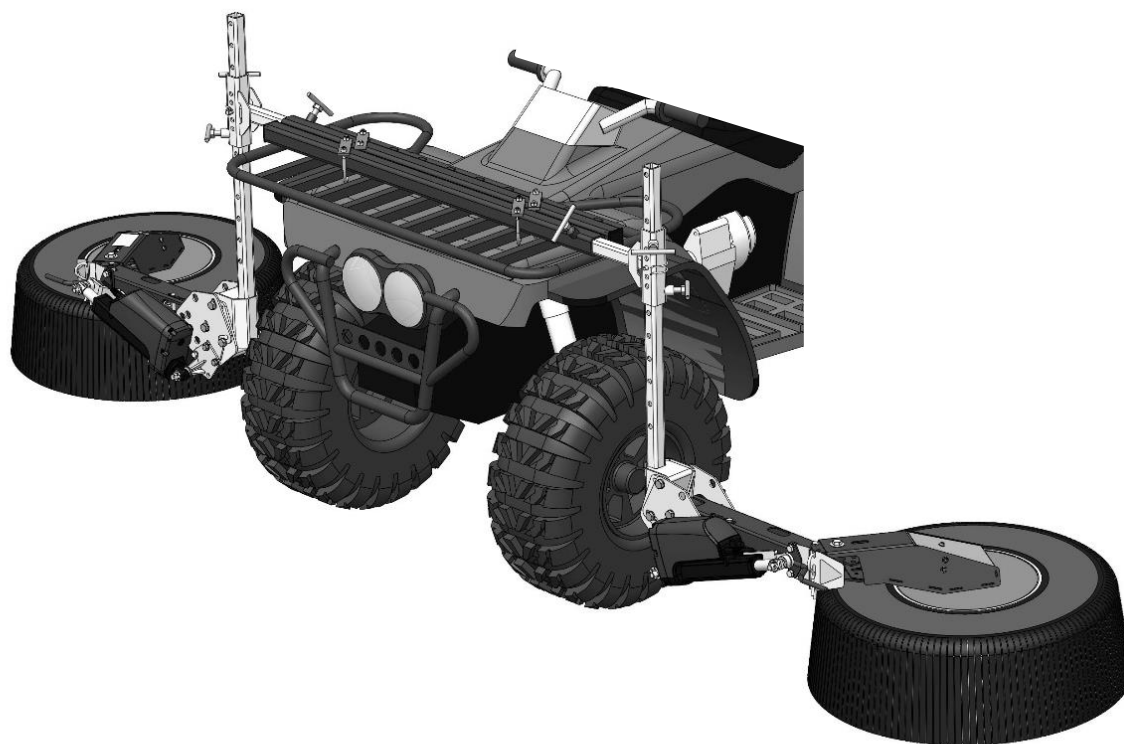


S-Dome, S-Flex & S-Guard

CDA and Hi-Flo Options



Instruction Manual

Publication Part No: **8M13A200**

Revision: 0

EDITION NOTICE

Prepared and printed by or on behalf of:



This publication covers the following products:
Micron Weed Management system incorporating

S-Dome
S-Flex
S-Guard

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PREFACE

This document has been produced to provide guidance for the installation and use of the Micron Weed Management (MWM) system and associated accessories.

Operators of the Micron Weed Management (MWM) system should read this document thoroughly and understand the correct use of this equipment and necessary safety precautions before attempting to install or operate the spray equipment or its associated accessories.

Readers should pay attention to the '**Important Information**' section of this document.

Please contact Goizper Group or their agents if you require any assistance.

Micron is a registered trademark of Goizper Group. All other trademarks used in this Document are the property of their respective owners.

Every care has been taken in the design of this equipment and the preparation of this Document. However, Goizper Group cannot accept responsibility for errors or the consequences thereof.

The user must satisfy themselves that the equipment is suited to the intended use, is functioning correctly and its use complies with local regulations controlling the application of pesticides.

All spray applications illustrated in this Document are provided for guidance only. When using pesticides users should always refer to the product label and any local or national regulations for specific conditions of use.

Prohibitions in Use




The Micron Weed Management (MWM) system is designed for use with agricultural spray products that are approved for use in the intended crop situation.

The use of non-approved products is strictly prohibited.

The equipment should **not** be used to spray the following materials

- Any form of petrochemical fuel or volatile oils
- Strong Acids
- Concentrate solvents

SYMBOLS USED ON THE EQUIPMENT AND IN THIS DOCUMENT

| | |
|--|---|
|  | Denotes a caution or warning – ‘things to be aware of’ |
|  | Denotes a mandatory prohibition – ‘things you must not do’ . |
|  | Denotes a mandatory instruction – ‘things you must do’ . |
| Ignoring these warnings, prohibitions or instructions may result in injury to persons, damage to equipment or environmental contamination. | |






















| | | | | | |
|---|---|---|---|---|--|
|  | Mandatory Prohibition |  | Caution or Warning |  | Mandatory Instruction |
|  | Do not insert fingers or foreign objects |  | Warning – risk of electric shock |  | Refer to Instructions |
|  | STOP - Do not proceed with this action |  | Caution – Surface may be hot |  | Eye protection – must be worn |
|  | Keep Clear – Keep all persons clear of this area |  | Warning – risk of crushing of hands or fingers |  | Gloves – must be worn |
|  | Warning – danger from leaking substances |  | Warning – risk of crushing of whole body or limbs from side |  | Protective Clothing – must be worn |
|  | Warning – risk of danger from escaping high pressure fluid |  | Warning – risk of crushing of whole body or limbs from above |  | Wash hands – hands must be washed after handling |
|  | Toxic – risk of contact with toxic substances |  | Harmful – substance is harmful |  | Danger to the environment – risk of contamination |

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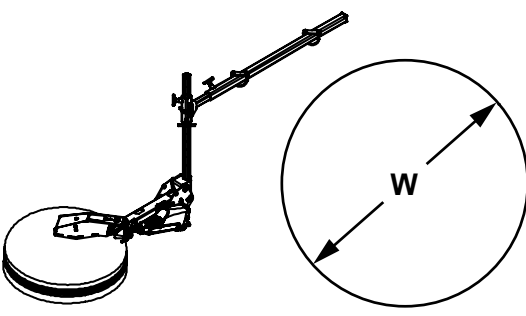
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1 INTRODUCTION

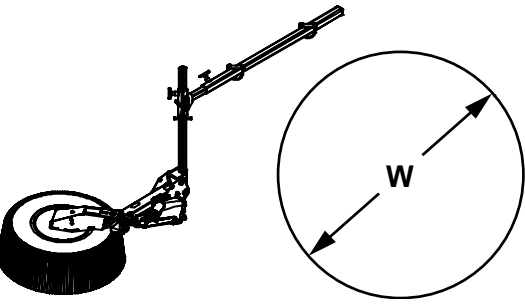
The Micron Weed Management (MWM) system is designed for the precision application of weed control products at low spray volumes without drift. The spray is generally shielded, and each spray head incorporates either low volume rotary atomisers for controlled droplet application (CDA) or pressure nozzles for higher spray volumes (HiFlo). The MWM system is designed primarily for the application of weed control products in bands in tree and bush crops. The MWM system can also be used to apply selective and non-selective herbicides in the crop inter-row at reduced dose rates and volumes as only a proportion of the area is treated.

The spray shields are mounted on a breakaway arm which allows the domes to rotate on a centre bearing and roll around tree or bush crops. With the SprayGuard variant the dome is fixed.

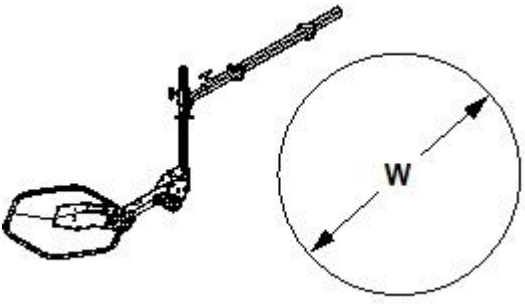
Spray-Dome Product Range

|  | Description | Spray Width 'W' |
|---|-------------|-----------------|
| | S-Dome 400 | 0.4 metres |
| | S-Dome 600 | 0.6 metres |
| | S-Dome 900 | 0.9 metres |
| | S-Dome 1200 | 1.2 metres |

Spray-Flex Product Range

|  | Description | Spray Width 'W' |
|--|-------------|-----------------|
| | S-Flex 400 | 0.4 metres |
| | S-Flex 600 | 0.6 metres |
| | S-Flex 900 | 0.9 metres |

Spray-Guard Product Range

|  | Description | Spray Width 'W' |
|---|--------------|-----------------|
| | S-Guard 1200 | 1.2 metres |

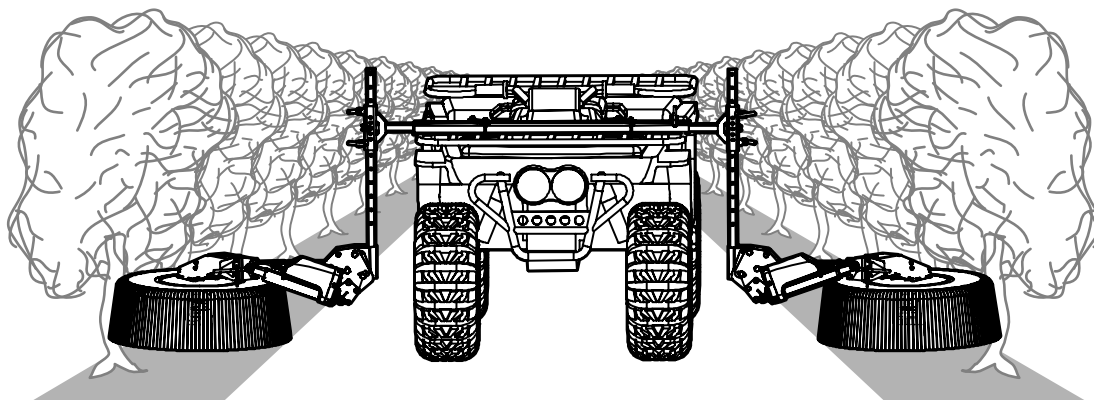
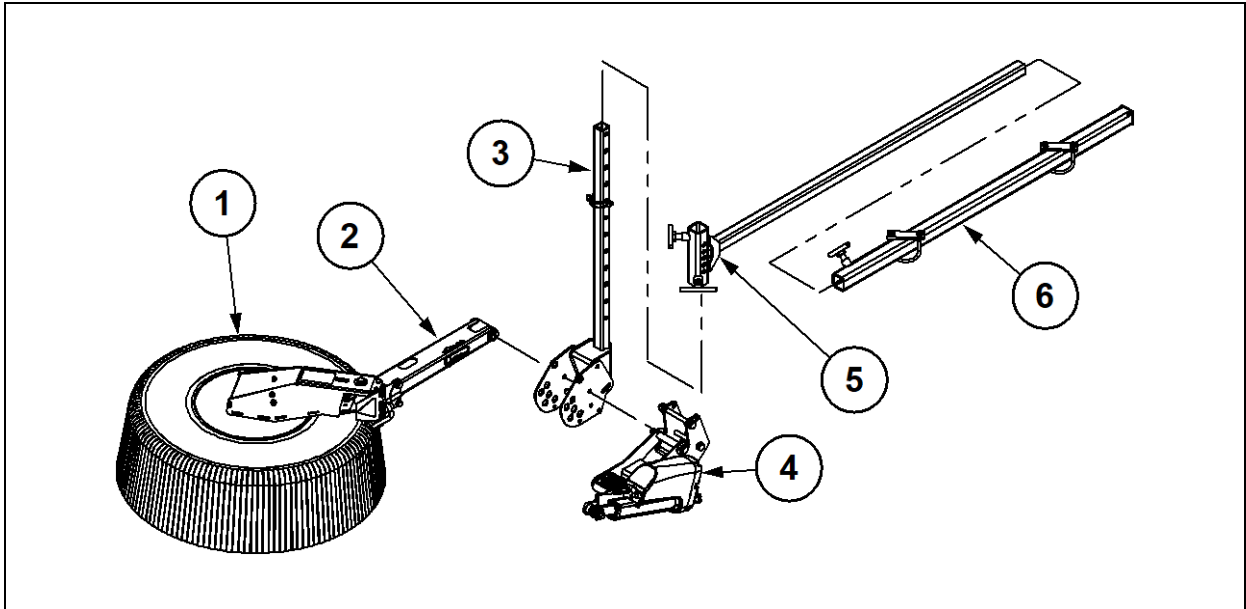


Figure 1- A typical configuration

1.1 Breakaway & Dome Features

(Drawing needs updated to include flow control unit and electrical conduit)



| | |
|---|---|
| - | Power Wire Assembly* |
| 1 | Dome (may also be referred to as 'shield') |
| 2 | Breakaway Assembly |
| 3 | Vertical Support Tube |

| | |
|---|--|
| 4 | Lift Actuator |
| 5 | 'T'-Bar Mount |
| 6 | Mounting Tube (complete with 'U' bolts and clamp plates) |

Figure 2 - Component recognition (all above needs drawing update)

1.2 Technical Specification

| Specification | |
|---|--|
| Model names: | S-Dome, S-Flex, S-Guard |
| Description: | A covered or controlled drift spray head with either CDA (controlled Droplet Application) atomiser or HiFlo pressure nozzle. |
| Models: (available as CDA or Hi-Flo) | SD400, SD600, SD1000, SD1200. SF250, SF400, SF600, SF900, SG1200? |
| Manufacturer: | Goizper Group, Spain |
| Year of Manufacture: | Refer to serial number plate |
| Finish: | Black, Grey, stainless metal parts with yellow domes |
| Weight¹ | |
| S-Dome 400 | 17 kg |
| S-Dome 600 | 18 kg |
| S-Dome 900 | 26 kg |
| S-Dome 1200 | 36 kg |
| S-Flex 400 | 17 kg |
| S-Flex 600 | 18 kg |
| S-Flex 900 | 19 kg |
| S-Guard | 17 kg |

| | | |
|------------------------------|---|----------------------------|
| Minimum working temperature: | +5°C | |
| Working pressure: | 1-3 bar (15 – 45 psi) | Hydraulic pressure nozzles |
| | 0.1 - 1 bar (8 - 10 psi) | CDA atomisers |
| Flow range/nozzle: | 0.46 – 1.97 l/min | Hydraulic pressure nozzles |
| Flow range/atomiser: | 60 -300 ml/min | CDA atomisers |
| Max.Operating speed: | 12 kph (when spraying) | |
| Shield operating height: | 25 – 50 mm (above ground when spraying) | |
| Filter size ² : | 50 Mesh (blue - ISO19732) | |
| Optional Accessories | Tank & pump systems, Various Mounting Chassis | |

¹ Weights for S-dome and S-flex include the breakaway and standard ATV mounting tubes.

² Not included with your S-Dome, S-Flex or S-Guard. If using tank systems NOT supplied by Goizper Group then these MUST include an inline filter of 50 mesh size (blue – ISO19732).

2 SAFETY

2.1 Mechanical and Electrical Hazards



The main mechanical hazards when using Micron spray equipment are risk of entrapment to fingers and limbs from moving parts. Warning signs are located at points of potential injury. As sprayers operate on a low voltage 12V system that does NOT present a significant risk from electrical shock

Operator Protection



Wear Gloves



Wear a face shield
or Eye Protection



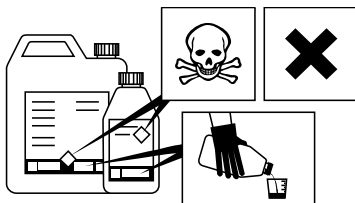
Wear Protective
Clothing



Wash hands

Operators **MUST** always read the product label **BEFORE** using pesticides and follow advice regarding use of personal protective equipment (PPE). When handling concentrates operators should wear gloves, protective clothing, boots and eye protection or a face shield to protect eyes and skin. Some products may also require the use of a respirator mask

2.2 Working with Pesticides



Always read the product label and adhere to maximum dose rates and safety precautions.



Protect the environment by avoiding run off into ditches or waterways at all times.

2.3 Hand Wash Tank

A hand wash facility of 15Litres should be available for use with the spray system. This should be filled with **clean water only**.

2.4 Drift Reduction Measures

The S-Dome and S-Flex units are fitted with shields low to the ground making them less susceptible to spray drift than unshielded spray nozzles. The S-Guard is fitted with a protective guard for the atomiser but uses an open spray pattern but with large controlled drop sizes to avoid drift. This allows the S-Guard to be used to spray close under established trees like Olives without any part of the spray head contacting the trees.

Wind tunnel studies in the UK have indicated drift reductions in excess of 90% over conventional unshielded sprayers with the Micron Weed Management range and hence these are suitable as a Drift Reducing Technology (DRT)

Below are UK star ratings for drift reduction with the S-Flex, S-Dome. LERAP (Local Environmental Risk Assessment for Pesticides)

Note: The maximum drift reduction of >75% receives 3 star rating.

| Equipment | Nozzle/disc | Flow rate or pressure | Star rating |
|--------------|----------------|-----------------------|-------------|
| S-Flex CDA | Spinning Disc | 100 – 300 ml/min | *** |
| S-Flex HiFlo | Fulljet FL-5VC | 2.0 bar | *** |
| S-Dome HiFlo | Teejet XR 04 | 2.0 bar | *** |
| S-Dome CDA | Disc | 150 – 300 ml/min | *** |

Table 1 – LERAP Drift reduction rating (2 m/sec wind speed)

Spray heads **must** always maintain close contact with the ground. When operating on uneven or rough ground reduce speed to ensure the spray heads **do not** bounce.

The following measures may be used to further reduce any risk of spray drift.

- Schedule treatment for the early morning or the evening hours (there is generally less wind).
- With the Hi Flo units avoid spraying at pressures above 30 psi (2 bar) where possible.
- Keep the working height of the spray heads as low as possible. The risk of drifting increases as the distance between the shield and ground increases.
- Avoid operating at excessive speeds and flow rates.

3 INSTALLATION

Notes for CDA Installation

The tank system should be regulated to an output pressure of 8 to 10 psi. The tank system **must** include an inline filter of 50 mesh size (blue – ISO19732). The CDA spinning disc atomisers are used with a flow gauge with adjustable trimmer to regulate flow according to vehicle speed, application volume and band width.

Notes for Hi-Flo Installation

The Hi-Flo spray heads are fitted with standard hydraulic pressure nozzles and will easily integrate with most tank systems. Flow rates will depend on nozzles size and pressure. Micron Hi-Flo systems will normally operate at between 1 and 2 bar (15 to 30 psi). Your tank system **must** include an inline filter of 50 mesh size (blue – ISO19732).

3.1 Initial Assembly (S-Dome/S-Flex/ S-Guard)

The Micron Weed management system is supplied as a series of modules each with individual assembly instructions.

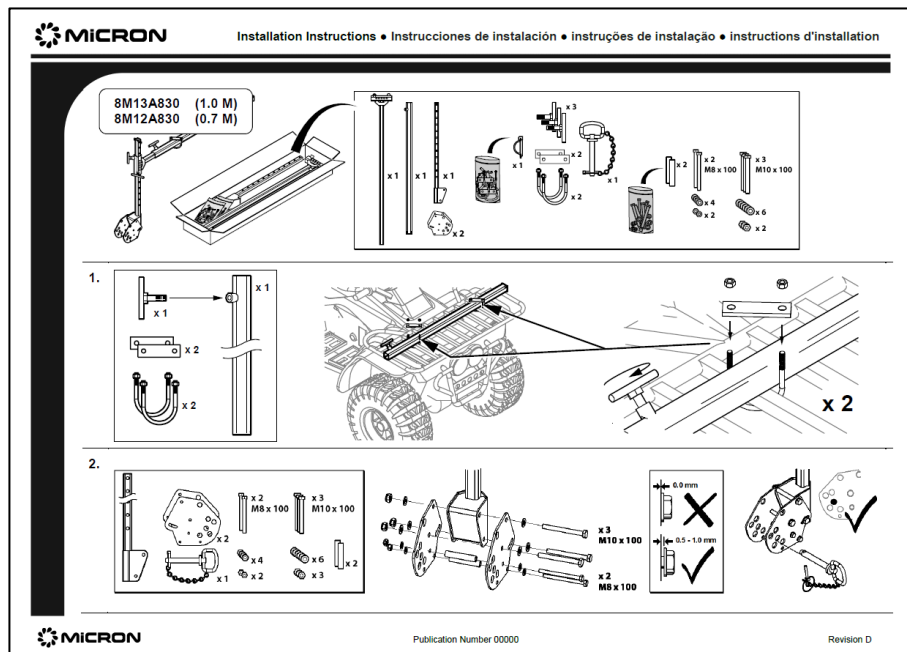
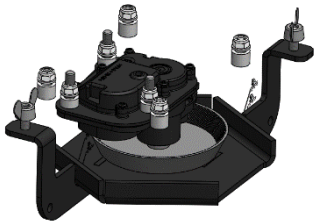


Figure 3 Example of assembly instructions for each module

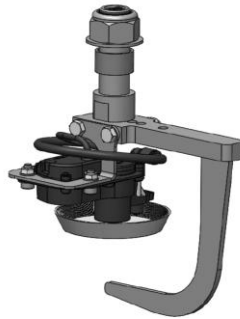
3.2 Atomiser / Nozzle types

CDA Rotary atomiser

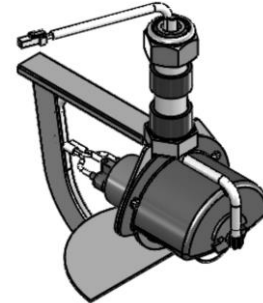
There are three rotary atomiser versions. One for the S-Guard that delivers a 1.2m wide band in large drops, a second that fits to the 1200,900 and 600 S-Flex and S—Dome variants and a third that fits the 400 series narrow band S-Flex and S-Dome units



Large drop
(2000rpm)



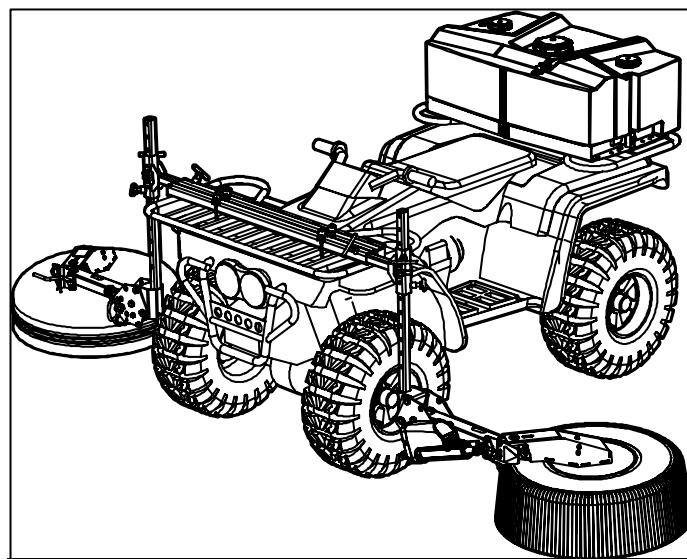
Medium drop
(3000rpm)



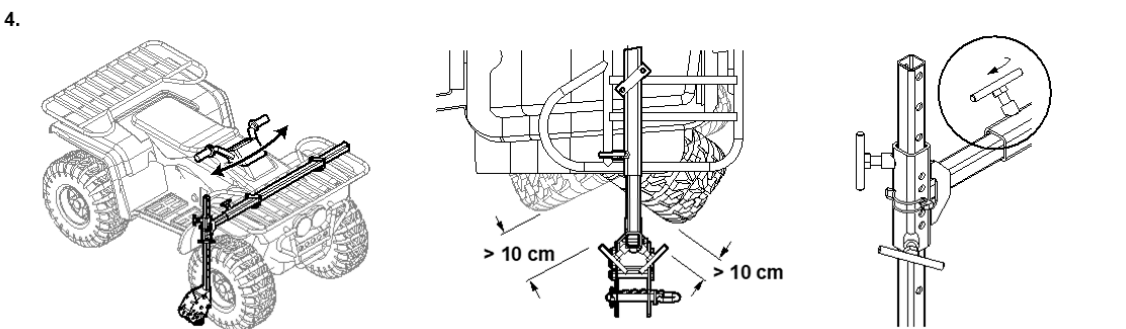
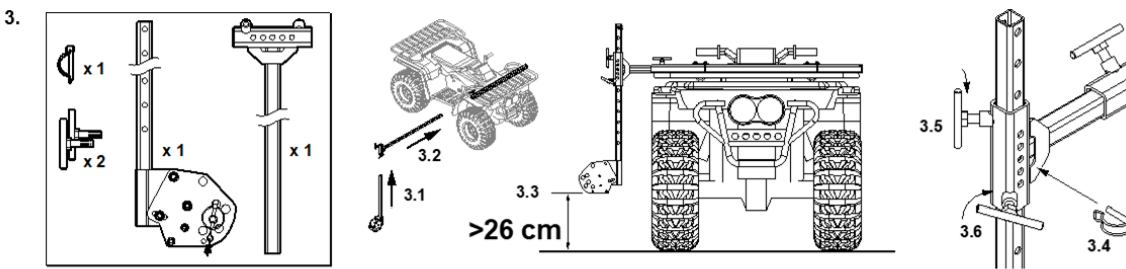
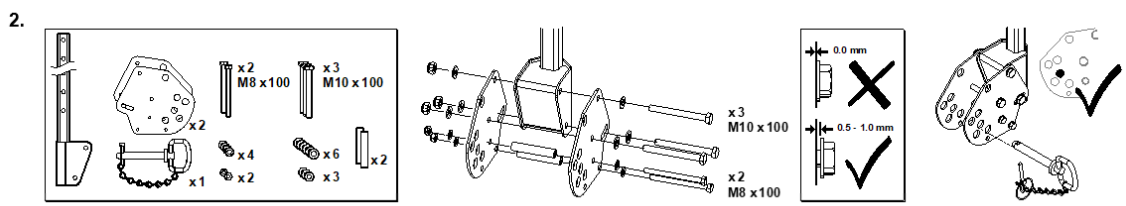
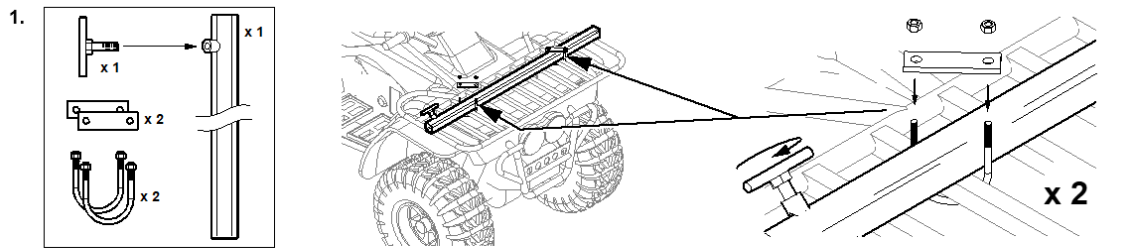
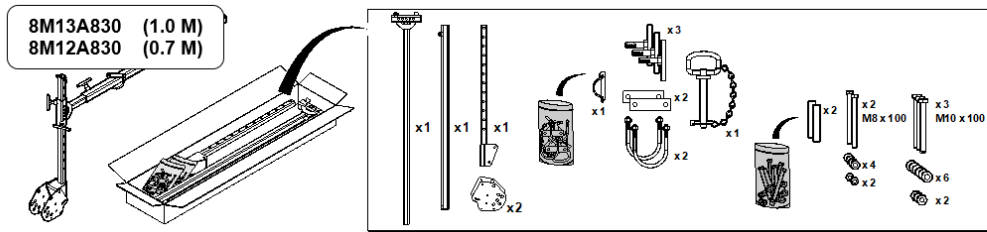
Sectorial Atomiser
(4000rpm)

3.3 Mounting to an All-Terrain Vehicle (ATV)

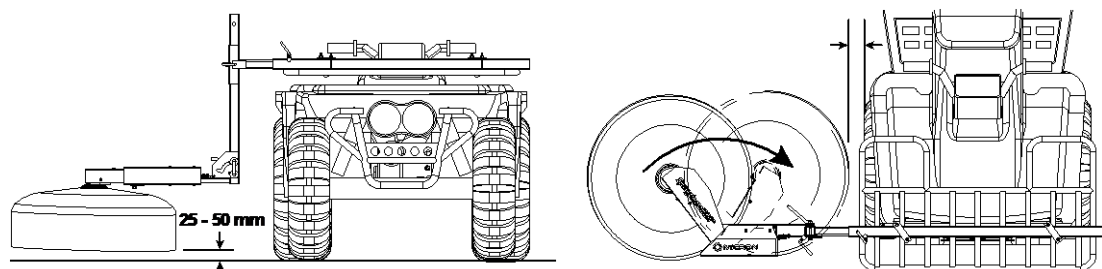
Once the various modules are assembled, it is recommended to mount the spray heads to the front rack of the ATV with vertical support arm (S frame style). Check the weight limit for the rack is not exceeded. Some additional local fabrication may be necessary to fit some vehicles.



Installation on an all-terrain vehicle (ATV) 'S' Frame style



- Select the correct height using the pin and index holes and clamp bolt to lock in position. The spray shield should be between 25 mm and 50 mm from the ground when spraying.
- Ensure that the breakaway can operate freely without touching the ATV.



3.4 Mounting to a Tractor

It is recommended to mount the spray heads to your tractor at a point just behind the front wheel. Ensure that the spray heads can be easily seen from the operator's position. Ensure that there is sufficient space for the breakaway to operate fully and that the operator's access to the vehicle is not impaired. Modify the 'T'-bar support tube or fabricate a suitable alternative to fit your tractor. For further advice on fitting the spray heads contact the Goizper distributor.

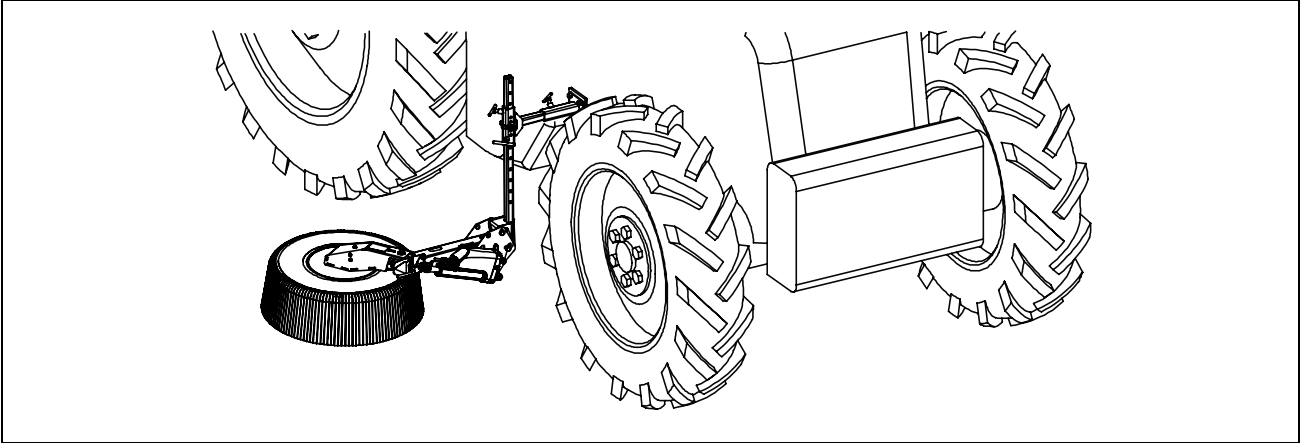
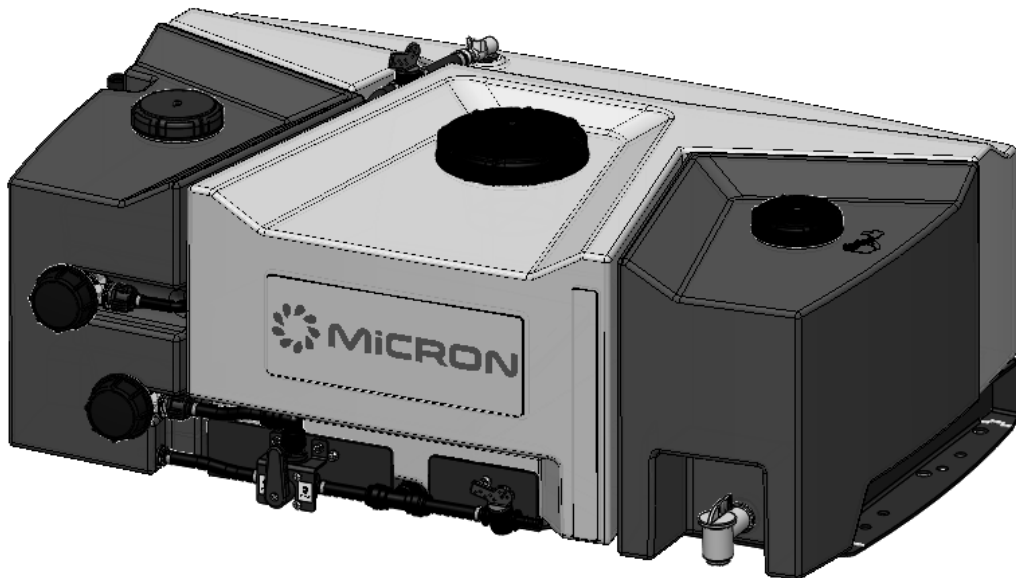


Figure 6 – Installation to tractor

3.5 Tank System

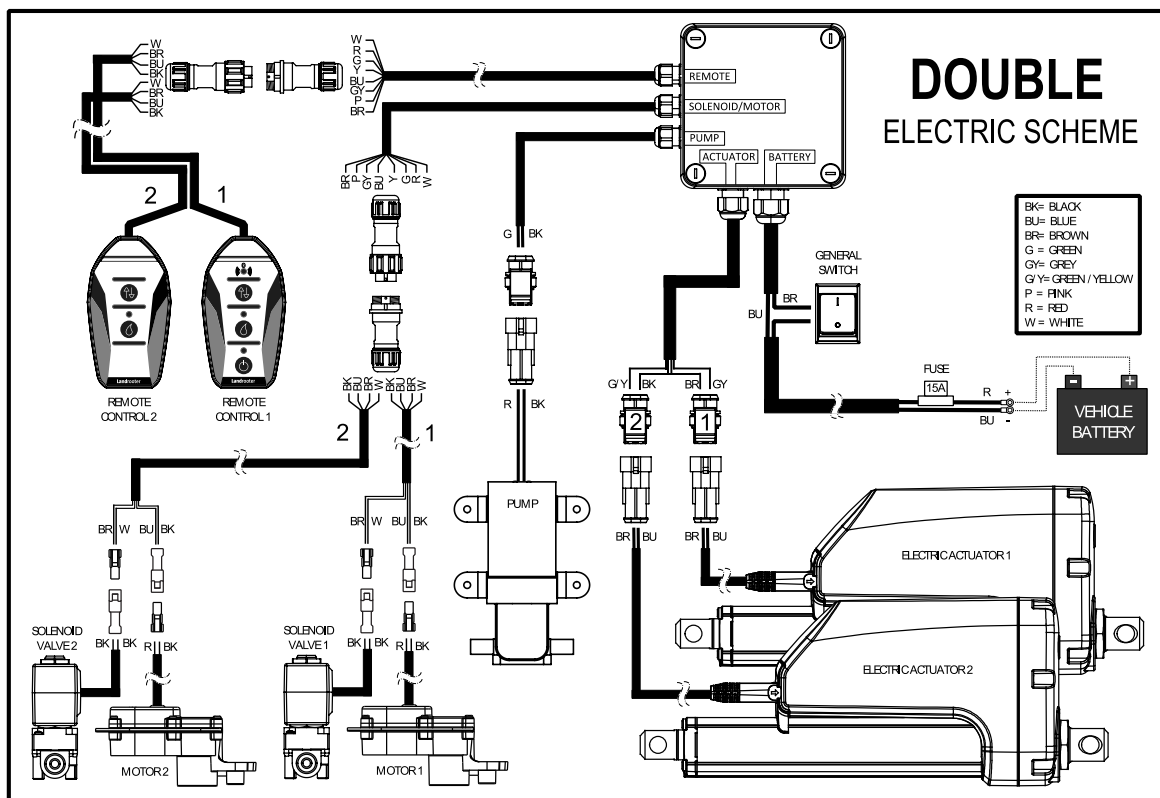
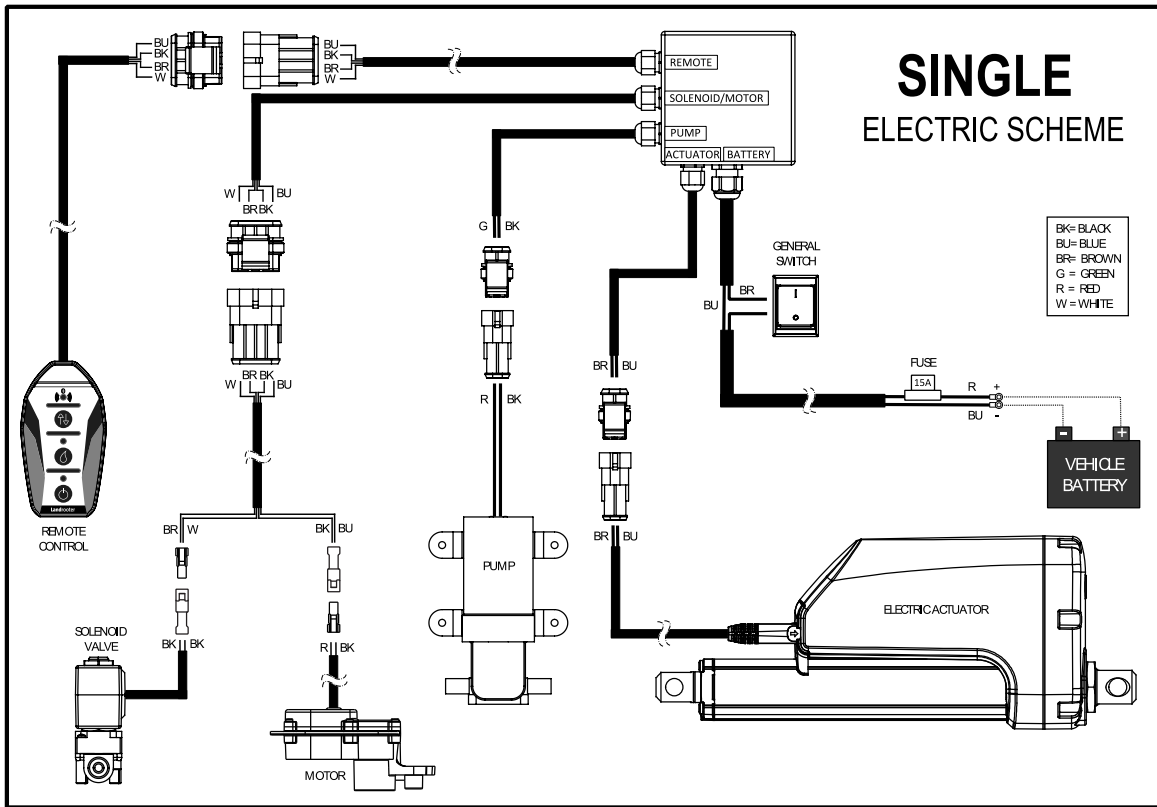
It is recommended to always use the Micron Weed Management tank systems. Refer to the instructions supplied with the tank system.



60 L Tank System

3.6 Electrical Installation – Needs new drawings

Depending on the number of arms (1 or 2), the electrical diagram is different:

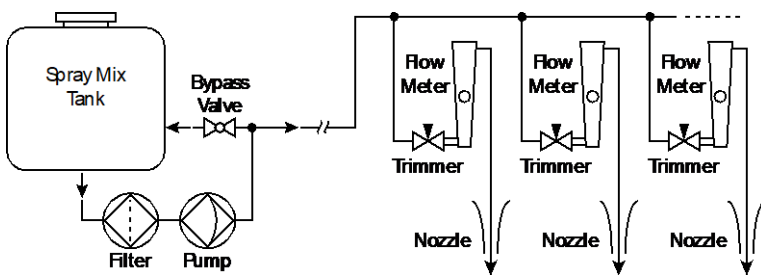


3.7 Flow Control

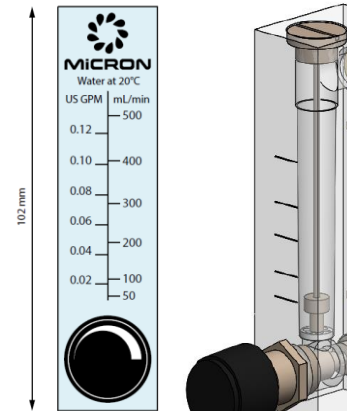
CDA units

Flow control for the rotary atomisers on the CDA units is achieved using a rotameter with adjustable trimmer to regulate flow rate. The liquid flow lifts a ball on the gauge and indicates the flow on a graduated scale.

To the rear of each flow gauge is a 6mm push fit fitting on the upper outlet to connect the feed hose to each individual atomiser – one flow gauge per CDA atomiser. There is also a 6mm push fit inlet at the base of each gauge connected via the manifold to the main inlet from the pump.

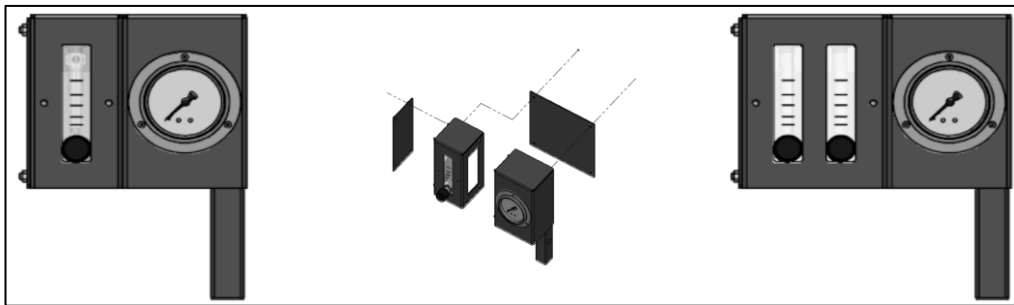


Typical plumbing circuit arrangement



Rotameter with adjustment valve 'trimmer' and calibrated measurement gauge

The flow gauge is also supplied in modular form in single, twin and four-way versions that can be assembled together for multiple spray atomisers.

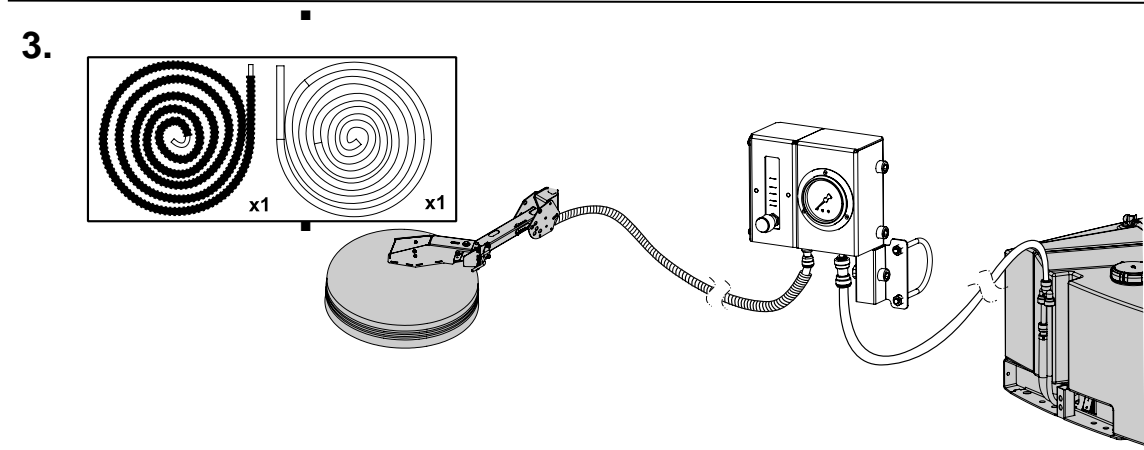
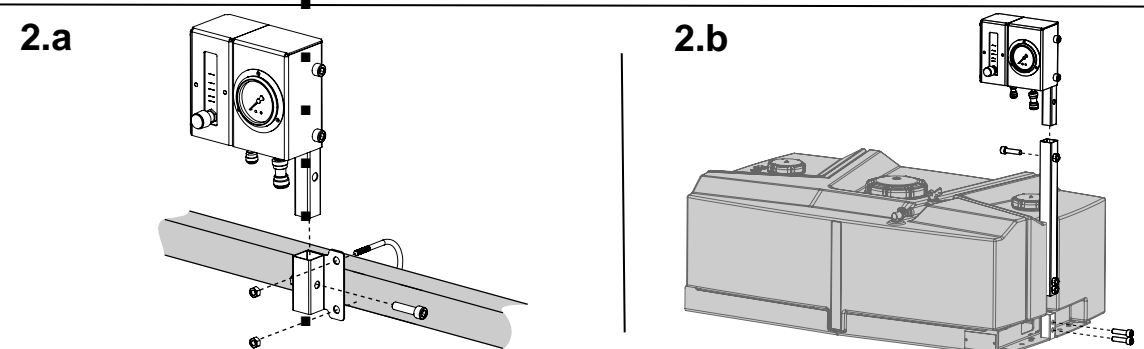
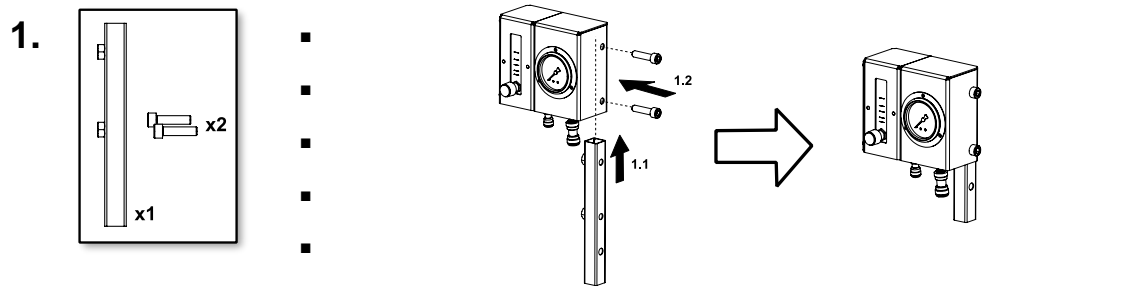
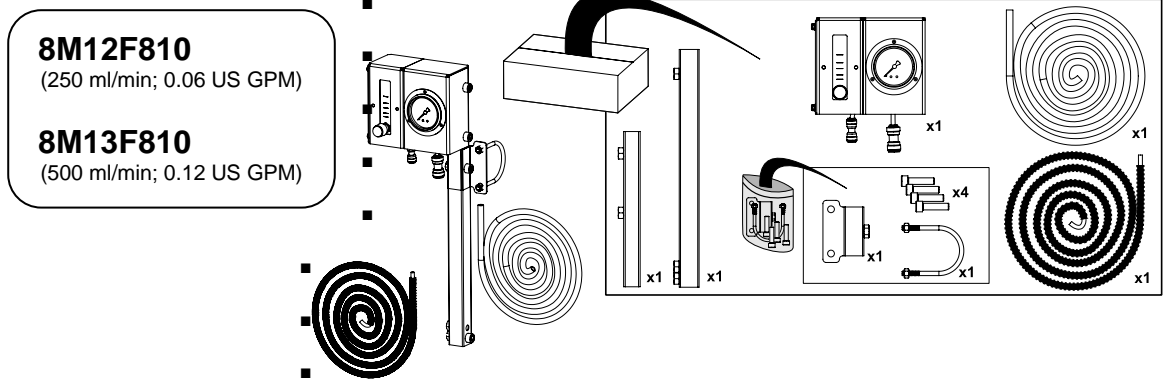


CDA modular flow gauge system

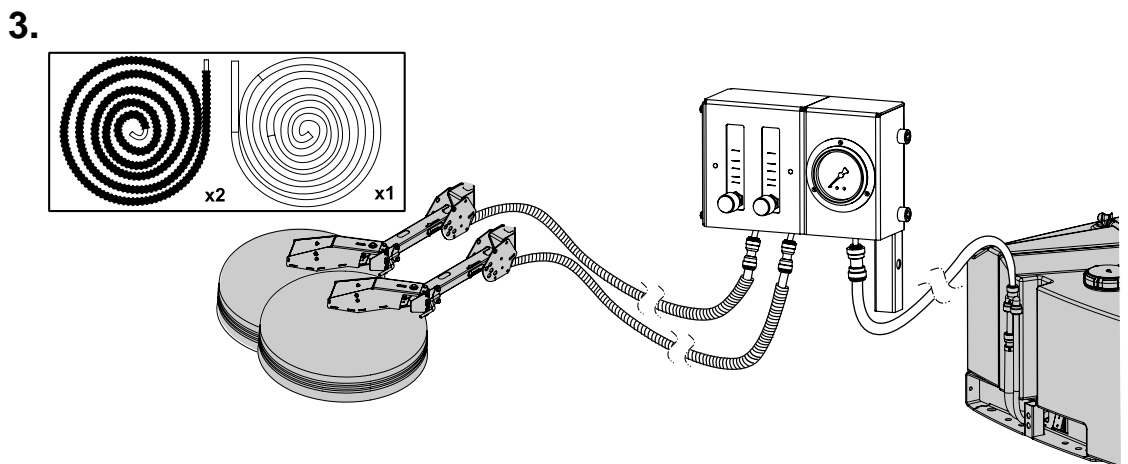
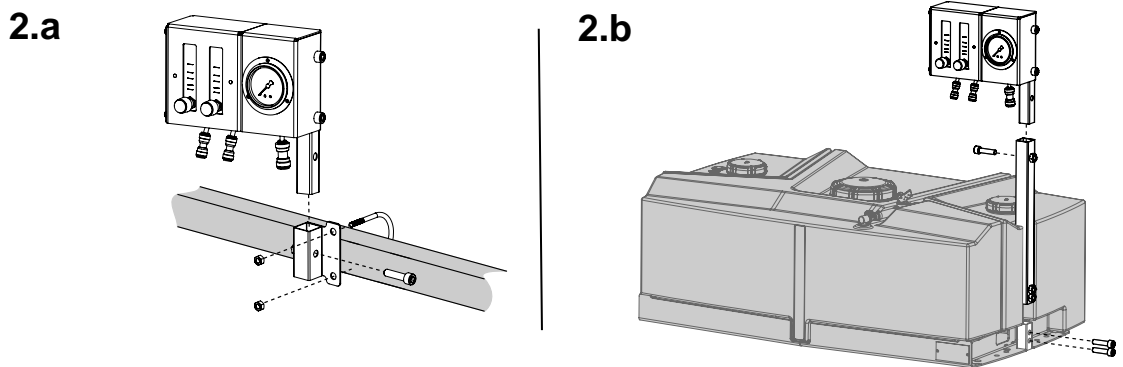
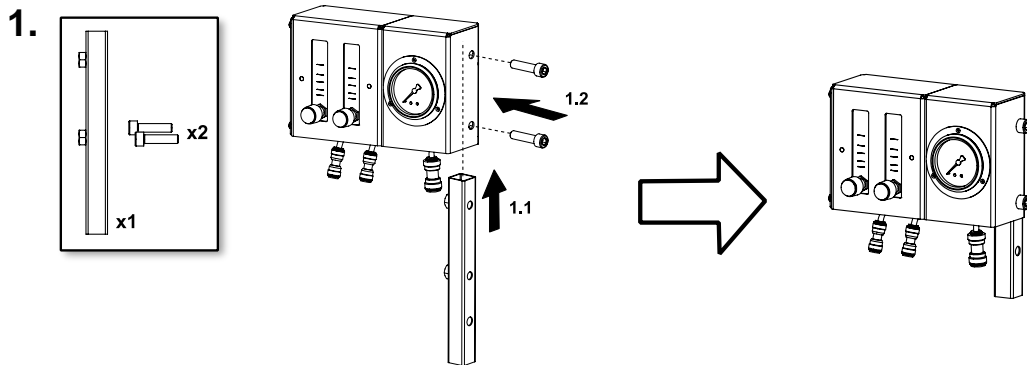
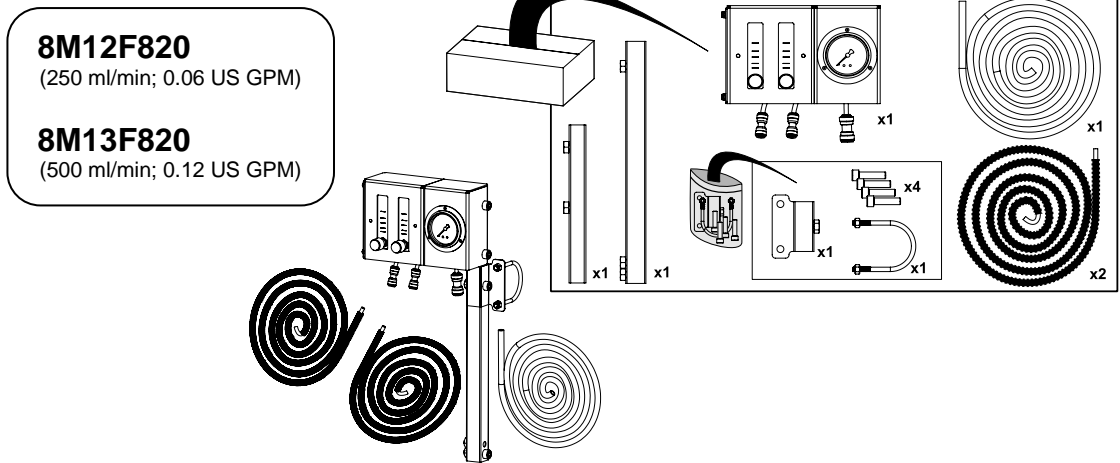
To set the flow rate to each atomiser, first open the individual flow adjustment trimmers to about three quarters open by turning anti-clockwise. Then adjust the return to tank valve to obtain a flow rate some 20% higher than required on the gauges. Then use the individual trimmer on each valve to set the flow to each spray atomiser head as calculated according to band width, vehicle speed and application rate. The inlet pressure from the tank and pump unit should be reading around 8-10 psi on the pressure gauge. If lower or higher then adjust the main return to tank valve and reset the trimmers to desired flow rate.

- Mount the Flow Control in a convenient position visible to the operator.

- SINGLE FLOW CONTROL:



- DOUBLE FLOW CONTROL:



Hi Flo nozzles

The feed hose of Micron Hi Flo models should be connected directly to the outlet hose from the pump. Again, the valve for return to tank can be used to regulate the pressure in the spray lines. The flow rate from each nozzle will be dependent on nozzle size and pressure. Refer to nozzle flow rates and pressures for correct output.

3.8 Breakaway and actuator

8M13A820

8M13A640

1.a

8M13A820 ✓
8M13A640 ✗

1.b

8M13A820 ✓
8M13A640 ✓

1.b

8M13A820 ✓
8M13A640 ✓

2.

8M13A820 ✓
8M13A640 ✓

3.

8M13A820 ✓
8M13A640 ✓

3.9 Ancillaries and domes

8M13A810

| | | | |
|--|--------------------|--|-------------------|
| | Ø 600 8M13D060 | | Ø 600 8M12D060 |
| | Ø 900 8M13D090 | | Ø 900 8M12D090 |
| | Ø 1200 8M13D120 | | |

1.

2.

8M13A850

| | | | |
|--|-------------------|--|-------------------|
| | Ø 400 8M13D040 | | Ø 400 8M12D040 |
|--|-------------------|--|-------------------|

1.

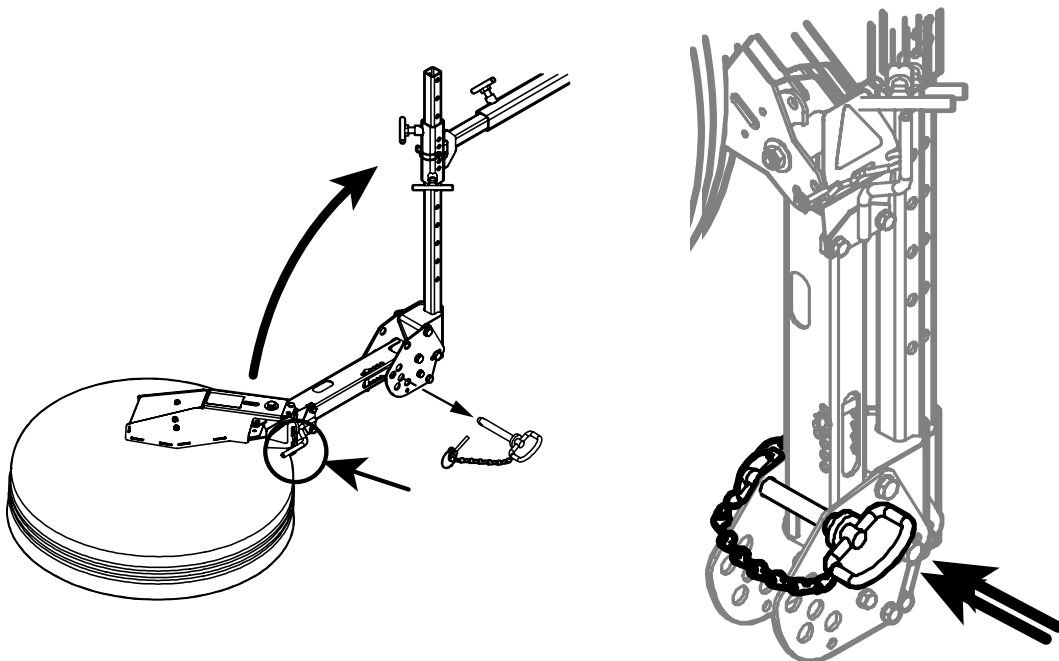
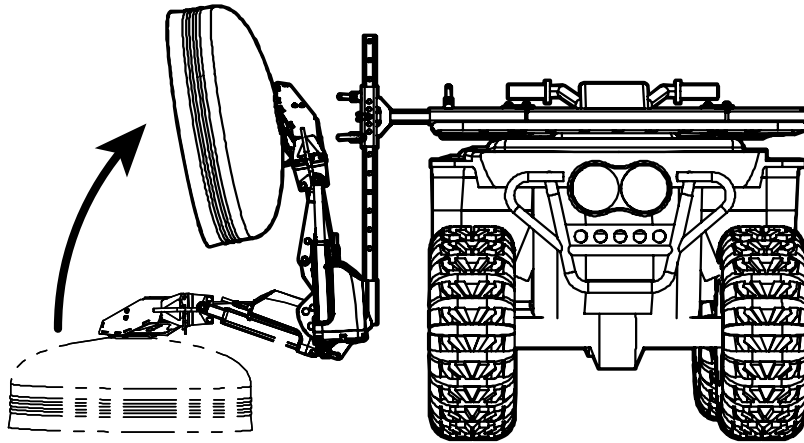
2.

3.10 Transport



When transporting the sprayer on public highways it is the responsibility of the operator to ensure the implement and tanking system can be safely moved and all road regulations complied with.

When transporting the sprayer operators **must** lift all the breakaway assemblies into their raised positions and lock them using the clamp bolt assembly. Also check the driver's vision is not obscured. ATV units are usually transported with a flat bed trailer and pickup truck.



4 PREPARING FOR SPRAYING



Wear Gloves



Wear a face shield
or Eye Protection



Wear Protective
Clothing



Wash hands

4.1 Pre-spray inspection

Before using the sprayer for the first time check all hose connections are secure and electrical functions are operating correctly. Check for leaks using water only if using the sprayer for the first time or after a period of prolonged storage.

4.2 Sprayer Setup

When calibrating it is important to note the number of atomisers or nozzles on each spray head.

The CDA units have rotary atomisers with individual flow control to each.

Hi Flo systems use hydraulic pressure nozzles. The 400 and 600 Hi Flo units have one nozzle centrally mounted; larger units have a twin nozzle arrangement. The table below describes each configuration.

| Model | Nozzles | Type |
|--------------------|---------|----------------------|
| CDA Units | 1 | Spinning Disc |
| Hi Flo 400 and 600 | 1 | Single flat fan (XR) |
| HiFlo 900 and 1200 | 2 | Twin flat fan (XR) |

5 CALIBRATION

The flow rate per atomiser/nozzle is calculated using the following formula

$$\text{Flow rate per atomiser/nozzle (l/min)} = \frac{\text{Band width (m)} \times \text{Vehicle speed (kph)} \times \text{Application Volume (l/ha)}}{600}$$

Note: Metric units must be used for this formula

For example:

Two S-Flex CDA 400 spray heads (left and right) on an ATV travelling at 6 kph applying 40 l/ha of spray mix. First calculate the flow required for each S-Flex CDA 400 as follows:-

Band width = 0.4m

Vehicle speed = 6 kph

Application volume = 40 l/ha

Flow rate per S-Flex CDA 400 (l/min) = $0.4 \text{ m} \times 6 \text{ kph} \times 40 \text{ l/ha} / 600 = 0.16 \text{ l/min}$

Set each head to 160ml/min r so two heads would be **total of 320ml/min** output The Landrooter™ app can also be used to calculate the correct flow rate for each nozzle.

5.1 Use of Landrooter™ wizard

In order to make easier the calibration, we suggest using LANDROOTER WIZARD.



LANDROOTER

Click on:



Field full tanks

| | | | |
|------------------------|---|-------------------------|-----|
| FIELD SIZE (ha) | 0 | DIST. BETWEEN LINES (m) | 0 |
| N° OF HEADS (u) | 1 | Ø FOOTPRINT (m) | 0.4 |
| N° OF ARMS (u) | 1 | TREATED DISTANCE (m) | 0.8 |
| SPEED (km/h) | 0 | TANK SIZE (l) | 0 |
| DOSE (l/ha) | 0 | CONCENTRATION (%) | 0 |
| TRAVELED DISTANCE (km) | 0 | THEORETICAL T. (h) | 0 |

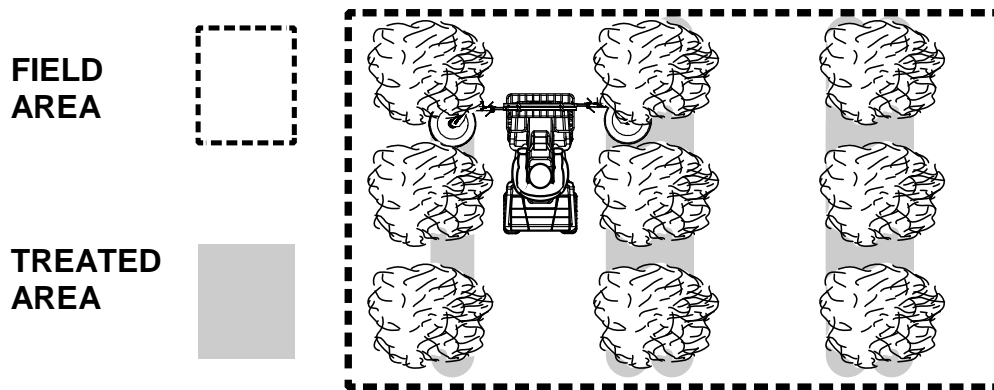
FLOW 0 ml/min

**Required quantity:
0 full tanks and 0 L**

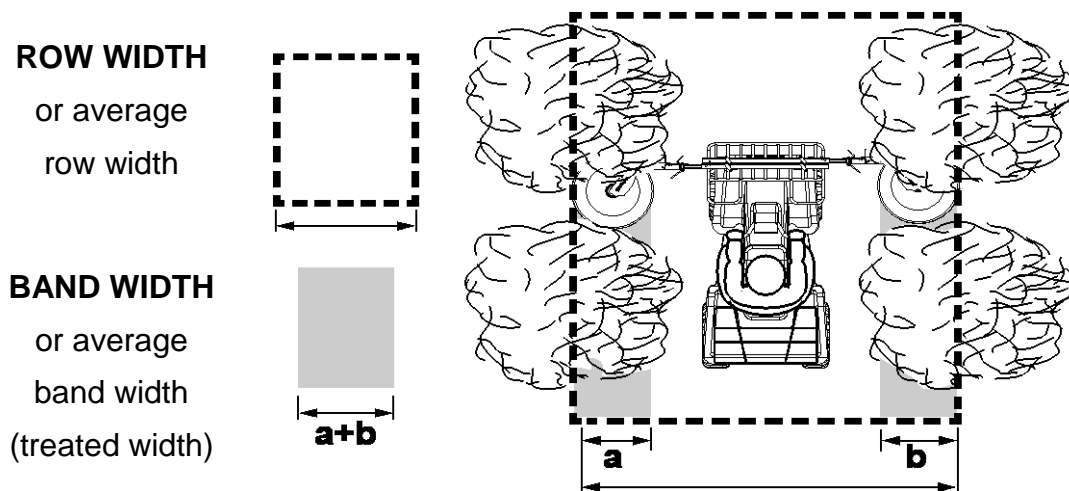
| | |
|------------------------------|------------------------------|
| PRODUCT 0.00L WATER 0.00L | PRODUCT 0.00L WATER 0.00L |
|------------------------------|------------------------------|

5.2 Calculating Treated Area as Percentage of Field Area

When spraying with a band sprayer the area sprayed will be less than the area of the field. It is important to distinguish between area sprayed as 'treated area' and the area of the field as 'Field Area' see below.



The 'treated area' can be considered as a percentage of the 'field area'. This percentage is the same as that of the band width as a percentage of the row width for each spray pass



Example: If spraying two bands each 0.4 m wide using two S-Flex 400 units between trees planted at 2.0 m distance then only 40% of the area is treated

$$(2 \times 0.4 / 2.0 \times 100 = 40\%)$$

Using the example above and spraying rate of 40 litres per hectare. Reduce the application rate (40 l/ha) by the same ratio as the band width to row width (40%) to calculate the actual application rate per hectare. $40 \text{ l} \times 0.4$ (or 40%) = 16 litres of spray mix per field hectare.

5.3 Calculating the Tree Length (Km) Sprayed Per Tank Fill

$$\text{Tree length sprayed (km)} = \frac{10 \times \text{Tank Contents (L)}}{(\text{Application Rate l/ha} \times \text{Band Width m})}$$

Example:

2 x S-Flex 400 = 0.8 m band

Tank contents = 80 l

Application rate = 40 l/ha

Tree length sprayed (km) = $10 \times 80 \text{ litre} / (40 \text{ l/ha} \times 0.8 \text{ m}) = 25 \text{ km}$

5.4 Calculating Mixing Rates

Always read the product label to identify the maximum quantity of product to be applied per hectare e.g. 2 litres product per hectare.

Calculate the total volume of spray mix required as follows

$$\text{Spray Mix Volume (litres)} = \frac{\text{Volume Rate (l/ha)} \times \text{Band Width (metres)} \times \text{Field Area (ha)}}{\text{Row Width (metres)}}$$

Volume Rate (l/ha): This is the total amount of spray mix to be sprayed per hectare.

Band Width (metres): This is the width covered by the shield or combination of shields.

Field Area (ha): This is the total area of field.

Row Width (metres): This is the distance between tree or crop rows.

Example:

Using the above example of 40 l/ha application rate in trees planted at 2 m distance with two S-Flex 400 heads each 0.4 m (0.8 m total) on an area of 5 ha.

The required tank contents for the S-Flex spray heads will be:

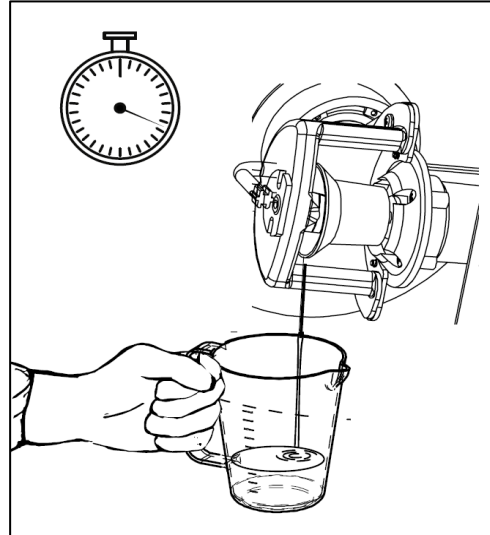
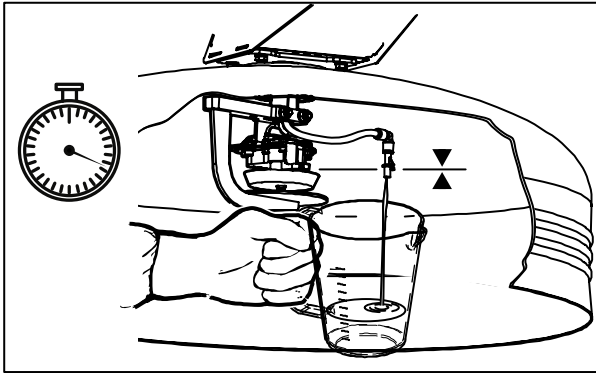
| | | | | | | | | | | |
|------------------------------------|----------|-----------------------------------|----------|------------------------------------|----------|--------------------------------|----------|-----------------------------------|----------|----------------------|
| Mix Volume (litres) | = | Volume Rate (l/ha) | X | Band Width (metres) | X | Field Area (ha) | / | Row Width (metres) | = | 80 litres |
| | | 40 | | 0.8 | | 5 | | 2.0 | | |

5.5 Measuring the flow rate

Flow Rate CDA

Measuring output flow rate from the CDA atomiser (disc type atomisers only)

On the 600,900 and 1200 models simply remove the feed nozzle to the atomiser disc and measure the discharge over 1 minute with the pump on.



On the 400 models remove the atomiser disc then measure the discharge over 1 minute with the pump on.

Flow Rate from Hi Flo Nozzles

Check the required flow rate for each nozzle using the Landrooter App or formulae in section 5 of this document. Select the nozzle and pressure required from the following table.

| Nozzle Type | Pressure (Bar) | | | | |
|-------------|----------------|------|------|------|------|
| | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 |
| DG95 015 | - | - | 0.48 | 0.54 | 0.59 |
| DG95 02 | - | - | 0.65 | 0.72 | 0.79 |
| DG95 03 | - | - | 0.96 | 1.08 | 1.18 |
| XR 02 | 0.46 | 0.56 | 0.65 | 0.72 | 0.79 |
| XR 03 | 0.68 | 0.83 | 0.96 | 1.08 | 1.18 |
| XR 04 | 0.91 | 1.12 | 1.29 | 1.44 | 1.58 |
| FCX2 | 0.74 | 0.85 | 1.05 | 1.17 | 1.29 |
| FCX3 | 1.12 | 1.35 | 1.58 | 1.76 | 1.93 |
| FL-5/VC | 1.19 | 1.43 | 1.69 | 1.81 | 1.97 |

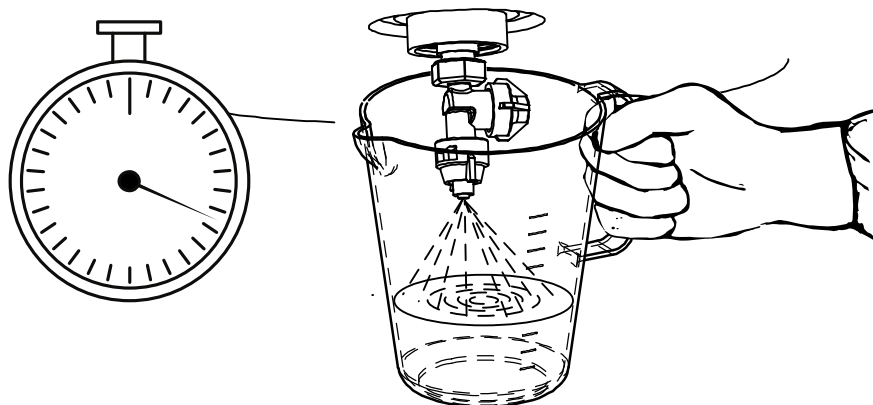
Table 2 - Flow rates per nozzle (l/min) with Hi Flo nozzles

Flow Rate Test - Hi Flo Nozzles

The flow chart above should provide a good indication of the flow rate from each nozzle size at different pressures.

To check the nozzle output you will require a stop watch and a graduated measuring cylinder large enough to hold the output volume expected over 1 minute.

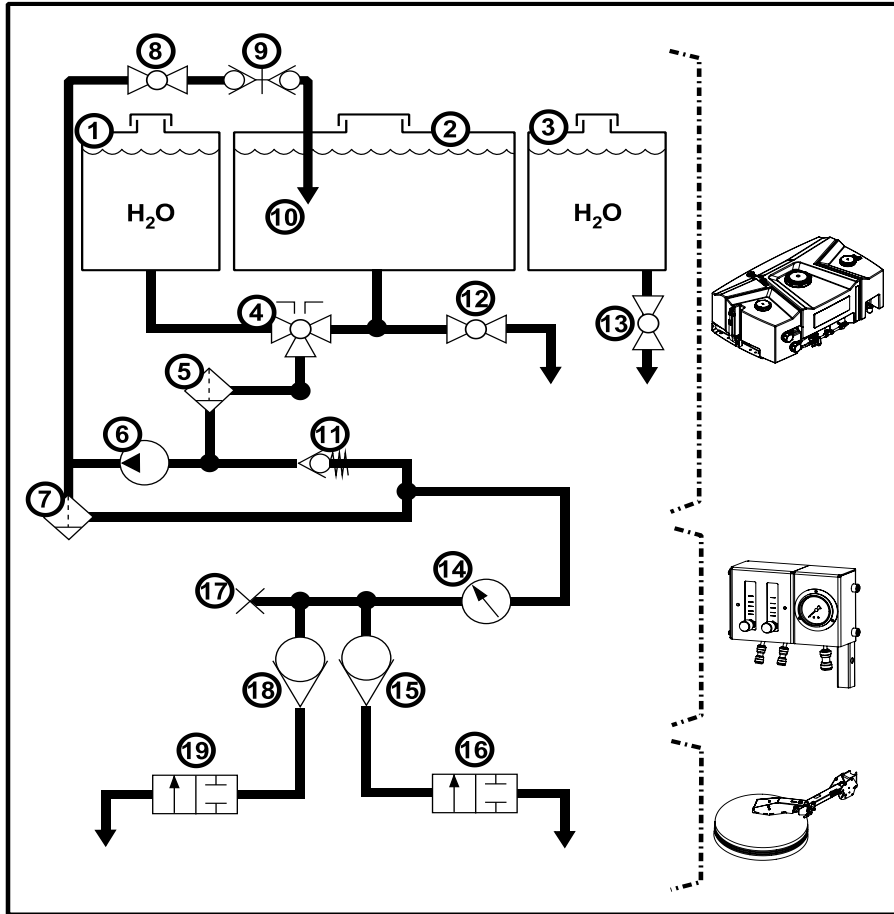
- Start the spraying pump and ensure the output from the nozzle is steady.
- Place the measuring cylinder under the nozzle and measure the quantity of liquid dispensed in one minute.



- The flow rate is determined by the line pressure and nozzle used. If the flow rate is not correct (as calculated in section 5) then adjust the spray line pressure or change the nozzle as required.

5.6 Plumbing Circuit

60 Litre ATV Tank

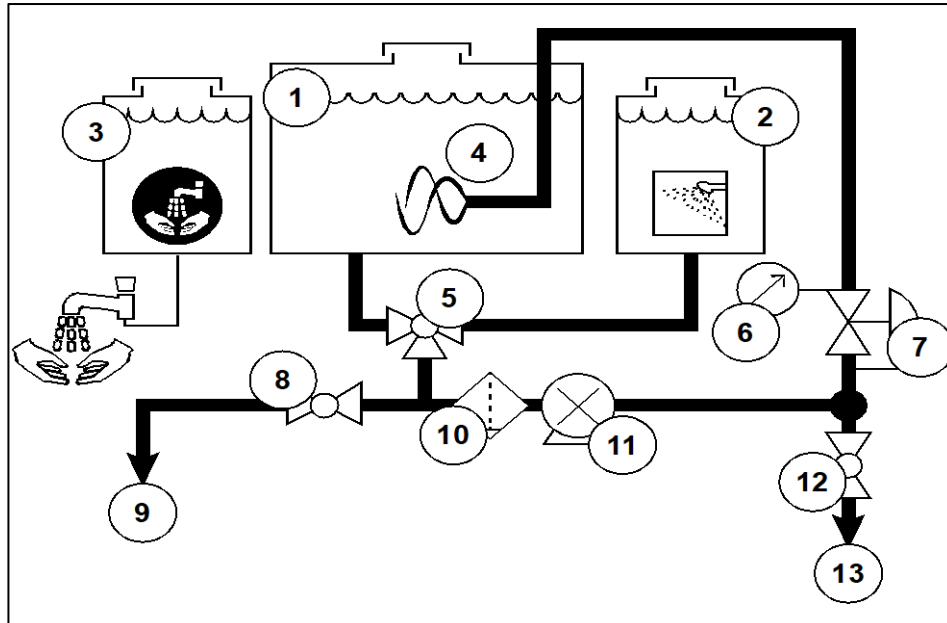


| | |
|----|------------------|
| 1 | Rinse Tank |
| 2 | Main Tank |
| 3 | Hand wash Tank |
| 4 | 3 way valve |
| 5 | 50 mesh Filter |
| 6 | Pump |
| 7 | 50 mesh Filter |
| 8 | Return valve |
| 9 | Quick connectors |
| 10 | Return flow |

| | |
|----|------------------------|
| 11 | Pressure release valve |
| 12 | Drain valve |
| 13 | Hand wash valve |
| 14 | Manometer |
| 15 | Rotameter 1 |
| 16 | Solenoid valve 1 |
| 17 | Stopper |
| 18 | Rotameter 2 |
| 19 | Solenoid valve 2 |
| | |

* Flow diagram is for double arm system. Single arm system is the same without items 18 and 19.

200 litre Tank



| | |
|---|---|
| 1 | Spray Tank |
| 2 | Rinse Tank (clean water only) |
| 3 | Hand Wash Tank (may be fitted separately on ATV) |
| 4 | Spray Tank Agitation |
| 5 | Tank Selection Valve (main tank or rinse tank) |
| 6 | Pressure Gauge (spray line) |

| | |
|----|---|
| 7 | Pressure Regulating Valve |
| 8 | Drain Isolation Valve |
| 9 | Drain Outlet |
| 10 | Filter ¹ |
| 11 | Pump (Electric, Hydraulic or PTO driven) |
| 12 | Spray Boom/Line Isolation Valve |
| 13 | Outlet Stop Valve |

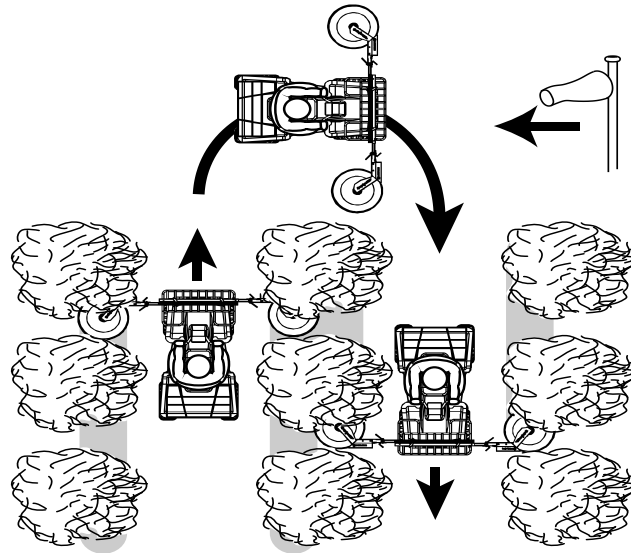
200 Litre Tank system Features

¹ Your tank system **must** include an inline filter of 50 mesh size (blue – ISO19732).

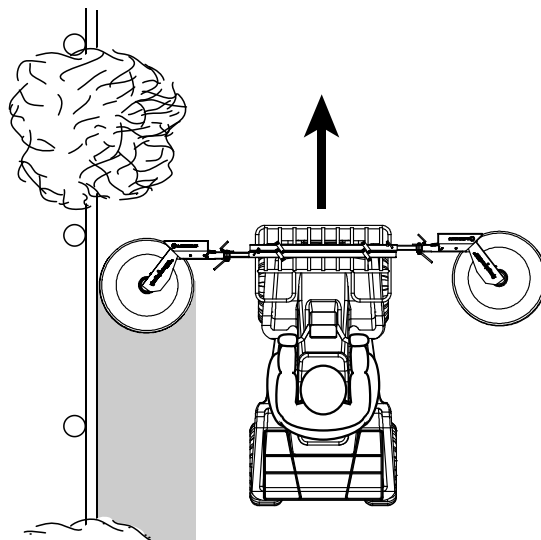
6 SPRAYING

Application Method

Operators using vehicles without an enclosed cabin **must** wear the appropriate personal protective equipment (PPE) during spraying. Plan the spray route to avoid driving over sprayed areas. Switch off flow to spray atomisers / nozzles at the end of each row.



When spraying fence lines or the last tree row it will be necessary to operate only one spray head.



7 CLEANING



Wear Gloves



Wear Eye Protection



Wear Protective Clothing



Wash hands

When spray is complete rinse out the spray lines, pump and atomiser/nozzles with clean water and spray out any washings onto the treated area or a suitable non crop area. Do not exceed maximum dose rates.

Wash down any contaminated surfaces with clean water and detergent in a secure area or biobed where washings are retained and cannot enter waterways or drain into adjacent areas.

7.1 Disposal of Washings



Always dispose of chemicals and washings in accordance with the manufacturer's instructions.

Pesticides **must** always be handled and stored in accordance with the manufacturer's instructions and stored in their original containers.



Avoid contamination of waterways or drainage ditches when disposing of washings and follow local regulations regarding the safe use and disposal of pesticides.

8 MAINTENANCE

Micron spraying equipment will require routine maintenance; the user should regularly inspect the equipment for damage or wear and replace any damaged or significantly worn items immediately. Any moving parts should be lubricated with a suitable good quality lubricant. Always flush through pump, hoses and atomisers/nozzles with clean water after spraying to avoid nozzle blockages.

8.1 Service and Inspection intervals

| Item | Action | Frequency |
|--|---|--|
| Spray nozzle (Hi-Flo). | Remove and Clean. Check flow rate. | Start of each season and during as required |
| Feed Nozzle (CDA). | Remove and Clean. Check flow rate. | Start of each season and during as required |
| Atomiser disc or drum and recirculation cap. | Remove and Clean. | Start of each season and during as required. |
| Atomiser Motor. | Remove and clean contact. Ensure the motor is free from moisture before refitting. | As required should issues arise |
| Flow meter. | Flush through with clean water. | After each use. |
| Spray lines and ancillary items. | Check for leaks. Check for correct operation of valves and regulators. | Start of each season |
| Filters | Check and clean all filters. | Start of each season and as required during |
| Shield brushes. | Check for excessive wear or damage. | Start of each season |
| Mechanical defects. | Inspect operation of mechanical components. Grease moving parts as required. | Start of each season. |
| Joins, pivot pins and bearings. | Check for excessive wear and adequate lubrication. | Annually. |
| Greased joints and grease nipples. | Pack with grease. | Annually. |
| Moving Parts. | Check for free and smooth operation and adequate lubrication. | Annually. |

8.2 Sprayer storage

- Ensure the system is drained of all fluids including those in any rinse tank or hand-wash tank. Dispose of washings appropriately.
- Where winter temperatures approach freezing it is necessary to add antifreeze into the main tank and circulate around pump and spray lines to prevent
- Store the equipment in a covered and well-ventilated area. Store away from direct sunlight.
- Ensure brushes (if fitted) are suspended above ground to prevent damage during storage.
- Before use drain anti-freeze from system is used during winter. Rinse through with clean water before spraying.

9 TROUBLESHOOTING

| Mechanical Faults | | |
|--|-----------------------------------|---------------------------------------|
| Problem | Possible Cause | Action |
| Breakaway arm stiff or does not move. | Pivot seized. | Dismantle, clean and lubricate pivot. |
| Breakaway arm loose and does not return to stop. | Return spring detached or broken. | Reattach or replace spring. |
| Dome/Shield does not rotate freely. | Dome/shield bearing seized. | Replace bearing. |

9.1 Hi-Flo

| Problem | Possible Cause | Action |
|--------------------------------------|---|---|
| Pump runs but no output from nozzle. | Tank empty. Blocked nozzle. Blocked filter. Blocked hose. Kinked hose. Faulty pump. | Refill tank. Remove and clean nozzle. Check and clean all filters. Purge all hoses. Straighten all hoses. Replace the pump. |
| Low flow rate or flow rate varies. | Tank level low or empty. Partially blocked nozzle. Blocked filter. Blocked hose. Kinked hose. Supply pressure too low. Faulty Pump. Air in system. Aerated spray fluid. | Refill tank. Remove and clean nozzle. Check and clean all filters. Purge all hoses. Straighten all hoses. Increase supply pressure to between 1 and 2 bar. Replace Pump. Purge air from system. Reduce pump operation or agitation. |
| High flow rate. | Incorrect or worn nozzle. Supply pressure too high. | Replace with new nozzle. Reduce supply pressure to between 1 and 2 bar. |

9.2 CDA

| Problem | Possible Cause | Action |
|--|---|---|
| Pump and CDA atomiser not operating. | Inline switch is off. Blown fuse. Loose connection at battery or backplate. Incorrect wiring at backplate or control unit. | Switch on. replace fuse. Check all connections; tighten as necessary. Check wiring and re-wire as necessary. |
| Blows fuse with control unit switched off. | Wiring on main lead or backplate reversed. | Check wiring and re-wire as necessary. |

| | | |
|--|---|--|
| Blows fuse when control unit is switched on. | Short to earth. | Check all wiring for earth faults and repair. |
| CDA atomiser does not operate. | Obstruction in atomiser disc. Atomiser faulty. | Remove and clean atomiser disc. Replace atomiser unit |
| Pump operates intermittently. | Loose electrical connection. | Check all connections; tighten as necessary. |
| Pump will not operate. | Loose electrical connection. Faulty pump motor. | Check connections. Check or replace pump motor. |
| Pump runs but no flow from outlet. | Tank empty. Blocked nozzle. Blocked filter. Blocked hose. Kinked hose. Float stuck in flow meter. Solenoid not opening. | Refill tank. Remove and clean. Check and clean Clean all hoses. Straighten all hoses. Clean with water. Check wiring and operation |

10 SPRAYER DISPOSAL



Dispose of equipment in accordance with local regulations.
Clean to remove any chemical residues and dispose of accordingly



Avoid contamination of the environment with any sprayer washings

Dismantle equipment as far as practical and clean all parts.

Dispose of the component parts by material type in accordance with local waste disposal regulations.

1. Vehicle Stability Calculations

The user should take appropriate steps to determine the correct centre of gravity of the equipment configuration and loads to be used. The following calculation is provided as a guide for agricultural tractor mounted installations. For other vehicle types refer to the vehicle manufacturer's instructions.

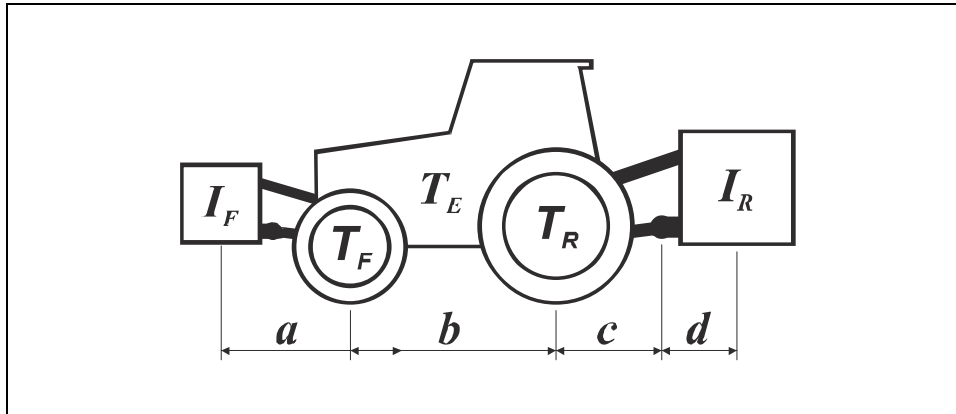


Figure 3 - Stability of tractor machine combinations

$$I_{F, \min} = \frac{(I_R \times (c + d)) - (T_F \times b) + (0.2 \times T_E \times b)}{a + b}$$

T_E [kg] Mass of unladen tractor ¹

T_F [kg] Front axle load of unladen tractor ⁴

T_R [kg] Rear axle load of unladen tractor ⁴

I_R [kg] Combined mass of rear mounted implement and/or rear ballast ²

I_F [kg] Combined mass of front mounted implement and/or front ballast ⁵

a [m] Distance from centre of gravity for combined front mounted implement and/or front ballast to front axle centre ³

b [m] Tractor wheelbase ^{4 6}

c [m] Distance from rear axle centre to centre of lower link balls ^{4 6}

d [m] Distance from centre of lower link balls to centre of gravity for combined rear mounted implement and/or rear ballast ^{5 6}

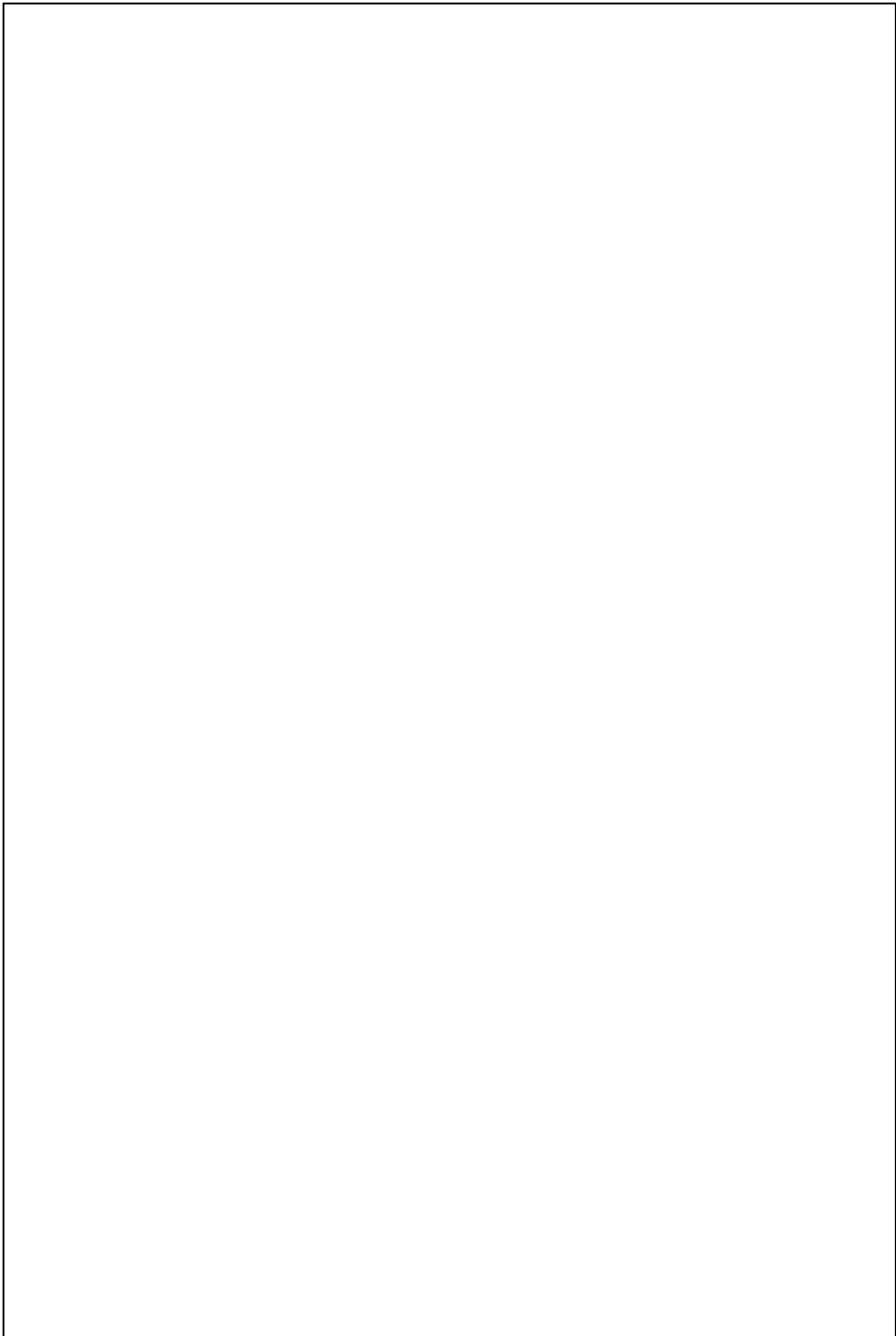
¹ refer to manufacturers information

² refer to section technical specification

³ to be measured

2. Conversion Factors

| | | | | |
|-----------------|---|--------------------|---|----------------------|
| 1 yard | = | 3 feet | = | 0.91 metre |
| 1 metre | = | 39.37 inches | = | 1.09 yards |
| 1 statute mile | = | 0.87 nautical mile | = | 1.61 kilometres |
| 1 nautical mile | = | 1.15 statute mile | = | 1.85 kilometres |
| 1 kilometre | = | 0.62 statute mile | = | 0.54 nautical mile |
| 1 statute mile | = | 1760 yards | = | 5280 feet |
| 1 nautical mile | = | 2027 yards | = | 6081 feet |
| 1 kilometre | = | 1094 yards | = | 3282 feet |
| 1 metre/sec | = | 2.237 miles per hr | = | 196.9 ft/min |
| 1 acre | = | 43560 sq feet | = | 4840 sq yards |
| 1 acre | = | 4047 sq metres | = | 0.40 hectare |
| 1 hectare | = | 107600 sq feet | = | 11955 sq yards |
| 1 hectare | = | 10000 sq metres | = | 2.47 acres |
| 1 sq mile | = | 640 acres | = | 259 hectares |
| 1 sq kilometre | = | 247 acres | = | 100 hectares |
| 1 US gal | = | 0.83 Imp gal | = | 3.78 litres |
| 1 Imp gal | = | 1.20 US gals | = | 4.54 litres |
| 1 litre | = | 0.26 US gal | = | 0.22 Imp gal |
| 1 US pint | = | 16 US fl ounces | = | 0.47 litres |
| 1 Imp pint | = | 20 Imp fl ounces | = | 0.57 litre |
| 1 US gal/acre | = | 8 US pint/acre | = | 9.45 litres/hectare |
| 1 Imp gal/acre | = | 8 Imp pints/acre | = | 11.35 litres/hectare |
| 1 litre/hectare | = | 0.11 US gal/acre | = | 0.081 Imp gal/acre |
| 1 pound | = | 16 ounces | = | 0.45 kilogram |
| 1 kilogram | = | 2.20 pounds | = | 35.3 ounces |
| 1 ounce | = | 28.35 grams | | |
| 1 pound/sq inch | = | 0.068 atmosphere | = | 0.067 bar |
| 1 atmosphere | = | 14.70 pounds/sq in | = | 1.01 bar |
| 1 bar | = | 14.50 pounds/sq in | = | 0.98 atmosphere |
| 1 kilopascal | = | 0.01 bar | = | 0.145 pounds/sq in |



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