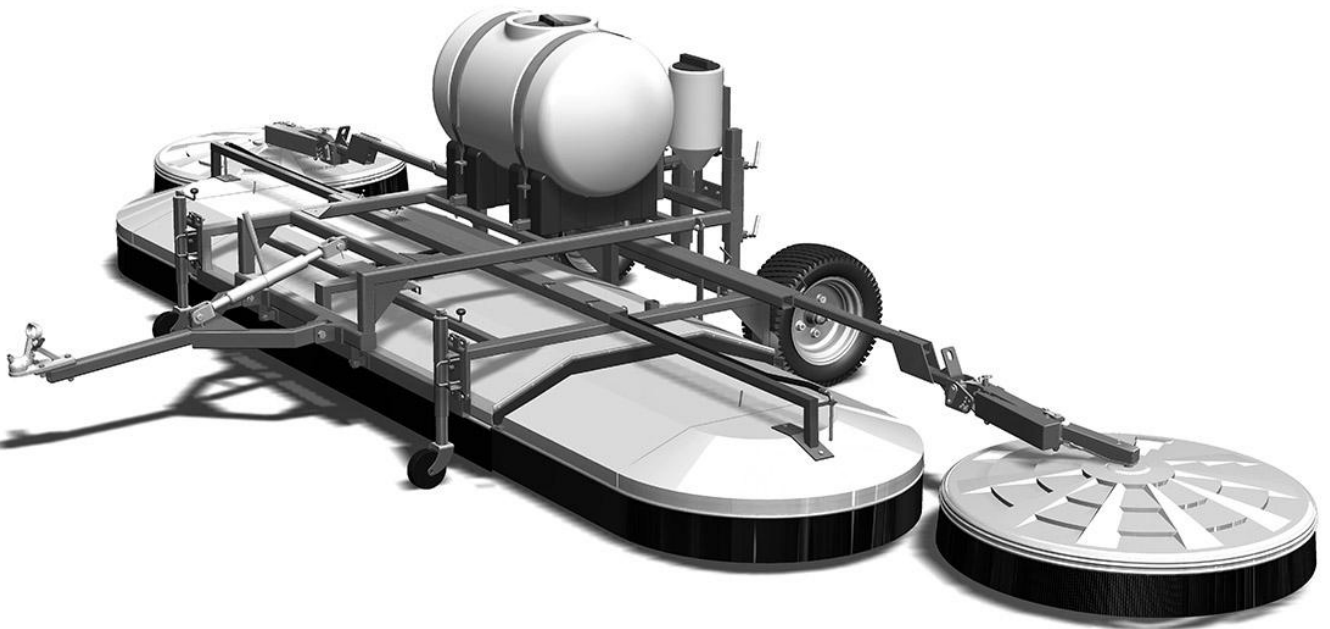




*Spraydome*3049^{CDA}

Adjustable width low profile shielded CDA sprayer



Instruction Manual

Publication Part No: 00000

Revision: A

Edition Notice

Prepared and printed by or on behalf of:



This publication covers the following products:

Spraydome
Undavina
Undavina Grand Cru
Spraymiser

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Preface

This document has been produced to provide guidance for the installation and use of the Spraydome/Undavina/Spraymiser and associated accessories.

Operators of the Spraydome/Undavina/Spraymiser should read this document thoroughly. Operators **must** understand the correct use of this equipment and necessary safety precautions before attempting to install or operate the Spraydome/Undavina/Spraymiser or its associated accessories.

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

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

While reading this document please be aware of the following conventions:

Bold text has been used to highlight information of particular interest.

Italic text has been used to signify references, quoted text and text that provides additional information to the reader. This text may also be highlighted by the use of bold text.

For further information on the use of markers and symbols please refer to the '**Important Information**' section of this document.

Micron is the registered trademark of Micron Sprayers Limited, Bromyard, Herefordshire, United Kingdom. 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, Micron Sprayers Limited 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 is in compliance 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.

IMPORTANT INFORMATION (PLEASE READ)

Instruction to Operators

The equipment referred to in this document is designed for use by suitably qualified and experienced personnel. The user **must** ensure that they are fully compliant with any national or local regulations governing the use of pesticides and application equipment before attempting to use the Spraydome/Undavina/Spraymiser. If misused the Spraydome/Undavina/Spraymiser has the potential to cause harm to personnel, damage to the equipment, property or the environment. Please read the information in this guide thoroughly before installing and/or operating the equipment.

It is the operator's responsibility to ensure the safe use of the equipment and the safety of others during use of the equipment.




It is the operator's responsibility to minimise environmental impact from the use of the equipment.






















It is the operator's responsibility to ensure that all warning labels on the equipment are legible. Any damaged labels must be replaced.

Working with this Document

This document has been written to provide the information to correctly install and use the equipment safely. Various symbols are used on the equipment and in this document to provide guidance to the operator; please take time to become familiar with these symbols.

SYMBOLS USED ON THE EQUIPMENT AND IN THIS DOCUMENT

	<p>Denotes a caution or warning – ‘things you should be aware of’. A specific warning is given in or close to this symbol.</p> <p>NEGLIGENCE OF THIS MAY CAUSE THE DEATH OR SERIOUS INJURY OF A PERSON. OR SERIOUS DAMAGE TO THE EQUIPMENT OR ENVIRONMENT.</p>
	Denotes a mandatory prohibition – ‘ things you must not do ’. A specific prohibition is given in or close to this symbol.
	Denotes a mandatory instruction – ‘ things you must do ’. A specific instruction is given in or close to this symbol
<p>NEGLIGENCE OF ANY STATED WARNING, PROHIBITION OR MANDATORY INSTRUCTION MAY CAUSE THE SERIOUS INJURY OF A PERSON. OR SERIOUS DAMAGE TO THE EQUIPMENT OR ENVIRONMENT.</p>	

	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

PROHIBITIONS IN USE

The Spraydome/Undavina/Spraymiser and associated tank systems are 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

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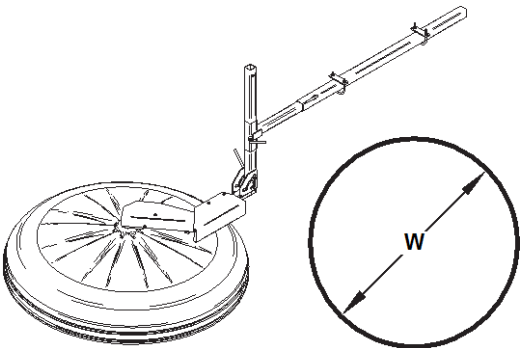
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1 INTRODUCTION

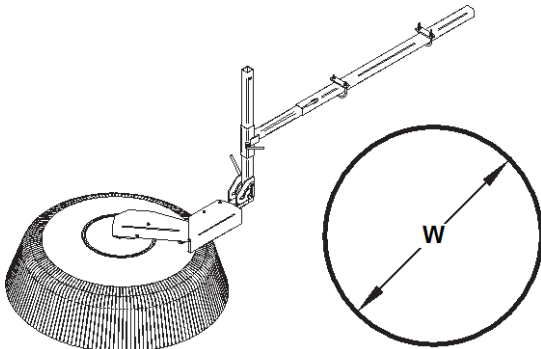
The Spraydome/Undavina/Spraymiser is designed for the precision application of sprays. The spray heads are shielded to protect spray from drift. The shielded spray heads incorporate either low volume rotary atomisers for controlled droplet application (CDA) or traditional hydraulic pressure nozzles. The shielded spray heads are designed primarily for the application of herbicides in beds. The shielded spray heads can also be used to apply non selective herbicides in the crop inter-row or around trees at reduced dose rates and volumes as only a proportion of the area is treated.

The Undavina and Spraydome sprayers are mounted on a breakaway arm which allows the shield to rotate on a centre bearing and roll around tree or bush crops.

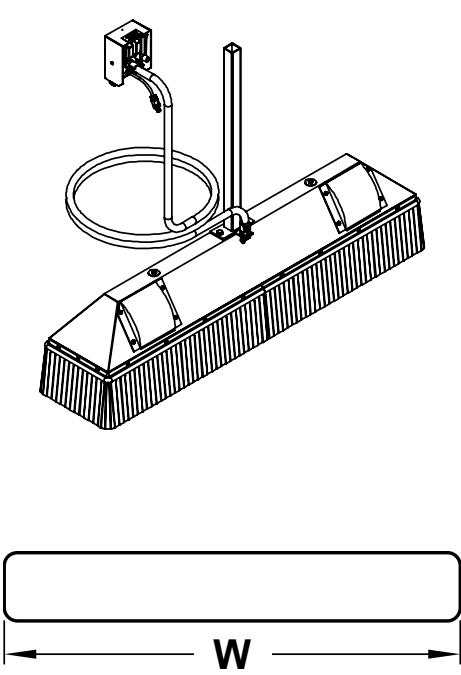
Spraydome Product Range

	Description	Spray Width 'W'
	Spraydome 400	0.4 metres
	Spraydome 500	0.5 metres
	Spraydome 600	0.6 metres
	Spraydome 1000	1.0 metres
	Spraydome 1200 (Hard Edge)	1.2 metres
	Spraydome 1200 (Soft Edge)	1.2 metres

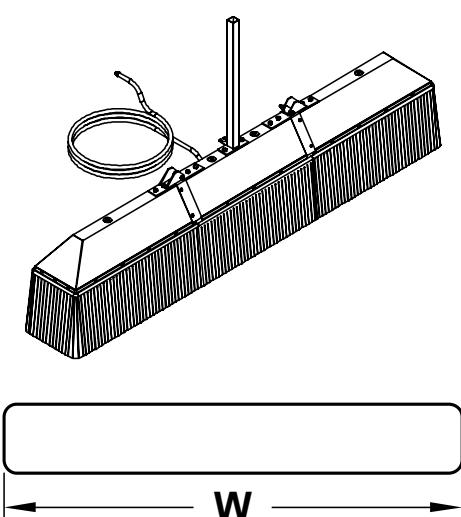
Undavina Product Range

	Description	Spray Width 'W'
	Undavina 250	0.25 metres
	Undavina 250 Grand Cru	0.25 metres
	Undavina 400	0.4 metres
	Undavina 400 Grand Cru	0.4 metres
	Undavina 500 Grand Cru	0.5 metres
	Undavina 600	0.6 metres
	Undavina 900	0.9 metres

Spraymiser CDA Product Range

	Description	Spray Width 'W'
	Spraymiser 1200 CDA	1.2 metres
	Spraymiser 1400 CDA	1.4 metres
	Spraymiser 1600 CDA	1.6 metres
	Spraymiser 1800 CDA	1.8 metres
	Spraymiser 1800 CDA (folding)	1.8 metres
	Spraymiser 2000 CDA	2.0 metres
	Spraymiser 2000 CDA (folding)	2.0 metres
	Spraymiser 2400 CDA	2.4 metres
	Spraymiser 2400 CDA (folding)	2.4 metres

Spraymiser HiFlo Product Range

	Description	Spray Width 'W'
	Spraymiser 1200 HiFlo	1.2 metres
	Spraymiser 1500 HiFlo	1.5 metres
	Spraymiser 2000 HiFlo	2.0 metres
	Spraymiser 2000 HiFlo (folding)	2.0 metres
	Spraymiser 2400 HiFlo	2.4 metres
Spraymiser 2400 HiFlo (folding)	2.4 metres	

The products described above represent the standard range of equipment. Non standard Micron Spraydome, Undavina and Spraymiser models should be installed and operated in accordance with nearest equivalent unit listed in this document.

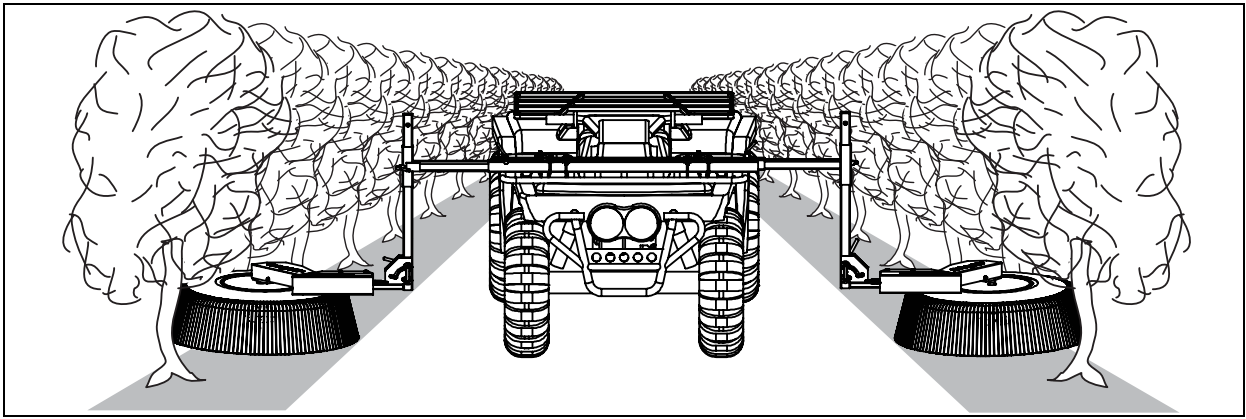
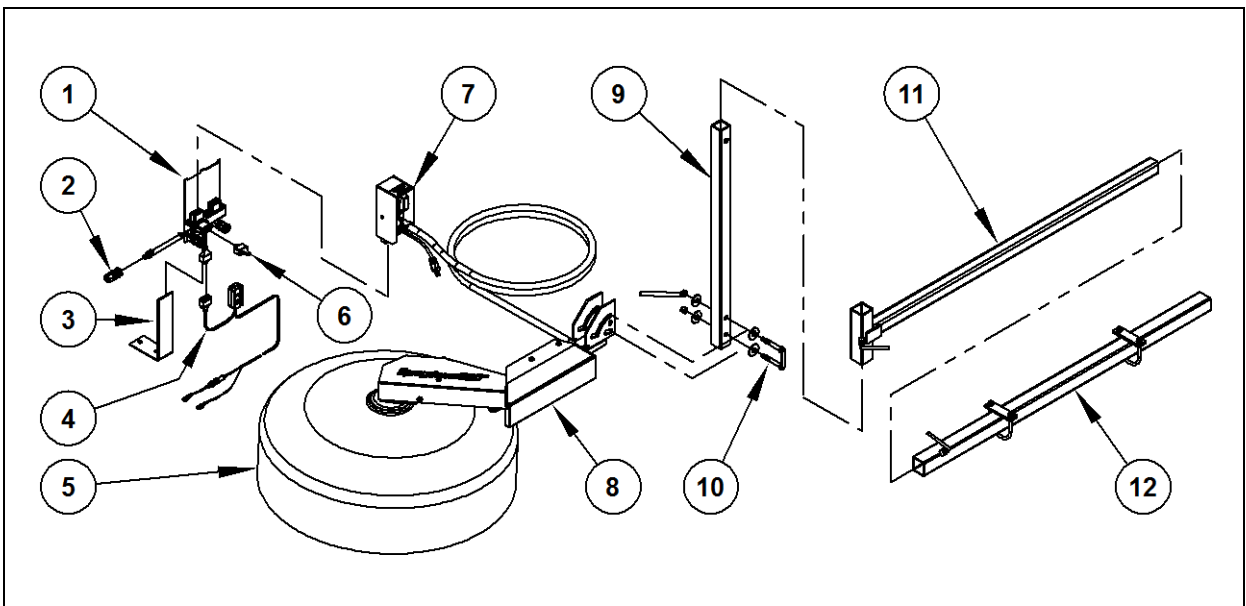


Figure 1- A typical configuration for vineyards

1.1 Sprayer Features

Spraydome shown. Undavina and Spraydome use common components.



1	Controller Backplate*
2	Quick-Release Coupling (For fitment to existing tank and pump systems. Part number AL001)
3	Backplate Mounting Bracket*
4	Power Wire Assembly*
5	Shield (may also be referred to as 'dome' or 'shroud')
6	2 Pin Electrical Plug* (For connection to existing pump system. Part number ST028)

7	Controller (single)*
8	Breakaway Assembly
9	Vertical Support Tube
10	Clamp Bolt Assembly
11	'T'-Bar Mount
12	Mounting Tube (complete with 'U' bolts and clamp plates)

*Required for CDA systems only.

Figure 2 - Component recognition

1.2 Technical Specification

Specification		
Product Identification Details		
Trade names:	Spraydome – Undavina - Spraymiser	
Description:	A Covered Spray head fitted with either CDA (controlled Droplet Application) atomiser or traditional hydraulic pressure nozzle.	
Models: (available as CDA or Hi-Flo)	Spraydome 400 to 1200 in various sizes. Undavina 250 to 900 in various sizes. Spraymiser 1200 to 2400 in various sizes	
Manufacturer:	Micron Sprayers Ltd.	Europe
	Enviromist Industries PTY. Ltd.	Australasia, Asia and America
Year of Manufacture:	Refer to serial number plate	
Paint colour:	RAL 6002 Leaf Green	
Weight¹		
Spraydome 400	17 kg	
Spraydome 500	18 kg	
Spraydome 600	18 kg	
Spraydome 1000	26 kg	
Spraydome 1200	36 kg	
Undavina 250	15 kg	
Undavina 250 Grand Cru	15 kg	
Undavina 400	17 kg	
Undavina 400 Grand Cru	17 kg	
Undavina 500 Grand Cru	18 kg	
Undavina 600	18 kg	
Undavina 900	19 kg	
Spraymiser 1200	12 kg	
Spraymiser 1400	14 kg	
Spraymiser 1500	15 kg	
Spraymiser 1600	16 kg	
Spraymiser 1800	18 kg	
Spraymiser 1800 (folding)	19 kg	
Spraymiser 2000	20 kg	
Spraymiser 2000 (folding)	21 kg	
Spraymiser 2400	24 kg	
Spraymiser 2400 (folding)	25 kg	










¹ Weights for Spraydome and Undavina include the breakaway and standard ATV mounting tubes.




Environmental Conditions		
Minimum working temperature:	+5°C	
Restrictions in Use		
Travelling on a Public Highway:	Refer to local legislation	
Working pressure:	1 – 3 bar 15 – 45 psi 100 – 300 kPa	Hydraulic pressure nozzles
	0.5 - 0.7 bar 8 - 10 psi 55 – 69 kPa	CDA atomisers
Working flow rate (per nozzle):	0.46 – 1.97 l/min	Hydraulic pressure nozzles
Working flow rate (per atomiser):	50 -300 ml/min	CDA atomisers
Maximum operating speed:	12 kph (when spraying)	
Shield operating height:	25 – 50 mm (when spraying)	
Filter size ¹ :	50 Mesh (blue - ISO19732)	

Optional Equipment (contact Micron Group or their agents for details)	
Tank and Pump Systems:	Various options available.
Mounting Options:	Various options available.

¹ Not included with your Spraydome, Undavina or Spraymiser. Your tank system **must** include an inline filter of 50 mesh size (blue – ISO19732).

2 SAFETY

WARNINGS AND PROHIBITIONS	
 	<p>Do not insert fingers or any foreign object into the equipment. This may cause a risk of harm and may damage the equipment.</p> <p>Do not dismantle or modify the equipment. This may cause a risk of harm and may damage the equipment.</p> <p>Do not operate the equipment if there are visible symptoms of a problem, such as leaking fluids, abnormal noise or structural damage. Operating the equipment under such conditions may cause a risk of harm or may damage the equipment or the environment.</p>
  	<p>Risk of crushing of the whole body or limbs. Risk of crushing of hands or fingers.</p> <p>Do not stand between the equipment and the vehicle to which it is mounted.</p> <p>Do not stand, sit or lie beneath any part of the equipment unless the equipment is adequately supported on suitable floor standing supports.</p> <p>Do not stand, or allow others to stand, within the reach of extended or lowered parts of the equipment (swivel range).</p> <p>Do not stand, or allow others to stand, within the stroke area of the three point linkage (tractor mounted equipment).</p>
	<p>Danger from leaking substances. Substances may be harmful and/or under high pressure.</p>
 	<p>Risk of contact with toxic or hazardous substances.</p> <p>Always read and retain the instructions on chemical used in this equipment.</p> <p>Ensure that all instructions for the chemicals being used remain with the equipment until the equipment has been cleaned and is ready for storage or re-use. If practicable display the details of the chemicals, being used in the equipment, on the exterior of the equipment where they are easily visible.</p> <p>Do not drink fluids from any part of the equipment including the hand-wash and rinse tanks.</p> <p>Do not use water from the hand wash facility for washing the face or eyes.</p> <p>Do not eat, drink or smoke when operating the equipment.</p> <p>Do not dispose of toxic or hazardous chemicals or fluids into drains or water courses.</p> <p>After use remove and clean all protective clothing. Thoroughly wash hands and face.</p>
	<p>Some surfaces and hoses may become hot during operation. Take care when handling, and to avoid contact with, or close proximity to, flammable materials.</p>

	<p>Use Caution and reduce speed when manoeuvring a vehicle with mounted equipment.</p> <p>The equipment may reduce or obscure the operator's vision.</p> <p>The equipment may obscure the visibility to others of vehicle mounted warning marks, beacons and lights.</p> <p>The equipment may obscure vehicle mounted lighting. Ensure that vehicle lights are visible when in transit. Ensure the working area has sufficient light for safe operation.</p> <p>The additional weight of the equipment may affect the steering and stability of the vehicle.</p> <p>Use extreme caution when turning on sloping ground as the equipment may alter the vehicles balance and centre of gravity.</p> <p>Use extreme caution when turning as the equipment may alter the required turning circle of the vehicle.</p> <p>Use extreme caution when passing obstacles and through gaps as the equipment may alter the width of the vehicle.</p>
	<p>Ensure that the extremities of the equipment are visible to the operator at all times. Attach additional marking devices or visibility aids where required.</p> <p>Use additional person(s) to assist with manoeuvring where operator vision is obscured.</p> <p>During use of the equipment make regular assessment of weather condition, wind speed and direction adjust activity as appropriate.</p> <p>Leave the vehicle in a safe condition before leaving the operators position to examine or adjust the equipment.</p>
	<p>Run the equipment only on the indicated supply voltage. Use of incorrect supply voltage may cause a risk of fire or other harm and may damage the equipment.</p> <p>Ensure that all connection sockets are clean and free from contamination before and after use.</p> <p>When connecting or disconnecting cables and hoses to the equipment; always grasp the connector directly, do not hold by or pull on the cable or hose as this may cause damage.</p> <p>Ensure the electrical power supply is adequate for the equipment. An inadequate power supply may cause the equipment to malfunction or fail.</p> <p>Disconnect the unit from the power supply when not in use for an extended period.</p> <p>Always lift the equipment by the lifting or mounting points where provided.</p> <p>Always wear personal protective equipment when instructed to do so.</p> <p>Ensure the equipment is securely mounted on floor standing mounts before attempting any maintenance or repair operations.</p>

2.1 Mechanical and Electrical Hazards



The main mechanical hazards in using the Spraydome/Undavina/Spraymiser are associated with moving parts that present a risk of entrapment to fingers and limbs. Appropriate warning signs are provided at points of potential injury.



The Spraydome/Undavina/Spraymiser operate on a low voltage 12V system that does NOT present a significant risk from electrical shock

2.1.1 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. Operators **MUST** adhere to the required 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 from accidental splashes. Some products may also require the use of a respirator mask. Operators **MUST** be familiar with, and prepared for, all washing and decontamination procedures as recommended in the chemical manufacturer's instructions.

2.2 Working with Pesticides



Wear Gloves



Wear a face shield
or Eye Protection



Wear Protective
Clothing



Wash hands



**Always read the product label before preparing spray mixes.
Always adhere to maximum dose rates and safety precautions.**



All pesticides **must** be handled and stored in accordance with the manufacturer's instructions.

All pesticides must be stored in their original containers.

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



It is the responsibility of the user to ensure all possible measures are taken to protect the environment.

It is the responsibility of the user to be familiar with, and adhere to, all relevant national and local restrictions, prohibitions and regulations concerning the use of pesticides.

2.3 Hand Wash Tank

Ensure that hand washing facilities are provided and are available for use at all times. Your spray tank system should include an integral hand wash tank of at least 15 litres. The hand wash tank should be filled with **clean water only**. **Do not** use water from the hand wash facility for washing the face or eyes.

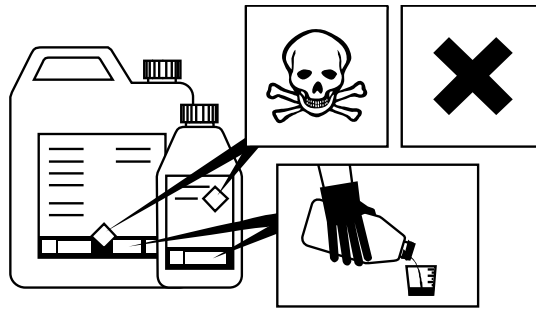
2.3.1 Product Labels



ALWAYS read the product label **BEFORE** using pesticides.

Never exceed the maximum dose rate.

Always adhere to precautions regarding protection of the operator and environment.



2.3.2 Storage of Pesticides



Always store pesticides away from heat and sunlight in a secure area.

Pesticides Should be stored in their original containers.



2.4 Protection of the Environment



Pesticides should always be disposed of according to manufacturer's recommendation.

Tank washings and rinsate should always be sprayed out onto either the treated crop (do not exceed maximum dose rates) or onto a designated area.



Avoid run off into ditches or waterways at all times.

2.4.1 Drift Reduction Measures

The Spraydome/Undavina/Spraymiser units are fitted with shields low to the ground making them far less susceptible to spray drift than unshielded spray nozzles.

Wind tunnel studies in the UK have indicated drift reductions in excess of 90% over conventional unshielded sprayers and the Enviro range of covered spray shields are suitable as a Drift Reducing Technology (DRT)

Below are UK star ratings for drift reduction with the Undavina, Spraydome and Spraymiser. 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
Spraymiser HiFlo	Teejet XR-04	2.0 bar	***
Spraymiser CDA	Disc	150 – 300 ml/min	***
Undavina CDA	Disc	100 – 300 ml/min	***
Undavina HiFlo	Fulljet FL-5VC	2.0 bar	***
Spraydome HiFlo	Teejet XR 04	2.0 bar	***
Spraydome 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

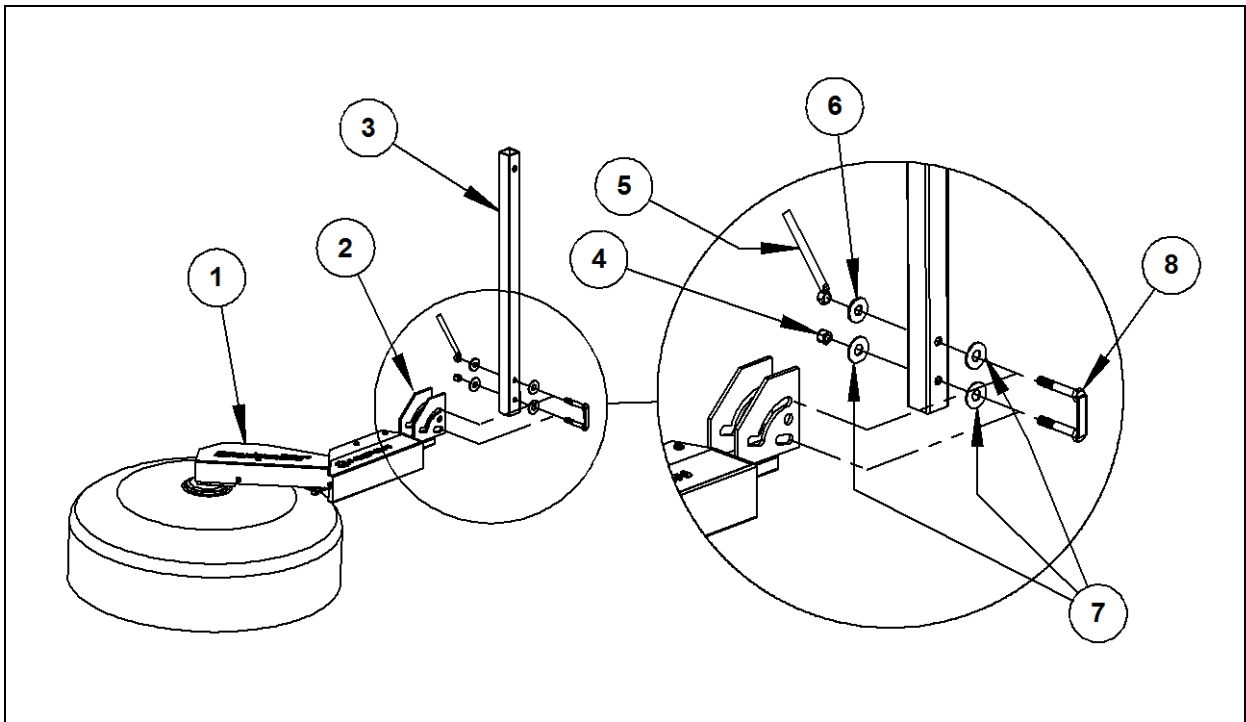
Notes for CDA Installation

The Spraydome/Undavina/Spraymiser CDA Controller has been designed to be integrated into your tank and spray pump systems. The controller backplate will be connected to your spray pump and control the on/off operation of the pump. Your tank system should be regulated to an output pressure of 8 to 10 psi. Your tank system **must** include an inline filter of 50 mesh size (blue – ISO19732).

Notes for Hi-Flo Installation

The Hi-Flo spray heads are fitted with traditional hydraulic pressure nozzles and will easily integrate with most tank systems. Output rates for traditional hydraulic pressure nozzles depend upon the size of the nozzle and the spray line pressure. Ensure that your spray tank and pump system are capable of maintaining the required output flow rate 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 (Spraydome/Undavina)

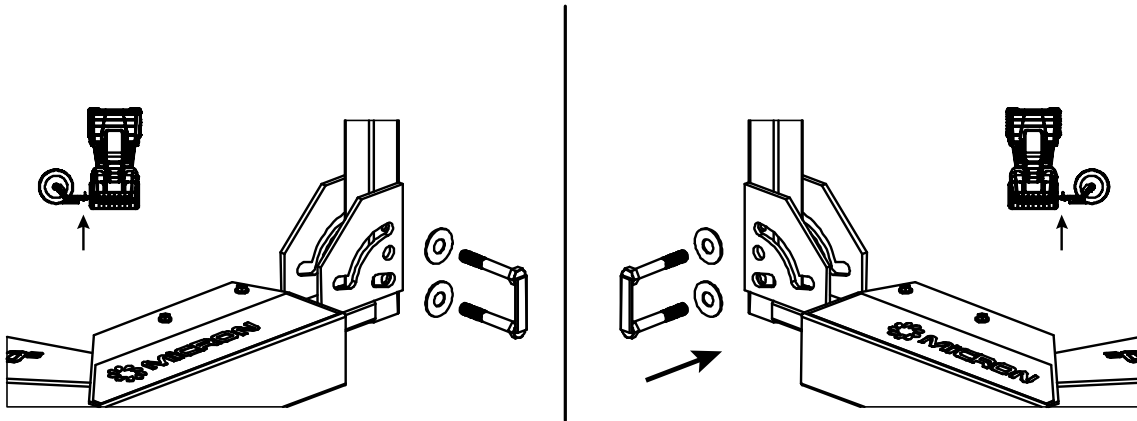


1	Shield, Spray-Head and Breakaway Assembly	3	Vertical Support Bar	5	Clamp Nut	7	Thin Washer
2	Mounting Bracket	4	Nyloc Nut	6	Thick Washer	8	Clamp Bolt

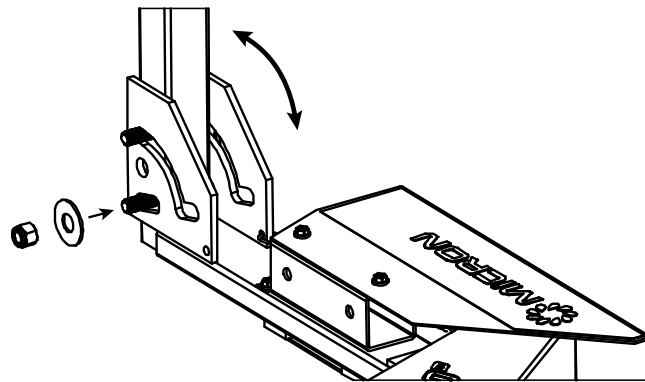
Figure 3 - Components for initial assembly of Spraydome/Undavina

Using the clamp bolt, washers and nuts provided, assemble the vertical support bar to the bracket on the spray head breakaway assembly.

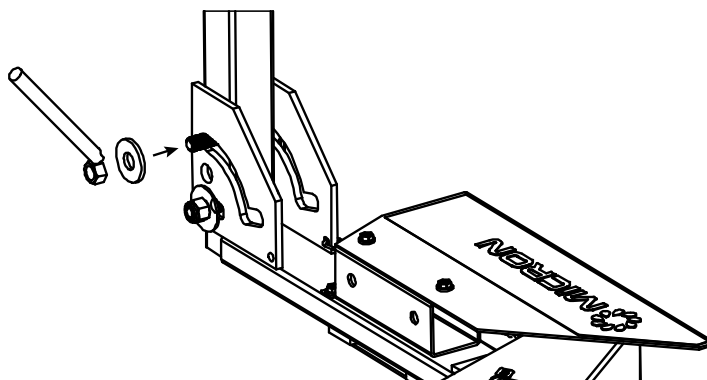
- Insert the clamp bolt from the front of the sprayer.



- Fit the Nyloc nut and thinner washer to the bottom thread.



- Tighten the Nyloc nut so that the vertical support tube can rotate in the breakaway bracket.
- Fit the clamp nut and thicker washer to the top thread



- Tighten the clamp nut to lock the vertical support tube in position.

3.2 Mounting to an All Terrain Vehicle (ATV)

Micron Sprayers Ltd. recommends mounting the Spraydome/Undavina to the front rack of your ATV. Ensure that the rack is approved to carry the combined weight of the components you intend to mount. Spraymiser units should be mounted to the rear of your ATV. Universal mounting brackets are available from Micron Sprayers Ltd. or their agents. It is not possible to provide brackets for specific vehicles and some additional fabrication may be necessary to fit the equipment.

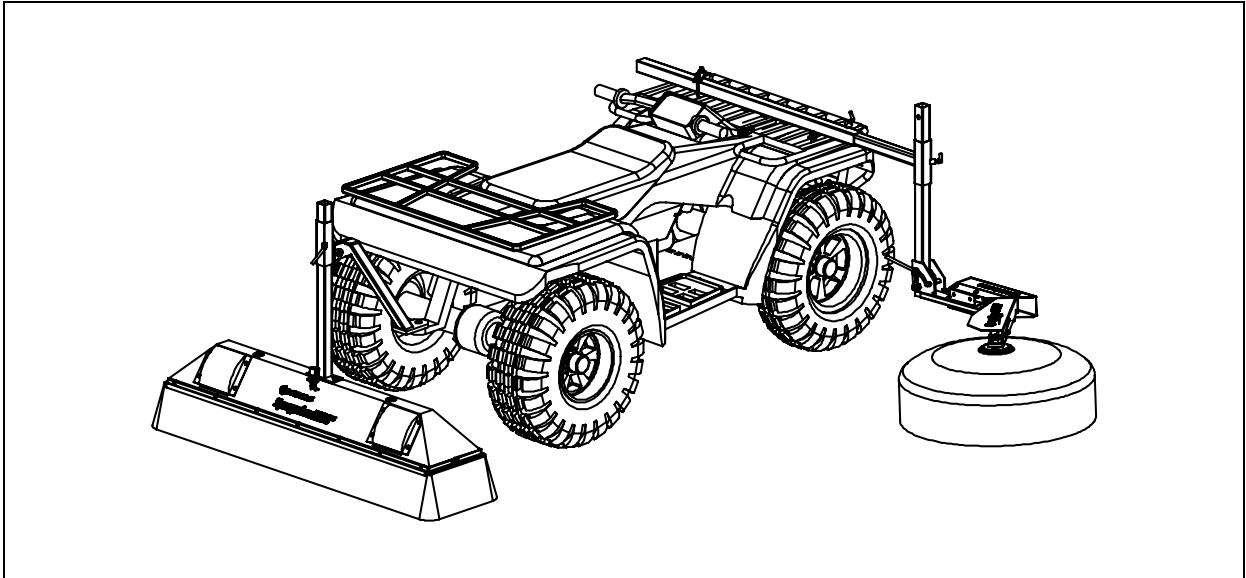
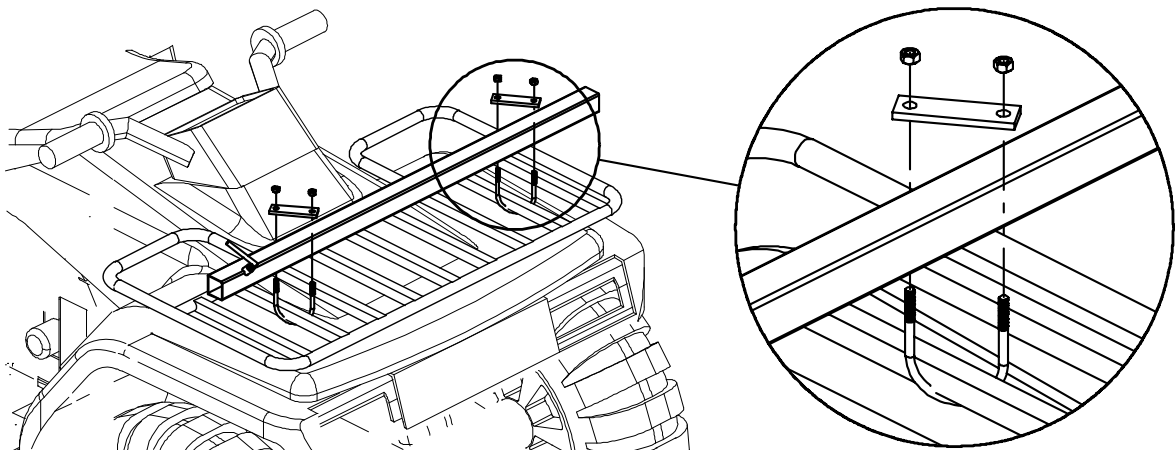


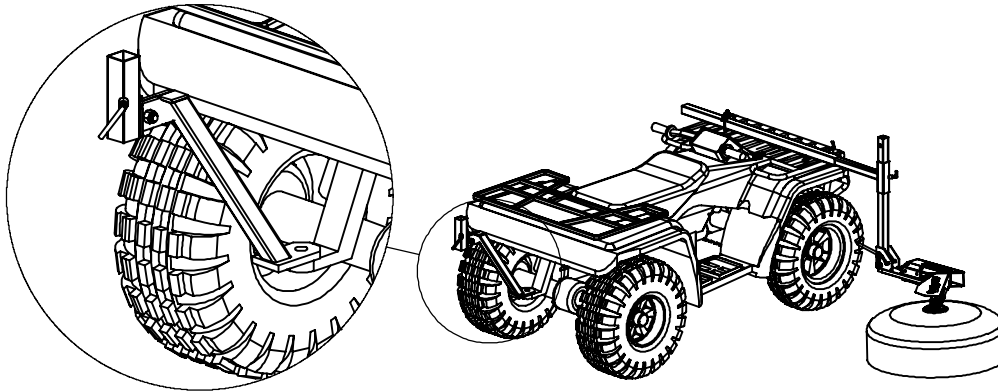
Figure 4 – Spraydome/Undavina/Spraymiser installation to ATV

- Position the mounting tubes so that the Spraydome/Undavina spray head breakaway or Spraymiser will operate freely without contacting the ATV. Avoid restricting access to the operator's position or essential components of the vehicle.
- Attach the mounting tube to the front rack (Spraydome/Undavina) with the 'u' bolts and mounting plates provided.



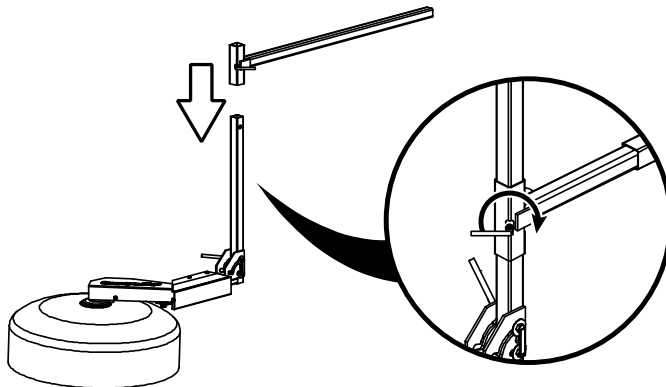
- For Spraymiser

Loosely attach the Universal bracket to the ATV towing point. Alternatively fabricate a suitable bracket. Weld on vertical clamping tubes and clamp bolts are available from Micron Sprayers Ltd. or their agents. When you are satisfied with the bracket slide the clamp tube over the Spraymiser. With the assistance of a second person fit the bracket complete with Spraymiser to your ATV.

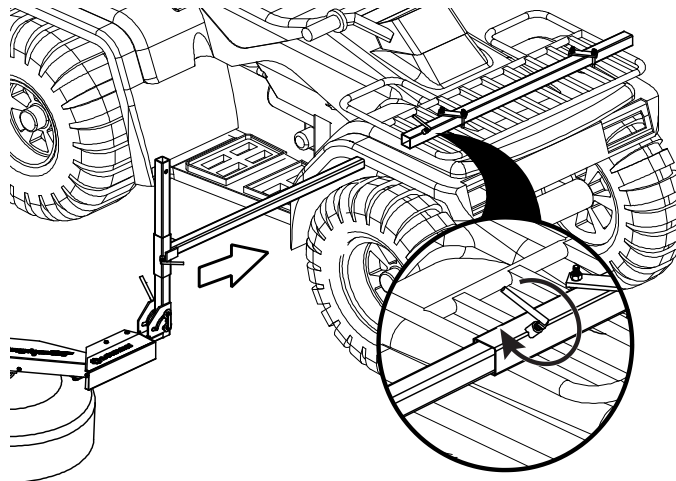


- For Spraydome/Undavina

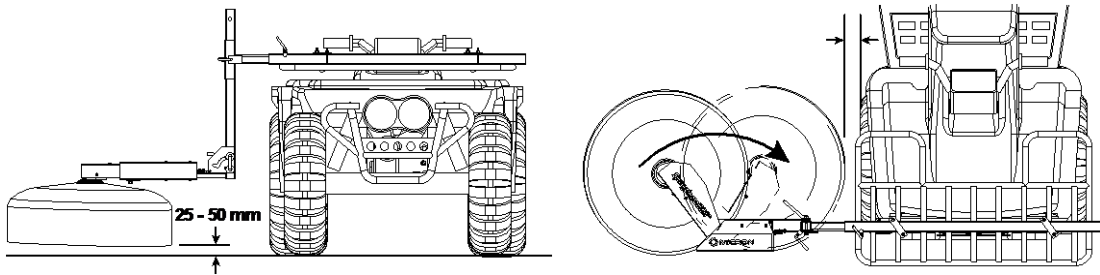
Slide the clamping tube over the vertical support tube of the Spraydome/Undavina. Tighten the clamp bolt to lock the vertical support tube.



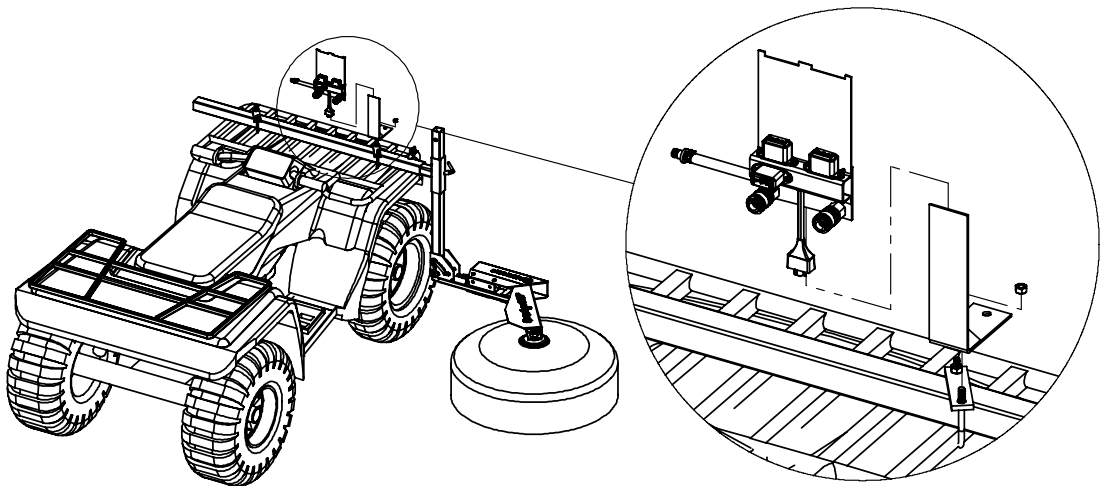
- With the assistance of a second person; slide the 'T'-bar and spray head assembly into the mounting tube. Tighten the clamp bolt to lock the 'T'-bar in position.



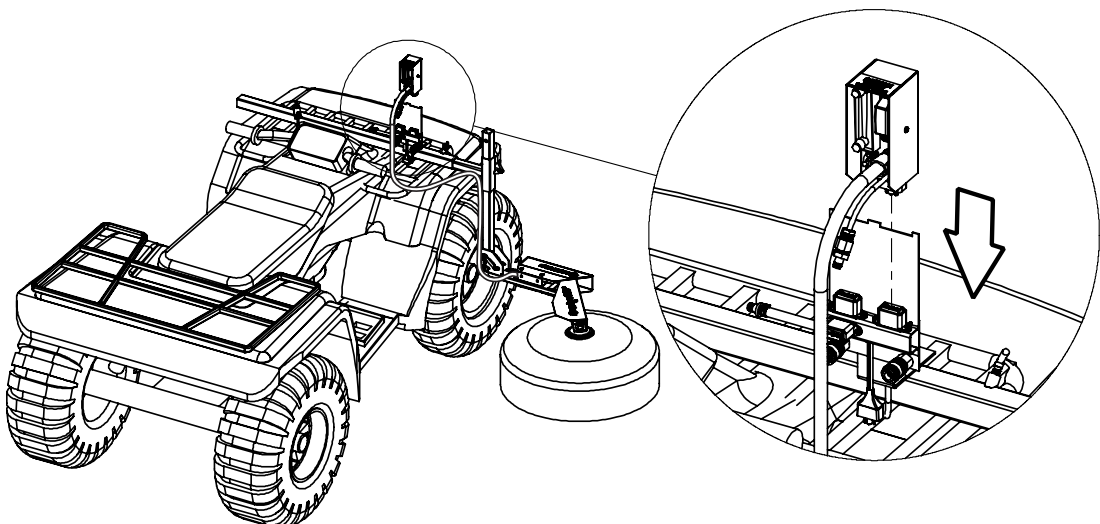
- Check position and adjust as required. The spray shield should be between 25 mm and 50 mm from the ground when spraying.
- Ensure that the breakaway (Spraydome/Undavina) can operate fully without touching the ATV.



- Choose a suitable location for the controller (CDA models) so that it can be easily seen from the operator's position and is within the reach of the service cables attached to the Spraydome/Undavina or Spraymiser. The following suggested position utilises one of the 'u' bolts used to secure the mounting tube.



- Fit the mounting bracket and then slide the backplate over the bracket. Ensure that the backplate mounting bracket is fully engaged with the keeper slot on the back of the backplate.
- Slide the controller onto the connector on the backplate. When using a multi-way back plate the controller will operate connected to any available connector. Select the most appropriate available connector.



3.3 Mounting to a Tractor

Spraydome /Undavina

Micron Sprayers Ltd. recommends mounting the Spraydome/Undavina to your tractor at a point just behind the front wheel. Ensure that the Spraydome/Undavina 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 Spraydome/Undavina contact Micron Sprayers Ltd. or their agent.

Spraymiser

Micron Sprayers Ltd. recommends mounting the Spraymiser to the rear 3 point linkage of the tractor, or to the rear of a suitable mounted or trailed tank system. Weld on vertical clamping tubes and clamp bolts are available from Micron Sprayers Ltd. or their agents. For further advice on fitting the Spraymiser contact Micron Sprayers Ltd. or their agent.

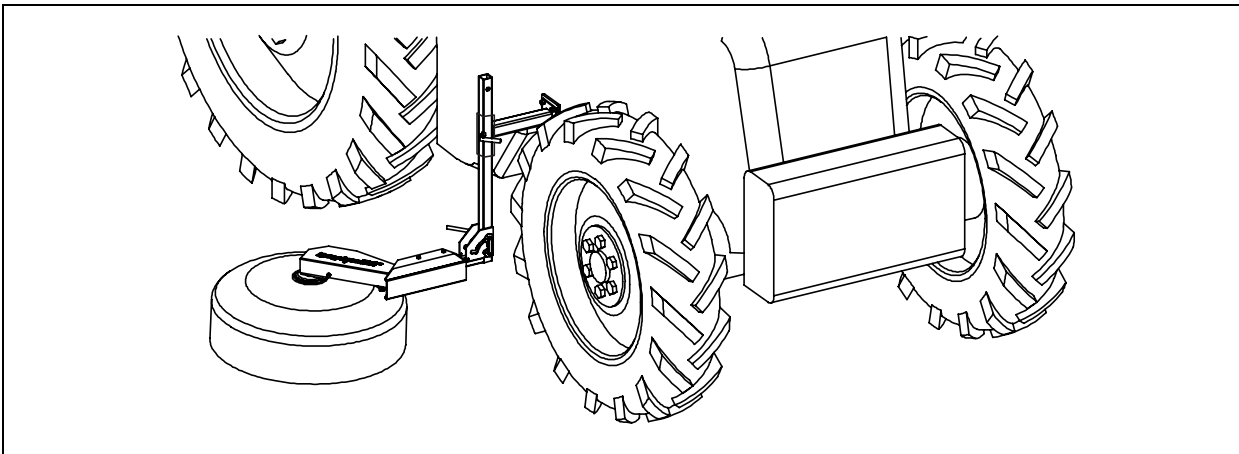


Figure 5 - Spraydome/Undavina installation to tractor

When the Spraydome/Undavina or Spraymiser is suitably mounted, fit the controller backplate support bracket (CDA models) and backplate in a location that can be easily seen from the operator's position. Refer to the instructions for installing onto an ATV for guidance.

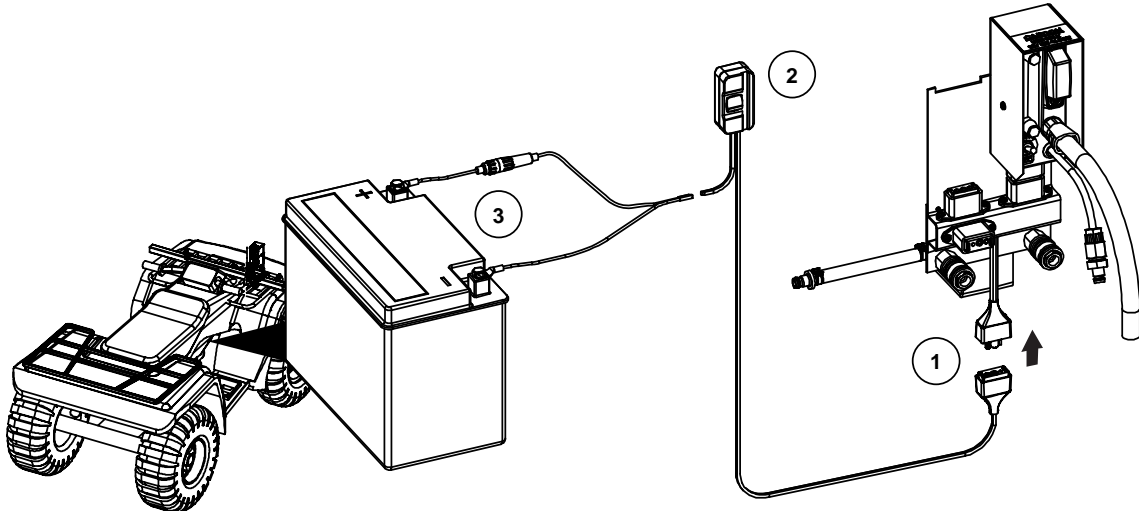
3.4 Tank System

Micron Sprayers Ltd. recommends the use of Micron tank systems. If you have purchased a tank system for use with the Spraydome/Undavina or Spraymiser refer to the instructions supplied with the tank system.

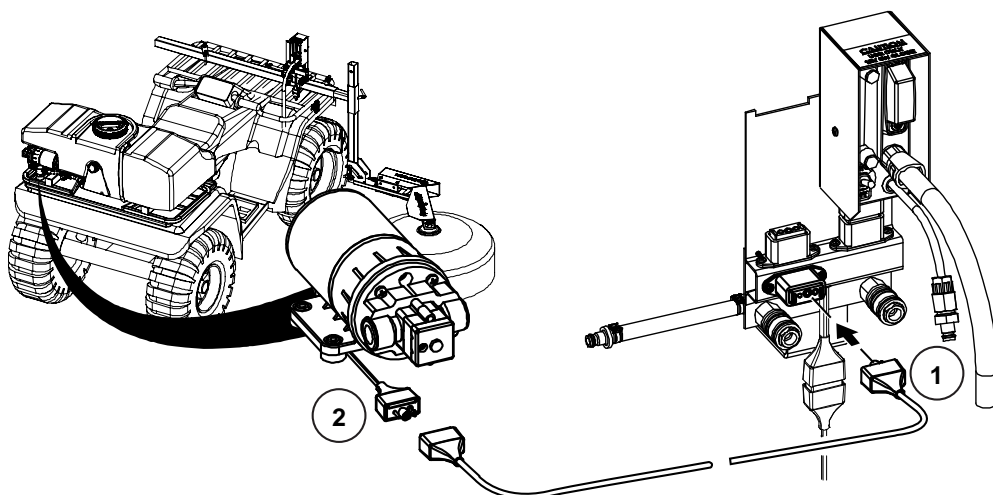
Install your tank system following the manufacturer's instructions. Do not connect the tank system to your vehicle's power supply except for the purposes of testing. The electrical connection for the pump will be described in the electrical connections section of this document. Do not connect the outlet of your tank system except for the purposes of testing. The outlet connection will be described in the hose connections section of this document.

3.5 Electrical Connections (CDA units only)

- Connect the two pin electrical socket to the Inline plug on the controller backplate (1). Mount the in line switch (2) in a location where it can be easily used by the operator. Ensure that the switch position and cable location do not impair access to, or in any way restrict or impair, the use of any of the vehicles controls.

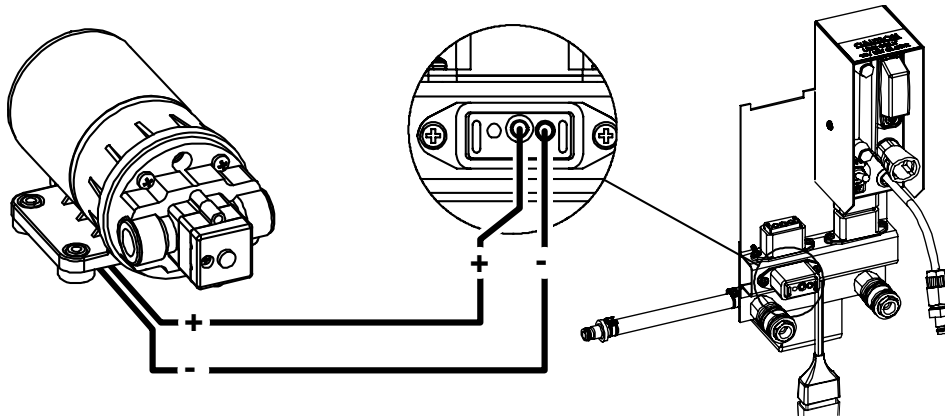


- Route the cable from the Inline switch (2) to the vehicles battery or a suitable power outlet.
- With the Inline switch in the off position. Connect the red wire to the positive (+) terminal and the black wire to the negative (-) terminal.
- If you have installed a Micron tank system connect the two pin electrical socket on the controller backplate (1) to the two pin plug on the tank system. A cable assembly with pre wired connectors is available from Micron Group or their agents.

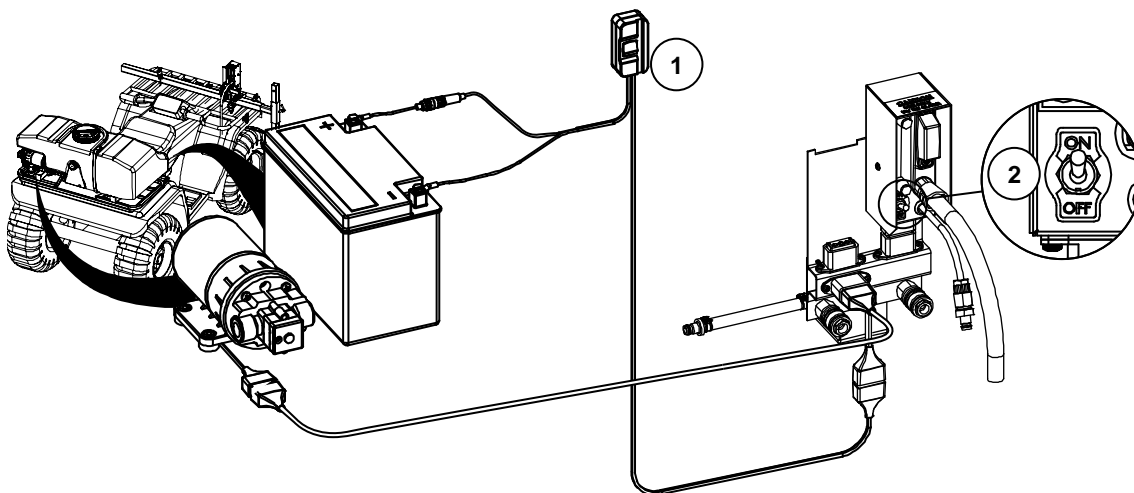


- To connect to a third party pump. Connect the two pin electrical socket on the controller backplate (1) to a 10A automotive two core cable using a two pin electrical plug available from Micron Group.
- Route the cable through the vehicle to the location of your pump.
- Ensure that the cable location does not impair access to, or in any way restrict or impair, the use of any of the vehicles controls.

- Connect the centre pin of the two pin electrical socket on the controller backplate to the positive (+) terminal of your pump. Connect the outside pin of the two pin electrical socket on the controller backplate to the negative (-) terminal of your pump.



- Ensure that the switches on the control units (2) are all in the off position. Switch the Inline switch (1) to the on position. Switch the switch on the control unit (2) to the on position. The pump will start. Repeat this step for any further control units you have installed.



3.6 Hose Connections



DANGER from contact with harmful substances! Always wear protective clothing, gloves and eye protection. Wash hands, exposed skin and protective clothing after handling the equipment. Clean up spilled or leaked fluids in accordance with the manufacturer's instructions.



Wear Gloves



Wear Eye Protection



Wear Protective Clothing



Wash hands

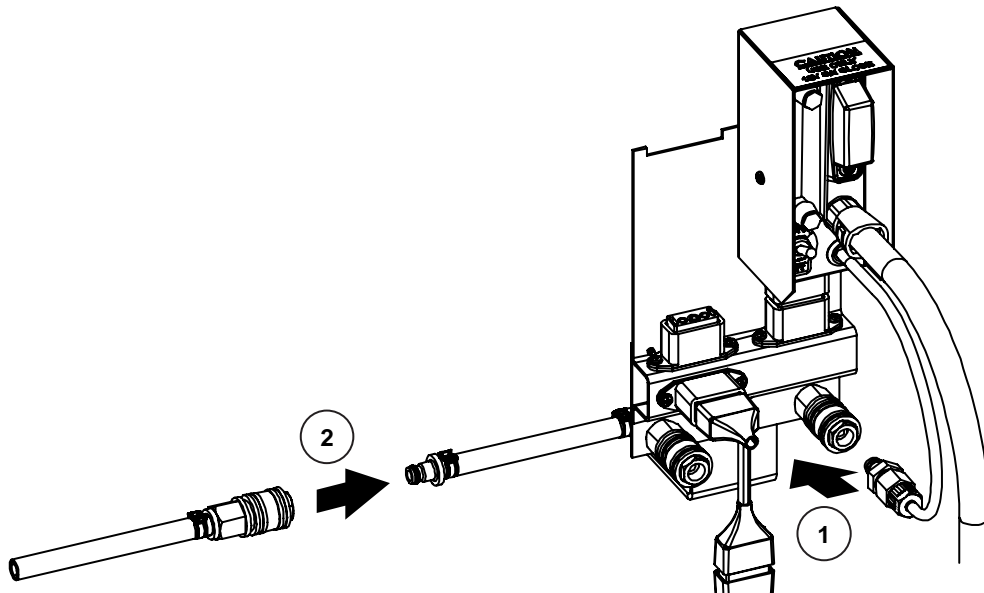
Hi-Flo Systems

The feed hose of Micron HiFlo models should be connected directly to a regulated tank system output. Output flow rate will vary with pressure, number of nozzles and nozzle size. For test purposes use clean water only. Place a suitable tray or vessel below the spray nozzles. Start your spray pump and set your output pressure to 1.5 bar. Run the spray pump for one minute or until all the air is evacuated from the system. Check that the output from the nozzles does not fluctuate. Dispose of collected fluids responsibly refer to section 8.1 of this document. For further instruction on setting the output flow rate refer to section 5 of this document.

CDA Systems

The control unit of the Spraydome/Undavina/Spraymiser CDA models is supplied pre attached via an umbilical conduit. The following procedure describes the connection of the control unit to a backplate assembly.

- Connect the control unit feed tube to the back plate manifold (1).
- Connect the backplate feed hose (2) to your spray tank system. Any additional control unit backplates can be connected together in series or parallel after the spray pump. Larger installations where long hoses or multiple heads are used may require multiple spray pumps to ensure consistent output.



- Set your spray tank outlet pressure to between 8 and 10 psi. For further instruction on setting the output flow rate refer to the calibration section of this document.

3.7 Transport

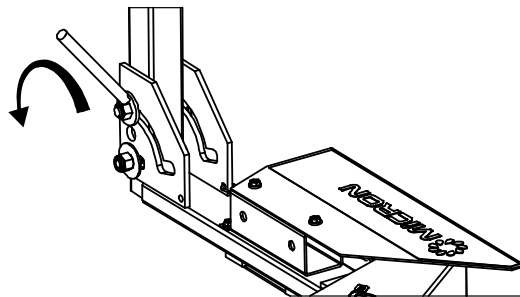


When transporting the sprayer on public highways it is the responsibility of the operator to ensure the implement and tanking system can be safely moved and all road regulations complied with. Users should refer to specific national road transport laws governing the movement of agricultural vehicles and implements.

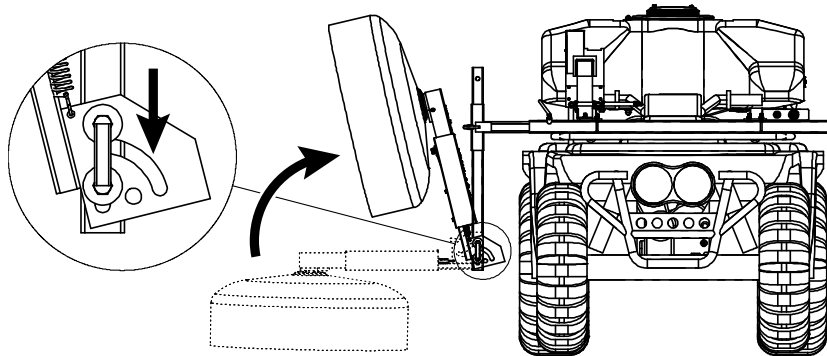
The presence of mounted equipment may impair the driver's ability to operate the vehicle safely on public roads.

When transporting the Spraydome/Undavina/Spraymiser implement operators **must** lift all the breakaway assemblies into their raised positions and lock them using the clamp bolt assembly. Spraymiser units should be lifted at the clamping tube.

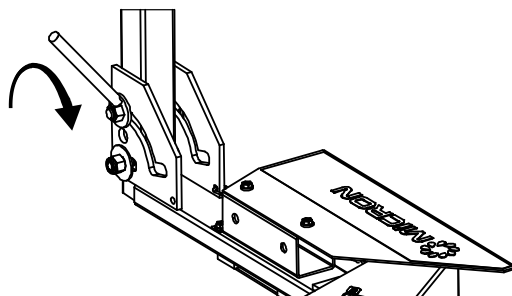
- Loosen the clamp nut.



- Lift the breakaway assembly. When the breakaway is lifted to its highest point the mounting bracket will drop into its locked position.



- Ensure that the breakaway has dropped fully into the locked position.
- Tighten the clamp nut.



4 PREPARING FOR SPRAYING



Wear Gloves



Wear a face shield
or Eye Protection



Wear Protective
Clothing



Wash hands

4.1 Sprayer Inspection

Before using the sprayer check all hose connections are secure and electrical functions are operating correctly. Check for any damage or degradation to hose lines, fittings or tank systems particularly if using the sprayer for the first time or after a period of storage.

4.2 Tank System Inspection

4.2.1 Leak Test

Conduct any leak tests and filling procedures in a safe area where chemical residues cannot run off or enter waterways or drains. Chemical spillage **must** be dealt with according to the product manufacturer's recommendations

Check there is no spray residue in the tank from a previous spray application. Remove any residue and clean the tank system in accordance with the manufacturer's instructions. Clean the spraying system in accordance with section 8 of this document.

- Add a small quantity of clean water to the spray tank (5-10% of tank volume).
- Secure spray heads in the spraying position.
- Switch on spraying pump (CDA atomisers will operate when the pump is on)
- For CDA units set the line pressure to 10 psi.
- For Hi Flo units set the line pressure to 1.5 bar.
- Check there are no leaks in any part of the tank, pump and plumbing system
- Check that spray is emitted from each nozzle/atomiser in operation.
- Spray out any remaining water before preparing spray mix.

4.3 Sprayer Setup

When calibrating sprayers 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. The Undavina and Spraydome units have one rotary atomiser mounted centrally on each head. The Spraymiser uses vertically orientated atomisers with re-circulating shrouds and a rotating drum. CDA Spraymiser units can have 2, 3 or 4 atomisers depending on the width of the shield.

Hi Flo systems use traditional hydraulic pressure nozzles. The 250, 400, 500 and 600 Undavina and Spraydome units have one centrally mounted nozzle; larger units have

a twin nozzle arrangement. Hi Flo Spraymiser units have 2, 3 or 4 equally nozzles. The table below describes each configuration.

Model	Nozzles	Type
Undavina / Spraydome 250 CDA	1	Disc
Undavina / Spraydome 250 Hi Flo	1	Single full cone
Undavina / Spraydome 400 CDA	1	Disc
Undavina / Spraydome 400 Hi Flo	1	Single flat fan
Undavina / Spraydome 500 CDA	1	Disc
Undavina / Spraydome 500 Hi Flo	1	Single flat fan
Undavina / Spraydome 600 CDA	1	Disc
Undavina / Spraydome 600 Hi Flo	1	Single flat fan
Undavina 900 / Spraydome 1000 CDA	1	Disc
Undavina 900 / Spraydome 1000 Hi Flo	2	Twin flat fan
Undavina / Spraydome 1200 CDA	1	Disc
Undavina / Spraydome 1200 Hi Flo	2	Twin flat fan
Spraymiser 1200 CDA	2	Disc
Spraymiser 1400 CDA	2	Disc
Spraymiser 1600 CDA	3	Disc
Spraymiser 1800 CDA	3	Disc
Spraymiser 2000 CDA	4	Disc
Spraymiser 1200 Hi Flo	2	Flat fan
Spraymiser 1500 Hi Flo	2	Flat fan
Spraymiser 1800 Hi Flo	3	Flat fan
Spraymiser 2000 Hi Flo	3	Flat fan
Spraymiser 2400 Hi Flo	4	Flat fan

Table 2 - Machine configurations

5 CALIBRATION

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

Flow rate per atomiser/nozzle (l/min) =

Band width (m) x Vehicle speed (kph) x Application Volume (l/ha) / 600

Note: Metric units must be used for this formula

For example:

Two Undavina CDA 400 spray heads and a Spraymiser CDA 1200 on the rear on an ATV travelling at 6 kph applying 40 l/ha of spray mix.

First calculate the flow required for each Undavina CDA 400 as follows

Band width = 0.4m

Vehicle speed = 6 kph

Application volume = 40 l/ha

Flow rate per Undavina CDA 400 (l/min) = **0.4 m x 6 kph x 40 l/ha / 600 = 0.16 l/min**

Set each head to **0.16 l/min or 9.6 l/hr**

Now calculate the flow required for each atomiser on the Spraymiser 1200 as follows

Number of atomisers = 2

Band width = 1.2 m

Vehicle speed = 6 kph

Application volume = 40 l/ha

Flow rate (l/min) = **1.2 m x 6 kph x 40 l/ha / 600 = 0.48 l/min**

Divide the flow rate by the number of atomisers **0.48 / 2**

Set each atomiser to **0.24l/min or 14.4l/hr**

For quick calibration use the reference tables in section 5.1 (next page).

5.1 Calibration Tables

		Volume Rate 25 l/ha							Volume Rate 30 l/ha						
Product	Band m	Vehicle Speed kph							Vehicle Speed kph						
		3	4	5	6	8	10	12	3	4	5	6	8	10	12
Undavina 250	0.25	2	3	3	4	5	6	8	2	3	4	5	6	8	9
Undavina/Spraydome 400	0.40	3	4	5	6	8	10	12	4	5	6	7	10	12	14
Spraydome 500	0.50	4	5	6	8	10	13	15	5	6	8	9	12	15	18
Undavina/Spraydome 600	0.60	5	6	8	9	12	15	18	5	7	9	11	14	18	22
Undavina 900	0.90	7	9	11	14	18	23	27	8	11	14	16	22	27	32
Spraydome 1000	1.00	8	10	13	15	20	25	30	9	12	15	18	24	30	36
Spraydome 1200	1.20	9	12	15	18	24	30	36	11	14	18	22	29	36	43

		Volume Rate 40 l/ha							Volume Rate 50 l/ha						
Product	Band m	Vehicle Speed kph							Vehicle Speed kph						
		3	4	5	6	8	10	12	3	4	5	6	8	10	12
Undavina 250	0.25	3	4	5	6	8	10	12	4	5	6	8	10	13	15
Undavina/Spraydome 400	0.40	5	6	8	10	13	16	19	6	8	10	12	16	20	24
Spraydome 500	0.50	6	8	10	12	16	20	24	8	10	13	15	20	25	30
Undavina/Spraydome 600	0.60	7	10	12	14	19	24	29	9	12	15	18	24	30	36
Undavina 900	0.90	11	14	18	22	29	36	43	14	18	23	27	36	45	54
Spraydome 1000	1.00	12	16	20	24	32	40	48	15	20	25	30	40	50	60
Spraydome 1200	1.20	14	19	24	29	38	48	58	18	24	30	36	48	60	72

		Volume Rate 75 l/ha							Volume Rate 100 l/ha						
Product	Band m	Vehicle Speed kph							Vehicle Speed kph						
		3	4	5	6	8	10	12	3	4	5	6	8	10	12
Undavina 250	0.25	6	8	9	11	15	19	23	8	10	13	15	20	25	30
Undavina/Spraydome 400	0.40	9	12	15	18	24	30	36	12	16	20	24	32	40	48
Spraydome 500	0.50	11	15	19	23	30	38	45	15	20	25	30	40	50	60
Undavina/Spraydome 600	0.60	14	18	23	27	36	45	54	18	24	30	36	48	60	72
Undavina 900	0.90	20	27	34	41	54	68	81	27	36	45	54	72	90	108
Spraydome 1000	1.00	23	30	38	45	60	75	90	30	40	50	60	80	100	120
Spraydome 1200	1.20	27	36	45	54	72	90	108	36	48	60	72	96	120	144

		Volume Rate 150 l/ha							Volume Rate 200 l/ha						
Product	Band m	Vehicle Speed kph							Vehicle Speed kph						
		3	4	5	6	8	10	12	3	4	5	6	8	10	12
Undavina 250	0.25	11	15	19	23	30	38	45	15	20	25	30	40	50	60
Undavina/Spraydome 400	0.40	18	24	30	36	48	60	72	24	32	40	48	64	80	96
Spraydome 500	0.50	23	30	38	45	60	75	90	30	40	50	60	80	100	120
Undavina/Spraydome 600	0.60	27	36	45	54	72	90	108	36	48	60	72	96	120	144
Undavina 900	0.90	41	54	68	81	108	135	162	54	72	90	108	144	180	216
Spraydome 1000	1.00	45	60	75	90	120	150	180	60	80	100	120	160	200	240
Spraydome 1200	1.20	54	72	90	108	144	180	216	72	96	120	144	192	240	288

Consider lower volume rates if possible.

 Hi Flo nozzle

 CDA only

 < Flow too low

Table 3 - Flow rates (l/hr) per atomiser - Undavina / Spraydome CDA

Volume Rate 25 l/ha								Volume Rate 30 l/ha							
Product	Band m	Vehicle Speed kph							Vehicle Speed kph						
		3	4	5	6	8	10	12	3	4	5	6	8	10	12
Spraymiser 1200 (2 atomisers)	1.20	5	6	8	9	12	15	18	5	7	9	11	14	18	22
Spraymiser 1400 (2 atomisers)	1.40	5	7	9	11	14	18	21	6	8	11	13	17	21	25
Spraymiser 1600 (3 atomisers)	1.60	4	5	7	8	11	13	16	5	6	8	10	13	16	19
Spraymiser 1800 (3 atomisers)	1.80	5	6	8	9	12	15	18	5	7	9	11	14	18	22
Spraymiser 2000 (3 atomisers)	2.00	5	7	8	10	13	17	20	6	8	10	12	16	20	24
Spraymiser 2400 (4 atomisers)	2.40	5	6	8	9	12	15	18	5	7	9	11	14	18	22

Volume Rate 40 l/ha								Volume Rate 50 l/ha							
Product	Band m	Vehicle Speed kph							Vehicle Speed kph						
		3	4	5	6	8	10	12	3	4	5	6	8	10	12
Spraymiser 1200 (2 atomisers)	1.20	7	10	12	14	19	24	29	9	12	15	18	24	30	36
Spraymiser 1400 (2 atomisers)	1.40	8	11	14	17	22	28	34	11	14	18	21	28	35	42
Spraymiser 1600 (3 atomisers)	1.60	6	9	11	13	17	21	26	8	11	13	16	21	27	32
Spraymiser 1800 (3 atomisers)	1.80	7	10	12	14	19	24	29	9	12	15	18	24	30	36
Spraymiser 2000 (3 atomisers)	2.00	8	11	13	16	21	27	32	10	13	17	20	27	33	40
Spraymiser 2400 (4 atomisers)	2.40	7	10	12	14	19	24	29	9	12	15	18	24	30	36

Volume Rate 60 l/ha								Volume Rate 70 l/ha							
Product	Band m	Vehicle Speed kph							Vehicle Speed kph						
		3	4	5	6	8	10	12	3	4	5	6	8	10	12
Spraymiser 1200 (2 atomisers)	1.20	11	14	18	22	29	36	43	13	17	21	25	34	42	50
Spraymiser 1400 (2 atomisers)	1.40	13	17	21	25	34	42	50	15	20	25	29	39	49	59
Spraymiser 1600 (3 atomisers)	1.60	10	13	16	19	26	32	38	11	15	19	22	30	37	45
Spraymiser 1800 (3 atomisers)	1.80	11	14	18	22	29	36	43	13	17	21	25	34	42	50
Spraymiser 2000 (3 atomisers)	2.00	12	16	20	24	32	40	48	14	19	23	28	37	47	56
Spraymiser 2400 (4 atomisers)	2.40	11	14	18	22	29	36	43	13	17	21	25	34	42	50

Volume Rate 80 l/ha								Volume Rate 100 l/ha							
Product	Band m	Vehicle Speed kph							Vehicle Speed kph						
		3	4	5	6	8	10	12	3	4	5	6	8	10	12
Spraymiser 1200 (2 atomisers)	1.20	14	19	24	29	38	48	58	18	24	30	36	48	60	72
Spraymiser 1400 (2 atomisers)	1.40	17	22	28	34	45	56	67	21	28	35	42	56	70	84
Spraymiser 1600 (3 atomisers)	1.60	13	17	21	26	34	43	51	16	21	27	32	43	53	64
Spraymiser 1800 (3 atomisers)	1.80	14	19	24	29	38	48	58	18	24	30	36	48	60	72
Spraymiser 2000 (3 atomisers)	2.00	16	21	27	32	43	53	64	20	27	33	40	53	67	80
Spraymiser 2400 (4 atomisers)	2.40	14	19	24	29	38	48	58	18	24	30	36	48	60	72

Consider lower volume rates if possible.

Hi Flo nozzle

CDA only

< Flow too low

Table 4 – Flow rates (l/hr) per atomiser - Spraymiser CDA

Volume Rate 100 l/ha

Product	Band m	Vehicle Speed kph						
		3	4	5	6	8	10	12
Undavina 250	0.25	0.13	0.17	0.21	0.25	0.33	0.42	0.50
Undavina/Spraydome 400	0.40	0.20	0.27	0.33	0.40	0.53	0.67	0.80
Spraydome 500	0.50	0.25	0.33	0.42	0.50	0.67	0.83	1.00
Undavina/Spraydome 600	0.60	0.30	0.40	0.50	0.60	0.80	1.00	1.20
Undavina 900 (twin nozzle)	0.90	0.23	0.30	0.38	0.45	0.60	0.75	0.90
Spraydome 1000 (twin nozzle)	1.00	0.25	0.33	0.42	0.50	0.67	0.83	1.00
Spraydome 1200 (twin nozzle)	1.20	0.30	0.40	0.50	0.60	0.80	1.00	1.20

Volume Rate 125 l/ha

Vehicle Speed kph							
3	4	5	6	8	10	12	
0.16	0.21	0.26	0.31	0.42	0.52	0.63	
0.25	0.33	0.42	0.50	0.67	0.83	1.00	
0.31	0.42	0.52	0.63	0.83	1.04	1.25	
0.38	0.50	0.63	0.75	1.00	1.25	1.50	
0.28	0.38	0.47	0.56	0.75	0.94	1.13	
0.31	0.42	0.52	0.63	0.83	1.04	1.25	
0.38	0.50	0.63	0.75	1.00	1.25	1.50	

Volume Rate 150 l/ha

Product	Band m	Vehicle Speed kph						
		3	4	5	6	8	10	12
Undavina 250	0.25	0.19	0.25	0.31	0.38	0.50	0.63	0.75
Undavina/Spraydome 400	0.40	0.30	0.40	0.50	0.60	0.80	1.00	1.20
Spraydome 500	0.50	0.38	0.50	0.63	0.75	1.00	1.25	1.50
Undavina/Spraydome 600	0.60	0.45	0.60	0.75	0.90	1.20	1.50	1.80
Undavina 900 (twin nozzle)	0.90	0.34	0.45	0.56	0.68	0.90	1.13	1.35
Spraydome 1000 (twin nozzle)	1.00	0.38	0.50	0.63	0.75	1.00	1.25	1.50
Spraydome 1200 (twin nozzle)	1.20	0.45	0.60	0.75	0.90	1.20	1.50	1.80

Volume Rate 175 l/ha

Vehicle Speed kph							
3	4	5	6	8	10	12	
0.22	0.29	0.36	0.44	0.58	0.73	0.88	
0.35	0.47	0.58	0.70	0.93	1.17	1.40	
0.44	0.58	0.73	0.88	1.17	1.46	1.75	
0.53	0.70	0.88	1.05	1.40	1.75	2.10	
0.39	0.53	0.66	0.79	1.05	1.31	1.58	
0.44	0.58	0.73	0.88	1.17	1.46	1.75	
0.53	0.70	0.88	1.05	1.40	1.75	2.10	

Volume Rate 200 l/ha

Product	Band m	Vehicle Speed kph						
		3	4	5	6	8	10	12
Undavina 250	0.25	0.25	0.33	0.42	0.50	0.67	0.83	1.00
Undavina/Spraydome 400	0.40	0.40	0.53	0.67	0.80	1.07	1.33	1.60
Spraydome 500	0.50	0.50	0.67	0.83	1.00	1.33	1.67	2.00
Undavina/Spraydome 600	0.60	0.60	0.80	1.00	1.20	1.60	2.00	2.40
Undavina 900 (twin nozzle)	0.90	0.45	0.60	0.75	0.90	1.20	1.50	1.80
Spraydome 1000 (twin nozzle)	1.00	0.50	0.67	0.83	1.00	1.33	1.67	2.00
Spraydome 1200 (twin nozzle)	1.20	0.60	0.80	1.00	1.20	1.60	2.00	2.40

Volume Rate 250 l/ha

Vehicle Speed kph							
3	4	5	6	8	10	12	
0.31	0.42	0.52	0.63	0.83	1.04	1.25	
0.50	0.67	0.83	1.00	1.33	1.67	2.00	
0.63	0.83	1.04	1.25	1.67	2.08	2.50	
0.75	1.00	1.25	1.50	2.00	2.50	3.00	
0.56	0.75	0.94	1.13	1.50	1.88	2.25	
0.63	0.83	1.04	1.25	1.67	2.08	2.50	
0.75	1.00	1.25	1.50	2.00	2.50	3.00	

Volume Rate 300 l/ha

Product	Band m	Vehicle Speed kph						
		3	4	5	6	8	10	12
Undavina 250	0.25	0.38	0.50	0.63	0.75	1.00	1.25	1.50
Undavina/Spraydome 400	0.40	0.60	0.80	1.00	1.20	1.60	2.00	2.40
Spraydome 500	0.50	0.75	1.00	1.25	1.50	2.00	2.50	3.00
Undavina/Spraydome 600	0.60	0.90	1.20	1.50	1.80	2.40	3.00	3.60
Undavina 900 (twin nozzle)	0.90	0.68	0.90	1.13	1.35	1.80	2.25	2.70
Spraydome 1000 (twin nozzle)	1.00	0.75	1.00	1.25	1.50	2.00	2.50	3.00
Spraydome 1200 (twin nozzle)	1.20	0.90	1.20	1.50	1.80	2.40	3.00	3.60

Volume Rate 400 l/ha

Vehicle Speed kph							
3	4	5	6	8	10	12	
0.50	0.67	0.83	1.00	1.33	1.67	2.00	
0.80	1.07	1.33	1.60	2.13	2.67	3.20	
1.00	1.33	1.67	2.00	2.67	3.33	4.00	
1.20	1.60	2.00	2.40	3.20	4.00	4.80	
0.90	1.20	1.50	1.80	2.40	3.00	3.60	
1.00	1.33	1.67	2.00	2.67	3.33	4.00	
1.20	1.60	2.00	2.40	3.20	4.00	4.80	

Consider lower volume rates if possible.

 Hi Flo nozzle

 CDA only

 <Flow too low

Table 5 –Flow rates (l/min per nozzle) Undavina / Spraydome Hi Flo

		Volume Rate 50 l/ha							Volume Rate 75 l/ha						
Product	Band m	Vehicle Speed kph							Vehicle Speed kph						
		3	4	5	6	8	10	12	3	4	5	6	8	10	12
Spraymiser 1200 (2 nozzles)	1.20	0.15	0.20	0.25	0.30	0.40	0.50	0.60	0.23	0.30	0.38	0.45	0.60	0.75	0.90
Spraymiser 1500 (2 nozzles)	1.50	0.19	0.25	0.31	0.38	0.50	0.63	0.75	0.28	0.38	0.47	0.56	0.75	0.94	1.13
Spraymiser 1800 (3 nozzles)	1.80	0.15	0.20	0.25	0.30	0.40	0.50	0.60	0.23	0.30	0.38	0.45	0.60	0.75	0.90
Spraymiser 2000 (3 nozzles)	2.00	0.17	0.22	0.28	0.33	0.44	0.56	0.67	0.25	0.33	0.42	0.50	0.67	0.83	1.00
Spraymiser 2400 (4 nozzles)	2.40	0.15	0.20	0.25	0.30	0.40	0.50	0.60	0.23	0.30	0.38	0.45	0.60	0.75	0.90

		Volume Rate 100 l/ha							Volume Rate 125 l/ha						
Product	Band m	Vehicle Speed kph							Vehicle Speed kph						
		3	4	5	6	8	10	12	3	4	5	6	8	10	12
Spraymiser 1200 (2 nozzles)	1.20	0.30	0.40	0.50	0.60	0.80	1.00	1.20	0.38	0.50	0.63	0.75	1.00	1.25	1.50
Spraymiser 1500 (2 nozzles)	1.50	0.38	0.50	0.63	0.75	1.00	1.25	1.50	0.47	0.63	0.78	0.94	1.25	1.56	1.88
Spraymiser 1800 (3 nozzles)	1.80	0.30	0.40	0.50	0.60	0.80	1.00	1.20	0.38	0.50	0.63	0.75	1.00	1.25	1.50
Spraymiser 2000 (3 nozzles)	2.00	0.33	0.44	0.56	0.67	0.89	1.11	1.33	0.42	0.56	0.69	0.83	1.11	1.39	1.67
Spraymiser 2400 (4 nozzles)	2.40	0.30	0.40	0.50	0.60	0.80	1.00	1.20	0.38	0.50	0.63	0.75	1.00	1.25	1.50

		Volume Rate 150 l/ha							Volume Rate 175 l/ha						
Product	Band m	Vehicle Speed kph							Vehicle Speed kph						
		3	4	5	6	8	10	12	3	4	5	6	8	10	12
Spraymiser 1200 (2 nozzles)	1.20	0.45	0.60	0.75	0.90	1.20	1.50	1.80	0.53	0.70	0.88	1.05	1.40	1.75	2.10
Spraymiser 1500 (2 nozzles)	1.50	0.56	0.75	0.94	1.13	1.50	1.88	2.25	0.66	0.88	1.09	1.31	1.75	2.19	2.63
Spraymiser 1800 (3 nozzles)	1.80	0.45	0.60	0.75	0.90	1.20	1.50	1.80	0.53	0.70	0.88	1.05	1.40	1.75	2.10
Spraymiser 2000 (3 nozzles)	2.00	0.50	0.67	0.83	1.00	1.33	1.67	2.00	0.58	0.78	0.97	1.17	1.56	1.94	2.33
Spraymiser 2400 (4 nozzles)	2.40	0.45	0.60	0.75	0.90	1.20	1.50	1.80	0.53	0.70	0.88	1.05	1.40	1.75	2.10

		Volume Rate 200 l/ha							Volume Rate 250 l/ha						
Product	Band m	Vehicle Speed kph							Vehicle Speed kph						
		3	4	5	6	8	10	12	3	4	5	6	8	10	12
Spraymiser 1200 (2 nozzles)	1.20	0.60	0.80	1.00	1.20	1.60	2.00	2.40	0.75	1.00	1.25	1.50	2.00	2.50	3.00
Spraymiser 1500 (2 nozzles)	1.40	0.70	0.93	1.17	1.40	1.87	2.33	2.80	0.88	1.17	1.46	1.75	2.33	2.92	3.50
Spraymiser 1800 (3 nozzles)	1.80	0.60	0.80	1.00	1.20	1.60	2.00	2.40	0.75	1.00	1.25	1.50	2.00	2.50	3.00
Spraymiser 2000 (3 nozzles)	2.00	0.67	0.89	1.11	1.33	1.78	2.22	2.67	0.83	1.11	1.39	1.67	2.22	2.78	3.33
Spraymiser 2400 (4 nozzles)	2.40	0.60	0.80	1.00	1.20	1.60	2.00	2.40	0.75	1.00	1.25	1.50	2.00	2.50	3.00

Consider lower volume rates if possible.

Hi Flo nozzle

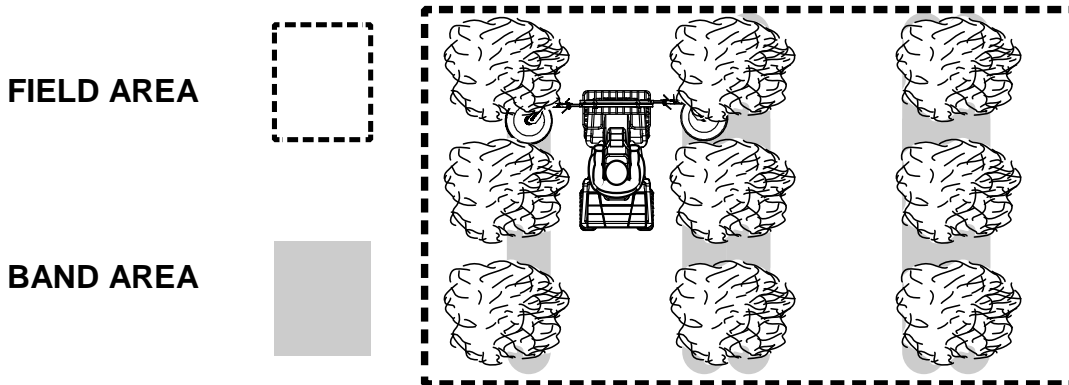
CDA only

< Flow too low

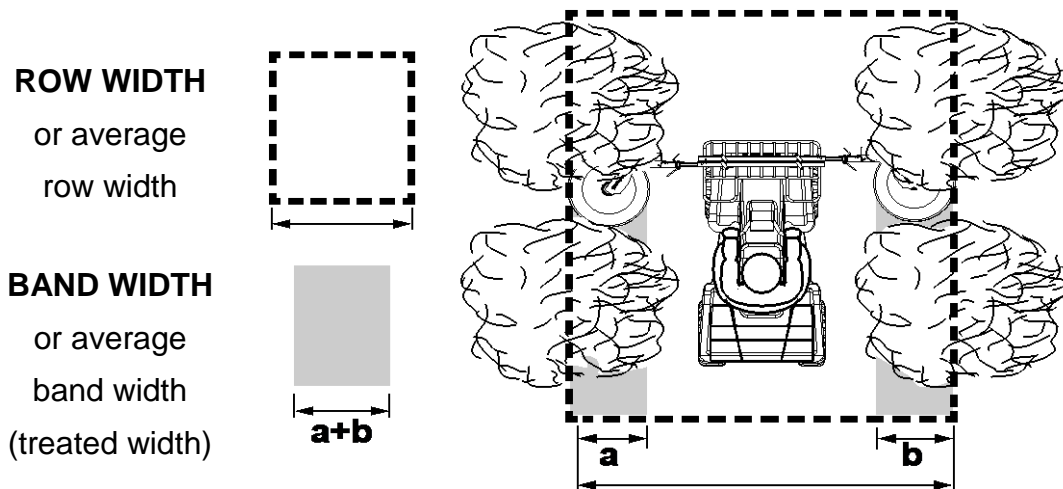
Table 6 – Flow rates (l/min per nozzle) – Spraymiser Hi Flo

5.2 Calculating Band Area as Percentage of Field Area

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



The 'band area' (treated area) can be considered as a percentage of the 'field area'. The percentage relationship is the same for a single band width to one row width where the rows are regularly spaced, or the average band width to the average row width where rows are irregular.



Example: If spraying two bands each 0.4 m wide using two Undavina 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.

$$40 \text{ l} \times 0.4 \text{ (or 40\%)} = 16 \text{ litres of spray mix per field hectare.}$$

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

Tree length sprayed (km) =

$10 \times \text{Tank Contents (L)} / (\text{Application Rate l/ha} \times \text{Band Width m})$

For Example:

2 x Undavina 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



Read the safety instruction at the beginning of this document before handling chemicals. Always carefully read and follow the handling instructions supplied by chemical manufacturer.



Wear Gloves



Wear a face shield
or Eye Protection



Wear Protective
Clothing



Wash hands

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

Spray Mix Volume (litres) =

$\text{Volume Rate (l/ha)} \times \text{Band Width (metres)} \times \text{Field Area (ha)} / \text{Row Width (metres)}$

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 Undavina 400 heads each 0.4 m (0.8 m total) on an area of 5 ha.

The required tank contents for the Undavina spray heads will be:

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

Appendix A contains a work record sheet which can be copied and filled in to assist in calculating and recording the spraying operation.

5.5 Setting the Output Flow Rate



Wear Gloves



Wear a face shield
or Eye Protection



Wear Protective
Clothing



Wash hands

- Calculate the required flow rate per atomiser or nozzle using the formula or look up tables provided in section 5 and 5.1 of this document.
- Flow rates should be set first using water **only**. Recheck the flow rate with the actual spray mix to be used before spraying.
- Always conduct flow checks in a secure area where there is no risk of run-off of spray liquid into waterways or drains.
- Ensure any spillage or washings are contained refer to section 8.1.

5.5.1 Output Flow Rate CDA Atomisers

Where an adjustment valve is fitted to the flow gauge

- Open the valves fully on each flow gauge with the pump operating
- Adjust the pressure regulating valve so that each gauge is reading 50% higher than the required flow rate.
- Adjust each individual flow gauge to the required flow rate.

Where no adjustment valve is fitted to the flow gauge

- Set the flow by adjusting the main pressure relief valve on the return to tank.
- Where an orifice restrictor is fitted in line it may be necessary to change the restrictor size to achieve the required flow rate.

Note: the flow gauges used with CDA rotary atomisers are calibrated in l/hr

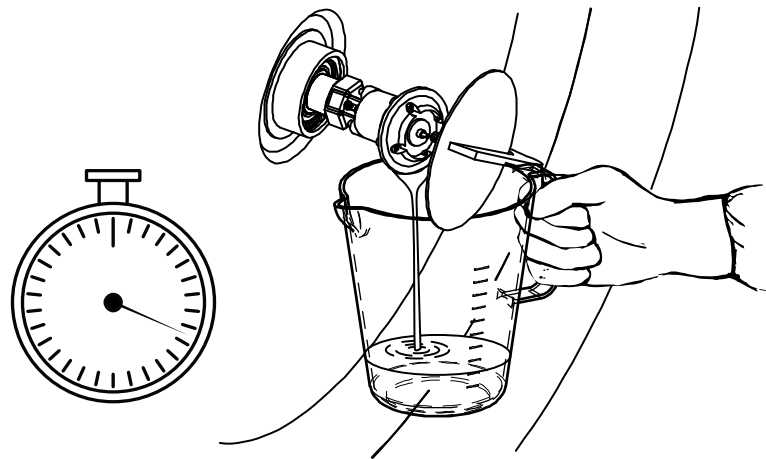
Output Flow Rate Test - CDA Atomisers

It is not normally necessary to measure the flow rate at the nozzle of the CDA atomiser as there is an in line flow gauge to indicate flow rate. The following procedure describes how to directly measure the output flow rate of the CDA atomiser. The result should match the flow indicated on the flow gauge.

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

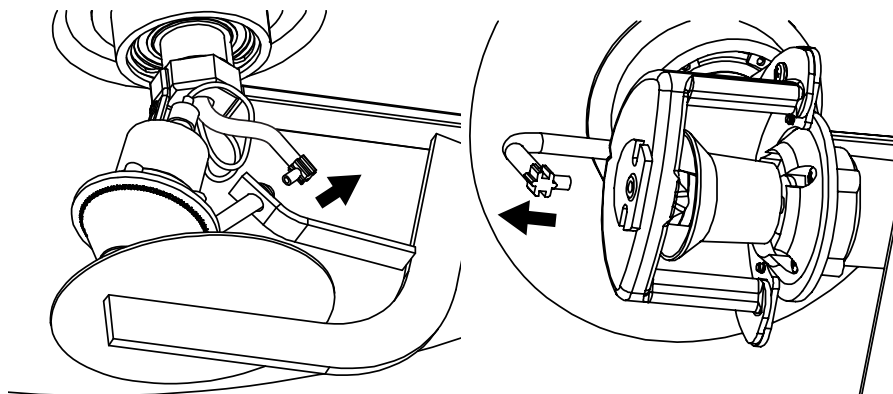
Measuring output flow rate from the CDA atomiser (disc type atomisers only)

- Remove the atomiser disc; refer to section 9.2 for instructions.
- Start the spraying pump and ensure the output from the CDA atomiser is steady.
- Place the measuring cylinder under the CDA atomiser and measure the quantity of liquid dispensed in one minute.

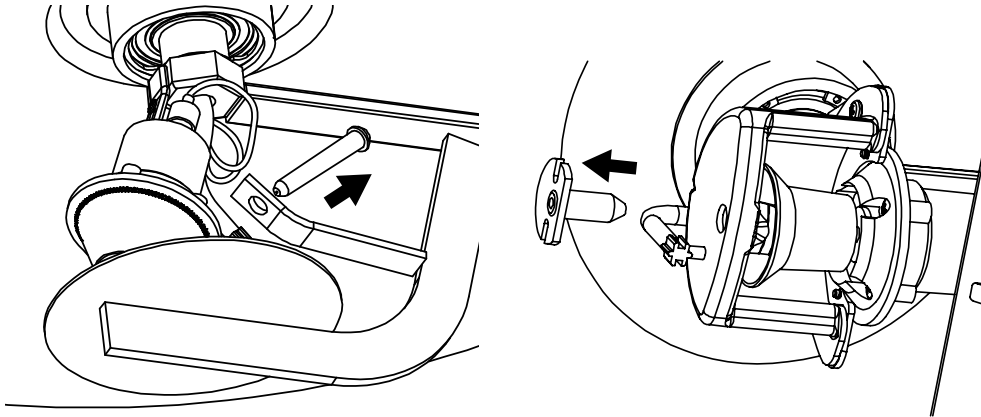


Measuring output flow rate from the feed nozzle

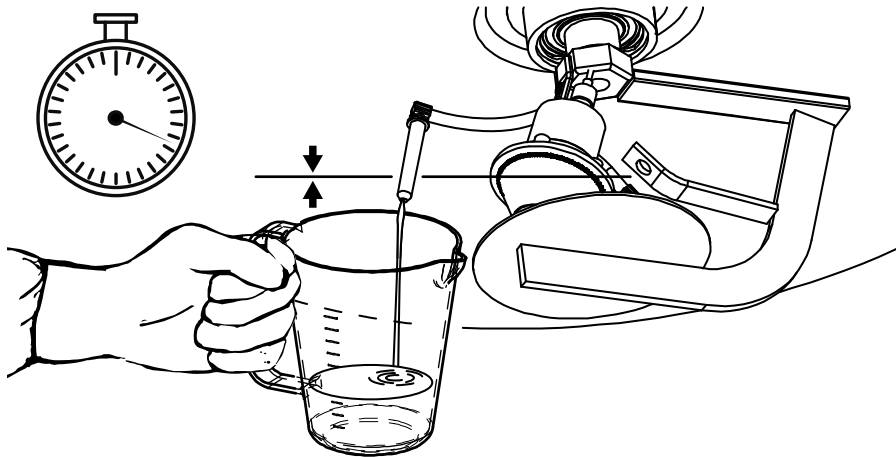
- On Spraymiser units it may be necessary to remove the atomiser assembly from the spraying shield. Refer to section 9.3.3 for instructions.
- Remove the small plastic elbow from the feed nozzle. Use a twisting motion to ease the elbow from the feed nozzle. Take care not to damage the plastic components.



- Remove the feed nozzle. Use a twisting motion to ease the feed nozzle from the plastic cover. Take care not to damage the plastic components.



- Reconnect the feed nozzle to the small plastic elbow
- Start the spraying pump and ensure the output from the feed nozzle is steady.
- Hold the feed nozzle level with its location in the atomiser. Place the measuring cylinder under the feed nozzle and measure the quantity of liquid dispensed in one minute.



5.5.2 Output Flow Rate Hi Flo Nozzles

Check the required flow rate for each nozzle using the look up tables in section 5.1 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
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

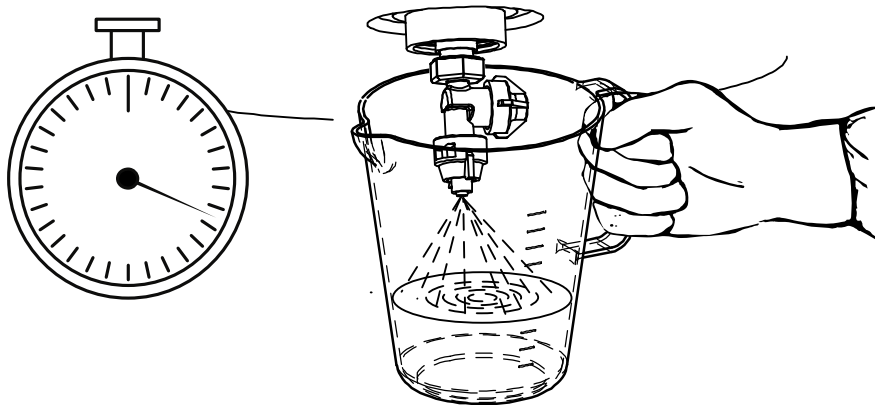
Table 7 - Flow rates per nozzle (l/min) with Hi Flo nozzles

Output 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.

6 MIXING AND FILLING



Wear Gloves



Wear a face shield
or Eye Protection



Wear Protective
Clothing

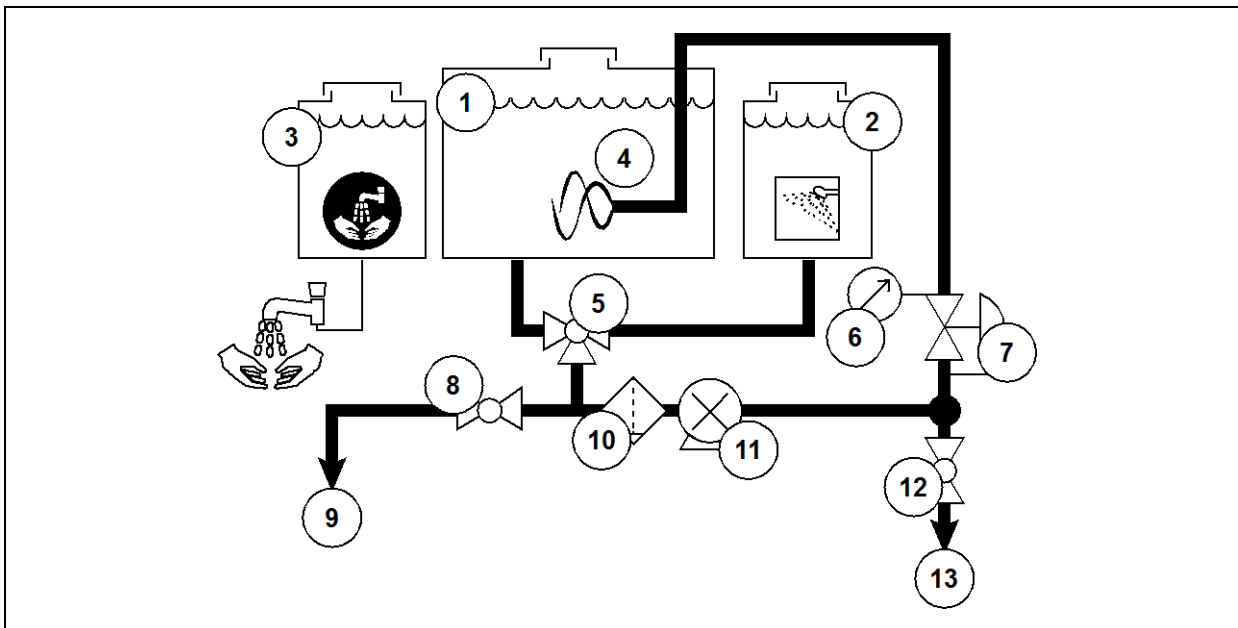


Wash hands

Plumbing Circuit

The Undavina, Spraydome and Spraymiser range of spray heads are normally supplied from purpose made 60, 80, 100 or 200 litre Enviro tank systems.

Essential plumbing features of each tanking system are shown in Figure 6 below.



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 (to control line pressure)
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

Figure 6 – Tank system Features

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

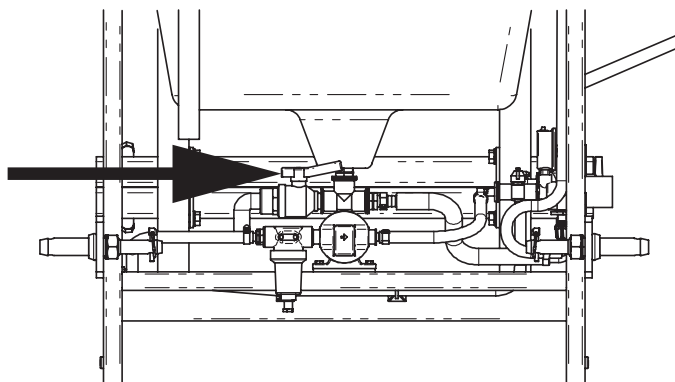
6.1 Preparing the Spray Mix

- Only prepare sufficient spray mix for the required spray operation.
- Check calibration and operating parameters with those calculated in section 5.
- Read the product label and abide by all safety requirements for PPE when mixing and filling.
- Mix products in a secure area according to manufacturer's recommendations. Prevent any spillage or wash down from contaminating waterways or other areas.
- Check for leaks before mixing products into the main spray tank, refer to section 4.2.
- Make sure rinse tanks and hand wash tanks are filled, with clean water only, before preparing the spray mix.

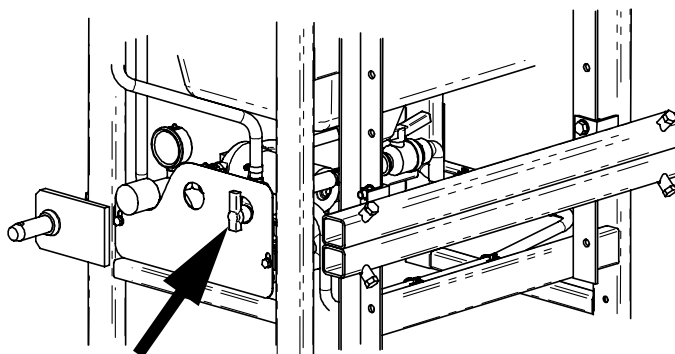
Fill the main tank via the filling and inspection cap located on the top of the tank. The rinse tank and hand-wash tank are filled with water independently through their tank lids. Detailed instructions on each tank configuration are provided in the Tank Systems Instructions.

The Micron 100 litre tank system has been used in the following procedure to demonstrate the general principles to follow when preparing spray mix.

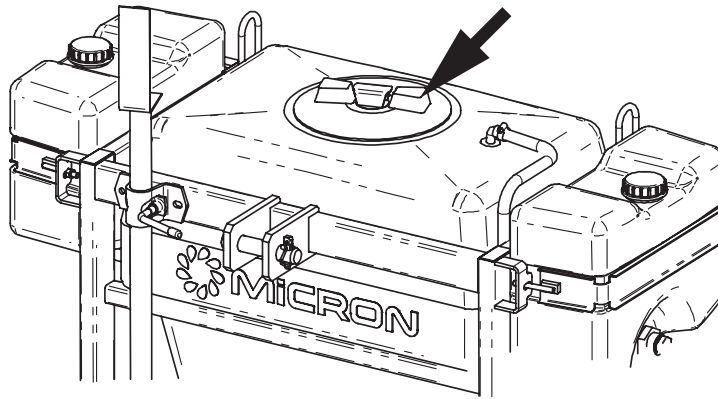
- On tractor mounted tanks lower the three point linkage until the tank filling and inspection cap can be easily accessed. On ATV and other tanking systems the tank should be placed as low to the ground as possible for ease of access.
- Ensure any drain valve at the base of the main tank is in the closed position.



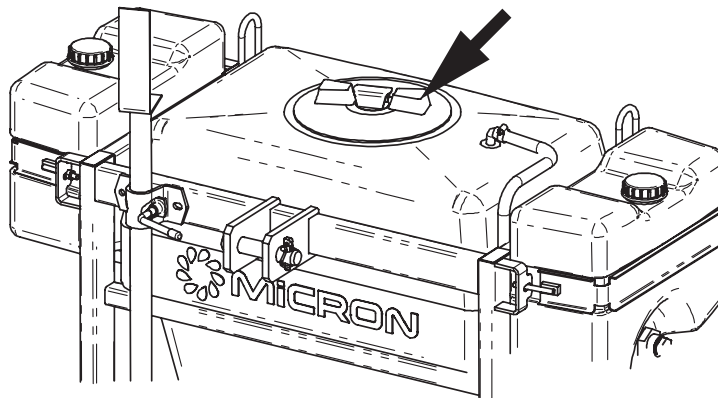
- Ensure that the tank selector valve is turned to 'spray tank' .



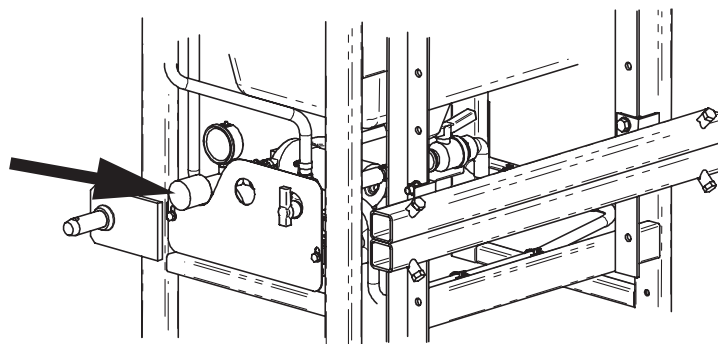
- Unscrew the filling and inspection cap on the spray tank.



- Visually inspect the mesh filter insert. Remove and clean the mesh filter insert if there is any sign of blockage or contamination. Replace the mesh filter insert if there is any sign of damage.
- With the mesh filter insert in place add approximately 50% of the required quantity of clean water to the spray mix tank.
- Add the required quantity of chemical to the spray mix tank.
- Add the remainder of the required quantity of clean water to the main mix tank.
- Replace the filling and inspection cap and check it is secure.



- The pressure regulating valve should already be pre set to the required spray line pressure refer to section 4.



- Switch on the pump and check that fluid is moving around the system.
- The Micron tank is now ready for use.

The indicated pressure on the gauge will drop when spraying adjust the pressure regulating valve as required.

7 SPRAYING

Application Method

Spraying should **always** take place at the correct time for the product being applied.

Spraying should **always** take place under acceptable weather conditions.

Do not spray when the ground is too wet.

Spraying should **always** take place when wind speed is low.

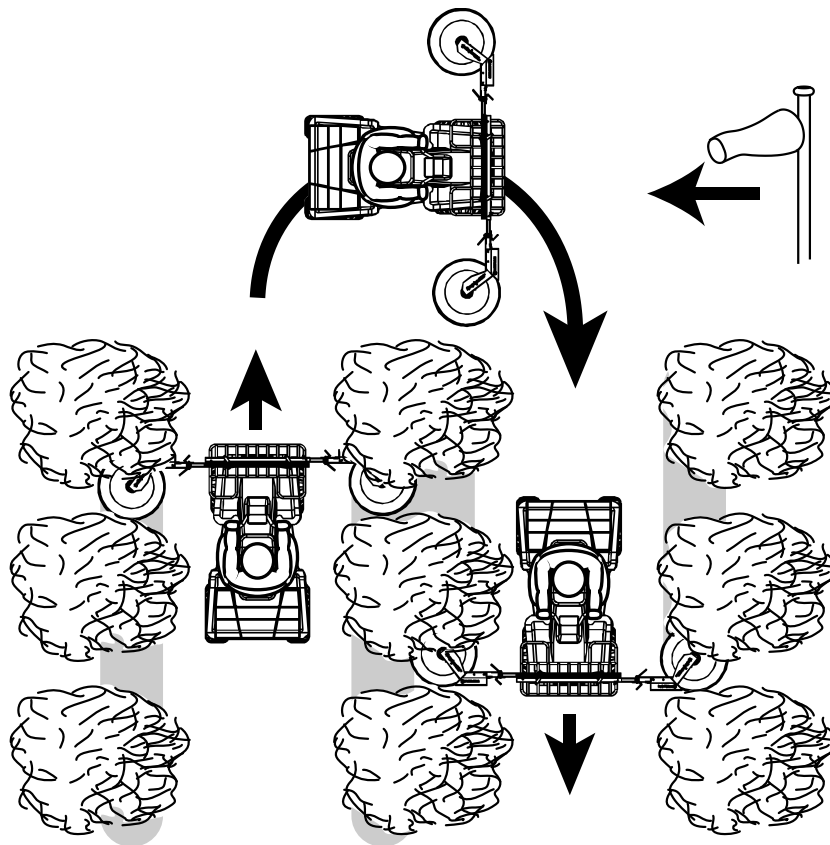
Keep animals and people away from the area while spraying is taking place. Refer to the product label for information regarding access to the treated area after treatment.

Operators using vehicles without an enclosed cabin **must** wear the appropriate personal protective equipment (PPE) during spraying.

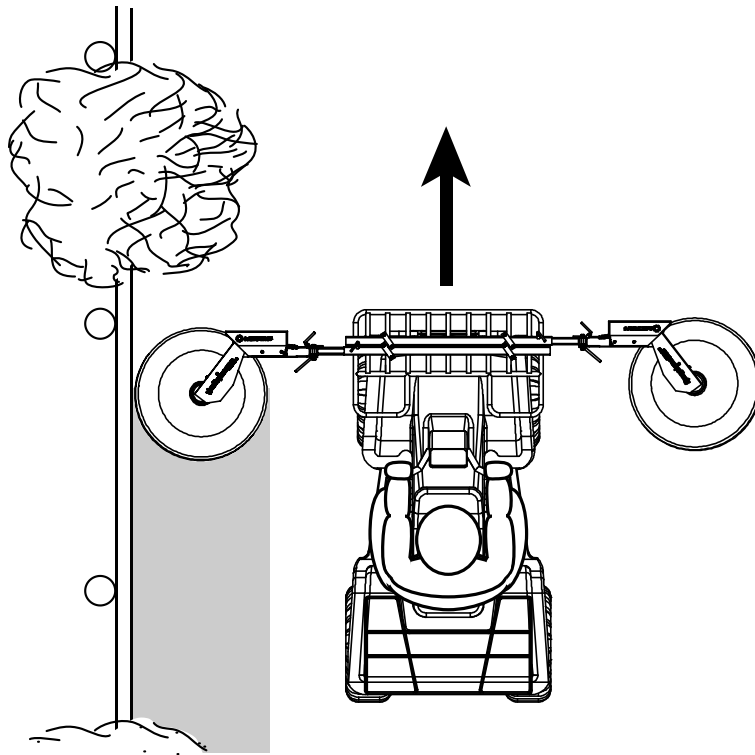
Operators should plan their spray route carefully to avoid driving over sprayed areas.

Operator should take note of the prevailing wind direction and **always** turn into the wind after each spray pass.

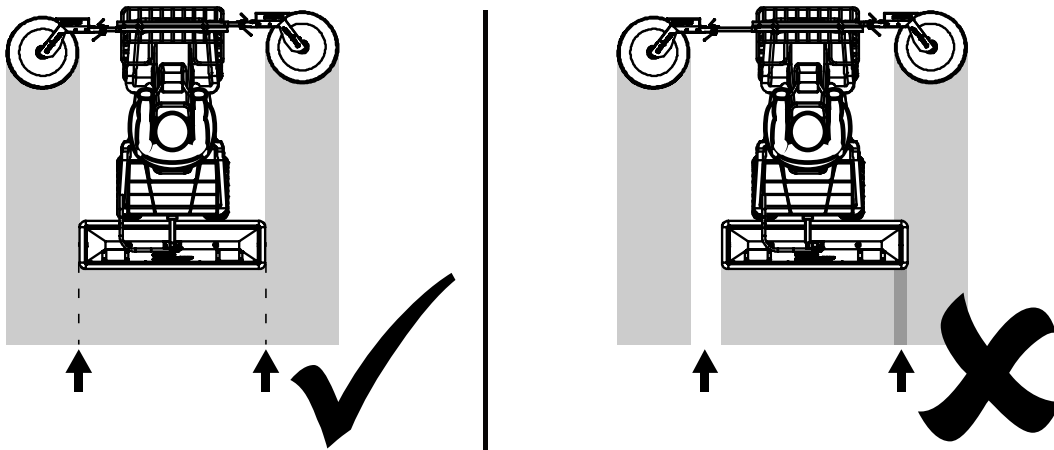
Turn the sprayer off at the end of each row. **Do not** turn the sprayer on until you are ready to begin the next spray pass.



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



When using an Undavina or a Spraydome in combination with a Spraymiser ensure spray shields are correctly spaced to avoid overlapping or missed areas.



8 CLEANING



Wear Gloves



Wear Eye
Protection



Wear Protective
Clothing



Wash hands

When spray is complete ALWAYS spray out any remaining residue over the treated area or a suitable non crop area. Do not exceed maximum dose rates.

Rinse out the spray lines, pump and atomiser/nozzles with clean water and spray out any rinsate 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.

8.1 Disposal of Rinsate



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

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

Pesticides **must** be stored in their original containers.



It is the responsibility of the user to ensure all possible measures are taken to protect the environment.

It is the responsibility of the user to be familiar with, and adhere to, all relevant national and local restrictions, prohibitions and regulations regarding the use and disposal of pesticides.

If the sprayer should fail during operation drain any spray mix from the system. Collect all spray mix in suitable containers. Use the collected fluids at the earliest opportunity once the sprayer has been repaired. Store or dispose of the spray mix in accordance with the manufacturer's instruction.

9 MAINTENANCE

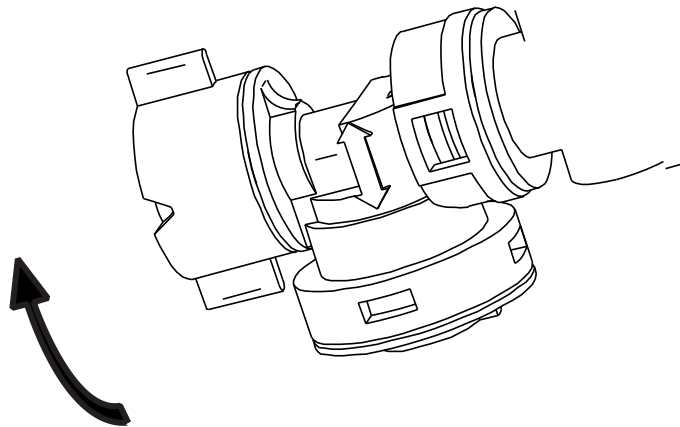
Micron spraying equipment will require routine maintenance; the user should regularly inspect the equipment for damage or wear and replace any damaged or significantly worn items immediately. Any moving parts should be lubricated with a suitable good quality lubricant.

Illustrated parts catalogues are supplied with all Micron Group Spraydome, Undavina and Spraymiser heads. Illustrated parts catalogues are also available from Micron Group or their agents. Refer to the Micron Group parts Catalogue appropriate to your equipment for spare part information and assembly illustrations.

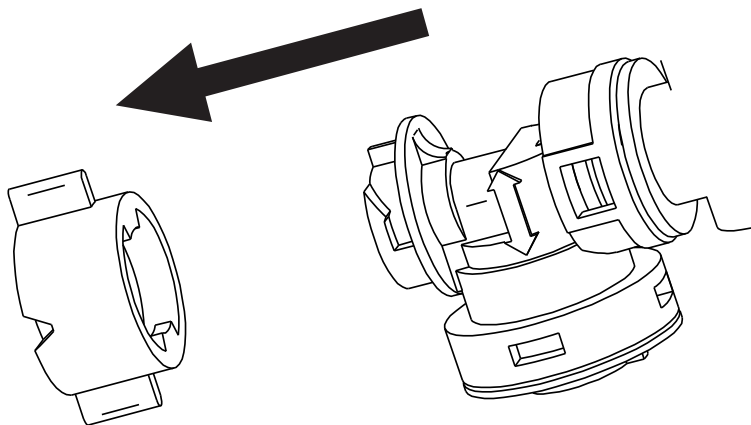
9.1 Hydraulic Pressure Nozzle

The Spraydome/Undavina and Spraymiser Hi-Flo spray heads (hydraulic pressure nozzle type) can be fitted with a wide range of nozzles to suit the needs of the user. The following procedure describes the removal of the spray nozzle.

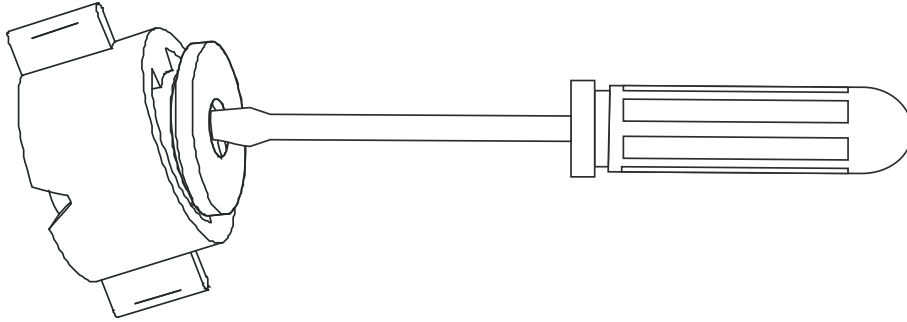
- Turn the bayonet cap 90° counter-clockwise. Note that large Spraydome and Undavina units are fitted with brass nozzle bodies which will require a spanner to remove the retaining nut.



- Remove the bayonet cap or brass retaining nut from the nozzle body. Note that the spray nozzle and sealing ring are retained in the bayonet cap. Where a brass nozzle body is fitted the nozzle is a loose fit in the brass retaining nut and is not fitted with a sealing ring.



- Using a small screwdriver carefully prise the sealing ring out of the bayonet cap. Take care to avoid damaging the seal. Not applicable where a brass nozzle body is fitted.



- Inspect the seal for any damage. If the seal is marked or damaged or has become hard or cracked it should be replaced. Not applicable where a brass nozzle body is fitted.
- The nozzle tip is a sliding fit into the bayonet cap / brass retaining nut. Turn the bayonet cap / brass retaining nut over with the open end downwards and the nozzle should fall out.
- To clean the nozzle tip use a soft bristled brush or toothpick **do not** use a metal object or wire brush. Use extreme care with soft tip materials such as plastic as even a wooden toothpick may distort the orifice.

Refitting of the nozzle is a reversal of the above procedure. Ensure all components are clean before refitting. Do not over tighten brass retaining nut as this may damage the nozzle.

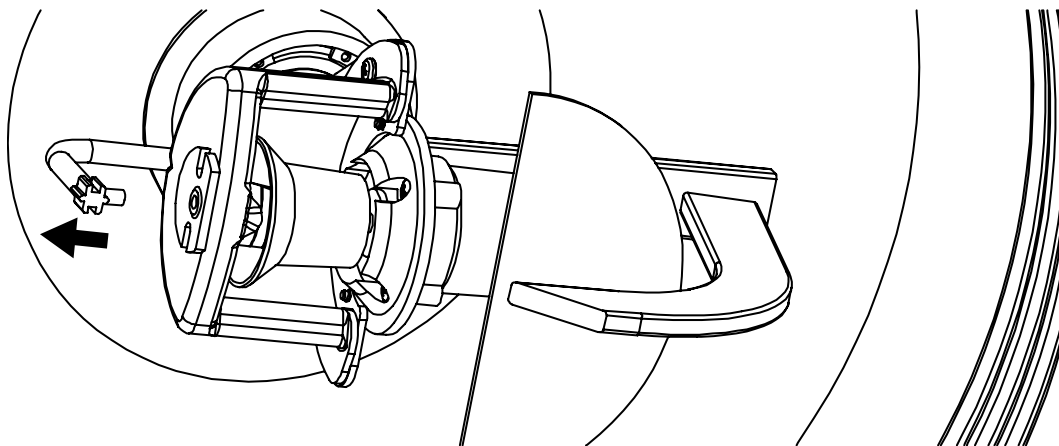
9.2 CDA Nozzle

Micron CDA units are fitted with a rotary atomiser that is fed from the spray tank via a colour coded feed nozzle. There are two types of atomiser assembly fitted to the Spraydome/Undavina and Spraymiser, a disc type and a drum type.

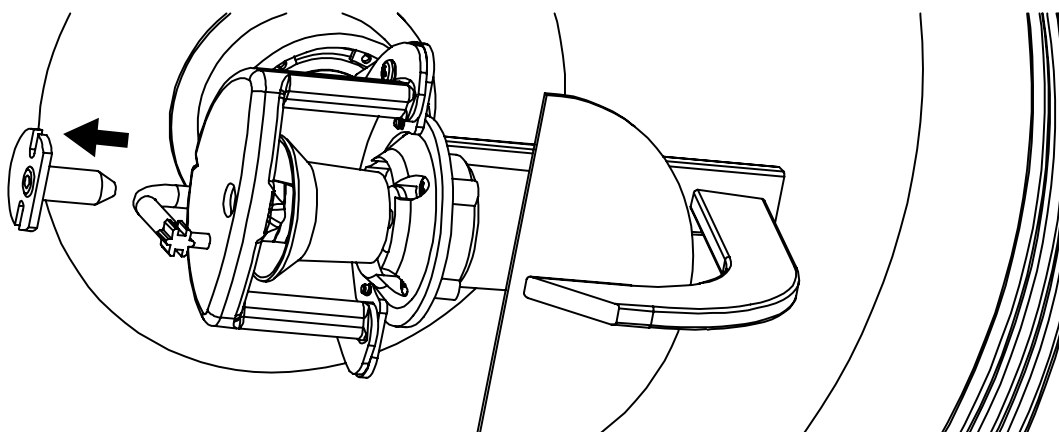
9.2.1 Removing the Feed Nozzle (Drum Type Atomiser)

The following procedure describes the removal of the spray nozzle for the drum type atomiser on the Spraydome/Undavina; on Spraymiser units the atomiser assembly must first be removed from the spray shield refer to section 9.3.3.

- Remove the small plastic elbow from the spray nozzle. Use a twisting motion to ease the elbow from the feed nozzle. Take care not to damage the plastic components.



- Remove the plastic nozzle. Use a twisting motion to ease the feed nozzle from the plastic cover. Take care not to damage the plastic components.

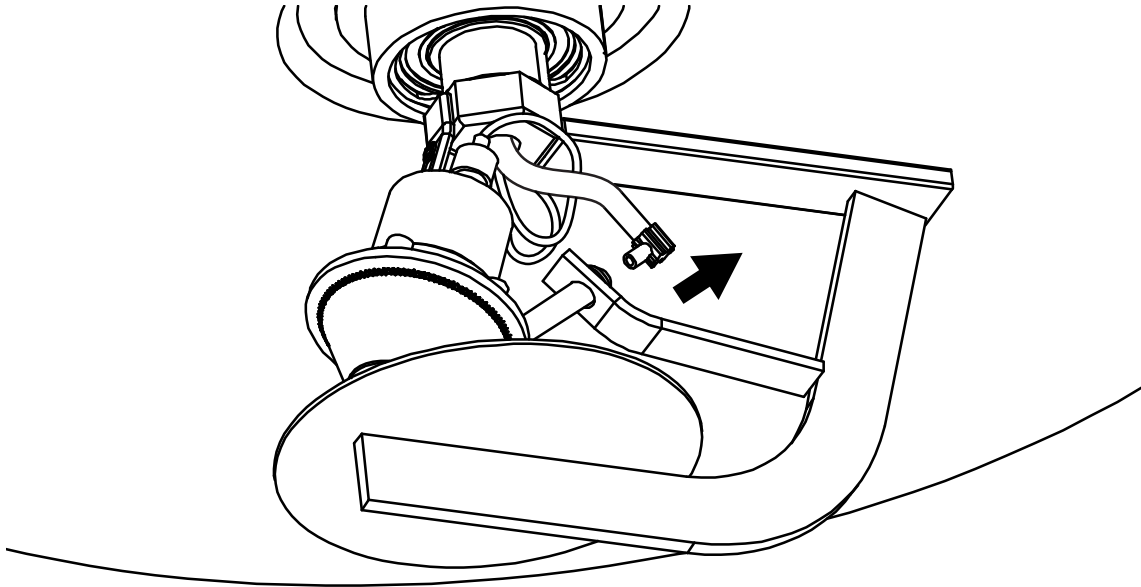


Refitting of the feed nozzle is a reversal of the above procedure. Ensure all components are clean before refitting.

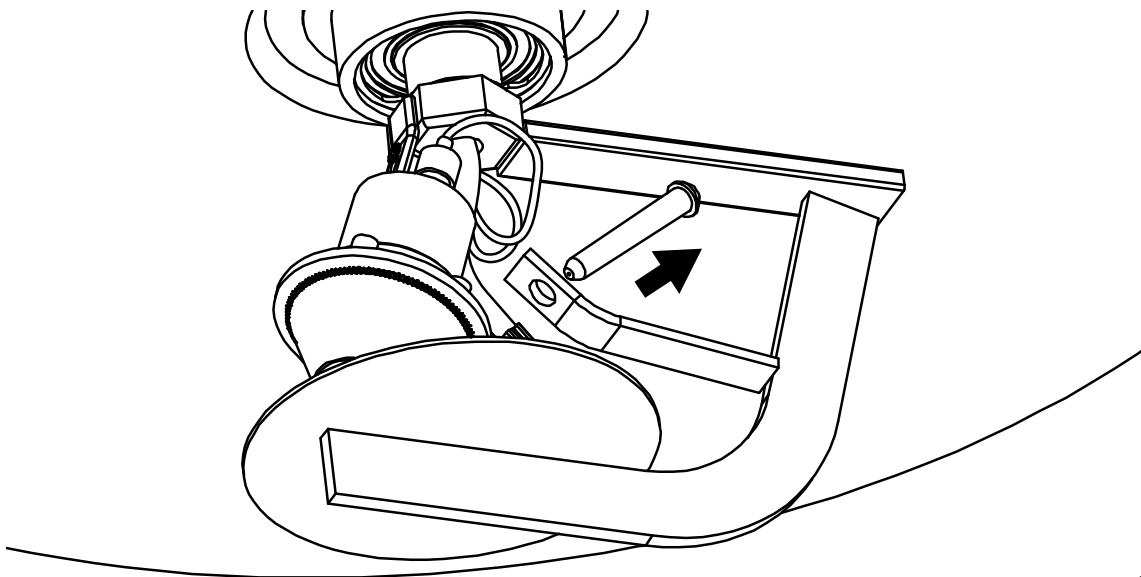
9.2.2 Removing the Feed Nozzle (Disc Type Atomiser)

The following procedure describes the removal of the feed nozzle for the disc type atomiser.

- Remove the small plastic elbow from the feed nozzle. Use a twisting motion to ease the elbow from the feed nozzle. Take care not to damage the plastic components.



- Remove the feed nozzle. Use a twisting motion to ease the feed nozzle from the plastic motor housing. Take care not to damage the plastic components.



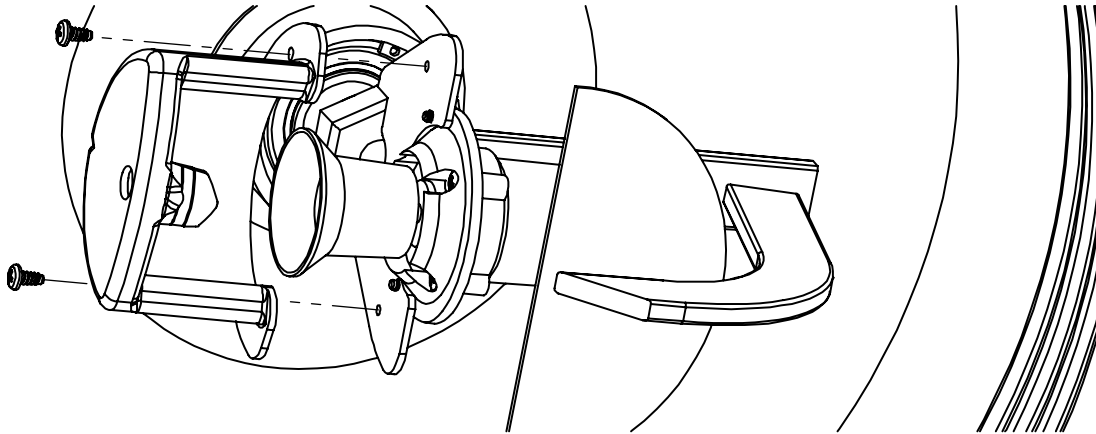
Refitting of the feed nozzle is a reversal of the above procedure. Ensure all components are clean before refitting.

9.3 CDA Atomisers

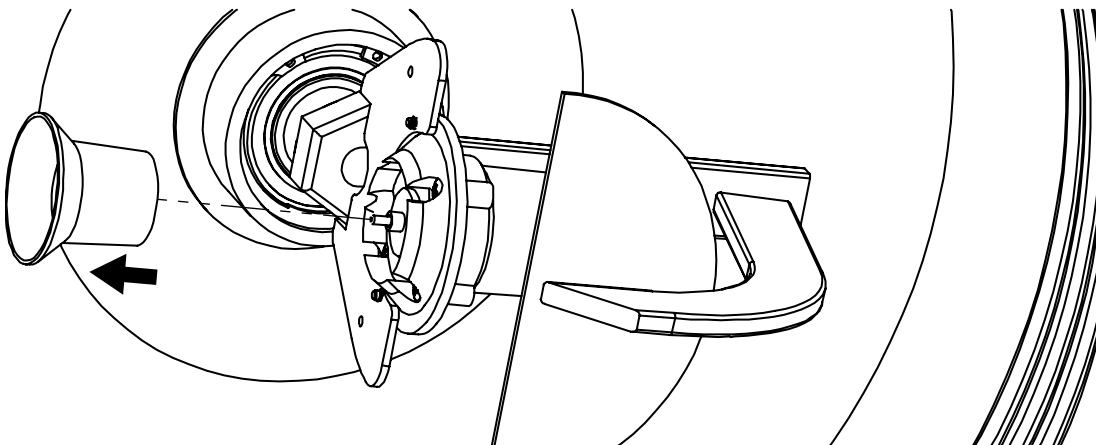
9.3.1 Removing the Recirculation Type Atomiser

The following procedure describes the removal of the recirculation cap and atomiser drum for the drum type atomiser; on Spraymiser units the atomiser assembly must first be removed from the shield refer to section 9.3.3.

- Follow the procedure for removing the feed nozzle in section 9.2.1.
- Remove the recirculation cap; retained by two self tapping screws.



- Pull the atomiser drum off the motor shaft. The atomiser drum is a tight (interference) fit to the motor shaft. **Do not** use tools to lever the atomiser drum off the motor spindle as this will damage the atomiser drum.

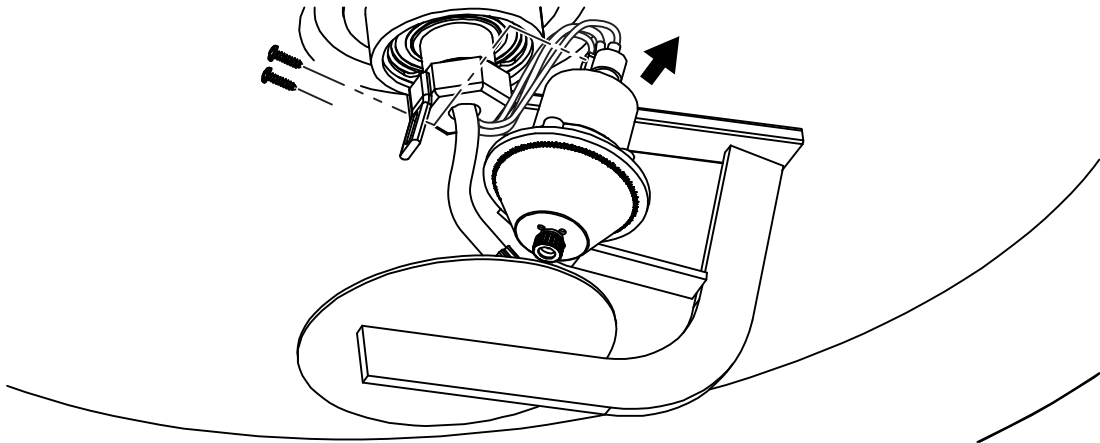


Refitting of the atomiser drum and recirculation cap is a reversal of the above procedure. Ensure all components are clean before refitting.

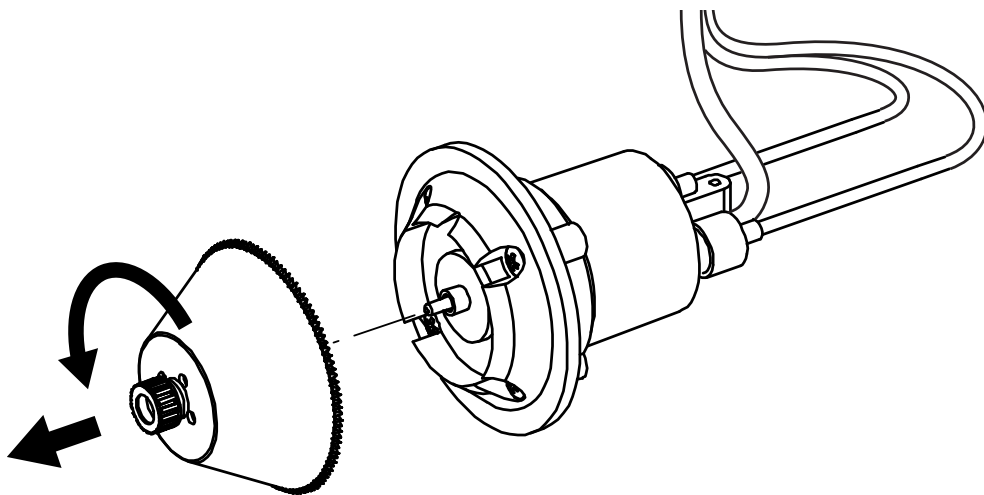
9.3.2 Removing the Disc Type Atomiser

The following procedure describes the removal of the motor assembly and atomiser disc for the disc type atomiser.

- Follow the procedure for removing the feed nozzle in section 9.2.2.
- Remove the motor assembly; retained by two self tapping screws.
- Move the motor assembly to one side to gain access to the atomiser disc.



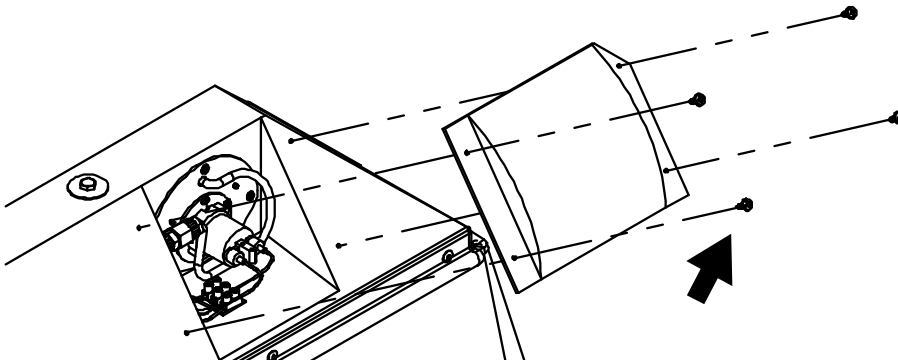
- Hold the atomiser disc and turn the retaining screw anticlockwise half a turn. The atomiser disc will slide easily off the motor shaft.



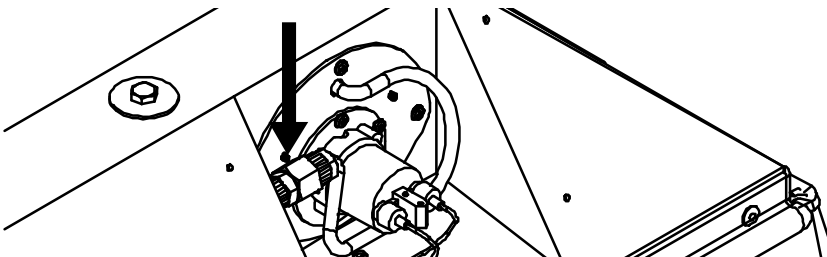
- When refitting the atomiser disc turn the retaining screw clockwise to its stop and then turn it anticlockwise half a turn. The atomiser disc will slide easily onto the motor shaft. Turn the retaining screw clockwise half a turn and then push the atomiser disc onto the motor shaft to ensure it is fully home. Check that the atomiser spins freely.

9.3.3 Removing Spraymiser CDA Atomiser Assembly

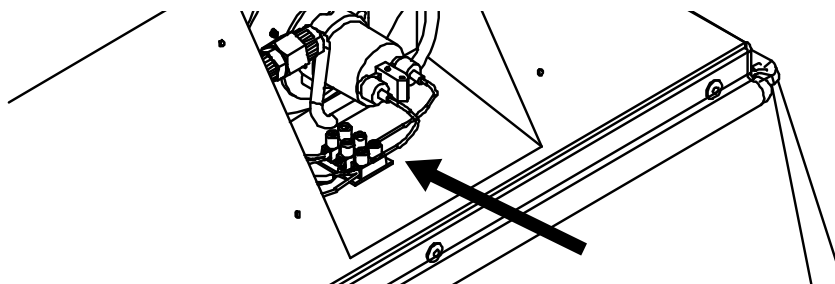
- Remove the 4 screws that retain the CDA recess cover. Retain the screws and cover for later refitting.



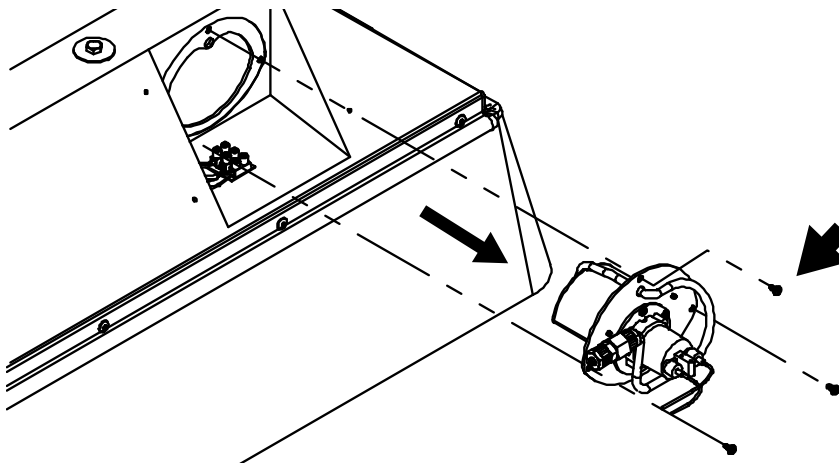
- Disconnect the spray hose at the compression joint



- Record the electrical connection orientation in the connector block for later reassembly. Disconnect the motor electrical connections at the connection block.



- Remove the 3 screws that retain the CDA atomiser assembly. Retain the screws for later refitting. Remove the CDA atomiser assembly.



9.4 Atomiser Motor

The atomiser motor can be removed from the atomiser housing for servicing or replacement without disconnecting the electrical wires from the main assembly. To disconnect the atomiser motor electrical wires refer section 9.4.4.

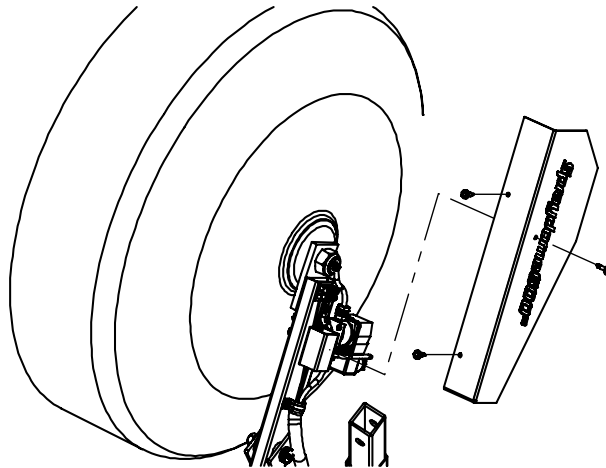
9.4.1 Atomiser Motor (Spraymiser)

Follow the procedure in section 9.3.3 to remove the atomiser assembly and continue on to section 9.4.3.

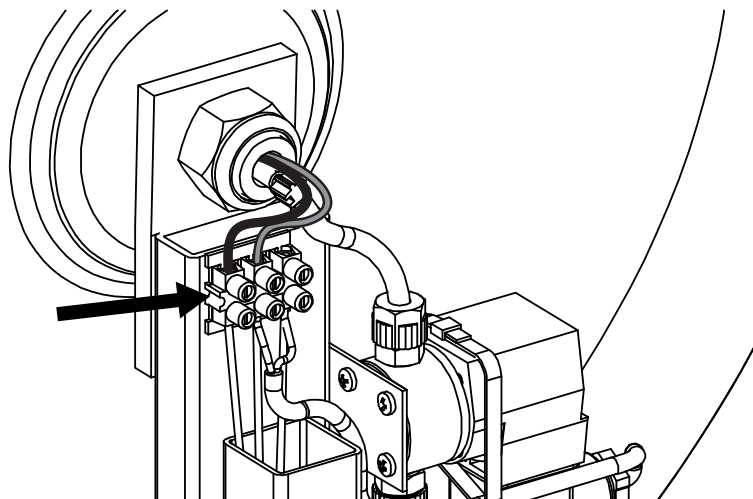
9.4.2 Atomiser Motor (Spraydome/Undavina)

The atomiser motor wiring is connected to a screw terminal block under the pivot arm cover. Only disconnect the atomiser motor wiring when replacing the entire motor assembly or motor wiring.

- Spraydome/ Undavina Remove the pivot arm cover; retained by three self tapping screws.



- The motor is wired into a screw terminal block. The, black, negative (-) wire is connected to the, black, negative (-) wire from the control unit. The, red, positive (+) is connected to the, red, positive (+) wire from the control unit. Do not connect the atomiser motor to the, grey, solenoid wire. Refer to section 9.4.4 for further instruction on wiring the motor.

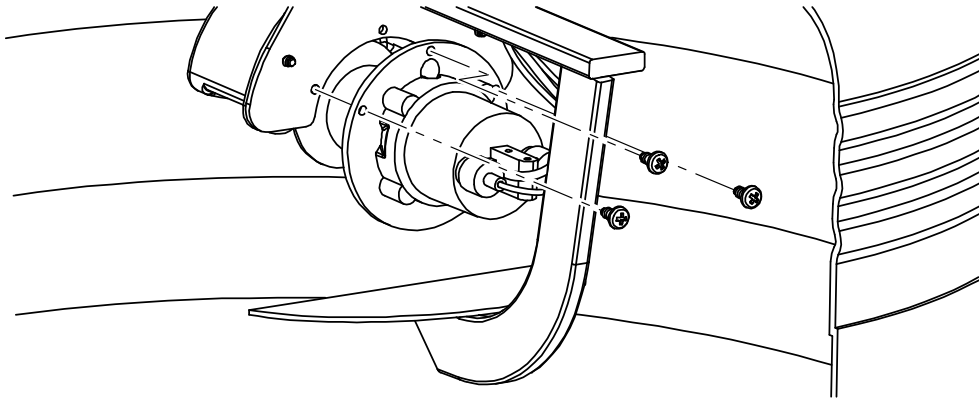


9.4.3 Detaching the CDA Motor Assembly

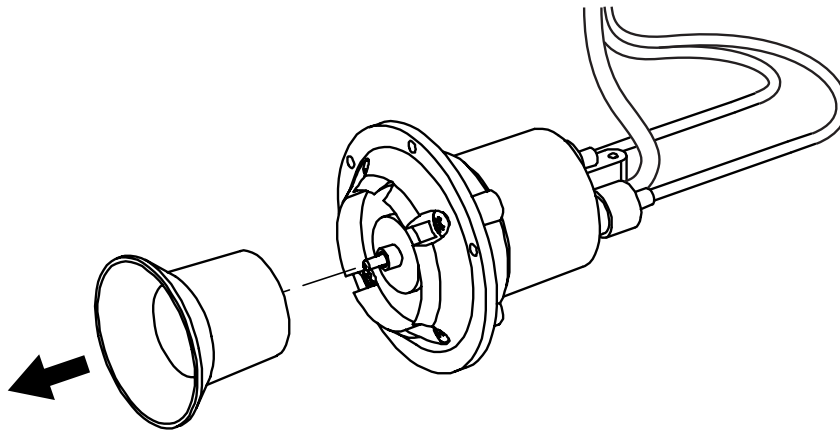
Drum Type Atomiser

The following procedure describes the detaching of the drum type atomiser motor assembly. To fully remove the motor assembly from the Spraydome/Undavina disconnect the electrical wires as described in section 9.4.2.

- Remove the motor assembly, retained by three self tapping screws.



- Pull the atomiser drum off the motor shaft. The atomiser drum is a tight (interference) fit to the motor shaft. **Do not** use tools to lever the atomiser drum off the motor spindle as this will damage the atomiser drum.



Disc Type Atomiser

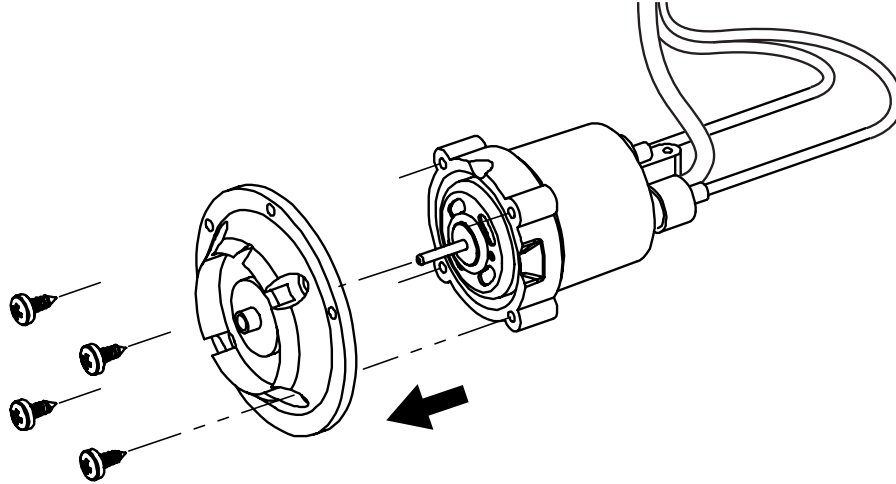
- Instructions for detaching the disc type atomiser assembly can be found in section 9.3.2.
- To fully remove the motor assembly from the Spraydome/Undavina disconnect the electrical wires as described in section 9.4.2.

Refitting of the motor assembly is a reversal of the above procedure. Ensure all components are clean before refitting.

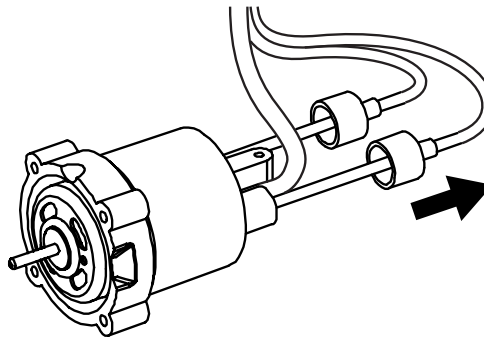
9.4.4 Removing the Motor from its Housing

The following procedure describes the removal of the motor from its housing. This procedure can be carried out without disconnecting the electrical wires from the main assembly.

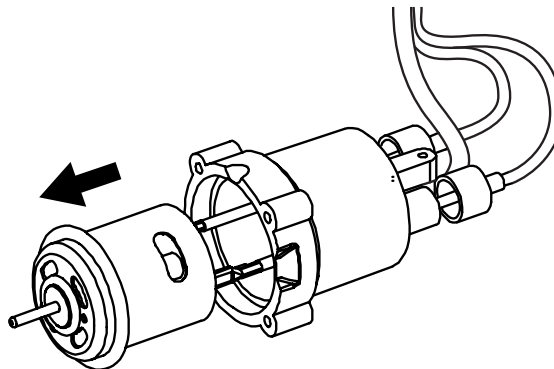
- Remove the motor housing front plate; retained by four self tapping screws.



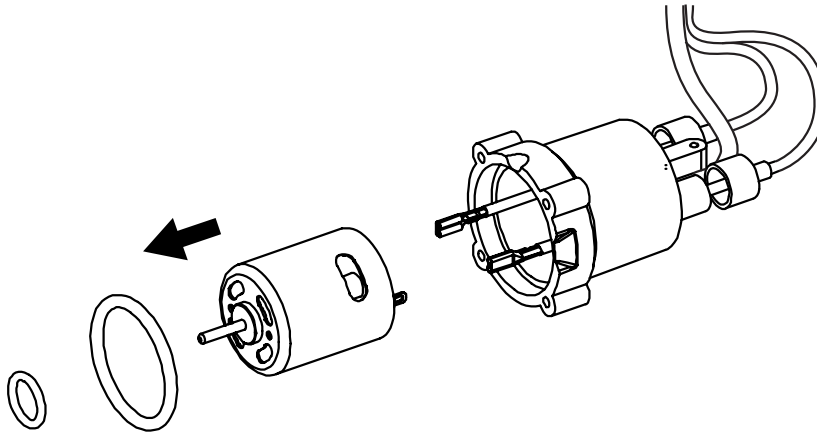
- Slide the two rubber boots along the wires to allow the wires to move forward with the motor.



- Slide the motor out of the motor housing along with its o-rings and wires.



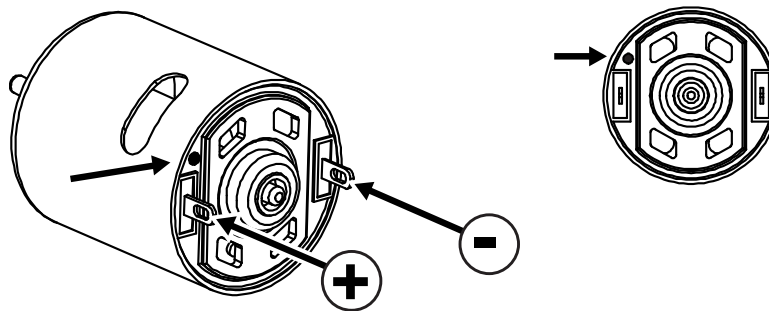
- Remove the o-rings from the motor and disconnect the electrical wires. Note that some motor assemblies have spring contacts between the motor and electrical wires.



- Check the wiring connectors and terminals for corrosion. Clean any corrosion off with a small soft wire brush.
- Check the o-ring seals for signs of damage, wear or hardening. To ensure chemical resistance replace the O-rings with Micron approved spares only.

Refitting of the motor is a reversal of the above procedure. Ensure all components are clean before refitting.

When reconnecting the motor connect the, red, positive (+) wire to the terminal marked with a small dot.



Ensure that the motor is clean and completely dry before refitting. Place the motor to dry in a warm dry place or in direct sunlight. A small amount of moisture dispersing lubricant may be applied to the motor to aid drying. Do not use solvent or silicone sprays, heat or flame on the motor.

9.5 Flow Meter Replacement and Cleaning

The Flow meter is a push fit into the control unit housing.

- Remove the housing cover from the control unit (held by 2 self tapping screws).
- Remove the plastic elbows from the rear of the flow meter.
- Gently ease the flow meter from the front of the control unit housing.
- Clean the flow meter by passing distilled water passed the ball in the direction of flow. Replace the flow meter if the ball does not move freely.

Refitting is a reversal of the above procedure.

9.6 Diode Replacement

The diode is supplied as an assembly and includes the associated wiring.

- Remove the housing cover from the control unit (held by 2 self tapping screws).
- Remove the 2 screws holding the 3 pin connector in place and remove the connector outer cover.
- Disconnect the diode assembly from the switch (push on blade connector).
- Disconnect the diode assembly from the screw terminal block and the screw terminal in the 3 pin connector.

Refitting the diode is a reversal of the above procedure.

9.7 Globe Replacement

The Globe is located under the amber light lens on the front of the control unit.

- Remove the amber light lens held in place by 2 small screws.
- The globe is retained between the brass terminal block and metal tab.
- Push the tab away from the globe to release the tension on the globe.
- When replacing the globe ensure there is sufficient tension to hold the globe securely. If more tension is required remove the globe and gently bend the metal tab toward the brass terminal then refit the globe.

9.8 Restrictor Replacement and Cleaning

The restrictor (where fitted) is located in the tube connector on the front of the control box.

- Unscrew the quick connector from its back nut.
- The restrictor is a loose fit between the connector and back nut.
- Clean the restrictor with mild detergent and a soft brush.

Refitting the restrictor is a reversal of the above procedure.

9.9 Solenoid Replacement

The solenoid on the Spraydome and Undavina is located under the protective cover on the breakaway arm.

- Remove the protective cover held in place by 2 screws.

The solenoids on the Spraymiser units are attached to the chassis under the shield. To access the solenoids first remove the Spraymiser from its mounting. Turn the unit over to gain access to the solenoids.

- Disconnect the hose connected to the solenoid.
- Cut any cable ties used to retain the solenoid. Replacement cable ties are available from Micron group or their agents.

- Disconnect the electrical connections that connect the solenoid to its terminal block.

Refitting the solenoid is a reversal of the above procedure.

9.10 Shield and Skirt Replacement

Spraydome and Undavina

Replacement brush skirts and domes are supplied as complete assemblies and include new bearing assemblies.

- Disconnect the feed pipe at the elbow located above the shield bearing.
- Disconnect the electrical connections at the connector block (CDA only)
- Remove the large retaining nut above the shield bearing.
- Remove the shield assembly from the breakaway arm
- Remove the shield from the atomiser or hydraulic pressure nozzle assembly.

Refitting the shield is a reversal of the above procedure.

Some Undavina brush skirts are available as spare parts without the centre disc and bearing. These are held in place by either nuts and bolts or rivets. For further information on replacement of brush skirts refer to the parts catalogue for your equipment or to Micron group or their agents.

Spraymiser

For CDA follow the information in section 9.3.3 to remove the atomiser assemblies.

The Spraymiser shields are attached to the centre chassis or wing arms by a through bolt and nut.

- Disconnect the hose and cable assembly (CDA only) or feed hose (Hi-Flo) from all connections.
- Remove the hose and cable assembly (CDA) or feed hose (Hi-Flo) from the shield.
- Remove any additional parts that are attached to, or pass through, the shield.
- Remove the retaining nut and bolts.
- Remove the shield complete with brush skirt.

Refitting the shield is a reversal of the above procedure.

9.11 Fuse Replacement

The standard power wire assembly for CDA units has an inline fuse fitted to the positive (+) wire near to the positive (+) battery terminal.

- Switch off all equipment including the vehicle engine.
- Push the 2 halves of the fuse holder together and twist the small end counter clockwise 90°.
- The fuse is located in the larger half of the fuse holder. There is a small spring behind the fuse; take care to retain the spring.

Refitting the fuse is a reversal of the above procedure.

9.12 Service and Inspection

The guidance provided in this manual should be sufficient to ensure continuing operation of the equipment. However, Micron Sprayers Ltd. recommends that an annual inspection of the equipment be carried out by an independent and appropriately qualified and/or experienced person. Operators must comply with any national or local regulations regarding the inspection of sprayers. For general service and inspection advice refer to Table 8.

Service and Inspection Table		
Item	Action	Occasion
Spray nozzle (Hi-Flo).	Remove and Clean. Check flow rate.	Each use of the equipment. ¹ Each use of the equipment. ¹
Feed Nozzle (CDA).	Remove and Clean. Check flow rate.	Each use of the equipment. ¹ Each use of the equipment. ¹
Atomiser disc or drum and recirculation cap.	Remove and Clean.	After each use and before storage.
Atomiser Motor.	Remove and clean contact. Ensure the motor is free from moisture before refitting.	Immediately if you suspect the motor is contaminated.
Flow meter.	Strip and clean with distilled water or clean rain water.	Annually or immediately if the float sticks.
Spray lines and ancillary items.	Check for leaks. Check for free movement of connecting hoses. Check for correct operation of valves and regulators.	Each use of the equipment. Each use of the equipment. Each use of the equipment.
Filters	Check and clean all filters.	Each use of the equipment. ¹
Shield Skirts.	Check for excessive wear or damage.	Each use of the equipment.
Structural defects.	Check for broken or cracked components.	Each use of the equipment.

¹ More regular inspection and cleaning may be required if using dissolved powders.

Nuts, Bolts and other fittings.	Tighten any loose fittings and clean and lubricate exposed threads.	Each use of the equipment and before storage.
Joints, pivot pins and bearings.	Check for excessive wear and adequate lubrication.	Each use of the equipment.
Greased joints and grease nipples.	Pack with grease.	Each use of the equipment and before storage.
Moving Parts.	Check for free and smooth operation and adequate lubrication.	Each use of the equipment and before storage.

Table 8 - Service and Inspection

For information on replacement parts refer to the Micron Group parts catalogue appropriate to your equipment.

9.13 Preparing for Storage

For storage of the equipment over longer periods or during cold weather follow the procedure below. Throughout this procedure take any and all appropriate measures to ensure minimal impact to the environment. Collect and dispose of any output or spillage from the equipment responsibly, refer to section 8 for information on cleaning and the disposal of rinsate.

- Ensure the system is drained of all fluids including those in any rinse tank or hand-wash tank.
- In climates where winter temperatures approach freezing it is necessary to add antifreeze to the pump and spray lines. Antifreeze will prevent freezing of any water retained in the plumbing system.
- Add a quantity of good quality antifreeze fluid, diluted if required to the manufacturer's instructions, to the main tank and rinse tank. Refer to the tank manufacturer's instructions. **DO NOT** put antifreeze into a hand wash tank.
- Run the spraying pump and circulate the antifreeze throughout your tank and Spraydome/Undavina and/or Spraymiser systems.
- Ensure that all of the pipe lines and spray heads are clear of any fluids other than the antifreeze fluid.
- Turn off any feed line stop valves and disconnect the feed lines.
- Disconnect all electrical connections.
- Ensure the equipment is stable.
- **Always** lower the breakaway arms into the operating position when removing the Spraydome/Undavina from its mountings.
- Store the equipment in a covered, ventilated area. Store away from direct sunlight as some plastic parts may be deteriorated by ultra violet light.
- **Always** stand the Spraydome/Undavina and/or Spraymiser so that it is suspended off the ground to prevent damage to the skirt or shield.
- To prepare the equipment for use after storage: Follow the instruction in this document to install the equipment onto your tractor/vehicle. Drain any antifreeze fluid from the tank and Spraydome/Undavina and /or Spraymiser systems, taking care to collect and dispose of all output fluids responsibly. Thoroughly rinse the system in accordance with section 8 of this document before use.

10 TROUBLESHOOTING

Illustrated parts catalogues are available from Micron Group or their agents. Refer to the Micron Group parts catalogue appropriate to your equipment for spare part information and assembly illustrations.

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.

Table 9 - Mechanical Faults, Troubleshooting

10.1 Hi-Flo Equipment Troubleshooting

The following troubleshooting is for the Hi-Flo spray heads only.

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. ¹ Remove and clean nozzle. ¹ Check and clean all filters. ¹ Purge all hoses. ¹ Straighten all hoses. Replace the pump. ¹
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. ¹ Remove and clean nozzle. ² Check and clean all filters. ¹ Purge all hoses. ¹ Straighten all hoses. Increase supply pressure to between 1 and 2 bar. Replace Pump. ¹ Purge air from system. Reduce pump operation or agitation. ¹
High flow rate.	Incorrect or worn nozzle. Supply pressure too high.	Replace with new nozzle. ² Reduce supply pressure to between 1 and 2 bar.

Table 10 - Hi-Flo Troubleshooting

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

² Refer to the relevant section of this document

10.2 CDA Equipment Troubleshooting

Problem	Possible Cause	Action	Section
Pump and CDA atomiser not operating.	<p>Inline switch is off.</p> <p>Blown fuse.</p> <p>Loose connection at battery or backplate.</p> <p>Incorrect wiring at backplate or control unit.</p>	<p>Switch on inline switch and controller.</p> <p>Check system and replace fuse.</p> <p>Check all connections; tighten as necessary.</p> <p>Check wiring and re-wire as necessary.</p>	<p>3.5</p> <p>3.5, 9.11, Appendix C</p> <p>3.5, Appendix C</p> <p>3.5, Appendix C</p>
Blows fuse with control unit switched off.	Wiring on main lead or backplate reversed.	Check wiring and re-wire as necessary.	3.5, Appendix C
Blows fuse when control unit is switched on.	Short to earth.	Check all wiring for earth faults and repair.	3.5, Appendix C
Green wire in control unit overheating or melting.	Battery polarity incorrect.	Replace green wire and reverse battery connections.	3.5, Appendix C
Black wire between battery and backplate overheating or melting.	Battery polarity incorrect.	Replace black wire and reverse battery Connections.	3.5, Appendix C
CDA atomiser does not spin and lamp glows brightly.	<p>Obstruction in atomiser disc.</p> <p>Motor faulty (closed circuit).</p>	<p>Remove and clean atomiser disc.</p> <p>Replace motor.</p>	<p>9.3</p> <p>9.4</p>
CDA atomiser does not spin and lamp does not glow.	<p>Unit is switched off.</p> <p>Fuse blown.</p> <p>Motor faulty</p> <p>Broken wire.</p> <p>Loose connection.</p> <p>Corroded terminal</p> <p>Globe blown.</p> <p>Globe loose.</p> <p>Incorrect wattage globe.</p> <p>Wiring incorrect.</p>	<p>Switch on inline switch and controller.</p> <p>Check system and replace fuse.</p> <p>Replace motor.</p> <p>Check wiring.</p> <p>Check and tighten.</p> <p>Clean or replace.</p> <p>Replace globe.</p> <p>Adjust globe holder.</p> <p>Replace globe.</p> <p>Check wiring and rewire as necessary.</p>	<p>3.5</p> <p>3.5, 9.11, Appendix C</p> <p>9.4</p> <p>Appendix C</p> <p>Appendix C</p> <p>Appendix C</p> <p>9.7</p> <p>9.7</p> <p>9.7</p> <p>3.5, Appendix C</p>

CDA Equipment Troubleshooting (continued)

CDA spins slowly.	Moisture or corrosion in the motor.	Replace motor.	9.4
	Incorrect wattage globe.	Replace globe.	9.7
CDA spins too fast and lamp does not glow.	Incorrect wattage globe.	Replace globe.	9.7
	Globe wiring reversed.	Check and rewire.	3.5, Appendix C
Pump/CDA operates intermittently.	Loose electrical connection.	Check all connections; tighten as necessary.	3.5, Appendix C
Pump will not operate.	Pump wire not connected to backplate.	Connect to Backplate 2 pin panel socket.	3.5, Appendix C
	Loose electrical connection.	Check all connections; tighten as necessary.	3.5, Appendix C
	Diode faulty.	Replace diode.	9.6
	Diode polarity incorrect.	Reverse diode connections.	9.6
	Faulty pump motor.	Replace pump motor.	3.5, Appendix C
	Incorrect wiring.	Check wiring and rewire as necessary.	3.5, Appendix C
Pump runs but no flow from outlet.	Tank empty.	Refill tank.	9.8
	Blocked restrictor.	Clean restrictor in control unit feed tube.	
	Blocked nozzle.	Remove and clean nozzle.	9.2
	Blocked filter.	Check and clean all filters. ¹	9.5
	Blocked hose.	Purge all hoses.	
	Kinked hose.	Straighten all hoses.	3.5, Appendix C
Float stuck in flow meter.	Gently loosen the float and clean the flow meter.		
	Solenoid not opening.	Check wiring; replace the solenoid if necessary.	

Table 11 - CDA Troubleshooting

¹ Refer to your tank system instructions.

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

11 SPRAYER DISPOSAL



It is the responsibility of the user to ensure the disposal of the equipment is in accordance with any and all national or local restrictions, prohibitions and regulations.

Remove chemical residues in accordance with the chemical manufacturer's instructions.

Dispose of chemicals in accordance with the manufacturer's instructions.



Harmful chemicals and spray mix **must** always be handled and stored in accordance with the manufacturer's instructions.

Harmful chemicals **must** be stored in their original containers.

It is the responsibility of the user to ensure all possible measures are taken to protect the environment.

It is the responsibility of the user to be familiar with, and adhere to, all relevant national and local restrictions, prohibitions and regulations.

To dispose of the equipment reduce the equipment to its component parts. Thoroughly clean all components inside and out.

Dispose of the component parts by material and type in accordance with any and all national and local restrictions regarding waste disposal.

Appendix A Work Record Sheet

Copy this Sheet and fill in the details listed below. Keep this record with the equipment during the spray operations. Retain this record for future reference.

Operators Name:		
Date:		
Location to be sprayed:		
Chemical to be used:		
Sprayer to be used:		
Field Area		Ha
Chemical Dose		Litres/ha
Volume Rate		Litres/ha
Ground Speed		Kph
Band Width		Metres
Row Width		Metres

Field Area (ha): This is the total area of planted crop to be sprayed.

Chemical Dose (l/ha): This is the amount of chemical to be applied to each hectare of ground.

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

Ground Speed (kph): This is the forward speed of the tractor/vehicle when spraying.

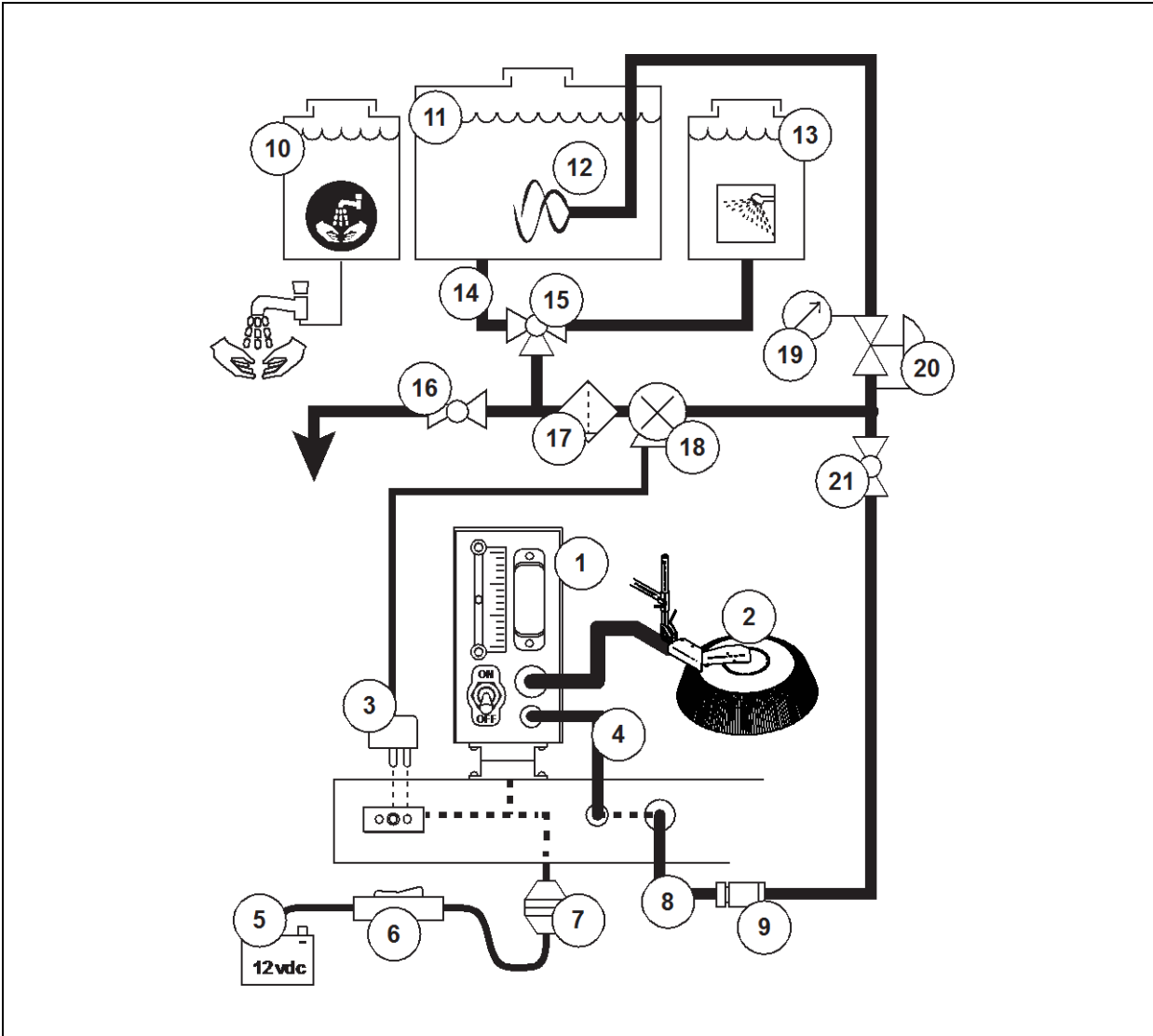
Band Width (metres): This is the width (or average width) covered by the shield.

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

Output Flow Rate Per Head (litres per minute)	=	Volume Rate (l/ha)	X	Ground Speed (Kph)	X	Band Width (metres)	/ 600	=	Litres / minute
----------------------------------------------------------------------	---	-----------------------------------	----------	-----------------------------------	----------	------------------------------------	--------------	---	----------------------------

Total Spray Mix Volume (litres)	=	Volume Rate (l/ha)	X	Band Width (metres)	X	Field Area (ha)	/	Row Width (metres)	=	litres
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Appendix B Flow System Diagram



1	Controller Backplate*
2	Spraydome/Undavina
3	Pump Power Wire*
4	Control Unit feed tube*
5	Battery 12 v DC
6	Inline Switch*
7	Inline Connector*
8	Backplate Manifold Feed Hose*
9	Quick Release Hose Connector*
10	Hand Wash Facility
11	Main Spray Tank

12	Main Tank Agitator
13	Rinse Tank
14	Main Tank Outlet
15	Diverter Valve
16	Drain Valve
17	Filter ¹
18	Pump
19	Pressure Gauge
20	Pressure Regulator
21	Outlet Stop Valve

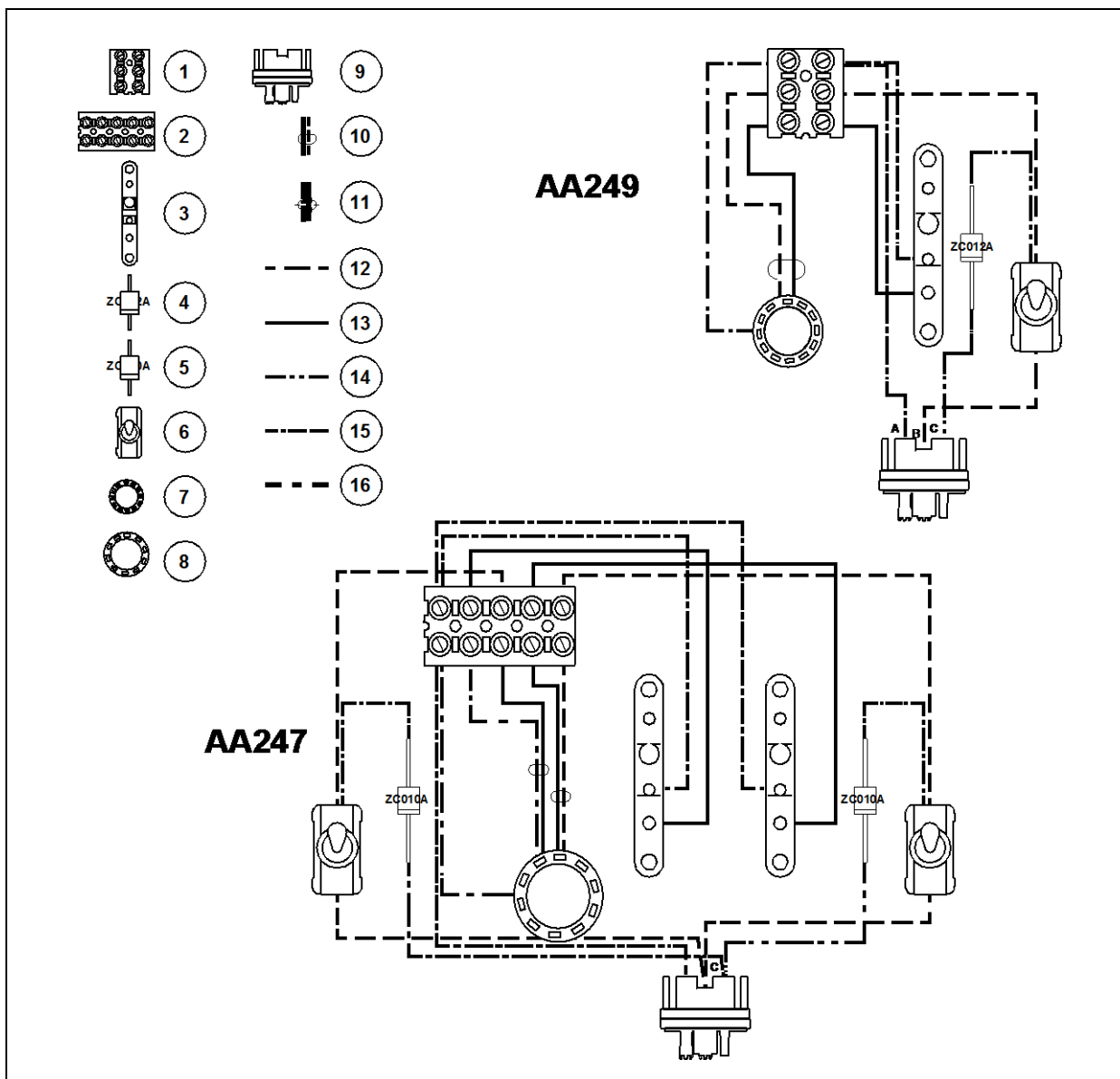
*Required for CDA systems only.

Figure 7 – Flow System Diagram (typical configuration)

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

Appendix C Electrical Diagrams

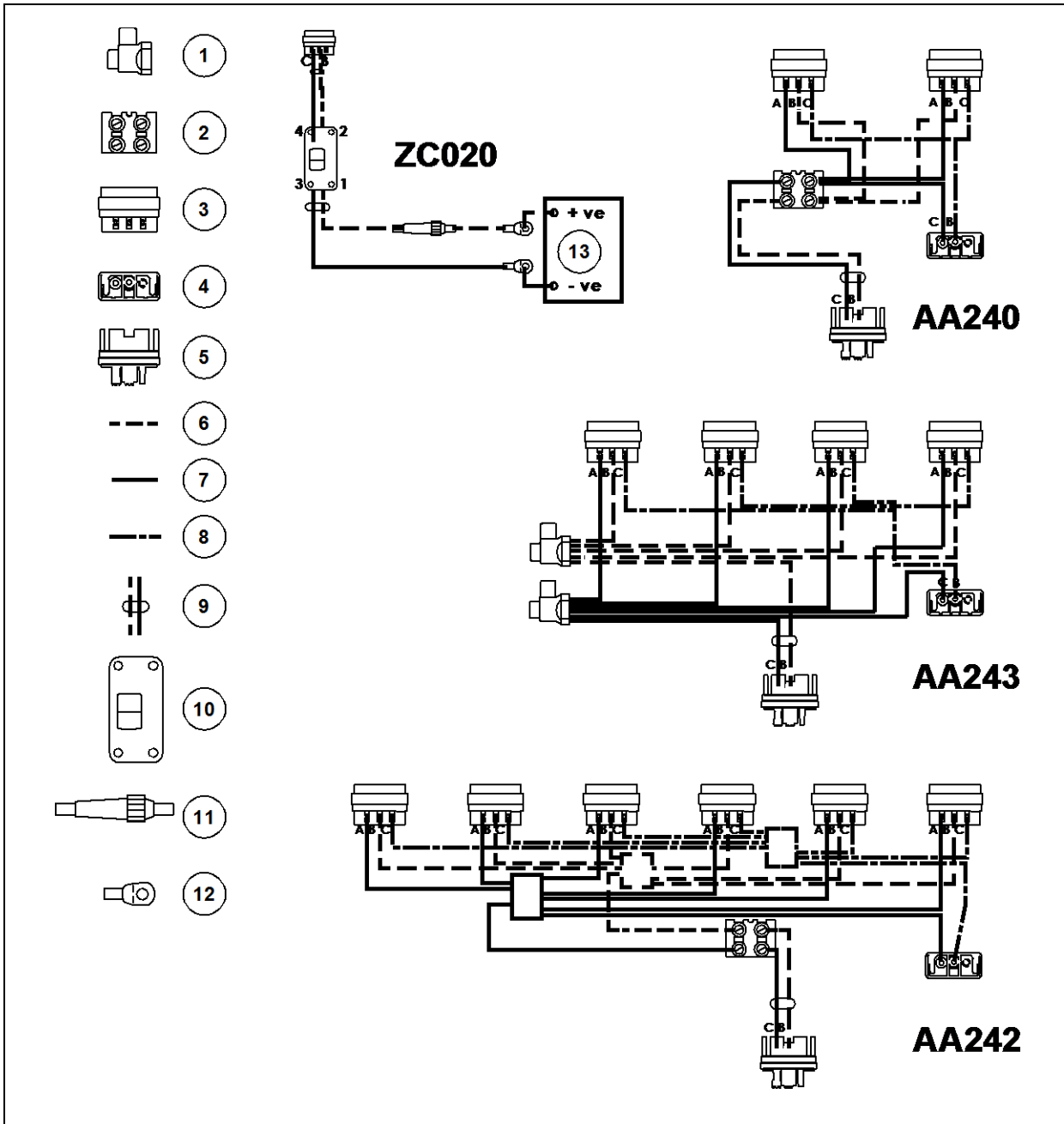
Control Box Wiring



1	3 Way Connector Block
2	5 Way Connector Block
3	Globe Holder
4	Diode ZC012A (single control box)
5	Diode ZC010A (multi control box)
6	Toggle Switch
7	16 mm Conduit
8	20 mm Conduit

9	3 Pin Plug
10	Twin Wire Red/Black
11	Twin Wire Brown/White
12	Single Wire Red
13	Single Wire Black
14	Single Wire Blue
15	Single Wire Green
16	Single Wire White

Backplate and Power Lead Wiring



1	Insulated Connector
2	2 Way Connector Block
3	3 Pin Socket
4	2 Pin Socket
5	2 Pin Plug
6	Single Wire Red
7	Single Wire Black

8	Single Wire Blue
9	Twin Wire Red/Black
10	Inline Switch
11	Fuse Holder
12	Terminal
13	Battery

Appendix D 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.

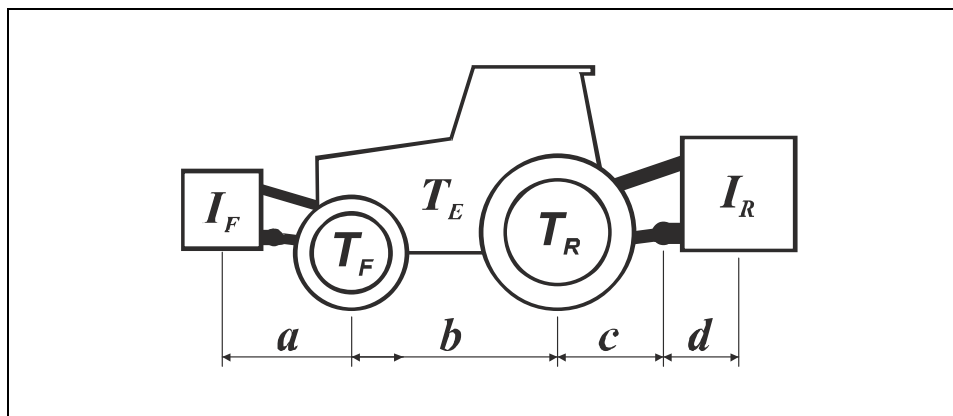


Figure 8 - Stability of tractor machine combinations

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

T_E [kg] Mass of unladen tractor ¹

T_F [kg] Front axle load of unladen tractor ¹

T_R [kg] Rear axle load of unladen tractor ¹

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 ²

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 ^{1 3}

c [m] Distance from rear axle centre to centre of lower link balls ^{1 3}

d [m] Distance from centre of lower link balls to centre of gravity for combined rear mounted implement and/or rear ballast ^{2 3}

¹ refer to manufacturers information

² refer to section technical specification

³ to be measured

Appendix E 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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