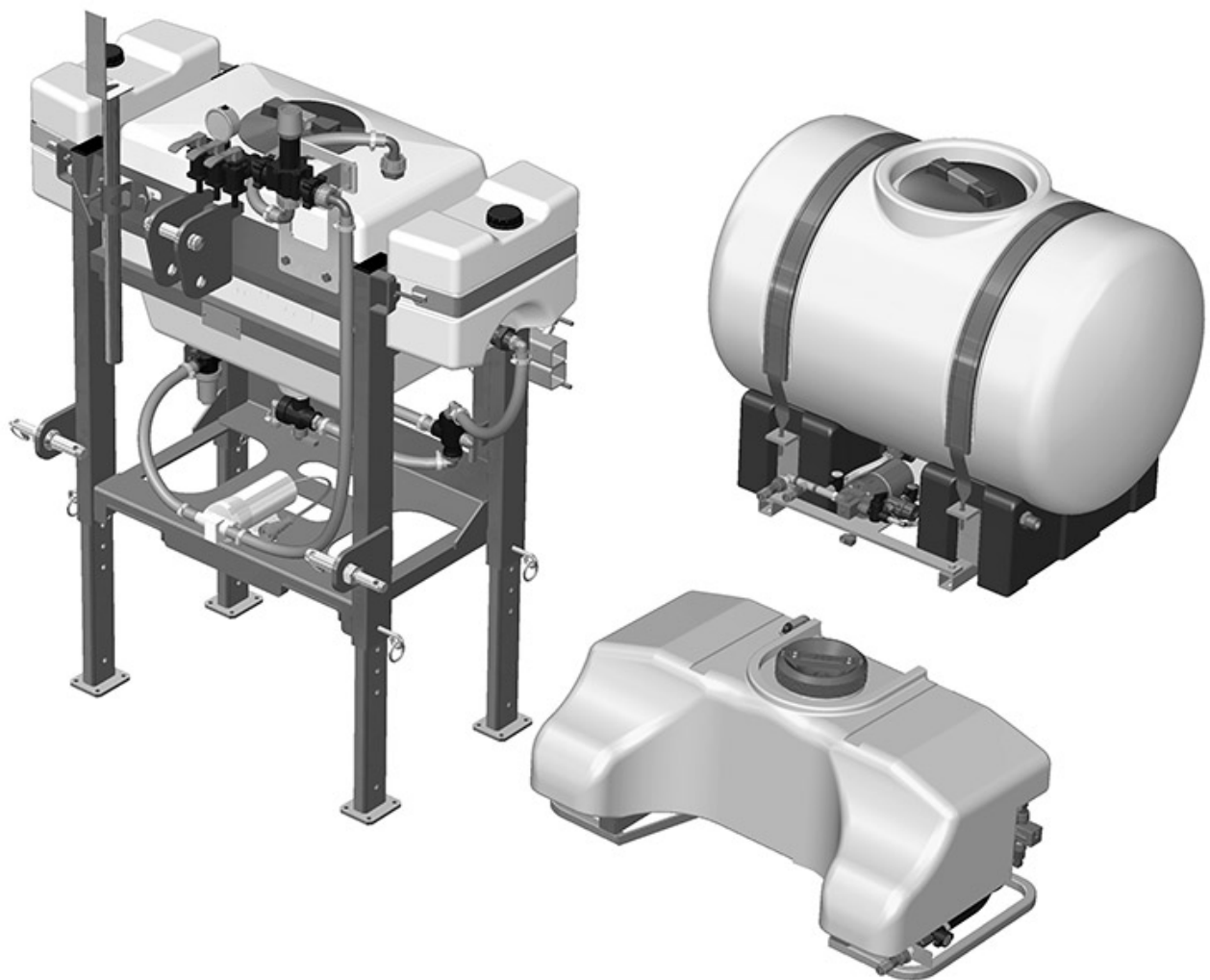




***TankSystem*ATV**
***TankSystem*100L**
***TankSystem*200L**



Instruction Manual

Publication Part No: 10234

Revision: 1

Edition Notice

Prepared and printed by or on behalf of:



This publication covers the following products:

Tank System ATV (60 and 80 litres)
Tank System 100L
Tank System 200L

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Preface

This document has been produced to provide guidance for the installation and use of Micron and Enviro tank systems and associated accessories.

Operators of the Micron and Enviro tank systems should read this document thoroughly. Operators **must** understand the correct use of this equipment and necessary safety precautions before attempting to install or operate Micron and Enviro tank systems or 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 operator 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 operators 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 operator **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 Micron and Enviro tank systems. If misused the Micron and Enviro tank systems has the potential to cause harm to personnel, damage to the equipment, property or the environment. Please read the information in this document 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 COMMONLY USED ON MICRON GROUP EQUIPMENT AND WITHIN 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>
	<p>Denotes a mandatory prohibition – 'things you must not do'. A specific prohibition is given in or close to this symbol.</p>
	<p>Denotes a mandatory instruction – 'things you must do'. A specific instruction is given in or close to this symbol</p>
<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 Micron and Enviro tank systems and associated accessories 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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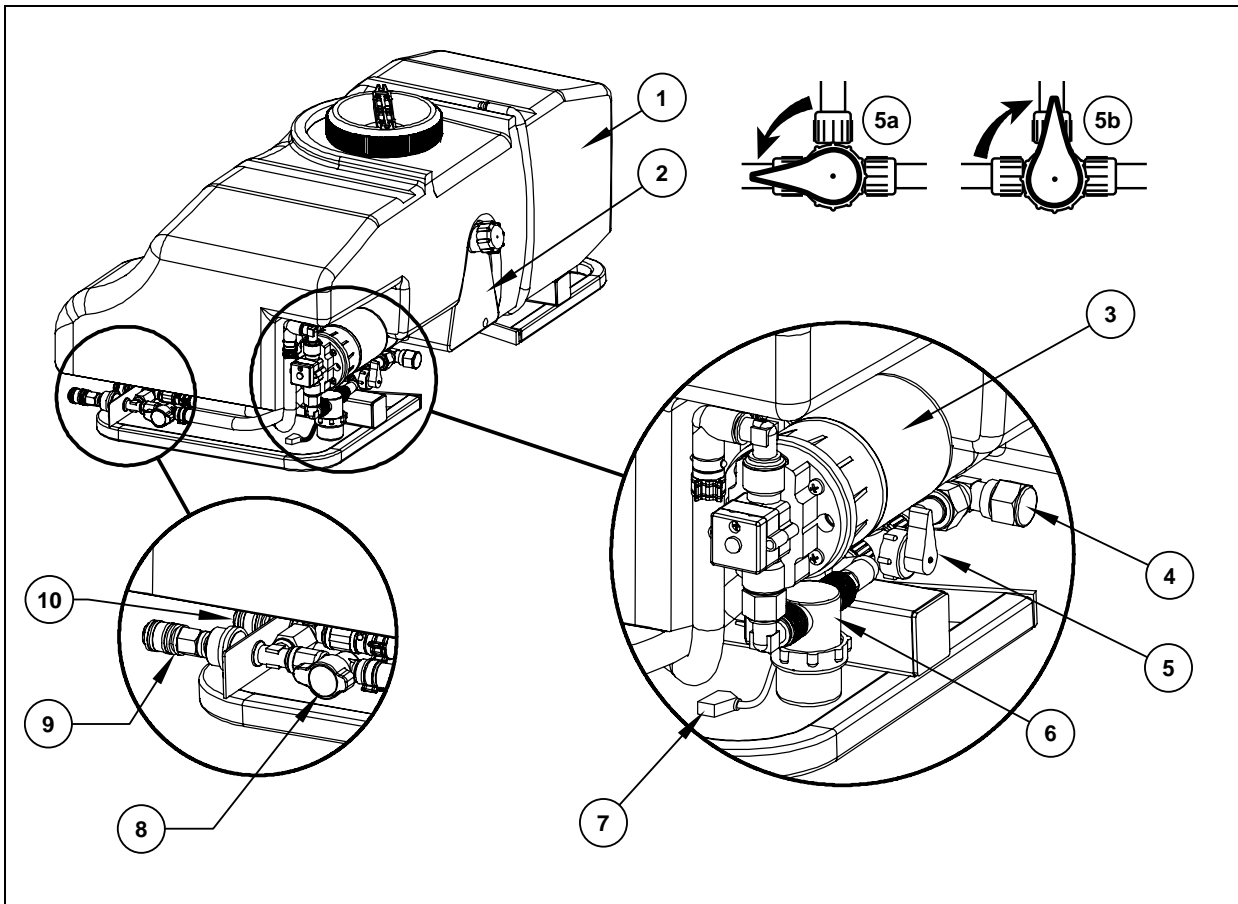
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1 INTRODUCTION

Micron tank systems are designed to be used in conjunction with hydraulic pressure nozzle or CDA (Controlled Droplet Application) spraying equipment. Micron tank systems are supplied with integral rinse tank and hand wash tank where required.

1.1 Tank System Features

ATV (All Terrain Vehicle) Tank System Features



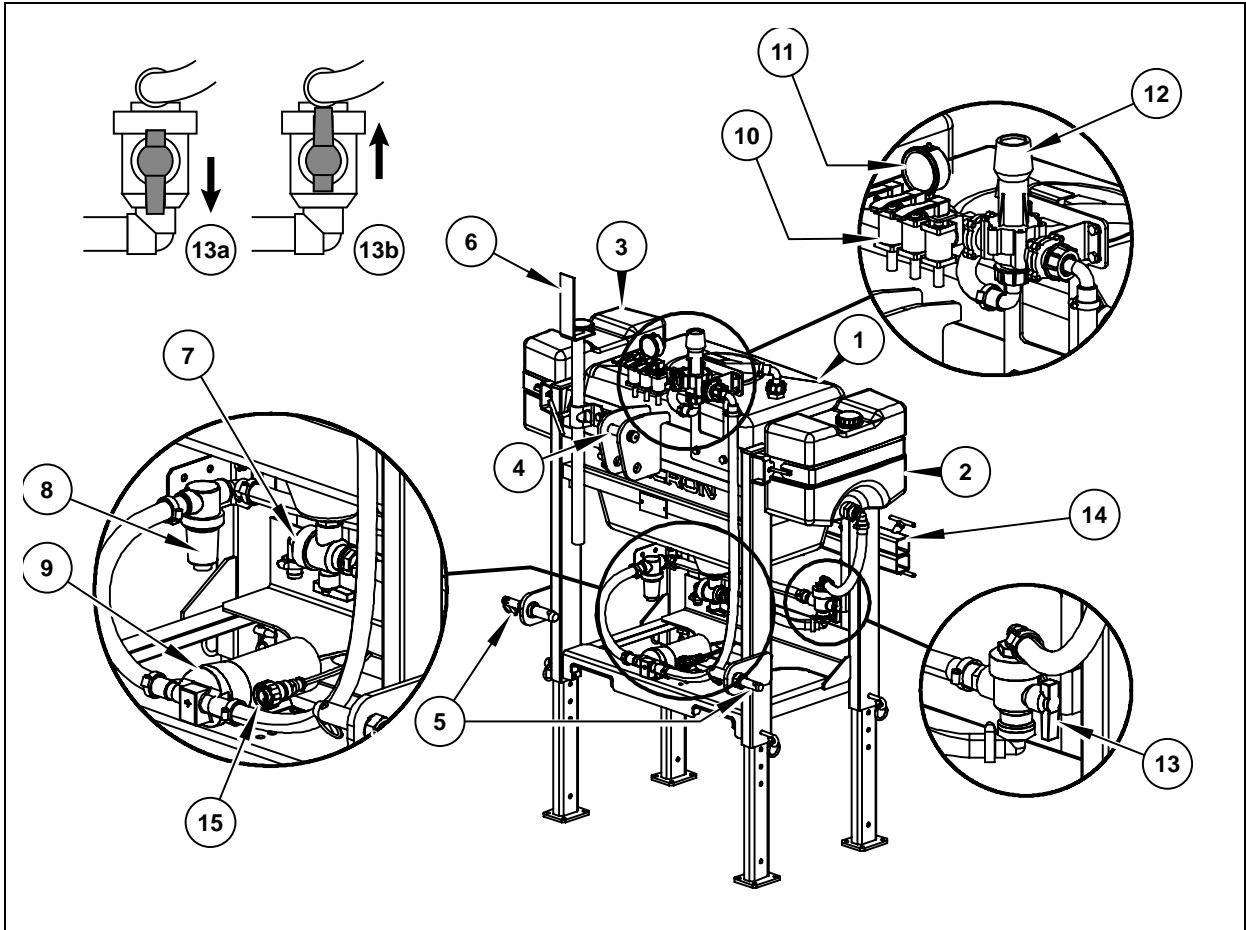
1	Spray Mix Tank	6	Filter Housing
2	Rinse Tank	7	Electrical Connector (Pump)
3	Pump	8	Regulation Valve
4	System Drain	9	Outlet Coupling ¹
5	Tank Selection Valve Spray Mix (5a) or Rinse (5b)	10	Outlet Coupling ²

Figure 1 – ATV Tank system features

¹ Outlet on standard tank systems; CDA outlet on dual flow tank systems

² HiFlo outlet on dual flow tank systems; not fitted to CDA only and HiFlo only tank systems

100 Litre Tank System Features (Electric Pump)

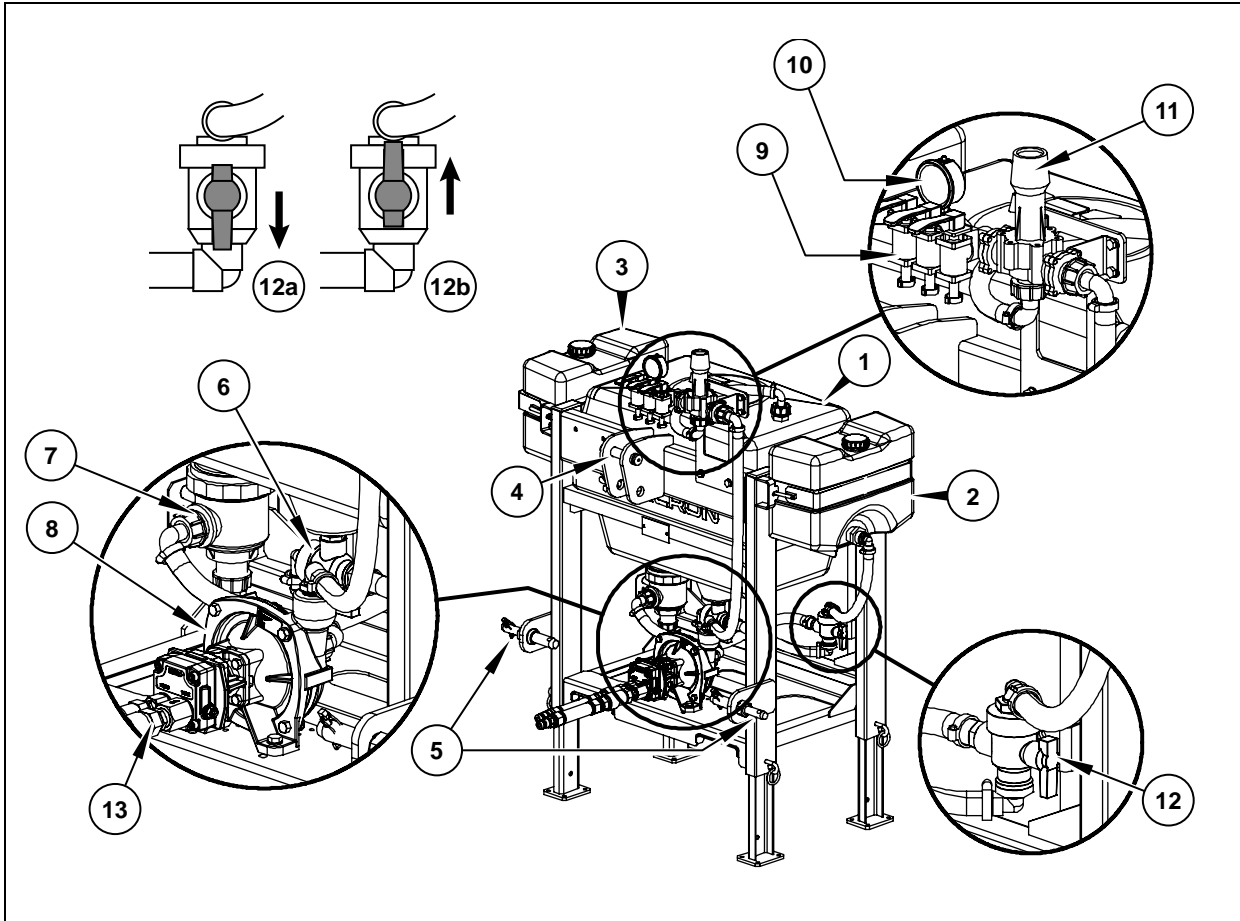


1	Spray mix Tank	9	Pump
2	Rinse Tank	10	Outlet Section Valves
3	Hand Wash Tank	11	Pressure Gauge
4	3 Point Linkage Top Link Pin	12	Regulation Valve
5	3 Point Linkage Lower Link Pin	13	Tank Selection Valve Spray Mix (13a) or Rinse (13b)
6	CDA Controller Bracket ¹	14	Equipment mounting Tubes ¹
7	System Drain Valve	15	Electrical Connector (Pump)
8	Filter Housing		

Figure 2 – 100 Litre Tank system features (Electric Pump)

¹ Used with CDA equipment only.

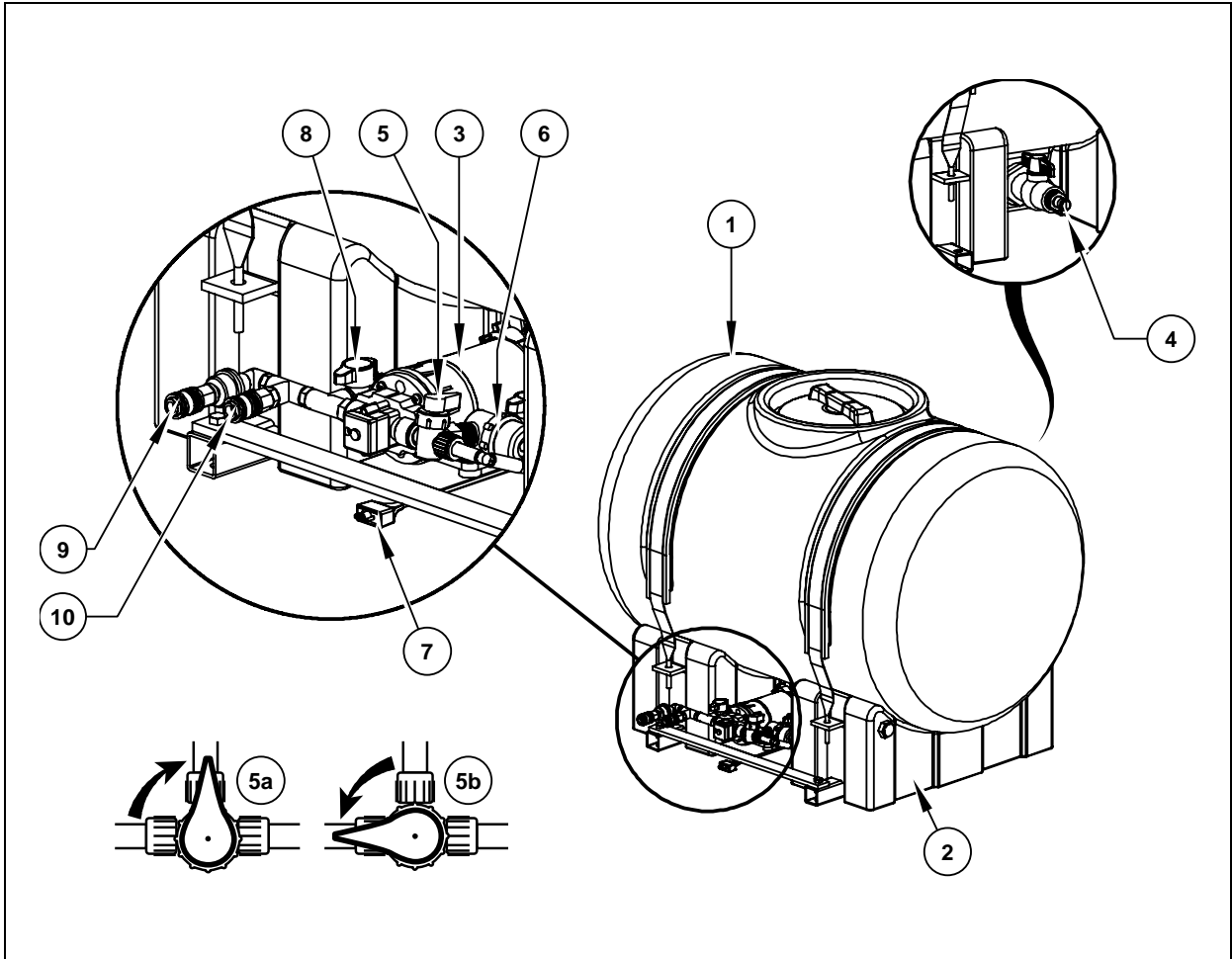
100 Litre Tank System Features (Hydraulic Pump)



1	Spray Mix Tank	8	Pump
2	Rinse Tank	9	Outlet Section Valves
3	Hand Wash Tank	10	Pressure Gauge
4	3 Point Linkage Top Link Pin	11	Regulation Valve
5	3 Point Linkage Lower Link Pin	12	Tank Selection Valve Spray Mix (12a) or Rinse(12b)
6	System Drain Valve		
7	Filter Housing		

Figure 3 – 100 Litre Tank system features (Hydraulic Pump)

200 Litre Tank System Features



1	Spray Mix Tank
2	Rinse Tank
3	Pump
4	System Drain
5	Tank Selection Valve Spray Mix (5a) or Rinse (5b)

6	Filter Housing
7	Electrical Connector (Pump)
8	Regulation Valve
9	Outlet Coupling ¹
10	Outlet Coupling ²

Figure 4 – 200 Litre Tank System Features

¹ CD outlet on dual flow tank systems; not fitted to CDA only and HiFlo only tank systems

² Outlet on standard tank systems; HiFlo outlet on dual flow tank systems

1.2 Technical Specification

Tank System Specification		
Product Identification Details		
Tank System ATV		
Trade name:	Tank System ATV	
Description:	60 litre or 80 litre sprayer tank with integral rinse tank. For fitment onto a suitable carrying rack of an all terrain vehicle or utility vehicle.	
Model:	Low Profile 60 litre Low Profile 80 litre	
Tank System 100L		
Trade name:	Tank System 100L	
Description:	100 litre sprayer tank with integral rinse tank and hand wash. For fitment to appropriate 3 point linkage mounting systems.	
Model:	Tank-100 (electric) Tank-100 (hydraulic)	
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	
Tank System 200L		
Trade name:	Tank System 200L	
Description:	200 litre sprayer tank with integral rinse tank.	
Model:	Tank-200	










Tank System Specification				
Model:	Low Profile 60 litre	Low Profile 80 litre	Tank-100	Tank-200
Weights and Measures				
Net weight (dry):	13 kg	14 kg	80 kg	32 kg
Gross weight (maximum):	80 kg	100 kg	225 kg	250 kg
Width (overall):	900 mm	900 mm	740 mm	980 mm
Centre of gravity dimension (a ₁) ¹	-	-	970 mm	-
Residual Volume	0.07 litre	0.07 litre	0.1 litre	0.05 litre
Tank Capacities:	Rinse tank:	3.5 litre	3.5 litre	20 litre
	Spray mix tank A:	60 litre	80 litre	100 litre
	Hand wash tank:	-	-	20 litre
Environmental Conditions				
Minimum working temperature:	+ 5 °C			
Restrictions in Use				
Maximum Road Speed	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 spray line pressure:	4 Bar (Hi-Flo) 60 Psi (CDA) ²			
Minimum spray line pressure:	15 Psi (Hi-Flo) 8 Psi (CDA) ²			
Filter mesh size:	50 Mesh (blue - ISO19732)			
Maximum hydraulic line pressure:	150 bar ³			
Max. hydraulic fluid flow rate:	45 litres per minute ³			




¹ For tractor mounted equipment; measured from the centre of the lower link pin see Appendix G

² Recommended operating Pressure – 2 bar for Hi-Flo systems 10 psi for CDA systems

³ Where a hydraulic pump is fitted

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 or position any limb or part of the body 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 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 Hand Wash Tank

Ensure that hand washing facilities are provided and are available for use at all times. The micron 100 Litre tank system includes an integral 20 litre hand wash tank. Where an integral hand wash tank is not fitted operators **must** carry a separate container for clean water 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 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.



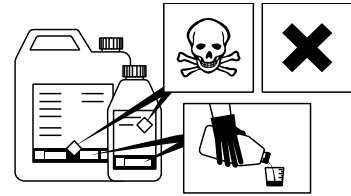
It is the responsibility of the operator to ensure all possible measures are taken to protect the environment.

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

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 the 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.

2.5 Mechanical and Electrical Hazards



The main mechanical hazards in using the Micron and Enviro tank systems are associated with the risk of entrapment to fingers and limbs during installation; and with vehicle stability when the tank system is mounted and filled.



The Micron and Enviro tank systems operate on a low voltage 12V system that does NOT present a significant risk from electrical shock

2.6 Hydraulics



Danger of high pressure hydraulic fluid penetrating the skin! **Always** depressurise hydraulic equipment before handling, even with gloved hands. Hydraulic oil injection injuries are very serious and may lead to amputation of limbs or death. Visually check for leaking or damaged components. Replace any defective connections, hoses and other components immediately.

3 INSTALLATION

3.1 Tank Mounting

ATV Tank Systems

ATV tank systems are supplied with an integral support chassis design to be mounted to a suitable ATV luggage rack or load space floor. A mounting accessory pack is available from Micron Group or their agents see section 3.1.2 .

100 Litre Tank Systems

The Micron 100 litre tank system is designed for mounting to a 3 point linkage, see section 3.1.1 .

200 Litre Tank Systems

The Enviro 200 Litre tank systems is normally supplied attached to a Micron or Enviro spraying system. When the 200 litre tank is supplied independently of any additional chassis the tank system should be securely bolted to the floor or chassis of the vehicle or spraying system. Bolt the 200 litre tank system through the steel chassis at the base of the tank.

3.1.1 Three Point Linkage Mounted Tanks



Danger of crushing the whole body or limbs! Take extreme care when connecting or disconnecting equipment. Ensure the equipment is secure and cannot move or settle when connecting to the three point linkage. Take all possible action to reduce the time spent in the hazardous area between the equipment and Tractor/vehicle.



Danger of crushing or severing of fingers hands or other extremities! Keep hands, fingers and other extremities clear of any crush points.



Danger! Where the tractor/vehicle is fitted with a remote or external hydraulic control; stand well clear of the equipment when operating the hydraulics.

Micron 3 point linkage tank systems are fitted with CAT 1 or CAT 2 linkage. It is the responsibility of the operator to ensure the correct and secure mounting of the tank system.

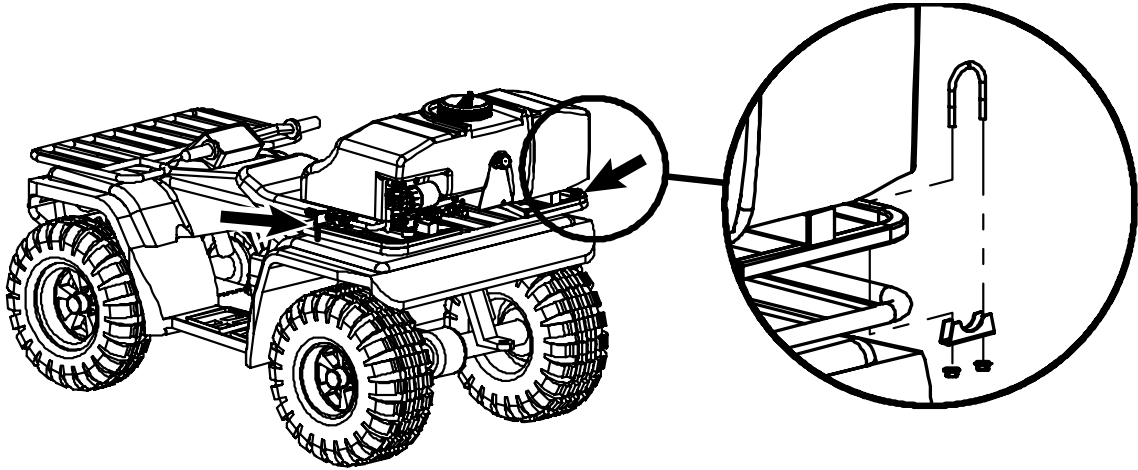
3.1.2 All Terrain Vehicle (ATV) Mounted Tanks

It is the responsibility of the operator to ensure the correct and secure mounting of the tank system. Operators **must** ensure the rack system of their ATV is approved to support the weight of the tank system, when all tanks are full, added to the weight of any other equipment mounted to the rack. If in doubt seek advice from a suitable competent person.

The ATV tank system can be attached by clamping or strapping the tank system to the ATV's luggage rack.

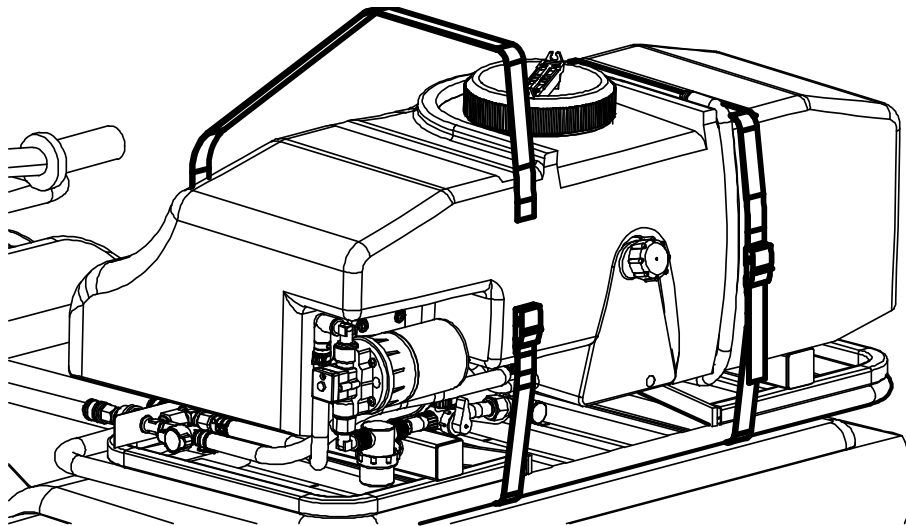
Mounting with clamps

Use a minimum of 2 clamps on opposite sides or in opposite corners of the tank system support chassis. Place the 'U' section of the clamp over the tank system support chassis and the ATV luggage rack. Place the clamp bridge under the ATV luggage rack and secure it with the supplied nuts. Tighten the securing nuts and ensure the tank system cannot move in any direction.



Mounting with straps

The ATV tank system has 2 parallel recesses in the top of the moulded tank. The recesses have been designed for use with two 25 mm (1 inch) pull down or ratchet straps. Pass the straps under the ATV luggage rack and around the tank system. Align the straps with the recess in the top of the tank. Pull the straps tight. Ensure that the tank system cannot move in any direction.



3.2 Support legs (Tank System 100L)

Micron Tank Systems 100L may be supplied with support legs. The support legs are designed for use when storing the tank. Cleaned and empty the tank system before placing the tank system on its support legs. Only use support legs supplied by Micron Sprayers Ltd. that are design specifically for your tank system.

3.3 Hydraulic Connections



Danger of high pressure hydraulic fluid penetrating the skin! **Always** depressurise hydraulic equipment before handling, even with gloved hands. Hydraulic oil injection injuries are very serious and may lead to amputation of limbs or death. Visually check for leaking or damaged components. Replace any defective connections, hoses and other components immediately.

Always ensure the tractor/vehicle is switched off and the hydraulic system depressurised before attempting to connect or disconnect any hydraulic hoses. After connecting and pressurising any hydraulic components visually check all joints hoses and components for leaks. Where available, adjust the Hydraulic flow rates to provide smooth and steady operation of the equipment.

3.4 Controls and 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 a Face Shield
or Eye Protection



Wear Protective
Clothing

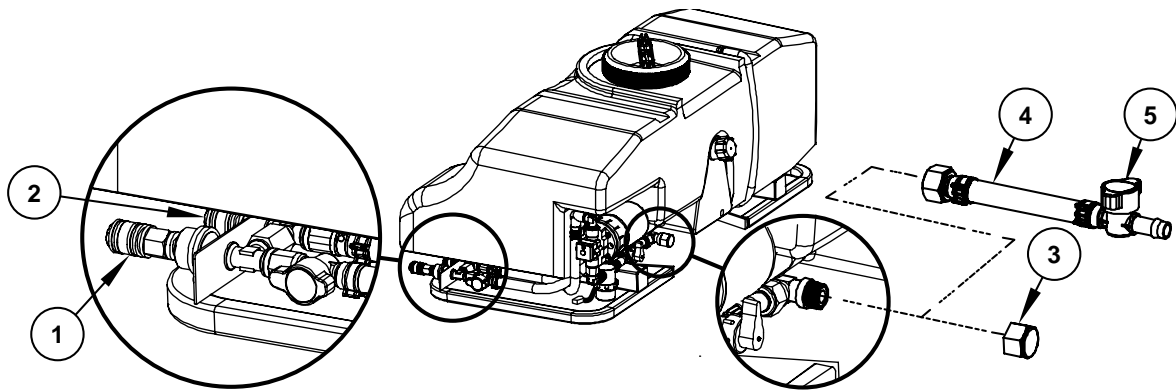


Wash hands

Dual Outlet Systems

The Tank System ATV and Tank System 200L can be supplied with 2 outlet connections. The dual outlets are parallel and can be connected to any suitable Micron or Enviromist equipment.

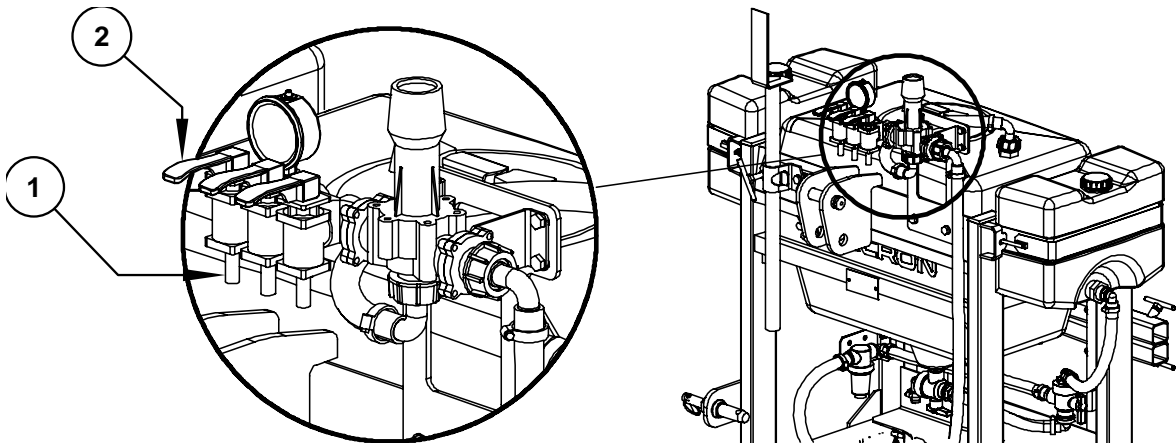
3.4.1 ATV (all terrain vehicle) Tank Hose Connections



The 60 and 80 Litre ATV tanks dual outlets models have 2 parallel outlets (1) and (2). On single outlet models the outlet will be in position (1).

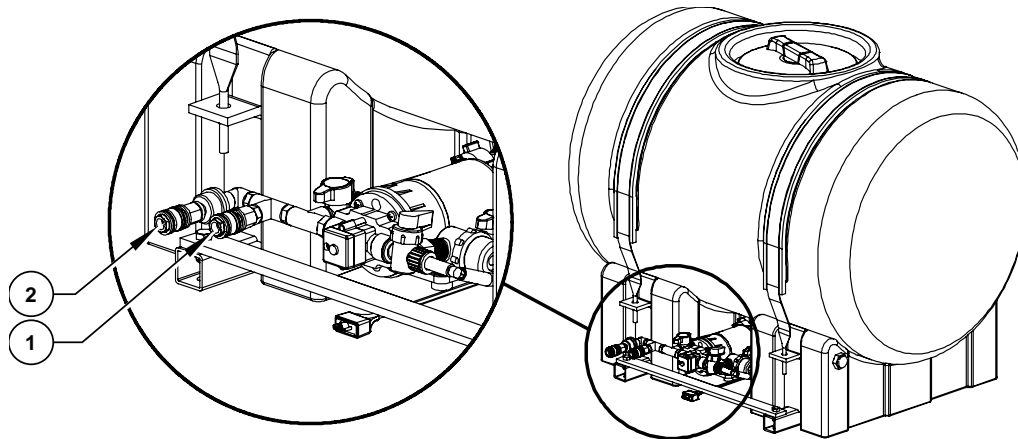
The ATV tank system is supplied with a separate drain hose (4). To connect the drain hose unscrew the drain outlet cap (3) and replace it with the drain hose (4). The drain hose **must** be fitted before filling the spray mix tank. Ensure that the drain hose valve (5) is turned off before attempting to fill the spray mix tank.

3.4.2 100 Litre Tank Hose Connections



The 100 litre tank system is supplied with a combined regulation valve and 3 section valve assembly. Each outlet (1) has a lever operated stop valve (2). The stop valve is open when lifted and closed when in the down position (as shown). Equipment can be connected to any of the 3 section valves. An electric pump model is available for use with either CDA or Hi-Flo equipment. A hydraulically driven pump model is available for use with Hi-Flo equipment only.

3.4.3 200 Litre Tank Hose Connections



The 200 Litre tank dual outlet models have 2 parallel outlets (1) and (2). On single outlet models the outlet will be in position (1).

3.4.4 Hi-Flo Systems Connection

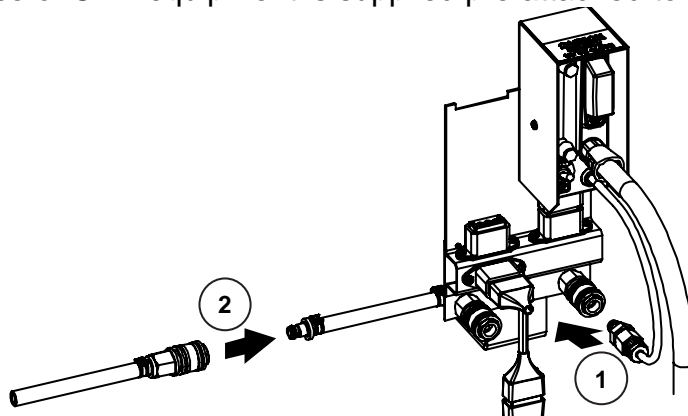
The feed hose of Micron HiFlo equipment should be connected to the regulated outlet of your tank system. Output flow rate will vary with pressure, number of nozzles and nozzle size. For test purposes use clean water only.

- Place a suitable tray or vessel below the spray nozzles.
- Start your spray pump and set your output pressure to 1.5 bar (21 psi).
- 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 6.1 of this document.

3.4.5 CDA Systems Connection

The feed hose of CDA equipment is supplied pre attached to a control unit.



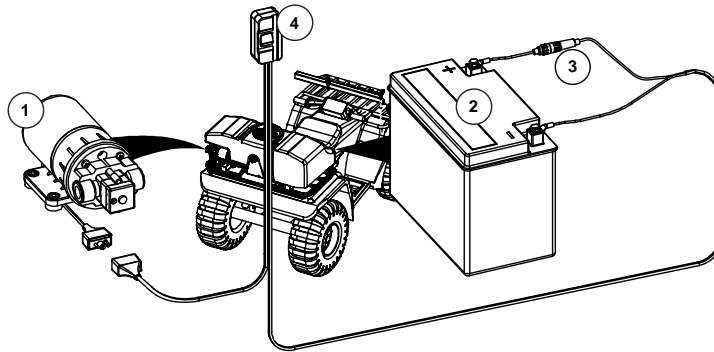
- Connect the control unit feed tube to the back plate manifold (1).
- Connect the backplate feed hose (2) to your spray tank system. Any additional control unit backplates can be connected together in series or parallel after the spray pump.

- 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 your spraying equipment instructions.
- Start your spray pump and set your output pressure to 10 psi.
- 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.

3.5 Electrical Connections

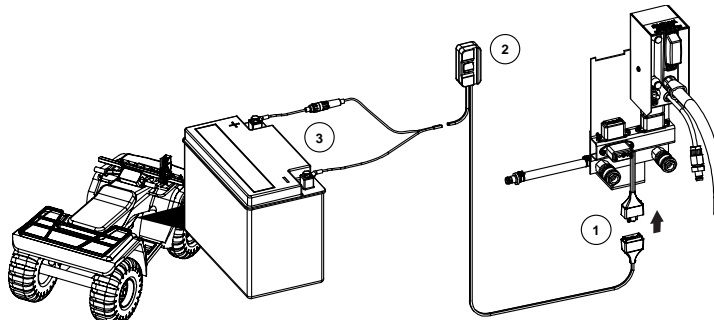
Hi-Flo Equipment

For Hi-Flo equipment connect the tank system electric spraying pump to the battery or a suitable power socket on your tractor/vehicle. An inline 10 amp anti surge fuse and inline switch **must** be fitted in the positive (+) feed between the power source and the spraying pump. The inline switch should be attached to the tractor/vehicle where it can be easily accessed by the operator when spraying. A wiring assembly with fuse and inline switch is available from Micron Group or their agents.



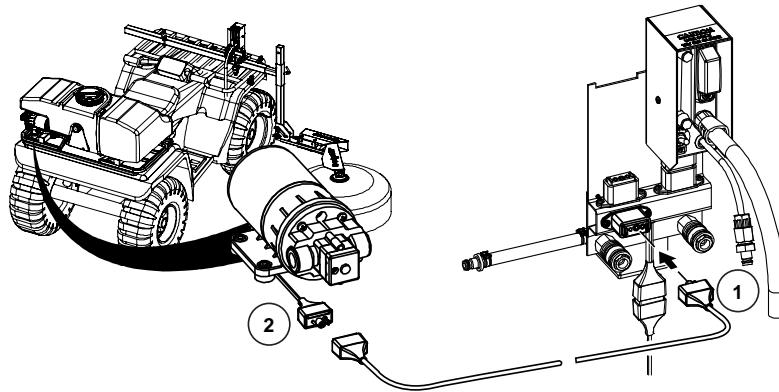
CDA Equipment

- 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.

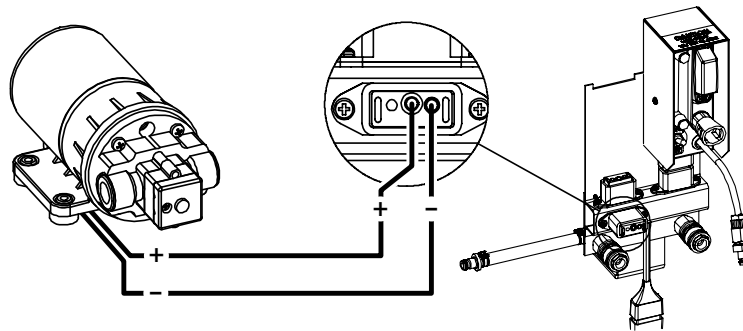


- Route the cable from the Inline switch (2) to the vehicles battery or a suitable power outlet.
- With the Inline switch in the off position. Connect the red wire to the positive (+) terminal and the black wire to the negative (-) terminal.

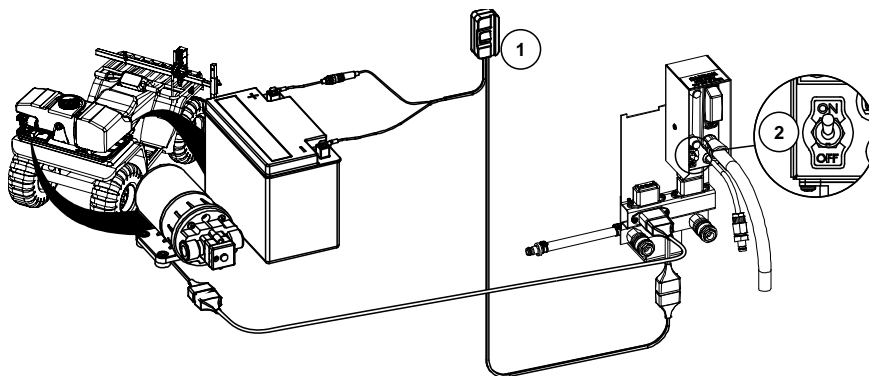
- Connect the two pin electrical socket on the controller backplate (1) to the two pin plug on the tank system. Connectors, cable and a range of cable assemblies with pre wired connectors are available from Micron Group or their agents.



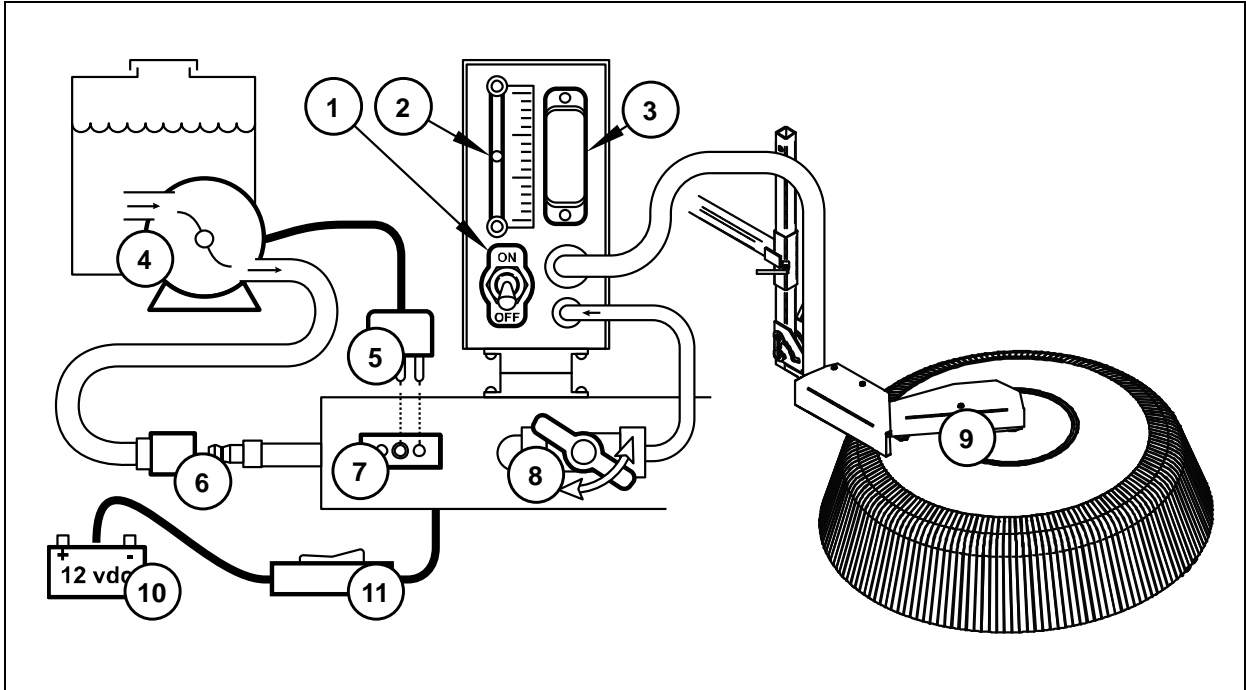
- When making or extending the power wire connection connect the centre pin of the two pin electrical socket on the controller backplate to the positive (+) terminal of your pump. Connect the outside pin of the two pin electrical socket on the controller backplate to the negative (-) terminal of your pump.



- Ensure that the cable location does not impair access to, or in any way restrict or impair, the use of any of the vehicles controls.
- 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 CDA control units you have installed.



The following diagram shows the main features of the CDA system.



1	Power Switch
2	Sight Gauge
3	Activity Indicator
4	Spraying Pump
5	Connector – Pump (electrical)
6	Connector – Pump (Fluid)

7	Connector – Pump (electrical)
8	Control Valve
9	CDA Head
10	Battery
11	Switch

Figure 5 - CDA system diagram

3.6 Transport



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

4 PREPARING FOR USE

4.1 Tank System inspection

The operator **must** ensure that the tank system is in good working order before attempting any spraying operations. Operators must ensure they comply with any local or national requirements for the inspection of spraying equipment.

- Check for structural defects such as broken or cracked components
- Check for leaking joints or hoses
- Check for excessive wear in the three point linkage pins and balls (where fitted)
- Check for loose bolts or fittings and tighten as appropriate
- For hydraulically driven pump units. With the hydraulic hoses connected and the hydraulic system pressurised. Check the spraying pumps operate without excessive noise.

4.1.1 Leak Test



Wear Gloves



Wear a Face Shield
or Eye Protection



Wear Protective
Clothing



Wash hands

Perform all necessary tests and inspections **before** mixing pesticides. If using the equipment for the first time or after a period of storage the system **must** be checked, with water only, to ensure it is operating correctly and there are no leaks. Work through the procedures listed in the following sections.

The spray mix tank on Micron and Enviro tank systems are filled via the filling and inspection cap located on the top of the tank. The rinse tank and hand-wash tank are filled with clean water independently through their respective tank lids.

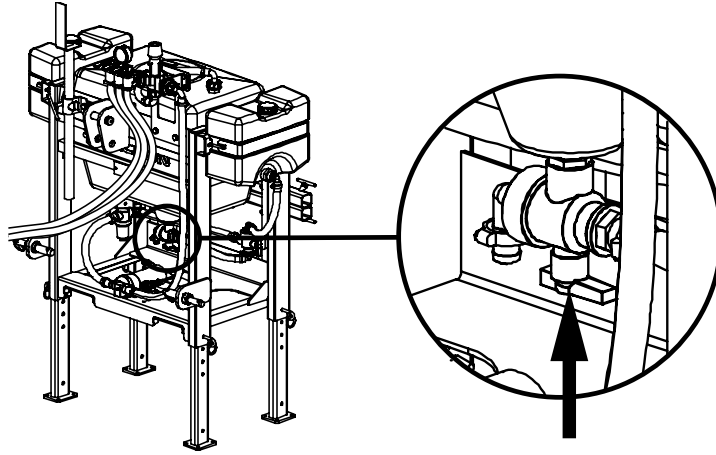
Pesticide should not be put into the spray mix tank until the system has been filled with water and the plumbing circuit checked for leaks. Perform all test procedures with clean water only.

Follow the operating procedures in section 4.2. With a small quantity of water in the spray mix tank pressurise the system by running the pump with the outlet valve closed. When the system is pressurised visually check for leaking hoses or joints. Repair any defects immediately and retest the tank. When you are satisfied that the tank system is not leaking and is functioning correctly open the outlet valve and test your spraying equipment. Refer to your spraying equipment instructions for further information regarding the testing and setup of your spraying equipment.

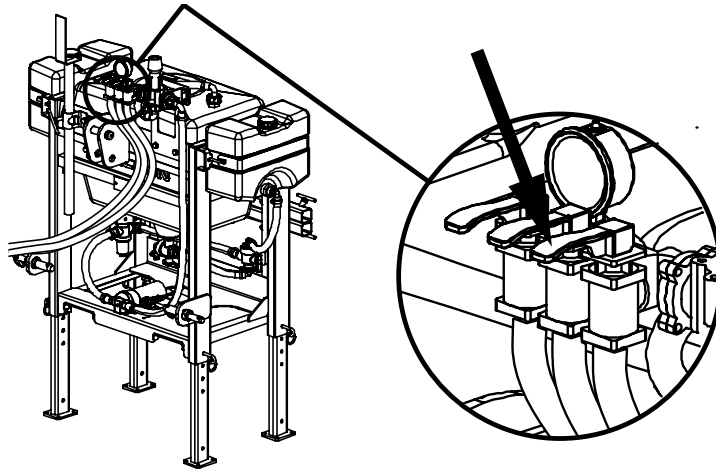
4.2 Setup and Operation

The following procedure is a guide to correct setup and operation of Micron and Enviro tank systems and is based on the Micron 100 litre tank system. The ATV and 200 litre tank systems operate in a similar manner. Control locations and features for the ATV and 200 litre tank systems are shown in section 1.1 of this document.

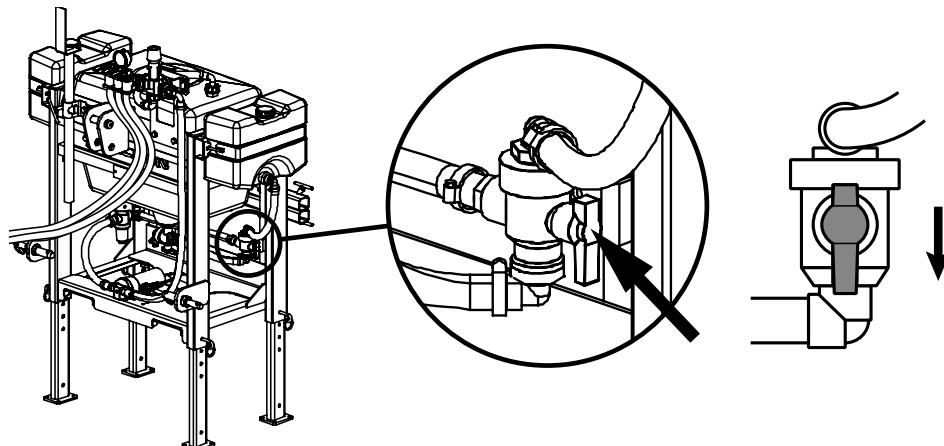
- For a tank mounted to a three point linkage, lower the three point linkage until the tank filling and inspection cap can be easily accessed.
- Ensure that the drain valve at the base of the spray mix tank is closed.



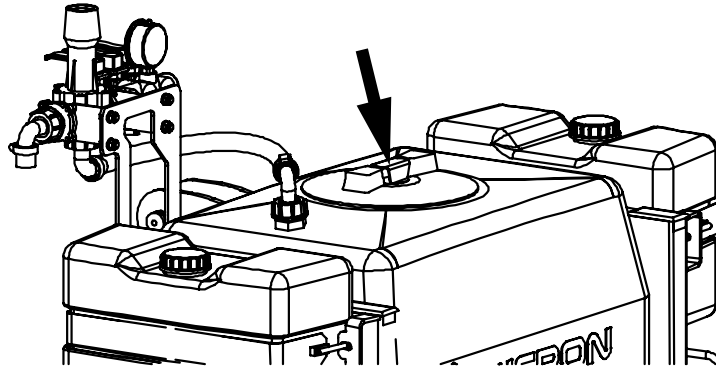
- Ensure that the outlet stop valves are closed.



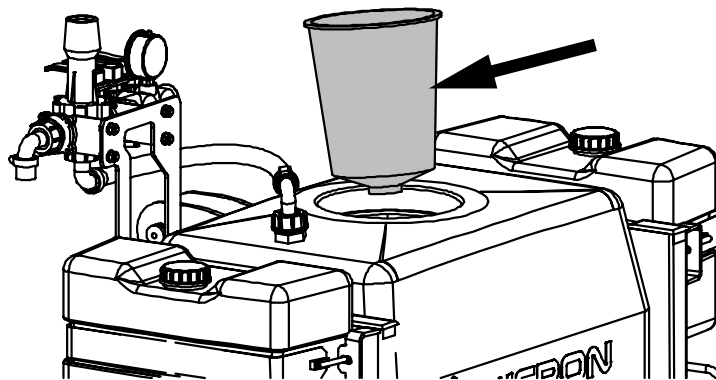
- Ensure that the selector valve is turned to 'spray mix tank'.



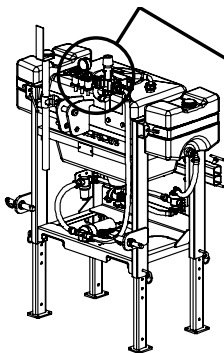
- Unscrew the filling and inspection cap.



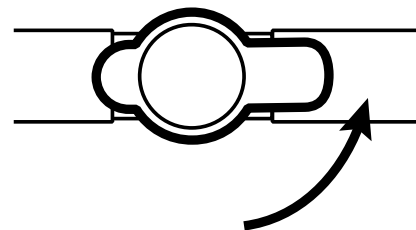
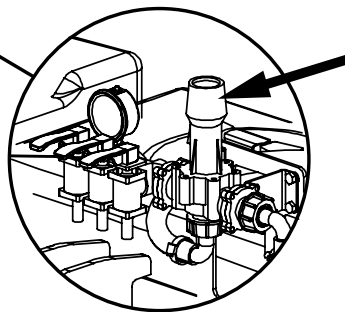
- Visually inspect the mesh filter insert. Remove and clean the mesh filter insert if there is any sign of blockage or contamination. Replace the mesh filter insert if there is any sign of damage.



- With the mesh filter insert in place add approximately 5 Litres of clean water to the spray mix tank.
- Replace and close the filling and inspection cap and ensure it is secure.
- Open the regulating valve so that all the fluid from the pump is returned to the tank. On the 100 litre tank turn the pressure regulator adjusting cap anti-clockwise until no resistance is felt. On the ATV and 200 litre tanks turn the regulation valve so that it is in line with the attached hoses.



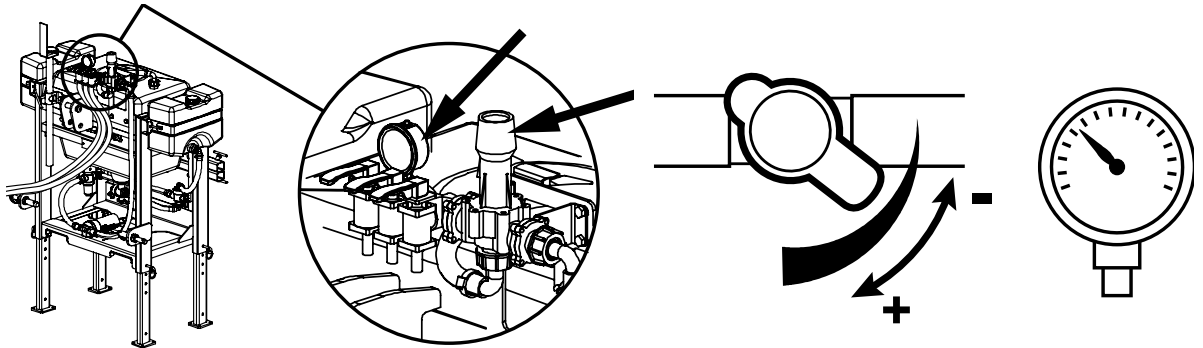
100 Litre Tank Systems



ATV and 200 Litre Tank Systems

The fluid returned to the tank provides agitation of the spray mix. The agitation will vary depending upon the quantity of fluid being returned to tank. The agitation is normally sufficient for all applications including dissolved powders.

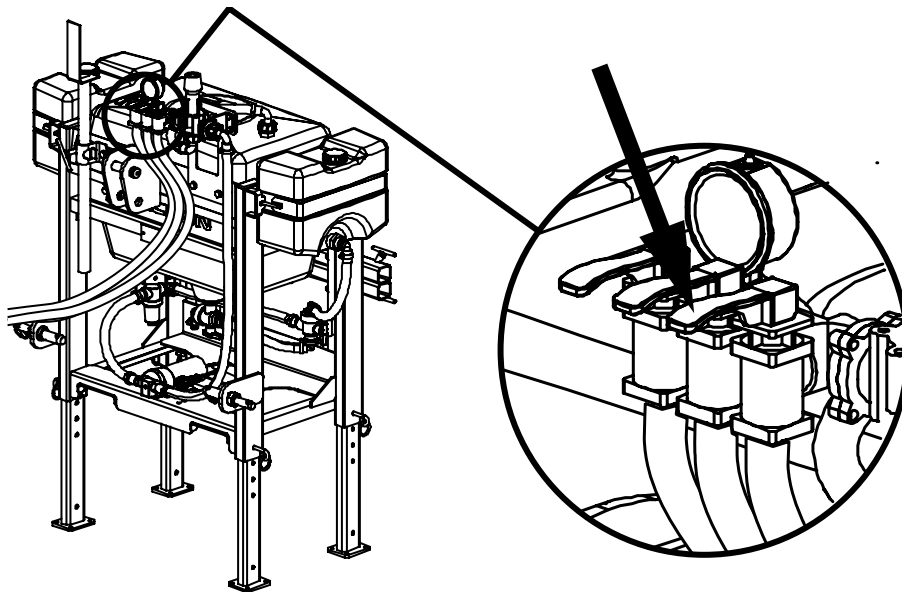
- Start the pump and check that fluid is moving around the system.
- On the 100 litre tank turn the pressure regulator clockwise until the pressure gauge reads the required line pressure. If you are unsure of the required pressure set the regulator at the point where the pressure gauge reads 1 bar. On the ATV and 200 litre tanks adjust the regulation valve to achieve the correct measured output flow rate. For the purposes of testing set the regulation valve to approximately half way. Refer to your spraying equipment instructions for further information on setting the output flow rate.



100 Litre Tank Systems

ATV and 200 Litre Tank Systems

- Visually check the tank system for leaks. Repair any defects immediately and repeat the above procedure.
- Connect your spraying equipment to the outlet valve of the tank system.
- Turn on the output stop valve (where fitted).



- Check your spraying equipment for leaks and correct operation. Repair any defects immediately and repeat the above procedure.
- The tank system is now ready for filling refer to section 5

The indicated pressure may drop when spraying. Adjust the pressure regulation valve to maintain the required pressure when spraying (HiFlo equipment only).

5 MIXING AND FILLING



Wear Gloves



Wear a Face Shield or Eye Protection



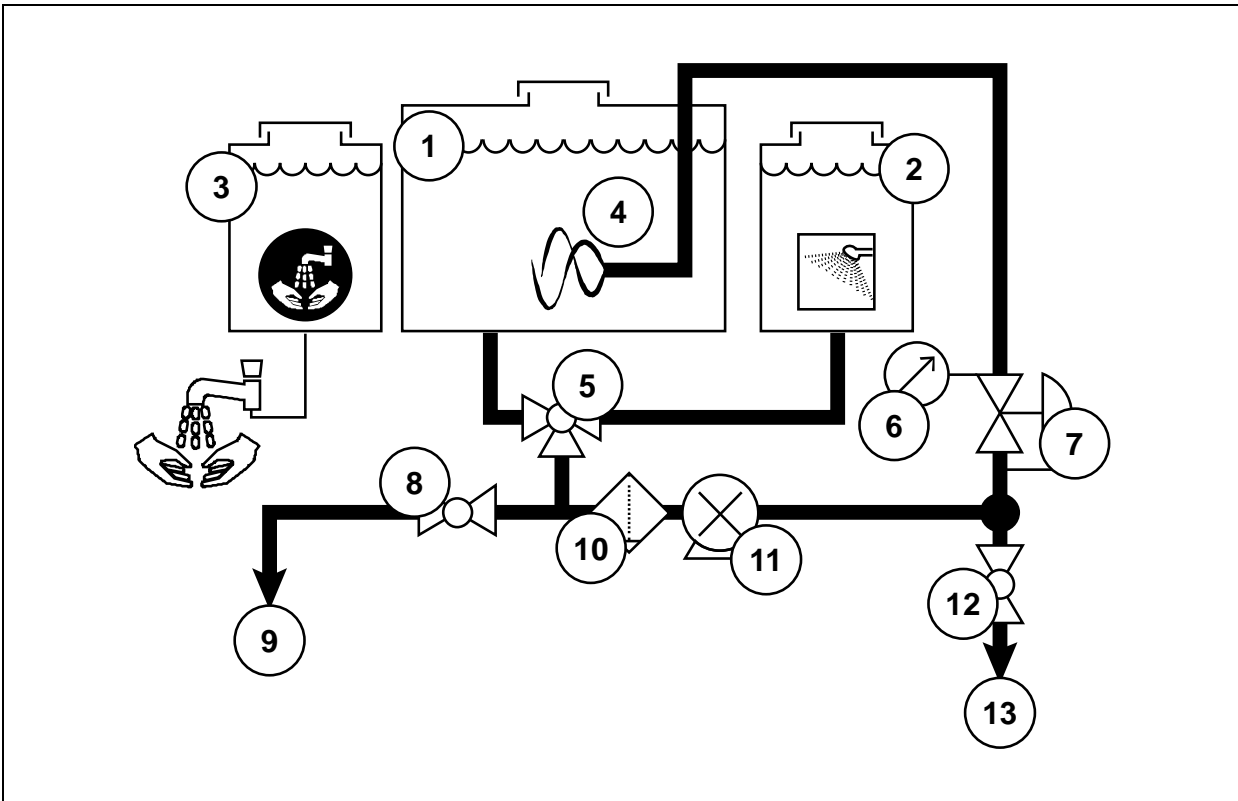
Wear Protective Clothing



Wash hands

Plumbing Circuit

Essential plumbing features of the tanking systems 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 (spray mix tank or rinse tank)
6	Pressure Gauge (where fitted) (spray line)

7	Pressure Regulating Valve (to control line pressure or flow)
8	Drain Isolation Valve (fitted separately on ATV)
9	Drain Outlet
10	Filter
11	Pump
12	Spray Boom/Line Isolation Valve (where fitted)
13	Outlet to Boom/Line

Figure 6 – Tank system Features

5.1 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 the 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.

Refer to your spraying equipment for instructions on setup and calibration

The following calculation is provided as a guide to calculating spray mix rates and includes calculations for spraying in bands. Calculate the total volume of spray mix required as follows

Spray Mix Volume (litres) =
Volume Rate (l/ha) x Band Width (metres) x Field Area (ha) / Row Width (metres)

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

Band Width (metres): This is the width covered by the spray pattern, shield or combination of shields; see 0 for further details.

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

Row Width (metres): This is the distance between tree or crop rows. (Or the same value as the 'band width' above when not spraying in bands)

Example:

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

The required tank contents will be:

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

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

5.1.1 Output Flow Rates

CDA Atomisers

CDA atomisers require very low flow rates of between 50 and 300 millilitres per minute for each atomiser. Refer to your spraying equipment instructions for further information on setting flow rates.

Hydraulic pressure nozzles (HiFlo Systems)

Hydraulic pressure nozzles produce an output flow rate relative to the spray line pressure. The following table show the relationship between line pressure and flow rates for hydraulic pressure nozzles. The nozzles listed are those used in Micron group equipment normally associated with the tank systems in this document.

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

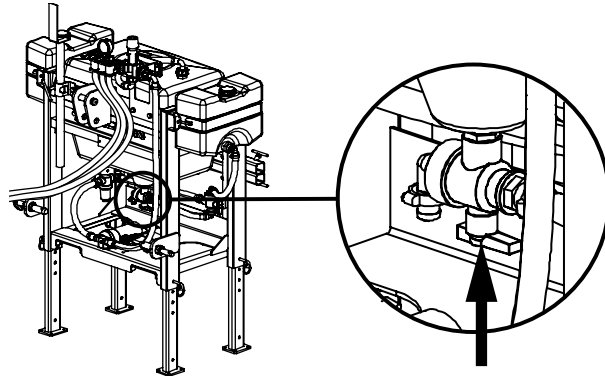
5.2 Preparing the Spray Mix

- Only prepare sufficient spray mix for the required spray operation.
- Check calibration and operating parameters against the instructions supplied with your spraying equipment.
- 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 spray mix tank, refer to section 4.1.
- Ensure rinse tanks and hand wash tanks are filled, with clean water only, before preparing the spray mix.

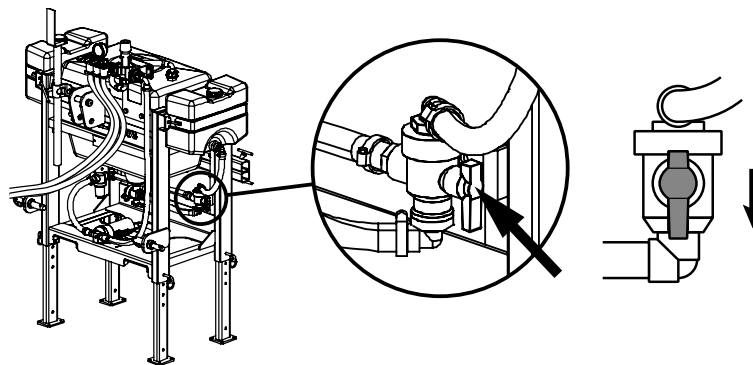
Fill the spray mix tank via the filling and inspection cap located on the top of the tank. The rinse tank and hand-wash tank are filled with water independently through their tank lids. Detailed instructions on each tank configuration are provided in section 1.1.

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

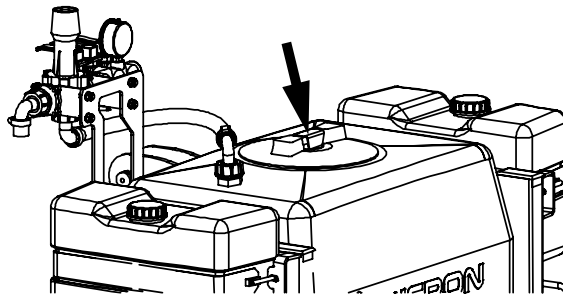
- On tractor mounted tanks lower the three point linkage until the tank filling and inspection cap can be easily accessed. On ATV and other tanking systems the tank should be placed as low to the ground as possible for ease of access.
- Ensure the drain valve at the base of the spray mix tank is in the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



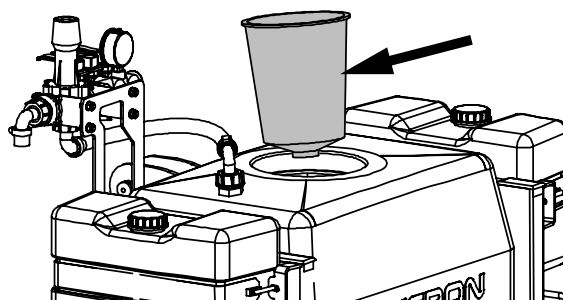
- Ensure that the tank selector valve is turned to 'spray tank' open.



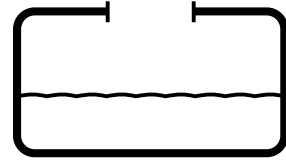
- Unscrew the filling and inspection cap on the spray tank.



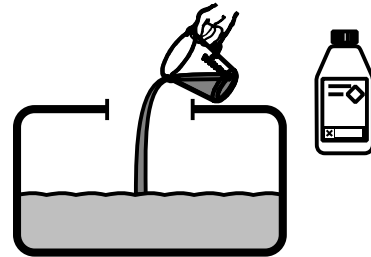
- Visually inspect the mesh filter insert. Remove and clean the mesh filter insert if there is any sign of blockage or contamination. Replace the mesh filter insert if there is any sign of damage.



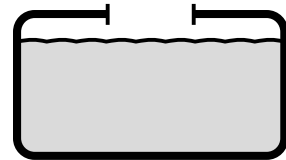
- With the mesh filter insert in place add approximately 50% of the required quantity of clean water to the spray mix tank.



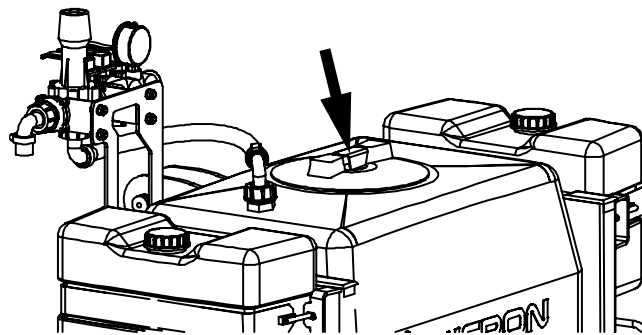
- Add the required quantity of chemical to the spray mix tank.



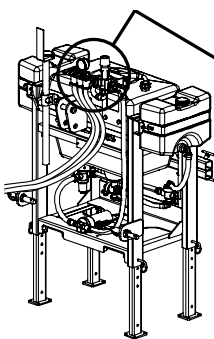
- Add the remainder of the required quantity of clean water to the spray mix tank.



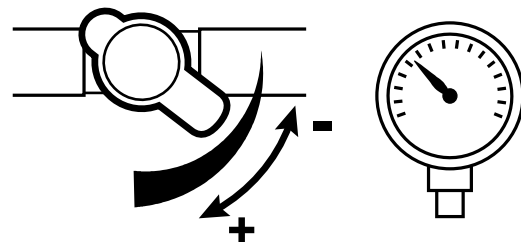
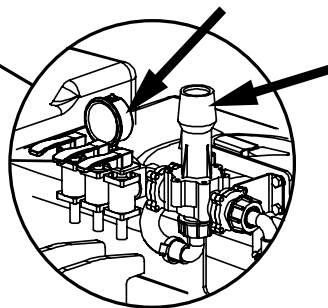
- Replace the filling and inspection cap and check it is secure.



- The regulating valve should already be pre set to the required spray line pressure refer to section 4.2.



100 Litre Tank Systems



ATV and 200 Litre Tank Systems

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

The indicated pressure may drop when spraying. Adjust the pressure regulation valve to maintain the required pressure when spraying.

6 CLEANING



Wear Gloves



Wear a Face Shield
or Eye Protection



Wear Protective
Clothing



Wash hands

After each spray operation the tank system **must** be rinsed. The tank system includes a rinse tank which is capable of holding sufficient clean water to rinse the system through after use. The following procedure provides guidance on rinsing and cleaning the system. To avoid environmental contamination the system should be rinsed and cleaned before leaving the area being sprayed. **Always** spray out any remaining residue over the treated area or a suitable non crop area.

Rinse out the spray tank, spray lines, pump and spraying heads 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.

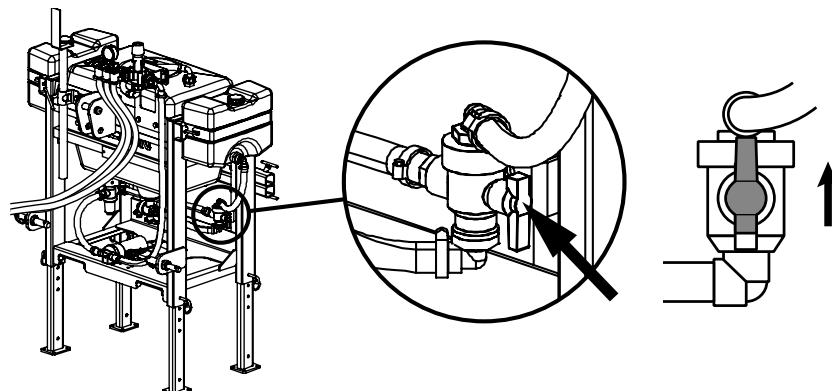
Rinsing the Spray Tank

Before rinsing and cleaning the equipment. Remove any excess liquid from the spray mix tank. This should be achieved by continuing the spraying operation until the tank is empty. If there is too much liquid in the tank to continue spraying after the spraying operation is complete the fluid should be drained and stored or disposed of in accordance with the instructions supplied with the chemicals being sprayed.

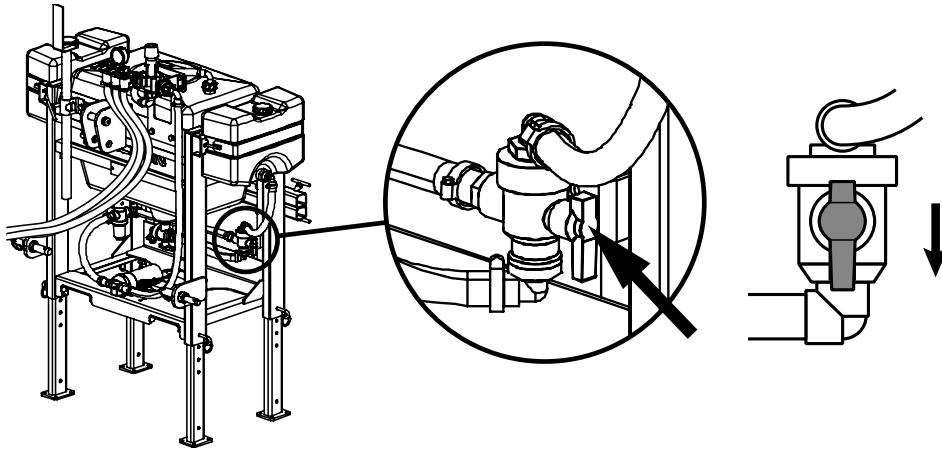
It will be necessary to operate the spraying equipment during the rinsing and cleaning process. This should be carried out on the crop being sprayed or on an area of ground set-aside for this purpose.

The following procedure provides guidance for cleaning the Micron and Enviro tank systems, The Micron 100 litre tank is shown in the following procedure refer to section 1.1 for guidance on other models.

- Ensure that the spray mix tank is empty of spray fluid (refer to the text above).
- Ensure that the rinse tank is full of clean water.
- Turn the selector valve to select the rinse tank.



- Switch on the pump. Water will be drawn from the rinse tank, circulated around the system and collected in the spray mix tank.
- Turn the selector valve to select the spray mix tank.



- Continue the spraying operation until the spray mix tank is empty
- Turn the selector valve to select the rinse tank and draw a further quantity of water from the rinse tank. Repeat the above procedures until you are satisfied that the tank system is clear of chemical residue.
- Before leaving the spray area clean off any external chemical residue in accordance with the chemical manufacturer's instructions.
- Rinse off the exterior of the whole equipment with clean water from a hose or pressure washer taking care to avoid direct contact with electrical components.

6.1 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 operator to ensure all possible measures are taken to protect the environment.

It is the responsibility of the operator 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.

7 MAINTENANCE

Micron spraying equipment will require routine maintenance; the operator 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 equipment. 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.

7.1 Filters



Wear Gloves



Wear a Face Shield
or Eye Protection



Wear Protective
Clothing



Wash hands

The Micron 100 Litre Tank is fitted with an in line filter. The filter is attached to the input end of the pump. The following procedure describes the removal, cleaning and refitting of the filter.

- Switch off the pump
- Check the pressure gauge (where fitted) to ensure there is no pressure in the system. Depressurise the system by opening the outlet valve if required.
- Grip the lower section of the filter housing.
- Hold the upper section of the filter housing firmly.
- Turn the lower section of the filter housing counter-clockwise to unscrew the filter section. Note that the filter section will be full of spray fluid and the appropriate precautions and procedures should be followed. For further information on dealing with spray fluids refer to section 2.1.
- Remove the filter from the filter section.
- Rinse the filter with clean water; do not use high pressure water jets as this may damage the filter.

Replacing the filter is a reversal of the above procedure.

7.2 Hydraulic Components



Danger of high pressure hydraulic fluid penetrating the skin! **Always** depressurise hydraulic equipment before handling, even with gloved hands. Hydraulic oil injection injuries are very serious and may lead to amputation of limbs or death. Visually check for leaking or damaged components. Replace any defective connections, hoses and other components immediately.

All hydraulic components should be inspected before and after the equipment is used. Any damaged components should be replaced immediately.

Hydraulic hoses should be inspected before, and after the equipment is used. If any of the following symptoms are seen replace the affected hoses immediately.

- Oil leaking around fittings or along the hose
- Crushed hoses
- Abrasion - any exposed wire reinforcement
- Any significant damage to the outer cover beyond scuffs and small nicks
- Twisted hoses (may indicate a need for a swivel connection or different routing)
- Kinks (may indicate incorrect routing - bend radius below minimum specified by the manufacturer)
- Cracked or corroded fittings (red rust is cause for concern, white oxidation is normally acceptable)

7.3 Spraying Pump Replacement

For Hydraulically driven pump units refer to section 7.2 before continuing with this procedure. **Before** attempting to remove a hydraulically driven pump ensure that hydraulic supply and return hoses are depressurised. The pump will contain a quantity of hydraulic fluid. Contain and dispose of the released fluid in accordance with local or national procedures for petrochemical oils.

Various pump units are fitted to the Micron and Enviro tank systems. The following procedure provides guidance on removing the spraying pump. For detailed parts information and assembly illustrations refer to the Micron Group parts catalogue for your equipment.

Before attempting to remove the pump ensure that the plumbing system is depressurised and all spray mix has been drained from the system.

- Ensure that the equipment is turned off.
- Disconnect the electrical connection or hydraulic feed and return hoses.
- Disconnect the input and output spray fluid hoses.
- Remove the pump unit from its mounting.

Where user serviceable pumps are fitted refer to the manufacturer's service and repair instructions in the document pack supplied with your equipment. For further advice on pump servicing and repair contact Micron group or their agents or contact the pump manufacturer.

Refitting the pump is a reversal of the above procedure.

7.4 Restrictor Replacement and Cleaning (CDA only)

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

7.5 Fuse Replacement

The standard power wire assembly 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.

7.6 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. For general service and inspection advice refer to the table below.

Service and Inspection Table		
Item	Action	Occasion
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	Clean filters	Each use of the equipment
Structural defects	Check for broken or cracked components	Each use of the equipment
Nuts, Bolts and other fittings	Tighten any loose fittings Clean and lubricate exposed threads	Each use of the equipment After each use and before storage
Joints and pivot pins	Check for excessive wear Check for adequate lubrication	Each use of the equipment Each use of the equipment
Three point linkage points and pins	Check for damage or excessive wear	Each use of the equipment Repair or replace any damaged parts immediately.
Pump	Check for leaks Check operating pressure Check for excessive noise	Each use of the equipment Each use of the equipment Each use of the equipment

Table 2 - Service and inspection

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

7.7 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 6 for information on cleaning and the disposal of rinsate.

- Ensure the system is drained of all fluids including those in the rinse tank and 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 spray mix tank and rinse tank. **Do not** put antifreeze into a hand wash tank.
- Run the spraying pumps and circulate the antifreeze throughout your tank and Spray system.
- Ensure that all of the pipe lines and spray heads are clear of any fluids other than the antifreeze fluid.
- Fully drain the hand wash tank.
- Turn off any feed line stop valves and disconnect the feed lines.
- Disconnect all electrical connections.
- Ensure the equipment is stable.
- Store the equipment in a covered, ventilated area. Store away from direct sunlight as some plastic parts may be deteriorated by ultra violet light.
- **Do not** store the tank system directly on the ground. Stand the tank system on its support legs, where fitted, or on suitable blocks or a pallet.
- 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 Spray system, taking care to collect and dispose of all output fluids responsibly. Thoroughly rinse the system in accordance with section 6 of this document before use.

7.8 Lubrication Table

Operators should ensure good lubrication of the moving parts of their equipment. The following table is provided as a guide.

Lubrication Table		
Item	Lubricant	Interval
Grease Nipples	Lithium or Molybdenum based grease	Each use of the equipment
Threaded metal parts	Brush or Spray exposed threads with grease or oil	Every month and before storage
Threaded plastic parts	Light coating of silicone spray or petroleum jelly	As required

Table 3 - Lubrication

8 TROUBLESHOOTING

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

8.1 Hi-Flo Tank System Troubleshooting

The following troubleshooting is for the Hi-Flo tank systems only.

Problem	Possible Cause	Action	Section
Pump runs but no output from nozzle.	Tank empty.	Refill tank.	5
	Blocked nozzle.	Remove and clean nozzle ¹ .	
	Blocked filter.	Check and clean all filters.	7.1
	Blocked hose.	Purge all hoses.	3.4.4
	Kinked hose.	Straighten all hoses.	
	Faulty pump.	Replace or repair pump.	7.3
No flow or low flow at outlet	Pump not running or not producing pressure	Turn on pump	3.5
		Check Electrical connections	Appendix F
		Replace or repair pump if defective	7.3
	Line pressure is inadequate	Adjust pressure regulators	4.2
	Tank level low or empty.	Refill tank.	5
	Blocked filter.	Check and clean all filters.	7.1
	Blocked hose.	Purge all hoses.	3.4.4
	Kinked hose.	Straighten all hoses.	
	Faulty Pump.	Replace or repair Pump.	7.2
Air in system.	Purge air from system.	3.4.4	
Aerated spray fluid.	Reduce pump operation or agitation.	4.2	
Excessive noise from the spraying pump or pump flow is irregular	Electrical power supply fault	Check power supply	3.5 Appendix F
	Pump damaged or faulty	Repair or replace pumps	7.2

Table 4 - Hi-Flo Troubleshooting

¹ Refer to your spraying equipment instructions.

8.2 CDA Tank System Troubleshooting

Problem	Possible Cause	Action	Section
Pump and CDA head not operating.	Inline switch is off.	Switch on inline switch and controller ¹ .	3.5 Appendix F
	Blown fuse.	Check system and replace fuse.	7.5
	Loose connection at battery or backplate.	Check all connections; tighten as necessary.	3.5 Appendix F
	Incorrect wiring at backplate or control unit.	Check wiring and re-wire as necessary.	3.5 Appendix F
Blows fuse with control unit off.	Wiring polarity reversed.	Check wiring and rewire as necessary.	3.5 Appendix F
Blows fuse when control unit is on.	Short to earth.	Check all wiring for earth faults	3.5 Appendix F
Pump operates intermittently.	Loose electrical connection.	Check all wiring connections	3.5 Appendix F
Pump will not operate.	Pump wire not connected to backplate.	Connect to Backplate 2 pin panel socket.	3.5 Appendix F
	Loose electrical connection.	Check all wiring connections.	3.5 Appendix F
	Faulty pump motor.	Replace pump.	7.3
	Incorrect wiring.	Check wiring	3.5 Appendix F
Pump runs but no flow from outlet.	Tank empty.	Refill tank.	5
	Blocked restrictor.	Clean restrictor in control unit feed tube ¹ .	7.4
	Blocked nozzle.	Remove and clean nozzle ¹ .	
	Blocked filter.	Check and clean all filters.	7.1
	Blocked hose. Kinked hose.	Purge all hoses. Straighten hoses.	3.4.5

Table 5 - CDA Troubleshooting

¹ Refer to CDA equipment instructions.

9 TANK SYSTEM DISPOSAL



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

It is the responsibility of the operator 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.

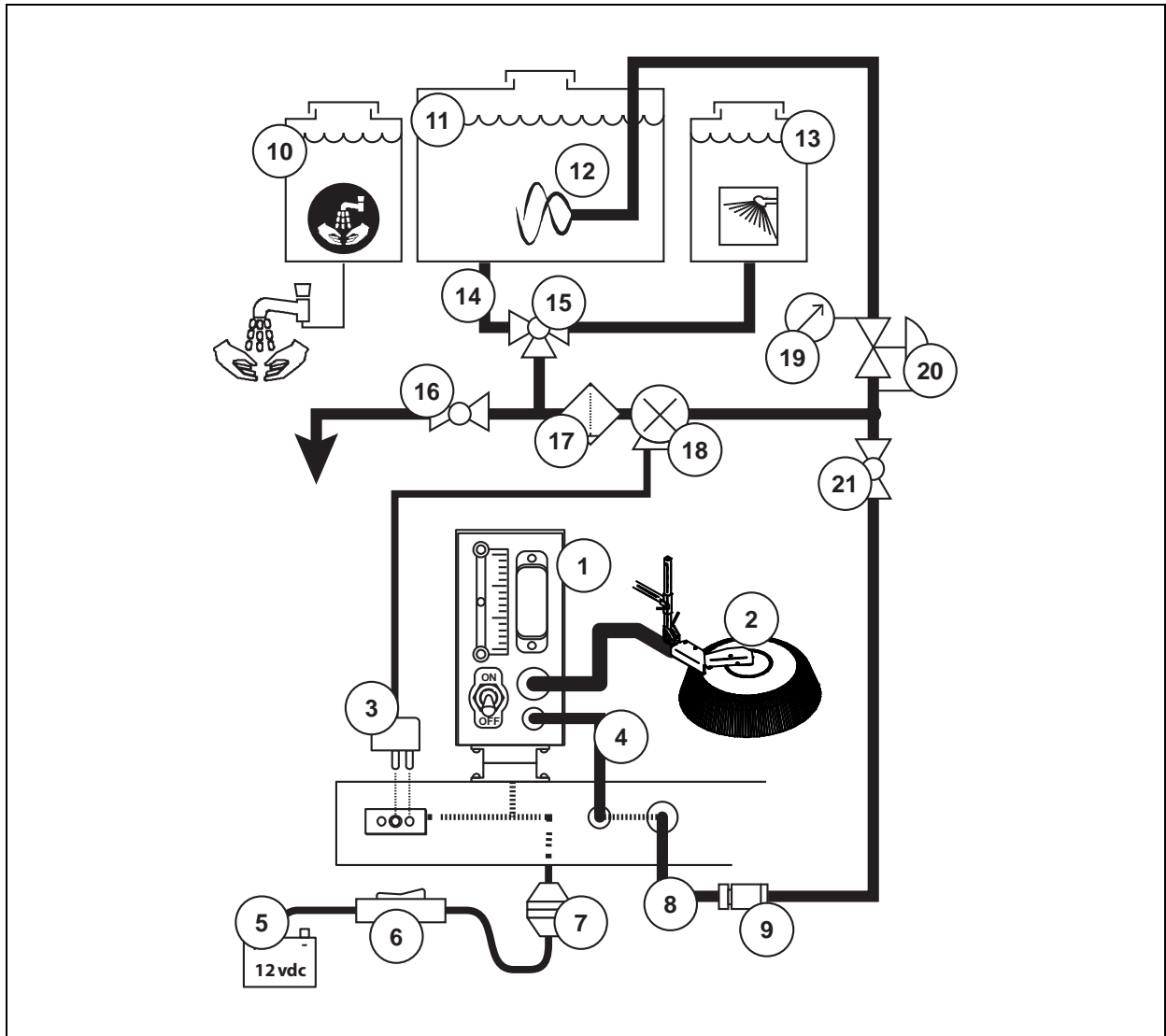
Band Width (metres): This is the width (or average width) covered by the shield.

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
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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	Spray mix Tank

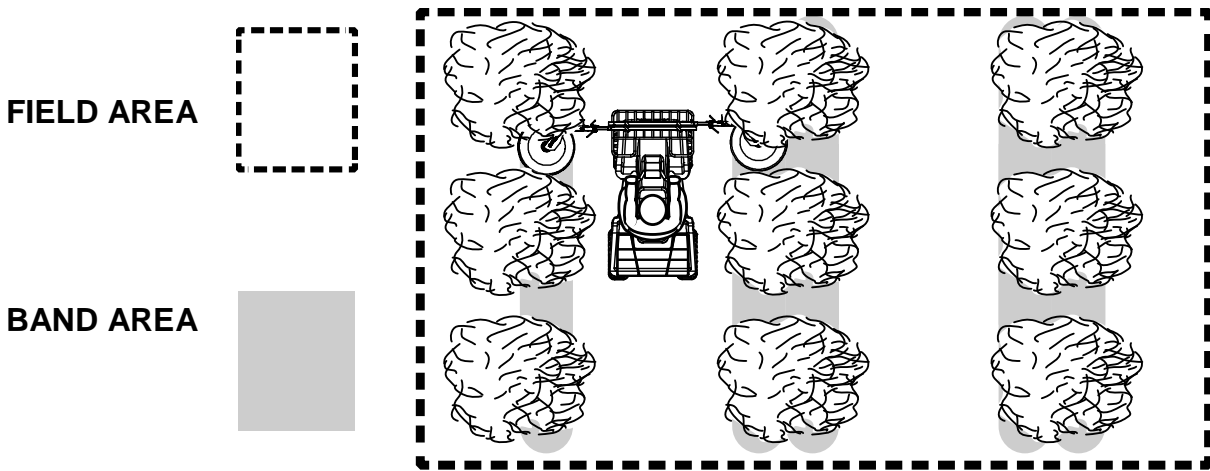
12	Spray mix Tank Agitator
13	Rinse Tank
14	Spray mix Tank Outlet
15	Diverter Valve
16	Drain Valve
17	Filter
18	Pump
19	Pressure Gauge
20	Pressure Regulator
21	Outlet Stop Valve

*Required for CDA systems only.

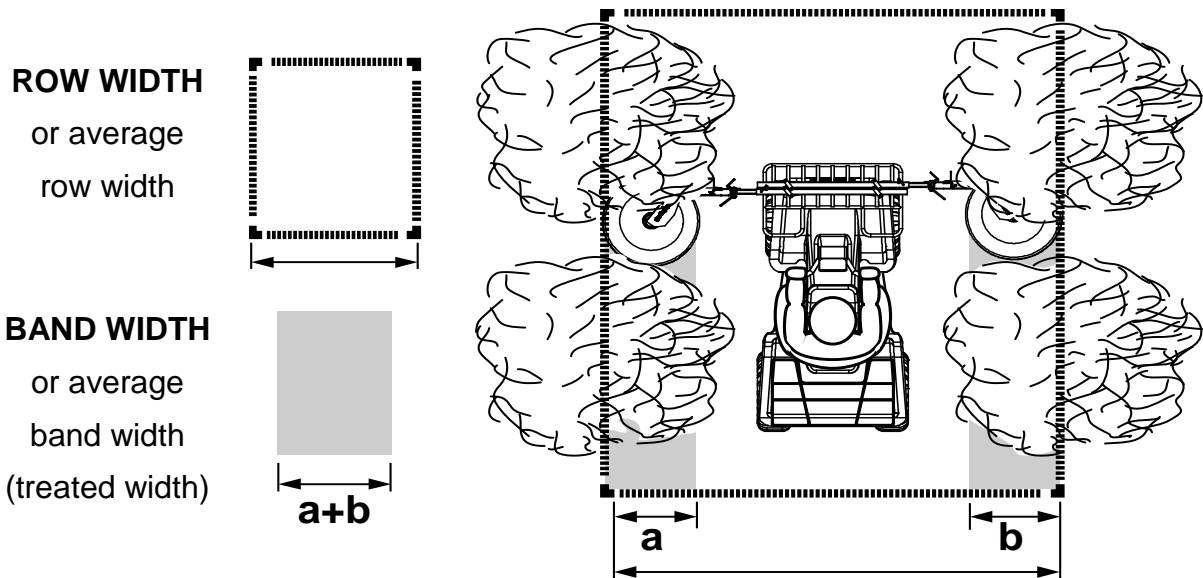
Figure 7 - System Diagram (typical configuration)

Appendix C Calculating Band Area as Percentage of Field Area

With a band sprayer it is important to distinguish between the volume applied 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 x 0.4 / 2.0 x 100 = 40%)

Using the example above and spraying rate of 40 litres per hectare. Reduce the application rate (40 l/ha) by the same ration as the band width to row width (40%) to calculate the actual application rate per hectare.

40 l / 0.4 (or 40%) = 16 litres of spray mix per field hectare.

Appendix D Calculating the Tree Length (Km) Sprayed Per Tank Fill

Tree length sprayed (km) =

10 x Tank Contents (L) / (Application Rate l/ha x Band treated 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 x 80 litre / (40 l/ha x 0.8 m) = 25 km**

Appendix E Residual Volumes

All Micron and Enviro tank systems are designed to provide the maximum practicable drainage of the spray mix tank. The estimated residual volume of your Micron or Enviro tank system is stated in the technical specifications in section 1.2.

Micron Sprayers Ltd. recommends a maximum residual volume for your spraying system equivalent to 0.5% of the spray mix tank capacity plus 2 litres per meter of the overall spraying width.

To calculate the residual volume of your spraying system it is necessary to determine the quantity of fluid that will remain in the hoses that connect your tank system to your spraying heads.

- Measure the total length of each size of hose fitted to your spraying system.
- Calculate the total volume in the hoses using Table 6 - Hose Fluid Volume. Estimate the volume that will remain in the hoses after the system is drained.
- Estimate the quantity of fluid that will remain in any addition plumbing components such as in line filters.
- Add these figures together along with the stated residual volume for your tank system see section 1.2.

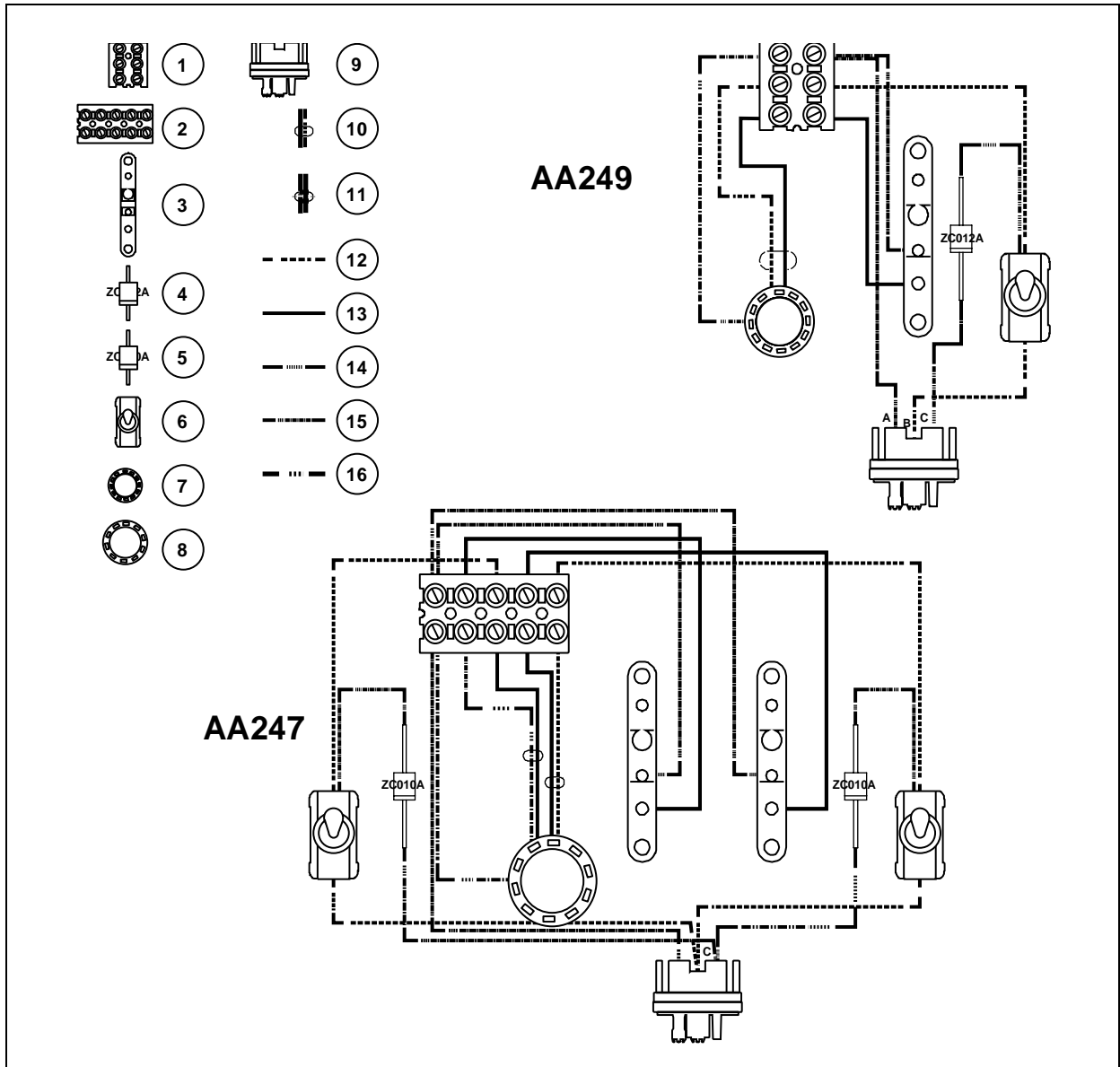
The following table shows the relationship between a hose internal diameter in inches and millimetres and the internal volume of a hose in litres per meter.

ID"	ID mm	l / m	ID"	ID mm	l / m	ID"	ID mm	l / m
1/8	3.18	0.01	1 1/2	38.10	0.12	3	76.20	0.24
1/4	6.35	0.02	1 3/4	44.45	0.14	3 1/4	82.55	0.26
1/2	12.70	0.04	2	50.80	0.16	3 1/2	88.90	0.28
3/4	19.05	0.06	2 1/4	57.15	0.18	3 3/4	95.25	0.30
1	25.40	0.08	2 1/2	63.50	0.20	4	101.60	0.32
1 1/4	31.75	0.10	2 3/4	69.85	0.22	4 1/2	114.3	0.36

Table 6 - Hose Fluid Volume

Appendix F Electrical Diagrams CDA systems

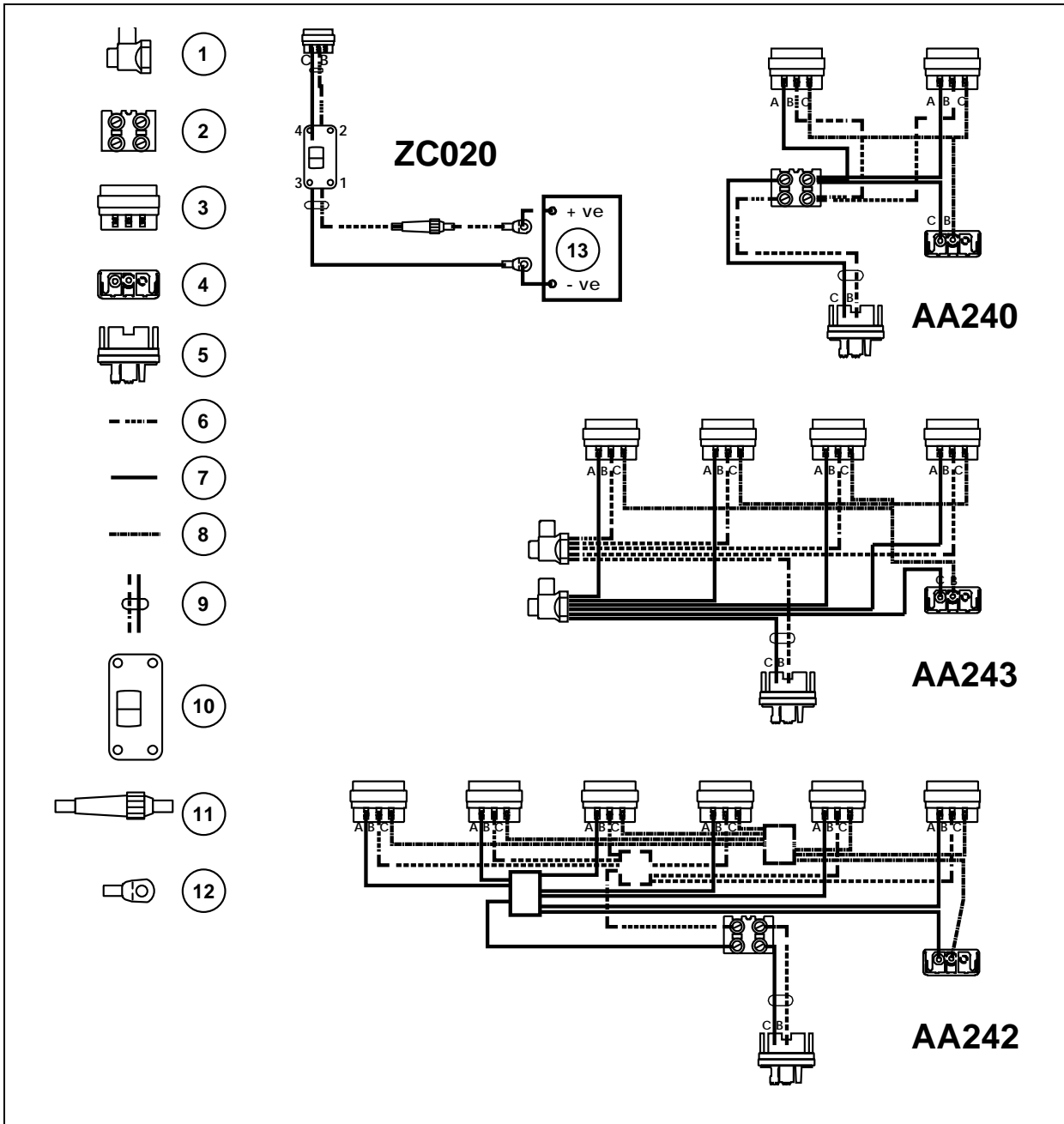
Control Box Wiring



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 G Vehicle Stability Calculations

The operator 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.

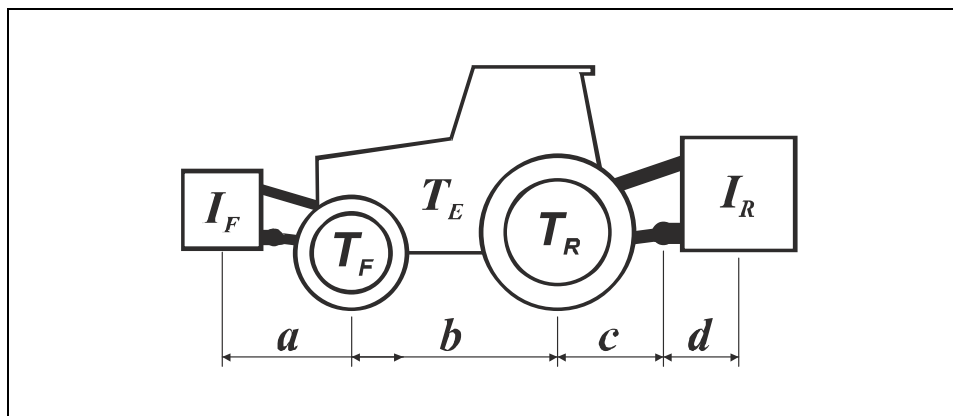


Figure 8 - Stability of tractor machine combinations

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

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 H 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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