

## 1. INTRODUCTION

This handbook contains all information required to ensure successful application of products for agricultural, public health and pest control spraying using the AU 8115M Vehicle Mounted Sprayer. Full instructions and operation details are included along with all necessary information required to maintain and repair the equipment and to identify any spare parts.

The AU 8115M is designed for a wide range of agricultural, public health and pest control spray tasks. It can be mounted in the rear of any pick-up truck or other suitable vehicle, with all controls installed in the cab of the vehicle for maximum operator safety.

The sprayer is designed around the proven Micronair AU 8000 spray head. This uses a rotary atomiser to produce spray droplets of a precisely controlled size. Control of the droplet size minimises wastage of chemical and ensures optimum penetration and coverage of the target. The size of the spray droplets can be varied by changing the rotational speed of the atomiser. This ensures flexibility over a wide range of application parameters and products. The AU 8115M spray head can be operated over a wide range of flow rates which can be varied from 0.2 to 3.5 litres per minute.

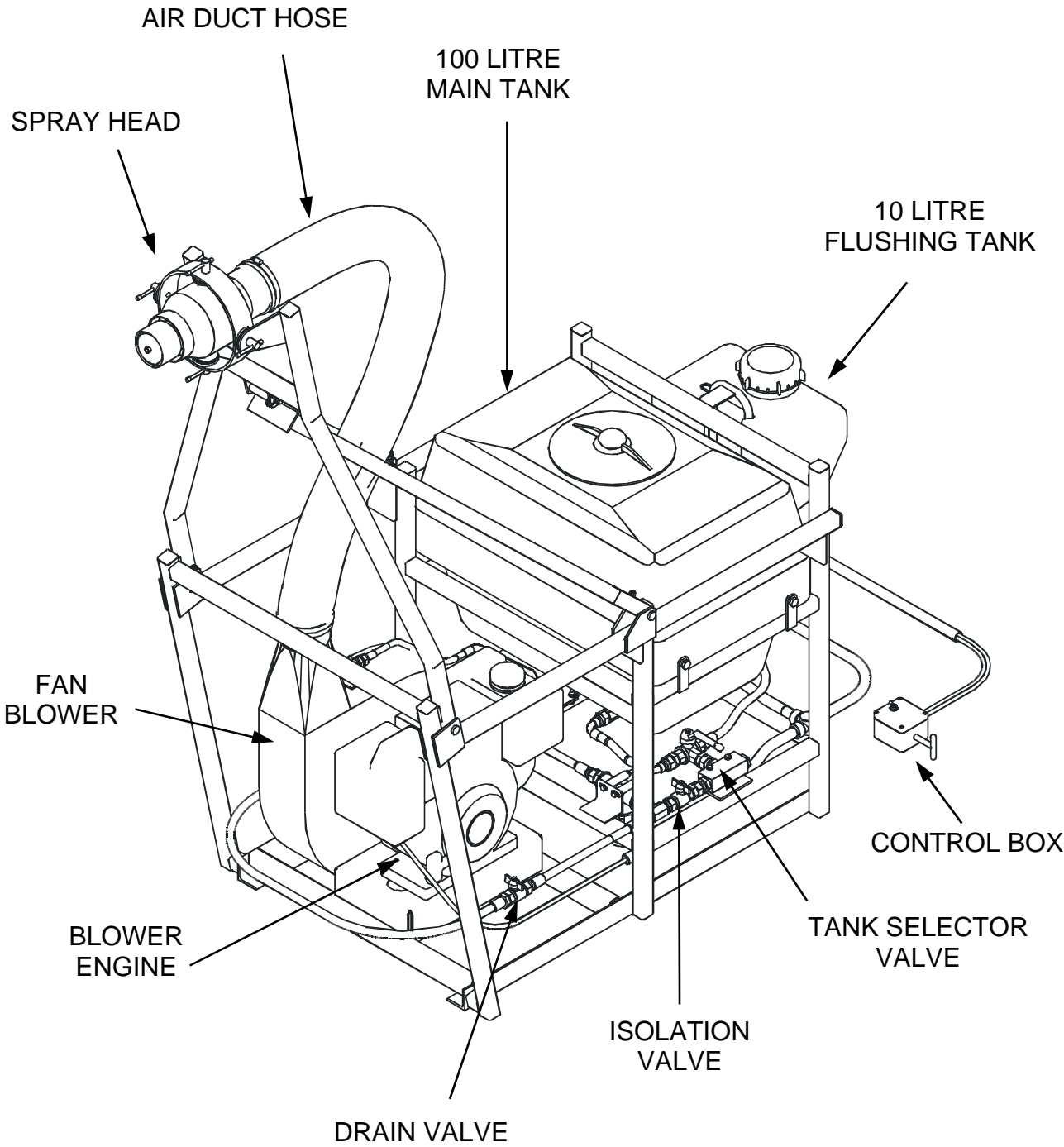
The spray head is driven by a high velocity air stream produced by the blower and powered by a reliable 4 stroke engine. The air stream from the spray head carries the spray droplets for a distance of up to 10 metres in still air and typically enables a swath of over 50 metres to be achieved when using a drift spraying technique with a wind speed of 2 metres/second or more. The air stream also ensures optimum penetration of dense foliage and carries all spray safely away from the vehicle and its driver. The spray head is fitted in an adjustable mounting which enables it to be directed towards the target to ensure optimum coverage.

It is the responsibility of the user to determine the optimum application rate and droplet size, for the product mix being used. This information should then be used in conjunction with the section on Calibration to determine the required atomiser flow rate. It is important to read this handbook carefully before using the sprayer.

## 2. SPECIFICATION

Dimensions (frame of sprayer excluding spray head and support):	140 cm long x 76 cm wide x 85 cm high
Height of spray head above bed of vehicle:	180 cm
Weight (empty):	130 Kg
Chemical tank:	100 litres capacity; UV stabilised polyethylene
Flushing tank:	10 litres capacity; UV stabilised polyethylene
Chemical flow rate:	0.02 - 3.50 litres/minute
Pump:	12 V magnetically coupled centrifugal pump
Spray droplet size:	Adjustable 40 - 200 microns VMD (depending upon formulation used and blade angle setting)
Spray band width	10 - 100 metres (when using a drift spraying technique)
Power source:	4 stroke petrol (gasoline) 13 HP engine
Fuel capacity:	5.0 litres
Running time with full fuel tank:	3 hours approx.
Electrical Requirements:	12 volts DC (vehicle battery): 5 amps (max)

**NOTE: This specification is provided for reference purposes only and is subject to alteration without note.**



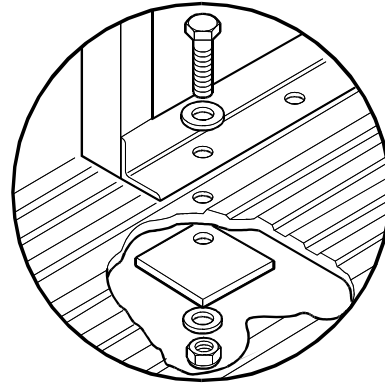
## 3. INSTALLATION

### 3.1 Installation on Vehicle

The AU 8115M Sprayer can be mounted onto any open-backed vehicle with an enclosed cab to protect the driver from the spray. The sprayer should be positioned as far to the rear of the vehicle as possible so that when the mast is extended the atomiser projects outwards beyond the back of the vehicle. When positioning the sprayer in the vehicle, ensure that there is sufficient access to engine controls, starter cord, flow valves and filter.

The AU 8115M should be rigidly secured to the vehicle. To do this drill four holes in the correct positions (taking care to avoid the vehicle fuel tank). Use the foot plates and nuts, bolts and washers provided to anchor the frame of the sprayer by at least three points.

Alternatively the sprayer can be tied down with ropes secured around the frame as a temporary installation.



### 3.2 Preparation

The AU 8115M sprayer is shipped partially dismantled and must be assembled prior to use. The procedure for setting up a new sprayer is as follows:

1. Raise the spray head mast so that it protrudes over the rear of the sprayer.
2. Secure the mast by raising the supporting A frame and locking the mast in place with the pin and clip provided.
3. Position the spray head in the support ring. Place a red fibre friction disc between each mounting boss and the inside of the support ring. Fix the spray head in position with securing bolts and washers as supplied.
4. Secure the ducted hose to the fan outlet using the hose clip.
5. Locate the control box in the cab of the vehicle, taking care to avoid snagging the conduit tubing containing the electrical wiring and throttle cable. The conduit cabling can be fed through the vehicle cab window or a suitable hole in the rear of the cab.
6. Fill the engine crankcase with oil as described in Section 8.1.1

**IMPORTANT: The engine is shipped without oil. OIL MUST BE ADDED before starting the engine**

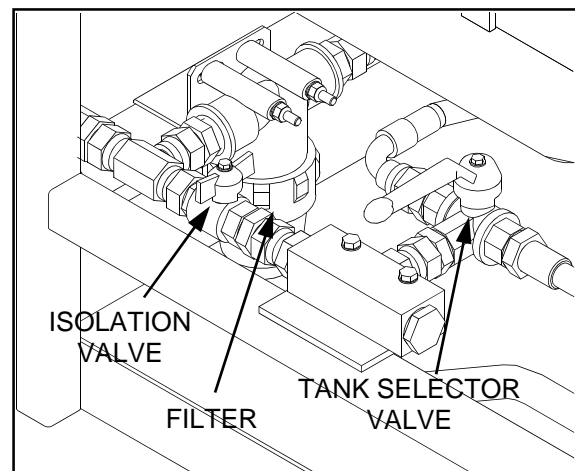
## 4. CONTROLS

This section lists the main features and controls of the sprayer and gives a brief explanation of their functions. Further details will be found elsewhere in this Handbook.

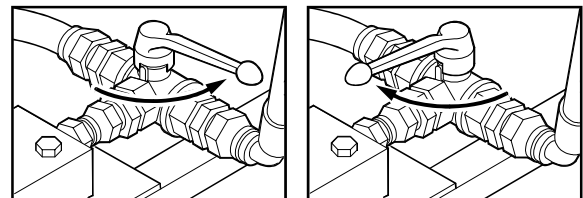
### 4.1 Pump and Valves

The AU 8115M is fitted with an electrically-driven magnetically coupled centrifugal pump which is powered from the vehicle battery. The on/off switch for the pump is located on the master control box normally situated in the vehicle cab.

Three valves control the spray output. A master isolation valve shuts off all liquid flow; a three way tank selector valve determines whether the main (100 litres) tank or flushing (10 litre) tank is used; and a drain valve allows the system to be drained after use.



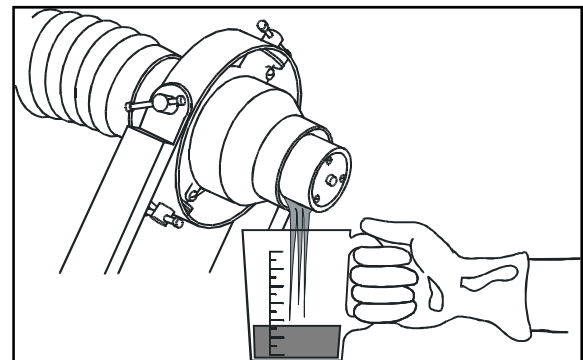
To check that the pump is working place a small amount (5-10 litres) of kerosene or diesel oil in the 10 litre tank. Rotate the two way valve to open the 10 litre tank and make sure the isolation valve near the filter is open.



10 LITRE  
TANK OPEN

MAIN TANK  
OPEN

Angle the spray head to point downwards and place a container underneath the atomiser. Switch on the pump at the control box without the fan engine running. After a short period liquid should start flowing from the atomiser. Flow rate to the head is controlled by either the needle valve or the use of in-line orifice restrictor plates provided (see Section 6 Calibration). Check that there are no leaks from any of the tubing or connections.

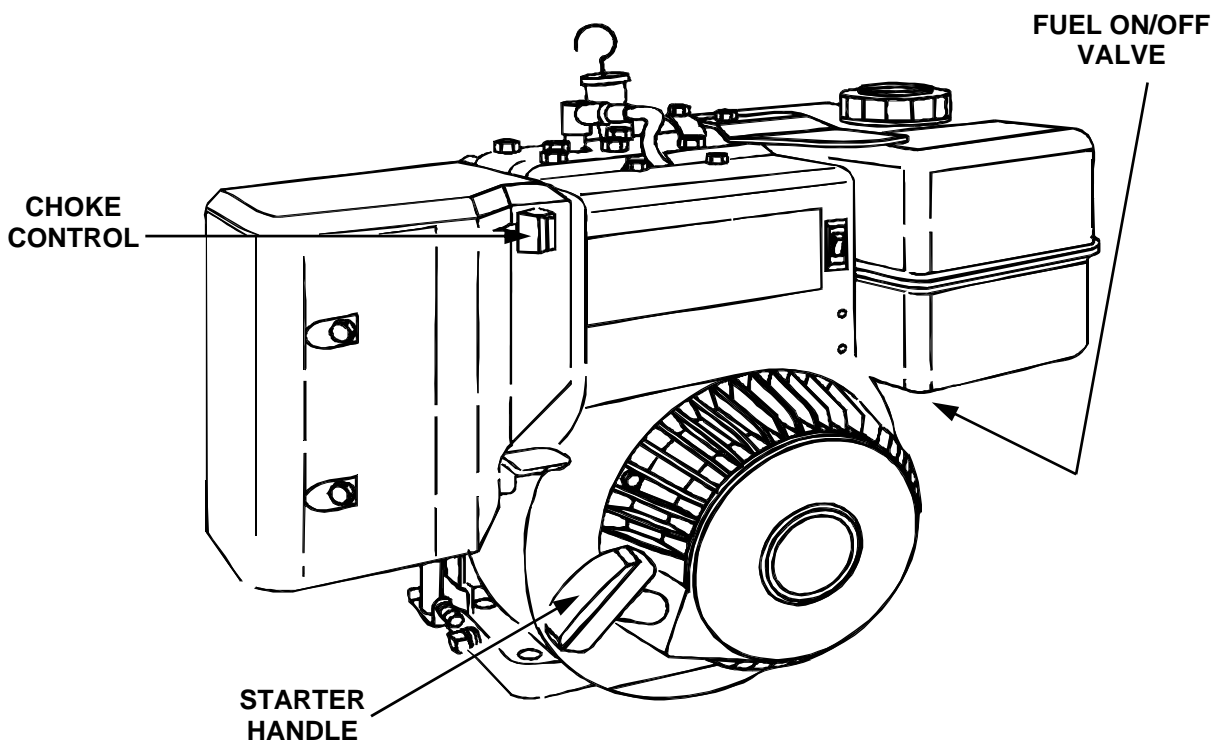


## 4.2 Engine

The sprayer is fitted with a Briggs and Stratton four stroke engine which drives a blower providing the air blast both to drive the atomiser and carry the spray droplets away from the sprayer.

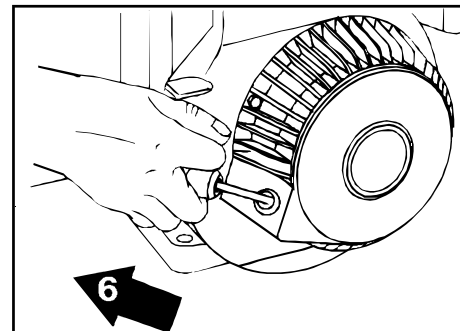
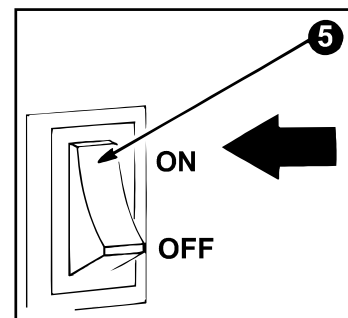
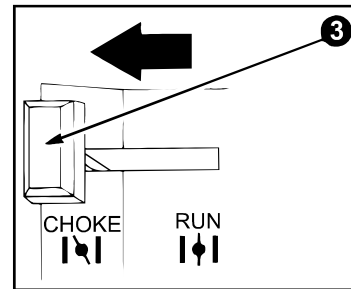
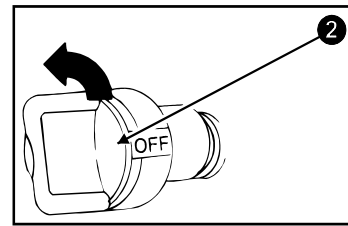
### 4.2.1 Engine controls

1. Fuel On/Off Valve: Mounted below the engine fuel tank. Must be opened before starting the engine and closed when the sprayer is not in use.
2. Engine Choke: Mounted behind the engine beside the carburettor. The choke lever must be moved in the direction of the arrow when starting engine and returned during normal running.
3. Throttle Control: Remotely operated by 'T-bar' on the master control box.
4. Stop Switch: Rocker type mounted on side of engine; must be on to start. Switch off to stop. Leave in the off position when the sprayer is not in use.
5. Starter pull handle. Mounted on the front face of the engine.



## 4.2.2 Engine starting procedure

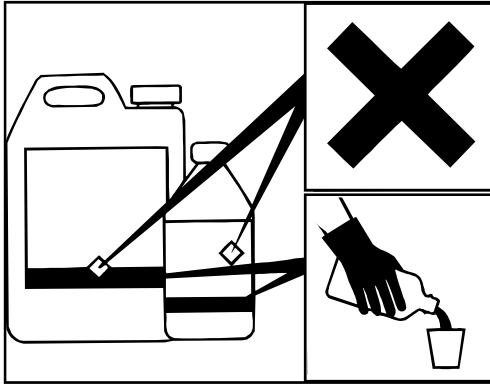
1. Check the level of fuel and oil in the engine. If necessary, add standard unleaded petrol (gasoline). See section 8.1.1 if the engine requires oil.
2. Open the engine fuel valve.
3. Set the engine choke in the direction of the arrow. In hot climates it may only be necessary to set the choke to MID position.
4. Set the engine throttle T-bar control to FULL.
5. Move the engine stop switch to the ON position.
6. Pull the engine starter cord gently until the compression of the engine is felt. Release the cord so that it retracts fully and then pull again firmly to start the engine. The cord should never be pulled fully out to the end stop as this will strain the cord and the starter mechanism, and could lead to premature failure. Should the engine not start easily, move the choke to MID position. If the engine still fails to start and the carburettor becomes flooded, set the choke to the open position (in the opposite direction to the arrow) and pull the starter cord at least 10 times before repeating the normal starting procedure.



7. As soon as the engine starts, move the choke lever in the opposite direction to the arrow and then slowly move the throttle control lever to the IDLE position.

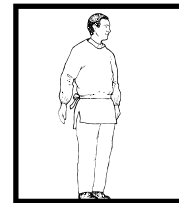
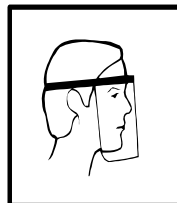
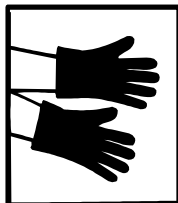
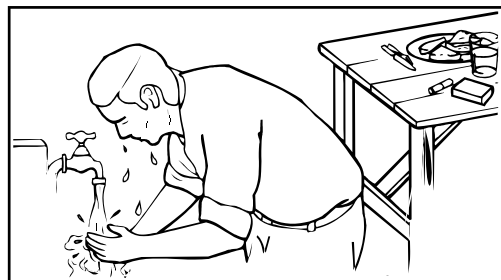
## 5. SAFETY

### 5.1 Using Pesticides



1. ALWAYS follow the safety instructions on the pesticide label when handling and using pesticides.
2. ALWAYS wear appropriate protective clothing during filling and calibration.
3. DO NOT spray near people or domestic animals. There should be no people or domestic animals within 200 metres downwind from where spraying is to take place.

4. Ensure spraying does not take place near waterways, rivers or lakes.
5. DO NOT carry people, bedding, clothing or animals in the back of the spray vehicle when spraying or when it is contaminated with pesticide.
6. NEVER carry foodstuffs in the spray vehicle.
7. ONLY use a spray vehicle fitted with an enclosed cab.
8. ALWAYS wash hands, face and body after filling the spray tank, after spraying and before eating or smoking.
9. ALWAYS carry soap and towels for washing in the cab of the spray vehicle and a supply of petrol, water and rags for cleaning the vehicle and sprayer.



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## 5.2 Engine Safety

For full details of safe engine operation and maintenance refer to the engine handbook supplied. **NOTE: Fire, explosion or injury to the operator can occur if the following instructions are not followed:**

1. Do not run the engine in an enclosed area. Exhaust gases contain carbon monoxide, an odourless and deadly poison.
2. Do not fill the petrol (gasoline) tank while the engine is running. Allow the engine to cool for two minutes before refuelling. Only fill in a well ventilated area.
3. If petrol (gasoline) is spilled, move the sprayer away from the area of the spill and avoid creating any source of ignition until the petrol (gasoline) has evaporated.
4. Do not operate the engine without a muffler fitted. Inspect the muffler periodically and replace if necessary.
5. Do not use the engine on any forest covered, brush covered or grass covered unimproved land unless a spark arrester is attached to the muffler.
6. Do not operate the engine if the air cleaner or the cover directly over the carburettor air intake is removed.
7. When transporting the sprayer, the fuel shut-off valve must be closed to prevent fuel leaking from carburettor.
8. Do not choke carburettor to stop the engine.
9. Do not run the engine at excessive speeds.
10. Do not change the engine speed selected by the original equipment manufacturer.
11. Avoid contact with the exhaust, cylinder or fins when they are hot as contact may cause burns.
12. To prevent accidental starting when servicing the engine or sprayer, always remove the spark plug or disconnect the wire from the spark plug.

**CAUTION TO UNITED STATES CUSTOMERS:**

*If this engine is not equipped with a spark arrester and is to be used on any forest covered, bush covered, or grass covered unimproved land, before using on such land a spark arrester must be added to the muffler. The arrester must be maintained in effective working order by the operator. In the State of California the above is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal lands. See your Authorised Briggs & Stratton Service Centre for spark arrester muffler options*

## 6. CALIBRATION

To apply the correct volume of spray liquid to an area it is necessary to calibrate the sprayer accurately. This is critically important to prevent under or over dosing. The following sequence of steps should therefore be undertaken:

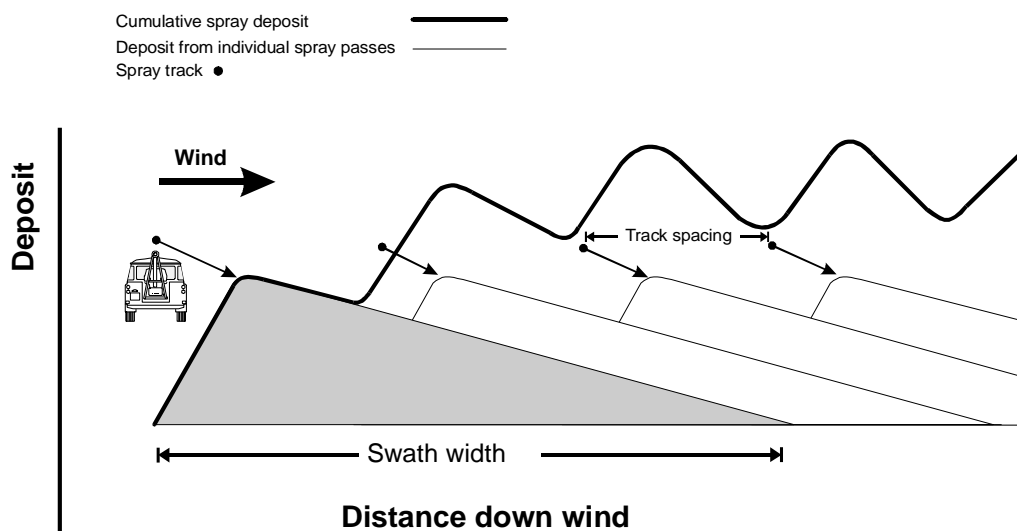
### 6.1 To Measure the Forward Speed of the Vehicle

- Select a gear which will give a sensible speed for field operations and carry out a trial run over a measured distance of 100 metres. Time how long it takes, in seconds, to cover this distance =  $t$
- calculate your forward speed using the formula:  $\text{speed (km/hr)} = 360/t$

*Example: time to cover 100 metres,  $t = 36$  seconds  
then,  $\text{speed} = 360/36 = 10$  km/hr*

### 6.2 To Select a Suitable Track Spacing

The track spacing is the distance between successive spray passes of the vehicle. Spray passes should always be made with the wind at right angles to the direction of the vehicle. Although the peak spray deposit is likely to occur within 50 metres downwind some spray will be carried more than twice this distance. Spray coverage of the target area is evened out by accumulating spray deposits from overlapping swaths. This is known as an incremental spraying technique.



When using droplets of 50-75  $\mu\text{m}$  (VMD) in diameter in a steady wind (in excess of 7 km/hr or 2 m/s) track spacings of 30-50 metres will be possible in sparse open areas. Smaller track spacings will be necessary if larger droplet sizes are used or the sprayer is used in lighter winds. If necessary, measure the swath width generated under the prevailing operating conditions and determine the track spacing to be used.

### 6.3 To Calculate Required Flow Rate from the Atomiser

The required flow rate (in litres per minute) can be calculated using the following formula

$$\text{Flow Rate (l/min)} = \frac{\text{Volume Application Rate (l/ha)} \times \text{Speed (km/hr)} \times \text{Track Spacing (m)}}{600}$$

Volume Application Rate is chosen so as to apply the recommended dose of active ingredient (see FAO guidelines or manufacturers' label)

*example: if required volume application rate* = 0.5 litres per ha (l/ha)  
*vehicle speed* = 10 kilometres per hour (km/hr)  
*track spacing* = 50 metres (m)

*then, required flow rate to atomiser =*

$$\frac{0.5 \times 10 \times 50}{600} = 0.42 \text{ litres per min (i.e. 420 ml/min)}$$

The tables below give examples of combinations of flow rates and vehicle speeds needed to apply volume application rates of 0.5 and 1.0 litre respectively per hectare.

Volume Application Rate 0.5 litre/ha	Atomiser flow rate (ml/min)				
	Vehicle forward speed (kph)				
Track spacing (m)	5	7.5	10	15	20
25	104	156	208	312	417
30	125	188	250	375	500
35	146	219	291	438	583
50	208	313	417	616	833
100	417	616	833	1250	1667

Volume Application Rate 1.0 litre/ha	Atomiser flow rate (ml/min)				
	Vehicle forward speed (kph)				
Track spacing (m)	5	7.5	10	15	20
25	208	312	417	614	834
30	250	375	500	750	1000
35	291	438	583	876	1076
50	417	616	833	1232	1667
100	833	1250	1667	2500	3334

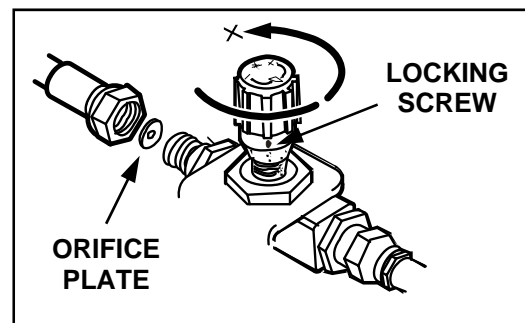
## 6.4 To Set the Flow Rate

Flow rate on the AU 8115M can be controlled by use of either an in-line orifice restrictor plate or the flow control needle valve. Usually an orifice restrictor plate should be used but the flow control valve gives the ability to give flow rates in excess of those obtained using the largest orifice restrictor plate.

To set the flow rate:

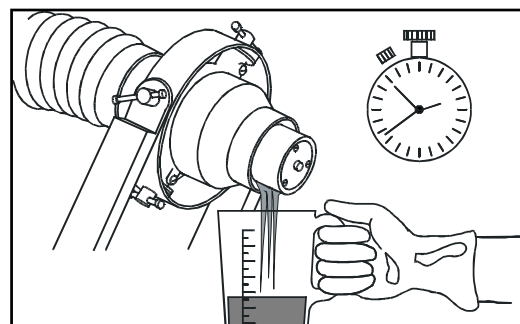
1. Park the vehicle so that the spray head is on the downwind side so as to minimise operator contamination.
2. Ensure the drain valve is closed and the main tank valve open.
3. Place a clean bucket directly underneath the atomiser to collect spray liquid. If using orifice restrictor plates, the flow control valve **MUST** be locked in the fully open position (see below) for calibration and spraying.
4. Referring to the table below, select and fit (as shown) the orifice restrictor plate which gives the flow rate closest to that required. N.B. the values given in the table are for light oil. Actual flow rates will vary according to the pesticide used and its viscosity and should be measured with actual product).

Restrictor Number	Flow rate (ml/min) with oil
24	108
30	149
39	294
49	461
59	581
68	709
80	957
98	1210



5. With the vehicle engine running to ensure that the pump is working at the correct operating voltage, switch on the pump at the control box. NB The blower engine should not be running. Liquid should begin to flow from the atomiser into the bucket. Let this flow for a short period to remove any air which may have been entrained in the hose lines and pump).

6. Once liquid is flowing at a steady rate hold the measuring jug supplied underneath the atomiser and check the output over a known period of time, usually one minute (as measured using a stopwatch).



7. If this flow rate is too low or too high use a larger or smaller orifice plate as appropriate. Actual flow rate will vary according to the pesticide used and its temperature and thus calibration **MUST** be carried out using the actual product. Put all the spray liquid collected in the bucket back into the spray tank through the lid filter. **DO NOT** stand under the atomiser after spray liquid has been fed through it since dripping may occur.
8. Clean the bucket and measuring cylinder. Wash down any spillage on the tank and vehicle.
9. **ALWAYS** wash hands and face after handling pesticides.

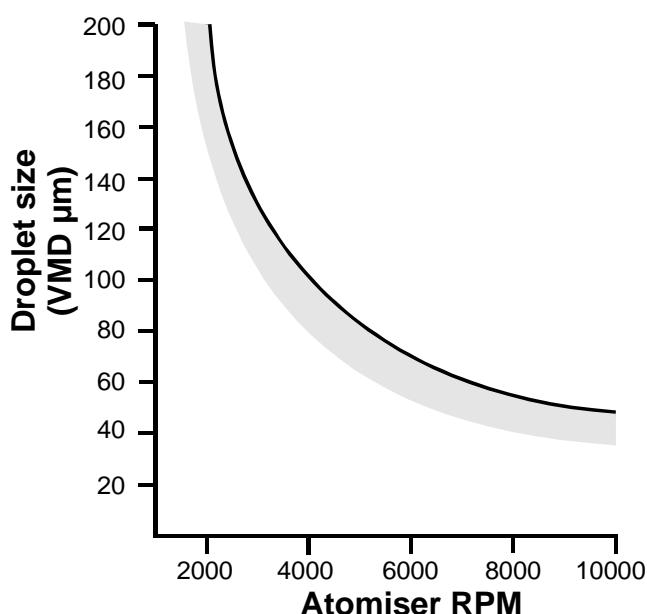
If using the flow control valve, then it is important to ensure that there are no orifice plates fitted. Steps 1 to 9 should be carried out and the valve adjusted until the required flow rate is obtained. The position of the flow control valve should then be fixed by tightening the locking screw using the hexagonal allen key provided in the tool kit.

**NOTE:** The sprayer must be re-calibrated if the forward speed, track spacing or volume application rate change. Calibration **MUST** be checked at the beginning of each day's operation.

## 6.5 To Select Droplet Size

Select the correct droplet size for the application. The factory settings for the AU 8115M are designed to produce the smallest possible droplet size. For some spray applications, however, it may be more appropriate to select a larger size of droplet. The size of the spray droplets produced by the spray head is mainly determined by the rotational speed of the atomiser.

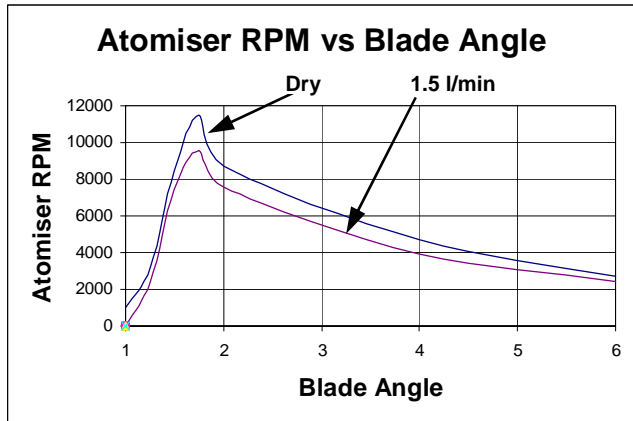
The figure below shows the relationship between droplet size and rotational speed of the atomiser. This graph is based on performance with water and is intended as a guide only.



The droplet size deposited depends upon the properties of the spray mix. The shaded band below the curve shows typical droplet sizes from a range of chemicals and formulations.

Due to the loading effect that liquid flow will have on the atomiser, the speed of rotation (and therefore droplet size) will be affected by the liquid flow rate onto the atomiser. The relationship between these is given in the table and graph below.

Flow (l/min)	Atomiser speed (RPM)			
	BLADE SETTING #			
	1.75	2	4	6
0.00	11500	8700	4750	2700
0.25	10800	8600	4600	2650
0.50	10500	8300	4550	2600
1.00	9800	7850	4400	2540
1.50	9600	7600	3900	2400

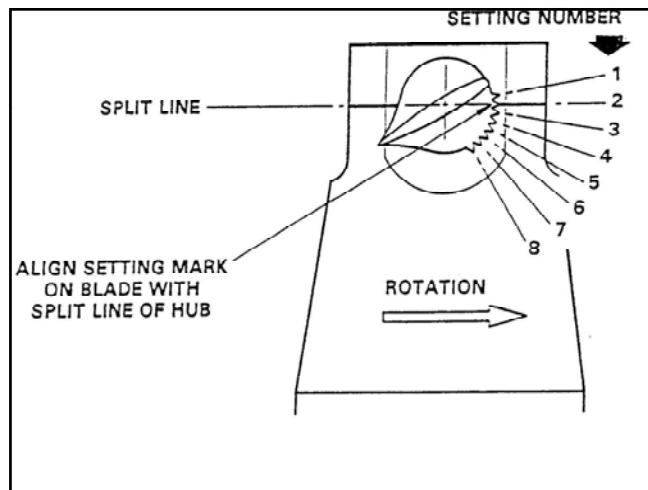


### 6.6 To Change the Droplet Size

The rotational speed of the atomiser is determined by the angle of the fan blades. A fine blade angle (corresponding to a smaller setting number in the figure below) gives a high rotational speed and small spray droplets. A coarser angle (larger number) gives larger droplets.

The procedure to change the blade angle is as follows:

1. Remove the two screws securing the rear casing of the spray head. Slide off the rear casing.
2. Rotate the atomiser so the setting marks on a fan blade can be seen through the inspection hole in the support ring.
3. Use Micronair blade adjustment tool EX4420 or a pair of pliers with cloth wrapped around the jaws to adjust the fan blade so that the correct setting mark aligns with the split line of the hub.



4. Repeat steps 2 & 3 for each of the four fan blades.

**IMPORTANT:** All four fan blades must always be set to the same angle.

If it is necessary to check atomiser speed, this should be done with a hand-held tachometer (optical or contact type).

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## 7. SPRAYING PROCEDURE

1. Before starting to spray, the spray vehicle must be correctly positioned relative to the target. If the vehicle is to be stationary, it must be parked upwind of the target area with the spray head facing in the appropriate direction. The spray head should be raised, lowered or moved sideways in its adjustable mounting as required.

If the vehicle will be moving whilst spraying, it must be driven upwind of the target and in a direction at 90° to the wind. The spray head should be angled upwards to achieve maximum effective release height and a wide swath or angled downwards for a narrow swath closer to the vehicle (see section 6 Calibration).

2. When ready to start spraying, set engine control to FULL throttle and switch on pump.
3. To stop spraying, switch off pump and return engine control to IDLE.
4. At the end of the spraying operation allow the engine to idle for 1 minute before switching off. The engine switch should be left in the OFF position when the sprayer is not in use.

### 7.1 After Use

After use, drain any remaining pesticide from the tank by opening the drain valve. Any unused pesticide must be collected in a suitable container for future use or safe disposal.

### 7.2 Cleaning

It is vital that the entire sprayer is flushed out and cleaned after use. The 10 litre flushing tank is provided for cleaning the sprayer with kerosene or similar.

The system should be flushed through with kerosene by selecting the 10 litre flushing tank position on the tank selector valve. This should be done at the spray site so as to avoid the risk of contamination of an off-target area by dilute chemical. Any solvent remaining in the sprayer should be drained from the tank and disposed of safely.

After flushing, all external surfaces should be washed down with water and detergent.

### 7.3 Additional Applications

**IMPORTANT: Under no circumstances should any pesticide be left in the sprayer when it is not in use.**

The spray head may be de-mounted from the gimbal ring and hand-held, if required, to enable the spray to be directed at a specific target, or into a gully, etc. Care should be taken to avoid contact with the rotating gauze.

The sprayer may also be used from a stationary vehicle, using the wind to carry the droplets to the target.

## 8. MAINTENANCE

### 8.1 Engine

**IMPORTANT:** To prevent accidental starting when servicing the engine or sprayer, always remove the spark plug or wire from the spark plug and insert in holding tab adjacent to the spark plug.

#### 8.1.1 Oil

The engine is shipped with no oil in the crankcase. Oil must be added before the engine is run. The grade of oil must be chosen according to the normal ambient temperature:

Below - 5° C	SAE 5W-20 or 5W-30
-10° C to 35° C	SAE 10W-30 (suitable for most applications)
+10° C to 35° C	SAE 30

Check the oil level regularly, after each 5 hours of operation. Ensure that the oil level is maintained.

**For full details of engine maintenance refer to engine manufacturer's manual and safety instructions supplied.**

### 8.2 Fan

The AU 8115M Sprayer is fitted with a robust blower fan which is designed to withstand ingestion of dirt and debris without damage. The fan and fan casing must be cleaned after every six months of operation or more frequently if the sprayer is used in dusty or dirty conditions. This will ensure efficient operation with a minimum of vibration. To clean the fan, proceed as follows:

1. Remove the 4 bolts securing the fan cover and guard. Remove the cover and guard.
2. Thoroughly clean the fan vanes and back plate of the fan and inside of the casing, using a stiff brush and compressed air if available.
3. If the area behind the fan is contaminated it may be necessary to remove the fan. This should only be done if absolutely necessary, as this requires demounting the fan housing.

### 8.3 Pump

The pump is a magnetically coupled centrifugal pump with polypropylene body. If debris becomes stuck in the pump impeller the pump will stall but the motor will continue to operate.

The pump is simple to service, and can be disassembled as shown in section 10.9.

**IMPORTANT:** The sprayer should be thoroughly cleaned and flushed out before working on any part of the plumbing system, or atomiser. Suitable gloves and protective clothing must always be worn if any part is contaminated with pesticides. Clean all pesticide deposits with kerosene and soapy water.

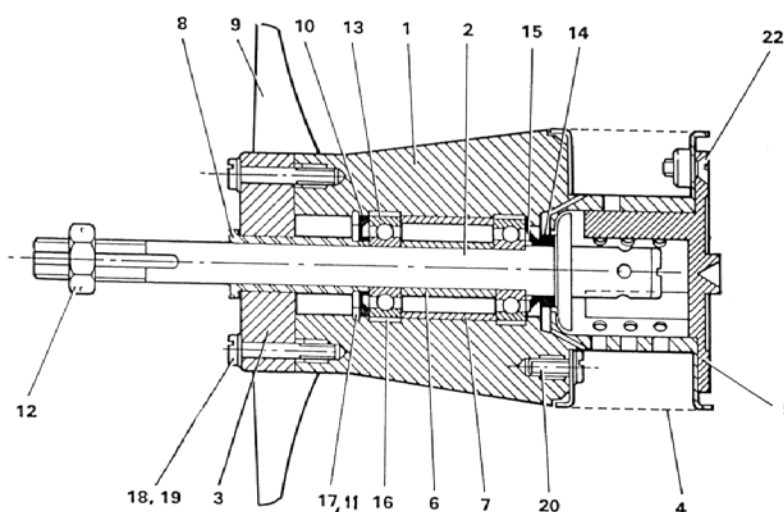
### 8.4 Atomiser

The atomiser is built from chemical resistant materials and its simple design and robust construction will ensure many years of trouble-free performance provided that it is not mis-treated and is properly cleaned after use.

Every atomiser is dynamically balanced to ensure that it will run smoothly without vibration. Some products, particularly certain solids in suspension, can dry or crystallise on the gauze, blocking the mesh and causing the atomiser to run 'out of balance' and vibrate. This can easily be avoided by spraying 1 - 2 litres of kerosene through the atomiser at the end of each spray job. Water will normally only dissolve water-based formulations, whereas kerosene or diesel fuel is suitable for most ULV products.

The bearings of the atomiser are sealed and lubricated for life, and should, therefore, be replaced if they become worn.

If it is necessary to replace the bearings or any other part, the procedure to dismantle an atomiser is as follows (numbers in brackets refer to item the figure below:)



1. Remove the hose connector and atomiser securing nut. Slide the atomiser from the support ring.
2. Remove the four screws (18) and washers (19) from the blade clamp ring (3), lift off the ring and remove the blades.
3. Remove the three screws (22) securing the cap and deflector assembly (5). Pull the cap from the end of the gauze and push the spindle (2) through the atomiser.
4. If it is necessary to remove the gauze, insert a screwdriver through the holes in the rear of the gauze and take out the three screws (20) securing the gauze to the hub.
5. If it is necessary to remove the bearings, use a pair of circlip pliers to remove the circlip (17) from the front of the hub. Next, push an aluminium or brass drift against the inner part of the rear bearing and tap both bearings out through the front of the hub. Ensure that the hub (1), spacers (6 and 7) and ring (10) are not damaged or lost.

After dismantling the atomiser, the following should be checked:

Gauze (4)	<i>Free from dents or chemical contamination</i>
Bearings (13)	<i>Both in good condition. If one bearing is faulty, both should be replaced</i>
Tolerance rings (16)	<i>Not cracked or deformed</i>
Bearing spacers (6 and 7)	<i>Not corroded or worn</i>
V-Ring seal (14)	<i>In good condition and not damaged or worn</i>
Nilos ring (15)	<i>Not worn or distorted</i>

Any worn and damaged parts must be replaced with genuine Micronair spares. Any attempted repair of parts or the use of substitute parts could seriously damage the unit and impair its performance.

The procedure to re-assemble an atomiser is the reverse of the dismantling procedure. It is important that the following points are observed:

1. A new Nilos ring should always be fitted when the bearings are replaced.
2. Fill the recess of the Nilos ring and brass sealing ring with grease. The bearings, spacers and lip of the V-Ring should also be coated with a thin film of grease before assembly.
3. The bearings must be pressed squarely into the hub and must not be allowed to become mis-aligned. They must NOT be driven in with a hammer.
4. The clamp ring (3) must be assembled in the correct position with the dimples in the ring and hub body aligned.

## 9. TROUBLESHOOTING

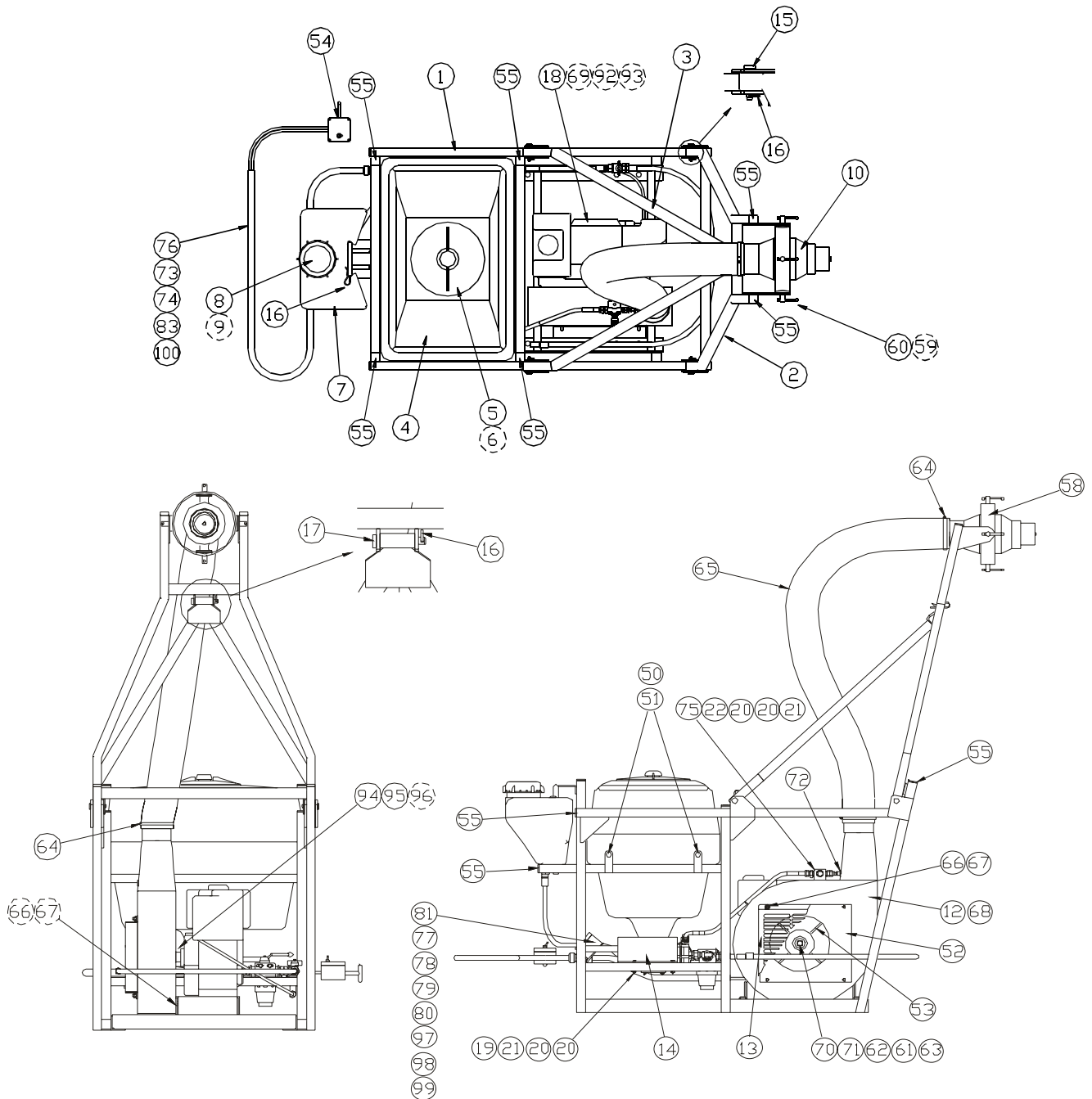
<b>Problem</b>	<b>Cause</b>	<b>Remedy</b>
<b>Engine will not start</b>	<p><i>Fuel valve closed .</i></p> <p><i>Engine stop switch in OFF position.</i></p> <p><i>Engine choke incorrectly adjusted.</i></p> <p><i>Contaminated spark plug.</i></p> <p><i>Blocked fuel filter.</i></p> <p><i>Engine oil level too low.</i></p>	<p>Open valve.</p> <p>Set to ON.</p> <p>Adjust.</p> <p>Clean and adjust.</p> <p>Clean or replace filter.</p> <p>Top up oil.</p>
<b>Unsteady engine speed</b>	<p><i>Contaminated fuel.</i></p> <p><i>Partially blocked fuel filter.</i></p> <p><i>Dirty or sticking governor linkage.</i></p> <p><i>Carburetor contaminated or requires adjustment.</i></p>	<p>Drain tank and re-fill.</p> <p>Clean or replace filter.</p> <p>Clean (See engine maintenance handbook).</p> <p>Refer to qualified mechanic or local Briggs &amp; Stratton service centre.</p>
<b>No flow</b>	<p><i>Needle valve closed.</i></p> <p><i>Orifice restrictor plate blocked.</i></p> <p><i>Blocked needle valve.</i></p> <p><i>Blocked hoses.</i></p> <p><i>Pump not working.</i></p>	<p>Open valve.</p> <p>Remove plate and clean.</p> <p>Open needle valve fully and flush through with kerosene.</p> <p>Dismantle if necessary and flush out with suitable solvent followed with clean water.</p> <p>Check pump electrical connections and repair if necessary.</p> <p>Check pump motor. Replace if necessary.</p>
<b>Erratic chemical flow</b>	<p><i>Blocked bowl filter.</i></p> <p><i>Blocked needle valve.</i></p>	<p>Remove and clean filter element.</p> <p>Open needle valve fully and flush through with kerosene.</p>

## 10. PARTS

When ordering spare parts, please specify the following information:

- Serial number of sprayer or engine
- Approximate date of purchase
- Description of part
- Part number as shown in this section
- Number of parts required

### 10.1 AU 8115M Main Parts Diagram



## 10.2 AU 8115M Main Parts List

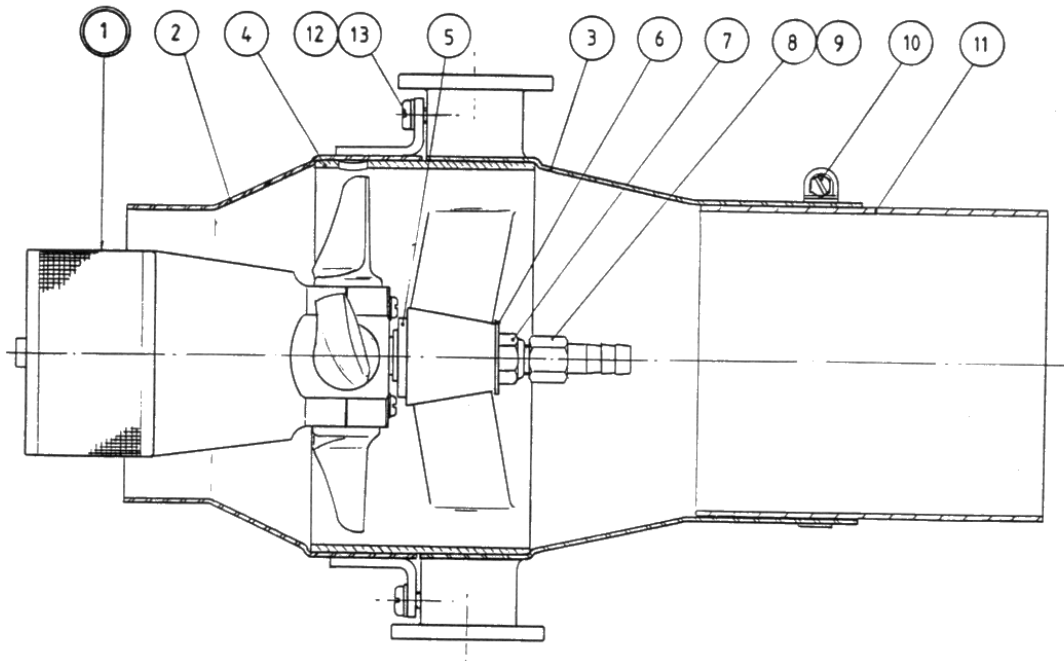
Item	Part no.	Qty.	Description	Item	Part no.	Qty.	Description
1	EX6723	1	Main frame	80	5942	3	Terminal block, 16A
2	EX6724	1	Mast	81	5895	1	Enclosure
3	EX6725	1	Mast support	82	CBP1898	1	Bolt, M8 x 20
4	5823	1	Tank, 100 litre	83	CBP2866	1	T-piece, conduit, nylon
5	AJ6201A	1	Tank lid with air vent	92	CBP1416	8	Washer M10
6	AJ6200	1	Filter basket	93	CBP1908	4	Nut, M10, Nyloc
7	5955	1	Tank, flushing, 10 litre	94	EX6834	2	Engine Spacer
8	5208A	1	Cap assembly	95	CBP2809	2	Washer, 7/16" UNC
9	5449	1	Filter bowl	96	CBP2808	2	Bolt, 7/16" UNC x 1 3/4"
10	EX6550	1	Atomiser assembly	97	CBP2715	1	Resistor, OR22
12	EX6531	1	Fan housing	98	CBP2716	2	Screw, M3
13	EX6529	1	Air intake guard	99	CBP2717	2	Nut, Stiff, M3
14	5922	1	Pump cover	100	CBP1956	1	Screw, M5 x 16mm
15	EX6730	4	Pivot pin, 10mm dia.				
16	5671	6	'R' clip				
17	EX6729	1	Locking pin, 12mm dia.				
18	CBP2785	1	Engine / fan base				
19	6026	2	Screw, M6x45				
20	6017	18	Washer, M6, flat				
21	5984	10	Nut, M6 nyloc				
50	5967	4	Screw, M10x20				
51	5972	4	Washer, M10, spring				
52	EX6205	1	Plate, air inlet				
53	EX6203	1	Impellor				
54	EX6542	1	Control box assembly				
55	5914	12	Tube end inserts				
58	EX4617	1	Gimbal assembly				
59	EX4759	4	Washer, fibre				
60	EX4713	4	Bolt, tommy				
61	EX4682	1	Spacer, engine				
62	EX6528	1	Locking plate				
63	EX6443	1	Key				
64	CBP1959	2	Clip, jubilee, no.5				
65	CBP1948	1.5m	Hose, 4"				
66	CBP1451	15	Washer, M8				
67	CBP1909	13	Nut, M8 nyloc				
68	CBP679	1	Warning label				
69	CBP1413	4	Bolt, M10x50				
70	CBP2807	1	Bolt, 7/16" UNF x1 1/2" Hex Head				
71	EX6835	1	Washer, Tab				
72	CBP447	1	Grommet				
73	AJ6418	2	Cable tie				
74	CBP2865	2	Cable gland, 20mm				
75	EX6860	1	Bracket, needle valve & tie				
76	AJ6187	4m	Conduit, nylon				
77	4693	2	Screw, 4BA x7/8"				
78	3667	2	Nut, 4BA nyloc				
79	4756	2	Washer, 4BA, flat				



## 10.4 AU 8115M Plumbing Parts List

Item	Part no.	Qty.	Description
20	6017	18	Washer, M6, flat
21	5984	11	Nut, M6 nyloc
22	5983	4	Screw, M6x20
23	5969	2	Screw, M6x55
24	5968	2	Screw, M6x80
25	5882	1	Manifold
26	5900	2	Valve, 2 port
27	5901	1	Valve, 3 port
28	CBP2874	1	T-piece, 1/2"BSP (f/f), 1/2"BSPT (m)
29	CBP2893	5	Adaptor, 1/2"BSP m/m, p/t
30	CBP2895	3	Swivel Adaptor, 1/2"BSPT (m) - 1/2"BSPP (f)
31	CBP2873	1	Adaptor, 1/2"BSP m/m, p/p
32	CBP2892	1	Connector, Bulkhead, 1/2"BSP
33	CBP1262	4	Washer, 1/4"
34	CBP2894	1	Plug, 1/2"BSP
35	EX7008	1	Pump, centrifugal, DC 40/10, 12V.d.c.
36	5881A	1	Filter c/w viton 'O' rings
37	6721	1	'O' ring, BS116, viton
38	6797	1	Nut, 1/2"BSP flanged
39	CBP2903	1	Adaptor, 3/4"BSP - 1/2"BSP m/m
41	CBP2896	1	Adaptor, 3/8"BSP - 1/4"BSP m/m
42	6002	1	Valve, needle
43	EX6911	1	Hose, Needle Valve to Sprayhead
44	EX6910	1	Hose, Pump to Needle Valve
45	EX6909	1	Hose, Filter to Pump
46	EX6907	1	Hose, Tank to 3 Way Valve
47	EX6908	1	Hose, Flushing Tank to 3 Way Valve
49	EX6900	1	Hose, Drain
56	6003	1	Nut, M17
57	AJ6379	1	Body, LFM 1/4" BSP, brass
84	AJ6337	1	Orifice restrictor plate, No 24
85	AJ6338	1	Orifice restrictor plate, No 30
86	AJ6339	1	Orifice restrictor plate, No 39
87	AJ6340	1	Orifice restrictor plate, No 49
88	AJ6341	1	Orifice restrictor plate, No 59
89	AJ6342	1	Orifice restrictor plate, No 68
90	AJ6343	1	Orifice restrictor plate, No 80
91	AJ6344	1	Orifice restrictor plate, No 98

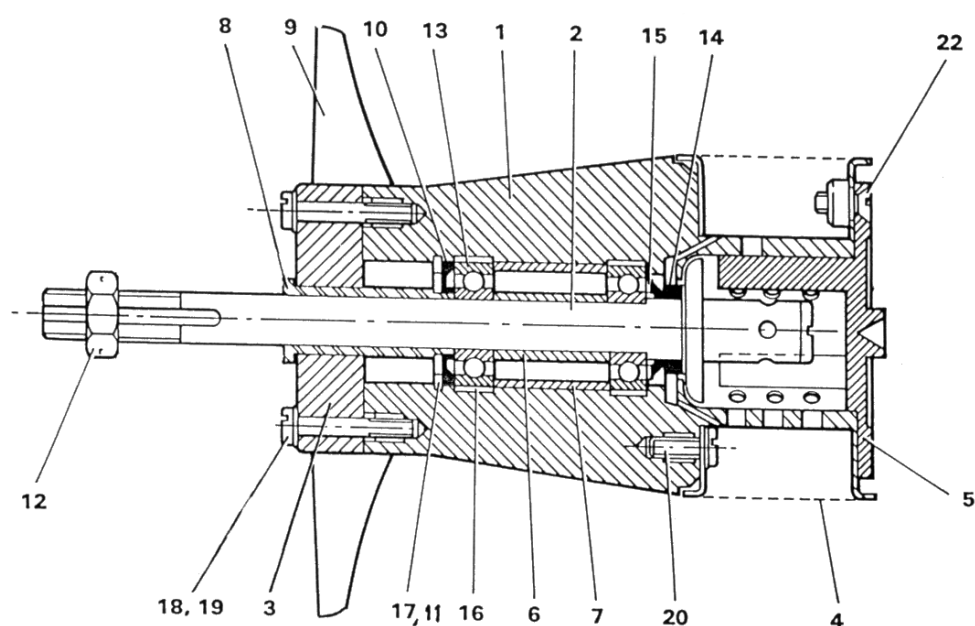
## 10.5 AU 8115M Spray Head Parts Diagram



## 10.6 AU 8115M Spray Head Parts List

Item	Part no.	Qty.	Description
1	EX4675	1	AU 8115 Atomiser
2	EX4676	1	Front Casing assembly
3	EX6540	1	Rear Casing assembly
4	EX4622	1	Support Ring
5	EX2275	1	Bush
6	EX2701	1	Washer
7	CBP1721	1	Nut
8	EX6539	1	Hosetail
9	EX2571	1	Olive
10	CBP1959	1	Hose Clamp
11	EX4679	1	Casing Sleeve
12	CBP1956	2	Screw
13	CBP1268	2	Washer

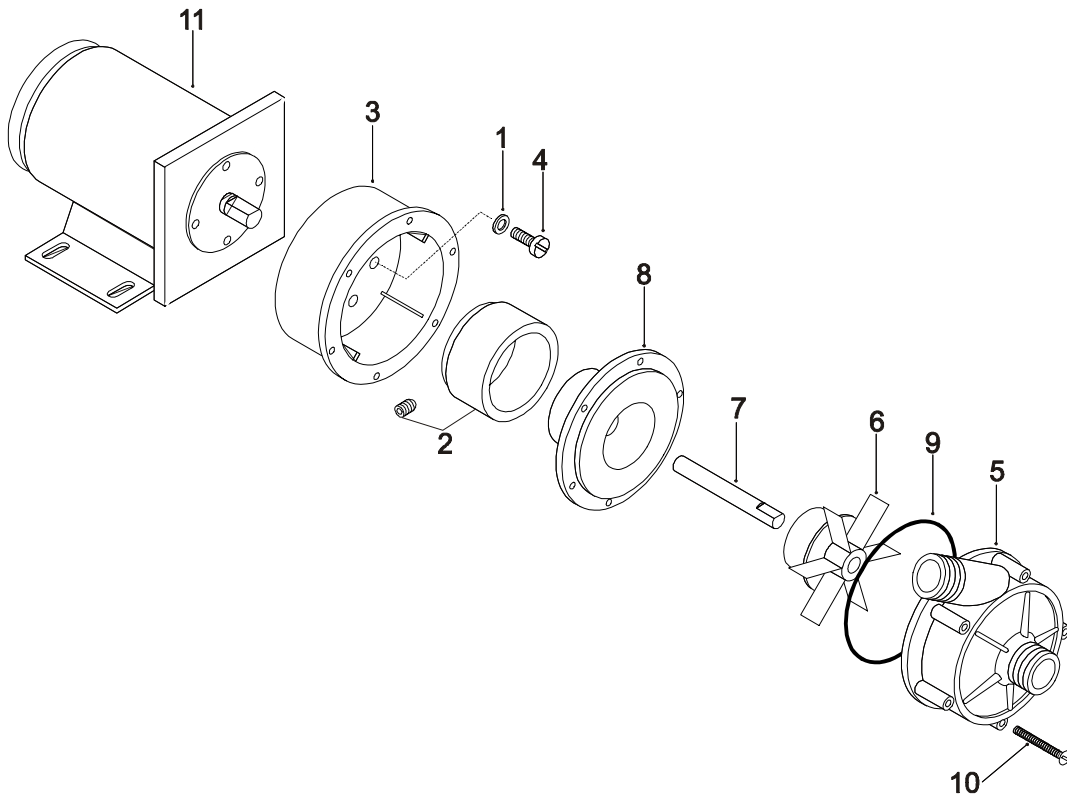
## 10.7 AU 8115 Atomiser Parts Diagram



## 10.8 AU 8115 Atomiser Parts List

Item	Part no.	Qty.	Description
1	EX3667	1	Hub and Drive Tube
2	EX3677	1	Spindle Assembly
3	EX3669	1	Clamp Ring
4	EX3676/20	1	Gauze Assembly
5	EX4641	1	Cap and Deflector
6	EX3685	1	Inner Spacer
7	EX3686	1	Outer Spacer
8	EX3670	1	Spacer Bush
9	EX4681	4	Blade
10	EX5044	1	Sealing Ring
11	EX5062	1	Wave Spring
12	EX2265	1	Nut
13	CBP776	2	Bearing
14	CBP777	1	V-Ring Seal
15	CBP774	1	Nilos Ring
16	CBP808	2	Tolerance Ring
17	CBP2107	1	Circlip
18	CBP1720	4	Screw
19	SP127C	4	Washer
20	EX2612	3	Screw
22	A206-C10	3	Screw

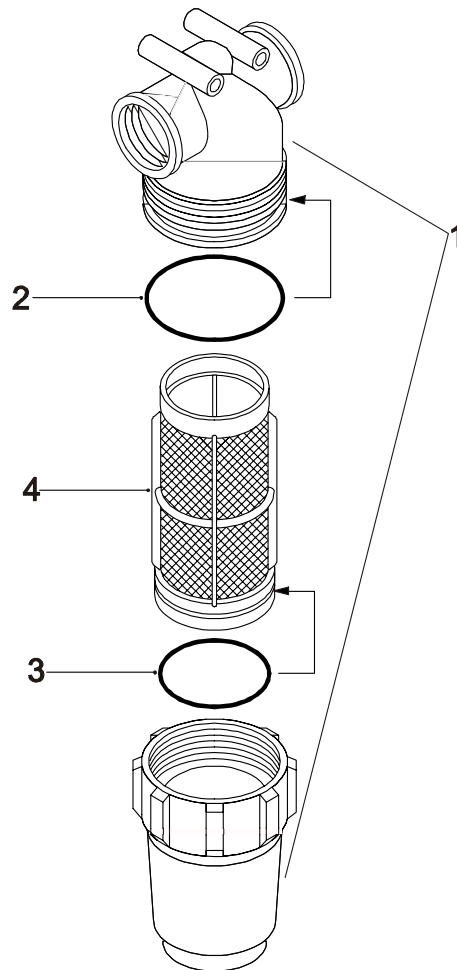
## 10.9 Pump (EX7008) Parts Diagram



## 10.10 Pump (EX7008) Parts List

Item	Part no.	Quantit y	Description
1	4220	4	Washer, 2.BA shakeproof
2	5766	1	Drive magnet complete with grub screw
3	5767	1	Pump motor bracket, PP, blue
4	5768	4	Screw, M5 x 12mm, ch/head
5	5770	1	Pump body, 1/2" BSP in/out, PP
6	5771	1	Impeller, 10 pole, 37 ozins, PP
7	5772	1	Shaft, Ceramic Hilox 961
8	5773	1	Spindle housing, PC blue, PP
9	5774	1	'O' ring, 200-148, viton, black
10	5775	6	Screw, No. 6 x 1.5", pozi, S/T
11	AJ6420	1	Motor, 12V DC dimpled

### 10.11 Filter (5881A) Parts Diagram



### 10.12 Filter (5881A) parts list

Item	Part no.	Quantity	Description
1	5881	1	Filter body, 1/2" BSP female, 50 mesh, pressure line
2	AJ6146	1	'O' ring, in-line filter, viton
3	5403	1	'O' ring, filter mesh, viton
4	LF5331	1	Filter, in line, 50 mesh

## 11. 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

Every care has been taken in the design of this equipment and the preparation of this Handbook. However, Micron Sprayers Limited cannot accept responsibility for errors or the consequences thereof. The user must satisfy himself that the equipment is suited to his needs, is performing according to his requirements and that all statutory requirements and codes of practice are being complied with.

Monday,