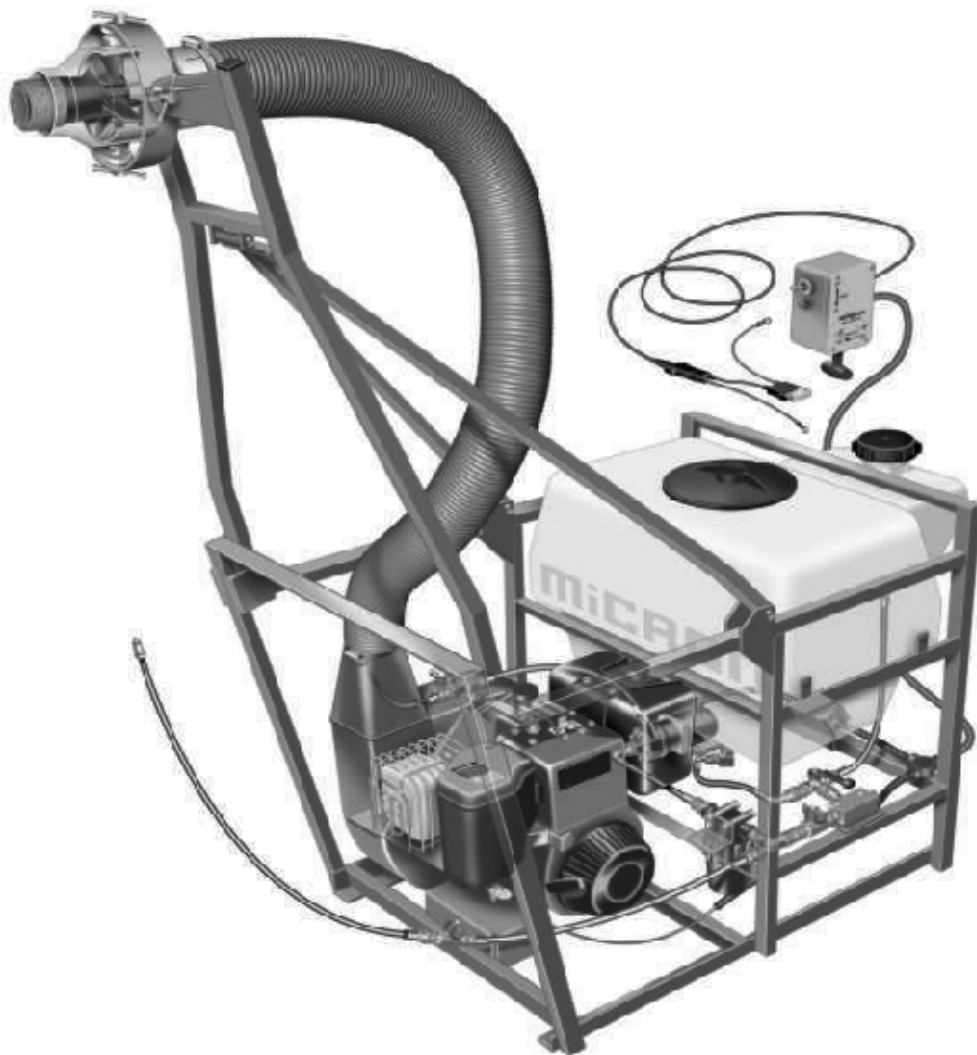




AU8115M & AU8115E

Air Assisted Vehicle Mounted ULV and LV Sprayers



Operator's Manual

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TABLE OF CONTENTS

1.	INTRODUCTION	1
2.	SPECIFICATION	2
3.	INSTALLATION	4
3.1	Installation on Vehicle	4
3.2	Preparation.....	4
4.	CONTROLS	5
4.1	Pump and Valves	5
4.2	Engine	6
4.2.1	Engine Controls	6
4.3	Engine Starting Procedure	7
5.	SAFETY	8
5.1	Using pesticides	8
5.2	Engine Safety	9
6.	CALIBRATION	10
6.1	Measure the Forward Speed of the Vehicle	10
6.2	Select a Suitable Track Spacing.....	10
6.3	Calculate the Required Flow Rate from the Atomiser.....	11
6.4	Set the Flow Rate	12
6.4.1	AU8115M Version	12
6.4.2	AU8115E Version	13
6.5	Select Droplet Size	14
6.6	Changing the Droplet Size.....	15
7.	SPRAYING PROCEDURE	15
7.1	After Use	16
7.2	Cleaning	16
7.3	Additional Applications	16
8.	MAINTENANCE	17
8.1	Engine	17
8.1.1	Oil	17
8.2	Fan	17
8.3	Pump	17
8.4	Atomiser	18
9.	FAULT FINDING.....	20
10.	PARTS	21
10.1	AU8115M & AU8115E Main Components.....	22
10.2	AU8115M & AU8115E Pipework Components.....	26
10.3	AU8115M & AU8115E Sprayhead Components	30
10.4	AU8115M & AU8115E Atomiser Components	31
10.5	AU8115M Pump (EX7008) Components.....	32
10.6	AU8115E Pump (EX6877) Components	33
10.7	Filter (5881A) Components	34
11.	CONVERSION FACTORS.....	35

1. INTRODUCTION

This Manual contains all information required to ensure successful application of products for agricultural, public health and pest control using the AU8115M and AU8115E vehicle mounted sprayers. 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.

AU8115 sprayers are designed for a wide range of agricultural, public health and pest control spray tasks. They 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 sprayers are designed around the proven Micronair AU8000 sprayhead. This uses a rotary atomiser to produce spray droplets of a precisely controlled size. Control of the droplet size minimises wastage of pesticide 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 AU8115 spray head can be operated over flow rates from 0.2 – 3.5 litres per minute for the AU8115M or 0.2 – 2.5 litres/minute for the AU8115E.

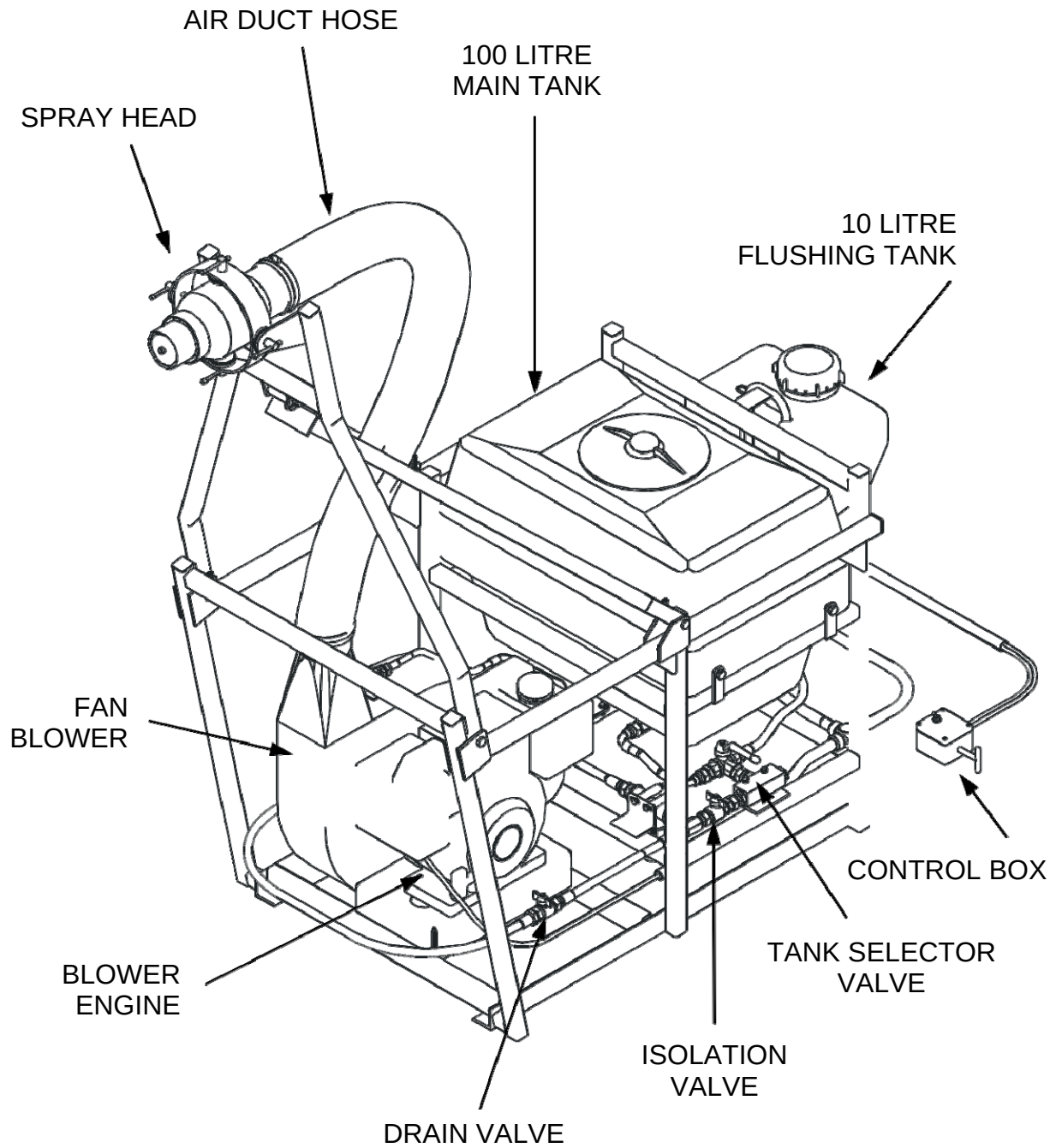
The spray head is driven by a high velocity air stream produced by the blower and powered by a reliable 4 stroke engine. The air stream from the spray head carries the spray droplets for a distance of up to 10 metres in still air and typically enables a swath of over 50 metres to be achieved when using 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.

The AU8115 sprayer is available in two versions: the AU8115M with Manual control of the pesticide flow rate by means of a hand operated restrictor valve or interchangeable orifice restrictor discs and the AU8115E with electronic control of the flow rate by means of a flow control adjustment on the control box in the vehicle cab. The cab-mounted control box of the AU8115M incorporates a manually operated engine throttle control and the AU8115E version has an electrically operated throttle.

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 Manual 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
Pesticide tank:	100 litres capacity; UV stabilised polyethylene
Flushing tank:	10 litres capacity; UV stabilised polyethylene
Pesticide flow rate:	0.2 – 3.5 litres/minute (AU8115M) 0.2 – 2.5 litres/minute (AU8115E)
Flow rate adjustment:	By manually adjustable restrictor valve or by interchangeable restrictor orifice discs (AU8115M) By electronic controller in cab-mounted control box (AU8115E)
Pump:	12 V magnetically coupled centrifugal pump (AU8115M) 12 V magnetically coupled positive displacement gear pump (AU8115M)
Spray droplet size:	Adjustable 40 – 100 microns VMD (depending upon formulation used and atomiser 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) 10 amps maximum (AU8115M) 5 amps maximum (AU8115E)

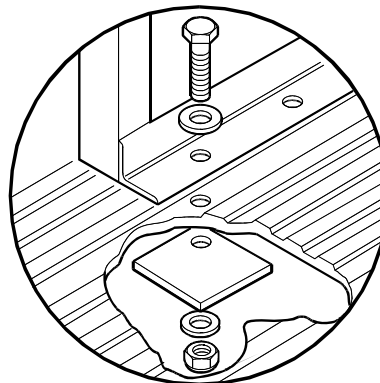


3. INSTALLATION

3.1. Installation on Vehicle

The AU8115 Sprayer can be installed on any vehicle with an open bed and 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 support frame is raised the atomiser projects behind the rear of the vehicle. When positioning the sprayer in the vehicle, ensure that there is easy access to engine controls, starter cord, control valves, filter etc.

The AU8115 should be rigidly secured to the vehicle using the nuts, bolts, washers and foot plates provided. The bolts should be fitted in four holes drilled in the bed of the vehicle in appropriate positions, taking care to avoid the vehicle fuel tank or other vulnerable items. Alternatively, for a temporary installation the sprayer can be tied down with ropes secured around the frame



3.2. Preparation

The AU8115 sprayer is shipped partially dismantled and must be assembled prior to use. The procedure for setting up a new sprayer is as follows:

1. Position the lower ends of the sprayhead support frame between the lugs at the rear of the sprayer frame and secure in position with the pins and R-clips provided.
2. Position the lower ends of the A-frame between the lugs at the rear of the sprayer frame and secure in position with the pins and R-clips provided.
3. Raise the support frame so that it protrudes over the rear of the sprayer.
4. Secure the support frame by lifting the A-frame and locking in place through the securing lug with the pin and R-clip provided.
5. 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.
6. Secure the air duct hose to the fan outlet using the hose clip provided.
7. Identify a convenient position for the control box in the cab of the vehicle and route the conduit containing the control cable from the sprayer and into the cab. This can be fed through a rear window or through a suitable hole. The AU8115M uses a mechanical throttle control cable and this should be kept as straight as possible as sharp bends will cause excessive friction in the cable. Plug the connector on the cable from the sprayer into the control box (AU8115E only)
8. Route the battery cable from the control box to the vehicle battery, ensuring that it is secured well clear of all moving or hot parts. Connect the red wire to the positive (+) terminal of the battery and the black wire to the negative (-) terminal.
9. 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

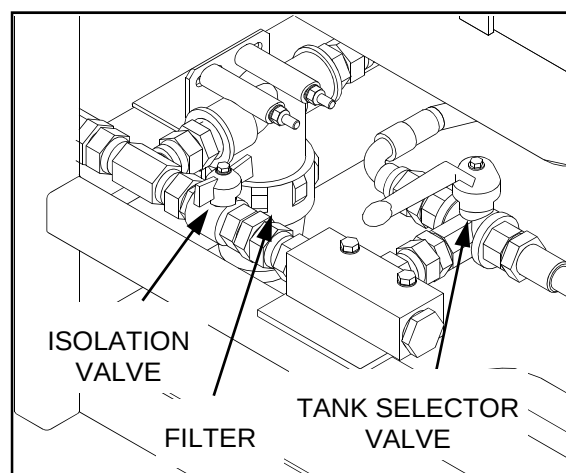
4. CONTROLS

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 Manual.

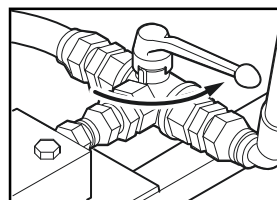
4.1. Pump and Valves

The AU8115 is fitted with an electrically driven magnetically coupled pump that is powered from the vehicle battery. The on/off switch for the pump is located on the control box located in the vehicle cab. The control box of the AU8115E version is also fitted with a 10 position switch to select the speed of the pump and hence the flow rate of pesticide from the sprayer.

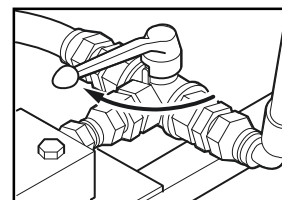
Three valves control the flow of pesticide. A master isolation valve shuts off all liquid flow; a three way tank selector valve determines whether the main (100 litre) tank or flushing (10 litre) tank is used and a drain valve allows the system to be drained after use.



To check that the pump is operating correctly place a small amount (5 – 10 litres) of kerosene or diesel oil in the 10 litre tank. Rotate the two-way valve towards the rear of the sprayer to select the 10 litre tank and ensure that the isolation valve near the filter is open.

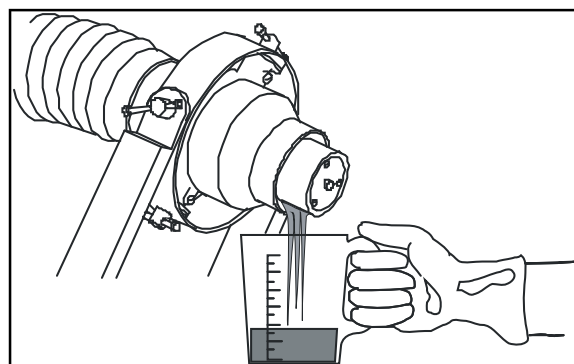


10 LITRE TANK OPEN



MAIN TANK OPEN

Angle the spray head downwards and place a container underneath the atomiser. Switch on the pump at the control box without the engine of the sprayer running. After a short time, liquid should start flowing from the atomiser. Flow rate to the head is controlled either by the adjustable valve or in-line orifice restrictor plates (AU8115M) or by the electronic flow control (AU8115E) – refer to the Calibration section. Check that there are no leaks from any tubing or connections.



4.2. Engine

The sprayer is fitted with a Briggs and Stratton 13 HP four stroke engine driving a blower that provides an air blast both to rotate the atomiser and to carry the spray droplets away from the sprayer and towards the target.

4.2.1. Engine Controls

1. Fuel On/Off Valve: Mounted below the starter handle. Must be opened before starting the engine and closed when the sprayer is not in use.
2. Engine Choke: Mounted on the front of the engine. The choke lever must be moved to the left when starting engine and returned to the full right-hand position during normal running.
3. Throttle Control: Remotely operated by the control box. DO NOT attempt to directly operate the throttle control on the engine.
4. Engine Ignition Switch: Rocker type mounted on the front of the engine; must be in the ON position to start. Set switch to OFF to stop the engine. Leave in the OFF position when the sprayer is not in use.
5. Starter pull handle. Mounted on the front face of the engine.



4.3. 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 on the control box in the cab to FULL (AU8115M) or the throttle switch to MAX (AU8115E).

5. Set 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. If the engine does 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. The engine incorporates an automatic low oil level cut-out and will not start if the oil level is low. The oil level must be checked if the engine does not start normally

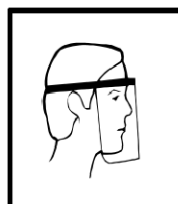
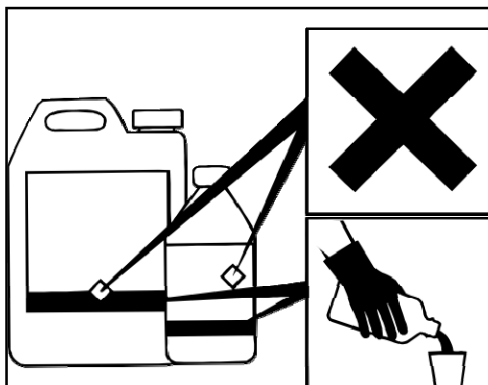
8. As soon as the engine starts, move the choke lever in the opposite direction to the arrow and then slowly move the throttle control lever to the IDLE position.



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.



5.2. Engine Safety

For full details of the safe operation and maintenance of the engine refer to the Briggs & Stratton Vanguard Engine Operator's Manual supplied with the sprayer.

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 of pesticide. The calibration procedure is as follows:

6.1. Measure the Forward Speed of the Vehicle

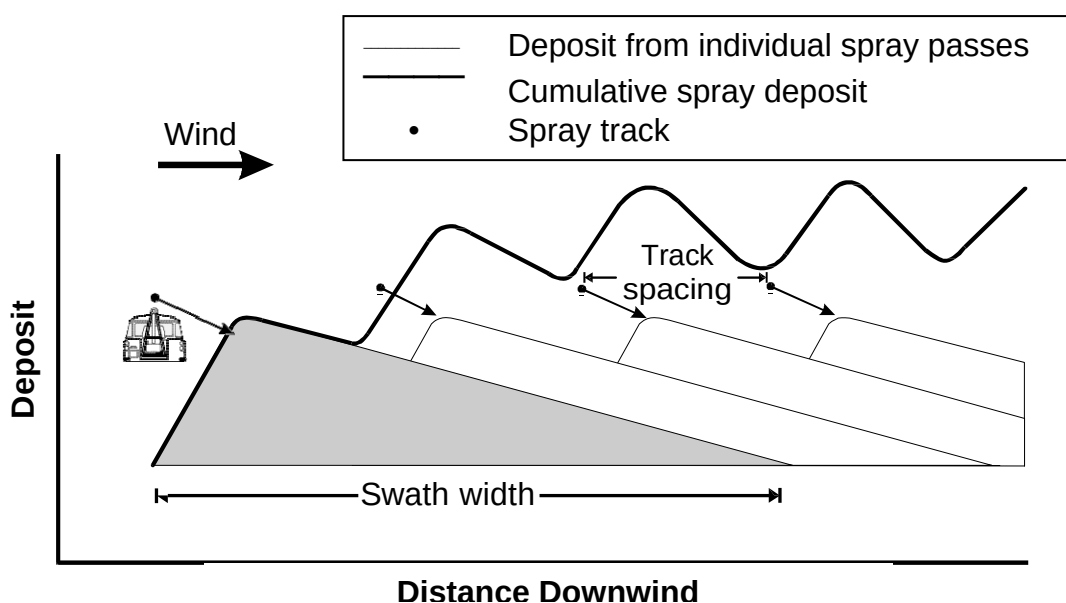
a) Select a gear which will give an appropriate speed for the terrain in the spray area and carry out a trial run over a measured distance of 100 metres. measure how long it takes, in seconds, to cover this distance (time = t seconds)

b) Calculate the forward speed using the formula: Speed (km/hr) = $360/t$

Example: time to cover 100 metres, $t = 36$ seconds, so speed = $360/36 = 10$ km/hr

6.2. 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 travel of the vehicle. Although the peak spray deposit is likely to occur at a point downwind of the vehicle 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 μm (VMD) in diameter in a steady wind (in excess of 7 km/hr or 2 m/s) a track spacing of 50 – 100 metres will be possible in open areas with sparse vegetation. A narrower track spacing will be necessary if larger droplet sizes are used or the sprayer is used in lighter winds. If necessary, the track spacing can be determined by measuring the width of the swath deposited under the prevailing operating conditions. As a guide, the track spacing should be less than about 50% of the measured swath to ensure sufficient overlap of successive swaths.

6.3. 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 manufacturer's 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 (km/hr)				
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 (km/hr)				
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. Set the Flow Rate

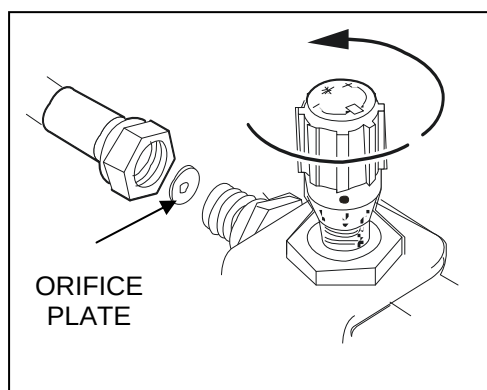
6.4.1. AU8115M Version

Flow rate from the AU8115M can be controlled either by the use of an adjustable restrictor valve or by interchangeable in-line orifice restrictor plates. The orifice restrictor plates should only be used when the sprayer will remain set to a constant flow rate for a long period. The adjustable restrictor valve should be used when frequent changes of flow rate are required as it eliminates the need to disconnect pipe fittings and the consequent risk of exposure to pesticide.

To set the flow rate:

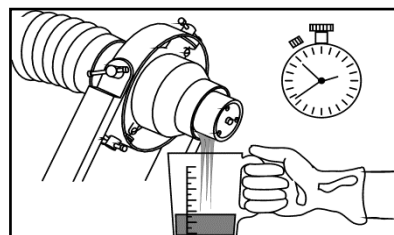
1. Park the vehicle facing into the wind with the spray head downwind so as to minimise operator contamination.
2. Ensure the drain valve is closed and the main tank valve open.
3. Put at least 10 litres of the actual pesticide to be used into the main tank.
4. Place a clean bucket directly underneath the atomiser to collect spray liquid. If using orifice restrictor plates, the restrictor valve MUST be set to the fully open position for both calibration and spraying.
5. Referring to the table below, either select the orifice restrictor plate that gives the flow rate closest to that required and fit it in the outlet of the flow regulator valve or adjust the setting of the restrictor valve to a position that gives the flow rate closest to that required. NB: the values given in the tables are for light oil. Actual flow rates will vary according to the pesticide used and its viscosity. The flow rate must always be measured with the actual product to be sprayed.

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



6. Ensure that the vehicle engine is running to charge the battery and to provide the correct voltage to the pump. Switch on the pump at the control box. NB: The blower engine MUST NOT be running. Liquid should begin to flow from the atomiser into the bucket. Wait until the flow has stabilised and all air bubbles have been purged from the pump and hoses.

7. Once liquid is flowing at a steady rate, hold the measuring jug (supplied with the sprayer) underneath the atomiser and collect the output over a measured period of time (typically one minute), using a stopwatch.



8. If the flow rate is too low or too high, fit a larger or smaller orifice plate or select a larger or smaller restrictor valve setting as appropriate and repeat steps 5 – 9. Actual flow rate will vary according to the pesticide used and its temperature, therefore calibration **MUST** be carried out using the actual product.
9. Return all the spray liquid collected in the bucket to the spray tank through the lid filter. **DO NOT** stand under the atomiser, even after the pump has been switched off as some residual dripping may occur.
10. Clean the bucket and measuring cylinder. Wash down any spillage on the tank and vehicle.
11. **ALWAYS** wash hands and face after handling pesticides.

NB: If using the flow control valve, it is important to ensure that there are no orifice plates fitted. The position of the flow control valve knob can be fixed by tightening the locking screw using the 2 mm hexagonal key provided in the tool kit.

6.4.2. AU8115E Version

The flow rate from the AU8115E sprayer is determined by the speed of a positive displacement gear pump and not by a flow restrictor. The speed of the pump (and hence the output of the sprayer) is adjusted by an electronic speed controller in the sprayer control box in the vehicle cab.

The pump speed control knob on the control box has ten settings. The flow rate corresponding to each setting is as shown in the table below.

To set the flow rate:

1. Prepare the sprayer as described in section 6.4.1 steps 1 – 3.
2. Referring to the table, select the setting number that gives the flow rate closest to that required. Set the pump control switch to the selected setting.
NB: the values given in the tables are for light oil. Actual flow rates may vary according to the pesticide used and its viscosity. The flow rate must always be measured with the actual product to be sprayed.
3. Check the output of the sprayer in a similar manner to that described in section 6.4.1 steps 5 – 9. If necessary, either adjust the vehicle speed or track spacing or select a higher or lower pump control setting to give an application rate as close as possible to the required value.

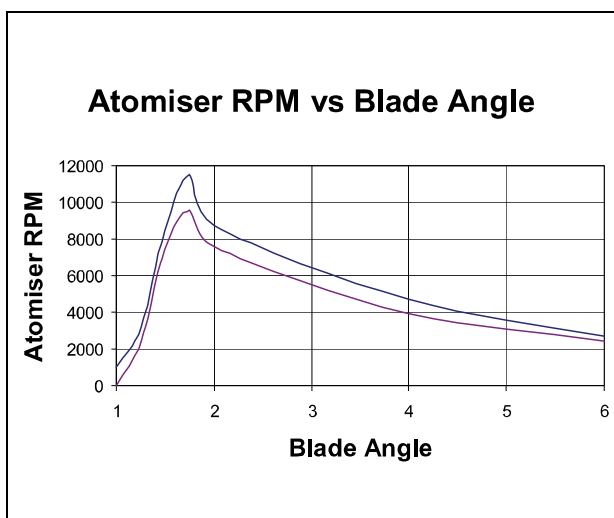
Flow control switch setting	Flow rate (ml/min) with oil
1	200
2	275
3	350
4	450
5	600
6	800
7	1100
8	1500
9	2000
10	2500

6.5. Select Droplet Size

The correct spray droplet size must be selected for the application. The factory settings for the AU8115 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 and decreasing the rotational speed will produce larger droplets. The droplet size is also influenced the properties of the spray mix.

Due to the loading effect of liquid flowing through the atomiser, the speed of rotation (and therefore droplet size) will be affected by the liquid flow rate. The relationship between atomiser blade angle setting, flow rate and atomiser rotational speed is given in the table and graph below.

Flow (l/min)	Atomiser speed (RPM)			
	Blade setting number			
	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

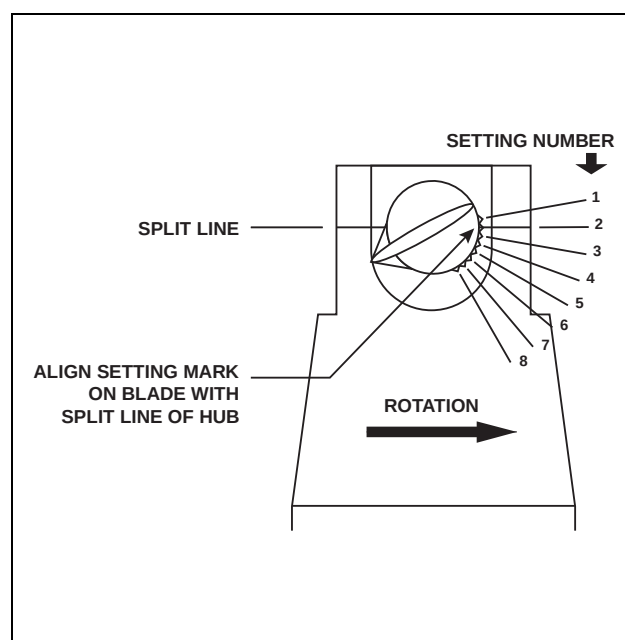


6.6. Changing the Droplet Size

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).

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 downwind direction. The spray head should be raised, lowered or moved sideways in its adjustable mounting as required.
2. 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 it should be angled downwards for a narrow swath closer to the vehicle (see section 6 Calibration).
3. When in the spray area, start the engine of the sprayer and then set the throttle to the IDLE position.
4. When ready to start spraying, first set the engine throttle control to FULL and then switch on the pump.

5. To stop spraying, first switch off the pump and then set the engine throttle control to IDLE.
6. At the end of the spraying operation allow the engine to idle for 1 minute before switching off the switch on the engine. 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 a similar solvent compatible with the pesticide used.

The system should be flushed through by selecting the 10 litre flushing tank position on the tank selector valve and operating the sprayer (with its engine running) for about 1 minute. This should be done at the spray site so as to avoid the risk of contamination of an off-target area by dilute pesticide. 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.

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

7.3. Additional Applications

The spray head may be de-mounted from the gimbal mounting ring and held by an operator to direct spray towards a specific target (eg into a ditch 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 a specific target (eg pests resting in trees etc).

8. MAINTENANCE

8.1. Engine

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

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

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 ⁰ C to 35°C	SAE 10W-30 (suitable for most applications)
+10 ⁰ C to 35°C	SAE 30

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

NB: The engine is fitted with an automatic low oil level cut-out. The engine will stop and cannot be re-started if the oil level is low.

8.2. Fan

The AU8115 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 four 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 pumps used on the AU8115M and AU8115E sprayers both incorporate a magnetic coupling between the motor and the pump. The pump on the AU8115M is a centrifugal type with a brass housing and the pump on the AU8115E is a positive

displacement gear type. . If debris should block the pump impeller or gears the pump will stall but the motor will continue to operate.

If necessary, the pump should be cleaned by disassembling the pump head as shown in section 10.5 or 10.6

IMPORTANT: The sprayer must be thoroughly cleaned and flushed out before working any part of the pump, pipework 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.

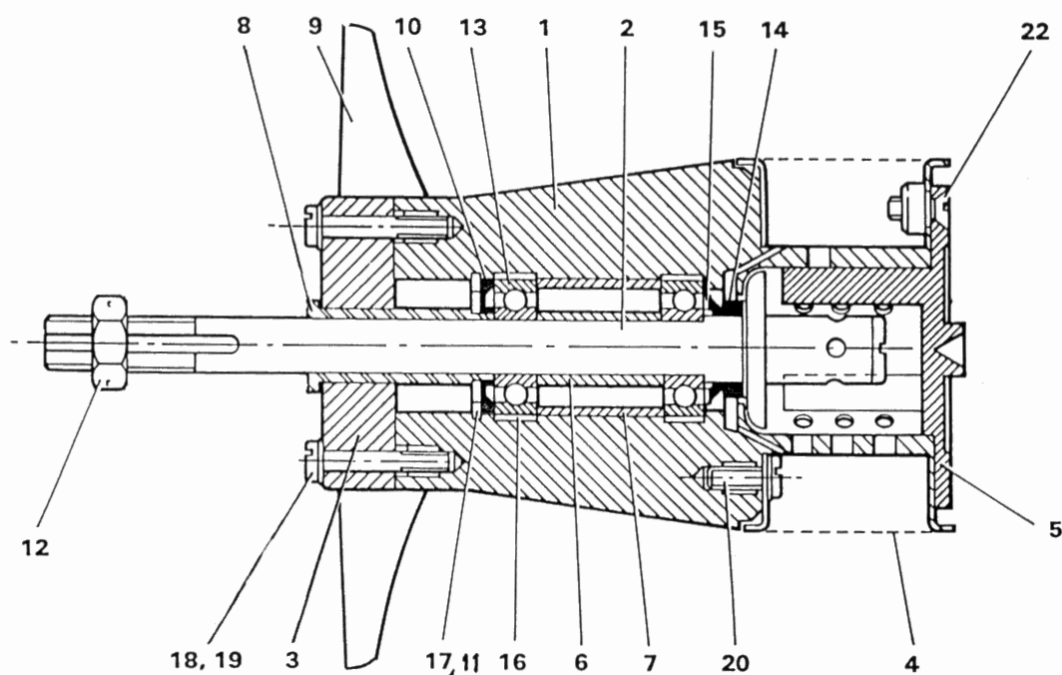
8.4. Atomiser

The atomiser is constructed from chemical resistant materials and its simple design and robust construction will ensure many years of trouble-free performance provided that it is not mistreated 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 only 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)	Free from dents or chemical contamination
Bearings (13)	Both in good condition. If one bearing is faulty, both should be replaced together
Tolerance rings (16)	Not cracked or deformed
Bearing spacers (6 and 7)	Not corroded or worn
V-Ring seal (14)	In good condition and not damaged or worn
Nilos ring (15)	Not worn or distorted

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. FAULT FINDING

Engine will not start	Fuel valve closed . Engine stop switch in OFF position Engine choke incorrectly adjusted Contaminated spark plug. Blocked fuel filter Engine oil level too low	Open valve Set to ON Adjust Clean and adjust. Clean or replace filter Top up oil
Unsteady engine speed	Contaminated fuel Partially blocked fuel filter Dirty or sticking governor linkage Carburettor contaminated or requires adjustment	Drain fuel tank and re-fill Clean or replace filter Clean (See engine maintenance handbook) Refer to qualified mechanic or local Briggs & Stratton service centre
No flow	Orifice restrictor plate blocked Blocked adjustable restrictor valve Blocked hose. Pump not working	Remove plate and clean Remove valve sleeve from body, clean and reassemble Dismantle if necessary and flush out with suitable solvent followed with clean water Check pump electrical connections and repair if necessary Check pump motor. Replace if necessary
Erratic chemical flow	Blocked bowl filter. Blocked variable restrictor valve	Remove and clean filter element Remove valve sleeve from body, clean and reassemble

10. PARTS

When ordering spare parts, please specify the following information:

1. Serial number of sprayer or engine
2. Approximate date of purchase
3. Description of part
4. Part number as shown in this section
5. Number of parts required

10.1. AU8115M & AU8115E Main Components

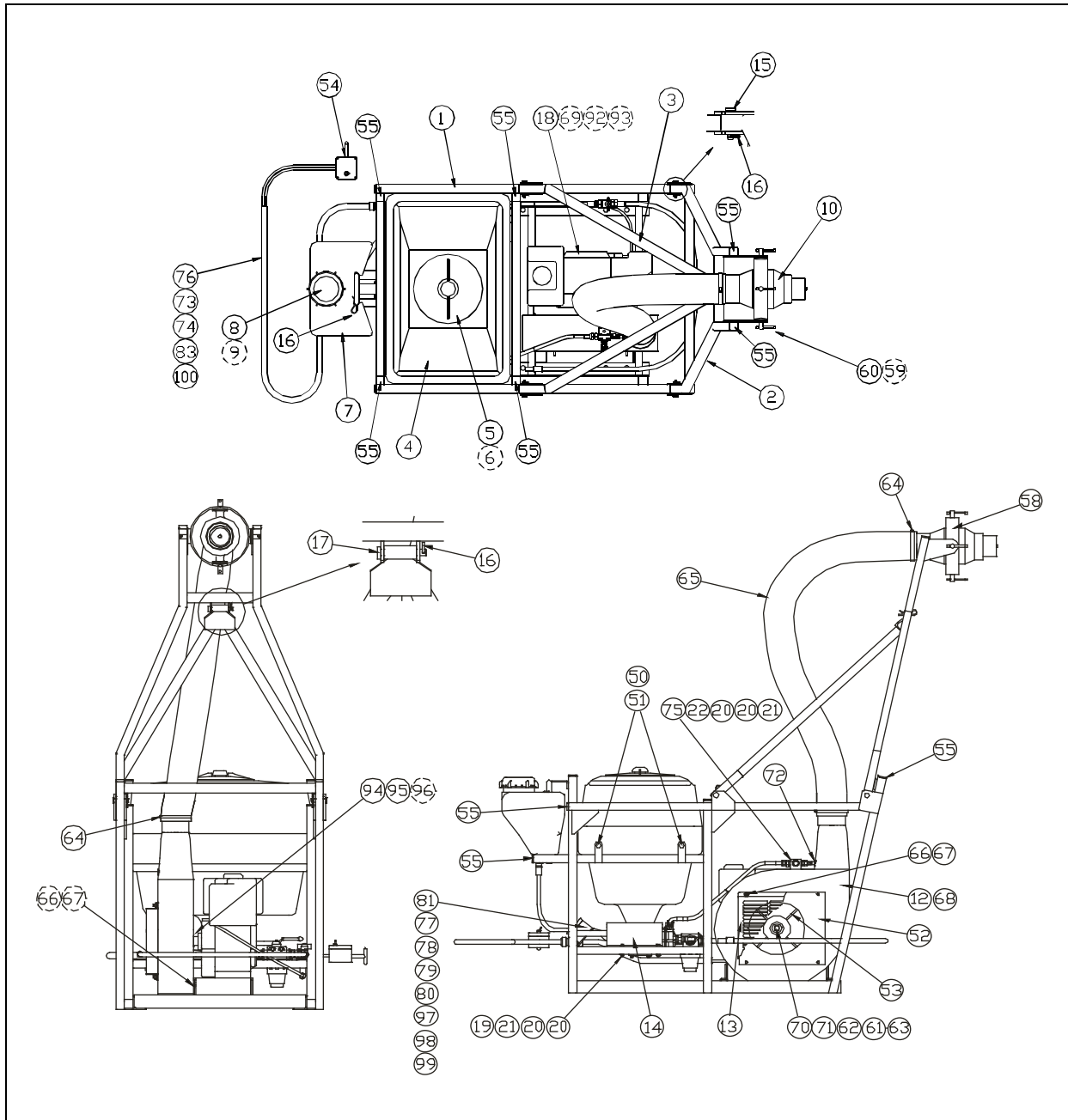
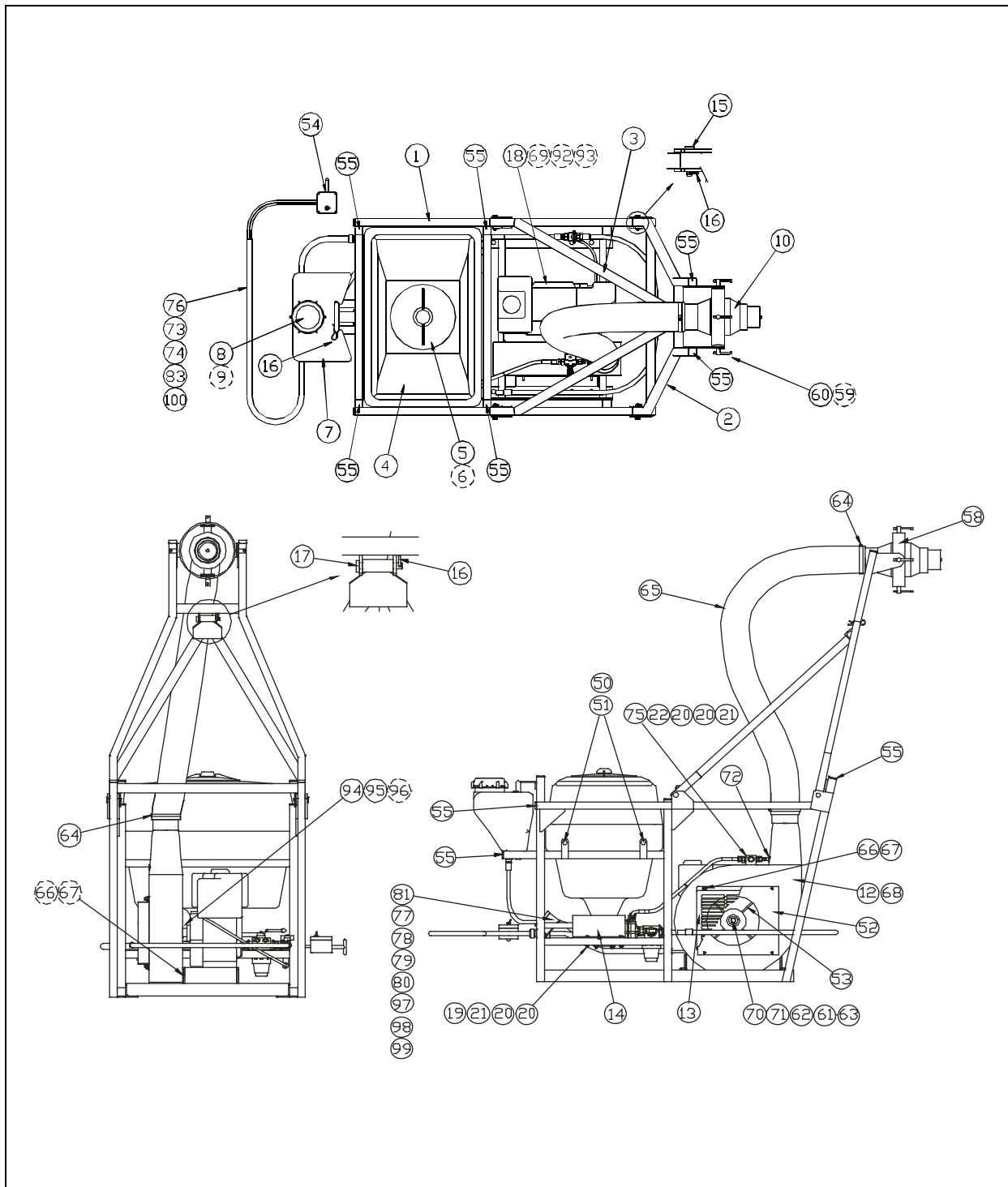


Figure 1 – AU8115M & AU8115E Main Components

AU8115M & AU8115E Main Components – Parts List

ITEM	PART No AU8115M	Part No AU8115E	DESCRIPTION	QTY
1	EX6723	EX6723	Main frame	1
2	EX6724	EX6724	Mast	1
3	EX6725	EX6725	Mast support	1
4	5823	5823	Tank, 100 litre	1
5	AJ6201A	AJ6201A	Tank lid with air vent	1
6	AJ6200	AJ6200	Filter basket	1
7	5955	5955	Tank, flushing, 10 litre	1
8	5208A	5208A	Cap assembly	1
9	5449	5449	Filter bowl	1
10	EX6550	EX6550	Atomiser assembly	1
12	EX6531	EX6531	Fan housing	1
13	EX6529	EX6529	Air intake guard	1
14	5922	5922	Pump cover	1
15	EX6730	EX6730	Pivot pin, 10mm dia.	4
16	5671	5671	'R' clip	6
17	EX6729	EX6729	Locking pin, 12mm dia.	1
18	CBP2785	CBP2785	Engine / fan base	1
19	6026	6026	Screw, M6x45	2
20	6017	6017	Washer, M6, flat	18
21	5984	5984	Nut, M6 nyloc	10
50	5967	5967	Screw, M10x20	4
51	5972	5972	Washer, M10, spring	4
52	EX6205	EX6205	Plate, air inlet	1
53	EX6203	EX6203	Impellor	1
54	EX6542	EX7228	Control box assembly	1
55	5914	5914	Tube end inserts	12
58	EX4617	EX4617	Gimbal assembly	1
59	EX4759	EX4759	Washer, fibre	4
60	EX4713	EX4713	Bolt, tommy	4
61	EX4682	EX4682	Spacer, engine	1
62	EX6528	EX6528	Locking plate	1
63	EX6443	EX6443	Key	1
64	CBP1959	CBP1959	Clip, jubilee, no.5	2
65	CBP1948	CBP1948	Hose, 4"	1.5m

AU8115M & AU8115E Main Components (continued)



AU8115M & AU8115E Main Components (continued)

AU8115M & AU8115E Main Components – Parts List (continued)

ITEM	PART No AU8115M	PART No AU8115E	DESCRIPTION	QTY
66	CBP1451	CBP1451	Washer, M8	15
67	CBP1909	CBP1909	Nut, M8 nyloc	13
68	CBP679	CBP679	Warning label	1
69	CBP1413	CBP1413	Bolt, M10 x 50	4
70	CBP2807	CBP2807	Bolt, 7/16" UNF x 1 1/2" hex hd	1
71	EX6835	EX6835	Washer, tab	1
72	CBP447	CBP447	Grommet	1
73	AJ6418	AJ6418	Cable tie	2
74	CBP2865	CBP2865	Cable gland, 20mm	2
75	EX6860		Bracket, needle valve & tie	1
76	AJ6187	AJ6187	Conduit, nylon	4m
77	4693	4693	Screw, 4BA x7/8"	2
78	3667	3667	Nut, 4BA nyloc	2
79	4756	4756	Washer, 4BA, flat	2
80	5942	5942	Terminal block, 16A	3
81	5895	5895	Enclosure	1
82	CBP1898	CBP1898	Bolt, M8 x 20	1
83	CBP2866	CBP2866	T-piece, conduit, nylon	1
92	CBP1416	CBP1416	Washer M10	8
93	CBP1908	CBP1908	Nut, M10, nyloc	4
94	EX6834	EX6834	Engine spacer	2
95	CBP2809	CBP2809	Washer, 7/16" UNC	2
96	CBP2808	CBP2808	Bolt, 7/16" UNC x 1 3/4"	2
97	CBP2715		Resistor, 0R22	1
98	CBP2716		Screw, M3	2
99	CBP2717		Nut, Stiff, M3	2
100	CBP1956	CBP1956	Screw, M5 x 16mm	1
101		EX7220	Electric throttle actuator	1
102		EX7225	Mounting bracket, actuator	1
103		CBP3160	Screw, M4 x 12 csk hd	4
104		CBP2608	Nut, M4 nyloc	4
105		CBP2609	Washer, M4	4
106		CBP2637	Bolt, M6 x 16 hex hd	2
107		CBP1866	Nut, M6 nyloc	2
108		CBP1955	Washer, M6	2
109		CBP3394	P- clip	1

10.2. AU8115M & AU8115E Pipework Components

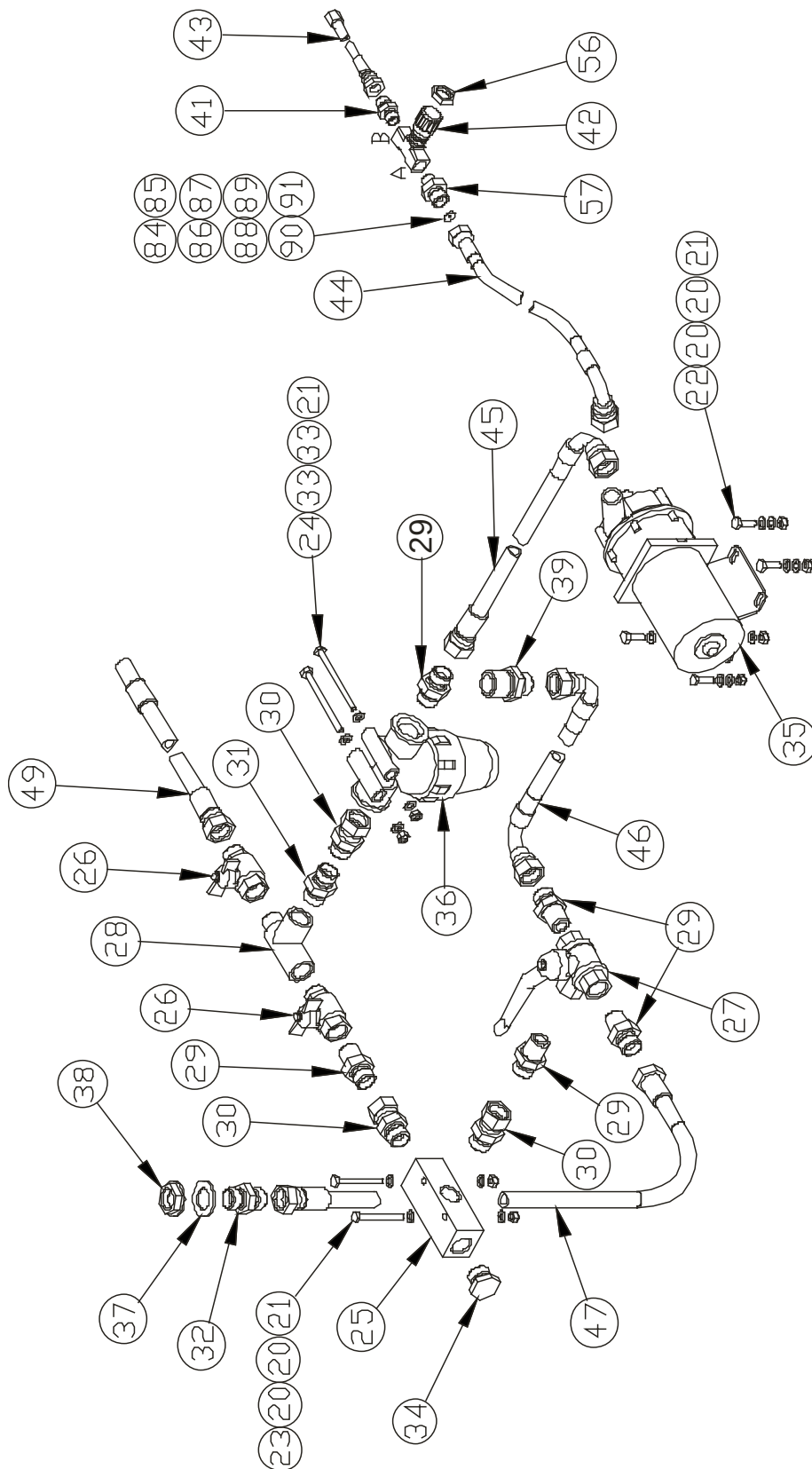
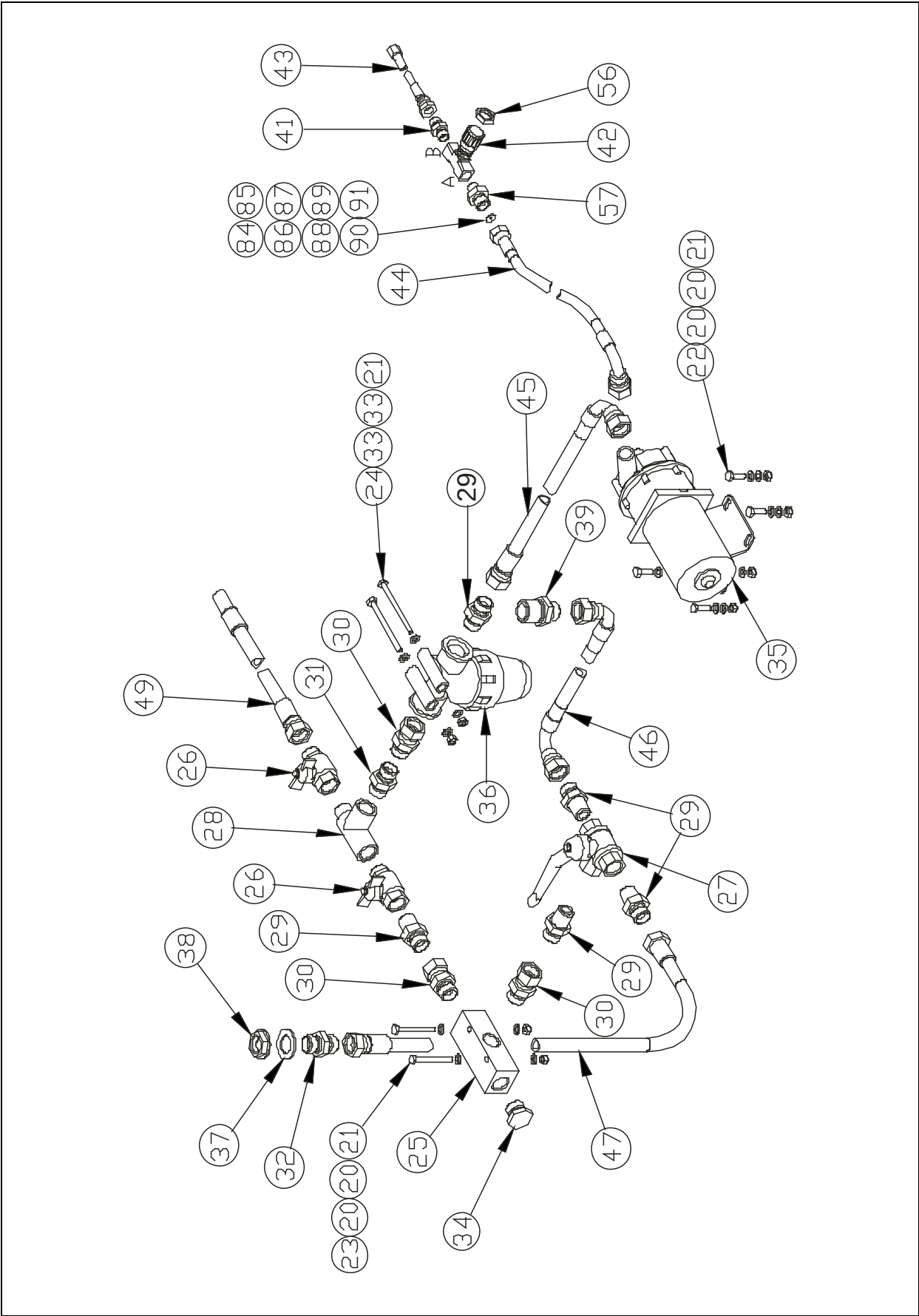


Figure 2 – AU8115M Pipework Components

AU8115M & AU8115E Pipework Components – Parts List

ITEM	PART No AU8115M	PART No AU8115E	DESCRIPTION	QTY
20	6017	6017	Washer, M6, flat	18
21	5984	5984	Nut, M6 nyloc	11
22	5983	5983	Screw, M6 x 20	4
23	5969	5969	Screw, M6 x 55	2
24	5968	5968	Screw, M6 x 80	2
25	5882	5882	Manifold	1
26	5900	5900	Valve, 2 port	2
27	5901	5901	Valve, 3 port	1
28	CBP2874	CBP2874	T-piece, 1/2" BSP (f/f), 1/2" BSPT (m)	1
29	CBP2893	CBP2893	Adaptor, 1/2" BSP m/m, p/t	5
30	CBP2895	CBP2895	Swivel Adaptor, 1/2" BSPT (m) - 1/2" BSPP (f)	3
31	CBP2873	CBP2873	Adaptor, 1/2" BSP m/m, p/p	1
32	CBP2892	CBP2892	Connector, bulkhead, 1/2" BSP	1
33	CBP1262	CBP1262	Washer, 1/4"	4
34	CBP2894	CBP2894	Plug, 1/2" BSP	1
35	EX7008		Pump, centrifugal, 12 V DC	1
35		EX6877	Pump, gear, 12 V DC	1
36	5881A	5881A	Filter c/w viton O-rings	1
37	6721	6721	O- ring, BS116, viton	1
38	6797	6797	Nut, 1/2" BSP flanged	1
39	CBP2903	CBP2903	Adaptor, 3/4" BSP - 1/2" BSP m/m	1



AU8115M & Au8115E Pipework Components (continued)

AU8115M & AU8115E Pipework Components – Parts List (cont'd)

ITEM	PART No AU8115M	PART No AU8115E	DESCRIPTION	QTY
41	CBP2896	CBP2896	Adaptor, 3/8"BSP - 1/4"BSP m/m	1
42	6002		Valve, needle	1
43	EX6911	EX6911	Hose, valve to sprayhead	1
44	EX6910		Hose, pump to valve	1
44		EX7243	Hose, pump to sprayhead	
45	EX6909	EX7241	Hose, filter to pump	1
46	EX6907	EX6907	Hose, tank to 3 Wway valve	1
47	EX6908	EX6908	Hose, flushing tank to 3 way valve	1
49	EX6900	EX6900	Hose, drain	1
56	6003		Nut, M17	1
57	AJ6379		Body, LFM 1/4" BSP, brass	1
84	AJ6337		Orifice restrictor plate, No 24	1
85	AJ6338		Orifice restrictor plate, No 30	1
86	AJ6339		Orifice restrictor plate, No 39	1
87	AJ6340		Orifice restrictor plate, No 49	1
88	AJ6341		Orifice restrictor plate, No 59	1
89	AJ6342		Orifice restrictor plate, No 68	1
90	AJ6343		Orifice restrictor plate, No 80	1
91	AJ6344		Orifice restrictor plate, No 98	1
92		CBP3045	Adaptor, 1/4" BSP - 1/4" NPT m/m	1

10.3. AU8115M & AU8115E Sprayhead Components

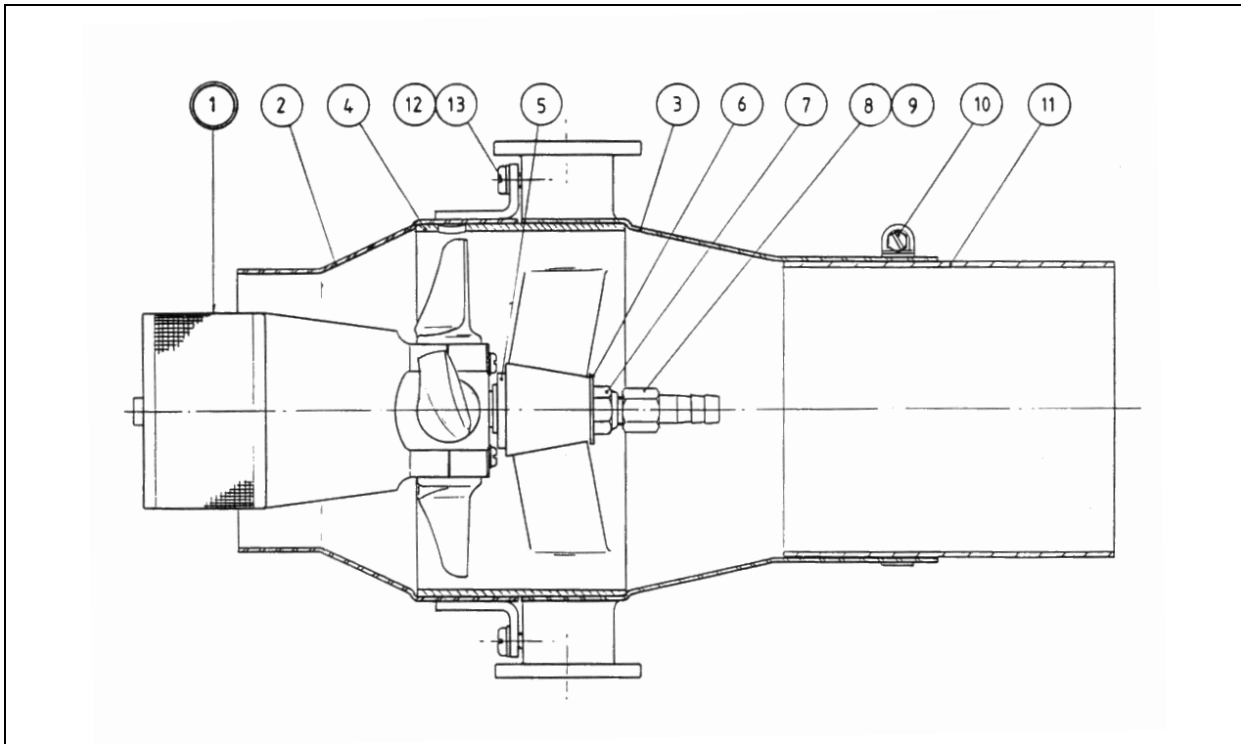


Figure 3 – AU8115M & AU8115E Sprayhead Components

AU8115M Sprayhead Components – Parts List

ITEM	PART No	DESCRIPTION	QTY
1	EX4675	AU8115 atomiser	1
2	EX4676	Front casing assembly	1
3	EX6540	Rear casing assembly	1
4	EX4622	Support ring	1
5	EX2275	Bush	1
6	EX2701	Washer	1
7	CBP1721	Nut	1
8	EX6539	Hosetail	1
9	EX2571	Olive	1
10	CBP1959	Hose clamp	1
11	EX4679	Casing sleeve	1
12	CBP1956	Screw	2
13	CBP1268	Washer	2

10.4. AU8115M & AU8115E Atomiser Components

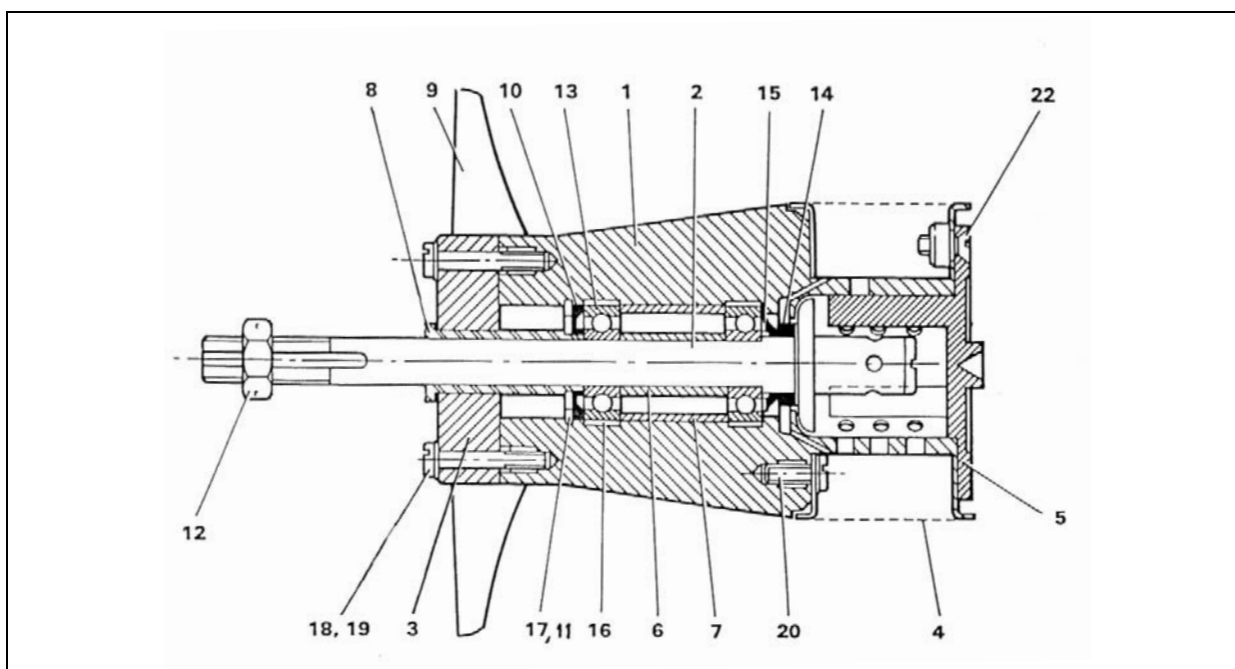


Figure 4 – AU8115M & AU8115E Atomiser Components

AU8115M Atomiser Components – Parts List

ITEM	PART No	DESCRIPTION	QTY
1	EX3667	Hub and drive tube	1
2	EX3677	Spindle assembly	1
3	EX3669	Clamp ring	1
4	EX3676/20	Gauze assembly	1
5	EX4641	Cap and deflector	1
6	EX3685	Inner spacer	1
7	EX3686	Outer spacer	1
8	EX3670	Spacer bush	1
9	EX4681	Blade	4
10	EX5044	Sealing ring	1
11	EX5062	Wave spring	1
12	EX2265	Nut	1
13	CBP776	Bearing	2
14	CBP777	V-ring seal	1
15	CBP774	Nilos ring	1
16	CBP808	Tolerance ring	2
17	CBP2107	Circlip	1
18	CBP1720	Screw	4
19	SP127C	Washer	4
20	EX2612	Screw	3
22	A206-C10	Screw	3

10.5. AU8115M Pump (EX7008) Components

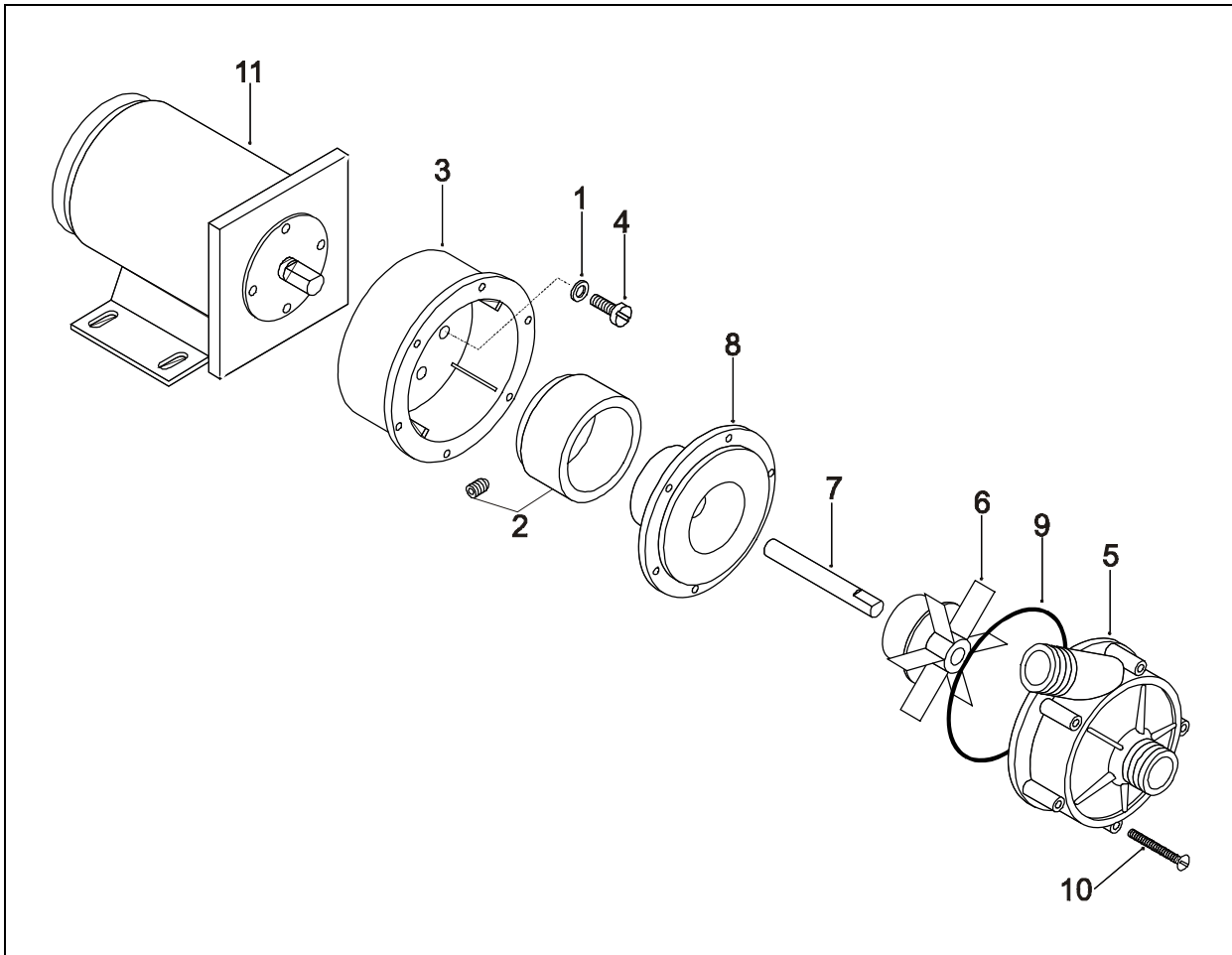


Figure 5 – AU8115M Pump (EX7008) Components

Pump (EX7008) Components – Parts List

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

10.6. AU8115E Pump (EX6877) Components

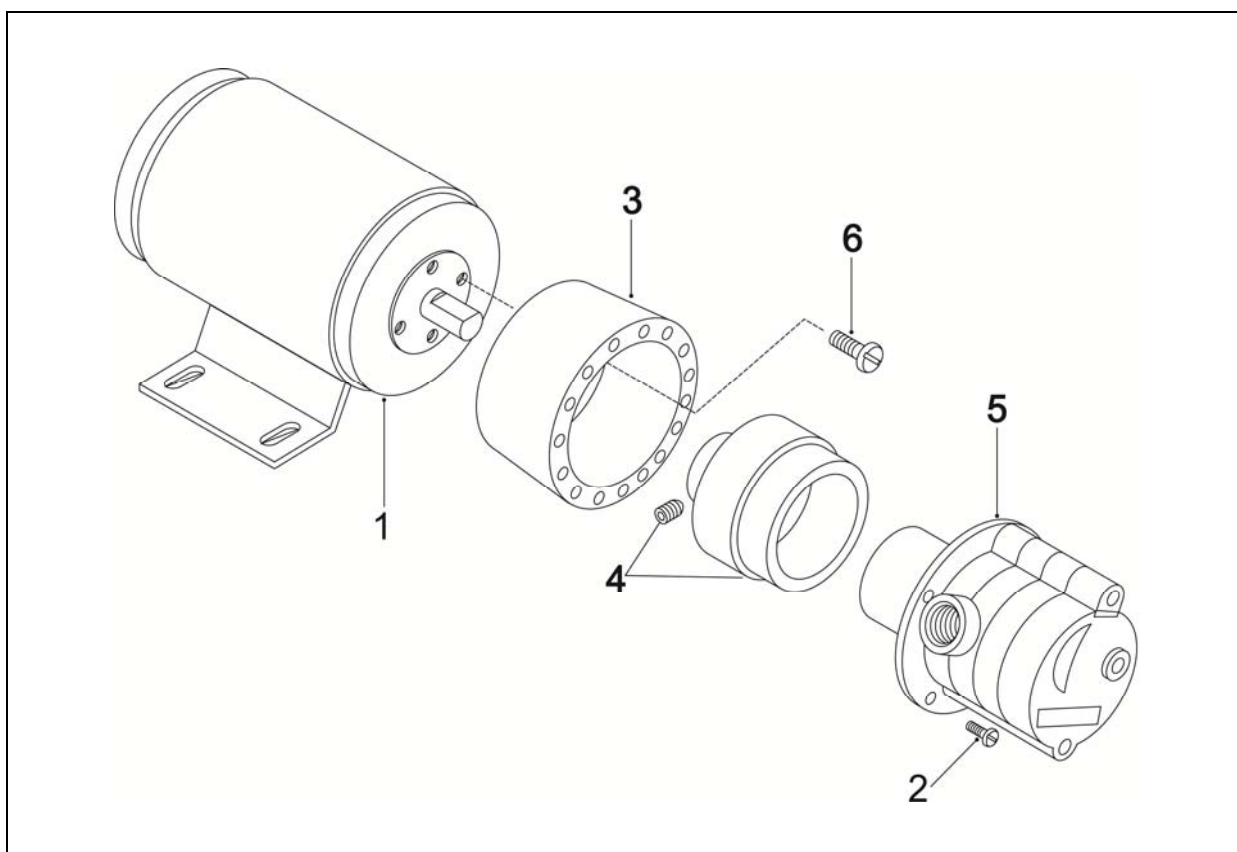


Figure 6 – AU8115E Pump (EX6877) Components

AU8115E Pump (EX6877) Components – Parts List

ITEM	PART No	DESCRIPTION	QTY
1	5866	Motor, 12 V DC	1
2	5990	Screw, No 4 UNC x 3/8", slotted, stainless steel	4
3	5986	Adaptor, pump to motor	1
4	5987	Drive, magnetic, c/w grub screw	1
5	CBP3392	Pump head, gear, stainless steel	1
6	5986	Screw, No 8 UNC x 1/2", stainless steel	4
	CBP3393	Service pack for pump head only	1

10.7. Filter (5881A) Components

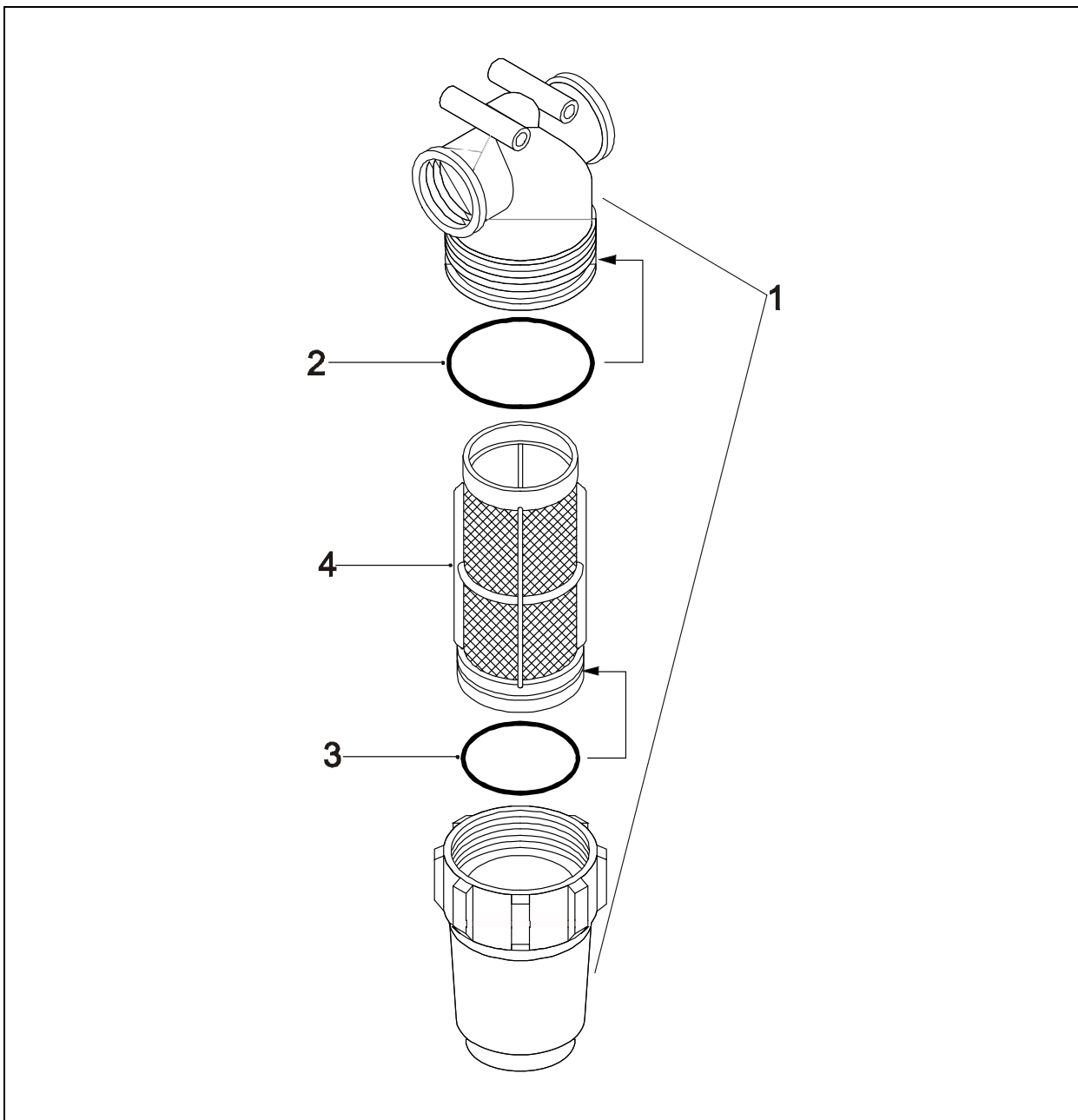


Figure 7 – Filter (5881A) Components

Filter (5881A) Components – Parts List

ITEM	PART No	DESCRIPTION	QTY
1	5881	Filter body, 1/2" BSP female, 50 mesh, pressure line	1
2	AJ6146	O-ring, in-line filter, viton	1
3	5403	O-ring, filter mesh, viton	2
4	LF5331	Filter, in line, 50 mesh	1

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
1 kilopascal	=	0.01 bar	=	0.145 pounds/sq in

Notes

Micron Group is the registered trademark of; Micron Sprayers Limited, Bromyard, Herefordshire, United Kingdom. All other trademarks used in this Manual are the property of their respective owners.

Every care has been taken in the design of this equipment and the preparation of this Manual. However, Micron Sprayers Limited cannot accept responsibility for errors or the consequences thereof.

The users 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 Manual are provided for guidance only. Users should always refer to the product label when using pesticides for specific conditions of use.