ENVIROMIST
INDUSTRIES PTY. LTD.

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PRODUCTS


Spraydome 15/24 3 point linkage with 200 litre tank


Undavina XT 900 with slip on cover fitted


Spraydome 15/24 Towed


Undavina XT 600


Spraymiser 2000 with wings folded for transport and storage


Spraymiser 2000


Spraydome 3049 with 200L tank & Spraydome 1200 extension domes

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PRODUCTS


Enviromist Hedger Kit


80 Litre low profile tank and pump complete with flushing system


Spraymiser HiFlo 2400


Undavina HiFlo 400
Insert: Nozzle assembly under HiFlo shroud


Spraydome 1000 operating in citrus


300 litre trailer tank


Vegedome fitted to 3 point linkage tank cradle


Spraydome XT 1200

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ENVIROMIST INDUSTRIES BACKGROUND

Based in Berri, South Australia, Enviromist Industries is committed to the on-going development of safer, more reliable, cost effective and accurate spraying technology.

Enviromist's development of new spraying technology is based on objectives to lower the volume and cost of chemicals used, to lower the capital cost of equipment used, lower operating costs and to extend the application season allowing operators to spray during conditions which could otherwise be prohibitive.

The original concept of "covered spraying" for orchards and vineyards was initiated at South Australia's Loxton Research Centre during the early 1980's.

Enviromist Industries began in 1989 manufacturing a shrouded sprayer called the Spraymiser® - a light, robust, trailed sprayer for applying herbicide between rows in orchards and vineyards. The unique design of the Spraymiser® incorporated a variable speed Controlled Droplet Applicator (CDA) covered by a dome to prevent drift. The Spraymiser® won "The Land" Machine of the Year title and New Implement Award of Merit at the 1990 Australian National Field Days.

In 1992 Enviromist released the Undavina® - a circular, covered, vehicle mounted CDA sprayer designed for use in vineyards and orchards. The Undavina® won The Innovative Horticultural Award and New Implement Award of Merit at the 1992 Australian National Field Days.

The vehicle mounted Spraydome® 1000, released in 1993, is specifically designed for under vine or tree applications where the trunk or stem of the young plant has to be protected from herbicide contact. The Spraydome® 1000 won "The Land" Machine of the Year title and New Implement Award of Merit at the 1993 Australian National Field Days.

Based on the earlier success of the Spraymiser®, subsequent generations of centre-row sprayers have been refined. The more compact and manoeuvrable Spraydome® 2000 was developed during 1996, followed by adjustable width versions early in 2000. These popular new designs have now superseded the original Spraymiser® design and are available in both towed and 3-point linkage configurations. A new generation of efficient, light, low cost Spraymiser® centre row sprayers have now been developed.

The popularity and success of Enviromist systems is confirmed by over 15,000 customers world wide who have purchased sprayers over the years. Usage extends to vineyard, farms, orchards, plantations, golf courses, councils, parks, gardens, woods and forest groups and many others.

Enviromist has a national dealer network and a rapidly growing international market for its products. Enviromist Industries currently exports to France, Spain, USA, Canada, United Kingdom, New Zealand, Middle East, Argentina, Peru, South Africa and Chile. As a consequence of our on-going commitment to our expanding export markets, the company won a South Australian Export Award in 1997 and in 2000, an Australia Post Australia Day Award and a gold medal at Dionysud in France.

Common advantages of Enviromist's technology reported by users include trouble free operation, significant savings in chemical, water, fuel, labour, capital cost of equipment, reduced soil compaction, more timely operations by being able to spray even when conventional sprayers cannot be used because of unfavourable weather conditions.

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WARRANTY POLICY

The Vendor warrants (except as hereby provided) to the retail purchaser, or the hirer or lessee ("the purchaser") the unit supplied by the Vendor to be free, under normal use and service, from defects in material, and/or workmanship.

The Warranty Period for all "Enviromist" equipment is as follows:
Twelve (12) months for normal agricultural use, government, municipal organizations, industrial and agricultural contractors.

Warranty or Enviromist equipment is only effective if the Warranty Registration Certificate supplied with each unit is completed and returned to the address on the warranty card within seven (7) days of purchase.

In the case of components not of Enviromist manufacture, purchasers are entitled only to such benefits as they may receive under any guarantee given to them in respect hereto.

In the event of a defect occurring, Enviromist will replace or repair free of charge, any part or parts found upon examination at the factory to be defective in material and/or workmanship.

All freight on parts submitted for replacement by Enviromist Industries or the distributor under this warranty shall be prepaid by the purchaser.

The warranty service must be performed by an authorised Enviromist Industries distributor.

Warranty service will be performed without charge to the purchaser for parts and labour.

The purchaser will be responsible for any call and/or transportation of equipment to and from the distributor's place of business, for any premium charged overtime labour requested by the purchaser, and for any service, maintenance or item not directly related to the defective covered under the warranty.

All items presented for repair must be clean and free from chemicals.

Delay in effecting repairs or supplying replacement parts will not extend the warranty period or entitle the Purchaser to any compensation.

"Enviromist" may at any time alter the specifications or design of parts, and the Vendor reserves the right to supply replacement parts to the new specification or design.

A unit presented for Warranty repair is accepted on the condition that while it is in the Vendor's or Factory possession, neither shall be responsible for loss or damage to the unit and accessories.

The Vendor shall be released from obligation under this warranty if the equipment has been:

1. Used with implements or attachments other than those recommended by Enviromist Industries.
2. Used for any purpose other than for which it is/was designed.
3. Neglected, misused, or regular maintenance has not been carried out.
4. Modified or altered in any way.
5. Damaged as a result of opening the package after it was known or might reasonably have been expected to be known by the Purchaser that internal damage to the contents had occurred.

This warranty is given by the Vendor and is expressly in lieu of and excludes all other warranties, conditions, representations and terms, expressed or implied, statutory or otherwise except that any implied by law cannot be excluded.

The Vendor shall not be liable for any consequential loss, damage or injury including any loss of use, profit or contracts.

ALL UNITS carry SERIAL NUMBERS and these MUST BE quoted when claims are made for warranty.

PRINCIPLES OF CDA TECHNOLOGY

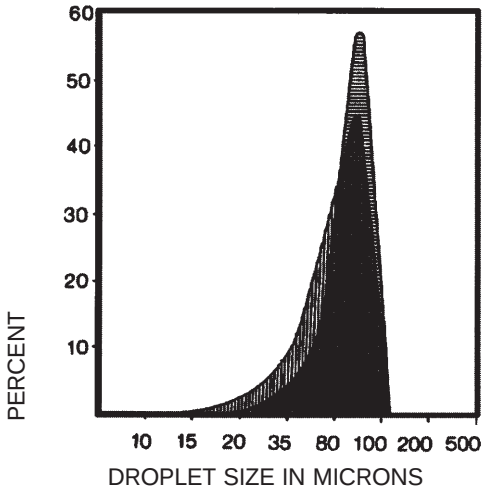
The aim of CDA (Controlled Droplet Applicator) technology is to produce all chemical solution in a uniform droplet size that can be defined as 'optimum' for the target.

Unlike hydraulic nozzles which force liquid under pressure through a small orifice to create unstable sheets of liquid which break up into a defined range of droplet sizes, the CDA technology is capable of producing very uniform droplet sizes.

The CDA uses a rotary disc instead of liquid under pressure to produce droplets.

Liquid enters at the centre of a spinning disc and propelled outwards to teeth on the outer edge of the disc. The liquid is dispersed into droplets through the teeth on the disc by centrifugal force.

The droplet pattern normally formed is a hollow cone pattern, and is very uniform droplet size which minimises driftable fines. A typical example of the narrow CDA droplet spectrum is shown below.



FLOW RATES AND DISC SPEEDS

CDA technology has the advantage that by altering the rotational speed of the disc and/or feed rate of liquid, the narrow spectrum of droplet size can be altered to suit differing applications.

To produce the narrow spectrum of droplets desired it is necessary to understand the relationship between liquid flow rates and disc speeds.

1. At low flow rates, large single drops are produced. See illustration below.

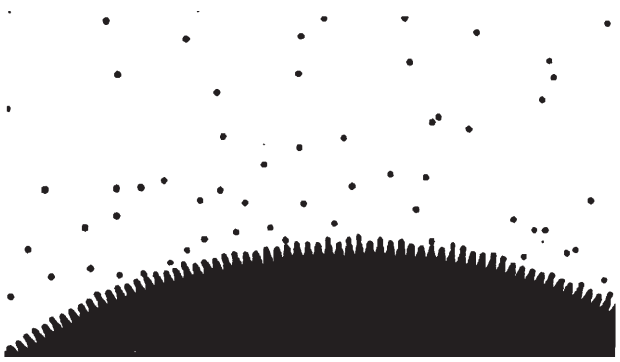


Figure 1. Single Droplet Atomisation

2. As flow rate increases, single and ligamental atomisation occurs. The ligaments thin down the point of emission and produce smaller droplets. *See illustration below.*

Figure 2. Single and Ligamental Droplet Atomisation.

PRINCIPLES OF CDA TECHNOLOGY *cont.*

3. As the liquid feed rate increases, all drops are formed from ligamental atomisation. This produces the optimum consistency of smaller droplets. See illustration below.

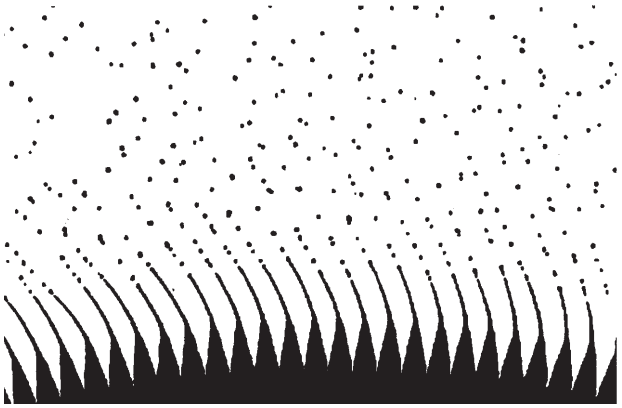


Figure 3. Ligamental Droplet Atomisation

For a tight control of drop size, the liquid feed rate and disc speed should be adjusted to produce single droplets or droplets wholly formed from ligaments.

A common fault of overfeeding a disc not only produces massive wasteful drops, but also produces tiny satellite drops which can drift long distances.

Figure 4. Flooding

4. Further increasing the liquid flow rate will flood the disc and teeth causing sheeting and inconsistent droplet size. An uncontrollable large spectrum of droplets result from flooding a disc. See previous illustration.

Examples: Figures 5 & 6 show typical spray test card samples from Enviromist Undavina and Spraydome models.

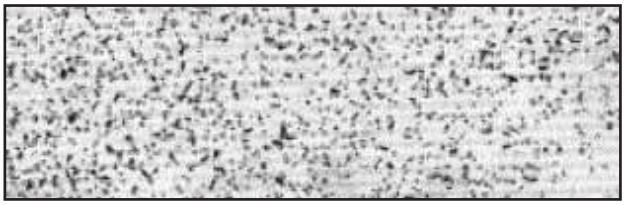


Figure 5. Flow rate 15 litres (4 US Gal) per hour travelling at 7 kph (4mph)

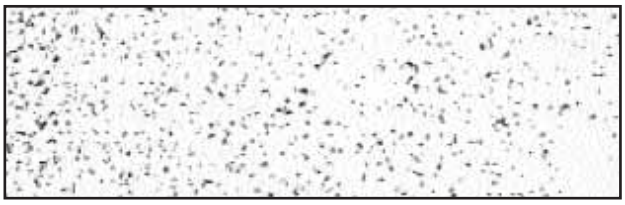


Figure 6. Flow rate 15 litres (4 US Gal) per hour travelling at 10 kph (6mph)

Note: It is important to use the recommended feed nozzles and power supply. Indiscriminate use of feed nozzles and power supply can cause unsatisfactory and damaging results. Always confer with your supplier or manufacturer before altering feed rates and disc speeds.

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ENVIROMIST CDA SPRAYING TECHNOLOGY

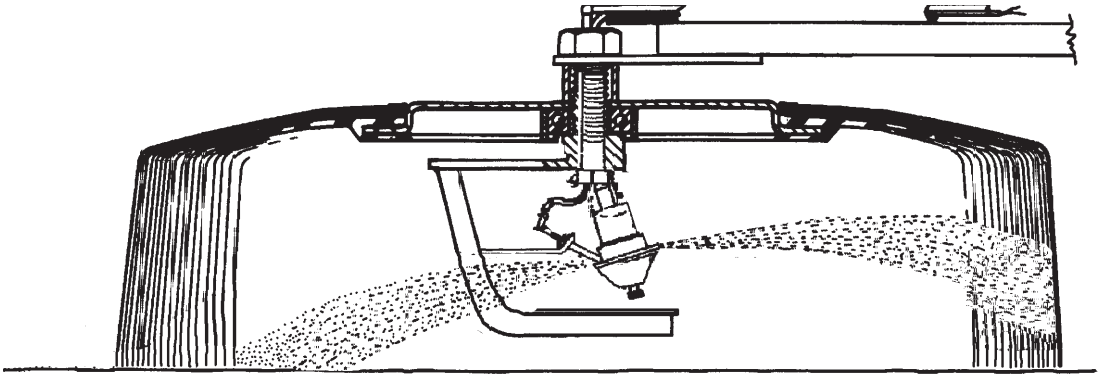
The patented technology used by Enviromist Industries utilises the efficiency and economy of Controlled Droplet Applicators (CDA) while containing the droplet cloud within a confined area using a dome or cover.

The CDA spray system uses a spinning disc rotary atomiser to give optimum size, evenly distributed spray droplets for maximum spraying efficiency. This allows ultra low spray volumes to be used which minimises chemical wastage, environmental contamination and operating down time.

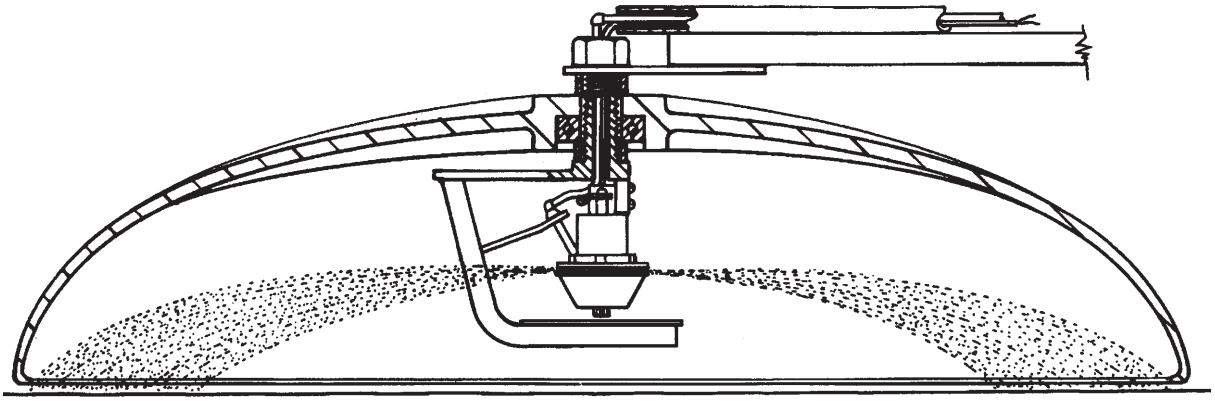
The use of the shroud or shield minimises drift, increases the effectiveness of the CDA, and enables use in otherwise unacceptable wind, air temperature inversion or thermal updraft conditions - when conventional spraying equipment could not be used.

Mounting on an ATV or small tractor enables higher application speeds and minimises labour and vehicle operating costs.

Overall spraying cost savings of 50% to 75% have been reported by farmers using this technology.



Schematic view of Undavina®900 operation



Schematic view of Spraydome®1000 operation

SAFETY INSTRUCTIONS

WARNING!

Read operator's manual thoroughly before operating Enviromist sprayers.

Always adjust sprayer to proper working height, application rate and travel at an appropriate speed to suit conditions. Improper height adjustment, incorrect flow rate and travelling too fast or slow will adversely affect results.

Always read chemical manufacturers' labels before using the chemical.

Do not spray when air temperature exceeds the maximum recommended by the chemical manufacturer.

Always observe all warnings on chemical products. Failure to do so could result in operator or others being exposed to toxic chemicals which could result in serious illness.
Remember chemical labels have been developed for your protection.

Wear appropriate protective clothing when handling chemicals. Failure to do so could result in serious illness or even death.

Always use the correct application rate. Application rates of chemical which are too high may expose the operator and environment to danger. Rates that are too low will result in ineffective control.

Dispose of all chemical containers as per instruction on the chemical label. Failure to do so could result in environmental contamination.

Always wear gloves and wash sprayer thoroughly before doing any disassembly or repair work. If not, chemical residues on machine parts could contaminate operator or service personnel causing serious illness.

Turn sprayer off before making adjustments or repairs. Failure to do so could result in injury or toxic chemical contamination and serious illness.

Inspect hose and hose connections daily. Damaged, loose or worn hoses will cause sprayer malfunction, and may result in the operator being exposed to toxic chemicals which could cause serious illness.

Do not disconnect any hoses, nozzles or filters while sprayer is operating. Disconnecting components under pressure could result in uncontrolled spray discharge which could be hazardous to humans or the environment.

Be sure you recognise the categories of chemical toxicity and their key words for safety.

Always replace worn or damaged shroud material on Enviromist sprayers. Failure to keep shrouds in good condition may result in off-target drift.

Always follow the sprayer maintenance procedures outlined in this manual. Failure to follow maintenance procedures will cause malfunction and unnecessary repair work.

BACKPLATE INSTALLATION PROCEDURE

Connect the backplate power wire prior to fitting the tank if the tank position impedes access to the vehicle battery.

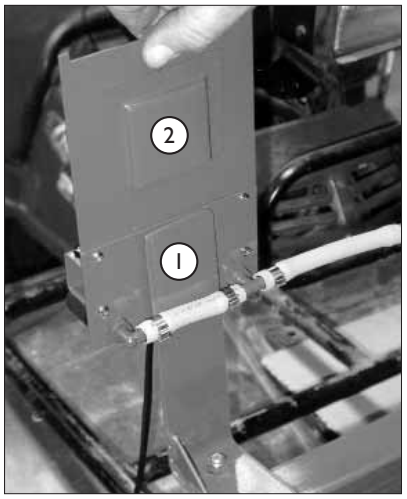


Figure 1.

1. Connect the backplate to the 12 volt power supply of the vehicle – this may be directly to the battery or other direct 12 volt supply.
   - **(a)** Ensure that the inline switch (Fig.2, No. 5) is switched OFF.
   - **(b)** Connect the positive lead to the positive terminal of the 12 volt supply.
   - **(c)** Connect the negative lead to the negative terminal of the 12 volt supply.
2. Locate the backplate in the most appropriate operating position on the vehicle. This is usually in front of the operator for ease of operation and control. To ensure the correct operation of system flowmeters, the backplate (Fig.1, No. 2) must be mounted vertically, preferably on the mounting bracket provided (Fig.1, No. 1). This mounting bracket is often assembled with the mounting tube of the Undavina® of Spraydome® utilising one of the clamp assemblies supplied.
3. The supply tank and sprayers must now be fitted prior to continuing.
   - (a) See **Tank Installation procedure.**
   - (b) See **Undavina® and Spraydome® Installation procedure**.
   - (c) See **Centre Row Sprayers Installation Procedure.**
4. After the Tank and Sprayer(s) are fitted, proceed with connecting them to the backplate.
5. Connect the quick release hose coupling of the tank hose (Fig.2, No. 4) to the connecter on the backplate (Fig.2, No. 1).
6. Connect the 2 pin electrical plug (Fig.2, No. 3) from the tank to the 2 pin socket (Fig.2, No. 2) on the backplate.
7. To fit the sprayer control unit to the backplate, first ensure that the inline switch (Fig.2, No. 5) is in the **OFF** position. Connect the electrical plug (Fig.2, No. 9) to a socket (Fig.2, No. 10) while at the same time locating the clip on the back of the control unit between the locating lugs on the backplate.
8. Connect the quick release hose plug (Fig.2, No. 7) of the control to the corresponding connector (Fig.2, No. 8) on the front of the backplate.
9. Turn all the control box switches (Fig.2, No. 11) to the **OFF** position, and then turn the inline switch (Fig.2, No. 5) **ON**.
10. Turn each control box **ON** and **OFF** in turn to check that the power connection is effective and that the pump is operating.
11. **Visually check** that the CDA disc under the sprayer is spinning and that the lights are glowing on the control unit.
12. Secure all hoses, ensuring that the operator and moving parts are not obstructed.

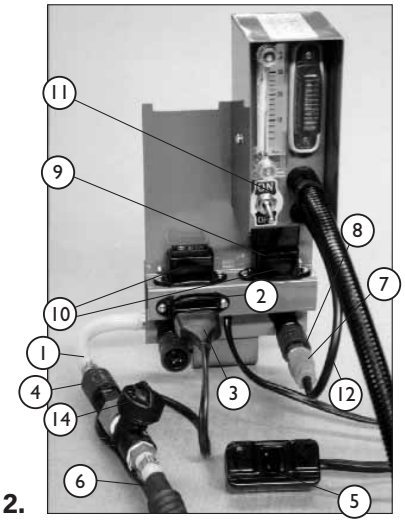


Figure 2.

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CDA SPRAYER CALIBRATION

The amount of chemical to be applied per sprayed hectare will need to be determined. The relevant information sheet for the chemical you are using will help to determine the application rate. Your Agronomist or chemical supplier may also be able to offer advice. This information is required in step 4.

Herbicide sprayer setup

Spray Unit		RPM	
Tractor		Width of treated strip (m)	
Gearing			

STEP 1 *Sprayer settings*

Total output per hour _____ (L/hr)

Total sprayer width _____ (m)

STEP 2 *Sprayer speed*

Measure time in seconds to travel 100 metres

Speed (km/h) = 360 ÷ _____

= _____ (km/h)

STEP 3 *Output for CDA sprayers*

Output (L/hr) = _____ x 10 ÷ _____ ÷ _____ = _____ (L/ha)

Sprayer output (L/hr) | Spraying width (m) | Speed (km/h)

STEP 4 *Product per tank*

Product	Recommended rate/ha	x	Tank volume (L)	÷	Output (L/ha)	=	Product per tank
		x		÷		=	
		x		÷		=	
		x		÷		=	
		x		÷		=	
		x		÷		=	

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EXAMPLE FOR CDA SPRAYER CALIBRATION

Applying Glyphosate at 2.0 litres per hectare using 2 x Undavina® 600 CDA sprayers with a 60 litre tank. Ground speed has been determined to be 8km per hour based on 45 seconds to travel 100 metres. Each Undavina® flow rate is 12 litres per hour as per the flowmeter readings.

Herbicide sprayer setup

Spray Unit	Enviromist	RPM	
Tractor	ATV	Width of treated strip (m)	1.2
Gearing			

STEP 1 *Sprayer settings*

Total output per hour: 24 (L/hr)

Total sprayer width: 1.2 (m)

STEP 2 *Sprayer speed*

Measure time in seconds to travel 100 metres

Speed (km/h) = 360 ÷ 45

= 8 (km/h)

STEP 3 *Output for CDA sprayers*

Output (L/hr) = 24 x 10 ÷ 1.2 ÷ 8 = 25 (L/ha)

Sprayer output (L/hr) | Spraying width (m) | Speed (km/h)

STEP 4 *Product per tank*

Product	Recommended rate/ha	x	Tank volume (L)	÷	Output (L/ha)	=	Product per tank
Glyphosate	2.0	x	60	÷	25	=	4.8
		x		÷		=	
		x		÷		=	
		x		÷		=	
		x		÷		=	

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METRIC APPLICATION RATES

NOMINAL LITRES PER SPRAYED HECTARE – QUICK REFERENCE GUIDE

KPH	Spraydome 15/24	Spraydome 1200	Spraydome 1000	Undavina 900	Spraydome or Undavina 600	Undavina 400	Vegedome
10	14.3	12.5	15.0	13.3	18.3	27.5	12.5
9	15.9	13.9	16.7	14.8	14.8	30.6	13.9
8	17.9	15.6	18.8	16.7	22.9	34.4	15.6
7	20.4	17.9	21.4	19.0	26.2	39.3	17.9
6	23.8	20.8	25.0	22.2	30.6	45.8	20.8
5	28.6	25.0	30.0	26.7	36.7	55.0	25.0
4	35.7	31.3	37.5	33.3	45.8	68.8	31.3
Nominal Spray Width (Metres)	2.1	1.2	1	0.9	0.6	0.4	0.8
Flow Rate (LPH)	30	15	15	12	11	11	10

FORMULA:

LPH x 10 ÷ WIDTH (METRES) ÷ KPH = Litres per Sprayed Hectare

Question:
How do I calculate the number of Hectares covered per tank?
Answer:
Based on a tank size of 60 litres.

60 Litres ÷ 18.8 Litres per Hectare (from above chart Spraydome 1000 @ 8 KPH)
= 3.19 Hectares Sprayed (Treated Hectares)

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US GALLON APPLICATION RATES

FOR THE ENVIROMIST CDA SPRAY SYSTEM

US GALLONS PER SPRAYED ACRE

MPH	Spraydome 2000	Spraydome 1200	Spraydome 1000	Undavina 900	Spraydome or Undavina 600	Undavina 400	Vegedome
5	1.93	1.72	2.03	1.81	2.15	3.43	1.66
4.5	2.15	1.91	2.26	2.01	2.38	3.81	1.85
4	2.41	2.15	2.54	2.26	2.68	4.29	2.08
3.5	2.76	2.46	2.90	2.59	3.06	4.90	2.37
3	3.22	2.87	3.38	3.02	3.58	5.72	2.77
2.5	3.86	3.44	4.06	3.62	4.29	6.86	3.32
2	4.83	4.30	5.08	4.53	5.36	8.58	4.15
1.5	6.44	5.74	6.77	6.03	7.15	11.44	5.54
1	9.66	8.61	10.15	9.05	10.72	17.16	8.30
Nominal Spray Width (Inches)	82”	46”	39”	35”	24”	15”	31”
Flow Rate (GPH)	8	4	4	3.2	2.6	2.6	2.6

FORMULA:

$$\frac{99 \times \text{GPH}}{\text{MPH} \times \text{Width (Inches)}} = \text{GPA}$$

Question:
How do I calculate the number of acres covered per tank load?
Answer:
Remember the standard tank size is 15.8 Gallons.
Example: 15.8 Gallons ÷ 2.03 GPA (from above chart Spraydome 1000 @ 5 MPH)
= 7.78 Acres Sprayed (Treated Acres)

Now you can calculate the total treated Acres covered per tank mix and amount of chemical needed per tank.

To Calculate Total Crop Acres Covered Per Tank of Mix

_____ Gallon Tank ÷ _____ Gallons per Sprayed Acres = _____ Acres Sprayed per Tank

_____ Sprayed Strip (in Inches) x _____ # Domes = _____ Total Sprayed Strip

_____ Total Sprayed Strip ÷ _____ Row Spacing (in Inches) = _____ % of Crop Acres Covered

_____ Acres Sprayed per Tank ÷ _____ % of Crop Acres = _____ Total Crop Acres Covered per Tank Mix

ADJUSTMENTS TO APPLICATION RATES

Recommendations

1. **The flow be left as the standard factory recommendation.**

2. **Variation in ground speed** may be used to change application rates provided **recommended top speeds are not exceeded.**

3. **Variation of the chemical concentration is the easiest way to change the amount of chemical being applied once the ground speed and flow rate have been established.**

Chemical Mix

a) The higher the concentration of chemical mix the higher the application rate.
b) The lower the concentration the lower the application rate.

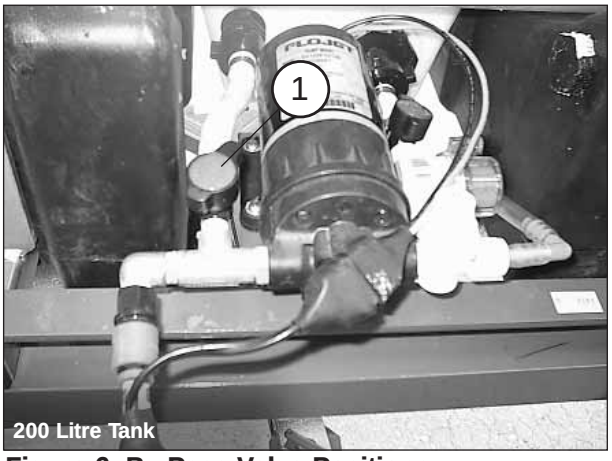
Ground Speed

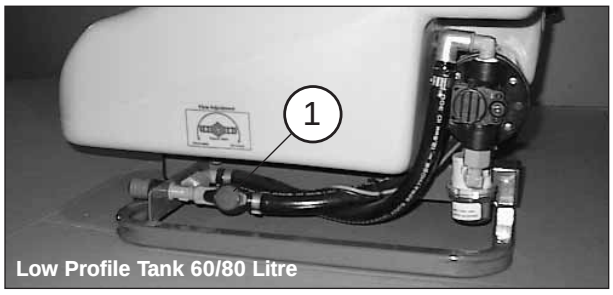
a) Travelling faster than the calculated speed will reduce the application rate.
b) Travelling slower will increase the application rate.

Note: Small variations up or down of 1-2kph will not generally affect the result with Enviromist equipment.

Flow Rate. The flow is controlled in three ways.

a) By the nozzles at the C.D.A. head, the blue nozzle is the standard and is recommended that it not be changed.
b) Models of the CDA versions of 900, 600 and 400 series have an additional **Restrictor Plate** in the feed tube to the control unit. It is also recommended that these not be changed.
c) The pressure from the pump may be varied by opening (decreasing pressure) and closing (increasing pressure) the bypass valve (Fig. 6, No.1). Before closing the valve and increasing the pressure there are three things to consider:
   i) The CDA machines are designed to work at 8-10psi
   ii) Closing the bypass will reduce the agitation in the tank.
   iii) Increasing the pressure will increase the flow rate and this in turn will affect the size of the droplets produced which could also affect the efficiency of the sprayer and the weed kill.





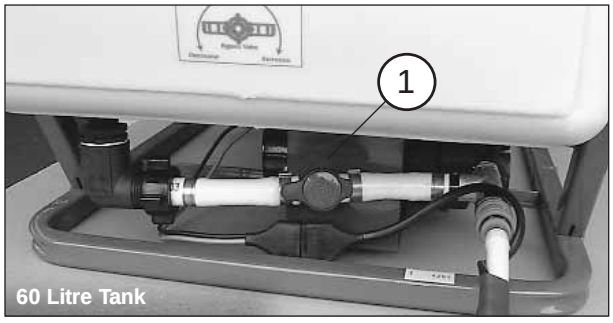


Figure 6. By-Pass Valve Positions

END OF DAY MAINTENANCE

1. Empty tank completely, observing all safety precautions.

2. Flush out with clean water and detergent, run the sprayer to flush the lines and CDA for at least two minutes.

3. Hose down the sprayer thoroughly, taking particular care to prevent water entering the clear vent tube at the top of CDA head then allow the CDA to spin dry by disconnecting the water supply at the Back Plate connection.

NOTE: If for any reason it is suspected that water has entered the motor housing, dismantle and dry it, then give the motor a few drops of moisture repellent before reassembling.

NOTE: For spray units with the Micromax® 120 head fitted to the rear, **OIL THE HEAD ONCE OR TWICE DAILY** (a few drops only). Do not over-oil. At end of season maintenance, dismantle the head completely, clean and dry the motor using some moisture repellent and reassemble, remember to use some waterproof grease under the top plate.

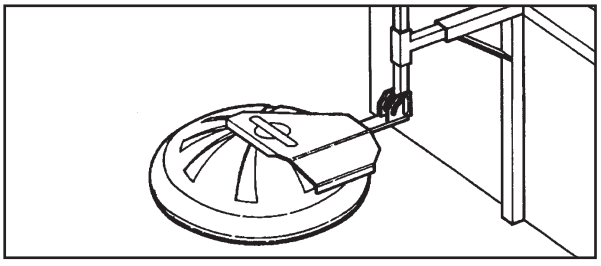
END OF SEASON MAINTENANCE

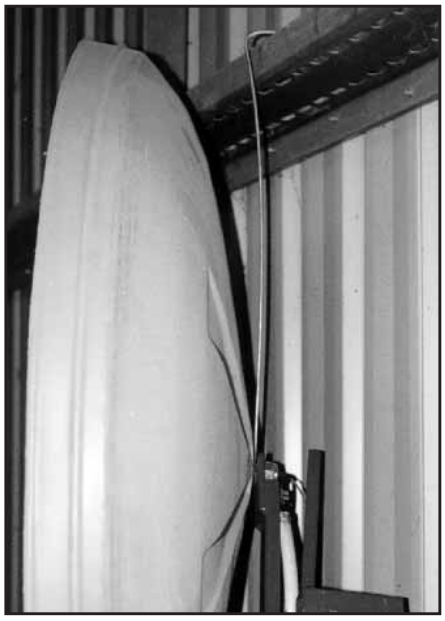
1. Prior to storage drain the tank and flush the sprayer as in the END OF DAY MAINTENANCE.
2. Allow the CDA heads to spin dry and completely drain all hoses, cover all the exposed and unconnected ends to prevent contamination by grit and insects while in storage.
3. The Spraydome® 1524, both towed and 3 pt. Linkage should have their Control Units wrapped in clean cloth and fastened safely to the machine with the hoses rolled to avoid damage.
4. Ensure that when not in use, the Undavina® and Spraydome® applicators are stored in such a way as to give maximum protection to the brush and dome materials.

The units should preferably be stored so that they are supported in the same manner as they are in their operating position. Refer to the storage illustration.
The Spraydomes® should otherwise be hung on the storage hook (Part No. ZD006) as per photo.

Note: If Spraydomes® or Undavinas® are stored, even for short periods of time, with the weight of the machine or any other weight on the cover or dome, permanent distortion may occur.

Storage for prolonged periods in direct sunlight or areas of extreme heat should be avoided.





TROUBLE SHOOTING

PROBLEM	PROBABLE CAUSE	REMEDY
1. Neither CDA nor pump operate	a. Inline switch “off” b. Blown Fuse c. Loose connection on Battery Lead/Backplate d. Incorrect wiring at Backplate/ control unit (Red/Blue)	a. Switch on at both switches b. Check system (refer problems 2 & 3) - Replace Fuse c. Check all connections - tighten as necessary d. Connect wires to correct terminals
2. Blows fuse with control unit switched “off”	a. Wiring on main lead or backplate reversed at plug/socket	a. Connect wires to correct terminals
3. Blows fuse when switched “on” at control unit	a. Rivet cut through insulation on pivot arm connector (red wire) b. Short to earth	a. Replace connector b. Ensure red or blue wires are not earthed
4. Melts green wire in control unit	a. Reversed battery connection	a. Connect to battery correctly
5. Melts black wire between battery and backplate	a. Reversed battery connection	a. Connect to battery correctly
6. CDA does not spin - lamp glows bright	a. Obstruction in disc b. Motor faulty (closed circuit)	a. Clear obstruction b. Replace motor
7. CDA does not spin - lamp does not glow	a. Fuse blown b. Not switched on c. Motor faulty (open circuit) d. Broken wire e. Rivet cut through pivot arm connector (Red wire) f. Loose connection g. Corroded terminal on CDA h. Contact spring corroded or missing from motor housing i. Globe blown j. Globe loose k. Wrong wattage globe used l. Wiring incorrect	a. Check system (refer problems 1 - 3) - Replace fuse b. Switch on at both switches c. Replace motor d. Repair or Replace wire e. Replace Connector - Refer fault 3 f. Check all connections - tighten as necessary g. Clean and/or replace terminals h. Replace Spring Replace Globe i. Replace Globe j. Adjust globe holder k. Replace with correct globe l. Connect wires to correct terminals
8. CDA spins slowly	a. Moisture/corrosion in motor b. Incorrect globe use	a. Replace motor b. Use correct globe
9. CDA spins too fast / Lamp does not glow	a. Rivet cut through insulation on pivot arm connector (Black wire) b. Incorrect wattage globe used c. Lamp wire back to front	a. Replace Connector b. Use correct globe c. Connect wires to correct terminals
10. Pump/CDA run intermittently	a. Loose electrical connection	a. Check all connections - tighten as necessary
11. Pump will not run	a. Tank lead not plugged into backplate 2 pin socket b. Loose electrical connection c. Diode faulty d. Diode back to front e. Faulty pump motor f. Incorrect wiring	a. Plug tank lead into backplate b. Check all connections - tighten as necessary c. Replace diode d. Install diode correctly e. Replace motor f. Connect wires to correct terminals

TROUBLE SHOOTING

PROBLEM	PROBABLE CAUSE	REMEDY
12. Pump runs but no flow	a. Tank empty b. Blocked restrictor c. Blocked nozzle d. Blocked filter e. Hoses blocked with sediment f. Control unit/backplate not plugged in g. Float stuck in flowmeter h. Non drip valve diaphragm stuck i. Wrong spring in non drip valve j. No spring/poppet in bypass valve k. Pump poppet spring/s broken l. Debris under valves in pump m. Kinked line n. Solenoid not opening - if fitted	a. Refill tank b. Clean restrictor c. Clean nozzle d. Clean filter e. Purge hoses f. Connect correctly g. Loosen float & clean flowmeter -use rainwater or very fine filter h. Remove cap & loosen diaphragm i. Replace with correct spring j. Replace k. Install new poppet kit (HN013) l. Clean valve plate - replace if necessary m. Ensure that lines are not bent too short n. Check wiring - replace solenoid if necessary
13. Low Flow	a. Tank level low or empty b. Partially blocked restrictor c. Partially blocked nozzle d. Blocked filter e. Lines blocked with sediment f. Float stuck in flowmeter g. No spring/poppet in bypass valve h. Poppet spring/s broken i. Debris under valves in pump j. Wrong spring in non drip valve k. Kinked line l. Pump valve plate faulty	a. Refill tank b. Clean restrictor c. Clean nozzle d. Clean filter e. Purge lines f. Loosen float & clean flowmeter -use rainwater or very fine filter g. Replace h. Replace poppet kit (HN013) i. Clean valve plate - replace if necessary j. Replace with correct spring k. Ensure that lines are not bent too short l. Replace valve plate assy
14. High Flow	a. Bypass valve closed b. Wrong pump used or c. Wrong nozzle or altered nozzle d. Restrictor not in line for appropriate unit e. Tank & pump not an Enviromist unit	a. Open bypass valve b. Use correct pump or install bypass c. Install new nozzle d. Install restrictor e. Must get pressure down to 70kPa (10PSI)
15. Flow Varies	a. Tank level low or empty b. Loose electrical connection c. Debris under pump valve d. Nozzle partially blocked e. Air in line f. Aerated liquid g. Vehicle electrical supply varies	a. Refill tank b. Check all connections c. Clean valve plate - replace if necessary d. Clean nozzle e. Purge air from line f. Too much tank agitation g. Have electrical system on vehicle checked
16. Consistent motor failure	a. O-rings omitted when assembled b. Hole in motor front plate (at nozzle locating hole)	a. Replace O-rings b. Replace motor front plate
17. Spray Pattern does not reach shroud (1200, 1000 & centre row units only)	Refer to 'Low Flow" Refer to "CDA spins too fast" Refer to "CDA spins too slowly"	
18. Gap in centre row spray pattern	Refer to "Spray pattern does not reach shroud"	

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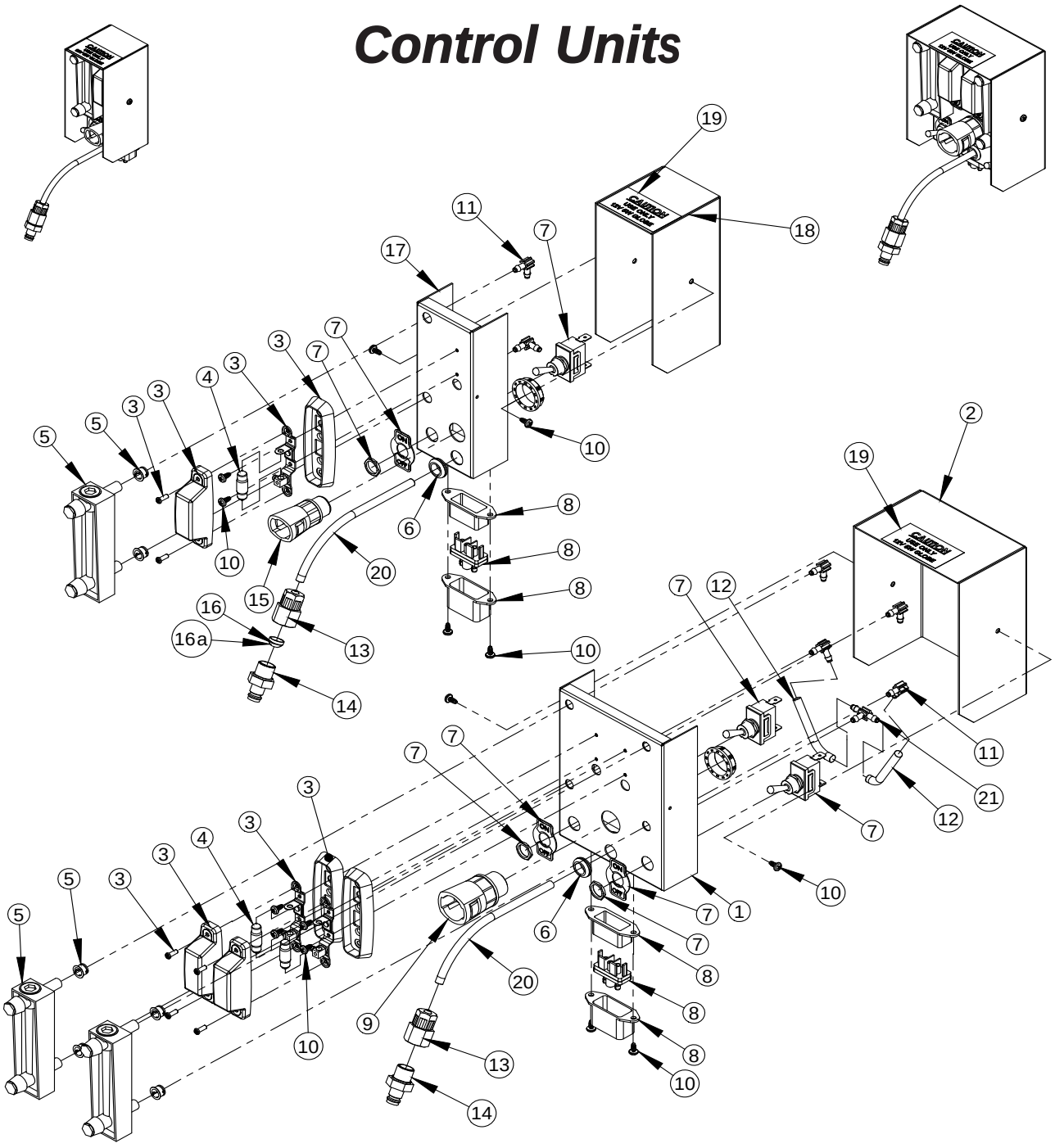
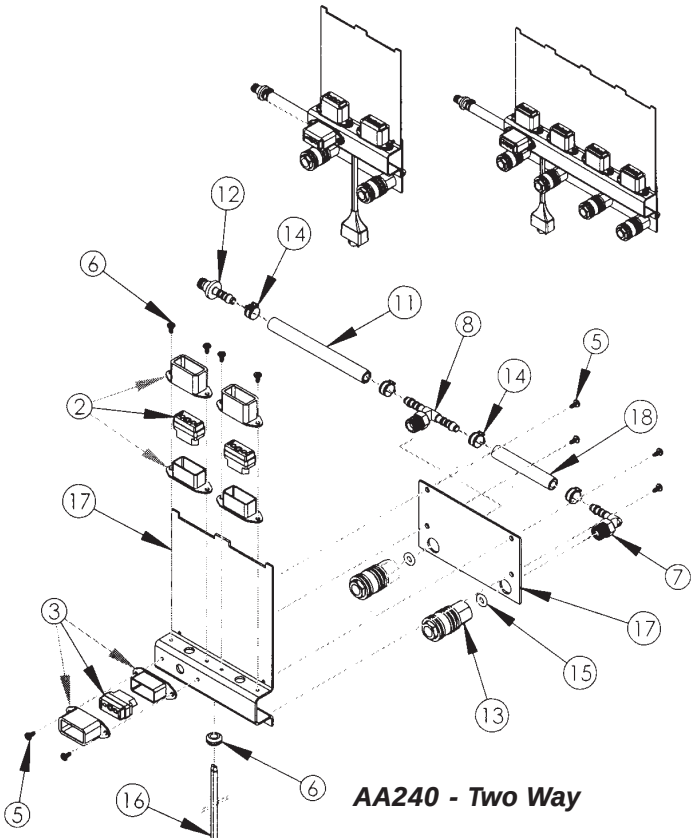
Control Units



ITEM NO.	PART NO.	DESCRIPTION	ITEM NO.	PART NO.	DESCRIPTION
1	RO004	Double Control Box - Inner	14	AL002	Plug Ext-Thread
2	RO004	Double Control Box - Outer	15	GE038	16mm Straight Fitting
3	ST004	Lamp Assembly	16	ZU024	No. 10 Restrictor (U/V900 Series)
4	ST003	12V 5W Globe	16a	ZU030	No. 8 Restrictor (U/V400 / U/V600 Series)
5	DI002	Flowmeter	17	RO003	Single Control Box - Inner
6	MO006	Grommet	18	RO003	Single Control Box - Outer
7	ST005	Toggle Switch	19	CB006	12V 5W Label
8	ST030	3 Pin Plug S/M Complete	20	BI040/0.260	6mm Flexible MicroHose x 260mm
9	GE034	20mm Straight Fitting	21	BI020	4mm Barbed Tee
10	UF048	Self Tap Screw	22	ZC012	Wiring Loom - Single control box - Not shown
11	BI017	EB4 Elbow	23	ZC010	Wiring Loom - Double control box - Not shown
12	BI040/50	Double Control Box Feed Tube - 50mm	24	ZE001	Twin Connector - Not shown
13	BI027	Adapter	25	ZE006	5 Way Connector - Not shown

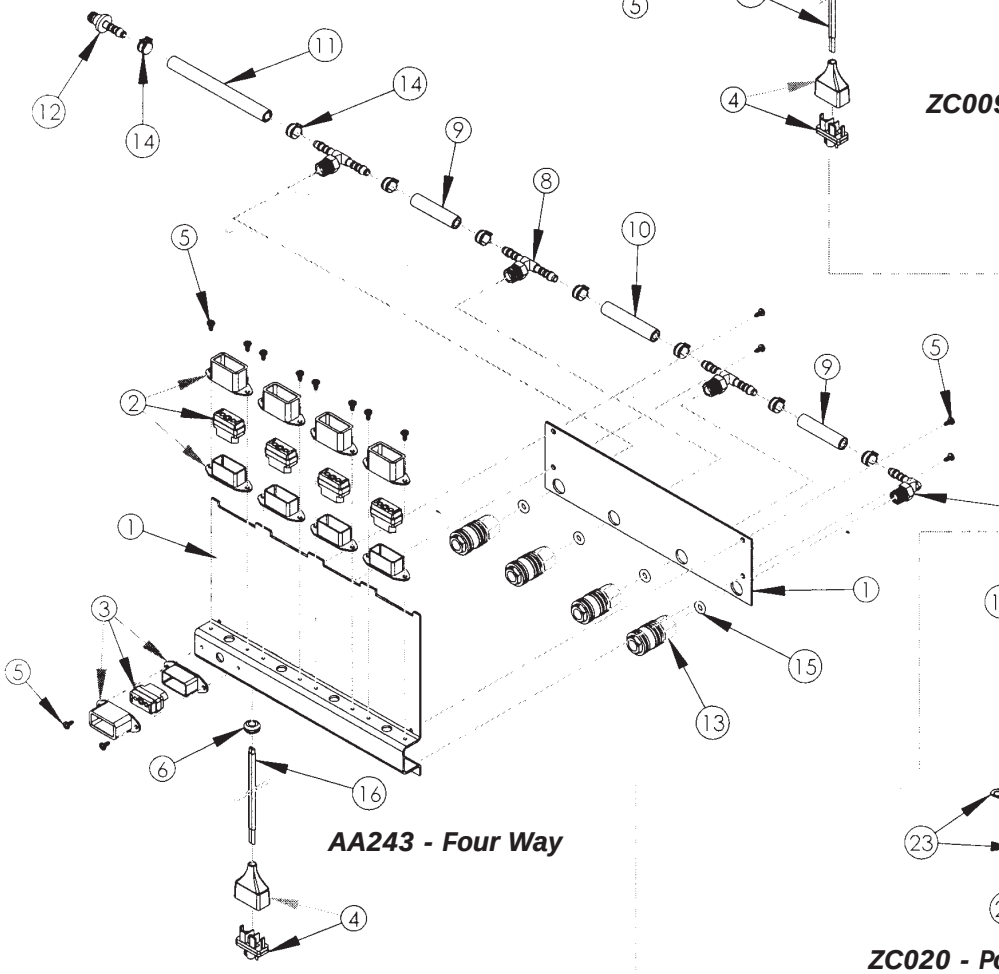
Backplates

ITEM NO.	PART NO.	DESCRIPTION
1	ZC024	Four Way Sub Frame
2	ST031	3 Pin S/M Socket Complete
3	ST013	Socket 2 Pin S/M Complete
4	ST008	2 Pin Plug (m) In-Line
5	UF048	Self Tap Screw
6	ST007	Grommet
7	AL009	6mm Male Elbow
8	AL008	6mm Male Branch Tee
9	MT001/50	6mm Hose - 50mm
10	MT001/60	6mm Hose - 60mm
11	MT001/115	6mm Hose
12	AL012	Plug Hose Connector
13	AL001	1/4" Socket
14	NH004	Cobra Clip
15	GB007	O - Ring
16	ZC022	Back Plate - Feed Wire
17	ZC025	Two Way Sub Frame
18	MT001/75	6mm Hose - 75mm
19	ST009	2 Pin Socket In-Line
20	GE035	In-Line Switch
21	ST001	Fuse Holder
22	ST002	10Amp 3AG Fuse
23	GE021	Lug

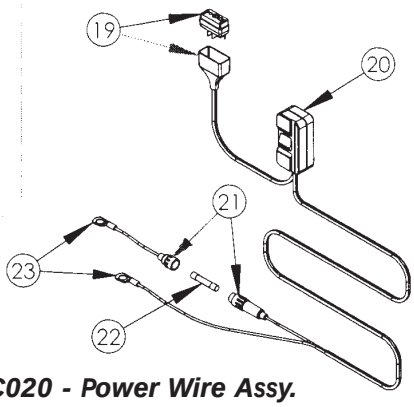


AA240 - Two Way

ZC009 BACKPLATE MOUNT BRACKET



AA243 - Four Way



ZC020 - Power Wire Assy.

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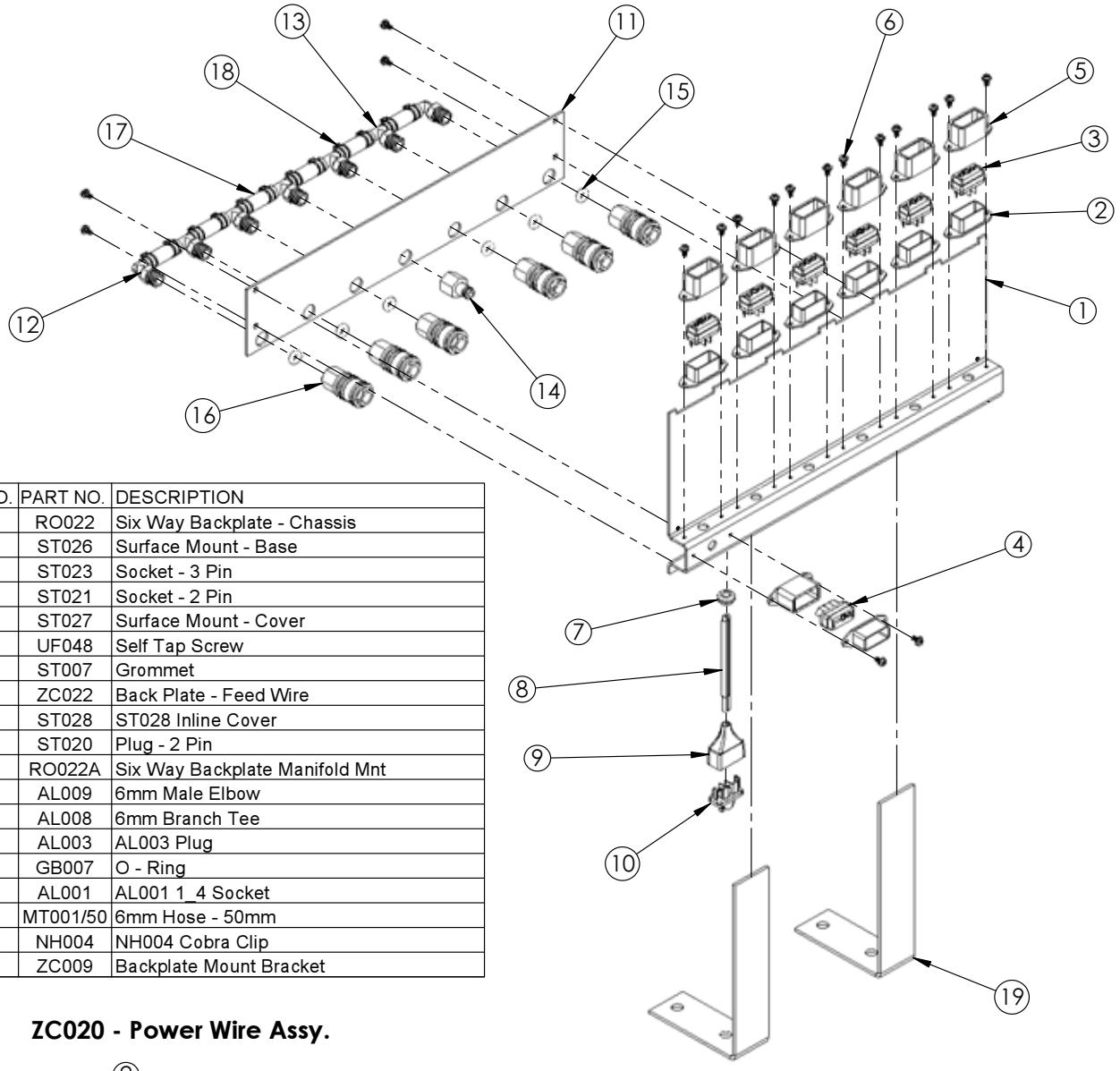
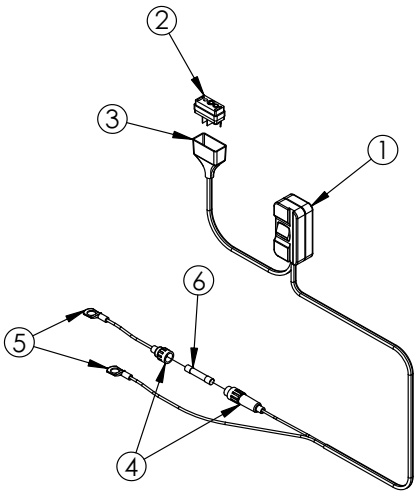
SIX WAY BACKPLATE
DRAWINGS & PARTS LIST



ITEM NO.	PART NO.	DESCRIPTION
1	RO022	Six Way Backplate - Chassis
2	ST026	Surface Mount - Base
3	ST023	Socket - 3 Pin
4	ST021	Socket - 2 Pin
5	ST027	Surface Mount - Cover
6	UF048	Self Tap Screw
7	ST007	Grommet
8	ZC022	Back Plate - Feed Wire
9	ST028	ST028 Inline Cover
10	ST020	Plug - 2 Pin
11	RO022A	Six Way Backplate Manifold Mnt
12	AL009	6mm Male Elbow
13	AL008	6mm Branch Tee
14	AL003	AL003 Plug
15	GB007	O - Ring
16	AL001	AL001 1_4 Socket
17	MT001/50	6mm Hose - 50mm
18	NH004	NH004 Cobra Clip
19	ZC009	Backplate Mount Bracket

ZC020 - Power Wire Assy.



ITEM NO.	PART NO.	DESCRIPTION
1	GE035	In-Line Switch
2	ST021	Socket - 2 Pin
3	ST028	ST028 Inline Cover
4	GE036	Fuse Holder
5	GE021	Terminal
6	ST002	10Amp 3AG Fuse

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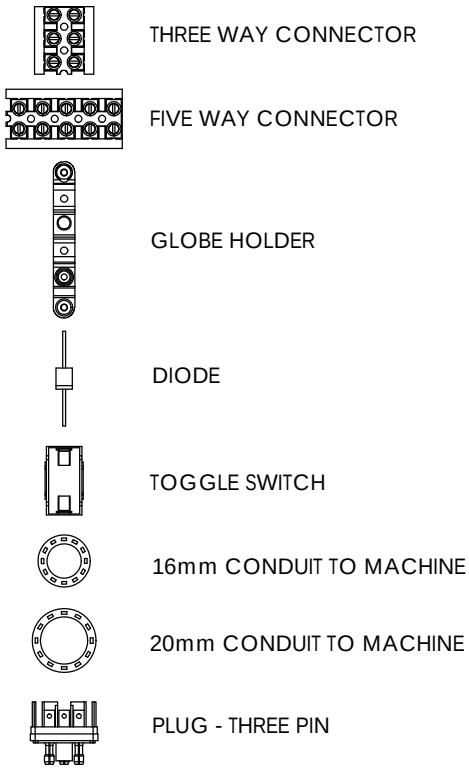
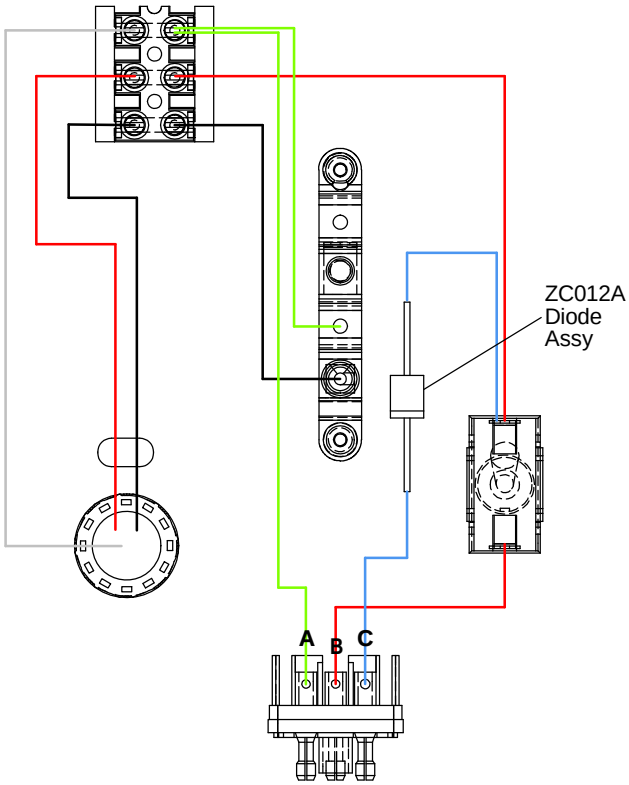
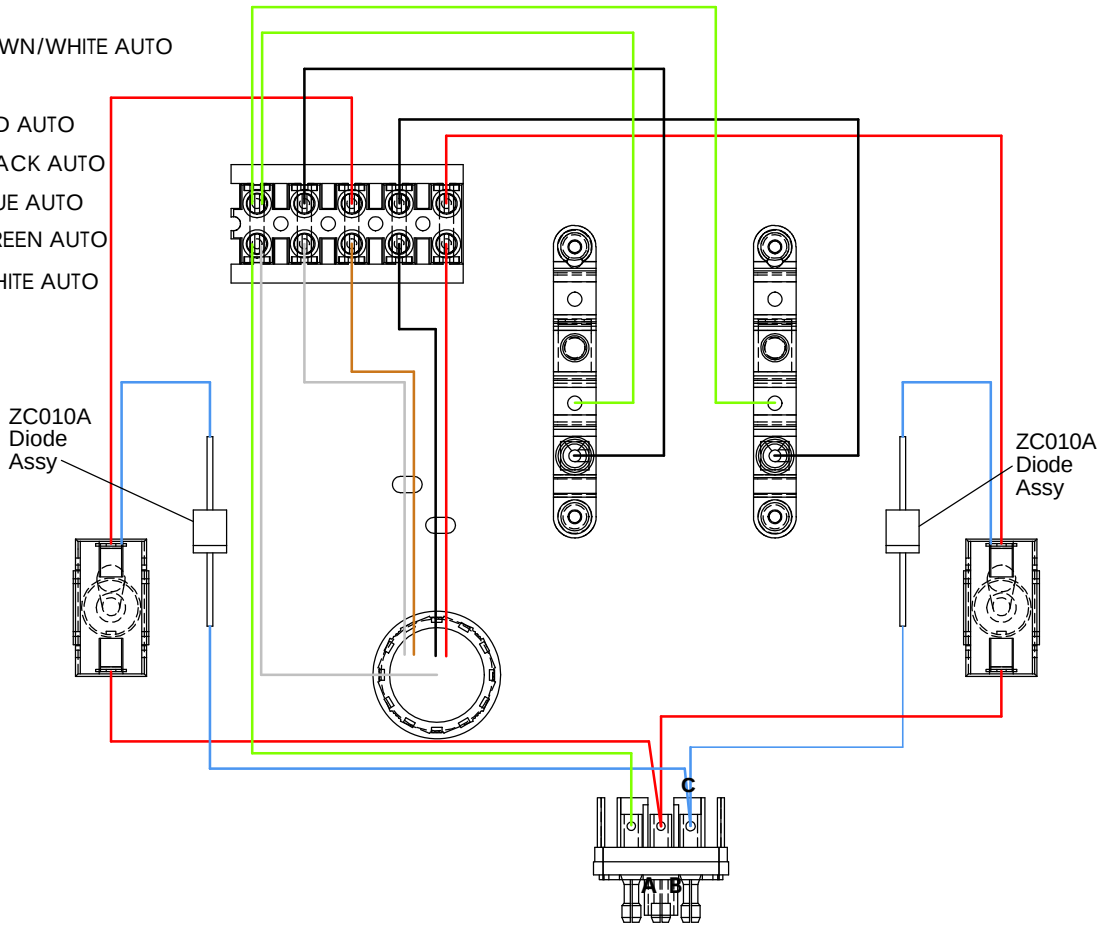
AA249 - Single Control Box - Wiring Diagram

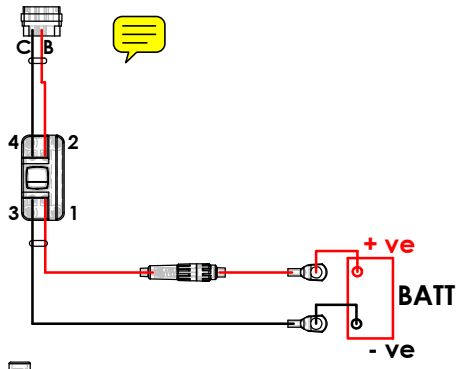


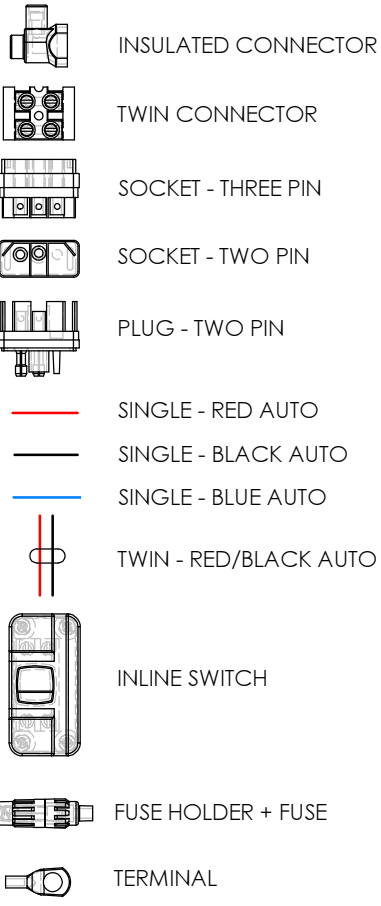


AA247 - Double Control Box - Wiring Diagram

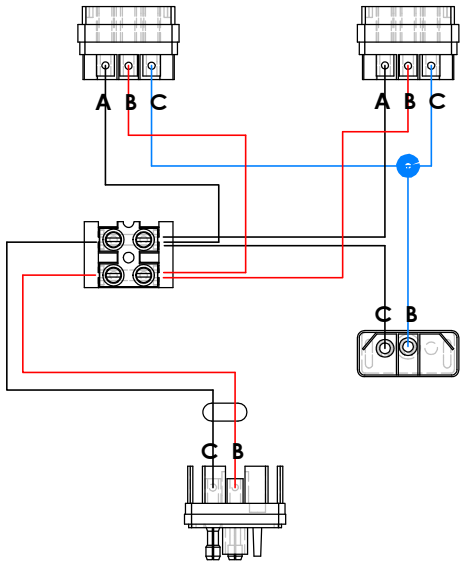


ZC020 Backplate Power Wire Assembly

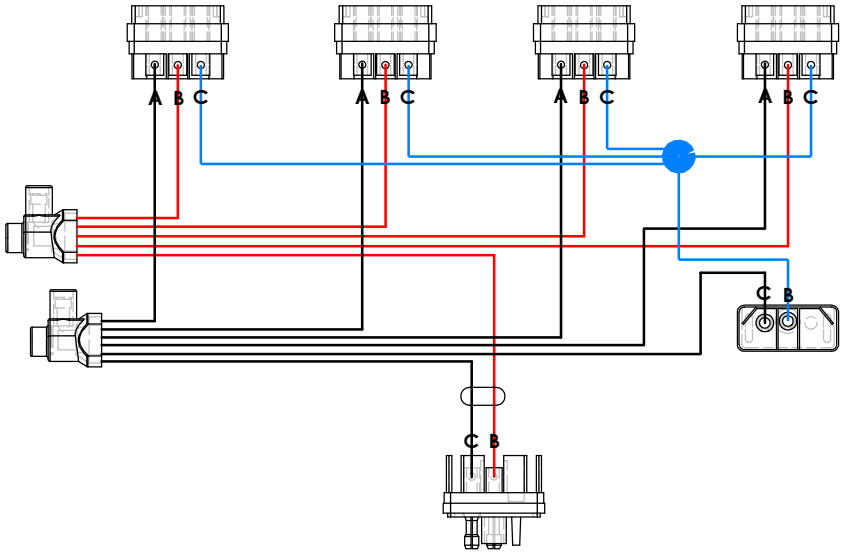




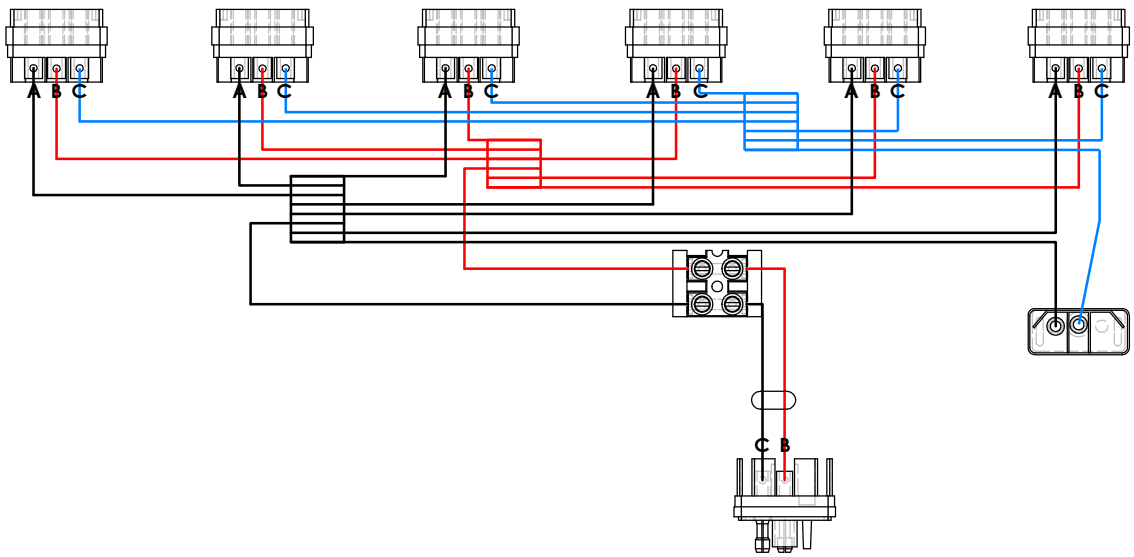
AA240 Twin Backplate - Wiring Diagram



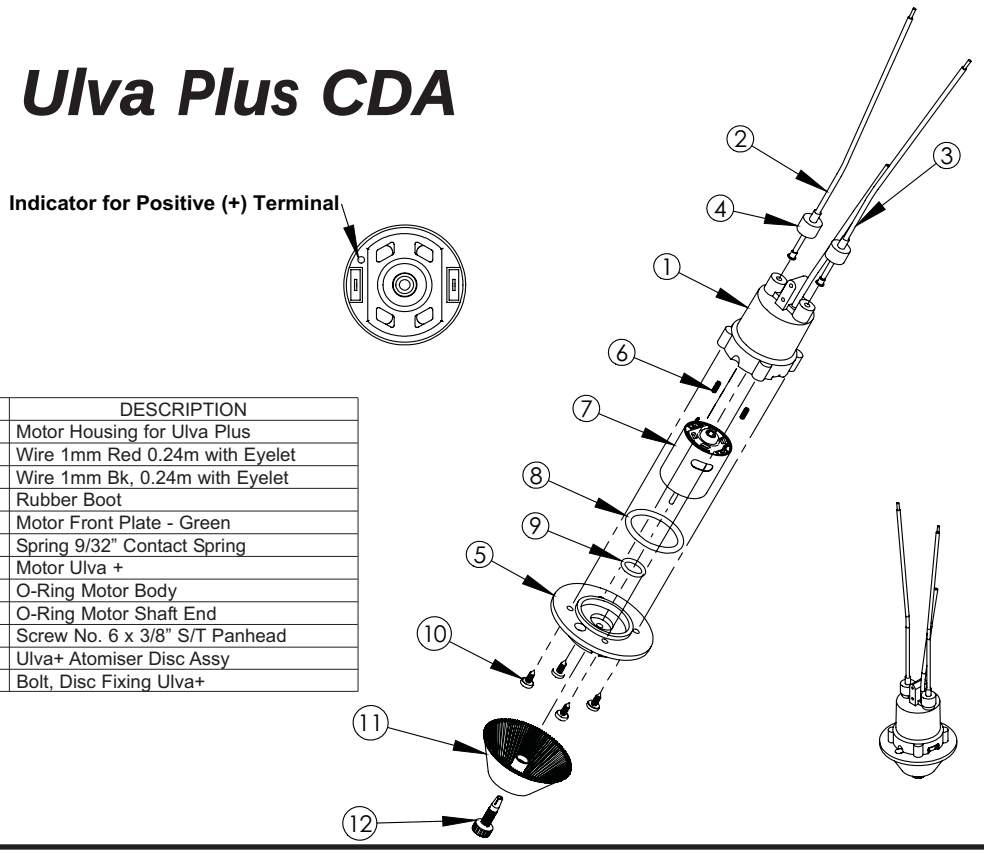
AA243 Quad Backplate - Wiring Diagram



AA242 Six Way Backplate - Wiring Diagram

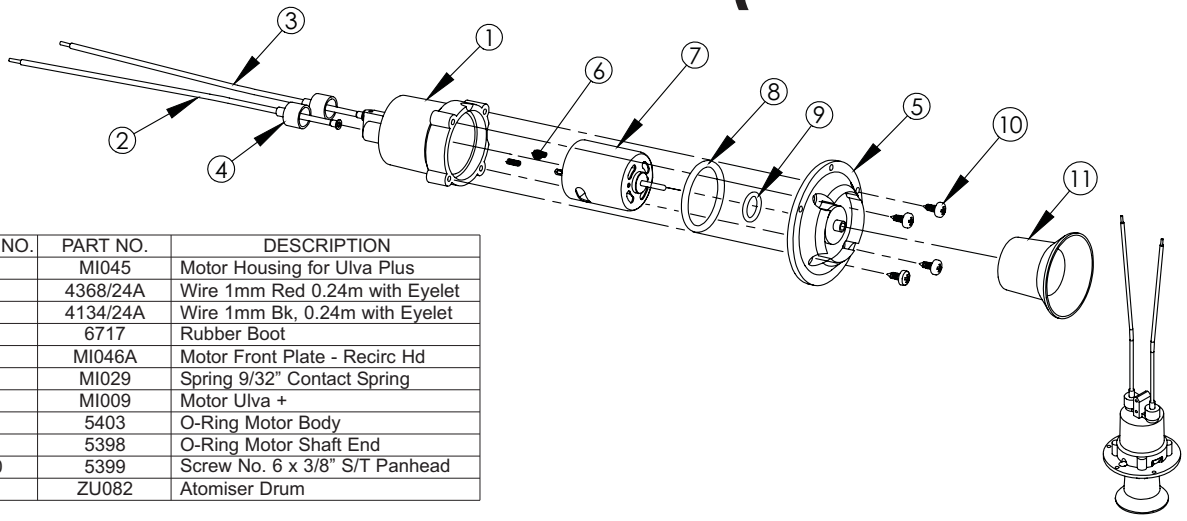


ZD004 Ulva Plus CDA



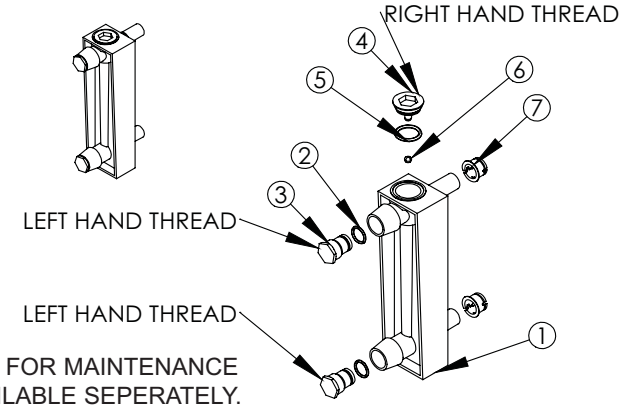
ITEM NO.	PART NO.	DESCRIPTION
1	MI045	Motor Housing for Ulva Plus
2	4368/24A	Wire 1mm Red 0.24m with Eyelet
3	4134/24A	Wire 1mm Bk, 0.24m with Eyelet
4	6717	Rubber Boot
5	MI046	Motor Front Plate - Green
6	MI029	Spring 9/32" Contact Spring
7	MI009	Motor Ulva +
8	5403	O-Ring Motor Body
9	5398	O-Ring Motor Shaft End
10	5399	Screw No. 6 x 3/8" S/T Panhead
11	MI025	Ulva+ Atomiser Disc Assy
12	MI047	Bolt, Disc Fixing Ulva+

ZD004A CDA (includes ZU082)



ITEM NO.	PART NO.	DESCRIPTION
1	MI045	Motor Housing for Ulva Plus
2	4368/24A	Wire 1mm Red 0.24m with Eyelet
3	4134/24A	Wire 1mm Bk, 0.24m with Eyelet
4	6717	Rubber Boot
5	MI046A	Motor Front Plate - Recirc Hd
6	MI029	Spring 9/32" Contact Spring
7	MI009	Motor Ulva +
8	5403	O-Ring Motor Body
9	5398	O-Ring Motor Shaft End
10	5399	Screw No. 6 x 3/8" S/T Panhead
11	ZU082	Atomiser Drum

DI002 Flowmeter



ITEM NO.	PART NO.	DESCRIPTION
1	DI002	Meter Body
2	DI002	O-ring
3	DI002	Plug
4	DI002	End Plug
5	DI002	End Plug - O-ring
6	DI004	Float
7	DI002	Spring Retainer

DIAGRAM SHOWS UNASSEMBLED DI002 FLOWMETER FOR MAINTENANCE PURPOSES. ITEM (No. 6) DI004 IS THE ONLY ITEM AVAILABLE SEPERATELY.