Selmech 175 or 250 litre Applicator tank

Manufactured by
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Dflow LV

USER MANUAL

The kit consists of: -

Digital in cab control box
Tank with filter basket
Tilting mounting bracket
Diaphragm pump
Flow sensor
In-line filters
3 way valve
10 metres of tubing
Power cable
Drain tube

WARNING
This pump SHOULD ONLY be used for spraying liquids recommended by the suppliers.
DO NOT use with SULPHURIC ACID or DIESEL.

Tank shown is the 250 litre option.

The applicator tank

The tank is translucent so the level of additive can be seen. Level guide stickers at the front of the tank show approximately how many litres of liquid are in the tank. These can be viewed from the front and the side.

The pump assembly is housed in the pump chamber. This has a stainless steel cover fitted to prevent the ingress of water and dust. The applicator should not be used, other than for testing with this removed.

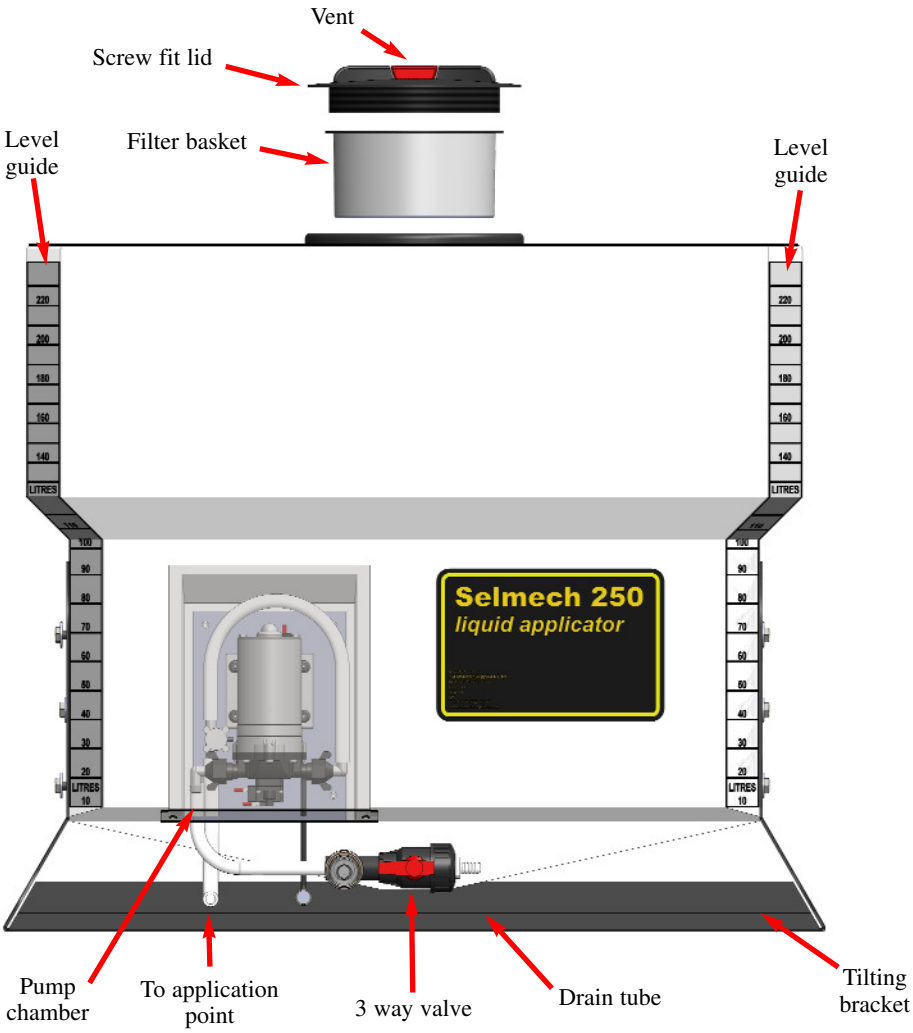
There is a 3 way valve at the bottom of the tank and its operating handle will point in the direction of flow.

When turned to the left, flow from is the tank to the pump. (Run position)

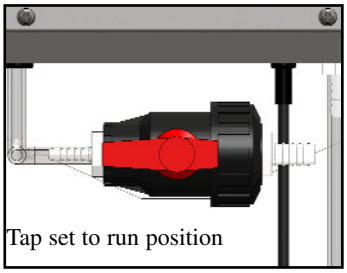
When turned to the right, liquid can be drained from the tank.

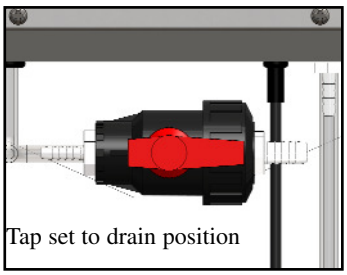
When in the upright position flow is stopped.

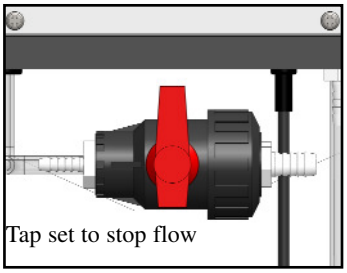
There is a 200mm opening at the top of the tank with a screw fit lid with vent. In the neck of the tank is a removable filter basket, always keep this in place when filling to prevent debris from entering the tank.



3 way valve







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Mounting the applicator

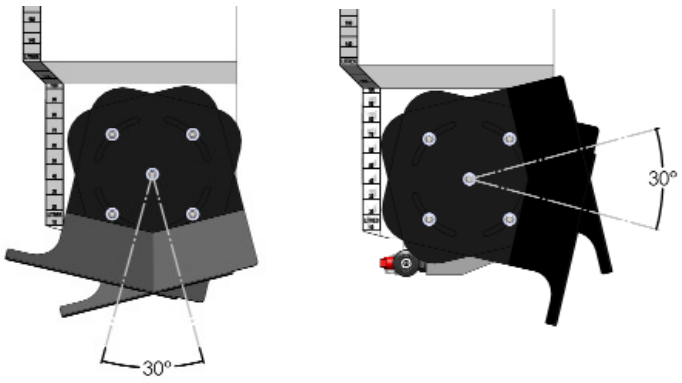
Mount the tank upright using the steel mounting brackets, this can be attached in the horizontal positions or vertical position depending on how you want to mount the tank on to your forage harvester or wagon. The brackets are held in place with M10 x 12 bolts. The tank can be tilted in the bracket over a 30 degree radius to allow it to be mounted upright on an angle surface.

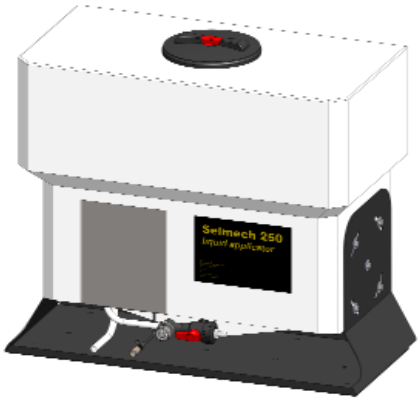
! Always ensure the mounting surface is secure spans the full width of the bracket and will support the weight of the tank when full. (300kg)

Mounting bracket positioning options

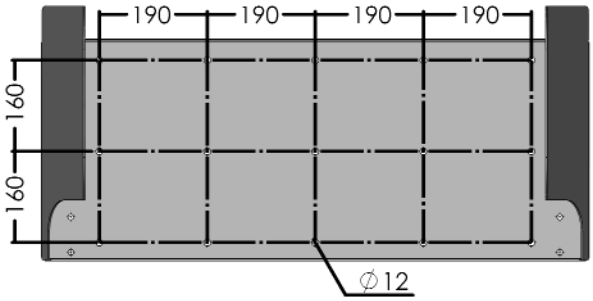
Tilting bracket

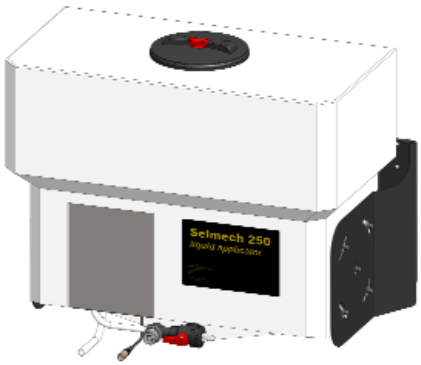
The mounting bracket tilts and can be switched to give multiple mounting positions





Mounting holes





CONNECTING THE PVC HOSE

The pump is self priming and is secured into the pump chamber on a mounting plate held in place by 4off M6 x 16mm screws The pump is secured to the mounting plate with 4 off 30mm No. 10 self tapping screws through the rubber mounting feet.

The pressure switch on the pump **SHOULD NOT** be adjusted under normal circumstances. Small degrees of movement on the grub screw will alter the cut out pressure considerably and consequently may lead to application problems.

The Optional Flowmeter, if supplied, should be fixed to a place within sight of the driver (but not within the cab).

There is one length of braided PVC hose which should be cut to suitable lengths to connect to the bottom hose tail of the Flowmeter (if supplied) and then from the top horse tail of the Flowmeter to application point.

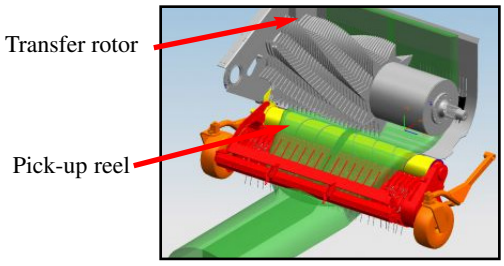
Application point & Jet Selection

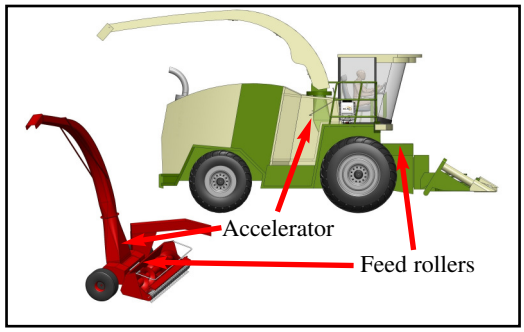
Application point

The application point will depend on the machine you are fitting to. Typically for a forage harvester this would be the base of the chute behind the accelerator or over the feed rollers. Delivery of the additive can be open flow, or through a fan jet. Please note that the if application point is at the back of the blower of a self propelled harvester NO spray jet should be used as it would block easily - application should be open flow

If fitting to forage wagon or baler the application is normally delivered through 2, 3 or 4 jets either over the transfer rotor or over the pick-up reel.

Route the tubing from pump housing to the application point. Avoid sharp edges and hot spots and leave enough slack around and pivot points for turning.





Fit the required jet to the jet body.

(Refer to setting the control box for harvesting section for flow rate setting)





Jet Selection

If using, jet selection is important to the performance of the applicator. Each jet provides a 110 degree spray pattern but it is important to use the correct jet for the output required to achieve the optimum spray pattern. Also an anti siphon check valve is fitted to the jet body that requires pressure from the pump to open correctly.

If the output is only coming out of one jet, fit a smaller jets to increase the pressure. If the jet is too small for a high output requirement the output will not be achieved and the control box will display check flow.

The pump has a pressure release valve and if the pressure gets too high this may turn the pump off. If this happens release the pressure and fit a bigger jet or an additional jet body.

NOTE:

If the output is pulsing due to the wrong jet selection accuracy will be affected so check that there is a nice even spray pattern from each jet.

SINGLE JET litres per minute			
Yellow	Red	Light Blue	Black
0.50 - 1.00	1.10 - 2.0	2.00 - 3.90	4.00 - 5.00

TWIN JET litres per minute		
Yellow	Red	Light Blue
0.8 - 1.5	1.60 -2.5	2.60 - 5.00

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Applicator care and maintenance

The system should be flushed through with clean water after use.

The motor must be kept dry, avoid damage to wiring and pipe work.

If you suspect a blockage in the system the following components should be cleaned.

Filters

The filter should be cleaned at the end of each season or if "check flow" is repeatedly displayed.

Cleaning the Strainer

The strainer should be cleaned at the end of each season or if a blockage is suspected.

1. Unscrew filter assembly from pump
2. Unscrewing the clear bowl and removed the filter gauss.
3. Clean the gauss, body and bowl in clean water
4. Reassemble and refit.

Flow Sensor Cleaning

Remove the 2 M6 screws holding the pump chamber cover on and take the cover off.

NOTE: Undo the jubilee clips each side and remove pipes. Do not strain the cable.

Separate the two halves of the sensor body by removing the 4 socket cap screws. Although robust when separated the great care should be taken with the flow sensor impeller.

Gently lift out the impeller and thoroughly clean the in-put and out-put ports of the internal chamber.

Once clean, reassemble, Note that the impeller has 3 magnets molded into it. One side the faces a slightly bigger diameter. This is the side that goes down onto the half with the cable. Make sure the impeller seats into its centre bearing in both top and bottom halves.

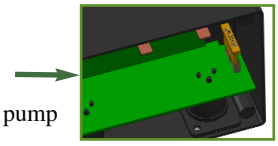
Check that the impeller spins by blowing into the inlet side of the flow sensor. You should hear it spin. If it does refit the 4 M3 screws and nuts and gently tighten. Check again that the impeller spins as before.

At no time should an air line be used on the flow sensor!

Refit the pipes and tighten jubilee clips.

Control box.

The control box has a 10amp fuse.



Fault finding

Control unit appears to working but pump is not running.

Unplug the power and pump leads and connect them together to check the pump.

(If the pump runs when this is done but not when the control box is connected it is possible to carry on using the applicator in this mode. The pump will run at maximum out put so an adjustment to the additive mix will be necessary to achieve the correct application rate.)

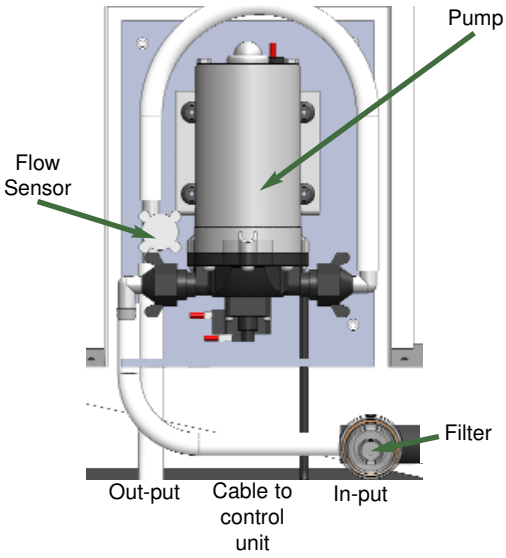
Pump runs at full or fixed speed regardless of flow setting.

Clean the flow sensor

Erratic operation and Display light flickers.

Check power supply is adequate.

Pump unit



Pump filter

Flow sensor

Impeller | Internal chamber | Check hole is clear

Pump test

Connect the power and pump leads together to check if the pump runs independently of the control unit.

Warranty All Selmech Supplies applicators are guaranteed against failure which can be attributed to faulty workmanship for a period of six months from date of delivery.

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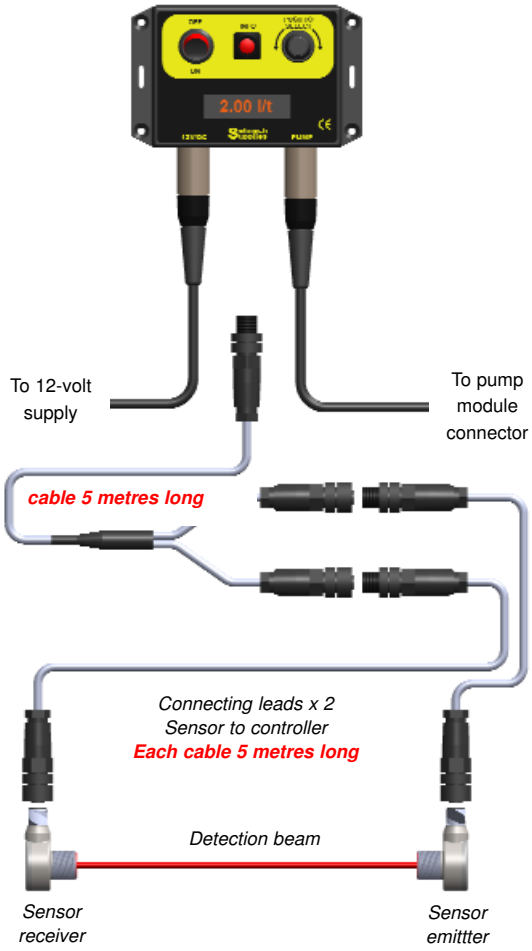
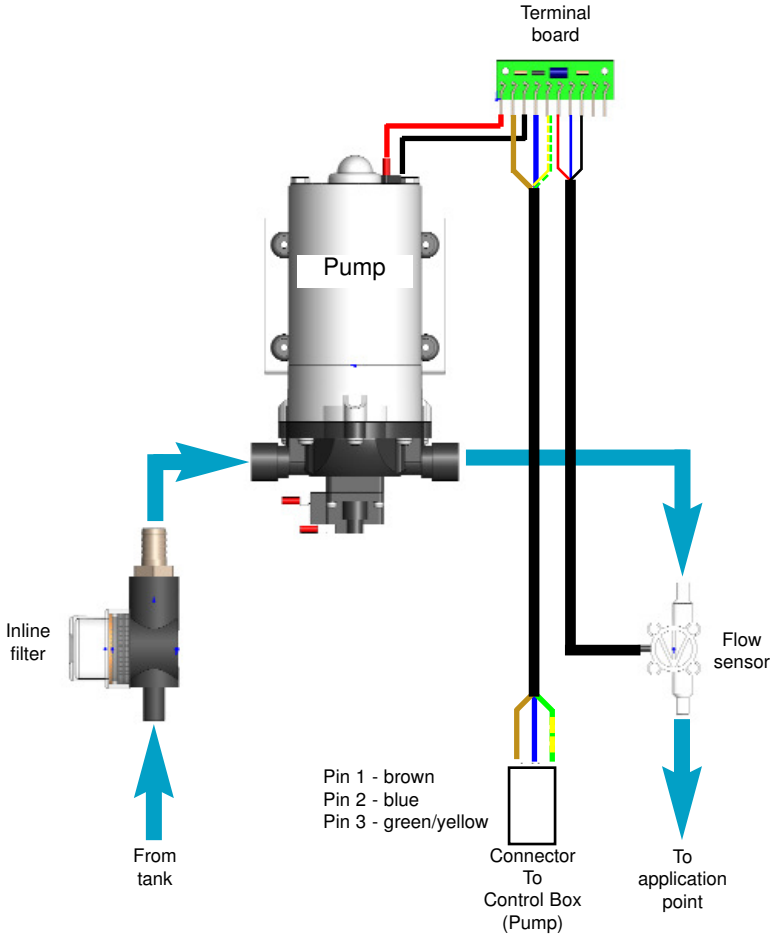
Connection schematic diagram

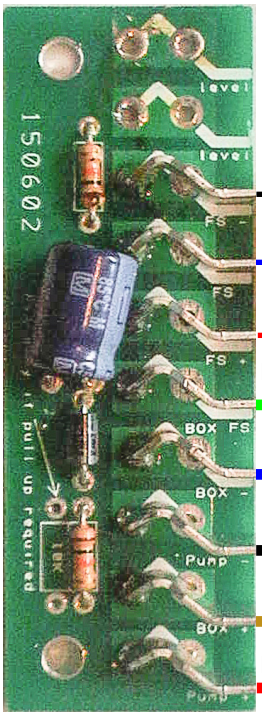




Crop detector installation

The photoelectric sensors should be mounted so that they look across the point where you want the swath to be detected. For example at the point of the pick-up where the swath is transferred into the baler/forage wagon. There are two mounting brackets supplied. The sensor has a visible red beam to help alignment.

Terminal board connections



FLOW SENSOR SCREEN - BLACK

FLOW SENSOR - BLUE

FLOW SENSOR - RED

MODULE CONNECTOR PIN 3 - GREEN/YELLOW

MODULE CONNECTOR PIN 2 - BLUE

PUMP - BLACK

MODULE CONNECTOR PIN 1 - BROWN

PUMP - RED

Diaphragm Pump

TROUBLESHOOTING

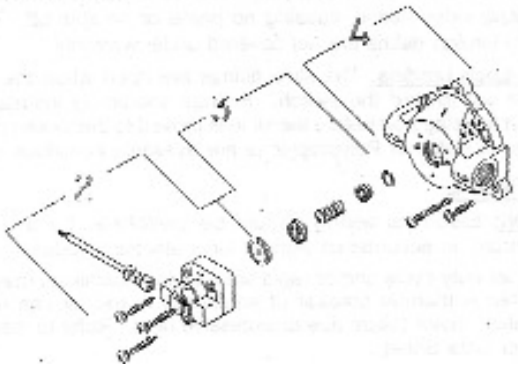
PUMP WILL NOT START:
- ✓ Fuse or breaker
- ✓ For correct voltage (±10%) and electrical connections
- ✓ Pressure switch operation and correct voltage at switch or motor wires (as equipped).
- ✓ Rectifier or motor for open or grounded circuit
- ✓ For locked drive assembly

WILL NOT PRIME: (No discharge/motor runs)
- ✓ Out of product
- ✓ Strainer for debris
- ✓ Inlet tubing/plumbing; severe vacuum leak
- ✓ Inlet/Outlet tube severely restricted (kinked)
- ✓ Debris in pump inlet/outlet valves
- ✓ Proper voltage with the pump operating (+10%)
- ✓ Pump housing for cracks

LEAKS FROM PUMP HEAD OR SWITCH:
- ✓ For loose screws at switch or pump head.
- ✓ Switch diaphragm ruptured or pinched
- ✓ For punctured diaphragm if fluid is present at bottom drain holes.

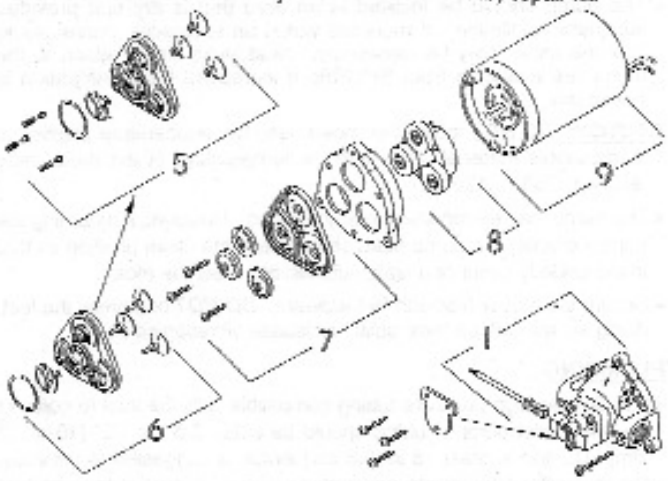
PUMP WILL NOT SHUT-OFF (Pressure switch equip.)
- ✓ Output line closed and no leaks
- ✓ For air trapped in outlet line or pump head
- ✓ For correct voltage to pump (±10%)
- ✓ Inlet/Outlet valves for debris or swelling
- ✓ For loose drive assembly or pump head screws
- ✓ Pressure switch operation/adjustment incorrect refer to SIR #1031 for differential and pressure adjustment procedure

NOISY / ROUGH OPERATION
- ✓ Mounting feet that are compressed to tight
- ✓ For loose pump head or drive screws
- ✓ Does the mounting surface multiply noise (flexible)
- ✓ Is the pump plumbed with rigid pipe causing noise to transmit



SERVICE KITS

Kits are readily available to repair standard 9000 series pumps. Repair kits include simple illustrated instructions allowing easy installation. To insure that the correct kit is received the model numbered and all name plate data must be included with the order. Contact a SHURflo distributor or SHURflo directly to order the necessary repair kit.



KEY#	DESCRIPTION
1	Complete assembled pump head
2	Pressure switch assembly
3	Check valve components
4	Upper housing
5	Bypass valve and discharge valve assembly
6	Valve plate assembly
7	Diaphragm and piston components
8	Drive assembly
9	Motor assembly (less base plate)

Fault	Diagnosis	Remedy
Motor will not run	Wire incorrectly connected or damaged	Check power connection
		Check control box wires.
	Fuse blow	Replace fuse – check for reasons for blown fuse before restarting.
Motor runs but no output	Defective motor	Contact Selmech Supplies.
	Pump leads wrongly connected	Connect leads correctly
	Jet blocked	Clean jet
	Tubing kinked	Remove kink and re-route tubing troubleshooting
Motor runs but poor output		Refer to Diaphragm Pump
	Strainer blocked	Clean Strainer
	Jet blocked	Clean
	Jet too small	Replace with larger jet
	Tubing kinked	Remove kink and re-route tubing
	Tube split	Replace tube
	Barrel empty	Fill barrel or replace
	Wrong application rate	Re-calibrate
Output seems inaccurate	Output could be pulsing	Check jet size is correct
“CHECK FLOW” displayed constantly	Control box settings outside of limits	Refer to Warning message - LIMIT in user manual
	Flow sensor blocked	Refer to Flow Sensor Cleaning section
	Damaged or broken cable	Check the continuity of the cable particularly the Green/Yellow wire from the tag board in the applicator to the 3 pin plug at the control box.
		Use the "Diagnostic Mode" to check if pulses are being detected from the flowsensor when the pump is running.
	Low voltage	Check supply voltage is good