



*Manufacturers of Agricultural Machinery since 1988*



# Hi-Spec Trail-S

## User Manual

Models: 6.0 TRAIL-S  
7.5 TRAIL-S  
9.0 TRAIL-S

Revision no. \_\_\_\_\_



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# 1.

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## Introduction

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### **Congratulations on Purchasing your Hi-Spec Vacuum Tanker!**

#### **Please Read the Following Manual Before Using Machine.**

The way you care for and maintain this machine will decide its future performance. This manual has been carefully written to help you maintain the condition of your machine. Read this manual carefully to learn how to operate and service your machine correctly. Failure to do so could result in personal injury or machine damage.

Hi-Spec Vacuum Tankers have been designed and manufactured in compliance with the following directives and standards;

*Machinery Directive 2006/42/EEC.*

Harmonised standards;

*EN ISO 12100-1:2003, Safety of machinery Part 1: Basic terminology, methodology*

*EN ISO 12100-2:2003, Safety of machinery Part 2: Technical principles*

*EN ISO 4254-1:2005, Agricultural machinery -- Safety -- Part 1: General requirements*

*BS EN 707:1999+A1:2009, Agricultural machinery, Slurry Tankers, Safety*

This manual should be kept within the vicinity of the machine at all times and should be considered a permanent part of your machine. It should remain with the machine should you decide to sell it.

Warranty is provided as a part of Hi-Spec Engineering's support program for customers who operate and maintain this machine and equipment as described in this manual. This warranty provides you the assurance that Hi-Spec Engineering will back its machines should defects appear within the warranty period. If the machine is abused, or modified to change its performance beyond the original factory specifications, the warranty will become void and improvements may be denied.

All information, illustrations and specifications in this manual are based on the latest product information available at the time of publication.

It is the policy of Hi-Spec Engineering to improve its products and designs whenever it is practical and possible to do so. We reserve the right to make changes or improvements at any time without incurring any obligation to make such changes on products sold previously

**Thank You for Choosing Hi-Spec Engineering**

## 2.

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### Foreword

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To ensure personal safety and the safety of others, please ensure that everybody that operates the machine reads and fully understands this manual prior to operation. It is essential that you observe all safety instructions. It is the responsibility of the owner to advise the operator of the operating instructions and make sure they fully understand all instructions. Failure to do so may lead to personal injury and/or machine damage. Using the vacuum tanker is a one person operation therefore there should be no other person(s) in the vicinity of the machine while in use. Person under the age of 16 must not operate the machine

#### Designated Use of Machine

Hi-Spec Engineering will not be held responsible for any loss or damage resulting from machine applications other than those specified above. Any other use the machine may be put to is entirely at the owners/operators risk. The Designated use of a Trailing Shoe includes that the operating, maintenance and repair instructions given by the manufacturer will be strictly fulfilled. Designated use means operating the Trailing Shoe is exclusively for persons familiar with the machine and fully aware of the associated risks involved in operating it.

Intended Use:

Trailing Shoe – **Machine for distributing slurry, sludge or water.**

### 3.

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## Safety

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### Recognise Safety Information.



Please pay attention to these signs for your own safety

This is a safety alert symbol. When you see this symbol on your machine or in this manual be alert to the potential for personal injury.

Follow the recommended guidelines for safe operating practice:

Understand signal words: - On machine safety signs, signal words give the level of the hazard.

### Danger



Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

### Warning



Indicates a potentially more hazardous situation which, if not avoided, could result in death or serious injury.

### Caution



Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. You will find these signs located near specific hazards on your machinery.



*Safety signs* should be maintained and replaced when necessary.

They can often become dirty, torn or unreadable due to dirt and wear and tear.

If you need a replacement sign or have lost your user manual, please contact your Hi-Spec authorised dealer or Hi-Spec engineering directly and we would be happy to issue you with a replacement.

## **General Safety**

Keep a first-aid kit and a fire extinguisher close by at all times, if possible, on your tractor with this operator instruction manual.

- Have an emergency plan.
- Keep all emergency numbers close by; write them into your manual.
- Inspect your machine carefully each time before use; this will only take a minute.
- Remember that the first step to avoiding danger is to recognise the hazards.



## Safety Checklist

### “ DO’S “

- Always disconnect all power sources before carrying out any adjustment or maintenance.
- Always check around the machine making sure everything is in order; this will only take a minute.
- Study this manual. Provide training to new users. Like all farm machinery, any machine is potentially dangerous when under the control of untrained personnel.
- Always ensure guards and other safety devices are kept in good working order. Replace if necessary.
- Keep clear of all moving parts.
- Always keep all hydraulic hoses and electric cables clear from PTO shaft.
- Always apply the handbrake before unhitching and park the machine in a level area.
- Always take extra precautions when using the machine on hilly or sloping ground.
- Before unfolding the machine, ensure that no one is standing in the operating area.
- Before traveling on roadways set machine in transport position.

### “ DON’T’S “

- X Never permit untrained personnel to operate the machine without reading this manual and or receiving training.
- X Never operate the machine without having all guards in place; they are there for your safety and protection against serious injury and death.
- X Never remove guards while there is still power going into the machine, all power must be off!
- X Never operate the machine if you think there could be large stones or foreign objects inside, they could cause serious damage to your machine.
- X Never leave the machine running when unattended.
- X If the machine should become blocked with a stone or foreign object, do not attempt to free the object while the tractor is running.

## Description of Safety Warnings and Instructions

The following is a list of safety signs and warning labels on the Hi-Spec Trailing Shoe. Look carefully and make sure you know where on the machine they are positioned and what they mean.



Cut/sever hazard



Always read the manual before operating the machine



Always turn off the machine before carrying out any maintenance





## 4

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### Getting Started

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#### 4.1

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#### Machine Requirements

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- 1x double acting service set to 70L/min (for the folding and unfolding service as well as running the macerator )
- 1x double acting service ( for lift and lower )
- 1x 12volt power supply(cab mounted diverter switch)

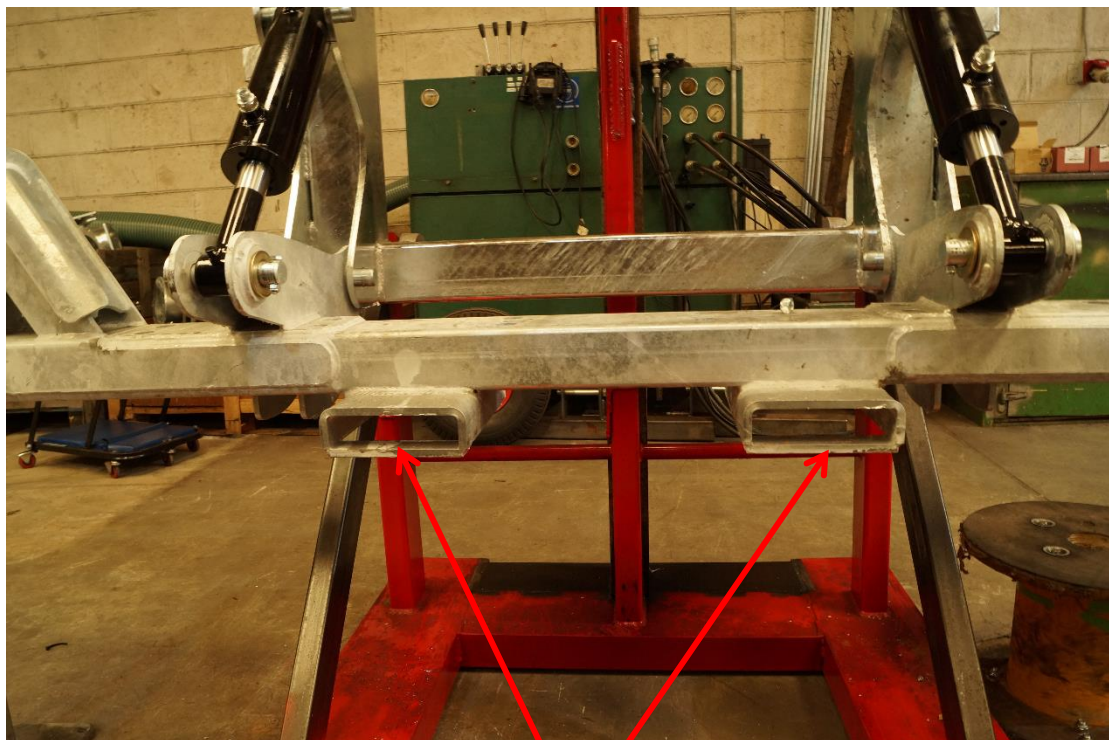
## 4.2

### Fitting Trailing Shoe to machine

The trailing shoe is mounted to the tanker at three points. The two lower points use a hook and pin type coupling, this is to allow the machine to be lifted on to the tanker easily. The top point is coupled by a pin this secures the trailing shoe to the taker.



- Preform installation on flat level ground.
- Lift trailing shoe with pallet forks at designated points.
- Lift trailing shoe into position on the tanker.
- Line up the lower hooks with the mounts on the tanker
- Lower the trailing shoe making sure that the hooks are seated on the pins.
- Move the trailing shoe until the top hole lines up with the corresponding hole on the tanker and install the pin.



Pallet fork lifting points

## 4.3

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### Fitting hydraulics

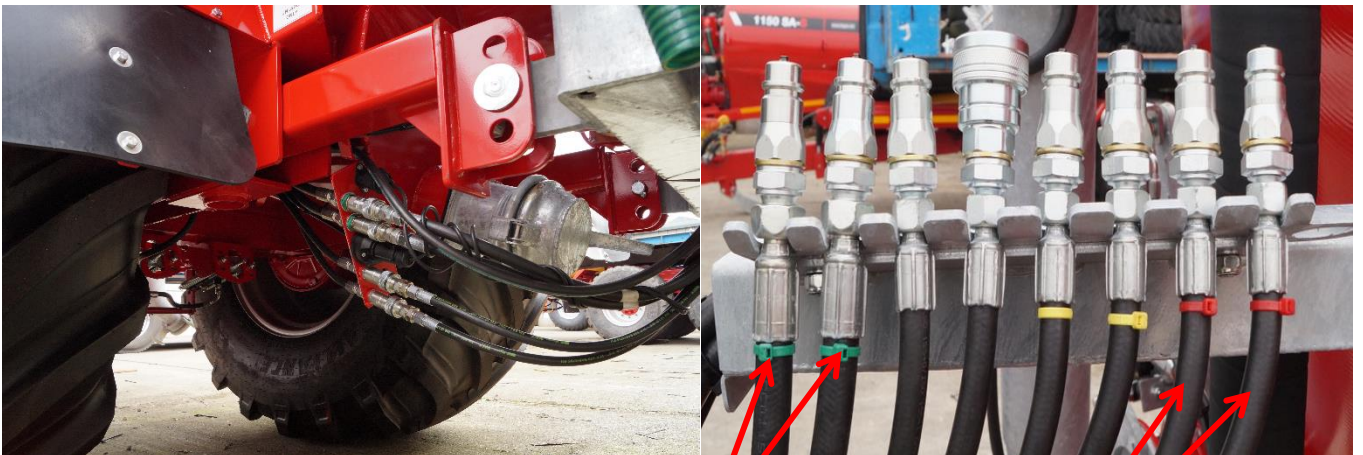
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The hydraulic services for the trailing shoe are located at the back of the tanker. This is to allow the removal of the trailing shoe unit from the back of the tanker (as shown in picture below). These services control the folding/unfolding of the boom, the macerator and gate and the raising / lowering of the trailing shoe.

The macerator and gate service are shared with the folding and unfolding service, this is selected by using the electronic control box.

- Ensure hydraulic quick –connect fittings are clean and dirt free
- Ensure all hydraulic fitting are properly connected to the tractor
- Hydraulic services are colour coded by function

#### Hydraulic & Electric services location



Green = Macerator and Gate / Fold and Unfold

Red= Raise and Lower Trailing Shoe

## 4.4

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### Fitting electrics

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The electrical services are located at the back of the tanker in the same place as the hydraulics. These are to supply power to the lights and to the electrical solenoid valve for controlling the hydraulics.

- The lights are supplied with power by a 7-pin plug, which is connected at the back of the cab
- The electrical functions are supplied with power via 3-pin plug, connected inside the cab.



## 4.5

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### Using the Diverter Valve

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To reduce the number of double acting services need to operate the machine a diverter valve is used. This valve is electronically controlled from a switch box, which is mounted inside the cab of the tractor. This valve allows the operator to select between using the macerator/ gate and the fold/ unfold function, with the same hydraulic spool valve.

In the first position shown below, the switch is set to control the folding / unfolding of the machine. Using the spool valve now will fold or unfold the machine.

In the second position shown, the switch is set to control the macerator and gate valve. The gate valve is opened automatically by the backpressure created by the motor on the macerator. The light on the switch will turn on when the macerator is selected.



Switch set in fold / unfold position



Switch set in macerator / gate position (light is on)

## 4.5

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### Operating Instructions

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The following combinations will give quickest cycle time.

#### Trailing Shoe Operation

1. Unfold trailing shoe using the double acting service.
2. Lower the trailing shoe using the next double acting service.
3. Set vacuum pump to spread
4. Engage PTO and operate at 540 RPM max.
5. Select correct forward speed for spreading rate.
6. Ensure that the diverter switch in the cab is set operate the macerator
7. Operate the double acting service and start the macerator. This should also open the gate to the macerator. (The hydraulic line from the splash plate can be moved to the gate for manual operation.)
8. When finished spreading reverse step 1-7.

**Allow 5 seconds between turning off the macerator and switching over to folding the boom. As the macerator takes time to slow down. If the oil cannot escape back to tank, the back pressure will open the gate slightly causing problems when filling.**

**Set lever to float when stopping the macerator.**

**To reduce wear on the macerator blades, the direction of drive should be reversed every second cycle. This is done by operating the double acting spool in the opposite direction.**

**N.B. Never run the PTO shaft when it is not straight.  
Never run the macerator dry for more than 30 seconds.**

## Splash plate operation

1. Set vacuum pump to spread.
2. Engage PTO and operate at 540 RPM max.
3. Select the correct forward speed for spreading rate.
4. Open the splash plate gate by using the single acting service.
5. When finished spreading reverse step 1-4.





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# Road Transportation

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- Before bringing your machine onto a public road, it is important to check thoroughly that the machine is following all of the appropriate guidelines.
- Ensure lights are connected and working correctly.
- Observe local maximum road speeds for this type of machine.
- Hi-Spec Engineering strongly recommends extreme care to be taken by the operator when travelling on rough roads with a loaded machine. Owners and / or operators do so at their own risk.
- The operator must ensure that any other regulations regarding road use are adhered to.
- Extreme care must be taken when negotiating acute bends with high speed tractors.
- Observe local maximum road speeds for this type of machine.
- The operator must ensure that any other regulations regarding road use are adhered to.
- The trailing shoe has a locking valve to stop the boom creeping down (picture below)



## 7

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# General Maintenance

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### Daily:

- Empty stone trap, to empty the stone trap simply unfold the emptying hose to release any unwanted material.
- Grease macerator

### Weekly:

- Check that all controls operate freely.
- Grease all grease nipples.
- Check all hoses for cracks. Replace if necessary.
- Wash out macerator air ducts out with water
- Tighten all nuts and bolts to ensure that they don't come lose.

### Annually:

- Wash the macerator by spreading water.
- Open macerator and check for wear.

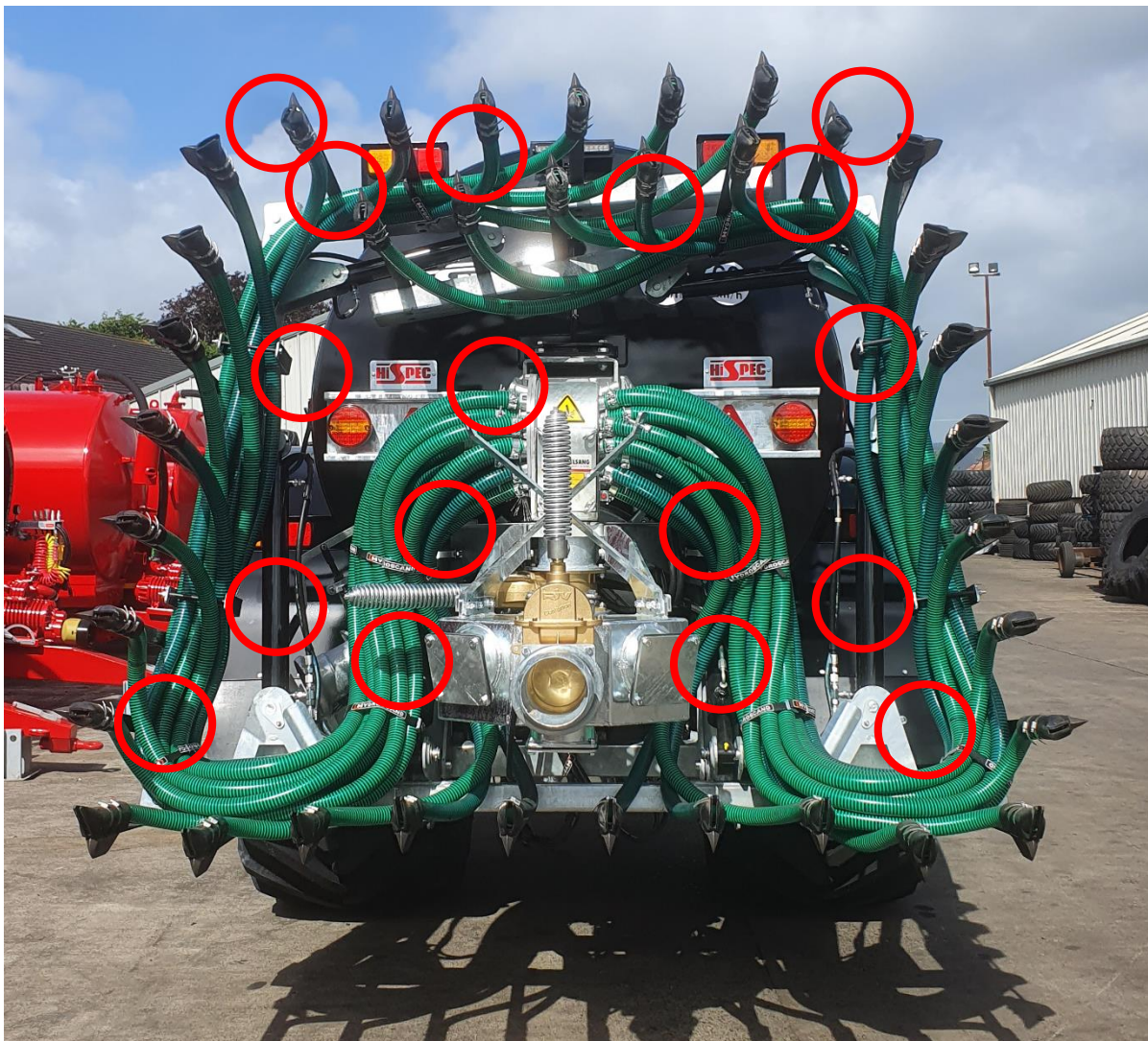
**Note!** If the machine is to be stored for a long period of time, grease the macerator knife and plates.

**For maintenance regarding the macerator please look at the Vogelsang ExaCut ECL operators manual.**

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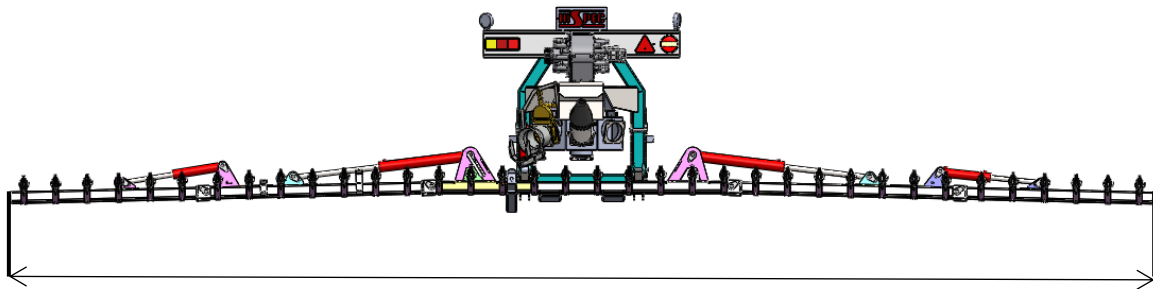
## Greasing Points

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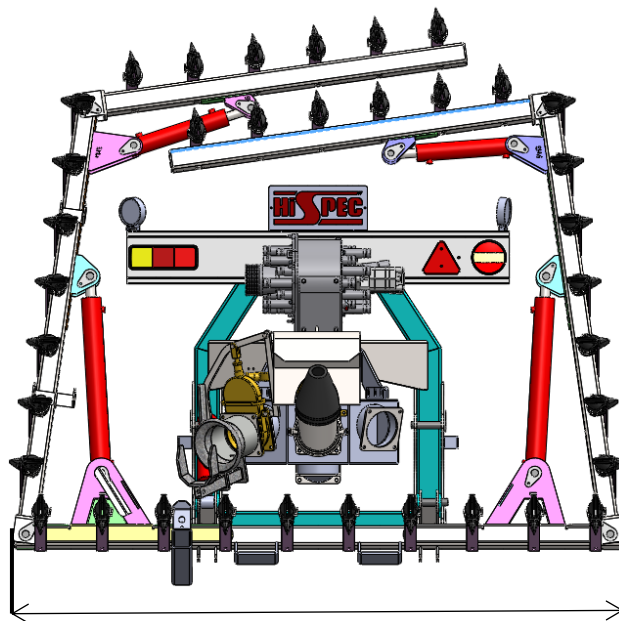


9

*Dimensions*



A



B

Model	Working width (mm) A	Transport width (mm) B	Unladen weight (kg)
6.0 TRAIL-S	6000	2550	700
7.5 TRAIL-S	7500	2550	850
9.0 TRAIL-S	9000	2550	1000



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## Trouble Shooting

Fault	Possible Cause	Action To Be Taken
Macerator vibrates.	Rotor runs too slowly.	Check hydraulic settings.
	Rotor is clogged.	Clean macerator.
	Ventilation is blocked.	Clean out ventilation pipes.
Bad distribution.	Rotor speed too high.	Check hydraulic settings.
	Pressure in tank too low.	Check vacuum pump setting.
	Macerator not running.	Check power at solenoid valve or hydraulic flow to the motor.
Only a few hoses are fed with slurry.	Rotor not turning.	Reverse rotor several times.
		Open macerator and clear blockage.
		Check if motor is running.
Macerator will not run.	No hydraulic flow reaching the motor.	Check if power is getting to solenoid valve or hydraulic flow to the motor.
Macerator will not turn.	Corrosion between knives and screen.	Try to turn rotor manually.
Gate valve opens slightly.	Trapped backpressure from macerator slowing down.	Float valve and allow 5 seconds before switching between macerator and fold/unfold
Gate valve not opening.	Too little oil flow.	Increase the amount of oil being sent to the macerator.
Outside shoes lifting.	Too much flow.	Lower the amount of oil being sent to the macerator.

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## Sales and Service

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### **Ireland**

#### **Head office**

Hi-Spec Engineering Ltd., Station Rd, Bagenalstown, Co. Carlow, Ireland

Tel: - +353 59 9721929 Fax: - +353 59 9721980

Email: - [sales@hispec.net](mailto:sales@hispec.net) or [info@hispec.net](mailto:info@hispec.net)

#### **After Sales Service**

Contact: - Eoin Keane, Hi-Spec Engineering Ltd. Tel: - +353 87 2562963

Email: - [eoin@hispec.net](mailto:eoin@hispec.net)

#### **Machine Servicing**

Contact: - Michael Brennan, Hi-Spec Engineering Ltd. Tel: - +353 87 2403312

#### **Spare Parts Store**

Contact: Mike Nolan or Terence Byrne, Hi-Spec Engineering Ltd.

Tel: - +353 59 9721929 Fax: - +353 59 9721980

Email: - [stores@hispec.net](mailto:stores@hispec.net)

### **U.K.**

#### **After Sales service:**

#### **Wales @ Southern England**

Contact: - Ed Lewis, Hi-Spec Engineering Ltd. Tel: - +44 7876 452698

Email: [elewis@hispec.net](mailto:elewis@hispec.net)

#### **Northern England & Scotland**

Contact: - Gordon Brodie, Hi-Spec Engineering Ltd. Tel: - +44 7799 905130

Email: - [gordon@hispec.net](mailto:gordon@hispec.net)

#### **For spare parts**

Contact: - Your local Hi-Spec dealer. If you require a contact name and number you can telephone head office and we would be glad to assist you.

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# Warranty

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The following is a list of warranty terms. Warranty claims will be disallowed if they do not fall into the categories shown here.

### **Warranty Terms**

1 Year Warranty on Vacuum Pump, manufacturing defects.

### **NO Warranty on the following:**

- ⊗ Hydraulic fittings
- ⊗ Hydraulic hoses
- ⊗ Electrical connections between machine and tractor
- ⊗ Suction hoses

### **NO Warranty allowed for breakdowns due to:**

- ⊗ Misuse of the machine, e.g. overloading by the operator.
- ⊗ Lack of maintenance, e.g. failure to carry out regular oiling and greasing of components and bearings where appropriate.



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## Registration Forms

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Hi-Spec Engineering Ltd.  
Station Rd., Bagenalstown,  
Co. Carlow, Ireland  
**Tel: - 059 9721929**  
**Fax: - 059 9721980**

Please complete the following forms in full.

The first is a warranty registration form; this form is issued in accordance with our conditions of sale and with particular reference to the condition governing warranty. We cannot process a claim unless all particulars are supplied.

The second is an acceptance form, which the purchaser is asked to sign to acknowledge he/she has received a copy of the Operator manual and full training for the machine purchased.

Please do not sign if you have not received both of these.

### **Warranty Registration**

Date of Purchase: \_\_\_\_\_  
Purchaser's Name: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Dealer's Name: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Machine Type: \_\_\_\_\_  
Machine Model: \_\_\_\_\_  
Serial Number: \_\_\_\_\_

### **Training & Operator Manual Registration**

Please sign the following declaration to state that on the day you (the purchaser) purchased a Hi-Spec Vacuum Tanker you received an operator manual and training instructions.

I, the purchaser have received my Hi-Spec Vacuum Tanker Operator Manual and training from the below dealer

Purchaser: \_\_\_\_\_ Signature: \_\_\_\_\_  
Date: \_\_\_\_\_  
Dealer: \_\_\_\_\_ Signature: \_\_\_\_\_  
Date: \_\_\_\_\_

*This copy is to be kept in your manual for your reference.*





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## Registration Forms

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Phone: \_\_\_\_\_  
Dealer's Name: \_\_\_\_\_  
Signature: \_\_\_\_\_  
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I, the purchaser have received my Hi-Spec Vacuum Tanker Operator Manual and training from the below dealer

Purchaser: \_\_\_\_\_ Signature: \_\_\_\_\_  
Date: \_\_\_\_\_  
Dealer: \_\_\_\_\_ Signature: \_\_\_\_\_  
Date: \_\_\_\_\_

*This copy is to be posted to Hi-Spec Engineering or given to your dealer*



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## Declaration of Conformity

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### EC Machinery Directive

2006/42/EC

We hereby certify that the machinery stipulated below complies with all relevant provisions of the EC Machinery Directive and the National Laws and Regulations adopting this Directive.

Modifications to the machine without prior approval from the undersigned will render this declaration null and void.

Machine Description and Function:	<b>Vacuum Tank designed for the use of handling and spreading slurry</b>
Make:	<b>Hi-Spec</b>
Model:	<b>800 – 4500 gallon</b>
Serial Number:	_____
Manufacturer:	<b>Hi-Spec Engineering Ltd.</b>
Address:	<b>Station Rd, Bagenalstown, Co. Carlow, Ireland</b>

Technical file compiled by: Tommy Quirke, Seskinrea, The Ridge, Co. Kilkenny

Harmonised standards applied:

EN ISO 12100-1:2003, Safety of machinery Part 1: Basic terminology, methodology  
EN ISO 12100-2:2003, Safety of machinery Part 2: Technical principles  
EN ISO 4254-1:2005, Agricultural machinery -- Safety -- Part 1: General requirements  
BS EN 707:1999+A1:2009, Agricultural machinery, Slurry Tankers, Safety

Signed: \_\_\_\_\_

Date: \_\_\_\_ / \_\_\_\_ / 20\_\_\_\_

Name: **Mike Nolan**

Position: **Managing Director**

Being the responsible person appointed by the manufacturer.

Hi-Spec Engineering reserve the right to make changes and improvements at any time without incurring any obligation to make such changes on products previously sold.