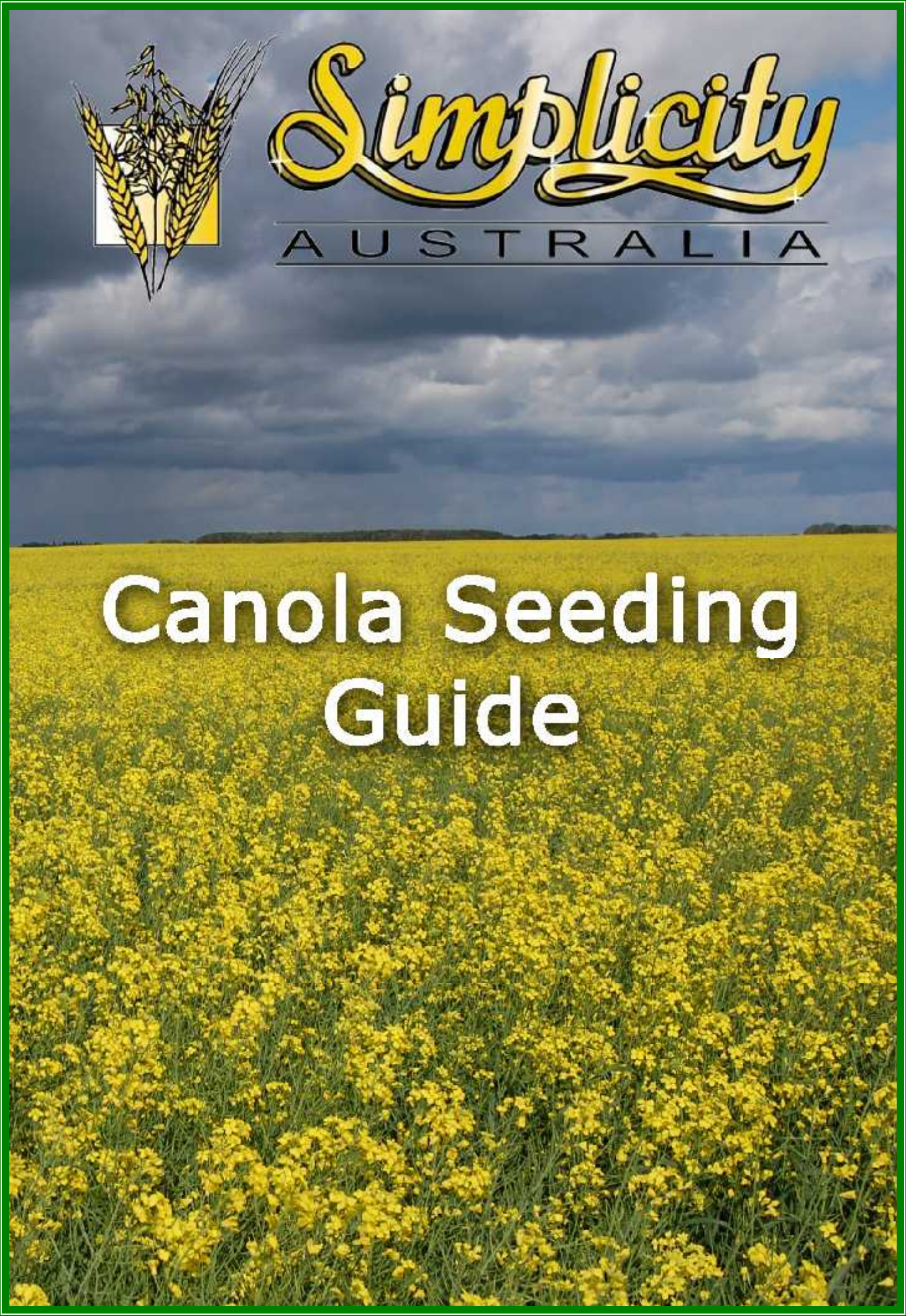

Simplicity
AUSTRALIA
Canola Seeding Guide

CONTENTS

1.0 Introduction

Simplicity Australia is no stranger to seeding Canola. For many years growers across Australia have seeded Canola with their Simplicity Air Seeders with overwhelming success.

In recent times we have seen canola seeding changing. Rates are quickly becoming fractions of what they once were and seed costs continue to rise. With the building popularity of hybrid and roundup ready canola and its subsequent cost, even a small variance in rate can work out to be very costly.

With these changes we have seen a sharp increase in the popularity of our small seeds boxes. There is no doubt small seeds boxes are a simple and effective solution to seeding very low rates accurately.

When it comes to seeding these same low rates out of a primary bin, though in most cases it is possible to be very accurate, care must be taken and correct procedure followed. It would be true to say that there is a much greater margin for error when seeding canola at low rates from the primary bin when compared to a small seeds box.

This guide covers many of the issues which we see overlooked regularly when seeding canola. Ignoring any one of the following problems can prove to be quite a frustrating and costly exercise.

The purpose of this guide is to see our customers more aware of their Simplicity Air Seeders capabilities. It is our intention to help you avoid some of the pitfalls and utilise your Simplicity Air Seeder to its fullest potential.

2.0 Seeding Kit Setup

Simplicity Australia designs a seeding kit to achieve maximum performance from the Simplicity Air Seeder. Seeding kits and the correct fitment has a direct relationship to Air Seeder performance. Incorrect seeding kit set up can result in problems such as blockages, force feeding, unacceptable distribution, poor Air Seeder performance and low or uneven crop yields.

To achieve maximum performance from the Simplicity Air Seeder, the correct fitting of a genuine Simplicity Australia seeding kit is highly advisable.

Consideration should be given to the following points prior to fitting the seeding kit.

- Secondary heads should be located as central as possible to the seeding boots they are to feed
- Primary dividers should be mounted in such a position so as to keep the secondary hose to an acceptable length (under 5m).
- All primary hoses should be the same length
- All secondary hoses should be the same length and where possible not to greatly exceed five metres.
- The Air Seeder delivers a set volume of air relevant to the blower speed. Reducing the hose size and/or using smaller diameter seeding boots will restrict the air flow. Avoid restricting the air flow

IMPORTANT

Operating pressure of 7Kpa and above is considered excessive during normal operating conditions. Pressure in excess of 7Kpa should be investigated for restriction. It may be necessary to alter the layout of your seeding kit to optimise airflow and blower performance.

Air pressure and blower speed should be kept to a minimum for best results with Canola

3.0 Checking for Air Leaks

During sowing operations the bins are pressure equalized through the metering units. It is therefore very important that there are no air leaks in the metering units or the bins themselves. Leaks can occur in various places and can cause loss of pressure or pressure imbalance which may result in sowing rates becoming erratic or stalling.

To avoid problems with the sowing rates it is recommended to check for air leaks prior to sowing.

This is achieved by following the steps below:

- Disconnect primary lines at the camlock couplings.
- Fit all camlock plugs except one (leaving one line open to allow a flow of air). By fitting all the plugs except one an air restriction will be created with a back pressure formed in the bins and metering units.

- Run the blower at approx. 3500 rpm.

Air leaks are more easily detected if fingers are wet

Check the following areas for leaks.

- Bin lid seals.
- Sealing between metering units and bins.
- Metering spool window seals.
- Swing away bottom door seals.
- Spool and agitator shaft seals
- Bin dividers
- Camlock couplings

A spray bottle with soapy water can be used to find small leaks easily

Air leaks, with the exception of bin dividers, can be detected by running hands around the sealing areas feeling for any air escaping around the seals.

CAUTION: Do NOT open bin lids or swing away doors while blower is operating. Release of doors under pressure could result in injury

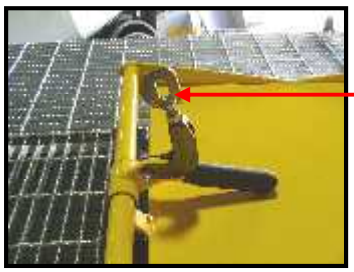
If air leaks are detected around the bin lids, stop the blower, open the lids and check the condition of the seals. Repair and adjust if necessary by following the procedures outlined below and with consideration to the following:

3.1 Bin Lid Leaks

Check the seal inside the bin lid for damage. If damaged replace the seal.

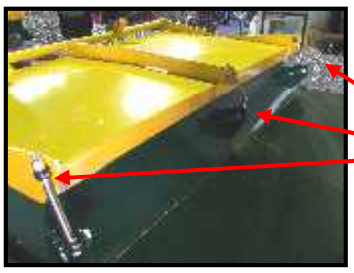
- Check that the seal is positioned so it will contact the lip around the top of the bin when the lid is closed.

- When closing the lids check that the latches close with 'over centre' force. This will ensure that the lids are tight and pressure is applied to the seal.



- Over centre adjustment is achieved by adjusting the eye of the latches in or out until desired pressure is obtained.

Closing force must be even front to back to ensure a correct seal.



- Further adjustment is available by tightening the lock nuts on the hinges.

3.2 Internal Divider Leaks

Internal bin divider leaks can cause differing pressures in the bins. This can result in rates being both higher and/or lower than calibrated due to the air moving around within the seeder.

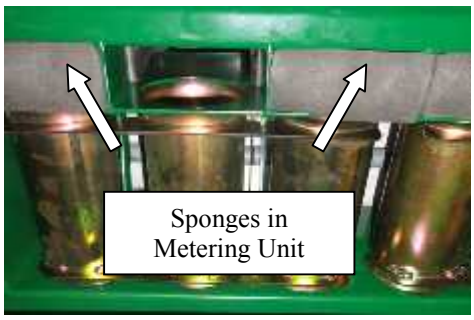
The bin dividers must be fully sealed with silicon as air leaks internally between the bins can be detrimental to the accuracy of the sowing operation.

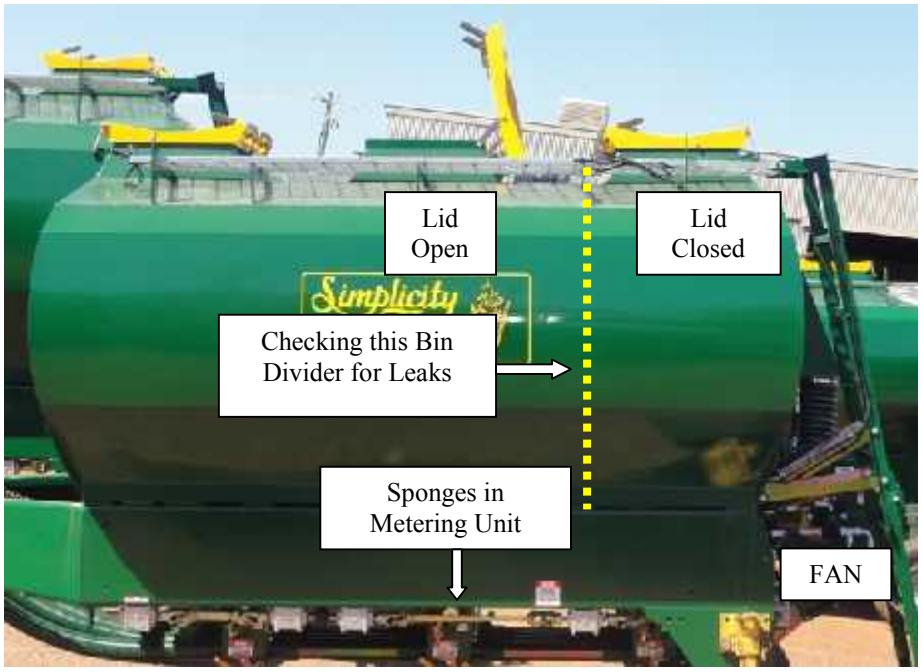
If a leak has occurred a visual check can show a clean area on the bin wall that is usually dusty. This is caused by an air stream coming through the bin divider and blowing product from a section of the wall around the leak area.

A leak in a bin divider can also be detected as follows:

- Fit all but one camlock plug.
- Sponge off plugged lines in the second metering unit from the fan.
- Ensure metering unit bottom doors are securely closed.

- With the lid closed securely on the bin closest to the fan, open the next bin lid. *(On a three bin seeder this will be the middle bin, on a two bin it will be the front bin.)*

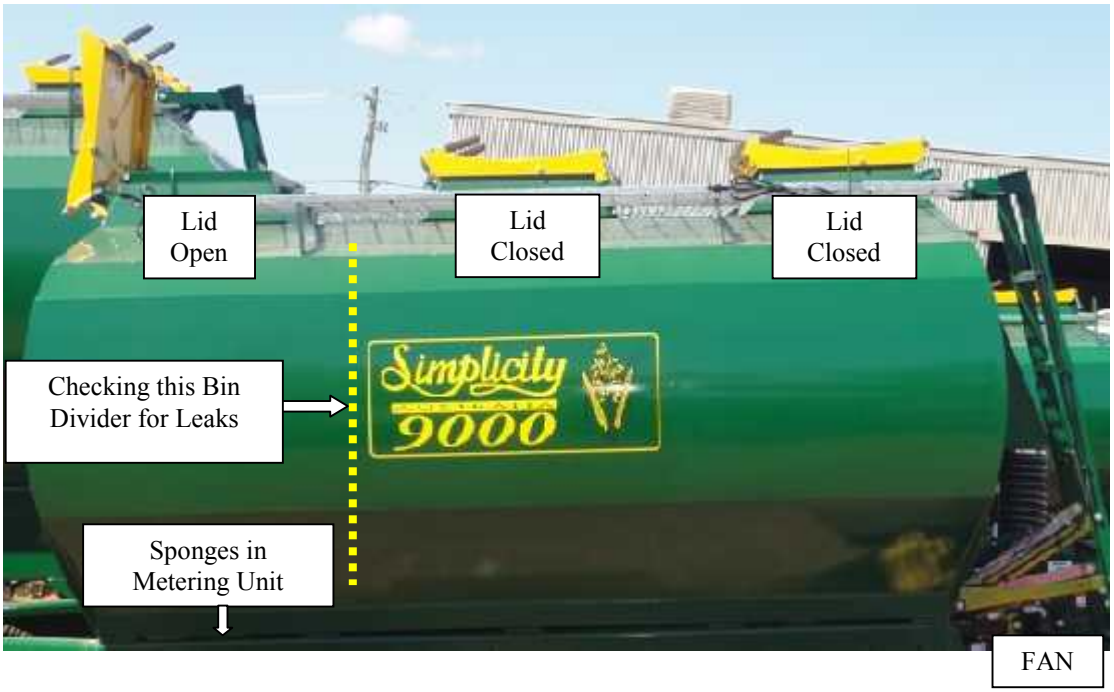




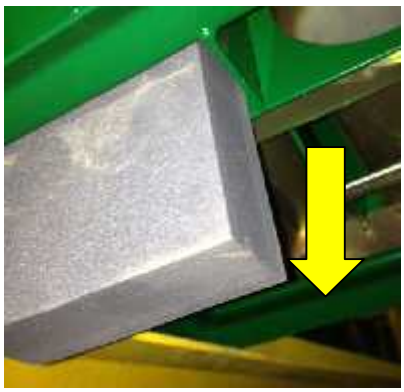
- Run the fan at 3500 RPM.
- Use a spray bottle with soapy water and spray around the bin divider towards the tank closest to the fan.
- Watch for bubbles indicating a leak.
- Stop the fan.
- To check next bin divider, remove sponges from 2nd metering unit and place in metering unit furthest from the fan. Repeat the process working away from the fan.

WARNING

Do not enter any bin unless tractor is switched off and the key removed. Always have another person present when working in the bin.



- Make sure the lids on first 2 bins are securely closed and open the lid on bin furthest from the fan.
- Run the fan at 3500 RPM.
- Spray soapy water on the bin divider and look for bubbles indicating divider leak.
- Stop the fan and repair if necessary.
- **Remember to remove sponges from metering unit!**



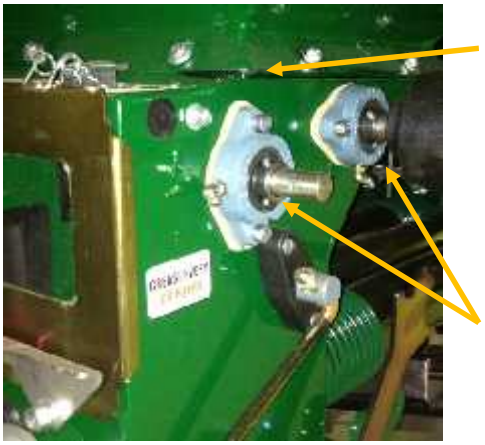
To repair a bin divider air leak, the bin divider must be completely removed and resealed.

IMPORTANT

Bin dividers must be completely sealed to prevent air transfer between bins

3.3 Metering Unit Leaks

Check for leaks around the metering unit, particularly in the following locations:



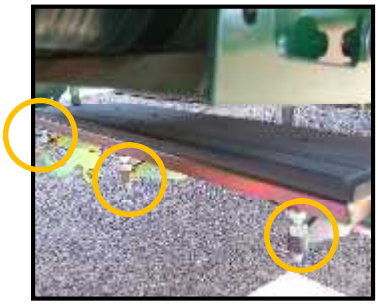
- Seal between metering unit and bins. Small leaks can be fixed from the inside using a polyurethane sealant like *Sikaflex*.
- Spool shaft and agitator shaft seals.

Metering unit window seals.

Using a wet finger, or spray bottle with soapy water check around the window for air leaks. Also check around the inspection windows. Remove the window and check for damage or foreign matter caught between the seal and the surface.

Bottom door seal

If an air leak is detected around the swing away door, check the seal inside the doors for damage and replace if necessary. Make certain that there is no seed or fertilizer likely to be wedged between the door seal and the sealing surface.



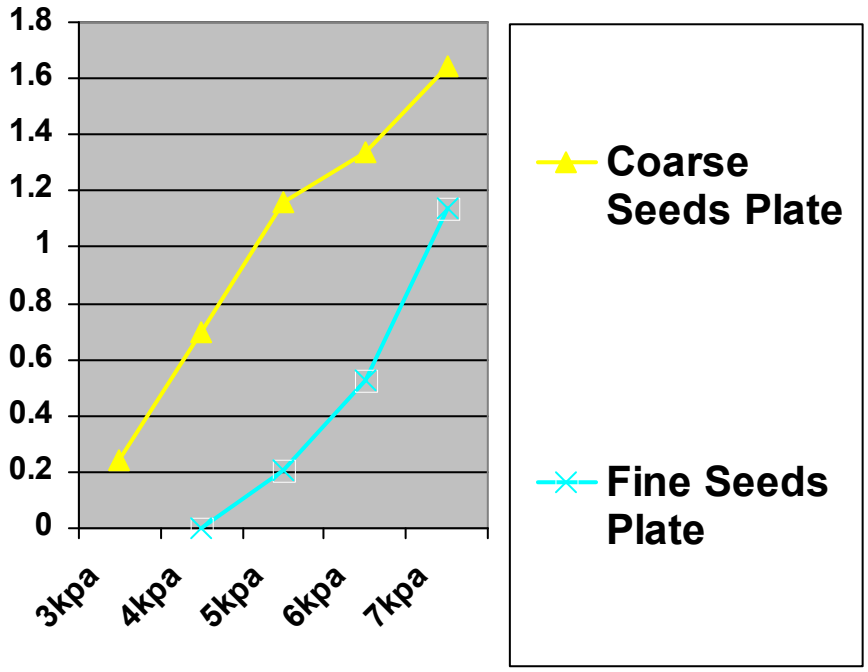
Further sealing adjustment can be achieved by adjusting the three screws when the door is closed.

4.0 Overspooling

Overspooling is the movement of product caused by air rushing down through the metering unit when the pressure below the bin (flowing through the metering units) drops and the pressure within the bin tries to equalize itself out through the metering unit. This is caused by fluctuations in the fan speed.

The most common cause is a reduction in hydraulic flow to the fan motor when lifting the bar out of the ground. It is highly recommended to use a priority remote to supply the fan in an effort to ensure oil is not taken from the fan during other hydraulic operations.

The graph below illustrates the dramatic reduction in canola overspooling when using the Fine Seeds Plate in conjunction with Canola Spool Covers.



At 5kpa for instance, the use of a Fine Seeds Plate can reduce a potential overspool of just over 1kg of seed down to as little as 200grams. *(This graph demonstrates a worst case scenario with a complete stop of the fan)*

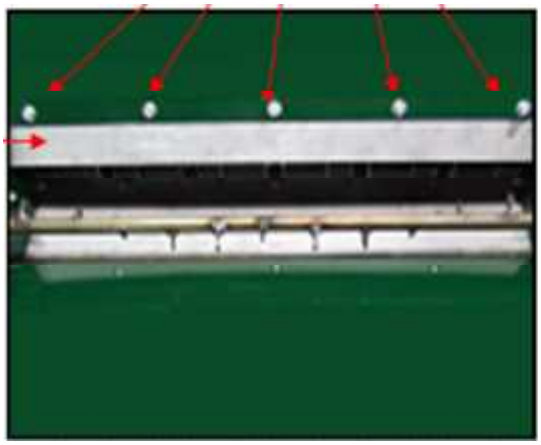
Always replace the Coarse Seeds Plate after seeding Canola.

4.1 Fine Seeds Plate

Some products, such as canola are more prone to running than others and potentially bypassing the spools. If this is experienced, it is recommended that the coarse seeds plate be replaced with a fine seeds plate to further hold back the seed from the top of the metering spools. The bin must be empty to access the coarse seeds plate which is located on top of the metering unit covering the metering spools. Remove the five bolts (four on smaller models) securing the plate and lift the plate out.

Retaining bolts

Coarse seeds plate



Fine seeds plate

Part #	Description
208600062	Spool Cover Plate assy. (Fine Seeds) – 6 way
208400060	Spool Cover Plate assy (Fine Seeds) – 4 way

4.2 Spool Covers

- Are used when low rates are required
- By reducing spool area it enables the spool to rotate faster, thus producing a smoother more even flow of product into the air stream

Std Canola Covers

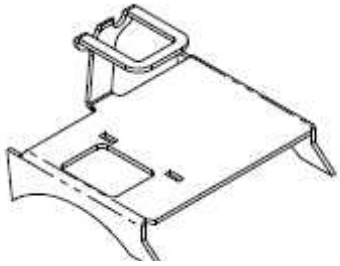
Canola covers are used to restrict spools being used to meter low rates of small seed, such as canola.

These covers are similar to the 100% spool cover except for a hole in either the right or left side.

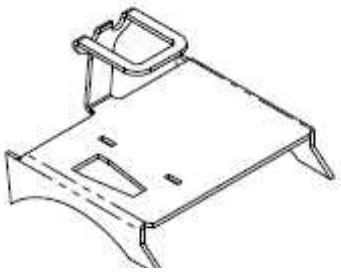
The metering spool length of 75mm is divided into a 1/3rd section and a 2/3rd section. The canola cover effectively blanks off the 2/3rd section and meters the seed through the hole which lines up with the 1/3rd section of spool. This hole is raised so that seed with the ability to run remains checked and will not flow through the metering unit unless the spools are turning. By using these covers while metering seed such as canola or sorghum a higher spool rpm can be maintained for a more consistent flow of product.

For extremely low seeding rates of Canola, the use of a "V" Canola plate can assist in reducing the amount of product metered per revolution even further. These would be recommended for use when double shooting with a target rate of 2kg/ha or less.

Part #	Description
208600058	Std Canola Blank-off Plate (LH)
208600060	Std Canola Blank-off Plate (RH)
208600071	"V" Canola Blank-off Plate (LH)
208600073	"V" Canola Blank-off Plate (RH)



Std Canola Blank-off Plate (LH)



"V" Canola Blank-off Plate (LH)

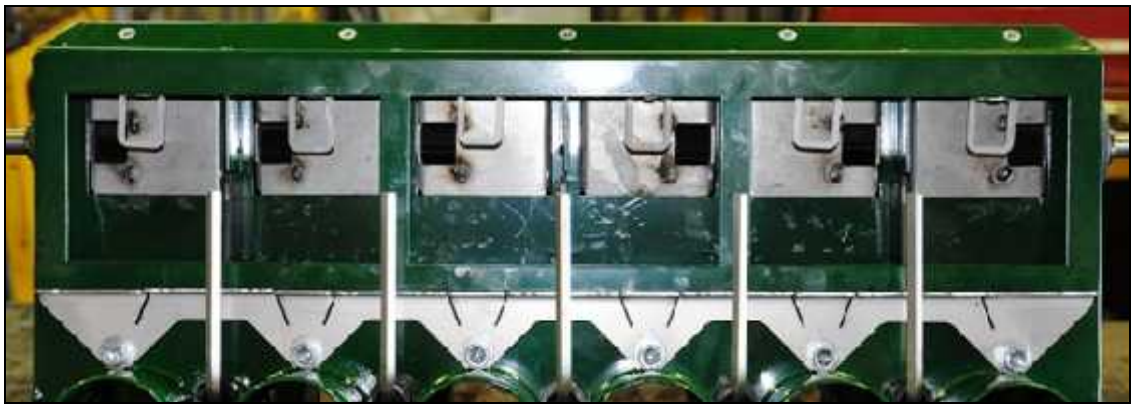
IMPORTANT

When using "V" Canola Blank-off Plates, it is crucial that the seed is clean.

Just a small amount of trash can block the point of the "V" and can lessen or stop product flow completely.

Canola Cover Placement

For single shoot seeding kits, simply place a Canola Cover Plate over each metering spool being used.



For double shoot seeding kits, use alternating 100% spool cover and Canola cover.

Ensure that correctly oriented covers are used.

IMPORTANT

Make sure that Canola cover metering holes are correctly matched to the small side of the metering spool.

4.3 Restrictors

- Are used to balance the differing pressures in the primary lines caused when each shoot has dramatic differences in rate
- Are placed into the Male Breakaway of the Air Seeder

The use of air restrictors may be necessary while **double shooting when rates vary greatly**. eg. 4kg/ha of canola in one shoot and 100 kg/ha of fertiliser in the second shoot.

5.0 Small Seeds Box

The Small Seeds Box is an optional extra designed to fit most Simplicity Australia Air Seeders and is supplied factory fit when the seeder is manufactured or can be retro fitted at a later time.

The small seeds box is available in six different capacities dependent on the Air Seeder to which it is to be fitted.

3000 litre air seeders	200 litre small seeds box.
4500	225 litre
6000	300 litre
9000	450 litre
12/15/17000	600 litre
20000	800 litre

The small seeds box is used for sowing small seeds at low rates.

The Small Seeds Box operates on exactly the same principles as the main bins. It is important to check for leaks:

- Bin Lid Seal
- Join between bin and Metering Unit
- Metering Unit shaft seals
- Clean Out Door

IMPORTANT

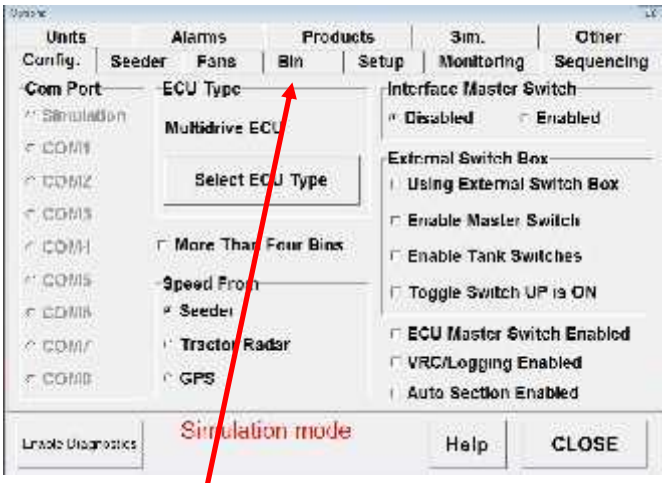
Make sure that lid seals and metering unit does not leak – sometimes this may prevent product from flowing at all.

6.0 Calibration – Linear Actuator

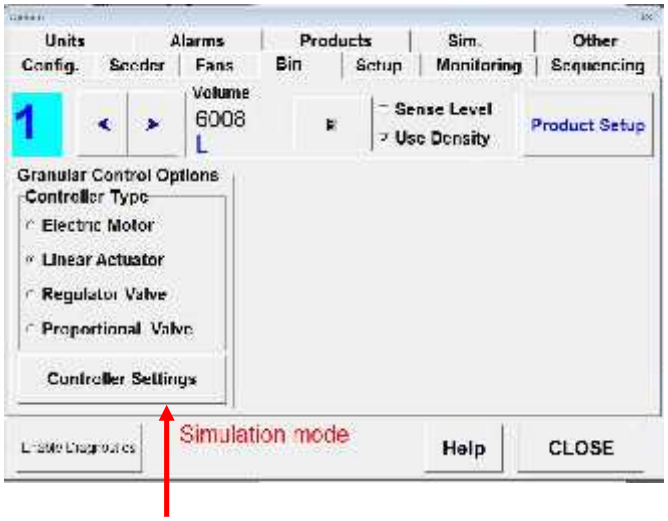
Care needs to be taken when calibrating canola on seeders fitted with linear actuators. The default calibration setting is for the actuators to extend fully. When sowing low rates of a product like canola using this default setting may result in a unrealistic shaft speed and an inaccurate calibration factor. To achieve a more realistic shaft speed, calibration should be performed at around 10-15% extension (closer to the actual in-field operating position of the linear actuator).

X20

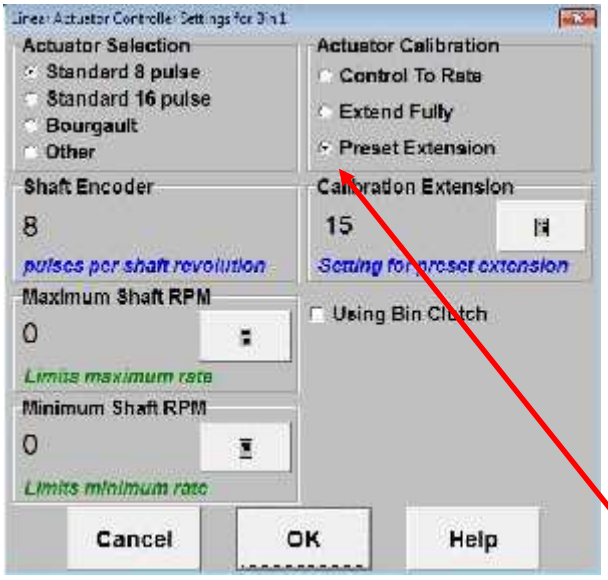
1. Tap on Options Menu



2. Tap on Bin (or Tank)

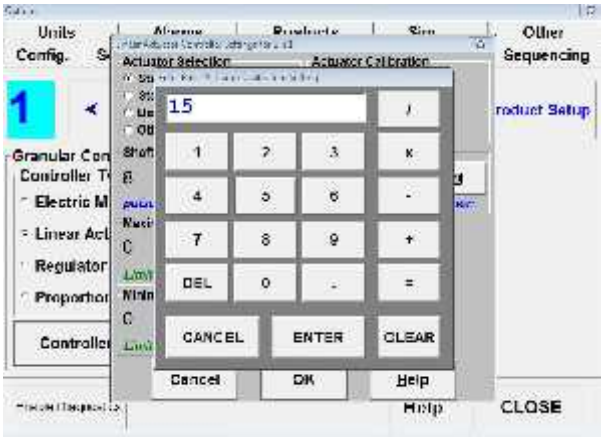


3. Tap on Controller Settings



4. In "Actuator Calibration", tap on "Preset Extension"

5. In "Calibration Extension", tap on calculator



6. Type "15" & "enter"
7. Tap "Ok"
8. Tap arrow if using more than one bin and repeat
9. Tap "Close"
10. Complete calibration as normal, and enter cal factor.

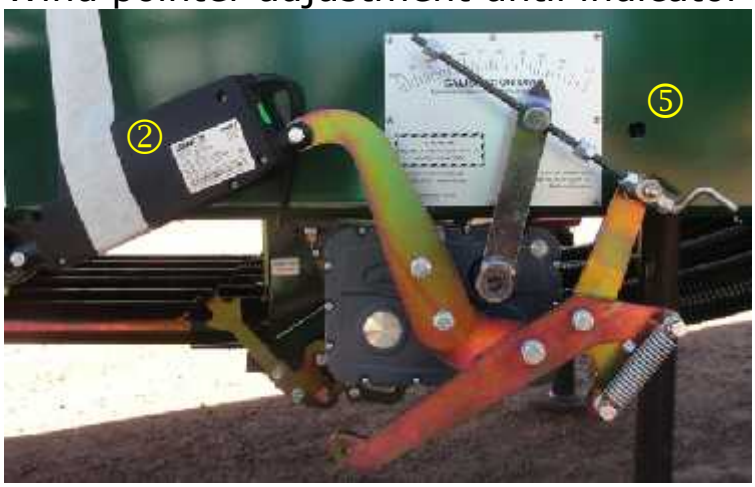
This will extend the linear actuator to 15% when calibrating, giving a more realistic shaft speed.

(Don't be alarmed if the pointer is not showing exactly 15%. The percentage in the controller and the percentage on the zero-max dial do not have to line up exactly.)

E15 Eagle

1. Remove bolt on end of Linear Actuator

2. If necessary tape actuator up out of the way, ensuring there is enough space for the actuator to extend fully.
3. Tighten 9/16” bolt on actuator sub-frame.
4. Loosen 1/2” bolt on actuator sub-frame.
5. Wind pointer adjustment until indicator is at 15%.



6. Complete calibration as normal, and enter cal factor.
7. **CRITICAL**: Once calibration is complete you MUST wind the pointer adjustment until indicator is back at zero and hard up against the stop.
8. Tighten 1/2” bolt and gently loosen 9/16” bolt on actuator assembly.
9. Re-attach Linear Actuator.

Lubrication and Maintenance

Pre Season

Prior to the sowing season the small seeds box drive components should be checked to ensure all is in good order.

- Check small seeds box drive chain and tensioner rollers for wear and proper alignment.
- Check all shafts are turning freely
- Grease metering unit bearings
- Grease drive shaft bearings
- Check Zeromax drive oil level following the procedure outlined on **Page 4.6** of the Operators manual
- Check for air leaks as outlined on **Page 4.9**

IMPORTANT

Care should be taken when greasing metering unit shaft bearings. One shot of grease every 100 hours is sufficient. Over greasing and using air operated greasing equipment can damage the bearing seals and shorten the bearing life

Daily

- Visually check drive chain and tensioner rollers
- Grease drive shaft bearings
- Start blower to check for any air leaks from small seeds box components

After Sowing Maintenance

- After Sowing Maintenance should be carried out at the end of the sowing season following any procedure outlined on **Page 4.3** that would be applicable to the small seeds box

CAUTION: Do NOT open bin lids while blower is operating. Release of lids under pressure will cause unwanted movement of seed or fertilizer which could result in injury.

WARNING: Confined Space. Do not enter any bin unless tractor is switched off and keys removed. Always have another person present when working in the bin

Notes

October 2013

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