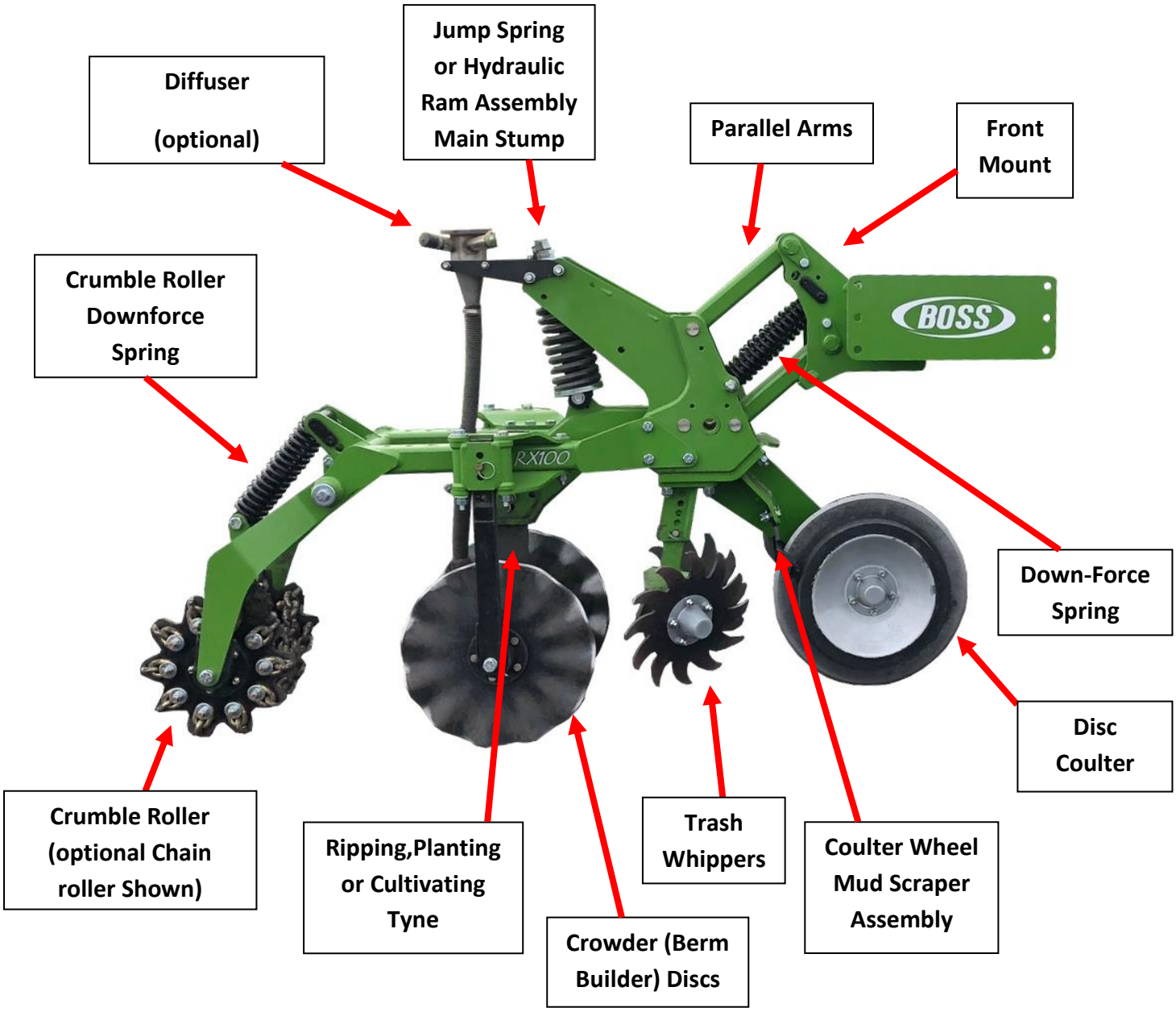
Table of Contents

1 MACHINE SAFETY

- Ensure safety stands are in place before working under machine.
- Ensure the tractor is shut down and the key removed before working on machine.
- Be aware of pinch points on the row unit & machine frame.
- Inspect for hydraulic leaks and replace hoses if required.
- Pressurised hydraulic oil can harm or kill.
- Never ride on machine when operating.
- Do not let children climb or play on machine.
- Ensure safety pins are in place when the machine is in the folded position.
- Ensure the tractor is ballast correctly for linkage machines.
- Be aware of overhead powerlines when transporting a folded machine.
- Width and height restrictions may apply when travelling on public roads, consult your local transport regulator for specific requirements in your area.
- **Max travelling speed is 20km/h.**
- Ensure tyres are inflated to the correct pressure as recommended.
- Inspect the machine regularly for loose bolts, damaged or worn components and replace as required.
- Inspect and keep wheel studs tight.
- Do not stand between the tractor and implement while coupling the machine up.
- Ensure all safety signs are in place and replace if damaged.
- Ensure all safety guards are in place.
- No persons within 50 metres when the machine is operating.

DO NOT TURN WITH RX100 ROW UNITS IN THE GROUND – MAKE HEADLAND TURNS WITH ROW UNITS RAISED. FAILURE TO DO SO MAY RESULT IN DAMAGE TO THE UNIT

2 SET UP & OPERATION OF THE BOSS RX100 PARALLELOGRAM STRIP TILLER



UNDER-BAR OPERATING HEIGHT & FRAME LEVEL

The under-bar operating height of the RX100 must be set correctly to maximise the row units ability to follow ground contours, and maintain a consistent ripping depth and crumble roller pressure.

Ensure the main toolbar angle is set parallel to the ground. This can be checked visually by looking at the main RHS that the row unit mounts to, and making sure it is operating parallel to the ground when the unit is in the working position.

When set in the working position the parallelogram arms will be running slightly downwards. This setting allows the row unit to have the maximum travel available for following ground contours.

Ensure the frame or toolbar is running as level as possible and is parallel to the ground.

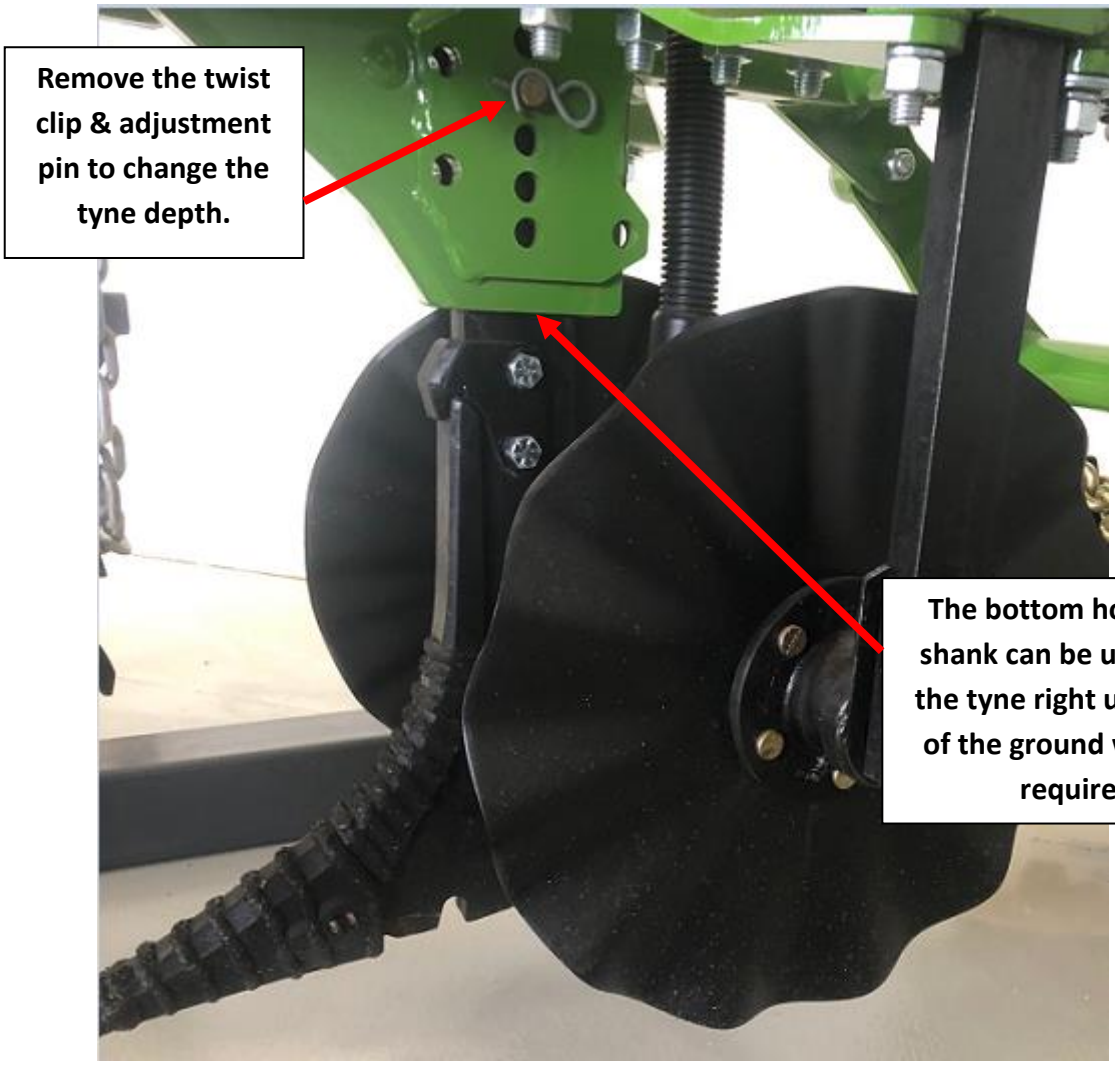
TIPS for under-bar operating height

- If the under-bar working height is set too low or high, the row unit may not have the full amount of parallelogram travel available for the given ground conditions.
- If the under-bar working height is set too low, the row unit may have too much down pressure which can cause the unit to bulldoze in soft soil and increase horsepower requirements.
- The toolbar angle must also be set accurately front to back & side to side to help maintain a constant down pressure, and keep an even ripping depth.

3 SETTING TYNE WORKING DEPTH

Ripping or Tilling depth on the RX100 row units is adjusted by raising or lowering the tyne. To adjust simply remove the twist clip pin and main depth control pin and raise or lower the tyne in the shank pocket as required. The shank pocket is fitted with 5 hole positions to allow for depth changes in ½" increments. Once the depth setting has been selected replace the main depth pin and twist clip pin.

The tyne can also be pinned up using the bottom hole position in the shank.



- It is the responsibility of the operator to make in field checks to confirm seed depth settings are as required.
- If the tyne is continually tripping or breaking out slow down to suit soil conditions.

4 ROW UNIT DOWN-FORCE

Row unit down-force or parallelogram down-force is required to ensure that the set operating depth is being maintained in varying ground conditions.

Row unit down-force may need to be increased when operating in heavy trash cover to minimise blockages.

In dry tough conditions or compacted soil a higher down-force setting will also be required, so that the working depth remains constant. If too low down-force is selected the row unit will be running at variable working depths and an uneven depth of seedbed or fertiliser placement may result.

When setting up the machine it is advisable to select the minimum amount of down-force pressure and increase as required.

TIPS for down-pressure settings:

- **More down-pressure may be required in heavy stubble to help cut through the trash and avoid row unit riding up.**
- Using excessive down-pressure in wet conditions can compact the seeding bed and result in less flowing soil being available.
- **Using excessive down-pressure can increase tractor horsepower requirements.**
- When the working depth is changed ensure you have enough down-force to maintain the selected operating depth.
- Field checks must be assessed at operating speed to accurately gauge results.

4.1 How much down-force?

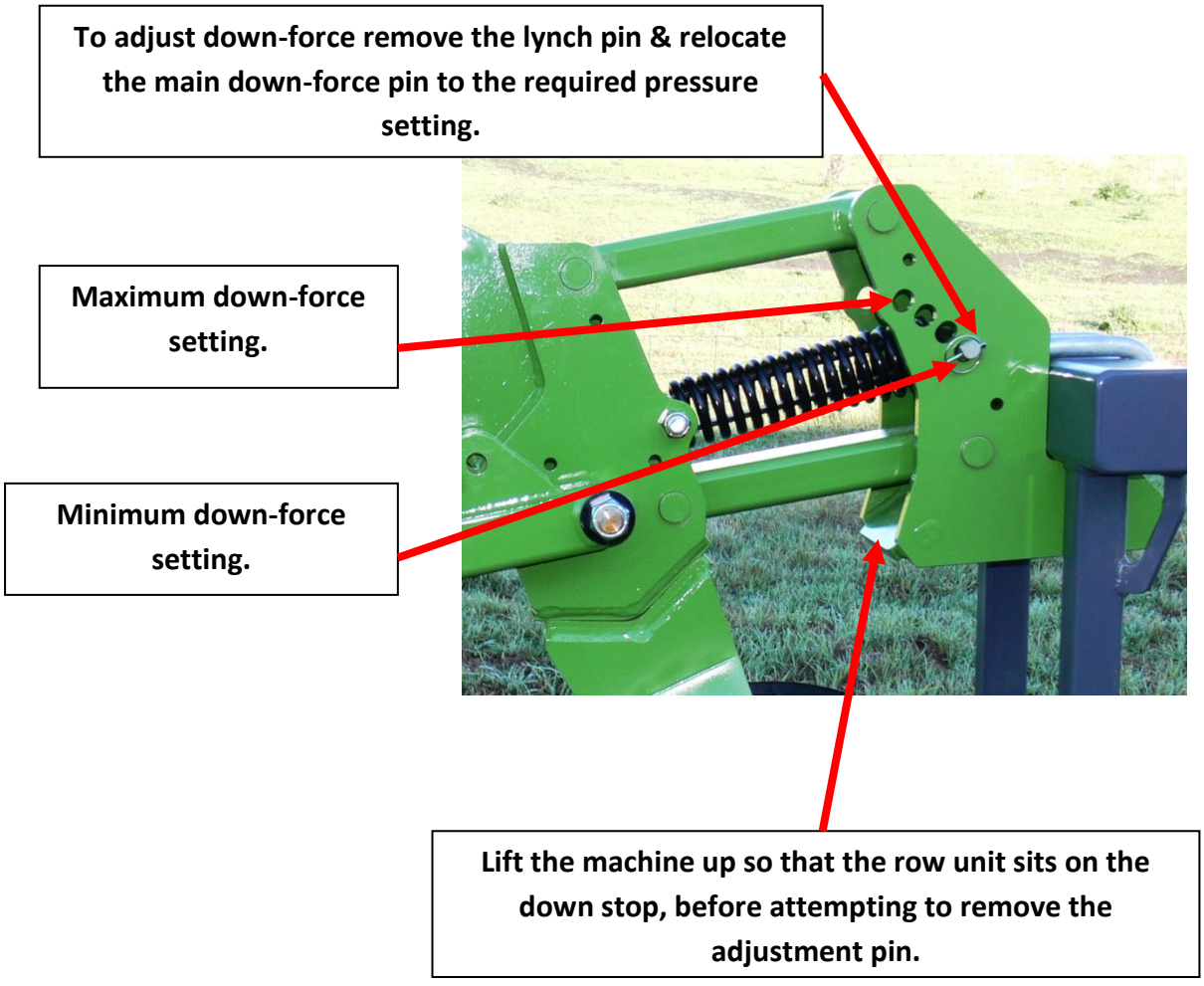
Down-force requirements will vary depending on ground conditions. As a guide when looking at the row units while working, and at normal operating speed, the parallel arms should be running smoothly with movement comparable with how rough the ground terrain is. If the units are jumping up and down and the ground terrain is level then more down pressure may be required.

Another way to make sure you have enough down-force is to observe the row units during operation (at normal operating speed), and **ensure the front coulter drum wheels are running consistently on the ground**. This can also be observed by stopping the tractor, leaving the Strip-Till machine in the ground, then checking that the coulter drum wheel is on the ground and that the disc is cutting at full depth. If the 2 half drum coulter wheels are not touching the ground increase the down-force as required.

Increased down-force may be required when operating in heavy trash load situations to reduce machine blockages.

4.2 Down- force adjustment

Down-force adjustment is via a pin arrangement located in between the parallel arms. To adjust simply lift the machine up so the row units sit on the down stop, remove the lynch pin and slide the adjustable pin out of the boss, move the spring to the next hole position and replace the pin and lynch pin. Moving the spring position upwards increases the down-force on the row unit.



5 CRUMBLE ROLLER PRESSURE

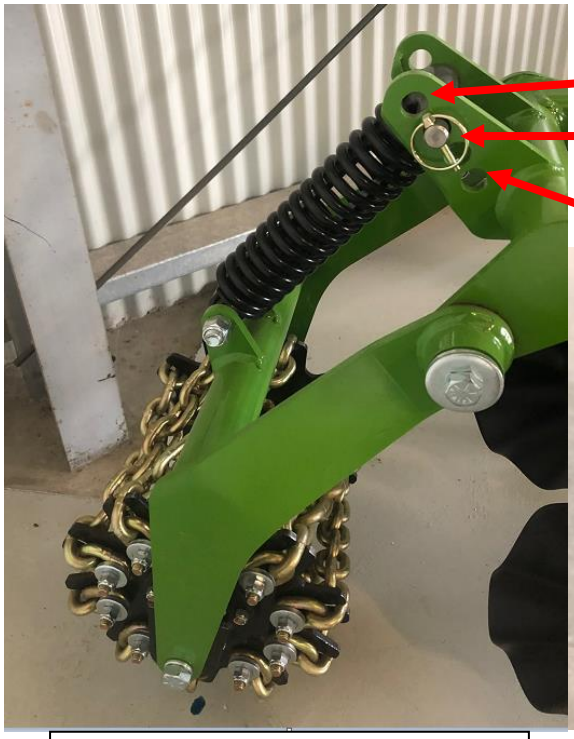
The Crumble roller breaks down clods and consolidates and firms the seedbed. Depending on soil conditions you may need to increase or decrease down pressure on the crumble roller.

Too much down pressure may result in compaction of the seedbed, too little and the seedbed may be too cloddy and rough. Operators must decide on the desired finish required.

Field checks must be assessed at operating speed to accurately gauge results.

5.1 Crumble Roller Pressure Adjustment.

To adjust, simply lift the machine up so the row unit sits on the down stop and the Crumble Roller is off the ground. Remove the lynch pin and slide the adjustable pin out of the boss, lift the Crumble Roller and arms while sliding the spring to the next hole position and lower the Crumble Roller and arms which will self locate into position. Replace the adjustment pin and lynch pin when finished. Moving the spring position more vertical increases down pressure.

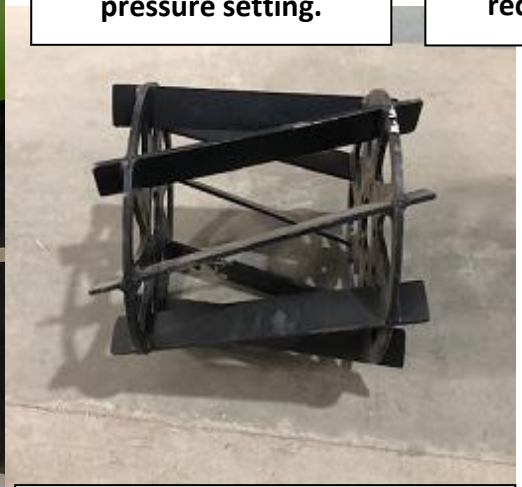


Maximum Crumble pressure setting.

Minimum Crumble pressure setting.

To adjust the press wheel pressure remove the lynch pin and relocate the adjustment pin to the required pressure

Optional Chain crumble roller shown here.



Standard, Slatted Crumble roller shown here. Culti-packer roller and Chain roller available as options.

5.2 Chain Crumble Roller Tensioning.

As wear occurs in the chain slats in the roller pictured below, It may be neccesary to re- tension the chains. This is done as per below diagram.

1. Loosen bearing hub nuts on both sides, these cuphead bolts are in a slotted hole in the roller end plate.

2. Rotate roller end plates away from each other using the slotted holes.

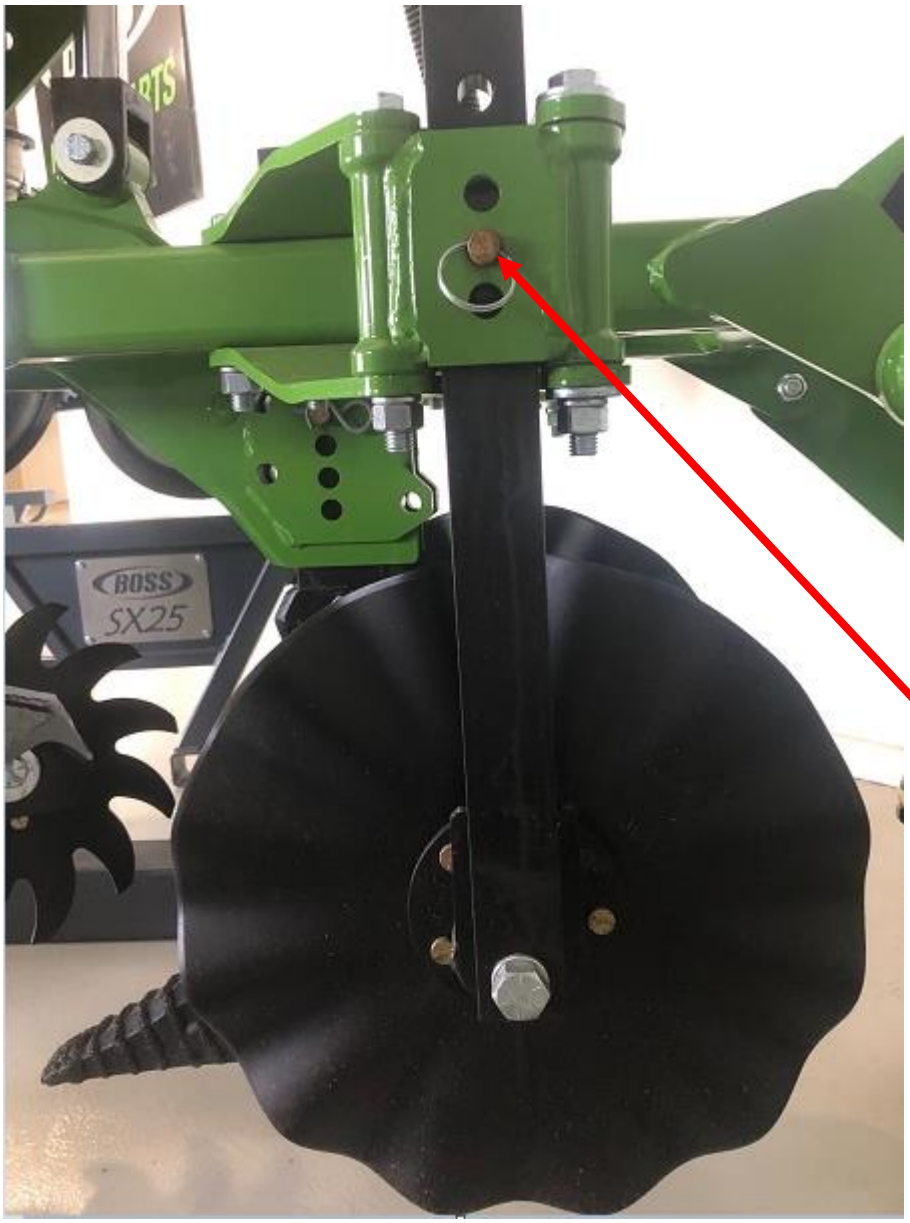
3. When sufficient tension is gained on chains, re-tighten hub nuts.

6 CROWDER DISCS OR BERM BUILDERS

Crowder discs serve two primary functions;

1. To catch and control soil throw from the tyne, to limit soil moving outside the desired seedbed area.

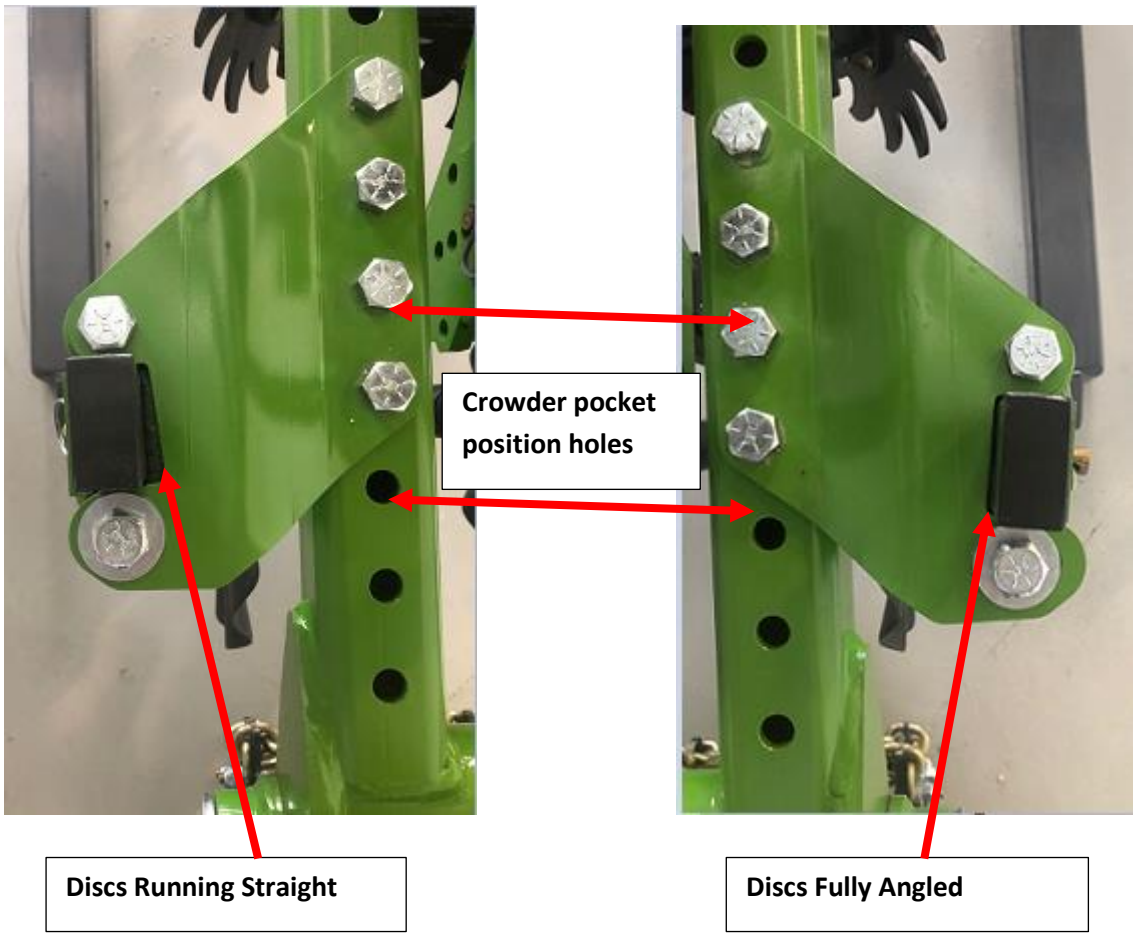
2. To define and shape the seed bed.



Crowder disc depth adjustment. Adjust vertically as per tyne. Generally 0-2" in the ground depending on soil conditions.

6.1 Crowder Disc adjustments

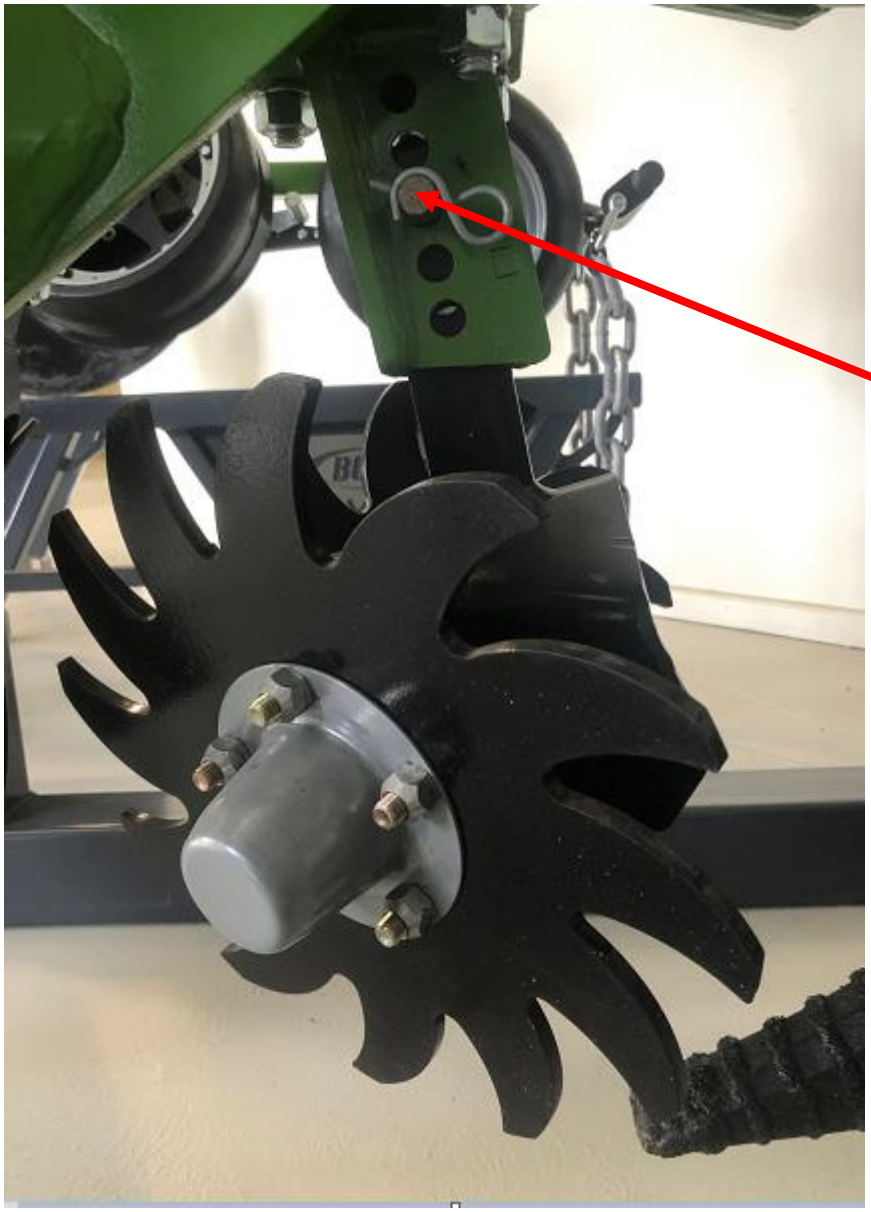
Crowder discs can be run straight, parallel to the tyne and direction of travel or angled, angling discs in creates a raised bed in most soil types.



The Disc Crowder tyne pocket brackets can be moved fore and aft on the frame by removing bolts and re-positioning brackets where desired, this can change how soil throw is controlled and also aid trash flow in heavy trash such as Sorghum/Corn stubble or Cotton trash.

7 TRASH WHIPPERS/ ROW CLEANERS

Trash Whippers sweep stubble and previous crop residue aside to create a clean seedbed for the next crop to be planted into and also minimise trash wrapping around the tyne.



Trash Whipper vertical adjustment.

Trash Whippers should run between just above soil surface to no more than 1” below if soil is loose and dry.

Ideally you should be moving trash and not soil.

8 COULTER WHEEL ADJUSTMENT

The front coulter wheel assembly on the RX100 is adjustable in and out (Left and Right) to adjust tracking, keeping coulter directly in front of the tyne to maximise the row units trash handling ability by cutting through trash to minimise tyne blockages.

To adjust simply loosen the 2 locknuts and positioning bolts located on the front coulter mount and slide the coulter assembly in or out as required (15/16th spanner required). Once adjusted retighten ensuring the positioning bolts lock into the axle and then ensure locking nuts are tight.

To adjust the coulter assembly in and out loosen the 2 locknuts & positioning bolts and slide the assembly to the required position.

Once adjusted ensure the positioning bolts lock into the axle and lock nuts are tight.

8.1 Coulter Wheel Mud Scrapers

The RX100 row units are fitted with 2 tungsten blade mud scrapers, operating either side of the front coulter assembly to assist when operating in sticky conditions, and help maintain a constant operating depth.

The coulter scrapers are designed to prevent mud build up between the disc and coulter drum allowing the disc to cut to its full depth.

Both the main mount and individual blades are adjustable.

When setting your scrapers, loosen the individual blades so they can move and set your main mount into position first. This will allow you to ensure you have enough movement in the blades to achieve the desired result.

Set your blades as close to the disc as you can, rotate the disc as they are never perfectly flat, and make sure the blades clear or lightly scrape on the disc only so it does not act like a brake on the disc.

During operation there may be a build up of trash & mud between the blades and the coulter drum wheels, this is normal and the drum wheel tyres will wear often having grooves cut into the tyres during operation.

To adjust your coulter scrapers into position loosen the individual blades and set the main mount position first.

Spin the coulter assembly over to make sure it runs free as the discs are never perfectly flat and can stall on the scraper blade if adjusted too close.

When the coulter discs are new they will be cutting 2¼" deep, as they wear trash or vine may not be cut fully through – replace as required.

9 DISC OPTIONS FOR RX100

These can be used for fertiliser application or even planting.

BOSS have 2 different disc options that **may** be able to be fitted to the RX100 row units, this is dependent on several factors including row spacing & frame design.

Disc options include:

Double Disc Shank:

- Double disc shanks are the easiest to fit and simply replace the tyne.
- Double disc shanks are best utilised when dry fertilising or planting into optimum conditions to conserve moisture.
- When using double disc in heavy clay soils, a ½ to 1" layer of dry soil on top may be required to avoid soil breakout that can occur in wet conditions.
- For best results remove the front coulter disc before using the double disc shank to avoid disturbing the soil in front, which can pick up on the opener discs and cause blockage problems.
- **Maximum operating depth of 4"- do not operate when moisture seeking as damage may occur.**

2"x1" Disc Shank shown fitted using tyne packers, these Packers suit 2"x1" sowing tynes also.

Precision Double Disc Shank:

- Precision double disc shanks will fit to some RX100 row units, but not all as they are wider than the standard row unit, so frame cross-members & wheel assemblies must be considered. Some lower spacing of Trash Whippers is needed and frame height lowered to suit, see page 4

- When a precision double disc shank is fitted, the complete coulter front assembly must be removed and the crumble roller assembly must also be changed to closing wheels, so the opener can operate effectively and an efficient seed press be achieved.

- The TD50 Precision Double Disc Shank Pictured below.

10 TYNE & POINT SELECTION

Several tyne options can be fitted, The Standard tyne supplied is a 3”x 1” with replaceable ripper point and shin guard. Other options are available such as, a cultivating tyne with 54 degree foot for sweeps, a minimum till tyne with spear point, or 2” x 1” tyne can be used with packer plates (See page 17) but they may not handle the high breakout of the RX100. BOSS also make and supply adjustable cultivating knifes, for inter-row cultivating or root cutting. Hardfacing is also available for abrasive soil types to prolong point life.

Points must be in good condition as once they are worn out offer little protection to the tyne and seed boot which can wear quickly when exposed.

The BOSS seed boot can be removed for hard-facing or replacement as required.

Ripper point with adjustable cultivating knives fitted.

Minimum till tyne with spear point.

54 degree cultivator tyne.

10.1 **Changing points**

Remove the planting tyne from the row unit, place on a firm surface, and using a punch knock the flex pin out of the point and tyne and remove the point. Put the new point on a firm surface and hammer in flex pin, replace if needed. Put the point in the saddle and hammer in a new snap lock pin, knocking off the end when hit home. It is recommended to replace the flex pin each time the point is fitted.

Pictured is a ripper point and shin guard, with optional hardfacing and the flex pin to hold point on.

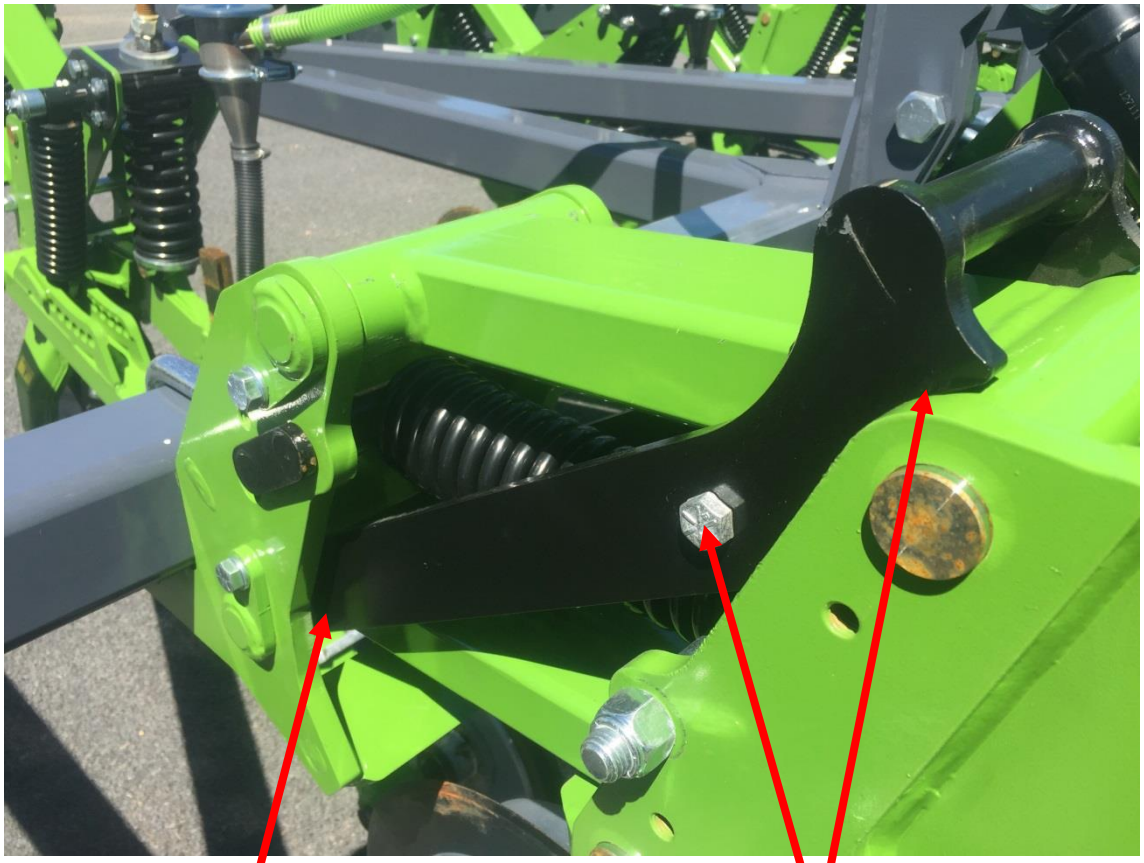
Fit the point onto the tyne ensuring shin guard tongue is located under rear of point. Tap in flex pin until flush both sides

Pictured here is a winged point used if wanting more seedbed tilth and winged seedboot used when and a wide spread of fertiliser.

11 ROW UNIT LOCKOUTS

The RX100 row units can be locked up out of the way if a skip row or wider row spacing is required.

To pin the row units up, lift the machine up so the row units sit on the down stop. Set the main down pressure setting to the minimum setting (see *section 4.2*). Locate the row unit lockout into position over the bottom front parallel arm. You can now lift the row unit with a front end loader or forklift. Only lift the row unit high enough so the lockout drops into place over the rear top parallel arm. Ensure the lockout bracket is located in the correct position & insert the retaining bolt into lockout bracket so it cannot jump out.



Ensure the lockout bracket is located in the correct position with the front tabs over the bottom parallel arm.

Once the lockout bracket is located into position over the top parallel arm, lower the row unit so the lockout is supporting the row unit and insert the retaining bolt to secure.

12 TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSES	POSSIBLE SOLUTIONS
The seed bed is pressed too tight. Or Compacted.	Incorrect crumble roller downforce.	Change crumble roller down pressure setting.
The front coulter assembly is building up with soil.	The coulter wheel mud scrapers are not working or have been lost.	Replace or adjust mud scrapers as required. See *Section 8.1*
	The soil conditions are too wet.	Wait until soil conditions improve.
	The soil conditions are too wet.	If working conditions allow remove the disc from the coulter wheel assembly. See *Section 7.1*
The front coulter assembly is bulldozing.	Too much down pressure on the row unit.	Decrease the down pressure to ensure the front coulter assembly is not burying itself. See *Section 4*.2
Stubble is wrapping around the tyne causing blockages.	The front coulter disc is worn.	Replace front coulter disc
	Trash whippers too high, if fitted.	Set trash whippers lower to move more trash.
	Not enough down pressure on the row unit.	Increase the down pressure to ensure the front coulter assembly is operating at the set depth. See *Section 4*.2

PROBLEM	POSSIBLE CAUSES	POSSIBLE SOLUTIONS
The crumble roller is building up with mud	Too much down pressure for moisture level or just too wet.	Try lower down pressure setting or wait until soil dries out.
	Soil too wet or sticky soil type	Purchase optional Chain Crumble rollers shown in section 5.1/5.2
There is excessive soil disturbance.	Tyne depth set too deep	Try shallower setting
	Working speed is too fast	Reduce your operating speed.
	The front coulter disc is worn.	Replace coulter disc.
	Point selection	Try minimum till tyne with spear points
	The row unit may be loose on the toolbar.	Ensure all mounting bolts are tight and the row unit has not kicked over on an angle.
Tyne depth and product application is inconsistent.	The down-force pressure setting is set too low.	Increase the down pressure to maintain a constant working depth. See *Section 4*
	The frame is not level or the under-bar operating height is incorrect.	Check the under-bar operating height or level the frame. See *Section 2.*
	The coulter wheel mud scrapers are not working or have been lost.	Replace or adjust mud scrapers as required. See *Section 8.1*
	The point or seed boot is worn out.	Inspect and replace point or seed boot if required. See *Sect 10*
The seed/product tube is blocking with soil.	Maintain forward movement when lowering the row units into the ground.	Do not lower the row units into the ground when the tractor is not moving.
	The soil conditions are too wet.	Wait until soil conditions improve.
		Do not reverse with row units in the ground.
	The row unit may be loose on the toolbar.	Ensure all mounting bolts are tight and the row unit has not kicked over on an angle.
	The point or seed boot is worn out.	Inspect and replace point or seed boot if required. See *Section 10*

13 SERVICING & MAINTENANCE REQUIREMENTS

NEVER DISASSEMBLE ANY DOWN PRESSURE SPRINGS OR TYNE BREAKOUT SPRING BECAUSE THE SPRING COULD BE RELEASED CAUSING SEVERE INJURY OR DEATH.

SHUT OFF THE TRACTOR ENGINE, REMOVE THE KEY FROM THE IGNITION AND BE CERTAIN THAT ALL MOVING PARTS HAVE STOPPED BEFORE SERVICING.

BEFORE SERVICING MAKE SURE ALL SAFETY STANDS AND SAFETY PINS ARE IN PLACE. NEVER PLACE HANDS OR FEET UNDER THE DISCS OR BETWEEN THE COILS OF A COMPRESSION SPRING AS THE IMPLEMENT COULD LOWER UNEXPECTEDLY.

13.1 **Maintenance During the Break in Period**

After the first 3 hours of field operation –

- Check & tighten Shell clamp Bolts that mount row units.
- Check & tighten all bolts.
- Check & tighten all wheel nuts.
- Check front coulter, Trash Whipper, Disc Crowders and Crumble Roller bearing assemblies for excessive play and adjust pre load if required.
- Check hydraulic hoses if hydraulic breakout option is fitted.

13.2 **Daily Maintenance**

- Visually inspect row units for damage and replace if necessary.
- Visually inspect bolts and tighten any that have become loose.
- Check Tynes, shin guards and points for wear and replace if necessary to avoid damage or wear to the tyne or seeding boot.
- Check for any hydraulic leaks & repair as required.

13.3 **Periodic Maintenance**

- Every 250hrs grease disc coulter, Trash whipper, Disc Crowder and crumble Roller Bearings with 2 pumps of grease only. (excessive use of grease will pop the seals out)
- Every 250hrs grease press wheel assembly with 2 pumps of grease only. (excessive use of grease will pop the seals out)
- Visually inspect bolts and tighten any that have become loose.
- **Inspect & if necessary replace the guide roller located in the main stump jump spring assembly.**
- Inspect & if necessary replace the leading coulter discs.

13.4 **Annual Maintenance – Every 500 hrs**

- Grease the front disc coulter assembly with 2 pumps of grease only. (excessive use of grease will pop the seals out)
- Grease the press wheel assembly with 2 pumps of grease only. (excessive use of grease will pop the seals out)
- Check bearings for excessive play and tighten or replace if necessary.
- Check the tyne point, shin guard and seed boot for excessive wear and replace if necessary.
- The original front coulter disc will be a 20” disc. Replace with new discs if required.
- Check all pins and bushes for wear and replace as required.
- If shedding the machine for the season, grease the coulter assembly and press wheel assembly just prior to finishing, so the new grease is lightly worked into the bearing assembly.
- Clean and wash the machine down touching up any areas where paint has been removed.

14 FINAL ADJUSTMENTS & TIPS

- **Do not turn with RX100 row units in the ground – failure to do so may damage row units.**
- **To achieve the best results always check & make final adjustments in the field at working speed.**
- **The RX100 performance is dependent on soil type and ground conditions as such adjustments must be made according to current field conditions.**
- **Operating before wet heavy clay soils have had a chance to form an even crust on the ground can also add to increased soil disturbance and possibly clog crumble roller. Often waiting an extra day or two can vastly improve results and soil finish**

15 RX100 ROW UNIT OPTIONS

Available options for RX row units include:

- **Seedboots**
  (For Fertiliser or seed application while strip tilling)
- **Diffusers**
  (Removes all the air from the air seeding lines to reduce seed or fertiliser bounce)
- **Crumble roller options**
  (Bissalloy slatted roller is standard. Other options include, Chain crumble roller for stickier soils or smooth bed finish, or cultipacker ring roller, for aggressive clod breaking and tilth)
- **Rear Covering Chains**
  (Leaves a flatter field finish behind crumble roller)
- **Liquid fertiliser tubes**
  (Available for both the tyne & disc assemblies)
- **Wedge (Row Unit) lockouts**
  (Allows individual rows to be pinned up when skip row planting or fertilising)
- **Hardfacing upgrade for tyne, seed boots & points**
  (Increases the life of ground engaging tools & reduces maintenance/replacement requirements)
- **Double disc shank assemblies**
  (Can be used to replace the planting tyne to conserve moisture, increase planting speed & reduce fuel costs.)
- Tyne Options
  (Standard is the Ripper tyne with replacable point and shin guard. Options include, minimum till tynes with spear points offer less soil disturbance, 54 degree cultivating tynes offer the ability to use scarifier type sweeps.) (all 2” x 1” tynes fit with tyne pocket packers).