Table of Contents

1 PLANTER SAFTEY

- 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 and planter 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.

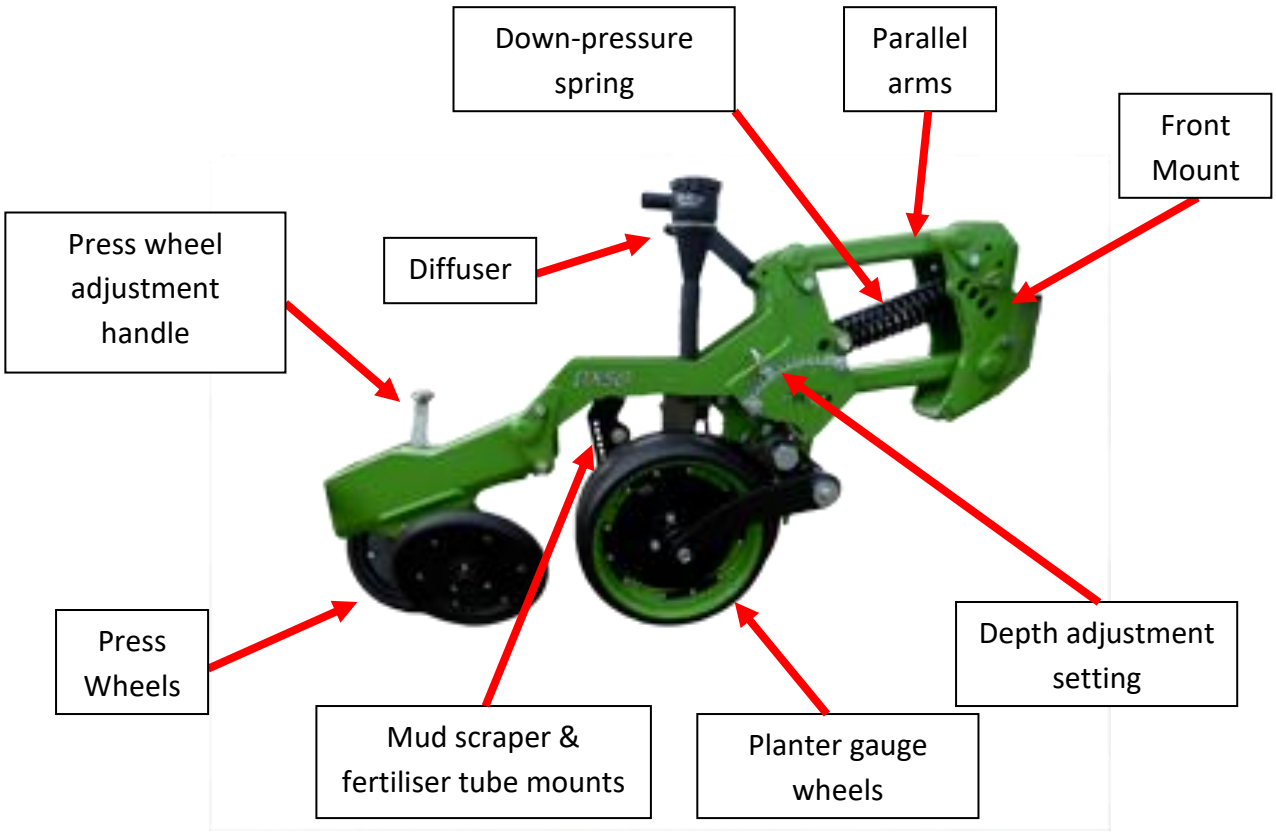
DO NOT TURN WITH DX50 ROW UNITS IN THE GROUND – MAKE HEADLAND TURNS WITH ROW UNITS RAISED. FAILURE TO DO SO MAY RESULT IN DAMAGE TO THE OPENER

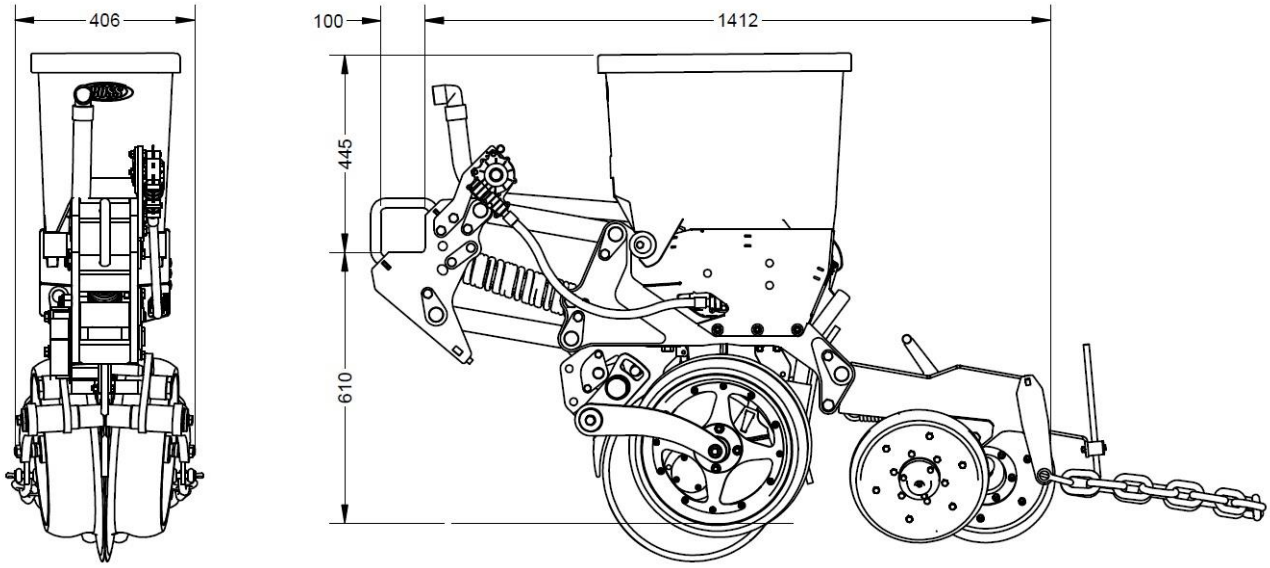
NEVER DISASSEMBLE THE DOWN PRESSURE SPRING BECAUSE THE SPRING COULD BE RELEASED CAUSING SEVERE INJURY OR DEATH.

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.

DX50 Double Disc Row Unit





DX50 working weight- 145kg for base row unit, Box, Whippers, Chains Extra.

2 SET UP & OPERATION OF THE BOSS DX50 DOUBLE DISC OPENER UNDER-BAR OPERATING HEIGHT & FRAME LEVEL:

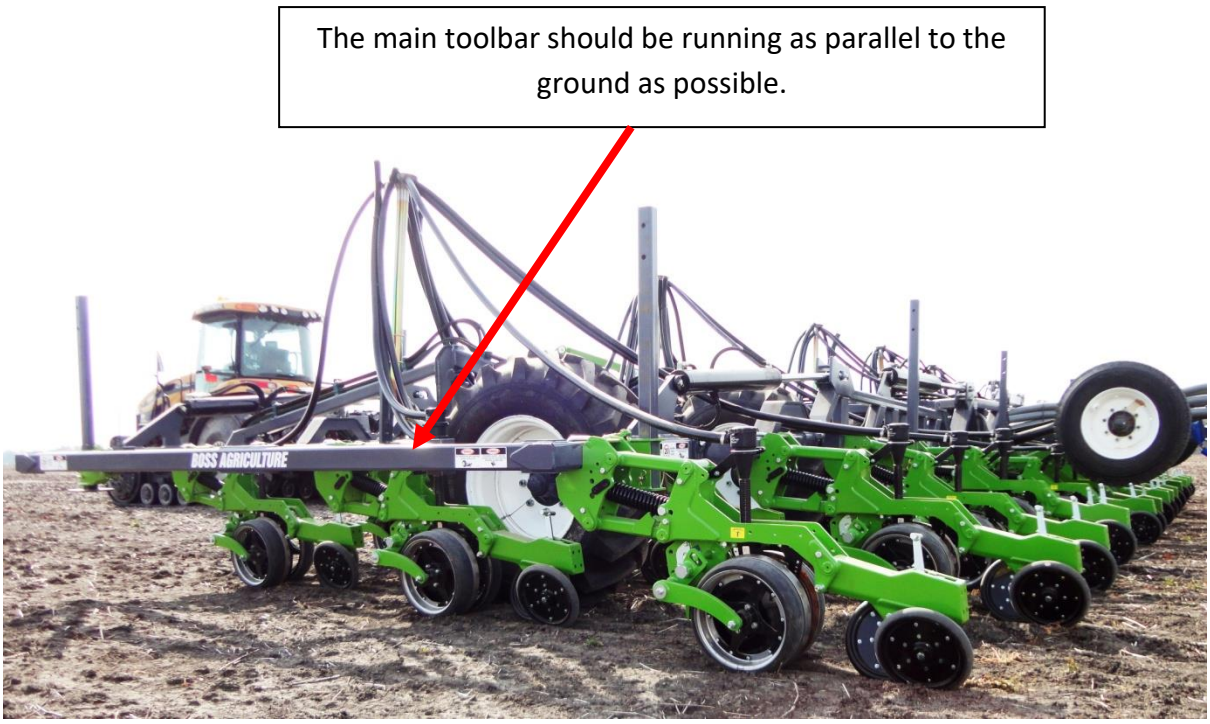
The under-bar operating height of the DX50 must be set correctly to maximise the row units ability to follow ground contours, and maintain a consistent planting depth and press wheel pressure.

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.

As a guide the under-bar working height is 620mm from the ground to the bottom of the toolbar when the unit is in the working position.

The parallel arms should be running 1” down from the front pin to the rear pin. This position gives the row unit 6” of up travel and 6” of down travel.

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.



TIPS for under bar operating height

- If the under-bar working height is set **too high**, the row unit may not have the full amount of parallelogram travel available for the given ground conditions. The unit may also not have enough down pressure to penetrate tight soils or achieve enough press wheel pressure to close the trench.
- If the under-bar working height is set **too low**, the row unit may not have the full amount of parallelogram travel available for the given ground conditions. This can also cause the sides of the seeding trench to be compacted and as a result the press wheels can struggle to close the seeding trench. Having the toolbar set too low can also result in the press wheels over packing the seeding trench and restricting the ability to back off the press wheel pressure.
- The toolbar angle must also be set accurately front to back and side to side to help maintain a constant press wheel pressure, and keep an even planting depth & consistent ground finish.

3 SETTING PLANTING DEPTH:

Planting depth on the DX50 row unit is adjusted by simply moving the spring loaded depth gauge to the required depth setting. **It is important to complete regular in-field checks to ensure the seed is being placed at your preferred depth as the depth indicator is a guide only**.

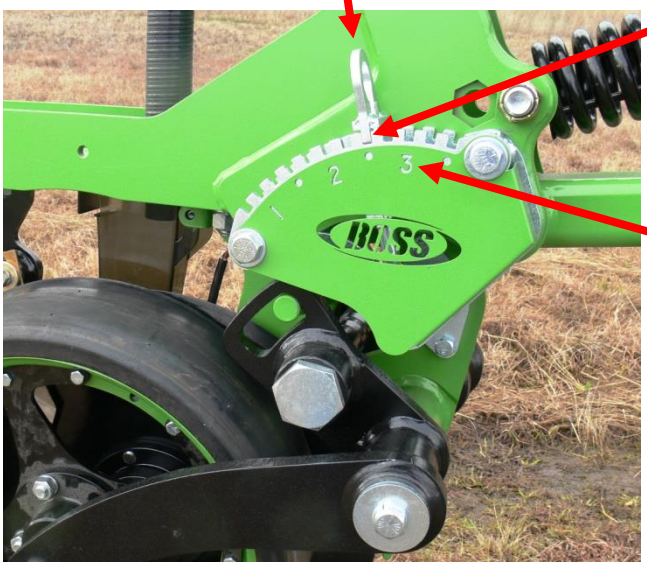
The numbers indicated on the depth setting are a guide only but closely represent planting depth in inches deep.

TIPS for planting depth adjustment:

- Position 1 indicates a seeding depth of 1” (25mm)
- Each notch increases or decreases the seeding depth by ¼” or 6mm
- When the seeding depth is changed ensure you have enough down force to maintain your required seeding depth (see *section 4* on down-force settings).

To adjust the seed depth setting simply lift the depth gauge clip & move to the desired seed depth setting. Ensure the clip aligns with both locating grooves.

This DX50 row units planting depth is currently set at approx 2½” deep.



Numbers are a guide only but closely represent seeding depth in inches deep.

- It is the responsibility of the operator to make in field checks to confirm seed depth settings are as required.

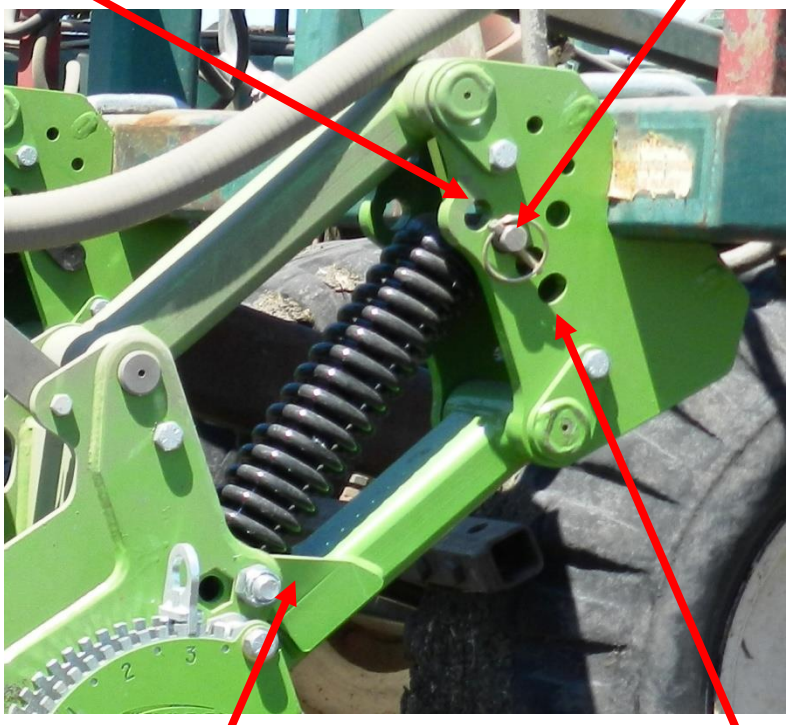
4 ROW UNIT DOWN FORCE:

Row unit down-force or parallelogram down-force is required to ensure that the set planting depth is being maintained in varying ground conditions. In dry tough conditions or compacted soil a higher down force setting will be required so that the seeding depth remains constant. If too low down-force is selected the planting unit will be running at variable seeding depths and an uneven crop germination may result.

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.

Maximum down-force setting.

To adjust down-force remove the lynch pin and relocate the main down-force pin to the required pressure setting.



Lift the machine up so that the row unit sits on the down stop, before attempting to remove the adjustable pin.

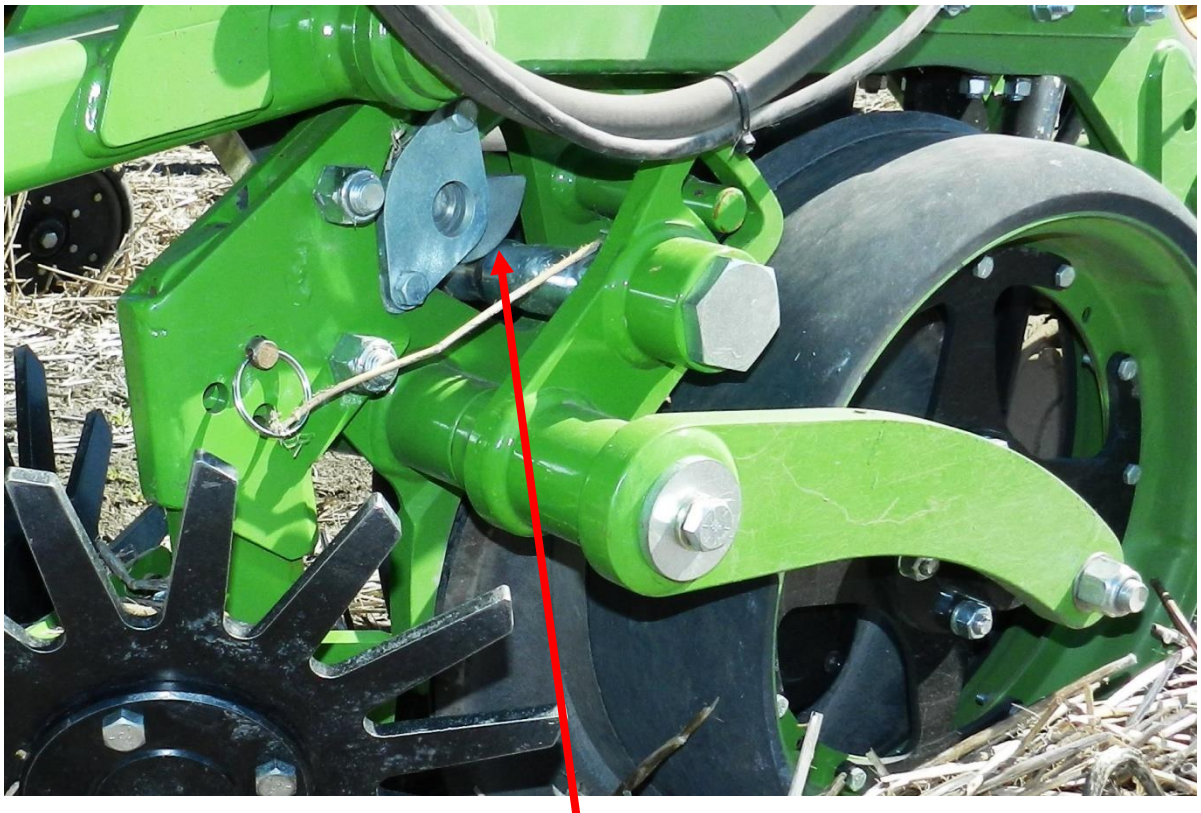
Minimum down-force setting.

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 planting, 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 at normal planting speed and ensure the gauge wheel arm link shaft is running hard against the depth cam. This can also be observed by stopping the tractor, leaving the implement in the ground, then checking the gauge wheel arm link shaft is hard against the depth cam. If the link shaft is not touching the depth cam, increase the down-force as required.

- Always do in field checks to confirm settings.



Check that the gauge wheel link arm is touching the depth cam to ensure set planting depth is being maintained.

TIPS for down-pressure settings:

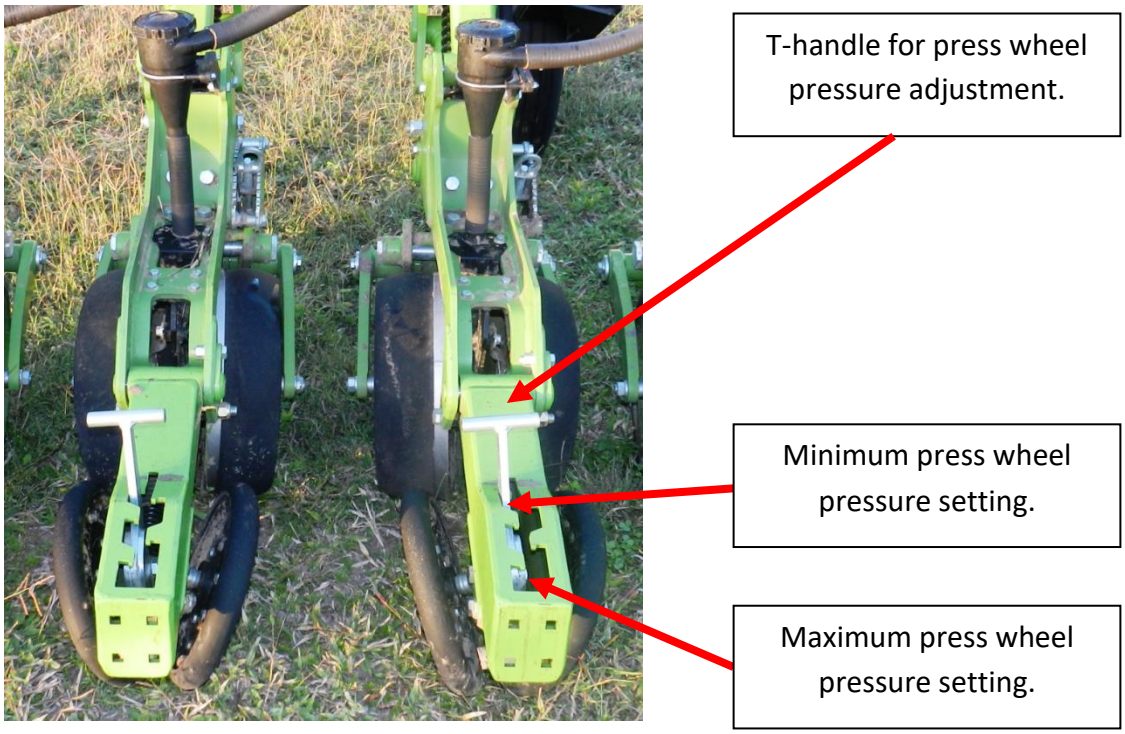
- Using excessive down-pressure can result in over compacting the side walls of the seeding trench which can affect the press wheels ability to close the seeding trench.
- When the seeding depth is changed ensure you have enough down-force to maintain the selected planting depth.
- Field checks must be assessed at operating speed to accurately gauge results.

5 PRESS WHEEL SETTINGS:

The press wheel assembly on the DX50 unit is adjustable to suit most ground conditions and can be configured a number of different ways.

5.1 Press Wheel Pressure

Press wheel pressure is adjusted on the T-Handle which is located above the press wheels. To adjust lift the machine out of the ground so that the tension is off the press wheel spring. Pull the handle back and locate into the required setting making sure the handle locates fully inside the slot and is retained in position by the tag.

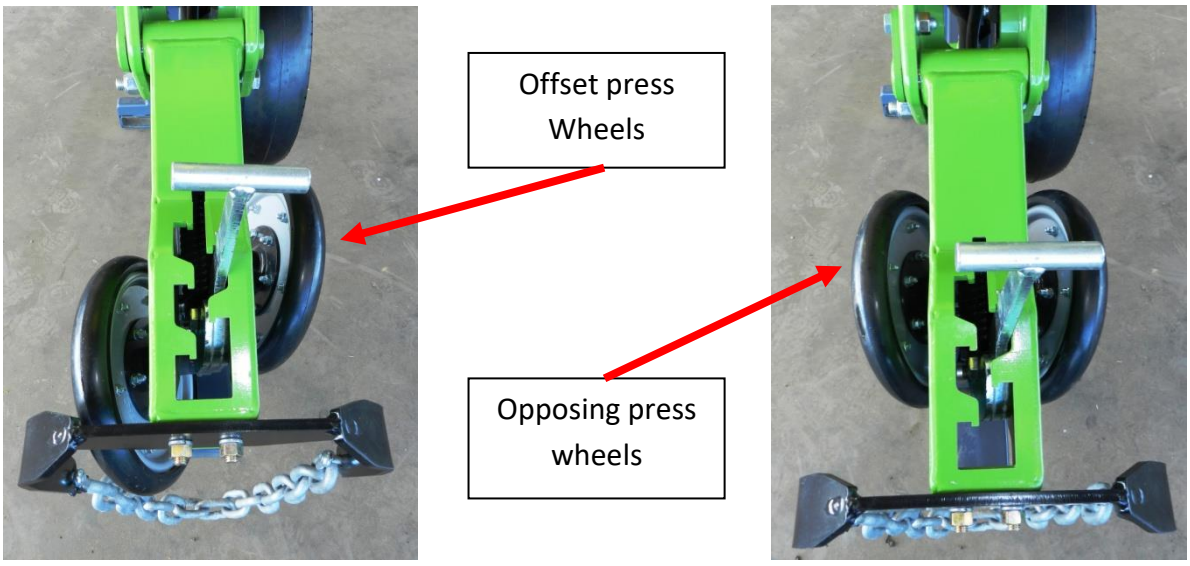


5.2 Press Wheel Adjustment - Offset or Opposing

The press wheels assembly comes standard with the ability to be configured with offset or opposing press wheels. The ground conditions and personal preference will dictate your requirements. As a guide offset press wheels (one leading the other), are generally preferred in heavier soil types as they can be more effective in closing the seeding trench from the ground down to the seed, as each individual press wheel is able to collapse the side of the seeding trench, with no resistance from a wheel running opposite. The offset press wheel setting also allows the press wheels to walk independently, helping to maintain consistent pressure on the ground.

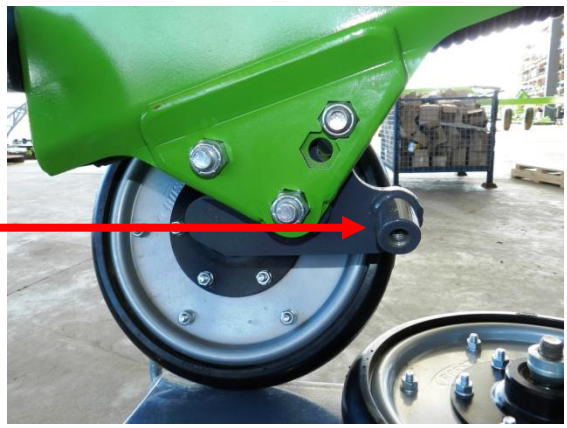
Offset press wheels can also help to reduce the occurrence of the “kinze crack”, by collapsing the entire side wall of the seeding trench reducing the chance of leaving air pockets in the soil, which can dry out leaving the ground cracked open.

In lighter soils, the opposing press wheel setting is effective as it reduces the amount of seed lift that can be associated with offset press wheels in lighter soils.



To change between offset and opposing press wheel settings remove both press wheels from the row unit. Remove the lockout bolt from the stowage position and relocate to the bottom hole position, ensuring it locates through the cut out in the rocker assembly so the press wheels pivot together. Bolt the press wheels back on the rocker assembly in the opposing mount positions.

Using a 15/16th spanner remove both press wheels from the mount.



Remove the lockout bolt from stowage position & relocate to the bottom hole so the walking assembly becomes fixed. (Failure to do this will cause excessive wear to the press wheel tyre)

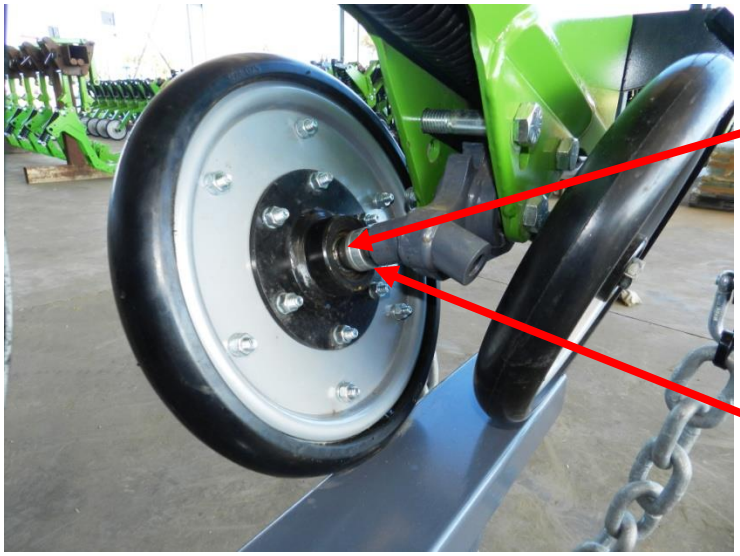
Make sure the lockout bolt has been placed through the cut out in the rocker assembly.

Bolt the press wheels back onto the mount in the opposing position.

5.3 Press Wheel Adjustment – In & Out

Depending on the ground conditions, the press wheels may need to be adjusted closer together or further apart to achieve a better close on the seeding trench.

Undo the press wheel retaining bolt and remove or add spacer washers behind the press wheel as required, make sure the tapered spacer seats against the bearing. When adjustment washers are removed they can be kept on the outside of the press wheel.



TIPS for press wheel adjustment:

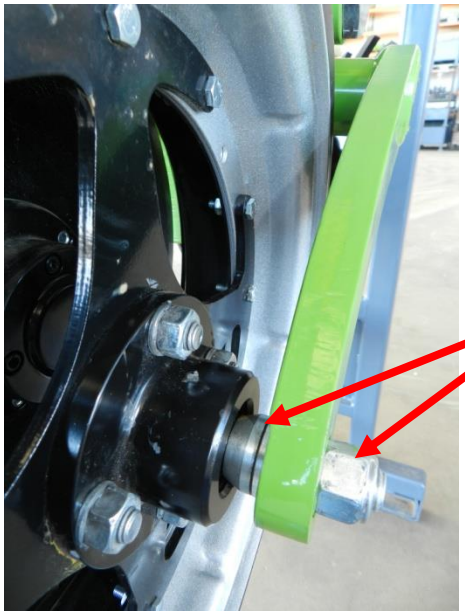
- If too much press wheel tension is applied this may cause the seed to lift in the trench.
- If not enough pressure is used, the seed trench may stay open which can cause the seed trench to dry out and result in poor germination.
- If you are not able to close the seeding trench, ensure the side walls of the seed trench have not been over compacted by using excessive down pressure (see *Section 4*).
- To confirm settings, field checks must be made at planting speed to accurately gauge results.
- Optional cast steel press wheel are available for heavy clay soils to improve the row units ability to close the seeding trench.

6 GAUGE WHEEL SETTINGS:

The gauge wheel should be adjusted prior to putting the planter in the ground and should be set to lightly touch the disc when it is rotated. The disc should still be able to be turned over by hand.

To adjust the gauge wheel closer to the disc a 3/4 & 15/16th spanner is required. Simply remove the front pivoting retaining bolt and slide the gauge wheel off, undo the main gauge wheel mounting bolt being careful the spacer shims are not lost when removing the wheel. Remove the required amount of shims, (at this point shims may be added if the gauge wheel needs more clearance), retighten the gauge wheel mounting bolt (shims may be kept on the outside of the gauge wheel underneath the mounting bolt nut.) Always ensure the tapered washer is located against bearing when finished. Slide the gauge wheel back on the front pivot and replace the retaining bolt. Check the gauge wheel moves freely against the disc.

Remove the gauge wheel retaining bolt and slide the gauge wheel off the main pivot shaft.



Undo the gauge wheel mounting bolt and add or remove shims as required so the gauge wheel lightly touches against the disc at the soil contact point.

Make sure the tapered washer always locates against the bearing.

To improve the life of the stainless steel scraper ring do not continually adjust onto the disc, allow the ring to work until mud build up starts to cause problems.

The gauge wheel should lightly touch against the disc in the area shown to keep mud build up to a minimum and help to drive the disc.

TIPS for gauge wheel adjustment:

- If too much pre tension is applied against the disc, the disc may stall and bulldoze.
- If the gauge wheel is adjusted too tightly against the disc the stainless steel ring or tyre may wear excessively.
- If the gauge wheel appears not to be running consistently against the front of the disc, ensure the stainless steel ring is fitted evenly around the tyre and that the tyre has been evenly pressed into the rim.
- In fluffy or soft soil types the gauge wheel may have to be adjusted further away from the disc to minimise resistance.

6.1 Gauge Wheel Stainless Steel Rings

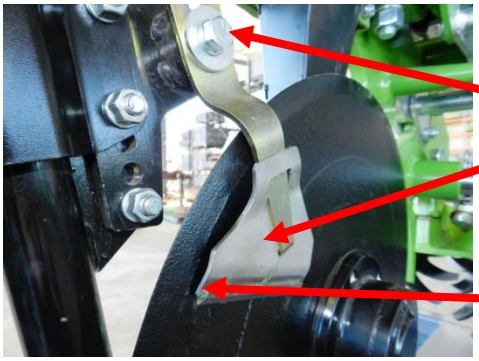
The gauge wheels are fitted with stainless steel rings which help to improve performance when seeding into sticky conditions; however be aware in some soil types removing the ring can improve performance and reduce mud build up on the disc. Because soil conditions and soil types vary it is recommended to simply remove 1 ring to test.

7 MUD SCRAPERS:

The DX50 row unit is fitted with 2 tungsten blade mud scrapers to assist when operating in sticky conditions.

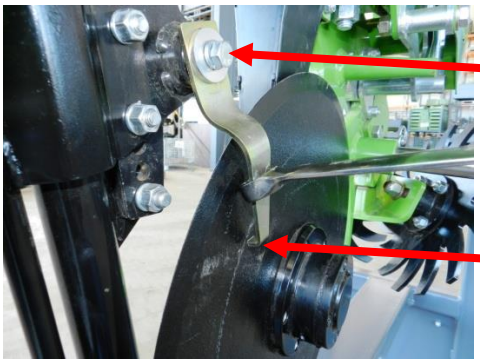
The Internal blade scrapers operating inside the cleaning wheel should be adjusted to run flat on the disc just inside the disc bevel (when the disc is new).

To fine tune the blade scrapping pressure, remove the tungsten blade and place an open ended ring spanner over the end of the scrapper arm and bend slowly. As a guide the tip of the arm should lightly touch the disc when the blade is removed.



Loosen the mud scraper mounting bolt and remove the scraper blade.

The mud scraper blade should sit just inside the disc bevel.



Retighten the scraper mounting bolt and place a ring spanner over the scraper arm and bend up or down until the tip of the arm lightly touches the disc. Now loosen the mounting bolt and put the scraper blade back on. Blade pressure can be varied this way as required when operating in different soil types.

Ensure the scraper arm is low enough so when the machine is lifted and the gauge wheels drops down it cannot contact the arm, also check the scraper arm has clearance on the disc.

TIPS for mud scraper adjustment:

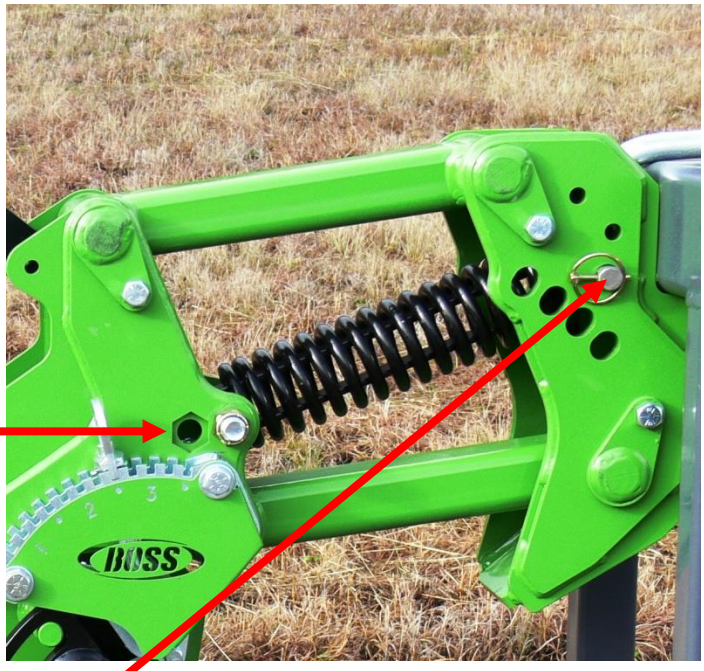
- Ensure the mud scraper is adjusted low enough so the gauge wheel does not contact the scraper arm when the row unit is in the lifted position. (The gauge wheel can contact the top of the scraper arm if adjusted incorrectly and push the arm onto the disc)
- If the scraper arm is adjusted too low it can contact the disc causing it to stall.
- In soft soil the mud scrapers can cause the discs to stall and may need to be removed.

8 PINNING ROW UNITS UP:

The DX50 row units can be locked up out of the way if a skip row or wider row spacing is required. To pin row units up 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 main down pressure pivot bolt and spring to the rear hole, using a forklift or front end loader, you can now lift the row unit until the down-force spring can be lined up with the front lockout hole, replace the pin and lynch pin.

Lift the machine up so the row unit sits on the down stop it is now safe to remove the adjustment pin from the down-pressure spring.

Relocate the pivot bolt and down-pressure spring to the rear hole. (Pivot bolt must be moved to the hole position indicated)



Lastly lift the row unit and replace the down-pressure spring into the lockout position. (Front pin is currently shown in the lockout position)

9 FINAL ADJUSTMENTS & TIPS:

- **Discs are 16” diameter when new and should be replaced at approx. 15” diameter to prolong seedboot life and maintain planting depth accuracy.**
  (Ensure discs are touching together at ground entry point)
- **Do not turn with DX50 row units in the ground – failure to do so may damage row units.**
- **To achieve the best results, always check and make final adjustments in the field at working speed.**
- **The DX50 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 blockages, often waiting an extra day or two can vastly improve seeding results and soil finish.**

10 TROUBLESHOOTING:

PROBLEM	POSSIBLE CAUSES	POSSIBLE SOLUTIONS
The seed trench is not closing or under pressed.	Incorrect under-bar operating height.	Check under-bar operating height and adjust if necessary -Refer to *Section 2*
	Not enough pressure on the press wheels.	Increase the press wheel pressure setting on the row unit. See *Section 5.1*
	Press wheel not properly aligned with seeding trench.	Move the press wheels to line up with the seeding trench. See *Section 5.3.*
	Too much down-pressure being applied.	Reduce the down pressure. See *Section 4.*
		Use optional cast steel press wheels.
The seed trench is pressed too tight.	The press wheel pressure is set too high.	Reduce the press wheel pressure setting on the row unit. See *Section 5.1*
The disc and gauge wheel are building up with soil.	The mud scrapers are not working or have been lost.	Replace or adjust mud scrapers as required. See *Section 7.*
	The gauge wheel is too far away from the disc.	Adjust the gauge wheel closer to the disc. See Section 6.
	The soil conditions are too wet.	Wait until soil conditions improve.
	A foreign object has become wedged inside the cleaning wheel.	Remove the cleaning wheel to check object has been dislodged. See *Section 6.*
The disc will not turn in loose or soft soil conditions.	The gauge wheel is too close to the disc.	Adjust the gauge wheel away from the disc. See *Section 6.*
	Mud scrapers are adjusted too tight on the disc.	Adjust or remove mud scrapers off the disc. See *Section 7.*
	The discs need replacing as soil is getting pinched between the discs.	Replace Discs.
Seed placement is inconsistent.	The down pressure is set too low.	Increase the down pressure to maintain a constant planting depth. See *Section 4.*
	The frame is not level.	Level the frame. See *Section 2.*
	Under-bar operating height is incorrect.	Check under-bar operating height and adjust if necessary -See *Section 2*

	The fertiliser or liquid tubes are interfering with seed placement.	Ensure fertiliser or liquid tubes are set high enough to minimise seed disturbance.
	Press wheel pressure is set too high.	Too much press wheel pressure or misaligned press wheels can cause the seed to be lifted. See *Section 5.*
The seed 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 seed depth is too shallow.	The opening disc is worn.	For every 1” worn off the disc (originally 16” in diameter) seeding depth will be ½” shallower. See *Section 3.*
	Seeding depth is set too shallow.	Increase the seed depth. See *Section 3.*
	The down pressure is set too low.	Increase the down pressure to maintain a constant planting depth. See *Section 4.*
Straw is “hairpinning”.	The down pressure is set too low.	Increase the down pressure. See *Section 4.*
		Improve straw chopping & spreading process.
		Fit optional trash whippers to move stubble away from the discs.
The inside of the discs are building up with soil.	The opening discs are worn.	When the discs no longer contact each other at the front of the disc just above ground level, soil is pinched in between the discs and forced inside. Replace opening discs.
		The knocker in front of the seed tube needs to be replaced.
Getting too much dry soil in the seeding trench.	The fertiliser or liquid tubes are interfering with seed trench.	Ensure fertiliser or liquid tubes are set high enough to minimise disturbance.
	The gauge wheels are set too far away from the discs.	Adjust the gauge wheels to lightly touch the disc. See *Section 6.*

11 SERVICING & MAINTENANCE REQUIREMENTS:

NEVER DISASSEMBLE THE DOWN PRESSURE 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.

11.1 Maintenance During the Break in Period

After the first 5 hours of field operation –

- Visually inspect all bolts and tighten any that have become loose.
- Check the press wheels are in the optimum position. See *Section 5*
- Check the gauge wheels are adjusted correctly against the disc. See *Section 6*
- Check and tighten all wheel nuts.

11.2 Daily Maintenance

- Visually inspect row units for damage and replace if necessary.
- Visually inspect bolts and tighten any that have become loose.

11.3 Annual Maintenance – Every 2500 Hectares

- Check bearings for excessive play and replace if necessary.
- The original disc diameter is 16”, if the discs are worn and no longer contact each other at the front of the disc just above ground level replace with new discs. (replace discs at 15” diameter)
- Check mud scrapers are in good working condition and replace if necessary.
- Clean and wash the machine down touching up any areas where paint has been removed.
- Ensure gauge wheel rubbers and press wheel rubbers are in good working condition and replace as required.

12 DX50 SERIES ROW UNIT OPTIONS:

Available options for DX50 row units include:

- **Diffusers**
  (Removes all the air from the air seeding lines to reduce seed bounce)
- **Rear Chain Harrows**
  (Leaves a flatter field finish and assists in reducing moisture loss by covering up the seeded rows with dry soil)
- **John Deere Vacuum Boxes**
  (Precision John Deere Vacuum Boxes can be fitted to the DX50 row unit)
- **Box Toppers for Vacuum Boxes**
  (Box toppers provide an extra bushel of capacity to the standard John Deere Vacuum Box)
- **Liquid Fertiliser Tubes**
  (Liquid fertiliser tubes located behind the seed tube can be added)
- **Solid Fertiliser Tubes**
  (1¼" Solid fertiliser tubes can be added behind the seed tube when using the John Deere Vacuum Box for starter fertiliser application)
- **Trash Whippers**
  (Optional shark tooth trash whippers can bolt on at any time to the front of the DX50 row unit)
- **Cast Steel Press Wheels**
  (To assist in heavy clay soils where rubber press wheels may not be able to close the seeding trench)
- **Band Spray Mounting Bracket**
  (This mounting bracket simply bolts to the back of the DX50 press wheel body)

13 RECORDING CHART FOR FUTURE REFERENCE:

Product	**Depth Setting**	**Press Wheel Setting**	**Down Pressure Setting**	**Moisture Depth**
Wheat				
Barley				
Chick Peas				
Sorghum				
Mungbeans				