Table of Contents

1 Planter 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 & 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.
- Ensure tyres are inflated to the correct pressure as recommended.
- **Maximum transport speed is 20km/h.**
- 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.

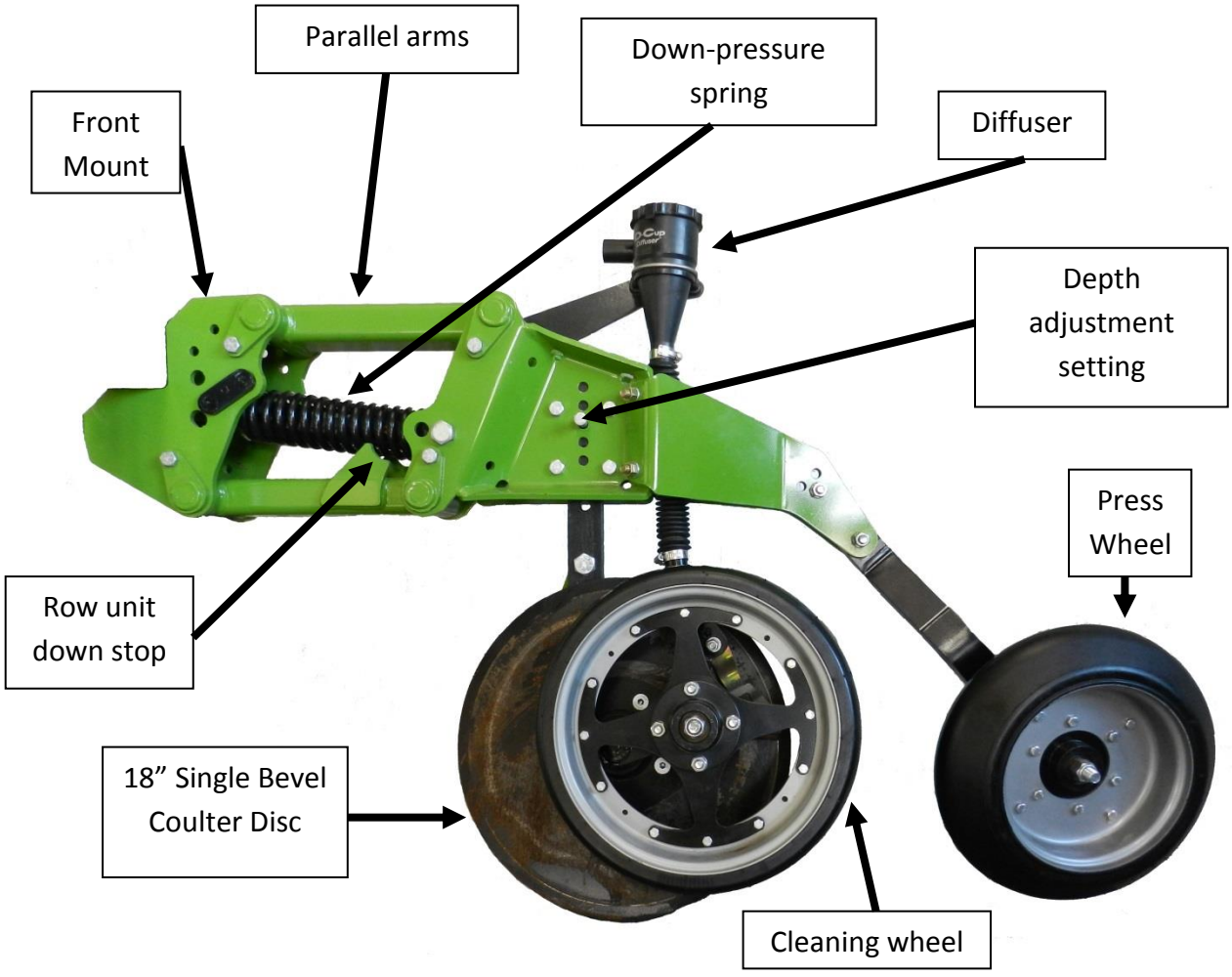
DO NOT TURN WITH NX25 ROW UNITS IN THE GROUND – MAKE HEADLAND TURNS WITH ROW UNITS RAISED. FAILURE TO DO SO MAY RESULT IN DAMAGE TO THE OPENER

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.

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.

NX25 Single Disc Row Unit



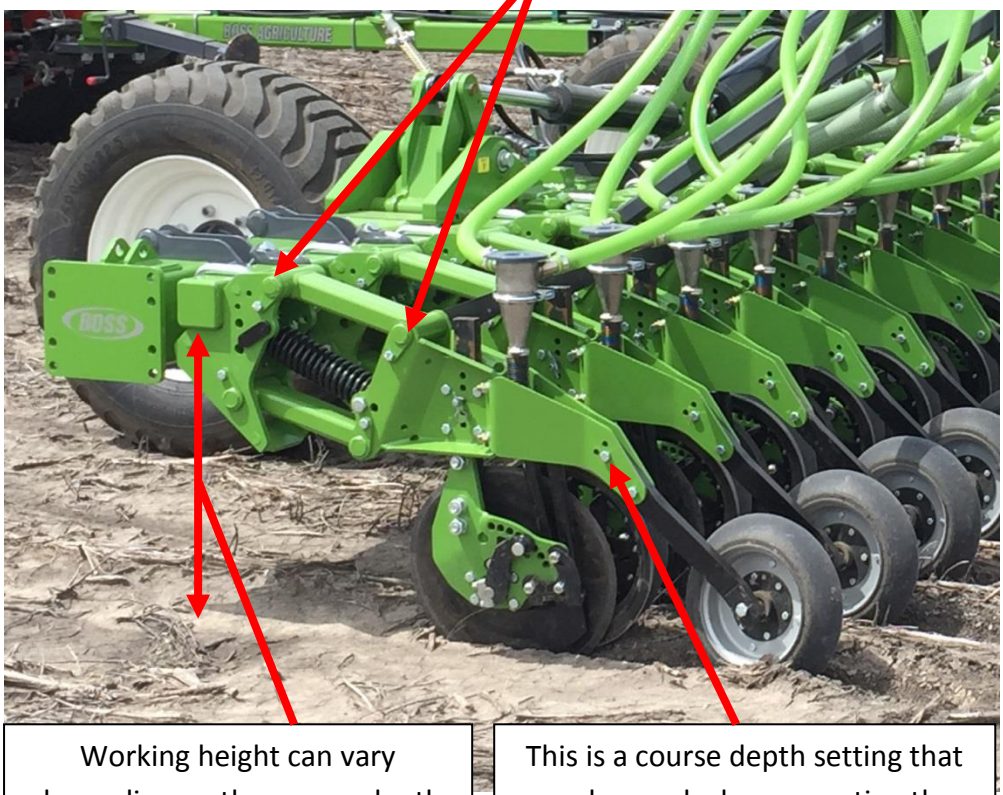
SET UP & OPERATION OF THE BOSS NX25 SINGLE DISC OPENER

2 UNDERBAR OPERATING HEIGHT & FRAME LEVEL:

The under-bar operating height of the NX25 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.

The parallel arms should be running 2” down from the front pin to the rear pin. This position gives the row unit 7” of up travel and 5” of down travel.



Working height can vary depending on the course depth setting. It can operate at 620mm or 680mm from under the toolbar to ground level.

This is a course depth setting that can be used when operating the unit at different under-bar working heights or when different profile press wheels are used.

TIPS for under bar operating height:

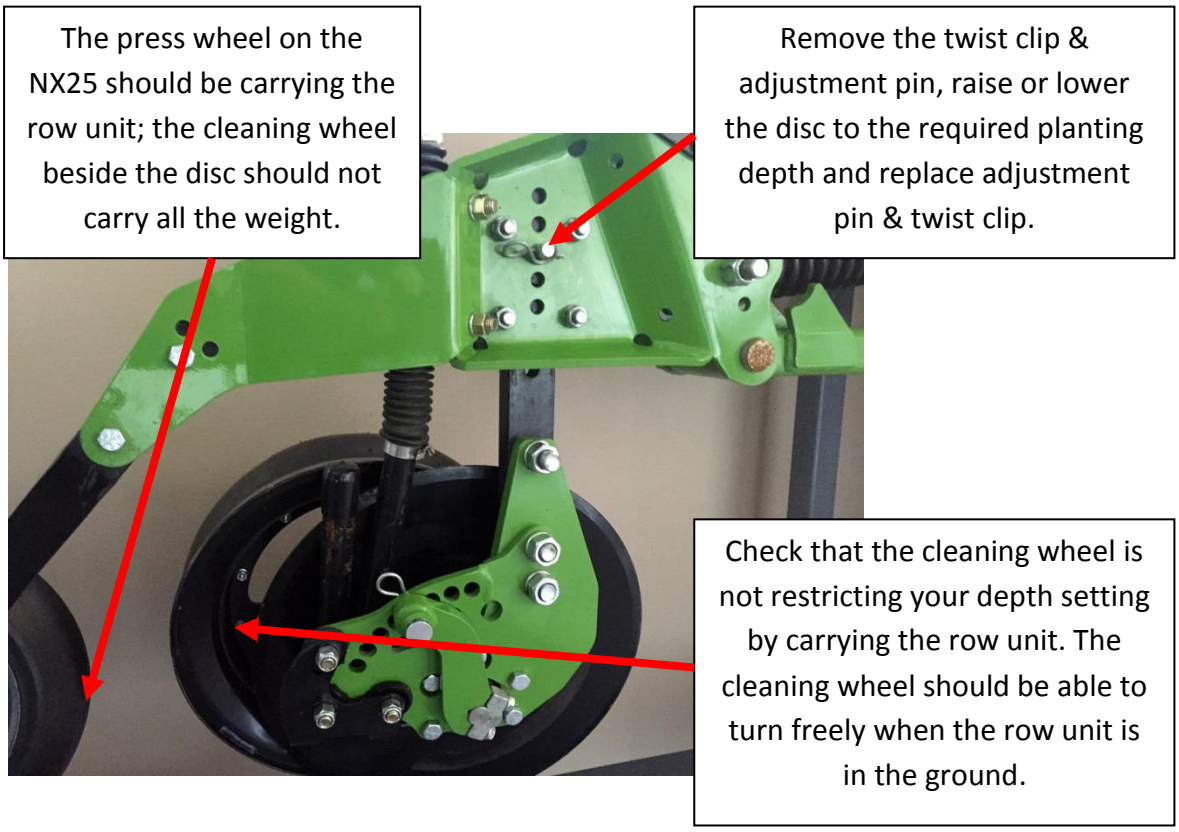
- If the under bar working height is set too high, the row unit may not have the full amount of parallelogram travel available for the given ground conditions.

- 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.

- The toolbar angle must also be set accurately front to back & side to side to help maintain a constant press wheel pressure, and keep even planting depth.

3 SETTING PLANTING DEPTH:

Planting depth on the NX25 Series of row units is adjusted by raising or lowering the disc shank. To adjust, simply remove the twist clip pin and main depth control pin, and raise or lower the disc 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. Ensure the cleaning wheel located beside the disc is adjusted correctly so your depth setting is achieved, the cleaning wheel should not carry any row unit weight (See section 4.1)



TIPS for planting depth adjustment:

- When the seeding depth is changed ensure you have enough down force to maintain your required seeding depth (see *section 5* on down-force settings).
- Ensure the cleaning wheel is not restricting your depth setting by being adjusted too low – (see section 4.1)
- It is the responsibility of the operator to make in field checks to confirm seed depth settings are as required.

4 SETTING UP THE CLEANING WHEEL:

The cleaner wheel on the NX25 is designed to stop the soil from lifting with the trailing edge of the disc. You can also vary the amount of soil left in the trench.

4.1 Cleaning wheel

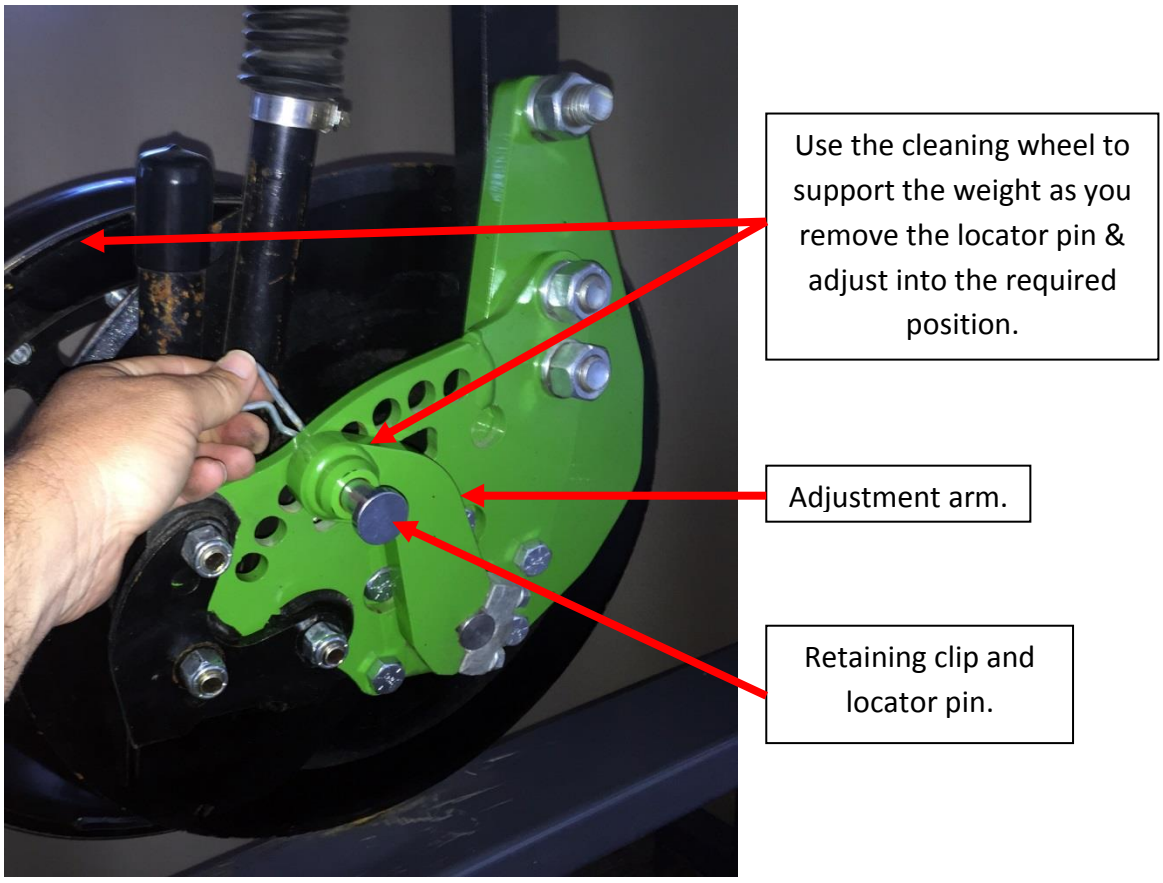
The cleaning wheel is generally set 10-20mm above ground level when in the working position. The easiest way to check is to stop the tractor, and while the row units are still in the ground you should be able to rotate the cleaning wheel around so that your hand, when rested on the tyre, will fit between the ground level and tyre. This is a guide only as you may choose to vary the amount of soil throw you require to suit different planting conditions. In wet conditions lowering the cleaning wheel can assist with disc drive & field finish.

As a guide the cleaning wheel should be set 10mm – 20mm off the ground in the working position. This may be hard to judge as loose soil the disc has lifted will be underneath the cleaning wheel. A good way to check is to put your hand on the tyre and rotate around; the loose soil should just push out from underneath the tyre.

TIPS for cleaning wheel adjustment:

- The higher you lift the cleaning wheel the more soil is thrown out of the trench, and the more soil disturbance is created.
- If the cleaning wheel is set too high in wet heavy clay soils, the side wall of the seeding trench may be torn out.
- To decrease the amount of dry soil required back over the planting row, lift the cleaning wheel to allow more soil throw.
- If the cleaning wheel is set too low the planters' seed depth setting will be inaccurate.
- If the cleaning wheel is set too low the press wheel may not be able to close the seeding trench.
- **When you adjust planting depth the cleaning wheel may need to be adjusted at the same time.**
- Operate the planter at normal planting speed (8-11km/hr) to assess if your settings are correct.

To adjust the cleaning wheel height remove the clip and locator pin from the assembly, lift the cleaning wheel as you slide the adjustment arm to the required position, re insert the pin and retaining clip.



4.2 Setting the Cleaning Wheel against the Disc

The cleaning wheel should be adjusted prior to putting the planter in the ground, and should be set to lightly touch the disc. The cleaning wheel should be able to be turned over by hand.

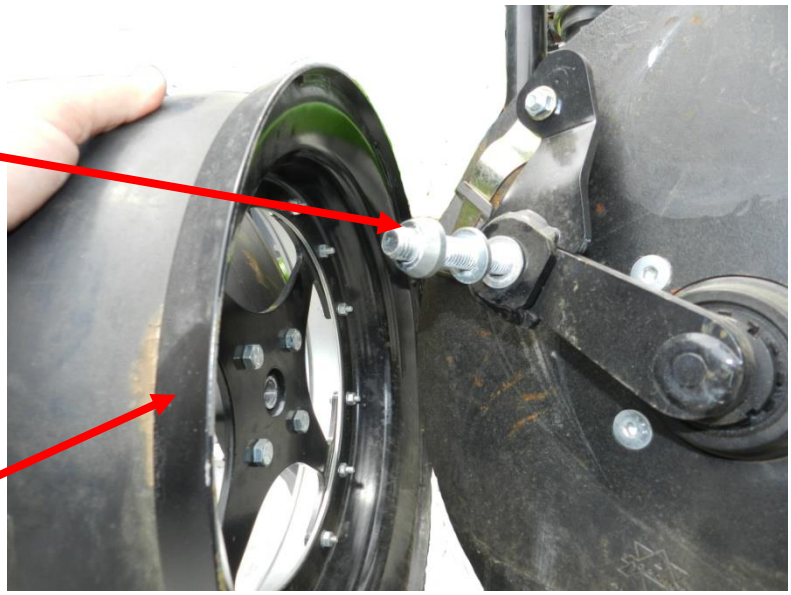
To adjust the cleaning wheel closer to the disc a 15/16th spanner is required. Simply remove the retaining nut and slide the cleaning wheel off, be careful the spacer shims are not lost when removing the wheel. Remove the required amount of shims (at this point shims may be added if cleaning wheel needs more clearance) slide the cleaning wheel back on the bolt and put the shims you removed back on the outside of the cleaning wheel before replacing the retaining nut. Check the cleaning wheel moves freely against the disc.

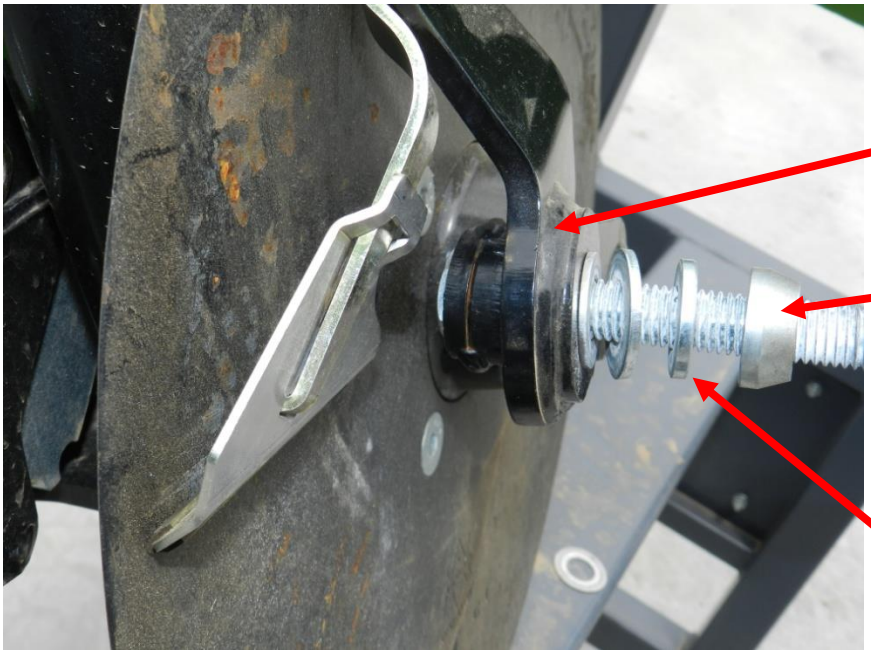
TIPS for cleaning wheel adjustment:

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

Remove cleaning wheel and add or remove shims as required. The tapered washer must locate against the cleaning wheel bearing as shown.

Ensure the cleaning wheel is not too tight on the disc as this may cause excessive wear and blockages.





If the mud scraper bracket is totally removed an 8mm shim will be required to take up the gap.

Tapered washer should locate against the bearing as shown.

When adjustment washers are removed they can be kept on the outside of the cleaning wheel.

4.3 CLEANING WHEEL STAINLESS STEEL RINGS:

The cleaning wheels are fitted with stainless steel rings which help to improve performance when seeding into sticky conditions in most soil types; 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.

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.

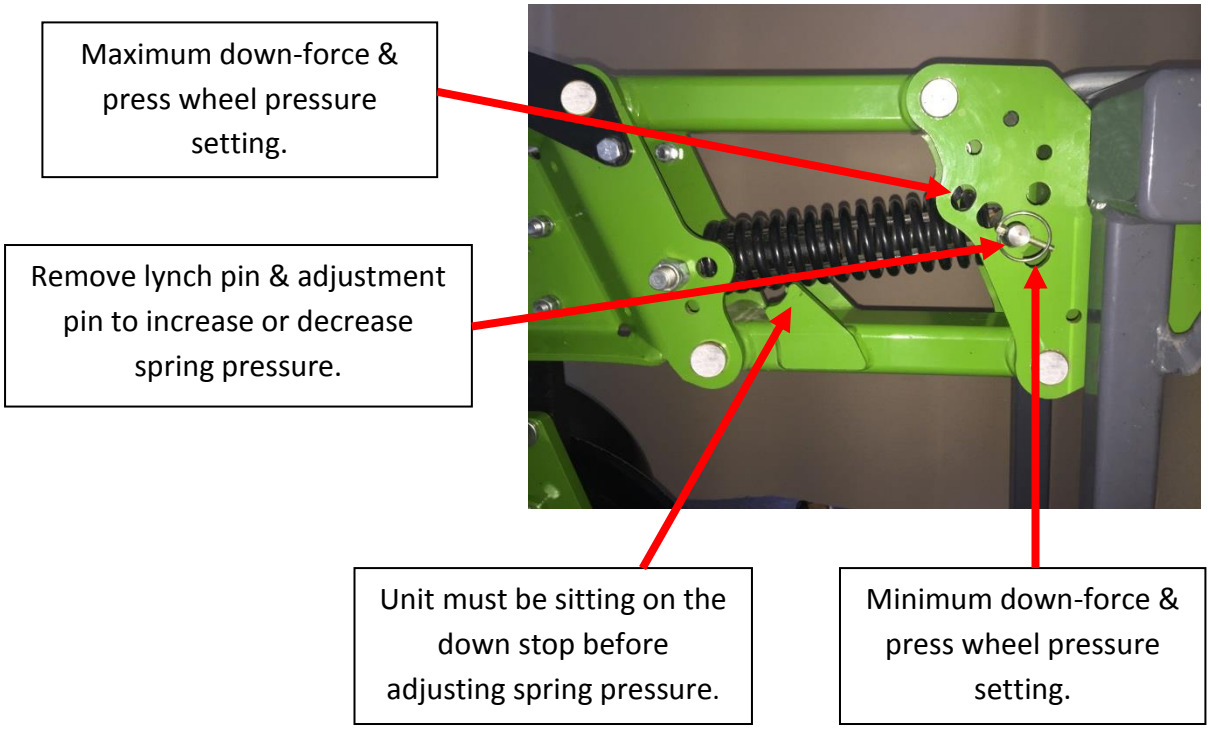
5 PRESS WHEEL PRESSURE AND ROW UNIT DOWNFORCE:

The press wheel pressure on the NX25 is governed by the down pressure spring located in the parallelogram assembly. When setting up the machine it is advisable to select the minimum amount of down-force pressure and increase as required.

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

5.1 Adjustable Spring Pressure

The spring down-force adjustment has 4 operating positions. To change the press wheel pressure or down-force requirements, lift the machine up so that the row unit sits 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 and press wheel pressure.



- Press wheel settings will vary depending on soil conditions and planting speed.
- Wheel track rows may need extra spring pressure to achieve results.

5.2 **Press Wheel Adjustment (in & out)**

Depending on the ground conditions the press wheel assembly may need to be adjusted in or out to achieve a better close on the seeding trench. To adjust simply undo the mounting bolt (2 x 15/16th spanners required) that mounts the press wheel and remove or add spacer washers behind the press wheel as required. Replace the nyloc nut and tighten firmly.

Remove the press wheel and add or remove shims as required. The press wheel is generally set away from the opening slot as this tends to close the seed trench from the bottom up, when positioned right over the top of the trench the press wheel can seal at the top but leave air pockets underneath (this depends on planting depth).

When applying Big N gas the wheel is often better positioned over the top of the trench to help seal the gas up faster.

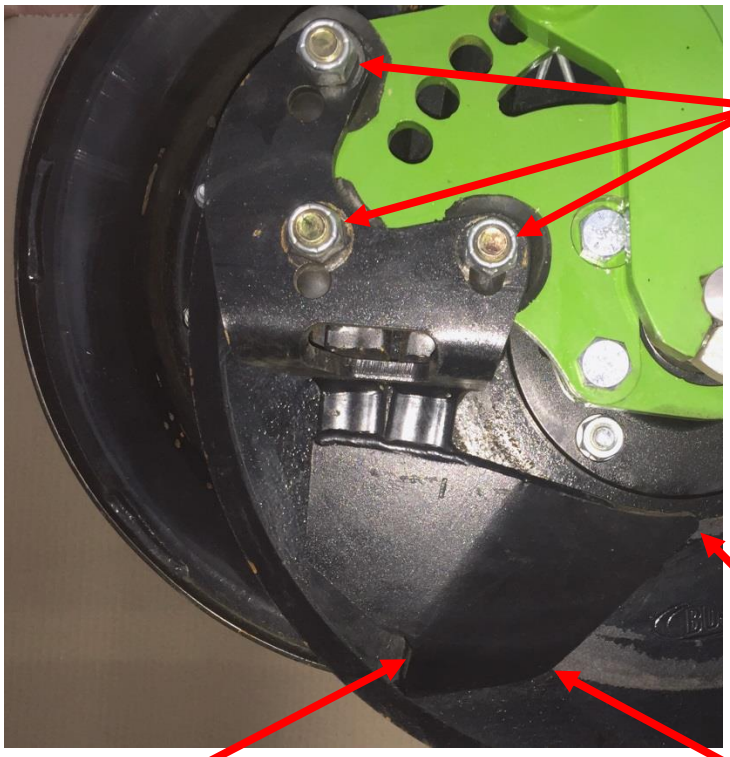
6 SEED BOOT ADJUSTMENT:

When replacing or resetting the seed boot it is important to ensure it is installed correctly for maximum performance.

The seedboot can also be lifted as the disc wears to extend its life.

The seed boot is rubber mounted which allows the seed boot to be fine tuned. To adjust use a ¾ spanner to tighten or loosen the 3 seed boot mounting bolts to achieve the optimum position:

1. The top leading edge of the seed boot should be lightly touching the disc.
2. The bottom leading edge of the seed boot should be off the disc 1mm **(maximum)** to allow for disc flex.
3. The back of the seed boot should open up away from the disc with a gap of approx 2-3+mm.
4. The disc should be able to be turned over by hand when finished.
5. **If the seedboot cannot be positioned correctly new rubbers located underneath the adjusting nuts may be required.**



Use the 3 adjusting nuts to fine tune the seed boot position, by tightening or loosening as required.

If you are having difficulty positioning the seed boot the rubber mounts may need replacing if they have become hard.

The top leading edge should be lightly touching the disc.

The back of the seed boot should be off the disc as far as you can get 2mm-3mm+.

The bottom leading edge should be off the disc 1mm (max) to allow for disc flex.

7 MUD SCRAPERS:

The NX25 row unit is fitted with 1 tungsten blade mud scraper to assist when operating in sticky conditions.

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

Ensure that the blade is kept inside the disc edge running on a smooth face as the disc can sometimes become dinted on the edge from stones etc

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 be lightly touching the disc when the blade is removed.

To adjust the scraper blade angle, remove the cleaning wheel and loosen the adjustment bolt. Position the blade & retighten.

To adjust the pressure on the scraper blade, loosen the arm & remove the blade, place a ring spanner over the end of the arm & bend the mounting arm down until it lightly touches the disc. Replace the scraper blade.

Keep the mud scraper approx 10mm-12mm from the disc edge to avoid damage or loss if the disc becomes dinted.

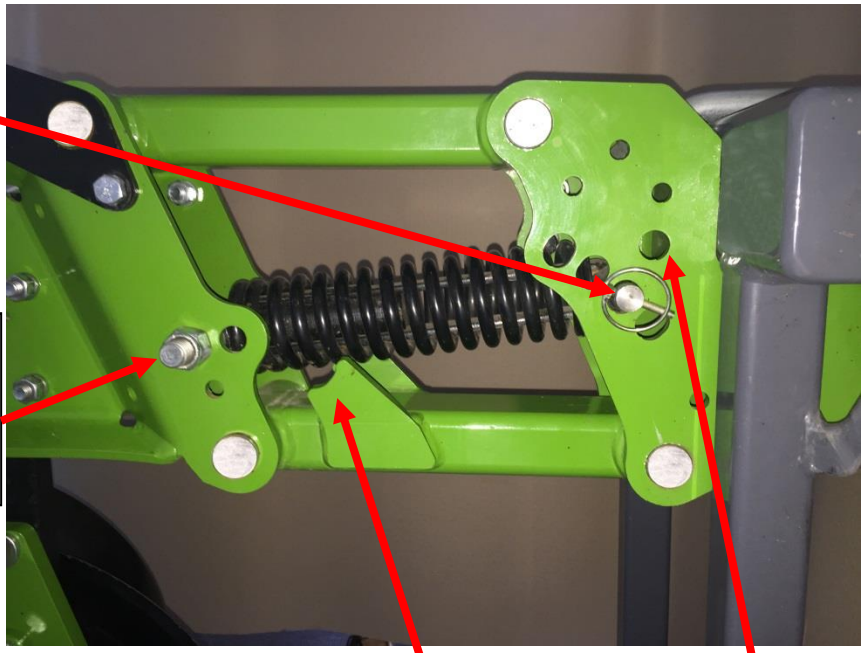
8 PINNING ROW UNITS UP:

The NX25 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 from the down-pressure spring and slide the adjustable pin out of the boss. Relocate the pivot bolt assembly in the down-pressure spring to the rear hole. You can now lift the row unit with a front end loader or forklift, the down-force spring can be lined up with the front lockout hole, replace the pin and lynch pin.

Remove the lynch pin & the adjustment pin from the down-pressure spring.

Relocate the pivot bolt and down-pressure spring to the rear hole. (As shown)



Lift the machine up so the row unit sits on the down stop before attempting to remove the adjustment pin from the down-pressure spring.

Lastly lift the row unit and replace the down-pressure spring into the lockout position.

9 FINAL ADJUSTMENTS & TIPS:

- **Discs should be replaced at 16" diametre to prolong seedboot life & maintain planting depth accuracy.**
- **Do not turn with NX25 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 NX25 performance is dependent on soil type and ground conditions as such adjustments must be made according to current field conditions.**
- **Reducing your planting speed will minimise soil disturbance.**
- **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 & blockages. Often waiting an extra day or two can vastly improve seeding results and soil finish.**

10 DECREASING SOIL DISTURBANCE:

In soft, fluffy soil the cleaner wheel can push the soil causing excess soil movement and ridging. To overcome this problem ensure the cleaner wheel is approx 13mm above the surface, if it is riding lower than this raise the cleaning wheel to decrease soil push.

Setting your cleaning wheel too high can also increase soil disturbance or soil throw, check your cleaning wheel is approx 13mm above the surface and adjust down if necessary.

Decreasing your ground speed will also result in less soil disturbance.

In lighter soil types a wider flat press wheel may also decrease soil disturbance.

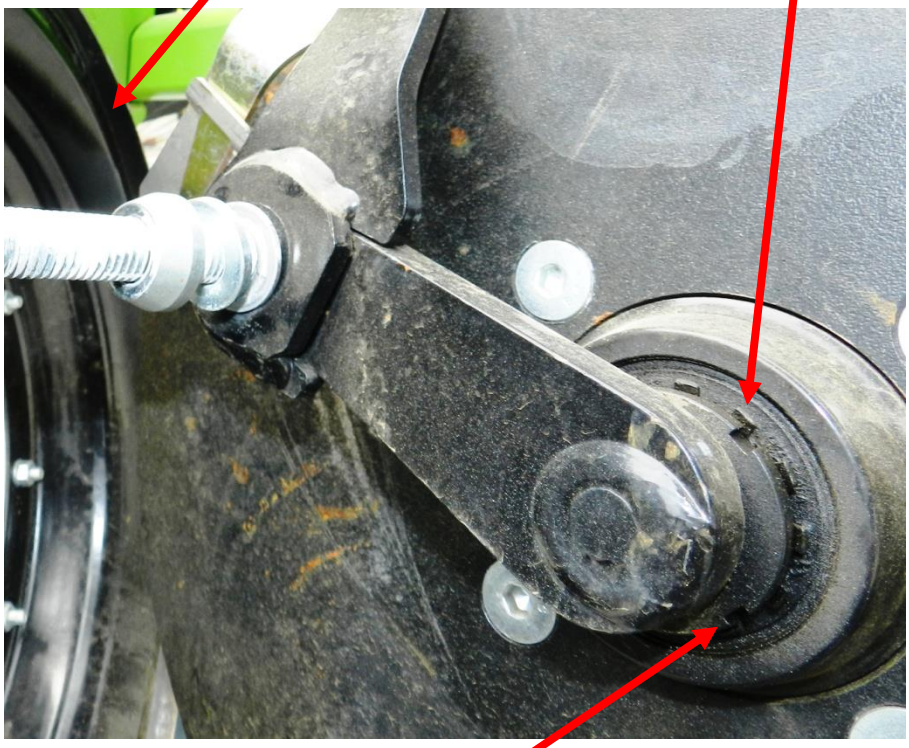
11 DISC BEARING PRELOAD & GREASING REQUIRMENTS:

The disc bearing preload must be adjusted correctly to maintain the seal contact and maximise bearing life.

The disc bearing must be greased daily with 1-2 pumps of grease required per 12 hour shift (Do not over-grease as you may pop the seal causing bearing failure).

To check the preload remove the cleaning wheel. Grab the disc firmly with two hands on opposing sides of the disc and check for disc wobble, if you can feel movement the bearing preload must be adjusted.

To adjust disc preload, using a hammer and pin punch tap the castellated washer free from the locking nut.



In a clockwise direction tighten up the locking nut firmly using a hammer and pin punch, or Boss bearing spanner. Check to see the disc can still be turned by hand & replace the castellated washer into the closest locking position. A small amount of rotation resistance is the ideal amount of preload.

12 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. See *Section 2*
	Not enough pressure on the press wheels.	Increase the down pressure setting on the row unit. See *Section 5*.
	Press wheel not properly aligned with seeding trench.	Move the press wheels to suit the seeding trench. See *Section 5.2.*
	Cleaning wheel set too low.	Lift the cleaning wheel. See *Section 4.1.*
The seed trench is pressed too tight.	The down pressure is set too high.	Reduce the down pressure setting on the row unit. See *Section 5.*
	The frame is not level.	Level the frame. See *Section 2.*
The disc and cleaning wheel are building up with soil.	The mud scrappers are not working or have been lost.	Replace or adjust mud scrapers as required. See *Section 7.*
	The cleaning wheel is too far away from the disc.	Adjust the cleaning wheel closer to the disc. See Section 4.2.
	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 4.2.*
The disc will not turn in loose or soft soil conditions.	The cleaner wheel is too close to the disc.	Adjust the cleaning wheel away from the disc. See *Section 4.2.*
	The seed boot is adjusted too close to the disc.	Adjust the seed boot to recommended setting. See *Section 6.*
	Mud scrapers are adjusted too tight on the disc.	Adjust or remove mud scrapers off the disc. See *Section 7.*
	The disc and cleaning wheel are building up with soil.	See above titled: The disc and cleaning wheel are building up with soil.
		You may have to increase your planting speed or depth to help drive the disc.

There is excessive soil disturbance.	See *Section 10.*	See *Section 10.*
Seed placement is inconsistent.	The down pressure is set too low.	Increase the down pressure to maintain a constant planting depth. See *Section 5.*
	The frame is not level.	Level the frame. See *Section 2.*
	The cleaning wheel is set too low.	Raise the cleaning wheel. See *Section 4.1.*
	Under-bar operating height is incorrect.	Check under bar operating height and adjust if necessary. See *Section 2*
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 18” in diameter) seeding depth will be ½” shallower. Increase the seed depth setting. See *Section 3.*
Straw is “hairpinning”	The down pressure is set too low.	Increase the down pressure. See *Section 5.*
There is excessive wear on the seed boot.	The disc opener is worn.	Once the disc opener has worn approx 2” (originally 18” in diameter) the seed boot is no longer operating in the shadow of the disc. Replace the disc if required.
	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.

13 SERVICING & MAINTENANCE REQUIREMENTS:

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.

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.

13.1 Maintenance During the Break in Period

After the first 3 hours of field operation –

- Visually inspect all bolts and tighten any that have become loose.
- Check the seed boot position on the disc is in the optimum position. See *Section 6*
- Check the cleaning wheel is adjusted correctly against the disc. See *Section 4.2*
- Check & tighten all wheel nuts.
- Check bearing preload on the disc hub & tighten if loose. See *Section 11.*
- Check & tighten V Bolts.

13.2 Daily Maintenance

- Visually inspect row units for damage and replace if necessary.
- Check the seed boot position on the disc is in the optimum position. See *Section 6*
- Visually inspect bolts and tighten any that have become loose.
- Grease the disc opener hub with 1-2 pumps of grease only. (every 12 hours - excessive use of grease will pop the seals out)

13.3 Annual Maintenance – Every 500 hours

- Grease the disc opener hub with 2 pumps of grease only. (excessive use of grease will pop the seals out)
- If shedding the machine for the season, grease the disc hub just prior to finishing so the new grease is lightly worked into the bearing assembly.
- Check bearings for excessive play and tighten pre-load or replace if necessary. See *Section 11.*

- Check the seed boot for excessive wear and replace or adjust if necessary. See *Section 6.*
- The original disc diameter is 18” if the disc is worn 1”in diameter the seed depth setting will be reduced by ½”. Replace with new discs if required.
- When the disc has worn approx 2” (52mm) off the diameter (original diameter 18”) the seed boot is no longer running in the shadow of the disc and will start to wear depending on your individual soil type. Replace with new discs if necessary.
- Check that the cleaning wheel is running in the best position and adjust if required. See *Section 4*
- Clean and wash the machine down touching up any areas where paint has been removed.

14 NX SERIES ROW UNIT OPTIONS:

Available options for NX25 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 & assists in reducing moisture loss by covering up the seeded rows with dry soil)

15 RECORDING CHART FOR FUTURE REFERENCE:

Product	**Seed Depth Setting**	**Cleaning Wheel Setting**	**Frame Height**	**Moisture Depth**
Wheat				
Barley				
Chick Peas				
Sorghum				
Mungbeans				