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# 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 NX20 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.**


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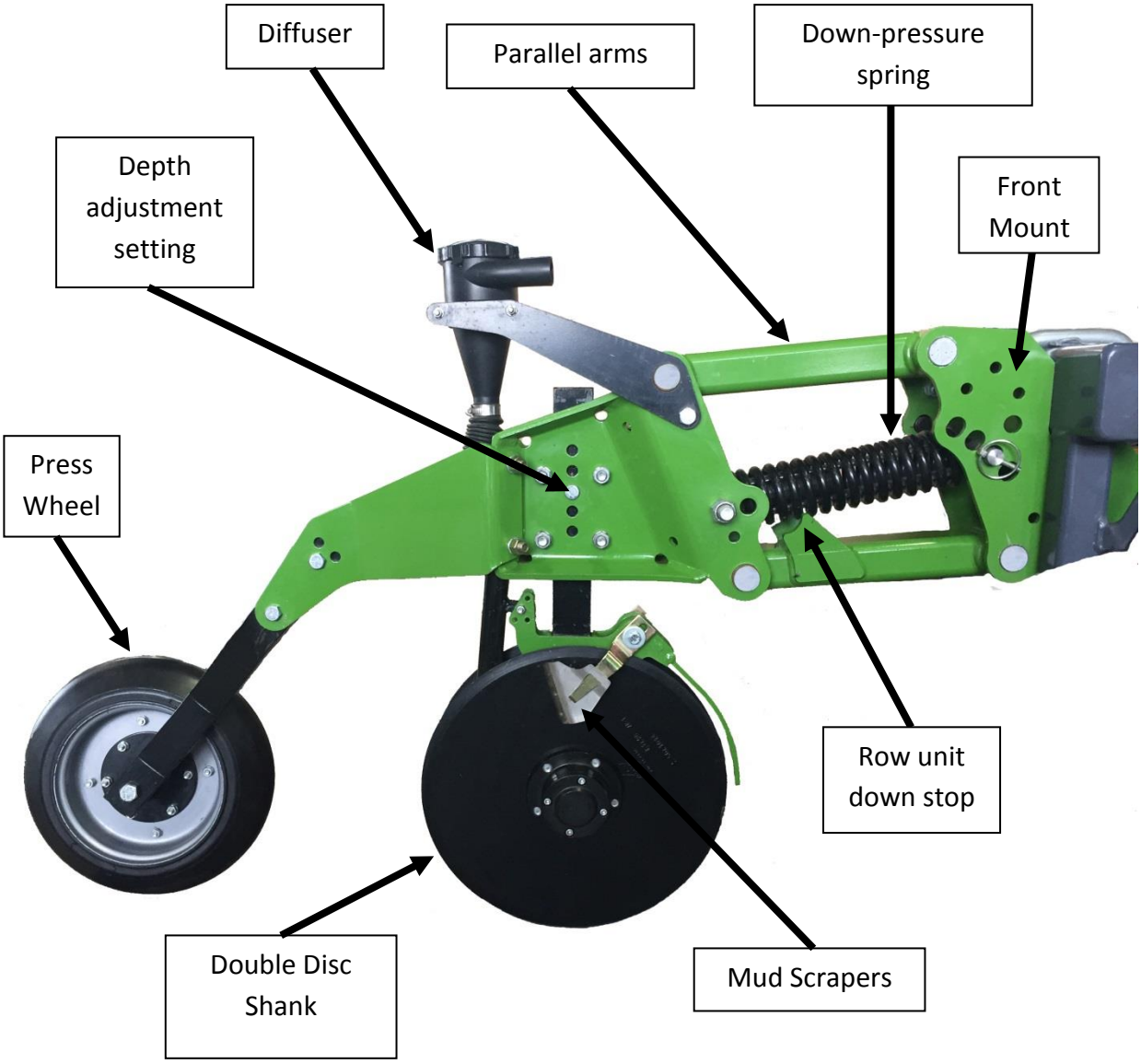
# NX20 Double Disc Row Unit



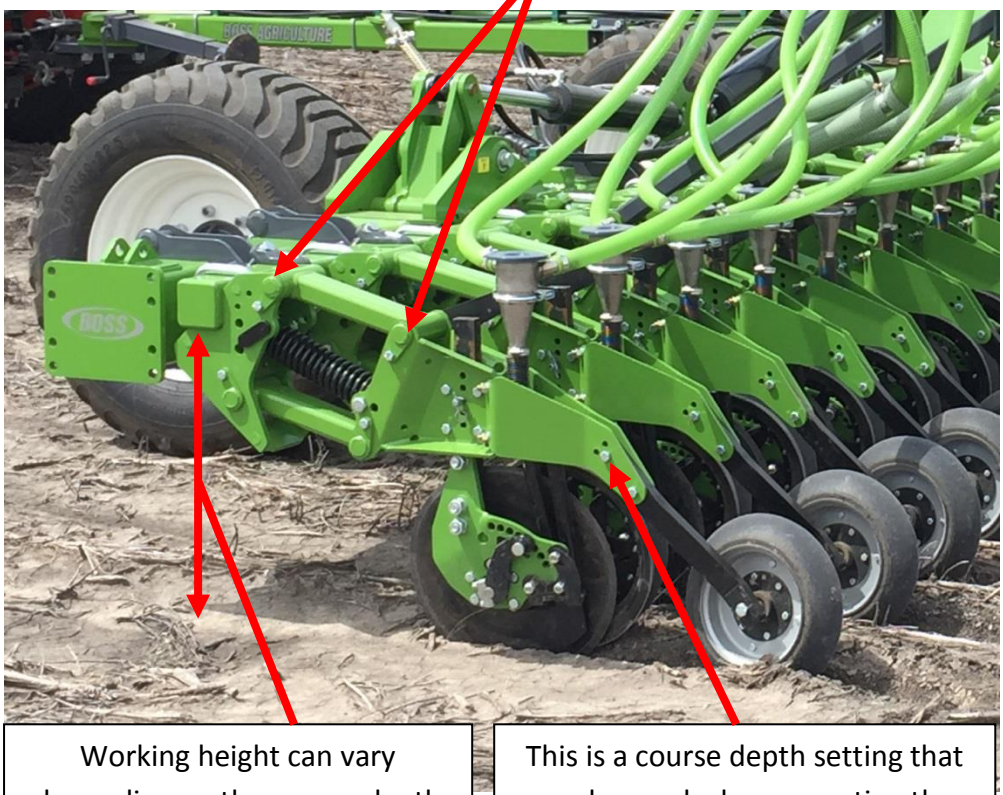
# SET UP & OPERATION OF THE BOSS NX20 SINGLE DISC OPENER

## *2* UNDER-BAR OPERATING HEIGHT & FRAME LEVEL:

The under-bar operating height of the NX20 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.

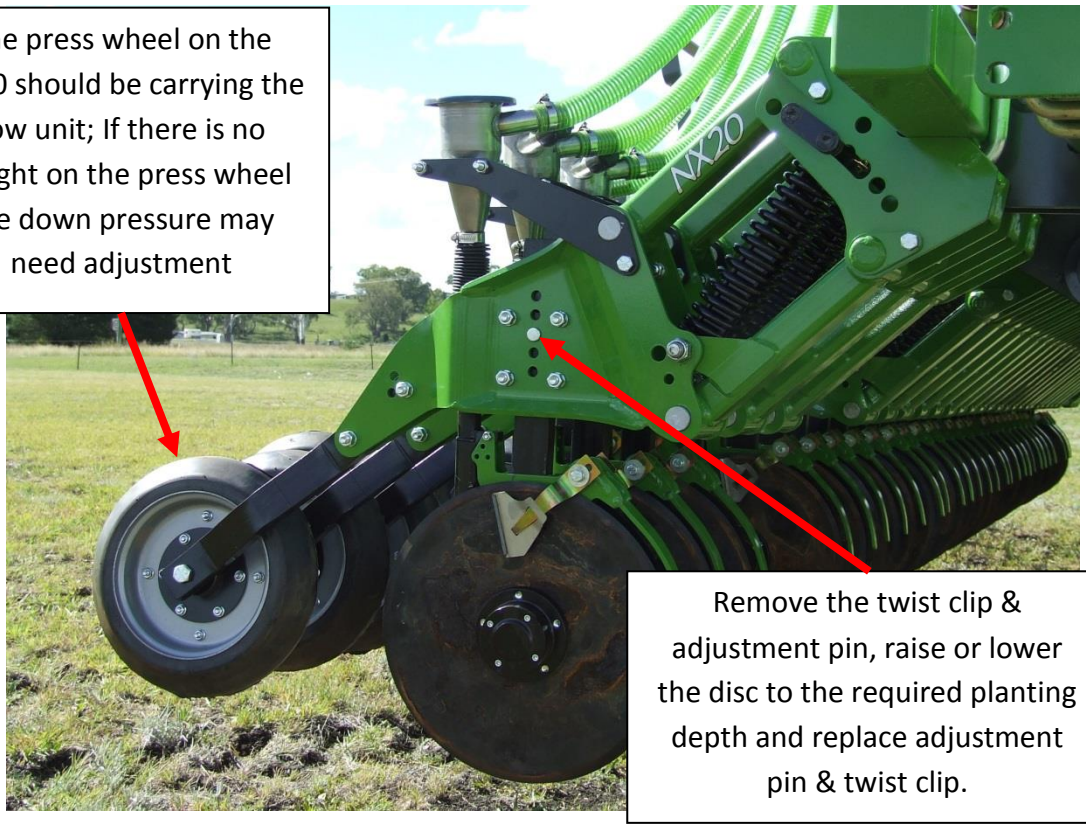
- If the under bar working height is set too low, the row unit may not have the full amount of parallelogram travel available for the given ground conditions.

- 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 NX20 Series of row units is adjusted by raising or lowering the double 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.

The press wheel on the NX20 should be carrying the row unit; If there is no weight on the press wheel the down pressure may need adjustment




Remove the twist clip & adjustment pin, raise or lower the disc to the required planting depth and replace adjustment pin & twist clip.

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 4* on down-force settings).
- It is the responsibility of the operator to make in field checks to confirm seed depth settings are as required.

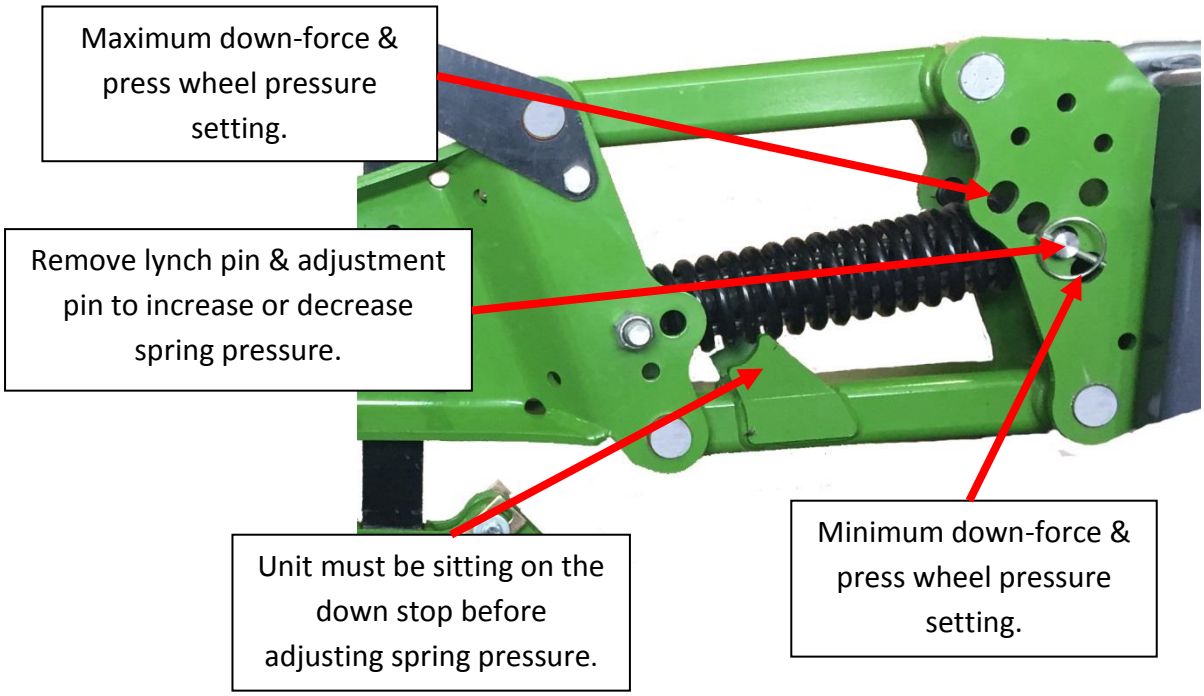
# *4* PRESS WHEEL PRESSURE AND ROW UNIT DOWNFORCE:

The press wheel pressure on the NX20 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.

## *4.1* 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.

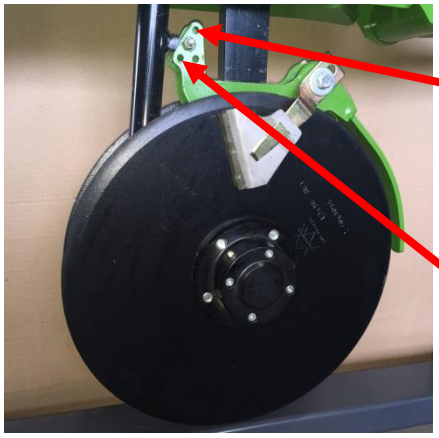
## *4.2* Press Wheel Adjustment (in & out)

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 15/16$^{th}$ 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).

## *5* SEED BOOT ADJUSTMENT:

The seedboot on the double disc shank is adjustable for maximising disc life & improving seed or fertiliser placement. In the lowest position the drop tube provides the optimum seed placement & as the discs wear it can be raised to prolong boot life.



The top seedboot position is used when the discs are worn or when using for fertilising and placement is not critical.

The lowest seedboot position can be used when discs are new and optimum seed placement is required.

## *6* MUD SCRAPERS:

The NX20 row unit is fitted with a pair of tungsten blade mud scrapers to assist when operating in sticky conditions.

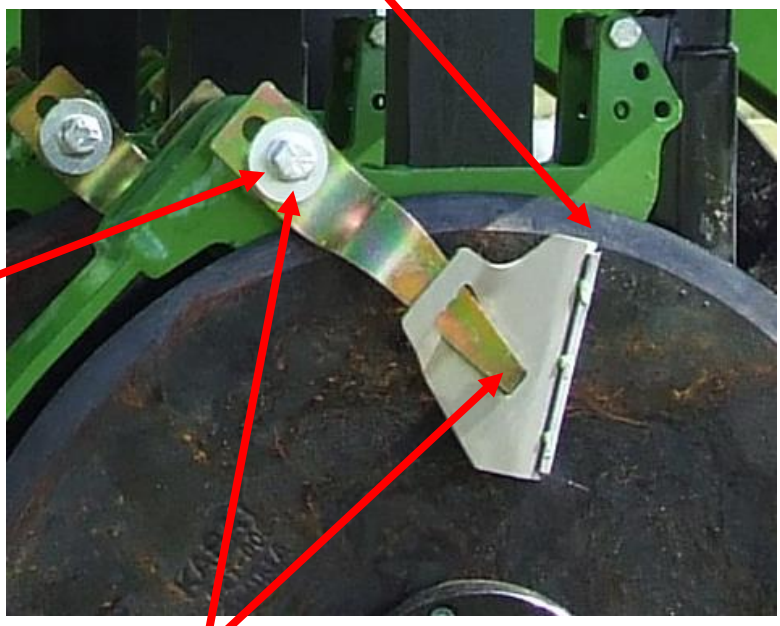
The blade scrapers should be adjusted to run flat on the disc just inside the disc bevel (when the disc is new).

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.

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

To adjust the scraper blade angle 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.

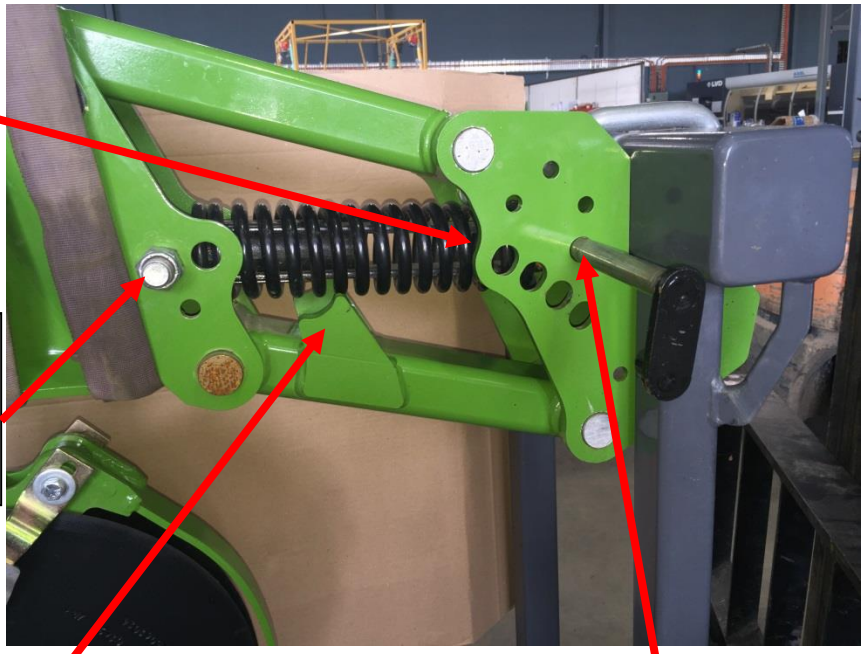
## 7 PINNING ROW UNITS UP:

The NX20 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.

## *8* FINAL ADJUSTMENTS & TIPS:

- **Discs should be replaced at approx 14” diametre to prolong seedboot life & maintain planting depth accuracy.**
- **Do not turn with NX20 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 NX20 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.**

# *9* 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 4*. |
| | Press wheel not properly aligned with seeding trench. | Move the press wheels to suit the seeding trench. See *Section 4.2.* |
| 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 4.* |
| | The frame is not level. | Level the frame. See *Section 2.* |
| | The soil conditions are too wet. | Wait until soil conditions improve. |
| 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 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.<br><br>Increase the seed depth setting. See *Section 3.* |
| Straw is “hairpinning” | The down pressure is set too low. | Increase the down pressure. See *Section 4.* |

## *10* 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.**

## *10.1* 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 & tighten all wheel nuts.
- Check bearing preload on the disc hub & tighten if loose.
- Check & tighten V Bolts.

## *10.2* Daily Maintenance

- Visually inspect row units for damage and replace if necessary.
- 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)

## 10.3 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 the seed boot for excessive wear and replace or adjust if necessary. See *Section 5.*
- The original disc diameter is 16” if the disc is worn 1”in diameter the seed depth setting will be reduced by ½”. Replace with new discs if required.
- Clean and wash the machine down touching up any areas where paint has been removed.

## *11* NX SERIES ROW UNIT OPTIONS:

*Available options for NX20 row units includes:*

- **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)