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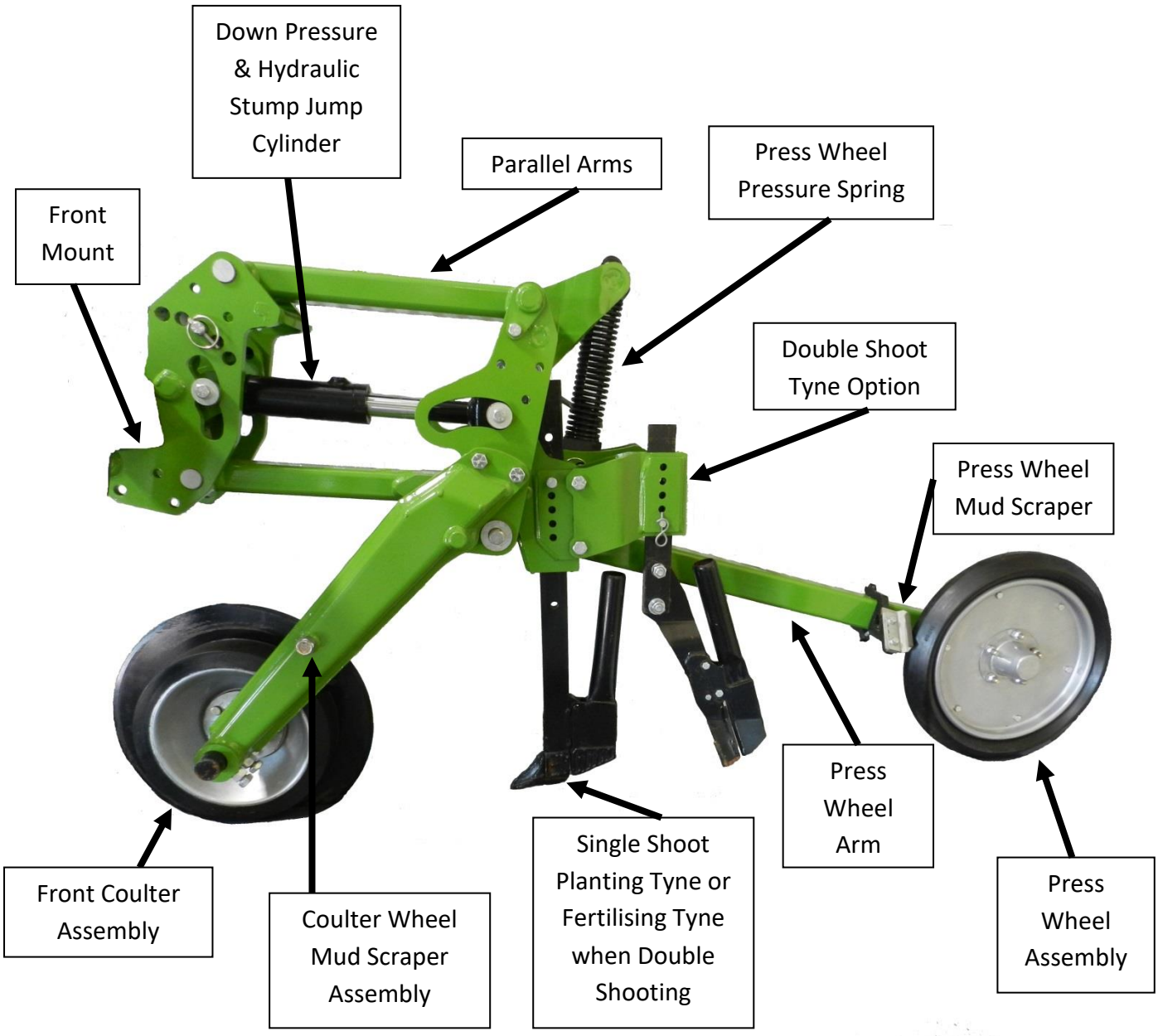
1 Planter Safety

- Ensure safety stands are in place before working under machine.
- Ensure the tractor is shut down and the key removed before working on machine.
- Dump all hydraulic circuit pressure before making row unit adjustments
- 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.
- **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 TX65C SERIES ROW UNITS IN THE GROUND – MAKE HEADLAND TURNS WITH ROW UNITS RAISED.FAILURE TO DO SO MAY RESULT IN DAMAGE TO THE UNIT

SET UP & OPERATION OF THE BOSS TX65C SERIES TYNE PARALLELOGRAM

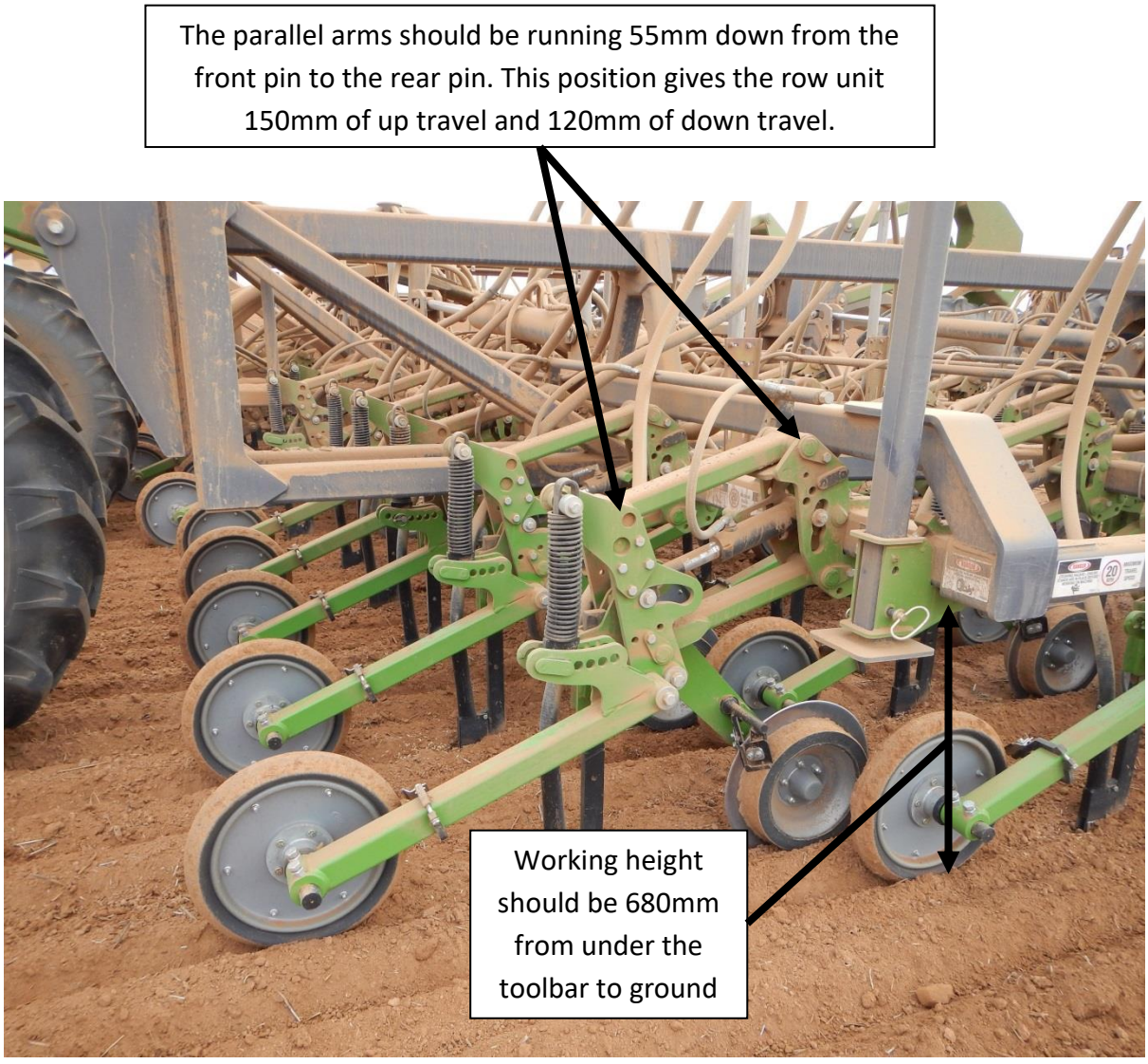


2 UNDERBAR OPERATING HEIGHT & FRAME LEVEL:

The under-bar operating height of the TX65C Series must be set correctly to maximise the row unit's ability to follow ground contours and maintain a consistent planting depth and press wheel 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 too 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 more 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 planting depth.

3 CONTINUOUS FLOW - ROW UNIT DOWN-FORCE & TYNE BREAKOUT OPERATION & ADJUSTMENT:

The TX65C row unit operates a continuous oil flow system for parallelogram down-force & tyne breakout pressure. Both the hydraulic flow rate & pressure setting will affect the down-force & tyne breakout on the row unit. Ideally set your required breakout for the tyne and make positional adjustments for the parallelogram down-force that is required.

Hydraulic flow should be operating at approx 13L/min or so the tyne breakout re-entry is smooth and timely.

(This is approx 10% flow on a John Deere tractor)

TX65C / VX65 Hydraulic Breakout and Down Force (Theoretical)									
System Pressure PSI	Tyne Breakout LB	Row Unit Down Pressure LB (not inc row unit weight)							
		Pos 1	Pos 2	Pos 3	Pos 4	Pos 5	Pos 6	Pos 7	Pos 8
500	175	-21	-15	-9	-2	5	12	19	25
1000	350	-42	-30	-17	-4	10	24	37	51
1500	525	-63	-44	-26	-6	14	35	56	76
2000	700	-84	-59	-34	-8	19	47	74	102
2500	875	-105	-74	-43	-10	24	59	93	127

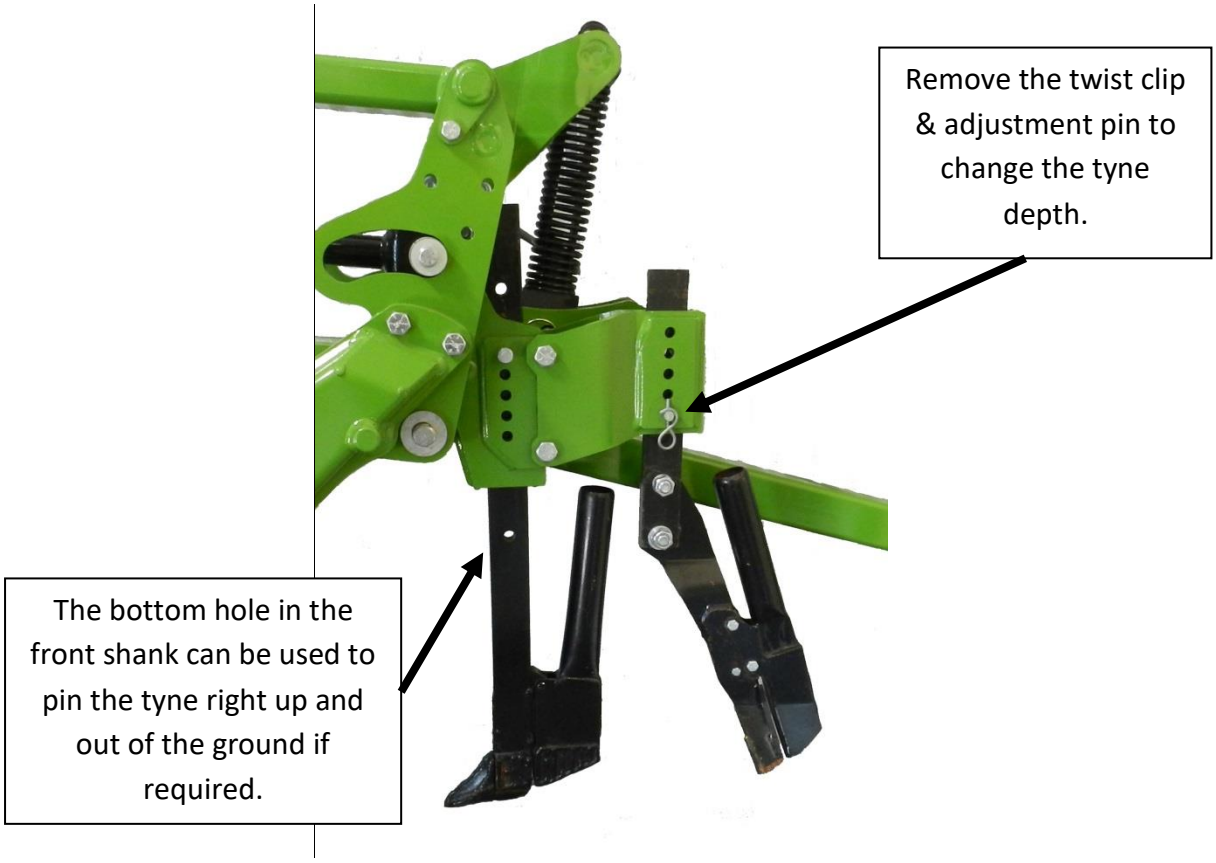
For clarification on the above chart see Section 5 row unit down-force for position adjustment.

To adjust the systems operating pressure engage continuous oil flow, undo locking nut and screw in to increase or out to decrease operating pressure. When finished secure the locknut to maintain selected pressure setting.

4 SETTING PLANTING DEPTH:

Planting depth on the TX Series of 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 ¼" increments. Once the depth setting has been selected replace the main depth pin and twist clip pin.

The front 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 or increase tyne breakout pressure as per Section 3

5 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.

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

In dry tough conditions or compacted soil a higher down force setting will also 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.

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 stubble wrapping around the shank.**
- Using excessive down-pressure in wet conditions can compact the seeding bed and result in less flowing soil being available to cover the seed which can affect the press wheels ability to cover the seeding trench.
- **Using excessive down-pressure can increase tractor horsepower requirements.**
- 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.

5.1 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 too observe the row units during planting (at normal planting 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 planter 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.

Parallel arms should be running smooth relative to ground conditions during operation.

Ensure the coulter drum wheels are running on the ground at operating speed to maintain a constant seeding depth.

5.2 **Down- force adjustment:**

Down-force adjustment on the TX65C is via a pin arrangement located in between the parallel arms however it can be also varied with the hydraulic operating pressure that is also being used for the tyne breakout. (For details of hydraulic & positional down-force settings see the chart on page 11).

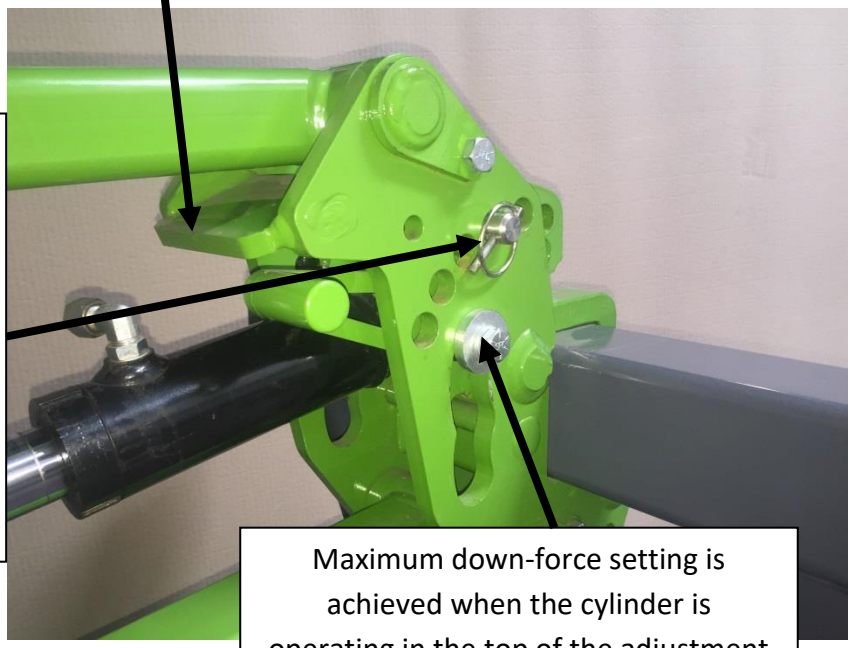
To make an adjust simply lift the machine up so the row units sit on the down stop, Disengage continuous oil flow & open the hydraulic tap on the front of your machine & **dump all the hydraulic pressure** from the circuit. Ensure the adjustment pin feels free before removing, force should not be required to remove the adjustment pin check all hydraulic pressure has been removed by manually pushing the tyne with your foot to make it trip.

Remove the lynch pin & relocate the main down-force pin to the required pressure setting using the adjustment handle. Moving the hydraulic cylinder position upwards increases the down-force on the row unit.

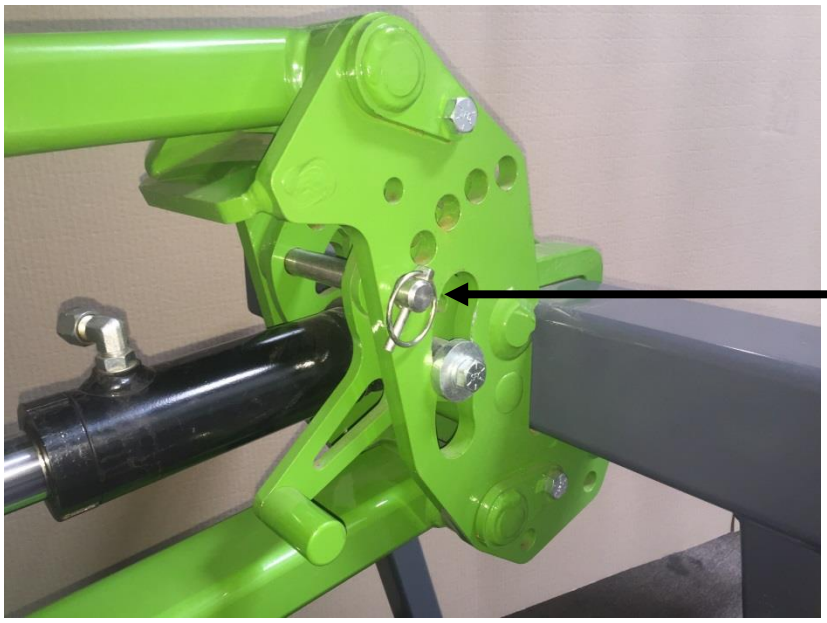
Maximum down-force is reached once the cylinder is positioned in the top of the operating slot and a maximum pressure of 2500psi is operating.

Lift the machine up so that the row unit sits on the down stop, dump all hydraulic pressure & turn tractor off before attempting to remove the adjustment pin.

To adjust the down-force remove the lynch pin & relocate the main down-force pin to the required pressure setting. (Position 8 the maximum setting is shown here as per the Downforce chart on page 10.)



Maximum down-force setting is achieved when the cylinder is operating in the top of the adjustment slot and 2500psi of pressure is applied.



TX65C Row unit showing down-force in Position 1 which is actually applying some upward pressure to the row unit.

Up-pressure may be required in soft or wet soil types.

TX65C / VX65 Hydraulic Breakout and Down Force (Theoretical)									
System Pressure PSI	Tyne Breakout LB	Row Unit Down Pressure LB (not inc row unit weight)							
		Pos 1	Pos 2	Pos 3	Pos 4	Pos 5	Pos 6	Pos 7	Pos 8
500	175	-21	-15	-9	-2	5	12	19	25
1000	350	-42	-30	-17	-4	10	24	37	51
1500	525	-63	-44	-26	-6	14	35	56	76
2000	700	-84	-59	-34	-8	19	47	74	102
2500	875	-105	-74	-43	-10	24	59	93	127

As you can see in the above chart down-force & tyne breakout pressure are linked depending on the system's hydraulic operating pressure. Ideally set your required breakout for the tyne and make the above positional adjustment for the parallelogram down-force that is required as shown on page 10.

6 ROW UNIT LOCKOUTS:

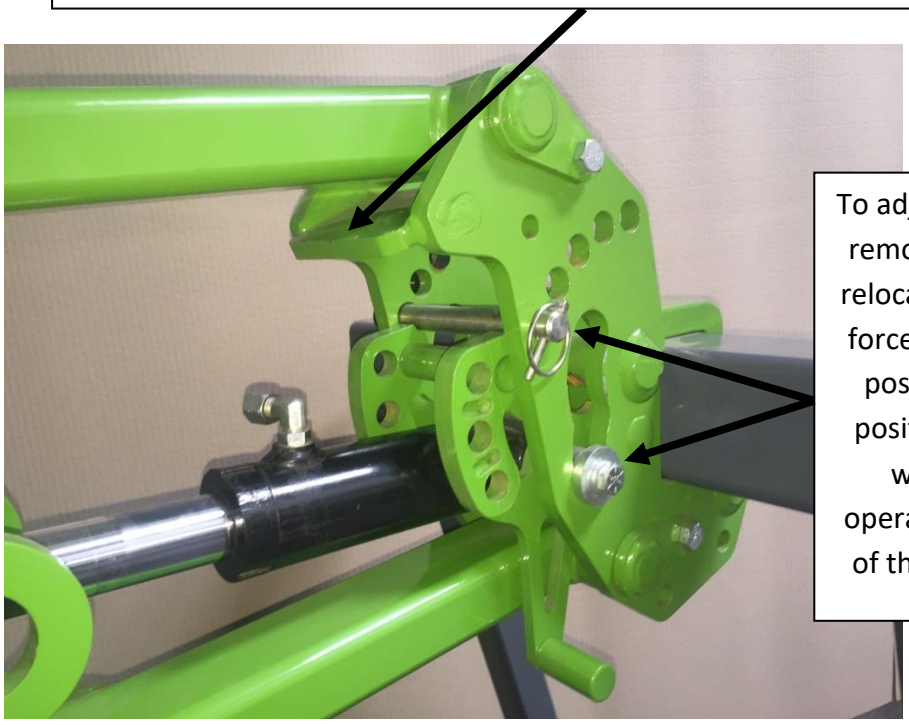
The TX65C series row units can be locked up out of the way if a skip row or wider row spacing is required or if you want to reduce machine width or transport height.

To lift individual row units lift the machine up so the row units sit on the down stop. Disengage continuous oil flow & open the hydraulic tap on the front of your machine & **dump all the hydraulic pressure** from the circuit. Ensure the adjustment pin feels free before removing, force should not be required to remove the adjustment pin, check all hydraulic pressure has been removed by manually pushing the tyne with your foot to make it trip.

Remove the lynch pin & relocate the main down-force pin to the lowest position as shown in the picture below. The hydraulic cylinder position should be all the way down in the adjustment slot.

Increased hydraulic pressure may be required to lift the row unit into the lockout position (see section 3 for adjustment details)

Lift the machine up so that the row unit sits on the down stop, dump all hydraulic pressure & turn tractor off before attempting to remove the adjustment pin.



To adjust the down-force remove the lynch pin & relocate the main down-force pin to the lockout position. The lockout position is shown here with the cylinder operating in the bottom of the adjustment slot.

7 PRESS WHEEL PRESSURE:

The press wheel pressure on the TX65C Series is governed by the pressure spring located off the main body, or if Boss TP20 trailing press wheels are being used via the adjustment spring on the front of each individual assembly.

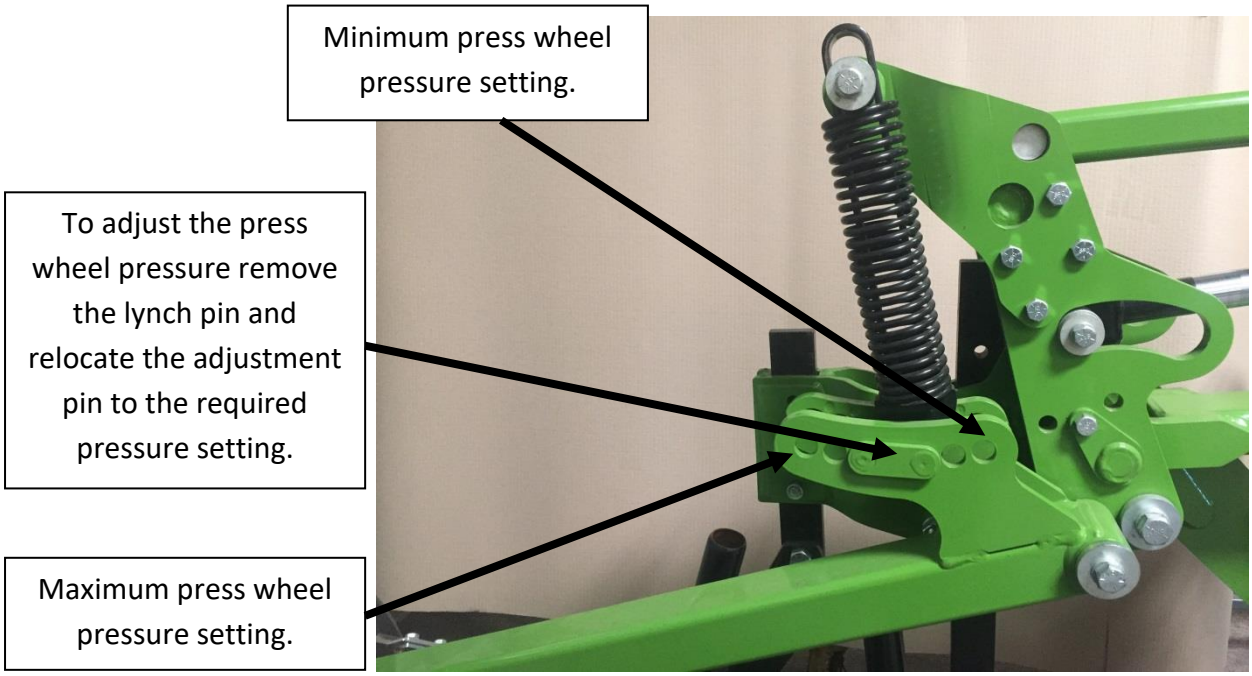
When setting up the machine it is advisable to select the minimum press wheel pressure and increase as required.

Press wheel pressure requirements will vary depending on soil type, seed type and seed variety. Contact your seed supplier or agronomist for advice on achieving the best results in your area.

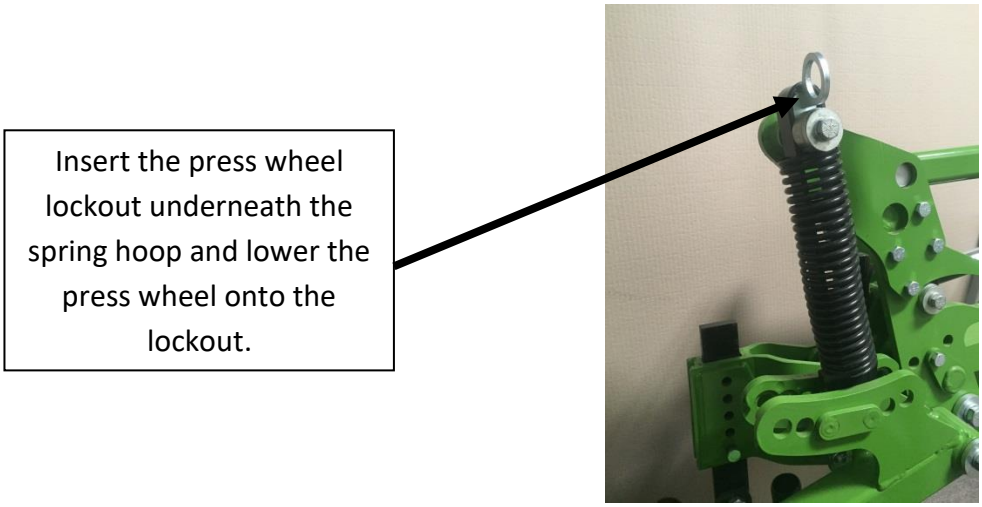
Field checks must be assessed at operating speed to accurately gauge results.

7.1 In-Frame Press Wheel Pressure Adjustment

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

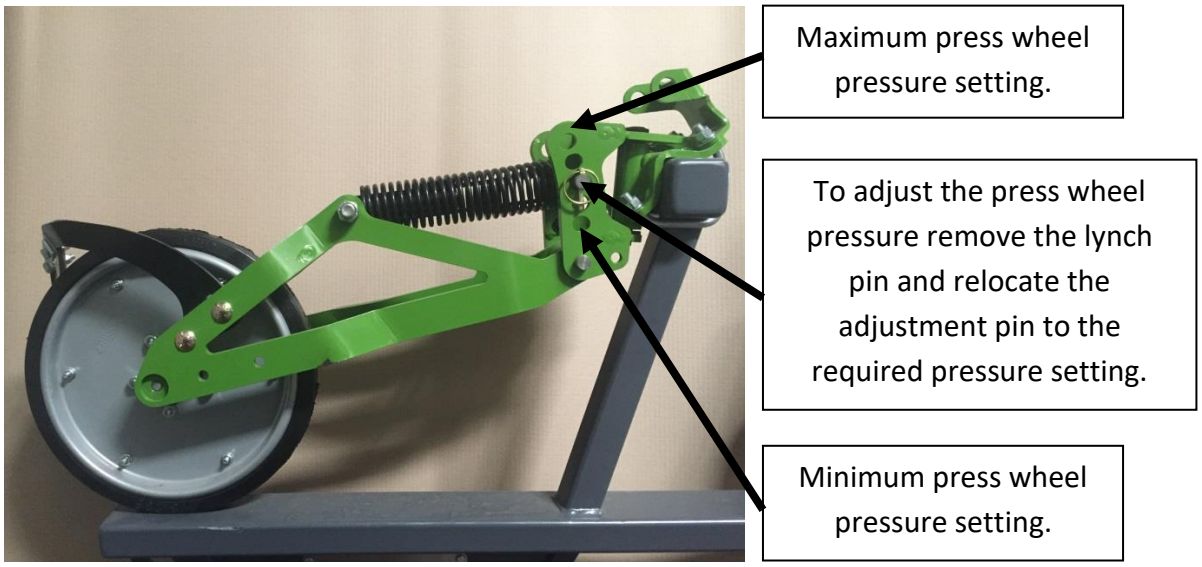


When operating in very wet conditions in-frame press wheels can be locked up out of the way. To fit lift the machine up so the row unit sits on the down stop, adjust the press wheel pressure to one of the lighter settings (see *section 7.1*) Now lift the press wheel up until the optional press wheel lockout bracket can be placed underneath the spring hoop insert the retaining clip and lower the press wheel onto the lockout.



7.2 **TP20 Trailing Press Wheel Pressure Adjustment**

To adjust simply lift the machine up so the TP20 press wheel is off the ground. Remove the lynch pin and slide the adjustable pin out of the boss, lift the press wheel assembly while sliding the spring to the next hole position and lower the press wheel assembly which will self-locate into position. Replace the adjustment pin and lynch pin when finished. Moving the spring position up towards the sky increases the press wheel pressure.



Trailing press wheels can also be locked/pinned up when not required, simply take the spring position to the lockout position as show below.

Press wheel lockout position.

7.3 In-Frame Press Wheel Adjustment (in & out)

Depending on the ground conditions the in-frame press wheels may need to be adjusted to be in line with the seeding trench or on the shoulder. To adjust loosen the 2 locknuts and positioning bolts located on the press wheel arm and slide the press wheel assembly in or out as required (15/16th spanner required) Once adjusted retighten ensuring the bolts & locknuts are tight.

To adjust the press wheels in & out loosen the 2 locknuts & positioning bolts and slide the assembly to the required position ensuring the bolts and lock nuts are done up firmly once in position.

7.4 Press Wheel Selection

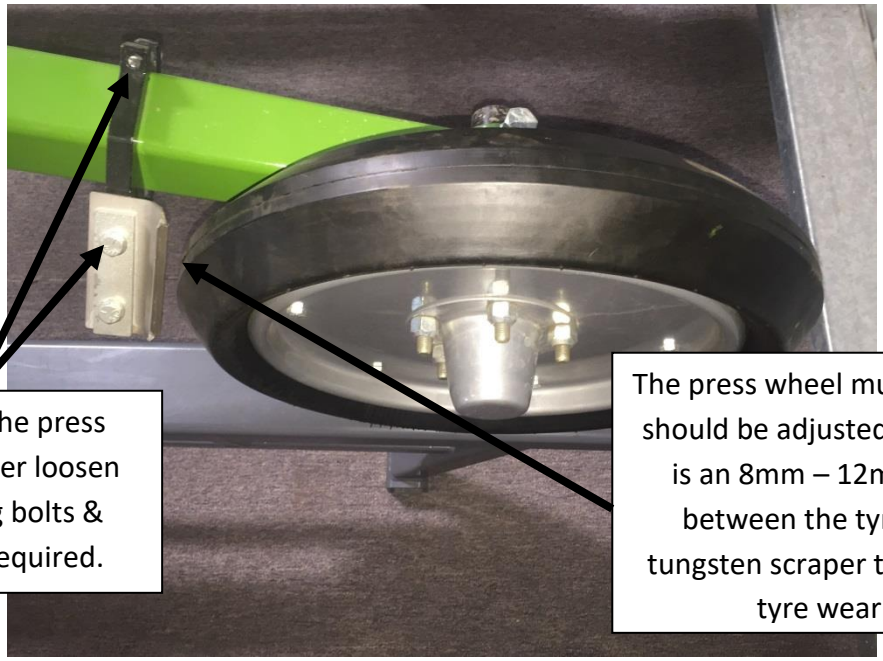
All soil types are different and as such press wheel selection is best discussed with your agronomist or other farmers operating in similar soil types.

As a general rule solid style press wheels will give the best life , hollow style press wheels will give good life whilst also improve the ability of the tyre to shed mud as it allows the tyre to flex and pneumatic tyres will shed mud the best with reduced life depending on the soil type.

Narrow press wheel profiles are excellent for use when moisture seeking & wider profiles perform better in shallower planting conditions. Boss Agriculture's selection of press wheel profiles includes: 1" Wedge, 1½", 2", 80mm Wedge, 110mm Wedge & 4" Pneumatic.

7.5 Press Wheel Mud Scrapers

Depending on the ground conditions press wheels may need a mud scraper to remove any excessive mud build up and help them to run smoothly. The use of mud scrapers will reduce the life of your press wheels and as such press wheel selection must also be considered. Mud scrapers should be set approx 8 - 12mm above the tyre so a layer of mud is able to build up around the tyre before the scraper starts to work, this will reduce the speed at which the tyre wears whilst the scraper is being used. In very sticky conditions we have successfully run mud scrapers 2" away from the tyre to achieve a result.



8 COULTER WHEEL ADJUSTMENT:

The front coulter wheel assembly on the TX65C Series is adjustable in and out to maximise the row units trash handling ability and to reduce tyne blow out.

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 TX65C Series of 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 seeding depth.

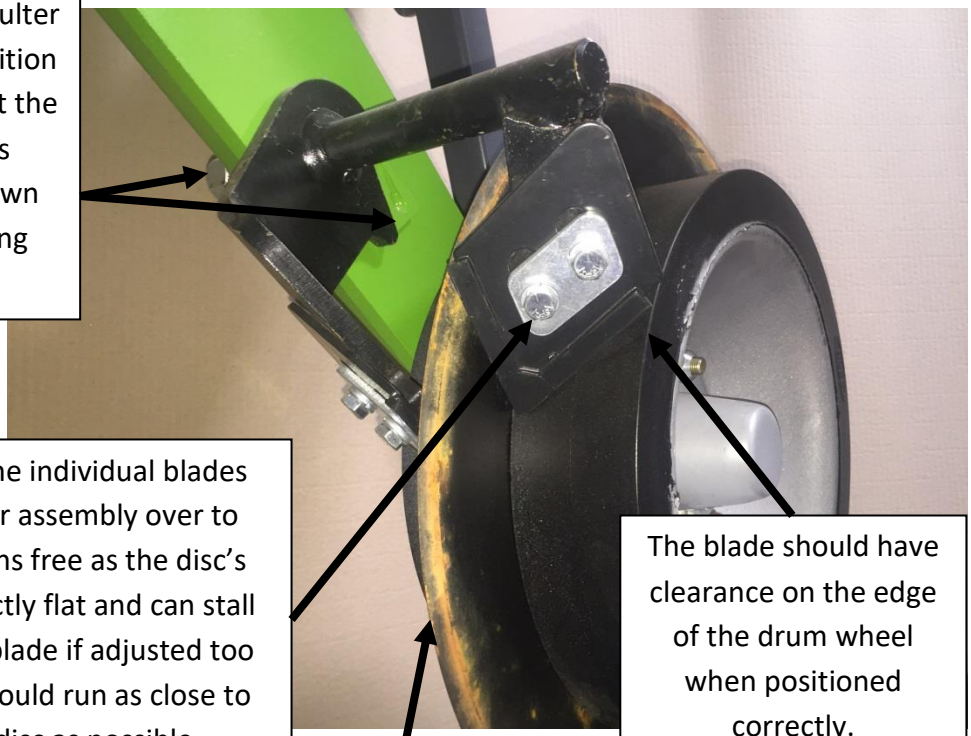
The coulter scrapers are designed to prevent mud build up between the disc and coulter drum allowing the disc to cut to its full depth.

When setting your scrapers loosen the individual blades so they can move and ensure that the main mount is in position and located hard down onto the locating stop, 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 coulter disc full revolutions 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 groves cut into the tyres during operation.

To adjust your coulter scrapers into position firstly ensure that the main mount is located hard down onto the locating stop.



As you adjust the individual blades spin the coulter assembly over to make sure it runs free as the disc's are never perfectly flat and can stall on the scraper blade if adjusted too close. Blades should run as close to the coulter disc as possible.

The blade should have clearance on the edge of the drum wheel when positioned correctly.

When the coulter disc's are new they will be cutting 2¼" deep, as they wear you may notice increased soil throw or inability to cut through trash or vine – replace as required.

9 POINT SELECTION & SEED BOOT OPERATION:

Tynes can be fitted with several different point styles including spear points & knife points. All Boss points are tungsten tipped offering a prolonged life and delivering a consistent seed bed for the point life. The winged spear point is ideally suited for general sowing creating a loose seed bed by fracturing a wider seed zone enhancing seedling vigour. Our knife points offer minimal disturbance and are often used for dry sowing or deeper sowing. 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 saddle and seed boot which can wear quickly when exposed.

The Boss seed boot can be removed for hardfacing or replacement as required, use a 7mm pin punch to knock out the roll pin and unhook the seed boot from the back of the tyne.

9.1 Changing points

Remove the planting tyne from the row unit, place on a firm surface and using a 6mm pin punch knock the snap lock pin out of the saddle and remove the point. Put the new point on a firm surface and hammer in a new grommet. Put the point in the saddle and hammer in a new snap lock pin, knocking off the end when hit home.

Hammer in the rubber grommet, it will be a tight fit so place the point on a firm surface.

Fit the point into the saddle and hit home the snap lock pin to secure, knock off the end of the pin when in position.

10 DISC OPTIONS FOR TX65C:

Boss have 3 different disc options that **may** be able to be fitted to the TX65C row unit, 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 shanks to plant or fertilise into 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.
- To improve seed to soil contact when using double disc shanks the press wheel may need to be adjusted to run on the side wall of the disc trench. For press wheel adjustment options see Section 7.3
- **Maximum operating depth of 4"- do not operate when moisture seeking as damage may occur.**

Single Disc Shank:

- Single disc shanks will fit to some TX65C machines but not all as they are wider than the standard row unit so frame cross-members & wheel assemblies must be considered.
- When a single disc shank is fitted the press wheel assembly must also be changed so the opener operates in an effective manner.
- For best results remove the front coulter disc before using the single disc shank to avoid disturbing the soil in front which can pick up on the opener disc and cause blockage problems.
- **Maximum operating depth of 3”- do not operate when moisture seeking as damage may occur.**

Precision Double Disc Shank:

- Precision double disc shanks will fit to some TX65C machines but not all as they are wider than the standard row unit so frame cross-members & wheel assemblies must be considered.
- When a precision double disc shank is fitted the complete coulter front assembly must be removed & the press wheel assembly must also be changed so the opener can operate effectively.

11 TROUBLESHOOTING:

PROBLEM	POSSIBLE CAUSES	POSSIBLE SOLUTIONS
The seed trench is not closing or under pressed.	Not enough pressure on the press wheels.	Increase the press wheel pressure setting on the row unit. See *Section 7.1 or 7.2*
	Press wheel not properly aligned with seeding trench.	Move the press wheels to line up with the seeding trench. See *Section 7.3*
	Ground conditions are too wet.	Wait until soil conditions improve.
	Incorrect press wheel selection for ground conditions or planting depth.	Change press wheel profiles to suit conditions. See Section 7.4
The seed trench is pressed to tight.	Incorrect press wheel selection for ground conditions or planting depth.	Change press wheel profiles to suit conditions. See *Section 7.4*
	Too much pressure on the press wheels.	Decrease the press wheel pressure setting on the row unit. See *Section 7.1 or 7.2*
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.
		If planting conditions allow remove the disc from the coulter wheel assembly. See *Section 8*
	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 5.2*
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 5*.2
Stubble is wrapping around the tyne causing blockages.	The front coulter disc is worn.	The TX65C front coulter may need replacing. Standard coulter sizes used is 18”.
	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 5*.2

PROBLEM	POSSIBLE CAUSES	POSSIBLE SOLUTIONS
The press wheel is building up with mud	Incorrect press wheel selection for ground conditions or planting depth.	Change press wheel profiles to suit conditions. See Section 7.4
	Press wheel mud scrappers are required or need adjusting.	Adjust or fit press wheel mud scrapers. See *Section 7.5*
There is excessive soil disturbance.	Planting speed is to fast	Reduce your planting speed.
	The front coulter disc is worn.	The TX65C front coulter may need replacing. Standard coulter sizes used is 18”.
	Point selection	Different points are available to suit the Boss planting tyne. See *Section 9*
	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.
Seed placement is inconsistent.	The down force pressure setting is set too low.	Increase the down pressure to maintain a constant planting depth. See *Section 5.2*
	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 *Section 9.1*
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 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 9.1*

12 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.

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

BEFORE ATTEMPTING TO MAKE ANY ADJUSTMENTS ENSURE ALL HYDRAULIC OIL PRESSURE HAS BEEN DUMPED FROM THE CIRCUIT

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

12.1 Maintenance During the Break in Period

After the first 3 hours of field operation –

- Check & tighten Bolts that mount row units.
- Check & tighten all bolts.
- Check & tighten all wheel nuts.
- Check front coulter and press wheel bearing assemblies for excessive play and adjust pre load if required.
- Check for any hydraulic leaks and tighten any connections that are loose.

12.2 Daily Maintenance

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

12.3 Periodic Maintenance

- Every 250hrs grease disc coulter assembly 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 leading coulter discs

12.4 **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 seeding point and seed boot for excessive wear and replace if necessary.
- The original front coulter disc is an 18” 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.

13 FINAL ADJUSTMENTS & TIPS:

- **Do not turn with TX65C Series 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 TX65C Series 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, often waiting an extra day or two can vastly improve seeding results and soil finish.**

14 TX65C SERIES ROW UNIT OPTIONS:

- **Cultivator shanks with sweeps & seed boots**
  (For weed cultivation during planting)
- **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)
- **Liquid fertiliser tubes**
  (Available for both the tyne & disc assemblies)
- **Double shoot tynes**
  (Allows fertilising & seeding in a one pass operation. This is dependent on soil type and should be discussed with your agronomic consultant)
- **Press wheel lockouts**
  (Allows press wheels to be individually pinned up if planting in very wet sticky conditions)
- **Hardfacing upgrade for tyne, seed boots & points**
  (Increase's the life of ground engaging tools & reduces maintenance/replacement requirements)
- **Low draft shank upgrade for 2" x 1" shanks**
  (Reduces the leading edge of a 1" shank to 5/8" to lessen soil blow out and increase the available amount of soil to flow back over the seed)
- **Double disc shank assemblies**
  (Can be used to replace the planting tyne to conserve moisture, increase planting speed & reduce fuel costs)
- **Single disc shank assemblies**
  (Can be used to replace the planting tyne to conserve moisture, increase planting speed & reduce fuel costs)
- **Precision double disc shank assemblies**
  (Can be used to replace the planting tyne to conserve moisture, increase planting speed & reduce fuel costs)