

1204

KELLY TILLAGE SYSTEM

OPERATING MANUAL

REVISION C – FEB 2022



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Safety information



Read all operating instructions and study all photographs thoroughly before operating the unit.

Please note:

Left and right is determined by standing behind the machine and looking to the front.



Signal words

When you see these symbols on your machine or in this manual, be alert to instructions involving your personal safety and the safety of others. Failure to follow these instructions can result in injury or death.



DANGER – Indicates an immediate hazardous situation that, if not avoided, will result in **DEATH OR SERIOUS INJURY**.



WARNING – Indicates a potentially hazardous situation that, if not avoided, could result in **DEATH OR SERIOUS INJURY**.



CAUTION – Indicates a potentially hazardous situation that, if not avoided, may result in a **MINOR OR MODERATE INJURY**.

Carefully read all safety points in this manual and on your machine. Keep all safety decals in good condition and replace ones that have been worn or lost. Replacement decals are available by contacting your local dealer.

Safety Guidelines

- This equipment is dangerous to persons unfamiliar with its operation.
- Do not attempt to operate or assemble this unit without reading this manual and developing a thorough understanding of the safety precautions.
- Do not attempt to operate this equipment under the influence of drugs or alcohol.
- Review the safety instructions with all users annually.

General operation

- Proceed cautiously under overhead powerlines and around power poles - contact may result in the operator suffering a severe electrical shock.
- Never allow anyone within the immediate area when operating machinery.
- Stand clear of frame when wings are being raised or lowered.

Transport

- Always travel at a safe speed. **NEVER EXCEED 25kph/16 mph.**
- Ensure your speed is low enough for an emergency stop to be safe and secure and reduce speed prior to turns.
- Ensure safety chain is attached correctly to the towing vehicle.
- Please refer to your own country, state, provincial, county or municipality laws on the rules of transporting farm machinery on roads.
- Chains should be clear of the ground.
- Beware of obstacles and overhead powerlines.
- Use approved accessories and necessary warning devices at all times when transporting on the road.

Hydraulics

- **NEVER** remove hydraulic hoses or ends unless the machine is in either transport position or fully extended in working position. Relieve all hydraulic pressure before disconnecting hydraulic hoses and fittings.
- Ensure all fittings and hoses are in good condition.
- Wear appropriate face and hand protection or PPE when checking hydraulics under pressure to avoid injury.
- Double check that all is clear before operating hydraulics.
- Maintain proper hydraulic fluid levels and pressure.

Maintenance and Inspection

- Good maintenance is your responsibility.
- Regular maintenance and inspection are imperative.

Maintenance guidelines can be found in Section 4



If any safety decals are missing, please contact your local dealer immediately and do not use the machine



SECTION 1
WARRANTY

SECTION 1 WARRANTY

Thank you for choosing a Kelly Tillage product

We trust that you find the following manual clear and easy to follow. If you should require additional customer support or assistance, please do not hesitate to contact us.

Spare parts can be purchased, as required, through your local dealer or by contacting the Kelly team directly.

Kelly welcomes feedback. Should you have any difficulties that you wish to raise, suggestions for improvement or modifications that you feel would enhance our products we look forward to hearing from you.

Contact Information

Kelly Engineering

PO Box 100

Booleroo Centre SA 5482

Phone: + 61 8 8667 2253

Email: sales@kellytillage.com

Spare Parts: parts@kellytillage.com

Website: www.kellytillage.com

Warranty policy

The warranty will be void of unauthorised parts or attachments are fitted.

Kelly guarantees its products against faulty workmanship and materials for twelve (12) months from date of purchase. Disc Chain, Prickle Chain and Swivel Bearings units are considered to be wear items and it's reasonable to expect that these parts may need to be replaced over time.

Kelly offers an additional 12-month warranty if the machine is registered within 2 months of purchasing the machine. Machine registrations can be completed by the customer or dealer on the Kelly website, or the Kelly supplied warranty registration form in the operator manual.

Kelly's warranty policy does not cover misuse, modifications, damage during transit or product that has not been maintained per the Kelly maintenance procedures outlined in the relevant product manual. Failure to properly maintain the machine or blatant misuse shall result in the warranty being null and void.

Kelly reserves the right to request written, photographic, or video documentation prior to any warranty authorisation. All warranty queries and requests for authorisation can be directed to warranty@kellytillage.com.

Any warranty repair, service or modification to products must be performed by an authorised Kelly repairer and pre-approved by Kelly in writing prior to any work being carried out.

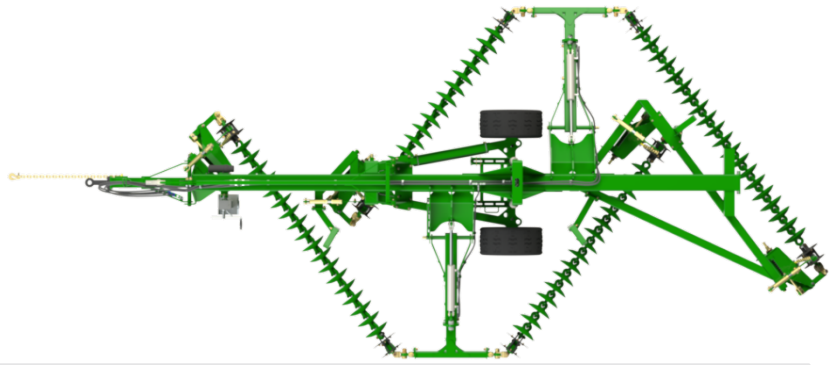
Kelly will issue an "Authorised Returns" notice for any faulty parts to be returned at the request of the company.

Any claim for warranty, labour or parts must be completed on the prescribed warranty claim form found on the Kelly website.

Warranty claims are to be lodged within 30 days of completion of work. If further information is requested on the claim from the Market Liaison Officer, you have 30 days to provide the information. If you fail to adhere with the above instructions the warranty claim may be declined.

Upon completion and approval of this claim the dealer will receive a credit to their account.

Product registration form



If your machine is REGISTERED

within 2 months of purchasing the machine will receive an **additional** 12 months warranty.

COMPLETE and RETURN

your form online, by email or post to Kelly in order to receive the **additional** 12 months warranty.

Complete online

<http://www.kellytillage.com>

Email

sales@kellytillage.com

Mail to

Kelly Tillage

PO Box 100

Booleroo Centre SA 5482 Australia

Purchaser/ owner

Name _____

Address _____

Email Address _____

Contact number _____

Purchasing Details

Place of Purchase _____

Date of Purchase _____

Model Purchase _____

Serial number _____

Occupation

Farmer Customer Operator _____ Other _____

What brought Kelly Tillage products to your attention?

Dealer Field day Website Demonstration Magazine/newspaper _____

Radio Local Dealer Friends/neighbour Family Other _____

On a scale of 1 to 10 (10 being highest) how likely are you to recommend us to friends and family ?

(1) (2) (3) (4) (5) (6) (7) (8) (9) (10)

If you scored 8 or below then what must we do to become a 10 in your opinion?

If you scored 9 or above then please tell us why you gave us this score?

Satisfaction with dealer/ agent

- Was the machine delivered satisfactorily?
- Were dealers well informed about the product?
- Would you recommend the dealer to other farmers?

Yes No, why not? _____

Yes No, why not? _____

Yes No, why not? _____



SECTION 2
MACHINE
OPERATION

SECTION 2 MACHINE OPERATION

Before operation

- Carefully study and understand this manual.
- Do not wear loose fitting clothing that may catch in moving parts.
- Always wear protective clothing and footwear.
- Be sure that there are no tools lying in or on the equipment.
- Do not use the machine until you are sure that the area is clear.
- If this machine is being used in a dry area, or in the presence of combustibles, care should be taken to prevent fires and firefighting equipment should be readily available.
- Familiarise yourself and other operators with the machine's operation before using.

Pre-operation checklist

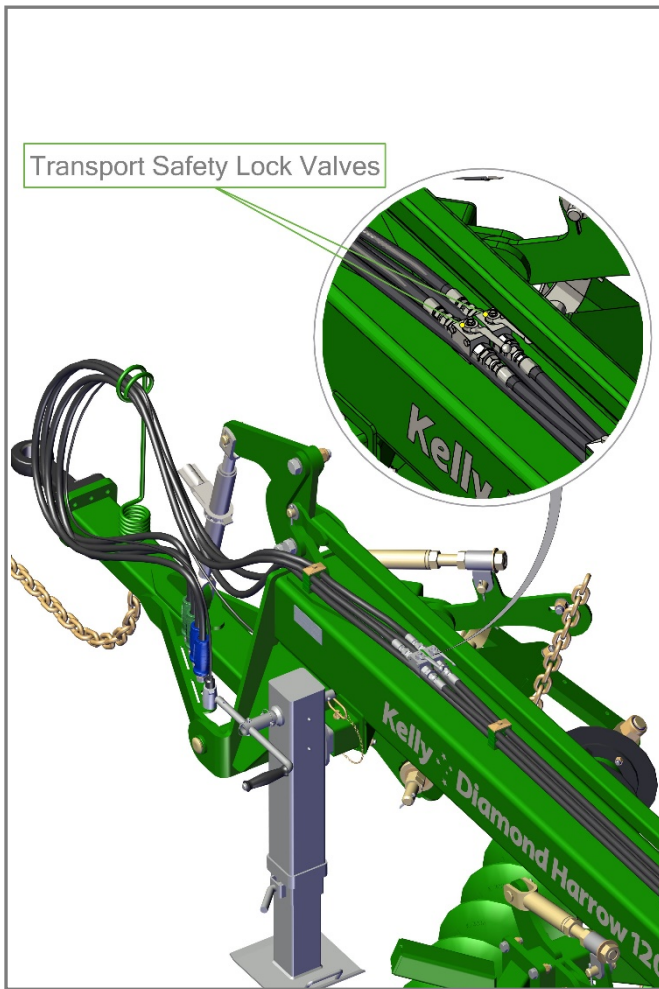
1. All wheel nuts, bolts and nuts are tightened to the correct torque setting
2. Split pins are in place and split
3. Stickers and warning signs are in place
4. Hydraulic fittings are tight and have no leaks
5. Chains are adjusted so that all springs are compressed to 330mm/ 1' 1"
6. Fold machine to ensure chains engage transport rests
7. Check swivel units are not seized and still turning freely

Basic operation

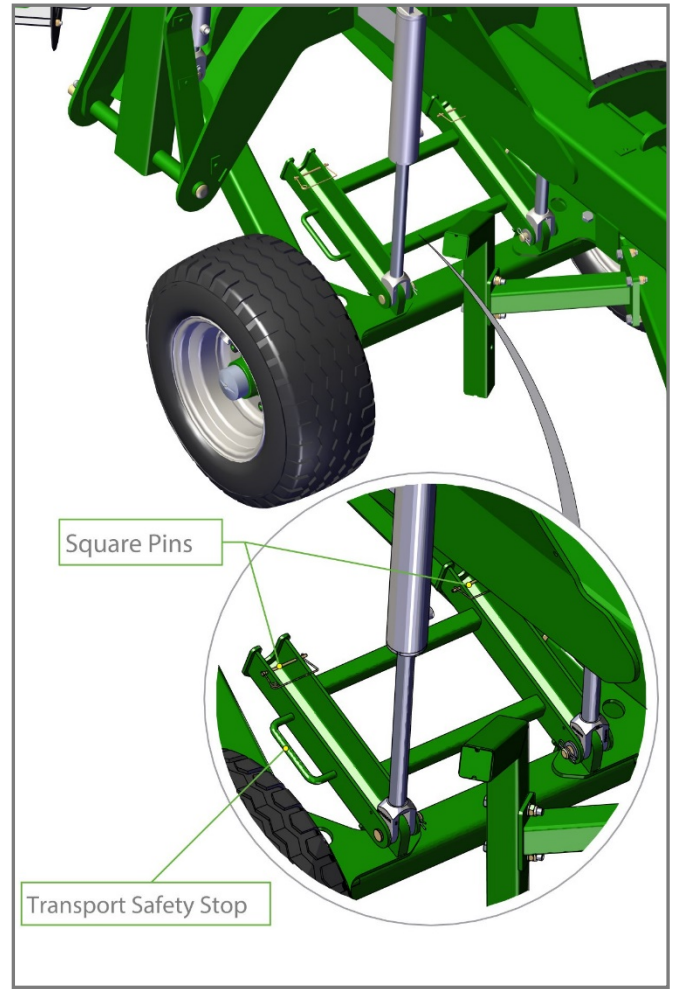
Unfolding

1. Walk around and inspect the machine.
 - a. Check that chains are not hooked on framework.
 - b. Check swivel bolts at end of each chain are in place and not broken.
2. Open both transport safety lock valves at the front of the machine.
3. Remove the square pins and lower the transport safety stop.

2

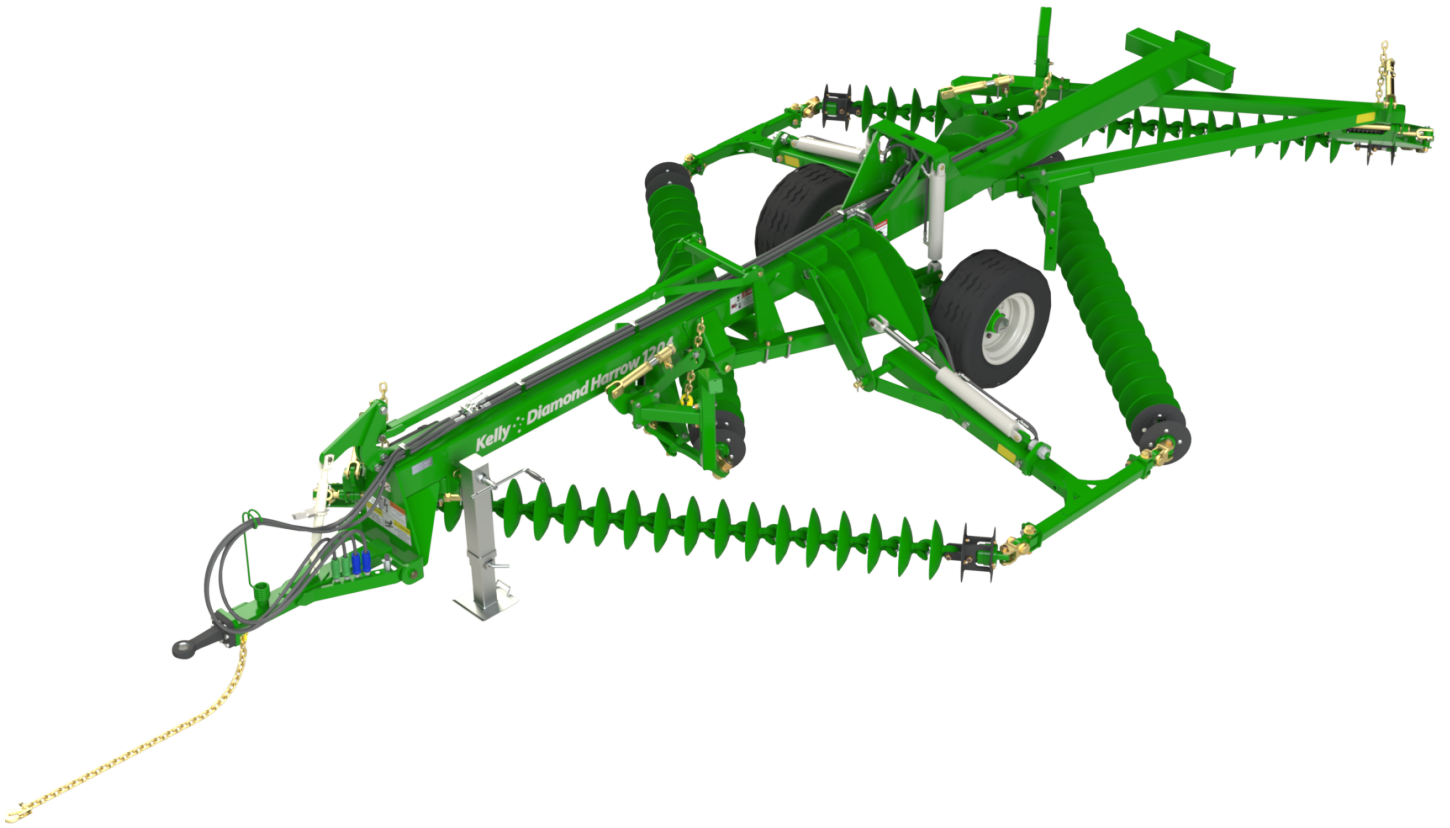


3



4. Lower front frame to safe working height.
5. Unfold wings, holding the hydraulic lever until the cylinders are fully extended.
6. Walk around machine and check that all chain links are straight and that working height of all swivels are correct for field conditions. Adjust if necessary. Refer to Page 23-24 for Chain Height Adjustment.
7. Move off with all chains in working position.

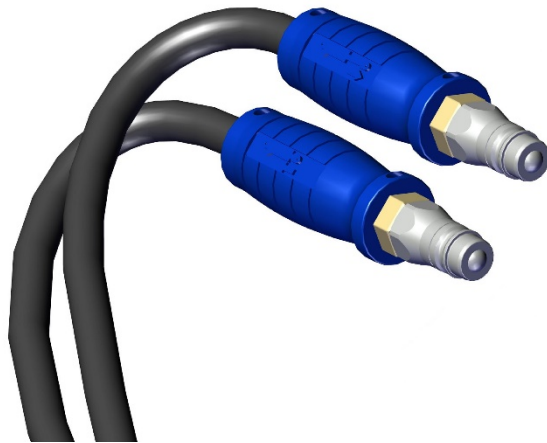
Unfolding



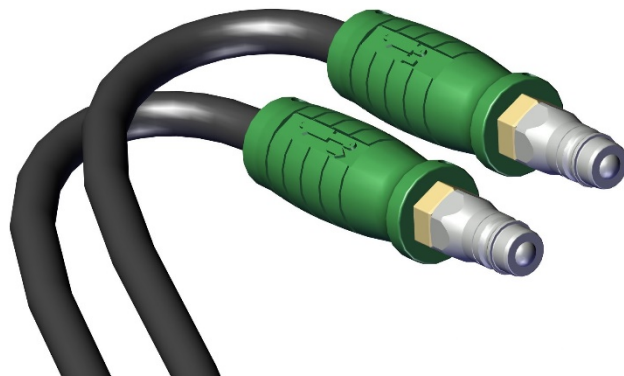
Folding

1. Walk around and inspect the machine.
 - a. Check that chains are not hooked on framework.
 - b. Check swivel bolts at end of each chain are in place and not broken.
2. Fold wings, holding the hydraulic lever until both cylinders are fully retracted.

Note: Blue grips allow you to fold and unfold wings.



Note: Green grips allow you to raise and lower the machine.



Folding



Front view



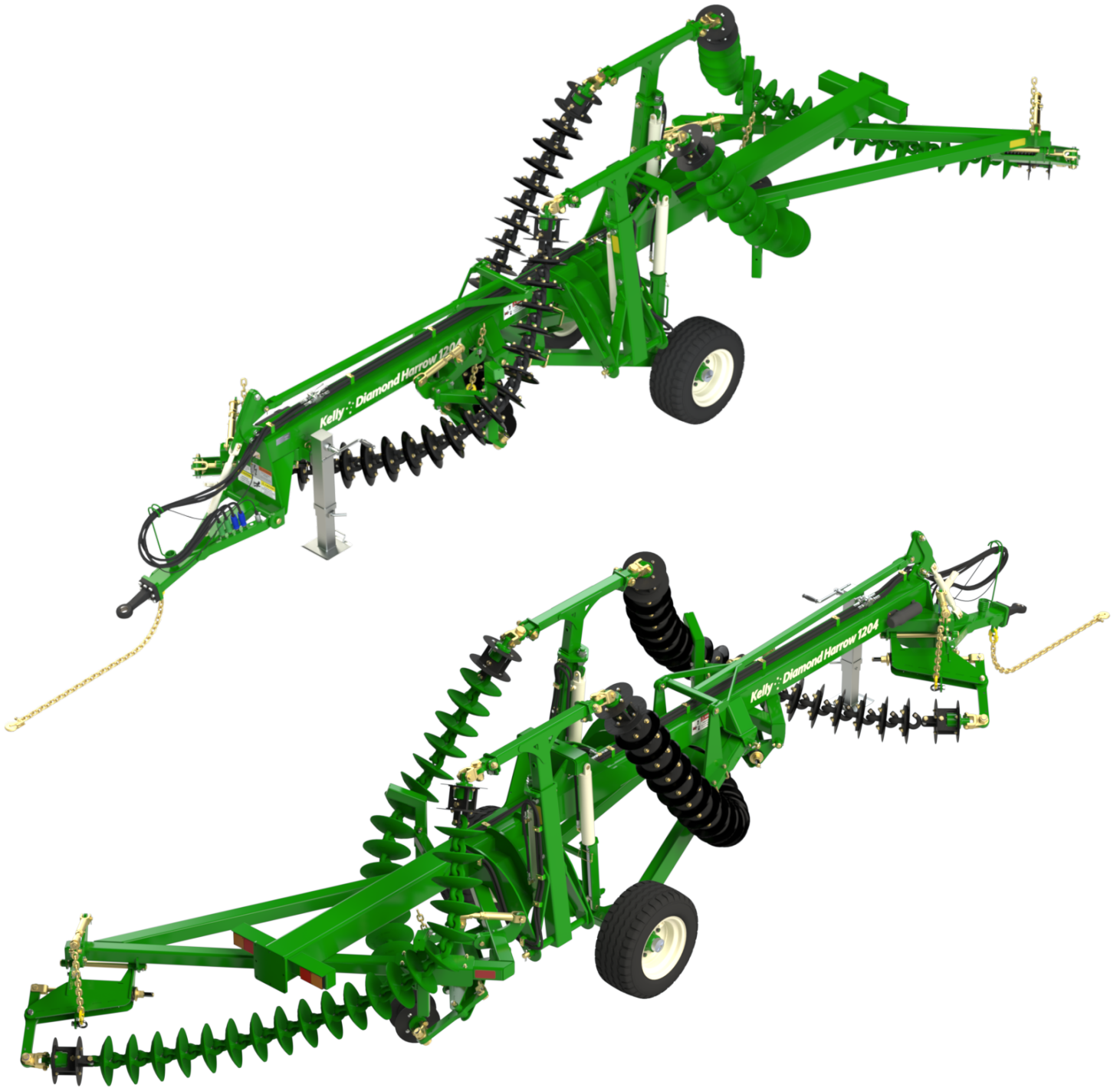
Rear view



Right view

3. Raise the machine to transport height until the cylinders are fully extended.
4. Close transport safety lock valves.
5. Raise the Transport Safety Stop and lock with the square loop pin.

Folding



Do not attempt to fold the machine for transport if the chain is clogged with weeds or mud - the additional weight can cause damage to the hydraulics or frame



SECTION 3

CHAIN
OPERATION

SECTION 3 CHAIN OPERATION AND CORRECT SETUP

Importance of chain tension

Chain tension is critical to achieve a smooth and level seedbed. A correctly tensioned, monitored and maintained chain will deliver the results you need.

Incorrect chain tension can lead to:

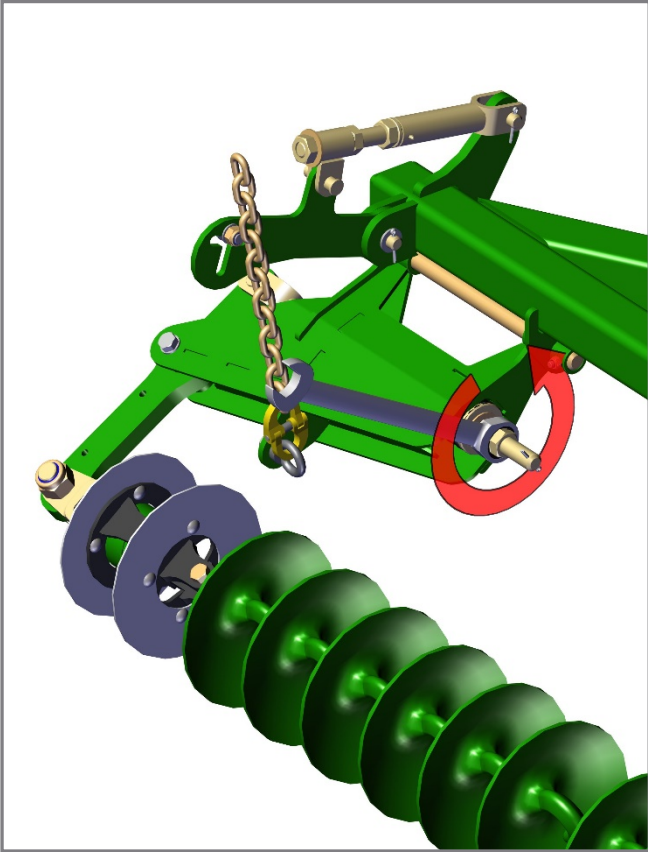
- Uneven results across the cut width of the machine
- Uneven ridges and furrows being created
- Uneven weed control
- Uneven residue incorporation
- Premature chain link wear

A correctly adjusted machine will not have this problem.

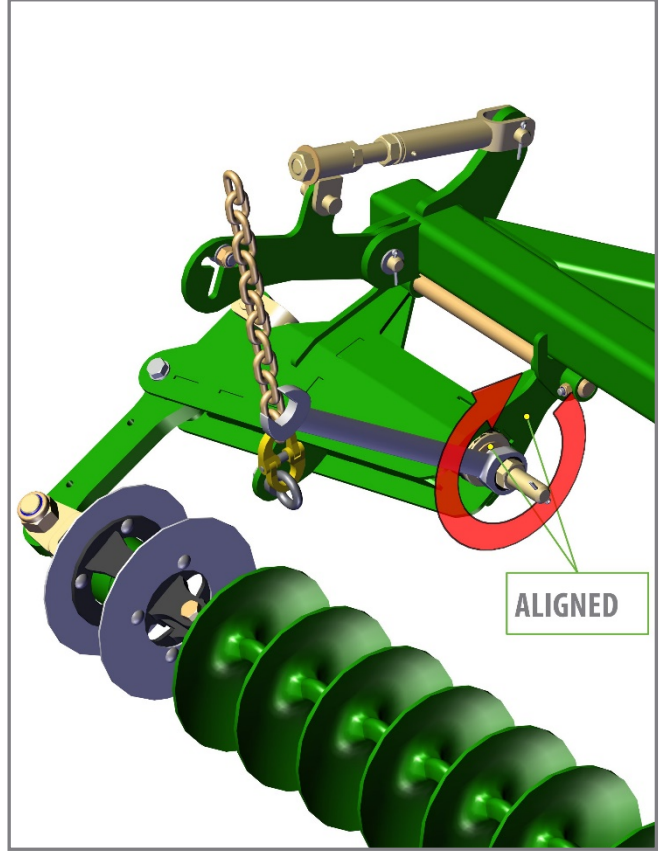
Chain tension

1. Loosen the lock nut on the module tension rod.
2. For correct chain tension, tighten the adjusting nuts clockwise until the outside face of the spring retaining washer is flushed with the face of the tension body. Spring length of 330mm / 1' 1".
3. If more than 150mm / 5-29/32 "of tensioner thread is visible, then remove one link from the chain set to maintain correct chain tension.
4. Retighten the lock nut.

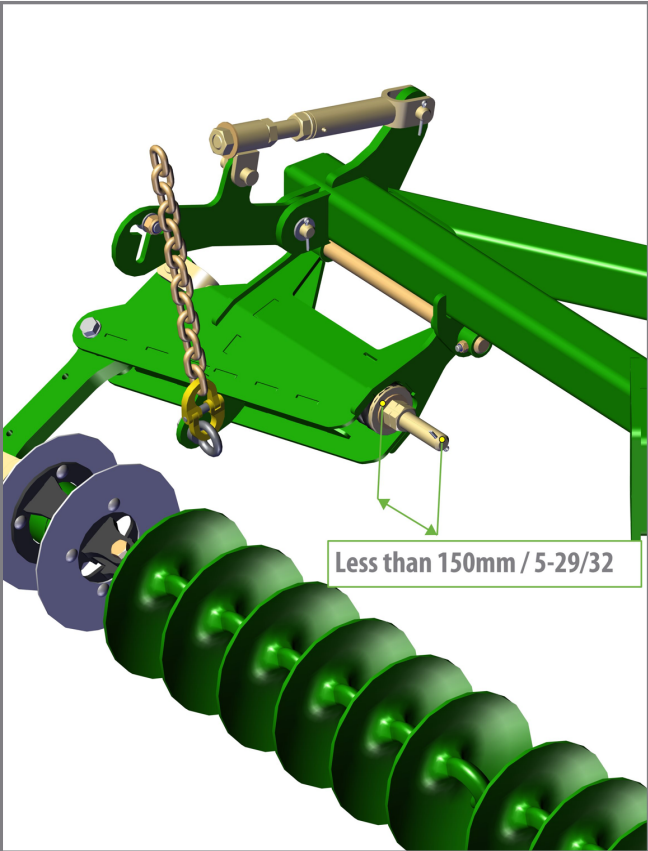
1



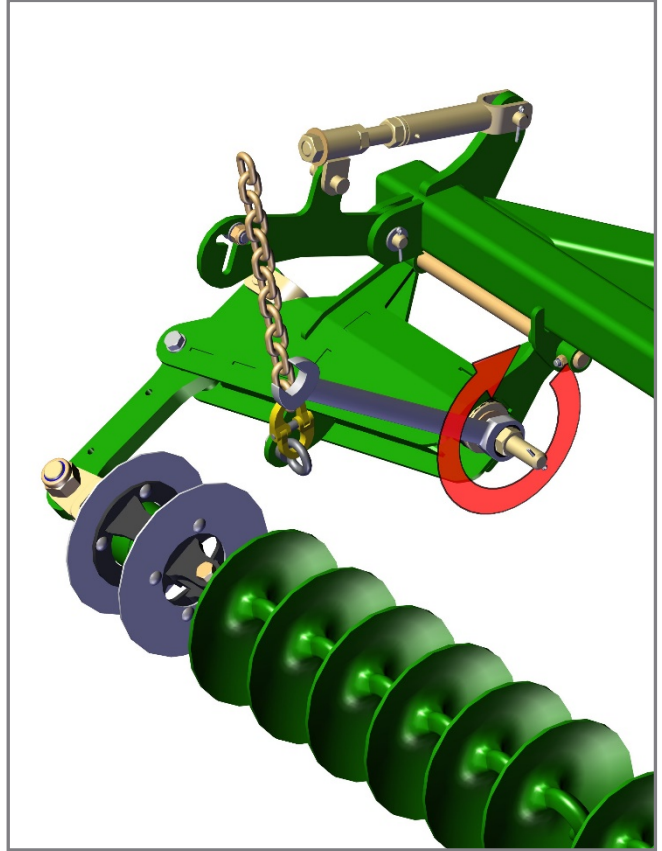
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3



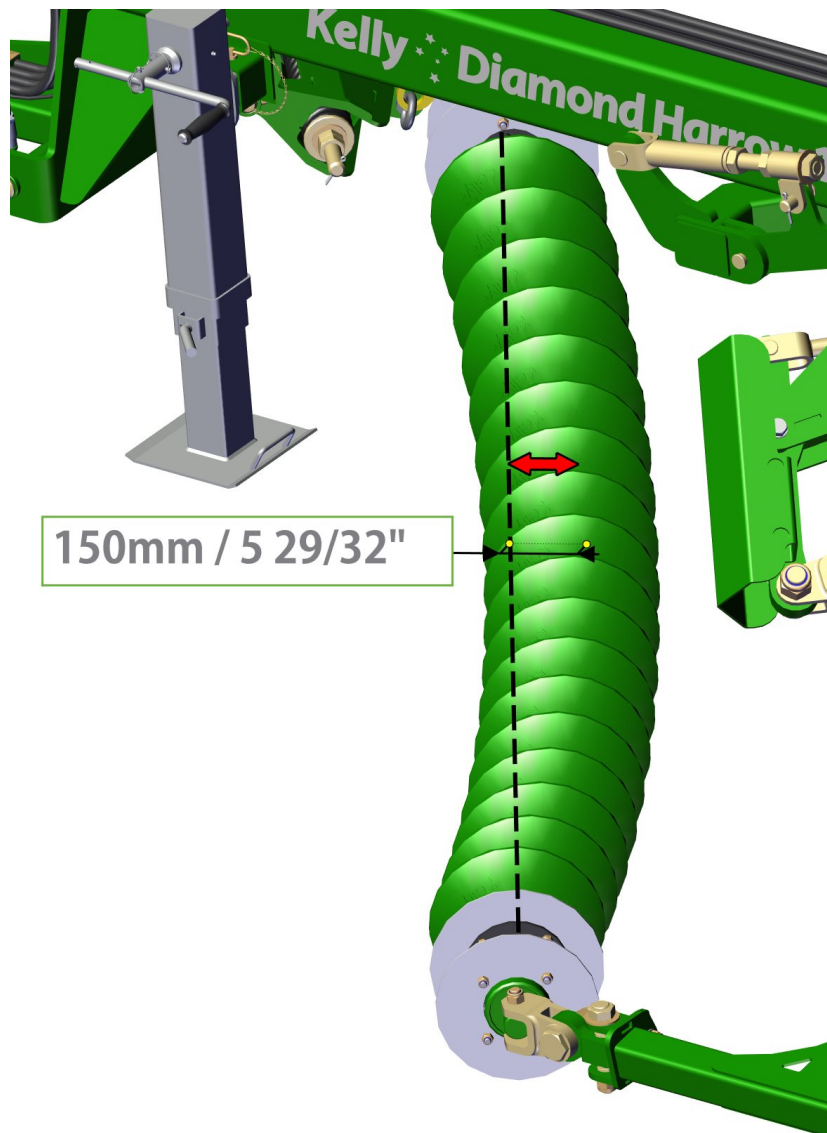
4



Chain curve

Correct chain tension will ensure that the entire length of discs will roll as one. This minimises the movement between each link. If a chain is not adjusted and runs loose, each link acts as a universal joint as the curved chain rolls along. The wear rate between each link is greatly accelerated and can lead to premature failure. The chain should not wear out before the discs are worn down.

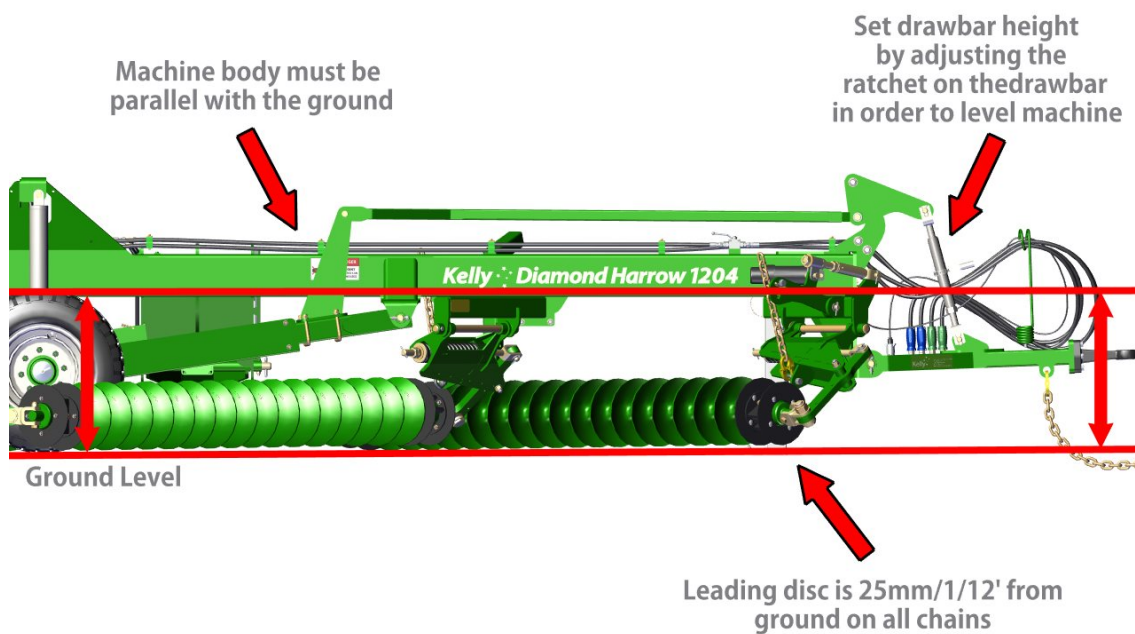
ONLY POOR ADJUSTMENT CAUSES PREMATURE WEAR



Indicator line shows acceptable curvature when operating.

Frame height adjustment

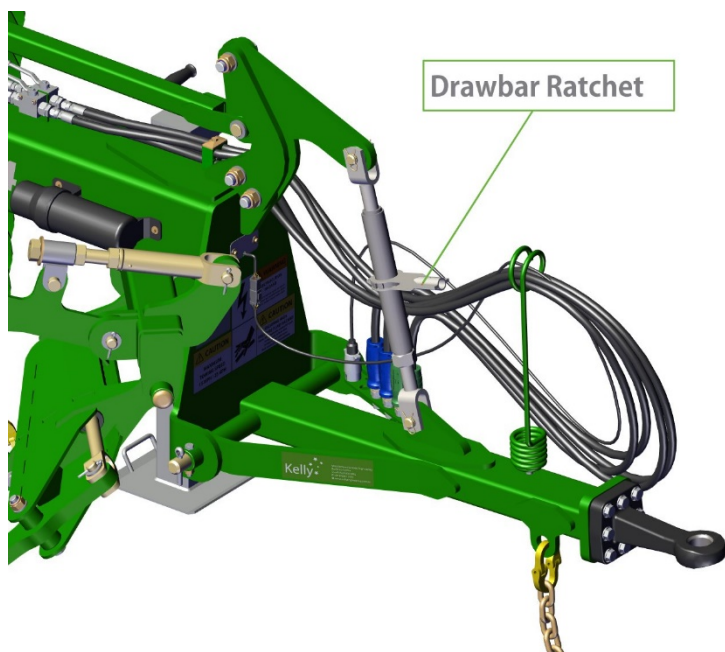
Check the length of the height adjusting chains on the two front chain mount plates.



- There should be no slack in the chain and about 25mm / 1/12' of gap between the ground and the bottom of the first disc machine near the centre line.
- Make sure the swivel bearing centreline is parallel with the ground.

Drawbar height adjustment

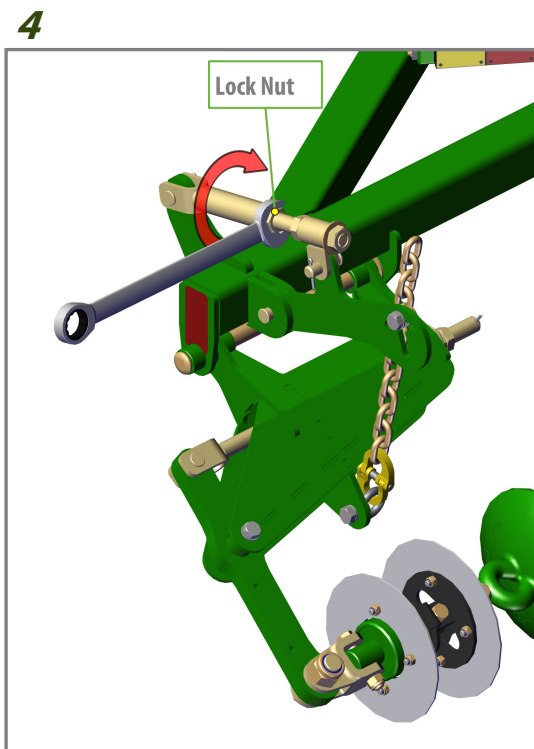
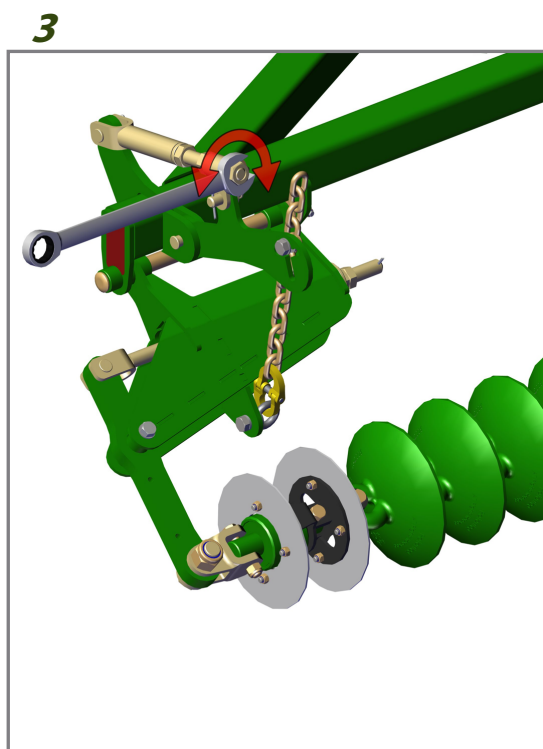
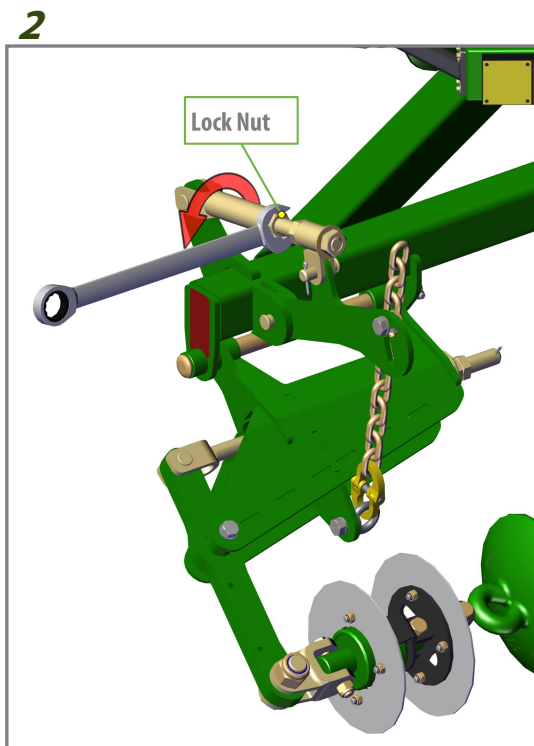
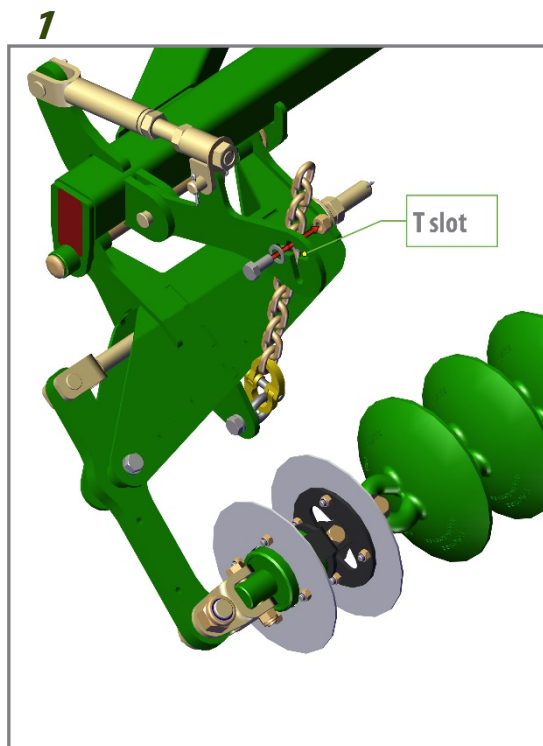
Once the frame is level, tighten the lock nut on the drawbar ratchet. This sets the drawbar height correctly for your tractor.



Chain height adjustment

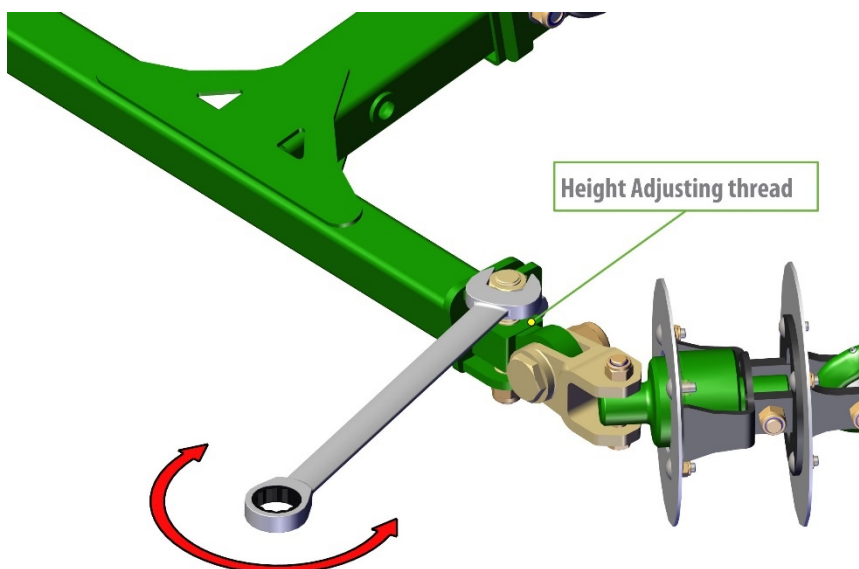
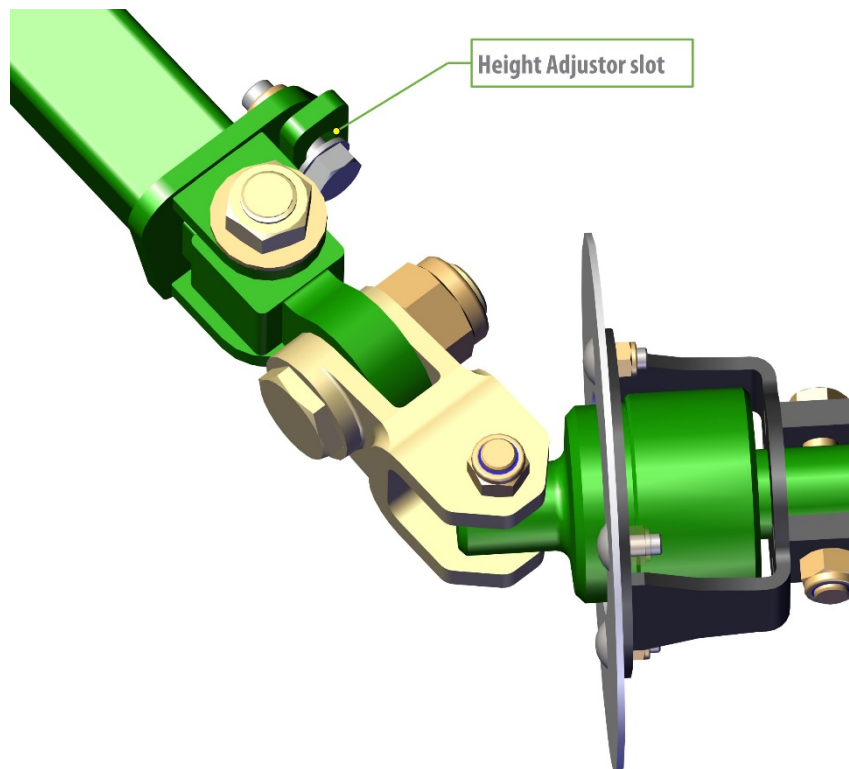
Chain Tensioners

1. Where a large amount of adjustment is required remove the locking bolt and slide the chain through the T slot then replace locking bolt and fine tune height with threaded adjustor.
2. Using the supplied spanner, loosen the lock nut on the height adjustor thread.
3. Using the supplied spanner, adjust the height.
4. Tighten the lock nut.

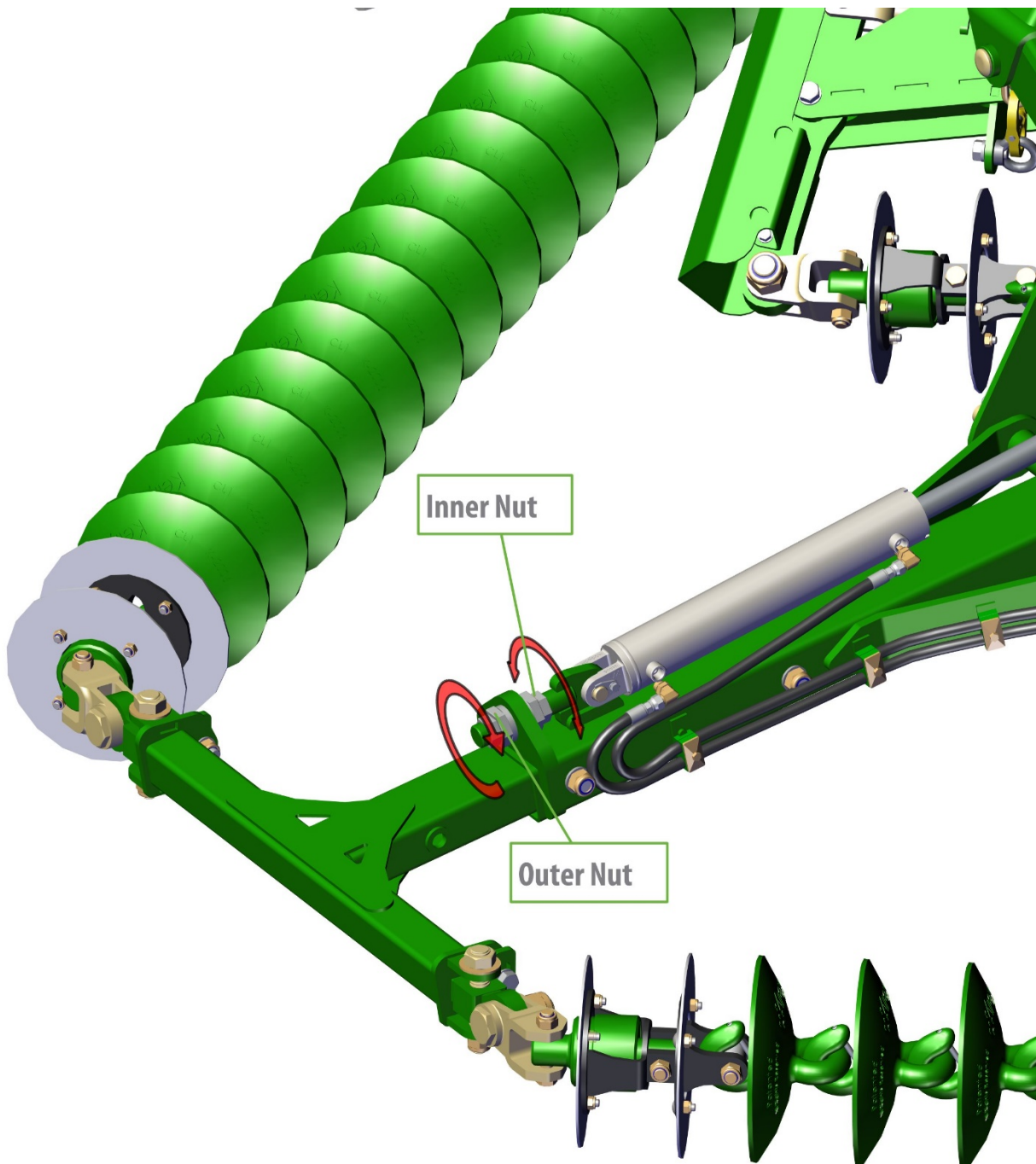


Wings

1. Loosen the bolt and nut in the height adjuster slot.
2. Using the supplied spanner, turn the height adjusting thread to raise or lower the chain as required.
3. Tighten the bolt and nut in the height adjuster slot.



4. To raise the whole wing, you will need to do the following:
 - a. Loosen and wind the inner nut enough to allow desired movement.
 - b. Wind the outer nut clockwise to lift the wing to the correct height.
 - c. Tighten the inner nut.
5. To lower the whole wing, you will need to do the following:
 - a. Loosen and wind the outer nut until the wing is at the correct height.
 - b. Tighten the inner nut.

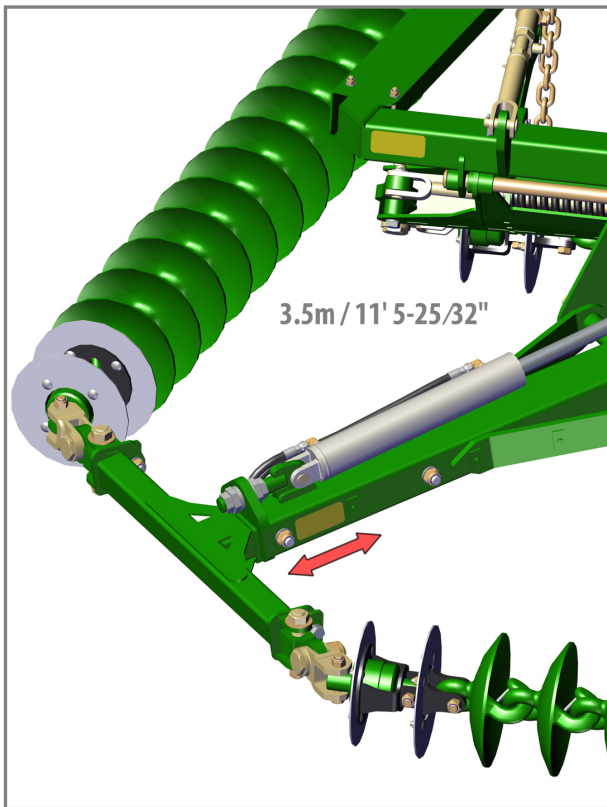


Wing extension

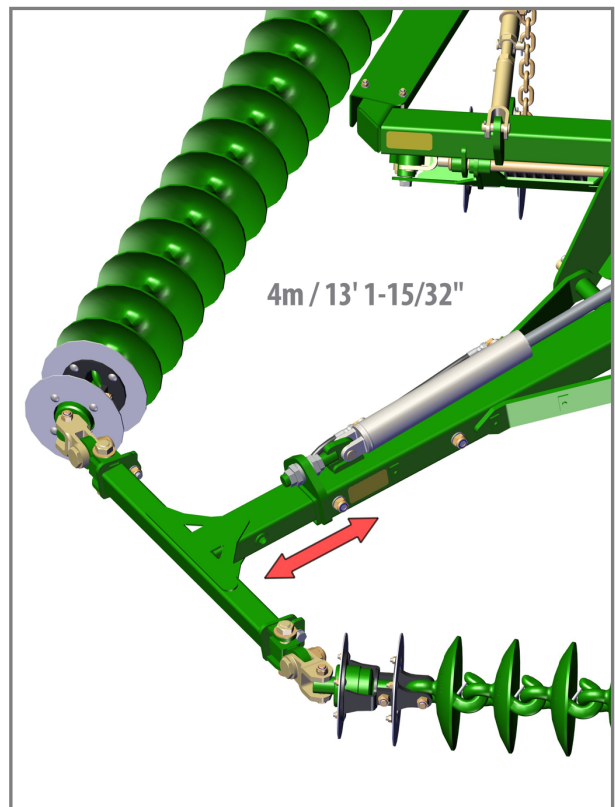
The Kelly Tillage System can be set to cut widths of:

1. 3.5m / 11' 5-25/32"
2. 4.0m / 13' 1-15/32"
3. 4.5m / 14' 9-5/32"

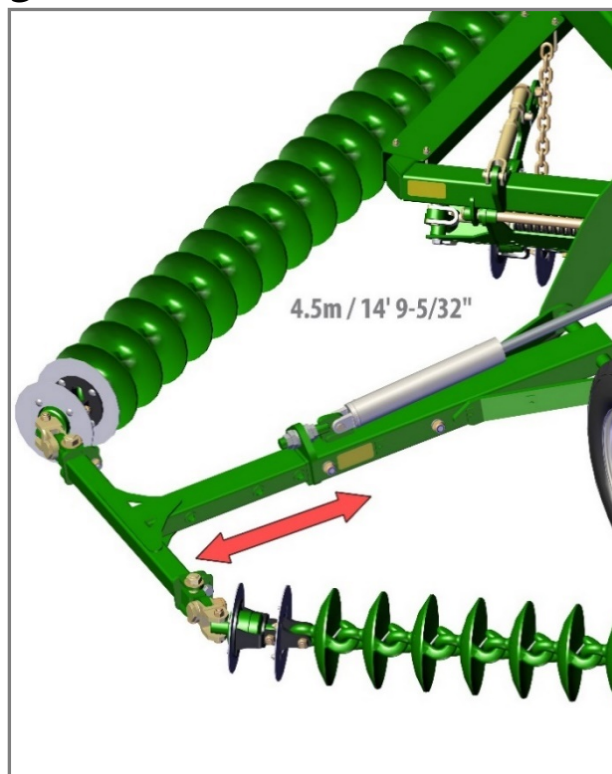
1



2

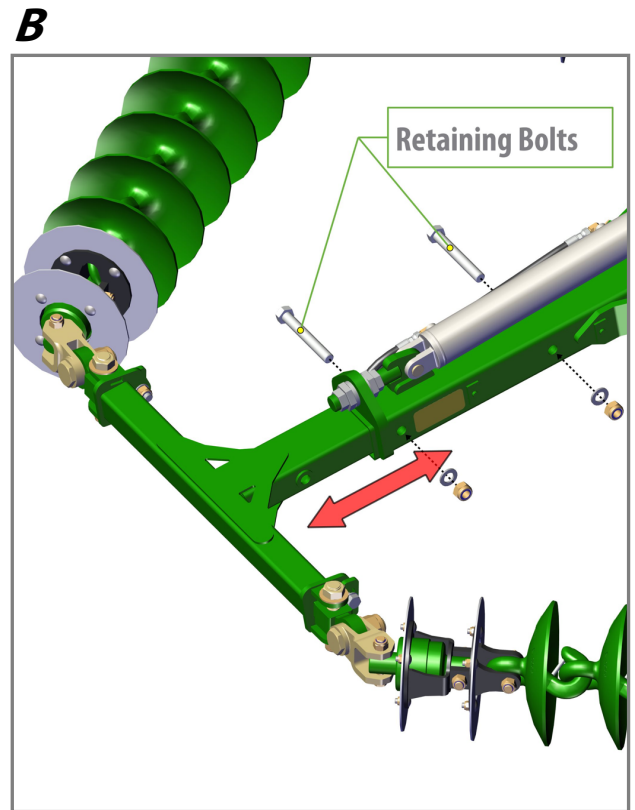
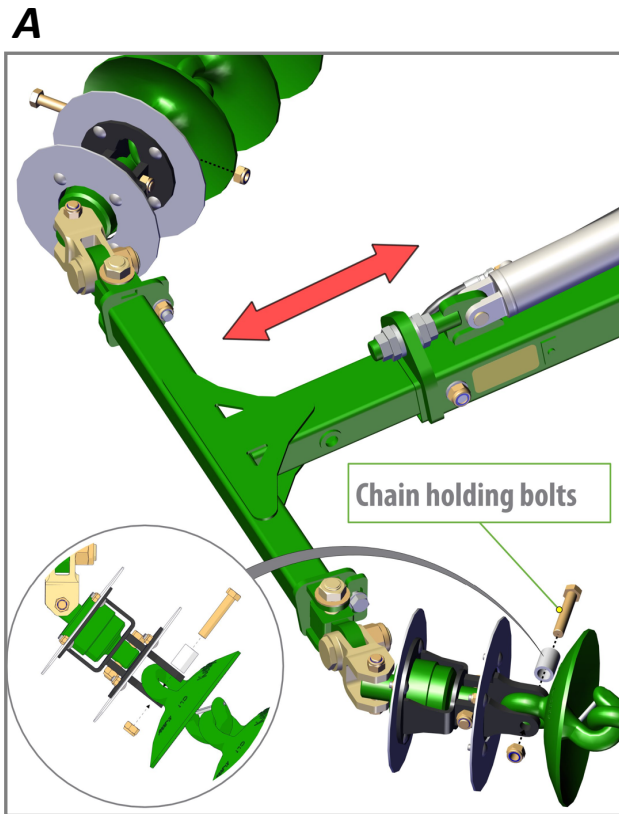


3



To change the width of the cut you will need to do the following:

- A. Remove the bolts holding the chain to the wings.
- B. Remove the 2 retaining bolts and slide the outer wing section in or out to the desired width, then replace the retaining bolts.



NOTE: You will need to remove or add chain links before reattaching to the wing.

Fine adjustment for perfect operating results

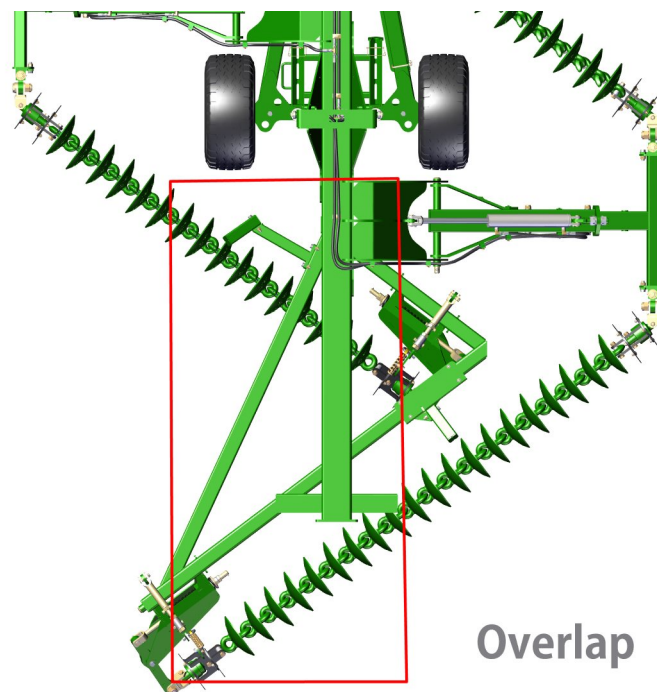
You may need to continue to adjust certain areas to achieve a level finish and a perfect seedbed.

It is possible with correct adjustment to achieve a level finish in most situations by manipulating the front and rear heights of each chain.

When set too low, the leading disc on each chain has the capability of pushing up a ridge of soil that the following chains may not level out. This can occur at the front of each chain, at the front of the rear chains (widest point) and at the front of the machine (either side of centre).

When the trailing disc is set too low, it may leave a furrow that may not be filled by other chains. Look for this at the rear of each chain, on the wings at the rear of the front chains and at the very rear of the machine near the centre line.

There is enough overlap built into the machine to ensure that it is possible to raise the front of all the chains just clear of the ground and still achieve a full cut.



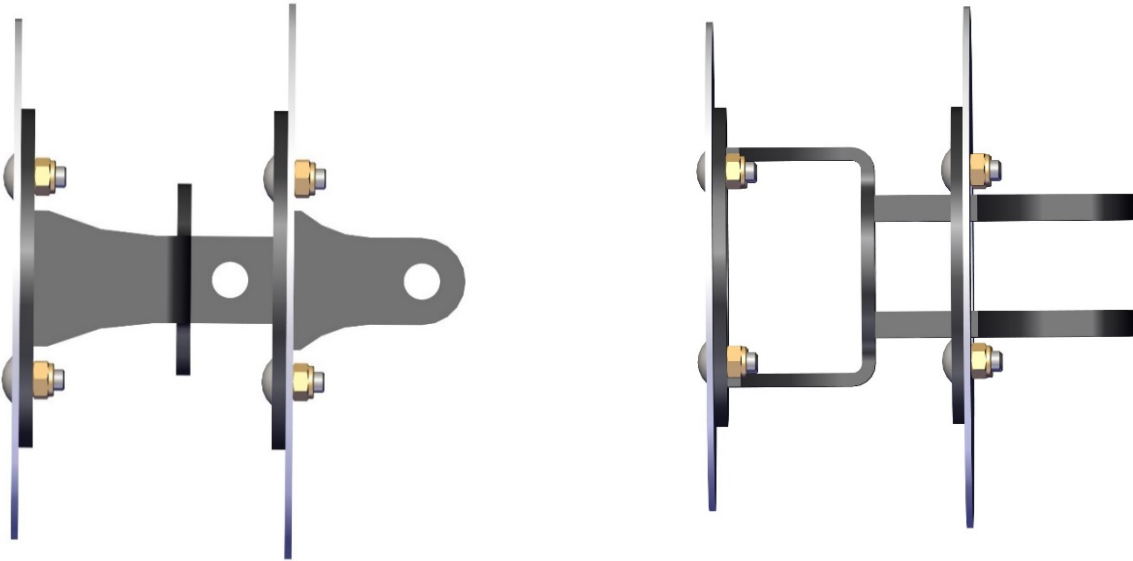
The optimum setting may vary depending on soil cover. In heavy stubble and unworked ground, it is possible to set the swivels low to the ground. In light stubble or loose soil, it is best to raise the leading discs so that the chains 'feather in' to the soil.

It is important to note that lowering the swivels will not cause the discs to dig deeper or more aggressively. It will result in premature wear of swivel hardware and the first two chain links. It will also cause ridges and furrows.

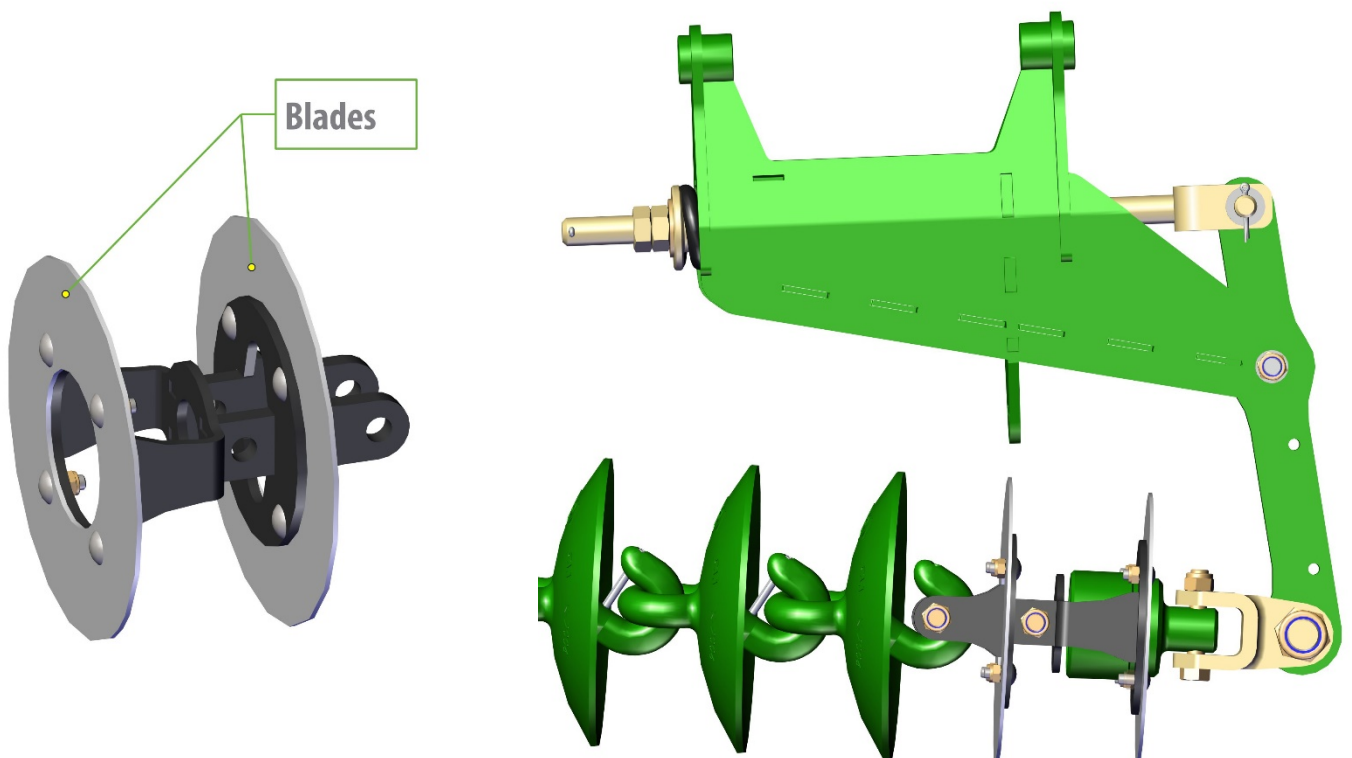
Digging effectiveness is a result of soil conditions and disc chain construction. The weight, shape, angle and spacing of the discs are the factors which influence efficacy. On hard dry soils it is unrealistic to expect the discs to dig fully or evenly. However, they will still perform well for residue breakdown and seed stimulation.

Importance of tapered chain end (TCE)

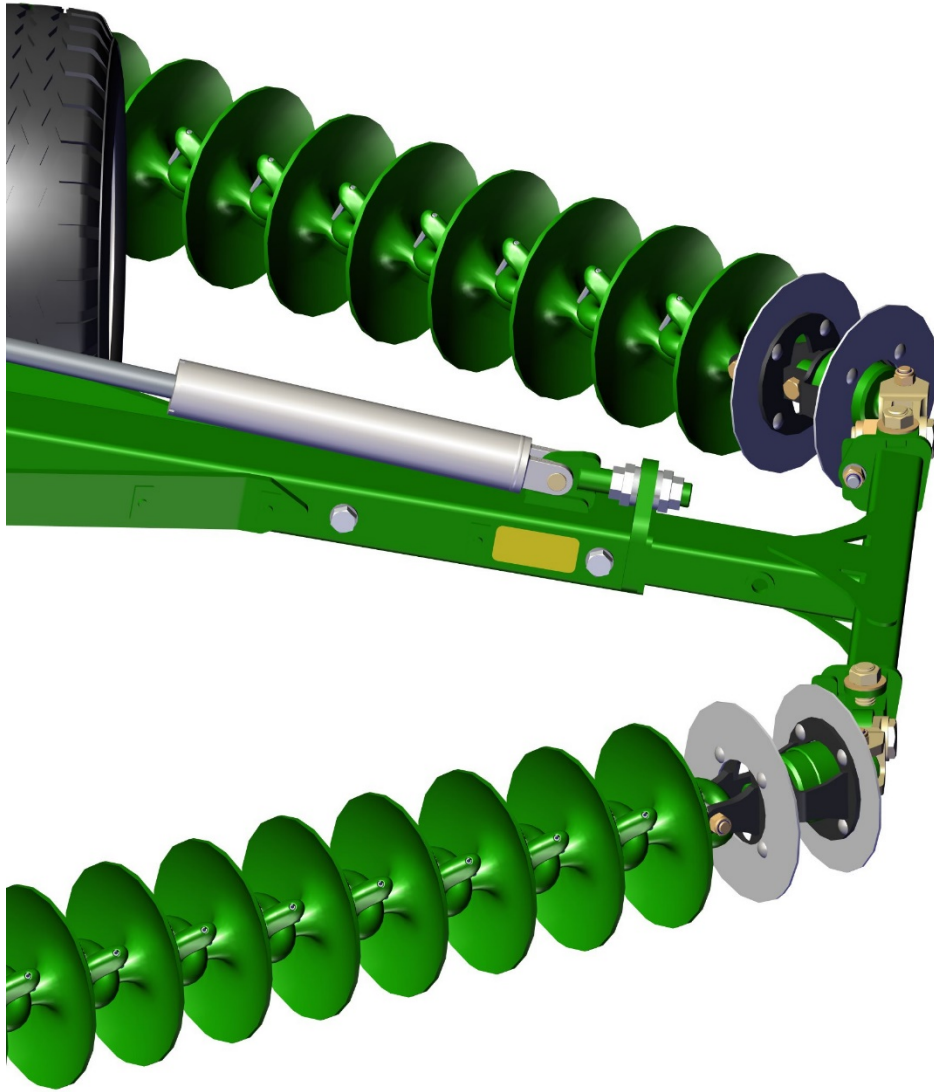
It is important to note that TCE's are designed to increase the effective cutting length of a disc chain. Nestling over the swivel bearing, this fabrication minimizes the 'dead' or ineffective chain length between the mounting point and the first effective cutting disc.



The blade diameters have been selected to ensure an optimal soil surface finish at the end of the chains. Thus, the intent is that the bearing height can be set on the centreline of the chain, parallel with the ground.



These TCE's can be fitted on the wings, to increase the overall effective cutting width of the machine and to provide a smoother surface for the wing wheels to traverse, which will decrease the wing bounces. However, they will be most useful on the chain mounting points through the centre of the machine, to help maximize the overlap of the chains.





SECTION 4
MAINTENANCE
AND INSPECTION

SECTION 4 MAINTENANCE AND INSPECTION

Maintenance and Inspection

Good maintenance is your responsibility

- Before working on your machine, ensure all moving parts have stopped
- Always use a safety support and block the wheels
- Use extreme caution when making adjustments
- After servicing, make sure all tools, parts and service equipment are removed
- Where replacement parts are necessary for periodic maintenance and servicing, genuine factory parts must be used. Kelly will not guarantee the use of unapproved parts and other damages as a result of their use and will not be liable for injury or warranty if equipment has been altered in any way
- An appropriate fire extinguisher and first aid kit should be kept readily available while performing maintenance.

Recommended maintenance checklist

Item to check	First operation	Daily	25 hourly	Pre-season
Hydraulic, hose and cylinders for damage and oil leaks	✓	✓		✓
Loose or missing fasteners/split pins	✓	✓		✓
Check bushes, pivot and cylinder pins for wear and replace as necessary				✓
Swivel unit fasteners	✓	✓		✓
Swivel unit - free and smooth rotation		✓	✓	✓
Swivel unit temperature: Average operating temperature is 55 °C, Failure is indicated at +80 °C	✓	✓		✓
Tires are inflated to correct pressure	✓	✓	✓	✓
Wheel nuts are tightened at correct torque	✓			✓
Check wheel bearings	✓	✓	✓	✓
Check and tighten dust caps	✓		✓	✓
Disc roll pins/ locking bolts are in place	✓			✓
Chain is tensioned correctly	✓	✓		✓
Lights are working correctly	✓	✓		✓
Warning signs are attached	✓	✓		✓
Grease wheel bearings				✓
Grease drawbar pivot			✓	✓
Grease wheel lift bush			✓	✓

We recommend that swivel units are covered for storage to prevent water penetration.



To prevent injury never lubricate or service the Kelly Tillage System while it is moving (folding up or down or in working motion)

Chain inspection

- There is a break-in period where the disc chain will wear in and become longer.
- More frequent adjustments will be necessary on a new machine.
- Over time, as the disc chain wears, it may be necessary to remove a link to maintain disc chain tension. This is the most important check and adjustment to ensure a long working life for the disc chain.

Trouble shooting

The majority of the Kelly Tillage System operating problems are due to incorrect adjustment. This trouble shooting section will help you by providing solutions to common problems.

Symptom	Problem	Solution
Wings bouncing	Operating speed is too fast for field conditions.	Refer to page 34 for operating speed
Chain Links wearing	Chain too loose. Chain loops back when working.	Refer to page 18-19 for setting correct chain tension
	Swivel set too close to ground.	
Chain not rotating	Front chain swivels on machine too low Foreign material fouling bearings	Refer to page 21
	Bearing failure in swivel unit	
Uneven tread wear on transport wheels	Tire pressure too low Excessive road speed	Inflate to correct pressure refer to table on page 34 Always travel at a safe speed. NEVER EXCEED 25kph/16 mph.
Chain not tensioning properly	Excessively worn chain May need a link removed	Replace if required Remove excess chain link
Operation leaves ridge behind machine Operation leaves furrow behind machine	Front or rear chain swivels are too low	Refer to chain height adjustment on page 23



Never attempt to fold for transport if the chain is clogged with weeds or mud as the extra weight may damage hydraulics or frame



SECTION 5
SPECIFICATIONS

SECTION 5 SPECIFICATIONS

Operating speeds

Recommended operating speeds in normal conditions with all chain types	
Operating / working speed	(5-8 mph) / (8-12 km/h)
Transporting / towing speed	(16 mph) / (25 km/h)

Tire pressure

Tire size	Ply	KPA	PSI
13.0/55-16	14	250	36

1204 specifications

Model 1204 Set at	3.5m/11' 5-25/32"
Operating width	3.79m / 12' 5-7/32"
Transport width	2.31m / 7' 6-15/16"
Transport height	2.17m / 7' 1-7/16"
Transport length	8.98m / 29' 5-17/32"
Model 1204 Set at	4m/13' 1-15/32"
Operating width	4.29m / 14' 29/32"
Transport width	2.31m / 7' 6-15/16"
Transport height	2.42m / 7' 11-9/32"
Transport length	8.98m / 29' 5-17/32"
Model 1204 Set at	1204 – 4.5m/14' 9-5/32"
Operating width	4.80m / 15' 8-31/32"
Transport width	2.34m / 7' 8-1/8"
Transport height	2.66m / 8' 8-23/32"
Transport length	8.95m / 29' 4-3/8"

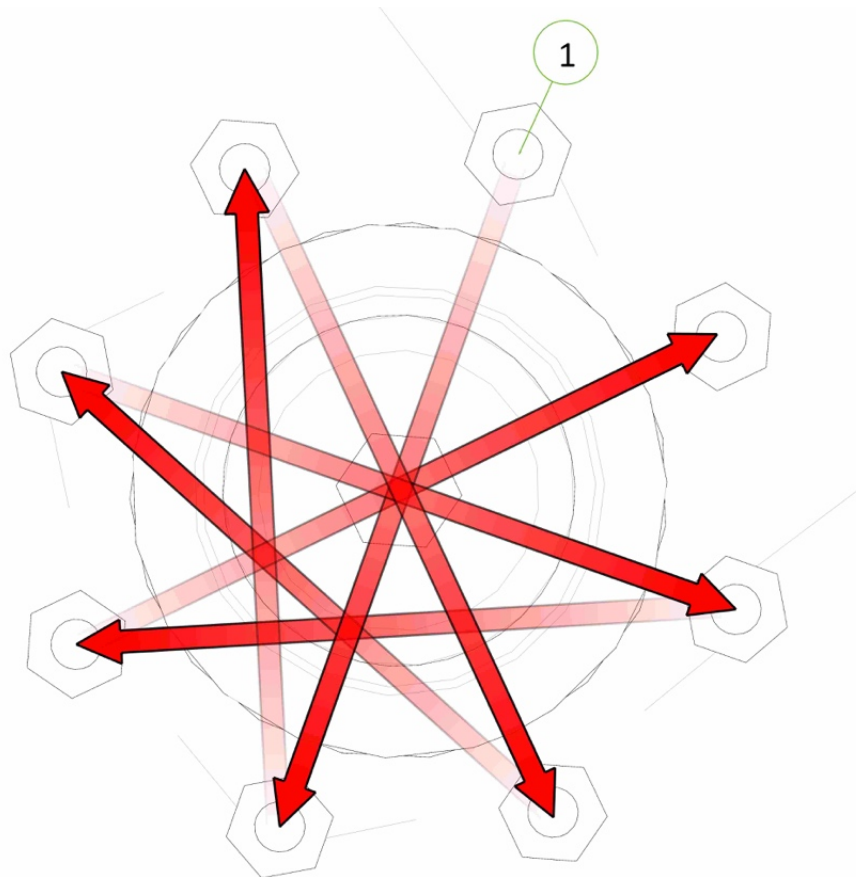
Bolt torque settings

Bolt Type	Wheel nut				U Bolt			Class 8.8 Bolt					Class 10.9 Bolt		Grade 8 Bolt
Bolt Size	M18	M20	1/2"	9/16"	M10	M12	M16	M10	M12	M16	M20	M24	M20	M24	1" UNF
Ft lb	255	265	90	100	22	36	55	32	48	140	190	270	300	350	849
Nm	345	360	125	140	30	50	75	44	65	190	260	370	406	475	1151

[1] When fitting a wheel & tire to a hub, tighten the wheel nuts in a star pattern to the correct tension. To achieve this, choose a wheel nut & tighten, then proceed to the opposite side of the hub to the next wheel nut & tighten & so on until all wheel nuts are tight. Then repeat the procedure to check that all nuts are tight. Do not use impact tools to tighten wheel nuts.

For a guide to the correct tension of the wheel nuts please use the appropriate tension for your size wheel nuts from the Bolt Torque Settings table.

Torque values are for dry threads and surfaces however it is permissible to apply a small amount of anti-corrosive oil to the threads.



Disc chain lengths and Quantities

1204 Model		Length	K4	CL1	W36	R300	SD49	PCH
3.5m	Front Left	2.760m / 9' 21/32"	17	17	16	22	22	31
	Front Right	2.373m / 7' 9-7/16"	15	14	14	19	19	26
	Rear Right	3.124m / 10' 3"	20	19	18	25	25	35
	Rear Left	2.472m / 8' 1-5/16"	15	15	14	20	20	27
4m	Front Left	2.998m / 9' 10-1/32"	19	18	17	24	24	33
	Front Right	2.609m / 8' 6-23/32"	16	16	15	21	21	29
	Rear Right	3.361m / 11' 5/16"	21	20	20	27	27	37
	Rear Left	2.710m / 8' 10-11/16"	17	16	16	22	22	30
4.5m	Front Left	3.205m / 10' 6-3/16"	20	20	19	25	25	35
	Front Right	2.815m / 9' 2-13/16"	18	17	16	22	22	31
	Rear Right	3.568m / 11' 8-15/32"	22	22	21	28	28	39
	Rear Left	2.920m / 9' 6-31/32"	18	18	17	23	23	32

For correct chain tension, chain links may need to be removed from the end of the chain as follows:

K4 Disc Chain - unhook disc chain link/s from end of the disc chain

CL1 Disc Chain - unhook disc chain link/s from end of the disc chain

W36 Disc Chain - cut a disc chain link from the end of the disc chain

R300 Disc Chain - cut a disc chain link from the end of the disc chain

Spiked Disc Chain - cut a disc chain link from the end of the disc chain

Prickle Chain - cut a prickle chain link from the end of the prickle chain

Scan the following QR code to open the removing a welded disc chain video.

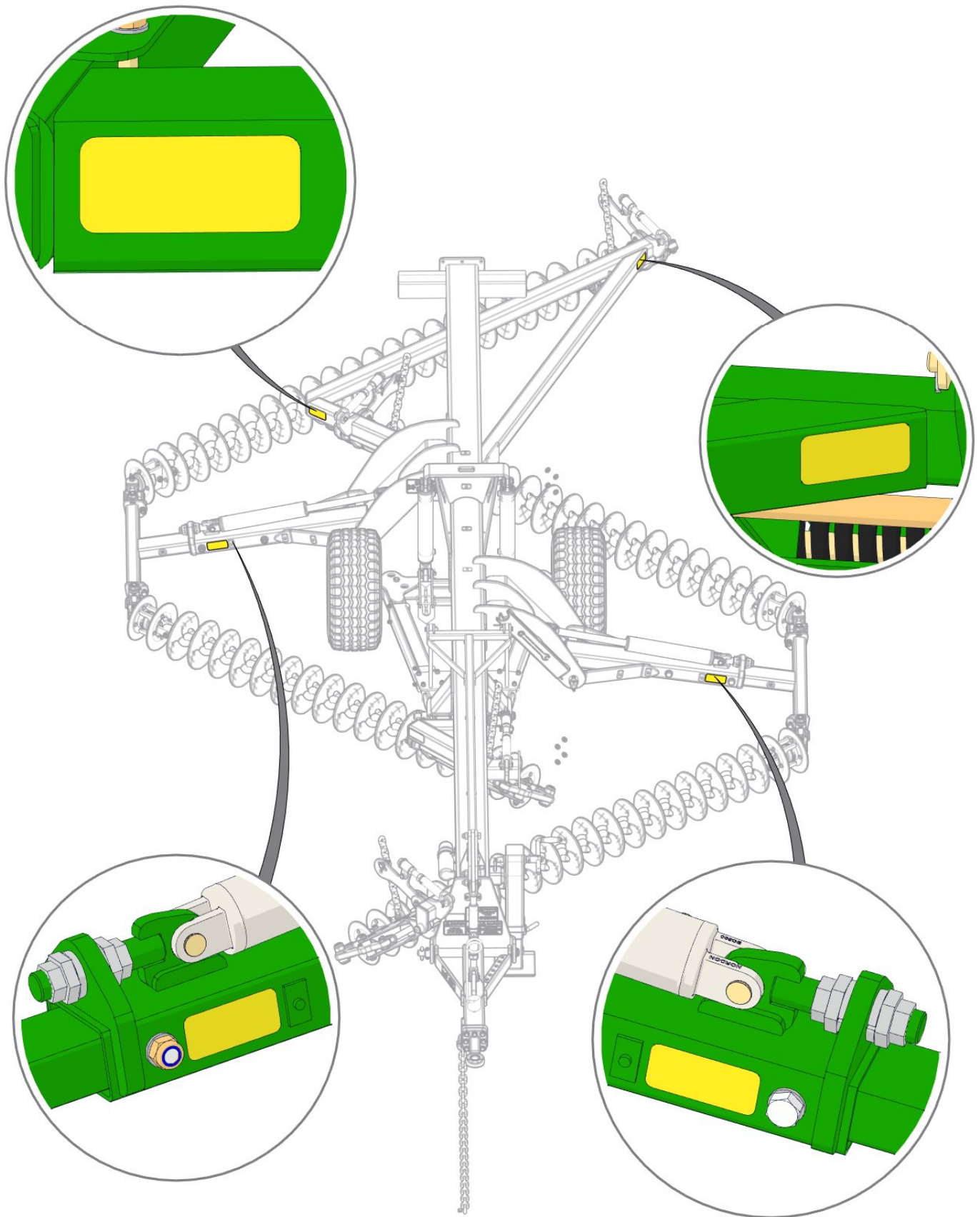


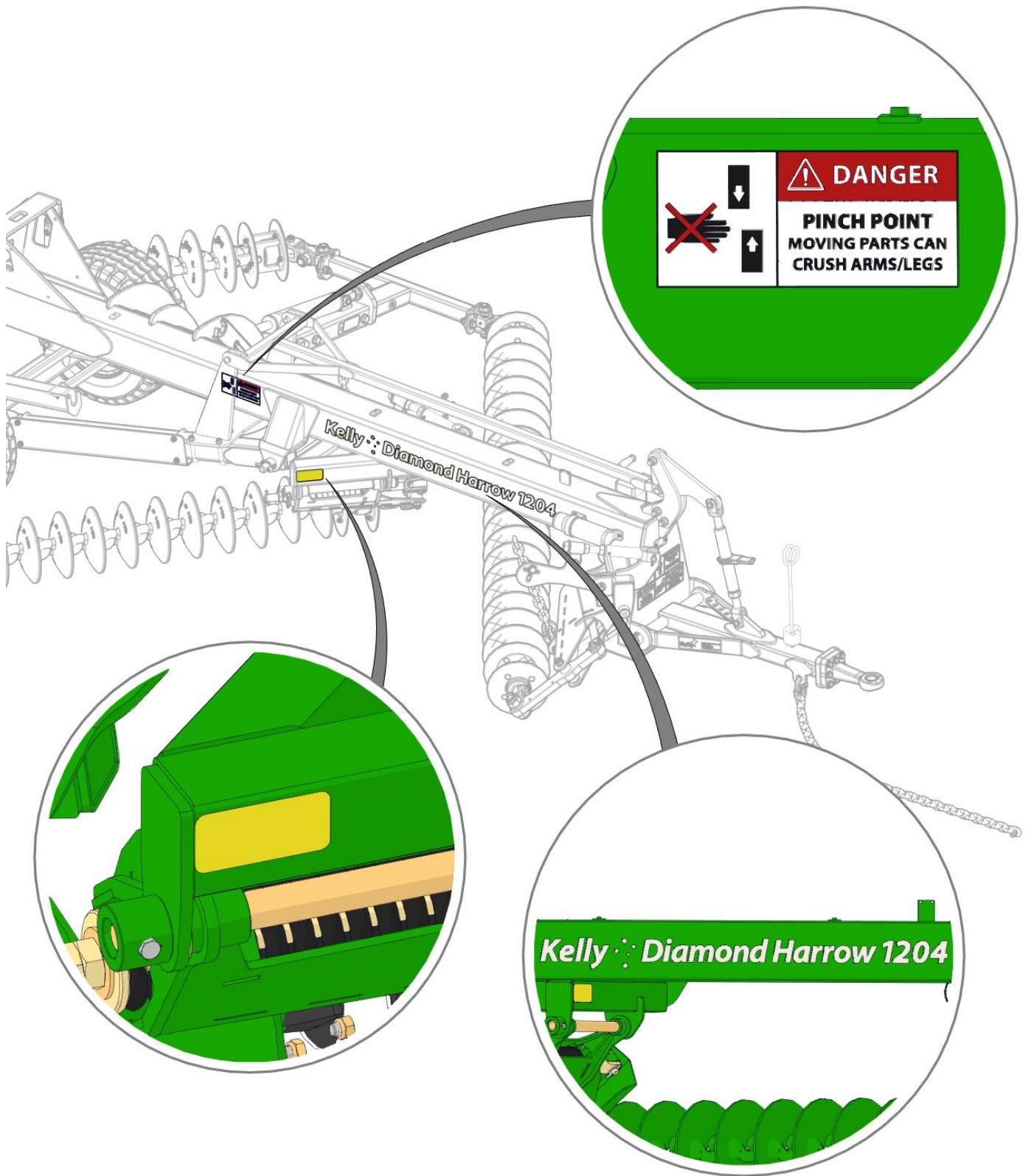


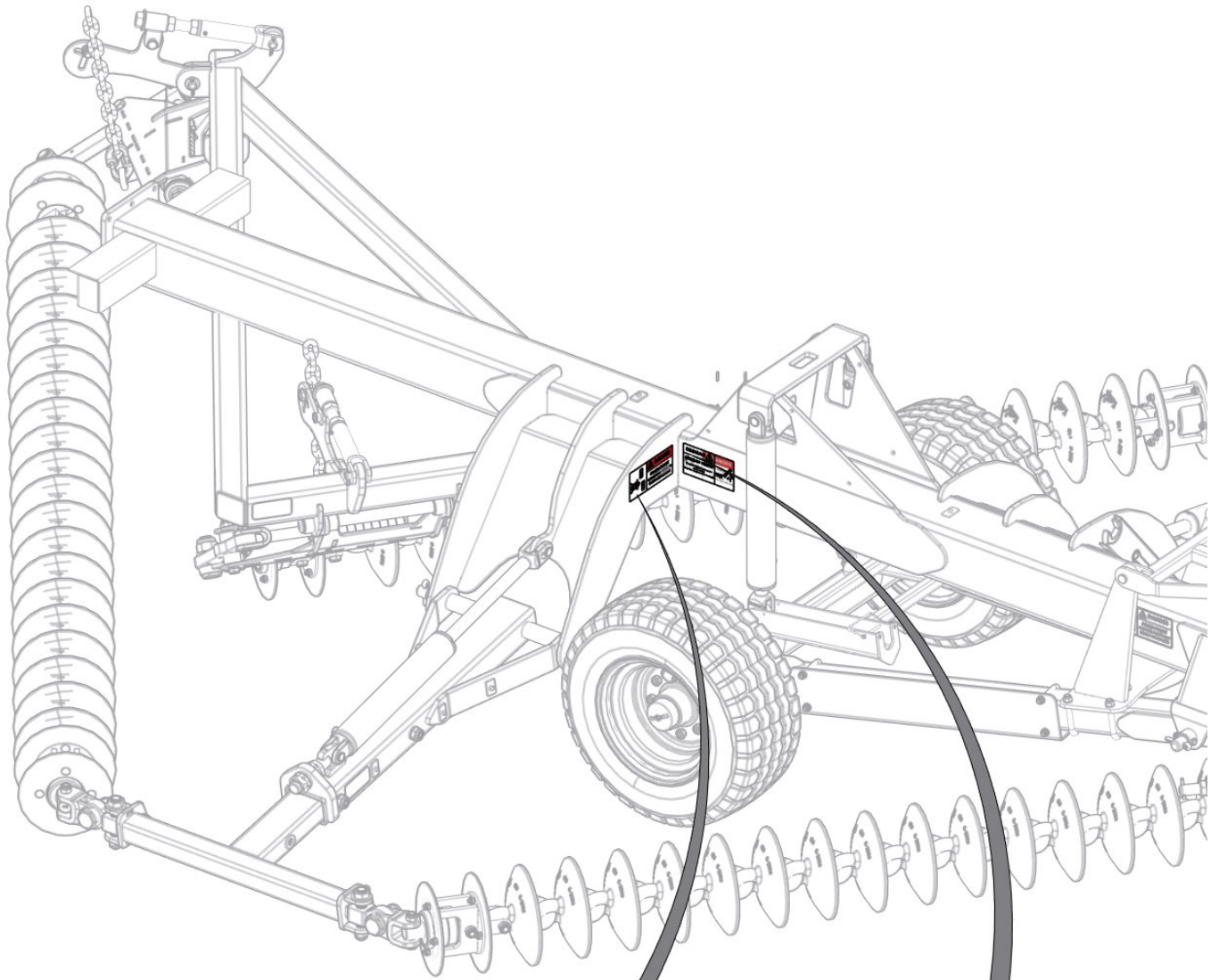
SECTION 6
SAFETY DECALS

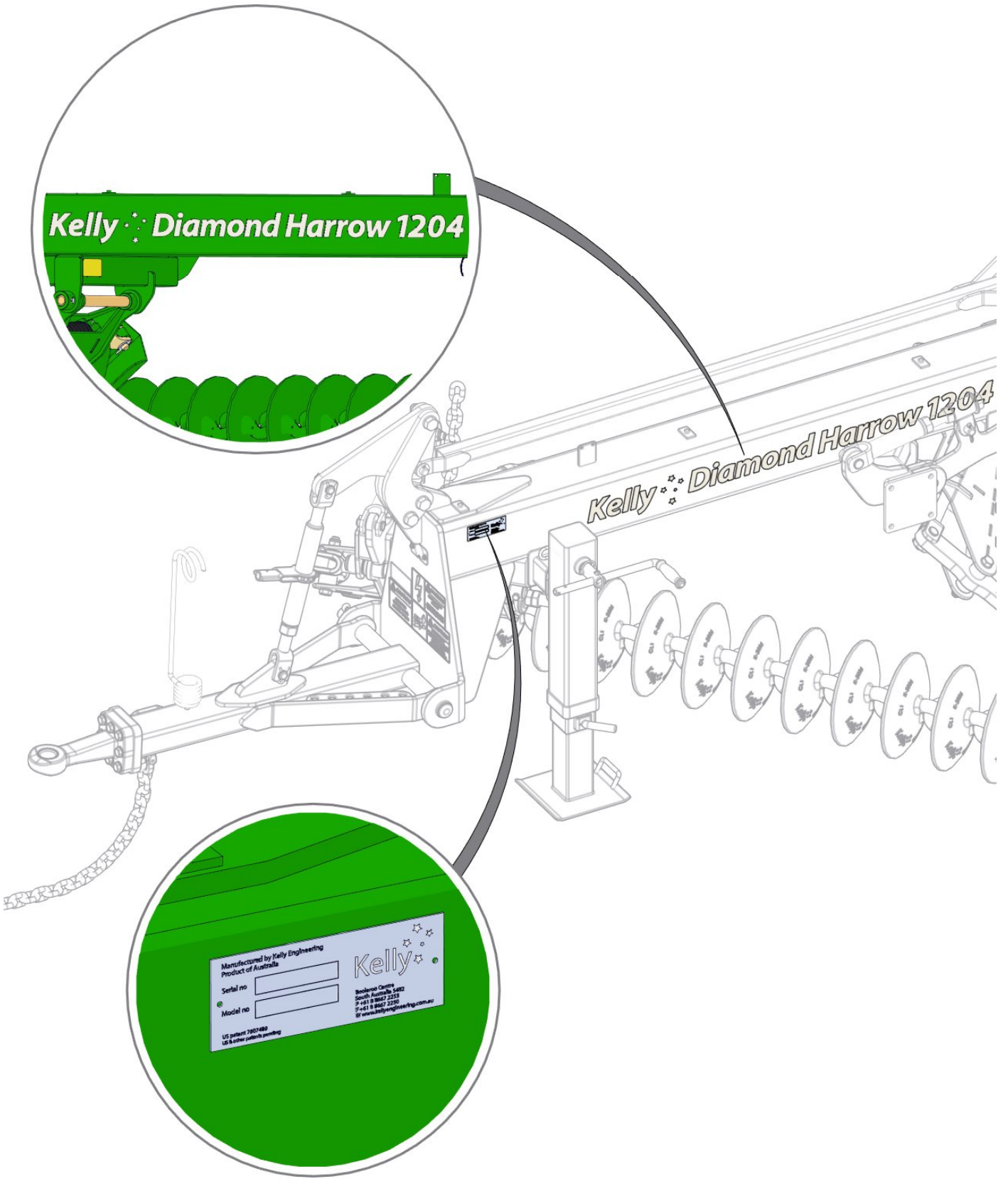
SECTION 6 SAFETY DECALS

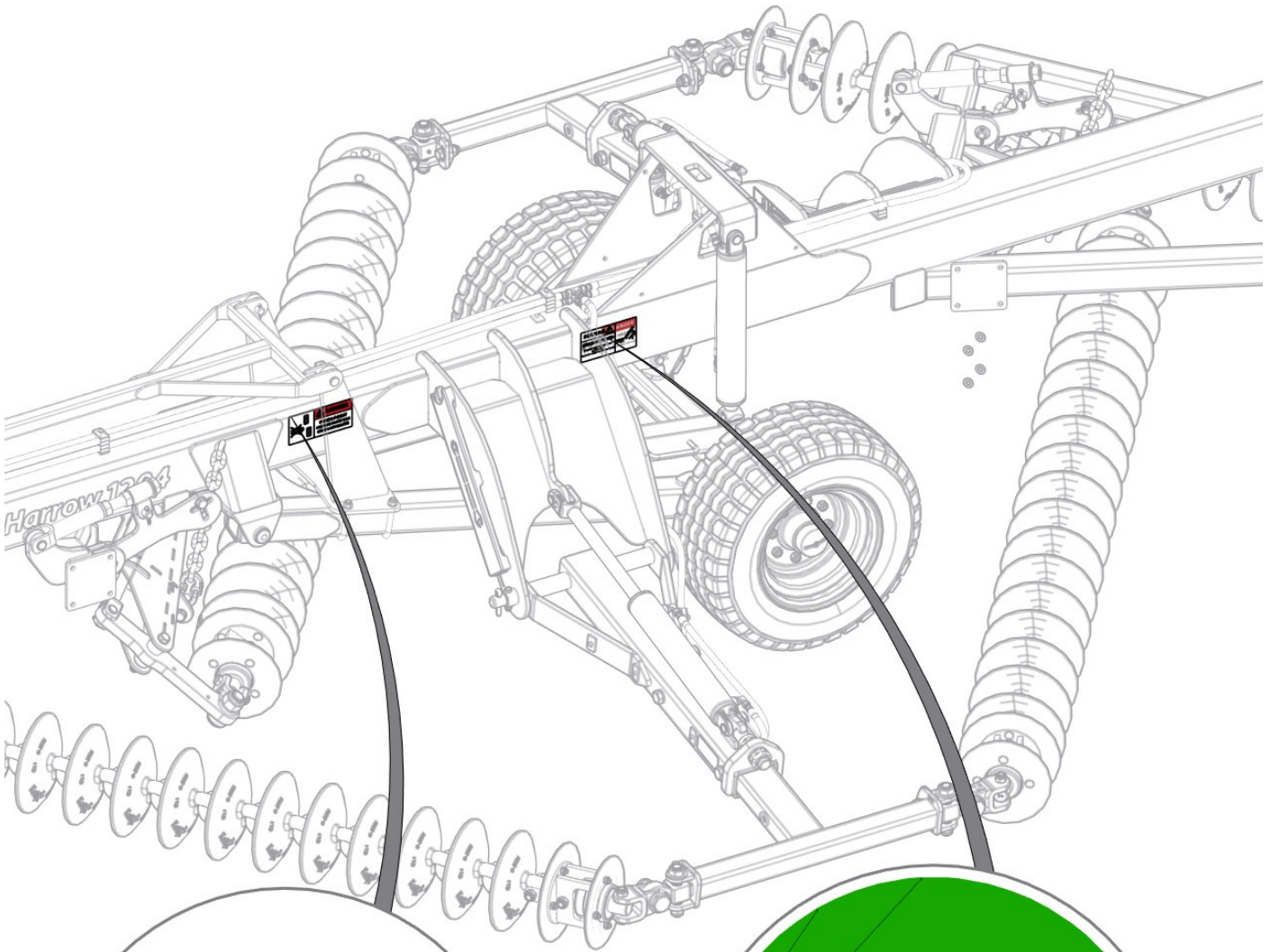
Individual placement



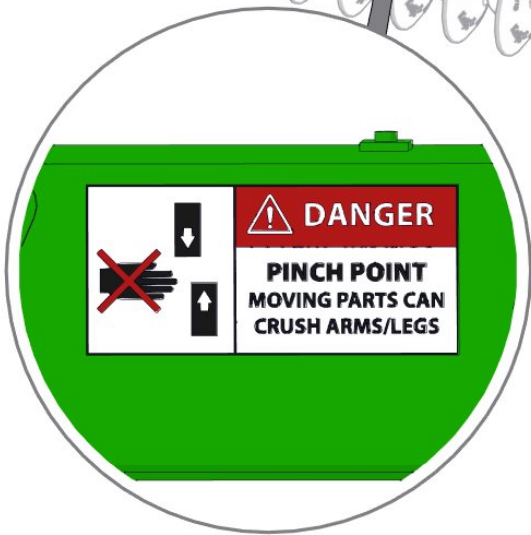


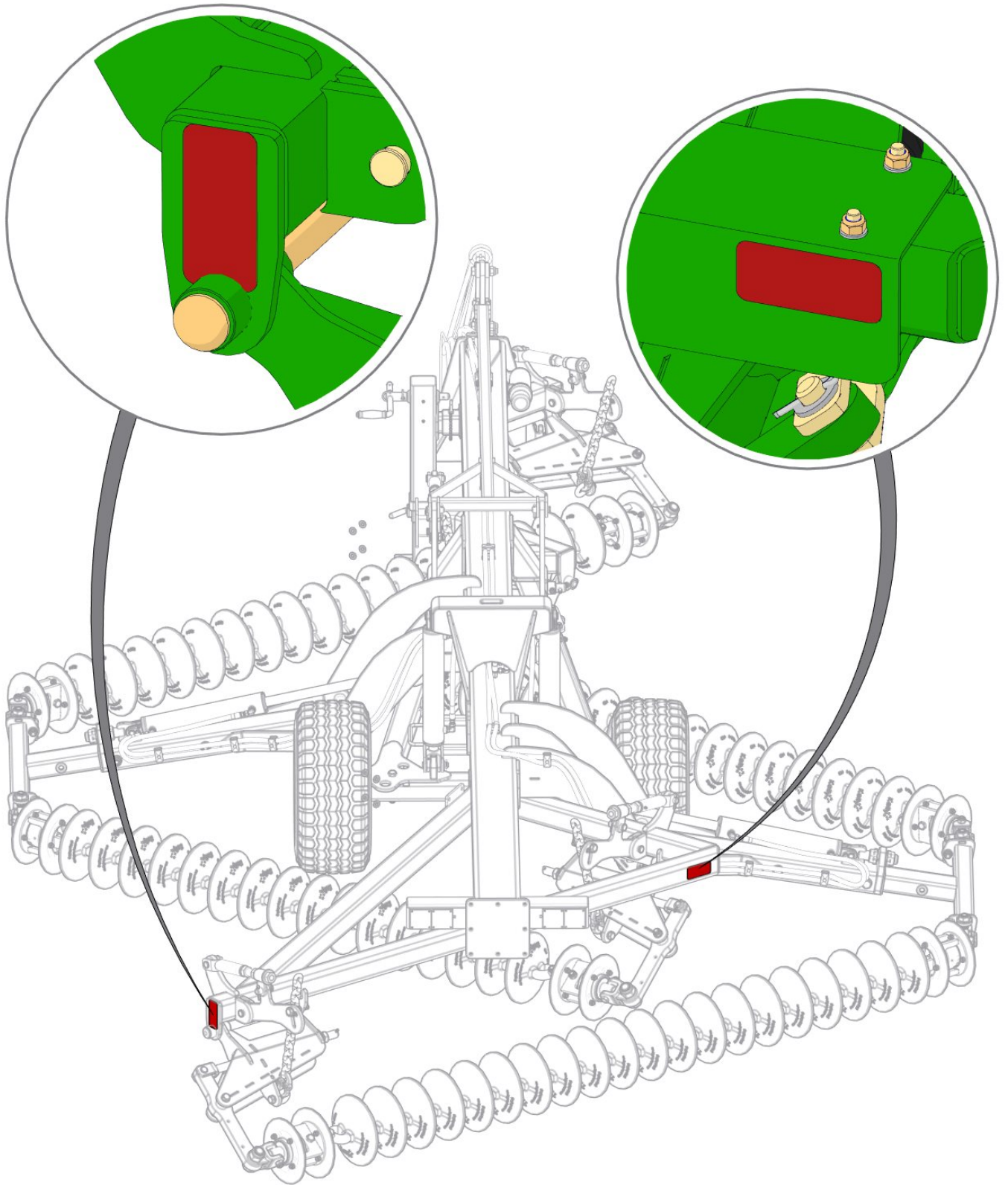


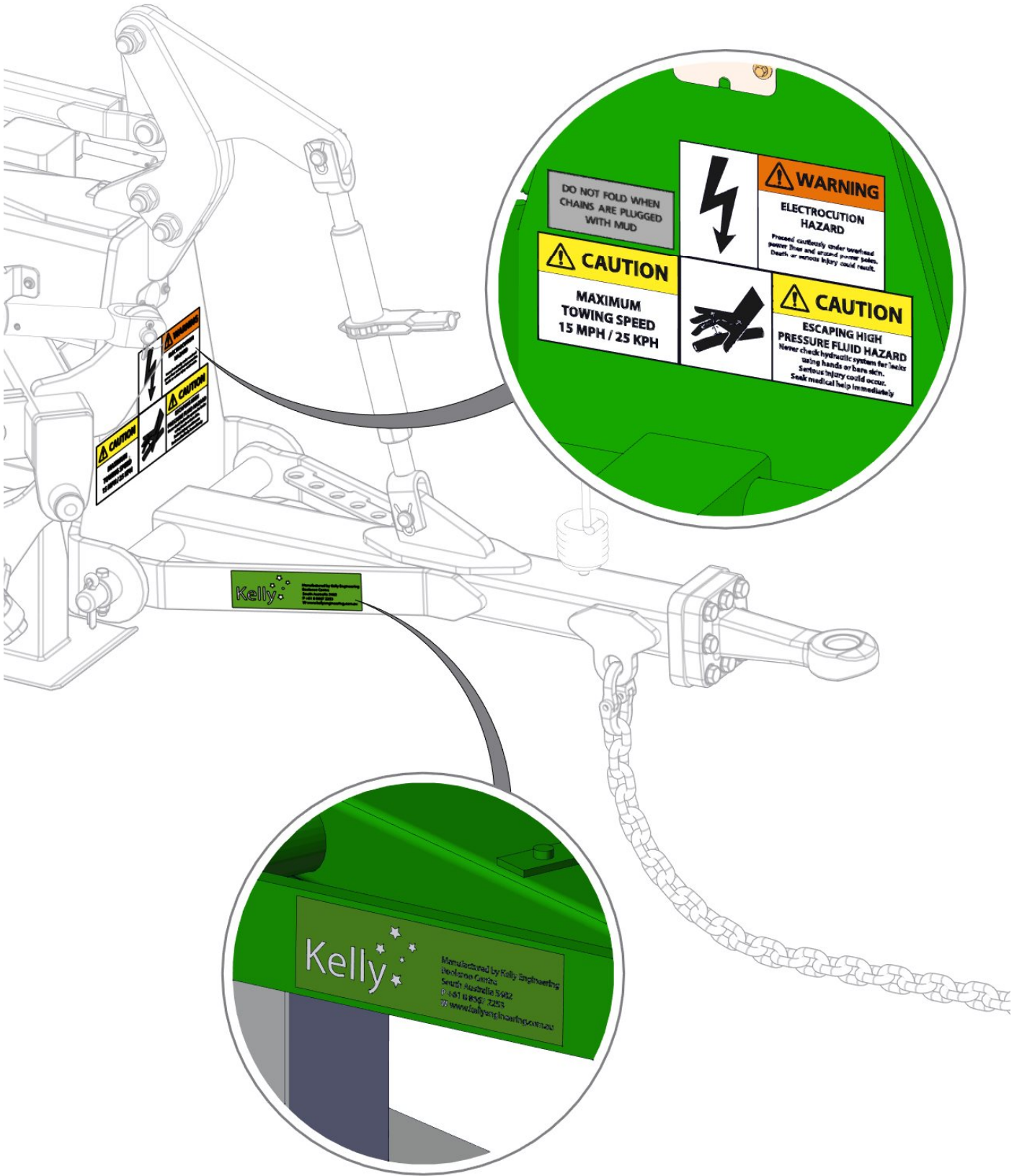




Harrow 1234









SECTION 7

PRE-DELIVERY CHECKLIST

SECTION 7 PRE-DELIVERY CHECKLIST

Pre-delivery checklist

Check Item:	Checked by Initial
Hydraulic hoses are routed through holders and fitted to cylinders with no leaks	
All bolts and nuts are tightened to the correct torque values and marked.	
All split pins are inserted and split	
All safety signs and decals are in the correct locations as per the Assembly/Operator's manual	
All safety lights are in the correct locations and working	
All tires are fitted correctly and inflated to correct pressure	
All wheel nuts are tightened to the correct torque and marked	
Swivel Units are correctly orientated	
Grease all marked locations	
Disc roll pins/locking bolts are installed in the discs (CL1, CL2 and K4 only)	
Check the chain tension as per Operator's manual	
Machine is registered for warranty	
Customer has been shown the website and how to access parts information	
Operator's manual has been provided with the machine	

Completed Pre-Delivery Checklist to be returned to warranty@kellytillage.com within 7 days of delivery to the customer.

Name:	
Signature:	
Date:	

Notes

Notes

