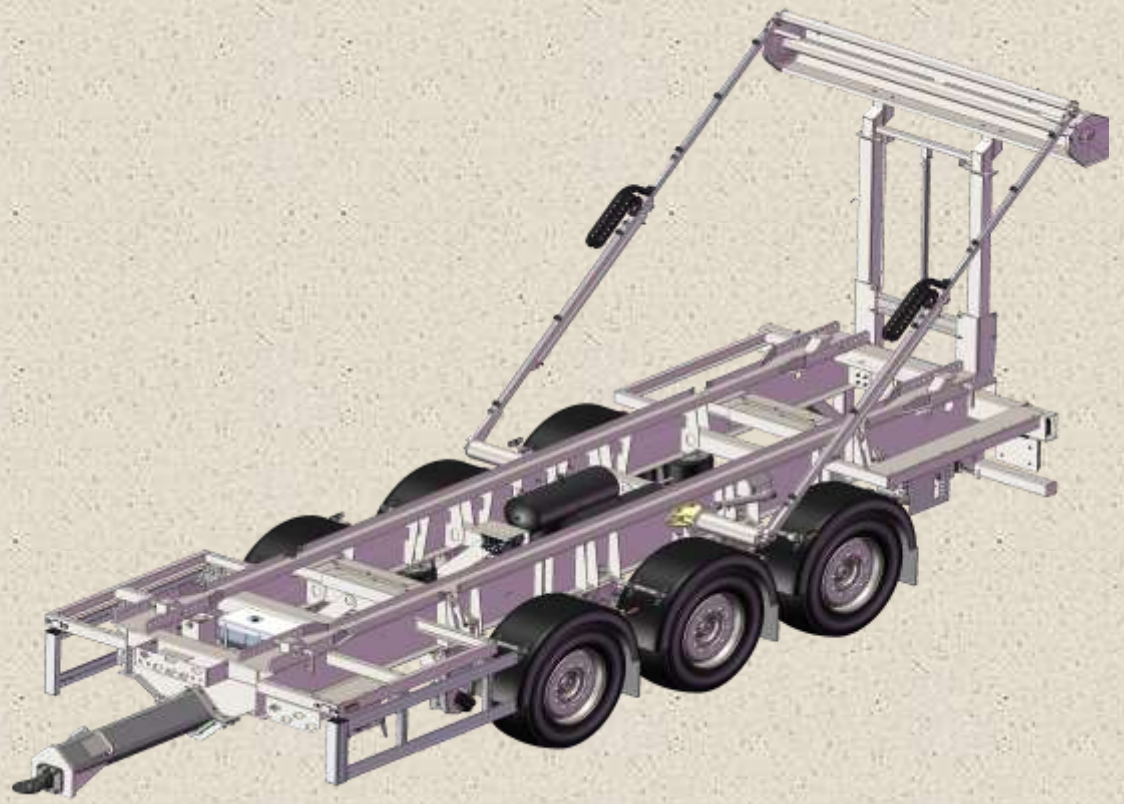
Boughton Engineering Limited



Operation & Maintenance Manual

CCT

Close Coupled Tri-axle Trailer.

Incorporating Optional

Kwikcova CM Sheeting System

"Over a century of British Engineering experience"

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ERN - T5254MOD017

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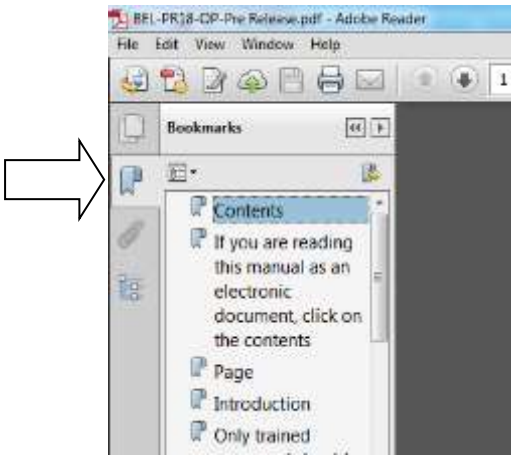

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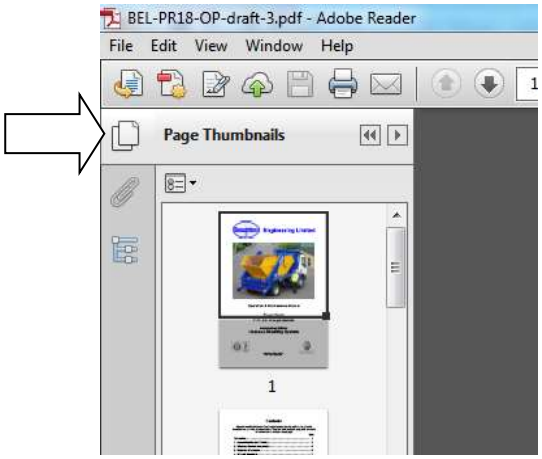

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Introduction

This manual has been produced, by Boughton Engineering Limited, to ensure that users of the Close Coupled Tri-axle (CCT) trailer have all the information required to operate the equipment safely.

It is the responsibility of the operator's management to ensure that all health and safety requirements, relating to the use of this equipment, are assessed and that all personnel who use the equipment are aware of its functionality and limitations.

Only trained personnel should use this equipment.

All users of the equipment should be made aware of the location of the manual and should be instructed to read through and familiarise themselves with its contents prior to operating the equipment.

The following symbols have been used, in this publication, to bring certain items relating to safety to the attention of the user of the equipment: -

Highlights a risk to personnel or the general public which could result in serious injury or death.

Highlights a risk to the equipment due to improper use.

Please take note of these symbols and take action to avoid unsafe operation of the equipment.

The information contained in this manual is correct at the date of publication.
Boughton Engineering Limited reserves the right to modify the design and/or construction of its products, at any time.

1. General Function and Limitations

The CCT Trailer is designed for transporting materials contained in CHEM Standard or similar demountable containers. The trailer is fitted with a retractable towing beam which, when coupled to a towing vehicle and fully retracted, allows containers to be transferred from the towing vehicle onto the trailer or from the trailer onto the towing vehicle.

NOTE: This equipment you are using has been supplied to meet your specific requirements. Please ensure that only containers which meet the requirements of the original specification are used with this equipment.

Before commencing transfer ensure that the container dimensions are compatible with the equipment and that the container is in sound condition.

WARNING
Failure to observe the limitations of the equipment and using non-approved demountable containers may result in serious injury and/or damage to the equipment.
NEVER use this equipment to carry persons or animals.

When driven on the road the towing beam is extended and locked in the driving position allowing the vehicles to operate as a normal drawbar combination.

WARNING
Failure to observe the maximum permitted payload and/or plated axle loads may result in instability of the equipment during loading and unloading and/or instability of the vehicle when driving. Serious injury or damage to the vehicle may result.

The maximum permitted payload, for which this equipment is approved carry, is limited by the legislated maximum axle loads and imposed load on the towing hitch. Check the manufacturers serial number plate and the DVSA plating certificate to ensure that the vehicle remains within the permitted maximum weights.

Due to the variety of container sizes that may be loaded, responsibility to ensure that the vehicle axle and imposed loads remain within the limits specified by the chassis manufacture and meet the requirements of any applicable legislation remains with the driver.

Failure to observe plated and legislated axle loads may result in prosecution and /or damage to the vehicle.

Boughton Engineering Limited has designed and manufactured this equipment to meet all relevant safety regulations. The equipment design has taken into account ease of operation and maintenance.

WARNING
Always keep clear of moving parts when operating the vehicles hydraulic systems and when transferring containers. Failure to observe this warning may result in serious injury from pinching and crushing hazards.

As with all machinery, during operation there are moving parts which pose a risk of pinching or crushing. Always apply the clearance zone rule, Section 6 point 3, when operating the equipment, to ensure that any risk to the public or animals is limited.

The operator of the equipment should also consider pinching and crushing hazards and keep clear of all moving parts.

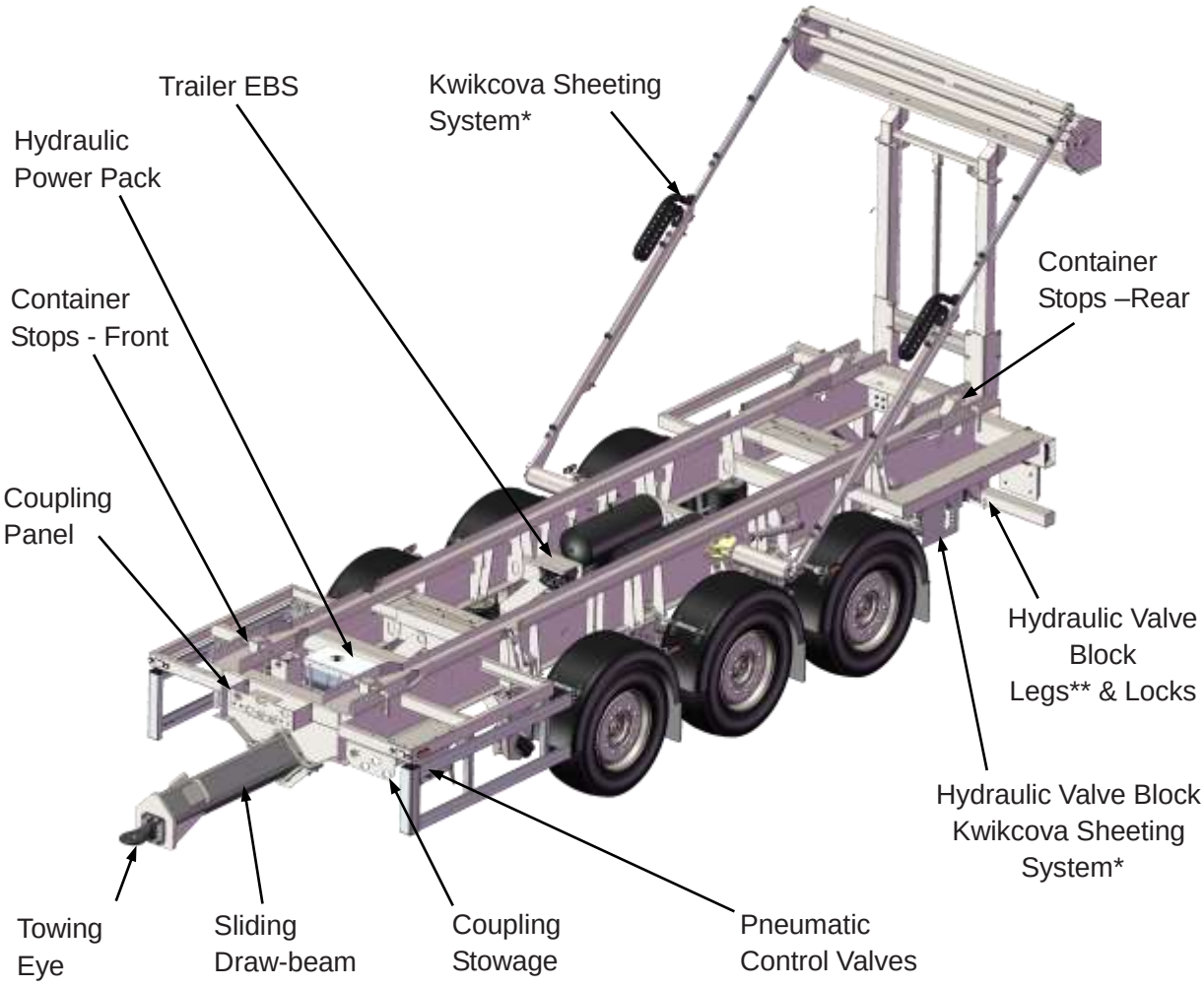
Any maintenance required on the trailer should be carried out by a qualified technician.

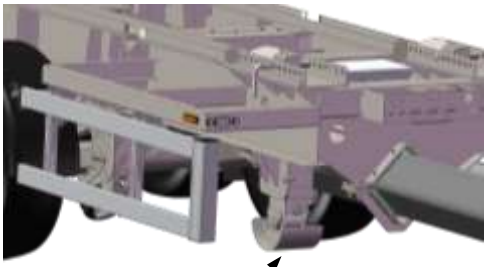
Spare parts used during repair and maintenance procedures must be approved by Boughton Engineering Limited.

Please refer to the equipment maintenance section of this manual, Section 8, and the CCT trailer spare parts catalogue for information on procedures for maintaining the equipment in a safe operational condition.

WARNING
Correct maintenance of this equipment is essential for safe operation. Always maintain the equipment to the schedule prescribed in the maintenance manual.
NEVER operate the equipment if there is a known fault. Take the trailer out of service and affect a repair before returning into service.
ALWAYS use approved spares and recommended fluids and lubricants. Non-approved items may seriously affect the performance and will increase the risk of a failure which may result in serious injury or damage to the equipment.

2. CCT General Arrangement





Option 1 - Hydraulic Leg

Option 2 - Manual Leg

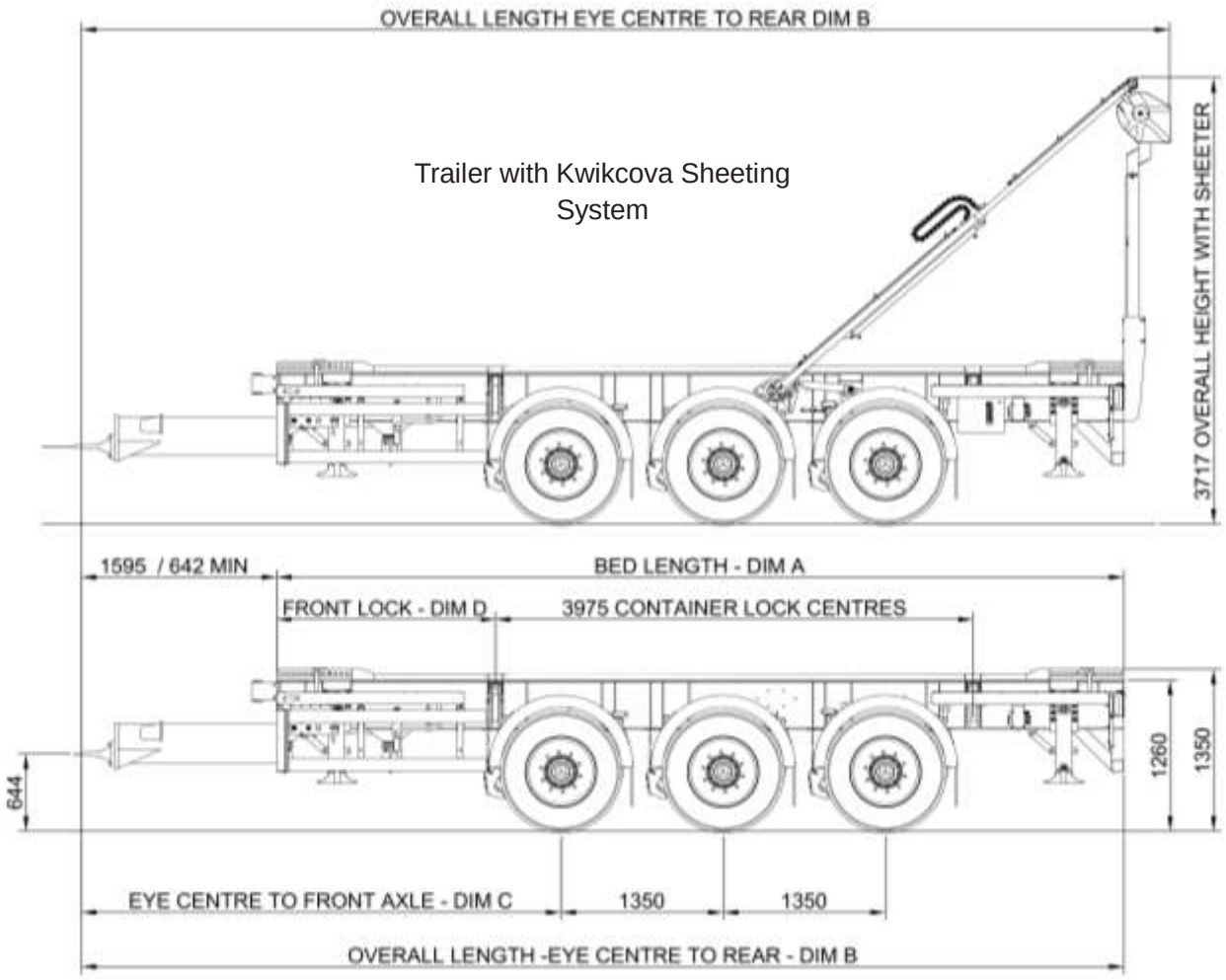
Trailer Specification: -

Number of Axles -	3.
Suspension -	Air - C/W raise/lower.
Lift Axles -	Front auto lift.
Brake -	Disc on all axles.
Brake System -	2-Line with EBS.
Park Brake -	Centre/Rear axle.
Lighting -	24V
Support Legs** -	Hydraulic.
Option -	Manual.
Container Locks -	Hydraulic.
Draw-beam -	Retractable.
Towing Eye -	57.5mm VBG
Option -	50mm VBG
Sheeting System* -	Boughton Kwikcova

*Sheeting system is optional.
**Valve for leg control only with hydraulic legs.

3. CCT Dimensions

The dimensions shown below are for guidance purposes only and are for standard CCT Trailers. Always check your trailer dimensions when considering the suitability of containers to be transported and limits on access.



Dimension Table

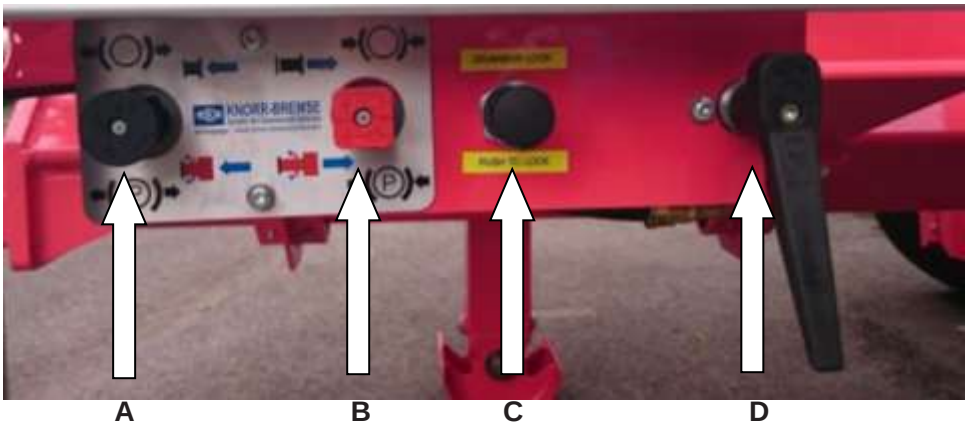
Trailer Type	Dim A (mm)	Dim B (mm)	Dim C (mm)	Dim D (mm)
20 ft Standard	6500	8096	3685	1545
20 ft With Kwikcova Sheeting System		8481		
22 ft Standard	7050	8645	3960	1820
22 ft With Kwikcova Sheeting System		9031		

	Plated Weights (kg)
Gross Vehicle Weight	24000
Max Axle Load - Axle 1	8000
Max Axle Load - Axle 2	8000
Max Axle Load - Axle 3	8000
Max Imposed Load	827/1000

4. Main Control Overview

Pneumatic Control Valves

The CCT trailer is equipped with a valve panel on the left hand (nearside) front of the vehicle. The valves on the forward panel control the trailer brakes, suspension and the draw-beam locking pin. See below: -



WARNING

Trailer service brakes are automatically applied when the red emergency (supply) line is uncoupled from the trailer. The park brake MUST be applied to ensure safe braking of an uncoupled trailer.

When re-connecting the emergency (red) brake line ensure that the park brake is applied. Only release the park brake when the trailer has been coupled to the towing vehicle towing hitch.

Re connecting the emergency (red) brake line with the trailer uncoupled and the park brake released may result in the trailer moving unexpectedly resulting in a crush hazard which may cause serious injury or death and may cause damage to the trailer and/or towing vehicle.

Valve Control A

Shunt Valve - Can only be operated when the red emergency (supply) line has been disconnected from the front of the vehicle.

To shunt a vehicle the park brake must be released (off) see valve B. Push the shunt valve, A, in to release the brakes allowing the vehicle to be moved without the air lines connected.

The shunt valve is reset to the "service brake on" position when the red emergency line is re-connected and air is supplied to the trailer.

Valve Control B

Park Valve - Allows the trailer handbrake to be applied or released. The park brake should always be applied when the trailer is parked.

The park brake must be released when the trailer is being towed.

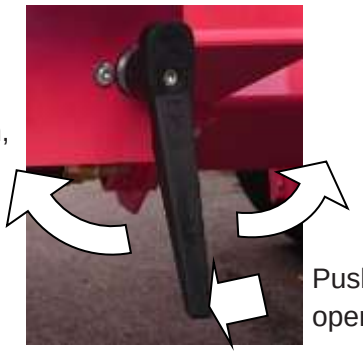
The park brake must be released when the trailer is being moved using the shunt facility.
Push the park button in to release the park brakes.
Pull the park button out to apply the park brakes.

WARNING
Never operate the trailer on highway without first ensuring that the draw beam lock has been applied and that the draw beam is locked in the fully extended position.
An unlocked draw beam will result in unstable towing and a risk of the towing vehicle and trailer or loaded containers colliding.

Valve Control C
Draw-beam Lock - Operates the pin which locks the draw beam in the extended (driving) position.
The lock must be released when the operator wishes to retract the draw beam when loading a container.
Pull the draw beam lock button to release the lock.
The draw beam lock must be applied and the draw beam fully extended when the trailer is to be driven on the highway.
Push the draw beam lock button to apply the lock.

CAUTION
Never drive the trailer at speed or over a rough surface without checking that the suspension is at its normal ride height.
Trailers with spensions which have been raised or lowered should only be operated at very slow speeds and rough ground should be avoided. Failure to observe these restrictions may result in damage to the trailer structure or components.

Valve Control D
Suspension Raise/Lower Valve - Controls the air supply to the suspension airbags.
To operate the valve, push the handle in and rotate: -



To stop the raise/lower operation the handle should be allowed to return to the centre position. When in the centre position the suspension will remain at a stable height until further input.

On completion of the raise/lower operation the handle should be pulled out. When in the out position the suspension will return to the pre-set ride height.

The raise/lower valve is equipped with an automatic return to ride height function.
If the operator fails to pull the handle out (reset position) the valve will automatically reset when the trailer reaches 15 km/h.

Axle Lift Valve (Not shown)
In addition to the manual control valves the CCT trailer is fitted with an automatic axle lift valve. The lift valve is controlled by signals sent from the trailer brake ECU. The lift and lower parameters are programmed into the ECU, prior to the trailer leaving the factory, and cannot be altered.
The front axle will automatically raise when ECU determines that the trailer load is low enough to allow for tandem axle operation. The axle will automatically drop when the ECU determines that the trailer load requires tri-axle operation to comply with legislated axle loads.
The ECU uses the suspension bag pressures to determine the actual axle loads.
NOTE: When the trailer EBS plug is disconnected from the trailer the ECU is powered down and, if raised, the lift axle will lower. Re-connection of the EBS plug will power up the ECU. If axle loads allow for tandem operation the lift axle will automatically raise.

Hydraulic Control Valves

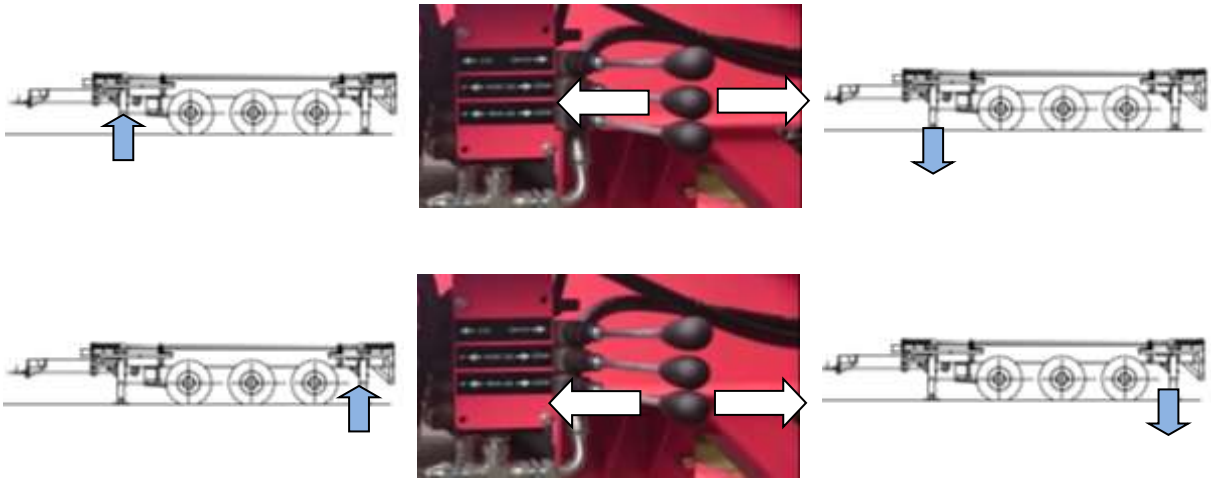
The CTT hydraulic controls are located at the rear of the trailer on the left hand, near) side. The configuration of the valves fitted will depend on the specification of the trailer. The hydraulic valves control the container locks, support legs (if hydraulic type) and the Kwikcova sheeting system (if fitted). See below: -

* If hydraulic legs fitted.
** If sheeting system fitted.

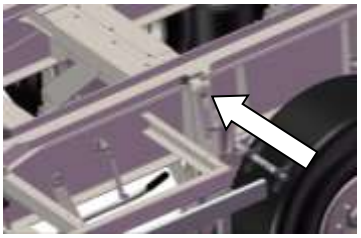
To operate the trailer hydraulics the hydraulic power pack must be powered up from the towing vehicle. Connect a power cable from the towing vehicle to the socket on the right hand (off) side of the coupling panel.

Hydraulic Power Pack
Power Supply Socket

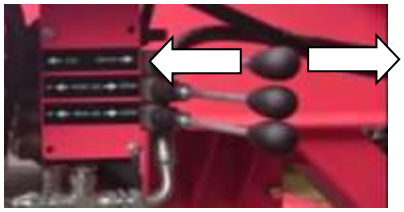
For vehicles fitted with hydraulic support legs: -
Raise and lower the support legs by pressing in the hold to run button and operating the relevant handle.

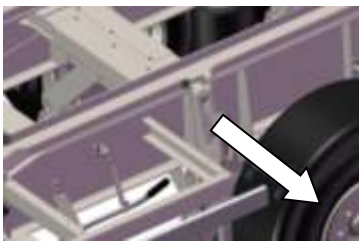


To operate the container locks, press the hold to run button and operate the relevant handle.



Container Locks On





Container Locks Off

For vehicles fitted with the Kwikcova sheeting system press the hold to run button and operate the relevant button.

1) Retract telescopic arms.

2) Extend telescopic arms.

3) Rotate arms rearward - stow sheet.

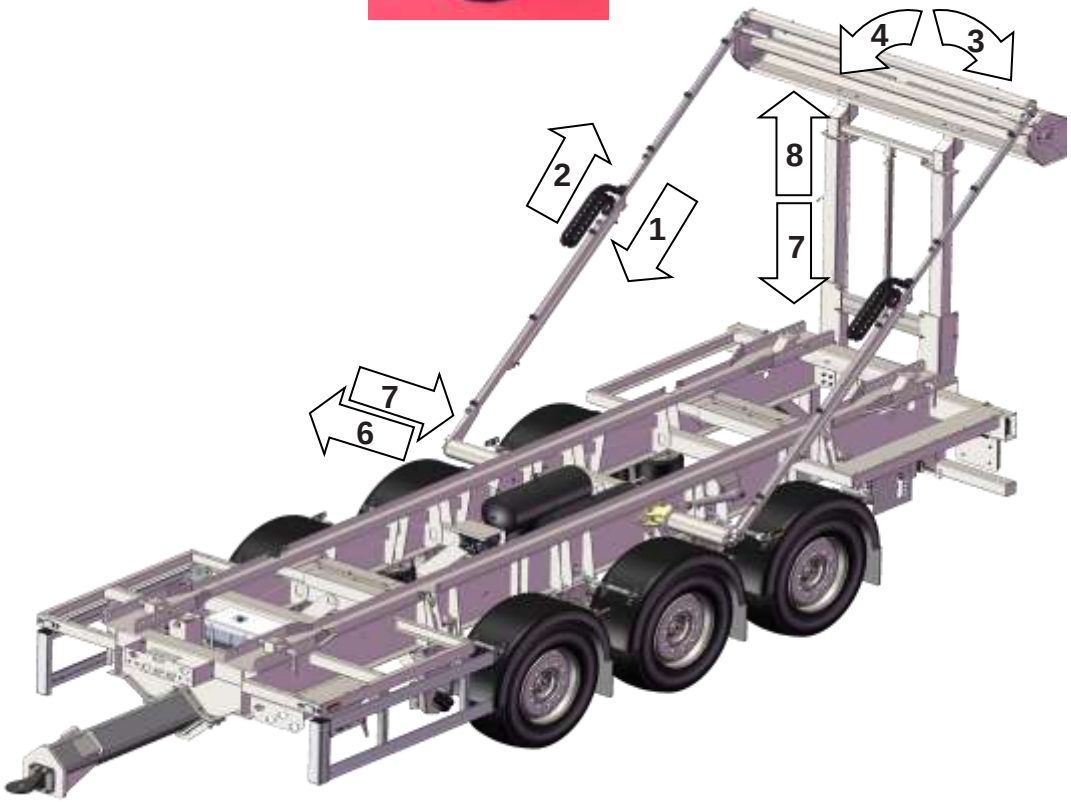
4) Rotate arms forward - deploy sheet.

5) Move arms inboard.

6) Move arms outboard.

7) Lower Mast

8) Raise Mast



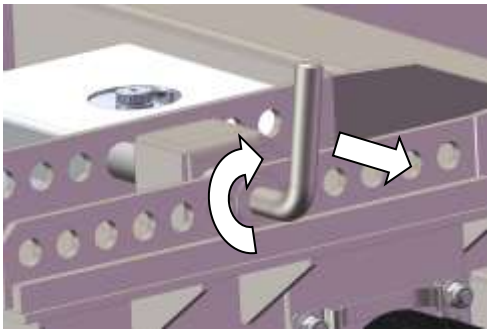
Kwikcova Functions - Operated from Control Block

5. Adjustable Container Stops

The CCT trailer is fitted with container guides which ensure that the container is guided onto the trailer correctly. At the front and rear ends of the container guides the trailer is fitted with stops which should be positioned against the container to prevent forward or rearward movement when in transit.

The container stops can be moved to allow for different container sizes and locations on the trailer guide rails.

To move the container guides the retaining pin must be rotated so that the handle is at the 12 o'clock position and then pulled out to release the stop block.

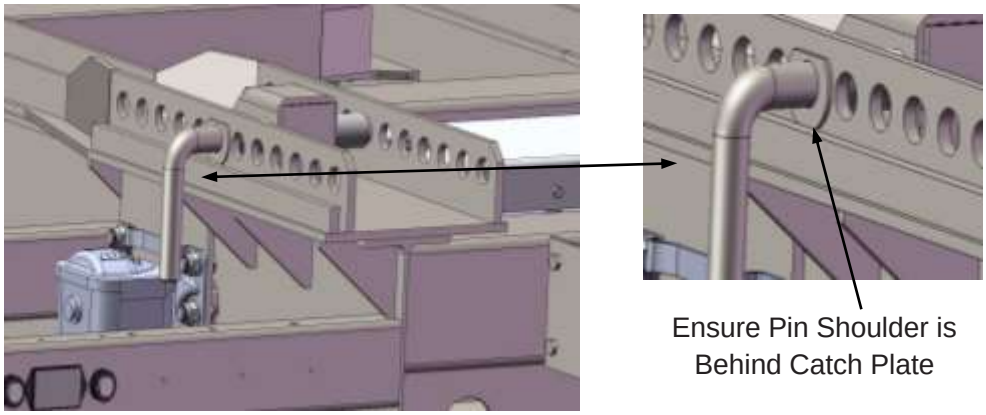


With the pin removed the stop block can be slid forward or backward to the desired location.

When in the correct position, the stop block should be adjusted to line up with the nearest hole in the guide plate and the pin should be re-inserted.

To install the pin, just before it is fully inserted, the handle must be rotated to the 12 o'clock position and then the pin should be pushed fully in so that the pin shoulder is against the outside of the guide plate.

Turn the handle to the 6 o'clock position (pointing down) and ensure that the pin shoulder is behind the catch plate and that the pin cannot be pulled back out.



Container Stops Locked in Position

6. General Safety Checks Prior To Operating

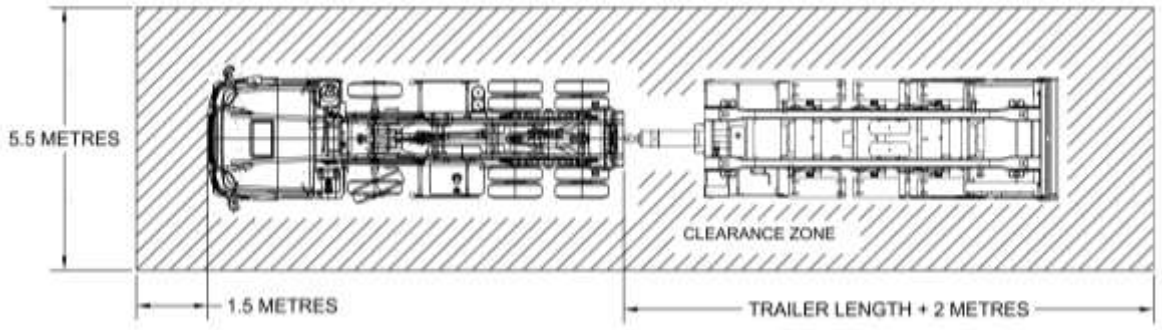
WARNING
NEVER operate the equipment if there is a known fault. Take the trailer out of service and affect a repair before returning into service.
Only qualified technicians should carry out repair of faulty equipment.
Continued use of faulty equipment may result in serious injury, death or damage to the equipment.

Refer to the Maintenance - Daily Checks by the Vehicle Operator (Driver) section in this manual for checks which should be carried out by the driver prior to operating this equipment.

When transferring a container onto or off the CCT trailer it is essential that all precautions are taken to ensure the safety of the driver and the public.

Operators of commercial vehicles will have procedures in place to minimize risks. These procedures should always be followed. In addition, the following safety checks are specific to container transfer operations and should be carried out prior to any transfer operations: -

1. A general visual inspect of the CCT equipment should be undertaken. Walk around the trailer looking for any signs of damage to components.
   Look for patches of fluid under the trailer. If fresh fluid is detected inspect the area above the patch to see if there are any leaks.
   If damage or leaks are detected take the vehicle for repair by a qualified technician.
2. Before transferring a container check the ground onto which the vehicle must drive and the ground on which the trailer is parked to ensure it is stable enough to support the loads imposed through the stabilising legs.
   The ground should be essentially level. Although the stabilising jacks will level off a limited amount of inconsistency, in ground level, excessive slopes may result in an unstable transfer.
3. Ensure that the area around the trailer and hook loader equipped vehicle is clear. DO NOT carry out a transfer operation if any person or animal is close to the vehicle or trailer. It is recommended that a 1.5 metre clearance zone, around vehicle and trailer, is applied.



4. Check the area above the vehicle and hook loader equipment. DO NOT lift the container, during the transfer sequence, if there is any risk of a collision.
5. Check the container, prior to transfer, to ensure that it is in sound condition. Take particular note of the condition of the lifting bar.
6. If loaded check that the load is safely inside the container and cannot fall out during transfer.
   It is the operator's responsibility to ensure that a container is not overloaded. Check the load. If there is any doubt that the container may be overloaded DO NOT attempt a lift.
7. If visibility is restricted do not carry out operations without the assistance of a banksman.
8. If working in poor visibility activate work lamps if fitted. Switch off work lamps on completion of the operation.

7. Operating the CCT Trailer

Prior to starting operation read through the "General Safety Checks Prior To Operating" section 6.

7.1 Driving with the CCT Trailer

WARNING
When coupling the trailer to the towing vehicle always ensure that the trailer park brake is applied. Do not release the park brake until the coupling process is complete to avoid any situation where the trailer service brakes release and the trailer moves unexpectedly.
Unexpected movement of the trailer may pose a crushing hazard causing injury or death and/or may result in damage to the towing vehicle.

For correct and safe coupling of the trailer to the towing vehicle refer to the towing hitch manufacturers instructions.

- Before driving on the road ensure that the trailer draw-beam is in the fully extended position and the draw beam lock is engaged.
  To check engagement, reverse the trailer and check that the draw-beam does not retract.

- Before driving on the road ensure that the support legs are fully retracted.
  For hydraulic legs - it will be necessary to power up the hydraulic power pack and to operate the support leg control levers to raise the support legs. Ensure both legs are raised.
  For manual legs - it will be necessary to wind the legs up using the winding handles. Ensure both sets of legs are raised.

- If a container is loaded on the trailer, before driving on the road, ensure that the container locks are on.

- If a container is loaded on the trailer, before driving on the road, ensure that the container stops are adjusted so that they are as close as possible to the front and rear of the container.

WARNING
For the CCT trailer to operate correctly and safely all brake and electrical connections must be made between the towing vehicle and the trailer.
Failure to ensure that all connections are made may result in the trailer brakes not operating correctly and/or the trailer lights not functioning.
Driving the trailer may result in an accident causing injury or death and/or damage to the trailer.

The Boughton CCT trailer is fitted with a 2-line pneumatic brake system which operates the trailer brakes via the EBS module.

- For the brakes to operate correctly the air lines and the EBS electrical suzie must be connected between the towing vehicle and trailer.

The CCT trailer is fitted with 24 Volt lights which are powered from the towing vehicle.

- For the trailer lights to operate the electrical suzie (s) must be connected between the towing vehicle and the trailer.

Please note that the actual connectors used to supply air and electrical power to the trailer may vary depending on the towing vehicle specification. Check the following are connected before driving: -

1) Pneumatic emergency (red) line.
2) Pneumatic service (yellow) line.
3) Electrical EBS plug (ISO 7638).
4) Electrical plug(s) for lights. For 24S / 24N systems this will require the connection of two plugs.

Typical Couplings
(24N/24S electrical connections and "C" type pneumatic connections)

WARNING

Before driving the combination away ensure that the following checks have been made:-

1. **Container locks are on.**
2. **Where a container is fitted the container stops are positioned against the bin and the pins are inserted.**
3. **Support legs are retracted (in the up position).**
4. **Trailer park brake is released.**
5. **Drawbeam is in the fuly extended position and the drawbar lock is engaged in the drawbar.**
6. **Airlines (Service & Emergency) are connected to the trailer and towing vehicle.**
7. **Electrical connections are connected to the trailer and towing vehicle.**

Failure to observe the above points may result in an unstable and unsafe vehicle which may result in serious injury, death and/or damage to the vehicle.

When the trailer has been hitched to the towing vehicle, all electrical and pneumatic connections have been made and the support legs have been retracted the trailer park brake can be released.

- Before driving the vehicle, it may be necessary to build up pressure in trailer reservoirs. Run the towing vehicle engine to charge the reservoir and release the trailer service brakes.

- Before driving on the road ensure that the EBS warning light is working correctly. When the ignition is switched on the in-cab warning light should flash for approx 2 seconds and then will be extinguished. If the light remains on there is a fault with the trailer braking system and the trailer should be taken out of service and repaired.
  If the in cab EBS warning light illuminates during driving a fault has been detected and the trailer should be taken out of service and repaired.

The towing vehicle and trailer can now be driven safely on the road.

7.2 Parking Trailer Up

When unhitching the trailer ensure that the location chosen is suitable. The ground should be level and firm enough to support the load applied through the support legs.

WARNING
For trailers uncoupled from the towing vehicle and left parked up the support legs must remain extended and the park brake must be applied. Failure to observe these requirements may result in the trailer moving unexpectedly

When the trailer is in the correct position for unhitching apply the trailer park brake.
Note: Disconnecting the red (supply) air line to the trailer will automatically result in the trailer service brake being applied. To avoid unexpected movement of the trailer, when the red line is reconnected, **ALWAYS** apply the park brake when parking up.

Disconnect the airlines and electrical connectors from the towing vehicle. Ensure that all connectors have been disconnected and stow them in the dummy sockets at the front of the trailer.

Disengage the towing hitch and move the towing vehicle forward to disconnect from the trailer.

If it is necessary to move a parked-up trailer it is possible to couple up to a towing vehicle with no capacity to provide air to release the trailer service brake.

If shunting a trailer, in this way, ensure that the trailer is coupled up to the towing vehicle and that the towing vehicle park brake is applied before operating the brake control valves on the trailer.

The support legs must be retracted before attempting to shunt the trailer.

Release the park brake and push in the shunt button to enable the trailer to be moved.

When the move has been completed pull the shunt button back out, apply the trailer park brake and extend the support legs before unhitching the trailer from the towing vehicle.

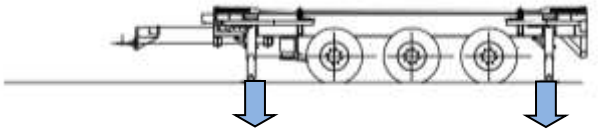
7.3 Transferring a Container onto the Trailer

Prior to starting operation read through the "General Safety Checks Prior To Operating" section 6, and assess the proposed transfer location to ensure that it is suitable.

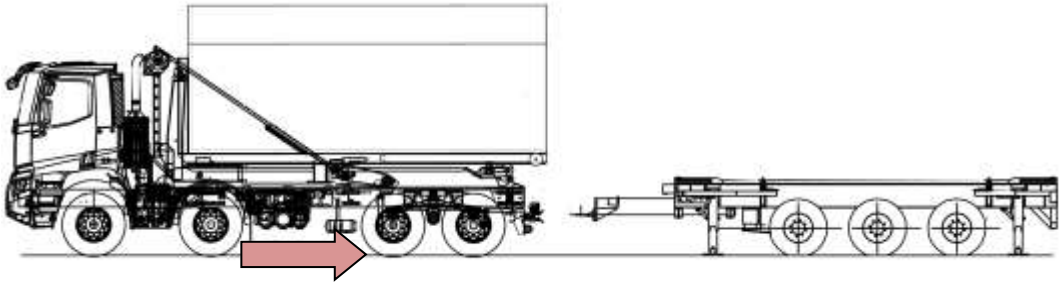
The main controls used during the transfer of a container are fitted to the hook loader vehicle. Before attempting a transfer, it is essential that the operator has read the hook loader operations manual and have familiarised themselves with the hook loader controls.

WARNING
During the transfer sequence the trailer hanbrake should remain on and the support legs should remain extended at all times. Failure to observe these requirements may result in the trailer becoming unstable and/or moving unexpectedly.

1. Ensure that the trailer is parked on level ground, the handbrake is on and the support legs are in the down position.



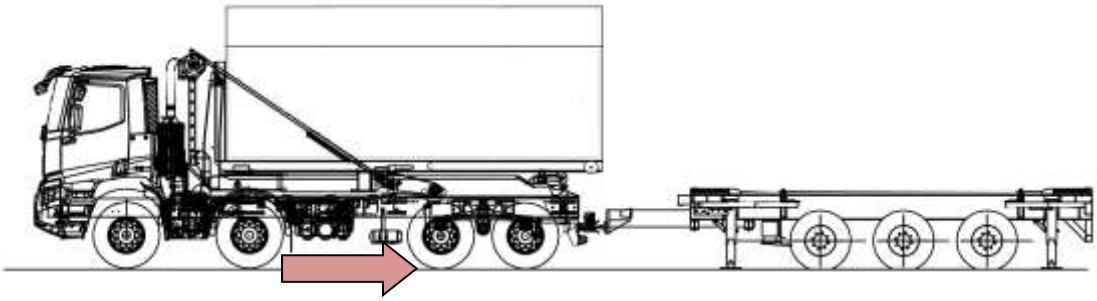
2. Reverse vehicle to within approximately 1m of the towing eye of the trailer. Ensure the towing vehicle is in line with the trailer.



3. Connect the air lines to the trailer to ensure that the system is charged and connect the two pin Anderson electrical connector to power the trailer hydraulic system.

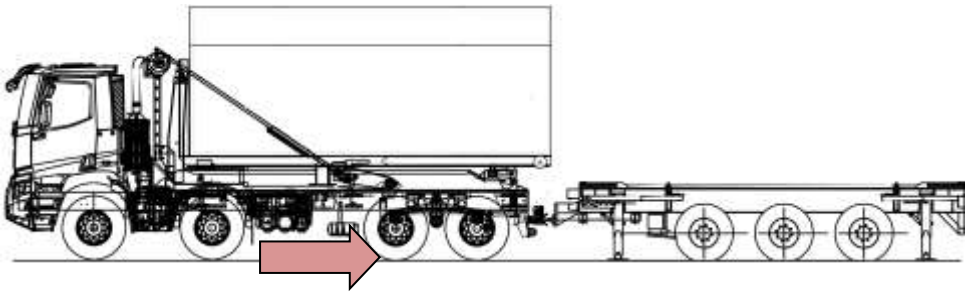
4. Adjust the height of the trailer using either the raise lower valve and/or the support legs. The towing eye should be adjusted so that the eye lines up with the jaws of the towing vehicle.

5. Slowly reverse the towing vehicle and engage the trailer towing eye into the jaw of the towing vehicle. Check that the hitch pin has correctly engaged in the towing eye.



6. Activate the drawbar lock valve to disengage the drawbar lock.

7. Reverse the towing vehicle to retract the drawbar. The towing vehicle should be reversed until the drawbar is fully retracted.

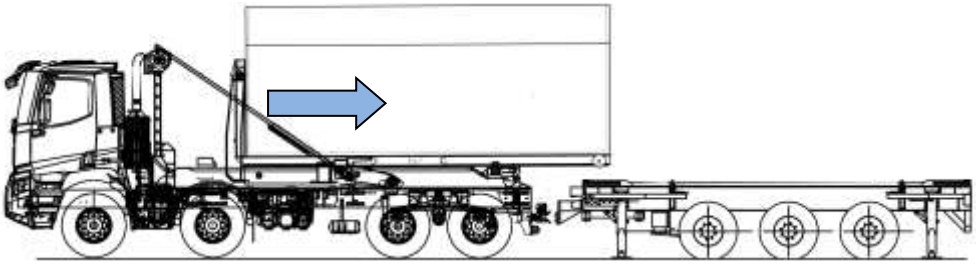


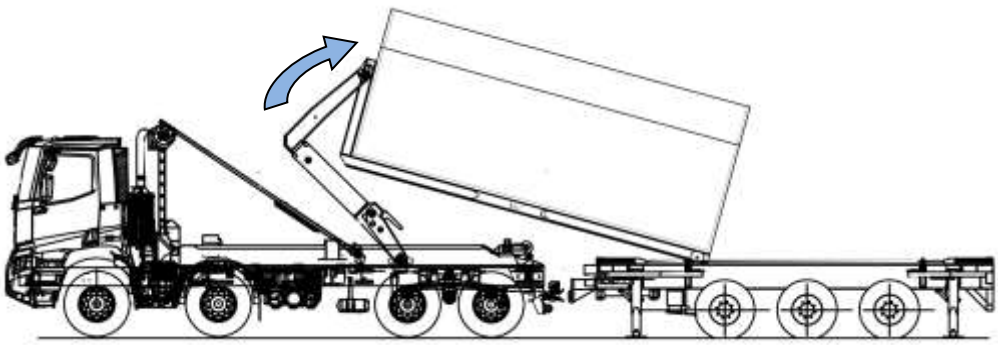
8. Remove the pins from the front container stops and slide them to the fully forward position. Re-fit the pins.

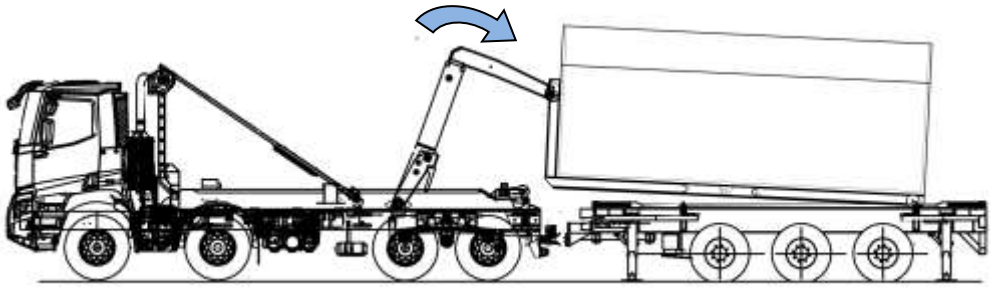
9. Remove the pins from the rear container stops and position to suit the container being transferred. Re-fit the pins.

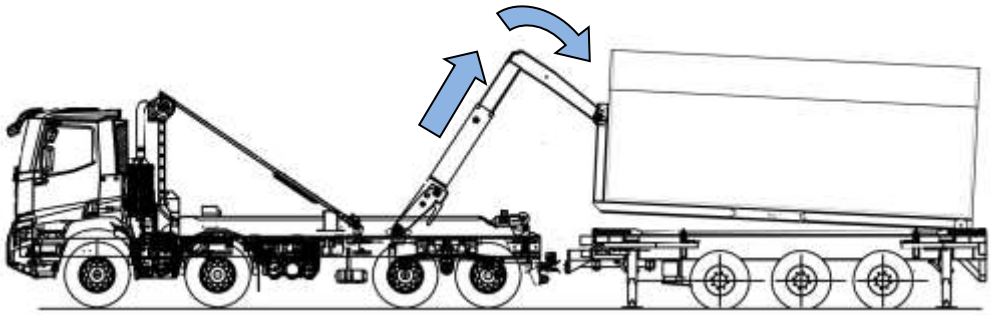
WARNING
When transferring the container onto the trailer the container frame rails must slide between the guides fitted to the trailer mainrail top flanges. If the container rails do not line up with the guides abort the transfer and reposition the towing vehicle. If the transfer continues with the container rails outside the trailer guides the container may slide off the trailer and result in serious injury, death or damage to the equipment.

10. Load the container onto the trailer using the towing vehicle hook loader system. Ensure that the container is correctly positioned so that it's frame rails slide down the trailer length between the container guides.

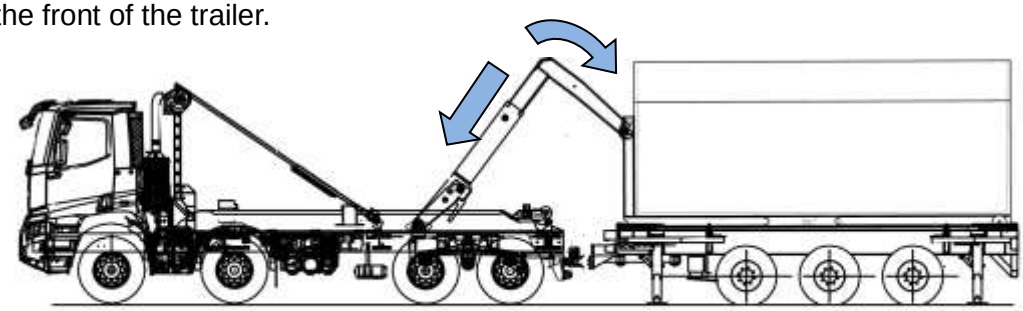


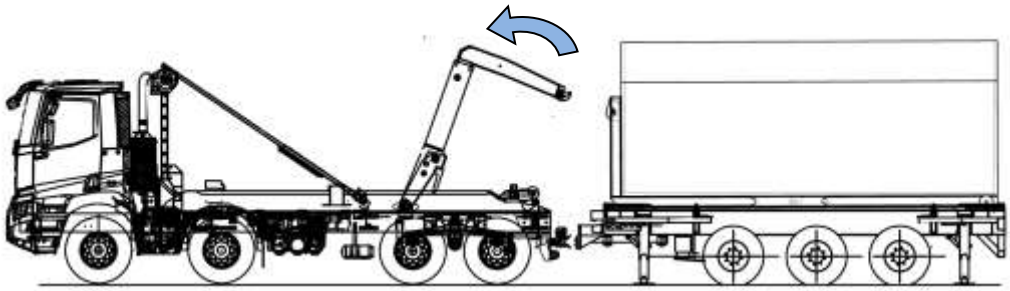






11. When the rear of the container hits the trailer container stops release the brakes on the towing vehicle to allow it to move forward as the front of the container drops onto the front of the trailer.



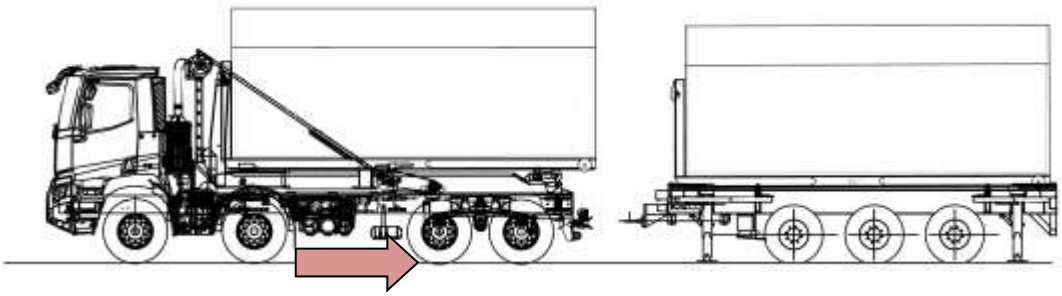


12. Remove the pins from the front container stops and move the stops until they are as close as possible to the front of the container. Re-fit the pins.

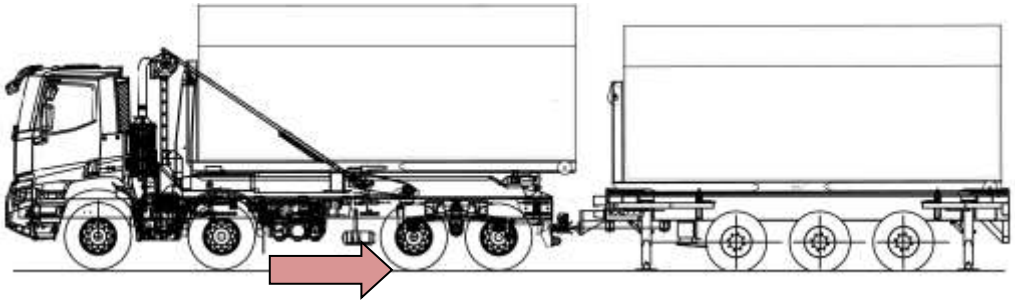
13. Operate the container locks so that they are in the closed position, locking the container onto the trailer bed.

If loading a second container onto the towing vehicle follow points 14 on. If no container is to be loaded on the towing vehicle follow points 21 on.

14. Disconnect the airlines from the trailer.
15. Open the towing hitch jaws and drive the towing vehicle forwards to detach from the trailer.
16. Load second container onto towing vehicle.
17. Reverse vehicle to within approximately 1m of the towing eye of the trailer.



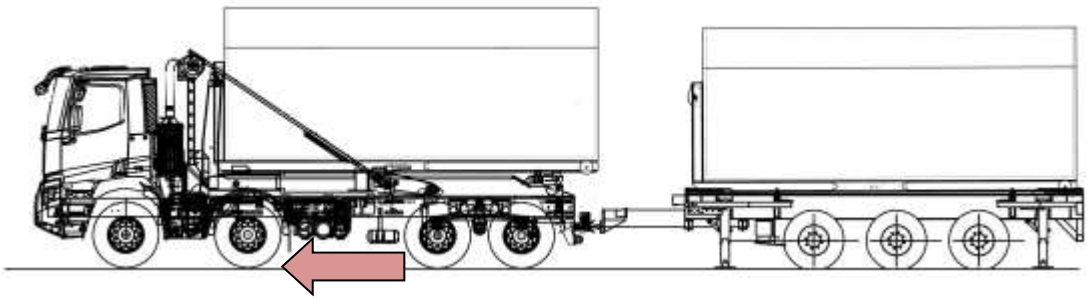
18. Connect the air lines to the trailer to ensure that the system is charged and connect the two pin Anderson electrical connector to power the trailer hydraulic system.
19. Adjust the height of the trailer using either the raise lower valve and/or the support legs. The towing eye should be adjusted so that the eye lines up with the jaws of the towing vehicle.
20. Slowly reverse the towing vehicle and engage the trailer towing eye into the jaw of the towing vehicle. Check that the hitch pin has correctly engaged in the towing eye.



21. Operate the drawbar locking pin valve by pushing the valve button in.

WARNING
When engaing the drawbar locking pin into the drawbeam socket drive the towing vehicle forwards slowly to avoid shock loading of the towing attachment.

22. Drive the towing vehicle forwards slowly until the drawbar locking pin engages in the draw-beam. Check that lock is engaged by reversing the towing vehicle. The beam should not retract.



WARNING

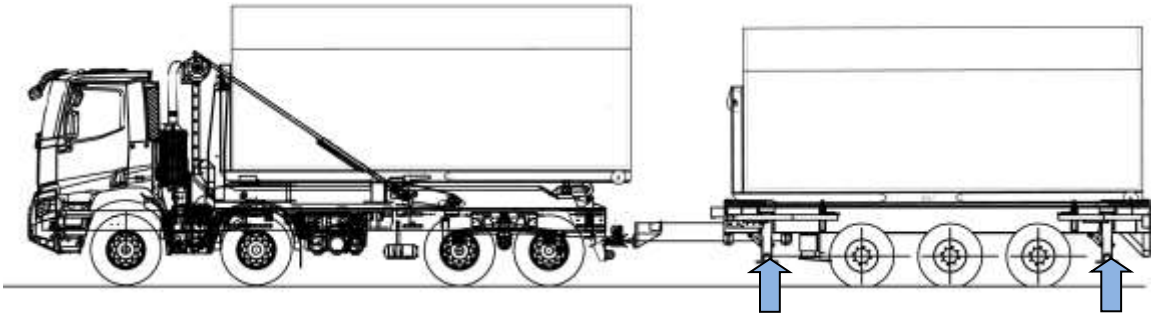
Before driving the combination away ensure that the following checks have been made:-

1. **Container locks are on.**
2. **Where a container is fitted the container stops are positioned against the bin and the pins are inserted.**
3. **Support legs are retracted (in the up position).**
4. **Trailer park brake is released.**
5. **Drawbeam is in the fuly extended position and the drawbar lock is engaged in the drawbar.**
6. **Airlines (Service & Emergency) are connected to the trailer and towing vehicle.**
7. **Electrical connections are connected to the trailer and towing vehicle.**

Failure to observe all of the above points may result in an unstable and unsafe vehicle which, if operated, may cause serious injury, death and/or damage to the vehicle.

vehicle.

23. Retract the support legs.



24. Release the park brake.

The trailer can now be driven away.

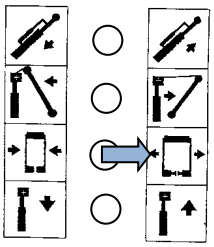
7.4 Deploying Kwikcova Sheeting System (If Fitted)

Prior to starting operation read through the "General Safety Checks Prior To Operating" Section 6, and assess the area around the vehicle to ensure that it is suitable for carrying out this operation.

Take particular note of the available space above the demountable body and to the sides of the trailer to ensure that there is sufficient clearance when operating.

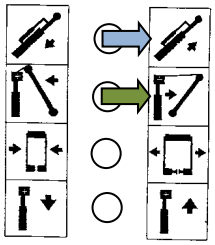
WARNING
DO NOT raise the Kwikcova mast when the arms are resting on the tray.
DO NOT extend the Kwikcova arms when they are resting on the tray.
Operating the mast and arm extension with the arms resting on the tray will apply loads into the system which may cause damage.

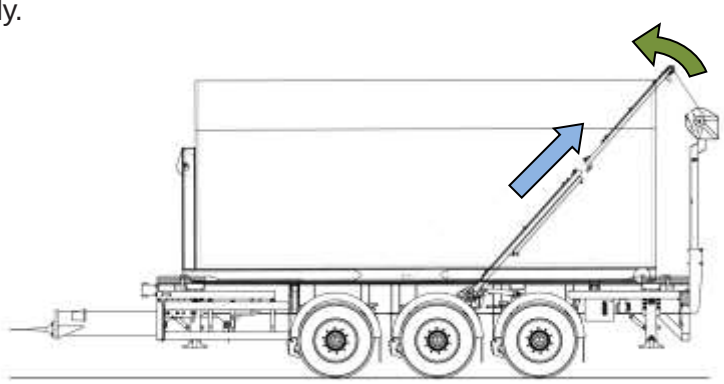
1. Operate the 'Side Arms' control to move the arms out.



2. Operate both the 'Roller' (out) and 'Extension' (out) controls to raise the crossbeam clear of the rear of the container.

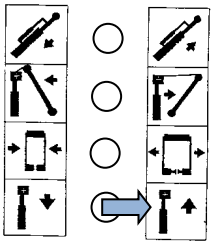
   Ensure that the crossbeam is clear of the rear of the container and that it is more than 1 metre from the mast assembly.

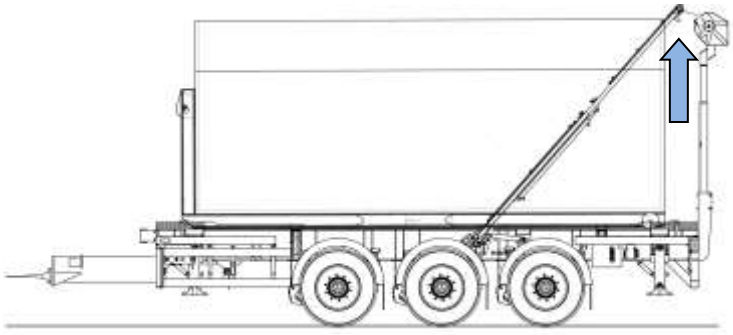




3. Raise the mast fully by operating the 'Mast' control.

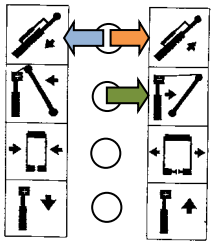
   Observe that the mast does not come into contact with the crossbeam. Adjust arms to ensure sufficient clearance.

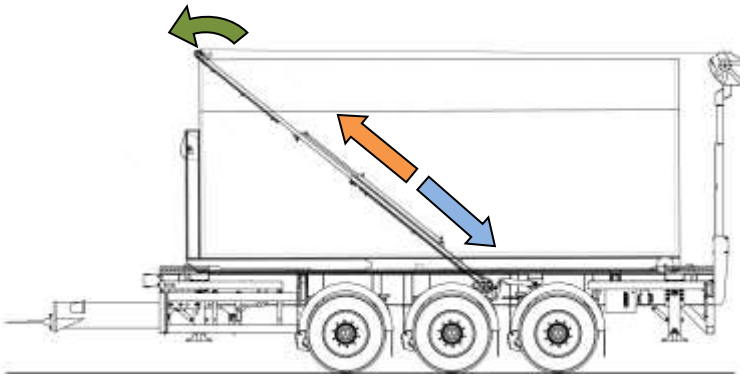




4. Turn the 'Roller' control to its 'out' position and unwind the sheet.

   Check visually that there is sufficient clearance between the sheet and the container when unwinding.



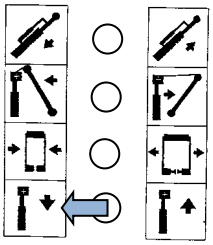


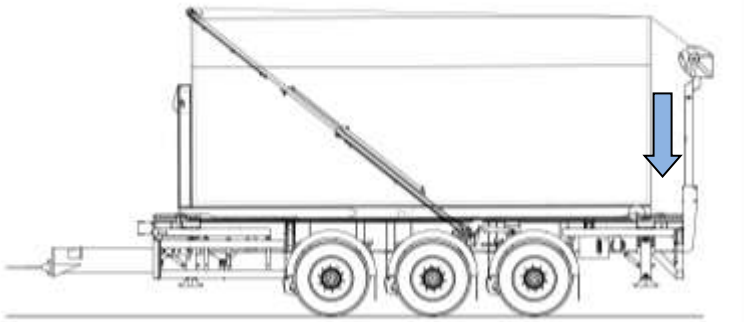
WARNING
DO NOT exert excessive pressure between the top of the container and the crossmember. Excessive pressure may damage the equipment.
Ensure that the container door hinges at the rear do not obstruct the arms when moved inboard.

   Continue to operate both the 'Roller' and the 'Extension' controls to rest the crossbeam securely on the front of the container.

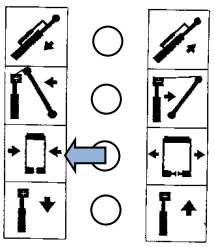
5. Operate the 'Mast' control and lower the mast to fully close off the rear of the container.

   When lowering the mast, observe that the sheet does not foul or catch on the rear of the container.





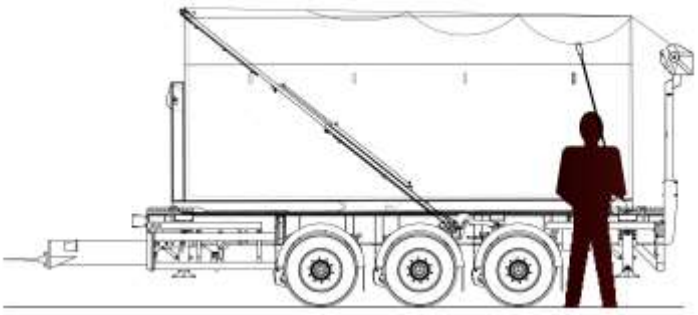
6. Operate the 'Side Arm' control to move the arms in fully.



7. Secure the sides of the sheet to the container using the securing straps supplied. See Section 7.5 Securing Kwikcova Sheeting System.

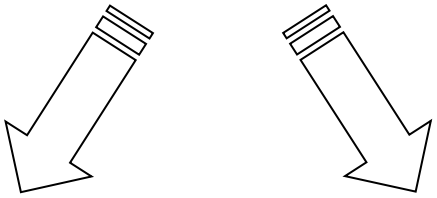
7.5 Securing Kwikcova Sheeting System (If Fitted)

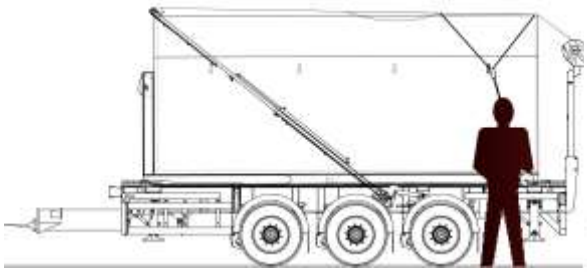
The Kwikcova sheeting system can be secured either directly to the sheeting hooks on the side of a container or, where the sheeting hooks are below half way down the container side, by using a lashing bar extension.

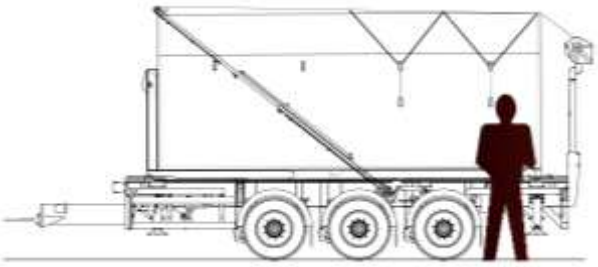


1. Extend cover pole

2. Hook the cover pole onto the sheets bungee rope.







3a. For hooks above half way down the container pull the cover pole down and connect the bungee rope to the container hook.

4a. Continue down securing the bungee to the container at regular intervals

3b. For hooks below half way down the container pull the cover pole down and connect the bungee rope to a lashing bar.

4b. Connect the lashing bar to the container hook.

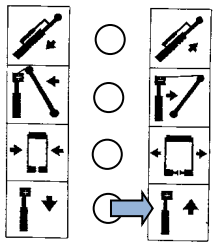
5. Continue down securing the bungee and lashing bar to the container at regular intervals.

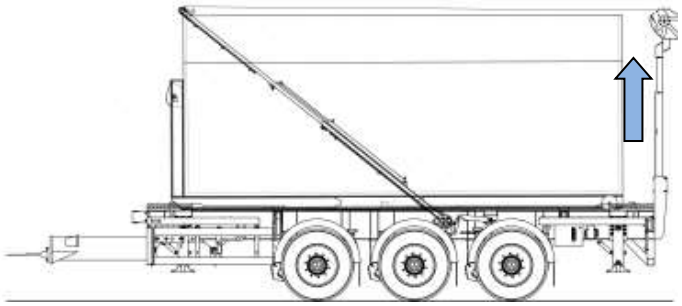
7.6 Retracting Kwikcova Sheeting System (If Fitted)

Prior to starting operation read through the "General Safety Checks Prior To Operating" Section 6, and assess the proposed unload location to ensure that it is suitable.

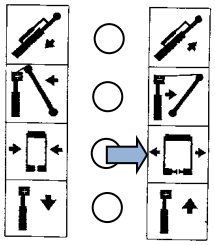
Take particular note of the available space above the demountable body and to the sides of the trailer to ensure that there is sufficient clearance when operating.

1. Remove all securing straps retaining the sheet to the demountable body. Stow the straps.
2. Raise the mast fully by operating the 'Mast' control.

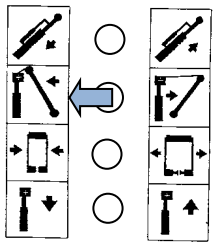


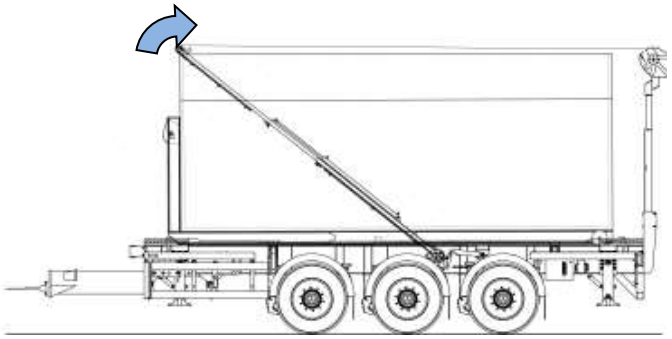


3. Operate the 'Side Arm' control to move the arms out.

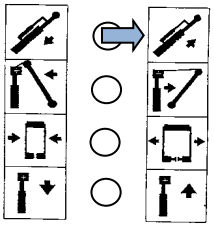


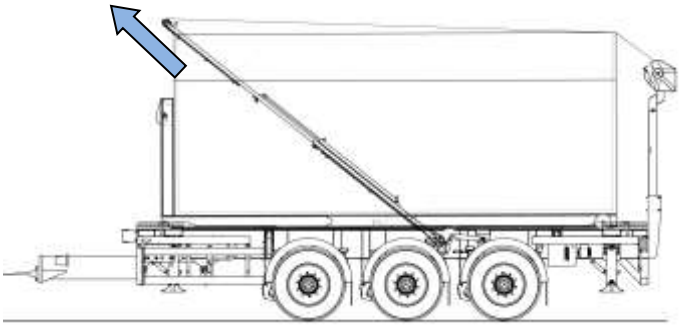
4. Operate the 'Roller' control to raise the crossbar clear or the front of the demountable body.



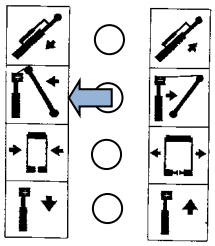


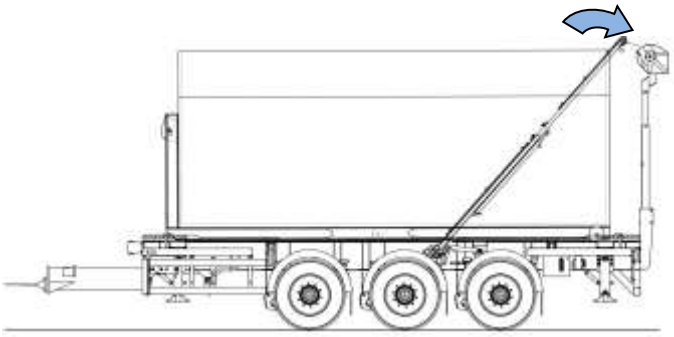
5. Operate the 'Extension Control' to extend the arms out.



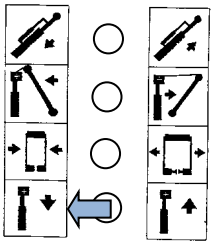


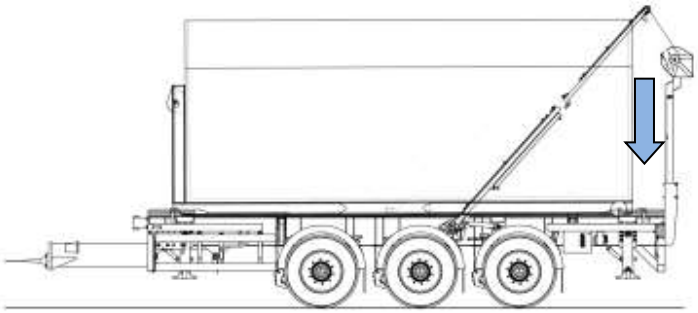
6. Wind in the sheet by operating the 'Roller' control. Ensure that the sheet winds onto the roller evenly and remains taut throughout the process. Continue winding in until the crossbeam is behind the demountable body and above the roller assembly on the mast.



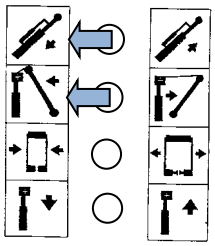


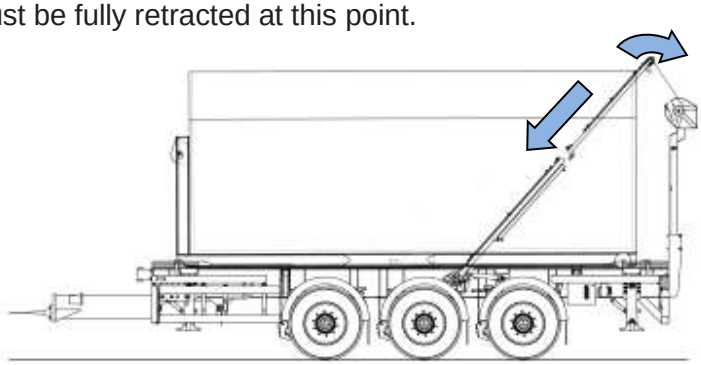
7. Lower the mast fully by operating the 'Mast' control. Ensure that the sheet is clear of the rear of the demountable body.



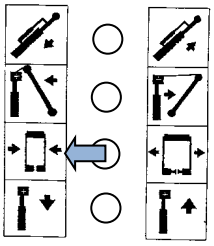


8. Position the crossbeam to within 0.5 metres of the roller using the 'Roller' and 'Extension' controls. The arms must be fully retracted at this point.



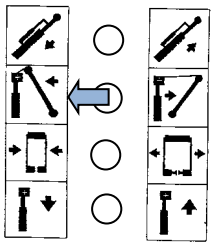


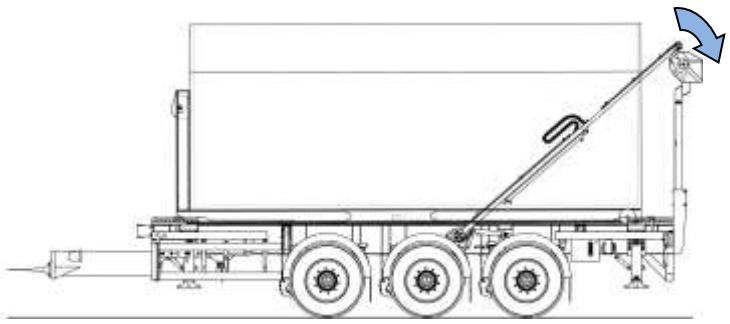
9. Operate the 'Side Arm' control and move the arms in.



WARNING
DO NOT power the sheeting system onto the tray with excess force. Shock loads may damage the equipment.

10. Using the 'Roller' control, lower the crossbeam so that that the arm rests locate with the tray assembly





WARNING

It is recommended that a container is only unloaded when the sheeting system has been completely retracted. Although it may appear possible to unload to point 10, above, this may result in the body interfering with and causing damage to the sheeting system.

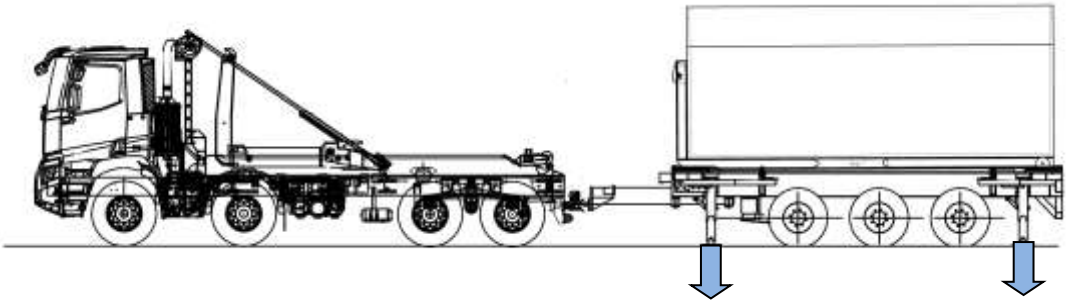
DO NOT Drive on the highway without first checking to ensure that the sheeting system is in the transit position with the arms in and fully retracted the mast in the lowered position and the crossbeam sitting on the tray.

7.7 Transferring a Container Off Trailer

WARNING
Ensure that the ground on which the towing vehicle and trailer are parked, during container transfer, is level and is stable enough to support the loads imposed through the stabiliser legs.

During the transfer sequence the trailer handbrake should remain on and the support legs should remain extended at all times. Failure to observe these requirements may result in the trailer becoming unstable and/or moving unexpectedly

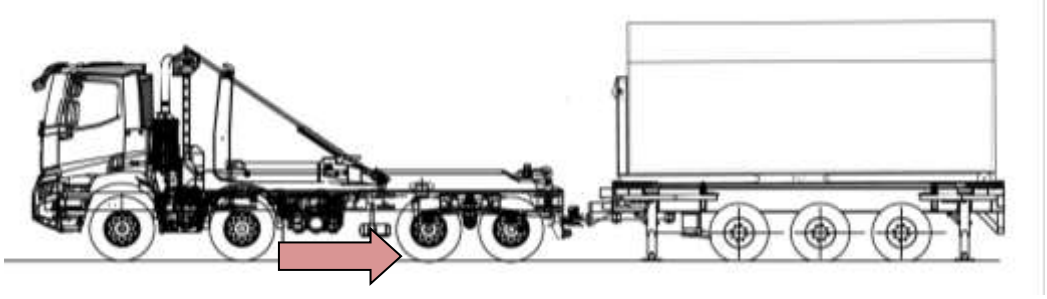
1. Prior to transferring the container off the trailer any container on the towing vehicle must be unloaded as per the hook loader unloading instructions.
2. Drive the towing vehicle and trailer to the location where transfer of the container is to take place. Ensure that the ground is level and stable and that the towing vehicle and trailer are in line prior to commencing the transfer procedure.
3. Apply the trailer handbrake and lower the stabiliser legs.



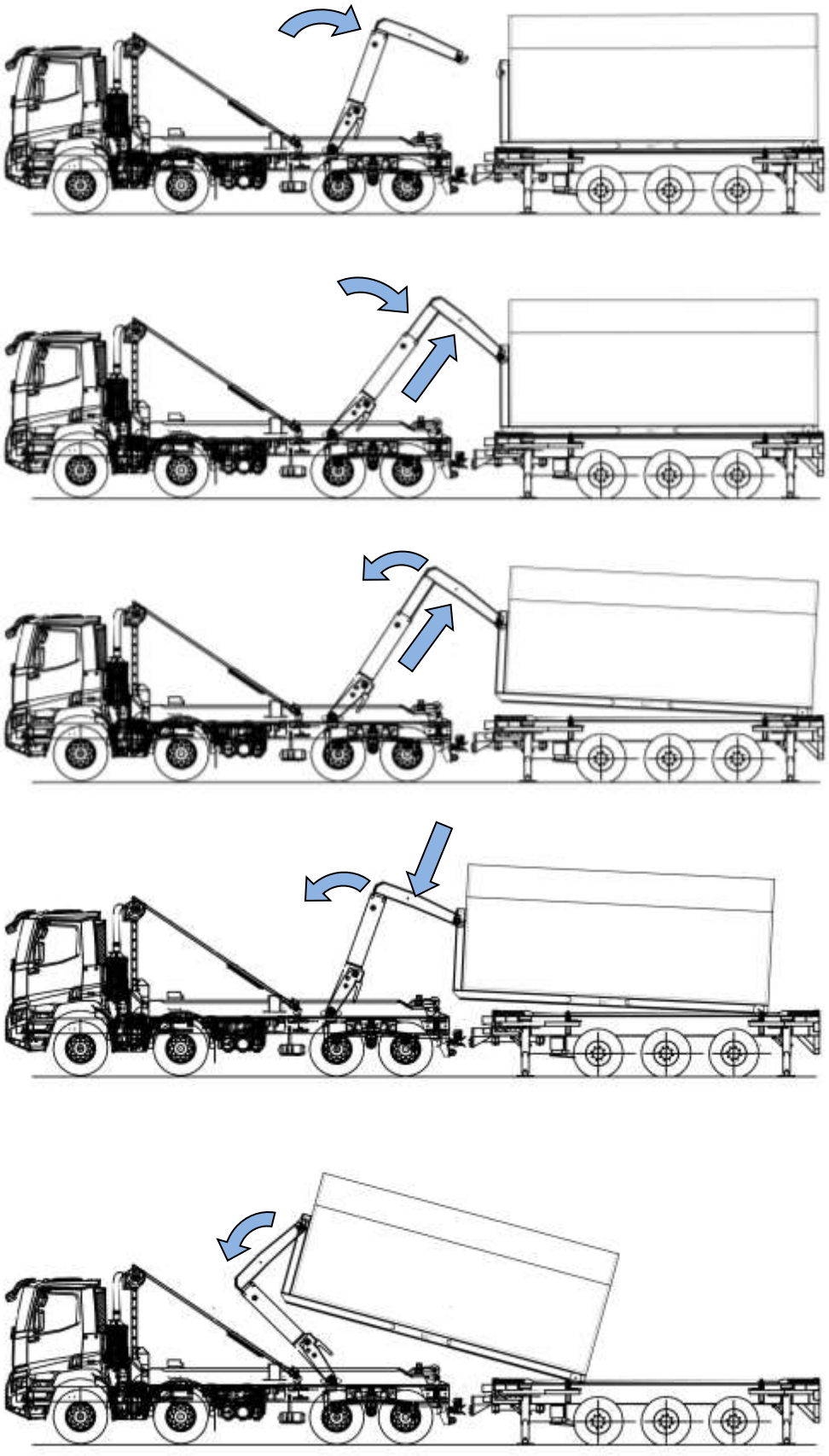
4. Activate the drawbar lock valve to disengage the drawbar lock.

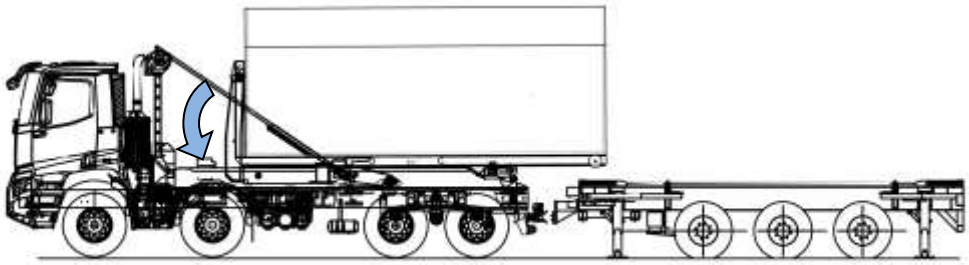
WARNING
Before attempting a container transfer, ensure that the container locks have been disengaged and that the container is free to be lifted off the trailer bed. Failure to ensure that the locks are disengaged will result in the hook loader equipment lifting the trailer, as well as the container, and damage to the equipment may result.

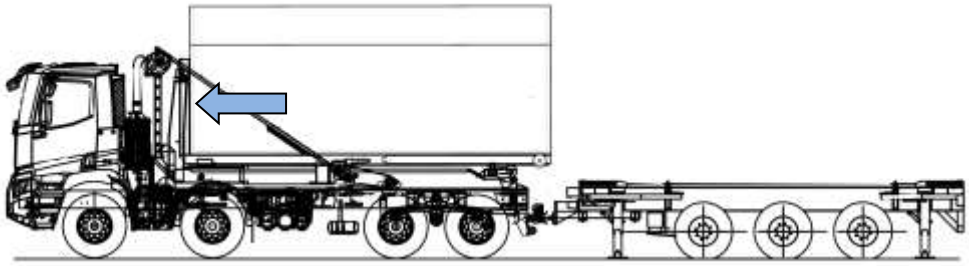
5. Operate the container locks control to disengage the container locks.
6. Reverse the towing vehicle to retract the drawbar. The towing vehicle should be reversed until the drawbar is fully retracted.



7. Use the hook loader equipment to lift the container and pull it onto the bed of the towing vehicle.





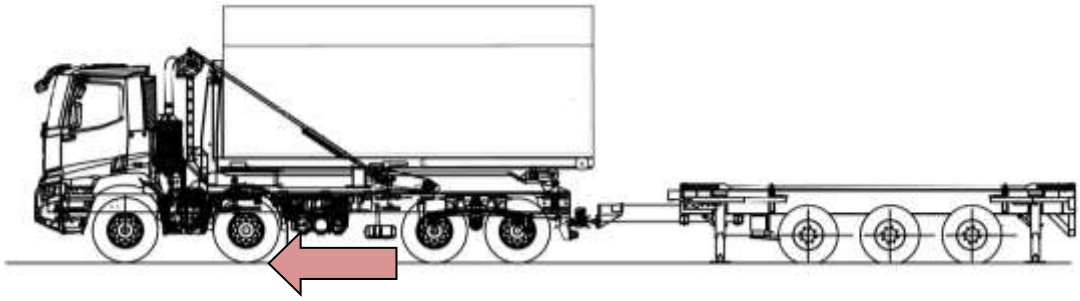


If the vehicle is to be driven with the unladen trailer in tow: -

8. Activate the drawbar locking pin valve by pushing the button in.

WARNING
When engaging the drawbar locking pin into the drawbeam socket drive the towing vehicle forwards slowly to avoid shock loading of the towing attachment.

9. Drive the towing vehicle forwards slowly until the drawbar locking pin engages in the draw beam. Check that lock is engaged by reversing the towing vehicle. The beam should not retract.



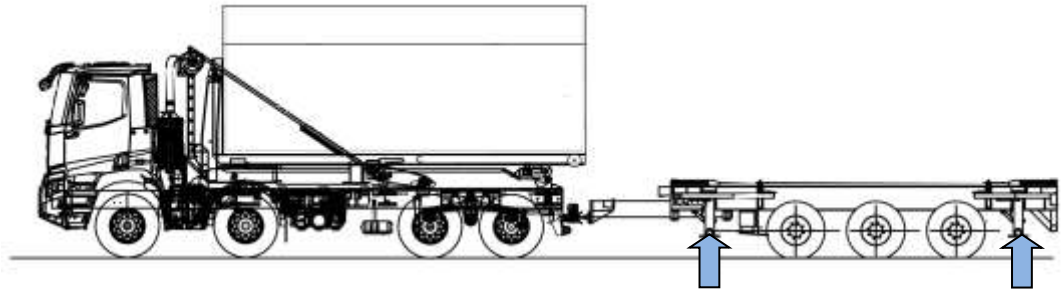
WARNING
Before driving the combination away ensure that the following checks have been made:-

1. **Container locks are on.**
2. **Where a container is fitted the container stops are positioned against the bin and the pins are inserted.**
3. **Support legs are retracted (in the up position).**
4. **Trailer park brake is released.**
5. **Drawbeam is in the fuly extended position and the drawbar lock is engaged in the drawbar.**
6. **Airlines (Service & Emergency) are connected to the trailer and towing vehicle.**

7. **Electrical connections are connected to the trailer and towing vehicle.**

Failure to observe all of the above points may result in an unstable and unsafe vehicle which, if operated, may cause serious injury, death and/or damage to the vehicle.

10. Retract the support legs.



11. Release the park brake.

The trailer can now be driven away.

WARNING

For trailers uncoupled from the towing vehicle and left parked up the support legs must remain extended and the park brake must be applied.

Failure to observe these requirements may result in the trailer moving unexpectedly

For trailers which are to be left parked up and do not require moving to a new location the airlines and electrical connectors must be disconnected from the towing vehicle and stowed in the dummy couplings at the front of the trailer. Disengage the towing hitch and move the towing vehicle forward to disconnect from the trailer.

Note: Disconnecting the red (supply) air line to the trailer will automatically result in the trailer service brake being applied. To avoid unexpected movement of the trailer, when the red line is reconnected, **ALWAYS** apply the park brake

1. Maintenance

SAFETY

WARNING

Correct maintenance of this equipment is essential for safe operation. Always maintain the equipment to the schedule prescribed.

Only trained technicians should be permitted to carry out maintenance and repair work on the trailer.

NEVER operate the trailer if there is a known fault. Take the trailer out of service and affect a repair before returning into service.

DO NOT carry out any modification or adjustment (not described in this manual) to the trailer without obtaining written consent from Boughton Engineering Ltd.

Maintenance work should always be carried out with the trailer unladen. In the event of emergency repairs, by the roadside, all efforts must be made to remove any load prior to commencing work.

When working on the equipment always ensure that it is disabled to prevent accidental operation of moving parts. Disconnect the hydraulic power pack power cable unless a test on the equipment is to be run.

Drain the air reservoirs before undertaking any work on the brake and/or suspension system.

Choc the wheels on the trailer to prevent unexpected movement.

Ensure that the area around and under the trailer is clear before activating any of the pneumatic and/or hydraulic systems during testing.

Work should be carried out with rams in the closed position wherever possible.

ALWAYS ensure that hydraulic systems are unpressurised before disassembly. When working with hydraulic fluids care must be taken to avoid contact with the skin and/or ingestion.

ALWAYS ensure that pneumatic systems are unpressurised before disassembly.

Hydraulic fluid can be harmful to the environment. Clean up any spillages immediately and dispose of any waste fluid conscientiously.

ALWAYS use approved spares and recommended fluids and lubricants. Non-approved items may seriously affect the performance and will increase the risk of a failure.

After carrying out maintenance or repair work a check should be made to ensure that all safety devices operate correctly.

Schedule

Safety, life expectancy and performance of the trailer is significantly enhanced if maintenance is carried out as prescribed.

The trailer should be washed regularly (recommend washing weekly and more frequently if the type of operation demands). A build up of materials on the bed, or around all moveable parts, can cause damage. In particular pay attention to the hydraulic cylinders, pivot points and stabiliser leg within the stabiliser housings. Wipe, with a clean cloth, all exposed piston rods.

Daily Checks by the Vehicle Operator (Driver)

Check	Check Type	Action
Check for hydraulic leaks.	**Visual**	Immediately report any leaks for investigation and repair.
Check hydraulic tank level – cylinders must be closed.	**Visual**	Immediately report low levels for rectification.
Check for pneumatic leaks.	**Audible**	Immediately report any leaks for investigation and repair.
Check operation of the in-cab warning light for trailer EBS.	**Operation**	Report for investigation and repair if warning light fails test.
Check all lights.	**Operation**	Immediately report any damage to lights or failed bulbs/LED units
Check condition of hydraulic hoses.	**Visual**	Immediately report any damage for investigation and repair.
Check condition of tyres. Check for damage and tread depth.	**Visual**	Immediately report any damage or low tread depth for investigation.
Check condition of all structural parts of the trailer.	**Visual**	Immediately report any damage for repair.
Check operation of bin locks to ensure that they are free moving and clear of debris.	**Operation**	Immediately report any defects for investigation and repair
Where Kwikcova is fitted: - With no container on the trailer bed fully unwind the Kwikcova sheet and check for damage such as tears or chaffing.	**Visual**	Immediately report any excessive damage for investigation and repair. For replacement see Maintenance Procedure 8

Maintenance Schedule – Workshop

The following schedule and procedures should be carried out by a qualified technician in a workshop environment.

RECOMMENDED HYDRAULIC OIL

Hydraulic Mineral Oil ISO 6743/4
DIN 51519
Viscosity ISO3448 15-100cSt.

RECOMMENDED GREASE

Fuchs (Century Oils) Renolit MP3
Mobilgrease MP
Shell Alvania R3
Castrol Spheerol AP3

Maintenance Frequency Table

	6 Weekly	3 Monthly	6 Monthly	Annually	Note	Maintenance Procedure
Daily Checks – See Above	x	x	x	x		
Drain air reservoirs.					1	
Grease Kwikcova grease points	x	x	x	x		1
Check nut and bolt torque values	x	x	x	x		2
Check wheel nut torque	x	x	x	x	2	2
Check brake lining thickness		x	x	x		Ref. Axle Manual
Check brake disc wear		x	x	x		Ref. Axle Manual
Check draw beam free play		x	x	x		3
Check air filters		x	x	x		4
Check towing eye for wear/damage			x	x		5
Check brake calliper seals				x		Ref. Axle Manual
Check bearing play on brake calliper				x		Ref. Axle Manual
Check free movement of brake calliper				x		Ref. Axle Manual
Check brake calliper threaded connection				x		Ref. Axle Manual
Check hub / brake disc threaded connection				x		Ref. Axle Manual
Check brake cylinder threaded connection				x		Ref. Axle Manual
Check suspension frame bracket welds				x		Ref. Axle Manual
Check suspension bracket bolted connection				x		Ref. Axle Manual
Check suspension bracket plastic wear washers				x		Ref. Axle Manual
Check air bellows				x		Ref. Axle Manual
Check air bellows threaded connection				x		Ref. Axle Manual
Check wheel hub retainer, hexagon nut with collar				x		Ref. Axle Manual
Check compact bearing unit				x		Ref. Axle Manual
Renew hydraulic fluid				x	3	6
Grease landing gear (manual if fitted)					4	7
Check tyre pressures (tyres cold)					5	
Check suspension 3D bushing					6	Ref. Axle Manual

Note 1 - Drain air reservoirs of any moisture which has accumulated. Drain valves are fitted to the bottom of each tank and should be operated each time the vehicle is due to be used.

Note 2 - Wheel nuts must be checked after the first drive with a load (after approx 50 km). After changing the wheel the nuts should also be checked after the first drive with a load.

Note 3 - Due to initial component bedding in, the hydraulic fluid must be changed after 100 hours use and after 3000 hours use. Thereafter oil should be changes every 12 months.

Note 4 - The first service interval for manual landing legs is 3 years. Grease spindle and spindle nut at first interval and annually thereafter.

Note 5 - Tyre pressures must be checked with the tyres cold. Tyres pressures should be checked weekly. Cold pressure - 8.5 bar / 123PSI

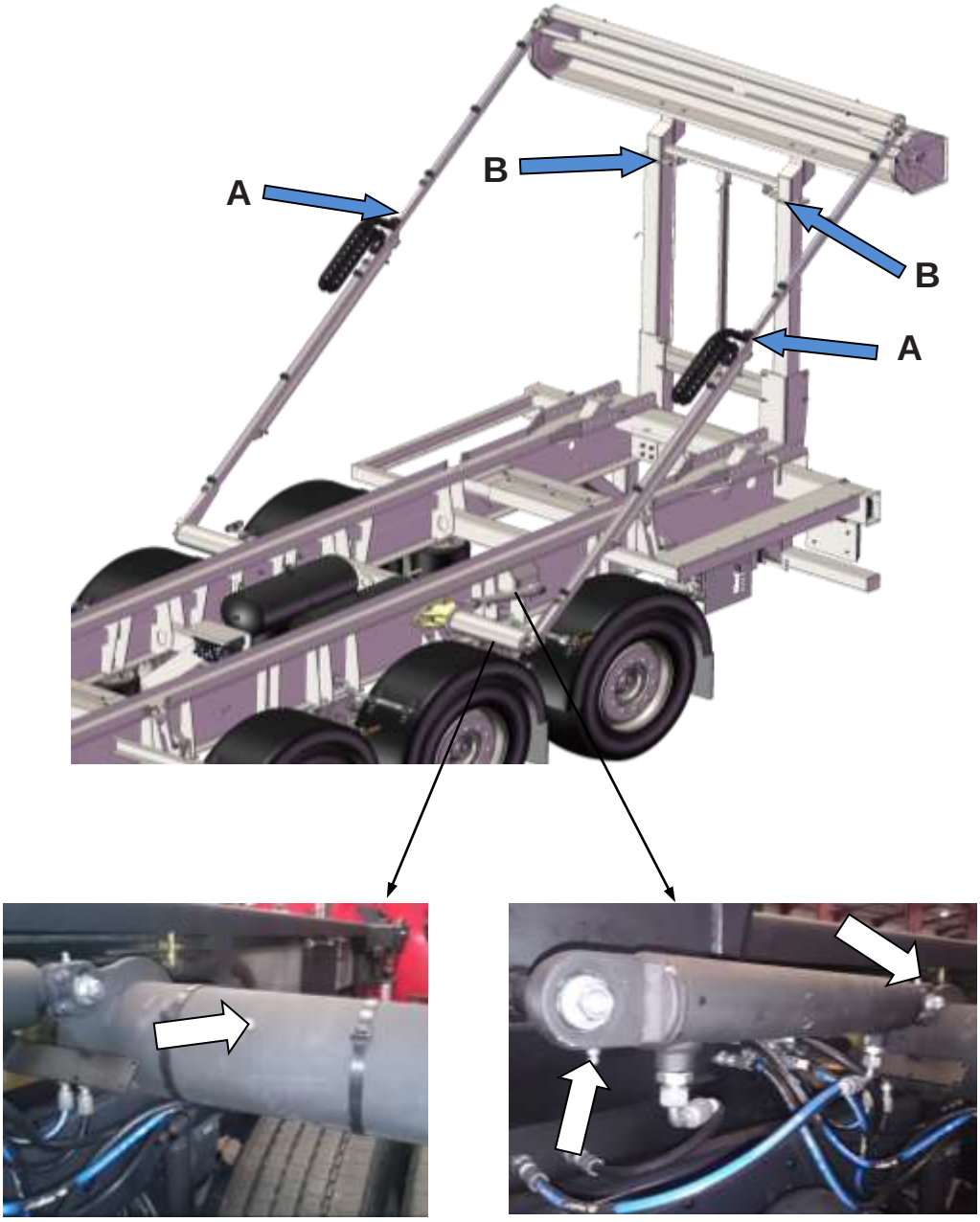
Note 6 - The suspension bush (3D) should be checked after 2 years and annually thereafter.

Maintenance Procedure 1 – Grease Kwikcova

The Kwikcova sheeting system has 6 pressurised grease points, see below. In addition to the grease points the telescopic arms and telescopic mast should be greased.

With the telescopic arms extended clean the inner box face faces where they mate with the outer box, see A in Fig. below
Apply recommended grease to the mating faces where the inner box slides in the outer box.

With the telescopic mast extended clean the inner sliding member.
Apply the recommended grease to the surfaces of the inner sliding member, see B in Fig. below.



Kwikcova
Pressurised Grease Points

Maintenance Procedure 2 –Nut & Bolt Torque Values

Refer to Axle manual for torque values relating to axle and suspension.

All nuts and bolts should be checked to ensure that they are at the correct torque.
Use a calibrated torque wrench set to the required torque.

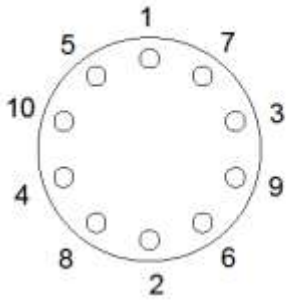
Use the following tables which give recommended tightening torques

Hydraulic Power Pack Torque

Fixing	Torque (Nm)
M5	4 - 5.5
M6	8 - 10
M8	16 - 20
M8 / Pump retaining	20 - 24
M10 x 1.5	35 - 40
G1/4"	38 - 42
3/4"-16 UNF Cavity	38 - 42
Check Valve Cavity	20 - 25
Relief Valve Cavity	50 - 60

Wheel Nuts / Towing Eye / Landing Leg

Fixing	Torque (Nm)
Wheel Nuts	600
Towing Eye Mount	390
Landing Leg Mount	190



Tighten wheel nuts in sequence shown left. Go around in sequence tightening gradually. Do not torque each nut in one go.

General Fastener Torque Values

Quoted ‘U’ torque values are for self colour un-lubricated bolts and zinc plated bolts into un-plated holes and nuts.

Quoted ‘P’ torque values are for zinc plated bolts into zinc plated nuts.

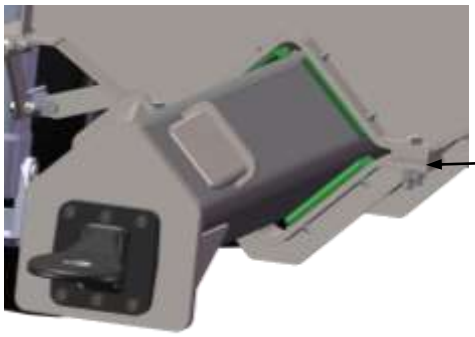
For cap screws use grade 10.9 torque values.

Nominal Bolt Size	Grade 8.8 ‘U’ Torque Nm		Grade 8.8 ‘P’ Torque Nm		Grade 10.9 Torque Nm	
	Course	Fine	Course	Fine	Course	Fine
M6	10.9	-	12.7	-	15	-
M8	25.8	27.7	31	33.2	36.3	38.9
M10	51.2	54	61.4	64.8	72	76
M12	89.3	97.6	107.2	117.1	125.7	137.1
M14	142.1	154.5	170.5	185.4	199.5	217.1
M16	221.7	235.9	266	283.1	312	331.4
M18	305.1	343.2	366.1	411.8	429	482.6
M20	432.5	480.2	519	576.2	609.1	675.1
M22	588.4	646.7	706.1	776	827.1	909.8
M24	747.8	813.5	897.4	976.2	1051.3	1143.6
M27	1083.9	1182.1	1312.7	1418.5	1538.3	1662.2

Maintenance Procedure 3 – Draw-beam Free Play

Draw-beam free play is measured with the draw beam fully extended. With the draw-beam fully extended check the vertical free play at the towing eye. Maximum free play is 8mm.

Excessive free play can be reduced by removing shims from the shim packs fitted between the draw beam upper and lower mounts.



Shims are available in thicknesses of 2, 3, 5 & 10mm.

Removing 1mm of total shim thickness on both sides of the beam and at the front and rear supports will reduce the total vertical free play at the towing eye by approx 7mm.

The draw beam support mount fixings must be tightened to a torque of 615 Nm after shims have been removed.

Maintenance Procedure 4 - Clean Air Filters

The trailer air system is fitted with in line filters on both the emergency (red) line and the service (yellow) line.

The filters are located behind the coupling heads on the coupling panel at the front of the trailer.

WARNING
Before removing the filter cartridges, ensure that both the emergency (red) and service (yellow) brake lines have been disconnected from the trailer couplings.

To gain access to the filter slide the filter retaining bar out of the filter body and allow the filter cartridge to drop out.

Blow the cartridge through with compressed air. Damaged filter cartridges must be replaced.

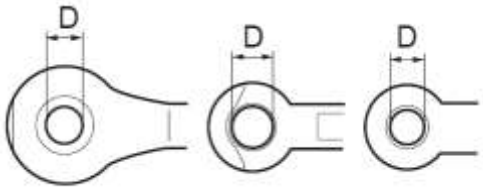
To reassemble replace the cleaned or new cartridge and slide the retaining bar back into the body of the filter.

Maintenance Procedure 5 - Check Towing Eye

WARNING
Welding of the bolted towing eye is not permited. Do not attempt to repair wear or cracks on the towing eye by welding. Replace worn or damaged components, immediatley on discovery, before using the trailer.
Failure to observe this warning may result in the trailer detaching from the towing vehicle due to component failure.

The following checks should be made on the towing eye: -

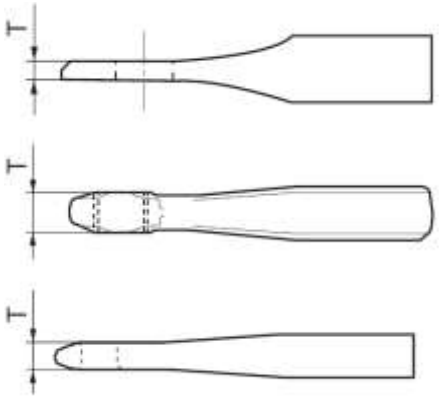
1. Check tightness of bushing/wear ring in the drawbar eye. Tap the bushing lightly with a hammer. If any movement is detected replace the ring.
2. Check wear of bushing/wear ring. Measure the maximum diameter of the bush, dim D below, and check that it is within the limits specified.



Type	D max (mm)
NATO	76
VBG 57	59.5
ISO 50	52
DIN 40	42

If the bush diameter exceeds the max value replace the ring.

3. Check wear of the eye support surfaces. Measure the minimum thickness over the eve. dim T below. and check that it is within the limits specified.



Type	T min (mm)
NATO	37
VBG 57	19
ISO 50	42.5
DIN 40	28

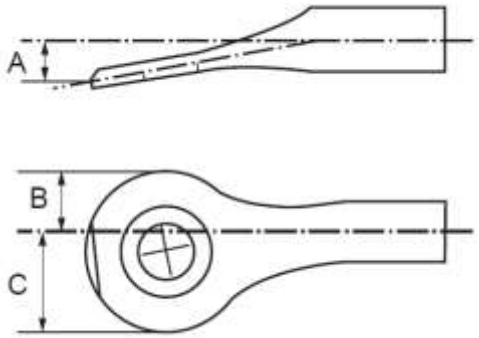
If the drawbar eye thickness is below the minimum vale replace the towing eye.

4. Check wear on outer radius of eye. Measure the outer radius of the eye at the most worn part and check that it is within the limits specified.

Type	T min (mm)
VBG 57	19
ISO 50	42.5
DIN 40	28

If the drawbar eye outer radius is below the minimum specified replace the towing eye.

5. Check straightness of towing eye. Measure the drawbar eye dimensions, A, B & C below, and check that they are within the limits specified.



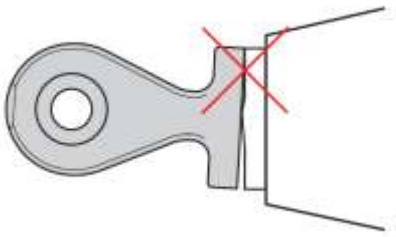
Dimension A <= 2mm
Dimension B minus C <= 2mm

WARNING
Do not attempt to re-align the towing eye. Replace bent eyes, immediatley on discovery, before using the trailer.
Failure to observe this warning may result in the trailer detaching from the towing vehicle due to component failure.

In the drawbar eye straightness is outside the specified limits the eye must be replaced immediately.

6. Check for loose or missing eye attachment bolts. Inspect the towing eye/draw beam interface for missing bolts and/or for signs of movement. Apply torque of 390Nm to the head of all attachment bolts. There should be no rotation when the bolts are test tightened.

Check that the flange surface of the drawbar eye sits firmly against the connection surface of the draw beam. The connection surfaces must lie flat against each other with no gaps, foreign objects, corrosion or thick layers of paint. If the connection surfaces are outside a flatness requirement of 0.5mm the interface must be checked and repaired/replaced as required.



Where bolts are missing or the bolts rotate under applied torque the eye should be dismantled from the draw beam and re-assembled with new bolts and Nord-Lock washers.

Dismantling the Towing Eye

If the towing eye is dismantled from the draw beam when refitting or replacing with a new eye NEW bolts (grade 12.9) and NORD-LOCK washers must be used.
The bolts must be tightened to a torque of 390 Nm.
Installations must be re-tightened after driving 2,500 km

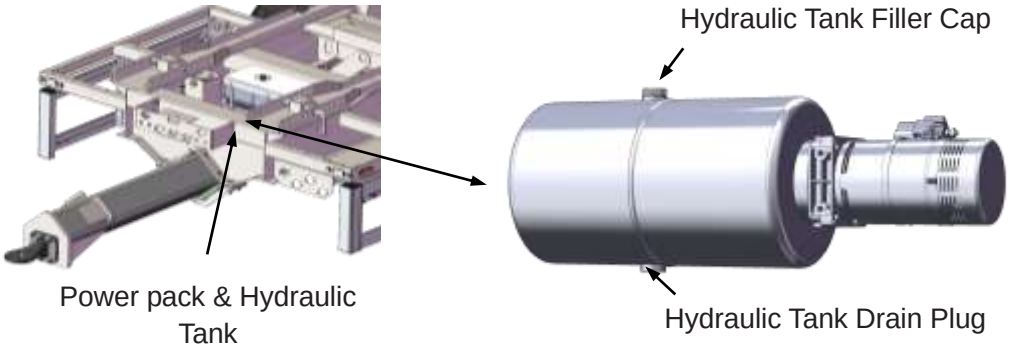
Maintenance Procedure 6 - Change Hydraulic Fluid

Hydraulic fluid is hydroscopic and over time will absorb water. Contaminated fluid will reduce the performance of the hydraulic system. Frequent changes of the fluid, see schedule, are essential to maintain optimum performance.

During the change procedure, old fluid must be drained from the hydraulic fluid tank. A suitable container will be required to drain the fluid into.

Note: The following hydraulic fluid change procedure must be carried out with all hydraulic cylinders in the closed position.

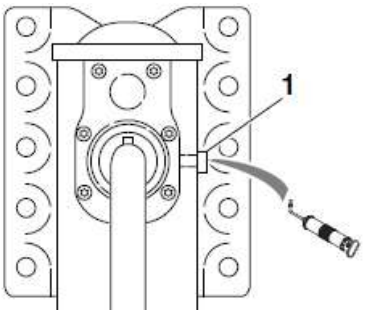
WARNING
Always use new hydraulic fluid. Old fluid will be contaminated and will adversely affect the performance of the equipment.



1) Ensure that all hydraulic rams are in the closed position before draining old fluid.
2) To drain the old hydraulic fluid, remove the filler cap. Have a container ready to collect the fluid as it exits the tank then remove the drain plug.
3) Re-fill the tank, through the filler cap, with new hydraulic fluid. Make sure that the tank is not overfilled. Re-fit filler cap.
4) After completing the fluid change clean up any spilt hydraulic fluid. Old fluid must be disposed of responsibly.

Maintenance Procedure 7 - Grease Landing Legs (Manual Legs Only)

For trailers fitted with manual landing legs period greasing of the spindle and spindle nut is required.



1) Connect the winding handle and wind the leg out as far as possible.
2) Remove cap, 1, to open lube point.
3) Fill the spindle nut with grease (approx 200g)
4) Wind the leg up until the stop then wind back out.
5) Replace cap, 1.

Maintenance Procedure 8 – Kwikcova Sheet Replacement

8a) Sheet Roller Tension Released

This procedure describes the method used to remove and replace the Kwikcova sheet if the sheet roller tension has been released.

If sheet roller tension can be maintained refer to Maintenance Procedure 8b.

WARNING
Hard hats and safety glasses must be worn throughout the replacement of the sheet.
It will be necessary to use steps to reach fixings areas while replacing the sheet. Take the necessary precautions to ensure that the steps and foot walks remain stable.
Do not attempt to remove the sheet with a container on the vehicle.

REMOVAL

1) Observe all **User** and **Maintenance Safety** instructions.

2) The arms must be in the fully rearward position with the sheet wound fully on the roller.

3) A person on either side must hold the springs in tension while a third person removes the fixings holding the spring shaft anchor plates (Fig 8.1).

WARNING
All necessary safety precautions must be taken while the springs remain under tension.
Do not release the spanner after the spring shaft anchor plate retaining bolts have been removed. The tension of the springs will be transferred to the spanners when the spring shaft anchor plate retaining screws are removed. Be prepared to take the force transmitted to the spanner.

4) Slowly unwind the spring shaft anchor plates to release the tension in the springs.

5) Move the arms outboard and power to the front of the trailer, as far as they will go. The sheet will unroll from the roller.

6) Remove the fixings, retaining the sheet to the roller and crossbeam. Remove the sheet from the trailer, fold and discard.

INSTALLATION

1) Remove old sheet as previously described.

2) Move the arms outboard and power to the front of the vehicle, as far as they will go.

3) Unfold the new sheet and fit its widest end to the crossbeam. Secure with jubilee clips supplied.

4) Raise the crossbeam until the front of the sheet can be fitted into the tracking on the roller assembly.

   Care must be taken so that the beading located on the front of sheet is not snagged or ripped when inserted into the tracking.

5) With the assistance of a third party manually feed the sheet onto the roller as the arms are brought slowly forward. Feed the sheet in as evenly and tightly as possible.

   The sheet is **OVERWIND** only i.e. it **MUST** be fed in over the top of the roller when winding in.

6) When the arms are brought fully rearward and the sheet is wound in fully, fit the spring shaft anchor plates onto the machined flats of the spring. Have the four retaining screws and washers to hand so that they can be inserted when required.

WARNING
All necessary safety precautions must be taken while tensioning the springs.
Do not release the spanner before securing the spring shaft anchor plates after pre-loading the springs.
Do not exceed the maximum stated number of turns required to tension the roller.
Ensure that each spring is pre-tensioned and rotated in the correct direction.

7) A man positioned on each side of the roller must be equipped with a suitable spanner to pretension the helical springs within the roller. A third person must be on hand to secure the anchor plate and retaining screws.

8) Fit the spanners onto each of the spring shaft anchor plates and rotate in direction shown in Fig 8.1.

9) Rotate the spring shaft anchor plate to take up the slack and continue to rotate a further ten full turns. Secure each one in position with two screws and spring washers. Tighten the screws to the appropriate torque and remove the spanner.

10) Unwind the sheet by operating the **'Roller'** control.

WARNING
Check that the sheet is unwinding evenly and smoothly and that it is not excessively bowed
If the sheet is excessively taut this indicates that the springs have been over tensioned. Immediately stop unwinding sheet and operate 'Roller' control to return the arms to their fully forward position.
Failure to comply with these instructions will damage the equipment or produce excessive wear and strain on the components of the Kwikcova assembly.

11) Re-tension the helical springs as previously described until the correct sheet tautness is achieved.

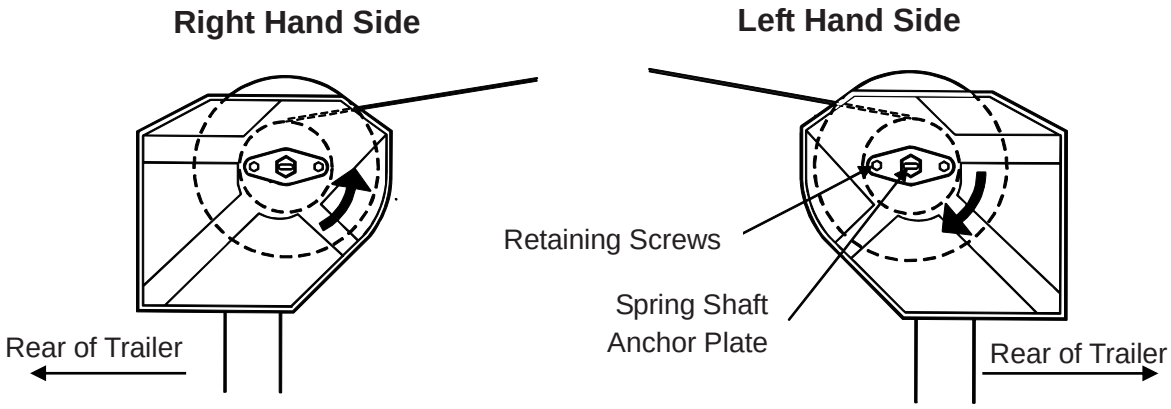


Figure 8.1

8b) Sheet Roller Tension Maintained

This procedure describes the method used to remove and replace the Kwikcova sheet if the sheet roller tension has maintained.

If sheet roller tension has been released refer to Maintenance Procedure 8a.

WARNING
Hard hats and safety glasses must be worn throughout the replacement of the sheet.
It will be necessary to use steps to reach fixings areas while replacing the sheet. Take the necessary precautions to ensure that the steps and foot walks remain stable.
Do not attempt to remove the sheet with a container on the vehicle.

REMOVAL

1) Move the arms outboard, fully extend and power to the front of the trailer as far as they will go so that the sheet is fully unwound. Switch off engine.

2) Align hole 'A' in the tray and roller assemblies. Insert into hole 'A' a M10bolt minimum length of 30mm to lock the roller assembly in position as shown in Fig 8.2.

WARNING
Springs are under tension. Ensure locking bolts and nuts are secure.

3) Repeat operation for opposite side of the tray assembly.

4) Fully retract arms to allow the sheet to go slack.

5) Remove the jubilee clips, retaining the sheet to the crossbeam. Remove the sheet by pulling the beading out of the tracking.

6) Remove the sheet from roller by pulling the beading out of the tracking. Remove sheet from the vehicle, fold and discard

INSTALLATION

1) Remove old sheet as previously described.

2) Unfold the new sheet and fit its widest end to the crossbeam. Secure with jubilee clips supplied.

3) Fit the sheet into the tracking on the roller assembly.

   Care must be taken so that the beading located on the front of sheet is not snagged or ripped when inserted into the tracking.

4) Fully extend arms until sheet is taut.

5) Remove the two locking bolts and nuts from the tray and roller assemblies.

6) Wind in the sheet by operating the **'Roller'** control.

   The sheet is **OVERWIND** only i.e. it **MUST** feed in over the top of the roller when winding in.

WARNING
Check that the sheet is unwinding evenly and smoothly and that it is not excessively bowed
Failure to comply with these instructions will damage the equipment or produce excessive wear and strain on the components of the Kwikcova assembly.

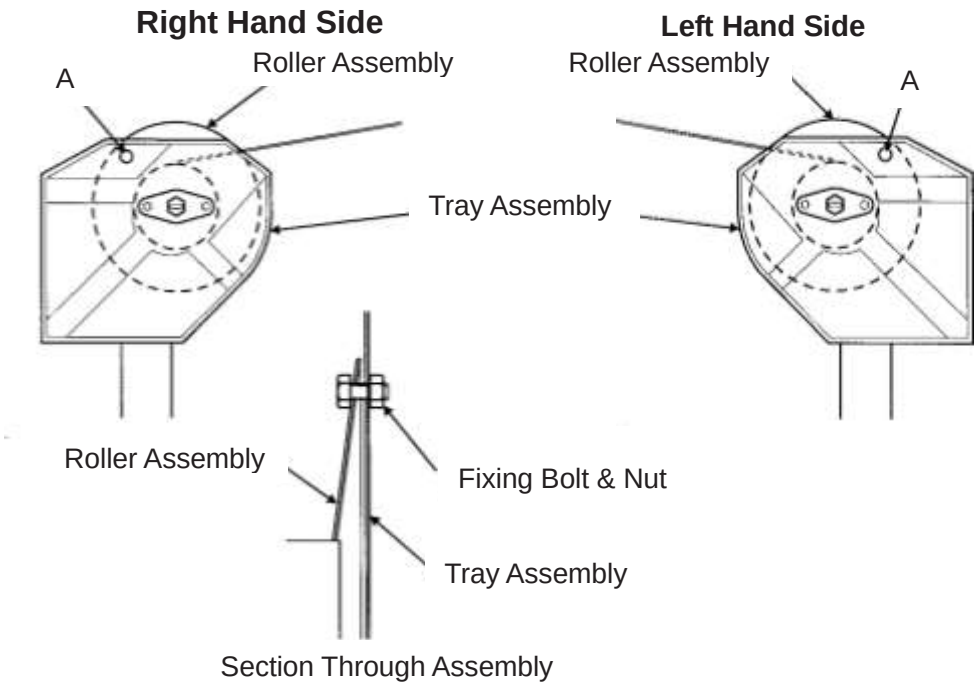


Figure 8.2

9. Further Information

For further information or assistance in operating the PR18 Skip Loader and Intacova Sheeting System contact: -

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