

TRAIL KING TRAILER OPERATIONS

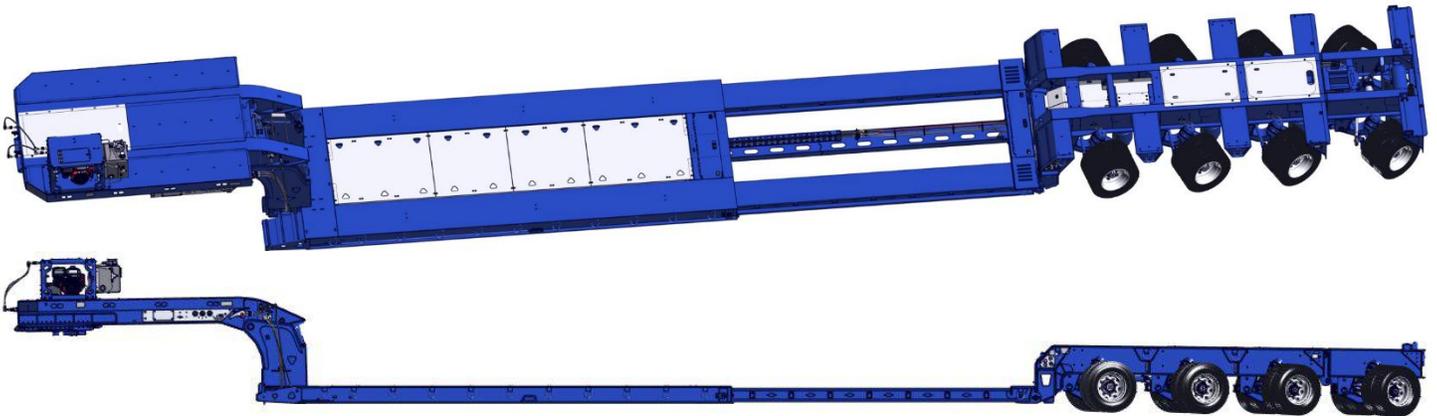
HD-S (Hydraulic Detachable Steering) Trailer

⚠ SAFETY NOTE ⚠



Before operating this trailer, read and be familiar with all the safety warnings in the operating and safety sections of this manual. Operators must have the proper training before operating this trailer.

Our HD-S (Hydraulic Detachable Steering) is designed to allow for better maneuverability for a greater steering angle, tighter corners, and less manual steering. This trailer has dependable load-hauling strength, durability, and versatility that can stand up to any challenge, even “tough to scale” loads.



BEFORE OPERATING THE TRAILER

1. Complete the pre-trip checklist (Pre-Trip Inspection section of the manual).
2. Always distribute the load properly.

⚠ SAFETY WARNING ⚠

Overloading the trailer, loading it so the center of gravity is too high, or distributing the load unevenly can cause poor vehicle handling characteristics or trailer damage. This might result in loss of control and cause injury or death to operators or others.

⚠ • **NOTE** • **DO NOT SIDE LOAD!!** To do so might damage the beam top flange, possibly resulting in structural failure of the main beams.

TRAIL KING TRAILER OPERATIONS

HD-S (Hydraulic Detachable Steering) Trailer

CONNECTING THE TRUCK TO THE GOOSENECK:

- The trailer brakes must be applied.
- Check the coupler of the tractor to ensure the fifth wheel plate is open.
- The gooseneck support must be fully retracted.
- The gooseneck lock pin must be engaged
- The transport lock doors must be in the open position.
- Back the tractor up to the front of the trailer, aligning the trailer kingpin with the center of the tractor's fifth wheel.
- Slowly back the tractor under the upper deck of the trailer until the kingpin locks into the tractor's fifth wheel. Check and ensure the kingpin is in the "locked" position by pulling ahead before releasing the trailer brakes.
- Start the self-contained unit motor.
- Operate the **GN LIFT CONTROL** to raise the gooseneck and the trailer above the transport height (see Figure 1).

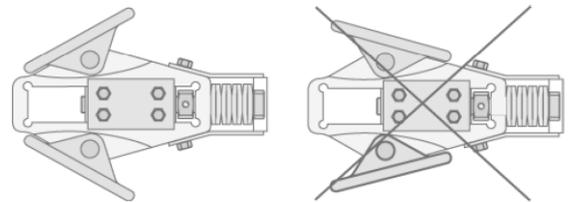
• **NOTE** • **PUSH** the knob in to raise the neck and **PULL** the knob out to lower the neck.

- Move the **GOOSENECK TRANSPORT DOOR LEVER** to one of the 7 transport positions. Each position raises or lowers the kingpin height by approximately 1-1/2".
- Operate the **GN LIFT CONTROL** to lower the gooseneck onto the transport lock doors.
- Connect all the air and electrical lines between the tractor and the gooseneck.
- Get into the towing vehicle and check the trailer brakes and the electrical systems to guarantee the connections are correct and operating properly.
- Validate the tire pressures on the tractor and the trailer. Adjust as needed.
- Check air and hydraulic connections and functions to ensure there are no leaks.
- Test the brakes by moving the trailer at low speeds. The Trailer ABS light is located on the driver's side at the rear of the wheel area. The warning light should go off as the trailer exceeds approximately 10 miles per hour. If the light does not turn off, check your ABS system.
- Tighten the steering wedge on the fifth wheel plate.

COUPLING WITH THE TRIDEC WEDGE:

- Make sure that the fifth wheel of the truck is at the same coupling height as the turntable plate of the trailer. (See the steering wedge section of this manual for further information.)

CAUTION: An uneven coupling height can lead to undesirable movement of the trailer.



WEDGE: Block position during coupling

CAUTION: Before coupling, make sure the adjusting blocks of the steering wedge are in the correct position. Steering wedge must be tight to prevent the trailer from wandering during travel.

TRAIL KING TRAILER OPERATIONS

HD-S (Hydraulic Detachable Steering) Trailer

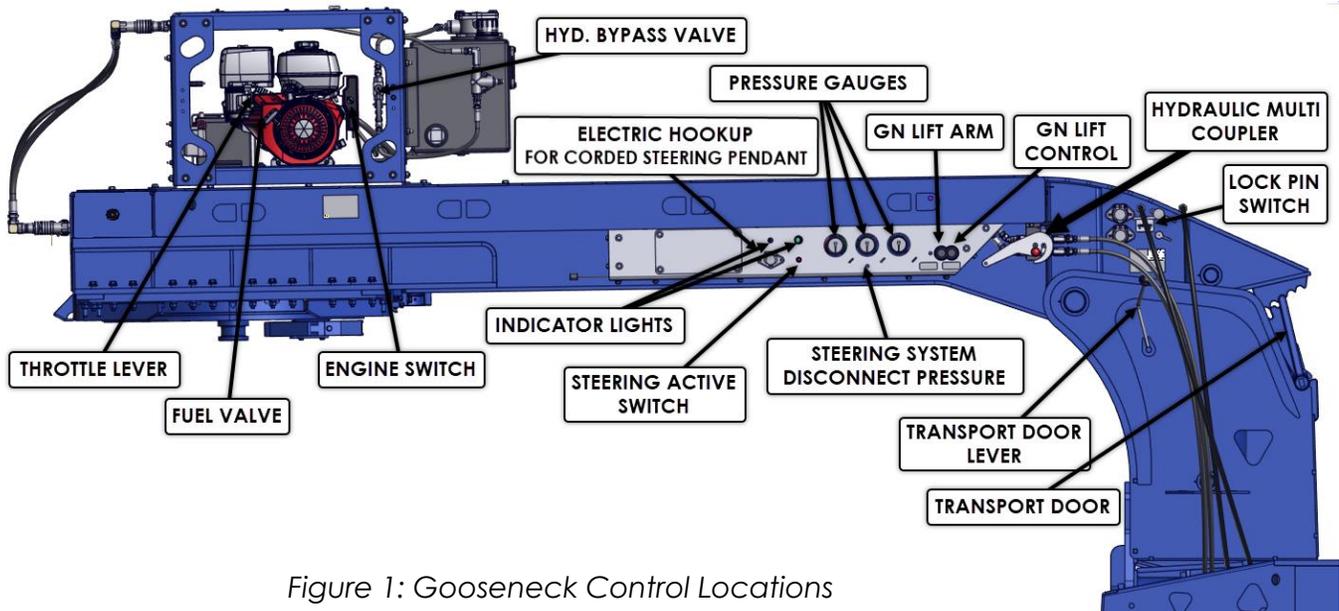


Figure 1: Gooseneck Control Locations

DISCONNECTING THE GOOSENECK FROM THE TRAILER

1. SET the towing vehicle brakes.
2. If the trailer is equipped with an air ride dump valve, Trail King recommends dumping the air in the suspension before loading and unloading.
3. Ensure the trailer air system is charged, then set the trailer brakes.
4. Insert and turn the key on the self-contained unit and start the motor.
5. Adjust the CHOKE/THROTTLE as necessary.
6. Disconnect the air and electrical lines between the gooseneck and the trailer bed.
7. **Release the pressure in the hydraulic system by pressing the momentary switch next to the steering block and then disconnect the hydraulic multi-coupler.** See the section for "Hydraulic Steering Block Operations".
8. Raise the gooseneck off the transport lock doors by operating the **GN LIFT CONTROL** on the gooseneck arm (see Figure 1).
KNOB style: PUSH to raise; PULL to lower, or *LEVER style:* UP to raise, DOWN to lower.
9. Move the **TRANSPORT DOOR LEVER** to the rear of the gooseneck to open the transport doors.
10. Disengage the lock pin for the gooseneck by moving the **LOCK PIN SWITCH** to the "UNLOCK" position.
11. Check to make sure the Gooseneck Support is fully retracted.
12. Lower the gooseneck until the front of the trailer is resting on the ground by operating the **GN LIFT CONTROL**. Continue to lower the gooseneck until you get ¼" to ½" clearance between the gooseneck stirrup hole and the bottom of the trailer pins.
13. Lower the gooseneck support arm onto the rear cross member of the truck to support the gooseneck weight by operating the **GN LIFT CONTROL**.
KNOB style: PUSH to raise; PULL to lower, or *LEVER style:* UP to raise, DOWN to lower.

TRAIL KING TRAILER OPERATIONS

HD-S (Hydraulic Detachable Steering) Trailer

14. Shut the Self-contained unit off and confirm that all lines between the gooseneck and main bed are disconnected. Drive the vehicle and the gooseneck away.
15. Flip the ramps (if equipped) and set for loading/unloading the equipment.
16. Secure the load appropriately before transporting.



• **NOTE • DO NOT SIDE LOAD!!** To do so might damage the beam top flange and possibly result in structural failure of the main beams.

CONNECTING THE GOOSENECK TO THE TRAILER

1. Make sure the brakes are applied on the trailer!!
2. Engage the lock pin on the gooseneck by moving the **LOCK PIN SWITCH** to the "LOCK" position.
3. Back the tractor and the gooseneck up to the front of the trailer bed so the stirrups are around the front pins in the trailer bed and against the front of the bed. (If the stirrups are tight against the trailer bed, the lock pin should be down, CHECK IT!). Minor adjustments to the **GN LIFT CONTROL** may be necessary to achieve the proper loading angle of the gooseneck.
4. Insert and turn the key on the self-contained unit and start the motor.
5. Operate the **GN LIFT ARM CONTROL** to raise or retract the gooseneck support arm.



• **IMPORTANT NOTE •** The **GOOSENECK SUPPORT ARM** must be raised completely before transporting to avoid damage to the tractor or trailer.

6. Operate **GN LIFT CONTROL** to raise the gooseneck and trailer above transport height (see #3 under Loading/Unloading Procedures).
7. Move the **TRANSPORT DOOR LEVER** to one of the transport positions. Each position raises or lowers the kingpin height approximately 1-1/2".

SAFETY NOTE

Moving the transport door control also engages the **LOCK PIN SAFETY PIN** to prevent LOCK PIN release during transport. IF the LOCK PIN is not properly engaged, the gooseneck could disengage from the trailer during transport, resulting in severe personal injury or death and/or severe property damage.

8. Operate **GN LIFT CONTROL** to lower the gooseneck onto the transport lock doors.
9. Make sure the tractor brakes are applied!
10. Connect the air, electrical, and hydraulic steering block from the trailer to the gooseneck.

TRAIL KING TRAILER OPERATIONS

HD-S (Hydraulic Detachable Steering) Trailer

GOOSENECKS WITH FRICTION BLOCKS ON DOOR ADJUSTMENTS

Units equipped with friction blocks (Shown in Figure 2) can be adjusted to vary the force required to operate the gooseneck transport doors.

- Tightening the adjustment bolts (shown below) will increase the force required on the transport handle to adjust the transport doors.
- Loosening the adjustment bolts (shown below) will decrease the required force on the transport handle to adjust the transport doors.

! • **NOTE** • It is recommended that the friction blocks be adjusted so that the doors remain stationary when the handle is released, but do not require significant force on the transport handle to adjust.

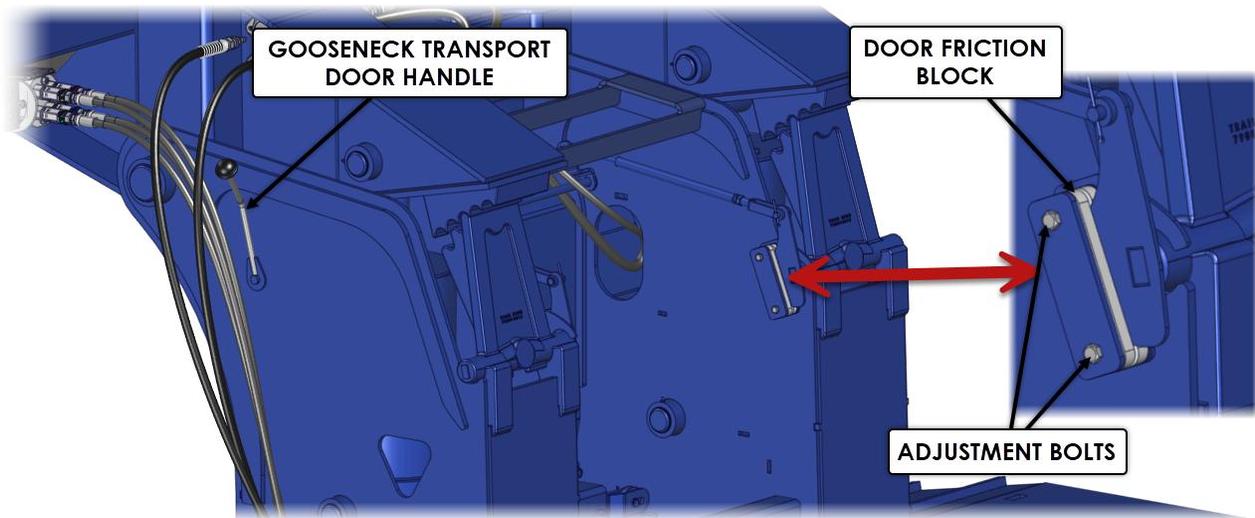
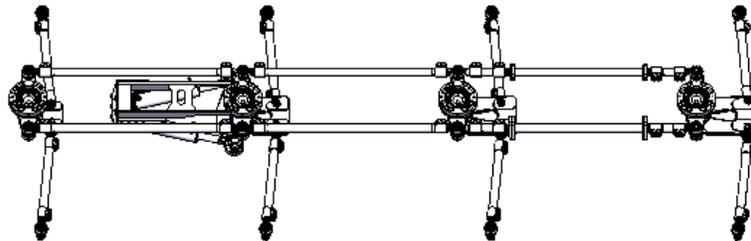
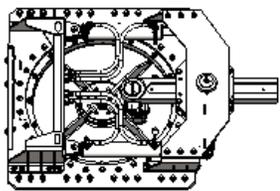


Figure 2 – Gooseneck Door Handle and Friction Block



DRIVING WITH THE STEERING SYSTEM

- The steering characteristics of a steered trailer differ from those of a non-steered one.
- Remember that during the cornering, a steered trailer will exhibit different steering behavior than a non-steered one.

TRAIL KING TRAILER OPERATIONS

HD-S (Hydraulic Detachable Steering) Trailer

COUPLING:

- Make sure that the fifth wheel of the truck is at the same coupling height as the turntable plate of the trailer.

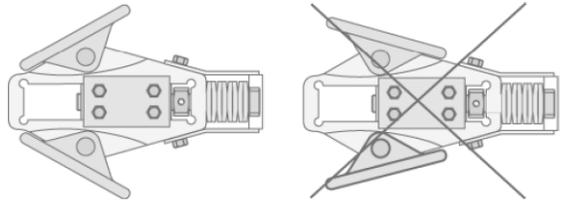


Figure 1. Block position during coupling

CAUTION: An uneven coupling height can lead to undesirable movement of the trailer.

CAUTION: Before coupling, make sure the adjusting blocks of the steering wedge are in the correct position.

STEERING WEDGE:

Inspection: Check the general condition of:

- Steering wedge
- Both adjusting blocks (1) must pivot easily
- The bolts (2 and 3) must be securely tightened.
- The setback nut (4) must contact the end (3 mm gap when coupled).

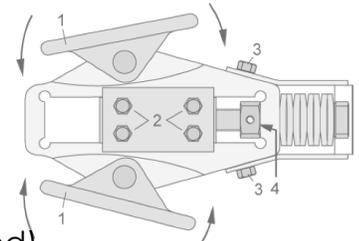


Figure 2. Check

Lubrication:

- The adjustable steering wedge does not require any special maintenance.

Adjusting the steering wedge:

- Remove the retaining cap (10, Fig. 3), if applicable.
- Pivot the adjusting blocks (6) to the coupling position (see Fig. 1 for example).
- Turn the adjustment bolt (11) anti-clockwise and slide the adjustable steering wedge (1) as far back as possible (away from the kingpin) (Fig. 5A).
- Connect the trailer DIRECTLY IN LINE with the truck.
- Turn the adjustment bolt (11) clockwise and slide the adjustable steering wedge directly forward (Fig. 5B).
- Tighten the adjustment bolt (11) until the gap between the set-back nut (3) and the steering wedge housing (7) is just 3 mm (the Belleville spring washers are now under tension).
- Apply Loctite 243 to the bolts (9, Fig. 3).
- Attach the retaining cap (10, Fig. 3) with the two bolts (9). If necessary, (11) tighten the adjustment bolt (11) slightly more so that it is possible to fit the retaining cap.

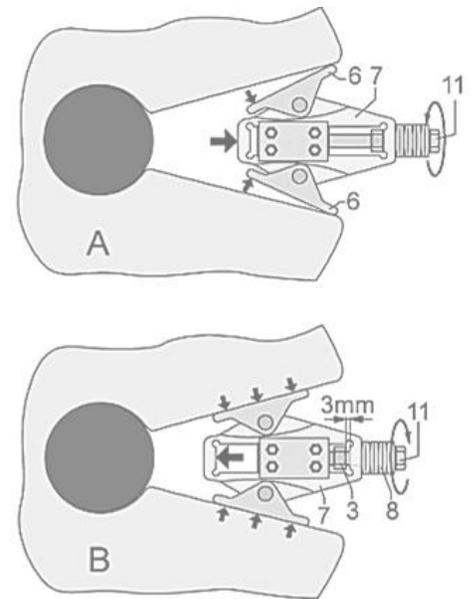
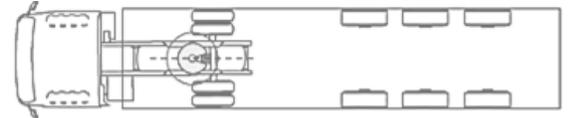


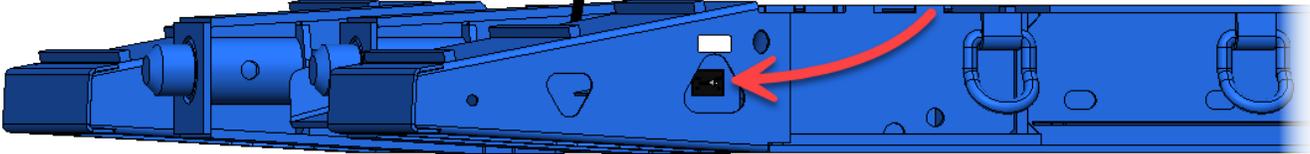
Figure 5. Adjusting the steering wedge

TRAIL KING TRAILER OPERATIONS

HD-S (Hydraulic Detachable Steering) Trailer

PROCEDURE FOR EXTENDING THE TRAILER

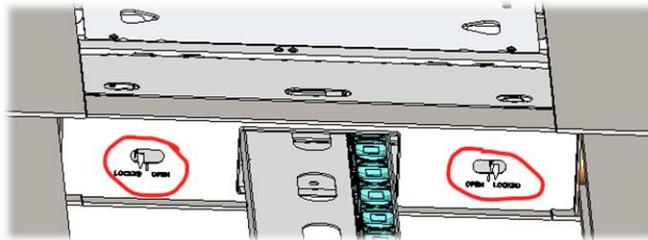
1. Charge the trailer brake system.
2. Apply the trailer brakes.
3. Remove the retainer pins from both sides of the trailer.
4. Locate the lock toggle switch at the front of the load deck in the triangle, as shown below. Move the toggle switch to the "UNLOCK" position. This will disengage the lock pins from the holes in the main beams.



5. Pull the truck forward until the lock pins are just short of the desired locking hole.
6. Move the toggle switch to the "LOCK" position. This will put the spring-loaded pins into the locking position.



7. Slowly pull the truck forward until the lock pins engage with the locking holes.
8. See the rear of the main bed for a visual indicator when the deck is loaded and extended.

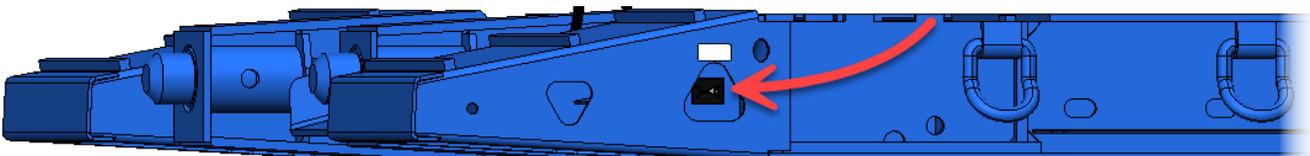


• **IMPORTANT NOTE** • Do a visual check to ensure the lock pins are fully engaged.

9. Put the retainer lock pins into the proper holes.

PROCEDURE FOR RETRACTING THE TRAILER

1. Charge the trailer brake system.
2. Apply the trailer brakes.
3. Move the toggle switch to the "UNLOCK" position. This will disengage the lock pins from the holes in the main beams.



4. Back the truck up until the lock pins are just short of the desired locking hole.

TRAIL KING TRAILER OPERATIONS

HD-S (Hydraulic Detachable Steering) Trailer

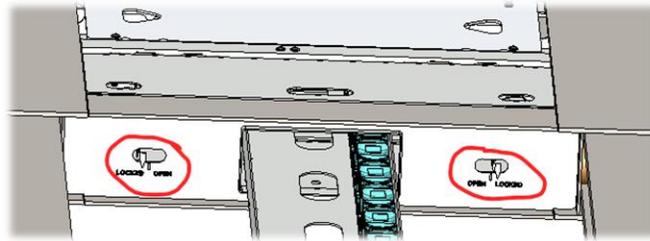
5. Move the toggle switch to the "LOCK" position. This will put the spring-loaded pins into the locking position.



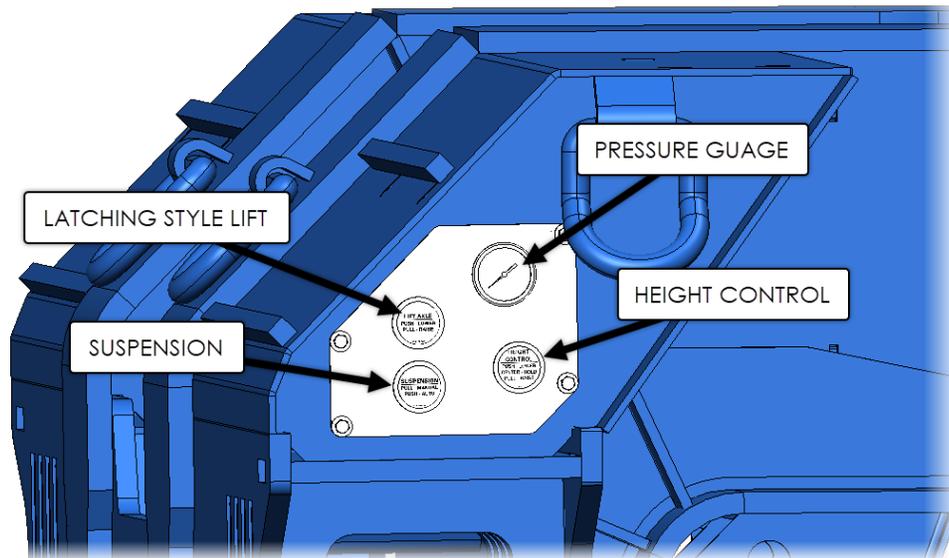
6. Slowly back the truck up until the lock pins engage with the locking holes.

⚠ • IMPORTANT NOTE • Do a visual check to ensure the lock pins are fully engaged.

7. Put the retainer lock pins into the proper holes.
8. See the rear of the main bed for a visual indicator when the deck is loaded and extended.



WHEEL AREA CONTROLS



Wheel Area Control Locations, Front/Driver's Side

SUSPENSION: PULL for manual, PUSH for auto.

HEIGHT CONTROL: PUSH to lower, CENTER to hold, PULL to raise.

⚠ SAFETY WARNING ⚠

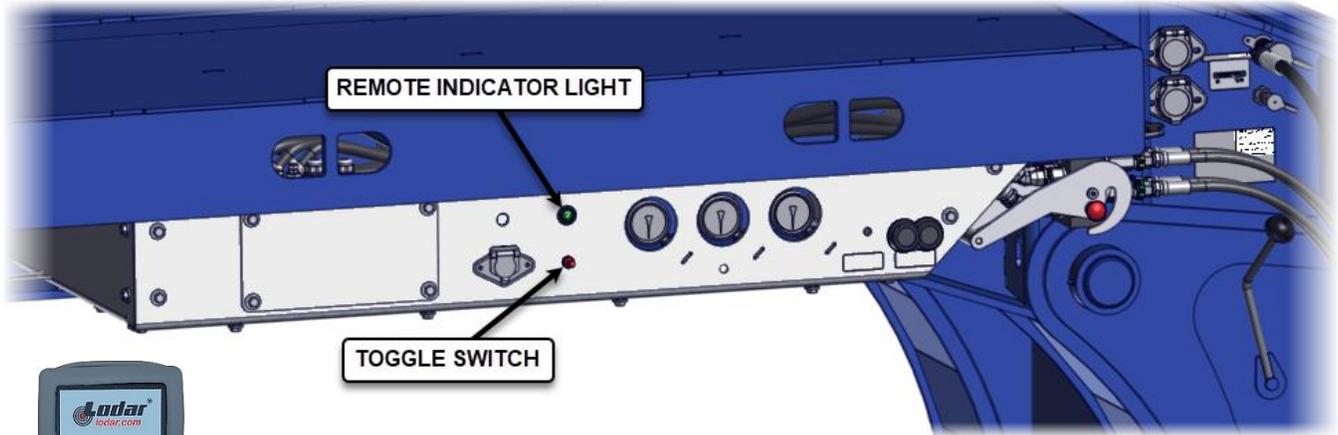
Always keep all personnel clear of the front, rear, and sides of the tractor and the trailer during hookup of the trailer to the tractor or during any movement of the trailer. Keep all persons clear of the trailer while the trailer is moving. Failure to clear personnel can result in injury or death.

TRAIL KING TRAILER OPERATIONS

HD-S (Hydraulic Detachable Steering) Trailer

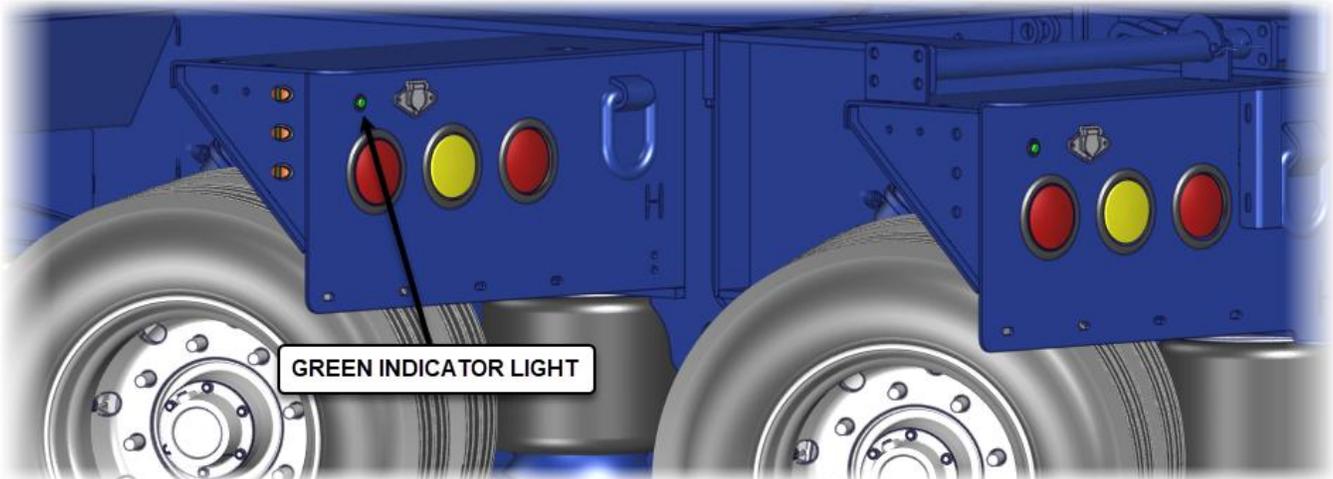
MANUAL HYDRAULIC STEERING

Using the toggle switch shown below on the driver's side of the upper deck, power on the wireless remote or the plug-in wired pendant to the 4-pole at the rear of the trailer. (Standard Lodar wireless remote operations).



Steer as needed by pressing "AXLES LEFT" or "AXLES RIGHT" on the remote.

If the trailer is below 10 mph, the green indicator light at the rear of the trailer will be on, and the remote steering is active and available for use. (Shown below)



Indicator Light: The green indicator light will turn **on** when there is power to the ABS system through the blue wire. This light is used to indicate that the trailer is below 10 mph, and that steering is possible from the remote or pendant. Once the trailer is going over 10 mph, the light will go out, the remote inputs will be ignored, and manual steering will no longer be possible until the trailer speed is reduced below 10 mph.

! • NOTE • When finished steering, it is important to re-align the axles as straightforward as possible.

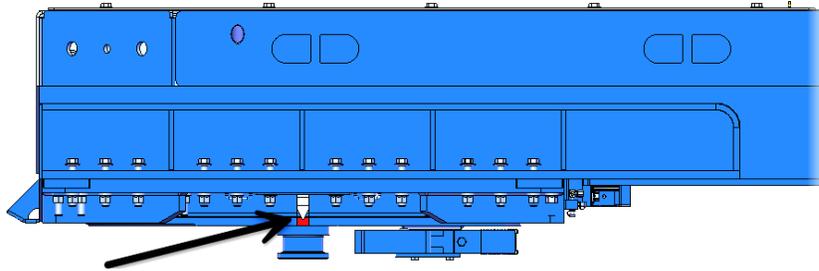
TRAIL KING TRAILER OPERATIONS

HD-S (Hydraulic Detachable Steering) Trailer

ALIGN THE AXLES TO THE KING PIN ACCELERATOR

Before highway transport, the axles must be aligned to the kingpin accelerator plate. To align the axles to the kingpin accelerator plate:

1. Ensure the kingpin steering wedge is tight.
2. Align the tractor straight relative to the trailer.
3. Ensure the indicator plate pointer is centered on the sticker on the accelerator plate. (Located next to the kingpin on the upper deck)



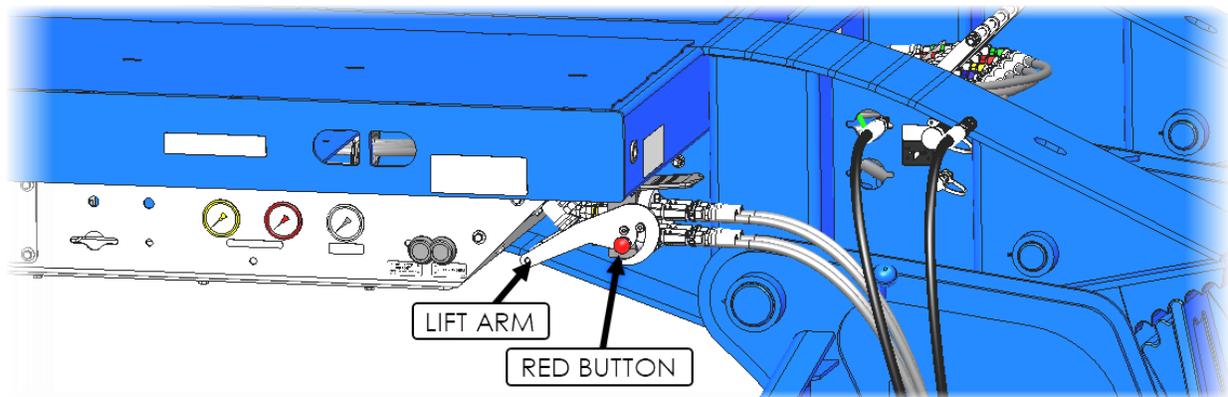
4. When the accelerator plate is aligned straight, enable manual steering and use the remote to align the wheels.
5. When both the kingpin and the wheels are aligned straight, the trailer is ready for highway use. Continue to monitor the trailer throughout transport to ensure it is following correctly.

⚠ • NOTE • Steering hydraulic circuits must have a minimum of 500 PSI in the system to maintain steering performance. Before transport, always verify adequate pressure. If pressure drops below 500 PSI the low-pressure strobe light on the front and rear of the trailer will flash. To recharge steering pressure, turn on the hydraulic self-contained unit and steer the axles to the left and back to the right to build pressure in the system. Once pressure is built up, re-align axles.

REMOVING THE HYDRAULIC STEERING BLOCK AND RELIEVING PRESSURE.

Before disconnecting the hydraulic multi-coupler:

1. Set the kingpin steering valve to disabled.
2. Cycle the multi-coupler pressure relief switch.
3. Push the red button on the side of the multi-coupler and rotate the arm to release.



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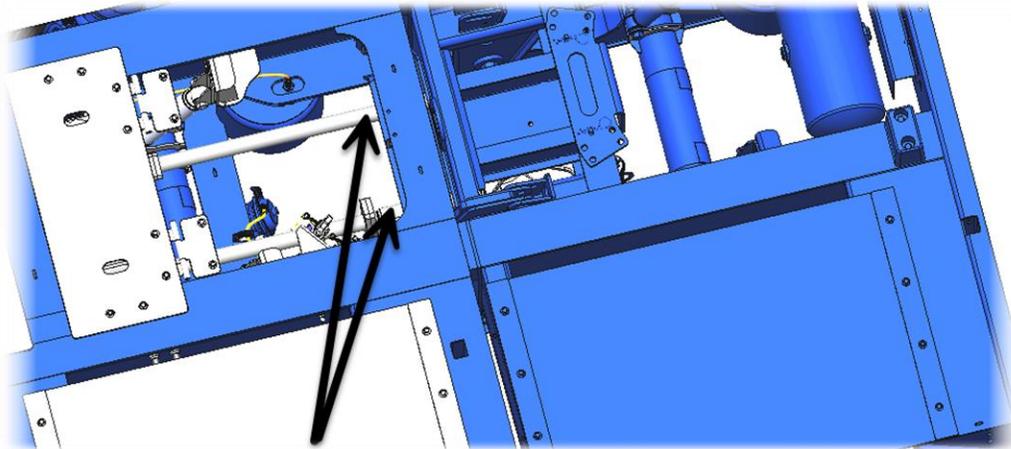
HD-S (Hydraulic Detachable Steering) Trailer

INSTALLING DECK INSERTS

1. De-pressurize the hydraulic steering system using the momentary switch next to the steering block located on the back side of the GN.
2. Disconnect air, electrical, and hydraulic lines between the rear of the mainframe and the wheel area.
3. Using adequate lifting equipment, safely support the rear of the mainframe and the front of the wheel area to relieve load on connecting pins.
4. Remove the keeper bolt from the connecting pins and remove the pins.
5. Move the mainframe and the wheel area apart an adequate distance for the deck insert(s) being installed.
6. Align the deck inserts with the rear of the mainframe and install the connecting pin.
* Make sure the bolt keeper is also installed.
7. Align deck inserts with wheel area and install connecting pin. Make sure the bolt keeper is also installed.
8. Connect air, hydraulic, and electrical lines between deck inserts, mainframe, and wheel area at all connections.
9. Shim joints between mainframe, deck inserts, and wheel area as necessary.

CONNECT AND DISCONNECT FLIP AXLE (ADD A FLIP AXLE OPERATIONS)

Disconnecting the flip axle is similar to most flips with tension links, except for the addition of tie-rod connections and the steering lock.



With the flip axle flipped up, the steering lock plate will bolt into the tie-rod disconnect points and slot into the steering support crossmember to keep the wheels from rotating freely.

