



RAIL KING

LK RK0414

OPERATORS PARTS AND SERVICE MANUAL

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REVISION HISTORY

NAME	DATE	DESCRIPTION OF CHANGE	REV.
J HAAS	11/2019	INITIAL RELEASE	A
J HAAS	6/2020	UPDATE TO MANUAL LOCK PIN	B

Company

Load King has been producing quality trailers since 1956. We are located in Elk Point, South Dakota.

Although the trailer industry is an ever-changing environment and we've seen many changes over the years, we have remained committed to the simple philosophy that we will make a reasonable profit through the designing, manufacturing, and marketing of top quality products that we can always be proud to call Load King. We have not, and will not, compromise in this area.

Quality shows in all facets of an operation, from the moment you make your first phone call for a product inquiry to the time you sell your used equipment and realize you've received top dollar on your sale. We continue to strive for excellence in every area and never quit trying to improve. We have earned our reputation believing that quality is value and value sells products.

Through our shared Engineering, Marketing and Sales teams, Load King and Custom Truck One Source bring that tradition of quality and value to another market with the Rail King.






About Custom Truck One Source

Beginning in February of 2015, three family-owned and operated companies (Custom Truck & Equipment, Utility Fleet Sales and Forestry Equipment of VA) joined together to form what is now Custom Truck One Source. Shortly after its inception, UCO Equipment became a part of the CTOS family along with TNT Equipment six months later. In December 2015, CTOS welcomed its sixth company under its brand, Load King, a leading manufacturer of high-quality and customizable trailers.

The announcement of the partnership represented the platform's collective commitment to the continued growth and dominance of each legacy company's individual offerings, now compounded to leverage the expertise of the team and, ultimately, better serve loyal CTOS customers all over the world. CTOS will build upon the market positions of each legacy company, while serving as a single source supplier of specialty equipment and services for the utility and heavy equipment industries. The utility and heavy equipment platform collectively offers sales, rentals, parts and after market services, remanufacturing, customized equipment and transportation.


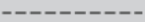


Definitions Used in this Manual

The following table describes text and symbols used to highlight important information.

Signal Word	Symbol	Explanation
DANGER		Danger is used to alert readers about an immediate and serious hazard that will likely be fatal.
WARNING		Warning is used to alert readers about the potential for serious injury or death or serious damage to equipment.
CAUTION		Caution is used to alert readers about the potential for anything from moderate injury to serious equipment damage or destruction.
READ		Read is used to alert readers of information to be read on machinery
NOTE		Note is used for a tip or suggestion to help readers carry out a procedure successfully.

Table—1

The following table describes line types in the parts drawings.

LINE FONTS		DESCRIPTION
	SOLID LINE FONT	INDICATES PART OUTLINES IN THE DRAWINGS.
	DASHED LINE FONT	INDICATES HOW TWO OR MORE PARTS ASSEMBLE.
	KEYED BOX/BRACKET	INDICATES PARTS INSIDE OF A SUB ASSEMBLY.
	DASHED KEY	INDICATES PART NOT VISIBLE OR HIDDEN IN VIEW

Table—2



All pictures shown in this manual are for illustration purpose only. Actual product may vary due to product enhancement.

SAFETY INFORMATION



For the operator's protection, there are warning labels and safety devices on the Rail King that are **NOT** to be tampered with or removed. It is important for the operator to read all warning labels before operating the Rail King. It is the owner's responsibility to ensure that the operator and workers on and around the Rail King understand all of the safety warnings herein and affixed to the machine. **Do not operate the Rail King if safety labels are missing or damaged.**



1. **WARNING:** Do not modify the hydraulic system in any way. Altering the hydraulic system increases the risk of operator injury and structural harm. Removing, altering or bypassing any hydraulic component directly violates and voids the warranty.



2. **WARNING:** All repairs, adjustments, and maintenance not described in Owners Manual must be preformed by Qualified Service Personnel.



3. **DANGER:** Hydraulic system components can contain high pressure of which, if suddenly or unexpectedly released, can cause serious injury or death by direct contact with the pressurized oil or by contact with moving machine components.



4. **DANGER:** This Rail King is a piece of heavy machinery and should be treated as such. Do not operate while fatigued, under the influence of any medication which may impair your ability to operate the machinery safely, or while otherwise impaired.



5. **DANGER:** Keep all body parts away from moving parts. Do not attempt to manually stop or restrain any moving parts.



6. **DANGER:** Always be aware of your surroundings when operating the Rail King. Do not operate in crowded areas, or areas of high traffic.



7. **WARNING:** Be aware of all Railroad safety rules and regulations and follow them at all times.



8. **WARNING:** Understand how the equipment operates and be aware of potential pinch points before operating or servicing Rail King equipment

9. Load King is not responsible for any loss or damage resulting from operators neglect of the safety information provided.

OPERATION



CAUTION: When using Rail King, it is important to have a good understanding of the proper pre-Inspection, post-inspections, and operating guidelines. **By following these steps, you can safely operate Rail King with minimal risks of damage to the machine or the surrounding property.**

1. PRE-USE INSPECTION:

1. Before using Rail King, do a 360 degree walk around to visually inspect that the Rail King will be free of obstructions once in operation.
2. Be sure to check the following:
 - Hydraulic oil level
 - Fuel tank level
 - Radiator fluid level
 - Brakes, parking brake, and all lights are working properly
 - Tires inflated to vehicle manufacturer's specifications
 - Proper guide wheel alignment
3. Visually inspect all critical fasteners to ensure there are no loose or damaged bolts, nuts, or other hardware. Ensure that all lubrication points have been well maintained and lubricated.
4. Visually inspect all hydraulic fittings and hoses for wear, damage, or leaks.
5. If any damage is observed, do not operate until a thorough inspection has been conducted and all necessary repairs have been made.

2. MISALIGNMENT INDICATION:



DANGER: Guide wheel misalignment could result in vehicle derailment and cause serious injury or death. After installing new guide wheel equipment, ensure that guide wheel alignment procedure has been completed. If misalignment is indicated, reperform the guide wheel alignment procedure.

The following conditions may indicate that minor adjustments to the guide wheel equipment alignment are necessary. If any of these conditions occur during operation, perform the Track Test, see Adjustment Section - Vehicle Track Test and/or complete the Alignment Procedure, see Adjustment Section - LK RK0414 Alignment.

1. Excessive flange or tread wear on any of the rail guide wheels.
2. Vehicle pulls noticeably to the left or right during track operation.
3. Vibration felt throughout the vehicle at various speeds during track operation.

OPERATION (CONT.)

3. SPEEDOMETER



WARNING: When wheel/tire modifications are applied, check and change speedometer drive ratio if necessary. The speedometer drive ratio will influence the operation of the vehicle's anti-lock brake systems, electronically controlled transmission shift timing and speedometer display of the true vehicle speed.

Failure to maintain correct speedometer drive ratio could result in severe bodily injury.

Some vehicles require special larger diameter wheels and/or wheel spacers to properly space the vehicle tires for on track operation. Use of these wheel modifications may effect the speedometer drive ratio calibration. The speedometer drive ratio will influence the operation of the vehicle's anti-lock brake systems, electronically controlled transmission shift timing and speedometer display of the true vehicle speed. The vehicle speedometer must be re-calibrated when wheel modifications are applied to the vehicle. See the vehicle manufacturer or dealer for speedometer calibration information.

4. CONTROLS

A remote control is provided with each LK RK0414 unit and is shown below in figure 1.



Figure 1

OPERATION (CONT.)

5. PLACING VEHICLE ON TRACK

5.1) Lowering guide wheels



WARNING: Choose an operating location with traffic and road conditions that allow for safe transition onto rail, do not operate in high traffic areas. Ensure all bystanders are kept well away from the area.

1. Back the vehicle onto the road crossing so that the rear guide wheels are centered above rails
2. Verify that rear guide wheels are centered properly above rails, move the vehicle back and forth if necessary
3. Place the vehicle in Park for automatic transmissions, or Neutral for manual transmissions.
4. Apply the parking brake
5. Pull the manual release lock pin cable to release lock pin.
6. Press and hold the “REAR DOWN” button (See figure 1 on page 9) to begin lowering rear guide wheels
7. Verify that rear guide wheel flanges are on the inside of the rail while the guide wheels are lowering
8. Continue holding the “REAR DOWN” button on the controller until the rear guide wheels are completely lowered, as shown in figure 2



Figure 2

9. Push the manual lock pin cable to engage lock pin
10. Center the front guide wheels above the rail by moving the vehicle
11. Pull the manual release lock pin cable to release lock pin.

OPERATION (CONT.)

12. Press and hold the “FRONT DOWN” button (See figure 1 on page 9) to begin lowering rear guide wheels
13. Verify that front guide wheel flanges are on the inside of the rail while the guide wheels are lowering
14. Continue holding the “FRONT DOWN” button (See figure 1 on page 9) on the controller until the rear guide wheels are completely lowered, as shown in figure 3



Figure 3

15. Push the manual lock pin cable to engage lock pin

5.2) Steering Lock

After lowering both the rear and front guide wheels onto the rail, position the vehicles front tires straight and lock the steering wheel in place using the steering lock shown below in Figure 4. After locking the steering, do not apply any pressure to the steering wheel.



Figure 4

OPERATION (CONT.)

6. CHECKING GUIDE WHEEL LOAD



WARNING: If guide wheels are not properly loaded it may cause the vehicle to be derailed which can result in serious injury. Make sure to check guide wheel load prior to operating the Rail King equipment.

1. Apply parking brake
2. Lower both front and rear guide wheels and turn off the vehicles engine



3. **WARNING:** Only use LRG00160 - RAILWHEEL LOAD JACK when checking guide wheel load. Using a different jack will provide inaccurate results.

4. Place the LRG00160 - RAILWHEEL LOAD JACK in the position indicated in Figure 5

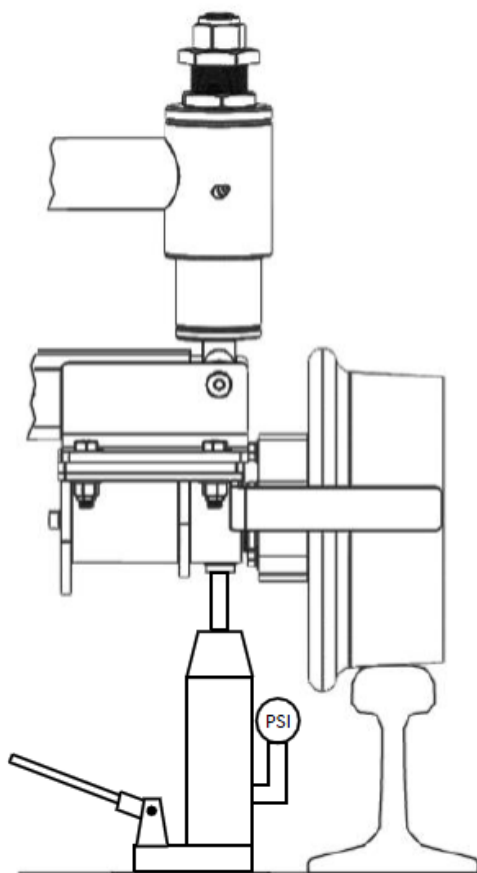


Figure 5



5. **WARNING:** Only use the LRG00160 - RAILWHEEL LOAD JACK for it's intended use. Do not use this jack to lift the vehicle, misuse of this jack could result in injury. Read Ansi 40.1 before use.

6. Jack the guide wheel up until it clears the rail and record the guide wheel load on the gauge (displayed in pounds).

OPERATION (CONT.)

7. The recommended guide wheel load is 600 lbs \pm 50 lbs (272 kg \pm 22.7 kg) for each guide wheel, when the vehicle is at curb weight. Both right and left side guide wheel loads must be equal on both the front and rear.



8. **WARNING:** Do not exceed 1350 lbs (612 kg) per guide wheel, do not operate on rail if this maximum load is exceeded. See page 19 if adjustments are required

7. ON RAIL OPERATION



WARNING: Improper guide wheel loading can result in derailment of the vehicle. Never operate the vehicle before checking the guide wheel load. If load exceeds the maximum rated load of 1350 lbs (612 kgs) on the front and/or rear guide wheel units.

7.1) Propelling on Rail



CAUTION: When operating on rail, observe and follow all railroad safety rules and regulations. Look all directions for persons or objects on or near the track.

Do not exceed 45 mph (72 km/h) during on rail operation. Railroad speed limits should be observed at all times. Speeds should be reduced when operating the vehicle through switches, crossings, branch lines and any special track works. High speeds during on rail operation can result in derailment.

Accelerate gradually, sudden acceleration could result in spinning vehicle tires which can cause damage.

During on rail operation, steering lock is required at all times.

If required by the railroad rules and regulations, the strobe light must be turned on during on rail operation.

Vehicles equipped with LK RK0414 use the vehicle propulsion system for propelling on track.

7.2) Breaking on Rail



CAUTION: Always be alert to track and weather conditions that may affect stopping distance, be sure to allow adequate stopping distance.

This vehicle will not operate track signal circuits, operators must be prepared to stop at all road crossings.

Vehicles equipped with LK RK0414 use the vehicle brake system for braking on track.



CAUTION: Brakes should be applied gradually early, stopping distances on rail are greater than when operating on roads. Sudden braking may result in sliding tires.

OPERATION (CONT.)

8. REMOVING VEHICLE FROM TRACK



WARNING: Choose an operating location with traffic and road conditions that allow for safe transition onto rail, do not operate in high traffic areas. Ensure all bystanders are kept well away from the area.

1. Drive the vehicle onto the road crossing and come to a complete stop
2. Place the vehicle in Park for automatic transmissions, or Neutral for manual transmissions.
3. Apply the parking brake
4. Pull the front manual release lock pin cable to release lock pin
5. Press and hold the “FRONT UP” button (See figure 1 on page 9) until the front guide wheels have returned to the highway position, then push lock pin cable to engage lock pin.
6. Pull the rear manual release lock pin cable to release lock pin
7. Press and hold the “REAR UP” button (See figure 1 on page 9) until the rear guide wheels have returned to the highway position, then push the lock pin cable to engage lock pin
8. Remove Steering lock and begin on road travel

8.1) Hand Pump Operation

If the guide wheels are stuck in the on rail position and will not raise, the hand pump can be used to raise them back into the on road position. The hand pump cannot be used to transition to the on rail position.

1. Insert the pump handle into the location (1) shown below in Figure 6
2. Turn the bypass knob (2)
3. Crank the hand pump up and down until the guide wheels are fully raised into the on road position

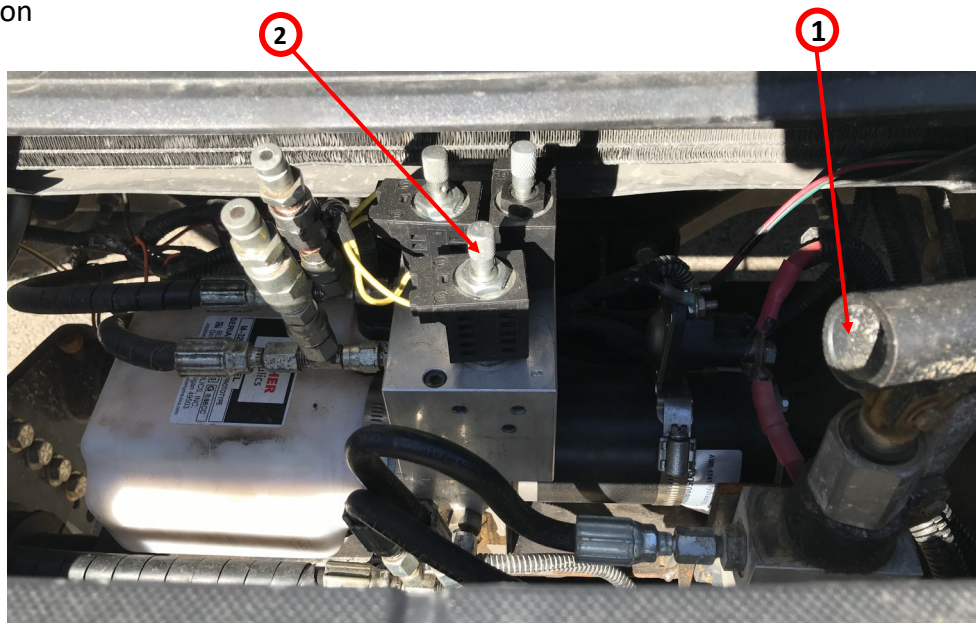


Figure 6

OPERATION (CONT.)

9. HIGHWAY OPERATION



CAUTION: This vehicle is equipped with features that may cause it to handle differently than a normal highway vehicle. Always remain alert and wear your seat belts. Refer to the vehicle manufacture's owner's manual for more information.

10. ON RAIL TOWING



WARNING: Check vehicle manufacture's owner's manual for information and safety warnings regarding towing a trailer or equipment. Do not exceed maximum towing capacity. Do not exceed 20 mph (35 km/h) while towing a trailer or equipment on rail. Ensure trailer or equipment being towed is in proper working condition.

1. Ensure trailer or equipment being towed is in proper working condition
2. Ensure that both guide wheels are completely lowered in the on rail position
3. Towing a trailer or equipment on rail will increase stopping distance, begin braking early to avoid slippage
4. Only use towing hitches and other equipment that is properly attached to the vehicle's frame and has a rating that is greater than or equal to the weight being towed

11. ON ROAD TOWING



WARNING: Check vehicle manufacture's owner's manual for information and safety warnings regarding towing a trailer or equipment. Do not exceed maximum towing capacity. Ensure trailer or equipment being towed is in proper working condition.

1. Ensure trailer or equipment being towed is in proper working condition
2. Ensure that both guide wheels are completely raised in the on road position
3. Towing a trailer or equipment will increase stopping distance, begin braking early to avoid slippage
4. Only use towing hitches and other equipment that is properly attached to the vehicle's frame and has a rating that is greater than or equal to the weight being towed
5. Obey all federal, state, and local laws

OPERATION (CONT.)

12. TOWING DISABLED VEHICLE ON RAIL



WARNING: Vehicle being towed must weigh less than or as much as the towing vehicle or machine. Towing vehicle or machine must be able to safely come to a stop. Do not exceed 10 mph (16 km/h) when towing a disabled vehicle on rail. Tow bar should not be mounted the Rail King equipment, always mount tow bar to disabled vehicles frame. Only use a tow bar with safety couplers, and never exceed tow bar's rated capacity.

1. Refer to the vehicle owner's manual for towing information.
2. Verify that both guide wheels are completely lowered in the on rail position and positioned correctly on the rail.
3. Verify that steering lock is in place
4. Verify that towing vehicle or machine, tow bar, and all other equipment is in proper operating condition
5. Obey all railroad safety rules and regulations
6. Accelerate gradually to avoid wheel slippage
7. Towing a disabled vehicle on rail will increase stopping distance, begin braking early to avoid slippage
8. Tow the vehicle to the closest road crossing where the disabled vehicle can safely be removed
9. Remove disabled vehicle from rail

13. TOWING DISABLED VEHICLE ON ROAD



WARNING: Vehicle being towed must weigh less than or as much as the towing vehicle. Towing vehicle must be able to safely come to a stop. Operate at a safe speed when towing a disabled vehicle on road. Towing equipment should not be mounted the Rail King equipment, always mount towing equipment to disabled vehicles frame. Never exceed towing equipment's rated capacity.

1. Refer to the vehicle owner's manual for towing information.
2. Verify that both guide wheels are completely raised in the on road position
3. Verify that steering lock is removed from the steering wheel
4. Verify that towing vehicle and all other equipment is in proper operating condition
5. Obey all federal, state, and local traffic laws
6. Accelerate gradually to avoid wheel slippage
7. Towing a disabled vehicle on road will increase stopping distance, begin braking early to avoid slippage

ADJUSTMENTS



WARNING: Prior to performing any adjustments or maintenance to the Rail King unit or vehicle, place the vehicle in Park for automatic transmissions, or Neutral for manual transmissions, and apply the parking brake. Understand how the equipment operates and be aware of potential pinch points before servicing Rail King equipment

Alignment must be completed after installation of the LK RK0414, and if there is any indication of misalignment.

1. VEHICLE CHECK

1. Verify that the vehicle is at curb weight by removing any objects that are not permanent vehicle attachments
2. Record the total vehicle weight, as well as the weight at both the front and rear axles. Verify that the total weight does not exceed the Gross Vehicle Weight Rating, and that neither the front or rear axles exceed their Gross Axle Weight Ratings
3. Any equipment that causes the guide wheels to be unevenly loaded need to be compensated for. This can be done by adjusting the vehicle suspension
4. Verify tire pressures match the vehicle manufacturer's specifications
5. Visually inspect all critical fasteners to ensure there are no loose or damaged bolts, nuts, or other hardware. Ensure that all lubrication points have been well maintained and lubricated.
- 6.
7. Verify that the vehicle that the LK RK0414 is to be mounted on is in proper working condition and is correctly equipped
8. Take the following measurements on the vehicle before mounting the LK RK0414:
 - Frame must be square. Diagonal measurements of frame should be equal within 1/8 inch (3.2 mm).
 - Wheelbase (as measured on each side) must be equal within 1/16 inch (1.8 mm).
 - Vehicle axles must be square with the frame within 1/64 inch per foot (.4 mm per 305 mm). Load King Rail recommends that this be checked by an alignment shop.



NOTE: After applying the LK RK0414, leave the application drawings with the vehicle. Contact Load King to request more drawings.

10. A four point alignment should be completed on the vehicle after the LK RK0414 has been mounted. This should include checking the caster, camber, toe-in and torsion bar specifications on the front wheels. Also, check that the thrust angle of the rear axle is as close to zero as possible, and make any necessary adjustments.

ADJUSTMENTS (CONT.)

2. PLACING VEHICLE ON TRACK FOR ALIGNMENT

1. Place the vehicle on straight, level, tangent track or on a purpose built alignment rack. If neither option is available, 4 x 6 inch lumber can be placed on a solid level surface to be used in place of the track. The inside edges of the lumber need to measure 57-1/2 inches between each edge.
2. See "PLACING VEHICLE ON TRACK SECTION" on page 10
3. Set the vehicle wheels straight and apply steering lock.
4. Place the vehicle in Park for automatic transmissions, or Neutral for manual transmissions, and apply the parking brake.
5. Turn off the engine

3. GUIDE WHEEL BACK FLANGE GAUGE

1. Measure from the inside of the flange of one guide wheel to the inside of the flange of the opposite guide wheel, as shown below in figure 7. This dimension needs to be between 53-3/16 - 53-5/8 inches (1351 - 1362 mm).
2. This is preset by Load King, but it is possible for this measurement to change after the unit undergoes an alignment procedure. Anytime an alignment procedure is performed, verify that this dimension remains within the allowable limit.

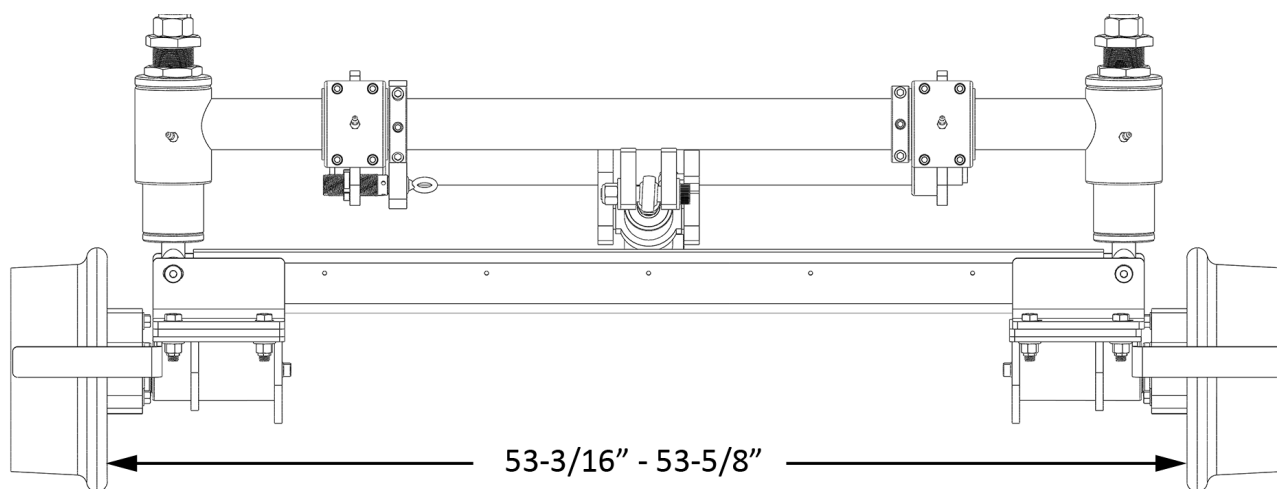


Figure 7

ADJUSTMENTS (CONT.)

4. ADJUSTING GUIDE WHEEL LOAD

NOTE: The recommended guide wheel load is 600 lbs \pm 50 lbs (272 kg \pm 22.7 kg) for each guide wheel, when the vehicle is at curb weight. Both right and left side guide wheel loads must be equal on both the front and rear. See page 12 for how to check guide wheel load.

1. Raise the guide wheels up off of the rails enough to remove all the load off of the guide wheels, letting them rest on the rails



2. **WARNING:** Do not adjust the spring cell while the guide wheels are under load
3. Loosen lock nut (1), shown on Figure 8. Insert a 1/2 inch drive ratchet into the 1/2 inch socket in the adjusting stud (2). Turn the adjusting stud clockwise to increase the load on the guide wheel or counter-clockwise to decrease the load on the guide wheel. Tighten lock nut (1).
4. Repeat the checking guide wheel load process on page 12, and readjust if necessary until the left and right and left sides equal each other on the front and rear, and are within the recommended guide wheel load rating

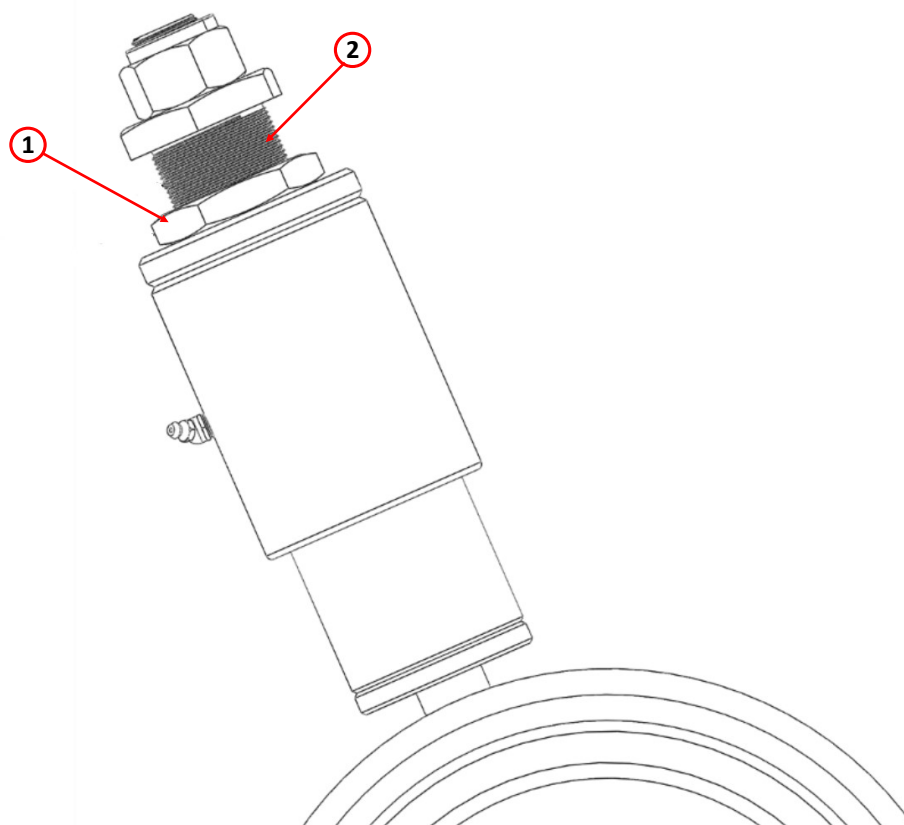


Figure 8

ADJUSTMENTS (CONT.)

5. STRING LINING SET-UP - See Figure 9

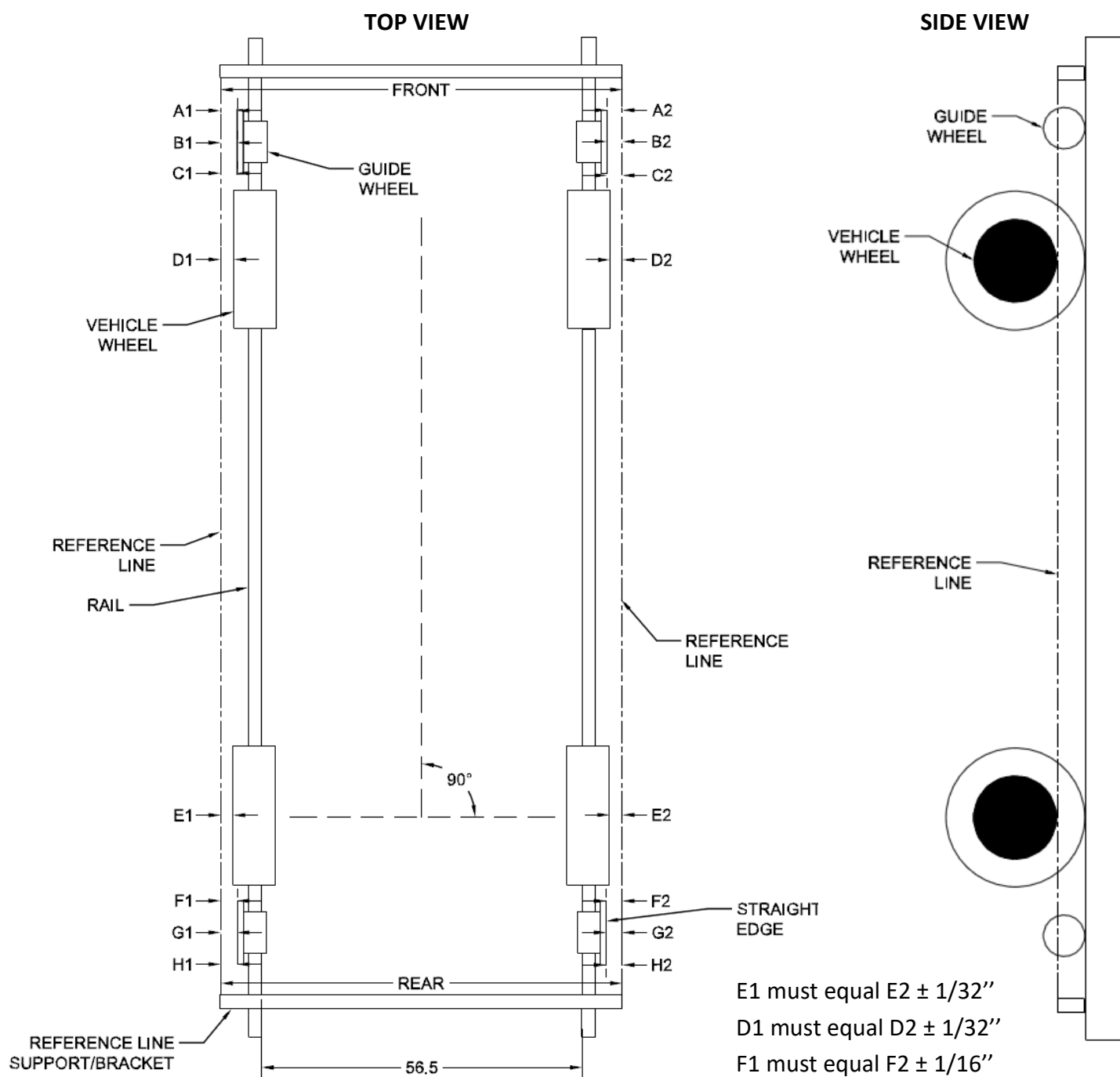
1. This procedure should only be used to check guide wheel alignment and to make alignment adjustments, it will not guarantee that the LK RK0414 equipped unit will track properly. Load King recommends track testing all LK RK0414 equipped vehicles. Perform track testing with the vehicle at its normal operating load
2. The following lists when the vehicle should be track tested:
 - After the LK RK0414 is installed on the vehicle
 - The vehicle's operating load has changed
 - After an adjustment to the LK RK0414 has been made

NOTE: The vehicle should be track tested periodically to ensure it is operating and tracking properly

3. Parallel reference lines should be established on both sides of the vehicle (see figure 9). This can be done by building supports or brackets, about 6 inches high, and extend several inches past the entire length of the vehicle
4. Use clamps to secure the supports or brackets to the rail in the locations shown in figure 9.
5. Stretch wires between the front and rear supports to establish the reference lines. The wires should be spaced about 72 inches apart, and the distance between them must be equal $\pm 1/32$ inch at each support. Wires must be level, and should be level with the bottom of the vehicles rim
6. Dimensions $E1=E2$ and $D1=D2$ need to be equal $\pm 1/32$ inch, shift the supports on the rail until this is achieved. Take these measurement at the bead seat of the vehicles rim, in line with the axle. Always keep the supports at a right angle to the rail
7. After establishing reference lines, take the measurements shown on figure 9 to verify that the guide wheels are correctly aligned

ADJUSTMENTS (CONT.)

Figure 9



NOTE: Reference line should be level and approximately tangent to bottom of the vehicle wheel's rim

- E1 must equal $E2 \pm 1/32''$
- D1 must equal $D2 \pm 1/32''$
- F1 must equal $F2 \pm 1/16''$
- C1 must equal $C2 \pm 1/16''$
- F1 must equal $H1 \pm 1/16''$
- F2 must equal $H2 \pm 1/16''$
- A1 must equal $C1 \pm 1/16''$
- A2 must equal $C2 \pm 1/16''$
- G1 must equal $G2 \pm 1/16''$
- B1 must equal $B2 \pm 1/16''$
- FRONT must equal $REAR \pm 1/32''$

ADJUSTMENTS (CONT.)

6. LK RK0414 ALIGNMENT

7.1) Checking LK RK0414 Alignment - See Figure 9

1. Lower the front and rear guide wheels into the on rail position. Take measurements D1, D2, E1 & E2, as shown in figure 9. These measurements must be equal $\pm 1/16$ inch, make adjustments if necessary. Measurements should be taken from the outer edge of the guide wheels, below the wheels centerline, to the reference lines shown in figure 9.
2. Lower the guide wheels into the on rail position. To ensure that the guide wheels track straight and aren't toed in or out, hold a two foot long straight edge centered on the guide wheel against the guide wheel's outer edge. The following dimensions must be equal $\pm 1/16$ inch: A1 = C1, A2 = C2, F1 = H1 & F2 = H2 (shown on Figure 9). Make adjustments if necessary

7.2) Adjusting Guide Wheels - See Figure 10 and 11

1. Raise the front and/or rear guide wheels until they rest on the rail.
2. Loosen the four socket head cap screws (1) on both tube clamps (2), the two (3) on lock plate (4), and the two (7) on the shaft collar (6).
3. Shift the pivot tube and axle assembly (5) until measurements D1 & D2 or G1 & G2 are all equal.
4. Re-tighten socket head cap screws (1) and (7). Torque to 35 lb-ft (47 N-m).
5. Lower and lock the guide wheels in the "rail" position. Recheck measurements D1, D2, G1 and G2.
6. Set the lock plate (4) in position and re-tighten (3)
7. Repeat steps 1 through 6 until measurements B1, B2, G1 and G2 are all equal $\pm 1/16$ inch.

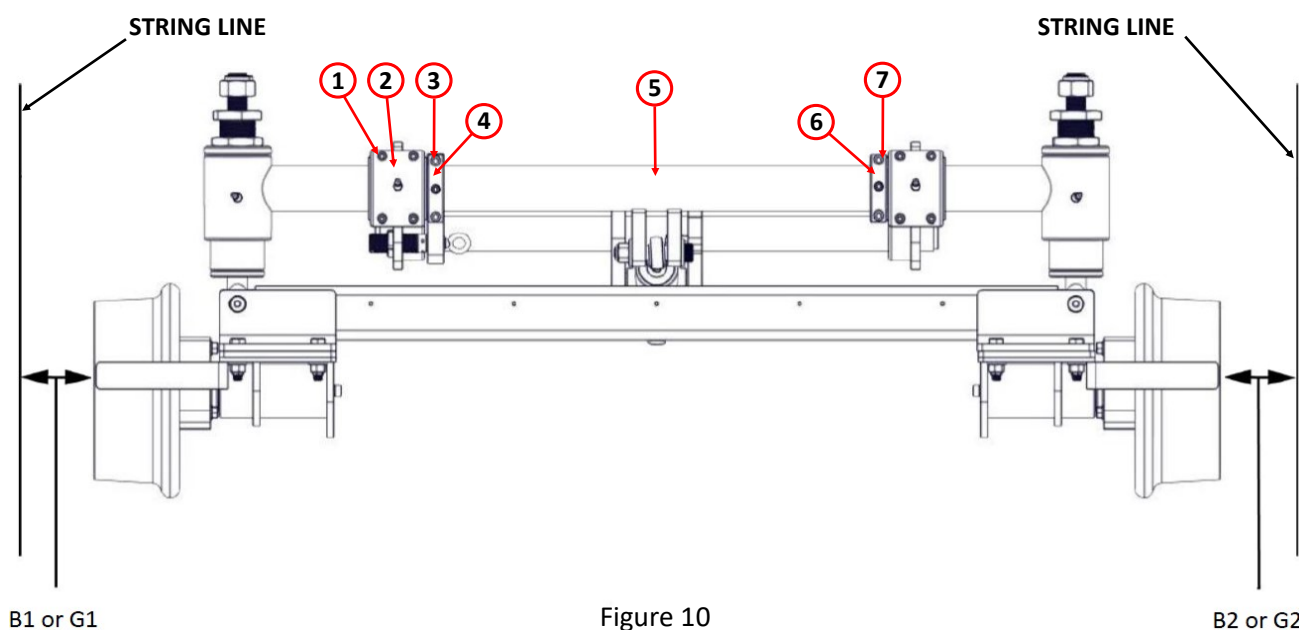


Figure 10

ADJUSTMENTS (CONT.)

8. Raise the front and/or rear guide wheels until they rest on the rail
9. Loosen the four fasteners (1) that secure the wheel mount (2) to the axle tube assembly (3)
10. Holding the straight edge against the outer edge of the guide wheel, pivot the wheel mount assembly (2) until the dimensions $A1 = C1$, $A2 = C2$, $F1 = H1$ and $F2 = H2$ are all equal $\pm 1/16"$
11. Re-tighten fasteners (1). Torque to 100 lb-ft (136 N-m)
12. Lower and lock the guide wheels in the "rail" position. Recheck dimensions $A1 = C1$, $A2 = C2$, $F1 = H1$ and $F2 = H2$
13. Repeat steps 1 through 5 until dimensions $A1 = C1$, $A2 = C2$, $F1 = H1$ and $F2 = H2$ are all equal $\pm 1/16"$

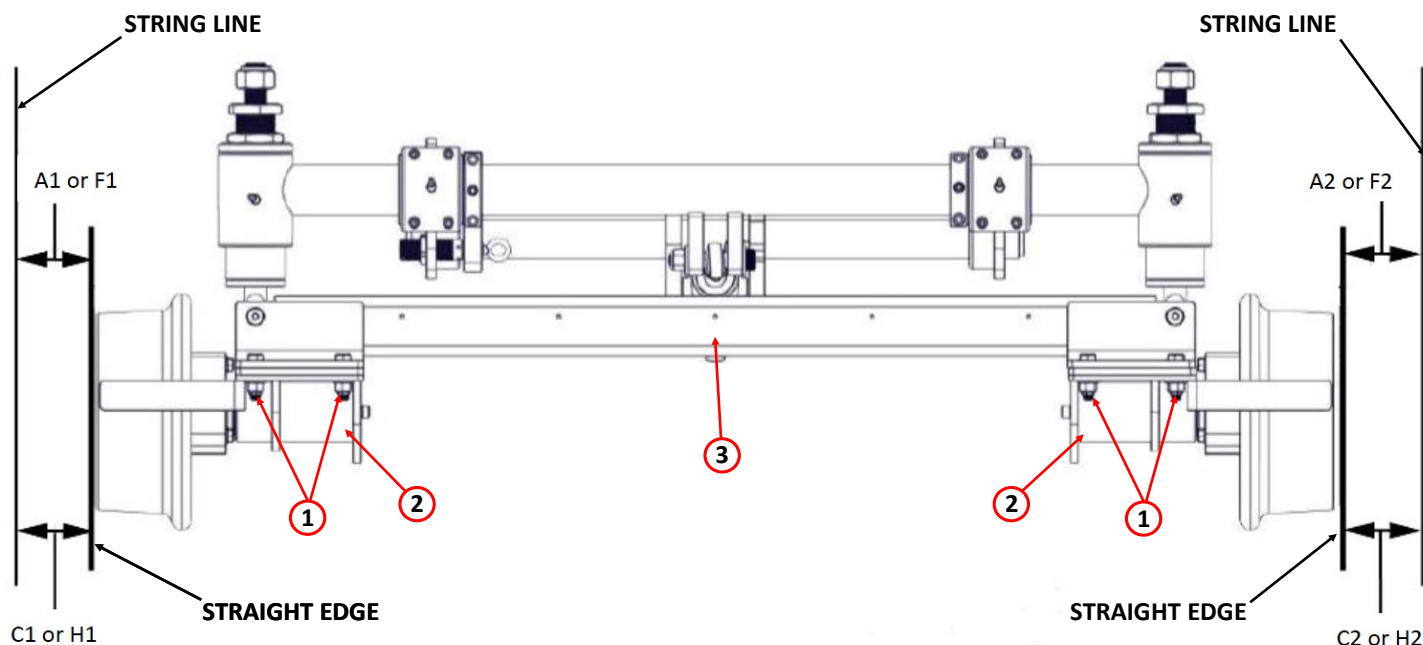


Figure 11

ADJUSTMENTS (CONT.)

7. VEHICLE TRACK TEST



WARNING: If you suspect misalignment has occurred, check alignment and make any necessary adjustments. Misalignment could cause derailment of the vehicle. Perform track testing with the vehicle at its normal operating load.

1. The following lists when the vehicle should be track tested:

- After the LK RK0414 is installed on the vehicle
- The vehicle's operating load has changed
- After an adjustment to the LK RK0414 has been made



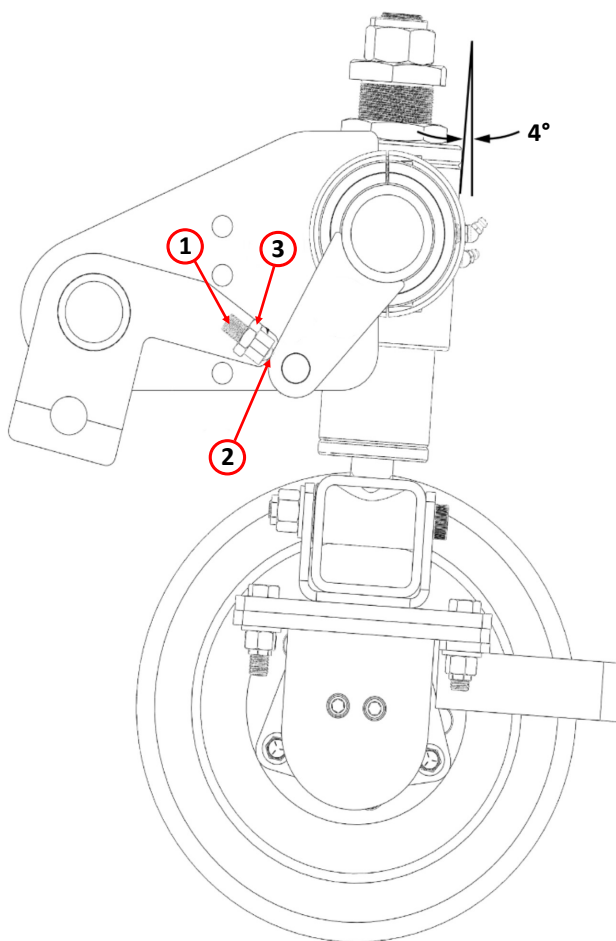
NOTE: The vehicle should be track tested periodically to ensure it is operating and tracking properly.

2. Place the vehicle on straight, level, tangent track. See Page 10, Placing Vehicle On Track
3. Spray paint all the guide wheel's flanges and treads
4. Lower all guide wheels in the on rail position
5. Propel the vehicle forward down the track at a normal speed for a short distance
6. Check to see if the paint wore evenly around the flanges and treads of all the guide wheels. This means that the Rail King equipment is aligned properly
7. If you find that the paint did not wear evenly, note which guide wheels, flange and / or tread the paint is worn on. Reapply spray paint to all of the guide wheels and propel the vehicle in reverse at a normal speed for a short distance
 - c. Note which guide wheels, flange and / or tread the paint is worn on. If the paint wore off on the left rear flange when traveling backwards, but on the right front flange when traveling forward, the vehicle is probably misaligned. Check the vehicles frame for proper alignment
8. If the vehicle pulls noticeable to the right when traveling forward, adjust the right front guide wheel to a slightly towed-in position
9. If the vehicle pulls noticeable to the left when traveling forward, adjust the left front guide wheel to a slightly towed-in position
10. Repeat the String Lining and Guide Wheel Alignment Procedure if necessary

ADJUSTMENTS (CONT.)

8. SPRING TUBE ANGLE

1. The LK RK0414 spring tube angle needs to be checked often and adjusted if necessary.
2. The spring cells should be adjusted so they angle towards the center of the vehicle by 4 ± 1 degrees. Set screw (1) is used to set the angle of the spring cells when the unit is in the rail position.
3. Place the vehicle on straight, level, tangent track. Lower the rear and front guide wheels to the on rail position. Make sure the set screw (1) is against the pivot plate (2) on the guide wheel unit frame.
4. Hold an inclinometer on the front or rear of the spring cell tube. If the inclinometer indicates 4 ± 1 degrees, the spring cell angle is adjusted correctly. If not, the spring cell angle will need to be adjusted.
5. Raise the guide wheels. Loosen locknut (3). Rotate set screw (1) clockwise to decrease the angle or counter-clockwise to increase the angle. Tighten locknut (3). Lower the guide wheels to the on rail position and remeasure the spring cell angle. Repeat steps 1 through 4 until the spring cell is angled 4 ± 1 degrees towards the center on the vehicle.



9. CHECKING RAIL

SWEEPS

ADJUSTMENTS (CONT.)

1. Place the vehicle in Park for automatic transmissions, or Neutral for manual transmissions. Apply the parking brake and turn off the engine
2. Lower guide wheels into the on rail position
3. The rubber sweep should clear the top of the rail by 1/4 inch (6.4 mm), adjust if necessary

10. ADJUSTING RAIL SWEEPS - See Figure 12

1. Loosen two fasteners. Adjust the rubber sweep until the sweep clears the top of the rail by 1/4 inch (6.4 mm), and re-tighten the fasteners.
2. Replace both rubber sweep when they are worn down and can not be adjusted lower

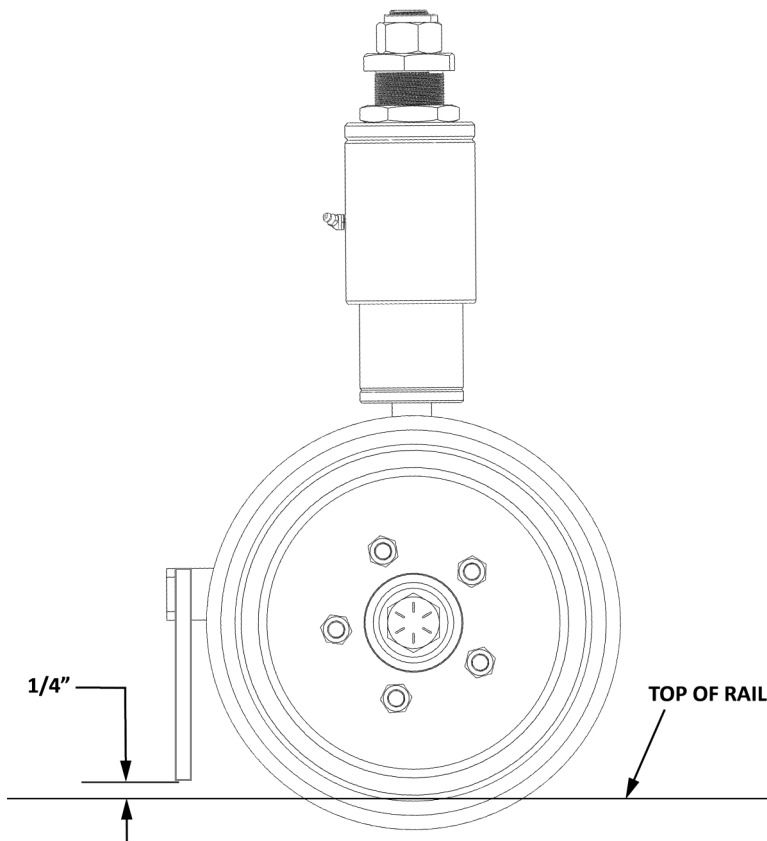


Figure 12

LUBRICATION AND MAINTENANCE

1. MAINTENANCE SCHEDULE

WARNING: After the first 50 miles (80 Km) of travel, re-torque vehicle wheel lug nuts, wheel spacer lug nuts and guide wheel lug nuts. After the first 50 miles of travel, continue to torque wheel nuts according to recommended maintenance schedule.



1. Inspect both guide wheel units for damage and lose or missing parts
2. Check that hydraulic locks are operating properly, and replace if necessary
3. Verify that the hydraulic fluid reservoir oil level is full, and fill with the proper oil if necessary
4. Always listen for unusual noises when vehicle is in operation and quality of ride. These can be indications of damaged or missing parts, or misalignment

Weekly:

1. Verify that the LK RK0414 is properly aligned, make adjustments if necessary
2. Inspect each guide wheel for wear or damage
3. Rotate each guide wheel by hand and verify that they can be easily rotated
4. Inspect vehicle wheels, studs, lug nuts and tires for wear or damage, and verify the tires are inflated to vehicle manufacture's specifications.
5. Verify that all bolt and fasteners are tight

After 50 Miles (80 km) Of On Road Travel:

1. After 50 miles (80 Km) of on road travel after initial vehicle wheels installation, after installing new tires, or after rotating tires, torque wheel spacer and vehicle wheel lug nuts to the recommended specifications. Refer to wheel manufacturer's wheel torque specifications.

At 50 Miles (80 km) Of On Rail Travel:

1. After 50 miles (80 Km) of on rail travel after initial LK RK0414 installation, torque guide wheel lug nuts to the recommended specifications.

After Every 2000 Miles (3200 km) Of On Rail Travel:

1. Lubricate the guide wheel equipment after a maximum of every 2000 miles (3200 km) of on rail travel, or every time the vehicle is serviced. See Lubrication on page 28.
2. Torque guide wheel lug nuts to 90 lb-ft (122 N-m).

Annually:

1. Annual inspections should be preformed as required by railroad rules and regulations.

2. LK RK0414 LUBRICATION

LUBRICATION AND MAINTENANCE (CONT.)

CAUTION: ALL grease zerks are to be topped off prior to first use and after every 2000 miles (3200 km) of on rail travel, or every month following.



LK RK0414 Lubrication - See Figure 13

1. Apply the vehicle parking brake
2. Stop the engine
3. Lubricate all grease fittings using general purpose grease.

NOTE: LK RK0414 uses sealed bearings inside the guide wheels. Do not re-pack the guide wheel bearings, if the bearings are worn, the integral spindle assembly needs to be replaced.



Lubricate grease zerks in spring tubes, tube clamps, and hydraulic cylinder rod end (5 total). *Locations indicated with red arrows below*

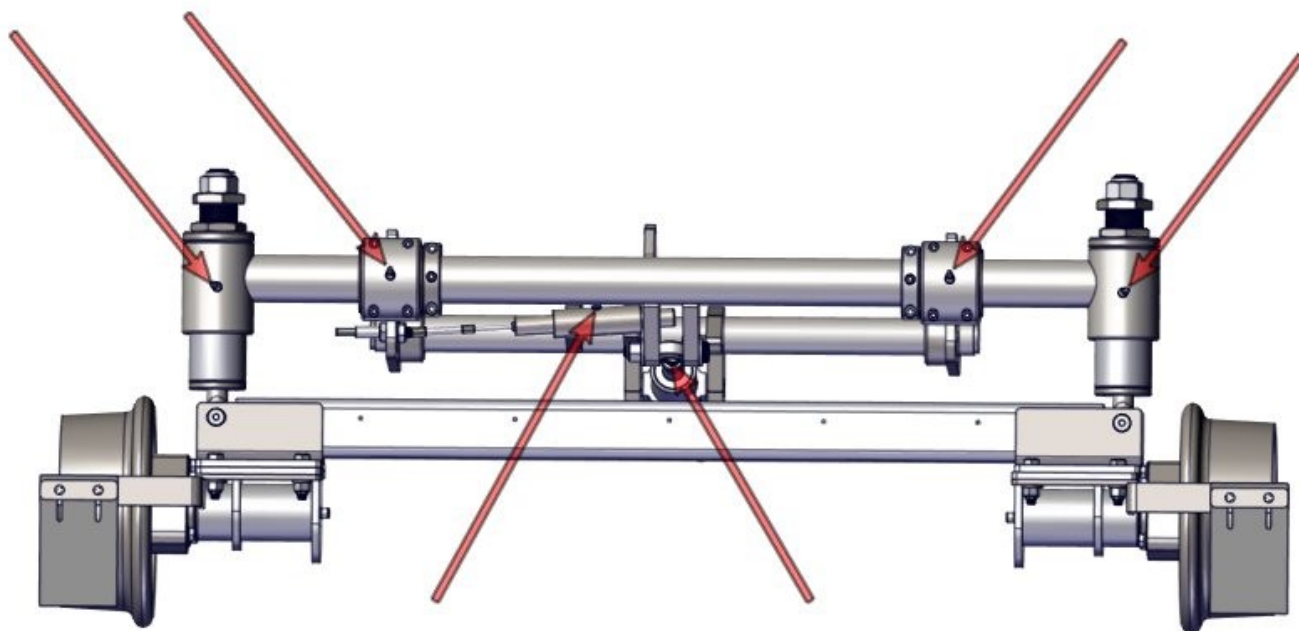


Figure 13

LUBRICATION AND MAINTENANCE (CONT.)

3. GUIDE WHEELS ALLOWABLE WEAR

LRG00002 Steel Guide Wheel - See Figure 14



WARNING: If a guide wheel has been damaged and/or is worn more than the allowable limits, they need to be replaced immediately.

1. You will need: LRG00161 RAIL WHEEL WEAR GUAGE, or equivalent.
2. With the wheel caliper, measure the guide wheel positions A, B, and C, shown below in figure 14. This dimension needs to be no less than 1/4 inch (6.4 mm).
3. If any of these positions measure less than the allowable limit, they need to be replaced immediately.
4. The entire wheel must not have any gouges or cracks. If any gouges, cracks, or other defects are evident, the wheel should be replaced immediately.

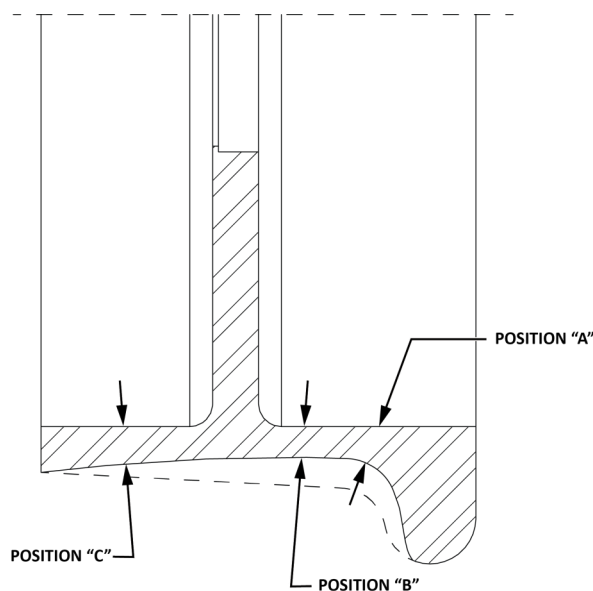


Figure 14

LUBRICATION AND MAINTENANCE (CONT.)

4. GUIDE WHEEL CHECK

If your vehicle begins to vibrate and not give a smooth ride, it could be an indication that debris is between the wheel and hub, spindle bearings are worn out, or the guide wheel is damaged or worn. If you sense a wobbling sensation, vibration, or rough ride, perform the following guide wheel check:

1. Confirm that the guide wheel lug nuts are torqued to **90 lb-ft** (122 N-m) and tighten if necessary.
2. Perform the Track test procedure on page 24, if problem persists during track testing, continue performing the guide wheel check.
3. Grasp the guide wheel and work it from side to side to check the spindle bearings. If there is excessive play in the spindle, remove the guide wheel and confirm that the cap screws that secure the integral spindle to the stub axle are torqued to 44 lb-ft (60 N-m). Tighten if necessary.
4. Repeat step 3, if excessive play still persists, the integral spindle needs to be replaced.
5. Check for and remove any dirt and debris on the guide wheel and hub mating surfaces.
6. Repeat Track Test procedure on page 24, if problem continues the problem persists, the wheel may be sprung or bent and needs to be replaced.

5. VEHICLE WHEELS AND TIRES

5.1) Wheel Replacement



WARNING: Only use Load King recommended replacement wheels.

Use vehicle replacement wheels that are recommended by Load King. For best results, wheels and tires should be static balanced or balanced after installation. Torque vehicle wheel lug nuts to recommended specifications.

5.2) Tire Replacement



WARNING: Only use Load King recommended replacement tires with the same rolling radius, tread width, ply rating, and load rating the vehicle manufacturer's wheels.

This will help keep the speedometer reading and the guide wheel load accurate. Tires must have a minimum tread width of 5-1/2 inches.

Inflate tires to vehicle manufacturer's specifications.

For best results, wheels and tires should be static balanced or balanced after installation. Torque vehicle wheel lug nuts to recommended specifications.

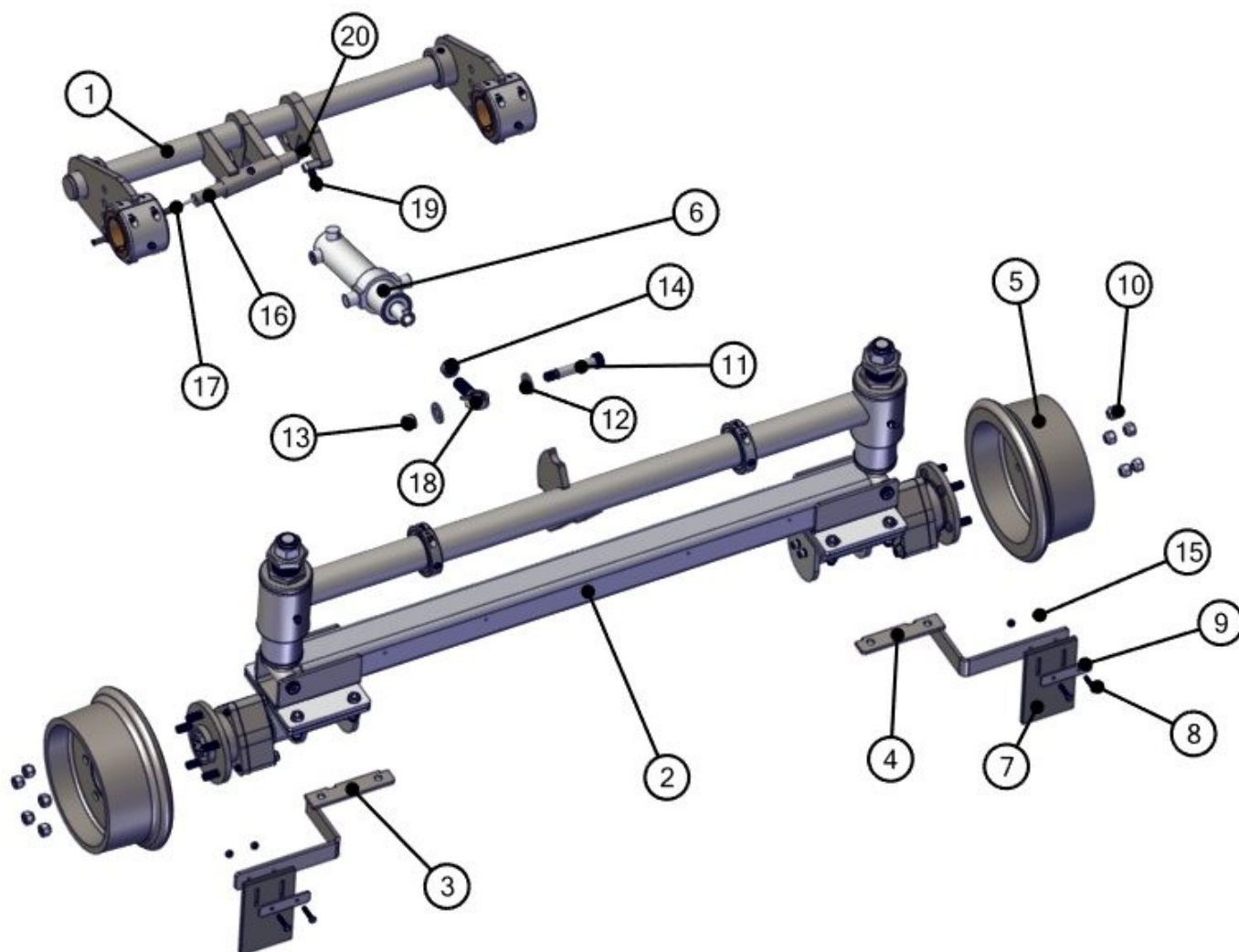
LUBRICATION AND MAINTENANCE (CONT.)

6. HOSES AND FITTINGS



WARNING: All hoses and fittings on this equipment must comply with sae standard j1273 recommended practice for selection, installation and maintenance of hose and hose assemblies.

The inspection, maintenance, replacement and installation of hydraulic hose assemblies and fittings on this equipment must conform with SAE Standard J1273.

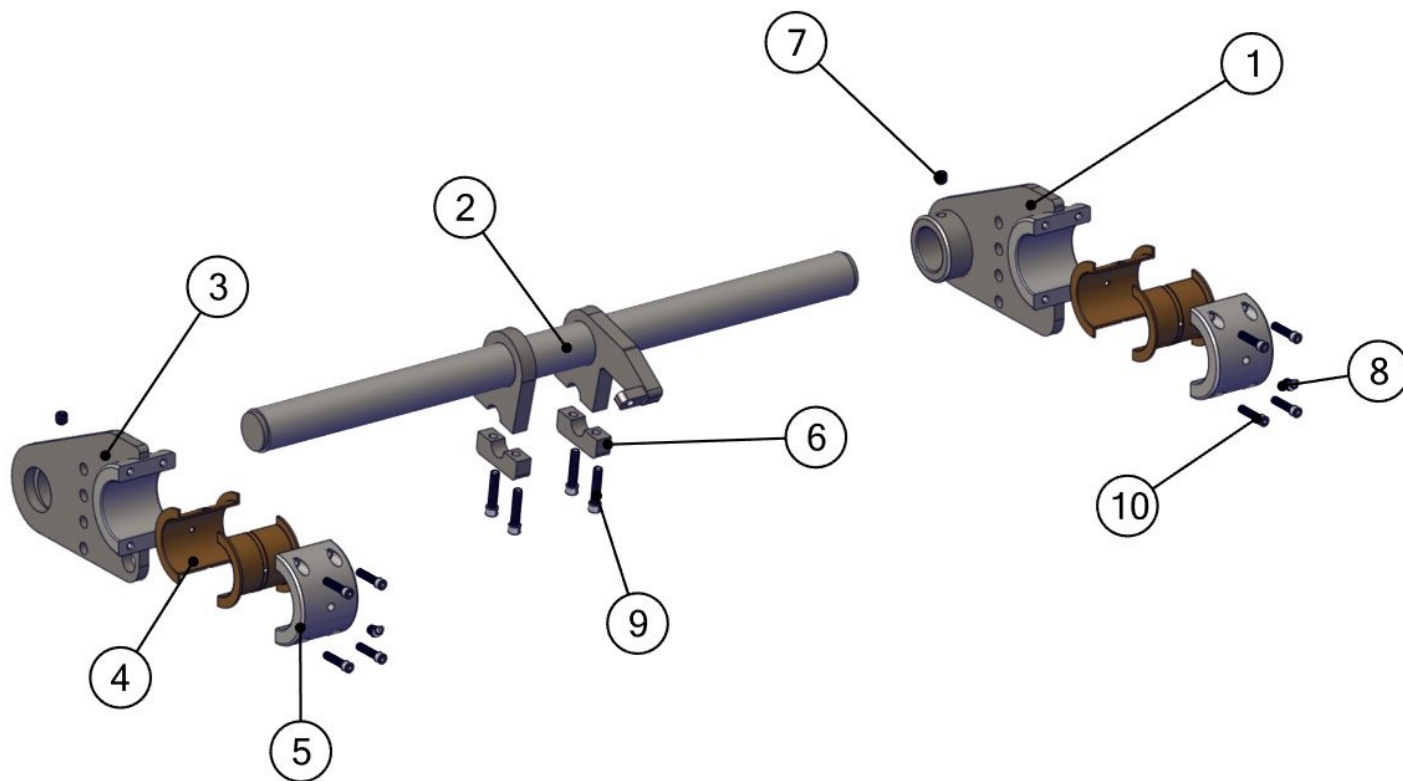
PARTS**LRG00189**

PARTS (CONT.)**LRG00189**

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	LRG00105*	ASSEMBLY, PIVOT BAR	1
2	LRG00040*	ASSEMBLY, WHEEL UNIT	1
3	LRG00055	WELDMENT, SWEEPER BRKT, LH	1
4	LRG00054	WELDMENT, SWEEPER BRKT, RH	1
5	LRG00002	GUIDE WHEEL	2
6	LRG00072	HYDRAULIC CYLINDER	1
7	LRG00154	RUBBER RAIL SWEEP	2
8	LRG00193	HEX BOLT 1/4"-20 x 1.25"	4
9	LRG00150	SWEEP BACKING PLATE	2
10	LRG00118	STANDARD 1/2" LUG NUT	10
11	LRG00123	SHOULDER BOLT 3/4" x 3"	1
12	LRG00120	FLAT WASHER 3/4	2
13	LRG00124	LOCKNUT, NYLON 5/8-11	1
14	LRG00119	JAM NUT 3/4-16	1
15	LRG00194	HEX NUT 1/4"-20	4
16	LRG00185	PIN RAILGEAR LOCK 8.25IN	1
17	LRG00186/LRG00187	CONTROL CABLE, 36"/CONTROL CABLE 90"	1
18	LRG00122	ROD END, 3/4"-16 THREAD	1
19	LRG00163	OVAL POINT SET SCREW	1
20	LRG00162	JAM NUT 1/2" - 13 X 1.5"	1

*LRG00105 PARTS BREAKDOWN ON PAGE 34

*LRG00040 PARTS BREAKDOWN ON PAGE 35

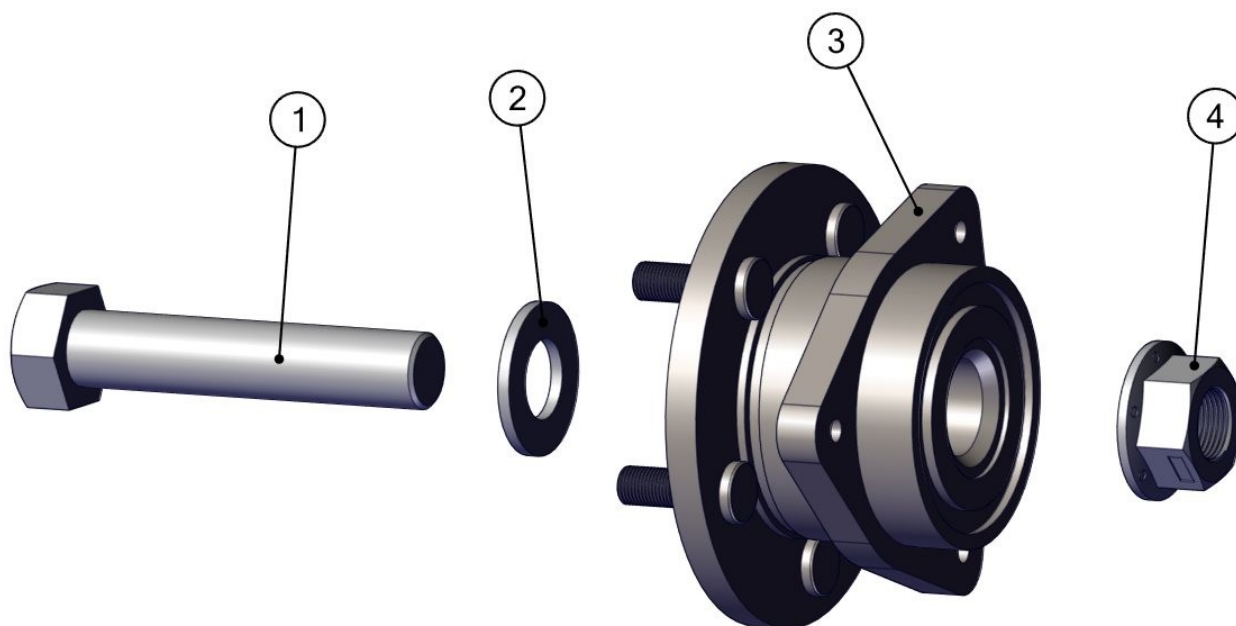
PARTS (CONT.)**LRG00105**

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	LRG00103	WELDMENT, PIVOT BRACKET	1
2	LRG00104	WELDMENT, PIVOT TIE BAR	1
3	LRG00101	WELDMENT, PIVOT BRACKET	1
4	LRG00032	PIVOT BUSHING	4
5	LRG00029	TUBE CLAMP HALF, FRONT	2
6	LRG00042	CYL MOUNT CAP	2
7	LRG00112	SET SCREW 1/2"-13 x 1/2"	2
8	LRG00141	GREASE FITTING 1/8"-27	2
9	LRG00147	SHCS 3/8-16	4
10	LRG00146	SHCS 5/16-18	8

PARTS (CONT.)**LRG00040**

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	LRG00005	WELDMENT, AXLE TUBE	1
2	LRG00117	COMPRESSION SPRING	2
3	LRG00015	WELDMENT, PIVOT TUBE	1
4	LRG00018	INSULATOR SLEEVE	2
5	LRG00020	WELDMENT, WHEEL MOUNT	2
6	LRG00024	INSULATOR	2
7	LRG00026	BUSHING McM OR EQ.	4
8	LRG00010	WELDMENT, SPRING SHAFT	2
9	LRG00060*	HUB ASSEMBLY	2
10	LRG00065	WELDMENT, HUB SPINDLE	2
11	LRG00017	BUSHING WASHER	2
12	LRG00071	SPRING ADJUST NUT	2
13	LRG00113	2"-12 JAM NUT	2
14	LRG00136	HEX BOLT 1/2"-13 x 2"	8
15	LRG00142	1/2" WASHER	8
16	LRG00127	LOCK NUT 1/2"-13	8
17	LRG00128	FLANGE HEAD CAP SCREW	6
18	LRG00139	HEX NUT, McM OR EQ.	2
19	LRG00126	LOCKNUT 5/8"-11	2
20	LRG00140	5/8" WASHER	2
21	LRG00138	SOCKET HEAD BOLT 3/8'-16 x 1-1/2"	4
22	LRG00137	SHOULDER BOLT, 5/8" x 3-3/4" x 1/2'-13 THREAD	2
23	LRG00141	GREASE FITTING 1/8"-27	2

*LRG00060 PARTS BREAKDOWN ON PAGE 37

PARTS (CONT.)**LRG00060**

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	LRG00143	BOLT 1"-14" x 5" x 2-1/4" THREAD GR 8	1
2	LRG00144	Washer 1" x .108"	1
3	LRG00061	HUB ASSEMBLY	1
4	LRG00145	FLANGED DISTORTED THREAD LOCKNUT 1"-14	1

RAIL KING LABELS

1



2

RK0414 FRONT OPERATING INSTRUCTIONS		
TO PLACE ON RAIL	TO REMOVE FROM RAIL	OPERATING INSTRUCTIONS
1) CENTER VEHICLE ABOVE RAIL CROSSING 2) UNLOCK FRONT AND LOWER RAIL WHEELS ONTO TRACK. 3) LOCK FRONT RAIL GEAR IN THE "ON RAIL" POSITION. 4) ENGAGE STEERING LOCK. 5) CAUTION: CHECK EACH RAIL WHEEL TO SEE THAT IS ON RAIL WITH FLANGES BETWEEN RAILS.	1) PULL VEHICLE ONTO A CROSSING. 2) UNLOCK FRONT RAIL GEAR AND RAISE RAIL WHEELS. 3) LOCK FRONT RAIL GEAR IN THE "STOWED" POSITION. 4) DISENGAGE STEERING LOCK.	1) LUBRICATE RAIL EQUIPMENT & CHASSIS EVERY 2,000 MILES. 2) MAINTAIN TIRE PRESSURE AT MAXIMUM PSI PRINTED ON TIRE SIDE OR STAMPED ON WHEEL, WHICHEVER IS LOWER. 3) DO NOT EXCEED 1,500 LB MAXIMUM GUIDE WHEEL LOAD. 4) STEERING LOCK MUST HOLD WHEELS STRAIGHT AHEAD. 5) WHEEL NUT TORQUE: RE-CHECK AFTER FIRST 50 MILES AND PERIODICALLY THEREAFTER PER SERVICE MANUAL. TORQUE NUT PER DECAL ON WHEEL. 6) REFER TO LOAD KING PRODUCT BULLETIN FOR INSTALLATION & ADJUSTMENT DETAILS.
FAILURE TO COMPLY TO ABOVE INSTRUCTIONS COULD RESULT IN SEVERE BODILY INJURY . THIS VEHICLE IS NOT DESIGNED FOR FAST ON-TRACK TRAVEL. DO NOT EXCEED 45 MPH WHEN OPERATING ON TRACK. REDUCE SPEED AS REQUIRED BY TRACK CONDITIONS, WEATHER AND RAILROAD OPERATING RULES. THE LOAD KING EQUIPMENT APPLIED TO THIS VEHICLE MAY CHANGE THE HANDLING CHARACTERISTICS WHEN DRIVING ON THE HIGHWAY. EACH OPERATOR SHOULD BE FAMILIAR WITH HANDLING CHARACTERISTICS BEFORE USING THIS VEHICLE FOR HIGHWAY TRAVEL. DO NOT OPERATE THIS EQUIPMENT WITHOUT FIRST READING THE OPERATOR'S SERVICE AND PARTS MANUAL.		
		LRG00170

3

RK0414 REAR OPERATING INSTRUCTIONS		
TO PLACE ON RAIL	TO REMOVE FROM RAIL	OPERATING INSTRUCTIONS
1) CENTER VEHICLE ABOVE RAIL CROSSING 2) UNLOCK REAR AND LOWER RAIL WHEELS ONTO TRACK. 3) LOCK REAR RAIL GEAR IN THE "ON RAIL" POSITION. 4) ENGAGE STEERING LOCK. 5) CAUTION: CHECK EACH RAIL WHEEL TO SEE THAT IS ON RAIL WITH FLANGES BETWEEN RAILS.	1) PULL VEHICLE ONTO A CROSSING. 2) UNLOCK REAR RAIL GEAR AND RAISE RAIL WHEELS. 3) LOCK REAR RAIL GEAR IN THE "STOWED" POSITION. 4) DISENGAGE STEERING LOCK.	1) LUBRICATE RAIL EQUIPMENT & CHASSIS EVERY 2,000 MILES. 2) MAINTAIN TIRE PRESSURE AT MAXIMUM PSI PRINTED ON TIRE SIDE OR STAMPED ON WHEEL, WHICHEVER IS LOWER. 3) DO NOT EXCEED 1,500 LB MAXIMUM GUIDE WHEEL LOAD. 4) STEERING LOCK MUST HOLD WHEELS STRAIGHT AHEAD. 5) WHEEL NUT TORQUE: RE-CHECK AFTER FIRST 50 MILES AND PERIODICALLY THEREAFTER PER SERVICE MANUAL. TORQUE NUT PER DECAL ON WHEEL. 6) REFER TO LOAD KING PRODUCT BULLETIN FOR INSTALLATION & ADJUSTMENT DETAILS.
FAILURE TO COMPLY TO ABOVE INSTRUCTIONS COULD RESULT IN SEVERE BODILY INJURY . THIS VEHICLE IS NOT DESIGNED FOR FAST ON-TRACK TRAVEL. DO NOT EXCEED 45 MPH WHEN OPERATING ON TRACK. REDUCE SPEED AS REQUIRED BY TRACK CONDITIONS, WEATHER AND RAILROAD OPERATING RULES. THE LOAD KING EQUIPMENT APPLIED TO THIS VEHICLE MAY CHANGE THE HANDLING CHARACTERISTICS WHEN DRIVING ON THE HIGHWAY. EACH OPERATOR SHOULD BE FAMILIAR WITH HANDLING CHARACTERISTICS BEFORE USING THIS VEHICLE FOR HIGHWAY TRAVEL. DO NOT OPERATE THIS EQUIPMENT WITHOUT FIRST READING THE OPERATOR'S SERVICE AND PARTS MANUAL.		
		LRG00171

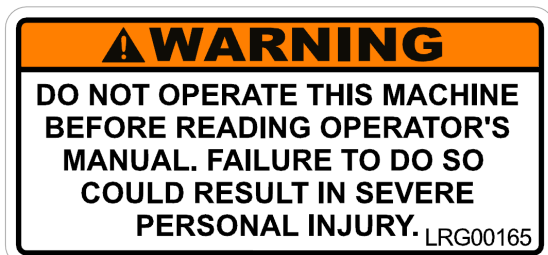
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6



7



8



RAIL KING LABELS (CONT.)

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	LRG00169	DECAL - LOAD KING	2
2	LRG00170	DECAL - FRONT OPERATING INSTRUCTIONS	1
3	LRG00171	DECAL - REAR OPERATING INSTRUCTIONS	1
4	LRG00166	DECAL - SPEEDOMETER WARNING	5
5	LRG00164	DECAL - FRONT/REAR LOCK	1
6	LRG00165	DECAL - OPERATOR'S WARNING	1
7	LRG00167	DECAL - WHEEL NUT TORQUE	4
8	LRG00168	DECAL - SAFETY INSTRUCTIONS	1

LOAD KING WARRANTY

Load King (herein after referred to as the COMPANY) warrants all products manufactured by it and purchased by you to be free from defects in material and manufacture at the time of shipment, for one (1) year from date of delivery. The COMPANY will furnish replacements for such parts as the COMPANY finds to have been defective at the time of delivery or, at the COMPANY's option, will make or authorize repairs to such parts, provided that, upon request, such parts are returned, transportation is prepaid to the factory from which they were shipped.

This warranty shall not apply to any Product which has been subjected to misuse, misapplication, overloading, neglect (including but not limited to use of unauthorized parts or attachments), adjustments or repair. Engines, motor, tires, wheels, suspensions, axles, etc. and any accessories furnished with or used in the COMPANY's products, but which are not manufactured by the COMPANY, are not warranted by the COMPANY but are sold only with the express warranty, if any, or the manufacturers thereof. This warranted is limited to the first purchaser/user and is not transferable.

THE FOREGOING IS IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED (INCLUDING, WITHOUT LIMITATIONS, OF MERCHANTABILITY AND FITNESS OF ANY PRODUCT FOR A PARTICULAR PURPOSE), AND OF ANY OTHER OBLIGATION OR LIABILITY ON THE PART OF THE COMPANY. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION OF THE FACE THEREOF.

LIMITATION OF LIABILITY

It is expressly understood and agreed by you that the COMPANY's liability for its products, whether due to breach of warranty, or otherwise is limited to the furnishing of such replacement parts, F.O.B.

factory, and the COMPANY will not be liable for any other injury, loss, damage, or expense, whether direct or consequential, including but not limited to loss of use, income, profit, or production, injury to person or increase in cost of operation, spoilage of or damage to material, arising out of or in connection with the sale, installation, use or inability to use, or the repair or replacement of the COMPANY's products.

All used vehicles and/or bodies are sold in the "AS IS" condition and no expressed or implied warranty is made.

All of COMPANY'S Products are of high quality and are manufactured in conformity with the best commercial practices in the various lines. The COMPANY guarantees all Products manufactured by it to be free from defects in material and manufactured at the time of shipment, for one (1) year from date of delivery. In addition, the COMPANY guarantees the portion of the product to be considered structural for one (1) year from date of manufacture.

While Load King, LLC. designs and manufactures its specific equipment configurations to industry standards, it is ultimate responsibility of the buyer/operator to assure that all loads are properly loaded and distributed. All loads must comply with the applicable state and federal load limits.

LOAD KING WARRANTY DATA RECORD

Rail King Warranty Form Submission		Date	
Date of Delivery			
Model Number			
S/N			
Dealer			
Address			
Customer			
Address			

Record this information at the time that warranty registration form is completed and returned to Load King



Load King

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