

MAINTENANCE MANUAL



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INTRODUCTION

This maintenance manual has been prepared to assist you in retaining the safety, performance and reliability that is built into every XL Specialized Trailers. It is of the utmost importance that the trailer receives periodic inspections, maintenance and repair, once parts are determined defective.

Maintenance should be performed by XL Specialized Trailers dealers, or other qualified service centers that normally perform service work. The XL Specialized Trailer operator's manual, covers periodic inspections, safety and maintenance. If you have any questions pertaining to this manual, or any other XL Specialized Trailers manual, please do not hesitate to contact the Customer Service Dept. at (877) 283-4852 for answers.

It is important to have a Trailer Preventative Maintenance (TPM) program. The US Department of Transportation requires that the maintenance records be kept on every commercial highway vehicle.

It is a great advantage to keep up to date records, of regularly scheduled TPM inspections, and to ensure all of these checks are performed. A consistent and recorded TPM program, will assure you will get the most from your XL Specialized trailer.

SAFETY WARNING

Before any service or maintenance work is performed, ensure trailer is properly supported if raised up in the air. Make sure wheels are chocked, if on ground, to make sure trailer does not roll during work.

All personal protective items should be used, such as safety glasses and hard hats, when work is being performed on XL Specialized trailers.

REPLACEMENT PARTS

All replacement parts should be from the original equipment manufacturer or vendor. This ensures the parts fit properly and do not damage the integrity of the trailer.

MAINTENANCE TIPS

BREAKING IN A NEW TRAILER

The most critical time a new trailer's life is in its first 1000 miles or first month. During this time, the trailer components will "settle" and maintenance technicians should be notified of any over/underinflated tires and thread fasteners that have worked themselves loose. Fasteners should be re-torqued to specifications provided in this manual.

The following sections provide a few maintenance tips that need close attention during the trailer break in period, and general tips to prolong the life of your XL Specialized trailer.

WHEELS

Tests have shown, that after the initial torqueing of wheel lug nuts from the factory, after 50-100 miles, the lug nuts will lose up to 250 ft-lbs. This is caused by the new wheel components "seating in" together. Retightening of the wheel lug nuts, will compensate for the loss of normal "clamp" force. If these lugs are not retightened to original spec, and additional clamp force is lost, components will be damaged. Wheel re-torqueing should occur after initial break in (50-100 miles) and then every 25,000 miles after that.

TIRES

Tires are the most expensive consumable on trailers and should be checked and cared for regularly to retain life of tires. While the tires were properly inflated at the factory, when they were mounted, tire pressure will be affected by the ambient temperature at the inflation time. If the tires were mounted in a 80°F environment and put into service at a 20°F environment, tire pressure can drop **10 psi for every 20°F** of temperature drop. All tires should be checked and verified with a quality air gauge, and rechecked at every tractor refuel.

AIR-SPRING SUSPENSION

All fasteners on the air spring suspension are crucial to the safety and life of your trailer. Pivot bushing bolts can loosen during the first few weeks of use, and can cause premature bushing wear. If these bolts are not checked, handling issues can occur in the trailer, and can cause premature tire wear.

AIR BRAKE OPERATION

During the break in period of a new trailer, a certain amount of burnishing will occur in the brake linings. This is normal and can cause brake adjustment loss. If brakes do become out of adjustment, the trailer will have increased stopping distances and potential handling issues. Brake adjustment should definitely be checked and adjusted at first TPM inspection.

WINTER/FREEZING MAINTENANCE

Winter weather can cause components on the trailer to improperly function. Brakes can become sluggish or inoperative in cold winter months and snow, sleet and slush can cause connections to become loose due to sagging wires. Frozen slush and mud can build up on trailer components, such as air lines, brake components, etc. and should be removed regularly to ensure proper function.

Sodium chloride is used on many national highways to help with the clearing of snow and ice. This solution can cause increased corrosion on even the most maintained trailer. During the winter months, the trailer should be cleaned and washed after every trip. This corrosion can develop very, very quickly if not properly cleaned.

Enclosed air systems for the air operated equipment should be drained regularly of the built up moisture in the system. The air tanks should be drained daily to prevent freezing in the system. Treatment of moisture in the air system should be through the tractor only, because additives can cause damage to the trailer air components.

WASHING/CLEANING

Improper use of chemicals to wash the trailer can cause the trailer paint to streak and fade. The paint can actually yellow and look tarnished, all from trying to make the trailer look nice and clean. Also it is important to NOT wash your trailer for 30 days after pickup. This allows the paint to completely cure and protect your trailer for a long time.

ANNUAL FHWA INSPECTION

It is the responsibility of the carrier or end user to make their trailer is operated under this Federal requirement. During this inspection, make sure the kingpin, safety equipment, welds, etc. are checked and corrected as required.

AIR SYSTEM



The air system on these trailers is one of the most important systems to maintain regularly. The air system should closely follow a Trailer Preventative Program (TPM) to ensure proper function.

Proper operation of air system requires tight seal between all air components. Inspect all components for crack housings and seal damage. Some components have an in-line filter, if so; these filters must be checked and cleaned regularly to prevent a failure in the air system. Air hoses should be checked for cracks or frays, and to make sure the lines are not rubbing up against anything on the trailer. Any component for be faulty should be repaired or replaced immediately.

Air system must be clean and tanks should be drained of built up moisture daily. See WINTER/FREEZING MAINTENANCE section.

If you use Teflon tape or other sealer material on fittings, make sure to not allow pieces of the sealer material to enter the system. If foreign material is introduced into the system, components can get clogged and a failure in the system can occur.

The air system needs to be tight and here are a few ways to check your system. Charge the air system to at least 105 psi and shut off the engine. Listen for air leaks and watch the air gauge with no brakes applied; pressure loss should not exceed more than **3 psi in 1 minute**. Now apply the brakes for 2 minutes, and pressure loss should not exceed **4 psi in 1 minute**. **Note: at XL Specialized Trailers, safety is #1, so we check our system to ensure pressure loss is no more than 2 psi in 2 minutes.**

ELECTRICAL SYSTEM

The electrical system used on every XL Specialized trailer meets or exceeds all federal and state requirements. Wherever required by law, lamps and reflectors are marked by the manufacturer stating that each complies.

Clean all lamps, electrical devices, reflectors regularly to provide the most amount of visibility to ensure the most safety. Replace all burnt out or damaged lamps with factory equivalent parts. Reflective tape and reflectors should be replaced if damaged.

If components are repaired or replaced, repack connection with approved grease to protect connection from weather and corrosion. Inspect all wiring that it is not damaged, properly supported and protected. Make sure all connections are tight and minimal tension on the plugs. Frayed or damaged wiring should be replaced immediately with OEM parts.



ELECTRICAL CONNECTION CHANGE NOTICE TO ALL USERS AND OWNERS

Federal Motor Carrier Safety Administration Standard No. 121, Air Brake Systems, requires all truck and tractor manufacturers on or after March 1, 1997, to provide constant power for trailer antilock brake system (ABS). These manufacturers use a single 7-way electrical connection that has constant power to center pin for ABS when key switch is on. If you any questions about your wiring on the trailer, please contact XL Specialized Trailers customer service department at (877) 283-4852.



**IF TRAILER IS EQUIPPED WITH ANTI LOCK BRAKES (ABS), CENTER PIN MUST MAINTAIN
CONSTANT POWER AT 12 VOLTS FOR EFFECTIVE ABS FUNCTION.**

PIN	COLOR	CIRCUIT
1	WHITE	GROUND
2	BLACK	CLEARANCE, SIDE MARKER AND ID
3	YELLOW	LEFT TURN AND HAZARD
4	RED	STOP LAMP
5	GREEN	RIGHT TURN AND HAZARD
6	BROWN	TAIL, LICENSE LAMP
7	BLUE	ABS CONTINUOUS POWER

**FAILURE TO COMPLY WITH THIS WARNING CAN RESULT
IN DAMAGE. SERIOUS INJURY OR DEATH.**

AXLES/BRAKES

AXLE

Axles should be inspected for cracks, wear and leaks **every 50,000 miles or 6 months.** The following should be checked:

- The entire axle tube should be checked for cracks. If cracks are found, re-welding of axle tube is prohibited. An axle replacement is necessary.
- Check all components welded to the axle for cracks; spiders, camshaft brackets, air chamber brackets and suspension components. If cracks are found, and penetrate into axle tube, re-welding is prohibited and axle will need to be replaced.
- Axle should be checked for straightness. Refer to TMC's RP 708 regarding the inspection.
- Spindle should be checked for wear, cracks, rust and pitting. If cracks are visible, axle must be replaced immediately. Surface rust or slight pitting can be polished out with emery cloth.

OIL SEALS AND HUB CAPS

There are a wide variety of seals on the market, so please refer to manufacturer of the oil seal for proper installation. Always replace oil seals whenever the hub is removed. This will ensure a leak-free operation. Make sure to clean fill hole and plug completely before reassembly. This will prevent any foreign material from entering the hub and wheel end.

Hub Cap Installation

1. Clean all hub cap components; face of hub, hub cap and gasket.
2. Place the gasket...NEVER REUSE A GASKET.
3. Install the hub cap. Install bolts and washers around hub cap and torque to **15 ft-lbs.**
4. Open fill plug and fill hub to level designated on hub cap. Once to full mark, spin the hub and wait a few minutes, and recheck.

WHEEL BEARINGS

Inspect the inner and outer bearings, cups and cones for excessive wear or damage regularly. This allows the wheel bearings and hub to operate smoothly for the life of the trailer. Check wheel bearings every **1000 miles.** Change oil when you replace seals, reline brakes or **once a year.** XL Specialized Trailers uses **SAE 80-90** oil for wheel end lubrication.

When servicing wheel end components, be very careful to handle components carefully, not to damage wheel bearings or seals. Damage to any of these components can cause premature failure and/or poor operation. Wipe a film of oil on all components to prevent rust from starting.

XL Specialized Trailers endorses TMC's Recommend Wheel Bearing Adjustment procedure RP 618. This procedure covers everything to have a properly adjusted wheel end system.

Wheel Bearing Installation and Adjustment

1. Clean all components completely to make sure smooth operation. Coat all parts with recommended lubricant before installing.
2. Install inner bearing into hub. Then install inner seal. **IT IS IMPORTANT TO USE THE CORRECT TOOL TO INSTALL SEAL. ANY OTHER TOOL COULD DAMAGE SEAL AND CAUSE LEAKS.**
3. Install outer bearing into hub, and then install onto axle spindle.
4. After the bearings and hub are installed on the spindle, install inner nut onto spindle, then torque to **200 ft-lbs** while spinning the wheel hub assembly.
5. Back off the inner nut (1) full turn. Rotate the wheel.
6. Re-torque the inner nut to **50 ft-lbs** while spinning the wheel hub assembly.
7. Back off adjusting nut **1/4 -1/3** turn
8. Install locking washer, then spindle lock star washer on spindle to nearest hole.
- 9.



WARNING
FAILURE TO BACK OFF THE INNER ADJUSTING NUT CAN CAUSE BEARING TO HEATING UP AND CAUSING FAILURE TO WHEEL END. THIS COULD LOCK UP WHEEL OR CAUSE WHEEL TO COME OFF.

10. Install outer jam nut and torque to **300-400 ft-lbs**.
11. Bend over 1 or 2 legs of the lock star washer over jam nut.
12. Using a dial indicator, check wheel end play. Acceptable wheel end play is **0.001"-0.003"**. If not within range, re-adjust as needed.
13. Verify wheel end spins freely when adjustment is complete.

BRAKES

Brake maintenance and lubrication is a very important component of your TPM program. Brake system components, such as actuators, automatic slack adjusters, shoes, drums and camshafts, are all vital to the safe operation of the trailer. If any of these components are not inspected and maintained regularly, increased stopping distances, shorter brake life and increase chance of trailer jack knifing can occur. The TPM program should also be adjusted if need be, based on past experiences and expected severity of operation.

To keep brakes running smoothly, a brake inspection should be performed **every 25,000 miles** or more frequently if determined by your TPM program. During these regular inspections, the following should be checked:

- Spiders
- Anchor pins
- Brake shoes

- Cam shafts, bearings and bushings
- Brake lining
- Drums

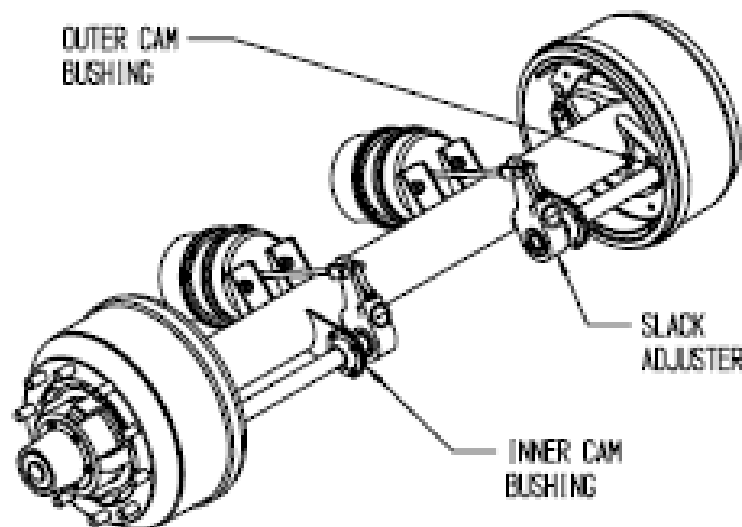
If any of the above show signs or wear or damage replace immediately with OEM parts before trailer is put back into service.



Inspect the axle for lubricant leakage; worn or damaged seals can cause leakage, and if found, investigate and replace damaged seals as need be. Bad seals can prevent smooth operation of brake actuating components and can ultimately lead to brake failure.

Brake actuating components should be lubricated according to your TPM program to ensure smooth operation. A high quality lithium grease should be used to have the most protection of components. Each axle has grease fittings located at the outer cam bushing, inner cam bushing and slack adjuster. See below for locations.

To lubricate, wipe off fittings with clean rag or towel. Using a hand-held grease gun, add grease to each component through appropriate fitting. Once grease is visible through any opening or purge point of the component, stop filling. The component is now properly greased.



Grease Fitting Locations

TIRES/WHEEL



FAILURE TO COMPLY WITH ALL INSTRUCTIONS FOR TIRE CARE COULD RESULT IN A TIRE BLOW OUT AND CAUSE SERIOUS INJURY OR DEATH.

Tires are by far the highest costing consumable on any trailer, so tire care is of the utmost importance. It is the one thing that connects the trailer to the load.

TIRE SAFETY

- Tire pressure should be checked regularly. XL recommend every time the tractor is re-fueled.
 - See Tire Inflation section
- Inspect tire for improper wear, bulges, cracks and foreign objects.
- Make sure to check tire load rating and speed rating of tires.
- Regularly, at time of pressure check, check tire tread life. Check wear bars on tire and should be replaced when tread is down to manufacturer spec depth.
- NEVER use a re-treaded tire, only use new tires when a replacement is needed.

TIRE INFLATION

Tire inflation is the most important factors in tire care. A proper inflated tire will present a more stable ride, maximum road contact and the stability needed for these heavy haul low boy trailers. Heat generated by the tires is also dissipated more rapidly and evenly on properly inflated tires. The maximum tire pressure can be found on the side wall, but generally, optimum tire pressure is 90% of that rating.

OVERINFLATION

Tires that are over inflated will be more susceptible to road hazards such as potholes, debris, etc. The following can occur with an over inflated tire:

- Increased tire wear, specifically in center part
- Damage can occur more easily

UNDERINFLATION

Tires that are under inflated increase tire wear, generates heat and over-flexed sidewalls. The following will occur on an under inflated tire:

- Excessive heat generation, which can lead to bead failure, cord failure or separation
- Easier for tire beads to separate
- Fuel economy go down drastically
- Increased wear on tire, specifically on shoulder part

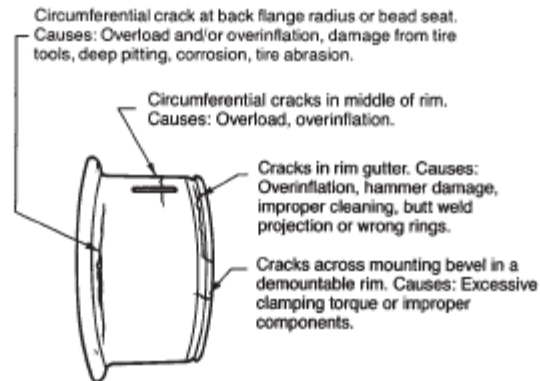
MAINTAINING PROPER TIRE PRESSURE

- Pressure must be adjusted to the load. Loads of different size and weight, will affect the amount of pressure in tire for trip.
- Check tire pressures often, as stated before, every time tractor is re-fueled.
- Tire pressure can change with a change in ambient temperature, so regular checks prevent improper inflation.
- Tire pressure can decreased naturally over time. Leaks usually occur around faulty valves. Check with soapy water to make sure seal is tight.
- Whenever checking and adjusting tire pressures, make sure tire is cooled down after trip. Pressures will rise on a warm tire after a trip, so gauge will read incorrectly.

WHEELS

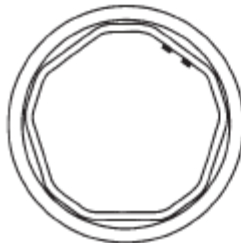
Wheels should be checked regularly since they can be damaged easily. Checks for the wheel are specified below:

RIM BASE CRACKS

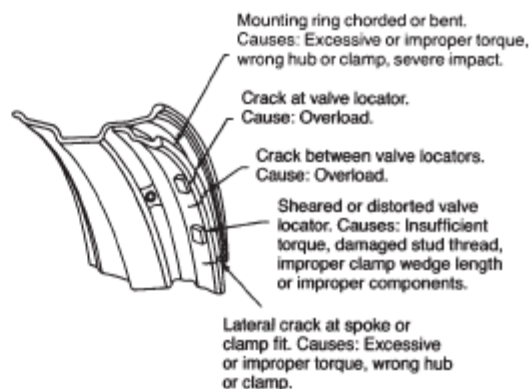


RIM BASE DISTORTION

Flange or rim gutter chorded or bent. Causes: Excessive or improper torque, wrong hub or clamp, severe impact, run flat or hammering on rim gutter.



MOUNTING RING PROBLEMS



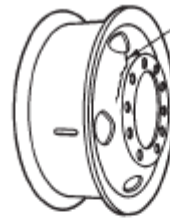
DISC WHEEL CRACKS/BOLT HOLE DISTORTION



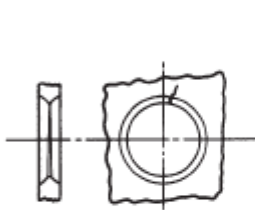
Handhole to handhole.
Handhole to bolt hole.
Handhole to rim.
Cause: Overloading.



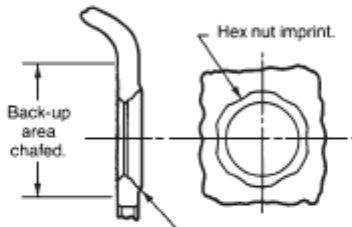
Bolt hole to bolt hole.
Causes: Loose cap nuts,
small hub backup (also
see bolt hole cracks/distortions).



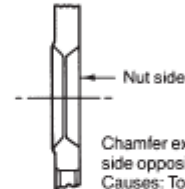
Cracks at disc nave
and/or handhole.
Causes: Bad fit-up,
damaged hub,
overload or sharp
edge at handhole.



Crack originating from thin
edge of stud hole. Cause:
Damaged or worn-out at
chamfers.

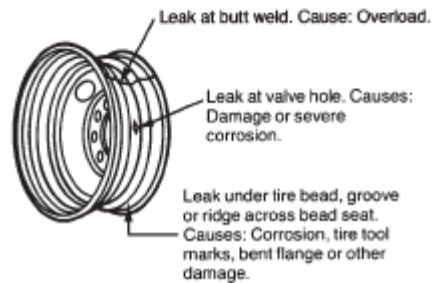
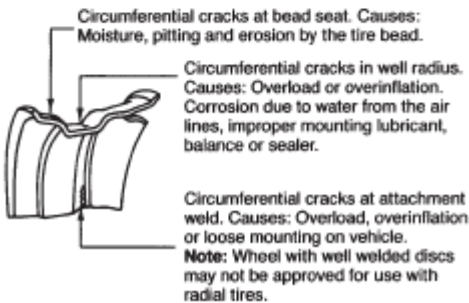


Chamfer enlarged or wallowed out
by nut. Causes: Loose cap nuts or
insufficient nut torque due to damaged
threads, improper torquing or by worn-
out nut.



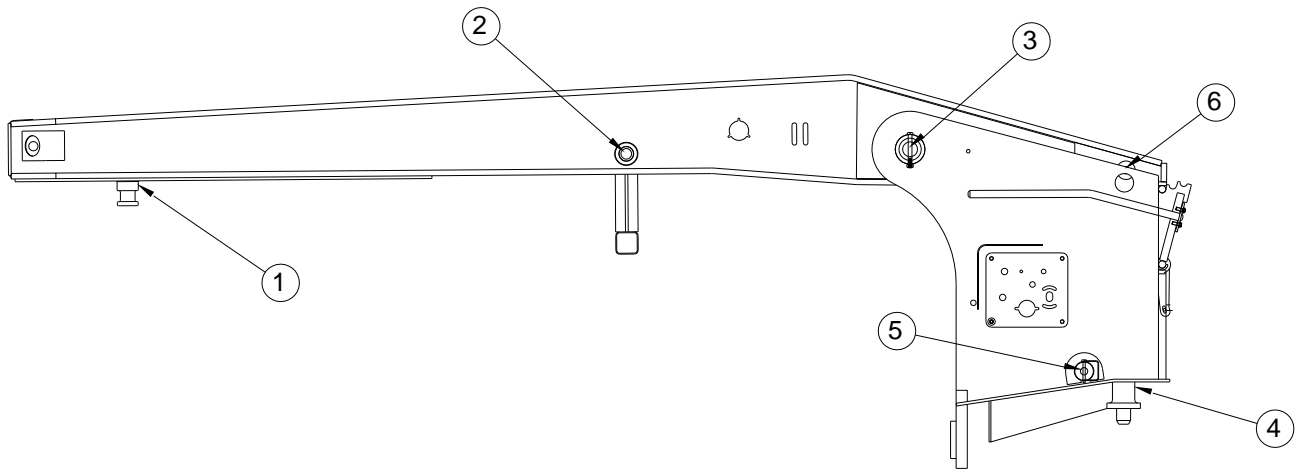
Chamfer extruded on
side opposite nut.
Causes: Too much
torque or improper nut.

TUBELESS RIM LEAKS



HDG Scraper Style Lubrication Chart

<i>Location</i>	<i>Description</i>	<i>Lubricant</i>	<i>Frequency</i>
1	Kingpin Sleeve	Lithium Grease	2000 Miles or Every 30 Days
2	GN Support Arm	Lithium Grease	2000 Miles or Every 30 Days
3	Gooseneck Pivot	Lithium Grease	2000 Miles or Every 30 Days
4	Lock Pin	Lithium Grease	2000 Miles or Every 30 Days
5	Bottom Cyl Mount	Lithium Grease	2000 Miles or Every 30 Days
6	Top Cyl Mount	Lithium Grease	2000 Miles or Every 30 Days



HDG Scraper Style Gooseneck

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Henderson, KY 42420
www accuridecorp.com

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