

# XL MFG

## OPERATION MANUAL 2023



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## TRAILER SPECIFICATIONS

MODEL.....XL\_\_\_\_\_MFG

VIN#.....\_\_\_\_\_

DISTRIBUTED CAPACITY .....\_\_\_\_\_LBS

CONCENTRATED CAPACITY.....\_\_\_\_\_LBS IN \_\_\_\_FT

OVERALL LENGTH.....\_\_\_\_\_

OVERALL WIDTH.....\_\_\_\_\_



## REPORTING SAFETY DEFECTS

If you believe that your vehicle has a defect, which could cause a crash or could cause injury or death, you should immediately inform The National Highway Traffic Safety Administration (NHTSA), in addition to XL Specialized Trailers.

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in any individual problems between you, your dealer, or XL Specialized Trailers.

To contact NHTSA you may either call the Vehicle Safety Hotline, toll-free, at 1-800-327-4236 or write to:

Administrator, NHTSA  
400 Seventh Street SW  
Washington, DC 20590

You can obtain more information about motor vehicle safety from [www.safercar.gov](http://www.safercar.gov)



## TRAILER REGISTRATION

Trailers must be registered within 10 days of sale to First User in order for the trailer to be covered under warranty. Fill out the electronic form on our website:

<https://www.xlspecializedtrailer.com/warranty/trailer-registration>



# WARRANTY

## XL'S 5-3-1 WARRANTY.

XL Specialized Trailers (unless otherwise specified) include a full 5-year warranty on structure and frame, a full 3-year warranty on paint, and a full 1-year warranty on the remainder of the trailer (parts and components). For a warranty claim or information regarding the warranty on your XL Specialized Trailer, please contact our customer service/warranty department by emailing directly at [warranty@xlspecializedtrailer.com](mailto:warranty@xlspecializedtrailer.com).

WARRANTY IS ONLY VALID WITH A REGISTERED TRAILER.

### XL Specialized Trailers Limited Warranty Policy (S-500)

New trailers manufactured by XL Specialized Trailers are warranted to be free from defects in materials or workmanship for the time periods specified below, subject to the limitations as specified below. Covered equipment will be repaired or replaced, at XL's option, provided that such equipment is returned, at the customer's expense, to XL's plant or a repair facility pre-approved by XL. This warranty applies to all units invoiced on and after January 1, 2023, as follows:

#### 5-Year Structural Coverage

XL's 5-year structural warranty (excluding BD, T-Series, Side Dump and Trunnion Suspension trailers) covers the (2) main inner structural beams running front to rear across the length of the trailer, plus the cross members and outer rails of the main load bearing deck. The warranty is as follows:

5 Years – 100% Structural Coverage

#### 3-Year Paint Coverage

XL's 3-year paint warranty covers peeling or delamination and cracking or checking of the paint. This excludes the following:

- A - Paint deterioration, scratching or chipping on surfaces caused by normal wear and tear, abuse, improper care, abrasive polishes, cleaning agents, heavy-duty pressure washing, accidents or acts of nature.
- B - Paint over Galvanizing is excluded from warranty coverage.

#### 1-Year Parts Coverage

XL's 1-year parts coverage warranty covers the following:

- A - Axles and suspension (excludes shocks, airbags)
- B - Landing gear assemblies
- C - XL manufactured components (which include, but are not limited to wheel covers, flip ramps and pullout lights)
- D - Air, electrical and hydraulic components (which include, but are not limited to shocks, seals, caps, hubs, drums, decking and tarp systems)

\*For parts, we request the defective part be shipped back to XL prior to warranty coverage.



## WARRANTY

### XL SPECIALIZED TRAILERS LIMITED WARRANTY POLICY CONDITIONS

- I. THE EXPRESS WARRANTY CONTAINED WITHIN THIS DOCUMENT IS THE ONLY WARRANTY FROM XL SPECIALIZED TRAILERS. XL MAKES NO OTHER WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. ALL OTHER WARRANTIES, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE SPECIFICALLY EXCLUDED AND DISCLAIMED.
- II. XL limited warranty coverage begins on the earlier of (1) the date the dealer sells the trailer to the customer, or (2) 6 months after the date XL invoices the trailer to the dealer, or (3) dealer sells the trailer providing the Quarterly PM Schedule is completed by the dealer and documented by XL.
- III. Once the warranty period begins it cannot be stopped or interrupted.
- IV. This warranty extends only to the First User and is non-transferable.
- V. All decisions regarding whether to repair or replace a trailer, or any part thereof, will be made at XL's sole discretion.
- VI. All structural related warranty claims must be accompanied by most recent 3rd party scale tickets to demonstrate weight requirements being followed.
- VII. XL shall have no liability under this warranty for damages resulting from an accident or a collision, or for products that were subject to abuse, alteration, misuse or extraordinary usage of any kind, or:
  - A - Operation at speeds exceeding the capabilities of the trailer.
  - B - Use not in conformity with the instructions and warnings in the Operator's Manual for the trailer.
  - C - Loading a trailer beyond the rated capacity specified by XL on the vehicle identification plate, including exceeding the guidelines for concentrated load ratings.
  - D - Natural calamity, theft, vandalism and improper site conditions
  - E - Any other improper storage, maintenance, repair, or use of the trailer is illegal
  - F - Rework which is a result of any of the above.
  - G - Dragging the trailer such that it touches the ground while in operation will cause enough friction and heat to melt steel, which in turn will decrease structural integrity, which in turn will void this warranty.
- VIII. XL's warranty does not cover:
  - A - Components that may normally be expected to be replaced during the warranty period. Such components include, but are not limited to; tires, light bulbs, brake linings, brake drums, air hoses, air lines and exposed electrical wiring.
  - B - Normal maintenance time, including but not limited to; normal installation of kits, tightening bolts, loose fittings, hoses and air lines.
  - C - Equipment that has been repaired, replaced or altered by someone other than XL or an authorized representative of XL, without expressed written consent from XL.
  - D - Parts, accessories, and components manufactured or supplied by someone other than XL, including, but not limited to; tires, axles, suspensions, wheel hubs, rims, brake linings, and landing gear.



## WARRANTY

VIII. XL's liability with respect to any claim or loss arising out of the manufacture, sale or use of any of its products, whether resulting from an act or omission by XL, whether XL was negligent or not, and whether the claim arises in contract, tort, or otherwise, is limited to the purchase price paid for the product at issue, or, at XL's discretion, the cost to repair the product. In no event shall XL be liable for any bodily injury, death, or property damage arising out of or in any way related to the manufacture, sale, or use of any of its products. XL is not responsible for any financial losses or expenses incurred due to an inability to use a trailer, including, but not limited to, lodging expenses, fuel costs, towing charges, loss or spoilage of cargo, damage to cargo, storage fees, lost revenues, lost profits, or any other resulting expenses or damages. IN NO EVENT SHALL XL BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES, LOSSES OR EXPENSES.

IX. XL's warranty applies only if the party seeking warranty coverage follows and complies with the Warranty Claim Submission Procedures and Instructions (S-501).





## OPERATOR'S RESPONSIBILITY

Most accidents happen because of neglect or carelessness. Avoid needless accidents by following all of the safety precautions listed below.

THE USER IS RESPONSIBLE FOR INSPECTING THEIR TRAILER AND FOR HAVING PARTS REPAIRED OR REPLACED WHEN CONTINUED USE OF THE PRODUCT WOULD CAUSE DAMAGE OR EXCESSIVE WEAR TO OTHER PARTS. IT IS THE USER'S RESPONSIBILITY TO DELIVER HIS TRAILER TO A X-L DEALER FOR SERVICE OR REPLACEMENT OF DEFECTIVE PARTS, WHICH ARE COVERED BY THE STANDARD WARRANTY. IT IS THE RESPONSIBILITY OF THE USER TO READ THE OPERATION MANUAL AND UNDERSTAND THE SAFE AND CORRECT OPERATING PROCEDURES AS PERTAINS TO THE OPERATION OF THE PRODUCT, AND TO LUBRICATE AND MAINTAIN THE PRODUCT ACCORDING TO THE MAINTENANCE SCHEDULE IN THE SERVICE MANUAL.

1. When performing adjustments or maintenance on a trailer, first lower it to the ground or block it securely at a workable height.
2. Detach the trailer in a safe area.
3. Flags or other warning devices should be used when parked with over width loads.
4. Loose-fitting clothing should not be worn, to avoid catching on various parts.
5. Equipment should only be operated by those who are authorized to do so.
6. Make certain everyone is in the clear before starting, raising, or lowering the trailer if the unit is designed to do so.
7. Reduce speed on hillsides or curves so there is less danger of tipping.
8. Avoid driving too close to the edge of ditches or creeks.
9. Stop the engine, lock the brakes, and remove the ignition key before dismounting from the tractor.
10. A first aid kit should be provided for immediate treatment of all scratches, cuts, etc.
11. Never stand between tractor and trailer while tractor is being backed up to trailer hitch.
12. Do not transport wide loads on public roads without proper reflectors. Wide load and slow-moving vehicle emblems must be used in daylight and have approved warning light at night and other periods of poor visibility.
13. Observe all laws and regulations while transporting on public roads. Check the local highway regulations.
14. Carefully maintain control of equipment at all times when traveling on the highway.
15. Due to the width and height of some equipment, use extra caution on highways, farm roads, and when approaching bridges, overpasses, and underpasses.

## 1. INTRODUCTION

- 1.1 Tractor and low bed or heavy-duty platform trailer combinations may have different operational characteristics than typical tractor-trailer combinations due to gross weights, large differences between loaded and unloaded weights, suspension characteristics, and articulation.
- 1.2 Tractor and truck trailer combinations have safe operating limits just as automobiles, trains, and airplanes have operating limits. These limits are affected by the interaction of the vehicle characteristics, maintenance, load, roadway, weather, the skill of the driver, and vehicle speed. Knowledge of how these factors affect the vehicle's operating limits and defensive driving techniques should result in safer driving.

## 2. PURPOSE

- 2.1 The purpose of this chapter is to describe how tractor and truck trailer control and stability limits are affected by the vehicle characteristics, maintenance, roadway, weather, and driver operation and how to compensate for these factors. Knowledge of these factors will assist operators in productive use of this equipment.
- 2.2 The information in this bulletin has been gathered from a number of research reports and accident summaries. These sources of information are referenced in the Bibliography at the end of this manual.
- 2.3 First and foremost, DO NOT operate the trailer until you have read, and you fully understand the instruction and operating manual supplied to you by the manufacturer of the trailer. It is also important that each and every person who operates the trailer and/or is responsible for the loading and operating of the trailer be given the opportunity to read the manuals.

## 3. PRE-TRIP INSPECTION

- 3.1 There are some items on every vehicle combination that can be and should be inspected prior to every trip that require no special knowledge, training, or sophisticated equipment.
- 3.2 Brakes
  - 3.2.1 Function test. Operate the brake pedal and hand control valve to determine if air is being supplied to the brake chambers. Use an observer or place marks on push rods to determine if the brakes are operating. Visually inspect the brake chambers and slack adjusters for problems caused by road hazards.
  - 3.2.2 Keeping brakes in proper adjustment is imperative to stable, straight line braking and maintaining minimum stopping distances. Visually inspect the air brake hoses and glad-hands to determine if air loss is occurring. Air leaks can reduce braking capability. Anti-lock devices, if provided, should be maintained and inspected routinely. Their use can prevent wheel lock-up, improve stopping capability and reduce the probability of jackknife.
- 3.3 Automatic Slack Adjusters
  - 3.3.1 As automatic slack adjusters become more widely used, it is important to point out that they do require periodic maintenance. Primarily, they should be greased at specific intervals. When they are being serviced, they should be checked for proper operation by checking the brake adjustment.

## 3.4 Tires and Wheels

- 3.4.1 Many operators use a tire billy to check air in tires, but the purchase of a good tire gauge would eliminate the guessing. Before moving the trailer, check the air pressure in the tires as a drop of 10 PSI in the tire pressure can reduce the carrying capacity of the tire by as much as 20% on certain tires. This reduced capacity could cause tire failure and loss of control of the trailer. Low tire pressure also is the main cause of poor tire life which can be very costly.
- 3.4.2 At the same time tires are checked, inspect wheels for cracks around the lugs. These can be observed in most cases by rust lines. These wheels should be replaced immediately.
- 3.4.3 There is no reason for any set of duals to be wobbling on any vehicle or tractor trailer combination. Installing duals with proper shop techniques will result in wheels running true. The result is increased tire mileage, smoother ride, and less stress on structural components, all providing a safer vehicle.

## 3.5 Towing Device and Suspension

- 3.5.1 Be sure the fifth wheel is locked to the king pin before pulling away. Visual inspection of the locking device is better than relying solely on applying air to the trailer brakes, and jerking against the king pin.
- 3.5.2 Inspect fifth wheel mountings for any tell-tale sign of failure or damage to load bearing components. Inspect the pintle hooks, lunette eyes, and drawbars on connector dollies by visually observing them for any unusual appearances such as bent members, cracks in welds, or chipped paint where structural members have received high load.
- 3.5.3 Inspect the suspensions by observing if the vehicle is leaning to one side, which may indicate a broken spring or faulty air valve on air suspensions. Visually inspect radius arms to be sure they are in place and look at the spring hangers to see if springs are in the hangers and that the hangers are not bent or otherwise damaged.

## 3.6 Frame

Before beginning any trip, make a thorough inspection of the trailer for cracks in the structure. Typical locations of cracks are at welds, at changes in beam depths, above suspension components, and at the upper coupler. Experience may also indicate other areas that need to be checked.

## 3.7 Safety Chains

Check all safety chains and their attachment to both the towed and the towing vehicle. Make certain the chains are of adequate size and are in good condition. Also make certain that all attachment devices are properly installed, and all nuts are tight.

## 3.8 State Laws

Before any trip to an area where you are not accustomed to traveling, check the state laws with regard to bridge requirements, especially if the trailer being towed has liftable axles.

## 3.9 Driver Safety

Be cautious when climbing on and off the trailer. If the trailer is dirty, snow covered or wet, the top of trailer can be extremely slippery, and could cause injury.

## 4. LOADING TRAILER AND HAULING LOAD

### 4.1 Load

- 4.1.1 Vehicle handling limits can be greatly affected by the weight of a load, its placement, the amount of weight distributed over the tractor axles, and whether or not the load is secured properly.
- 4.1.2 Overloading a vehicle should never be permitted. Overloads result in tire blowouts, spring breakage, frame breakage, insufficient braking capacity and will severely alter a vehicle's handling characteristics. All vehicles are designed with a maximum load capability and to best utilize these vehicles in the safest manner, the loads as shown on the certification label should not be exceeded.
- 4.1.3. One of the major contributing factors to vehicle rollover is a high center of gravity on tall loads. Extreme caution should be used in maneuvering a vehicle, tractor trailer combination, or any unit that has a tall load. This can be done by reducing speed. Fifth wheel placement on tractors can have an adverse effect on handling characteristics. Avoid moving the fifth wheel behind the centerline of the tandem on the tractor in an attempt to improve the ride. The result will be reduced steering load and loss of steering control. (3,4) Steering control is affected also if the fifth wheel is placed too far forward, since this position places too

### 4.2 Axle Loads

- 4.2.1 Check axle loads against the GVWR and the GAWR of the power vehicle and the trailer to ensure that loading is within the limits of the vehicles being used.



#### CAUTION:

IMPROPER LOAD PLACEMENT CAN HAVE A DETRIMENTAL EFFECT ON BRAKING, EVASIVE MANEUVERS, AND HANDLING CHARACTERISTICS OF A VEHICLE COMBINATION TRUCK TRAILER OR COMBINATION TRACTOR TRAILER.

### 4.3 Road Surface

Uneven terrain, steep grades and crowned roads, especially rural roadways, freeways, exit ramps, curves, bumps and depressions introduce forces into a tractor trailer combination that could result in an accident if proper precautions and driving techniques are not followed.

Even a vehicle that meets all maintenance and load requirements can become hazardous when excessive speeds and certain roadway characteristics are combined.

#### 4.3.1 Grades

Trucks are more likely to have accidents on grades than on level terrain. Rural non-freeways have the worst grade accident experience, particularly downgrades. Furthermore, the steeper downgrades have the greatest accident frequency. (8)

On a downgrade, the force of gravity works against the driver in maintaining control of his vehicle, particularly if the road is covered with rain, snow, ice, or loose material. On upgrades, the problem is spinning out due to insufficient traction at the drive wheels, particularly on snow and ice.

Failure to control speed by down shifting has resulted in 6% of the interstate truck accidents. (9) Drivers should use the same gear in descending a long grade as they would in climbing it. Gear selection should be made before descending a grade to minimize the chance of missing a shift. (10)

Great care must be taken to avoid excessive use of brakes on long downgrades, as over-heated brakes are dangerously inefficient. Drivers should use engine compression as the principal means of controlling speed on long grades. (10) Unless the road is slippery, the brakes should not be fanned (alternately applied and released) since fanning brakes on a long downhill grade may reduce air pressure below the minimum pressure needed for proper brake operation. (10)

If the low air pressure warning device operates at any time, drivers must stop immediately in the safest available place and correct the loss of air pressure before proceeding.

It is very dangerous to brake on a downgrade using only the trailer brakes. If this is done, the trailer brakes heat up and fade and the tractor brakes alone will not be able to stop the combination by themselves. Only by downshifting and using all brakes can the brake temperatures be held to a safe level.

#### 4.3.2 Exit and Entrance Ramps

Sixteen (16%) percent of tractor semi-trailer overturns occur at exit and entrance ramps of super highways. (11) All exit ramps are not uniform in curvature and banking and may not have a speed advisory sign proper for all truck and load combinations. Recent information indicates that jackknifing can occur without brakes being applied if a tractor semi-trailer enters a curved exit ramp at a too high rate of speed. (4)

#### 4.3.3 Level, Straight Roads

Many overturns appear to occur due to the driver falling asleep and driving off the pavement. A high crowned road, coupled with excessive speed, can cause trailer sway and loss of stability. Driver attentiveness is essential.

#### 4.3.4 Bumps and Depressions

Driving over a bump or depression in the road surface or running off the pavement and back on can cause the vehicle to sway and result in momentary reduction of lateral friction. Reduced speed and increased driver attentiveness are the best deterrents. VERY LOW VEHICLES CAN BE HUNG UP AT ELEVATED RAILROAD CROSSINGS OR DRIVEWAYS, SO PAY CLOSE ATTENTION TO THE ROAD SURFACE WHEN USING THESE VEHICLES.

#### 4.3.5 Curves

The forces trying to roll a vehicle over increase according to the square of the speed and are inversely proportional to the radius of a curve, i.e., the smaller the radius, the greater the force trying to pull the vehicle over. Therefore, the tighter the curve, the slower the speed must be in order to avoid rollover. In order to round a curve without skidding, there must be friction keeping the tire from skidding sideways. However, the tire/road interface can generate only so much friction. Part of the friction is used up when the tire is accelerating or braking. Thus, accelerating or braking on a curve can reduce the tire side friction and result in a skid. If the trailer tires skid, trailer swing occurs. If the rear tractor tires skid, tractor swing and jackknifing occurs.

#### 4.4 Weather

A major factor in the causes of accidents is weather. Rain, ice, snow, and high winds can each contribute significantly to an accident when combined with excessive speed, sudden lane changes, or other factors that put lateral forces into a tractor trailer combination.

Slippery roads can increase stopping distances and reduce the ability of a vehicle to perform maneuvers. (12) However, a study has shown that drivers often do not reduce their speed when the pavement is slippery and thus exceed the stopping and maneuvering limits of their vehicle. (13)

A tire's friction must be shared between friction required for braking or accelerating and that required to keep from skidding sideways. When the road is wet, the available tire/road friction may be half that of a dry road. If hard braking or rapid acceleration occurs, there may be little or no friction available to prevent tire lateral movement and skidding results. Many tractors have the capability to rapidly accelerate when coming off a ramp or curve. If this is done on slippery pavement, skidding may occur. On icy roads it is important to avoid deceleration, which can lock up the drive wheels. Avoid backing off the throttle suddenly, down shifting, or use of any engine retarder brake. Sudden deceleration may result in the trailer pushing the tractor around. (12,14)

Properly inflated tires get the best traction on icy roads. Don't attempt to let air out of the tires to gain traction. On ice, proper selection of drive wheel tires can make a 20 percent improvement in traction. Single reinforced chains can increase that traction by 500 percent. The interaxle lock should be used to avoid wheel spin. (14) Cross winds at bridges and near large structures such as grain elevators and passing trucks and buses may cause vehicle sway and sideways movement sufficient to push the combination off a slippery road.

#### 4.4.1 Hydroplaning

As a result of recent studies (15,16), the National Transportation Safety Board has concluded drivers of heavy trucks need to be made aware of the dangers of hydroplaning in wet weather. Hydroplaning occurs when water on the road builds up under the tires and literally lifts them clear of the pavement. Major contributing factors are: (1) excessive speed; (2) inadequate tread depth, which reduces the dispersion of water between the tire and roadway; and (3) under-inflation, which results in deformation of the tread permitting water buildup. (17)

The Board recommends tires be replaced at a tread depth of 4/32 inch for high-speed operation on wet pavement. Above all, drivers should be made aware hydroplaning can affect large trucks and combinations, and the surest means of prevention is reduced speed on wet pavement. (17)

ATTENTION: THESE ITEMS MENTIONED ARE VERY BASIC TO VEHICLE SAFETY AND ARE ITEMS INSPECTED BY STATE AGENCIES. FOR THE PURPOSE OF THIS DOCUMENT, ATTENTION IS CALLED TO THEM RELATIVE TO A VEHICLE'S STABILITY AND ITS ABILITY TO PERFORM CERTAIN EVASIVE MANEUVERS SAFELY. THE USE OF THESE WILL BY NO MEANS REPLACE A PROPER MAINTENANCE AND PREVENTIVE MAINTENANCE PROGRAM.

#### 4.5 Jackknife

When the tractor's rear wheels are locked up, a jackknife results in the tractor rotating through about 120 degrees in one to two seconds until the cab strikes the trailer. (9) In severe cornering maneuvers, such as exiting a ramp at high speed, a directional instability may occur without tractor rear wheel lockup. This also results in a jackknife motion although the rotational rate is lower than that of a drive axle lockup jackknife. (4)

A jackknife can be prevented by avoiding rapid acceleration and deceleration, by reducing speed on curves, and by controlled braking to avoid wheel lockup. Rolling wheels are necessary to keep control. When brakes are on, they slow the vehicle. When the brakes are off, steering control is maintained. Anti-lock devices automatically fan the brakes. (14) However, most vehicles built before 1975 and after 1979 have not been equipped with anti-lock and therefore fanning the brakes is the best method of avoiding wheel lockup. Brakes should not be fanned except on slippery pavement where this type of braking gives better control, reduces danger of skidding and gives a shorter stop. Fanning reduces air pressure and serves no useful purpose on dry pavement. (10)

Tests have shown that a driver cannot recover from a jackknife when the angle between tractor and trailer is greater than 15 degrees unless the tractor is equipped with front wheel drive. (14,18)

Vertical hinged-steering and the load divider dolly rear steering trailer combinations are subject to some decrease in roll stability while turning. This is because the rear most axles are swung inboard during a turn, decreasing their contribution to roll resistance. The tighter the turn, the less roll resistance.

This decrease in roll stability is normally very slight and without consequence. However, accidents can occur due to an accumulation of minor negative factors which singly are of no great consequence. Other factors which may contribute to loss of roll stability are:

- A - High Center of Gravity
- B - High Speed Turns
- C - Side Slopes, or Super Elevation in Turns
- D - Emergency Braking while Turning Sharply or at high Speeds

The prudent operator should avoid conditions where several of these factors are combined. The factor under greatest control by the operator is the vehicle's speed.

## 5. VEHICLE

- 5.1 Tractor and truck trailer combinations are designed to provide maximum directional control and roll stability within the constraints of highway size and weight limits and utility. Any combination can be rolled over by driving too fast around a curve, making too abrupt a maneuver, or by leaving the roadway. Locking up the wheels on an axle of a combination can result in a jackknife or trailer swing out.
- 5.2 Some truck trailer combinations are less resistant to roll during an abrupt lane change due to a "whipping action". The opposite is the case for the tractor semi-trailer combination, which is relatively more roll resistant in abrupt lane changes (the long wheelbase tends to stabilize the combination compared to a steady turning maneuver). (1)
- 5.3 Long wheel base, multi-axle trailers with spread/steering axles present new operational concerns. The rear steering found on these rigs dramatically affects performance and must be taken into account.

## 6. THE DRIVER

- 6.1 The driver can compensate for the characteristics and condition of his vehicle, for the road conditions and weather.
- 6.2 Either braking or accelerating while cornering can significantly reduce the controllability and stability of the vehicle and should be avoided. The best driving practice is to decelerate to a safe conservative speed before entering a corner or approaching congested traffic and then apply only moderate power until an essential straight path has been established.

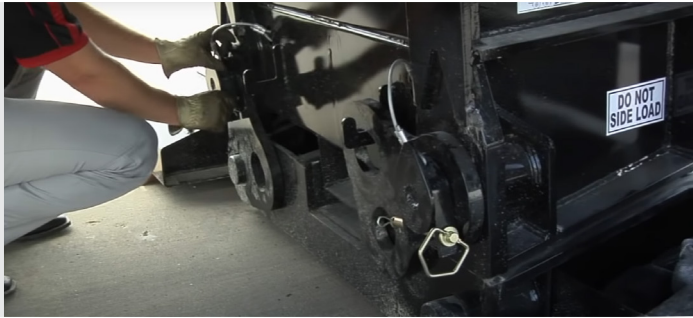


## SAFE TRAILER OPERATION/PRECAUTIONS

- 6.3 It is imperative that a safe speed always be maintained. The safe speed is that speed at which control can be maintained over the vehicle at all times. This speed will allow an emergency change of lane maneuver, travel off an exit ramp with a tightening radius and recovery from pavement drop-off or wet pavement. This speed will vary from one combination of vehicle to another and takes into consideration such factors as road conditions, weather, traffic, visibility, type of load, and experience of the driver.



## OPERATION INSTRUCTIONS



**ROTATING CONNECTOR PLATE**



**DISCONNECTING AIR/ELEC. LINES**



**4X4 BLOCK BETWEEN TRAILER AND RAMP**



**UNLATCH YELLOW HANDLE ON MAIN DECK**

### MECHANICAL DETATCH INSTRUCTIONS

- Ensure trailer is on level ground
- Disconnect air and electrical line that connect the trailer to the tractor
- Unlock the fifth wheel plate lock
- If possible, dump the air in the tractors's suspension, then drive away from the trailer
- Remove safety clips and pins from the connector plate, rotate the connector plate 90 degrees to rest on hook to the inside of the trailer
- Disconnect air and electrical lines between the gooseneck and the trailers main deck.
- Back up tractor to the trailer until the fifth wheel engages the pin.
- Place a 4x4 block between the gooseneck and loading ramps of the tractor
- Unlatch the handle on the side of the main deck below the flange
- If possible, reinflate the tractors suspension, drive the tractor forwards

## OPERATION INSTRUCTIONS

### MECHANICAL ATTACH INSTRUCTIONS

- Ensure the gooseneck lock handle, located on the side of the main deck, is released. The lock handle will engage when the lock plate engages with the trigger mechanism
- Back the tractor up to the trailer
- Dump the air in the tractor's suspension, remove the 4x4 block
- Unlock the fifth wheel plate connection
- Drive the tractor forward until it is clear from the trailer
- Place the connector plate, located under the gooseneck, back onto the load pins.
- Replace the safety clips and pins
- Reattach the air and electrical from the gooseneck to the main deck
- Back the tractor up to the trailer, this will lift the trailer up off the ground
- Lock the fifth wheel plate connector
- Reattach the air and electrical from the tractor to the trailer



**LOCK HANDLE RELEASED**



**LOCK HANDLE AUTOMATICALLY ENGAGED**



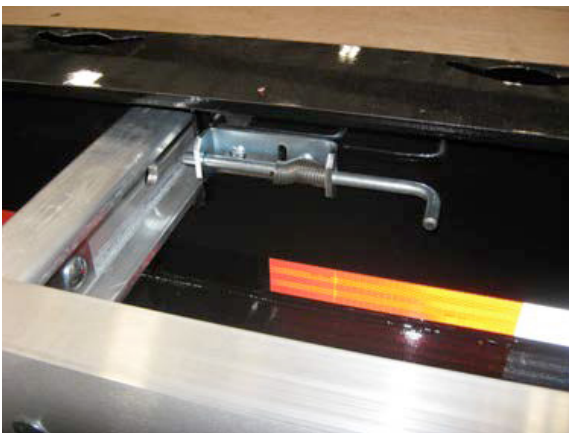
**REMOVE 4X4 AND DRIVE CLEAR OF NECK**



**REATCH CONNECTOR PLATES & AIR/ELEC**



**LOCK PIN IN LOCKED POSITION**



**LOCK PIN IN ADJUSTABLE POSITION**



**OUTRIGGER LOCKED IN TRAVEL POSITION**

## ALUMINUM PULLOUT INSTRUCTIONS

- Access pullout lock pin by reaching into oval cutout
- Pull out lock pin and turn 90 degrees clockwise so the pin is pointing at the oval cutout
- With the pin locked into adjustable position, pull out the outrigger to the desired locking location
- Turn the spring-loaded pin back to locking position, locking the outrigger into place





**FLIPPER SWITCH OFF**



**RAISING POSITION/FLIPPER SWITCH ON**



**LOWERING POSITION/FLIPPER SWITCH ON**

### RAISE AND LOWER INSTRUCTIONS

- When vehicle is in motion, switch must be in the off position for normal height control valve.
- To raise the trailer, place the flipper switch into the on position.
- Rotate the raise and lower valve clockwise to raise the trailer.
- To lower the trailer, Place the flipper switch into the on position and rotate the raise and lower valve counter-clockwise.
- To return back to normal operation of the trailer, place the flipper switch to the off position, the trailer will return to ride height

## 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.

For common replacement parts, reference pages 37-41

**1. MAINTENANCE TIPS****1.1 Breaking in a New Trailer**

- 1.1.1 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.

**1.2 Wheels**

- 1.2.1 Tests have shown, that after the initial torquing 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-torquing should occur after initial break in (50-100 miles) and then every 25,000 miles after that.

**1.3 Tires**

- 1.3.1 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.

**1.4 Air-Spring Suspension**

- 1.4.1 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.

**1.5 Air Brake Operation**

- 1.5.1 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.

**1.6 Winter/Freezing**

- 1.6.1 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.
- 1.6.2 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.

- 1.6.3 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.
- 1.7 Washing/Cleaning
  - 1.7.1 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.
- 1.8 Annual FHWA Inspection
  - 1.8.1 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.

## 2. AIR SYSTEM



### CAUTION

BEFORE ANY AIR SYSTEM MAINTENANCE IS PERFORMED, CHOCK THE WHEELS AND COMPLETELY EXHAUSE THE SYSTEM WITH DRAIN COCKS.

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.**

### 3. 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.

**WARNING:** 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



## 4. AXLES/BRAKES

### Axles

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

- Clean all hub cap components; face of hub, hub cap and gasket.
- Place the gasket...NEVER REUSE A GASKET.
- Install the hub cap. Install bolts and washers around hub cap and torque to **15 ft-lbs**.
- 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.

### Wheel Bearing installation and Adjustment

- Clean all components completely to make sure smooth operation. Coat all parts with recommended lubricant before installing.
- 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.
- Install outer bearing into hub, and then install onto axle spindle.
- 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.
- Back off the inner nut (1) full turn. Rotate the wheel.
- Re-torque the inner nut to **50 ft-lbs** while spinning the wheel hub assembly.
- Back off adjusting nut **1/4 -1/3 turn**
- Install locking washer, then spindle lock star washer on spindle to nearest hole.
- **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.**
- Install outer jam nut and torque to **300-400 ft-lbs**.
- Bend over 1 or 2 legs of the lock star washer over jam nut.
- 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.
- 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, Cam Shafts, Bearings & Bushings
- Anchor Pins
- Brake shoes, Brake Lining, Drums

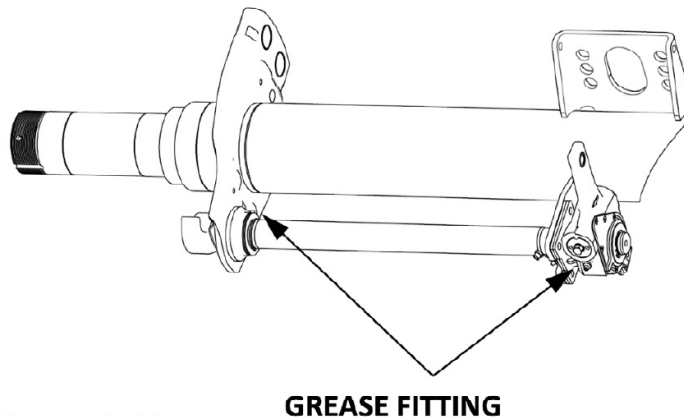
If any of the above show signs or wear or damage replace immediately with OEM parts before trailer is put back into service.

**WARNING:** BRAKE LINERS THAT ARE CONTAMINATED WITH LUBRICANT CANNOT BE SALVAGED OR CLEANED. THEY MUST BE REPLACED.

Inspect the axle for lubricant leakage; worn or damaged seals can cause leakage, and if found, investigate and replace damaged seals as needed. 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.



## 5. TIRES

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.
- Inspect tires 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, Mounting ring, Tubeless Rim Leaks

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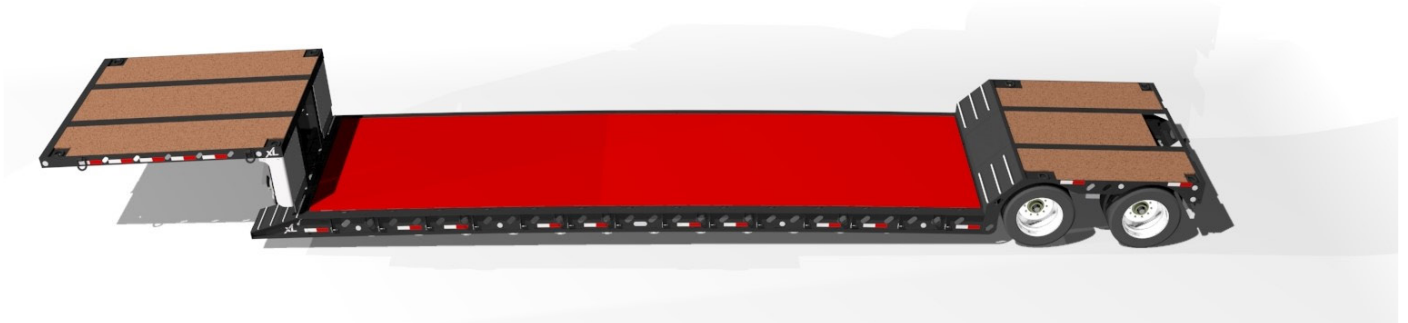
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A trailer with the load rating of XX,XXX lb Distributed can support this weight across the entire length of the main deck and spread across the full width of the decking (Shown in Red)



A trailer with the load rating of XX,XXX lb IN 16' can support this load across and centered in the specified length of 16' of the main deck and spread across the full width of the decking (Shown in Red)



## XL Specialized Trailers Logo

Part Number:

DEC XLLOGO AAC

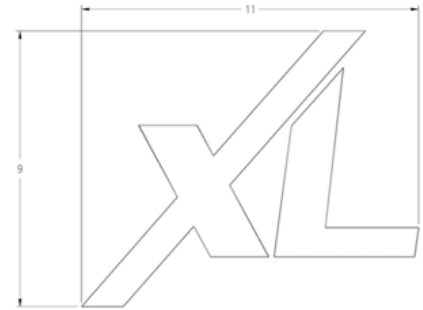


## XL Manchester, IA

Part Number:

DEC COLOGO ABB - White

DEC COLOGO ABC - Black

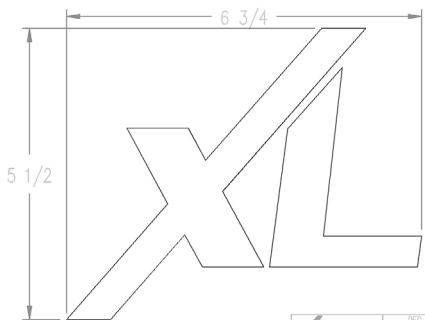


## XL Logo

Part Number:

DEC BIGXLS ABW - WHITE

DEC BIGXLS ACB - BLACK



## XL Logo

Part Number:

DEC BIGXLS ABX - WHITE

DEC BIGXLS ACA - BLACK



## XL MFG Decal - White

Part Number:

DEC XLCAMO AAG - 50 MFG

DEC XLCAMO AAE - 60 MFG

DEC XLCAMO AAF - 70 MFG

DEC XLCAMO ADZ - 80 MFG

DEC XLCAMO AEB - 90 MFG

DEC XLCAMO AED - 100 MFG



## XL MFG Decal - Black

Part Number:

DEC XLCAMO ADY - 50 MFG

DEC XLCAMO ACI - 60 MFG

DEC XLCAMO AAZ - 70 MFG

DEC XLCAMO AEA - 80 MFG

DEC XLCAMO ABA - 90 MFG

DEC XLCAMO AEE - 100 MFG



## Do Not Side Load

Part Number:

DEC DNSLOA AAA

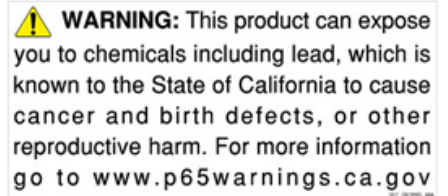
## NOTICE

**DO NOT HIGH PRESSURE WASH  
OR USE ANY DETERGENT ON  
TRAILER FOR 30 DAYS TO ALLOW  
PAINT TO COMPLETELY CURE**

## WASH NOTICE

Part Number:

DEC DNWASH AAA



**LEAD CANCER CAUTION**

Part Number:

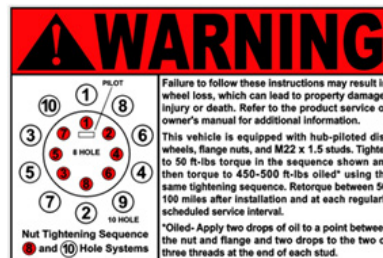
DEC PROP65 AAA



## WELD CAUTION

Part Number:

DEC CATWEL AAA



## HUB WARNING

Part Number:

DEC WALHUB AAA

## ANCHORING DEVICE RATINGS

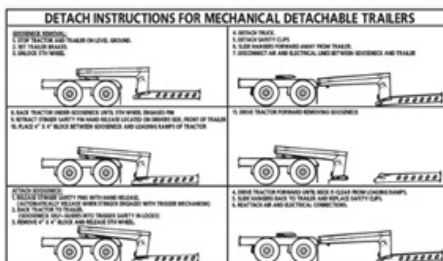
**THIS TRAILER MAY CONTAIN ONE OR MORE OF THE FOLLOWING ANCHORING DEVICES. TIE DOWN COMPONENTS (BINDERS, CHAINS, STRAPS, ETC.) HAVE SEPARATE RATINGS.**

1" D-RING	15,000 LBS
3/4" D-RING	9,000 LBS
STAKE POCKET	6,500 LBS
CHAIN DROP	9,100 LBS
STAKE POCKET/PIPE SPOOL	6,500 LBS

## ANCHOR DEVICE RATINGS

Part Number:

DEC ANCHOR AAA



## WELD CAUTION

Part Number:


DEC MDTACH AAA



**APPROVED**

Part Number:

DEC APPROV AAA

SUSPENSION PSI TO LOAD CHART		
25K SUSPENSION		AIR SPRING
HT250T	 (LOWER END OF RANGE = AIR SPRINGS)	C-20124
HT250S		C-20413
HT250LS		
Required	Load per axle	
psi	(lbs)	(kg)
98	25,000	11,340
90	23,000	10,433
82	21,000	9,525
74	19,000	8,618
66	17,000	7,711
58	15,000	6,804
50	13,000	5,897
42	11,000	4,990
34	9,000	4,082
24	7,000	3,175
17	5,000	2,268

### LIQUID FILLED AIR GAUGE CHART

Part Number: \*CONTACT XL



Picture shown may not resemble all models.

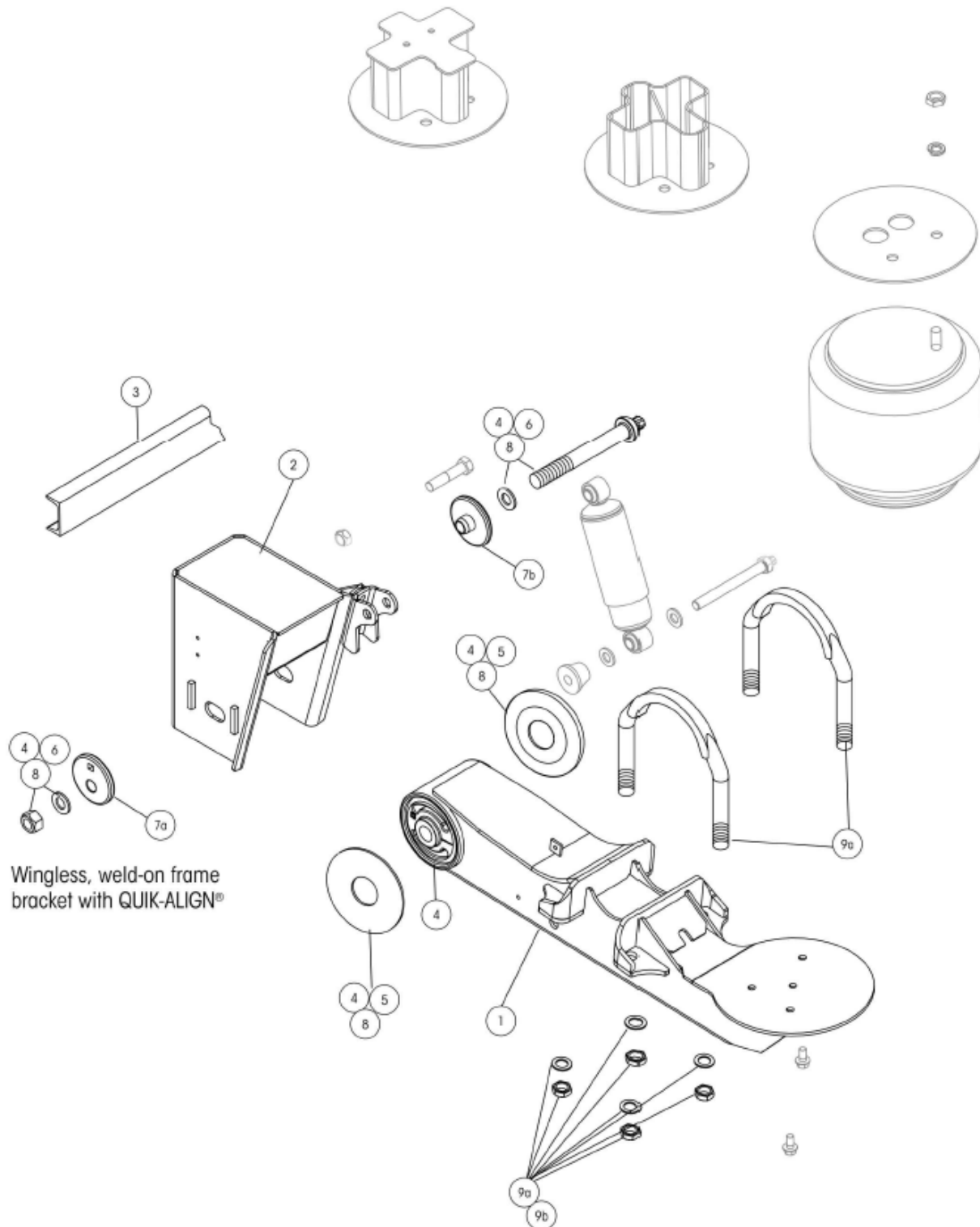


TABLE 1.

ITEM NUMBER	DESCRIPTION	PART NO.	QTY. PER SUSP.	NOTES
1	BEAM ASSEMBLY			
	Standard	S-24186-1	1	Roadside
		S-24186-2	1	Curbside
	Steer (Not Shown)	S-29303-1	1	Roadside
		S-29303-1	1	Curbside
2	FRAME BRACKET			
	Standard travel, limited jounce, std. shock mount	S-22827-1	2	Roadside
		S-22827-2	2	Curbside
	Standard travel, limited jounce, remote shock mount	S-22827-3	2	Roadside
		S-22827-4	2	Curbside
3	FRAME BRACKET C-CHANNEL			
		A-1631-19	1	All Models
4	TRI-FUNCTIONAL® II BUSHING KIT <sup>2</sup>			
		S-24691	2	Includes bushing, bushing tube spacers, round head bolt, prevailing torque hex nut, hardened washers and lube
5	BUSHING TUBE SPACER			
		S-21099	4	All Models
6	QUIK-ALIGN® PIVOT BOLT KIT			
		S-24679	2	Includes round head bolt, hardened washers, prevailing torque hex nut
7	ALIGNMENT COLLARS			
7a	Eccentric	S-20925	2	Alignment hole is off center
7b	Concentric	S-20925	2	Alignment hole is centered
8	BUSHING TUBE SPACER KIT			
		S-26369	2	Includes round head bolt, hardened washers, prevailing torque hex nut and bushing tube spacers
9	U-BOLT KIT			
9a	19.5" or Larger Tires	S-21140/4	4	Includes (1) stepped U-bolt and hardware; axle spacer is not needed
9b	17.5" Tires	S-22894/4	4	Includes (1) flattened U-bolt and hardware; axle spacer is needed with flattened U-bolt
10	AXLE SPACER			
		S-20701	4	Axle spacer is not needed with stepped U-bolt. For use with flattened U-bolt, Must order with 9a

2. Bushing tool S-21307 is required to correctly re-bush the suspension

Picture shown may not resemble all models.

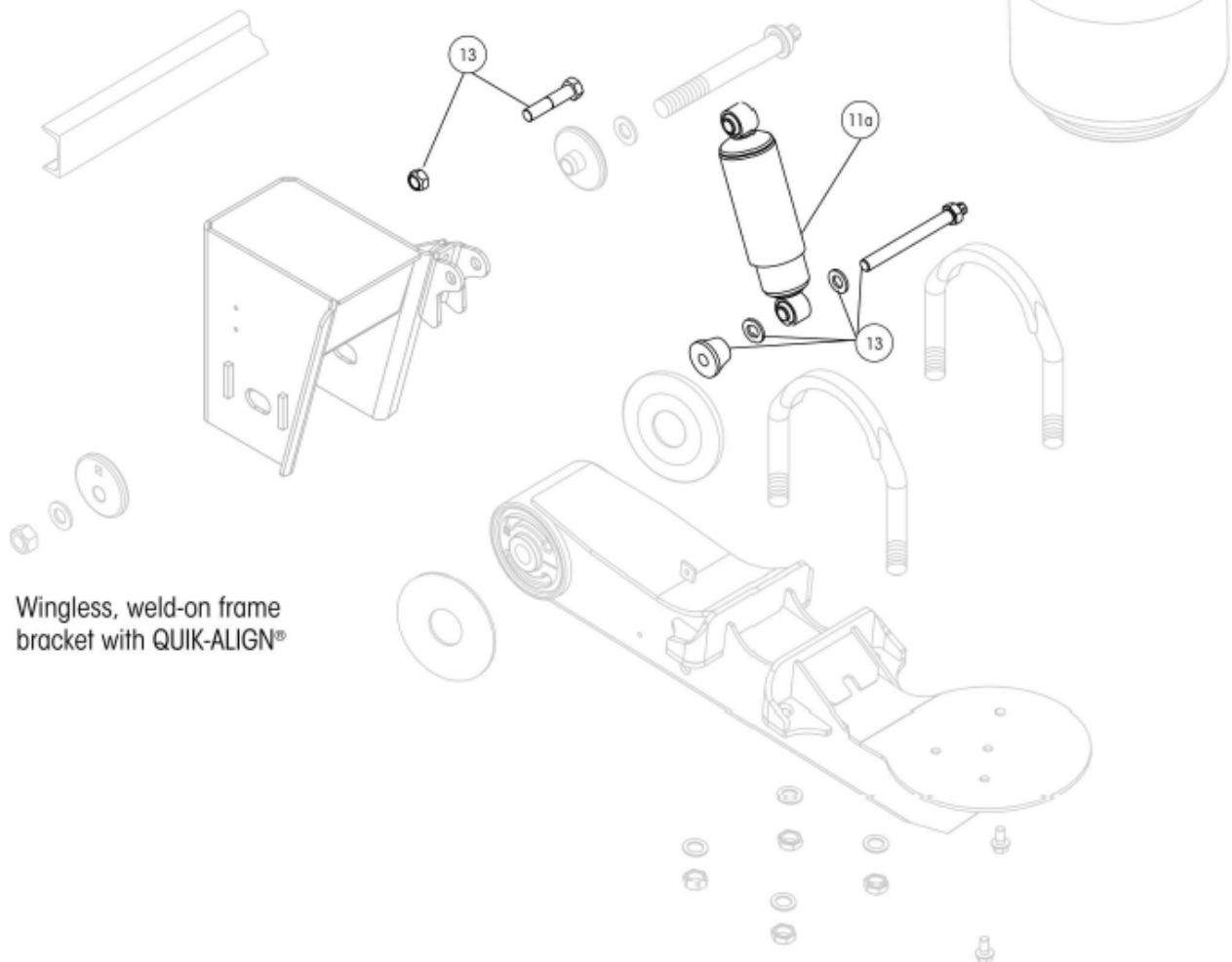
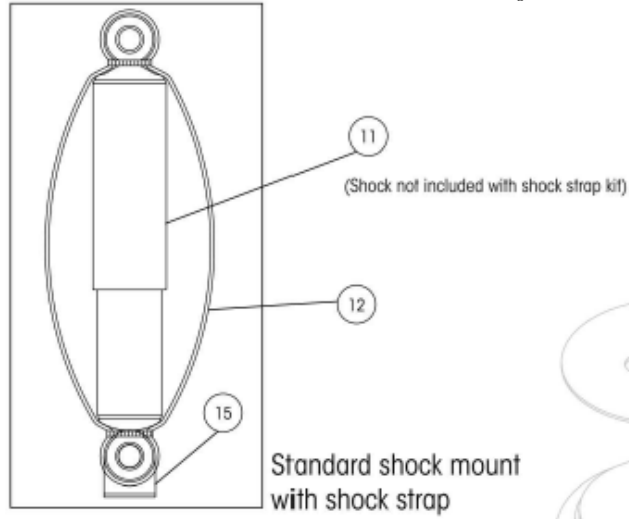
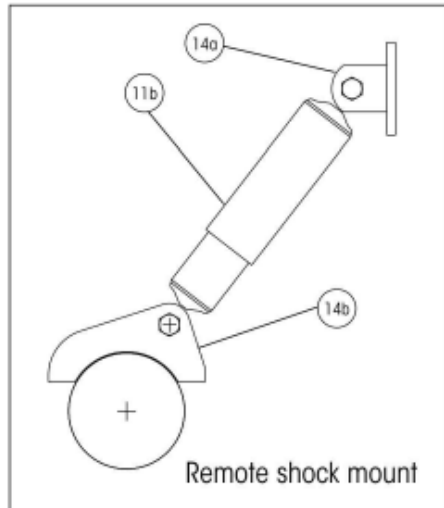


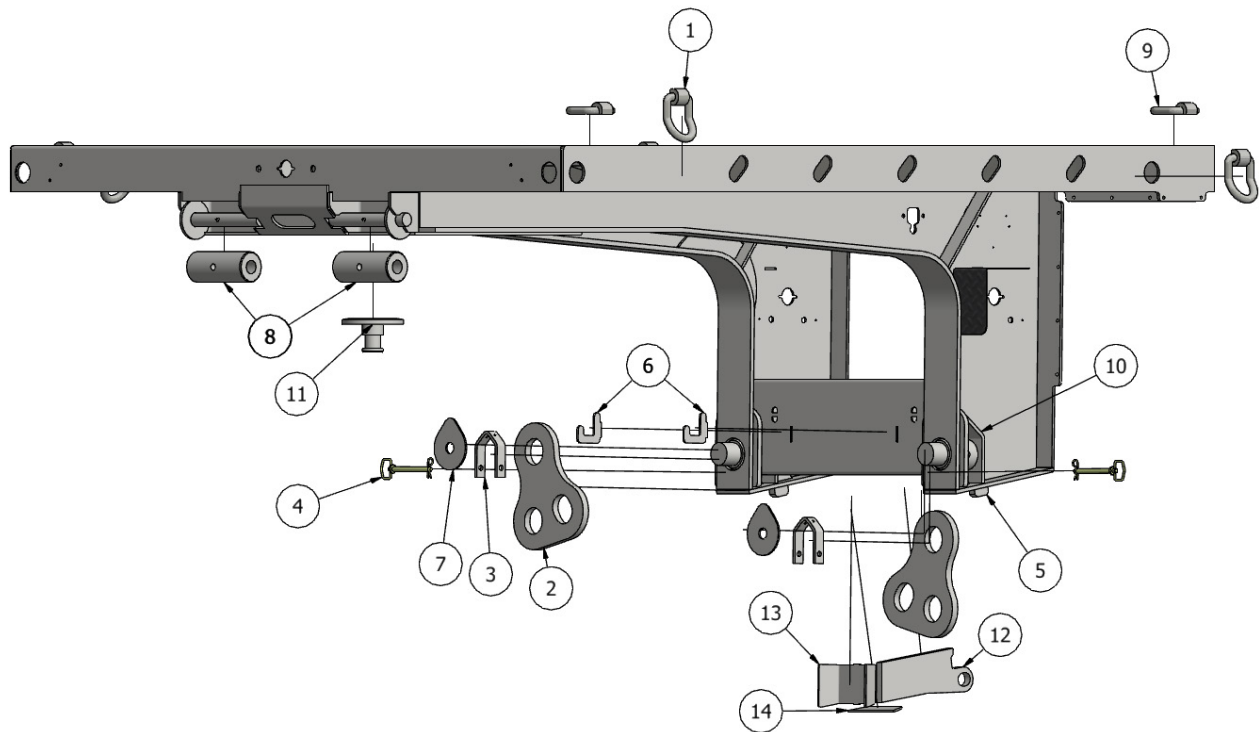
TABLE 2. FOR PARTS 11 & 12 ONLY

ITEM	DESCRIPTION	(11) SHOCK PART NUMBER	(11) QTY. PER SUSP.	(12) SHOCK STRAP PART NUMBER <sup>3</sup>	(12) QTY. PER SUSP.
<b>A</b>	<b>STANDARD SHOCK MOUNT</b>				
<b>STANDARD TRAVEL</b>	3.5" TO 4" RH	S-23548	2	C-23086-11	1
	5.5" TO 6.5" RH	S-23650	2	C-23086-3	1
	7.5" TO 14" RH	S-23649	2	C-23086-5	1
<b>STANDARD TRAVEL - HIGH DAMPING</b>	5.5" TO 6.5" RH	S-23744	2	C-23086-10	1
	7.5" TO 14" RH	S-23743	2	C-23086-5	1
<b>LIMITED JOUNCE</b>	6.5" TO 12" RH	S-23649	2	C-23086-5	1
<b>LIMITED JOUNCE - HIGH DAMPING</b>	6.5" TO 12" RH	S-23649	2	C-23086-5	1
<b>EXTENDED REBOUND</b>	6.5" RH	S-23651	2	C-23086-4	1
<b>EXTENDED REBOUND - HIGH DAMPING</b>	6.5" RH	S-24579	2	C-23086-8	1
<b>B</b>	<b>REMOTE SHOCK MOUNT <sup>4</sup></b>				
<b>STANDARD TRAVEL</b>	5.5" TO 6.5" RH	S-23650	2	S-14587-9	1
	7.5" TO 9" RH	S-23649	2	S-14587-10	1
	12' TO 14" RH	S-2212	2	S-14587-3	1
<b>STANDARD TRAVEL - HIGH DAMPING</b>	5.5" TO 6.5" RH	S-23744	2	S-14587-11	1
	7.5" TO 9" RH	S-23743	2	S-14587-10	1
<b>EXTENDED REBOUND</b>	6.5" TO 9" RH	S-2212	2	S-14587-3	1
<b>EXTENDED REBOUND - HIGH DAMPING</b>	6.5" TO 9" RH	S-23316	2	S-14587-3	1
<b>C</b>	<b>ANGLED AND FRAME CLEARANCE MOUNTING</b>				
<b>STANDARD TRAVEL</b>	6.5", 7.5" TO 14" RH	S-23651	2		1
<b>STANDARD TRAVEL - HIGH DAMPING</b>	6.5", 7.5" TO 14" RH	S-24579	2		1

ITEM	DESCRIPTION	PART NO.	QTY. PER SUSP.	NOTES
<b>13</b>	<b>SHOCK BOLT KIT</b>			<b>(1) SHOCK BOLT IS REQUIRED PER SHOCK</b>
	Standard Shock Mount	S-24024	2	
	Standard Shock Mount Lower	S-23642	2	
	Standard Shock Mount Upper	S-2157/2	1	
	Remote Shock Mount	S-2157/2	2	
<b>14</b>	<b>REMOTE SHOCK MOUNT</b>			<b>ALSO ORDER SHOCK BOLT KIT S-2157/2</b>
	Upper Assembly	A-5431	2	
	Lower Assembly	S-2723	2	
<b>15</b>	<b>SHOCK STRAP CLEVIS</b>			<b>ONLY NEEDED FOR STANDARD SHOCK MOUNT INCLUDED IN SHOCK STRAP KIT</b>
		B-20919	2	

3. Shock strap kits: includes (2) straps, (2) clevis and (4) nylon ties

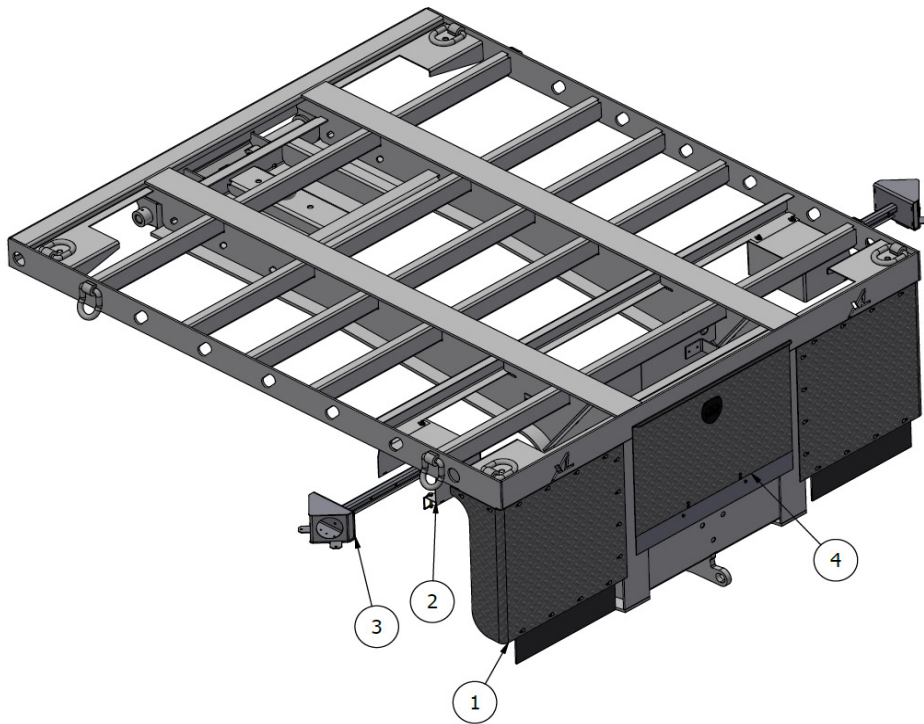
4. Shock strap clevis not included and not needed for remote shock mount



**TABLE 3.**

ITEM	PART
1	BENT D-RINGS WITH CLIP
2	CONNECTOR PLATE
3	CLEVIS FOR CONNECTOR PLATE
4	PIN FOR CONNECTOR CLEVIS
5	TAB
6	CONNECTOR PLATE HOOK
7	RETAINER PLATE
8	ROLLER
9	FLAT D-RING WITH CLIP
10	LOAD PIN H-PLATE
11	KINGPIN
12	LOCK PLATE
13	PLUG ASSEMBLY REAR PLATE
14	PLUG ASSEMBLY BOTTOM PLATE

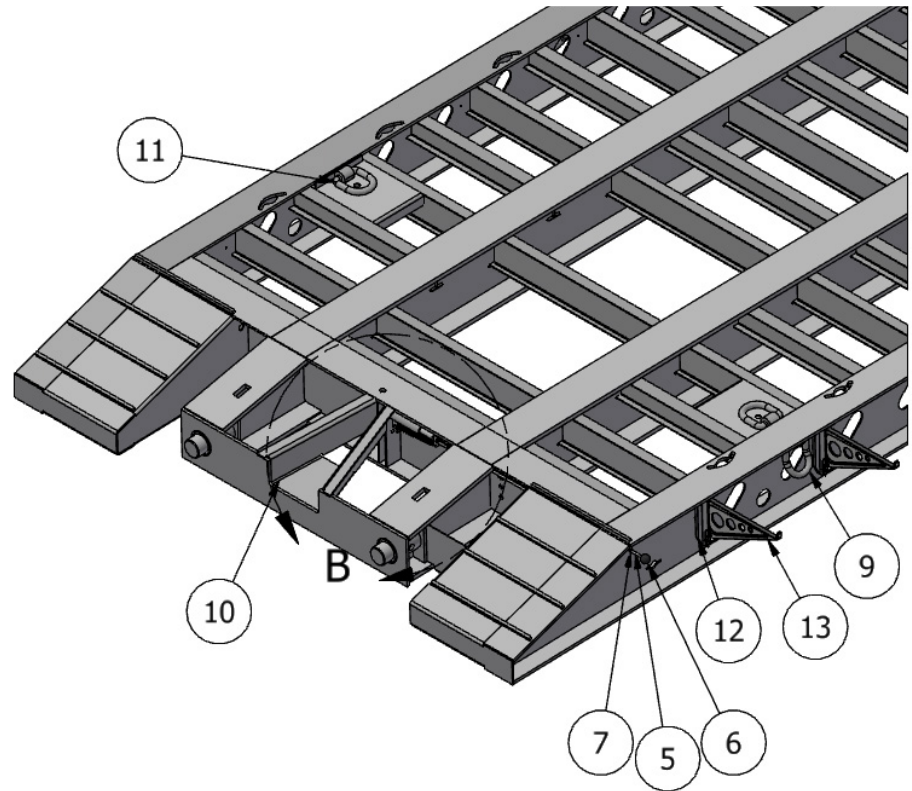
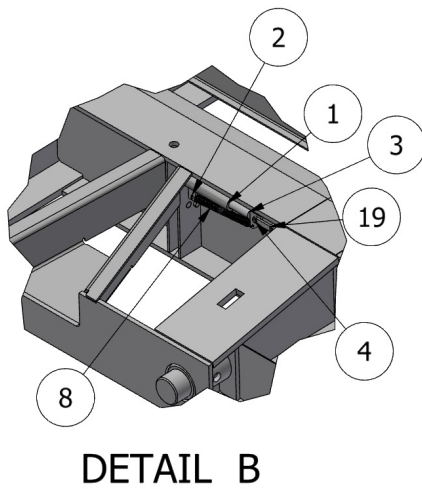
X - Quantity will vary depending on specification ordered



**TABLE 4.**

ITEM	PART
1	MUDFLAP ASSEMBLY
2	GOOSENECK PULLOUT LIGHT MOUNTING ASSEMBLY
3	GOOSENECK PULLOUT LIGHT ASSEMBLY
4	TOOLBOX WITH CHAIN RACK

X - Quantity will vary depending on specification ordered

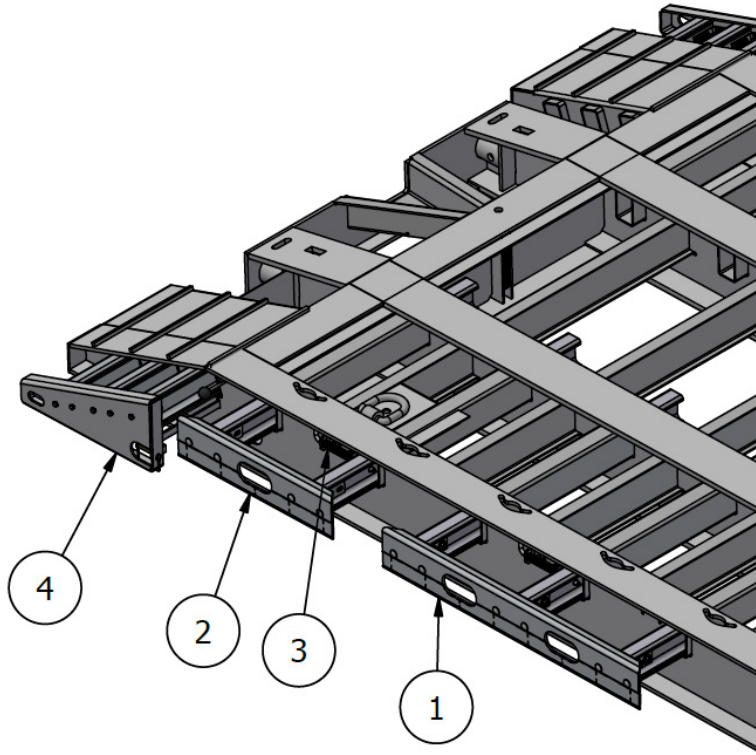


**TABLE 5.**

ITEM	PART
1	TUBE FOR LOCKING MECHANISM
2	SPRING ATTACHMENT
3	LOCKING PIN
4	CLEVIS FOR LOCK ROD
5	LOCK ROD
6	LOCK ROD HANDLE PLASTIC BALL
7	LOCATOR ROD FOR LOCKING HANDLE
8	SPRING EXTENSIONS
9	BENT D-RINGS WITH CLIP
10	GUIDE TROUGH
11	FLAT D-RING WITH CLIP
12	OUTRIGGER BRACKET
13	OUTRIGGERS

X - Quantity will vary depending on specification ordered





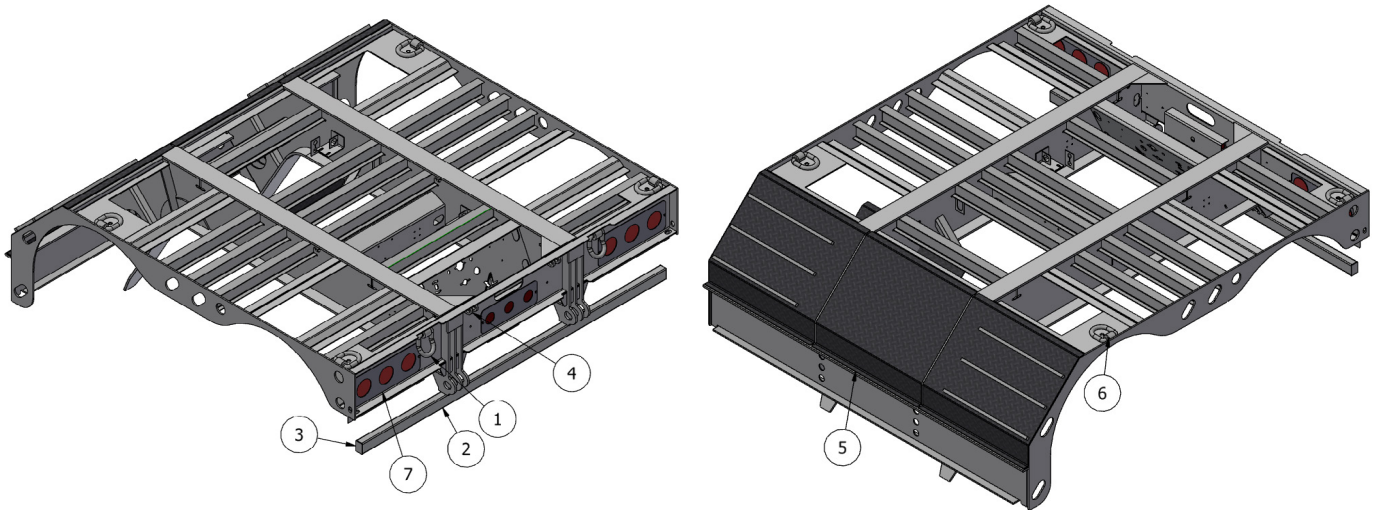
**TABLE 6.**

ITEM	PART
1	ALUMINUM PULLOUT - 3 BEAM ASSEMBLY
2	ALUMINUM PULLOUT - 2 BEAM ASSEMBLY
3	ALUMINUM PULLOUT LOCK PIN ASSEMBLY
4	PULLOUT RAMP ASSEMBLY

X - Quantity will vary depending on specification ordered



## REAR DECK REPLACEMENT



**TABLE 7.**

ITEM NO.	PART
1	BENT D-RINGS WITH CLIP
2	BUMPER TUBE
3	BUMPER CAPS
4	FLIP AXLE CONNECTION BRACKET
5	TREAD PLATE TRANSITION
6	FLAT D-RING WITH CLIP
7	ALUMINUM TAIL LIGHT BRACKET

X - Quantity will vary depending on specification ordered

## **FREQUENTLY ASKED QUESTIONS**

### **How do I use the donut connector plate to adjust the ground clearance of the trailer?**

Double donut connector plate

- Inner most setting is standard ground clearance
- Outer most setting will drop the front of the main deck

Triple donut connector plate

- Middle setting is the standard ground clearance
- Inner most setting will drop the front of the main deck
- Outer most setting will raise the front of the main deck

### **Why is my suspension riding high while driving?**

Check that the raise and lower lever is set to the OFF position when in normal operation. Reference page 20 for instructions.

### **Can I weld on my XL Specialized Trailer?**

No, do not weld on your trailer. See decal on page 32.

Contact XL Specialized Trailers for guidance.

[illegible]