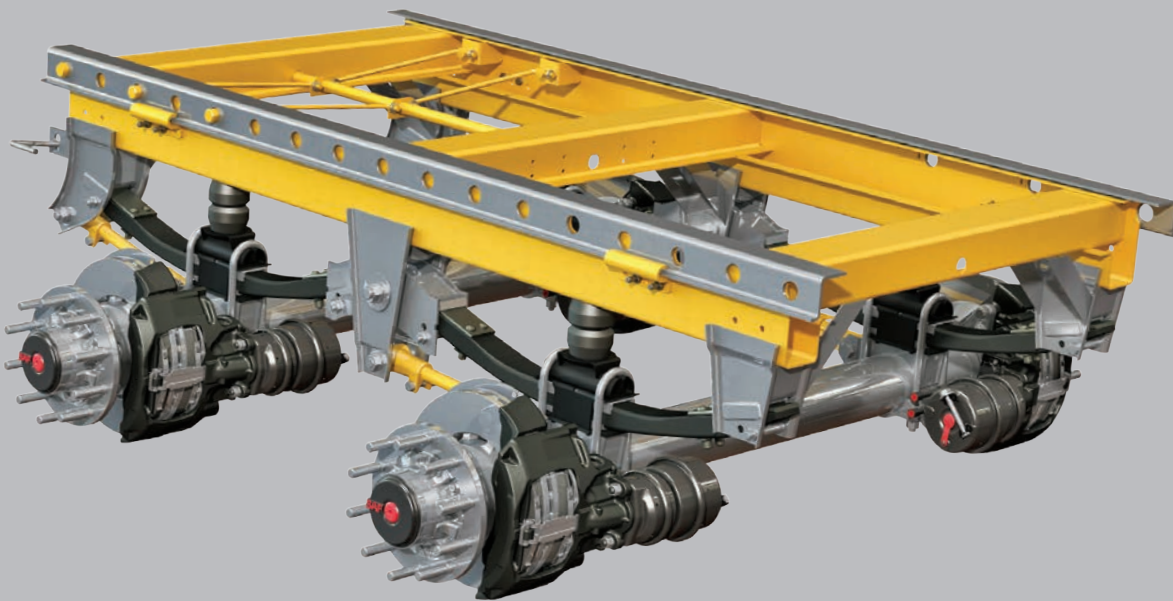


Installation, Operation and Maintenance Manual

ULX40 Slider Suspension System

- Lightweight Mechanical Spring Suspension



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Introduction

This manual provides information necessary for the installation and operation of the SAF-HOLLAND® ULX40 suspension and slider system.

The ULX40 suspension includes premium 5.75" diameter axles. For axle end and/or brake servicing information or component replacements, refer to Drum Brake Manual XL-TA100060M-en-US, Disc Brake Manual XL-SA100590M-en-US or contact Customer Service at 888-396-6501.

Read this manual before using or servicing this product and keep it in a safe location for future reference. Updates to this manual, which are published as necessary, are available on the internet at www.safholland.us.

When replacement parts are required, SAF-HOLLAND® highly recommends the use of only SAF-HOLLAND® Original Parts. A list of technical support locations that supply SAF-HOLLAND® Original Parts and an Aftermarket Parts Catalog are available on the internet at www.safholland.us or contact Customer Service at 888-396-6501.

Warranty

Refer to the complete warranty for the country in which the product will be used. A copy of the written warranty is included with the product or available on the internet at www.safholland.com.

Notes, Cautions, and Warnings

Before starting any work on the unit, read and understand all the safety procedures presented in this manual. This manual contains the terms "NOTE", "IMPORTANT", "CAUTION", and "WARNING" followed by important product information. These terms are defined as follows:

NOTE: Includes additional information to enable accurate and easy performance of procedures.

IMPORTANT: Includes additional information that if not followed could lead to hindered product performance.

CAUTION

Used without the safety alert symbol, indicates a potentially hazardous situation which, if not avoided, could result in property damage.

▲ CAUTION

Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

▲ WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

1. General Safety Instructions

Read and observe all Warning and Caution hazard alert messages in this publication. They provide information that can help prevent serious personal injury, damage to components, or both.

⚠ WARNING Failure to properly support the vehicle and axles prior to commencing work could create a crush hazard which, if not avoided, could result in death or serious injury.

Please observe the following safety instructions in order to maintain the operational and road safety of the suspension system.

1. Only the wheel and tire sizes approved by the trailer builder may be used.
2. Before operating vehicle, ensure that the maximum permissible axle load is not exceeded and that the load is distributed equally and uniformly.
3. Observe the operating recommendation of the trailer manufacturer for off-road operation of the installed suspension.

IMPORTANT: The definition of OFF-ROAD means driving on non-asphalted/non-concreted routes, e.g. gravel roads, agricultural and forestry tracks, on construction sites and in gravel pits.

IMPORTANT: Off-road operation of suspensions beyond the approved application design could result in damage and impair suspension system performance.

4. All suspension systems require routine service, inspection and maintenance in order to maintain optimum performance and operational safety as well as an opportunity to recognize wear.
5. In the event of suspension component failure, quickly reduce speed as safely as possible and remove the vehicle from traffic. If unable to remove vehicle from traffic, follow DOT safety requirements regarding emergency situations.
6. Contact a qualified towing and/or service company to assist in repairing vehicle or to move it to a qualified repair facility.

We highly recommend the use of only SAF-HOLLAND® Original Parts.

A list of SAF-HOLLAND® technical support locations to supply SAF-HOLLAND® Original Parts can be found at www.safholland.us or contact SAF-HOLLAND® Customer Service at 888-396-6501.

Updates to this manual will be published as necessary online at www.safholland.us.

2. Installation Preparation

The proper installation of the suspension is critical to assure trouble free operation. Before proceeding with suspension installation, check the tire size and trailer design to make sure that there is lateral tire clearance and a vertical tire clearance of at least 4-1/2" (114 mm) when the trailer is empty.

⚠ WARNING Failure to maintain tire clearance between tires and the nearest point of contact on the suspension or vehicle could cause fire or loss of vehicle control which, if not avoided, could result in death or serious injury.

3. Standard Decal Requirements of ULX40

The following three (3) decals MUST be properly installed on the trailer prior to putting it in service:

- Air Release Warning Decal: XL-AR429 (**Figure 1**).
- Manual QWIK RELEASE® Warning Decal: XL-MS184 (**Figure 2**).
- Torque Decal: XL-MS189-01 (**Figure 3**).

It is the responsibility of the end user to periodically inspect all decals and ensure that they are clean and completely legible. If any decals are missing, loose, damaged or difficult to read, contact SAF-HOLLAND® Customer Service at 888-396-6501 to order replacements immediately.

Figure 1

TO REPOSITION SLIDER:

1. Remove stop bar and move to desired location.
2. Pull manual switch to “disengaged” position. (If lock pins do not retract after manual switch is in “disengaged” position, gently rock trailer and pins will automatically retract.)
3. Carefully move trailer until contacting stop bar.
4. Push manual switch to “engaged” position and visually check all lock pins for proper engagement.
5. Locate stop bar directly behind slider.
6. Before using trailer, the manual air release lock switch must be in “engaged” position, and all lock pins must extend through the rails or beams.

! **WARNING**

Failure to properly engage the lock pins could result in loss of vehicle control which, if not avoided, could result in death, serious injury or property damage. **IMPORTANT: TRAILER EMERGENCY BRAKES MUST BE APPLIED BEFORE MANUAL AIR RELEASE SWITCH WILL OPERATE.**

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XL-AR429

Figure 2

TO REPOSITION SLIDER:

1. Remove stop bar and move to desired location.
2. Lift pull arm and pull until locked in the “OUT” position. (If lock pins do not retract after pull arm is locked in the “OUT” position, gently rock trailer with brakes applied and pins will automatically retract.)
3. Apply trailer brakes and carefully move trailer until contacting stop bar.
4. Release pull arm to the “IN” position and visually check all lock pins for proper engagement.
5. Locate stop bar directly behind slider.
6. Before moving the trailer, the pull arm must be locked in the “IN” position, and all lock pins must extend through the rails or beams.

! **WARNING**

Failure to properly engage the lock pins could result in loss of vehicle control which, if not avoided, could result in death, serious injury or property damage.

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**XB-SL0255
XL-MS184**

Figure 3

MAINTENANCE & TORQUE SPECIFICATIONS FOR MECHANICAL SUSPENSION

REQUIRED MAINTENANCE SCHEDULE:

- After initial 1,000 mile break in period, check trailer axle alignment and correct as necessary.
- The torque arms, springs, hangers and welds should be visually inspected at 25,000 mile intervals and at all inspections for excessive wear, deformation and structural soundness.
- All fasteners must be re-torqued after initial 1,000 miles and thereafter at 25,000 mile intervals.

Fastener	U-Bolts (Composite Springs)	U-Bolts (Steel Springs)	Equalizer Bolts	Torque Arm Ends	Rebound Bolts	Adj. Torque Arm Clamp
Torque Ft.-Lbs. (N•m)	275-300 (372-406)	275-300 (372-406)	450-500 (609-677)	275-300 (372-406)	35-50 (47-68)	85-95 (115-129)

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Always apply torque to nuts, if possible.
XB-SP0001
XL-MS189-01 Rev. N

4. ULX40 Model Identification

The ULX40 suspension serial tag (**Figure 4**) is located on the front crossmember (**Figure 5**).

NOTE: Refer to the serial number tag attached to the slider front crossmember for information (**Figure 4**).

The sample tag shown will help you interpret the information on the SAF-HOLLAND USA, Inc. serial number tag. The model number, axle body part number, axle beam rating, and serial number are listed on the tag (**Figure 6**).

Figure 4

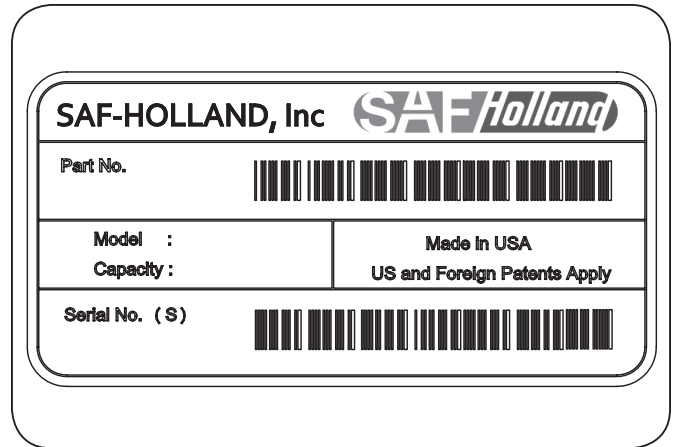


Figure 5

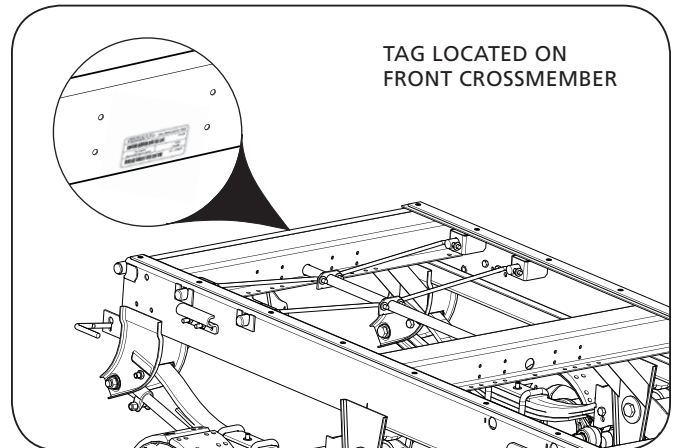
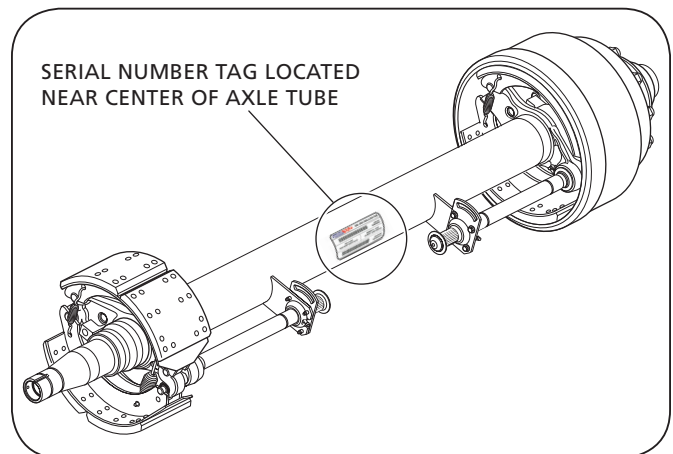


Figure 6



5. Welding Standards

5.1 Scope

The SAF® suspension has been designed to be installed on a trailer with no welding required. When welding is required for suspension repairs, observe the requirements below. Customers may not weld on an SAF® suspension without our prior approval, including the application of the American Welding Society standards by SAF-HOLLAND® engineering. This specification applies to all components supplied by SAF-HOLLAND®, and its products. The customer assumes all responsibility for weld integrity if weld material and procedure differ from those listed below.

5.2 Workmanship

All welding on SAF-HOLLAND® products MUST be performed by a welder qualified according to the appropriate AWS standard for the weld being made or an equivalent standard. It is the responsibility of the customer to provide good workmanship when welding on SAF-HOLLAND® products.

5.3 Material

Items to be welded that are made from low carbon or high-strength alloy steel are to be welded with AWS filler metal specification AWS A5.18, filler metal classification ER-70S-3, ER-70S-6 or equivalent unless specified on the installation drawing.

NOTE: Any substitution for filler material from the above standard must comply, as a minimum, with the following mechanical properties:

Tensile Strength - 72k psi (496 MPa)
Yield Strength - 60k psi (414 MPa)
Charpy V Notch - 20 ft.-lbs. (27 N•m) at 0°F (-17.7°C)
% Elongation - 22%

The recommended welding gas for gas metal arc welding (GMAW) is 90% Argon / 10% CO₂. If a different gas is used, welds must comply with penetration requirements illustrated (**Figure 7**). Where the installation drawing specifies different than above, the drawing shall prevail.

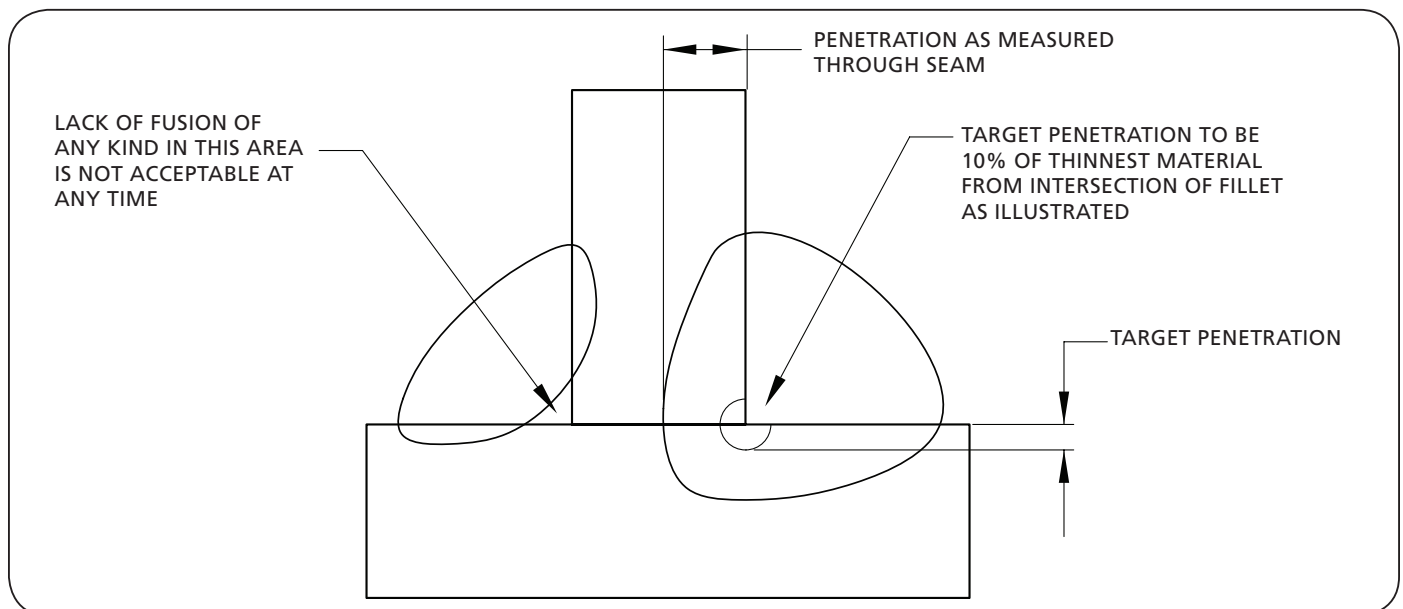
5.4 Procedures

Tack welds used for positioning components are to be located in the center of the final weld, where practical. Tack weld should be completely fused to the finish weld. DO NOT break arc at the end of the weld. Back up all finish welds at least 1/2" (12.7 mm) or a sufficient amount to prevent craters at the end of the weld. Where weld is illustrated to go around corners, it is assumed the corner represents a stress concentration area. DO NOT start or stop weld within 1" (25.4 mm) of the corner. Particular care should be taken to prevent undercutting in this area.

5.5 Weld Size

If weld size is NOT specified, the effective throat of the weld MUST be no smaller than the thinnest material being welded (**Figure 7**).

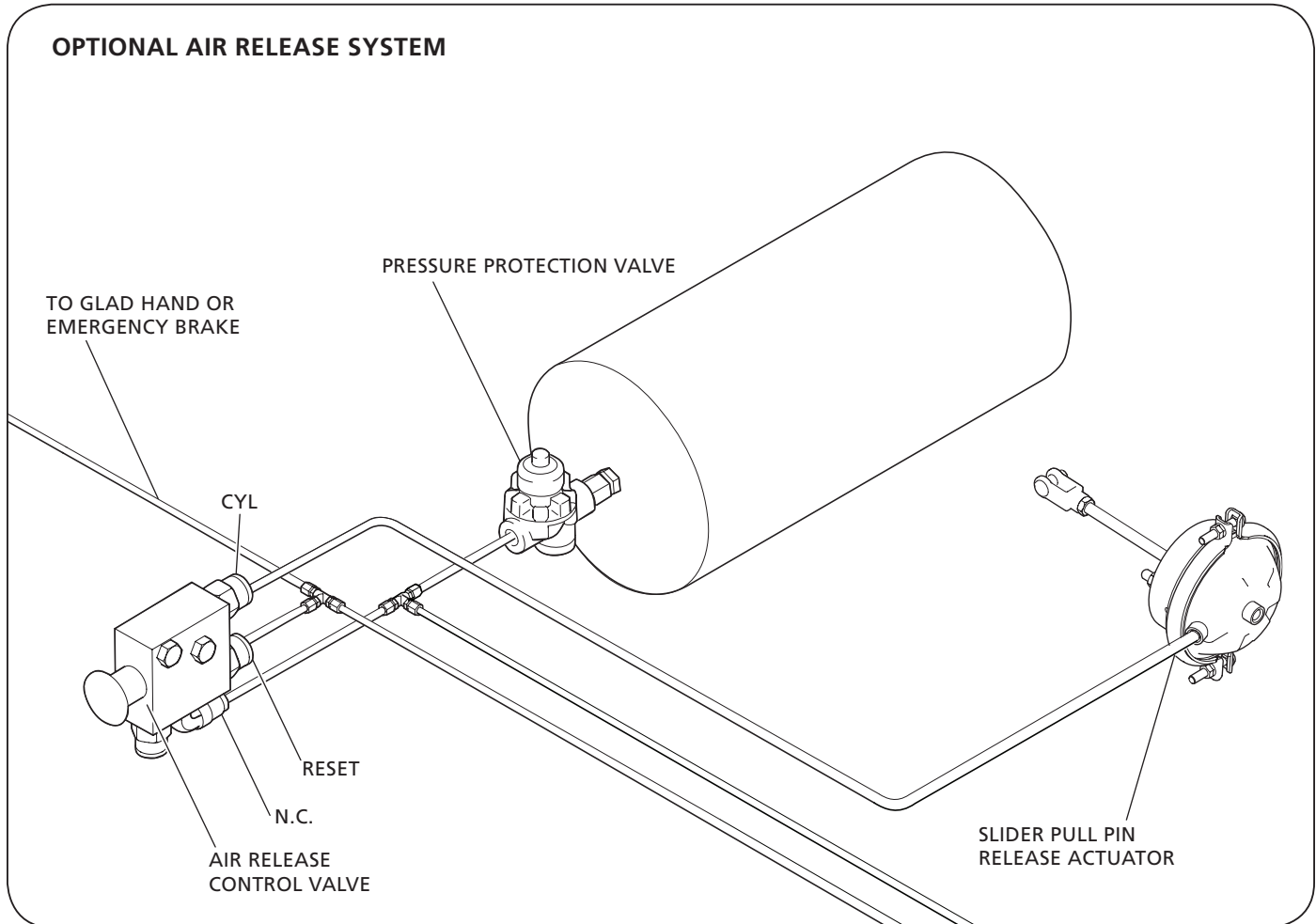
Figure 7



6. Optional Air Release System

If your ULX40 was ordered with a slider pull pin air release system, the air release control valve and the actuator will need to be plumbed (**Figure 8**).

Figure 8



7. Slider Assembly Installation

1. Remove the hold down clips on all four (4) corners of the slider (**Figure 9**).
2. Locate the slider between the body rails of the trailer and engage the lock pins (**Figure 10**).
3. Re-install the hold down clips to the slider and body rails, and torque all 1/2" hold down clip nuts to 75-90 ft.-lbs. (102-122 N•m) (**Figure 11**).
4. Install service, emergency, and electrical lines to the slider.

Figure 9

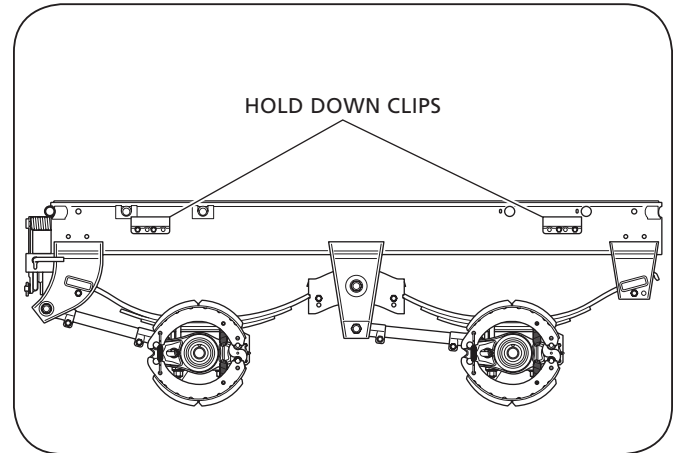


Figure 10

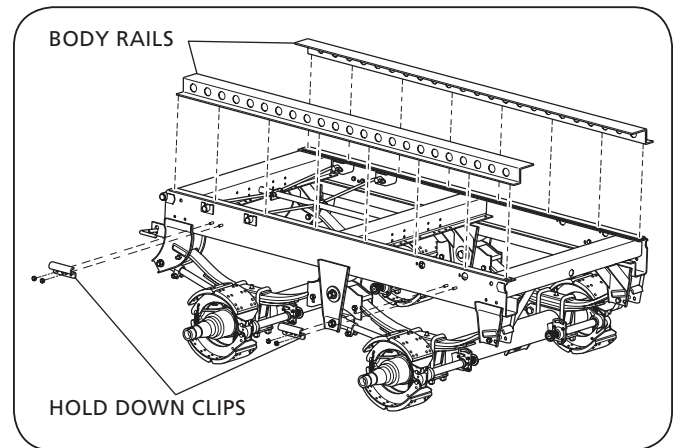
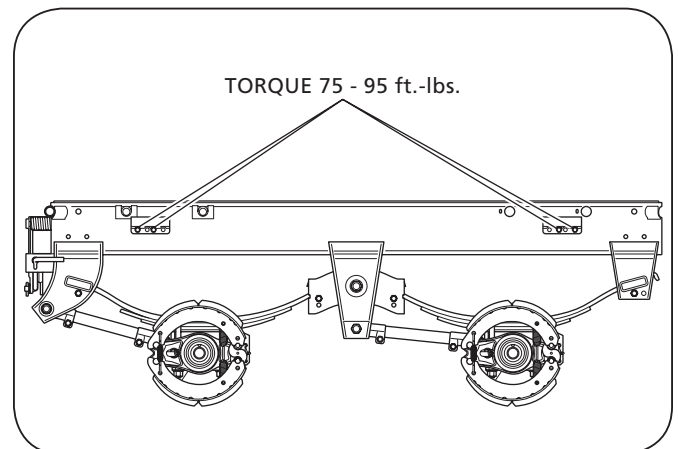


Figure 11



8. Axle Alignment

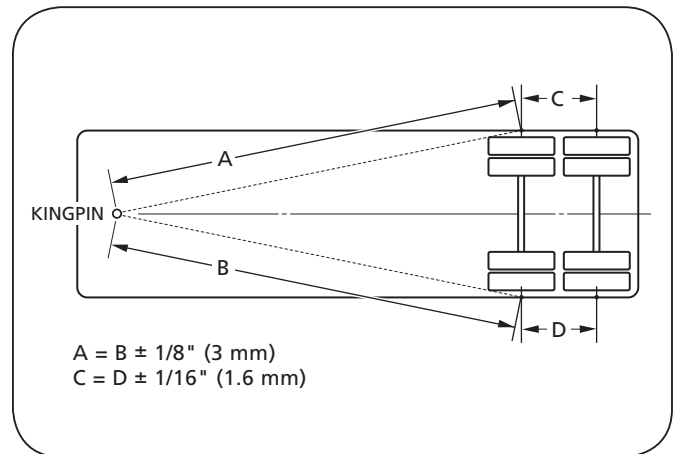
IMPORTANT: Axle alignment should always be done while the trailer is empty.

1. Pull the trailer in a straight line for a sufficient distance to ensure there are no binds in the suspension.
2. Engage the trailer park brakes.
3. Check that the ends of the springs are contacting the bottom wear pads in all hangers.
4. Loosen the 5/8" clamp bolts on the adjustable torque arms.
5. Disengage the trailer parking brakes and ensure the trailer is empty.
6. Manually measure or use an optical device specifically designed for alignment measuring to determine the following:
 - a. Measure the distance from the king pin to the centerline of the front axle spindles. It is recommended that spindle extensions be utilized.
 - b. Dimensions A and B (**Figure 12**) MUST be equal to within 1/8" (3 mm).
 - c. Measure the distance from the centerline of the front axle spindles to the centerline of the rear axle spindles.
 - d. Dimensions C and D (**Figure 12**) MUST be equal to within 1/16" (1.6 mm).
7. Tighten the clamp bolts on the adjustable torque arm to 85-95 ft.-lbs. (108-129 N•m).

9. Brake Adjustment Instructions

Brakes should be adjusted per axle and brake manufacturer's specifications.

Figure 12



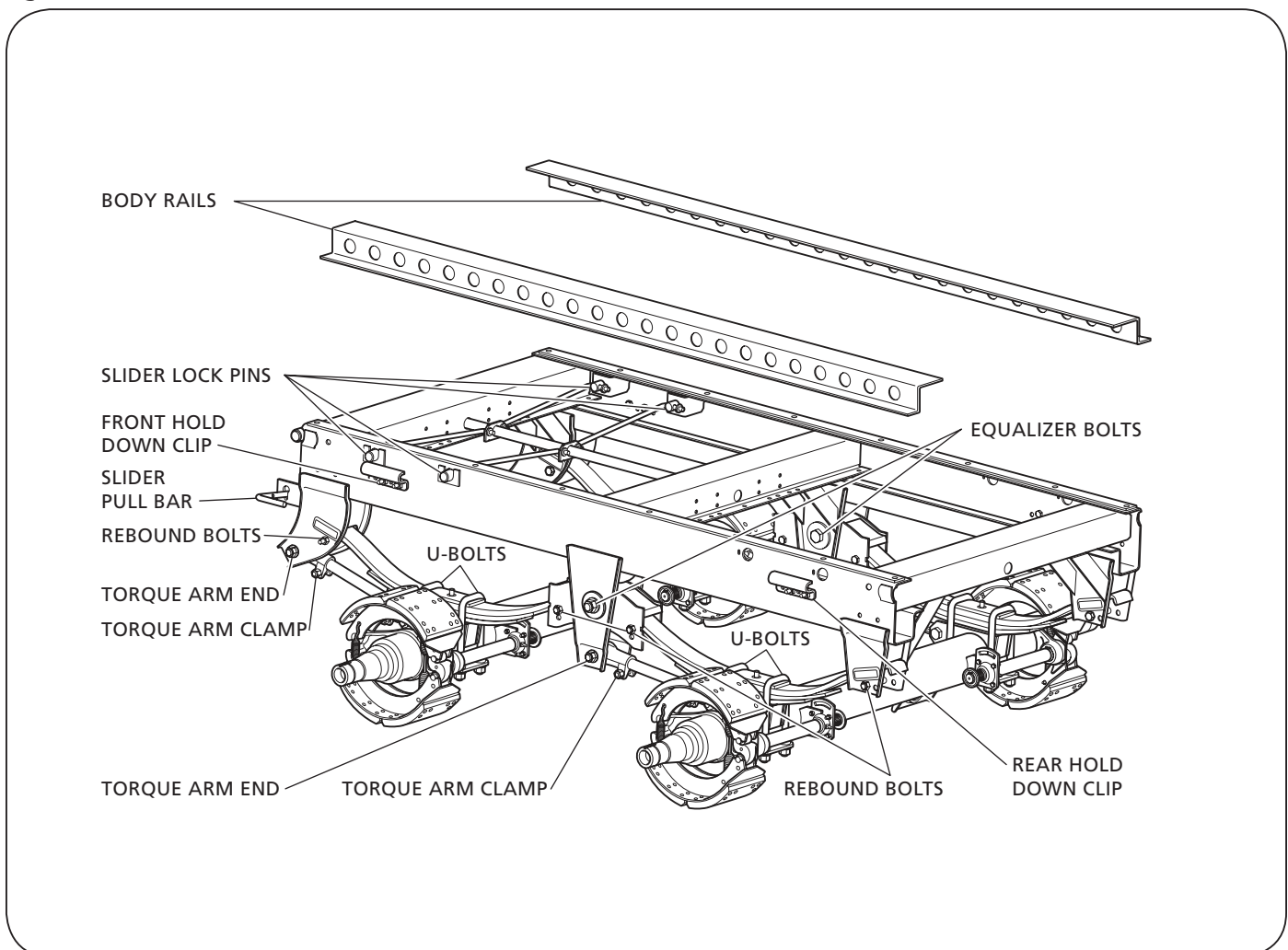
10. Pre-Operation

1. Check that the slider locking pins, slider pull-bar mechanism, and slider wear pads (**Figure 13**) are operating properly. For slider repositioning instructions, Refer to procedures described in Section 11 of this manual.
2. Inspect bolts to make sure that they are correctly secured around the slider body rails and suspension (**Table 1, Figure 13**).

Table 1

COMPONENT	TORQUE VALUE
U-Bolts (composite springs)	275-300 ft.-lbs. 372-406 N • m
U-Bolts (steel springs)	275-300 ft.-lbs. 372-406 N • m
Equalizer Bolts	450-500 ft.-lbs. 609-677 N • m
Torque Arm Ends	275-300 ft.-lbs. 372-406 N • m
Rebound Bolts	35-50 ft.-lbs. 47-68 N • m
Adjustment Torque Arm Clamps	85-95 In.-lbs. 115-129 N • m
Hold Down Clip Nuts	75-90 In.-lbs. 8.5-10 N • m

Figure 13



11. Slider Repositioning Instructions

1. With the vehicle on a level surface, set the tractor and trailer brakes and locate the slider QWIK RELEASE® pull arm handle (**Figure 14**), or air release control valve.
2. To reposition the slider, remove the manual stop bar and relocate to desired location – rearward of slide box if moving rearward, or forward of slide box if moving forward (**Figure 14**).

If repositioning the slider forward, remove the manual stop bar and relocate directly behind slide box after the slider is moved to final position.

3. Lift and pull the QWIK RELEASE® pull arm handle from the engaged position (**Notch 1 - Figure 15**) to the disengaged position (**Notch 2 - Figure 16**).

NOTE: If your slider is equipped with an air release pin mechanism, pull the air release control valve knob to disengage the lock pins.

4. Visually check to ensure the lock pins are in the disengaged position, and that the QWIK RELEASE® pull arm handle is locked (**Notch 2 - Figure 16**).

When lock pins have properly disengaged, proceed to Step 6.

If lock pins fail to disengage, proceed to Step 5.

5. If the QWIK RELEASE® pull handle is in the notch 2 position but the lock pins fail to retract and are still in the engaged position, the QWIK RELEASE® pull arm is in an armed, ready to unlock position.

NOTE: The QWIK RELEASE® torsion spring will automatically retract the lock pins when the pressure on the lock pins is released.

- a. Release the tractor brakes.



WARNING Failure to verify the area is clear of others before moving the vehicle could result in death or serious injury.

- b. Gently rock the tractor and trailer fore and aft while listening for the lock pins to disengage.
 - c. After the “metallic clang” of the lock pins disengaging is heard, reset the tractor brakes, and visually verify that the lock pins have been properly disengaged.
6. When the lock pins have disengaged – slowly reposition the tractor until the slide box contacts the manual stop bar (**Figure 14**).

Figure 14

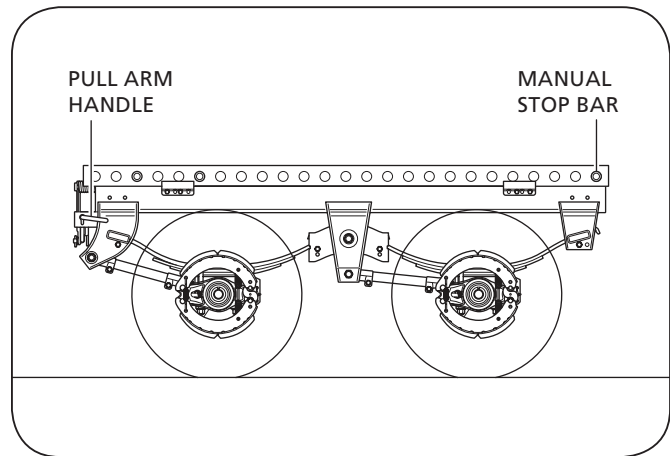


Figure 15

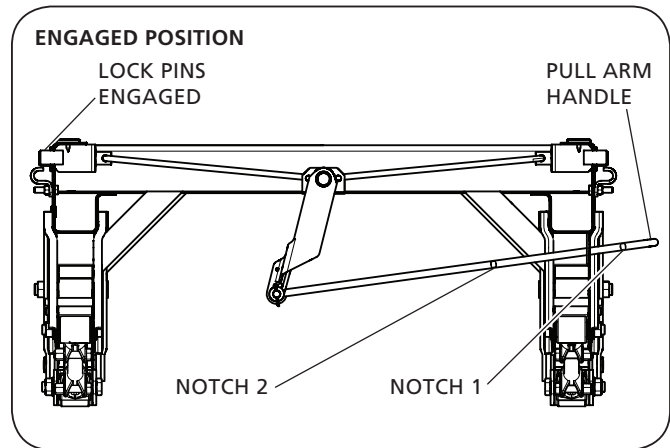
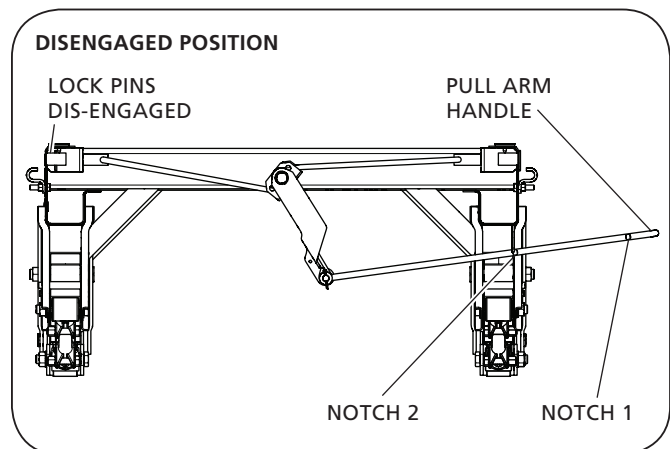


Figure 16



- Set the tractor brakes.

NOTE: Trailer parking brakes should still be engaged.

- Lift and push the pull arm handle from the disengaged position (**Notch 2 - Figure 17**) to the engaged position (**Notch 1 - Figure 18**).

NOTE: If your slider is equipped with an air release pin mechanism, push the air release control valve knob to engage the lock pins.

- Visually check that the lock pins are fully engaged and extend through the holes in the upper rail (**Figure 19**).

WARNING An unsecured slider box can cause loss of vehicle control which, if not avoided, could result in death, serious injury or property damage.

- Visually check that the manual stop bar is properly installed directly behind slide box (**Figure 19**).

CAUTION Failure to properly install or position the manual stop bar could result in improper trailer load distribution which, if not avoided, could result in damage to the suspension or trailer parts.

Figure 17

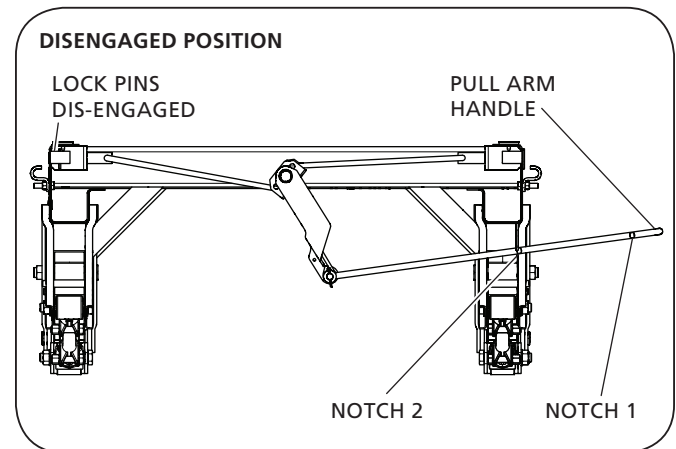


Figure 18

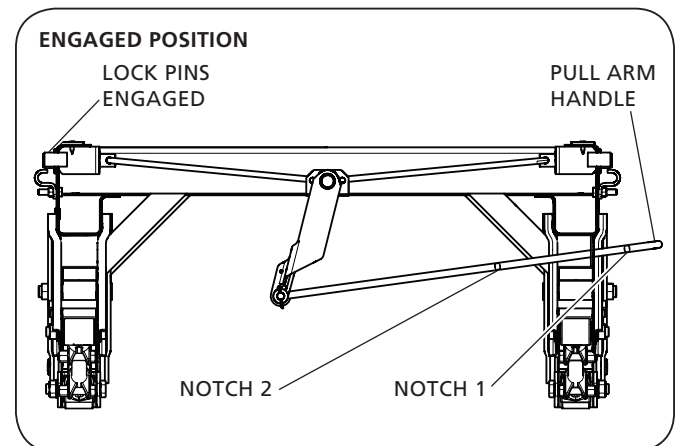
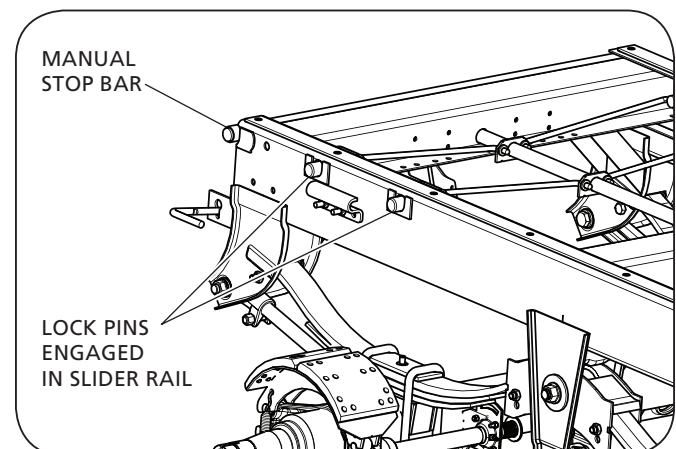


Figure 19



12. Routine Maintenance and Daily Inspection

ULX suspensions, by design, require a minimum of maintenance. However, suspensions require periodic checks to be certain of continued trouble free performance.

- Daily or before each trip, check the suspension to be sure it is fully operational.
- Inspect all decals to ensure they are clearly legible and intact. Clean with a terry cloth towel, soap and water.
- Inspect the slider lock pins and slider pull handle for signs of excessive wear, bending or binding.
- Inspect the front and rear hold down clips to ensure that they are correctly secured around the body rails.
- After an initial break-in period of 1,000 miles (1,609 km), re-check the trailer alignment and correct as necessary.

12.1 Routine Physical/Visual Inspections

All fasteners, torque arms, springs, hangers and welds should be visually inspected at 25,000 miles (40233 km) intervals and at all inspections for excessive wear, deformation and structural soundness.

IMPORTANT: A schedule for physical and visual inspections should be established by the operator based on severity of operation or damage to the vehicle could occur.

IMPORTANT: During each pretrip and safety inspection of the vehicle, a visual inspection of the suspension should be done or damage to the vehicle could occur.

NOTE: Failure to maintain proper fastener torque values could result in suspension component damage and loss of vehicle control which, if not avoided, could result in death or serious injury.

IMPORTANT: The use of special lubricants with friction modifiers, such as Anti-Seize or Never-Seize, without written approval from SAF-HOLLAND Engineering, will void warranty and could lead to over torquing of fasteners or other component issues.

Visually check for:

- Loose, damaged or missing fasteners. Repair or replace as needed.



Loose, damaged, or missing fasteners can cause loss of vehicle control which, if not avoided, could result in death or serious injury.

- Cracked parts or welds.
- Check the slider locking pins, slider pull-bar mechanism and slider wear pads for signs of excessive wear or binding, refer to Section 10 (**Figure 12**). Repair or replace as needed.
- Inspect the structure of the slider box and cross members for damage, refer to Section 10 (**Figure 12**). Repair or replace as needed.
- Inspect the front and rear hold down clips to make certain the clips are secured correctly around the body rails, refer to Section 10 (**Figure 12**). Torque all 1/2" nuts to 75-90 ft.-lbs. (102-122 N•m).

13. Torque Specifications

Table 2

COMPONENT	TORQUE VALUE
U-Bolts (composite springs)	275-300 ft.-lbs. 372-406 N • m
U-Bolts (steel springs)	275-300 ft.-lbs. 372-406 N • m
Equalizer Bolts	450-500 ft.-lbs. 609-677 N • m
Torque Arm Ends	275-300 ft.-lbs. 372-406 N • m
Rebound Bolts	35-50 ft.-lbs. 47-68 N • m
Adjustment Torque Arm Clamps	85-95 In.-lbs. 115-129 N • m
Hold Down Clip Nuts	75-90 In.-lbs. 8.5-10 N • m

All torque specifications are ± 5%.
Torques specified are for clean, lubricated threads.
Always Apply torque to nut if possible.
Required re-torquing at every brake re-lining.

NOTE: Torque specifications listed above are with clean lubricated/coated threads (**Table 2**). All new SAF-HOLLAND® fasteners come pre coated from the factory. For bolt and lock nut grade markings, refer to **Figure 20**.

IMPORTANT: The use of special lubricants with friction modifiers, such as Anti-Seize or Never-Seez®, without written approval from SAF-HOLLAND® Engineering, will void warranty and could lead to over torquing of fasteners or other component issues.

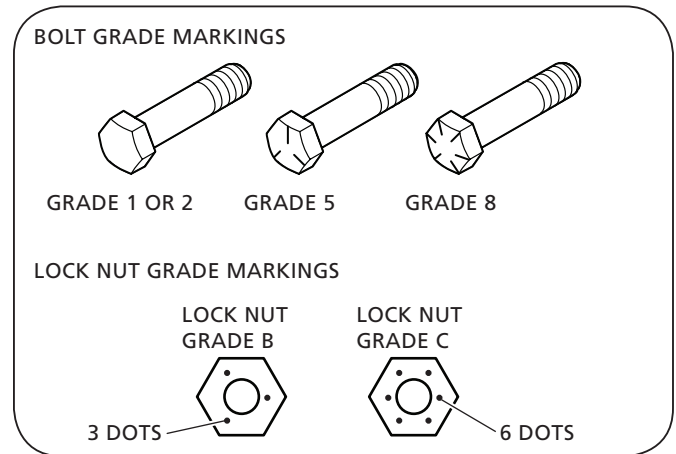
General Information

The torque specifications are applied to the nut and NOT the bolt.

⚠ WARNING Failure to use the proper fasteners when servicing the suspension could cause component failure which, if not avoided, could result in death or serious injury.

⚠ WARNING Failure to properly torque all fasteners could result in component failure which, if not avoided, could result in death or serious injury.

Figure 20





From fifth wheel rebuild kits to suspension bushing repair kits, SAF-HOLLAND Original Parts are the same quality components used in the original component assembly.

SAF-HOLLAND Original Parts are tested and designed to provide maximum performance and durability. Will-fits, look-alikes or, worse yet, counterfeit parts will only limit the performance potential and could possibly void SAF-HOLLAND's warranty. Always be sure to spec SAF-HOLLAND Original Parts when servicing your SAF-HOLLAND product.

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