

# POLARIS XPEDITION (STD CAB & CREW) - 4" PORTAL GEAR LIFT KIT

73-16772 (15% Dual Idler Kit)

73-16773 (30% Dual Idler Kit)



# HL

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## **IMPORTANT PRODUCT USE AND SAFETY INFORMATION / WARNINGS**

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This product is designed for use on ATVs and/or RUVs to lower the final drive gear ratio and increase ground clearance. Purchasers should be aware that use of this product may increase the frequency of required maintenance, part wear, and will raise the center of gravity on your ATV and/or RUV, increasing risk of rollover, injury and death on all types of terrain. It is your responsibility to always inform other operators and passengers of this vehicle about the added risks with this product.

High Lifter's products are designed to best fit user's ATV/RUV under stock conditions. Adding, modifying, or fabricating any OEM or aftermarket parts will void warranty. High Lifter Products, products could interfere with other aftermarket accessories. If the user has aftermarket products on machine, contact High Lifter Products to verify that they will work together. Adding aftermarket suspension components and/or more aggressive tires can cause breakage of other OEM driveline components such as differentials, axles or drive shafts.

Riders should be advised that the handling characteristics of a taller ATV and/or RUV are different and require extra care when riding, particularly on the side of hills or offcamber situations. If you further raise the center of gravity by adding taller tires, heavy loads to racks or seats, or by any other means, the ATV and/or RUV must be operated with even more care, at slower speeds and on relatively flat ground. All turns should be done at a slow speed, even on level ground.

Operation of an ATV and/or RUV with or without modified suspension components, while or shortly after consuming alcohol or drugs, subjects the rider and passengers to the risk of serious bodily harm or possible death. This risk is compounded if the riders do not wear an approved helmets and other safety gear. High Lifter urges that all approved safety gear be worn when riding an ATV and/or RUV as a driver or passenger.

By purchasing and installing High Lifter Products, products, user agrees that should damages occur, High Lifter Products will not be held responsible for loss of time, use, labor fees, replacement parts, or freight charges. High Lifter Products will not be held responsible for any direct, indirect, incidental, special, or consequential damages that result from any product purchased from High Lifter Products. The total liability of seller to user for all damages, losses, and causes of action, shall not exceed the total purchase price paid for the product that gives rise to the claim.

### **Dealers and other Installers**

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You are responsible for informing your customer and end user of the information contained above and the increased potential hazards of operating an ATV and/or RUV equipped with modified suspension components. If you install any suspension modifying components, it is your responsibility to also install the [warning label](#) prominently in view of the driver and in prominent view of the driver and passenger on RUVs and multipassenger ATVs. They should also be instructed to notify anyone operating the vehicle, as well as any passengers, that said vehicle is modified.

As discussed above, it is critically important that they be instructed in the need for slower speed operation, regardless of terrain, after this lift kit is installed.

## The product is/will:

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- Designed and intended for use on a UTV at slow speeds.
- Increase the center of gravity.
- Increase the turning radius.
- Increase the stopping distance when adding larger tires.
- Increase and accelerate wear of factory components including bushings, bearings, ball joints, and tie rod ends.
- We cannot guarantee fitment with other aftermarket accessories.

## Safety Guidelines

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- Inspect all moving factory suspension components particularly ball joints, tie rod ends, control arm connections, and brakes prior to each ride and replace if worn.
- Inspect clearances with control arms and brake lines prior to each ride.
- 14" or larger wheels must be used with the Portal Gear Kit. 12" wheels cannot be used.
- Jumping, high speeds, and quick maneuvering should be avoided.

## Maintenance Information:

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- Check gear oil in portal boxes following 25 hours of riding or sooner, depending on how you ride.
- Use 4 oz of SAE 80W90 Gear Lubricant as needed in each portal box.
- Replace worn factory components including bushings, bearings, ball joints, brakes, and tie rod ends when they show wear.

Any vehicle equipped with a Portal Gear Kit must have the enclosed large format "Warning to Driver" decal installed on the inside of the windshield or on the vehicle's dash, within driver's view. The "Warning to Driver" decal is to act as a constant safety reminder for whoever may be operating the vehicle.

**INSTALLING dealer:** It is your responsibility to install the "Warning to Driver" decal and forward these installation instructions to the vehicle owner for review of warnings, product use, and maintenance information. Replacement Warning Decals are available FREE on request. These instructions are to be kept with the vehicle registration papers and owner's manual for the service life of the vehicle.

## REFUSED Shipments/Order CANCELLATION:

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Refused shipments are subject to a 20% restocking fee plus all associated freight costs. It is our goal to ship all orders in a timely manner. If a customer wishes to cancel an order (provided it is not a specialorder product), it is the responsibility of the customer to cancel the order prior to the product being shipped. If a customer cancels an order after product has been shipped, refused shipment, cancellation, or return will be subject to a 20% restocking fee and any freight charges incurred. For orders outside the United States, any fees associated with customs or duties are nonrefundable.

## DAMAGED Shipments:

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All claims for damaged shipments must be made within 72 hours of delivery to the point of destination. Any damage to package should be noted with carrier at the time of delivery if possible. We will not be responsible for damage claims made over 72 hours after delivery to the point of destination.

## INTRODUCTION

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READ THESE INSTRUCTIONS CAREFULLY. IT IS RECOMMENDED THAT A PROFESSIONAL MECHANIC PERFORM THE INSTALLATION. CARE SHOULD BE TAKEN TO FOLLOW ALL STANDARD SAFETY PROCEDURES.

**PRIOR TO INSTALLATION**, A THOROUGH INSPECTION OF THE SUSPENSION SHOULD BE MADE. INSPECT THE VEHICLES STEERING, DRIVELINE, AND BRAKE SYSTEMS, PAYING CLOSE ATTENTION TO THE SUSPENSION LINK ARMS AND BUSHINGS, ANTI-SWAY BARS AND D BUSHINGS, TIE ROD ENDS, BALL JOINTS AND WHEEL BEARINGS.

ALSO CHECK THE STEERING SECTOR-TO-FRAME AND ALL SUSPENSION-TO-FRAME ATTACHING POINTS FOR STRESS CRACKS. THE OVERALL VEHICLE MUST BE IN EXCELLENT WORKING CONDITION. ANY WORN, BENT OR BROKEN PARTS SHOULD BE REPAIRED AND/OR REPLACED.

**NOTE:** DO NOT ADD OR FABRICATE ANY COMPONENTS TO GAIN ADDITIONAL SUSPENSION HEIGHT.

**NOTE:** AFTER INSTALLATION, ANOTHER INSPECTION SHOULD TAKE PLACE, CHECKING FOR LOOSE COMPONENTS OR MISSING HARDWARE. INSPECT, AGAIN AFTER EIGHT (8) HOURS OF OPERATION. REMEMBER TO CHECK THE LUG NUTS AGAIN.

**NOTE:** A FACTORY SERVICE MANUAL SHOULD BE ON HAND FOR REFERENCE. THE MANUAL WILL CONTAIN FASTENER TORQUE SPECS, ASSEMBLY TECHNIQUES, AND SPECIAL TOOL REQUIREMENTS THAT ARE UNIQUE TO THIS PARTICULAR YEAR AND MODEL VEHICLE.

## REQUIREMENTS

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### TOOLS

- Metric & standard socket assortments
- Metric & standard hex key/sockets
- Torque wrench
- Multipurpose pliers
- Wire cutter/snips
- Mallet (Soft face hammer)
- Drift punch/pin



### WHEEL REQUIREMENTS

- 14" or larger wheel required
- Cannot exceed 5" backspacing
- Not compatible with dual bead lock wheels
- 1" wheel spacers required on stock wheels



### SUPPLIES

- Water-resistant grease
- DOT 4 brake fluid
- 80w90 gear oil

## PARTS DIAGRAM

### HARDWARE & BRAKE LINES (PGLBOX-P415-DI-B1)



**73-14784** 46mm Socket (1)



**71-10912** Vinyl Tubing (3 ft)



**73-16763** Brake Caliper Bracket Front Left (1)



**54-61341** 8" Zip Ties (14)



**54-61003** 5mm x 0.80 x 20mm Hex Head Bolt (4)

**79-15281** 10.5" 90 Degree Line Extension (4)



**54-61002** 5mm x 0.80 x 16mm Hex Head Bolt (4)



**54-60792** 90 Degree Grease Fitting (4)



**54-61041** 5mm x 0.80 Metric Lock Nut (8)



**73-15076** Loom Clamp (12)



**73-16771** Brake Caliper Bracket - Front Right (1)



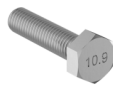
**73-14688** Portal Brake Caliper Bracket (2)



**73-14701** Brake Caliper Hanger Bracket (2)



**54-61030** 5mm Metric Flat Washer (8)



**54-96498** M10 x 1.25 x 25mm Hex Head Bolt (4)



**54-60833** 1/2 X 4 3/4 GR8 Hex Head Bolt (4)



**73-14779** 1/2" Brake Rotor Spacer (16)



**54-60500** BSH 3/8 x 1" Button HD. (16)



**54-60936** High Strength Thread Lock [Red] - 1.8ml (1)



**79-11622** Steering Stop (2)



**5461024** MFB10 x 1.25 x 25 10.9 (4)



**7314796** M12 x 1.5 Wheel Stud (20)



**54-60937** Medium Strength Thread Lock [Blue] 1.8ml (1)

**79-84445** Bushing Kit (1)



**73-14665** M201.5 Flange Shoulder Axle Nut (4)



**73-13216** 5/32" x 2" Cotter Pin (4)



**54-60751** 1/2" SAE Flat Washer Zinc (32)



**54-61093** 1/213 Nylon Locknut GR8 (16)



**54-60832** 1/2 X 4 1/2 GR8 Hex Head Bolt (12)

### HUB & ROTOR (PGLBOX-HRB-403)



**146A** Brake Rotor (2ea)



**146B** Brake Rotor (2ea)



**PGLCHUB204** (4ea)

### FRONT BACKING PLATES (PGLBOX-C403-DI-B2B1)



**79-84323-L-B1** Left Front Portal Backing Plate (1ea)



**79-84323-R-B1** Right Front Portal Backing Plate (1ea)

### PORTALS



#### 4" Dual Idler 15% Reduction

Front Box (2ea) **73-16776**  
Rear Box (2ea) **73-16777**

#### 4" Dual Idler 30% Reduction

Front Box (2ea) **73-16778**  
Rear Box (2ea) **73-16779**

### REAR BACKING PLATES (PGLBOX-C403-DI-B3B1)



**79-84330-L-B1** Left Rear Portal Backing Plate (1ea)

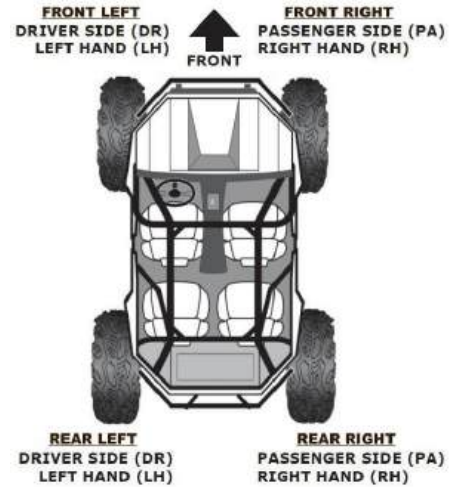


**79-84330-R-B1** Right Rear Portal Backing Plate (1ea)

NOTE : Rear portal boxes will have a brown seal at input shaft location, Front portal boxes will have black.

1

### PREPARE FRONT



- A. Begin by loosening the lug nuts on both front tires.
- B. Using a suitable lifting device or jack, raise the unit until the front tires are off the ground an additional 4".
- C. If using a floor jack with stands, chock the rear

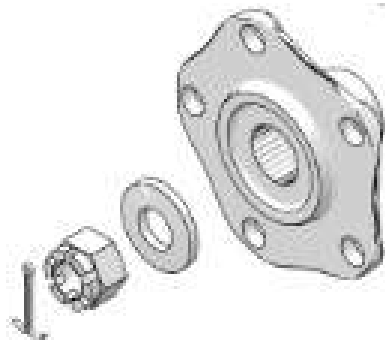
wheels to prevent the unit from rolling. If using jack stands, make sure the stands are placed under the frame and not the body.

- D. Make sure the unit is stable and secure. Remove lug nuts and front wheels.

## BRAKE CALIPER & HUBS

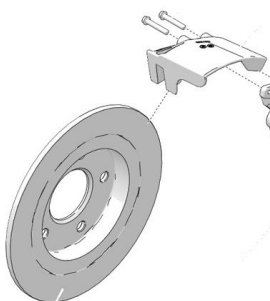
## REMOVAL

2



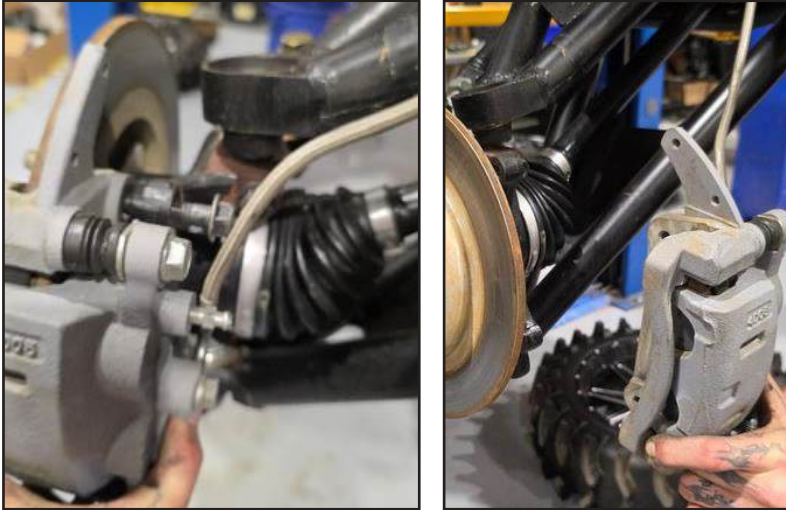
Remove the cotter pin and the front wheel hub castle nut.

3



Remove the scrapers from the front rotors. You will not reuse these. Next remove the hub/rotor.

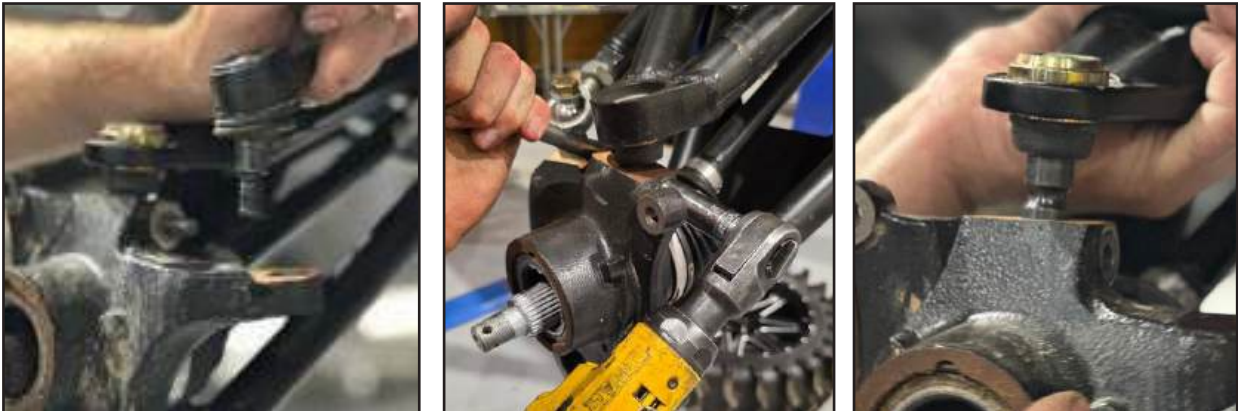
4



Remove the upper & lower caliper mounting bolts. Retain the factory bolts & nuts.

It is not necessary to remove the brake line from the caliper yet. Leave the brake hose attached to the caliper and hang the calipers out of the way. Take precautions to ensure the brake hose isn't stretched or pinched.

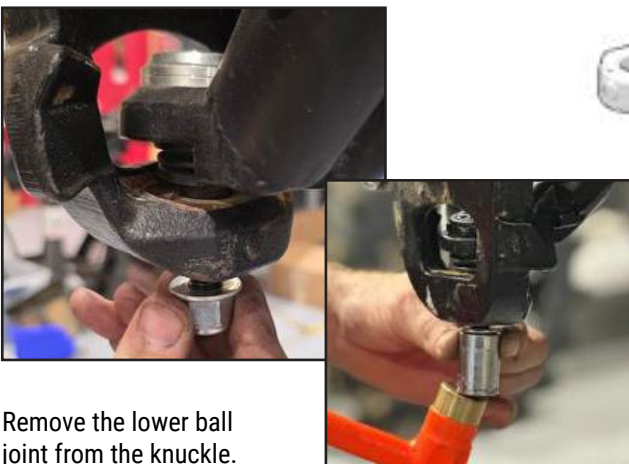
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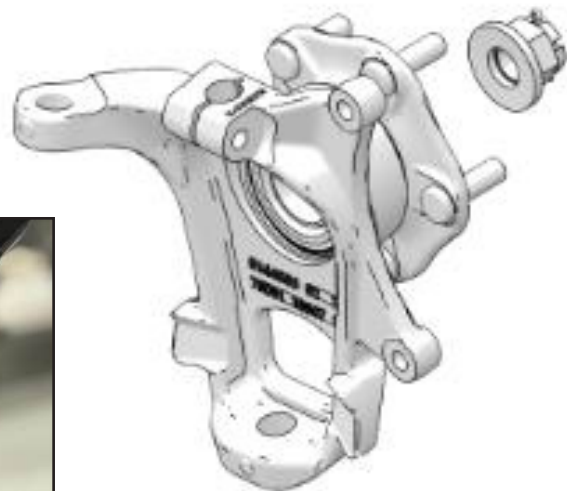
Disconnect the tie rod.

Remove the upper ball joint from the knuckle. *You may need a mallet to break it free.*

6



Remove the lower ball joint from the knuckle.



**NOTE:** If you are having trouble removing the upper ball joint unbolt the lower shock and sway bar.

## STEERING STOP

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7

**NOTICE: DO NOT remove the steering rack assembly. The images featured are for DEMONSTRATIVE PURPOSES ONLY.**

### BOOT REMOVAL

The rubber boots on the rack and pinion are held on by zip ties. You will need to cut the zip tie that secures the boots to the inside of the rack and pinion.

### START WITH THE DRIVER'S SIDE

This side has the least amount of room. Once you install the spacer on the passenger side you will have less play on the driver's side. **DO NOT REMOVE THE FACTORY SPACER ALREADY IN PLACE.** Turn the steering wheel all the way to the **RIGHT**. Place (1) steering stops between the inner tie rod joint and the rack and pinion.

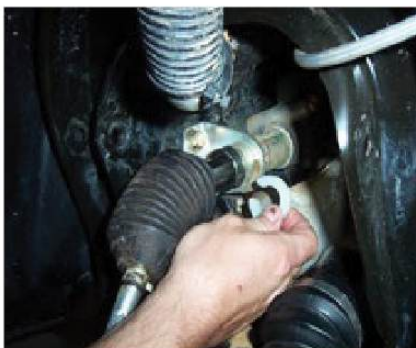
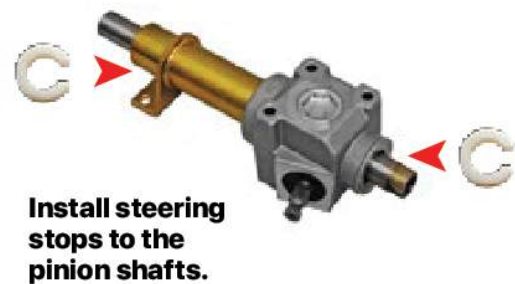
### PASSENGER SIDE

Turn the steering all the way to the left. Place (1) steering stops between the inner tie rod joint and the rack and pinion. It is a tight fit, so you may have to force it on, this is to ensure that the spacer stays in place.

### RE-SECURING BOOT

Turn the steering wheel closer to the center to allow play in the boot.

Slide the boot back down and secure it with an 11" zip tie.



8

Find the front backing plates **79-84323-L-B1** and **79-84323-R-B1**.



Insert the drive shaft into the backing plate. Place the upper ball joint into the upper ball joint mount bracket. Fasten it with the factory hardware. (18mm) [50 ft lbs]

**NOTE:** You may need to clean powder coating from the holes.

Place the lower ball joint into the lower ball joint mount bracket. Fasten it with the factory hardware. (18mm) [50 ft lbs]

FRONT PORTAL BOX ASSEMBLY

INSTALL

9

Find the caliper mounting bracket **73-16763** and **73-16771** place it in the corresponding fitted **FRONT** section of the portal box. **Ensure that you are install on a portal box with a black seal at the input shaft.**

**FRONT**

Install the 73-16763 caliper bracket on the FRONT LEFT of the vehicle.

Install 73-16771 caliper on the FRONT RIGHT of the vehicle.

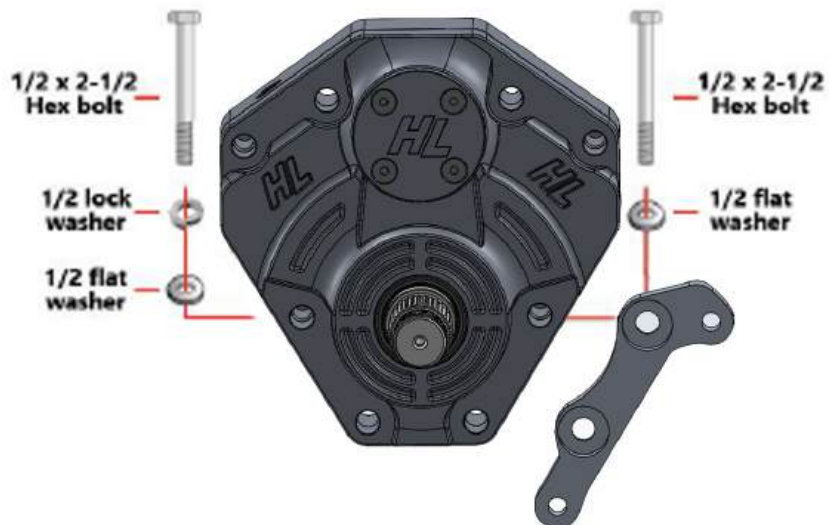
YOU MUST DISCARD THE PREINSTALLED LOCK WASHER.

The bolt head should sit flush with the bracket.

**REAR**

Each side has preinstalled hardware on the portal box.

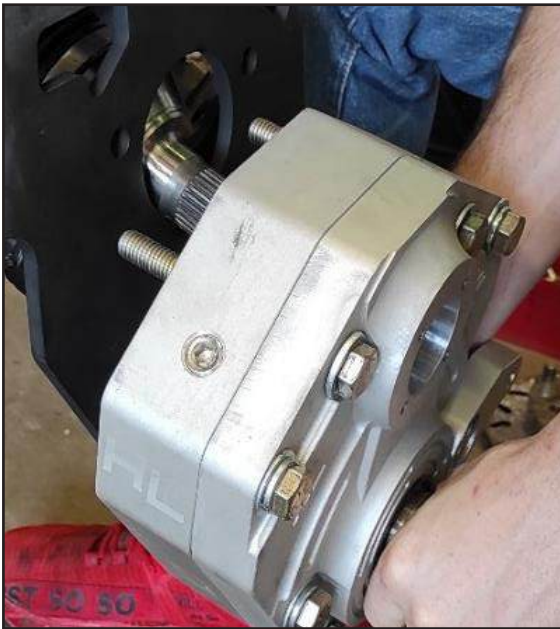
The installment should look like the featured diagram, when complete.



10

**INSTALL FRONT PORTAL BOX**

Apply waterresistant grease to the drive splines. Be sure to apply product all around the outer edge as well.



Rotate the portal box assembly 'Up & In' as you guide the drive shaft axle through the inner drive gear.



Insert the bolts through the corresponding holes in the backing plate. Loosely fasten all (4) bolts with 1/2" flat washers and 1/2" lock nuts. Ensure parts fit correctly then torque. (3/4) [105 ft lbs.]

Install the tie rod end into the backing plate tie rod mount bracket. Fasten the tie rod end with the factory hardware. (18mm) [90 ft lbs.]



**NOTE:** All steering mounting points are designed to match factory dimensions and specifications. If you install aftermarket steering or suspension components, follow the manufacturer's instructions for any required changes. This is especially important if mounting hardware differs from factory specifications.

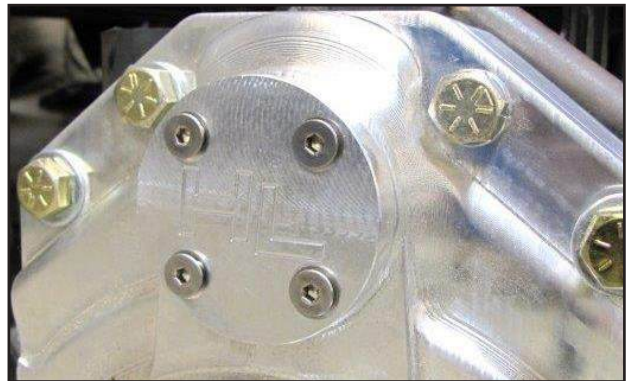
11

**INSTALL FRONT DRIVE SHAFT NUT & PORTAL BOX LID CAP**



With the portal box assembly in place, double check that the factory axle shaft is properly aligned into the drive gear of the portal box.

Apply LOCTITE (BLUE) to the supplied M20 axle nut with shoulder PGLCAXNUT5, then tighten & torque onto the drive shaft axle. (30mm) [20 ft lbs]

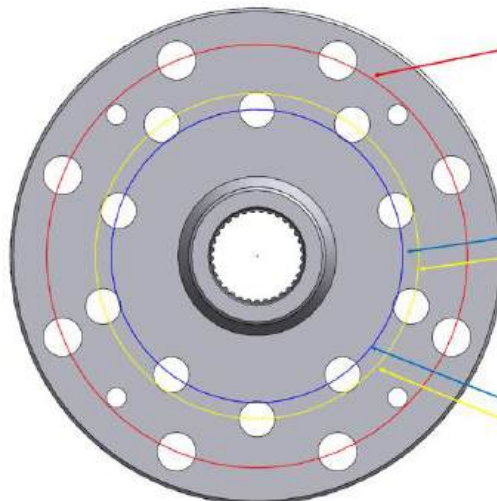


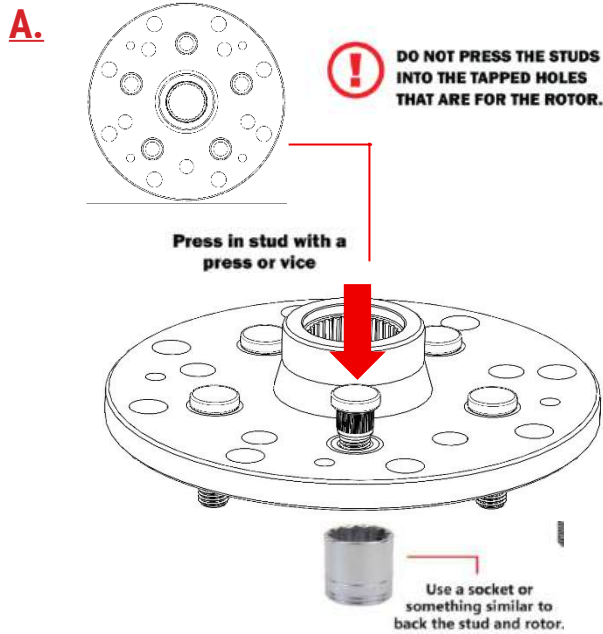
Align the portal box lid cap & gasket. Use the 1/420 x 3/4" screws and install to the box. (5/32) [8 ft lbs]

12

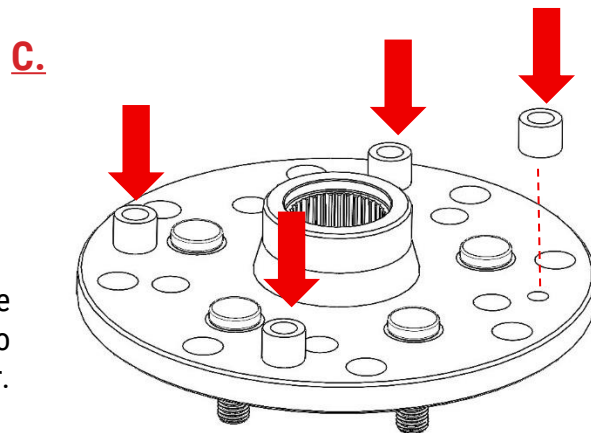
**ASSEMBLE ALL BRAKE ROTORS & WHEEL HUBS**

- 8 x 6.5"
- 5 x 5"
- 5 x 4.5"

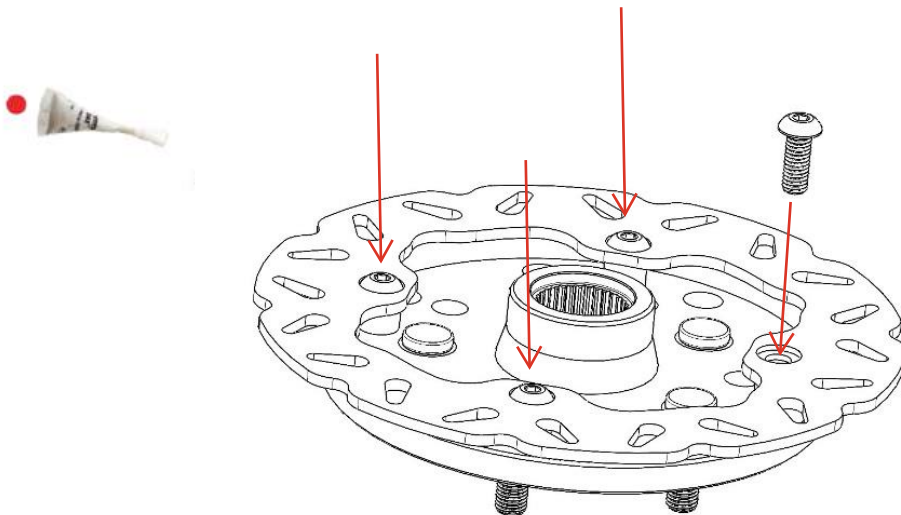




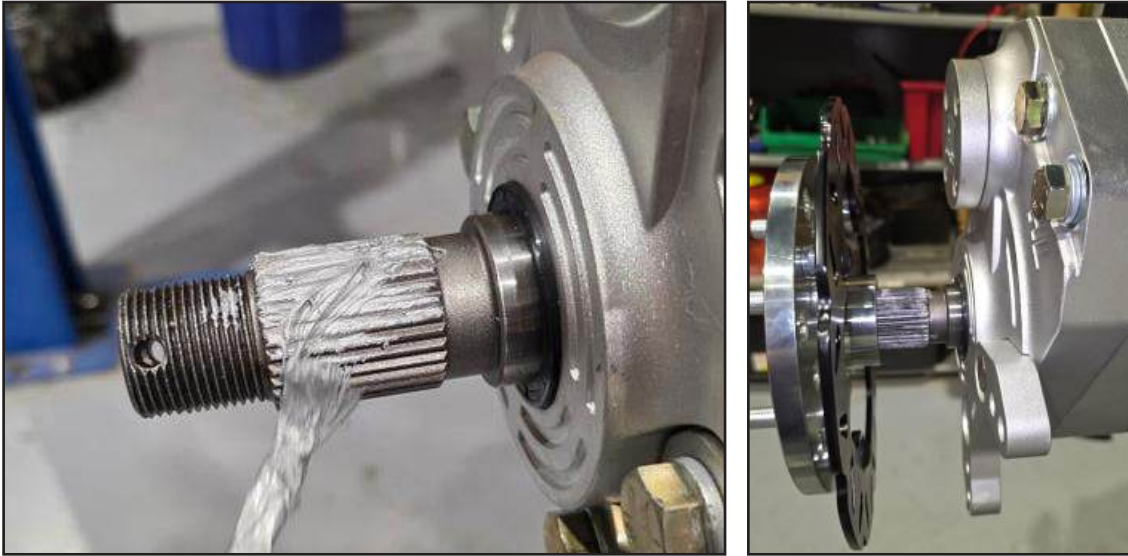
Place the 1/2" spacers over the tapped holes. These spacers go between the hub and rotor.



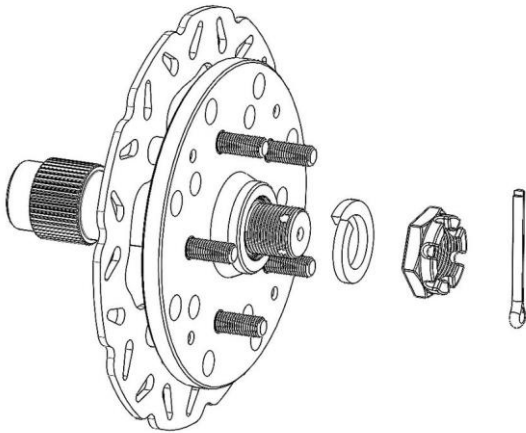
**D.** Install the rotor and secure it to the hub by applying LOCTITE (RED) to the 54-60500 button head bolts. [45 ft lbs]



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**INSTALL FRONT BRAKE ROTOR ASSEMBLY**

Apply water resistant grease to the spindle splines and slide the brake rotor assembly onto the spindle shaft.



Slide on the supplied 30mm lock washer, followed by the 30mm spindle castle nut. (46mm) [Min 120 ft lbs] Tighten the castle nut further if needed to align grooves with holes in the spindle for the cotter pin. Install the supplied cotter pin. Both ends of the cotter pin must be folded.

14

**INSTALL FRONT BRAKE CALIPERS**

Disconnect the front calipers from the factory brake lines. Have a container to collect brake fluid.



Install the caliper onto the portal box between the new caliper bracket and rotor. Use the factory mounting bolts. (15mm) [30 ft lbs]

**NOTE:** Remember, the bleed off valve always goes to the TOP of the caliper.

15



### REAR PASSENGER SIDE

**KEEP ALL FACTORY HARDWARE.**

Begin by loosening the lug nuts on both rear tires. Using a suitable lifting device or jack, raise the unit until the front tires are off the ground an additional 4".

If using a floor jack with stands, chock the front wheels to prevent the unit from rolling. If using jack stands, make sure the stands are placed under the frame and not the body.

Make sure the unit is stable and secure. Remove lug nuts and rear wheels.

## REAR BRAKE CALIPERS

## REMOVAL

16

### REMOVE REAR BRAKE CALIPERS



- A. Remove the scraper and discard. This will not be reused.
- B. Remove the upper & lower caliper mounting bolts. Retain the factory bolts & nuts. They will be reused during the installation of the Portal Boxes & Mounting Brackets. (15mm)
- C. Remove the caliper from the rear hub. It is not necessary to remove the brake line from the caliper at this time.
- D. Leave the brake hose attached to the caliper and hang the calipers out of the way. Take precautions to ensure the brake hose isn't stretched or pinched.
- E. Remove the cotter pin and loosen the rear wheel hub castle nut (27mm). Remove the nut from the rear wheel hub assembly. Then remove the brake rotor assembly.

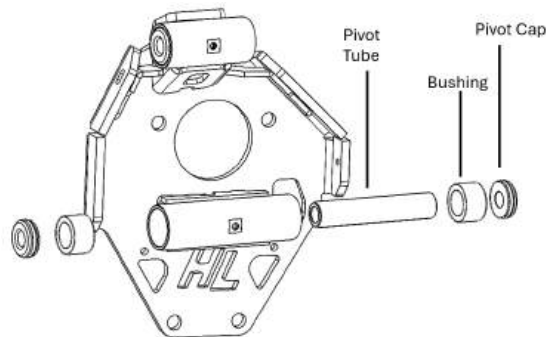
Note: Image is showing 4 stud your machine will be 5, process is the same.



A. Remove the bolts and nuts that attach the rear knuckle to the upper & lower Arms. Retain the factory hardware. They will be reused during the installation of the Portal Boxes & Mounting Brackets. (15mm)

B. Remove the rear knuckle.

**17** **INSTALL BUSHINGS INTO BACKING PLATE ASSEMBLY**



**18** **INSTALL REAR BACKING PLATE ASSEMBLY**



Place the backing plate into position on the control arms and guide the drive shaft through. Using the factory hardware, fasten to the lower control arm. (15mm) [90 ft. lbs] Then fasten to the upper control arm. (15mm) [50 ft. lbs]

19

**REAR PORTAL BOX ASSEMBLY**

- A. Find your assembled rear portal box, **with the brown seal at the input shaft.**
- B. Find caliper mounting bracket **73-14688** and place it in the corresponding fitted REAR section of the portal box. Then insert a 1/2 x 43/4" bolt and 1/2" washer into the bracket holes & box.
- C. Slide a 1/2" flat washer onto (4) 1/2 x 41/2" bolts and insert them into the remaining four holes of the box.

20

**INSTALL REAR PORTAL BOX**

- A. Apply waterresistant grease to the drive splines.
- B. Rotate the portal box assembly 'Up & In' as you guide the drive shaft axle through the inner drive gear.
- C. Insert the bolts through the corresponding holes in the backing plate.

**NOTE:** Due to the longer length and geometry of the axle joint, it will not sit flush to the cupped seal in the portal box once inserted all the way. The seal is designed to work universally, and this is normal.

- D. Loosely fasten the bolts with 1/2" flat washers and 1/2" lock nuts. Recheck all parts that were used and make sure everything fits correctly, and then go ahead and tighten and torque all bolts. (3/4)[105 ft lbs]

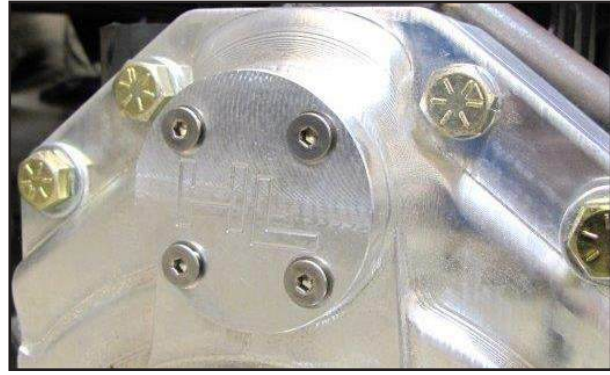
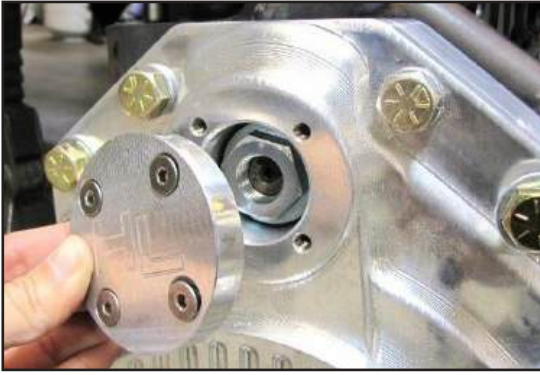
21

**INSTALL REAR DRIVE SHAFT JAM NUT, SPINDLE SPACER, & PORTAL BOX LID CAP**

- A. With the portal box assembly in place, double check that the factory axle shaft is properly aligned into the drive gear of the portal box.



- B. Apply LOCTITE (BLUE) to the supplied M18 flanged axle nut **73-14665** then tighten & torque onto the drive shaft axle. (30mm) [20 ft lbs]



c. Align the portal box lid cap & gasket. Use the 1/420 x 3/4" screws and install to the box. (3/16) [8 ft lbs]

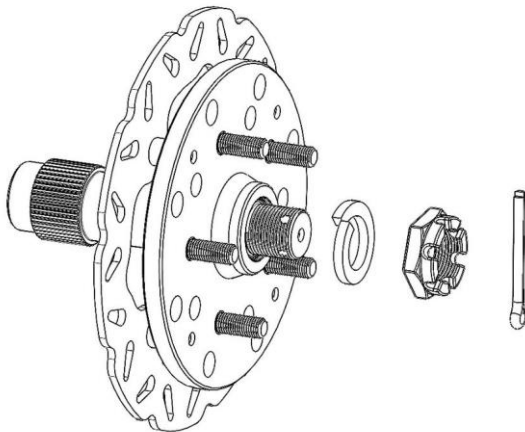
22

**INSTALL REAR BRAKE ROTOR ASSEMBLY**

Apply water resistant grease to the spindle splines and slide the brake rotor assembly onto the spindle shaft.



Slide on the supplied 30mm lock washer, followed by the 30mm spindle castle nut. (46mm) [Min 120 ft lbs]  
Tighten the castle nut further if needed to align grooves with holes in the spindle for the cotter pin. Install the supplied cotter pin. Both ends of the cotter pin must be folded.

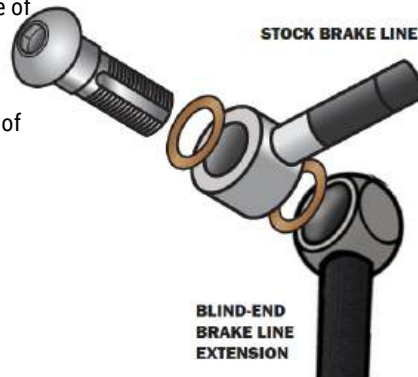


23

## FRONT & REAR BRAKE LINE EXTENSION

Locate the proper BRAKE LINE EXTENSION. Using the supplied button head hex drive banjo bolt, connect the STOCK BRAKE LINE to the BLINEND BRAKE LINE EXTENSION. Ensure the copper washer are on each side of the banjo fitting.

NOTE: Verify that the back of the blind hole fitting (rounded portion) is facing INWARD towards the center of the unit.



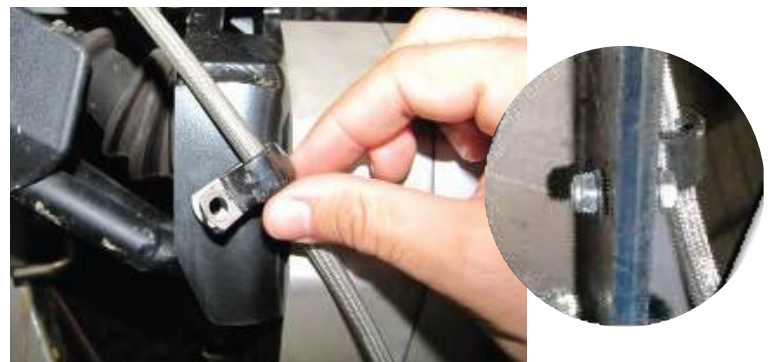
## EXTENSION TO CALIPER INTALL

On the opposite end, connect the REQUIRED BRAKE LINE EXTENSION to the stock brake caliper. Verify there is a copper washer on each side of the banjo fitting. Position the fitting like the photo previewed.

## BACKING PLATE

Secure the brake line to the rear of the portal backing plate by using a p-clamp. Insert a 5mm x 20mm bolt through the 5mm washer and 5mm lock nut.

NOTE: Ensure that there is no binding, pinching or interference with moving parts or sharp edges and the brake lines.



REPEAT STEPS ON OPPOSITE SIDE

## BLEED BRAKES

**CAUTION: ALWAYS wear eye protection like safety glasses. Brake fluid will damage finished surfaces. Do not allow brake fluid to come in contact with finished surfaces.**

- A. Bleeding the brakes is a two person job; you will need someone at the brake caliper and someone to pump the brake foot pedal. Take precautions due to the vehicle being on jacks and/or jack stands.
- B. Clean the master cylinder cover thoroughly and remove the cover.
- C. With all bleeder screws open, a gravity bleed is recommended to start with. This will push all the air out at once and eliminate most of the air bubbles. **(Have area prepared for spills and cleaning)**
- D. Add brake fluid to the indicated MAX level of the reservoir. (Any DOT 4 Brake Fluid)
- E. Close off each line once you steadily see fluid coming out.
- F. Begin final bleeding procedure with the caliper that is the farthest from the master cylinder. It should be this sequence - (PA) REAR, (DR) REAR, (PA) FRONT, and then (DR) FRONT.
- G. You can use the supplied **clear hose** to attach to the caliper bleeder screw. Be sure the hose fits tightly on fitting. Now place the other end of the hose into a clean container.
- H. Install a box end wrench on the caliper bleeder screw. Have your brake buddy slowly pump the foot pedal until pressure builds and holds. Have your buddy hold brake pedal down to maintain pedal pressure. Now slowly open the caliper bleeder screw 1/4" turn so the air and fluid will displace into the container.
- I. Close bleeder screw, and then have your buddy release the foot pedal. **NOTE: Do not release foot pedal before the bleeder screw is tight or air may be drawn into the master cylinder... and you'll have to start all over again!**
- J. Check the master cylinder fluid level. **NOTE: You must maintain at least 1/2" (1.27cm) of brake fluid in the reservoir to prevent air from entering the master cylinder**
- K. Repeat steps until clean fluid appears in the bleeder hose & all the air has been purged... Close bleeder screw, pump brakes, hold pressure, open bleeder, close bleeder, release foot pedal, check master cylinder.
- L. Tighten bleeder screw securely and remove bleeder hose. Torque the bleeder screw. [4 ft lbs]
- M. **REPEAT** procedure steps for the other three (3) brake calipers in the sequence listed above.
- N. Add brake fluid to MAX level inside master cylinder reservoir after the last caliper is completed. Install master cylinder reservoir cover. Check brake system for leaks.



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## FILL PORTAL BOXES WITH OIL



**DO NOT USE AN IMPACT TOOL ON ANY PLUGS.**

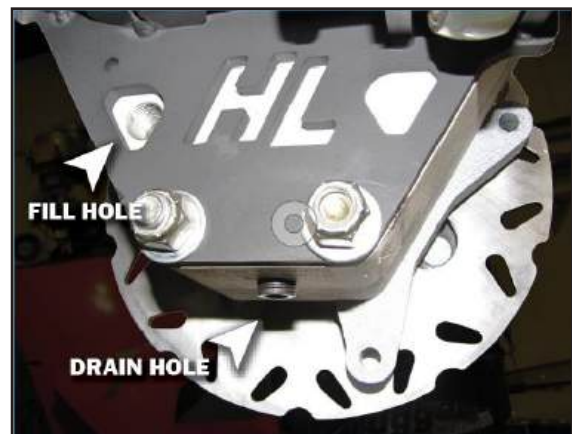


**ALL PLUGS MUST BE LUBRICATED OR WRAPPED IN TEFLON TAPE. PLUGS MAY NOT SIT FLUSH. DO NOT TIGHTEN TO MORE THAN 10FT LBS OF TORQUE.**

- A. Ensure the vehicle is positioned securely and 'Level'.
- B. Use **SAE 80W-90** oil. This gear lubricant is designed for gears operating under severe temperature and load conditions, and whose SAE 80W-90 viscosity grade offers extended performance.
- C. On the top of the box is the vent hole and plug, make sure the threads are wrapped in Teflon tape or lubricated with oil or grease. Using an Allen wrench, make sure the plug is tightened. [10 ft lbs] (8mm)

**NOTE: A optional vent line kit will be available to purchase in the future.**

- D. On the bottom of the box is the drain hole and plug. Make sure the plug is wrapped in Teflon tape or lubricated with oil or grease. Tighten to [10 ft lbs] (8mm)
- E. On the lower backside of the backing plate is an opening for the portal box fill hole and plug. (It is always toward the front of the vehicle.) Remove the fill plug. (8mm)
- F. Take the gear oil bottle and fit the spout into the fill hole. You can gently 'Squeeze' the bottle to help the process.
- G. **Fill the portal box until the fluid starts draining back out of the fill hole.** Then reinstall the fill plug, wrap the threads with Teflon tape or lubricate threads with oil or grease. [10 ft lbs]



**CAUTION:** Do not over fill past the fill plug. If the oil heats up or expands, it will cause the oil to exhaust out the axle seal.

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## INSTALL WHEELS

- A. Install wheel lug nuts and securely tighten.
- B. Remove all jacks, jack stands, and other devices used to lift and hold the vehicle.
- C. With the suspension supporting vehicle weight, torque the wheel lug nuts using an "X" tightening pattern

Aluminum Wheels = [90 ft lbs]

Steel Wheels = [50 ft lbs]

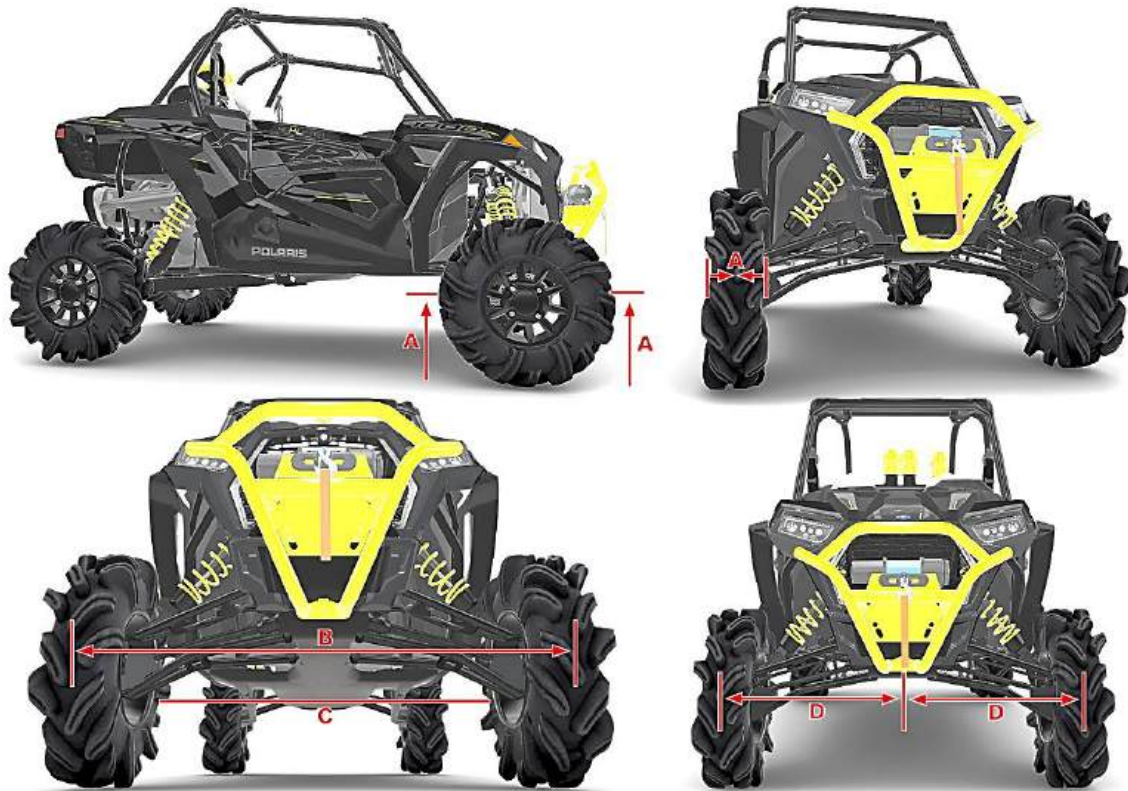
**WARNING:** Retighten lug nuts at eight (8) hours after any wheel change or anytime wheel nuts are loosened. Failure to do so could cause wheels to come off while the vehicle is in motion.

This is a warning and reminder.

**REMEMBER:** You just bled the brakes, unbolted and bolted steering and drive train components, added more takeoff torque and made many changes by adding the portal boxes. **FIELD TEST** this machine at **LOW** speed before putting into full time Play or Work Mode. Check the brakes for proper braking action & pedal reserve.

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## FRONT ALIGNMENT



Place the machine on a smooth level surface and set the steering wheel in a 'straight ahead' position. Secure the steering wheel in this position.

- A. Measure from the floor and place a chalk mark at the center of both front tires. You need mark it at the front and at the rear of each tire, and as close to the hub center line as possible. **NOTE: It is important the height of both marks be equally positioned to get an accurate measurement.**
- B. In the 'Front' of the tires, measure the distance between the center mark of the (LH) tire to the center mark of the (RH) tire. Record the measurement as 'B'.
- C. In the 'Rear' of the tires, measure the distance between the center mark of the (LH) tire to the center mark of the (RH) tire. Record the measurement as 'C'. Subtract measurement 'C' from measurement 'B'. The difference between measurement 'B' and 'C' is the vehicle toe alignment. ( $B - C = \text{Toe Alignment}$ ) The recommended vehicle toe tolerance is 1/8" to 1/4" (3.1756.35mm) toe out. This means the front measurement (B) is wider than the rear measurement (C).

- D. If the toe alignment is incorrect, measure the distance between vehicle center and each wheel (use the chalk mark as wheel center). This will tell you which tie rod needs adjusting. **IMPORTANT NOTE: Be sure the steering wheel is straight ahead before determining which tie rod needs adjustment. When tightening the tie rod end jam nuts, the tie rod ends must be held parallel to prevent rod end damage and premature wear. Damage may not be immediately apparent if done incorrectly.**
- E. To adjust the toe alignment, hold the tie rod end to keep it from rotating. Loosen the jam nuts at both ends of the tie rod. Shorten or lengthen the tie rod (screw it in or screw it out) until alignment is as required to achieve the proper 'Toe Out' front setting.
- F. After alignment is complete, tighten & torque tie rod end jam nuts to specifications. [1214 ft lbs]

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## WARNING DECALS

### NOTICE TO DEALER, INSTALLER, AND VEHICLE OWNER:

Any vehicle equipped with a portal gear lift must have the "WARNING Rollover Hazard" decals installed on the inside of the windshield or on the vehicle's dash, within driver's view.

### INSTALLING DEALER:

It is your responsibility to install warning decals and forward these installation instructions to the vehicle owner for review of warnings, product use, and maintenance information. Replacement Warning Decals are available FREE upon request. These instructions are to be kept with the vehicle registration.

The **WARRANTY IS VOIDED** unless the official decals are in place.



## **HIGH LIFTER® PORTAL GEAR WARRANTY PROGRAM**

Thank you for purchasing a High Lifter® Products Portal Gear Lift. Our Portal Gear Lifts have been engineered to provide superior performance on your ATV/UTV.

### **LIMITED LIFETIME WARRANTY**

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**HIGH LIFTER® PRODUCTS** warrants to the **ORIGINAL** purchaser of any Portal Gear Kit for a lifetime of protection from the date of purchase against defects in materials or workmanship, subject to the following conditions:

- i) The product must be properly installed according to all installation instructions.
- ii) **HIGH LIFTER®** is not liable for any incidental or consequential damages to anything other than the Portal Gear Kit covered by this warranty. **HIGH LIFTER®** is not liable for any incurred expenses, labor costs to install/remove/reinstall Portal Gear Kit or any OEM or aftermarket components, loss of use of machine, damage to housings or damage to any aftermarket accessory or OEM components.
- iii) If the Portal Gear Kit has been disassembled or modified by a third party, the warranty is null and void.
- iv) Any Portal Gear Kit damaged in a collision with any object is excluded from this warranty. However, the Portal Gear Kit may be refurbished for a fee upon repair authorization by the owner. Costs will vary depending on the condition of each Portal Gear Kit assembly.
- v) Warranty is nontransferable from the **ORIGINAL** purchaser.
- vi) **HIGH LIFTER®** reserves the right to inspect the Portal Gear Kit for determining if there were any defects in the installation and to determine the validity of any warranty claim. The warranty process may require the **ORIGINAL** purchaser to provide photographs of the ATV/UTV and its installed Portal Gear Kit.
- vii) Items that will not be covered under the warranty are but not limited to: Bearings, Seals, Gaskets, and Wheel Studs. All other components in kit are subject to review by **HIGH LIFTER®** to determine reason for failure and if they meet requirements for warranty coverage.
- viii) Warranty will be void on products that show; misapplication, improper installation, abuse, lack of proper maintenance, negligence, or alteration from original design.
- ix) Any parts used to repair a portal kit must be purchased from **HIGH LIFTER®** or warranty will be voided. For safety reasons it is important that the proper fastener grade, thread engagement, and torque specification be followed to prevent parts from failing. See instructions for torque data/specifications.

### **REFUSED SHIPMENTS/ORDER CANCELLATION**

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Refused shipments are subject to a 20% restocking fee plus all associated freight costs. It is our goal to ship all orders in a timely manner. If a customer wishes to cancel an order (provided it is not a specialorder product), it is the responsibility of the customer to cancel the order prior to the product being shipped. If a customer cancels an order after product has been shipped, they refused shipment, cancellation, or return will be subject to a 20% restocking fee and any freight charges incurred. For orders outside the United States, any fees associated with customs or duties are non-refundable.

### **DAMAGED SHIPMENTS**

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All claims for damaged shipments must be made within 72 hours of delivery to the point of destination. Any damage to package should be noted with carrier at the time of delivery if possible. We will not be responsible for damage claims made over 72 hours after delivery to the point of destination.

### **OBTAINING A WARRANTY CLAIM**

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All returns for warranty must be preapproved by calling 1.800.699.0947. After warranty approval has been granted and a Return Merchandise Approval (RMA) number issued, the Portal Gear Kit must be received by **HIGH LIFTER® PRODUCTS** within 15 calendar days. The RMA number must be clearly displayed on the return box or the return will be refused. An RMA number does not imply that a replacement or refund will be issued on any product, but only that we will inspect the Portal Gear Kit for warranty claims. For orders outside the United States, any freight or fees associated with customs and duties are the responsibility of the purchaser and are nonrefundable. All claims must be accompanied by the sales receipt detailing date and place of purchase, a written explanation of the problem, a phone number, and email address. A copy of this receipt must be included with the Portal Gear Kit submitted for warranty repair or replacement. The purchaser is responsible for any freight charges on all warranty claims, including incoming freight to High Lifter and return freight to the purchaser.

**HIGH LIFTER® PRODUCTS WARRANTY CLAIM**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Phone Number: \_\_\_\_\_

E-mail Address: \_\_\_\_\_

Portal Gear Kit Product Number: \_\_\_\_\_

Place of Purchase: \_\_\_\_\_

Date of Purchase: \_\_\_\_\_

Reason For Return: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Return Merchandise Authorization (RMA) Number: \_\_\_\_\_

**High Lifter® Products**

7455 Atkinson Dr. Shreveport, Louisiana 71129

1.800.699.0947

[www.HighLifter.com](http://www.HighLifter.com)

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**THANK YOU FOR CHOOSING**

***HIGHLIFTER®***