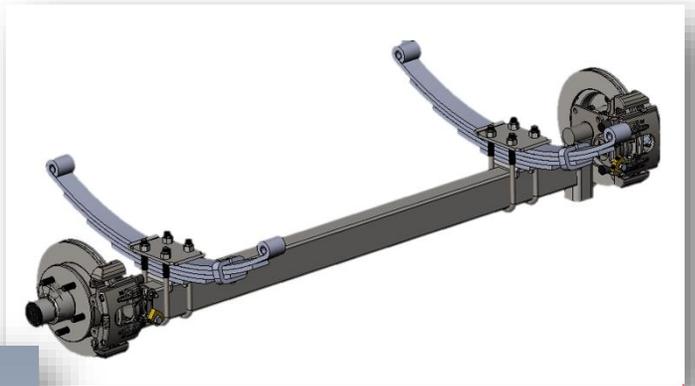


# K2

## MARINE TRAILER SYSTEMS



## OWNER'S GUIDE

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Note - Helpful information



Caution - Failure to do so may result in property damage or personal injury



Consult Trailer or Component Owner's Manual

K2 Manufacturing

Lenoir City, TN

Phone: (865)-816-3735

Email: support@k2mfg.com

## Best Practices

Whether you haul your boat twice a season, or spend life on the road chasing tournament wins, included are best practices for ensuring years of trouble-free operation with your K2 equipped trailer.

### Inspect it Regularly

Ready to head to the water? Ensuring the trailer is ready is just as important as packing the cooler or prepping the watercraft. Early identification and corrective action on obvious leaks, loose hardware, or broken components can prevent major repairs later. See the back cover for a quick pre-trip visual checklist, and page 5 for an in-depth inspection.

### Keep it Moving

A key to staying young is to keep moving. Trailers are no different. If your trailer is typically only used to haul at the beginning and end of the season, consider towing the trailer for a short trip once a month. A short 5-mile trip keeps components lubricated and sealed.

### Let it Cool

After reaching the boat launch, allow the brakes to cool before backing down the ramp. Tows with steep grades, lots of traffic, or high ambient temperatures can build significant heat in the hub and brake systems. Allowing time to cool minimizes the thermal shock of submerging in water, prolonging system life.

### Air it Up

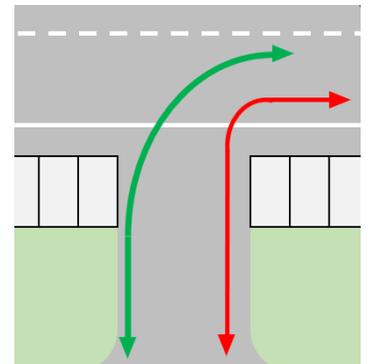
Maintaining proper tire air pressure doesn't just prolong tire wear, it reduces stress on components by reducing drag, minimizing heat buildup, and providing correct suspension movement.



Consult your trailer owner's manual or tire sidewall for proper inflation pressures.

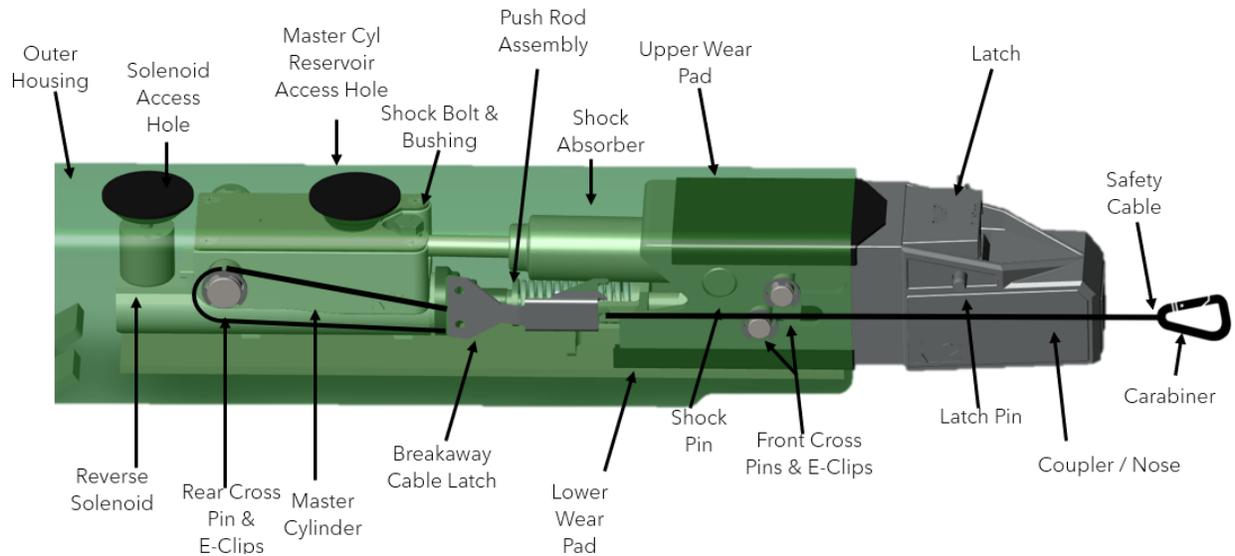
### Avoid Stress Loading

Tight trailer maneuvering places significant stress on a trailer's running gear. Additionally, today's wider, stylized trailer tires provide a larger tire contact patch with the ground, increasing stress. Triple axle trailers place even more stress on the leading and trailing axles during pivoting. To the extent allowable, minimize 90° or "jack-knife" maneuvers, and always utilize the largest turning radius safely available.



# Surge Actuators

## Nomenclature



## Identifying Your Actuator

### Trailer Ball Size

The appropriate trailer ball size is cast into the top of the latch, and on the Rating Placard on top of the housing.



**Note - 2" & 50mm ball couplers have a tapered nose when viewed from above. 2-5/16" ball couplers will appear square from above.**

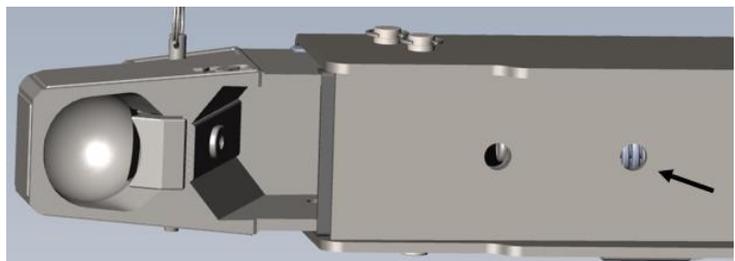


**Caution - Trailer ball size does NOT indicate trailer ball rating. Ensure the trailer ball being used meets or exceeds the trailer GVWR located on the trailer manufacturer information placard.**



### Push Rod Configuration

K2 actuators use three different push rods to adjust braking sensitivity. The push rod can be identified without disassembly. Look up through the rear hole of the actuator bottom plate.



A blue spring is commonly used in single disc axle or drum brake applications.

A silver spring is commonly used in tandem disc brake applications.

A solid spacer is commonly used in triple disc axle configurations.

## Backing System

Disc brake actuators are equipped with a reverse lock-out solenoid. This solenoid, when correctly wired to tow vehicle, prevents the actuator from building brake pressure while reversing. The solenoid can be found beneath the rearward cap on two-cap actuators, or just forward of the brake line/hose attachment to the master cylinder. It is a small black cylinder with two wires. The blue wire is to be wired to the blue "reverse lights wire" in the trailer wiring harness, and the white to ground.

Drum brake actuators do not have a lock-out solenoid and instead have a flat plug in the master cylinder.

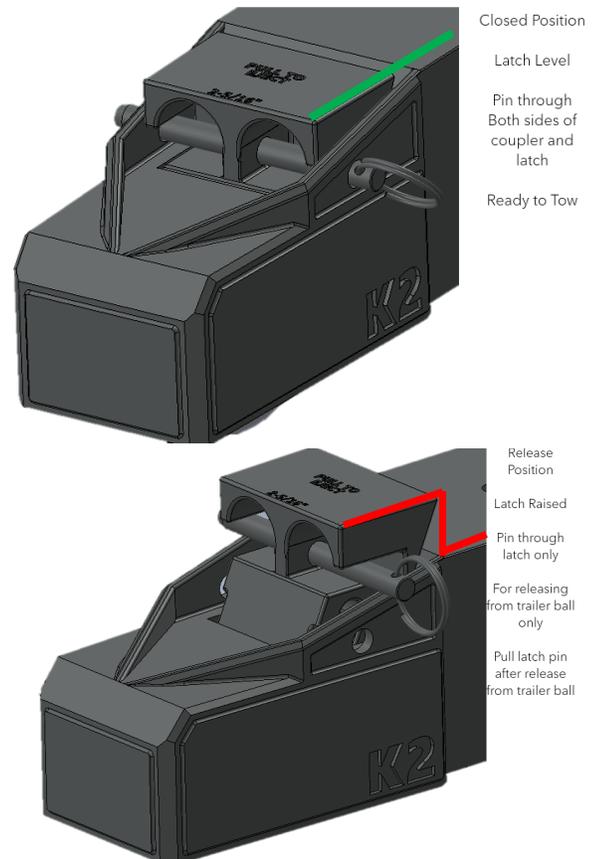
## Operation

### Couple and Un-couple

K2 cast couplers are a self-latching design. With the latch pin removed from the handle, the nose of the coupler can be lowered onto the corresponding trailer ball. As the nose lowers onto the ball, the latch will raise and then fall in behind the ball with an audible click. When properly seated, the top of the latch will be flush with the top of the cast inner member. Reinstall latch pin or trailer lock prior to towing.

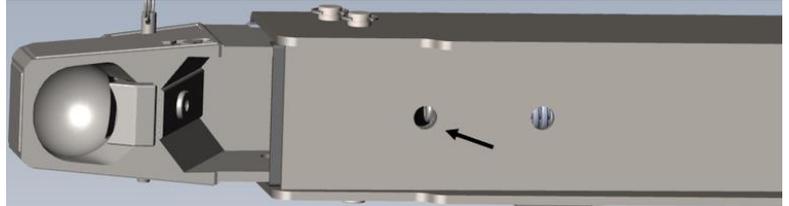
To un-couple, block trailer from rolling. Remove latch pin and lift on latch while cranking trailer jack. If necessary, pull up the latch to clear the trailer ball, and install pin into side of the latch. The latch will be noticeably raised above the housing. Crank trailer jack until coupler is clear of trailer ball. Remove latch pin to allow latch to reset.

**Caution - Failure to tow with the latch in down, closed position with latch pin installed can result in physical damage or personal injury.**



## Bleeding Brakes

Remove forward most plastic cap of outer housing. Remove round black master cylinder cap. Fill reservoir with DOT 3 brake fluid. If using a pressure or vacuum bleeder, build pressure/vacuum and follow the bleeding instructions of the tool.



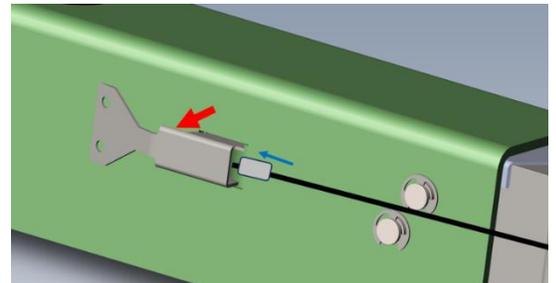
Priming the master cylinder can assist in pressure or vacuum bleeding. To prime, insert a flat head screwdriver into the bottom front hole of the housing. Using the housing as leverage, rock the screwdriver to the front of the housing to press the master cylinder push rod backwards. Repeat several times, ensuring reservoir does not run dry. Proceed with bleeding instructions.

To manually bleed, follow priming instructions above until pressure builds on push rod.

Post-bleeding, ensure reservoir is filled within 3/8" of the top of the grommet, or approximately half a fingernail length.

## Resetting Breakaway Cable

If the breakaway cable has been activated, a small ferrule will be located just forward of the breakaway cable latch. To reset the cable, use a flat head screwdriver or other flat object to pry out on the breakaway cable latch. The cable should retract the ferrule back into the housing on its own. If cable does not retract, actuator should be disassembled and inspected for damage prior to next use.



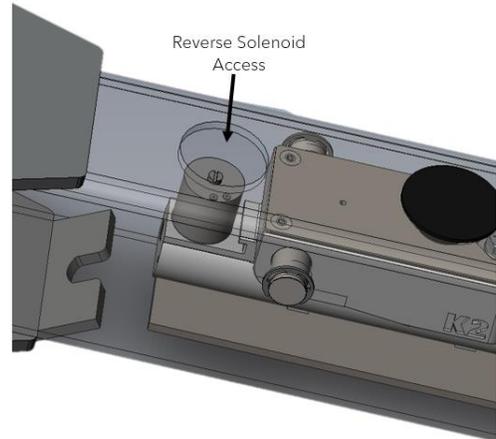
If the carabiner attached to the breakaway cable is deformed, it should be replaced prior to next use. Only K2 carabiners should be used to ensure proper breaking strength.



**Caution - Failure to use correct carabiner can prevent actuation of brakes in event of emergency, damage to actuator, or both.**

## Replacing Reverse Solenoid

Ensure the coupler is in fully extended position. Remove rear plastic cap on top of housing. Disconnect the white and blue 12v wires that extend from reverse solenoid to wiring harness and pull up through access hole. Using long nosed pliers, turn the reverse solenoid counterclockwise until free. Remove and replace o-ring from inside the master cylinder port. To reinstall, place a small dab of grease onto plunger to hold in place. Install solenoid, turning clockwise to hand tight. Tuck wires back through the access hole and connect to trailer wiring harness. Re-bleed brakes to remove air from brake system. Reinstall plastic cap into housing.



## Manual Lock Out

In the event a solenoid failure, faulty wiring, or shuttling a trailer on a vehicle without reverse light wiring (such as a tractor), the trailer brakes can be disabled. With the coupler pulled all the way forward from the trailer, insert the lock out pin into the manual lock out hole on the port side of the housing. The pin will prevent the inner casting from moving forward and applying brakes.



**Caution - Do NOT remove the latch pin to use as a lock out pin. The latch shall remain secured during all towing exercises.**

## Disassembly

Disconnect wiring harness from reverse solenoid.  
Disconnect brake hose from rear of master cylinder.  
Remove e-clips from one side of housing and remove cross pins.  
Remove carabiner from breakaway cable.  
Remove breakaway cable latch.  
Pull nose of coupler while feeding breakaway cable through housing window.  
Inner member will now be free of housing.

## Assembly

Connect casting assembly to master cylinder assembly via shock pin.  
Feed carabiner end of breakaway cable aft along bottom starboard side of housing.  
Direct carabiner end of cable up and out the cable exit of starboard side of housing.

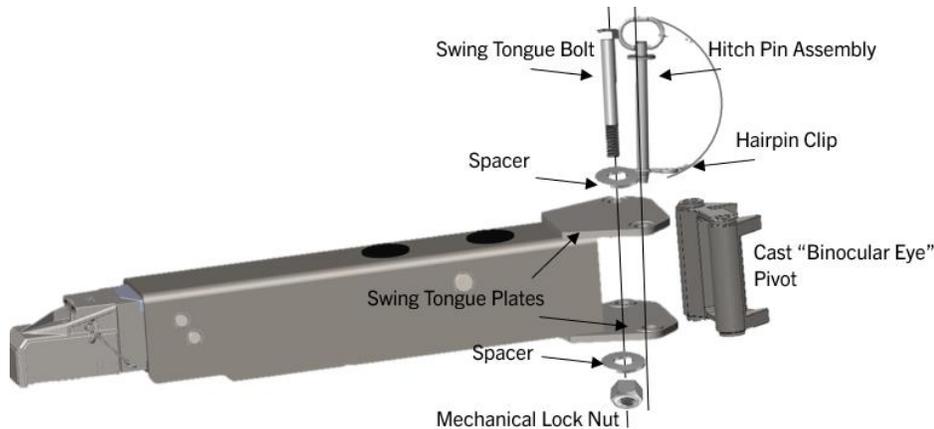
Feed enough cable slack so that loop extends past rear cross pin hole.  
 Slide inner assembly into housing, keeping it along port side wall of housing.  
 Ensure cable loop is behind rear cross pin hole, then install rear cross pin and e-clip.  
 Pull breakaway cable taught by hand. The ferrule should not extend out of the cable exit. The cable should be close against the rear pin, and not snagged on back of master cylinder.  
 Install front cross pins and e-clips.  
 Install breakaway cable latch plate using 5/32x 1/2" rivets.  
 Install carabiner to safety cable.  
 Connect reverse lockout solenoid wiring (blue - reverse signal, white - ground)  
 Connect brake hose/tube and bleed brakes.  
 Install black caps.

<b>K2 Actuator Part Numbers</b>			
Latch Bolt K84/85	05-0007	Push Rod - Single Axle	10-0113
Latch Bolt Spring	05-0005	Push Rod - Tandem Axle	10-0114
Latch Pin Assembly	05-0000	Push Rod - Triple Axle	10-0115
Upper Wear Pad	10-0003	Push Rod Boot	10-0105
Lower Wear Pad	10-0004	Reverse Lock Out Solenoid & Oring	10-0112
Shock Pin	10-0018	MC Fitting to Female 3/8-24 Inv Brass	44-612B
Shock Absorber	10-0007	Breakaway Cable	10-0013
Shock Bolt	10-0131	Z-Plate	10-0010
Shock Bushing	10-0006	Carabiner	10-0023
Lock Out Pin Assembly	10-0027	Breakaway Cable Latch	10-0011
Master Cyl Assembly	10-0100	Front Cross Pin	10-0008
Outer Housing Cap	10-0019	Front Cross Pin E-Clip	10-0021
		Rear Cross Pin	10-0000
		Rear Cross Pin E Clip	10-0022

## Swing Tongue Assemblies

Swing Tongue Assemblies allow for users to fit their boat & trailer combination into smaller storage spaces, allow greater movement around the trailer when stored, and a theft-prevention measure. The assembly consists of a steel cast & machined pivot welded to the tongue of the trailer, connected to the actuator or forward tongue assembly using a bolt on one side and hitch pin assembly on the other. By removing the hitch pin assembly, the forward tongue can pivot around the bolt.

### Nomenclature



### Operation

The swing tongue assemblies can be arranged to pivot to port or starboard side of the trailer. To pivot to starboard, install swing tongue bolt in starboard holes and hitch pin in port holes. To pivot to port, install swing tongue bolt in port holes and hitch pin in starboard holes.

Swing tongue bolt shall be torqued to 150 ft lbs, then backed off 1/8-1/4 turn to allow for pivot motion. Torque shall be applied while trailer is independent of the tow vehicle, with no weight on the tongue. The spacers are specially shaped to fit within the coin-dimpled portion of the swing tongue plates, and only the supplied spacers shall be used.



**Caution - Failure to use spacers can put undue strain on the threaded portion of bolt and lead to premature failure. Using washers that cover the dimpled portion of the swing tongue plates creates a void that, when deformed, reduces bolt tension, and increases play in swing tongue assembly.**



**Caution - NEVER attempt to tow trailer without both the bolt and hitch pin, or two properly torqued bolts in place. Serious physical injury and/or damage may occur.**

To open assembly for storage, trailer must be unattached from the vehicle. Pull the hairpin clip from the hitch pin assembly. Pull up on the hitch pin assembly-twisting as pulling will help free a tight pin. Swing tongue assembly open.

To close assembly for towing, swing tongue assembly inline with trailer, lining up the swing tongue plate holes with cast pivot holes. Install hitch pin from top plate through cast pivot and out bottom plate. Install hairpin clip.

While in storage, with the hitch pin removed and tongue swung open, an extended shackle lock or cable lock can be passed through open cast pivot hole to prevent closing as a theft deterrent.

## Care and Service

Maintaining swing tongue bolt torque is the best way to ensure long life of your swing tongue assembly. Saltwater users may elect to use a thin layer of grease on the hitch pin to prevent rust between hitch pin and cast pivot.



**Caution - Do NOT use forward swing tongue as a step when in open position. Doing so may create unwanted droop or play in swing tongue assembly.**



**Note - To prevent swing tongue droop, high mileage users such as tournament fishermen, or those frequently traveling rough road conditions can benefit from using two bolts for additional swing tongue support.**

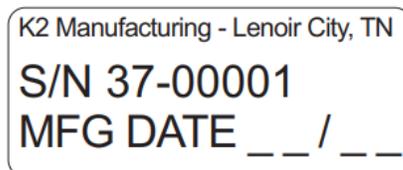
## Marine Axles

### Warranty & Service

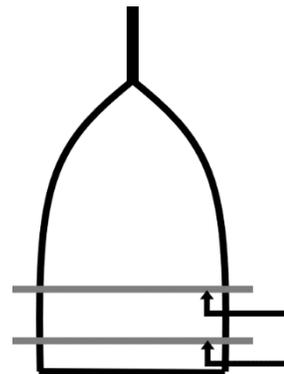
K2 Marine Axles come with a limited 5-year, unlimited mileage warranty, covering manufacturer defect and craftsmanship. Warranty does not include abuse or neglect, including but not limited to road hazards, object strikes, and overloading. If service is required during the warranty period, please contact the trailer manufacturer with your trailer's Vehicle Identification Number (VIN) and the axle serial number(s).

### Identifying Your Axle

All K2 marine axles are equipped with a serial number tag, located on the passenger (starboard) side bottom of the axle. This tag contains the serial number and month/year of manufacture.



**NOTE:** The leading two digits indicate the weight class of the axle. Example: 37-12345 is a 3,750lb class axle. Actual gross axle weight rating determined by leaf spring, overhang, and application.





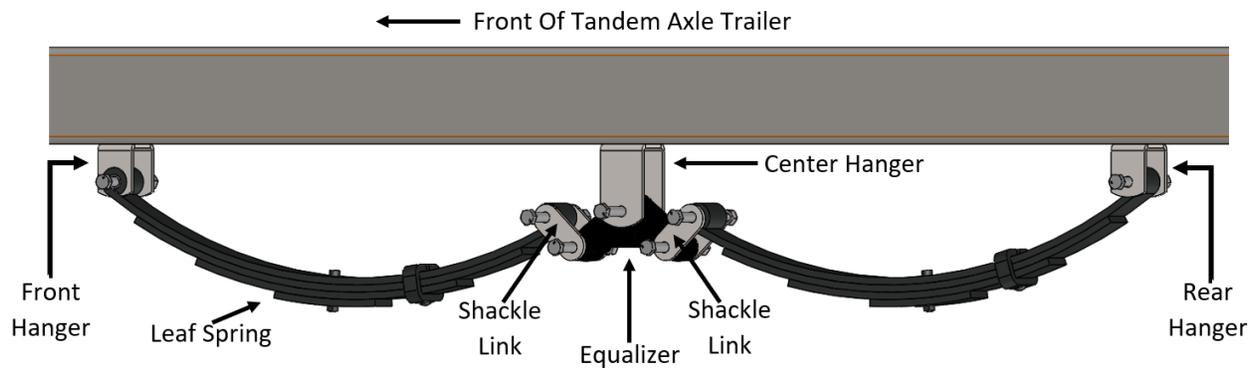
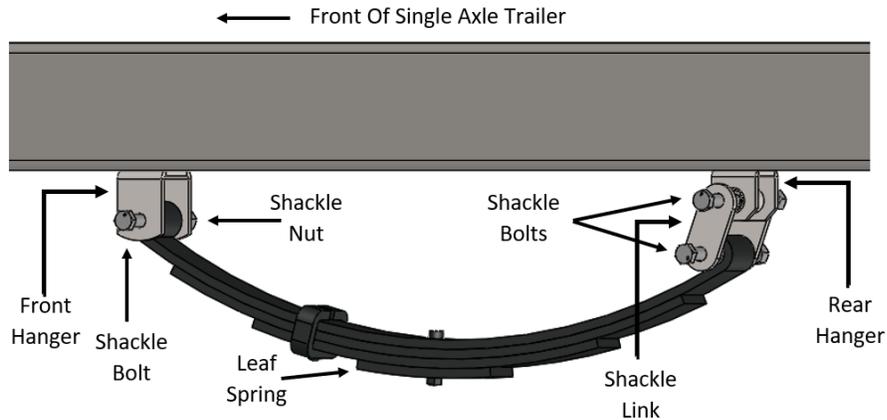
**CAUTION:** Never exceed the trailer Gross Vehicle Weight Rating (GVWR) or Gross Axle Weight Rating (GAWR). This information is posted on a placard on the front of the trailer. Overloading creates unsafe towing conditions, may result in physical injury and or property damage, and will void manufacturer's warranty.

## Spring Axles

### Leaf Spring Axle Suspension

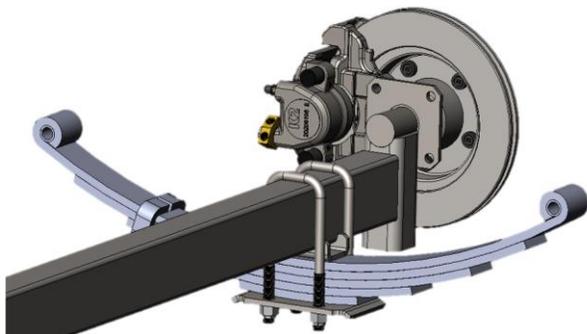
Leaf spring axles are a tried-and-true method for carrying boats to the water. The following information will provide guidance on getting the most from your K2 axles.

#### Nomenclature

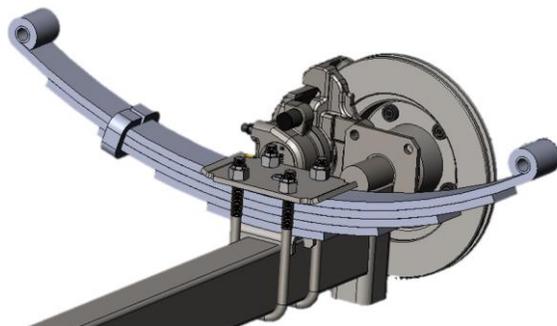


Tri-axle trailers use two center hangers and two equalizers.

#### Spring Under Beam Orientation



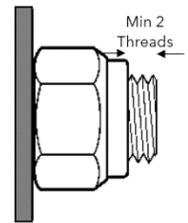
#### Spring Over Beam Orientation



K2 marine leaf springs are equipped with a zinc-rich primer and coated with an automotive grade epoxy finish. Trailer manufacturers may elect to paint over the epoxy layer for additional corrosion protection. Leaf spring suspension systems rely on the movement of leaves against each other. Over time, the metal-to-metal contact of individual leaves inherent to the design may present signs of rust. Removal of rust and touch-up of paint will extend service life of leaf spring axles.

Leaf spring and equalizers are equipped with full-width nylon bushings. While these bushings will last hundreds of thousands of cycles under normal use, the accumulation of road grime, sand, and salt can accelerate wear. Regular freshwater rinses will prolong bushing life.

Leaf spring hanger bolts shall be secured with nyloc-style retaining nuts. Bolts and nuts should be torqued until knurled portion of bolt is seated into bracket/shackle, then backed off ½ turn. Minimum of 2 bolt threads should protrude beyond nyloc nut. Springs, equalizers, and shackle straps should be able to pivot freely after installation. Nyloc nuts should not be reused.



### Leaf Spring Axle Care & Service

K2 marine spring axles are designed to be service free for 5 years of operation. Basic care and regular inspections will ensure a long service life and minimal down time.



**NOTE:** Tri-axle trailers require a basic, annual maintenance check to inspect wheel end play. See "End Play Inspection."

If service is required, contact your trailer manufacturer or K2 Manufacturing for assistance.

Brackish and salt-water users should freshwater rinse axles, suspension, and brakes as part of their trailer care routine after each use.

## Spring Axle Pre/Post Season or Extended Trip Checklist

This checklist is intended to be used at the start/end of the boating season, or in climates that allow year-round boating, semi-annually. It is also best practice to conduct the following checklist prior to extended trips. For pre-towing checks, refer to the back cover. Follow the same process for each axle, using the following "Inside-Out" procedure, starting at the springs and working out towards the wheel.

Subsequent sections of this manual will cover the systems in greater detail.



**CAUTION:** When lifting a spring axle via floor jack, lift as close to the tire as room will allow. Beneath the leaf springs are the ideal lifting point. Always support a lifted axle with properly rated jack stands. NEVER lift a spring axle from the center of the axle. Doing so may cause axle beam deformation, resulting in increased tire wear, improper trailer handling, and risk of injury.



Lifting a Trailer to remove and replace axles - consult trailer manufacturer for recommended lift points.

	Visually inspect U-Bolts are tight, no cracks, minimum 2-3 threads showing past nuts
	Visually inspect leaf spring for any cracks
	Visually confirm all shackle bolt nuts attached with min. 2-3 threads showing past nuts
	Visually inspect hanger brackets and link straps for bending, ovaling of holes, or cracks along welds
	Visually confirm leaf spring and equalizer bushings (if equipped) are present
	Confirm equalizer can pivot
	Torque caliper bolts to 40ft/lbs (standard hex bolts)
	Inspect wheel and ground beneath trailer for signs of dripping grease or brake fluid
	Inspect inner seals. Some grease will lubricate the seal while in operation. While the collection of brake dust on this residue is normal, seals with cracks or missing pieces should be replaced
	Inspect rotor surfaces for grooves, cracks, or signs of irregular wear
	Inspect brake pads for wear. New pads are approximately 7/16" thick (just over 6 US quarters)
	Ensure grease cap is fully seated into hub
	Check end play. With tire mounted and axle safely off ground, grab tire at 9 and 3 o'clock and shake. Wheel/tire assembly should move less than 1/8"
	Inspect tires for general and irregular wear
	Ensure black grease cap center is raised 1/16-1/8" above stainless-steel barrel
	Install and re-torque wheels in accordance with trailer factory owner's manual
	Check tire air pressure on ground

During the next outing, check and re-torque wheels as recommended by the trailer owner's manual or wheel. *At a minimum*, it is advised to re-torque wheels after 10 & 50 miles of travel, and periodically afterward.

If trailer has not been active and surface rust exists on the rotor face, it is recommended to scrub the brakes during the next outing. Obey all state and local traffic laws, conduct a series of three stops under normal stopping conditions from 25mph to 0 to remove surface rust.

## End Play Inspection



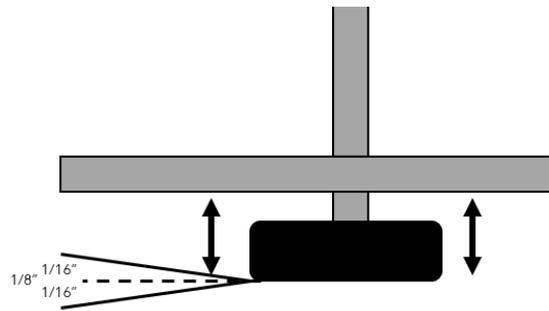
**CAUTION:** When lifting a spring axle via floor jack, lift as close to the tire as room will allow. Beneath the leaf springs are the ideal lifting point. Always support a lifted axle with properly rated jack stands. NEVER lift a spring axle from the center of the axle. Doing so may cause axle beam deformation, resulting in increased tire wear, improper trailer handling, and risk of injury.



Lifting a Trailer to remove and replace axles – consult trailer manufacturer for recommended lift points.

Ensure lug nuts are torqued to trailer / wheel manufacturers recommendations. Lift axle using floor jack until tire is raised off the ground. Support axle with jack stand for safety.

Grabbing tire at 9 o'clock and 3 o'clock position, wiggle the tire, pushing left hand in towards trailer while pull right hand towards you and vice versa. If you can move the edge of the tire more than 1/8" the bearings may need to be readjusted. Contact K2 or your trailer manufacturer for more information.



## Leaf Spring Axle Torque Spec Chart

Torque Spec	Other Notes	Socket Size	Component
Tighten until snug, back off ½ turn.	3 threads exposed past nut	13/16"	Leaf Spring Shackle/Hanger Bolts
55 ft/lbs	3 threads exposed past nut, evenly tightened	3/4"	Leaf Spring U-Bolts
40 ft/lbs	Apply blue Loctite	9/16"	Caliper Mounting Bolts -Standard
40 ft/lbs	Safety Wire	3/8" Allen	Caliper Mounting Bolts - Wire-Tite
25 ft/lbs		5/8"	Caliper - Banjo Bolt
12-14 ft/lbs		As Required	Caliper Inlet - Brake Hose/Tube
25 ft/lbs		7/16"	Caliper Bleeder Screw
85-95 ft/lbs		As Required	Wheel Studs - Steel Wheels*
105-115 ft/lbs		As Required	Wheel Studs - Aluminum Wheels*
55 ft/lbs	Initial torque to seat bearings, then loosen until free spinning before final torque	1-1/8"	Spindle Nut - Initial Torque Setting
20 in/lbs		1-1/8"	Spindle Nut - Final Torque
Fully Seated	Apply green Loctite to hub mating surface		Grease Cap <i>Grease Caps are press-fit and one-time use only</i>



\* Wheel torque ratings are guidelines and superseded by ratings published by the specific trailer owner's manual or wheel manufacturer

<b>K2 Marine Spring Axles Industry Description</b>						
Bolt Pattern	<b>5x4.5</b>			<b>6x5.5</b>		
Sprung Axle	<b>3000</b>	<b>3750</b>	<b>4200</b>	<b>5200</b>	<b>5500</b>	<b>6000</b>
Bearing Protector	1.980"		2.328"			
Protector Adapter	Not Required			2.328" to 2.441"		
Grease	Lucas Oil Red-N-Tacky NLGI #2					
Cotter Pin	1/8" x 1-1/4"					
Axle Nut Retainer	Stamped For 1-1/8" Hex Nut					
Axle Nut	13/16-20" Thread 1-1/8" Hex					
D Washer	1-5/8"X3/16" Thick	2-1/8" X 3/16 Thick		1-5/8"X3/16" Thick		
Wheel Studs	1/2-20" x 1-1/8"L					
Outer Bearing	L44649	L68149		15123		
Outer Race	L44610	L68110		15245		
Inner Bearing	L68149			25580		
Inner Race	L68110			25520		
Inner Seal	2.33ODx1.68 ID Double Lip			3.26ODx2.13 ID Double Lip		
Stainless Wear Ring	1.680" OD			2.118" OD		
Wear Ring Oring	1.680 OD			2.118" OD		
Leaf Spring - 26" Dble Eye	4 Leaf	5 Leaf		7 Leaf		

## Torsion Axles

### Torsion Axle Suspension

Torsion axles provide a quieter ride compared to leaf sprung axles, with the added benefit of easily replaceable end units. Each end of the axle operates independently, utilizing rubber cords compressed inside the axle beam to provide shock dampening and rebound. The following information will provide guidance on getting the most from your K2 axles.

#### Nomenclature

Steel trailers will have the frame brackets welded to the trailer at the manufacturer, while aluminum trailers will through-bolt frame brackets to the trailer frame. A pair of 5/8" bolts per side will attach the torsion beam brackets to the trailer frame brackets.

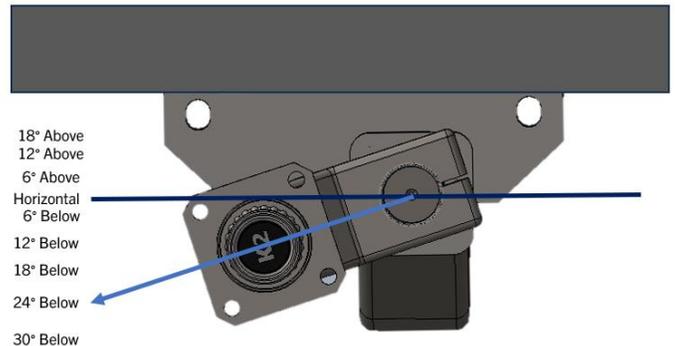
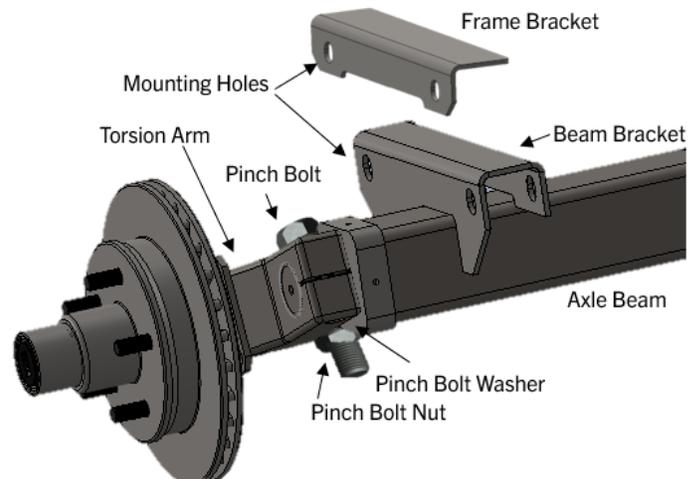
The torsion arm utilizes a splined design to allow tuning of ride height and quality by the trailer manufacturer. The splines allow for adjustments in six-degree increments. The angle of the torsion arm center line in relation to horizontal is known as the Starting Angle.



**NOTE:** Torsion axles will settle 1/2-1" during their break-in period, typically within the first 2,000 miles. This is a normal occurrence.



**CAUTION:** Improper starting angle can cause tire-fender clearance issues. Using starting angles higher than 18° above or lower than 30° below will result in harsh ride conditions.



### Torsion Axle Care & Service

K2 marine torsion axles are designed to be service free for 5 years of operation. Basic care and regular inspections will ensure a long service life and minimal down time.

If service is required, contact your local dealer, trailer manufacturer, or K2 Manufacturing for assistance.

Brackish and salt-water users should freshwater rinse axles, suspension, and brakes as part of their trailer care routine after each use.

## Torsion Axle Pre/Post Season or Extended Trip Checklist

This checklist is intended to be used at the start/end of the boating season, or in climates that allow year-round boating, semi-annually. It is also best practice to conduct the following checklist prior to extended trips. For pre-towing checks, refer to the back cover. Follow the same process for each axle, using the following "Inside-Out" procedure, starting at the springs and working out towards the wheel.

Subsequent sections of this manual will cover the systems in greater detail.



**CAUTION:** When lifting a torsion via floor jack, lift as close to the tire as room will allow. Always support a lifted axle with properly rated jack stands. NEVER lift a torsion axle from the center of the axle. Doing so may cause axle beam deformation, resulting in increased tire wear, improper trailer handling, and risk of injury.



Lifting a Trailer to remove and replace axles - consult trailer manufacturer for recommended lift points.

	Inspect frame bracket mounting bolts, minimum 2-3 threads showing past nuts, torque to 150 ft/lbs.
	Torque pinch bolt to 150 ft/lbs.
	Torque caliper bolts to 40ft/lbs (standard hex bolts)
	Inspect wheel and ground beneath trailer for signs of dripping grease or brake fluid
	Inspect inner seals. Some grease will lubricate the seal while in operation. While the collection of brake dust on this residue is normal, seals with cracks or missing pieces should be replaced
	Inspect rotor surfaces for grooves, cracks, or signs of irregular wear
	Inspect brake pads for wear. New pads are approximately 7/16" thick (just over 6 US quarters)
	Ensure grease cap is fully seated into hub
	Check end play. With tire mounted and axle safely off ground, grab tire at 9 and 3 o'clock and shake. Wheel/tire assembly should move less than 1/8"
	Inspect tires for general and irregular wear
	Ensure black grease cap center is raised 1/16-1/8" above stainless-steel barrel
	Install and re-torque wheels in accordance with trailer factory owner's manual
	Check tire air pressure on ground

During the next outing, check and re-torque wheels as recommended by the trailer owner's manual or wheel. *At a minimum*, it is advised to re-torque wheels after 10 & 50 miles of travel, and periodically afterward.

If trailer has not been active and surface rust exists on the rotor face, it is recommended to scrub the brakes during the next outing. Obey all state and local traffic laws, conduct a series of three stops under normal stopping conditions from 25mph to 0 to remove surface rust.

## End Play Inspection



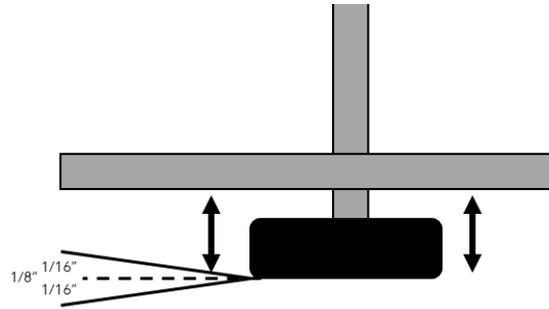
**CAUTION:** When lifting an axle via floor jack, lift as close to the tire as room will allow.. Always support a lifted axle with properly rated jack stands. NEVER lift an axle from the center of the axle. Doing so may cause axle beam deformation, resulting in increased tire wear, improper trailer handling, and risk of injury.



Lifting a Trailer to remove and replace axles – consult trailer manufacturer for recommended lift points.

Ensure lug nuts are torqued to trailer / wheel manufacturers recommendations. Lift axle using floor jack until tire is raised off the ground. Support axle with jack stand for safety.

Grabbing tire at 9 o'clock and 3 o'clock position, wiggle the tire, pushing left hand in towards trailer while pull right hand towards you and vice versa. If you can move the edge of the tire more than 1/8" the bearings may need to be readjusted. Contact K2 or your trailer manufacturer for more information.



## Torsion Axle Torque Spec Chart

Torque Spec	Other Notes	Socket Size	Component
150 ft/lbs	2-3 threads exposed past nut	15/16"	Frame Mounting Bolts
150 ft/lbs	2-3 threads exposed past nut, apply blue Loctite	15/16"	Pinch Bolt - 4200lb axles and below
150 ft/lbs	2-3 threads exposed past nut	1-5/16"	Pinch Bolt - 5200lb - 7000lb
40 ft/lbs	Apply blue Loctite	9/16"	Caliper Mounting Bolts - Standard
40 ft/lbs	Safety Wire	3/8" Allen	Caliper Mounting Bolts - Wire-Tite
25 ft/lbs		5/8"	Caliper - Banjo Bolt
12-14 ft/lbs		As Required	Caliper Inlet - Brake Hose/Tube
25 ft/lbs		7/16"	Caliper Bleeder Screw
85-95 ft/lbs		As Required	Wheel Studs - Steel Wheels*
105-115 ft/lbs		As Required	Wheel Studs - Aluminum Wheels*
55 ft/lbs	Initial torque to seat bearings, then loosen until free spinning before final torque	1-1/8"	Spindle Nut - Initial Torque Setting
20 in/lbs		1-1/8"	Spindle Nut - Final Torque
Fully Seated	Apply green Loctite to hub mating surface		Grease Cap <i>Grease Caps are press-fit and one-time use only</i>

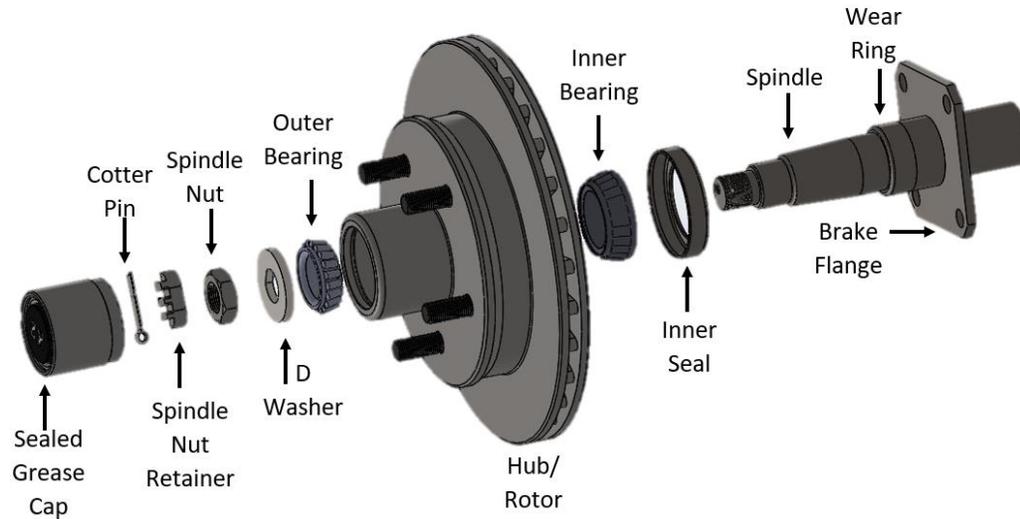


\* Wheel torque ratings are guidelines and superseded by ratings published by the specific trailer owner's manual or wheel manufacturer

K2 Marine Torsion Axles					
Bolt Pattern	5x4.5			6x5.5	
Axle Class	3000	3750	4200	5200	5500 6000
Frame Mounting Bolt	5/8-11X 1-1/4" Grade 5				
Frame Mounting Nut	5/8-11 Grade 5 nylon locking				
Pinch Bolt	5/8-11 X 4" Grade 8			7/8-14 X 5.5" Grade 8	
Pinch Bolt Nut	5/8-11 Grade 8 nylon locking			7/8-14 Grade 8 nylon locking	
Bearing Protector	1.980"		2.328"		
Protector Adapter	Not Required			2.328" to 2.441"	
Cotter Pin	1/8" x 1-1/4"				
Axle Nut Retainer	For 1-1/8" Nut				
Axle Nut	13/16-20"				
D Washer	1-5/8"X3/16" Thick	2-1/8" X 3/16 Thick		1-5/8"X3/16" Thick	
Wheel Studs	1/2-20" x 1.75"L				
Outer Bearing	L44649	L68149	15123		
Outer Race	L44610	L68110	15245		
Inner Bearing	L68149			25580	
Inner Race	L68110			25520	
Inner Seal	2.33ODx1.68 ID Double Lip			3.26ODx2.13 ID Double Lip	
Stainless Wear Ring	1.680" OD			2.118" OD	
Wear Ring Oring	1.680 OD			2.118" OD	

# Marine Hub Systems

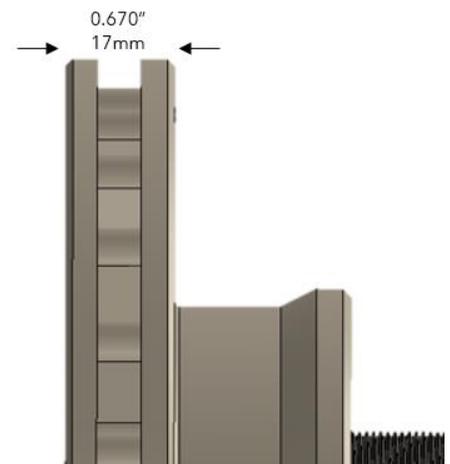
## Nomenclature



All hubs come standard finished in zinc plating and 1/2-20 x 1-1/8" long wheel studs installed. Rotor surfaces come standard with a premium automotive-grade etched finish designed to improve initial brake pad bed-in.

 NOTE: Over time the rotors surface zinc plating will wear away, and just like the rotors on a parked tow vehicle after a rainstorm, flash rust may occur. If your trailer is equipped with a surge actuator, three-to-five stops from 25mph to 0 using moderate pressure will burnish away light surface rust. If the trailer is equipped with electric-over-hydraulic brakes, lightly dragging the brakes for 50 yards will also burnish away light surface rust. Trailers left to sit and accumulate heavy pitting, flaking, or corrosion should have the rotors replaced.

Rotors shall be replaced with thickness become less than 0.670" / 17.00mm in thickness. Brake pads may be replaced without replacing rotors, but brake pads should always be replaced when replacing rotors.



If hub/rotors need to be replaced, contact the trailer manufacturer or K2 Manufacturing for service information.

Wheel Related Dimensions			
Weight Class	3000-3750	4200	6-bolt 4200; 5200 - 6000
Bolt Pattern	5x4.5	5x4.5	6x5.5
Stud Thread	1/2-20	1/2-20	1/2-20
Stud Length	1-1/8"	1-1/8"	1-1/8"
Hub Bore	2.58"	2.88"	3.5"
Min Wheel Dia	14"	14"	15"
Trailer manufacturers have specified the appropriate wheel/tire combo for your trailer. Wheel/tire sizing should not be changed without consulting the trailer manufacturer. Negative offset wheels are subject to void warranty.			

Torque Spec	Other Notes	Socket Size	Component
40 ft/lbs	Apply Blue Loctite	9/16"	Caliper Mounting Bolts -Standard
40 ft/lbs	Safety Wire	3/8" Allen	Caliper Mounting Bolts - Wire-Tite
25 ft/lbs		5/8"	Caliper - Banjo Bolt
12-14 ft/lbs		As Required	Caliper Inlet - Brake Hose/Tube
25 ft/lbs		7/16"	Caliper Bleeder Screw
85-95 ft/lbs		As Required	Wheel Studs - Steel Wheels*
105-115 ft/lbs		As Required	Wheel Studs - Aluminum Wheels*
55 ft/lbs	Initial torque to seat bearings, then loosen until free spinning before final torque	1-1/8"	Spindle Nut - Initial Torque Setting
20 in/lbs		1-1/8"	Spindle Nut - Final Torque
Fully Seated	Apply green Loctite to hub mating surface		Grease Cap <i>Grease Caps are press fit and one-time use only</i>

## Sealed Grease Systems

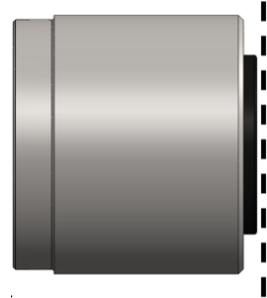
K2 Marine Axles with a Sealed Hub System utilize a closed, pressurized chamber in conjunction with Lucas Oil® Red-N-Tacky™ grease to prevent water from reaching the bearings.

Permatex™ High-Temp RTV is used to secure our double-lip seals to the hub assembly, which ride on a stainless-steel wear ring. This is an extra layer of protection not found on common utility and budget marine axles.

Sealed Hub System caps utilize a special, high strength Loctite to seal the cap to the hub. A precision amount of grease used during installation maintains 3-5psi of outward pressure, blocking water intrusion. Pressure is indicated by the black plastic cap extending beyond the stainless-steel barrel.



**NOTE:** Place the edge of your drivers license or a payment card over the back cap. If the card touches the stainless-steel barrel, pressure has been lost - contact K2 for support.



## Brake Calipers

K2 S54 single piston calipers provide superior clamping force to drum brakes and are designed to withstand brake actuator pressures exceeding 1,600 psi. S54 calipers come standard in zinc plated finish. Several inlet configurations are available, including single inlet, dual inlet, and banjo fittings.

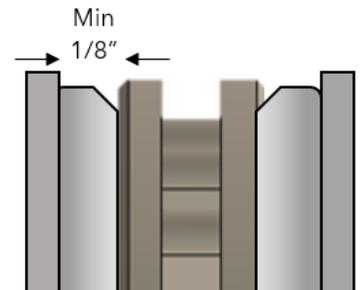
*Port side looking forward, starboard side will be mirrored; Dual hose fittings reference top inlet*



Brake pads are an organic compound designed for low noise and rust prevention. New brake pad material is approximately 7/16" thick (excluding the backing plate). This is just thicker than 6 US quarters. Pads should be replaced once either pad reaches 1/8" thick, or the thickness of 2 US quarters. Inner and outer brake pads should always be replaced as a set.



**NOTE:** If during inspection the inner and outer brake pads are found to be greater than 1/8" difference in thickness, clean the SS pad slides with a brass or stainless wire brush, and lubricate caliper slide pins with grease. Ensure front SS retainer spring is installed



## Wire-Tite Caliper Bolts

Wire-Tite caliper bolts utilize stainless steel safety wire and specialty fasteners commonly used in aviation and automotive racing applications to provide unparalleled trailer safety.

1) Make 10" long "U" shape with safety wire. Feed one side of "U" up through top caliper bolt-from the 6 o'clock position to the 12 o'clock position. Feed the other side of "U" along the right (clockwise) side of top bolt so both meet at the 12 o'clock position. Grab both wires 3 inches above the top bolt and begin twist using safety wire or common pliers.

2) Bend twisted wire around the right side of top fastener down to the left side of bottom fastener.

3) Feed one end of the remaining "U" up through the bottom fastener from 6 o'clock position to the 12 o'clock position. Feed the other side of the "U" along the right (clockwise) side of bottom bolt so both meet at the 12 o'clock position of bottom bolt.

4) Grab both wires 1" above bottom bolt and twist. Snip off excess 1/2" above bolt and tuck remainder behind main twist to prevent snags.



## Quick Trip Checklist

X	Component	Inspection Criteria
	U-Bolts	Nuts present - threads showing past nut
	Leaf Springs	No cracks or missing leaves
	Suspension Bolts	All nuts present - threads showing past nut
	Torsion Frame Bolts	Nuts present, 2-3 threads showing past nut
	Torsion Pinch Bolts	Nuts present, 2-3
	Parking Area	No grease, brake fluid present on ground
	Inside of Wheels	No grease, brake fluid present
	Caliper Bolts	Fully seated
	Brake Hoses/Tubes	No cuts, cracks, or abrasions; no kinked tubes
	Rotor Surfaces	Smooth surface - no cracks, deep grooves, rust pitting
	Caliper	Stainless Tension Wire Present
	Brake Pads	Min 1/8" (2 US Quarters) each pad, even wear
	Grease Cap	Barrel seated in hub, plastic cap extends beyond SS barrel
	Lug Nuts	Torqued to spec
	Air Pressure	Inflated to spec
	Swing Tongue	Pinch Bolt 150 ft lbs, back off 1/8-1/4 turn. Hairpin clip installed in hitch pin
	Brake Actuator	Brake Fluid Reservoir filled
	Brake Actuator	Carabiner undamaged and attached to tow vehicle & breakaway cable
	Brake Actuator	Breakaway cable ferrule inside the housing