12. ALLOW THE BONDING AGENT TO FULLY CURE AND AIR UP THE HUB

1. Let the entire assembly cure for 24 hours before submerging it in water, in order to allow for proper setup of the bonding agent.
2. On the Commercial model, when the bonding agent is cured, use a manual air pump such as a bicycle pump and put in 15 pounds. Remove the pump and bleed the valve stem until the gauge reads 10 p.s.i.
3. After the initial trip you may have to pump the hub back up to 10 p.s.i due to the air pockets in the grease equalizing to the 10 p.s.i. Put grease on the valve stem and replace the valve stem cap. Replace the valve stem cap.
4. DO NOT PRESSURIZE OVER 30 PSI!!
5. On the Sport Model, use a manual pump with a sports needle, put grease on the sport needle and insert it into the center of the diaphragm. Pump up until the ridges in the diaphragm protrude outwards.
6. Diaphragm should protrude out past the cap approximately 3/4" of an inch. That will pressurize the hub with approximately 5 to 10 psi.
7. DO NOT OVER PRESSURIZE THE DIAPHRAGM!!
8. Your indicator of a pressurized hub is by visually seeing where the diaphragm position is relative to the face of the cap.
9. For example, if the diaphragm protrudes out greater than 1 inch, the V's between the rings on the diaphragm will begin to flatten out and the pressure will be greater than 10 psi.
10. So, ideally, the diaphragm should be inflated approximately 3/4" of an inch past the cap.
11. If the diaphragm's rings and face are compressed against the cap, it is time to pump the diaphragm out to approximately 3/4" of an inch.
12. Remember; lubricate the sport needle or hole in the diaphragm. with grease whenever you inflate the diaphragm.

Note: Release the air in the diaphragm through the sport needle prior to removing the diaphragm for regreasing

FULL ONE-YEAR WARRANTY

Your Air-Tight product is warranted against defects in materials or workmanship for one year from the date of the original purchase. If this product, because of a manufacturing mistake, malfunctions or proves to be defective within the one-year warranty period, it will be repaired or replaced, at Air-Tight's option and at no charge to you, provided it is returned to Air-Tight with proof of purchase.

TIPS ON INSTALLATION

1. Your Air-Tight hub kit is designed to last a long time. The wear parts are the seal and eventually the bushing, depending on the severity of the environment and mileage. In the meantime, with proper installation, you should experience thousands of miles out of each seal. When air pressure can no longer be maintained you will see a loss of air pressure on the gauge.
2. Air-Tight tells you when it's time to change seals and repack bearings. If pressure is equal to or less than 5 p.s.i., add pres sure to 10 p.s.i.. At the end of the seal life, there will be a gradual increase in air pressure leakage out of the hub. When you can no longer hold air pressure statically, this means that it's time to change the seal and repack the bearings. If you discover this loss of air pressure while on a trip, air up the hubs (using a bicycle pump do not use a motorized/auto air pump) to 10 p.s.i. before submerging in water.
3. The Air-Tight gauge will warn you of potential problems prior to hub failure. During a trip while stopping for fuel or launching a boat at a ramp, quickly check the pressure gauges. If the p.s.i. on departure was 10 p.s.i., you should experience a pressure increase of 1-1.5 p.s.i. in normal conditions due to the heat buildup. If a gauge is abnormally higher (3 p.s.i. or greater), there may be a brake dragging or a future bearing problem creating extra heat.
4. Maximize your seal's life. Do not over pressurize the hub (never inflate to 30 p.s.i. or greater). Ideal pressure for protection and maximum life of the seal is 10 p.s.i. Do not use a motorized or auto tire pump to pressurize the Air-Tight Bearing Protector. Use a hand powered bicycle type pump for the minimal amount of air you will need.WARNING: OVER-PRESSURING HUB CAN LEAD TO GAUGE BREAKAGE
5. Temperature change will also change pressure. Colder air temperature will lower the p.s.i. slightly and hotter temperatures will increase the p.s.i. slightly. In a short time, you will know what your pressure will run in a given situation, depending on trip duration, ambient temperature, and your typical environment.
6. You will enjoy the ability to monitor what is going on inside your hubs at all times. The purpose of this product is to eliminate time spent on the roadside doing time intensive and unnecessary repairs. Consider it insurance for your investment!
7. Air Tight recommends changing the seal and re-packing bearings when the seal no longer statically can hold pressure.
8. Loosen cap slightly, tap on cap 360º around with rubber mallet or soft faced tool until adapter ring comes off. (Removal of adapter ring is only necessary when removing hub for repacking and seal change.)
9. When you can no longer statically hold air pressure in your hubs, Air-Tight recommends that you repack your bearings and change your seal.
10. Trailers operating under extreme conditions can add grease to the bearings after 1 year. Do this by releasing the air pressure in the cap and unscrewing the cap off the adapter. Note: (If the cap is tight, use a rubber strap filter wrench to loosen). On the axle where the zerk fitting was removed, screw in a zerk fitting if the spindle was tapped or place a zerk fitting on the end of a grease gun and press the fitting by hand against the hole in the axle. Add grease until the new grease comes through the outer bearing. Wipe off excess grease. Remove the zerk fitting. Replace the cap and add 10 psi. Extreme conditions mean: High mileage annually and running a trailer load near total gross vehicle weight rating.
11. If the hub has a tang washer, our 1-1/2" special socket can take the hub off without a removal of the adapter ring.
12. If the axle has a cotter pin, you must remove the adapter ring to pull out the cotter pin. When finished, the adapter ring can be bonded back in with a green retaining compound such as lock tight. Again, make sure the surface is clean before using the bonding agent.

For Further Technical Support You Can Reach Us At:
info@airtighthubs.com

TOOLS LIST NEEDED

1. Safety glasses
2. Hammer
3. Brass or aluminum punch
4. channel locks
5. 1/2" drive ratchet and sockets (1 1/8 - 1 1/2")
6. Block of wood or plastic
7. grease gun
8. razor knife
9. calipers
10. 6" long, 2" diameter or 1 1/2" diameter pipe
11. drill
12. drill bit #R
13. tap 1/8" - 27 NPT
14. die grinder + a cut off wheel
15. screw driver
16. seal driver
17. mini sledge hammer
18. blunt chisel
19. 5/16" boxed wrench
20. set of allen wrenches up to 3/8"
21. impact driver
22. hydraulic jack
23. jack stands

Note: This list includes all the tools required to work on every make of axle. Most jobs require just a few of the tools listed.

LIST OF SUPPLIES

1. degreaser (lacquer thinner) **2.** rags or paper towels **3.** emery cloth **4.** Teflon tape **5.** cold galvanized paint

Now that we have our tools and supplies, let's get started with the installation.

1. DETERMINING THE CORRECT KIT

1. Whether you are installing our Commercial or Sport model, the first step in installing your Airtight Bearing Protector is to find out how many lugs are on the hub.
2. If it is a 5 lug it will be a 2000-3500 axle.
3. You will know which one it is by the GVW Plate on the front of the trailer.
4. If it is a 6 lug, it will be a 5200lb axle and
5. if it is an 8 lug, it will be a 7000lb axle
6. Finally we need to determine which axle manufacturer made your axle.
7. The reason for this is that the bushing for our seal needs to be matched to your axle.
8. There are a few choices for each axle sizes, and the only difference between them is the inner dimensions of the bushings.
9. One way to determine the correct size is to use Air-Tight's cross-reference chart found on our website.
10. If you cannot find your trailer make or axle manufacturer, you can measure on the axle where the seal rides with a pair of calipers.
11. If there is a stainless steel bushing on your axle, you must remove it first to measure on the bare axle. Removal can be accomplished by carefully splitting the bushing in half using a hammer and a thin tip screwdriver.
12. Your choice for the 5 lug/2000 lb axle is 125, which is 1.25 inches on the caliper.
13. Your choices for the 5 lug/3500 pound axle is 162, which is approximately 1.62 on the calipers and 166, 169, 172 and 173.
14. Your choices for the 6 lug/5200 lb and 8 lub/7000lb are 209, 210, 220, 224, and 225.
15. Once you have decided which bushing size you need for a particular axle, you can then convert that to the correct part number.
16. For example, here I'm working on a 6 lug trailer with a spindle size of 2.248. That is a 6 lug/5200lb axle with a 225 bushing, which is part #AT52-225C for the commercial model, an AT52-225S for Sport model.
17. Kits will also be sold without bushings. All the kits for each axle and hub size are identical, just the bushing sizes are different. You would then buy the correct bushing for your axle.
18. Remember each kit will do one hub, so you will need 2 kits per axle.
19. Finally, once you have decided which kit to use, you are ready to get started installing the Air-Tight Bearing Protector.

UNIVERSAL KIT INSTALLATION (Use for Universal Kit Installation)

The Universal Kit will eliminate the need to measure your spindle. Air-Tight's Universal Kit comes with (3) different inner dimension size shims. One or none of the shims may be used in putting on the stainless steel bushing. Note: The universal kit for the 5 lug/ 3500lb has 3 shims. The universal kit for the 6 lug/ 5200 and the 8 lug 7000lb has 1 shim.

One of (2) things will happen:

1. Air-Tight's stainless steel bushing will fit your spindle snug, without the use of a shim.
2. One of the (3) shims will fit your spindle snug so Air-Tight's stainless steel bushing can bond directly on top of the shim.

Follow these steps below for putting on the bushing:

Step (1) If there is a stainless steel sleeve on your axle, you must remove it. Removal can be accomplished by carefully splitting the bushing in half, using a hammer and a thin tip screwdriver.Exception: If your axle is made by U.F.P. (Unique Functional Products) the bushing does not have to be removed due to their bushing is sealed to the spindle. If you are not sure which axle manufacturer you have, go to our web site, which lists over 70 trailer manufacturers and the axles they use or match it up to the spindle in the pictures on the Illustrated Universal Bushing Assembly Sheet.

Step (2) If the spindle is a drilled spindle, draw a straight line through the grease hole to the back of the spindle with a permanent marker. This will mark the location of the grease hole. Match one of the shims to your spindle. The shim that fits the closest is the shim you will bond to the spindle. Note: If Air-Tight's stainless steel bushing fits on the spindle the closest, the shims are not needed.

Step (3) Clean any corrosion on the axle with emery cloth and wipe clean with a degreaser. Clean the inner dimensions of the shim with a degreaser.

Step (4) Shake up the bonding agent by removing the cap, cut the tip with a razor knife and screw the cap back on. Squeeze the container a few times back and forth. This will mix the bonding agent so that it is thick and consistent and easy to apply. Put the bonding agent 360° (degrees) on the axle where the shim will go and 360° (degrees) on the inner dimensions of the shim.

Step (5) Put the shim on the spindle. Even if the shim goes on by hand, use an old inner bearing and a short pipe or punch and tap on the bearing until the bearing bottoms out. Remove the bearing. This will form the shim to the contour of the spindle and put the shim back against the shoulder. The shim will block the grease hole on the spindle. Use an awl or a nail to pierce through the shim where you marked the hole, leaving the grease hole open.

Step (6) Bond Air-Tight's stainless steel bushing on the top of the shim the same way you put on the shim. If you had to press on the bushing with an old bearing, when the bearing bottoms out, remove the bearing and use a brass or aluminum punch to place the bushing in against the shoulder. Tap on the taper of the bushing on both sides until the bushing is against the shoulder If there is no shoulder, tap the bushing about 1/8 of an inch in from the inner bearing. Air-Tight's stainless steel bushing should always be about 1/16 to 1/8 of an inch back from the inner bearing when placed properly.

Step (7) Be sure to remove any debris in the grease hole. Removal of the debris can be done by greasing the zerk fitting and letting the grease clean out the hole.

Step (8) When the bushings are assembled, discard the remaining shims and continue with the main directions.

Disclaimer: The Universal Kit fits most axle manufacturer sizes. If your axle size is not covered by the Universal Kit, revert to part 1. (Determining the Correct Kit). Contact Air-Tight to exchange the bushing for your particular size.

2. DISASSEMBLE THE WHEEL

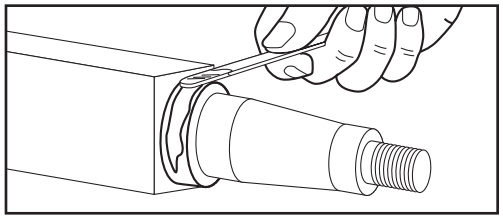
1. Jack up the trailer and remove the wheels
2. Next we will pull the hubs off the axles.

3. CLEANING THE AXLE

1. Clean the axle and the inner dimensions of the bushing with a degreaser.
2. Be sure to use a degreaser that is approved for cleaning metal in your area. Today we will be using Lacquer Thinner.
3. Whichever degreasers you use, make sure it cleans the metal thoroughly of all grease.
4. Sand down the surface with emery cloth until the sur face is clean of most surface corrosion.
5. Clean again with a degreaser. Make sure the surface is grease free. There is no such thing as being too clean!

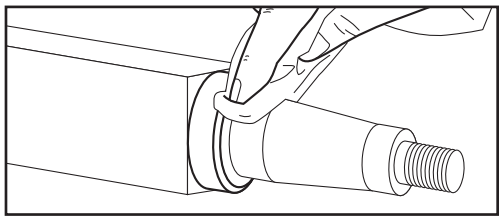
4. APPLYING THE BONDING AGENT

1. Shake up the bonding agent by removing the cap, cut the tip with a razor knife and screw the cap back on. Squeeze the container a few times back and forth. This will mix the bonding agent so that it is thick and consistent and easy to apply.
2. Put the bonding agent 360 degrees on the axle where the bushing goes and 360 degrees on the inner dimensions of the bushing.



5. PUTTING ON THE BUSHING

1. Put the bushing on the axle with the taper towards the outside. Bushings may go on by hand or you may have to tap the bushing on with an old inner bearing and a short pipe.
2. Tap the bushing on the axle against the shoulder. If there is no shoulder, tap the bushing on where the seal will ride 100% on the surface.
3. Indicating where the old seal was riding is the best way of placing the bushing. The rule of thumb is about 1/8 of an inch in from the inner bearing. That will leave open the grease hole if the axle is a drilled spindle.
4. If the bushing has to be driven on with an old bearing, then once the bearing bottoms out on the spindle, remove the bearing and use a brass or aluminum punch to place the bushing in that 1/8 of an inch. You want to tap on the taper part of the bushing.
5. If the axle has a "Sure Lube" system, which has a hole drilled through the back of the spindle, the hole has to be drilled and tapped to 1/8 inch N.P.T.
6. If there are any obstructions to drilling and tapping the hole, simply use a die grinder and remove the obstruction.
7. Use cold galvanized spray to touch up any bare metal.
8. Once tapped, grease can be pumped through the hole where the seal rides to back flush the old grease and metal shavings out of the back of the spindle.
9. Once flushed, put Teflon tape on the zerk fitting and tighten.
10. We use a sealable zerk fitting to hold back the air pressure 100%. Part Z-100.
11. The spindle can be greased through the back end into the hub.



6. LOOSEN THE ZERK FITTING

1. If you are putting on Air-Tight's Sport Model, the zerk fitting does not have to be removed.
2. If the zerk fitting is countersunk in the end of the spindle, it does not have to be removed.
3. If the axle has the "Easy Lube" system, loosen the zerk fitting in the end of the spindle.
4. If the zerk fitting is pressed in, tap on each side with a blunt chisel until the zerk is removed. Save the zerk, because it will be used to grease the hub.

7. PREPARE THE HUB

1. Remove the old seal and check the bearings and races.
2. Replace bearings and races if there is any damage.
3. Clean out the old grease from the hub.
4. If the spindle is drilled, put the inner bearing in the hub dry. Clean the hub where the seal is pressed in with a degreaser and apply bonding agent 360 degrees on the hubs inner dimensions and apply bonding agent 360 degrees on the seal's outer dimensions.
5. Press the seal into the hub flush with the hub. Make sure the seal is started evenly, about 1/8 of an inch into the hub before it is driven in all the way. You should use a seal driver or press for putting in the seals. It is important to note that the seals tend to start in the hub unevenly. Tap on the seal driver just to start the seal and then tap on the high end of the seal driver to get the seal started evenly. Once the seal is started evenly, drive the seal in flush with the hub. That will place the seal 100% on the bushing and true the seal with the hub.
6. If the spindle is not drilled, put the inner bearing into the hub packed with grease. Wipe out any grease that is on the inner dimensions of the hub where the seal is pressed in. Clean the surface with a degreaser until it is completely clean of all grease. Next, apply bonding agent to the hub I.D. and the seal O.D. Press in the seal until the seal is flush. Make sure to press in the seal evenly. Wipe off excess bonding agent, and pack the cavity between the seal and the inner bearing with grease. Make sure the cavity is full. Next, pack grease into the middle of the hub, between the two races.

8. PREPARING THE AXLE

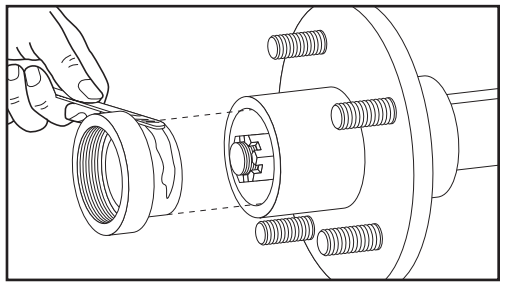
1. Wipe off the excess bonding agent around the bushing
2. Pump grease through the spindle and put it on the axle and bushing. If the axle is not drilled, put grease on the spindle and bushing.

9. ASSEMBLE THE HUB

1. Put on the hub. If the axle is not drilled, then put the outer bearing in packed with grease. If the axle is drilled, the outer bearing can be put on dry.
2. Put on the washer and nut. Tighten the nut to seat the bearings. Put the retainer on the nut.
3. If you are putting a hub on with a cotter pin in the axle, you must bend the cotter pin tight against the axle for clearance on the Air-Tight cap.

10. PUT ON THE ADAPTER RING

1. Clean the surface where the adapter ring is pressed on. This can be done by wiping the excess grease off while turning the hub 360 degrees around.
2. Next, use the degreaser to wipe the hub off where the adapter ring will be pressed in. Make sure all the grease is cleaned off.
3. Then place bonding agent 360 degrees around the edge of the hub and the outer face of the hub. This can be done by turning the hub around while applying bonding agent.
4. Place the bonding agent on the adapter ring collar, 360 degrees around.
5. With a soft-faced tool, or block of wood, drive the adapter ring into the hub
6. Wipe off excess bonding agent.
7. Grease the hub through the zerk fitting until grease comes through the outer bearing.
8. Remove the zerk fitting on the end of the spindle unless it is countersunk or you are putting on the Sport model. The zerk fitting is only removed for clear ance on the Commercial models pressure cap.



11. INSTALL AIR-TIGHT CAP

1. Put grease on the "O" ring and the threads on the cap.
2. Screw the cap in the adapter ring by hand, compressing the "O" ring. Hand tightening is sufficient.
3. Release any air pressure through the valve stem that may have been created by screwing in the cap.
4. If you are installing the Sport model, apply bonding agent to the hub and sports cap the same way as the Commercial model's adapter ring.
5. Drive the cap in with a block of wood.
6. Grease the hub through the zerk fitting, put grease on the grommet of the diaphragm and put in the rubber diaphragm.