



Vortex Hub Kit

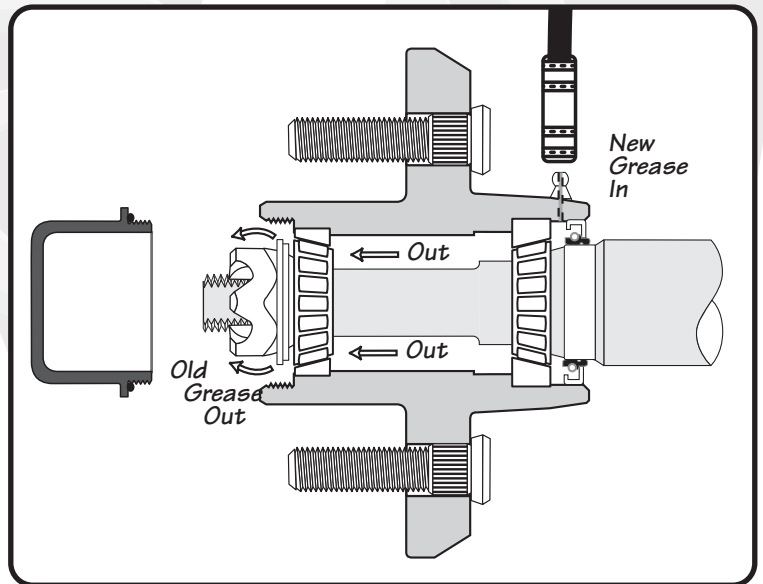
Installation Instructions

The Vortex hub/spindle is designed to be a no maintenance hub for 6 years or 100,000 miles whichever comes earlier. If you should need to add grease or remove the hubs for any reason, follow the instructions below.

TO MAINTAIN THE FACTORY WARRANTY, LUCAS OIL MARINE GREASE MUST BE USED WHEN ADDING OR REPLACING GREASE IN THE VORTEX HUB.

Installing the Vortex hub for the first time or the inspection or maintenance should be done in a safe location away from moving vehicles.

1. Elevate the trailer on level ground using the manufacturers instructions. Always use jack stands or other solid supports. Do not rely on a jack to support the trailer. Block wheels to keep the trailer from rolling.
2. Remove the tire/wheel assembly
3. Place a newspaper or cloth on the ground under the hub to keep any parts from falling onto a dirty surface.
4. Remove the existing cap by prying around the edge of the cap.
5. Remove the cotter pin, castle nut (in a counter clockwise rotation) and washer. If you have a "tang" washer instead of a cotter pin, bend the locking tab to a "free" position to allow the washers and spindle nut to be removed.
6. Remove the hub from the spindle. If you have cap style disc brakes, you will need to remove the brake caliper to remove the rotor first. Follow separate instructions for disc brake rotor removal
7. Clean the axle spindle with a soft absorbent cloth, inspect the spindle for signs of wear or corrosion. If you detect abnormal wear, you may need to consult a trailer repair shop.
8. Coat the spindle with a thin layer of grease or oil to allow the Vortex hub to slide on easily. Be careful not to allow the bearings to fall out of the hub.
9. Place the Vortex hub on the spindle in reverse order as listed above. Rotate the hub while applying approximately 50 ft. lbs. of torque to the spindle nut. This translates into a full hand pressure load with a 12" long wrench. This "seats" the bearings.
10. Loosen the spindle nut to remove the torque applied. **DO NOT ROTATE THE HUB.**
11. Tighten the spindle nut until snug, backing off only enough to line up the cotter pin with the hole in the spindle or the locking tab from the "tang" washer (first position).
12. Bend the cotter pin or locking tab into place
13. Install Vortex cap. Turn in a clock-wise rotation until the O-ring on the cap is in contact with the hub surface. Turn an additional 1/4 turn to seal the Vortex cap to the hub. (This is similar to installing an oil filter in an automobile).
14. Replace tire/wheel, torque lug nuts according to wheel manufacturers instructions.
15. Test hub for proper end play by grabbing the tire and pulling the tire from side to side. Readjust if necessary.
16. **VERY IMPORTANT:**
RE-CHECK LUG NUTS AFTER 25 MILES OF USE.



**Hub Filled
With:**





Adding or Changing Lucas Oil Marine Grease in Your Vortex Hub



Your Vortex hub is equipped with the Vortex Lubrication System. Should the hub/bearings require additional lubrication for any reason, the Vortex lubrication system allows you to do so without removing the hub or having to re-adjust the bearings. New Lucas Oil Marine grease is pumped into the zerc fitting on the backside of the hub, travels to the rear bearing where the new grease pushes out the old grease through the rear bearing, center of hub and through the front bearing.

FOLLOW THIS SIMPLE INSTRUCTIONS

1. Remove the Vortex cap, unscrewing in a counter clockwise rotation.
2. Use a standard grease gun loaded with Lucas Oil marine grease to pump grease into the zerc fitting located on the back side of the hub.
3. Pump the Lucas Oil Marine grease into the zerc fitting while slowly rotating the wheel. Grease will flow out of the hub around the front bearing.
4. When the grease appears to be the new clean grease, remove the grease gun.
5. Replace the Vortex grease cap. Turn in a clock-wise rotation until the O-ring on the cap is in contact with the hub surface. Turn an additional 1/4 turn to seal the Vortex cap to the hub. (This is similar to installing an oil filter in an automobile).

Vortex Limited Warranty for Consumer Hub Kits

TIE DOWN ENGINEERING, INC. ("TIE DOWN") warrants the Vortex Hub and bearings to be free from defects in material and workmanship for six years from date of purchase/installation to the original purchaser when properly installed, used and maintained by the purchaser. To maintain this limited warranty "LUCAS OIL" Marine Grease must be used when adding or replacing grease in the Vortex Hub. Should you need a replacement during the six year warranty period, return the hub with bearings, seal, cap and proof of purchase, pre-paid to Tie Down Engineering. Upon receipt of all items, TIE DOWN will send you a replacement Vortex hub assembly at no charge. This warranty does not apply to damage or loss caused by any or all of the following circumstances or conditions:

- Damage caused during installation.
- Parts, accessories, axles, spindles, materials or components used with or replacing any hub with the Vortex hub.
- Misapplication, misuse and failure to follow the directions or observe cautions and warnings on installation, operation, application, inspection or maintenance specified in any TIE DOWN acknowledgement, sales literature, specification sheet or installation instruction and service manual ("applicable literature").
- Use of product in any other application other than those described in TIE DOWN's product information materials.

Limitation of Liability: It is expressly agreed that the liability of TIE DOWN is limited and TIE DOWN does not function as an insurer. **THE REMEDIES SET FORTH IN THIS WARRANTY SHALL CONSTITUTE THE EXCLUSIVE REMEDIES AVAILABLE TO THE PURCHASER OR USER AND ARE IN LIEU OF ALL OTHER REMEDIES, EXPRESS OR IMPLIED. THE LIABILITY OF TIE DOWN, WHETHER IN CONTRACT, IN TORT, UNDER ANY WARRANTY OR OTHERWISE, SHALL NOT EXCEED THE PURCHASE PRICE OF THE PARTICULAR PRODUCT MANUFACTURED, SOLD OR SUPPLIED BY TIE DOWN.**

To Obtain Technical Assistance: To enable TIE DOWN to respond to a request for assistance or evaluation of customer or user operating difficulty, please provide at a minimum the following information by calling 404-344-0000:

- Model number, part number and all other data on the specific component which appears to be involved in the difficulty.
- The date and from whom you purchased your Vortex hub.
- State your difficulty, being sure to mention at least the following: Application, Nature of load involved, and Weight of the load.

Charges for service, labor and other expenses that have been incurred by the purchaser, its customer or agent will not be accepted.

THIS WARRANTY DOES NOT COVER NOR EXTEND TO INCIDENTAL OR CONSEQUENTIAL DAMAGE.

DUE TO THE WIDE VARIATION IN USES TO WHICH TIE DOWN PRODUCTS (WHEELS, HUBS, BRAKES, ETC.) ARE SUBJECTED BY USERS, WE ARE UNABLE TO SPECIFY CARRYING CAPACITIES OR SPEEDS FOR A PARTICULAR APPLICATION. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THOSE DESCRIBED ABOVE. EFFECTIVE OCTOBER 2010.

WARRANTY SUPERSEDES ALL PRIOR WARRANTIES, WRITTEN OR IMPLIED.

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