Keystone RV Company

4/25/06

SERVICE ADVISORY # 06-069

Oregon Cougar Axle Replacement

Keystone is conducting a voluntary RECALL notification campaign in accordance with the National Highway Transportation and Safety Act. Keystone has determined that a defect exists in the models listed below. These models may have a deficient axle weld joint between the axle tube and spindle. The following procedure describes how to perform the repairs required and how to inform the customer of their responsibilities as it relates to Lug Nut Torque and Maintenance which is outlined in the Keystone RV and Axle Manufacturer's owner's manuals.

Models Included:

2006 Cougar Fifth Wheels & Travel Trailers Manufactured in Pendleton, Oregon

Serial Number Range:

4YDT243266K069927 - 4YDF291206K070133

Parts Required per Unit:

2 Axles – parts supplied by Al-Ko Kober

Tools Required:

-Impact Wrench - ½" drive (removal of wheels only)
-Torque Wrench – ½" drive
-Deep Socket 13/16"x ½" drive
-Minimum 2" long socket extension, ½" drive
-Floor Jack – adequate to trailer weight
-Jack Stands
-Drill
-Paint Remover
-Scouring Pads (very fine light duty)
-Cleaning rags
-Water hose with spray nozzle
-Wheel chocks
-Wire Wheel

INSTRUCTIONS

ONE: PREPARING THE TRAILER

Step 1 Locate the trailer on a level, flat, hard surface. Chock the wheels.

Step 2 Use a floor jack of sufficient capacity to raise one side of the trailer. Place the floor jack under the main frame rail behind the rear spring hanger, leaving enough room to install a jack stand immediately behind the spring hanger. Elevate the frame just enough to take some of the weight off the wheel.

Step 3 Loosen the lug nuts on the rear wheel about a half turn. DO NOT remove lug nuts at this time.

Step 4 Continue elevating the frame until the rear tire just clears the shop floor.

Step 5 Install a jack stand of sufficient capacity directly behind the rear spring hanger.

Step 6 Relocate floor jack to an area just forward of the front spring hanger, leaving enough room to install a jack stand immediately in front of the spring hanger.

Step 7 Use a floor jack of sufficient capacity to raise one side of the trailer. Place the floor jack under the main frame rail forward of the rear spring hanger, leaving enough room to install a jack stand immediately forward of the spring hanger. Elevate the frame just enough to take some of the weight off the wheel.

Step 8 Loosen the lug nuts on the forward wheel about a half turn. DO NOT remove lug nuts at this time.

Step 9 Raise the frame until the forward tire just clears the shop floor.

Step 10 Install a jack stand of sufficient capacity just forward of the front spring hanger.

Step 11 With both tires now slightly off the ground finish removing the lug nuts and the two wheels from the trailer.

Step 12 Repeat Steps 2 – 11 for the other side of the trailer.

TWO: AXLE REPLACEMENT

Step 1 Support one of the axle tubes with a hydraulic jack. See Figure 1.

Step 2 Disconnect the brake wires for the axle from the trailer wiring harness that runs along the inside of the frame on the off door side of the vehicle. Note: Do not disconnect the wires at the back of the brake assembly. See Figure 2.

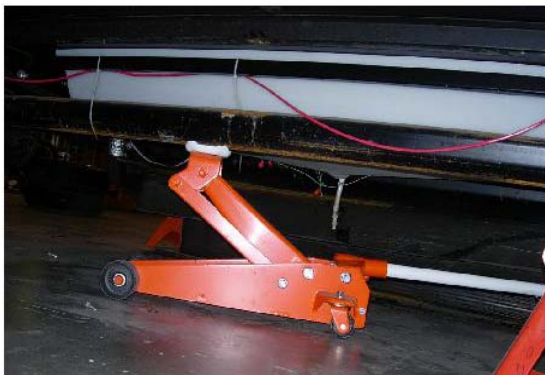


Figure 1

Figure 2

Step 3 Remove the U-bolts attaching the axle tube to the springs.

Step 4 Lower the axle and remove from under the vehicle.

Step 5 Slide the new axle under the trailer positioned so the free end of the brake wires on the axle can be connected to the trailer brake wiring harness on the off door side.

Step 6 Reattach the axle tube to the springs with the U-bolts removed in Step 3. Begin to tighten the U-bolts evenly in a cross pattern. Finish by applying 45 – 60 ft-lbs of torque to the U-bolts in a cross pattern.

Step 7 Reattach the brake wiring disconnected in Step 2 from the axle to the trailer wire harness using new wire connectors.

Step 8 Repeat steps 1 – 7 for the other axle.

THREE: HUB PAINT REMOVAL

Step 1 For the hub face, apply liquid paint remover or equivalent to the wheel-mating surface of the hub. Use a wire wheel (brush) to clean all black paint from the wheel-mating surface, that is, all areas of the hub face that come in direct contact with the wheel. Avoid damaging the hub face with this process! After the paint is removed, wash off the area with water to remove any remaining residue. Dry the surface completely. See Figures 3 & 4.

Step 2 Make a final inspection of the wheel and hub mounting surfaces before installing the wheels. If any grease is present use a brake cleaner or degreaser. Rinse any cleaned areas with water to remove residue. Dry the surface completely. See Figure 4.

Warning: When using chemicals (paint remover, brake cleaner/degreaser) be sure to utilize the "Personal Protective Equipment" (PPE) recommended by the manufacturer through the Material Safety Data Sheet (MSDS) and dispose in accordance with all Federal, State and Local Laws.

Warning: When cleaning the hub face with the wire wheel avoid excessive pressure on the studs. Applying too much force here could damage the threads on the studs.

Figure 3

Before Cleaning

Figure 4

After Cleaning

FOUR: **WHEEL ASSEMBLY INSTALLATION**

Step 1 Using a clean rag, wipe down all lug nuts and tapered nut seats on wheel to remove any remaining residues.

Step 2 Start the lug nuts on each stud by hand.

Step 3 You must use the star pattern and torque wrench when tightening the lug nuts to the wheel. This sequencing pattern shows how to progressively tighten the lug nuts to best achieve the proper torques and clamp load. See figure 5.

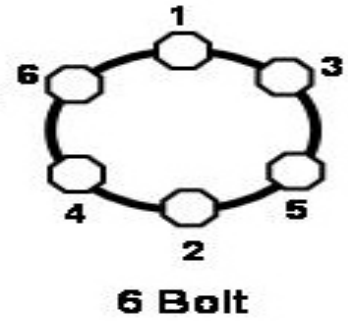


Figure 5

Step 4 Using the star pattern outlined in Figure 5, tighten the lug nuts until the 1st stage torque (20-25 ft-lbs) outlined in Figure 6 is achieved. Verify the lug nuts are properly positioned in the tapered seats of the wheel.

Wheel Torque Requirements			
Wheel Size	**1st Stage**	**2nd Stage**	**3rd Stage**
15"	20-25 ft-lbs	50-60 ft-lbs	110-120 ft-lbs
16"	20-25 ft-lbs	50-60 ft-lbs	110-120 ft-lbs

Figure 6

Step 5 Using the star pattern outlined in Figure 5, tighten the lug nuts until the 2nd stage torque (50-60 ft-lbs) outlined in Figure 6 is achieved.

Step 6 Lower the trailer to the ground.

Step 7 Using the star pattern outlined in Figure 5, tighten the lug nuts until the 3rd and final stage (110-120 ft-lbs) is achieved. See Figure 6.

Step 8 Use a dial or digital torque wrench to verify that the proper amount of torque has been applied.

FIVE: **DELIVERING THE TRAILER TO THE CUSTOMER**

Step 1 Make a copy of the Customer Acknowledgment sheet on the next page. While reviewing the document with the customer, use a torque wrench to demonstrate the processes outlined in Figure 5 and Figure 6 on their unit. The proper break-in procedures must be followed.

Step 2 Once the responsibilities are understood, the customer needs to sign and date this acknowledgement.

Step 3 A representative of the dealership should then sign and date the document.

NOTE: ***THIS PROPERLY COMPLETED ACKNOWLEDGEMENT MUST BE RETURNED WITH YOUR WARRANTY CLAIM TO KEYSTONE RV COMPANY TO BE ELIGIBLE FOR REIMBURSEMENT FOR PERFORMING THIS RECALL!***

SIX: **WARRANTY REIMBURSEMENT**

Submit the claim on Key Express or on a Keystone Warranty claim form with **Service Advisory # 06-069** and **Flat Rate Code # 7106942B** noted in the customer complaint section of the form. The amount of time authorized for this repair is 3.0 hours.

SEVEN: **PART RETURN**

Al-Ko Kober will issue a call tag for the axles that were replaced. Once the axles are ready to be returned, contact us at one of the numbers below and we will make arrangements to have the axles picked up.

If you have any questions please contact us through normal channels at:

Team Cougar (Indiana) 866-273-1454 Team Oregon 541-276-6075

CUSTOMER ACKNOWLEDGMENT

Dear Keystone Owner:

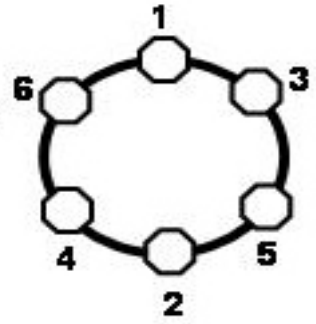
By signing this document you are acknowledging that a Recall /Service Advisory has been performed on your recreational vehicle (RV). The repair involved removing the wheels, cleaning any paint and/or contamination from the hub or wheel and reinstalling the wheels on your RV to the proper torque.

Because your wheels have been removed and reinstalled, it is critical that you follow the torque tightening procedures outlined below and your Owner's Manual's to help assure your safety as well as other motorists. ***A FAILURE TO ADHERE TO THE PROPER TORQUE PROCEDURES CAN LEAD TO LOOSENING OF THE LUG NUTS AND THE POSSIBLE SEPARATION OF A WHEEL FROM YOUR TRAILER!***

A torque wrench is necessary to insure the tightening procedures are done correctly. If you do not own a torque wrench, one can be obtained from a local hardware or automotive parts store. It will need to apply at least 150 ft/lbs of torque.

Torque Requirements

Anytime a wheel is subsequently removed for servicing, the torque intervals must be repeated from the beginning.
Tighten using the 6- bolt star pattern shown below (left). Use the torque intervals and range in the table below (right).



6- Bolt

Torque Intervals and Range		
1st Stop	10 miles	110 - 120 ft/lbs
2nd Stop	25 miles	110 - 120 ft/lbs
3rd Stop	50 miles	110 - 120 ft/lbs
Thereafter	Before each trip	110 - 120 ft/lbs

Please make certain that your servicing dealer has reviewed the torque tightening procedures with you in detail as well as provide a physical review of the process should you feel the need. If you feel uncomfortable or apprehensive in any way performing this maintenance service yourself, your dealer or local tire store can provide this service for a nominal fee.

Customer: I acknowledge that the above-described service has been performed and that I have read and understand the torque requirements and procedures as outlined above.

Name _____Serial Number (last 6) _____

Signature_____Date_____

Dealer: I have explained the torque requirements and procedures for properly maintaining the wheels on this trailer.

Name _____Date _____

NOTE: ***THIS DOCUMENT MUST BE RETURNED WITH YOUR WARRANTY CLAIM TO BE ELIGIBLE FOR REIMBURSEMENT.***