



*The information contained in these printed instructions outlines the most recently recommended processes involving Lug Nut Torque and takes precedent over any information regarding Lug Nut Torque shown in your Keystone, Dexter or AL-KO Owners' Manuals.*

## **A. Introduction**



Figure A

The axle and wheel assemblies of your RV (Figure A) are designed differently than those on your car. The overall size, weight and center of gravity of a recreational vehicle subject the wheels to pressures unique to trailering. During normal cornering, the tires and wheels experience a considerable amount of stress called "side-load". Therefore, the lug nuts on your recreational vehicle require periodic retorquing.

These instructions will show you how to maintain proper lug nut torque by following these important steps:

1. *Check torque before every trip*
2. *Use proper tools (Figures C and D)*
3. *Follow the appropriate star pattern sequence (Figure H)*
4. *Torque lug nuts in the correct stages and follow-up intervals after any wheel reinstallation (Figure L)*

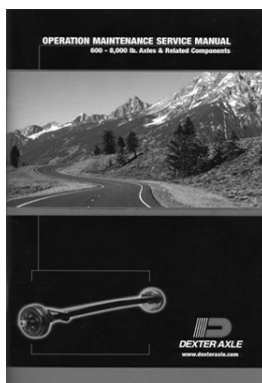
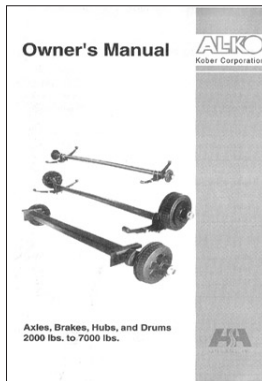


Figure B

For further information on these steps, you may want to refer to the axle manufacturer's owner's manual that accompanied your unit. (Figure B)

Remember, torque is the amount of rotating force applied to a fastener, such as a lug nut. Proper torque of lug nuts can only be achieved by using a torque wrench and a socket.

## B. Preparation: Tools Required



Figure C: Dial indicator torque wrench



Figure D: Adjustable dial torque wrench



Figure E: DO NOT USE a 4-way socket

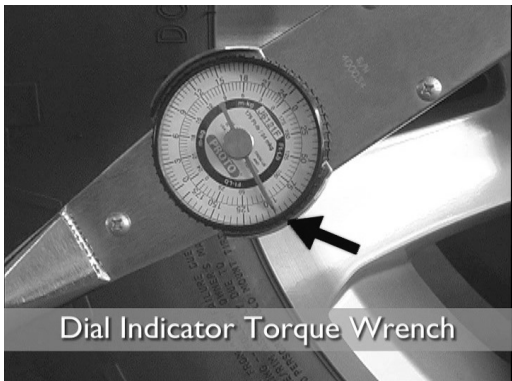


Figure F



Figure G

- Dial indicator (Figure C) or Adjustable dial torque wrench (Figure D)
- 7/8" or 13/16" socket

Note: Some wheel assemblies require an extension. **DO NOT USE a flexible extension.** Also, **DO NOT USE a 4-way socket or any other type of wrench (Figure E)**, which does not measure the actual pressure applied to the lug nut.

### Using Torque Wrenches

- Most torque wrenches are required to be set at "0" when not in use to maintain calibration.
- Please refer to the manufacturer's instructions for further information on use and maintenance.

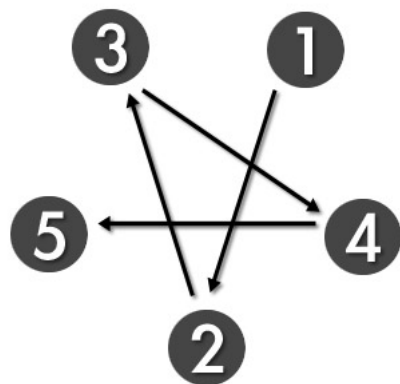
### Setting Torque Value on a Dial Indicator Wrench (Figure F):

1. Make sure your indicator needle is set to "0".
2. As you apply clockwise pressure to the lug nut, both needles will show the current amount of torque being applied.
3. When you reach your desired torque value, stop applying pressure and your indicator needle will stay at the highest torque value reached.

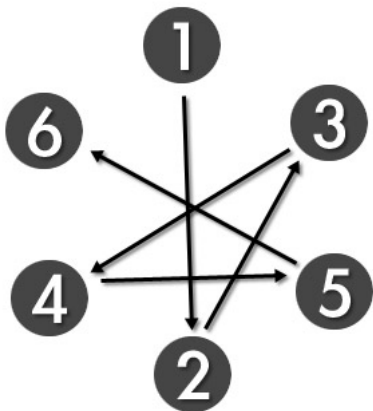
### Setting Torque Value of Adjustable Dial Wrench (Figure G):

1. Unlock the handle and set the dial to your desired torque value.
2. Lock the handle back in place.
3. As you apply clockwise pressure to the lug nut, you will hear and audible "click" when the desired torque wrench value is reached. Do not apply further pressure once you hear the "click".

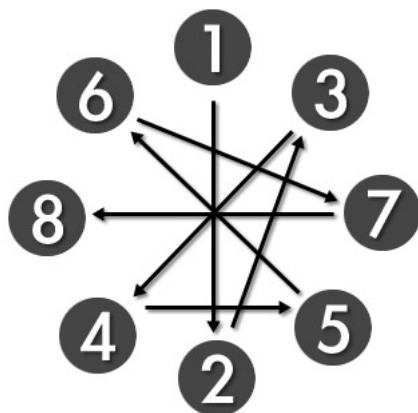
## C. Pre-Trip Maintenance



5 Hole Star Pattern



6 Hole Star Pattern



8 Hole Star Pattern

Figure H

Always remember:

- **Check lug nut torque before every trip.** Keystone RV recommends this maintenance procedure to ensure proper torque has been applied to lug nuts before heading out on the road.
- Lug nuts should be torqued to **110-120 ft/lbs on all units except for the Cambridge, which requires 140-150 ft/lbs.** This is due to the use of a 9/16" stud versus a half inch stud used on other units.
- **Always follow the appropriate star pattern** as indicated in these instructions (Figure H) or in your axle manufacturer's owner's manual (Figure B) to assure proper torque.

Pre-Trip Procedure:

1. Set your torque wrench to 110-120 ft/lbs (140-150 ft/lbs for the Cambridge).
2. Begin with the appropriate bolt for your wheel (12 o'clock position for 8 and 6 hole wheels and 2 o'clock position for 5 hole wheels, as illustrated) and apply torque to all lug nuts following the star pattern indicated.
3. Complete the procedure on each wheel. Before moving to each new wheel, be sure to verify your preset torque wrench value.

**WARNING: UNDER OR OVER-TORQUE OF WHEEL LUG NUTS CAN CAUSE THE WHEEL TO SEPARATE FROM THE AXLE AND COULD LEAD TO PROPERTY DAMAGE, SERIOUS INJURY OR LOSS OF LIFE.**

## D. Wheel Reinstallation

### 3 Stage Installation

- 1** 20-30 ft/lbs  
50-60 ft/lbs (Cambridge)
- 2** 55-60 ft/lbs  
90-100 ft/lbs (Cambridge)
- 3** 110-120 ft/lbs  
140-150 ft/lbs (Cambridge)

Figure I



Figure J

After removing a wheel from your RV for any reason, you must carefully follow a 2 step process:

- 1) Wheel Reinstallation**
- 2) Follow-up**

#### Wheel Reinstallation Procedure: Step 1) Wheel Reinstallation

- **During wheel reinstallation, the lug nut torque must be applied in 3 stages. (Figure I)** This will ensure the wheel studs are centered in the wheel holes, and will help the lug nuts maintain proper torque.
  1. Start all lug nuts by hand.
  2. **Stage 1:** Set your torque wrench to 20-30 ft/lbs (50-60 ft/lbs for the Cambridge, which uses a 9/16" versus 1/2" inch stud).
  3. Begin with the appropriate bolt for your wheel (12 o'clock position for 8 and 6 hole wheels and 2 o'clock position for 5 hole wheels, as illustrated) and apply torque to all lug nuts following the star pattern indicated in Figure H.
  4. **Stage 2:** Increase your torque wrench setting to 55-60 ft/lbs (90-100 ft/lbs for the Cambridge).
  5. Begin with the appropriate bolt for your wheel and apply torque to all lug nuts following the star pattern indicated in Figure H.
  6. Following stage 2, the wheel can support the weight of the trailer and can be lowered off of the jack stands (Figure J).
  7. **Stage 3:** Increase your torque wrench setting to 110-120 ft/lbs (140-150 ft/lbs for the Cambridge).
  8. Begin with the appropriate bolt for your wheel (as illustrated) and apply torque to all lug nuts following the star pattern indicated in Figure H.



## D. Wheel Reinstallation (continued)



Figure K

### Step 2) Follow-Up: Retorque after 10, 25, and 50 miles (Figure K)

1. After the first 10 miles of your trip, pull your recreation vehicle off the road into a safe work area.
2. Set your torque wrench to 110-120 ft/lbs (140-150 ft/lbs for the Cambridge).
3. Begin with the appropriate bolt for your wheel and apply torque to all lug nuts following the star pattern indicated in Figure H.
4. **Reapply torque** (at 110-120 ft/lbs or 140-150 ft/lbs for the Cambridge) **and repeat steps 1, 2, & 3 again at 25 miles and at 50 miles of your first trip.**
5. The follow up process is complete and you should refer to the general lug nut torque maintenance process described in section C “Pre-Trip Maintenance”.

## E. Summary

### STEP 1 Wheel Reinstallation

- 1 20-30 ft/lbs  
50-60 ft/lbs (Cambridge)
- 2 55-60 ft/lbs  
90-100 ft/lbs (Cambridge)
- 3 110-120 ft/lbs  
140-150 ft/lbs (Cambridge)

### STEP 2 Follow-up

- 3 110-120 ft/lbs  
140-150 ft/lbs (Cambridge)

Re-torque after first:

10 miles → 25 miles → 50 miles

Figure L

1. *Check torque before every trip*
2. *Use proper tools (Figures C and D)*
3. *Follow the appropriate star pattern sequence (Figure H)*
4. *Torque lug nuts in the correct stages and follow-up intervals after any wheel reinstallation (Figure L)*

## For More Information

Visit: [www.keystonerv.com](http://www.keystonerv.com)

Or call Toll Free: 877-U-TORQUE (877-886-7783)