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<th>Pages</th>
</tr>
</thead>
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<td>18–19</td>
</tr>
</tbody>
</table>
SAFETY NOTICE

Providing safe dependable operation of your axle(s) and related components is important. This manual provides basic procedures for service and repair using established industry standards. There are many variations in procedures to repair and maintain the axle and its related parts, however, it is not possible to provide you with all the detail for various service procedures. Refer to your trailer manufacturer’s owners manual for any specific warnings and procedures that may relate to the safety and maintenance of your trailer. If these procedures are not clear to you or if you are unsure you should contact a trailer repair facility who has a trained axle repair technician for advice or repair.

NEW AXLE SETUP AND ADJUSTMENTS

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheels</td>
<td>Re-torque wheel nut torque requirements on new trailers at 50 miles. See page 16 for torque rates.</td>
</tr>
<tr>
<td>Brakes</td>
<td>Adjust at 3,000 miles.</td>
</tr>
<tr>
<td>Tire Pressure</td>
<td>See tire manufacturers recommendations.</td>
</tr>
<tr>
<td>Brake Controller Settings</td>
<td>Refer to Brake Controller manufacturers recommendations</td>
</tr>
</tbody>
</table>

BRAKES

Your trailer electric brakes are actuated by an electric magnet which is modified by an electrical impulse from the brake controller. The trailer brakes will apply smoothly and slightly ahead of the truck brakes if all the brake components are installed and connected properly.

The brakes are activated with the electrical impulse from the controller to the magnets which, when in contact with the armature plate will apply the pressure to the primary shoe and will engage the secondary shoe much like hydraulic brakes on a passenger vehicle. As brake pressure (applied by the driver) is increased the electrical flow to the magnets increases the pressure between the brakes and drums to meet the braking requirements of the driver.

Electric brakes have been used on a variety of trailers for many years and offer many benefits to the driver. Please refer to the brake controller information provided by the installer of your towing vehicle for procedure and operation of the controller.

DOUBLE CHECK!

- Make sure your controller is installed according to the manufacturer’s recommendations.
- Make sure that the proper brake controller adjustments have been made to correctly engage the tow vehicle brakes and the trailer brakes to work together to providing safe and comfortable braking.
- Make sure that the brakes have been properly seated by applying the brakes repeatedly and lightly for about 20 to 25 times at a low speed (under 25 miles per hour) to begin the “seating in” of the brake to the brake drum components. Do this in a safe and low traffic area for everyone’s safety.

Below is a view of the 10” and 12” brakes used on your trailers axle(s), depending on your trailer and manufacturer’s specifications.

Left Hand 10” Electric Brake   Left Hand 12” Electric Brake
ELECTRIC BRAKE MAINTENANCE

Your trailer brakes should be adjusted between 250 to 300 miles after all of the brake components have seated. Since driving conditions and areas vary you should re-check brakes adjustments at a minimum of 3,000 miles.

CAUTION
Do not place jack on axle or springs.
Use jack stands to secure trailer.

ADJUSTMENT PROCEDURE

1. Make sure your trailer is on a level surface and is free of any potentially dangerous items.
2. Jack up the trailer and secure with jack stands. Make sure you are using the trailer manufacturer’s procedure for jacking and safely supporting the trailer until the tire and wheel are clear of the ground surface.
3. Find the adjusting hole cover and remove it from the backing plate.
4. Use a brake adjusting tool to adjust the star wheel (of the adjuster) and expand the brakes until the brake shoes are sufficiently expanded so that the tire and wheel will not easily rotate.
5. Now move the star wheel in the opposite direction until you can feel a little resistance from the brake and replace the hole cover.
6. Carefully lower the tire to the ground.
7. Repeat this procedure for all wheels making sure to adjust all brakes at the same time.
ELECTRICAL VOL TAGE MEASUREMENT PROCEDURE

To measure voltage, connect the voltmeter to both magnet wire leads while the towing vehicle is connected and the engine is running to insure accurate readings. The voltage should begin at 0 as the controller is increased slowly to approximately 12 volts. If the controller does not produce this voltage control refer to your brake controller troubleshooting and information manual. The lower reading will provide smoother braking while the higher may produce sharp or severe braking.

AMPERAGE MEASUREMENT PROCEDURE

Amperage is the electrical current flowing in the brake system while the magnets are energized. Make sure of your ammeter’s rating to prevent damage to meter. An easy place to check the amperage is at the output wire from the brake controller to the brakes. Disconnect this (blue) wire and put the ammeter in series into this line. Please refer to the following chart.
Individual amperage draw can be measured at the magnet by inserting the ammeter in the line of the magnet you wish to check. Disconnect one of the wire leads from the wire magnet and attach the ammeter between the two wires. Reconnect the wires when completed.

<table>
<thead>
<tr>
<th>BRAKE SIZE</th>
<th>AMPS TO MAGNET</th>
<th>2 BRAKES</th>
<th>4 BRAKES</th>
<th>6 BRAKES</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 x 1 1/4</td>
<td>2.5</td>
<td>5.0</td>
<td>10.0</td>
<td>15.0</td>
</tr>
<tr>
<td>10 x 2 1/4</td>
<td>3.0</td>
<td>6.0</td>
<td>12.0</td>
<td>18.0</td>
</tr>
<tr>
<td>12 x 2</td>
<td>3.0</td>
<td>6.0</td>
<td>12.0</td>
<td>18.0</td>
</tr>
<tr>
<td>12 x 3 1/2</td>
<td>3.0</td>
<td>6.0</td>
<td>12.0</td>
<td>18.0</td>
</tr>
</tbody>
</table>

There are several possible reasons that may cause voltage variations. Listed below are the most probable.

- Poor electrical connections.
- Open circuits
- Broken wires or incorrect wire size.
- Brake controller malfunction.
- Electrical problems can also be caused by bare wires, defective controllers or shorts in the magnet coil.

Locating the source of a short circuit should be done by checking individual sections. Should you find the amperage reading drops to zero after disconnecting the trailer, then the short is in the trailer. If the amperage is high after all of the magnets are disconnected, the short is somewhere in the trailer wiring.

Please note that the majority of electrical brake complaints can be traced to the controller. Refer to your brake controller manual to insure your controller is correctly adjusted and that the connections are in compliance with the manufacturer’s specifications.

### HUBS, DRUMS AND BEARINGS

Quality Trailer Products bearing configuration uses industry standards for bearing sets (bearings & cones) and hubs. This standard of using tapered roller bearings helps to reduce the axial end play provided at assembly and is essential to performance of the bearings life. The bearings are packed with lithium base grease.

Your axles may be equipped with the Quality Trailer Products Accu-lube system which provides for lubricating the hubs at a special grease fitting. This option allows grease to flow through specially machined axle spindles, which have been drilled to allow the grease to be passed from the fitting to the inner bearing and back out through the outer bearing.

### BRAKE DRUM INSPECTION

The brake drum surface should be inspected for scoring or excessive wear. If the wear is greater than .020" oversized it should be resurfaced. If the drum has worn out of round by more than .015" it should be re-machined. If wear or scoring is more than .090," the hub and drum assembly will have to be replaced.

The armature surface (which contacts the magnet) needs to be inspected for uneven wear or scoring. Drums can be resurfaced removing no more than .030" and should be to 120 micro inch finish. In the event you need to turn the drums or resurface the armature it is recommended that you replace the magnets at the same time.

**Special notes**

- Make sure the inside of the hub cavity is carefully cleaned and free of any contamination following turning and before re-assembly.
HUB INSPECTION REMOVAL, REPLACEMENT AND ADJUSTMENTS

A. Removal of Hub
1. Remove wheel
2. Remove grease cap
3. Remove cotter pin or bend tang washer on Accu-Lube
4. Unscrew the spindle nut counter clockwise
5. Remove spindle washer
6. Remove hub from spindle

B. Seal Inspection and Replacement
1. Seals should be replaced each time the hub is removed.
2. Pry the seal out of the hub with a screwdriver.
3. Tap new seal into place.

C. Bearing Maintenance, Adjustments, and Replacement
1. Inspect for corrosion and wear.
2. If any rust or wear exists on the bearing then remove and replace.
3. If bearings are found to be in good condition, then cleaning and repacking the grease is all that is needed.
   *Note: Do not spin bearings with compressed air.*
4. Hand pack each bearing individually using a premium lithium base wheel bearing grease.
5. Reinstall the hub, reversing the procedure above using the bearing adjustment procedures below.
6. If you have the Accu-Lube system refer to the “Accu-Lube Lubrication Procedure”.

D. Bearing Adjustment
1. **Feel and Drag Method**
   Tighten slotted nut until hub drags slightly when rotated. (Rotating the hub while tightening the nut seats the bearing.) Loosen the slotted nut 1/6 turn (1 hex) to align nut slot with the cotter pin hole. Wheel should turn freely. Insert new cotter pin through nut and spindle. If necessary loosen, **never tighten**, nut to align slot with the hole in the spindle. Bend one leg of cotter pin over the end of the spindle and the other leg over the nut. Tap legs slightly to set. Cotter pin must be tight. If equipped with Accu-Lube, bend tang back into position.

2. **Torque Wrench Method**
   Make sure nut is loose. Tighten nut with torque wrench to an initial torque of 50 ft. lbs. Loosen nut from initial torque and finger tighten. Insert new cotter pin through nut and spindle. If equipped with Accu-Lube, reset tang. If necessary loosen, **never tighten**, nut to align slot with the hole in the spindle. Bend one leg of cotter pin over the end of the spindle and the other leg over the nut. Tap legs slightly to set. Cotter pin must be tight.

ACCU-LUBE LUBRICATION PROCEDURE

Accu-Lube Lubrication Procedure

1. Remove the rubber cap at end of the grease cap.
2. Using a standard grease gun place the tip onto the grease fitting at the end of the spindle.
3. Pump the grease into the fitting as you continue pressure you will notice the old grease coming out at the cap. When you begin to see the new grease, remove the gun and clean off any excess and replace the rubber cap.
QUALITY SUSPENSION SYSTEMS

Quality also provides your suspension systems as well as the axle assemblies. These components are designed to perform a number of tasks to provide your trailer with the best and smoothest towing possible. The above drawings offer a view of single and tandem axle assemblies in both the double eye and slipper spring versions.

Your axle undercarriage may be equipped with double eye leaf springs or slipper leaf springs depending on the manufacturer’s specification.

Double eye leaf springs have eyes at both ends of the spring and have special bushings to protect them from wear. They do not need lubricating.

Slipper leaf springs have an eye at only one end which is also fitted with a special bushing to protect them from wear. The trailing end of the spring is designed to slide against the rear hangers.

Either of these suspensions will provide you with comfortable trouble free towing, but as with any mechanical parts, they should be inspected periodically depending on usage at recommended intervals of 6 months or 5,000 miles whichever comes first.

Should you find excessive wear in the hanger components you should have them replaced by a qualified technician. Should you find excess wear, in any of the attaching parts bolts, nuts, bushings, broken or worn out springs, you should replace them and torque attaching bolts to the following standards as shown below.
THE EQUALIZER TORSION AXLE

Your trailer may be equipped with our Equalizer axle(s). The Trailer manufacturer specifies their use according to individual engineering requirements.

Each spindle is attached to a trailing arm which rocks up and down during road shock. This movement is transferred to a steel inner bar within the axle beam. Rubber cords then absorb the shock from the twisting inner bar.

THE BENEFITS

Superior Performance

The independent action provides greater control and stability which makes towing the trailer much easier. Wheel vibration is absorbed by the rubber cords.

WHEEL AND TIRE SAFETY

Your trailer manufacturer has specified the wheel and tires to be used. It is very important that you do not make any changes that may alter the recommended size or load capacities. Any deviations, however slight or unnoticeable, may cause damage or be dangerous to operate.

TIGHTENING PROCEDURE

1. After mounting a wheel over the studs, start all lug nuts by hand to prevent cross threading.
2. After all the lug nuts have been snugged, tighten the nuts to the recommended torques using the sequence and progressive values provided on page 16.
   Re-torque after first 50 miles of use, and periodically re-check the torque.

TORQUE REQUIREMENTS

It is a necessary procedure to periodically check the torque levels of your wheel lug nuts. They must be maintained at the appropriate torque recommendations to prevent loose wheels, potentially broken studs and to prevent the wheel from separating from the axle.

TIRE PRESSURE

Tire pressure should be checked frequently, and inflated to the tire manufacturer’s recommendations.

CAUTION

Wheel torque must be maintained to insure that damage is not incurred to the wheel, wheel studs and or attaching parts.
### REPLACEMENT PARTS

#### SEALS REPLACEMENT

<table>
<thead>
<tr>
<th>Brake Size</th>
<th>Hub Seal</th>
<th>Bolt Pattern</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 x 1 1/4&quot;</td>
<td>4 or 5 Bolt</td>
<td>12192TB</td>
<td></td>
</tr>
<tr>
<td>10 x 2 1/4&quot;</td>
<td>5 or 6 Bolt</td>
<td>171255TB</td>
<td></td>
</tr>
<tr>
<td>12 x 2&quot;</td>
<td>6 or 8 Bolt</td>
<td>22333TBN</td>
<td></td>
</tr>
<tr>
<td>12 x 3 1/2&quot;</td>
<td>8 Bolt</td>
<td>22333TBN Grease</td>
<td>370219A Oil</td>
</tr>
</tbody>
</table>

#### BRAKE CUP & CONE REPLACEMENT

<table>
<thead>
<tr>
<th>Brake Size</th>
<th>Hub Cup</th>
<th>Cone</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 x 1 1/4&quot;</td>
<td>L-44610 Inner and Outer</td>
<td>L-44649 Inner and Outer</td>
</tr>
<tr>
<td>10 x 2 1/4&quot;</td>
<td>L-68111 Inner and L-44610 Outer</td>
<td>L-68149 Inner and L-44649 Outer</td>
</tr>
<tr>
<td>12 x 2&quot;</td>
<td>25520 Inner and 15245 Outer</td>
<td>25580 Inner and 15123 Outer</td>
</tr>
<tr>
<td>12 x 2&quot;</td>
<td>25520 Inner and 14276 Outer</td>
<td>25580 Inner and 14125A Outer</td>
</tr>
<tr>
<td>12 x 3 1/2&quot;</td>
<td>25520 Inner and 02420 Outer</td>
<td>25580 Inner and 02475 Outer</td>
</tr>
</tbody>
</table>

#### MAGNET REPLACEMENT PARTS

<table>
<thead>
<tr>
<th>Brake Size</th>
<th>Magnet Kit Number</th>
<th>Wire Color</th>
<th>Brake Mgt. Nut Torque (ft-lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 x 1 1/4&quot;</td>
<td>BM07E</td>
<td>White</td>
<td>45-70</td>
</tr>
<tr>
<td>10 x 2 1/4&quot;</td>
<td>BM10E</td>
<td>Green</td>
<td>45-70</td>
</tr>
<tr>
<td>12 x 2&quot;</td>
<td>BM12E</td>
<td>White</td>
<td>25-50</td>
</tr>
<tr>
<td>12 x 3 1/2&quot;</td>
<td>4738-23</td>
<td>Orange</td>
<td>60-90</td>
</tr>
</tbody>
</table>

WARNING

Modifications of the tire & wheel assembly can result in damage to the trailer or personal injury if not used according to the manufacturer’s specifications.

#### BOLT TIGHTENING SEQUENCE

- **5 Hole Pattern**
  - 1
  - 2
  - 3
  - 4
  - 5

- **6 Hole Pattern**
  - 1
  - 2
  - 3
  - 4
  - 5
  - 6

- **8 Hole Pattern**
  - 1
  - 2
  - 3
  - 4
  - 5
  - 6
  - 7

#### REQUIRED WHEEL TORQUES (ft – lbs)

<table>
<thead>
<tr>
<th>Wheel Size</th>
<th>1st Setting</th>
<th>2nd Setting</th>
<th>Final Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-12-13&quot;</td>
<td>20 –25</td>
<td>35 –40</td>
<td>50 –75</td>
</tr>
<tr>
<td>14-15-16&quot;</td>
<td>20 –25</td>
<td>50 –60</td>
<td>90 –120</td>
</tr>
<tr>
<td>16&quot;</td>
<td>20 –25</td>
<td>70 –80</td>
<td>130 –150</td>
</tr>
</tbody>
</table>

#### BRAKE SHOE REPLACEMENT PARTS

<table>
<thead>
<tr>
<th>Brake Size</th>
<th>Single Kit (1 Brake)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 x 1 1/4&quot;</td>
<td>BSL07E</td>
</tr>
<tr>
<td>10 x 2 1/4&quot;</td>
<td>BSL10E</td>
</tr>
<tr>
<td>12 x 2&quot;</td>
<td>BSL12E</td>
</tr>
<tr>
<td>12 x 3 1/2&quot;</td>
<td>right side 4739-3, left side 4739-4</td>
</tr>
</tbody>
</table>

#### MAGNET REPLACEMENT KITS

<table>
<thead>
<tr>
<th>Brake Size</th>
<th>Magnet Kit Number</th>
<th>Wire Color</th>
<th>Brake Mgt. Nut Torque (ft-lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 x 1 1/4&quot;</td>
<td>BM07E</td>
<td>White</td>
<td>45-70</td>
</tr>
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<td>BM10E</td>
<td>Green</td>
<td>45-70</td>
</tr>
<tr>
<td>12 x 2&quot;</td>
<td>BM12E</td>
<td>White</td>
<td>25-50</td>
</tr>
<tr>
<td>12 x 3 1/2&quot;</td>
<td>4738-23</td>
<td>Orange</td>
<td>60-90</td>
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</table>

### BRAKE SHOE REPLACEMENT KITS

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<td>BSL10E</td>
</tr>
<tr>
<td>12 x 2&quot;</td>
<td>BSL12E</td>
</tr>
<tr>
<td>12 x 3 1/2&quot;</td>
<td>right side 4739-3, left side 4739-4</td>
</tr>
</tbody>
</table>

### BEARING REPLACEMENT CUPS & CONES

<table>
<thead>
<tr>
<th>Brake Size</th>
<th>Hub Cup</th>
<th>Cone</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 x 1 1/4&quot;</td>
<td>L-44610 Inner and Outer</td>
<td>L-44649 Inner and Outer</td>
</tr>
<tr>
<td>10 x 2 1/4&quot;</td>
<td>L-68111 Inner and L-44610 Outer</td>
<td>L-68149 Inner and L-44649 Outer</td>
</tr>
<tr>
<td>12 x 2&quot;</td>
<td>25520 Inner and 15245 Outer</td>
<td>25580 Inner and 15123 Outer</td>
</tr>
<tr>
<td>12 x 2&quot;</td>
<td>25520 Inner and 14276 Outer</td>
<td>25580 Inner and 14125A Outer</td>
</tr>
<tr>
<td>12 x 3 1/2&quot;</td>
<td>25520 Inner and 02420 Outer</td>
<td>25580 Inner and 02475 Outer</td>
</tr>
</tbody>
</table>
Quality Trailer Products Locations

Home Office
633 Northwest Pkwy.
Azle, Texas 76020
(817) 444-4518
(800) 243-4883

Alabama
926 Old Grants Mill Rd.
Birmingham, AL 35210
(205) 951-2006
(800) 874-4292
(205) 951-3606 Fax
(800) 655-2944 Fax

Florida
7900 Northwest 60th St.
Miami, FL 33166
(305) 591-7211
(888) 754-1044
(305) 591-2446 Fax
(800) 754-1097 Fax

Florida
519 Duck Rd.
Grandview, MO 64030
(816) 761-3666
(888) 913-8500
(816) 761-3626 Fax
(800) 445-6058 Fax

Missouri
208 7th St. Southwest
Freeport, MN 56331
(320) 836-2550
(888) 325-1485
(320) 836-9550 Fax
(800) 443-2975 Fax

Minnesota
132 S. Harris Dr.
Timmonsville, SC 29161
(843) 346-4827
(800) 238-3903
(843) 346-5851 Fax
(800) 207-4770 Fax

South Carolina
975 Hemlock Rd.
Morgantown, PA 19543
(610) 913-7000
(610) 286-3708 Fax

Texas
921 Industrial Dr.
Royse City, TX 75189
(972) 635-2464
(972) 635-2049 Fax
(800) 334-6355

Axle Division
1012 Industrial Dr.
Royse City, TX 75189
(972) 635-2464
(972) 635-2049 Fax
(800) 334-6355

Century Wheel & Rim Locations

Arizona
2930 West Osborn Rd.
Phoenix, AZ 85017
(602) 271-0031
(888) 999-8233
(602) 271-0148 Fax

California
2888 S. Orange Ave.
Fresno, CA 93725
(559) 237-7467
(800) 742-6203
(559) 237-1913 Fax

California
2101 B Haffley Ave.
National City, CA 91950
(619) 477-1963
(800) 472-2202
(619) 477-4566 Fax

Colorado
3701 Parkway Place
W. Sacramento, CA 95691
(916) 371-6792
(800) 321-6362
(916) 371-0228 Fax

Illinois
132 S. Harris Dr.
Rockdale, IL 60436
(815) 744-6762
(800) 955-8558
(815) 744-6763 Fax

Louisiana
3100 Phillips Way, Suite G
Port Allen, LA 70767
(225) 749-7400
(800) 826-6589
(225) 749-7300 Fax

Pennsylvania
975 Hemlock Rd.
Morgantown, PA 19543
(610) 913-7000
(610) 286-3708 Fax

South Carolina
120 Cedar Spring Rd.
Spartanburg, SC 29302
(864) 573-9313
(800) 459-6400
(864) 593-4365 Fax

Texas
7600 East Sam Houston Pkwy. North
Houston, TX 77049
(281) 459-6444 Fax

Polar Service Centers
Dial 800-955-8558 to reach your nearest Polar Service Center

Illinois
132 S. Harris Dr.
Rockdale, IL 60436
(815) 744-6762
(800) 955-8558
(815) 744-6763 Fax

Pennsylvania
975 Hemlock Rd.
Morgantown, PA 19543
(610) 913-7000
(610) 286-3708 Fax

Quality Trailer Products
Manufacturer and Distributor of Trailer Parts

Century Wheel and Rim
Manufacturer and Distributor of Trailer Parts

Polar Service Centers
Service and Parts for Tank Trailers

Axle Division
Service and Parts for Axle Parts

Map showing locations of Quality Trailer Products and Century Wheel & Rim.