

AXLES AND SUSPENSION

Purpose

To maintain and extend the product life of the Disc Brake and Electric Brake product lines.

Safety

WARNING

Failure to follow the instructions provided in this manual may result in death, serious personal injury, severe product or trailer damage or voiding of the component warranty.

WARNING

The trailer **MUST** be supported per manufacturer's recommendations before working underneath. Failure to do so may result in death, serious personal injury, severe product or trailer damage or voiding of the component warranty.

WARNING

Lift trailer by frame and never the axle or suspension. Do not go under trailer unless it is properly supported by jack stands. Unsupported trailers can fall causing death, serious personal injury, severe product or trailer damage or voiding of component warranty.

WARNING

Proper and accurate torque **MUST** be maintained to prevent wheels from loosening, studs from cracking and/or breaking or other possible hazardous breakage resulting in death, serious personal injury, severe product or trailer damage or voiding of the component warranty.

CAUTION

Always wear eye protection when performing service or maintenance to the trailer. Other safety equipment to consider would be hearing protection, gloves and possibly a full face shield, depending on the nature of the service.

CAUTION

Moving parts can pinch, crush or cut. Keep clear and use caution.

Resources Required:

- Adequate capacity jack stands
- 2 screwdrivers
- Torque wrench
- White grease or anti-seize compound
- Straight edge
- Cotter pin

General Maintenance

Break-In Period For Electric Drum Brakes (Burnishing)

Prior to any adjustments, your trailer brakes should be burnished-in.

The break-in period is a typical phenomenon with drum brakes and especially electric drum brakes. Electric drum brakes will require a break-in period to achieve full performance. This break-in period applies for new axles and any time new brake shoes and/or magnets are installed as part of regular maintenance.

Lippert Components has found through extensive brake testing that the break-in period for drum brakes can range from 20 to 50 brake applications.

Brakes can be seated in by applying approximately 8-10 volts to the trailer brakes at an initial speed of 40 mph and allowing the truck/trailer combination to slow down to 20 or 25 mph. For best results do not use truck brakes during this procedure. The trailer brakes will seat in faster by using them to stop both the truck and trailer. The easiest method is to apply the trailer brakes using the manual activation lever located on the in-cab brake controller. Care must be taken to not overheat the lining material, therefore brake applications conducted at one mile intervals will suffice. The driver should feel a noticeable difference in the brake performance during this period, sometimes in as few as 10 applications. After 50 applications, the brake lining material will be fully cured from the heat and develop close to 100% contact with the brake drum surface.

This break-in period not only seats the shoe lining material, but also seats in the brake magnets. During the break-in period, the linings will wear at a faster rate than they do after they are seated in.

NOTE: Brakes should be manually adjusted after the first 200 miles of operation and periodically thereafter, at approximately 3,000 mile intervals.

Maintenance

1. Visually inspect brakes before each trip.
2. After each hook-up, check trailer brake operation before travel.
3. Follow manufacturer's recommendations for use and replacement of brake fluid.
4. Wash brake assembly immediately after exposure to salt water or other corrosives.

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5. Occasionally check hub and assemblies to see they are within normal operating ranges (130 °F - 175 °F). Brake components may be much hotter than the hub or wheel, use caution during inspection.

NOTE: Refer to Lippert's Trailer Axle Owner's Manual for additional information regarding maintenance schedule, suspensions, bearing repack instructions and wheel torque recommendations.

In the event the braking system encounters symptoms of improper application or failure, immediate inspection and service must be implemented. During normal use, servicing the braking system once a year is considered normal. Increased usage will require service on a regulated schedule based on 3,000-6,000 mile increments. As magnets and shoes become worn, they need to be changed to maintain maximum braking capability.

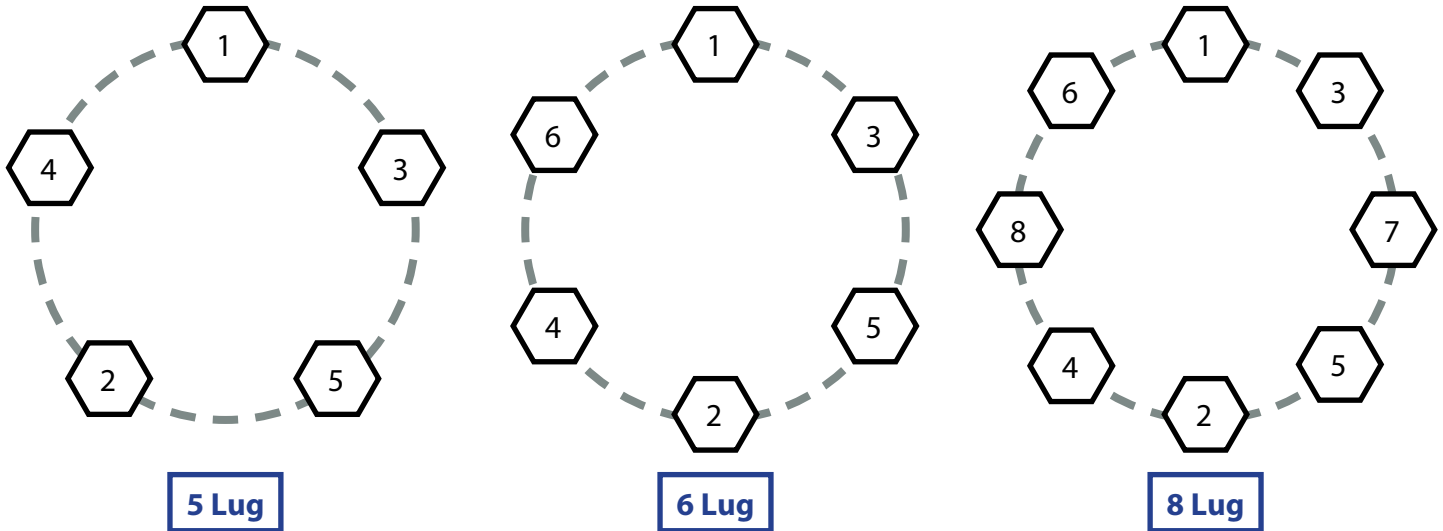
Torque Requirements

It is extremely important to maintain proper wheel mounting torque limits on your trailer axle. Use of torque wrenches will ensure proper torque limits are applied to wheel mounting lug nuts. Use no other method to torque wheel lug nuts.

Make sure wheel fasteners match the cone angle of the wheel (usually 60° to 90°) being serviced. Attach new wheel to the axle hub as follows:

1. Start all bolts or nuts by hand to prevent cross-threading.
2. Continue to hand-tighten wheel lug nuts in the sequential pattern shown in Figure 1.
3. After wheel lug nuts are fully hand-tightened, torque nuts in stages in the sequential pattern shown in Figure 1.
 - A. Torque wheel lug nuts to the the torque values listed in the Wheel Torque Requirement Chart.

Fig. 1



Wheel Torque Requirement Chart

Wheel Size	Stud Size	Torque Sequence		
		1st Stage	2nd Stage	3rd Stage
14"	1/2"	20-25 ft-lbs	50-60 ft-lbs	90-120 ft-lbs
15"	1/2"	20-25 ft-lbs	50-60 ft-lbs	90-120 ft-lbs
16"	1/2"	20-25 ft-lbs	50-60 ft-lbs	90-120 ft-lbs
16.5"	1/2"	20-25 ft-lbs	50-60 ft-lbs	90-120 ft-lbs
14.5" Demount	1/2"	Tighten sequentially to 85-95 ft-lbs		
16"	9/16"	20-25 ft-lbs	60-70 ft-lbs	120-140 ft-lbs
16.5"	9/16"	20-25 ft-lbs	60-70 ft-lbs	120-140 ft-lbs
16" Dual and 17.5" Cone Nut	5/8"	50-60 ft-lbs	100-120 ft-lbs	190-210 ft-lbs
16" Dual and 17.5" Flange Nut	5/8"	50-60 ft-lbs	150-200 ft-lbs	275-325 ft-lbs
17.5" Dual Flange Nut	M22	50-100 ft-lbs	250-300 ft-lbs	450-500 ft-lbs

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4. Wheel lug nuts should be torqued before first road use and after each wheel removal.
 - A. Check and re-torque wheel lug nuts after 10, 25 and 50 miles. A periodic check during regular service is recommended.

Maintenance Schedule

Item	Function Required	Weekly	3 Months or Every 3,000 Miles	6 Months or Every 6,000 Miles	12 Months or Every 36,000 Miles
Brakes	Test that they are operational.	At Every Use			
Brakeaway System	Check battery charge and switch operation.	At Every Use			
Oil Level	Check oil level in hubs, if equipped.	At Every Use			
Brake Adjustment	Adjust to proper operating clearance. Not required for self-adjusting brakes.		◆		
Brake Magnets	Inspect for wear and current draw.				◆
Brake Linings and Pads	Inspect for wear or contamination.				◆
Hub/Drum and Rotors	Inspect for abnormal wear or scoring				◆
Wheel Bearing	Inspect for corrosion or wear. Clean and repack				◆
Seals	Inspect for leakage. Replace if removed.				◆
Springs	Inspect for wear, loss of arch.				◆
Suspension Parts	Inspect for bending, loose fasteners, wear.				◆
U-bolts	Tighten to specified torque values.				◆
Brake Controller	Check for correct amperage and modulation.			◆	

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Item	Function Required	Weekly	3 Months or Every 3,000 Miles	6 Months or Every 6,000 Miles	12 Months or Every 36,000 Miles
Trailer Brake Wiring	Inspect wiring for bare spots, fray, etc.				◆
Hangers	Inspect welds.				◆
Wheel Nuts and Bolts	Tighten to specified torque values.		◆		
Wheels	Inspect for cracks, dents, or distortion.			◆	
Tire Inflation Pressure	Inflated tires to mfg's specifications.	◆			
Tire Condition	Inspect for cuts, wear, bulging, etc.		◆		

8,000 LBS. Disc Brakes with Oil Lubrication Operation & Service

Getting Started - Set-Up and Adjustment

For proper performance, all new axles should have the following checked at the specified intervals:

1. Check tire pressure: Set to manufacturer's recommendations, check weekly, check inflation pressure cold before operation.
2. Check lug nut torque: On first trip, tighten wheel lug nuts at start and at 10, 25 and 50 miles and until no torque loss occurs and full torque is maintained. Check lug nuts thereafter before each trip, after any excessive braking and following winter storage. Be sure to repeat procedure should a wheel ever be removed from the axle hub.
3. Oil level: Before every trip check to see that the oil level is up to the level indicated on the oil cap. A low level can indicate a seal or cap leak.

Bearing Lubrication - Oil

Your axle bearings are lubricated with a SAE 80-90W hypoid gear oil. If applicable, periodically check and refill the hub as necessary to the level indicated on the clear plastic oil cap. The oil can be filled through the cap by removing the rubber plug. In order to check oil level, do so after trailer has been parked for a few minutes.

Recommended Oil Lube For Axle Bearings:

Oil designations: SAE 90, SAE 80W-90, SAE 75W-90

Oil Cap and Oil Seal

The clear plastic oil cap should be tightened to 25 ft-lbs. Over-tightening can damage the sealing o-ring and cause an oil leak.