



SURE TRAC, INC.

AXLE MAINTENANCE MANUAL

2,000-7,000 LB. AXLES

INTRODUCTION

We would like to thank you for purchasing Sure Trac axles, components, or a trailer with our products already installed. As we work to provide consistent quality, production, and service, we promise not to allow corporate growth to overshadow the importance of the relationships that we have with our customers, employees and the owners.

This manual was published to provide general guidelines to help you properly operate, maintain, and service your trailer running gear. Sure Trac running gear consist of spindles, hubs, beams, springs, drums, brakes, and wheels which are combined to provide towing and braking ability that equals or surpasses industry standards.



... Please read this manual carefully to ensure years of trouble free service from your Sure Trac components. ...



TABLE OF CONTENTS

For Your Safety	4
Instructions For First Use	5
Brake Testing & Maintenance	6
Brake Adjustment	7
Brake Troubleshooting	8-11
Hub, Bearing Maintenance	12-13
Wheel & Tire Maintenance	14-15
Maintenance Schedule	16
Warranty	17-18

For your safety...

It is very important that you properly maintain, inspect, and service your running gear. Proper maintenance and repairs should be made periodically to ensure the safe and dependable use of your running gear. This manual provides general information as to the inspection, testing, and maintenance of our products.

As with most new equipment, your running gear should be checked initially and at specified intervals. The following should be checked at the intervals noted:

1. Wheel nuts should be torqued at 10, 25, and 50 miles.
2. Tire pressure should be checked according to the requirements of the manufacturer.
3. Brake controller should be installed and set according to the guidelines of the manufacturer.
4. Brakes should be properly adjusted at 200 miles and every 3000 miles.

Caution: Do not allow loads to exceed weight capacity of axles. This is very dangerous and will cause the axles to fail. Warranties do not cover damages caused by loads that exceed weight capacity.

INSTRUCTIONS FOR FIRST USE

If your Sure Trac axles have brakes, please keep in mind that they are manufactured to work with your tow vehicle brakes and are not designed to stop a combined load by themselves.

The tow vehicle must be equipped with an electric brake controller. Electric brake controllers supply a source of power to the brake magnets to actuate the trailer brakes. You must make sure that the brake controller provides at least 2 volts when first actuated. The voltage should gradually increase to 12 volts as more pressure is applied.

In order for your brakes to work properly, they must be properly synchronized with the vehicle that is towing your trailer. Please refer to the controller manufacturers recommendations for the initial synchronization. You most likely will be required to test the brakes and make adjustments to ensure correct synchronization.

The brakes should be broken-in before any adjustments are made. This is done by applying the brakes 15 to 25 times and slowing the vehicle down by 20 m.p.h. For example, slowing the vehicle from 45 m.p.h. to 25 m.p.h. You should allow the brakes to cool down between each application. This breaking-in of the brakes will make the magnets and brake shoes seat to the drum surfaces. This should be done while the trailer is empty.

The brakes must also be wired using the appropriate size wire in order for them to work properly. The following chart will serve as a guideline.

Less than 30' (axle to hitch)	2 to 4 axles	12 AWG
30' to 50' (axle to hitch)	4 axles	10 AWG
Less than 30' (axle to hitch)	6 axles	10 AWG
30' to 50' (axle to hitch)	6 axles	8 AWG

Brake Testing

After you have “broken-in” your new brake axles, you should test the brakes to ensure that they are working properly. It is very important that the tow vehicle brakes and the axle brakes are properly synchronized. **You should refer to the brake controller manufacturers recommendations and owners manual before attempting to synchronize the brakes.**

When testing the brakes, make sure that you have an area that is sufficient for testing and is clear of other vehicles and pedestrians. The testing area should be a clean, dry, paved surface. Test the actual performance of the brakes by attempting to make several sudden stops from a 20 m.p.h. to 25 m.p.h. speed. The brake controller should be set so that the brake axles are just before locking up and sliding the wheels. The gain setting on your controller should be decreased if the wheels lock up and increased if they do not attempt to lock or slide. The trailer brakes should come on slightly ahead of the tow vehicle brakes when they are properly synchronized. This should be done while the trailer is empty.

Brake Maintenance

You should periodically inspect and service your trailer brakes. This should be done at least annually and more frequently as brakes age and if usage increases. The backing plate, brake shoes, magnet, and magnet arm should all be cleaned. The brake drum should be inspected for any uneven wear. Any damaged or worn parts should be replaced.

Brake Adjustment

It is very important that your brakes be properly adjusted after the first 200 miles of usage and every 3,000 miles thereafter. The brakes may also need to be adjusted at other times if a loss of performance is noticed. The procedure for adjusting brakes is as follows:

1. The trailer should be jacked up and secured. The wheel should be spinning freely. Do not locate jack at the center of the axle.
2. The adjusting hole cover should be removed from the backing plate. You should then use a screwdriver or adjusting tool to turn the adjuster mechanism, forcing the brake shoes to expand. This should be done until the wheel is very hard to turn.
3. You should then turn the adjuster mechanism in the opposite direction, loosening the brake shoes until the wheel turns easily with the linings offering only slight resistance.
4. The adjusting hole cover should be re-installed. This procedure should be repeated for all brakes on your trailer.

Brake Troubleshooting Guide

Most of the brake problems or failures occur because of improperly adjusted brakes, improper synchronization or because of electrical system problems. Other problems are a result of damaged, loose, or worn parts. Electrical system problems can usually be found with the proper use of voltmeters and ammeters. The following guide will provide help with most common problems, but if you are unable to fix a problem, contact a professional repair facility.

Problem	Possible Causes	Solution
No Brakes	Short Circuits	Find & Correct
	Out of adjustment	Adjust
	Open Circuits	Find & Correct
	Bad Controller	Correct or Replace
Locking Brakes	Drums Out of Round	Replace
	Bad Controller	Correct or Replace
	Out of adjustment	Adjust
	Bad Synchronization	Correct
	Broken Brake Parts	Replace Parts
	Bad Wheel Load	Adjust Resistor/ Synchronize
Intermittent Brakes	Loose Connections	Find & Repair
	Broken Wires	Replace or Repair
	Bad Controller	Correct or Replace
	Bad Ground	Find & Repair

Brake Troubleshooting Guide (cont.)

Problem	Possible Causes	Solution
Weak Brakes	Out of Adjustment	Adjust
	Connections Corroded	Clean/Correct Source of Corrosion
	Dirt, Oil, Grease on Magnets or Linings	Clean or Replace
	Bad Synchronization	Correct
	Glazed Linings	Replace or Repair
	Trailer Overload	Reduce Load
	Scored Drums	Replace or Repair
	Faulty Linings/Magnets	Replace
Brakes Drag	Drums Out of Round	Replace
	Broken Brake Parts	Replace
	Spindles Bent	Replace Entire Axle
	Out of Adjustment	Adjust
	Wrong Brake Parts	Replace with Correct Parts
	Bad Breakaway Switch	Correct or Replace
	Loose Wheel Bearing Adjustment	Adjust
Brakes Pull Left/Right	Out of Adjustment	Adjust
	Dirt, Oil, Grease on Magnets or Linings	Clean or Replace
	Connections Bad	Repair
	Wires Damaged	Repair
	Magnet Lead Wire Wrong	Correct

Brake Troubleshooting Guide (cont.)

Problem	Possible Causes	Solution
Brakes Harsh	Bad Synchronization	Correct
	Out of Adjustment	Adjust
	Improper or Faulty Controller	Correct
Brakes Surge	Drums Out of Round or Broken	Replace
	Bad Controller	Correct or Replace
	Dirt, Oil, Grease on Magnets or Linings	Clean or Replace
Noisy Brakes	Broken or Incorrect Brake Parts	Replace Parts
	Out of Adjustment	Adjust
	Not Enough Lubrication	Lubricate

Finding Electrical Problems

Electrical problems are a very common cause of poor brake performance. Common electrical problems are bad electrical connections, damaged or broken wires, improper wire size, circuits that are open, blown fuses (if applicable), controller problems, and shorted circuits. As stated earlier, you can use a voltmeter and ammeter to check for proper voltage and amperage. We have provided an overview on how to use this equipment to test your electrical system.

Finding Electrical Problems (cont.)

A voltmeter should be used to test the system voltage. You can do this by checking the voltage at the magnet lead wires. Make sure that the tow vehicle's engine is running. The system voltage should begin at 0 and increase to 12 volts as the controller is actuated.

An ammeter should be used to test the system amperage. You can do this by disconnecting the blue wire at the controller and connecting the ammeter in series into the line. Make sure that the tow vehicle's engine is running. System amperage should be as follows:

Magnet Ohms	Amps/Magnet	Two Brakes	Four Brakes	Six Brakes
3.2	3.0	6.0	12.0	18.0

You can check individual magnet amperage by connecting the ammeter in series into the line at the magnet in question. In order to do this, you should disconnect one of the magnet lead wire connectors and connect the ammeter to the two disconnected wires. If your brake system has resistors, they must be by-passed or set at zero in order for you to obtain proper readings.

Hub, Bearing Maintenance

In order to inspect or make repairs to the bearings, hub or brake components, you will be required to remove the hub. The following is a guide to help with the removal of the hub and the internal components.

1. The trailer should be jacked up and secured.
2. Remove the wheel and grease cap.
3. Remove the cotter pin if your axle is equipped with the standard spindle or straighten the lock tang if your axle is equipped with a grease fitting. The spindle nut can then be removed.
4. After removing the spindle nut, you can then slide the hub off of the spindle.

Once the hub is removed, the outer bearing will easily slide out. To remove the inner bearing you will need to remove the seal with a screw driver. The seal should be replaced when it is removed and the hub should be cleaned of old grease.

Caution: When reinstalling hub equipped with grease fitting, we recommend replacing lock tang washer. The washer may become weak and break due to bending.

Inspecting, Lubricating Bearings

After removing bearings, they should be thoroughly cleaned with a solvent. They should then be dried with a clean, lint-free cloth and inspected for any obvious defects, scarring or corrosion. If any defects are detected, then the items should be replaced. You should also inspect the bearing cup or race and replace if necessary.

Hub, Bearing Maintenance (cont.)

Bearings should be lubricated every 6 months or 12,000 miles. The correct method of lubricating bearings depends on whether your axle's spindles have the optional grease fittings or not. Refer to Method 1 if your axle does not have the grease fittings and Method 2 if your axle does have grease fittings.

Method 1 (No Grease Fitting)

1. Remove hub, bearings and seal.
2. Place grease into your hand.
3. Force the grease into the interior of the bearing by pressing the wide end of the bearing into the edge of the grease.
4. Repeat this process as you rotate the rollers, ensuring that all of the rollers are covered and the interior of the bearing is full of grease.

Method 2 (Grease Fitting)

1. Remove rubber plug from end of grease cap. This gives you access to the grease fitting.
2. Use a standard grease gun to pump grease into spindle until you notice new, clean grease coming out from around bearings. Turn the hub while doing this.
3. When this process is complete, clean any excess grease and place the rubber plug back into the grease cap.

You should note that, even if your axle has the convenient grease fittings, you should still periodically remove the hub and inspect bearings, seal and brake components for damage.

When lubricating bearings you should use a grease with the following specifications.

Dropping Point	215°C / 419° Minimum
Thickener Type	Lithium Complex
Additives	EP, Corrosion & Oxidation Inhibitors
Consistency	NLGI No. 2
Viscosity Index	80 Minimum

Wheel and Tire Maintenance

Your wheels and tires also require proper maintenance and inspection. It is important that your axle, wheels, and tires are properly maintained and that they are properly matched. Carefully consider the following information about replacement, maintenance and inspection of your wheels and tires.

Tires

Make sure that your tires are properly inflated and that you maintain proper inflation according to the manufacturers recommendations. When replacing tires, make sure that the rim contour and size are correct for the replacement tire. You should also make sure that the carrying capacity of your tire is sufficient for your load.

Wheels

When replacing wheels you should be careful to consider the correct bolt pattern, load capacity, and pressure rating, wheel offset, and rim contour of the replacement wheel. Failure to use correct wheels can result in wheel, axle, or tire failure.

It is also very important that you maintain proper wheel nut torque. Wheel nut torque refers to how much you should tighten the nuts that hold your wheels to the axles. To properly torque the wheel nuts, you must tighten the nuts in a specific order and in stages. To properly torque wheel nuts you should use a torque wrench. The following chart and diagram on the next page will help you accomplish this.

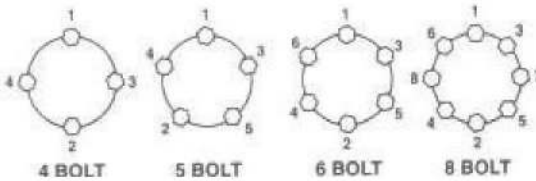
You should also inspect the wheel nuts and wheel studs for any damage or stripping. In order for proper wheel torque, wheel nuts and studs should be free of grease.

Wheel and Tire Maintenance (cont.)

Correct Wheel Torque

Wheel Size	Stage 1(lbs-ft)	Stage 2(lbs-ft)	Stage 3(lbs-ft)
12"	20-25	35-40	50-75
13"	20-25	35-40	50-75
14"	20-25	50-60	90-120
15"	20-25	50-60	90-120
16"	20-25	50-60	90-120

Correct Sequence



Maintenance Schedule

Things to do @ **EACH USE**

1. Check Brakes
2. Check Break-away System

Things to do **WEEKLY**

1. Check Tire Pressure

Things to do @ **3 MONTHS or 3000 MILES**

1. Check and Adjust Brakes
2. Check and Torque Wheel Nuts
3. Check Tire Condition

Things to do @ **6 MONTHS OR 6000 MILES**

1. Check Brakes for Wear or Damage
2. Check Brake Controller Operation
3. Check Springs and Suspension Parts for Damage or Wear
4. Check Wheels for Damage

Things to do @ **12 MONTHS OR 12000 MILES**

1. Check Brake Linings for Wear or Damage
2. Check Brake Wiring for Damage
3. Check Hubs for Damage or Wear
4. Check Bearings for Wear or Damage; Clean and Repack

Sure Trac, Inc Limited Warranty

One Year Limited Warranty

Sure Trac, Inc. warrants that its' axles, wheels, and suspension systems will be free from defects in material and workmanship for a period of one year from the date of first sale of the trailer in which our components are installed. This warranty applies to the original purchaser only and is in no way transferable.

Exclusive Remedy

If the original purchaser has a defective component, Sure Trac, Inc. retains the right to (1) replace or repair the defective part (2) replace or repair the entire axle, or (3) refund the then-current price of the axle. Reasonable time must be given for warranty repairs and any allowances for installation must be pre-approved by Sure Trac, Inc.

Warranty Claims

In order to make a warranty claim, you must be the original purchaser of the trailer and you must notify us within the one year period. You must also provide us with any necessary information that we request.

Sure Trac, Inc. Limited Warranty (cont.)

EXCLUSIONS

The Sure Trac, Inc. warranty does not cover damages caused by or does not extend to any of the following:

- Corrosion
- Normal wear and tear
- Cosmetic finish
- Improper installation
- Improper alignment
- Trailer and tow vehicle brake wiring connections
- Running gear frame attachment
- Unreasonable use or failure to properly maintain
- Imbalance of hubs
- Any parts not provided by Sure Trac, Inc.
- Any damage related to or caused by alteration of axle
- Improper wheel nut torque
- Use of an axle on any equipment other than the equipment on which it was originally installed.
- Weights exceeding capacity

The foregoing warranty is limited to repair, replacement, or refund of verified defective products and excludes any and all implied warranty of merchantability. This warranty also excludes any incidental and consequential damages. There are no warranties which extend beyond those specified.

Maintenance Record

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Sure Trac, Inc.
635 Hwy 9 By-pass West
Loris, SC 29569

Sure Trac of Texas, Inc.
1037 Industrial Drive
Hewitt, TX 76643