ROGERS WILLEX

**INSTALLATION & MAINTENANCE GUIDE**

## 50 Series Suspensions

Shackle bolts and rocker pivot bolts fitted with Nyloc type nuts must be tightened firmly allowing for rotational movement of bushed components. All suspensions are supplied with the axle saddles supplied loose for fitment between the axle & springs.

The axle saddles comprise a piece of flat rectangular steel with a single hole in the centre. Tighten the U-bolts to the correct torque (recommended 105Nm (77ft.lbs.) for 16mm) after axles are fitted.

Once properly aligned weld axle saddles to axle using welding practice as below.

## 75 Series & 75 Series Radius Rod

Shackle bolts fitted with Nyloc type nuts must be tightened firmly allowing for rotational movement of bushed components. Tandem & tri axle suspensions comprise equaliser rockers fitted with large polyurethane bushes with a steel inner. The bushes rely on the shear strength of the polyurethane for operation. Hence, the rocker bolt & nut MUST be tightened fully with the rocker set in the horizontal position (recommended 395- 410Nm (290-300ft.lbs.)). All suspensions are supplied with the axle saddles supplied loose for fitment between the axle & springs.

The axle saddles comprise a piece of flat square steel with a single hole in the centre. Tighten the U-bolts to the correct torque (recommended 105Nm (77ft.lbs.) for 16mm & 205Nm (150ft.lbs.) for 20mm U-bolts) after axles are fitted. Once properly aligned weld axle saddles to axle using welding practice as below.

## TA Series Airbag Suspensions

Shock absorber bolts fitted with Nyloc type nuts must be tightened firmly allowing for rotational movement of bushed components. Airbag arms are fitted with large polyurethane bushes with a steel inner. The bushes rely on the shear strength of the polyurethane for operation. Hence, the bolt & nut MUST be tightened fully (recommended 395- 410Nm (290-300ft.lbs.)).

## Axles

Once the suspension is fitted to the trailer chassis, rest the axle/s on top of the springs and place the axle saddles between the axle and springs, with the hole over the spring centre bolt. When fitting axles ensure camshaft rotation direction follows wheel rotation direction. Fit the U-bolts and nip-up the U-bolts nuts such that the axle is held firmly in position, though being able to be moved with the tap of a hammer. Ensure flat washers are fitted between plate & nuts.

For overslung suspension (axle underneath the spring) arrangements ensure that the spring centre bolt is fitted with the bolt head to the underside of the spring. Hold the axle loosely in position under the springs with the U-bolts assemblies. Place the axle saddles in gap between the axle & springs with the axle saddle hole placed over the spring centre bolt and nip-up the U-bolts as above.

Please note that overslung configurations reduce the capacity of the spring and an extra leaf may need to be added to the spring pack.



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Align the axle perpendicular and equally spaced either side of the chassis centre by tapping in place with a hammer. Once aligned, weld the axle saddles longitudinally both sides with full penetration 10mm fillet welds using low hydrogen electrodes or automatic welding processes. This process is necessary to prevent the axle assembly from rotating as a result of applied brake torque. Hence, good quality welds produced by sound welding practices are essential.

Tighten the U-bolts to the correct torque as per above suspension details.

**Spring brake& boosters Installation**

The brake actuator/spring brake rods must be trimmed on assembly such to ensure that at mid stroke with the yoke fitted to the appropriate slack adjuster position, the rod is perpendicular to the slack adjuster arm.

Ensure that the emergency release tool is fitted to the spring brakes and that the spring is wound back prior to trimming the rod length, otherwise the rod may be too short. Refer below for further details. A ¾" AF spanner must be located in an inconspicuous position forward of the leading axle to suit the spring brake emergency release tool nut. A combination ring/open end spanner attached to the inside chassis member via a bolt & wing nut to the ring end will suffice.

To install spring brakes correctly remove spring brake tool as shown in figure 1.

Remove dust plug (if fitted) from bottom of spring brake to reveal T slot as per figure 2.

Insert spring brake tool into rear of spring brake and rotate at 90° so tool cannot be pulled out.

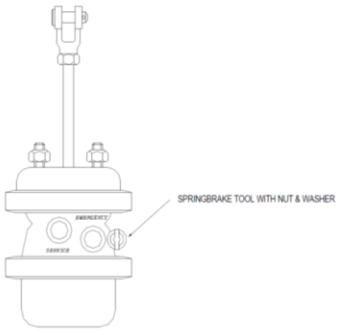


FIGURE 1

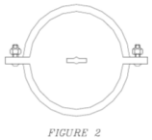

FIGURE 2

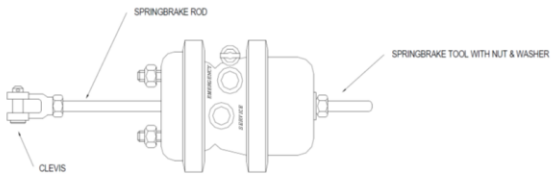


FIGURE 3

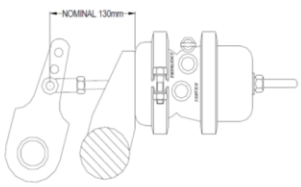


FIGURE 4



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Replace washer and nut onto spring brake tool and tighten until the nut can be tightened no more

As per figure 3. Trim the spring brake rod to length to ensure when at mid stroke with the clevis fitted the spring brake rod is perpendicular to the slack adjuster as per Figure 4.

Once rod is cut retain the spring brake release tool in place for fitting the axle assembly and brake adjustment.

After assembly and adjustment remove the spring brake tool from the rear of the spring brake and replace to original position in socket on side of housing.

When installing the air booster cut the rod as per above, no spring brake tool is required for or fitted to boosters.

## PERIODIC INSPECTION, MAINTENANCE & REPAIR

### SAFETY FIRST

To ensure safe operation and optimum component life, the following is recommended:

- Match all running gear components: i.e. axles, wheels, tyres, brakes & suspensions must ALL be rated for the specified load.
- Do not overload axle assembles, wheels or tyres.
- Ensure wheel nut taper and wheel nut countersink match. Incorrect wheel nut seating may result in wheel failure or broken axle components.
- Wheel Nuts must be tightened to correct torque (recommended 147Nm (108ft.lbs.) for 1/2 UNF wheel studs and recommended 395-410Nm (290-300ft.lbs.) for 7/8 BSF wheel studs).
- Wheel nut torque to be checked after the first 160km of operation, re-checked thereafter every 5000km or 6 months (whichever occurs first).
- Care must be taken to ensure equal side to side loading of axle assemblies.

It is recommended that maximum speed & payload, correct tyre inflation pressure, wheel nut torque & bearing maintenance information be displayed along with other safety information in a conspicuous place on the completed trailer.

### BEARINGS

Proper maintenance of tapered roller bearings results in optimum bearing life. Bearings should be removed & repacked in grease every 6 months or 10,000 km whichever occurs first.

### BEARING REMOVAL

- Remove wheel & tyre.
- Remove grease cap & split pin.
- Loosen adjusting nut and remove from axle.
- Pull the hub assembly and remove it from the axle spindle.
- Knock out inner bearing cone & grease seal.



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## BEARING INSPECTION

- Inspect existing grease for dust & grime. If dust is evident, the seal must be replaced.
- Clean existing grease from bearing.
- Inspect bearings for wear and cup scouring. Ensure roller cage on bearing cone is intact. Replace bearing if necessary.

**NOTE:** When replacing bearings, replace both cup & cone.

## BEARING LUBRICATION

Pack bearing cones with grease and install into wheel hub. Inner bearing cone is held in place with grease seal.

Repack bearings with grease every 6 months or 10,000 km whichever occurs first. **RECOMMENDED GREASE**- FUCHS RENOLIT LX2 or equivalent

## HUB FITTING &ADJUSTMENT

- Ensure the washer is fitted between the adjusting nut and the outer bearing cone.
- Tighten the adjusting nut while rotating the wheel hub in the opposite direction to the nut rotation until there is a slight bind (approx. 170 Nm (125ft.lbs.) torque) to be sure that all bearing surfaces are in contact.
- Then, back off the adjusting nut 1/16 to 1/4 turn to the nearest locking slot or sufficiently to allow the hub to rotate freely within the limits on .025mm (0.001 ) to .25mm (.010 ) end play.
- Lock adjusting nut into position with new split pin.

**WARNING**: Failure to back off adjusting nut will cause bearings to run hot and be damaged. Wheel may lock or come off during operation.

## WHEEL NUTS

Wheel nuts play an important role in the safety of any vehicle, as they secure the wheel in position. For wheel nuts to function properly; the taper on the nut must match the countersink in the wheel, the taper on both the nut and wheel must not be damaged, and the seating force of the nut must be sufficient to hold the nut in place.

- Inspect wheel nut taper and wheel counters ink for damage every 5000km or 6 months, whichever occurs first. If wheel mounting holes become elongated, this may be the result of mismatched wheel & nut tapers and/or incorrect wheel nut torque.
- Wheel Nuts must be tightened to correct torque (recommended 147Nm (108ft.lbs.) for 1/2 UNF wheel studs and recommended 395-410Nm (290-300ft.lbs.) for 7/8 BSF wheel studs).
- Wheel nut torque to be checked after the first 160km of operation, re-checked thereafter every 5000km or 6 months (whichever occurs first).

## BRAKES

Ensure all brake components are in good repair at all times. Brake performance relies upon proper lining material and thickness. Hence, use only genuine replacement parts.



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Trailermaster 'S' cam foundation brakes comprise fixed upper pivots with removable roller type cam followers. Worm gear type camshaft slack adjusters are fitted to air operated actuators. Failure to maintain brake components and adjustment may result in loss of brake efficiency and possible dislodgment of roller cam followers.

Check brake shoes/linings & drums for wear or damage every 10,000 km or 6 months whichever occurs first.

Replace worn or damaged components if necessary.

Adjustment Procedure: (Must be performed on flat, level ground)

If adjusting brakes with spring brakes fitted, insert the spring brake release tool, washer & nut (as per spring brake & boosters Installation in this manual) and wind back the spring to release the park brakes.

**WARNING:** Only release park brakes from one wheel at a time.

1. Raise wheel that is to have brake adjusted, off the ground.
2. Use 9/16" spanner, depress locking collar and rotate adjuster screw on slack adjuster so that
1. The rod inside the booster is pulled in towards the booster until the wheel can no longer rotate.
2. Back off adjuster screw on the slack adjuster until wheel rotates freely (approx. 1/4 turn).
3. Lower wheel back to the ground.
4. For brakes fitted with spring brakes, remove release tool from the back of the spring brake T slot to apply park brake and secure release tool in place on spring brake housing.

Repeat procedure to all remaining unadjusted wheels.

## SUSPENSION

To ensure trailer stability and safety, regular maintenance of suspension components is essential Check spring eye and rocker (if fitted) bushes and pins for wear or damage every 10000 km or 6 months whichever occurs first.

Failure to maintain suspension bushes and shackle pins will result in elongation of spring hanger mounting holes resulting in premature/increased maintenance costs.

U-bolts must be checked for tightness (recommended 105Nm (77ft.lbs.) for 16mm & 205Nm (150ft.lbs.) for 20mm U-bolts) after the first 1000km of operation and periodically thereafter every 10000km or 6 months whichever occurs first.

**LOOSE U-BOLTS MAY RESULT IN BROKEN SPRING LEAVES.**



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