

INSTALLATION INSTRUCTION AND SERVICE MANUAL

Actuator/Trailer Dealer - Please provide these instructions to the consumer.
Consumer - Read and follow these instructions. Keep them with the trailer for future reference.

TITAN 8½" x 2¼" BRAKES

FREE BACKING



INSTALLATION INSTRUCTIONS

1. Brake Mounting Flange

To assure correct brake action, the mounting flange must be square and concentric with the axle spindle. A flange that is not properly installed will contribute to rapid lining wear and improper brake action.

Use a flange welding fixture to properly position the flange for welding. Bolt the flange to the welding fixture securely with all bolts.

Install the fixture (and flange) onto the spindle and tighten spindle nut. If flange is being installed on a round axle, be certain the two top holes are horizontal when the axle is installed.

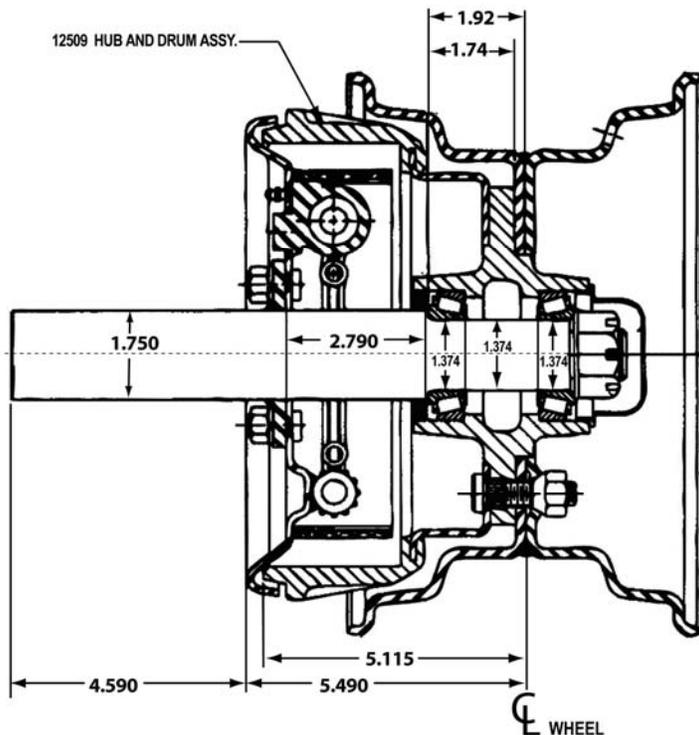
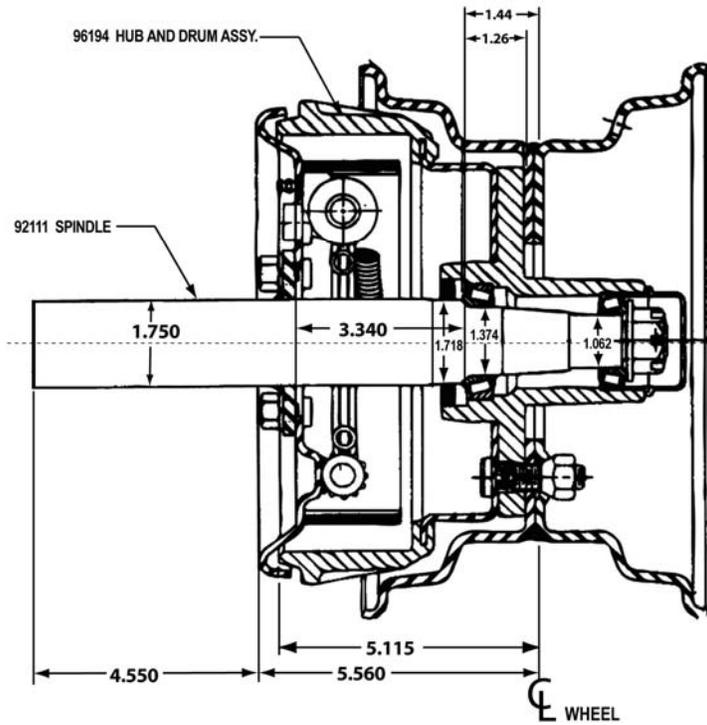
It is best not to make a continuous weld around the flange. First, tack weld on all four sides between the bolts. Follow this with a full weld up each side of the axle. It is usually not advisable or necessary to weld across the top and bottom of the axle. The bottom of the axle is its most highly stressed area and a weld at this point will weaken the axle. Allow the axle, spindle and flange to cool before removing welding fixture.



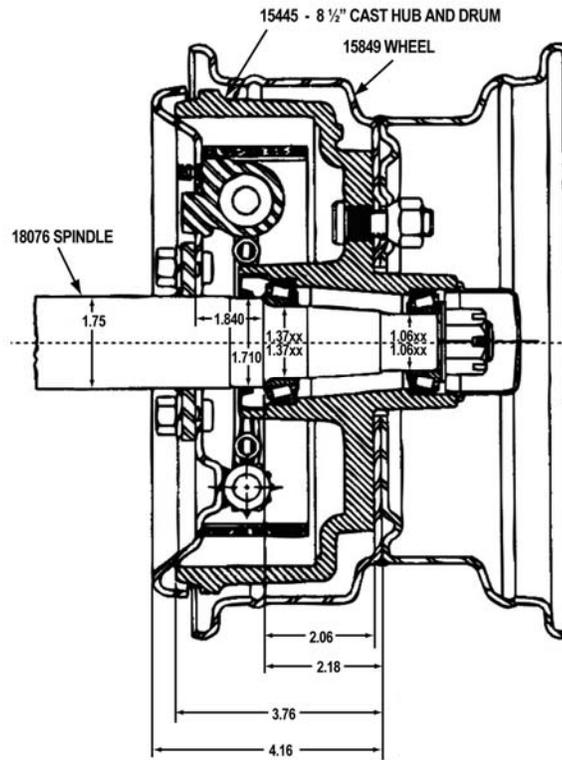
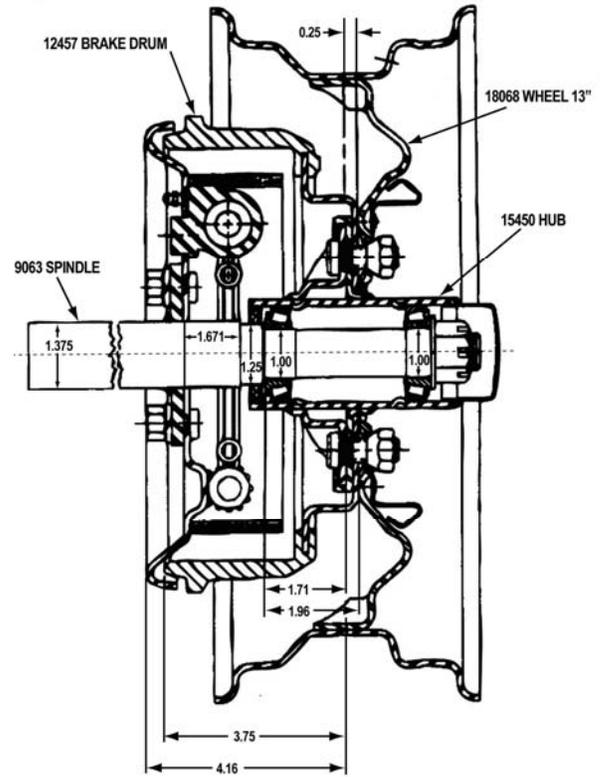
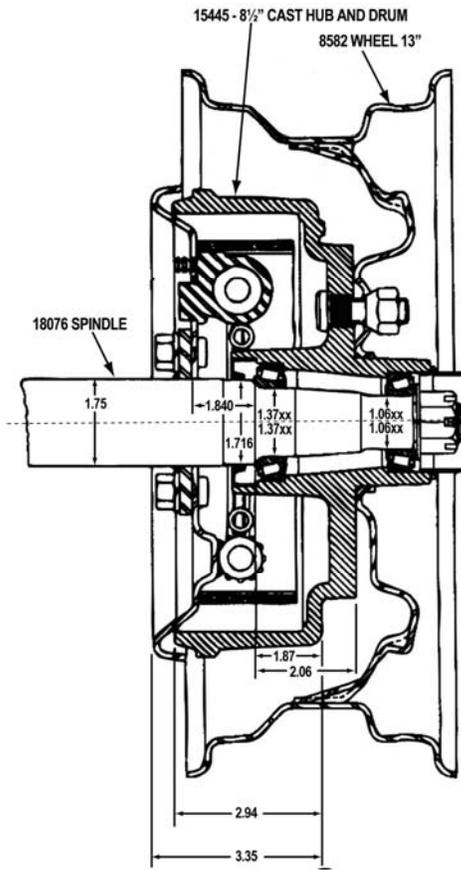
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INSTALLATION (cont.)

The drawings below are of a typical installation. The actual installation will depend on the spindle, hub and wheel used.



INSTALLATION (cont.)



INSTALLATION (cont.)

2. Installing Brakes

Place the brake against spindle flange. Mounting bolts are supplied with the brake. Nuts and lock washers are provided. In mounting the brake, be sure the hydraulic wheel cylinder is at the top.

Brakes are also marked as "RIGHTS" and "LEFTS". The brake designated as "LEFT" travels on the drivers side of the road.

3. Installing Brake Drum

When the brakes have been correctly assembled to the axle flanges, the hub and drum assemblies may be mounted on the axle spindle.

Pack the inside bearing with suitable wheel bearing grease. Force grease through and around the rollers. Place the bearing in the hub and install the grease seal flush with the end of the hub using an arbor press or soft mallet. Remove excess grease.

To avoid injury to bearing seal, lubricate seal seat prior to putting on the brake drum. Grease, pack, and install the outer bearing on spindle. Place flat washer and spindle nut on spindle. Turn drum as you tighten nut. When a pronounced drag is felt in the bearings, back off nut one complete slot and install cotter pin and dust cap.

⚠ WARNING ⚠

DO NOT pack hub full of grease. Excessive grease may leak into brake drums causing brake failure.

Wheel may now be mounted on the trailer.

4. Adjusting Brakes

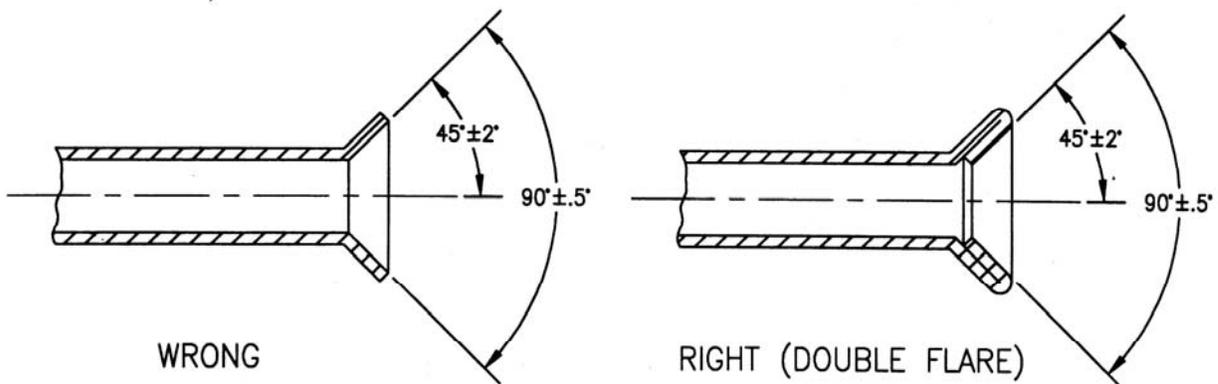
Before removing the jacks, adjust the brakes. TITAN "Surg-O-Matic" trailer brakes incorporate a patented "Back up" feature that makes it necessary to rotate the wheels in the direction of forward rotation only when making adjustments.

The brake shoe adjustment nuts are located behind the two slots at the bottom of the backplate. Tighten one of the nuts until you cannot rotate the wheel by hand. Then back off the adjustment 10 to 12 notches or until you can just start to feel the shoe drag when rotating the wheel forward. Repeat the process on the other side.

ALWAYS ROTATE DRUM IN DIRECTION OF FORWARD ROTATION ONLY.

5. Hydraulic Lines

Before Use care in forming tubing to avoid sharp bends or kinks. Double flare steel tubing to assure tight leak proof connections. Anchor all hydraulic lines at two foot intervals to prevent chafing and vibration. Use hydraulic rubber hose at points of flexing. Anchor hose ends to avoid stress on tubing



INSTALLATION (cont.)

6. Bleeding the System

The first requisite for safe, sure hydraulic braking is the use of quality brake fluid. Use only DOT-3 or DOT-4 heavy duty fluid. If pressure bleeding equipment is available, follow the manufacturer's instruction in bleeding the system.

⚠ WARNING ⚠

Use only fresh brake fluid from a sealed container. DO NOT reuse fluid. After filling and bleeding, remember to refill the actuator. Failure to maintain an adequate fluid level may cause brake failure.

If system must be bled manually, proceed as follows: Fill master cylinder with fluid. Install bleeder hose on first wheel cylinder to be bled, (if tandem axle trailer, bleed rear axle first). Have loose end of hose submerged in brake fluid in glass container to observe bubbling.

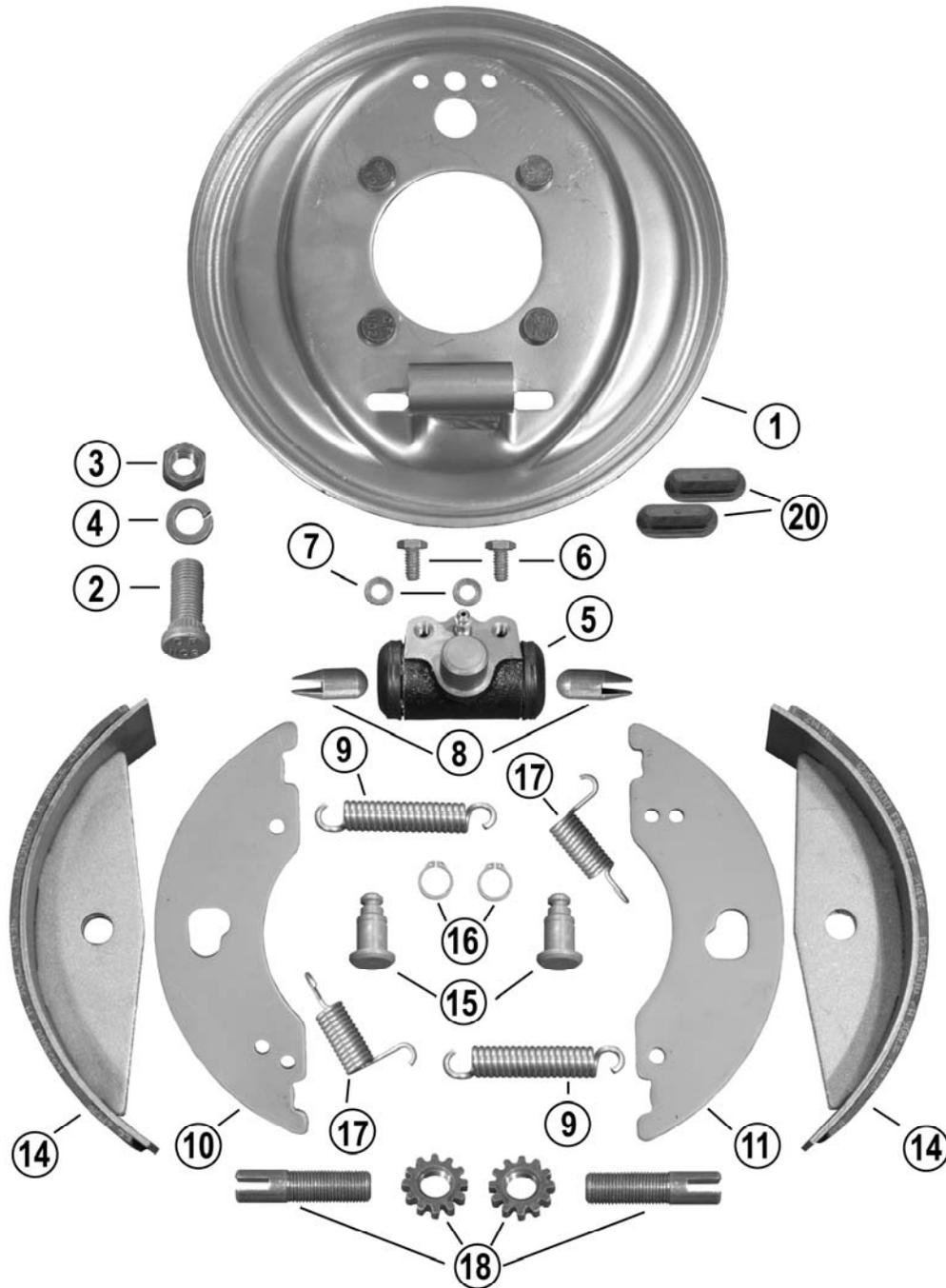
By loosening the bleeder screw located on the wheel cylinder one turn, the system is open to the atmosphere through the passage drilled in the screw. Pump the actuator with long steady strokes. Close the bleeder screw after each stroke to prevent air from being pulled back into the brake system. The bleeding operation is complete when air bubbles no longer appear.

Repeat bleeding operation at each wheel cylinder. During the bleeding process, replenish the brake fluid, so the level does not fall below the 1/2 full level in the master cylinder reservoir. After bleeding is completed, make sure master cylinder is filled to 3/8 inch below the top of the reservoir, and filler cap 'securely in place.

⚠ WARNING ⚠

Saltwater, granular fertilizers and other corrosive materials are destructive to metal. To prolong the life of a braking system used under corrosive conditions, we recommend that the actuator be flushed periodically with a high pressure water hose. Be sure to re-grease bearings and oil all moving parts after the unit has dried. At the end of the season, when the unit is to be stored, remove the brake drums and clean inside the brakes. Pack wheel bearings before drum is installed.

8 1/2" x 2 1/4" Free Backing Brake Diagram



8 1/2" BRAKE PARTS LIST

Ref. No.	Part Number	Description	Quantity
	4442000	Complete Brake - Right Hand	
	4442100	Complete Brake - Left Hand	
1	4464401410	Backplate	1
2	4743300	Stud bolt, 7/16 - 20 X 5/8" long	4
3	4440000	Hex nut, 7/16 - 20	4
4	4439600	Lockwasher, 7/16 - 20	4
5	0681700	Wheel cylinder	1
6	4465400	Bolt, 1/4 - 20 X 1/2" long	2
7	4465500	Lockwasher, 1/4"	2
8	4465300	Push rod	2
9	4465600	Spring, lever	2
*	4464600	Rear Brake Shoe/Lever Assembly	
*10	4464800317	Shoe Lever, rear, free backing	1
*14	1235900	8.5" Freebacking Brake Shoe	1
*15	1256000184	Anchor pin	1
*16	777801184	Retaining ring	1
**	4464700	Front Brake Shoe/Lever Assembly	
**11	4464900317	Shoe Lever, front, free backing	1
**14	1235900	8.5" Freebacking Brake Shoe	1
**15	1256000184	Anchor pin	1
**16	777801184	Retaining ring	1
17	4465700	Spring, brake shoe	2
18	4465000	8.5" adjusting screw assembly	2
20	0925400	Dust plug, rubber	2

Note: (*) and (**) indicate the parts contained in the front and rear brake shoe assy. kits.



LIMITED WARRANTY

Limited Warranty Titan Tire Corporation (TITAN) warrants its products to be free from defects in material and workmanship for one year from date of delivery to the original purchaser when properly installed, used and maintained by the purchaser.

This warranty does not apply to damage or loss caused by any or all of the following circumstances or conditions:

- Freight damage.
- Parts, accessories, materials or components not obtained former approved in writing by TITAN.
- Misapplication, misuse and failure to follow the directions or observe cautions and warnings on installation, operation, application, inspection or maintenance specified in any TITAN quotations, acknowledgements, sales literature, specification sheet or installation instructions and service manual ("applicable literature")

If any TITAN products are found upon TITAN's examination to have been defective when supplied, TITAN will either: credit the purchaser's account for the purchase price of the TITAN product; or repair the product. TITAN has sole discretion in choosing which option to provide. For this LIMITED WARRANTY to apply, TITAN must receive notice of the alleged defect within 30 days of either the discovery of the alleged defect or the expiration of the warranty period, whichever is earlier. Any claim not made with in this period shall conclusively be deemed waived.

If requested by TITAN, purchaser shall return the alleged defective product to TITAN for examination at Titan's direction and expense. TITAN will not pay for expenses incurred in returning a product to TITAN without TITAN'S prior written authority. TITAN shall not be liable for any other expenses purchaser incurs to remedy any defect. Purchasers waive subrogation on all claims under any insurance.

Limitation of Liability It is expressly agreed that the liability of TITAN is limited and TITAN does not function as an insurer. THE REMEDIES SET FORTH IN THIS WARRANTY SHALL CONSTITUTE THE EXCLUSIVE REMEDIES AVAILABLE TO THE PURCHASER OR USER AND ARE IN LIEU OF ALL OTHER REMEDIES, EXPRESS OR IMPLIED. THE LIABILITY OF TITAN, WHETHER IN CONTRACT, IN TORT, UNDER ANY WARRANTY OR OTHERWISE, SHALL NOT EXCEED THE PURCHASE PRICE OF THE PARTICULAR PRODUCT MANUFACTURED, SOLD OR SUPPLIED BY TITAN.

To Obtain Technical Assistance To enable TITAN to respond to a request for assistance or evaluation of customer or user operation difficulty, please provide at a minimum the following information by calling 1-800-872-2327 or within Iowa 1-515-265-9200:

- Model number, serial number and all other data on the specific component which appears to be involved in the difficulty.
- The date and from whom you purchased your TITAN product.
- State your difficulty, being sure to mention at least the following: Application, Nature of load involved, and Weight of the load.

Field Service If field service at the request of the purchaser is rendered and the difficulty is found not to be with TITAN'S product, the purchaser shall pay the time and expense (at the prevailing rate at the time of service) of the seller's field representative(s). Charges for service, labor and other expenses that have been incurred by the purchaser, its customer or agent without prior written authorization of TITAN will not be accepted.

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