

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 12" x 2" BRAKES

**FREE BACKING, UNI-SERVO and DUO-SERVO
PREMIER, MARINE & STANDARD**



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.)

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

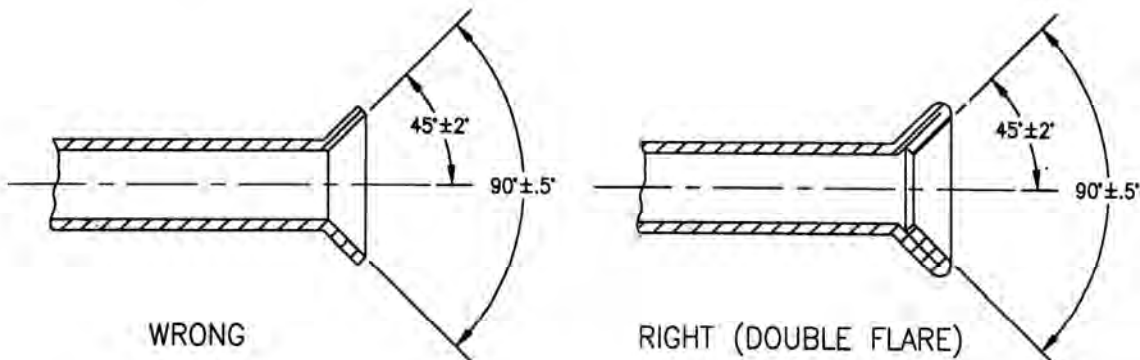
Before removing the jacks, adjust the brakes. TITAN "Surg-O-Matic" trailer brakes incorporate a patented "Back up" feature that makes it necessary to rotate the wheels in the direction of forward rotation only when making adjustments.

The brake adjustment nut is located behind a slot at the bottom of the backing plate. Tighten until you cannot rotate wheel by hand, then back off the adjustment 1 a to 12 notches.

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.

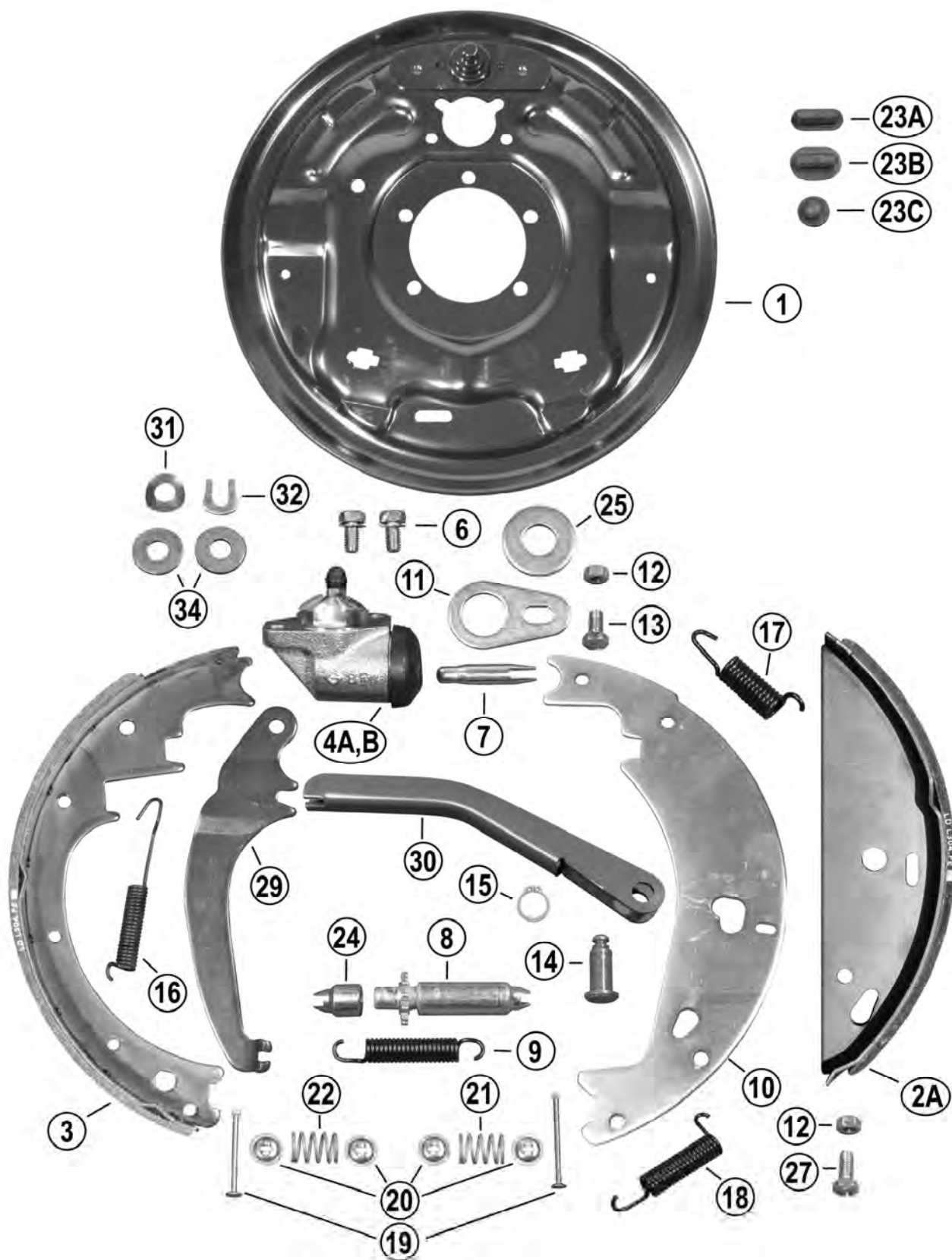
By loosening the bleeder screw located in the wheel cylinder one turn, the system is open to the atmosphere through the passage drilled in the screw. Pump actuator with long steady strokes. The bleeding operation is completed when bubbles no longer rise to the surface of the fluid. Be sure to close bleeder screw securely.

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.

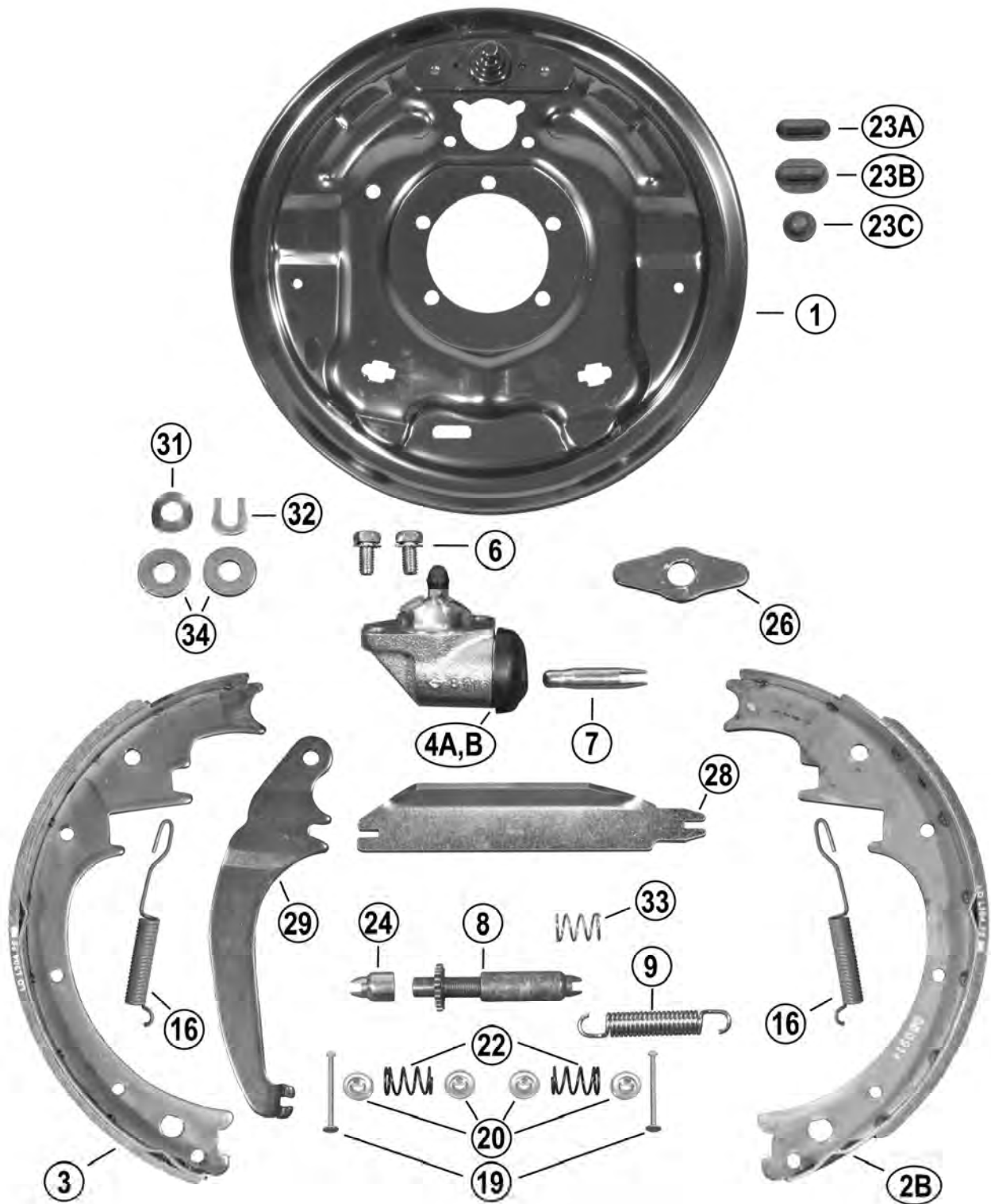
WARNING

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.

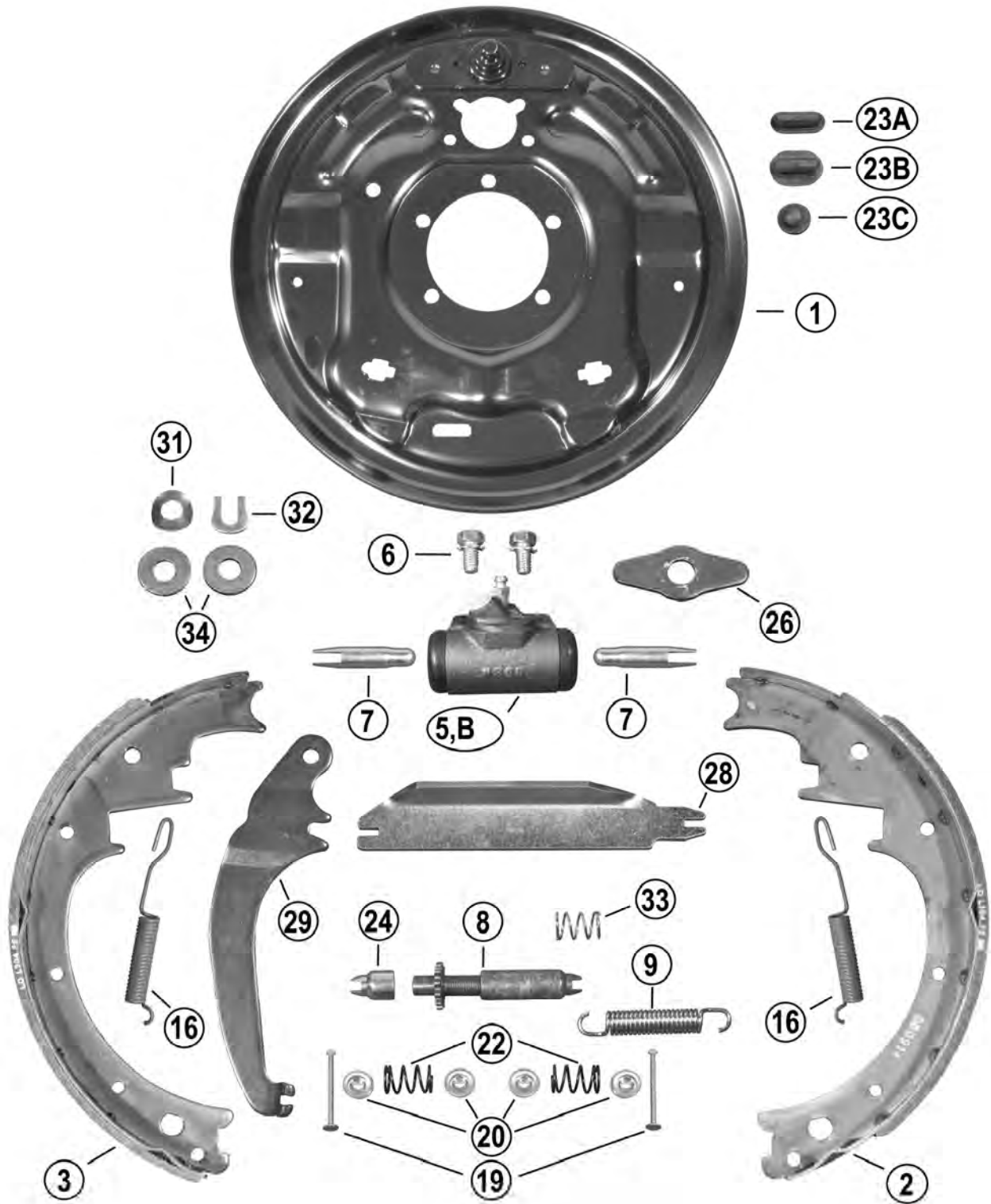
12" x 2" Free Backing Brake Diagram



12" x 2" Uni Servo Brake Diagram



12" x 2" Duo Servo Brake Diagram



12" x 2" BRAKE PARTS LIST

Item No.	Part Number	Part Description	Premier Free Backing	Galvanized Free Backing	Free Backing	Uni Servo	Duo Servo
		Complete Brake w/o Parking Brake-Right	4489500	4523200	4202800	235100	2349000
		Complete Brake w/o Parking Brake-Left	4489600	4523300	4202900	235110	2349100
		Complete Brake w/Parking Brake-Right			4203000	2351200	
		Complete Brake w/Parking Brake-Left			4203100	2351300	
1	4485900042	Back Plate, painted black			1	1	1
1	4485950	Back Plate, galvanized		1			
1	4485900410	Back Plate, painted 410 silver	1				
2A	1849700	Front Shoe, bonded, free backing			1		
2A	4484500	Front Shoe, riveted, free backing	1	1			
2B	2349200	Front Shoe, bonded				1	
3A	1850300	Secondary Shoe, bonded			1	1	2
3B	4484800	Secondary Shoe, riveted	1	1			
4A	0977600	Wheel Cylinder, Right Hand	1	1	1	1	
4B	0977700	Wheel Cylinder, Left Hand, not shown	1	1	1	1	
5A	1718500	Wheel Cylinder, Duo Servo, Right Hand					1
5B	1718600	Wheel Cylinder, Duo Servo, Left Hand					1
6	2345700	Cap Screw & lock washer, zinc plated		2	2	2	2
6	4484900	Cap Screw & lock washer, olive drab	2				
7	0978300	Push Rod, zinc plated			1	1	2
7	4437700	Push Rod, olive drab	1	1			
8	2332300	Adjusting Screw Assembly				1	1
8	4485400	Adjusting Screw Assembly	1	1	1		
9	0978400	Spring-Adjusting Screw			1	1	1
9	4485000	Spring-Adjusting Screw, stainless steel	1	1			
10	4622400317	Shoe Lever, painted	1	1			
11	1791700183	Travel Link, zinc plated			1		
11	1791700184	Travel Link, olive drab	1	1			
12	1740600	Locknut, 5/16 - 18, zinc plated			2		
12	4424800	Locknut, 5/16 - 18, olive drab	2	2			
13	0794900	Hex cap screw, 5/16 - 18 x 5/8"			1		
13	4424700	Hex cap screw, 5/16 - 18 x 5/8"	1	1			
14	1256000184	Anchor pin, olive drab, w/o parking br.	1	1			
14	0979600	Anchor pin, olive drab, w/parking brake			1		
15	077801184	Retaining ring, olive drab plated	1	1	1	1	

12" x 2" BRAKE PARTS LIST (cont.)

Item No.	Part Number	Part Description	Premier Free Backing	Galvanized Free Backing	Free Backing	Uni Servo	Duo Servo
16	4485100	Spring, stainless, rear shoe return	1	1			
16	0978600	Spring, rear shoe return			1	1	2
17	0978500	Spring, front shoe lever			1		
17	4438600	Spring, stainless, front shoe lever	1	1			
18	0681400	Spring, free backing shoe			1		
18	4438700	Spring, stainless, free backing shoe	1	1			
19	1850800	Pin, shoe hold down	1	1	1	2	2
20	0978900	Cup, stainless steel, shoe hold down	4	4	4	4	4
21	0979000	Spring, hold down			1		
21	4485200	Spring, stainless steel, hold down	1	1			
22	0979100	Spring, hold down			1	2	2
22	4438800	Spring, stainless steel, hold down	1	1			
23A	2475700	Plug, adjusting screw slot	1	1	1	1	1
23B	4744600	Plug, parking brake opening	2	2	1	1	2
23C	4745900	Plug, flush kit hole	1	1	1	1	1
24	1883600	Socket, adjusting screw, zinc plated			1	1	1
24	4485700	Socket, adjusting screw, olive drab	1	1			
25	1895000	Washer, zinc plated			1		
25	4439500	Washer, olive drab	1	1			
26	4446000	Shoe guide plate				1	1
27	1297200	Hex cap screw, 5/16 - 18 x 3/4", zinc			1		
27	4485800	Hex cap screw, 5/16 - 18 x 3/4", olive	1	1			
*28	1719402184	Strut, Right Hand, to military spec				1	
*28	1719403184	Strut, Left Hand, to military spec				1	
*29	4486500	Parking Brake Lever w/pin, Right Hand			1	1	
*29	4486600	Parking Brake Lever w/pin, Left Hand			1	1	
*30	4486300	Toggle Link, Right Hand			1		
*30	4486400	Toggle Link, Left Hand			1		
*31	0979400	Spring Washer			1	1	
*32	0979500	Retainer			1	1	
*33	4499200	Spring, parking strut				1	
*34	4486900	Washer			2	2	
*	0912300	Hex Cap Screw, 3/8 - 24 x 1"			5		
*	0967000	Hex Nut, 3/8"			5		
*	0793300	Lockwasher, 3/8"			5		
	1584500	Wheel Cylinder Repair Kit	1	1	1	2	

* Used on product with parking brakes.



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.

TITAN EXTENDS NO WARRANTY, EXPRESS OR IMPLIED, ON PRODUCTS NOT MANUFACTURED BY TITAN OR TO TITAN'S DESIGN SPECIFICATION, INCLUDING BUT NOT LIMITED TO SUCH ITEMS AS NON-TITAN TIRES, BRAKES, ACTUATORS, BEARINGS, HOSE AND TUBING, PURCHASER'S RECOURSE SHALL BE LIMITED TO ANY WARRANTY OF THE PERSPECTIVE MANUFACTURERS.

THIS WARRANTY EXCLUDES ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY PURPOSE.

THIS WARRANTY DOES NOT COVER NOR EXTEND TO INCIDENTAL OR CONSEQUENTIAL DAMAGE. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

No representative has authority to make any representation, promise or agreement except as stated in this Limited Warranty. TITAN reserves the right to make design and other changes upon its products without any obligation to install the same on any previously sold or delivered products.

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