

# INSTRUCTIONS FOR 12" SURG-O-MATIC BRAKES

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## BRAKE INSTALLATION

### 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.

The 12" DICO brake is designed to interchange with existing equipment mounting on flanges with (5) holes on 3-7/8" B.C. and a 3-1/4" register diameter. Several manufacturers offer complete axles with flanges attached, or you may choose to install flanges yourself.

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, rotate to secure "wheel cylinder up" location 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.

### 2. Installing Brakes

Place the brake against spindle flange. 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 driver's 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.

Caution: Do not pack hub full of grease. Excessive grease may leak into brake drums causing brake failure.

Wheels may now be mounted on the trailers.

### 4. Adjusting Brakes

Before removing the jacks, adjust the brakes.

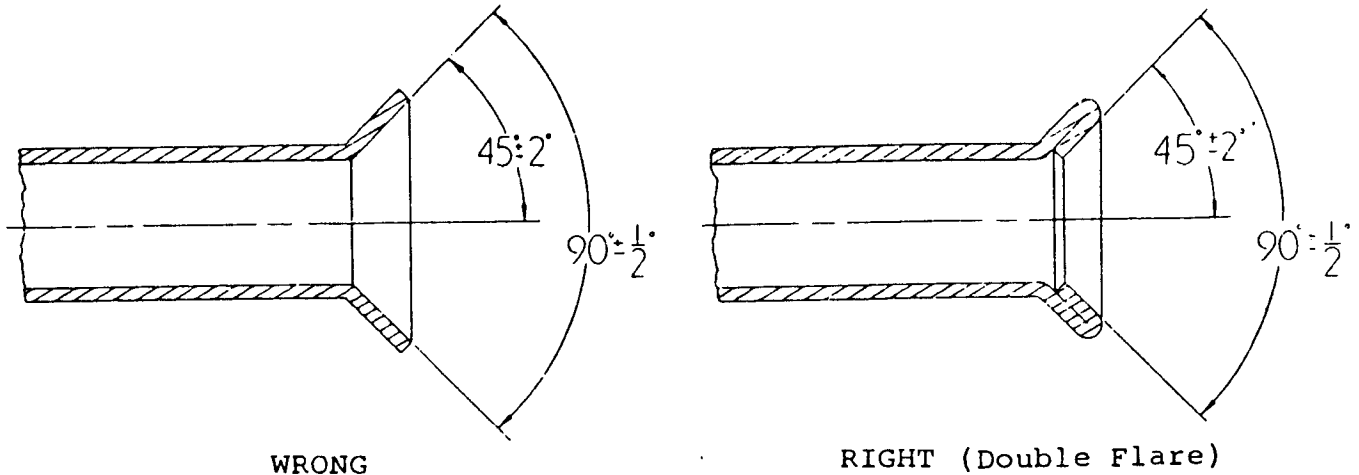
The brake adjustment nut is located behind a slot at the bottom of the backing plate. Tighten until you cannot rotate wheel by hand, then back off the adjustment 10 notches.

**ALWAYS ROTATE DRUM IN DIRECTION OF FORWARD ROTATION ONLY.**

## 12" BRAKE INSTALLATION

### 5. Hydraulic Lines

Use care in forming tubing to avoid sharp bends or kinks. Double flare steel tubing to assure tight leakproof 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.



### 6. Bleeding the System

The first requisite for safe, sure hydraulic braking is the use of quality brake fluid. Use only DOT-3 heavy duty fluid.

If pressure bleeding equipment is available, follow the manufacturer's instruction in bleeding the system.

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.

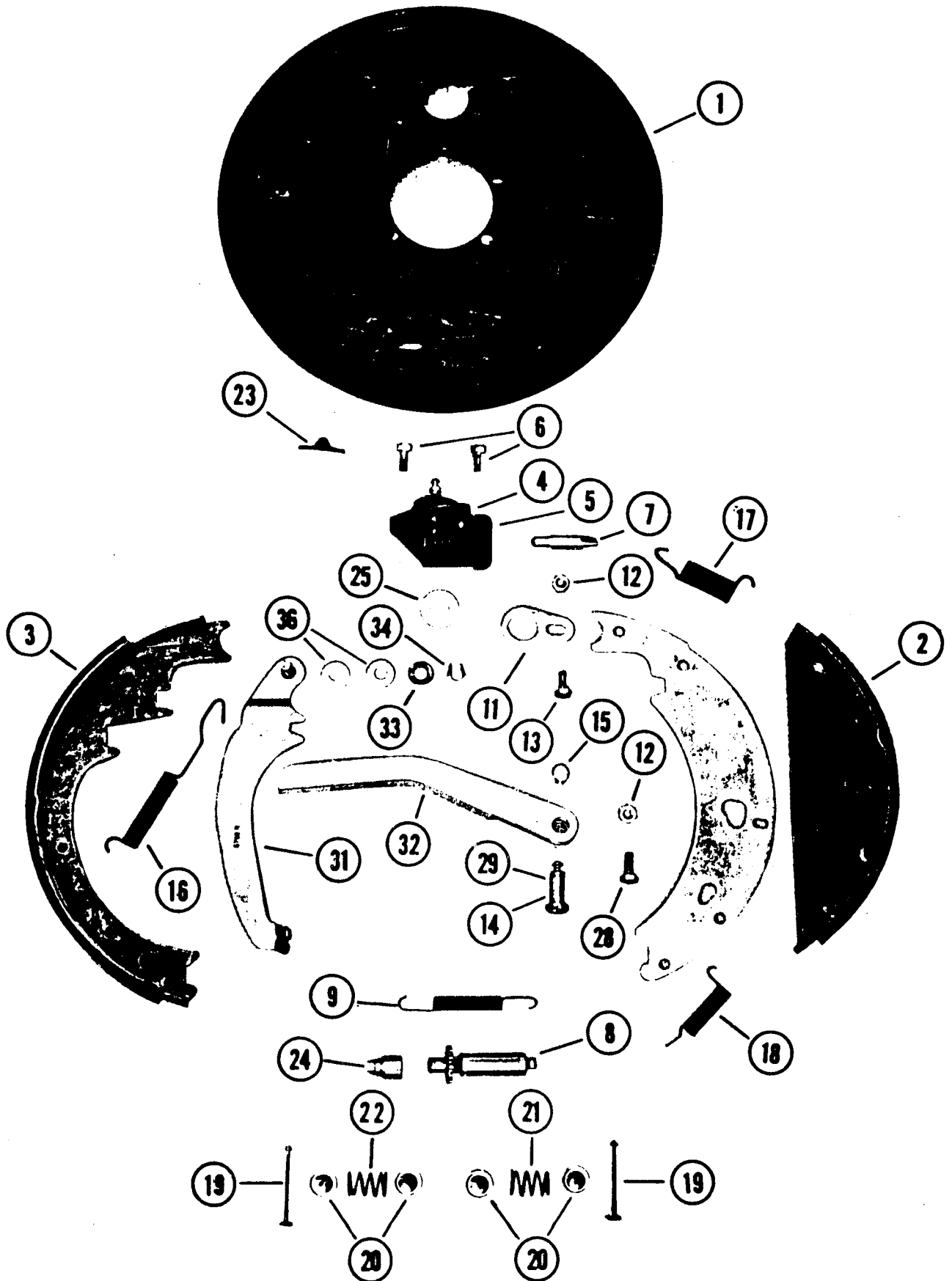
By loosening the bleeder screw located in the wheel cylinder one turn, the system is open to the atmosphere through the passage drilled in the screw. Pump actuator with long steady strokes. The bleeding operation is completed when bubbles no longer rise to the surface of the fluid. Be sure to close bleeder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

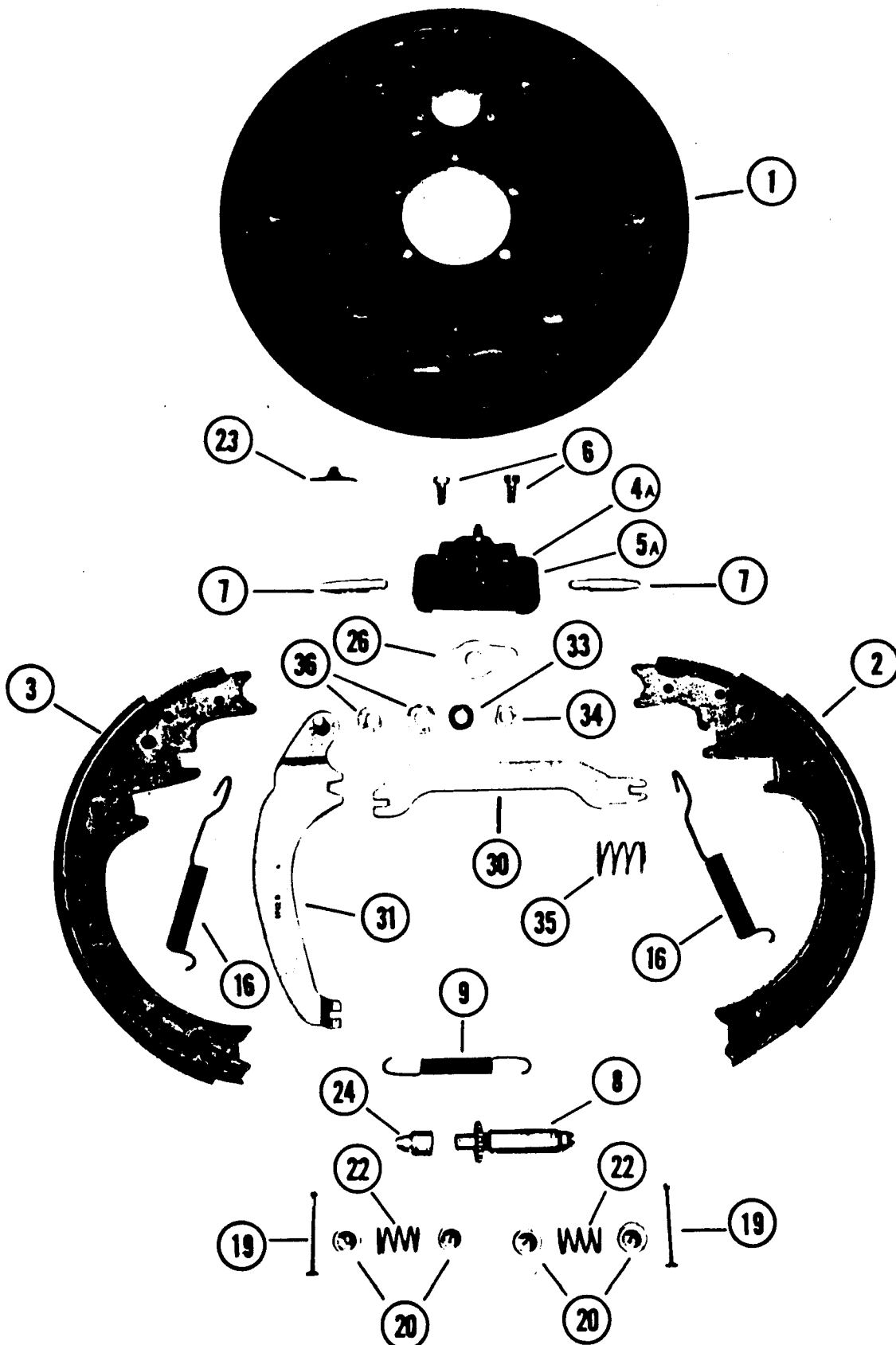
### WARNING

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 unit is to be stored, remove the brake drums and clean inside the brakes. Pack wheel bearings before drum is installed.

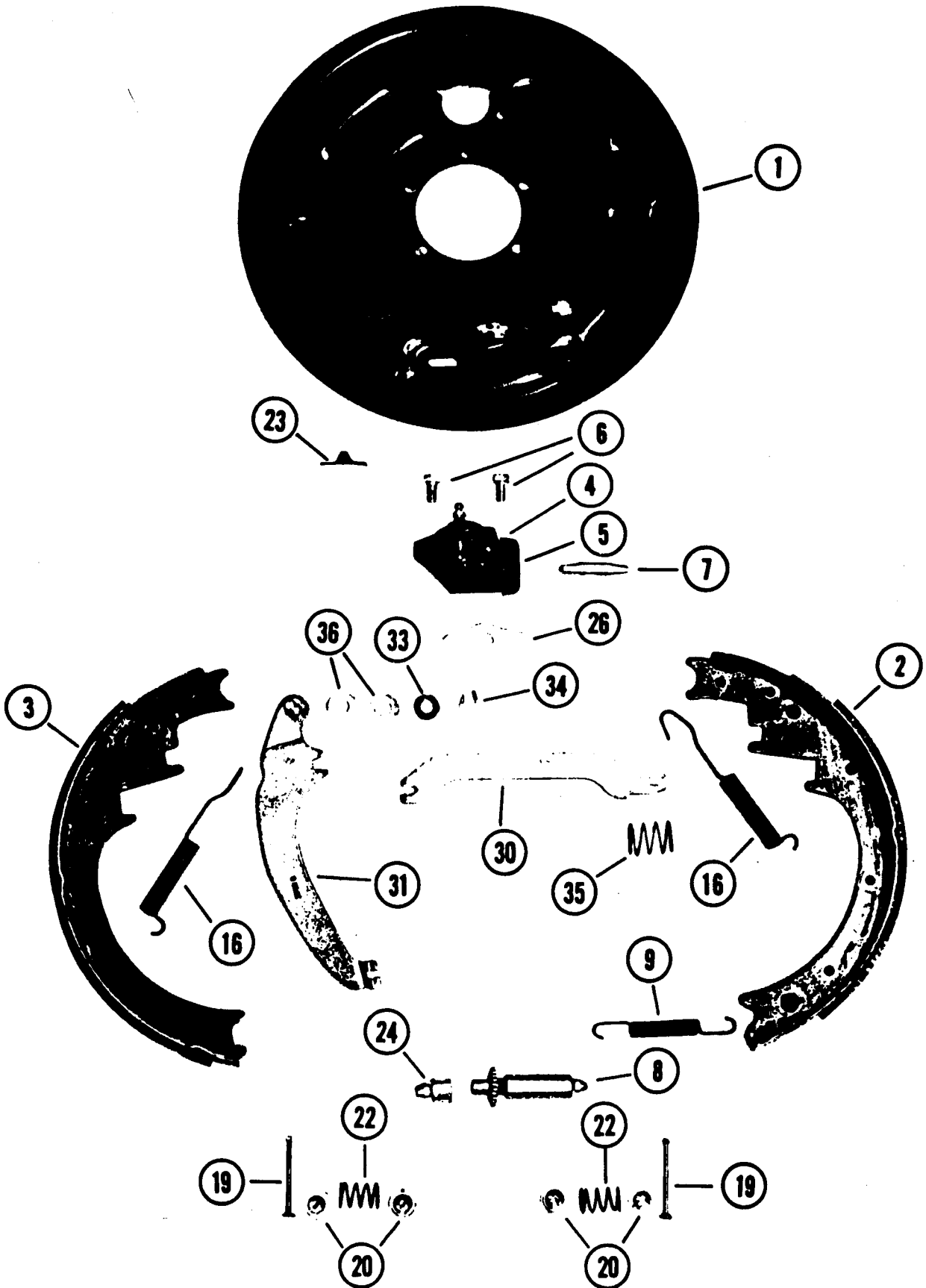
12" FREE-BACKING BRAKE DIAGRAM



12" DUO-SERVO BRAKE DIAGRAM



# 12" UNI-SERVO BRAKE DIAGRAM



## 12" x 2" BRAKE PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	MARINE FREE BACKING	MARINE UNI-SERVO	FREE BACKING	DUO-SERVO	UNI-SERVO
1	18496	Back Plate Assembly			1	1	1
1	24760	Back Plate Assembly	1	1			
2	18497	Front Shoe Assembly			1		
2	23492	Front Shoe Assembly				1	1
2	24984	Front Shoe Assembly	1				
2	24761	Front Shoe Assembly		1			
3	18503	Rear Shoe Assembly			1	1	1
3	24762	Rear Shoe Assembly	1	1			
4	9776	Wheel Cylinder Assembly — Right	1	1	1		1
4A	17185	Wheel Cylinder Assembly — Right				1	
5	9777	Wheel Cylinder Assembly — Left	1	1	1		1
5A	17186	Wheel Cylinder Assembly — Left				1	
6	23457	Screw & Lockwasher	2	2	2	2	2
7	9783	Push Rod	1	1	1	2	1
8	23323	Adjusting Screw Assembly	1	1	1	1	1
9	18506	Spring-Adjusting Screw (Maroon)			1	1	1
9	24765	Spring-Adjusting Screw	1	1			
10	18502	Shoe Lever	1		1		
11	17917	Travel Link	1		1		
12	17406	Locknut	2		2		
13	7949	Hex Cap Screw	1		1		
14	12560	Pin Front Shoe wo/Parking	1		1		
15	7778	Retaining Ring	1		1		
16	9786	Spring — Shoe (Orange)			1	2	2
16	24763	Spring — Shoe	1	2			
17	9785	Spring — Lever (Red)			1		
17	24919	Spring — Lever	1				
18	6814	Spring — Shoe (Orange)			1		
18	24920	Spring — Shoe	1				
19	18508	Pin — Shoe Hold Down	2	2	2	2	2
20	9789	Cup — Shoe Hold Down	4	4	4	4	4
21	9790	Spring — Hold Down (Yellow)			1		
21	24980	Spring — Hold Down	1				
22	9791	Spring — Hold Down (Black)			1	2	2
22	24756	Spring — Hold Down	1	2			
23	9254	Cover Plate — Adjusting Hole			1	1	1
23	24757	Cover Plate — Adjusting Hole	2	2			
24	18836	Socket	1	1	1	1	1
25	18950	Washer	1		1		
26	10961	Shoe Guide Plate		1		1	1
27	9797	Plug Plastic	2	2	2	2	2
28	12972	Hex Cap Screw	1		1		
29	9796	Pin — Front Shoe w/Parking	1		1		
*30	17194	Parking Strut				1	1
*31	9792	Parking Lever — Right			1	1	1
*31	9793	Parking Lever — Left			1	1	1
*32	24668	Toggle Link — Right			1		
*32	24669	Toggle Link — Left			1		
*33	9794	Spring Washer			1	1	1
*34	9795	Retainer			1	1	1
*35	16090	Spring — Parking Strut				1	1
*36	7820	Washer			2	2	2
NI	15845	Wheel Cylinder Repair Kit	1/2	1/2	1/2	1	1/2

\*used on models with parking brake.

NI - Not Illustrated