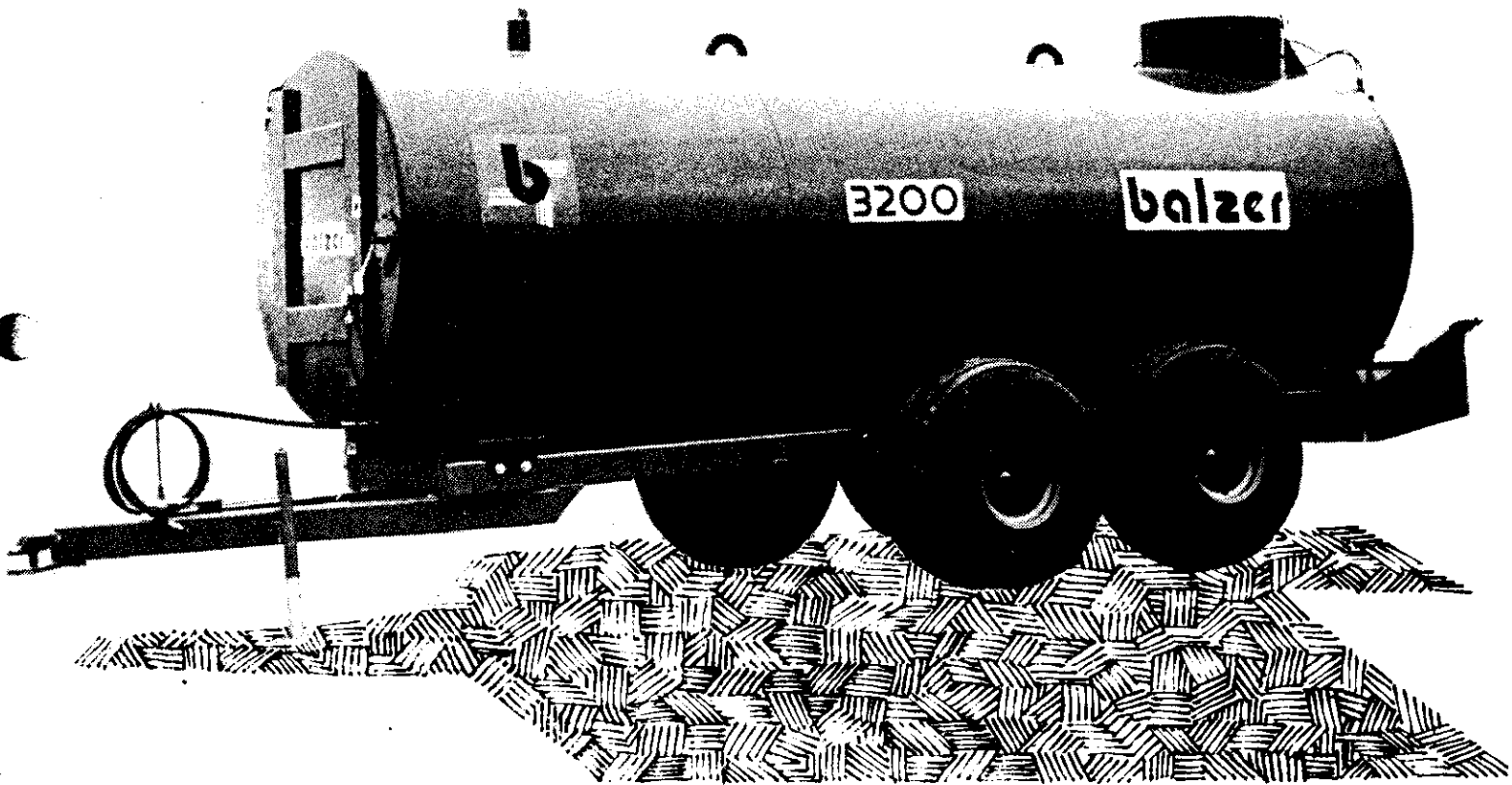


balzer mfg
corp

mountain lake, mn 56159



**OPERATORS & SERVICE MANUAL for
SLURRY MODELS
5000, 4000, 3200, 2200**

PN12717

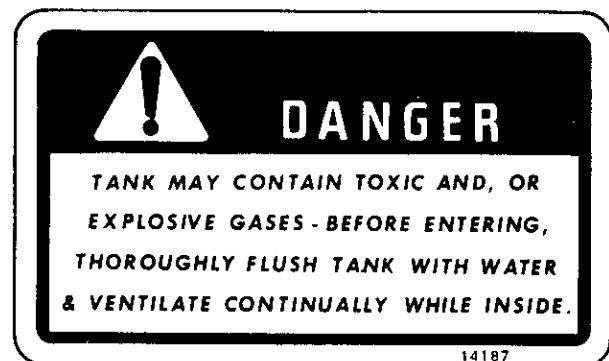
TABLE OF CONTENTS

Safety	1
To The Purchaser	2
Operation	3
Storage	5
Lubrication	6
Trouble Shooting	7
Instructions For Ordering/Returning Parts	9
Parts And Description	
Tank & Assemblies 5000	10
Tank & Assemblies 4000	11
Tank & Assemblies 3200	12
Tank & Assemblies 2200	13
Running Gear 5000	14
Running Gear 4000	15
Running Gear 3200	16
Running Gear 2200	17
Pump Assembly	18
Pump Hydraulic System	19
Valve System	20
Injector System 5000	21
Injector System 2200-3200	22
Injector Hydraulic System	23
Jack Assembly — Spring Clamp	24
Side Slinger Attachment	25
Brake Installation & Adjustment (220-3200)	26
Brake Service (2200-3200)	27
Brake Parts (2200-3200)	28
Actuator Assembly (2200-3200)	29
Brake Kit (2200)	30
Brake Kit (3200)	31
Brake Installation & Adjustment (5000)	32
Brake Lines & Related Parts (5000)	33
Brake Service (5000)	34
Brake Service (5000)	35
Master Cylinder Holder Assembly (500)	36
Caliper Disc Brake Assembly	37
Notes	38-40
Warranty and Warranty Information	Back Cover



OBSERVE AND FOLLOW ALL SAFETY PROCEDURES TO PREVENT INJURY OR DAMAGE TO THE MACHINE

1. When agitating a pit always be sure there is adequate ventilation in the confinement area.
2. Never enter a pit or tank unless it is absolutely necessary. If a unit must be entered, take proper safety precautions. These include someone at the site, outside the unit and proper life support system. Contact your BALZER dealer for more information before you enter a tank.
3. Avoid excessive road speed.
4. Never operate this unit until user is familiar with all controls, and has read and understands operators manual.
5. Read and follow the instructions on all decals.
6. Never lubricate, adjust or repair unit while it is in operation. Power unit engine must be shut off and all movement stopped.
7. Never operate this unit with any guards or shields not in place. Replace any missing or damaged ones.
8. Keep hands and feet away from all moving parts.
9. Never wear loose clothing while working around moving parts.
10. Never leave unit running unattended.
11. Before loading make sure that the unit does not have any foreign objects or materials in it that can cause equipment damage or personal injury.
12. Never allow anyone to ride on the unit at anytime.
13. Be sure the rear of the unit has a clean SMV emblem properly displayed if towing less than 25 MPH on any public roadway. At night proper warning and running lights are necessary as required by state laws.
14. Always use a safety chain between the towing vehicle and tank on public roadways.
15. Hydraulic fluid pressure can be very dangerous and can cause serious personal injury and death. Be sure to relieve all pressure before disconnecting hydraulic lines.
16. Hydraulic fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, not your hands, to search for leaks.
17. If injured by escaping hydraulic fluid, seek medical attention immediately. Serious infection or reaction may develop.
18. Never assume that everybody is as safety conscious as you are.
19. Always use a hitch pin that has a safety clip pin.
20. Whenever the weight of the tank exceeds the weight of the towing tractor, the tank must be equipped with optional brakes.



To the Purchaser



This is the safety alert symbol, it is used to alert the operator to an instruction concerning the personal safety and risk factor of this equipment. Always observe and heed these very important instructions to promote a safe operation with good preventive maintenance habits.

This new BALZER product is designed and manufactured to give years of very dependable service when used for the purpose for which it is intended, and when properly maintained.

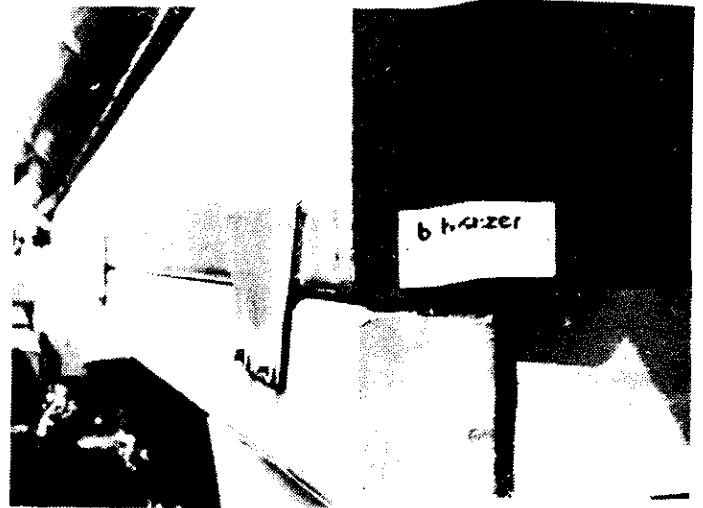
NEVER OPERATE THIS EQUIPMENT UNTIL USER FULLY UNDERSTANDS THE COMPLETE CONTENTS OF THIS MANUAL. FOR OWNERS WHO DO NOT OPERATE THIS EQUIPMENT, IT IS THE OWNERS RESPONSIBILITY THAT THE USER IS PROPERLY INSTRUCTED AND IS FULLY AWARE OF THIS MANUAL'S CONTENTS.

This is important in the safe handling of this equipment and promoting an efficient operation. If there are any questions about areas in this manual, it is important to contact your dealer for clarification.

This machine is warranted as stated on the rear outside cover. A registration card is to be filled in by your dealer with your name and address, and promptly returned to the factory. The card provides a ready reference to help you in securing warranty and in answering questions that you may have at some later date.

Operating instructions and parts books are shipped with this machine. If parts of this book are missing or become unreadable, contact your dealer for a new set.

The serial number and identification tag is located on the front of the right tank saddle. Please refer to these numbers when parts or warranty communication is necessary.



PLEASE FILL IN THE FOLLOWING INFORMATION FOR YOUR RECORDS

DATE OF PURCHASE _____

OWNERS NAME _____

DEALERS NAME _____

SERIAL NO./IDENT. NO. _____

Operation



PRE-OPERATION CHECKS

Install appropriate quick coupler ends on the hydraulic hoses. Be sure to use a good quality thread sealant on all hydraulic fittings. The ends used on the lines for the hydraulic motor must be a new set. This will insure that they will function properly and will decrease the possibility of undue back pressure.

Check the air pressure in all four tires and adjust pressure if necessary to proper inflation. Refer to chart below.

TIRE INFLATION

Tire Size	Inflation Pressure
16.5L-16.1	36 PSI
21.5L-16.1	32 PSI
18-22.5	75 PSI
66-43-25	18 PSI
48-25-20	30 PSI

Check all bolts and hardware to be sure that they are tight and torqued properly. Refer to the chart below.

Torque Value Chart

RECOMMENDED TORQUE IN FOOT-POUNDS COARSE AND FINE THREAD		
BOLT MARKING	GRADE 5	GRADE 2
BOLT DIA.	TORQUE	TORQUE
1/4	10	6
5/16	18	10
3/8	39	22
7/16	58	32
1/2	87	44
9/16	111	58
5/8	173	86
3/4	290	152
7/8	500	222
1	620	250

Check impeller housing and inside of tank for foreign objects or material that could damage or affect the operation of the unit.

Inspect the drain plug in the bottom of the sump to be sure it is installed and tight.

Grease all zerk fittings, check the lubrication section of this manual for locations.

Actuate tractor levers to assure the plunger valve is functioning properly. On initial startup, run valve up and down several times to remove any air from the hydraulic lines.

The impeller return line has a check valve in it so the impeller can not be run backwards. Start the impeller by moving the tractor valve lever to make sure it is connected the way you desire the lever to move. If the lever moves in the wrong direction, reverse lines at the quick couplers. Some tractors have a built in hydraulic oil flow divider (ie; John Deere) which must be open all the way for desired performance.

Check the top and front load level indicators to make sure that they move freely.

If the unit has injectors, check the hoses and tubes for plugging and breaks in them. If the shipping and storage rods are in place they must be removed.

CAUTION!!!



Use a jack or hoist to remove the shipping and storage rods because the tool bar may drop when the rods are removed, causing damage or personal injury.



LOADING

Be sure the plunger valve is closed, back or drive under the loading spout of the pump. Get the pump spout as close as possible to the center of the loading port to prevent slopping. Place the tractor transmission in park or lock the brakes.

While filling, watch the full indicator located at the top front of the tank. When the indicator flag starts to rise, get ready to shut off the flow valve on the pump. The tank will be full when the flag is approximately 6" above its resting position on the indicator housing. Some high capacity pumps may require the tractor PTO RPMs be lowered or the fill gate valve be partially closed to prevent excessive amounts of manure splashing out when tank is almost full.

MOVEMENT TO THE FIELD



**AVOID SHARP TURNS
WHEN TANK IS LOADED!!!**

Sharp turns cause excessive tire sidewall buckle, reducing tire life, and adds to control difficulty of the tractor.

Excessive speed is very dangerous when the tank is loaded. Remember that in many cases the tank will weigh more than the tractor pulling it. The optional brake system will help with some control problems, but not in all cases.

UNLOADING

INJECTION: The injection method is fast becoming the most popular method of manure application.

To inject, have tractor pulling the unit forward, put the injectors in the ground, start the impeller and open the plunger valve.

IMPORTANT!!!



Never try to put the injectors into the ground unless the tank is moving forward. Never turn a corner or back up with the injectors down.

The rate of application can be controlled by regulating the ground speed, the oil flow to the impeller motor, or a combination of both.

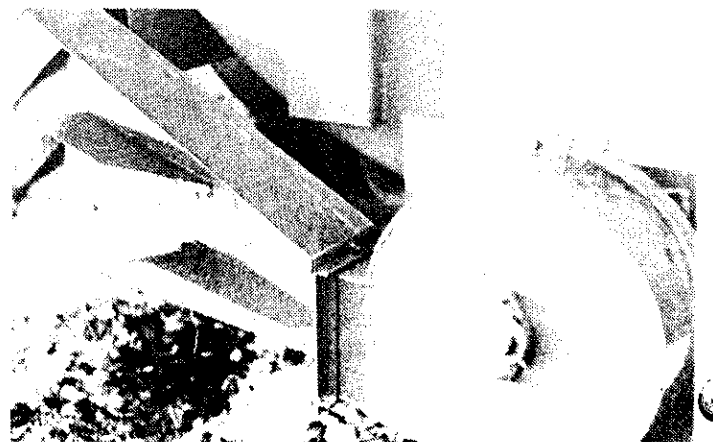
SIDE SLINGER

Start the impeller and open the plunger valve. The rate of application is controlled the same as injection.

The oil pressure on the gauge usually reads about 1500 PSI. If the impeller or injectors become plugged the pressure reading of the gauge will rise. When the tank becomes empty, the pressure will drop to 800-1000 PSI.



If impeller should become plugged or stuck because of an object wedged tight, close plunger valve, shut off tractor, remove ignition key and release all hydraulic pressure in system before attempting to remove obstruction.



IMPELLER IN SLINGER MODE

Storage



COLD WEATHER OPERATION

During weather below freezing, extra procedures must be followed. Before any loading is done, allow the impeller to run for 10 to 15 minutes to warm-up the hydraulic oil and motor.

When tank is going to set long enough for residue manure to freeze, rinse out the tank with water. Leave the plunger valve open, remove sump plug and run the impeller for one minute to be sure the housing is clean. If the injector tubes have manure in them, be sure to remove it.

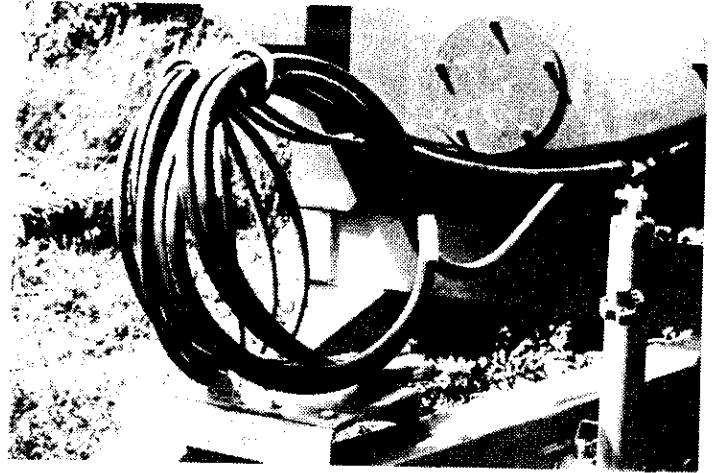
STORAGE

Flush the inside of tank with water, empty, remove sump plug and leave out. The plunger valve should be left open so any moisture can drain from tank and impeller housing.

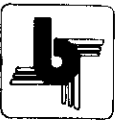
Wash manure off of the outside of the tank and trailer. Spot paint areas where it has been removed by manure acid or chipping.

Check for damaged hydraulic hoses, replace any that are not in good condition. Coil the hoses through the hose stand and protect the quick couplers by wrapping them in plastic.

Grease all bearings and seals, refer to lubrication section of this manual for fitting locations.



To prevent a sudden lowering of the injectors or the tank tilting to the back, the unit must be stored with the injectors in the lowered position if tank is so equipped.

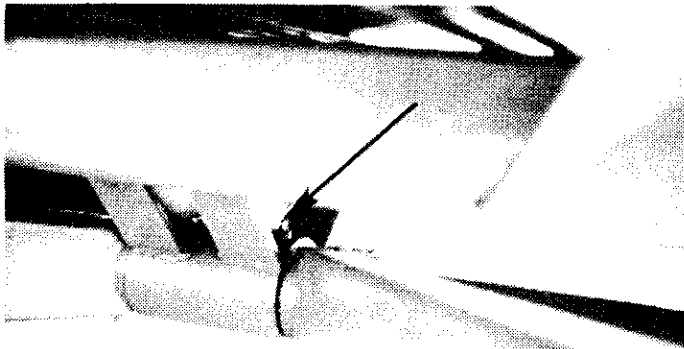


CAUTION: NEVER ATTEMPT TO LUBRICATE ANY PIECE OF MACHINERY WITH IT OPERATING. ALWAYS SHUT OFF TRACTOR AND REMOVE IGNITION KEY.

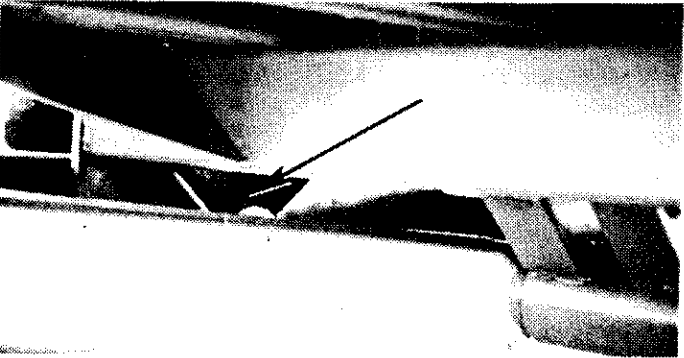
Be sure grease fittings function. If damaged or broken fittings exist, replace them with standard farm hardware store fittings.

Wipe all fittings prior to greasing and remove excess grease after greasing. Grease all zerks, except wheels, every 10 hours.

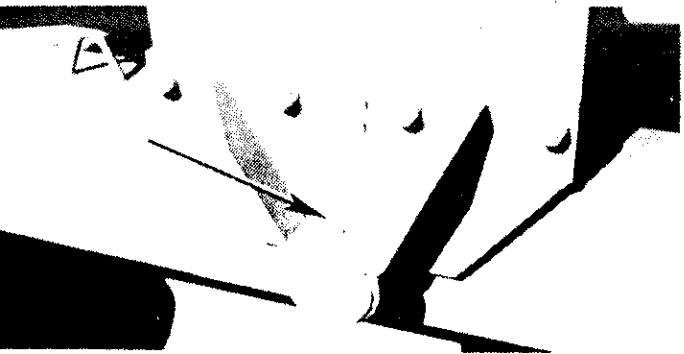
Use lithium base #2 multi-purpose grease for all fittings.



Reference 1

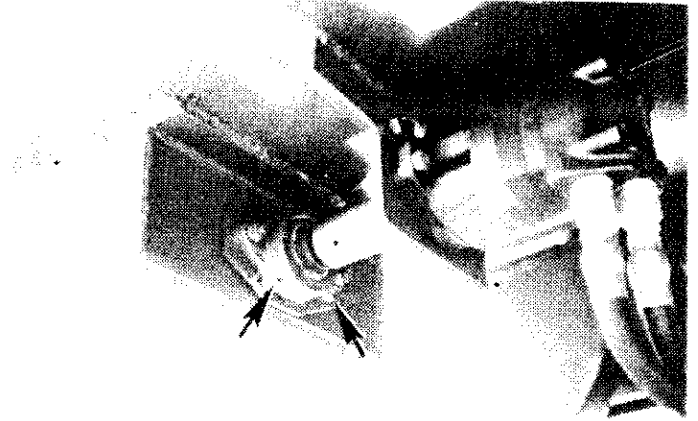


Reference 2

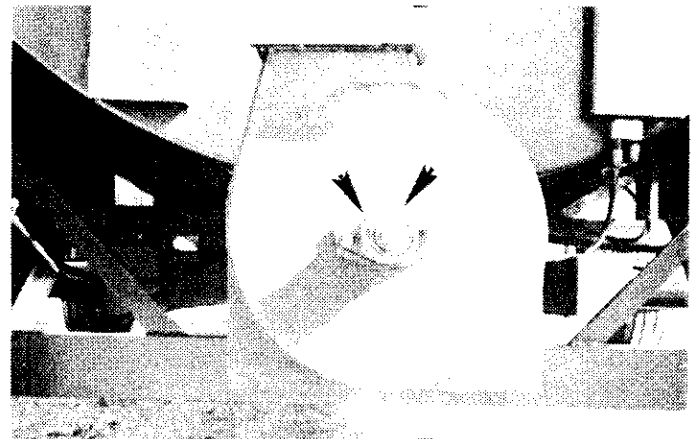


Reference 3

9-83



Reference 4



Reference 5

WHEEL BEARINGS

Clean and repack wheel bearings once a year or every 250 hours, whichever comes first. Adjust bearings to a free roll with no end play.

NEVER OPERATE WHEEL BEARING PRELOADED

1. Center bearings of oscillating arms.
2. Located just inside oscillating arms.
3. Oscillating arm cap.
4. Frong of impellor housing.
5. Rear of impellor housing.

Trouble Shooting



PROBLEM	PROBABLE CAUSE	CORRECTIVE MEASURE	
Impeller does not turn	If pressure gauge reads over 1700 PSI:		
	A. Manure or water frozen in impeller housing.	A. Thaw out frozen material	
	B. Quick couplers not connected properly to tractor couplers properly	B. Connect quick coupler correctly	
	C. Hydraulic motor damaged	C. Repair or replace (Contact dealer for assistance)	
	D. Foreign material caught in impeller	D. Remove object(s) from impeller and/or housing	
	If pressure gauge reads under 1700 PSI:		
	E. Key sheared in impeller shaft	E. Replace Key	
	F. Tractors hydraulic system not working properly	F. Check hydraulic output of tractor	
	Valve doesn't open/close	A. Bolt sheared in cylinder linkage	A. Replace bolt
		B. Cylinder rod seals bad	B. Replace cylinder or repair seals
C. Valve plunger frozen down		C. Thaw out frozen material	
D. Plunger guides binding		D. Re-align guides	
E. Pressure setting too low on Sequence Valve		E. Remove 1/2" cap nut on Sequence Valve and turn screw 1/4 to 1/2 turn to the right. Replace cap nut.	

Trouble Shooting



PROBLEM	PROBABLE CAUSE	CORRECTIVE MEASURE
Impeller turns slow	If pressure gauge reads over 2000 PSI:	
	A. Manure too thick	A. Add water to pit to thin manure
	B. Material wrapped around impeller	B. Remove material through inspection opening
	C. Motor worn out	C. Repair or replace motor
	D. Obstruction in hydraulic system	D. Locate and remove obstruction
	If pressure gauge reads under 2000 PSI:	
	A. Tractor hydraulic output too low	A. Increase tractor oil output
	B. Key sheared on impeller shaft	B. Replace key
C. Hydraulic oil reservoir low on tractor	C. Fill to proper level	
D. Insufficient oil pressure from tractor	D. Check tractor output level	



It is the policy of the Balzer Mfg. Corp. to constantly improve its products whenever it is practical to do so.

The Balzer Mfg. Corp. must therefore reserve the right to redesign or change its equipment or component parts thereof without incurring the obligation to install or furnish such changes on equipment previously delivered.

INSTRUCTIONS FOR ORDERING PARTS

1. *Order all parts by their part number and name.
Note: All reference to left and right, front and rear, apply to the machine as viewed facing the beater end, tongue end is front.*
2. *Parts should never be ordered from item numbers only.*
3. *Always mention the model and serial numbers found on name plate of unit on which part is to be used. Much delay and confusion can be avoided when correct model and serial numbers are specified on parts order and correspondence.*
4. *Owners, order all parts thru your local dealer.*
5. *Dealers must indicate how to ship: whether by truck, rail freight, express or parcel post.*
6. *Collect phone calls will not be accepted.*
7. *Address all orders for parts as follows:*

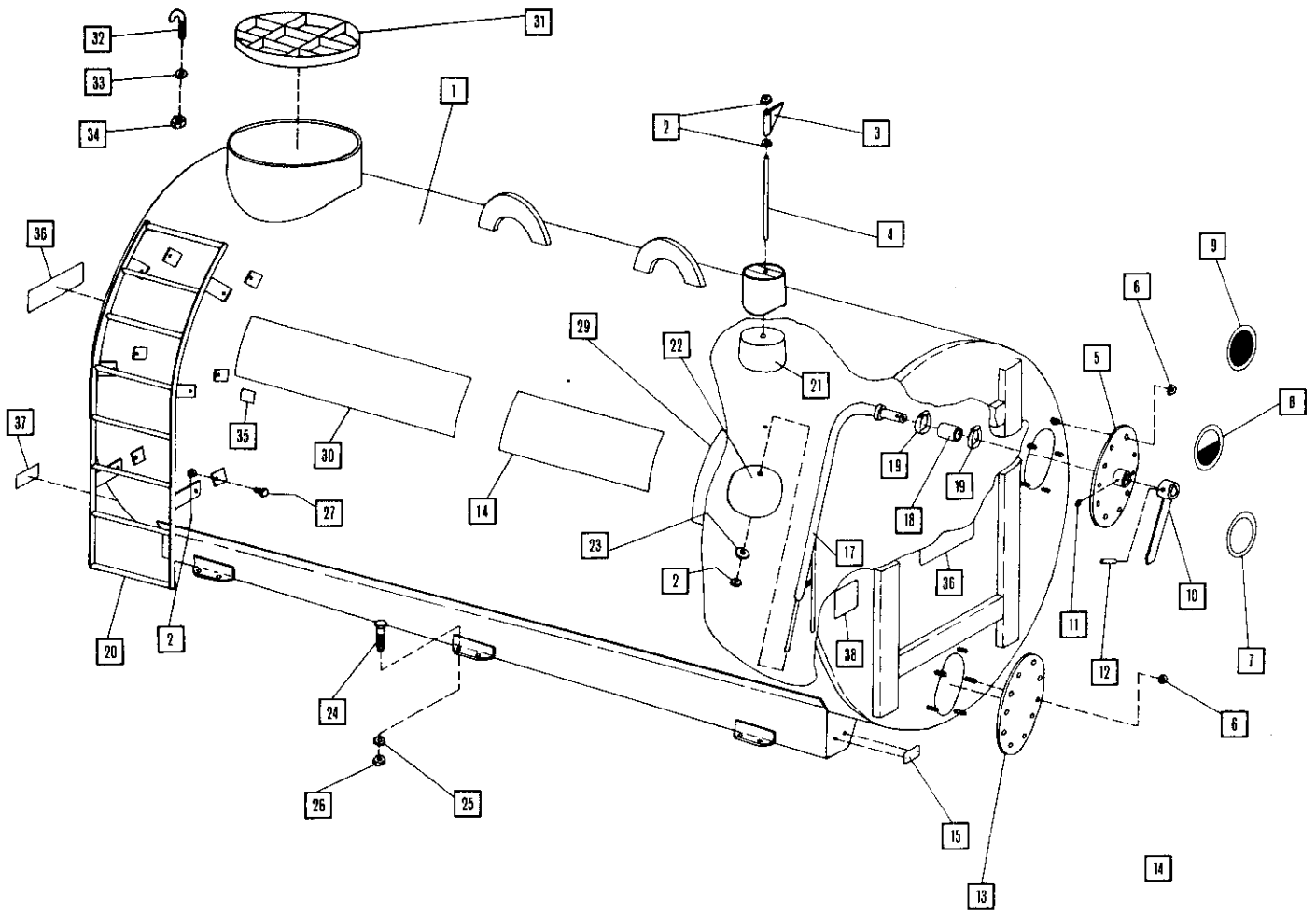
balzer mfg
corp

highway 60 east
mountain lake, mn. 56159
phone (507) 427-3133

INSTRUCTIONS FOR RETURNING PARTS FOR ADJUSTMENT

1. *To assure prompt handling of claims, your dealer or distributor should follow standard claim procedure and forward claim within thirty (30) days of any part failure or malfunction believed to be a warranty claim to the Balzer Mfg. Corp. service department for processing.*
2. *No returned parts will be accepted unless they are transportation prepaid and accompanied by the packing list copy.*
3. *Parts returned should have a tag attached with senders name and address clearly printed.*

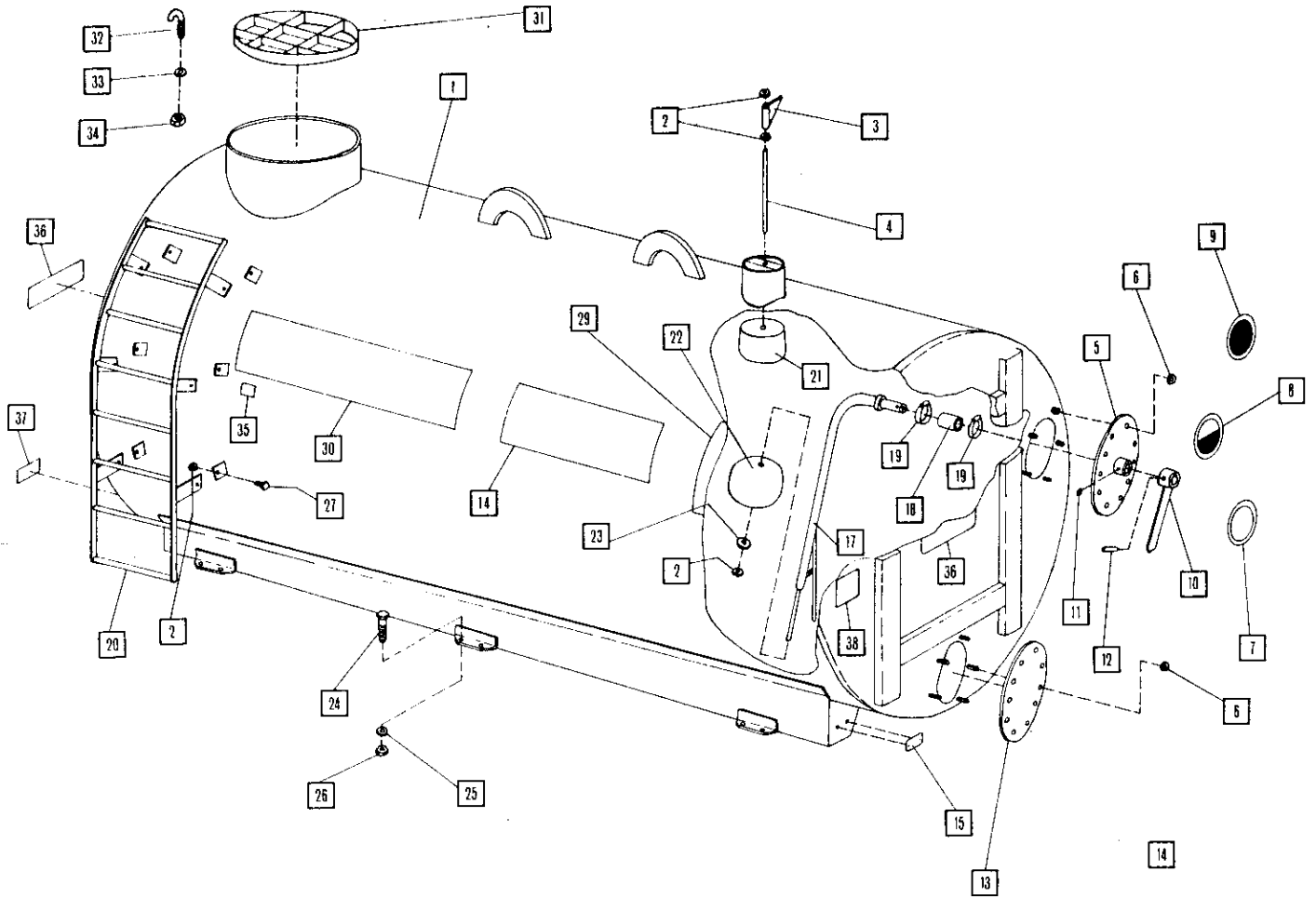
Model 5000



TANK AND ASSEMBLIES

ITEM	QTY	P/N	DESCRIPTION
1	1	11846	Tank Weldment
2	9	2081	Nut, Hex Hd. 5/16
3	1	11901	Indicator Flag
4	1	11900	Threaded Rod
5	1	11910	Cover Plate
6	10	2082	Nut, Hex Hd. 3/8
7	1	11038	Decal "Empty"
8	1	11630	Decal "1/2"
9	1	11039	Decal "Full"
10	1	10949	Indicator
11	1	2286	Zerk Fitting 1/4-28
12	1	1908	Spring Pin 1/4-1 1/2
13	1	10922	Cover
14	1	10754	Decal "5000"
15	1	12484	Plate, Serial Number
16	2	7252	Rivet, Serial Plate
17	1	11905	Float Arm
18	1	10952	Seal, Hose
19	2	10953	Hose Clamp 3"
20	1	11894	Ladder
21	1	11899	Full Indicator Float
22	1	10948	Ball, 6" Plastic
23	1	1597	Washer 5/16
24	12	1308	Bolt, Hex Hd 3/4-1 1/4 Gr 5
25	12	1641	Lockwasher 3/4
26	12	1697	Nut, Hex 3/4
27	6	1694	Bolt, Truss Head 5/16-3/4
28			
29	2	12285	Decal, Logo
30	2	12289	Decal, "Balzer"
31	1	14272	Grate
32	2	14276	"J" Bolt
33	2	1596	Washer, Flat 1/4
34	2	2564	Nut, Hex, 1/4 (Unitorque)
35	1	14187	Decal "Danger (Gases)"
36	2	12286	Decal "Balzer"
37	1	8155	Decal "Caution"
38	1	10744	Decal "Be Careful"

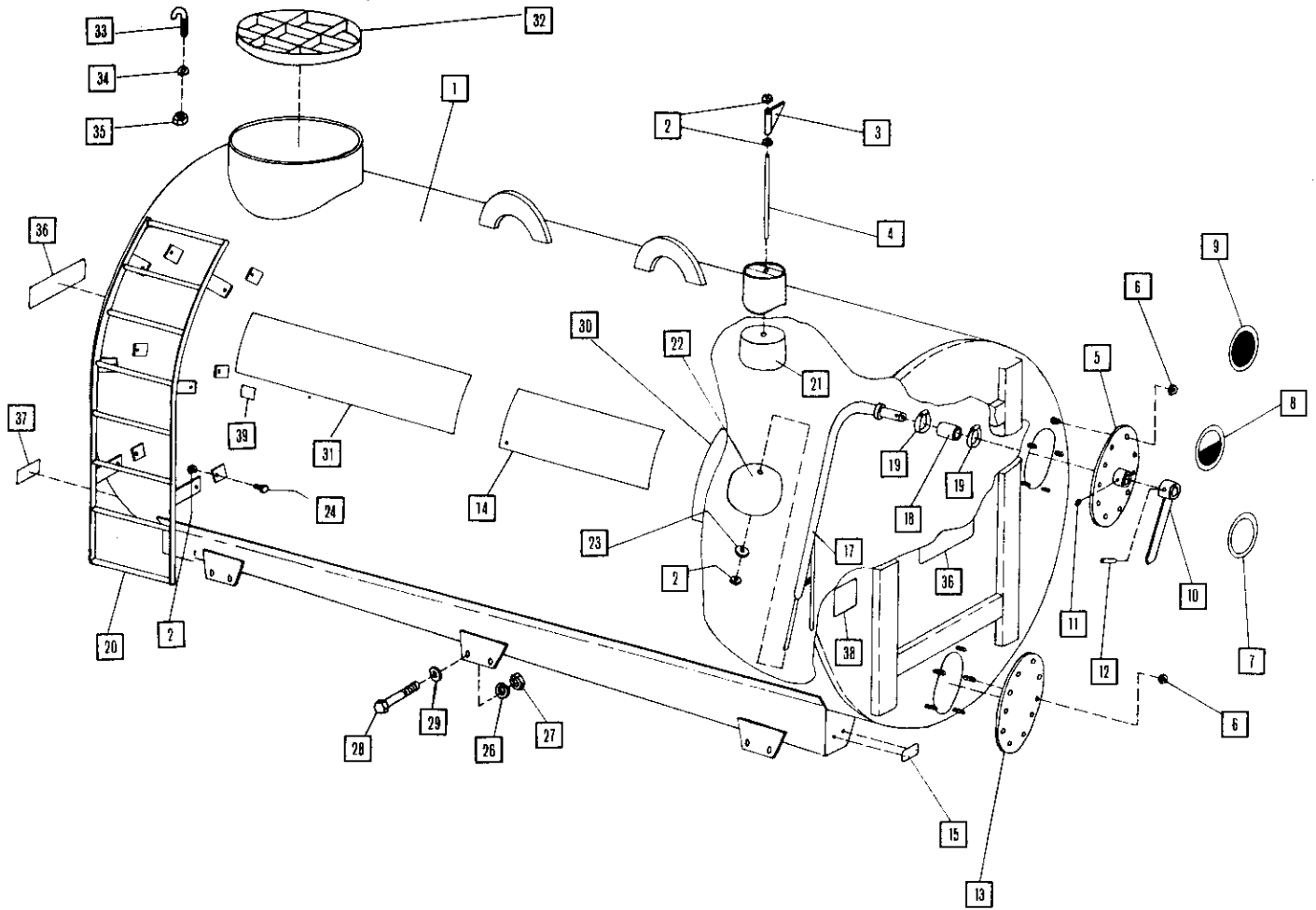
Model 4000



TANK AND ASSEMBLIES

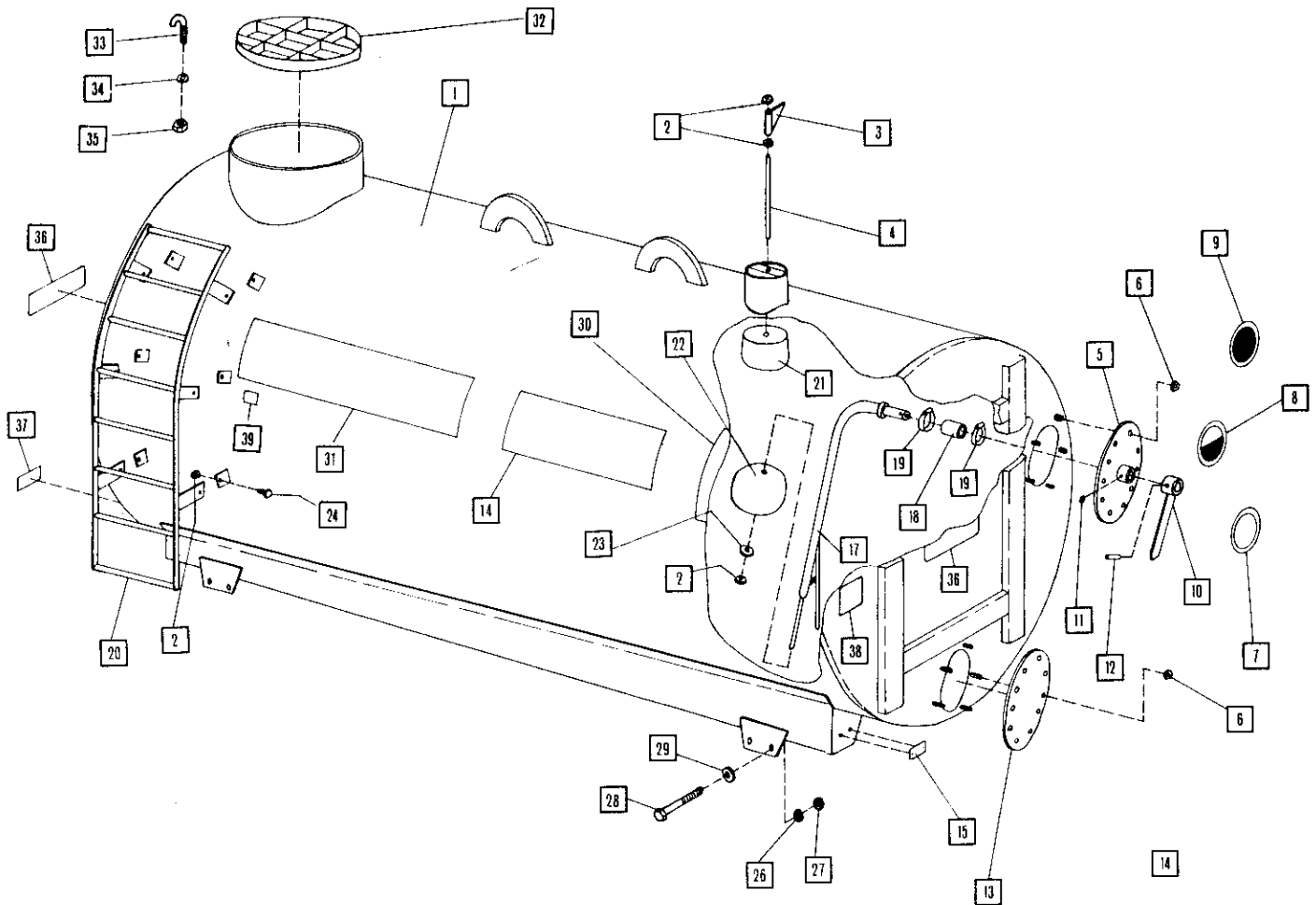
ITEM	QTY	P/N	DESCRIPTION
1	1	14233	Tank Weldment
2	9	2081	Nut, Hex Hd. 5/16
3	1	11901	Indicator Flag
4	1	11900	Threaded Rod
5	1	11910	Cover Plate
6	10	2082	Nut, Hex Hd. 3/8
7	1	11038	Decal "Empty"
8	1	11630	Decal "1/2"
9	1	11039	Decal "Full"
10	1	10949	Indicator
11	1	2286	Zerk Fitting 1/4-28
12	1	1908	Spring Pin 1/4-1 1/2
13	1	10922	Cover
14	1	14028	Decal "4000"
15	1	12484	Plate, Serial Number
16	2	7252	Rivet, Serial Plate
17	1	11905	Float Arm
18	1	10952	Seal, Hose
19	2	10953	Hose Clamp 3"
20	1	11894	Ladder
21	1	11899	Full Indicator Float
22	1	10948	Ball, 6" Plastic
23	1	1597	Washer 5/16
24	12	1308	Bolt, Hex Hd 3/4-1 1/4 Gr 5
25	12	1641	Lockwasher 3/4
26	12	1697	Nut, Hex 3/4
27	6	1694	Bolt, Truss Head 5/16-3/4
28			
29	2	12285	Decal, Logo
30	2	12289	Decal, "Balzer"
31	1	14272	Grate
32	2	14276	"J" Bolt
33	2	1596	Washer, Flat 1/4
34	2	2564	Nut, Hex, 1/4 (Unitorque)
35	1	14187	Decal "Danger (Gases)"
36	2	12286	Decal "Balzer"
37	1	8155	Decal "Caution"
38	1	10744	Decal "Be Careful"

Model 3200



TANK AND ASSEMBLIES

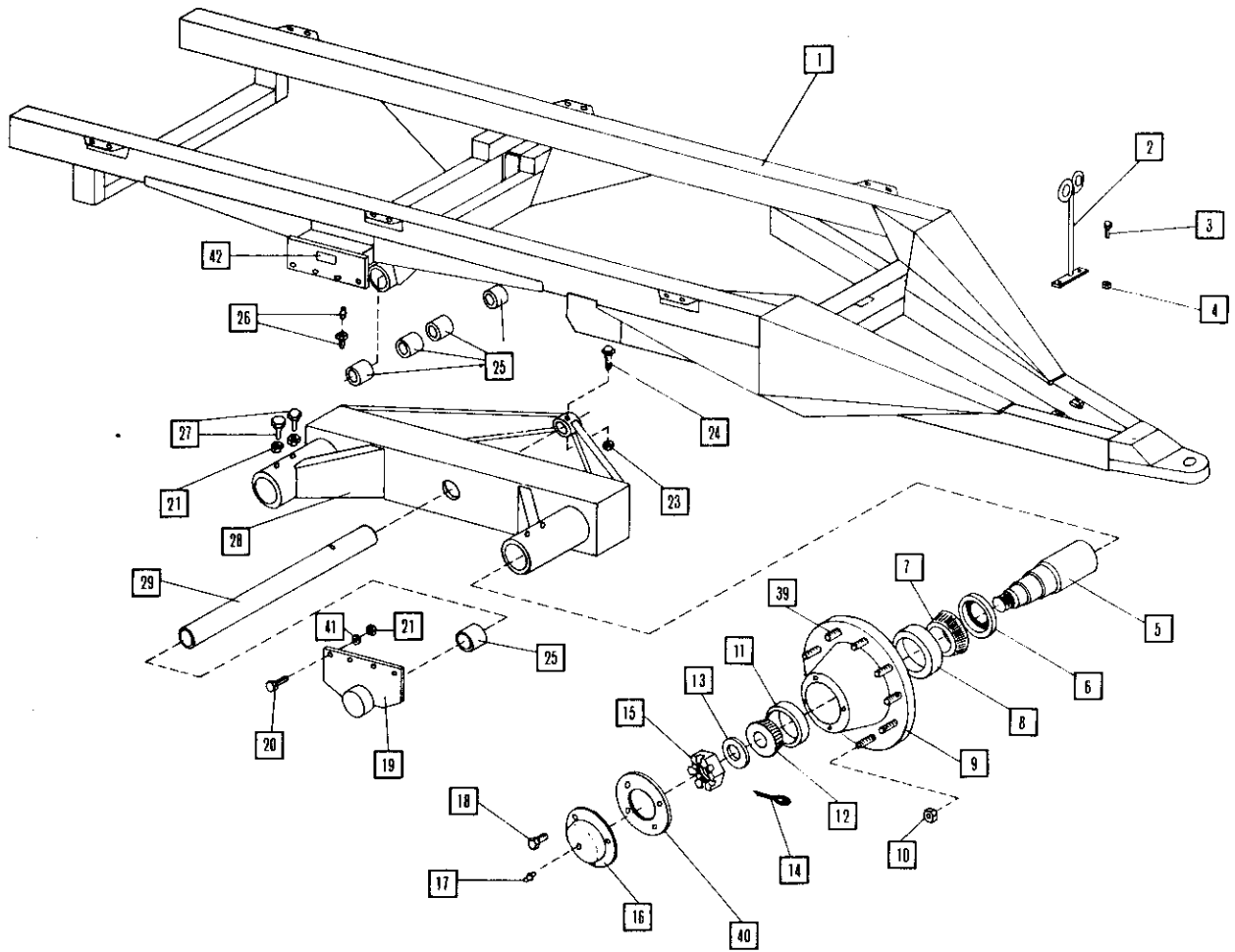
ITEM	QTY	P/N	DESCRIPTION
1	1	12004	Tank Weldment
2	9	2081	Nut, Hex Hd. 5/16
3	1	11901	Indicator Flag
4	1	11900	Threaded Rod
5	1	11910	Cover Plate
6	10	2082	Nut, Hex Hd. 3/8
7	1	11038	Decal "Empty"
8	1	11630	Decal "1/2"
9	1	11039	Decal "Full"
10	1	10949	Indicator
11	1	2286	Zerk Fitting 1/4-28
12	1	1908	Spring Pin 1/4-1 1/2
13	1	10922	Cover
14	1	11616	Decal "3200"
15	1	12484	Plate, Serial Number
16	2	7252	Rivet, Serial Plate
17	1	11905	Float Arm
18	1	10952	Seal, Hose
19	2	10953	Hose Clamp 3"
20	1	12017	Ladder
21	1	11899	Full Indicator Float
22	1	10948	Ball, 6" Plastic
23	1	1597	Washer 5/16
24	6	1494	Bolt, Truss Head 5/16
26	12	1640	Lockwasher 5/8
27	12	1694	Nut, Hex Hd, 5/8
28	12	1302	Bolt, Hex Hd 5/8 x 5 1/2 Gr 5
29	12	1602	Washer, Flat
30	2	12284	Decal, Logo
31	2	12288	Decal, "Balzer"
32	1	14272	Grate
33	2	14276	"J" Bolt
34	2	1596	Washer, Flat 1/4
35	2	2564	Nut, Hex, 1/4 (Unitorque)
36	2	12286	Decal "Balzer"
37	1	8155	Decal "Caution"
38	1	10744	Decal "Be Careful"
39	1	14187	Decal "Danger (Gases)"



TANK AND ASSEMBLIES

ITEM	QTY	P/N	DESCRIPTION
1	1	12053	Tank Weldment
2	9	2081	Nut, Hex Hd. 5/16
3	1	11901	Indicator Flag
4	1	11900	Threaded Rod
5	1	11910	Cover Plate
6	10	2082	Nut, Hex Hd. 3/8
7	1	11038	Decal "Empty"
8	1	11630	Decal "1/2"
9	1	11039	Decal "Full"
10	1	10949	Indicator
11	1	2286	Zerk Fitting 1/4-28
12	1	1908	Spring Pin 1/4-1 1/2
13	1	10922	Cover
14	1	11237	Decal "2200"
15	1	12484	Plate, Serial Number
16	2	7252	Rivet, Serial Plate
17	1	11905	Float Arm
18	1	10952	Seal, Hose
19	2	10953	Hose Clamp 3"
20	1	12059	Ladder
21	1	11899	Full Indicator Float
22	1	10948	Ball, 6" Plastic
23	1	1597	Washer 5/16
24	6	1494	Bolt, Truss Head 5/16
25			
26	12	1640	Lockwasher 5/8
27	12	1696	Nut, Hex Hd. 5/8
28	12	1302	Bolt, Hex Hd 5/8 x 5 1/2 Gr 5
29	12	1602	Washer, Flat 5/8
30	2	12284	Decal, Logo
31	2	12288	Decal, "Balzer"
32	1	14272	Grate
33	2	14276	"J" Bolt
34	2	1596	Washer, Flat 1/4
35	2	2564	Nut, Hex, 1/4 (Unitorque)
36	2	12286	Decal "Balzer"
37	1	8155	Decal "Caution"
38	1	10744	Decal "Be Careful"
39	1	14187	Decal "Danger (Gases)"

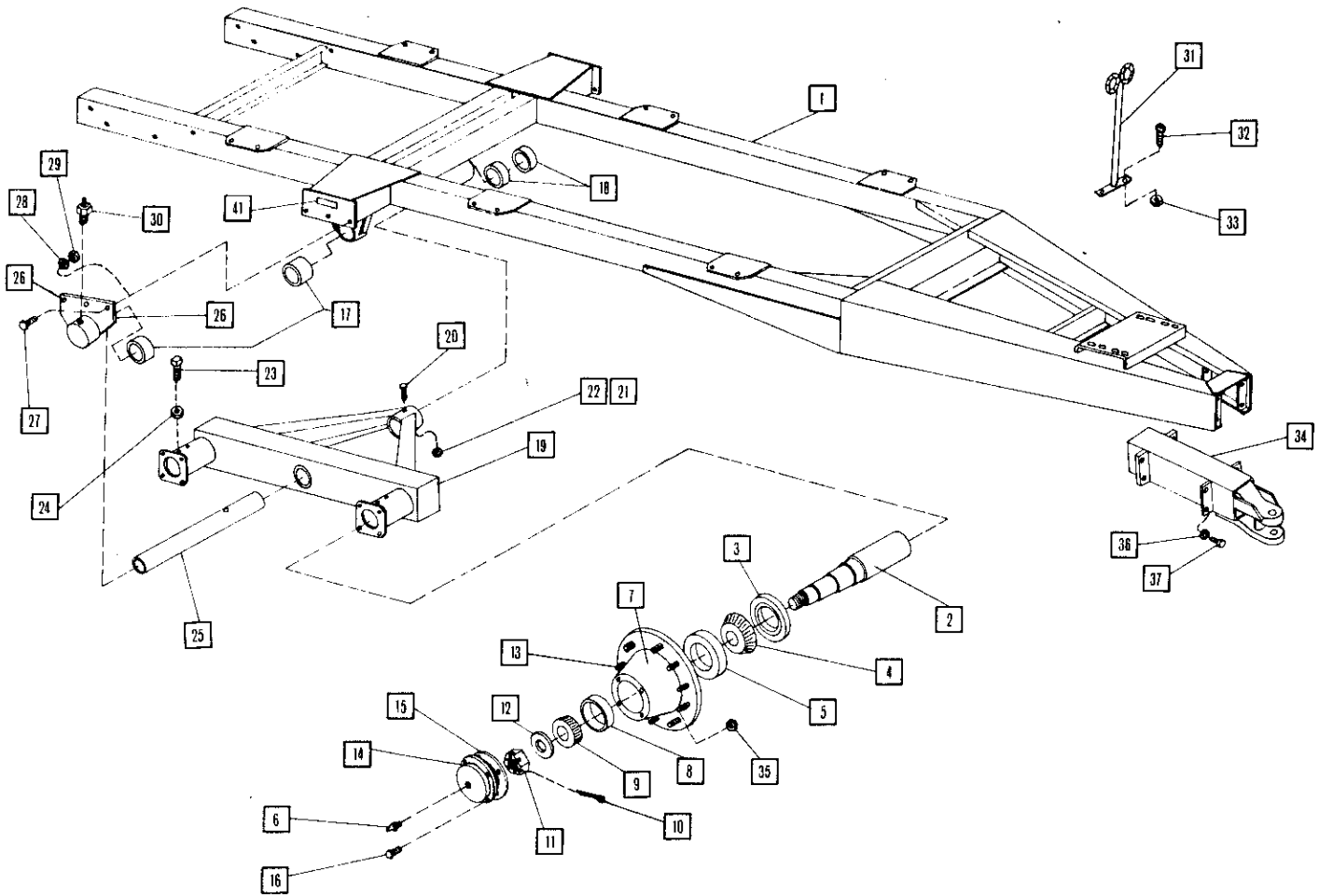
Model 5000



RUNNING GEAR

ITEM	QTY	P/N	DESCRIPTION
1	1	11771	Running Gear Weldment
2	1	11989	Hose Stand
3	2	1206	Bolt, Hex 3/8 x 1
4	2	2082	Nut, Hex Hd. 3/8
5	4	11808	Spindle
6	4	11809	Seal, Grease
7	4	11810	Bearing Cone, Inner
8	4	11811	Bearing Cup, Inner
9	4	11807	Hub, 10-Bolt
10	40	11836	Nut, Hex Hd. 3/4 (Wheel)
11	4	11813	Bearing Cup, Outer
12	4	11812	Bearing Cone, Outer
13	4	11814	Washer
14	4	11816	Pin, Cotter
15	4	11815	Nut, Hex Castle Hd.
16	4	14151	Cap, Hub, (Rework)
17	1	2286	Zerk Fitting 1/4-28
18	16	1183	Bolt, Hex Hd. 5/16 x 3/4
19	2	11823	Axle Cap
20	8	1313	Bolt, Hex Hd. 3/4 x 2 1/2 Gr 5
21	16	1697	Nut, Hex Hd. 3/4
23	2	2084	Nut, Hex Hd. 1/2
24	2	1262	Bolt, Hex Hd. 1/2 x 5
25	6	12290	Bearing, Outside
26	6	11247	Bolt-Zerk Assembly
27	8	2513	Set Screw, Sq. Hd. 3/4 x 2
28	2	11817	Tandem Arm
29	2	11838	Axle Tube
30	4	11834	Wheel 10-Bolt Assembly (Not Shown)
31	11992	Rim 10-Bolt	
32	11993	Flange Ring 10-Bolt	
33	11994	O-Ring, 10-Bolt	
34	11995	Lock Ring 10-Bolt	
35	11831	Tire 66 x 43 x 25 (Used)	
36	11832	Tire 66 x 43 x 25 (Re-Tread)	
37	11883	Tire 66 x 43 x 25 (New)	
38	11835	Valve Stem Assembly	
39	6772	Wheel Stud	
40	4	13890	Rubber Gasket
41	8	1641	Lock Washer 3/4
42	2	11233	Decal "Tighten Wheel Bolts"

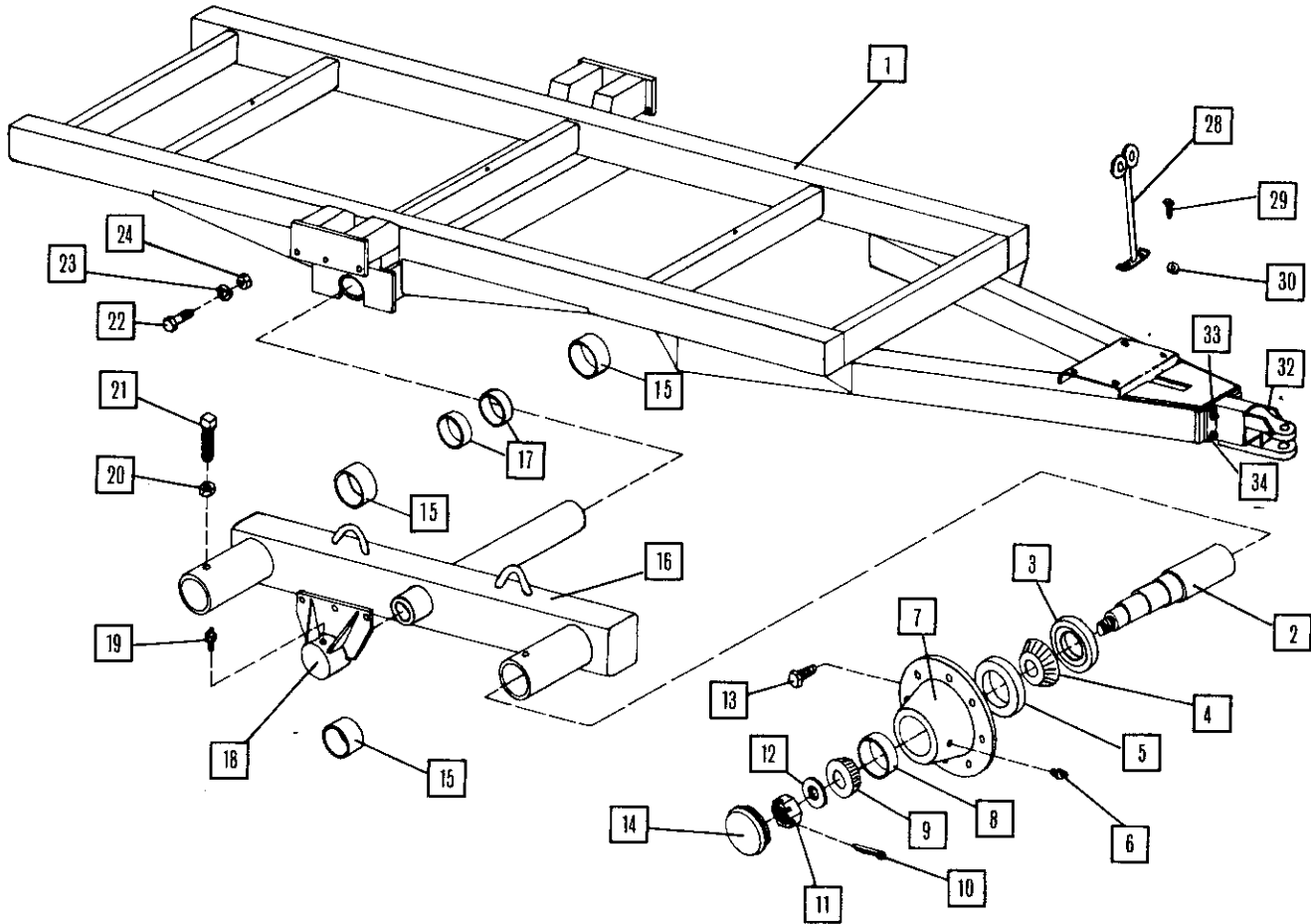
Model 4000



RUNNING GEAR

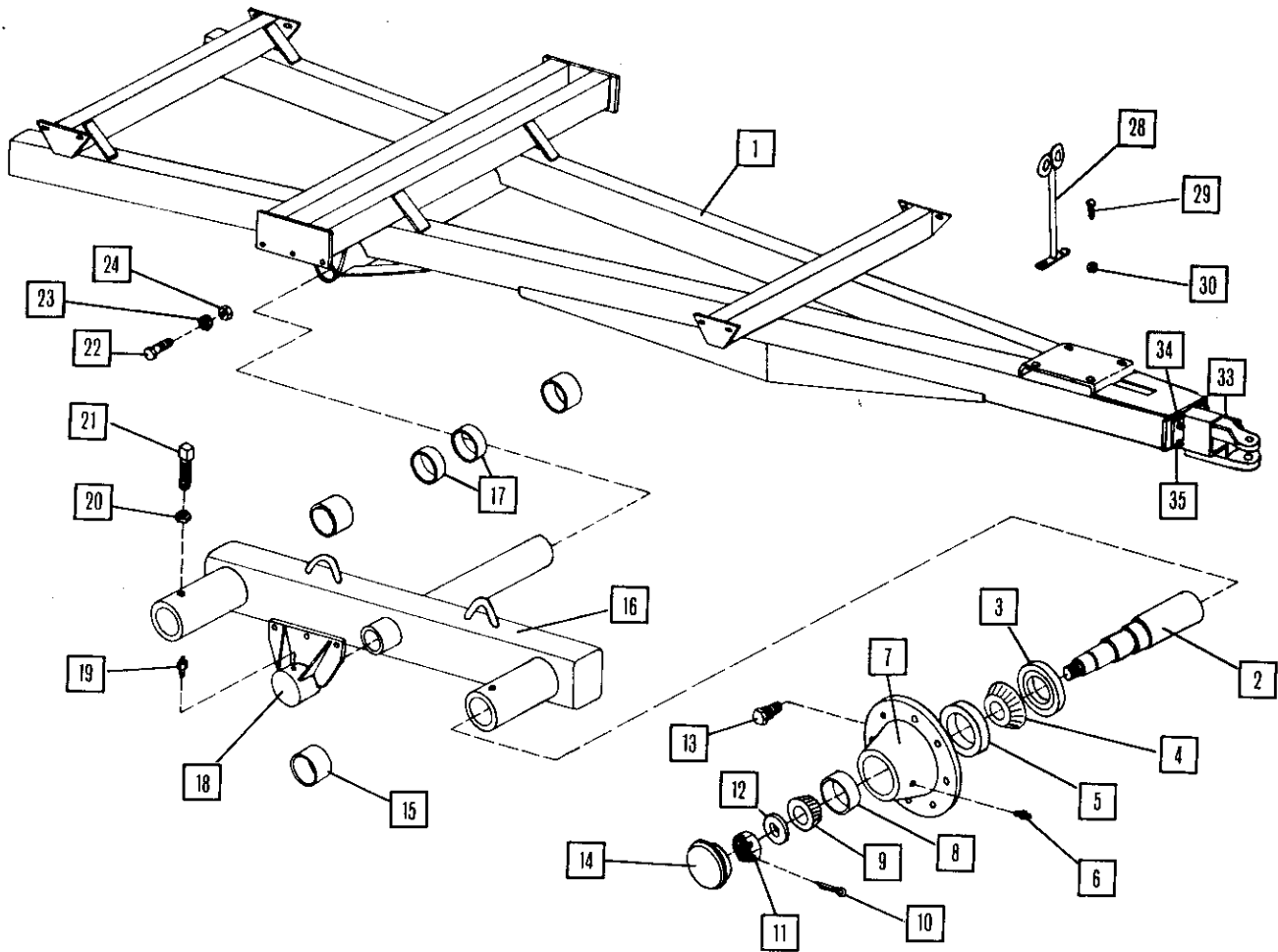
ITEM	QTY	P/N	DESCRIPTION
1	1	14201	Trailer Frame
2	4	14285	Spindle, 4000
3	4	14322	Grease Seat
4	4	14324	Bearing Cone, Inner
5	4	14325	Bearing Cup, Inner
6	4	2286	Zerk, 1/4-28, Short
7	4	14335	Hub, 4000
8	4	14328	Bearing Cup, Outer
9	4	14327	Bearing Cone, Outer
10	4	14333	Cotter Pin
11	4	14332	Nut, Hex. Castle
12	4	14330	Washer
13	40	14326	Wheel Stud
14	4	14286	Cap, Hub (rework)
15	4	14334	Gasket
16	16	1183	Screw, Round Hd. 5/16 x 3/4
17	2	12289	Bearing
18	1	8493	Bearing
19	2	14224	Oscillating Arm
20	2	1262	Bolt, Hex Hd. 1/2-13x5
21	2	1638	Lockwasher, 1/2
22	2	2084	Nut, Hex, 1/2
23	8	2513	Set Screw, Square Hd, 3/4-10x2
24	8	1697	Nut, Hex, 3/4
25	2	14230	Axle Tube
26	2	11467	Cap, Axle
27	6	1291	Bolt, Hex Hd, 5/8 x 2
28	6	1640	Washer, Lock, 5/8
29	6	1696	Nut, Hex, 5/8
30	2	11221	Bolt-Zerk Assembly
31	1	11689	Hose Stand
32	2	1206	Bolt, Hex Hd, 3/8 x 1 1/2
33	2	2082	Nut, Hex, 3/8
34	1	12624	Dummy Hitch
35	40	14329	Hex Nut, Wheel
36	8	1641	Lockwasher 3/4
37	8	1309	Bolt, Hex Hd, 3/4 x 1 1/2 Gr 5
38	4	14190	Wheel, (Not Shown)
39	4	14189	Tire, (Not Shown)
40	4	14188	Tube, (Not Shown)
41	2	11233	Decal "Tighten Wheel Bolts"

Model 3200



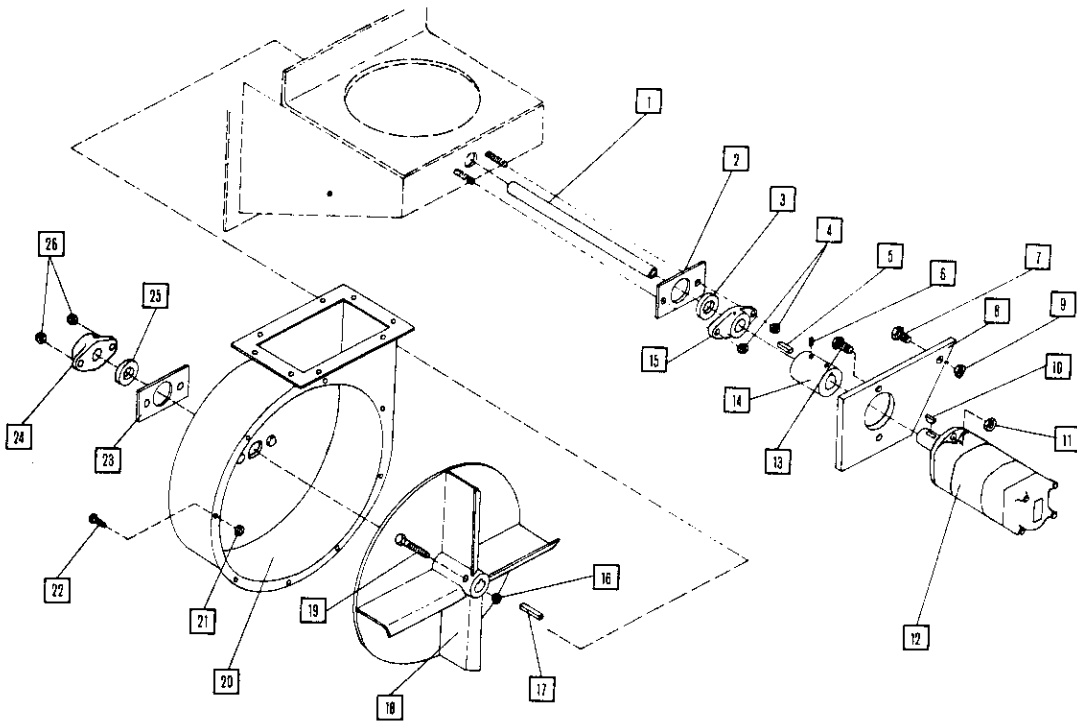
RUNNING GEAR

ITEM	QTY	P/N	DESCRIPTION
1	1	11445	Main Frame, Trailer
2	4	13154	Spindle 3200
3	4	13151	Grease Seal
4	4	13150	Bearing Cone, Inner
5	4	13149	Bearing Cup, Inner
6	4	2286	Zerk (Short)
7	4	13146	Hub 3200
8	4	13147	Bearing Cup, Outer
9	4	13148	Bearing Cone, Outer
10	4	2045	Cotter Pin
11	4	13144	Nut
12	4	1605	Washer
13	32	13152	Bolt, Wheel
14	4	13143	Grease Cap
15	4	12290	Bearing, Outside
16	2	11463	Oscillating Arm
17	2	8493	Bearing, Inside
18	2	11467	Cap, Axle
19	6	11221	Bolt, Zerk Assembly
20	4	1697	Nut, Hex 3/4 NC
21	4	2513	Set Screw, Sq. Hd. 3/4
22	6	1291	Bolt, Hex Hd. 5/8 x 2 Gr 5
23	6	1640	Lockwasher 5/8
24	6	1696	Nut, Hex 5/8
25	4	11473	Wheel 18 x 16.1 (Not Shown)
26	4	11472	Tire 21.5 x 16.1 (Not Shown)
27	4	8842	Valve Stem (Not Shown)
28	1	11989	Hose Stand
29	2	1206	Bolt, Hex Head
30	2	2082	Nut, Hex 3/8
31	32	13496	Nut, Wheel (Not Shown)
32	1	12624	Dummy Hitch
33	8	1641	Lockwasher, 3/4
34	8	1309	Bolt, Hex Hd. 3/4x1 1/2 Gr. 5



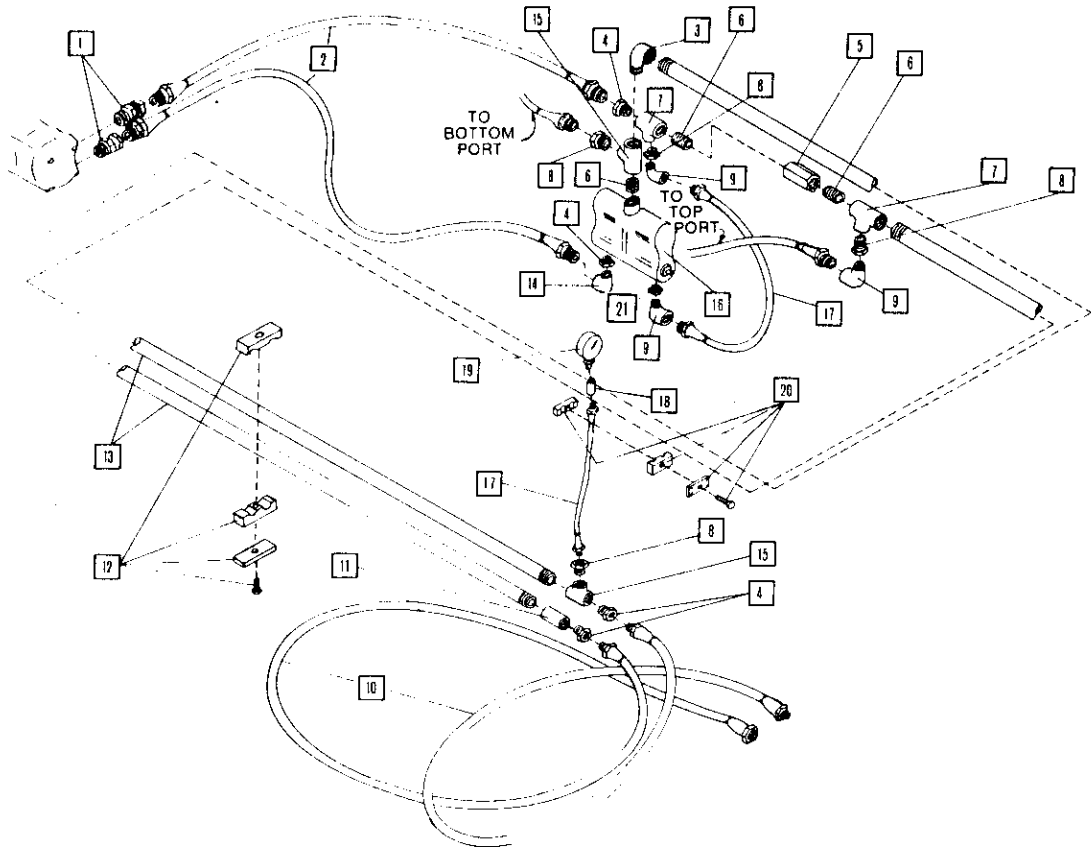
RUNNING GEAR

ITEM	QTY	P/N	DESCRIPTION
1	1	11429	Main Frame, Trailer
2	4	13153	Spindle 2200
3	4	13142	Grease Seal
4	4	13138	Bearing Cone, Inner
5	4	13139	Bearing Cup, Inner
6	4	2286	Zerk (Short)
7	4	13137	Hub 2200
8	4	13141	Bearing Cup, Outer
9	4	13140	Bearing Cone, Outer
10	4	2045	Cotter Pin
11	4	13144	Nut, Castle 1"
12	4	1605	Washer, Flat 1"
13	32	13152	Bolt, Wheel
14	4	13143	Grease Cap
15	4	12290	Bearing, Outside
16	2	11490	Oscillating Arm
17	1	7954	Bearing, Inside
18	2	11467	Cap, Axle
19	6	11221	Bolt, Zerk Assembly
20	4	1697	Nut, Hex 3/4 NC
21	4	2513	Set Screw, Sq. Hd. 3/4
22	6	1291	Bolt, Hex Hd. 5/8 x 2 Gr 5
23	6	1640	Lockwasher 5/8
24	6	1696	Nut, Hex 5/8
25	4	11494	Wheel W11C x 16.1 (Not Shown)
26	4	11495	Tire 16.5 x 16.1 (Not Shown)
27	4	8842	Valve System (Not Shown)
28	1	11989	Hose Stand
29	2	1206	Bolt, Hex Head
30	2	2082	Nut, Hex 3/8
31	32	13496	Nut, Wheel (not shown)
32	2	1245	Bolt, Hex Hd 1/2 x 1/2 (not shown)
33	1	12624	Dummy Hitch
34	8	1641	Lockwasher, 3/4
35	8	1309	Bolt, Hex Hd, 3/4x1 1/2 Gr. 5



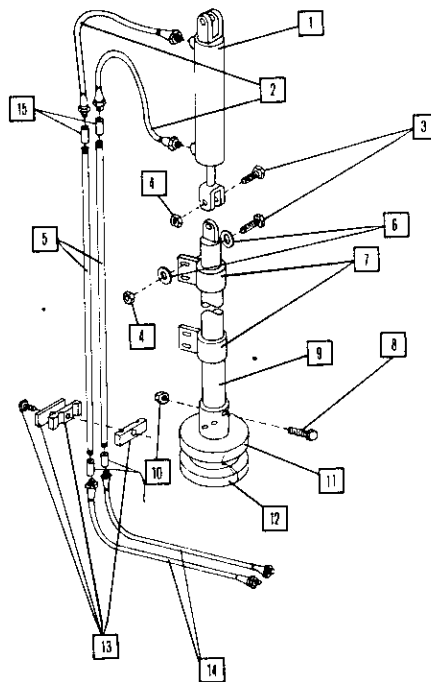
PUMP ASSEMBLY

ITEM	QTY	P/N	DESCRIPTION
1	1	11874	Impellor Shaft
2	1	11871	Seal Plate
3	1	7590	Seal
4	2	2082	Nut, Hex Hd. 3/8
5	1	2356	Key 1/4 x 1/4 x 1 3/4
6	4	2130	Set Screw, Soc Hd. 5/16
7	1	1249	Bolt, Hex Hd. 1/2 x 1 1/4
8	1	12291	Motor Mount
9	1	2084	Nut, Hex Hd. 1/2
10	1	2497	Woodruff Key 1/4 x 1
11	2	2084	Nut, Hex Hd. 1/2
12	1	10565	Hydraulic Motor 6.1
13	2	1250	Bolt, Hex Hd. 1/2 x 1 1/2
14	1	11550	Coupler 1" Bore
15	1	11873	Bearing, 2 Bolt Flange
		11996	Bearing Flange, Rework
		10560	Bearing Insert
		1690	Nut, Hex Hd. 1/4
		2360	Key 1/4 1/4 x 2 1/2
		11876	Impeller
		1168	Bolt, Hex Hd. 1/4 x 2
		20	11880 Impeller Housing
		21	8 2081 Nut, Hex Hd. 5/16
		22	5 1183 Bolt, Hex Hd. 5/16 x 3/4
		23	1 11871 Seal Plate
		24	1 11873 Bearing, 2 Bolt Flange
		AR	11996 Bearing Flange, Rework
		AR	10560 Bearing Insert
		25	1 7590 Seal
		26	2 2082 Nut, Hex Hd. 3/8



PUMP HYDRAULIC SYSTEM

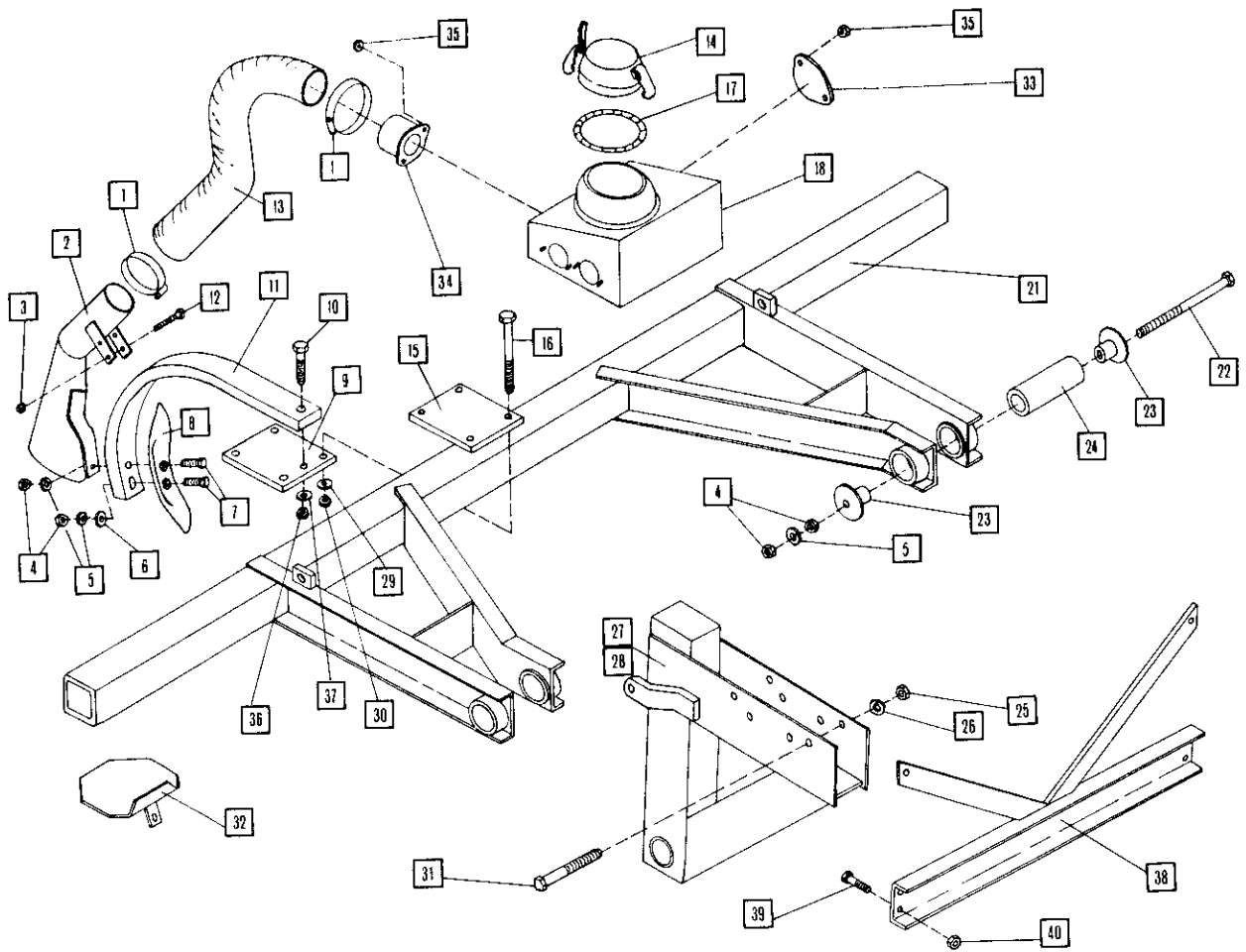
ITEM	QTY	P/N	DESCRIPTION
1	2	10460	Boss Swivel 7/8-14 1 1/2 NPT
2	2	10034	Hydraulic Hose 1/2
3	1	8626	Elbow 3/4 HP Street
4	4	8622	Reducer Bushing 3/4-1/2
5	1	8893	Check Valve 3/4
6	3	8618	Nipple 3/4 Close
7	2	9856	Tee 3/4
8	4	8621	Reducer Bushing 3/4 to 1/4
9	3	11631	Elbow 1/4 LP Street
10	2	11890	Hydraulic Hose
11	1	8620	Coupler 3/4
12	3	12493	Pipe Clamp Assembly
13	2	12058	Pipe Hydraulic (2200)
		11999	Pipe Hydraulic (3200)
		14198	Pipe Hydraulic (4000)
		11889	Pipe Hydraulic (5000)
14	1	8613	Elbow 1/2 HP Street
15	2	8624	Tee 3/4 HP
16	1	14197	Sequence Valve
17	2	11892	Hydraulic Hose
18	1	10996	Coupler 1/4
19	1	8638	Pressure Gauge
20	1	10997	Pipe Clamp Assembly
21	1	9862	Reducer Bushing 3/8-1/4



VALVE ASSEMBLY

ITEM	QTY	P/N	DESCRIPTION
1	1	11623	Cylinder
2	2	11892	Hydraulic Hose
3	6	1208	Bolt Hex Hd. 3/8-1 1/2
4	6	2496	Nut, Hex Hd. 3/8 (Self-Lock)
5	2	11923	Hydraulic Pipe 1/4 (5000) (4000)
	2	12002	Hydraulic Pipe 1/4 (3200)
	2	12061	Hydraulic Pipe 1/4 (2200)
6	8	1598	Washer, Flat 3/8
7	2	11926	Valve Slide
8	1	1256	Bolt Hex Hd. 1/2-3
9	1	11918	Valve Pipe (5000) (4000)
	1	12489	Valve Pipe (3200)
	1	12492	Valve Pipe (2200)
10	1	2539	Nut Hex Hd 1/2 (Self-Lock)
11	1	11913	Bottom Valve
12	1	11917	Valve Gasket
13	2	10997	Pipe Clamp Assembly
14	2	11924	Hydraulic Hose
15	4	10996	Coupler 1/4

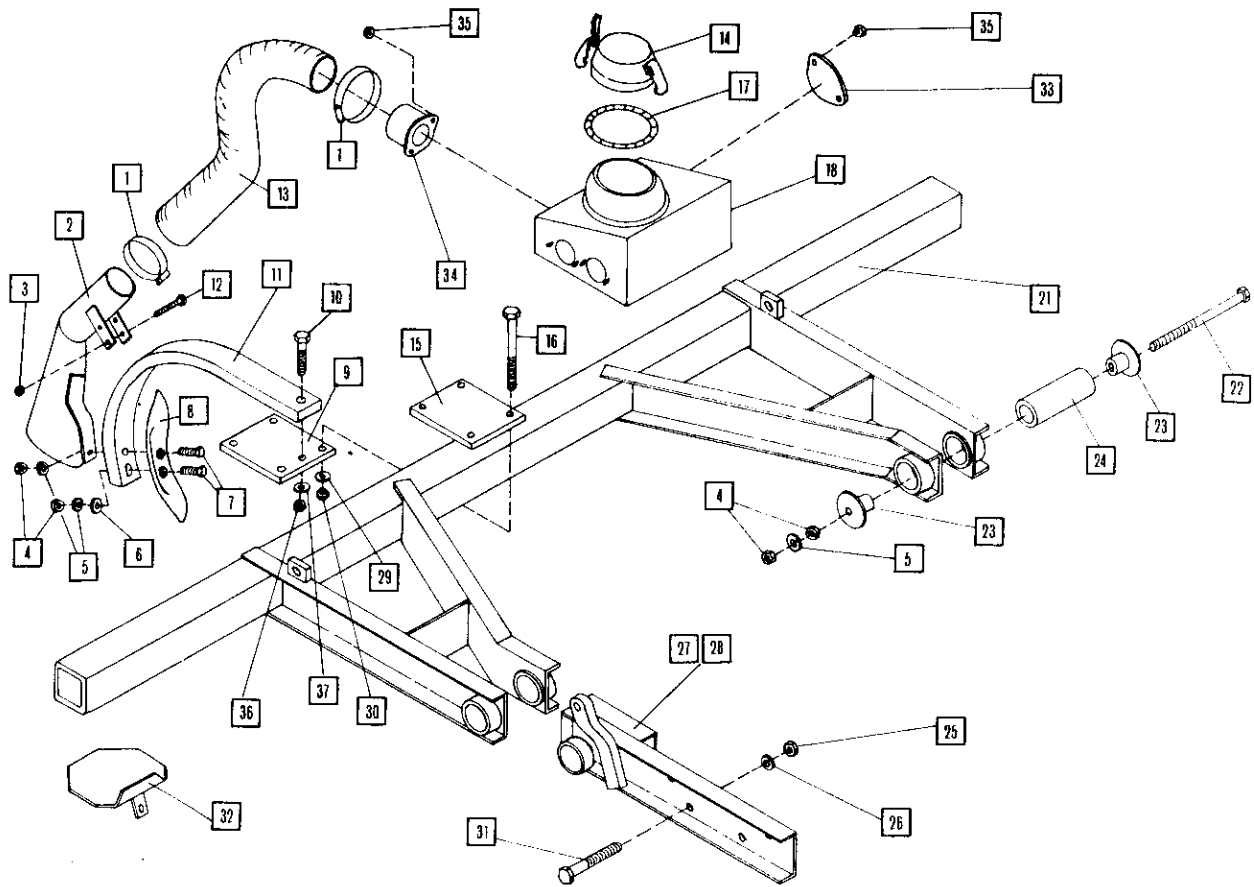
Model 5000 Injectors



INJECTOR SYSTEM

ITEM	QTY	P/N	DESCRIPTION
1	*2	10953	Hose, Clamp, 3"
2	*1	11963	Injector Tube
3	*2	2475	Nut, Hex, 5/16, Unitorque
4	2	1694	Nut, Hex, 1/2
5	*2	1638	Lockwasher, 1/2
6	*1	1600	Washer, Flat, 1/2
7	2	1254	Bolt, Hex, 1/2 x 2 1/2
8	*1	11962	Injector Knife
9	*1	11960	Mounting Plate, Bottom
10	*1	1330	Bolt, Hex, 7/8 x 2 3/4 Gr. 5
11	*1	11961	Injector Shank
12	2	1505	Bolt, Truss Hd, 5/16 x 3
13	AR	11988	Injector Hose (Bulk)
		11968	Injector Hose 90"
		11967	Injectore Hose 72"
		11969	Injector Hose 108"
14	1	11980	Cap 6"
15	*1	11959	Mounting Plate, Top
16	*4	2520	Bolt, Hex, 3/4 x 7 1/2, Gr. 5
17	1	11979	O-Ring, 6"
18	1	13100	Manifold Weldment
19	8	1183	Bolt, Hex 5/16x3/4 (Mount Manifold)
20	8	2081	Nut, Hex 5/16 (Mount Manifold)
21	1	11945	Injector Bar
22	2	11981	Bolt Weldment, 1/2 x 9 5/8
23	4	11954	Retainer
24	2	11953	Pivot Pipe
25	8	1696	Nut, Hex, 5/8
26	8	1640	Lockwasher, 5/8
27	1	11934	Injector Mount, Right
28	1	11935	Injector Mount, Left
29	*4	1641	Lockwasher, 3/4
30	*4	1697	Nut, Hex Hd 3/4
31	8	1302	Bolt, Hex Hd 5/8x5 1/2 Gr. 5
32	*1	12074	Deflector Attachment (Optional)
33	AR	13101	Plate, Blank
34	AR	13102	Flange Weldment
35	AR	2539	Nut, Hex 1/2 (Uni-Torque)
36	AR	1698	Nut, Hex Hd. 7/8
37	AR	1642	Lockwasher 7/9
38	1	11942	Stabilizer
39	6	1250	Bolt, Hex Hd. 1/2x1 1/2
40	6	2084	Nut, Hex Hd 1/2

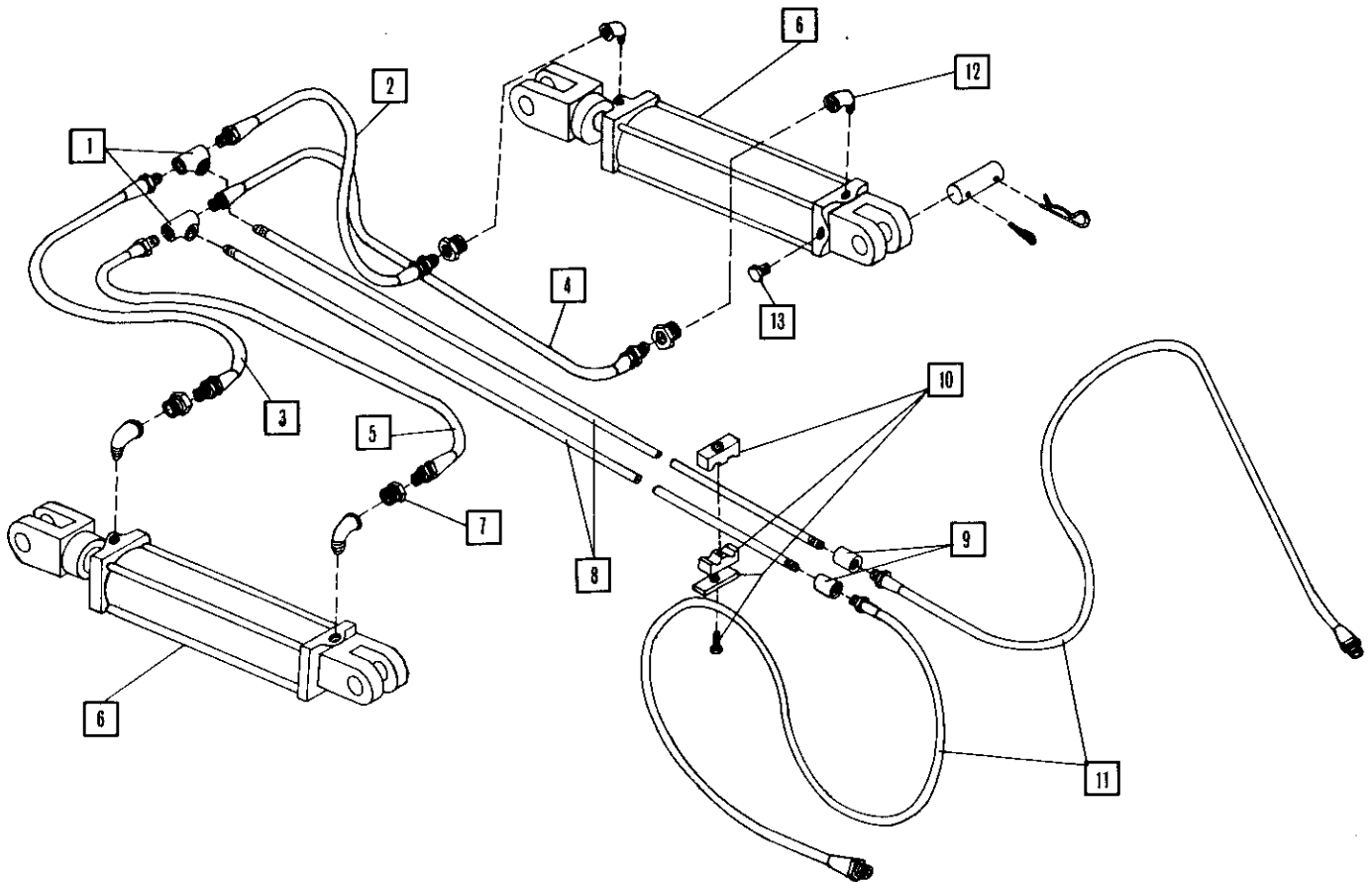
Model 4000, 3200, 2200 Injectors —



INJECTOR SYSTEM

ITEM	QTY	P/N	DESCRIPTION		
1	*2	10953	Hose Clamp, 3"		
2	*1	11963	Injector Tube		
3	*2	2475	Nut, Hex, 5/16 (Unitorque)		
4	*2	1694	Nut, Hex, 1/2		
5	*2	1638	Lockwasher, 1/2		
6	*1	1600	Washer, Flat, 1/2		
7	*2	1254	Bolt, Hex, 1/2 x 2 1/2		
8	*1	11962	Injector Knife		
9	*1	11960	Mounting Plate, Bottom		
10	*1	1330	Bolt, Hex, 7/8 x 2 3/4 Gr 5		
11	*1	11961	Injector Shank		
12	*2	1505	Bolt, Truss Hd, 5/16 x 3		
13	AR	11988	Injector Hose (Bulk)		
	AR	11967	Hose, 72"		
	AR	11968	Hose, 90"		
14	1	11980	Cap		
15	*1	11959	Mounting Plate, Top		
16	*4	2520	Bolt, Hex, 3/4 x 7 1/2 Gr 5		
17	1	11979	O-Ring, 6"		
18	1	13100	Manifold Weldment		
19	8	1183	Bolt, Hex 5/16 x 3/4 (Mount Manifold)		
20	8	2081	Nut, Hex, 5/16 (Mount Manifold)		
21	1	12077	Injector Bar (3200) (4000)		
	1	12088	Injector Bar (2200)		
		22	2	11981	Bolt Weldment, 1/2 x 9 5/8
		23	4	11954	Retainer
		24	2	11953	Pivot Pipe
		25	8	1696	Nut, Hex Hd, 5/8
		26	8	1640	Lockwasher, 5/8
		27	1	12024	Injector Mount, Right (3200)
			1	12082	Injector Mount, Right (2200)
			1	14140	Injector Mount, Right (4000)
		28	1	12025	Injector Mount, Left (3200)
			1	12083	Injector Mount, Left (2200)
			1	14141	Injector Mount, Left (4000)
		29	*4	1641	Lockwasher, 3/4
		30	*4	1697	Nut, Hex Hd, 3/4
		31	8	1302	Bolt, Hex, 5/8 x 5 1/2 Gr. 5
		32	*1	12074	Deflector Attachment (Optional)
		33	AR	13101	Plate, Blank
		34	AR	13102	Flange Weldment
		35	AR	2539	Nut, Hex, 1/2 (Unitorque)
		36	*1	1698	Nut, Hex Hd 7/8
		37	*1	1642	Lockwasher 7/8

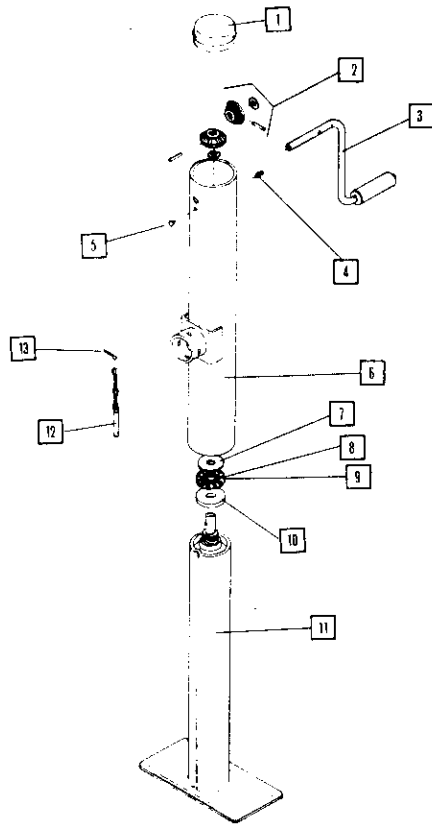
*Per Knife



INJECTOR HYDRAULIC SYSTEM

ITEM	QTY	P/N	DESCRIPTION
1	2	11043	Tee 1/4
2	1	10989	Hydraulic Hose (5000)
	1	11997	Hydraulic Hose (3200, 2200, 4000)
3	1	11957	Hydraulic Hose (5000)
	1	10989	Hydraulic Hose (3200, 2200, 4000)
4	1	10989	Hydraulic Hose (5000)
	1	11997	Hydraulic Hose (3200, 220)
5	1	11957	Hydraulic Hose (5000)
	1	10989	Hydraulic Hose (3200, 2200, 4000)
6	2	8226	Cylinder (6 & 5 Knife)
	2	8210	Cylinder (2 & 3 & 4 Knife)
	4	9862	Reducer 3/8 — 1/4
	2	11929	Hydraulic Pipe (5000)
	2	12020	Hydraulic Pipe (3200, 4000)
	2	12089	Hydraulic Pipe (2200)
	2	10996	Coupler
	4	10997	Pipe Clamp Assembly (5000)
	3	10997	Pipe Clamp Assembly (3200, 2200, & 4000)
	2	11930	Hydraulic Hose
	4	11631	Street Elbow, 3/8
	2	13892	Plug, 3/8 NPT

All Models

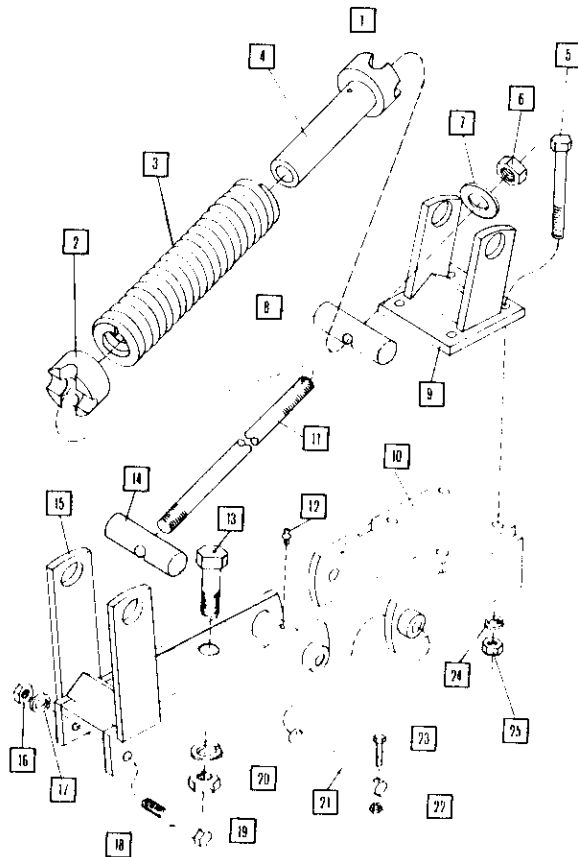


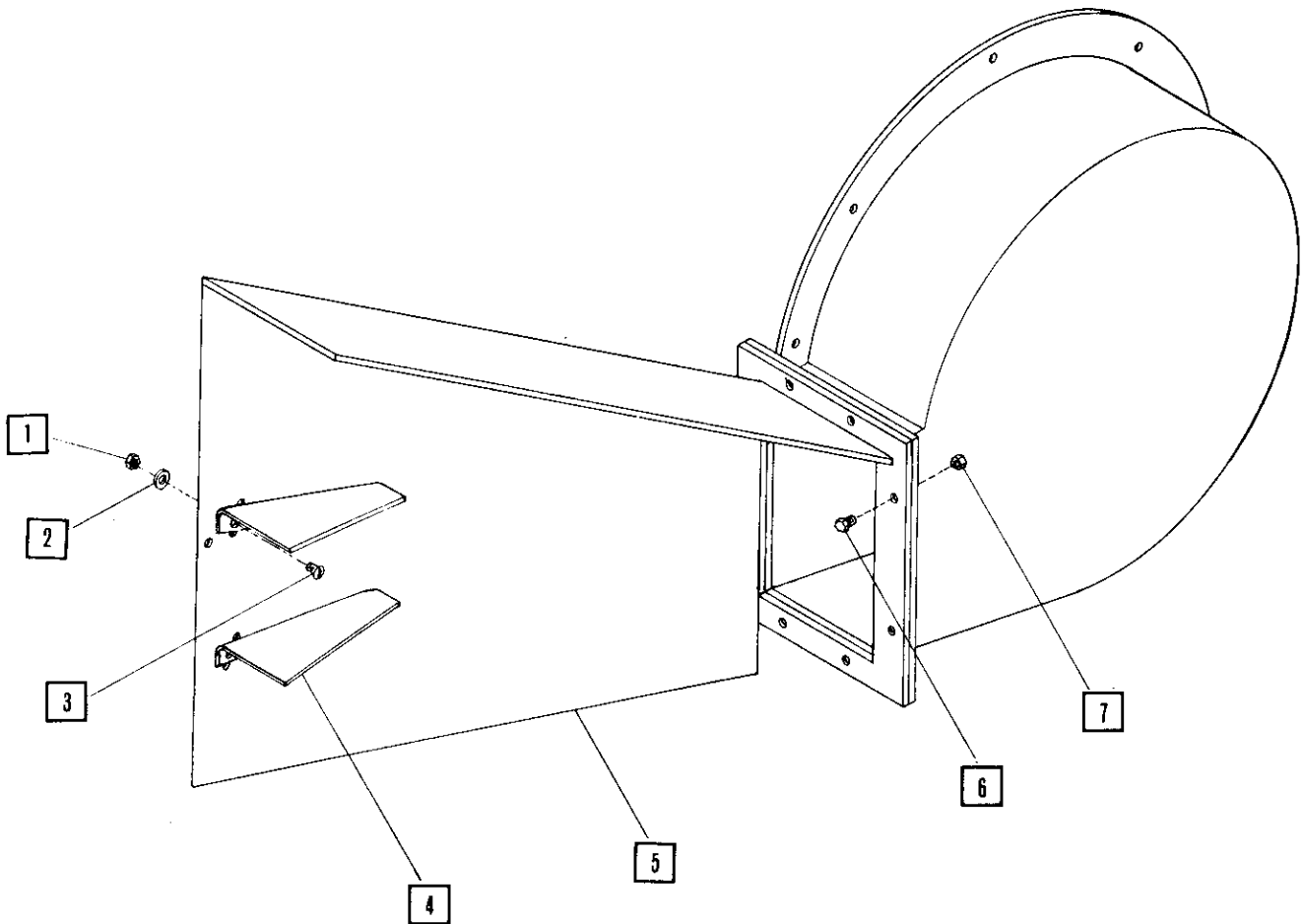
JACK

ITEM	QTY	P/N	DESCRIPTION
1	1	13047	SW Tube Cap
2	1	13046	Bevel Gear Kit
3	1	13045	Crank Assembly
4	1	2288	Zerk, 3/16 Drive-in
5	1	13048	Rubber Grommet
6	1	13055	Outer Tube Assembly
7	1	13054	Thrust Washer
8	1	13053	Ball & Cage Bearing
9	1	13052	Felt Spacer
10	1	13051	Support Washer
11	1	13050	Inner Tube Assembly
12	1	13049	Pull Pin & Chain
13	1	13172	Drive Screw
14		10629	Trailer Jack Complete

SPRING CLAMP ASSEMBLY COMPLETE

ITEM	QTY.	P/N	DESCRIPTION
1		12063	Spring Clamp Assembly Complete
2	1	12073	Adjustment Clamp
3	1	12070	Spring
4	1	12072	Spring Clamp Casting
5	4	2516	Bolt, HHCS 5/8 x 6 Gr 5
6	1	1777	Nut, Hex Hd 3/4 (Lock)
7	1	1603	Washer, Flat 3/4
8	1	12069	Spring Clamp Pin
9	1	12066	Top Clamp
10	1	12065	Bottom Clamp
11	1	12071	Spring Rod
12	1	2286	Grease Zerk 1/4-28
13	1	2524	Bolt, HHCS 7/8 x 2 1/4 Gr 5
14	1	12068	Rear Pin
15	1	12064	Shank Mounting Assembly
16	1	1696	Nut, Hex Hd 1/2
17	1	1638	Lockwasher 1/2
18	1	2523	Bolt, HHCS 1/2 x 4 Gr 5
19	1	1698	Nut, Hex Hd 7/8
20	1	1642	Lockwasher 7/8
21	1	12067	Spring Shank Pivotal Pin
22	2	1770	Nut, Hex Hd 1/4 (Lock)
23	2	2525	Bolt, Hex Hd 1/4 x 2 Gr 5
24	4	1640	Lockwasher 5/8
25	4	1696	Nut, Hex Hd. 5/8

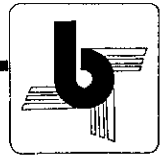




SIDE SLINGER ATTACHMENT

ITEM	QTY	P/N	DESCRIPTION
1	4	2081	Nut, Hex HD 5/16
2	2	1597	Washer, Flat 5/16
3	4	1493	Bolt, Truss HD. 5/16 x 5/8
4	2	13159	Fin, Slinger
5	1	13161	Slinger
6	8	1183	Bolt, Hex HD. 5/16 x 3/4
7	8	2081	Nut, Hex HD 5/16

Brake Installation and Adjustment



1. Jack and block one end of an oscillating arm assembly. Remove the tire and wheel assembly. Remove complete hub and spindle assembly from tandem arm.
2. Mount brake drum to hub using 1/2-20 bolts provided.
3. Mount brake assembly to flange welded to spindle tube on arm assembly, using the bolts with ground off heads in mounting, be sure hydraulic wheel cylinder is at the top.
CAUTION:

The brake assemblies are marked right and left. Brake assemblies must be put on the correct corresponding side, this is because of the back-up feature of the brakes. To determine right and left sides of tank, stand behind tank facing back of unit, tongue end in front.

4. Install hub and spindle assembly with brake drum on it, locking spindle in place with set screw and locking nut. It may be necessary

to back off brake linings to get them inside brake drum.

5. Replace tire and wheel assembly on to hub.
6. Before removing jack and blocks, brakes must be adjusted. The back up feature of the brakes makes it necessary to rotate wheels in forward direction not only when adjusting, the adjusting nut is located behind a slot at the bottom of the brake backing plate. Tighten until linings slightly drag on drum, then back off the adjustment nut 10 to 12 notches.
7. Repeat steps 1 to 6 until the required number of brakes have been installed (two — 2200, four — 3200).
8. Install brake lines per diagram for your unit, 11/64" holes must be drilled for screws holding brake tubes to trailer frame. Place actuator assembly on trailer. Refer to pages 30 & 31.
9. Bleeding the system. Use only SAE 70R1 or 70R3 heavy duty brake fluid.

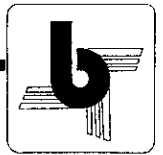
If pressure bleeding equipment is available, follow the manufacturers instructions in bleeding the system.

If system is to be bled manually, proceed as follows:

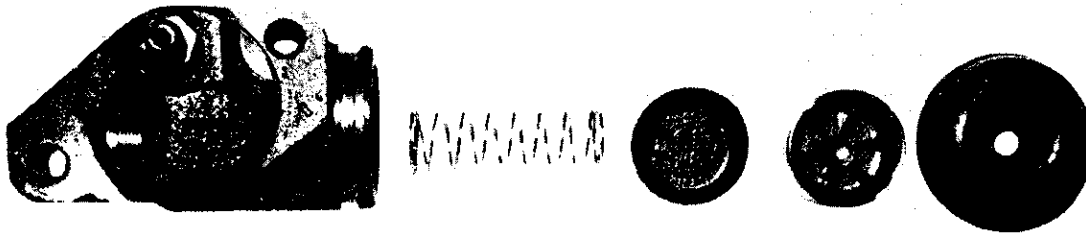
1. Remove damper pin from actuator to facilitate bleeding.
2. Fill master cylinder with fluid. Install bleeder hose on wheel farthest from master cylinder. Have loose end of hose submerged in brake fluid in a glass container to observe bubbling.
3. By loosening the bleeder screw located in the wheel cylinder one turn, the system is open to the atmosphere. Pump the actuator with long steady strokes. The bleeding operation for that wheel is complete when

bubbles no longer rise to the surface of the fluid in container. Close bleeder screw securely.

4. Repeat bleeding operation at each wheel cylinder. During the operation replenish brake fluid in master cylinder so the fluid level does not fall below 1/2 full.
5. After bleeding is completed, make sure master cylinder is filled and filler cap is securely in place. Replace damper pins in actuator and secure with cotter pins.



TYPICAL WHEEL CYLINDER PARTS



In overhauling wheel cylinders, it is best to remove the cylinder from the brake cluster assembly in order to facilitate repair.

TO DIS-ASSEMBLE

To remove the cylinder, unhook the brake shoe lever retracting spring and expand the shoe levers by hand. Disconnect hydraulic line, remove cylinder mounting bolts and lift cylinder from mount. If cylinder is connected with brake hose, loosen, but do not twist hose connection. Lift cylinder free of mount, pulling hose through mounting bracket then unscrew cylinder from hose end.

Remove the rubber boot. Push out internal parts or apply low pressure compressed air to fluid inlet, blowing parts from cylinder.

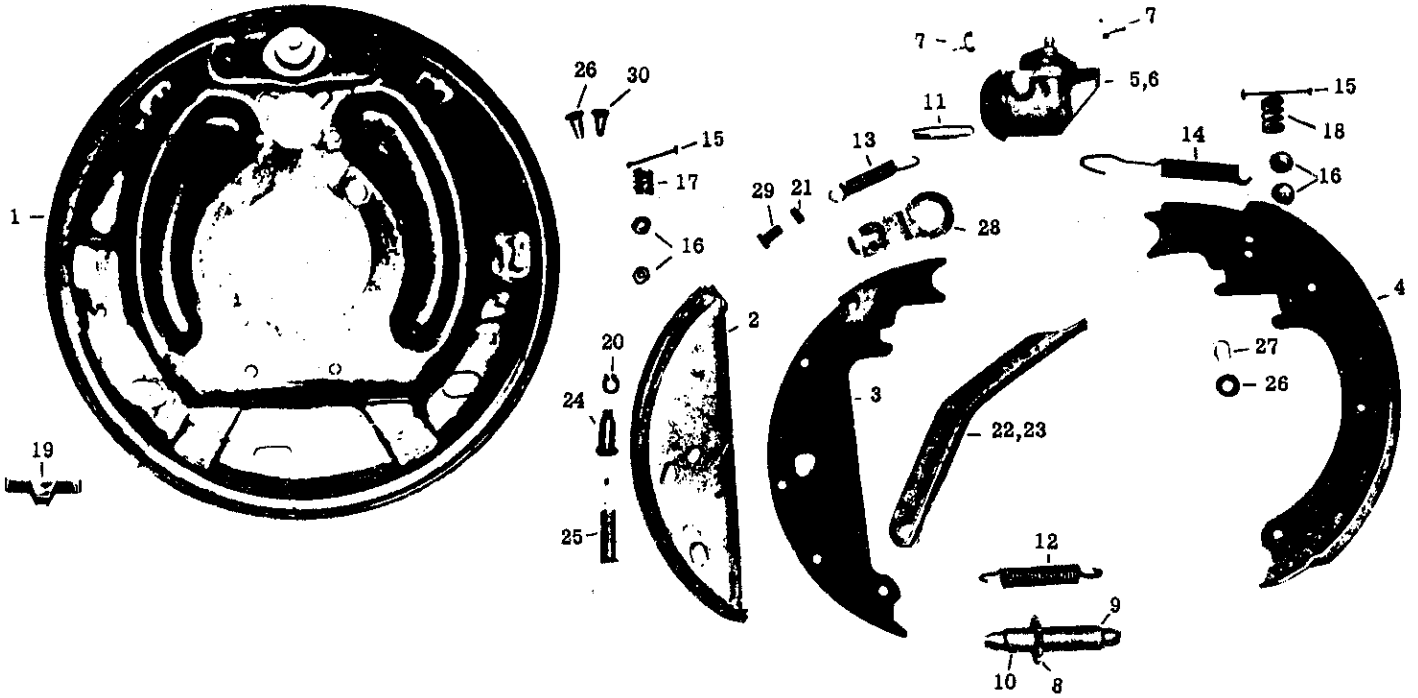
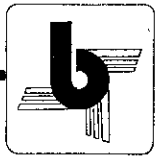
Clean parts well and keep them clean. There must be no trace of dirt, metal filings, sludge, or other deposits when the unit is ready for assembly. Use lint-free cloth in cleaning. Internal

parts must be cleaned in denatured alcohol or hydraulic brake fluid. Cylinder castings may be cleaned with your usual cleaning methods but must be finish cleaned with denatured alcohol or hydraulic brake fluid to remove all traces of solvent. Mineral base solvents deteriorate rubber parts.

TO RE-ASSEMBLE

To re-assemble, lubricate parts and cylinder wall with clean brake fluid. Push in spring, rubber cup and one piston. To assemble the rubber cup, cock it slightly so the flange will not bind. A slight vacuum applied to the fluid inlet will prevent the spring from forcing out the cup. Install boot making certain it is seated into the boot grooves provided on cylinder.

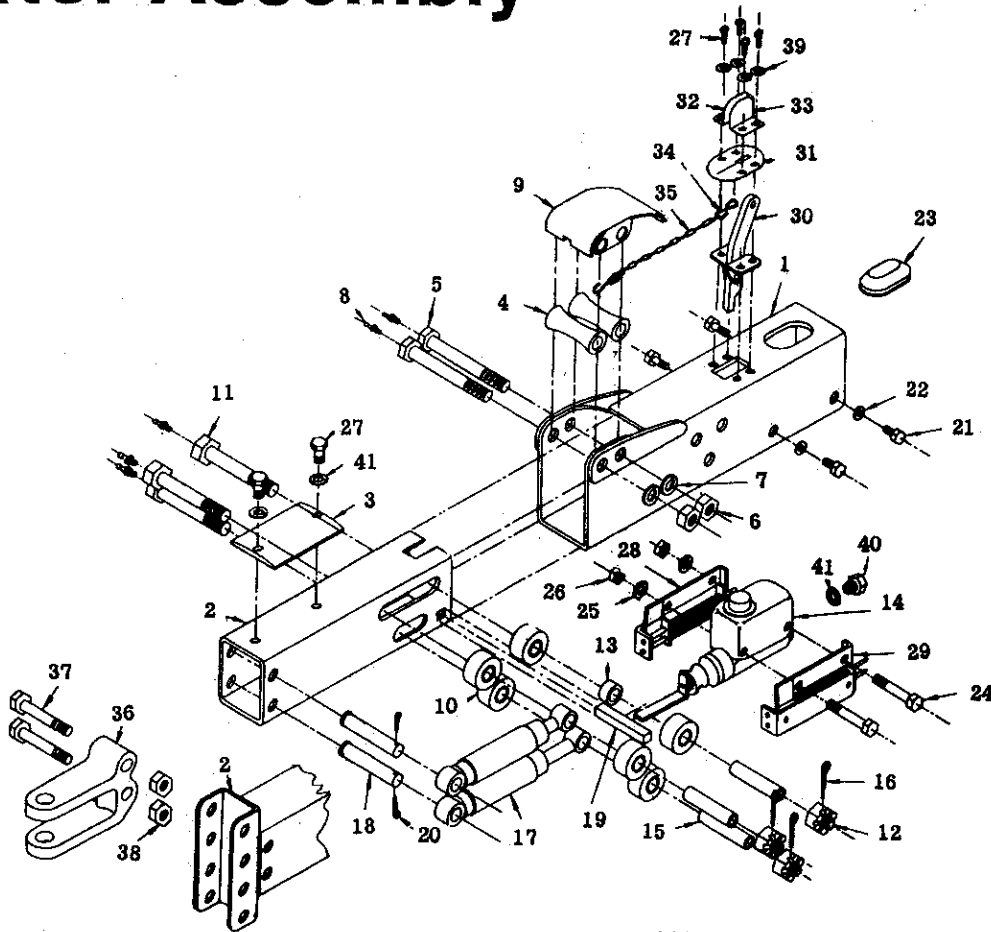
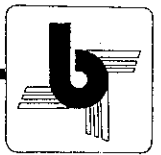
Brake Parts



BRAKE PARTS

ITEM	QTY	P/N	DESCRIPTION
1	1	12633	Back Plate Assembly
2	1	12634	F Brake Shoe Assembly
3	1	12635	F Shoe Lever
4	1	12636	R Shoe Assembly
5	1	12637	Wheel Cylinder Assembly — Right
6	1	12638	Wheel Cylinder Assembly — Left
7	2	12639	Screw and Lockwasher
8	1	12640	Adjusting Screw
9	1	12641	Pivot Nut
10	1	12642	Socket — Adjusting Screw
11	1	12643	Push Rod — Wheel Cylinder
12	1	12644	Spring — Adjusting Screw (Yellow)
13	1	12645	Spring — Front Lever (Red)
14	1	12646	Spring — Rear Shoe (Orange)
15	2	12647	Pin — Shoe Hold Down
16	4	12648	Cup — Shoe Hold Down
17	1	12649	Spring — Front Hold Downn (Yellow)
18	1	12650	Spring — Rear Hold Down (Black)
19	1	12651	Cover Plate — Adjusting hole
20	1	12652	Retaining Ring (Truarc)
21	1	2475	Hex-Locknut 5/16" NC
22	1	12659	Travel Link
23	1	1182	Travel Link Bolt — Hex Cap Screw 5/16" NC x 5/8"
24	1	12662	Pin — Front Shoe — Without Park Linkage
25	1	12663	Spring — Front Shoe
26	1	12664	Plug — Plastic
27	4	1704	Hex Nut 1/2" NF Back Plate Mtng. Bolts
28	4	2568	Cap Screw 1/2" NF x 1" (not illus.) (Rework)
29	4	1638	Lockwasher 1/2" (not illus.)
30	1	12665	Plug — Plastic

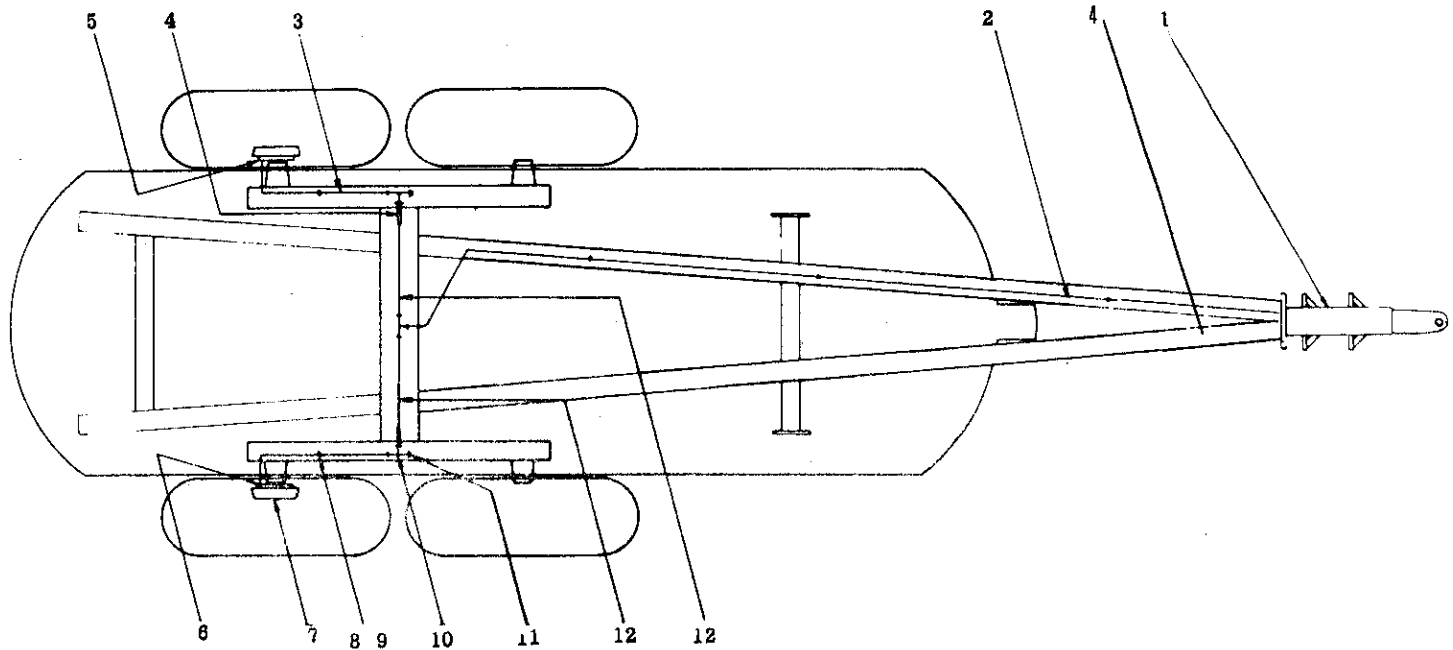
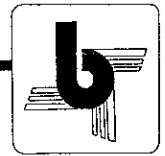
Actuator Assembly



ACTUATOR ASSEMBLY

ITEM	QTY	P/N	DESCRIPTION
1	1	12668	Outer Case Assembly
2	1	12693	Inner Slide Assembly
3	1	12670	Centering Rail
4	2	12671	Front Roller Assembly
5	2	12672	Shoulder Bolt 5/8x4-3/8 1/2 NC
6	2	1694	Nut, Hex 1/2 NC
7	2	1638	Lockwasher, 1/2 Std.
8	5	2286	Grease Fitting
9	1	12673	Front Roller Cover
10	6	12674	Rear Roller Assembly
11	3	12675	Rear Roller Bolt 5/8 NFX5/8
12	3	1726	Slotted Nut 5/8 NF
13	1	12676	Spacer
14	1	12678	Master Cylinder Assembly 1 1/4"
15	3	12679	Spacer
16	3	2036	Cotter Pin 1/8x1 1/4
17	2	12680	Damper
18	2	12681	Damper Bar
19	1	12682	Push Rod Block
20	2	2034	Cotter Pin 1/8x3/4
21	4	1181	Bolt, Hex 5/16 NC x 1/2
22	4	1654	Lockwasher 5/16 External
23	1	12683	Cylinder Cover
24	2	1214	Bolt, Hex 3/8 NC x 3
25	2	1655	Lockwasher 3/8 External
26	2	1692	Nut, Hex 3/8 NC
27	6	1182	Bolt, Hex 5/16 NC x 5/8
28	1	12684	Cylinder Bracket Assmby., R
29	1	12685	Cylinder Bracket Assmby., L
30	1	13250	Brake Lever
31	1	12687	Weather Seal
32	1	12688	Breakaway Lock, Right
33	1	12689	Breakaway Lock, Left
34	2	12690	S Hook
35	1	12691	Chain
36	1	12694	Clevis
37	2	1300	Bolt, Hex 5/8 NC x 4 1/2
38	2	1776	Lock Nut, Hex 5/8 NC
39	6	1635	Lockwasher, 5/16 std.
40	1	12695	Connector
41	1	12696	Gasket

Brake Kit 2200

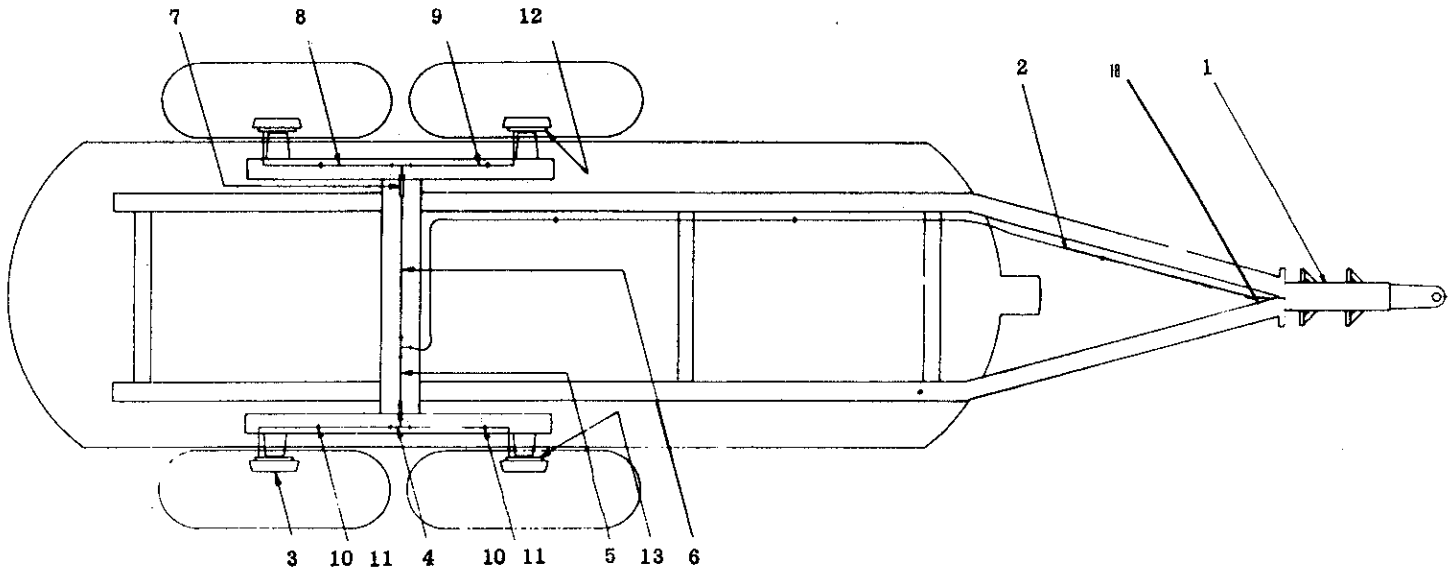
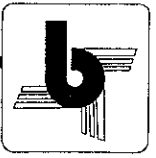


NOTE: Run main brake line (2) along inside of trailer frame and clip to trailer using clip and screw (8,9) Drill (5) 11/64" holes for screws (9) approximately where shown.

BRAKE KIT 2200

ITEM	QTY	P/N	DESCRIPTION
1	1	12631	Actuator (Weldment)
2	1	12577	Brake Line, Main
3	2	12581	Brake Line, Rear
4	3	13927	Hose, 13"
5	1	13041	13" Brake Parts, L.H. (Diagram)
6	1	12632	13" Brake Parts, R.H. (Diagram)
7	2	12660	Eight Bolt Drum, 5 1/2 B.C., 17/32 Holes
8	5	13928	Clip
9	5	13931	Screw
10	3	13926	Tee
11	2	13929	Plug
12	2	12579	Brake Line, Center
13	16	2543	Bolt, Hex Hd 1/2-20 x 1, Gr. 5 (Not Shown)
14	16	1638	Lockwasher, 1/2 (Not Shown)
15	3	1493	Bolt, Truss HD 5/16 x 5/8 L.G. (Not Shown)
16	3	2081	Nut, Hex 5/16 Whizlock (Not Shown)
17	1	12957	Brake Kit 2200 (Complete)
18	1	13904	Puller Plate Kit

Brake Kit 3200



NOTE: Run main brake line (2) along inside of trailer frame and clip to trailer using clip and screw (10,11) Drill (7) 11/64" holes for screws (11) approximately where shown.

BRAKE KIT 3200

ITEM	QTY	P/N	DESCRIPTION
1	1	12631	Acuator (Weldment)
2	1	12530	Brake Line, Main
3	4	12660	Eight Bolt Drum, 5-1/2 B.C., 17/32 Holes
4	3	13926	Tee
5	1	12526	Brake Line, Short
6	1	12527	Brake Line, Long
7	2	13930	Hose, 18-7/8
8	2	12528	Brake Line, Rear
9	2	12529	Brake Line, Front
10	7	13928	Clip
11	7	13931	Screw
12	2	13041	13" Brake Parts, L.H. (Diagram)
13	2	12632	13" Brake Parts, R.H. (Diagram)
14	32	2543	Bolt, Hex HD 1/2-20 x 1, Gr 5 (Not Shown)
15	32	1638	Lockwasher 1/2 (Not Shown)
16	3	1493	Bolt, Truss HD 5/16 x 5/8 LG (Not Shown)
17	3	2081	Nut, Hex, 5/16 Whizlock (Not Shown)
18	1	13927	Hose, 13
19	1	12958	Brake Kit 3200 (Complete)
20	1	13904	Puller Plate Kit

Brake Installation & Adjustment—

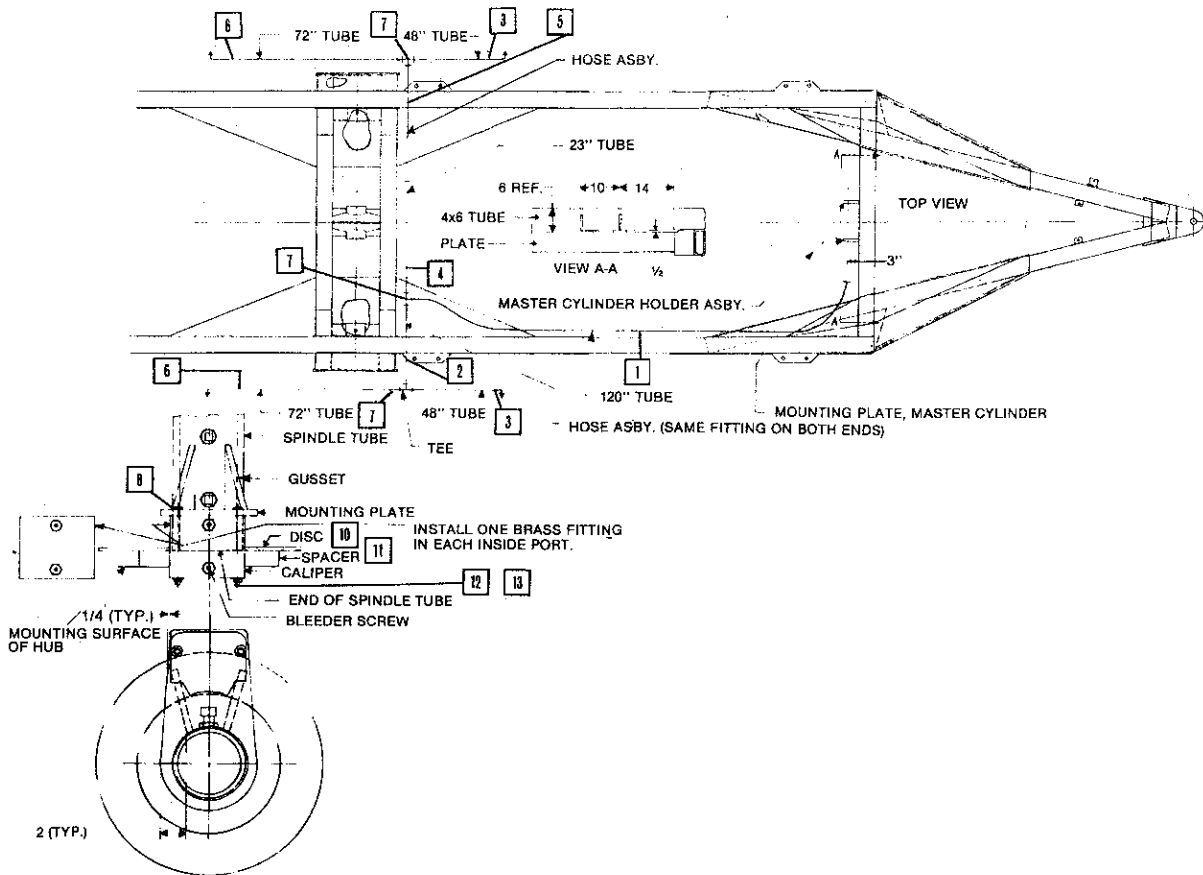


(5000)

Instructions for Brake Kit, 4 Wheel, (5000 Trailer)

1. Remove 4 tires and 4 hub and spindle asby's from trailer.
2. Mount the 4 discs and spacers with the spacer next to the hub, then the disc, with the $\frac{1}{2} \times 3$ bolts and lockwashers provided in the bag of parts.
3. Slide the 4 mounting plates over the spindle tubes and let hang.
4. Remount hub and spindle asby's with the disc's and spacers, not tires yet.
5. Slide the 4 calipers over the disc's and mount them on the mounting plates as shown with the $\frac{1}{2} \times 6\frac{1}{2}$ bolts, lockwashers and nuts provided in the bag of parts.
6. Tack weld (4 spots each side) the mounting plates in position shown making sure hub turns freely, then remove calipers (to prevent getting to hot) then weld mounting plates solid, (no weld by set screw hole) add gussets as shown and weld them solid.
7. Remove calipers after mounting plates have cooled down.
8. Install one brass fitting in each cliper in the inside port as shown.
9. Weld solid the two mounting plates, master cylinder on the 4x6 tube as shown, (these are bolted to the master cylinder holder assembly).
10. Mount master cylinder holder assembly with hardware bolted to it.
11. Install one 72" tube in each rear caliper (into brass fitting) and bend so they run down center (top side) of oscillating tube, making sure wheel will not interfere. Secure each tube in place with one clip and screw (11/64 hole) close to bend of tube.
12. Install one 48" tube in each front caliper (into brass fitting) and bend so they run down center (top side) of oscillating tube, making sure wheel will not interfere. Secure each tube in place with one clip and screw (11/64 hole) close to bend of tube.
13. Mount one tee between each 72" and 48" tube with open part to the inside and secure in place with one clip and screw (11/64 hole) about 2" from edge of tee on 72" tube side of tee.
14. Install hose assembly (same fitting on both ends) in tee on R.H. side and let hang.
15. Install other hose assembly in tee on L.H. side and let hang.
16. Install 23" tube to hose assembly on L.H. side and let hang.
17. Install other tee between 23" tube and hose assembly (R.H. side) with open part to front of tank.
18. Secure 23" tube in place with two clips and screws (11/64 hole) in a position so there is the same amount of loop in each hose assembly.
19. Mount 120" tube in tee and run along R.H. side of trailer (inside along 4x6 tube) then assemble to hose asby. coming out of master cylinder.
20. Secure 120" tube in place with three clips and screws (11/64 hole).
21. How to bleed system. Use only SAE 70R1 or 70R3 heavy duty brake fluid.
22. Fill master cylinder with fluid, bleed wheels from farthest to closest from master cylinder as follows.
23. Keep master cylinder at least $\frac{1}{2}$ full all through bleeding.
24. Loosen bleeder screw on caliper $\frac{1}{2}$ turn, one on opposite side of incoming fluid.
25. Push in and hold (by hand) hydraulic cylinder into master cylinder as far as possible, tighten bleeder screw, release hydraulic cylinder. Repeat this until steady stream of fluid comes out of bleeder screw.
26. Repeat steps 24, 25 for other three calipers.
27. After all calipers are bled, refill master cylinder, and tighten two filler plugs securely.
28. Remount tires.

Brake Lines and Related Parts



(Optional)

ITEM	QTY	P/N	DESCRIPTION
1	1	14278	Main Tube 120"
2	1	14284	Hose Asby. R.H. 3/16 I.D.x24
3	2	14280	Front Tube 48"
4	1	14279	Center Tube 23"
5	1	14282	Hose Asby. L.H. 3/16 I.D.x24
6	2	14281	Rear Tube 72"
7	3	14290	Tee, 1/4 Tube
8	8	1265	Bolt, Hex Hd 1/2 x 6 1/2, Gr 5
9	4	14291	Fitting, 7/16-20 Male to 1/4 Tube Female (Not Shown)
10	4	14298	Disc
11	4	14297	Spacer
12	48	1638	Lockwasher, 1/2
13	8	1694	Nut, Hex 1/2
14	40	2571	Bolt, Hex. Hd. 1/2-20x3, Gr 5 (Not Shown, Hold discs on)
15	11	13928	Clip (Not Shown, hold tubes on)
16	11	13931	Screw (Not Shown, go through clip)
17	1	14149	Hose Asby. Front, 3/16 I.D.x24 (Not Shown, comes out of master cylinder)



SEAL REPLACEMENT — DISASSEMBLY PROCEDURE

(Refer to Figures 1 and 2)

1. Remove brake from vehicle by disconnecting necessary fluid lines and removing mounting bolts. Drain fluid from assembly.
2. Separate housing (item 3) by removing tie bolts (item 1) and washers (item 2).
3. Remove bleeder screw (item 4) and bleeder plug (item 13) from housing. Remove o-ring (item 5) from bleeder plug.
4. Remove seal (item 6) from housing.
5. Remove free floating lining assembly (item 11).
6. Remove piston (item 10) from housing by pulling piston from bore. If piston fails to move, place housing half face down on bench. Protect piston face by placing a cloth between piston and bench. Support housing half on bench in such a way that piston can be blown out of its bore. This is accomplished by carefully introducing low pressure air (10-15 psi) through fluid inlet fittings.

CAUTION: Do not use high pressure as it is dangerous and unnecessary.

While pulling piston out of bore, work boot (item 9) from piston groove. Be careful not to scratch piston.

7. Remove boot (item 9) from housing. Remove back-up ring (item 8) and o-ring (item 7) from inner housing groove. Use a small screwdriver or similar tool. Be careful not to scratch the bore.
8. Repeat steps 3-7 for second housing half.

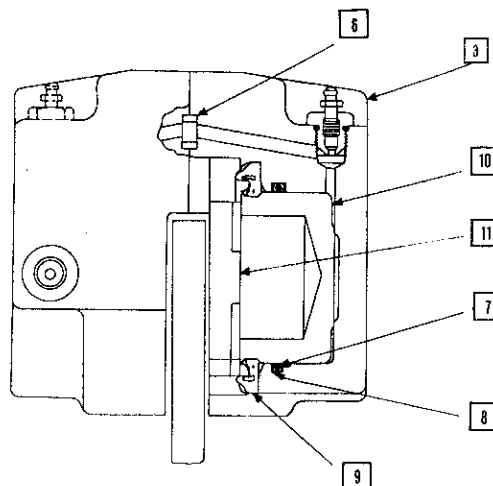


FIGURE 1

SEAL REPLACEMENT — ASSEMBLY PROCEDURE

(Refer to Figures 1 and 2)

LUBRICATE ALL RUBBER COMPONENTS FROM REPAIR KIT WITH TYPE FLUID USED IN THE SYSTEM

1. Clean housing bore with type fluid used in system.
2. Install new o-ring (item 7) and new back-up ring (item 8) in groove of housing. Note direction and order of o-ring (item 7) and back-up ring (item 8).
3. Install new boot (item 9) in housing.
4. Lubricate piston (item 10) with type fluid used in system. Carefully insert piston through new boot (item 9). Push piston into bore with a twisting motion. Piston must bottom on housing to assure lining to disc clearance on vehicle.

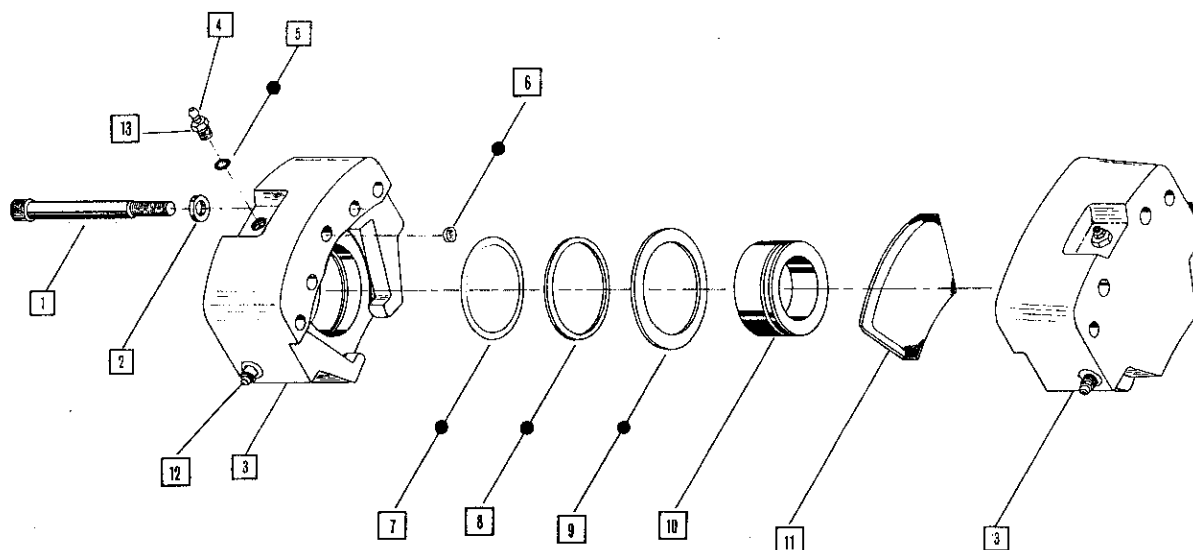


FIGURE 2

5. Position new boot (item 9) in piston groove.
6. Install free floating lining assembly (item 11) in housing pocket.
7. Install o-ring (item 5) on bleeder plug (item 13). Install bleeder plug in housing, then bleeder screw (item 4).
8. Repeat steps 1-7 for second housing half.
9. Install new seal (item 6) in one housing half.
10. Install washers (item 2) and tie bolts (item 1). Torque approximately 95 ft. lbs.

CAUTION: When joining housing halves (item 3) be sure seal (item 6) is seated correctly.

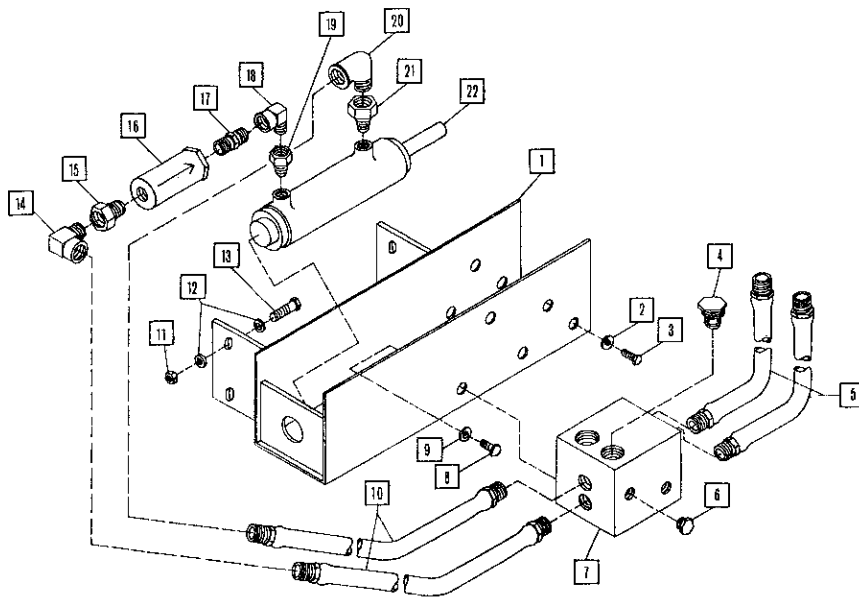
11. Install brake assembly on vehicle with bleeder screws up. Torque mounting bolts to 80 ft. lbs. Shim as required to center caliper over disc.
12. Connect necessary fluid lines.

13. Bleed according to standard procedure.
14. Make several static applications, check for leaks and bleed once more.
15. Check linings to be sure there is no drag. If lining to disc drag occurs, refer to Step 4 to correct.

CHANGE LINING PROCEDURE

1. Remove brake from vehicle by disconnecting necessary fluid lines and removing mounting bolts.
2. Remove old linings (item 11) from housing pockets.
3. Push piston back into bore. Piston must bottom on housing to assure lining to disc clearance on vehicle.
4. Insert new linings (item 11) into housing pockets.
5. Complete brake assembly and installation by using Steps 11-15 of Assembly Procedure.

Master Cylinder Holder Asby.

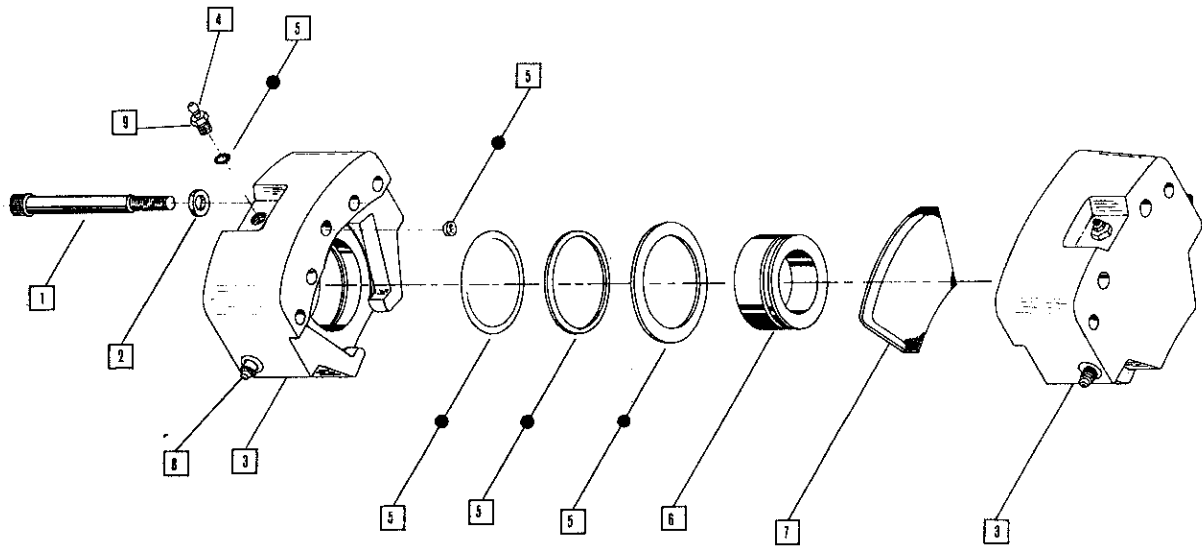


No pipe thread sealer on any fittings in this assembly

(Optional)

ITEM	QTY	P/N	DESCRIPTION
1	1	13255	Master Cylinder Holder (Weldment)
2	6	1637	Lockwasher, 7/16
3	6	2569	Bolt, Hex Hd 7/16-20 UNFx3/4, Gr 5
4	4	14138	Check Valve, O'Ring
5	2	11307	Hose Asby. 1/2x148
6	2	14148	Plug, O'Ring, 7/16-20
7	1	14137	Block, Hydraulic
8	2	1204	Bolt, Hex Hd 3/8x3/4, Gr 5
9	2	1636	Lockwasher, 3/8
10	2	12150	Hose Asby. 1/2x20
11	4	2496	Nut, Hex 3/8 (Locking)
12	8	1598	Washer, Flat-3/8
13	4	1207	Bolt, Hex Hd 3/8x1 1/4, Gr 5
14	1	8613	Street Elbow, 1/2x90°, H.P.
15	1	14134	Reducer, 3/8 Male to 1/2 Female, H.P.
16	1	14133	Filter, 3/8
17	1	8619	Nipple, 3/8, H.P.
18	1	14132	Street Elbow, 3/8x90°, H.P.
19	1	14131	Reducer, 1/4 Male to 3/8 Female, H.P.
20	1	8215	Street Elbow, 1/2x90°, L.P.
21	1	14130	Reducer, 1/4 Male to 1/2 Female, H.P.
22	1	13634	Hydraulic Cylinder (Rework)

Caliper Disc Brake Asby.



ITEM	QTY	P/N	DESCRIPTION
1	2	14303	Tie Bolt
2	2	14304	Washer
3	2	14302	Housing
4	2	14307	Bleeder Screw, Top
5		14310	Repair Kit
6	2	14305	Piston
7	1	14309	Lining Assembly
8	3	14306	Bleeder Screw, Side
9	2	14308	Bleeder Plug

WARRANTY

WARRANTY BY MANUFACTURER

Dealer or Distributor understands and agrees that Manufacturer extends only the following Warranty to customers. In the event dealer or Distributor extends any additional warranty (such as by enlarging the scope or period of warranty or undertaking a warranty of merchantability or fitness for any particular purpose) or any other obligation whatsoever, Dealer or Distributor shall: (1) be solely responsible therefor; (2) have no recourse against Manufacturer thereof; and (3) defend, indemnify and hold Manufacturer harmless against any claim or cause of action whatsoever arising out of, or occasioned by, Dealer or Distributor's extension of said additional warranty or obligation.

CERTIFICATE OF GENERAL EQUIPMENT WARRANTY

"Balzer Mfg. Corp. warrants new Products sold by it to be free from defects in material or workmanship for a period of one (1) year after date of delivery to the first user and subject to the following conditions: Balzer Mfg. Corp's obligation and liability under this Warranty is expressly limited to repairing or replacing at Balzer Mfg. Corp's option, any parts which appear to Balzer Mfg. Corp. upon inspection to have been defective in material or workmanship. Such parts shall be provided at no cost to user, at the business establishment of the authorized Balzer Mfg. Corp. dealer or distributor of the Product during regular working hours. This Warranty shall not apply to component parts or accessories of Products not manufactured by Balzer Mfg. Corp. and which carry the warranty of the manufacturer thereof, or to normal maintenance (such as tune-up) or normal maintenance parts (such as oil filters). Replacement or repair parts installed in the Product covered by this Warranty are warranted only for the remainder of this Warranty as if such parts were original components of said Product. BALZER MFG. CORP. MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

"Balzer Mfg. Corp's. obligation under this Warranty shall not include any transportation charges, cost of installation, duty taxes or any other charges whatsoever, or any liability for direct, indirect, incidental or consequential damage or delay. If requested by Balzer Mfg. Corp. Products or parts for which a warranty claim is made are to be returned transportation prepaid to Balzer Mfg. Corp. Any improper use, including operation after discovery of defective or worn parts, operation beyond rated capacity, substitution or parts not approved by Balzer Mfg. Corp. or any alteration or repair by others in such manner as in Balzer Mfg. Corp's. judgment affects the Product materially and adversely, shall void this Warranty.

"NO EMPLOYEE OR REPRESENTATIVE IS AUTHORIZED TO CHANGE THIS WARRANTY IN ANY WAY OR GRANT ANY OTHER WARRANTY UNLESS SUCH CHANGE IS MADE IN WRITING AND SIGNED BY AN OFFICER OF BALZER MFG. CORP. AT ITS HOME OFFICE."

LIABILITY FOR DELAYS

No liability shall attach to Manufacturer or direct, indirect, incidental, or consequential damages or expenses due to loss, damage, detention or delay in delivery of Products resulting from acts or delays beyond its control.

balzer mfg
corp

highway 60 east
mountain lake, mn. 56159
phone (507)427-3133

WARRANTY CLAIMS AND RETURN OF GOODS

1. The dealer shall submit each warranty claim to the company within 30 days after the defective part has been replaced.
2. The dealer shall furnish the Company definite proof of delivery date of the machine to the purchaser prior to the Company's honoring any warranty claim.
3. All parts alleged to be defective under the Company's warranty policy shall be made available for examination by the Company, either at the dealer's place of business or factory of the Company, at the Company's option. If examination is to be made at factory, the part shall be returned to the Company with transportation charge prepaid, only after receipt of the dealer of written shipping instructions from the Company.
4. Goods authorized for return to the factory are to be returned by dealer within 30 days from authorization date. Failure to return within the 30 day period will invalidate the warranty claim.

In order to be protected under the terms of the BALZER MANUFACTURING CORPORATION warranty, and to avoid delay in processing warranty claims, the original owner's name and address and the identification numbers of the machine should be registered at the BALZER MANUFACTURING CORPORATION factory within thirty (30) days from the date of purchase. A registration card is furnished with each machine.