

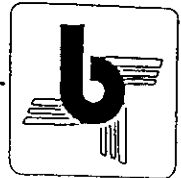
VAC
balzer mfg
corp

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



**OPERATORS & SERVICE MANUAL for
VACUUM MODELS 1500 THROUGH 4800**

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 OWNER'S 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 book 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.

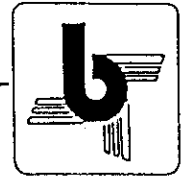
PLEASE FILL IN THE FOLLOWING INFORMATION FOR YOUR RECORDS

DATE OF PURCHASE _____

OWNER'S NAME _____

DEALER'S NAME _____

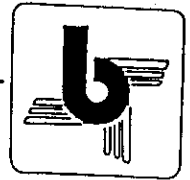
SERIAL NO./IDENTIFICATION NO. _____



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 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 material 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.

Operation



LOADING

Connect Suction Hose from manure pit to tank intake port and open intake valve. Suction hose should be resting on bottom of manure pit.

Move pump Vacuum/Pressure Selector handle to Vacuum position. Start tractor P.T.O., pump will operate at maximum efficiency at 75% of rated tractor P.T.O. speed.

During operation check sight glass on oiler to be sure pump vanes are being oiled. Use needle valve knob to adjust oil drip rate to 40 drops per minute.

When pump begins to labor, the tank has filled. Shut intake valve and shut off tractor P.T.O. Move pump selector lever between Vacuum and Pressure positions, this will equalize the pressure inside tank to atmospheric pressure. Disconnect suction hose from tank inlet. Move pump selector lever to pressure position before getting on tractor.



AVOID SHARP TURNS AND EXCESSIVE SPEED WHEN TANK IS LOADED

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

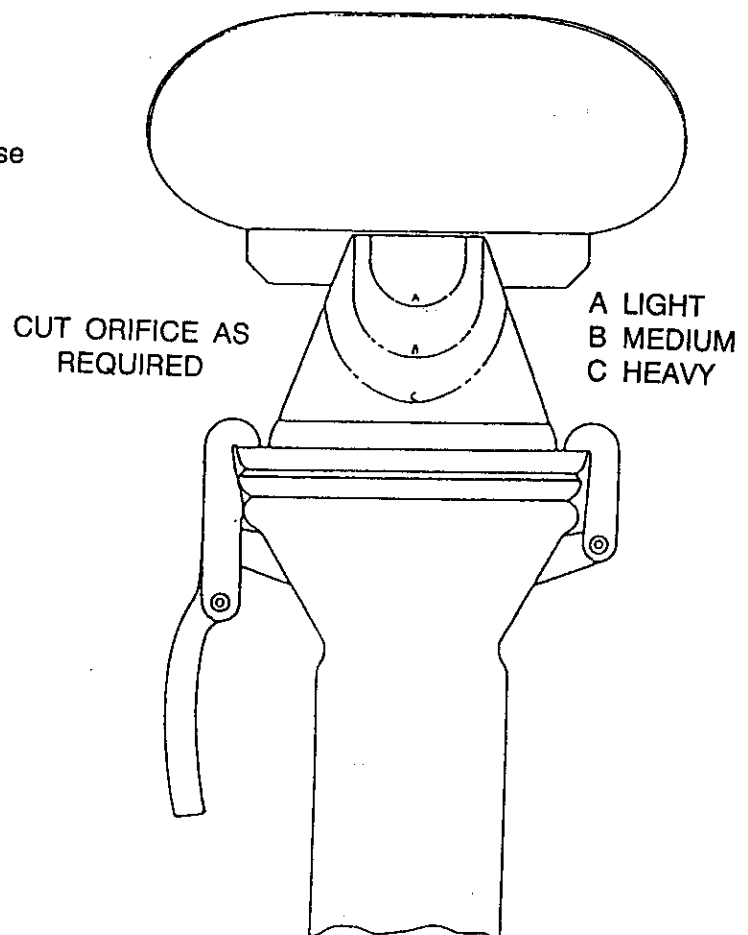
Excessive speed is very dangerous when the tank is loaded. Remember that in many cases the tank will weigh more than the tractor pulling it. The brake system will help with some control problems, but not in all cases.

UNLOADING

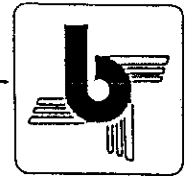
SURFACE BROADCAST

Start P.T.O. with pump selector lever in Pressure Position, open unloading valve. Area and density of coverage will depend upon pressure in the tank, ground speed, rubber orifice shape and opening size, and material consistency. Refer to sketch for suggested procedure for cutting rubber orifice.

Pressure in tank must not exceed 14 P.S.I. Never attempt to open tank while pressure exists in tank.



Operation



METHOD OF OPERATION

To load the tank the air pump removes some of the air from the inside of the tank creating a pressure differential between the atmospheric pressure outside and the area inside the tank. When the end of the suction hose is immersed into the liquid in the pit and the loading valve is opened, the higher atmospheric pressure outside the tank pushes the material into the tank. The loading time will depend on the capacity of the pump, the weight of the material, the height the material must be lifted and size of the suction hose.

To unload, the air pump moves air into the tank pressurizing it so the material is forced out.

Since the pump is designed to move only air, Balzer Mfg. has designed two means of protecting the pump from material entering it. Both are automatic but must be checked for proper operation each time unit is used.

The Primary Shut-Off is located in the portal located on the top of the tank. The Moisture Trap, the secondary shutoff, is located on the front of the tank. Both valves function on the ball and seat principal, where the fluid raises a ball against a rubber valve seat. The Moisture Trap also has the function of removing any airborne foam or particles.

The tank and pump are protected by an adjustable relief valve. The pressure is controlled by loosening the lock nut and turning the valve body in to increase, out to decrease, the system pressure. The system does not have to exceed 10 P.S.I. pressure for maximum operation.

PRE-OPERATION CHECKS

Inspect moisture trap ball and valve seat to make sure they are clean and that the ball moves freely.

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

Check the air pressure in the tires and adjust pressure is necessary to proper inflation.

Move the front Load Level indicator arrow from empty to full level to see that it moves freely.

Operate all valves on pump and tank for proper operation.

Remove dipstick on top of pump and fill reservoir with oil, SAE 20WT or Lighter in winter, SAE 30WT in summer.

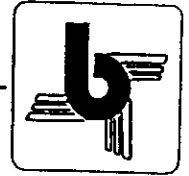
On 540 RPM Pumps, check gear housing oil level on the side of the housing. Fill with SAE 90WT gear lube if required. The front bearing on 1000 RPM pumps should be greased every 100 hrs. Use caution when greasing bearing not to over-grease, as this can damage seals. Before connecting P.T.O. to the tractor, rotate pump input shaft by hand to be sure pump rotates freely.

Do not use a steel faced hammer to assist sliding P.T.O. shaft onto tractors splines. Damage to joints and bearings could result.

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

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

Storage




Flush the inside of the tank or fill tank with water, agitate and discharge.

Before disconnecting PTO, run pump slowly with selector valve in vacuum position. Remove plug in vacuum line between moisture trap and pump slowly pour about a pint of diesel fuel into pump. Shut off PTO and pour another 2 cups of fuel into pump. This procedure will clean and lubricate the inside of the pump.

Open all valves to prevent them from corroding tight. Put a block under jack and raise front of tank allowing it to drain to the back of tank.

Drain moisture from moisture trap, remove and drain surface broadcaster or injector manifold.

Retouch paint as required, store out of the elements if possible. Suction hose should be stored out of direct sunlight.

 To prevent a sudden lowering of injectors, causing possible personal injury or equipment damage, injectors must be stored with transport brackets in place, OR in lowered position.

Liquid Spreader

For most efficient operation, operate tractor PTO at 75% of rated speed when:

- Agitating
- Filling
- Operating with spreading attachment



For most efficient field operation with injection attachment, operate tractor PTO up to, but not exceeding rated speed.

DO NOT:

1. Operate this unit until user is familiar with all controls, and has read and understands operator's manual.
2. Operate pump without oil.
3. Exceed 15 PSI in tank.
4. Tow unit at excessive speeds.

Tire Inflation Pressure

<u>TIRE SIZE</u>	<u>MODEL</u>	<u>1500</u>	<u>2250</u>	<u>3350</u>	<u>4200</u>	<u>4800</u>
12.5Lx16.1		40				
16.5Lx16.1		30	36			
19Lx16.1		28	34			
21.5Lx16.1		24	28	32		
48x25x20		20	20	22	28	
48x31x20		18	18	20	25	32
66x43x25				12	18	23
23.1x26				20	25	32
28Lx26				18	23	26
Airplane			50	55	60	65
Used Truck			55	65	70	75

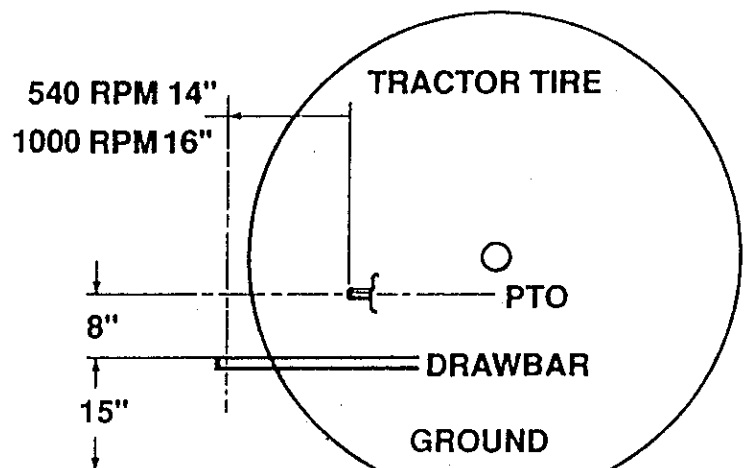
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IMPORTANT

TIGHTEN WHEEL BOLTS
AFTER EACH DAY'S USE
FOR THE FIRST 5 DAYS

DANGER

TANK MAY CONTAIN TOXIC AND, OR
EXPLOSIVE GASES—BEFORE ENTERING,
THOROUGHLY FLUSH TANK WITH WATER
AND VENTILATE CONTINUALLY WHILE INSIDE



SUGGESTED DRAWBAR ADJUSTMENT

Operation



INJECTION ADJUSTMENT

There are two things that must be checked and/or adjusted before injectors are put into the ground for the first time. They are injection depth and sweep ground engagement angle.

To set the depth, lower the injector tool bar on a firm surface making sure the hydraulic cylinders are fully extended. Next loosen the 1/2" clamps holding the gauge wheel tubes and adjust so the bottom of the tire has 2 inches less distance to the ground than the desired injection depth (i.e. 4 inches clearance between tire bottom and ground equals approximately 6 inches injection depth.)

To check ground engagement angle (sweeps only) with injectors down and cylinders fully extended, sweep bottoms should be parallel with the ground. If the heel, back of sweep, is contacting ground, remove cylinder clevis pin and turn cylinder clevis clockwise, shortening the distance between cylinder clevis and butt end pins, one or two turns. If the point of the sweep is making ground contact, lengthen the distance between pins.

STORAGE

Flush the inside of the tank or fill tank with water, agitate and discharge.

Before disconnecting P.T.O., run pump slowly with selector valve in vacuum position. Remove vacuum line between moisture trap and pump, slowly pour about a pint of diesel fuel into pump. Shut off P.T.O. and pour another 2 cups of fuel into pump. This procedure will clean and lubricate the inside of the pump.

Fill all oil reservoirs and grease all fittings.

Open, and block open, all valves to prevent them from corroding tight. Put a block under jack and raise front tank allowing it to drain to the back of tank.

Drain moisture from moisture trap, remove and drain surface broadcaster or injector manifold.

Retouch paint as required, store out of elements if possible. Suction hose should be stored out of direct sunlight.

To prevent a sudden lowering of injectors, causing possible personal injury or equipment damage, injectors must be stored with transport brackets in place, or in lowered position.

LUBRICATION

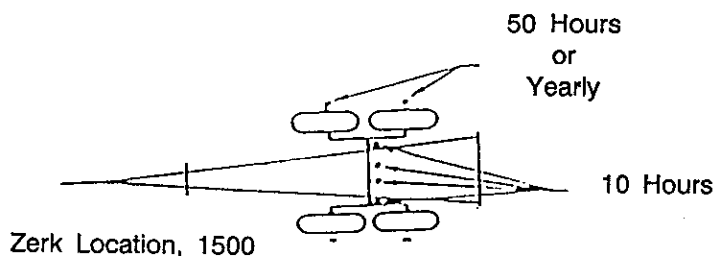
Be sure grease fittings function. If damaged or broken fittings exist, replace them with standard farm hardware store fittings. Use lithium base #2 multi-purpose grease for all fittings.

Wipe all fittings prior to greasing and remove excess grease after greasing.

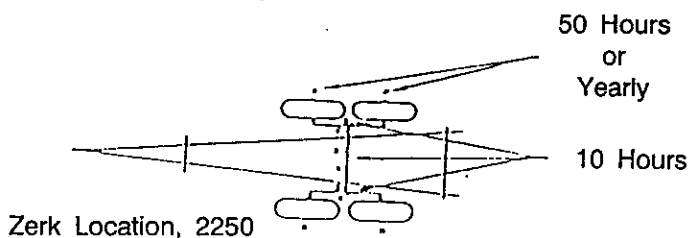


Never attempt to lubricate any piece of machinery with it operating. Always shut off tractor and remove ignition key.

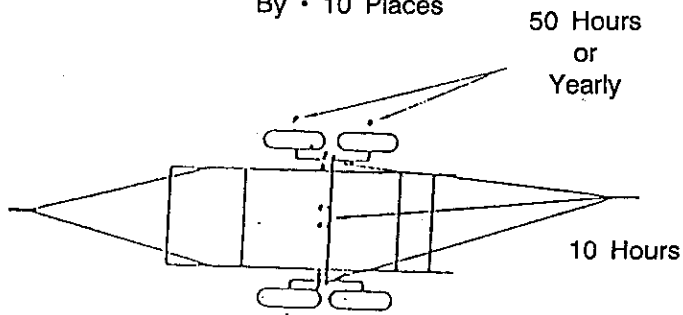
Grease P.T.O. shaft joints every 10 hours of operation, slide shaft and take halves apart, clean and regrease every 20 hours. Load level indicator bushing every 10 hours. Trailer bushings every 10 hours.



Note
Zerks Are Located
By • 8 Places



Note
Zerks Are Located
By • 10 Places



Note
Zerks Are Located
By • 10 Places

PUMP OPERATING INSTRUCTIONS FOR AIR COOLED PUMPS

1. Check oil reservoir daily and fill as required.
2. When pump is in operation check oiler to insure flow of oil to pump.
3. Do not operate pump faster than recommended RPM.
4. To operate suction valve on top of pump, move handle in the appropriate direction for either vacuum or pressure, center it for neutral.
5. We recommend periodic cleaning of your pump. To do this remove suction line from pump, move suction valve to neutral, run pump at an idle, pour into pump intake one pint of diesel fuel, allow pump to run a short time, move suction valve to vacuum and blow out diesel fuel and dirt. Move suction valve to neutral and pour in a pint of oil. Allow the pump to run a short time before reassembling.
6. We recommend checking vane wear every twelve months. A new vane is nearly flush with the rotor. Measure the wear and if is over 1/4" we recommend replacing vanes. It's good to always keep a spare set of vanes on hand for emergencies.

TROUBLE SHOOTING

PUMP OVERHEATS

NO OIL IN PUMP
OIL ADJUSTMENT SET TO LEAN
RPM TOO FAST
PROLONGED OPERATION

TOO MUCH OIL USE

OIL ADJUSTMENT SET TO RICH
OIL SEALS DEFECTIVE
CRACKED PUMP BODY

PUMP DOESN'T TURN

BROKEN VANE
FROZEN
PUMP END PLATE BOLTS TOO TIGHT
FAULTY PTO OR DRIVE SET UP

NO VACUUM OR PRESSURE IN TANK

SUCTION VALVE IN NEUTRAL
DEFECTIVE SEAL OR VANES
PUMP NOT DRIVEN FAST ENOUGH
CHECK VALVE OR SUCTION LINE
CLOGGED
LEAK IN TANK OR FITTINGS

MEC SERIES PUMP

Pump body and rotor are constructed of cast iron with free sliding vanes made of special non-metallic, heat resistant material. Because vanes are non-metallic, flammable fluids may be handled without danger. Vanes wear evenly because tips always remain in contact with the wall surface.

For maximum life and proper performance we recommend the use of our compatible components: portal #801 and moisture trap #901.

INSTALLATION AND MAINTENANCE

INSTALLATION

1. Check pump rotation. See DETERMINING THE ROTATION OF PUMP.
2. Pump should always be mounted in a level, horizontal position on a firm, flat surface.
3. Grade 5 bolts should be used in installation. It is important to use flat washers and lock washers.
4. We recommend the use of oil resistant hose on both the inlet and outlet sides of the pump. If using direct drive system, always use a flexible coupling. We recommend the use of Woods Sure Flex Couplers.
5. If a muffler is used on discharge side of pump, inlet and outlet of muffler must be at least equal to inside diameter of pump outlet.
6. LUBRICATION PROCEDURE FOR ALL VACUUM PUMPS ON START UP
This procedure must be followed prior to the operation of a new vacuum pump:
 - A. Install dripper on top of pump and connect rubber lines.*
 - B. Remove dipstick and fill oil reservoir with recommended motor oil – SAE 20 wt in winter and SAE 30 wt. in summer.
 - C. With 540 RPM pumps – fill gear housing to level of clear plastic sight plug on the side of the housing with SAE 90 Gear oil.
 - D. Remove plastic cap on air inlet and pour 2 oz. motor oil into pump. Start pump slowly and with valve in suction position pour 2 oz. motor oil into air inlet.
 - E. At this point oil should be visible in the dripper. Adjust dripper flow to 1 drop every 2 seconds.

*Dripper will be shipped loose or taped to the bottom of the change over valve handle.

MAINTENANCE

1. Lubrication rate is adjustable at dripper and should be checked on regular basis. Oil should be supplied to pump at a rate of 1 drop every 2 seconds.
2. Average usage of oil is approximately 1-2 qts. per 40 hrs. depending on operation.
3. Oil should be changed every 2000 hours in gear housing.
4. Front bearing should be greased approximately every 4 months. Use caution when greasing bearing not to over-grease as this can cause damage to seals.
5. Normal vane life is approximately 2000 hours; however, this will vary greatly with temperature, material being pumped and proper maintenance. Occasionally liquid and dirt may enter the pump causing vanes to stick in the rotor slots along with excessive vane and housing wear. When this occurs you must clean the inside of the pump in the following manner:
 - A. Remove air inlet hose or pressure relief valve.
 - B. Run pump at an idle with the change over valve in neutral.
 - C. Pour 1 pint of diesel fuel into pump through the air inlet or fitting. Allow pump to run for 30 seconds then turn the change over valve to vacuum.
 - D. Repeat steps B, and C, several times and then pour 2 oz. oil into the pump and reassemble.
 - E. Stop pump and turn slowly by hand while listening for vanes dropping. All vanes should move freely in the rotor slot.

It is good practice to clean your pump on a regular basis as this will normally increase the life of your pump greatly.

6. Vane wear should be checked every 12 months. A new vane will be flush with the outside diameter of the rotor. When vane wear exceeds $\frac{1}{4}$ " the vanes should be replaced. It is a good idea to have an extra set of vanes, seals and gaskets on hand at all times.

DETERMINING THE ROTATION OF PUMP

As one faces the drive end of the pump:

- a) For 1000 RPM pumps with the oiler on the ~~right~~ ^{LEFT} side, the pump shaft turns clockwise. *STANDING Behind Pump*
- b) For gear driven pumps (540 RPM) with the oiler on the right side, the ~~shaft~~ ^{input} shaft turns counter clockwise. *TURNING The pump clack wise*
- c) If you must change the rotation of your pump contact the factory before attempting for instruction.

LOUSER
The ~~lower~~ AIR Chamber IN CASTING
MUST be UNDER THE OILER
LEFT COUNTER

Mec/P Pump Rebuild Instructions

Please Read Thoroughly Prior To Start Of Rebuild

1. From the non drive end of the pump, remove 3 bolts, oil pump & drive tab.
2. Remove the six bolts from the rear end plate. Attach flange puller part # T-1001 or other suitable puller and remove the rear end plate. Remove vanes from pump.
3. Place a piece of wood under the rotor to cushion drop. Remove the six bolts from the front end plate. Remove the motor and end plate from the pump. Note how many gaskets are on the end plates and use the same number when reassembling. Mark front end of pump housing to insure proper reassembly.
4. Remove bolts from the front bearing cover. Attach flange puller T-1001 and remove front end plate and bearing cover. Note which end plate is front and rear as they are different in pumps - 5000 - 6500 - 8000.
5. From the top of the pump remove the change over handle, cover plate & valve plug. Remove and replace seal part # 40.
6. Remove the eight bolts attaching the four-way valve assembly to the pump housing. Note which side the dripper is as the assembly must be mounted in the same position. Remove assembly.

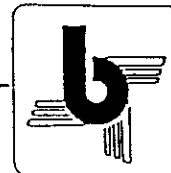
7. Thoroughly clean all parts in mineral spirits or other suitable cleaner.
8. Inspect housing and renew as necessary. The bore of the pump can be honed or rebored as necessary to a maximum over size of .060 inches. Replace bearings and seals in the end plates. Make sure bearings have adequate grease before installation. Check position of old seals prior to removal. Insure new seals are installed in the same way.
9. Turn the pump housing upside down on a bench – coat the bore with oil. Slide the rotor into pump housing with a gasket. Insure input shaft is protruding from front of pump. Using bearing driver part # T1003 or suitable substitute. Drive front end plate on. Fasten the end plate to the housing.
10. Coat vanes with oil and slide into the vane slots. Make certain the vanes slide freely in the rotor slots. Select proper number of gaskets and install rear end plate on the rotor with the bearing driver # T1003. Bolt end plate to housing.
11. Check assembly by turning input shaft by hand. It should turn freely. If it doesn't – seat bearings using bearing driver # T1003. The hammer should bounce back with a solid feel when bearings are seated.
12. 5000 – 6500 – 8000 model pumps only. Replace seal in bearing cover. Place outboard bearing on input shaft. Slide bearing cover on shaft and drive on with bearing driver # T1003. Reinstall 3 bolts. Turn input shaft by hand to check if pump is turning freely.

13. Turn pump right side up. Install gasket and four-way valve housing. Coat the gasket with a hardening type gasket sealer (this is the only gasket that requires a sealer). Make certain the dripper is on the proper side.

14. Install four-way valve plug, spring, cover and handle.

15. Install oil pump drive tab in end of rotor. Align oil pump drive gear and tab and install oil pump. Reconnect oil lines and dripper. Turn pump by hand and pour 2 oz. of oil into the intake. Turn for several revolutions to insure internal lubrication. The pump is now ready to use.

Safety



Safety Signs

WHY safety signs are important.

Safety signs or decals provide very important information and instructions designed to promote personal safety. They are designed to alert you to dangers and hazards that can be present during operation of this equipment. However, safety sign instruction does no good if it is not read, understood and followed.

WHEN safety signs must be replaced.

Safety signs or decals must be kept clean and readable. If they become unreadable for any reason they must be replaced with an identical replacement decal. Safety decals must also be replaced if parts are repaired or replaced with new parts that do not already include the necessary safety decals.

HOW to apply safety sign decals.

Surface preparation is very important for safety decals to properly adhere. Grease, oil, and dirt must be removed and the surface must be smooth and dry.

Most decals have a split backing which is meant to be removed from the split outward.

1. Position the decal in the proper location and hold firmly over the largest portion of backing.
2. With one hand holding decal in position, the free hand can carefully roll the loose end over and peel backing outward. When the backing is removed as described and shown in fig. (1), with even and gradual pull, the decal will roll onto the surface smooth and wrinkle free.
3. With the smallest portion of decal attached, the same procedure can be applied to the other half.
4. After the decal is attached in place, use a cloth or soft paper towel to burnish decal onto surface. Work gently from the middle outwards to avoid creating any wrinkles.

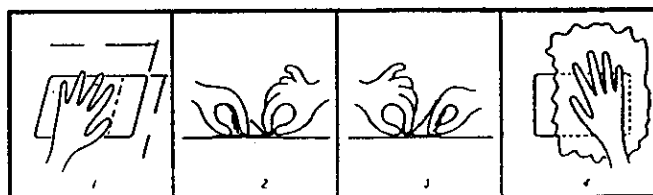
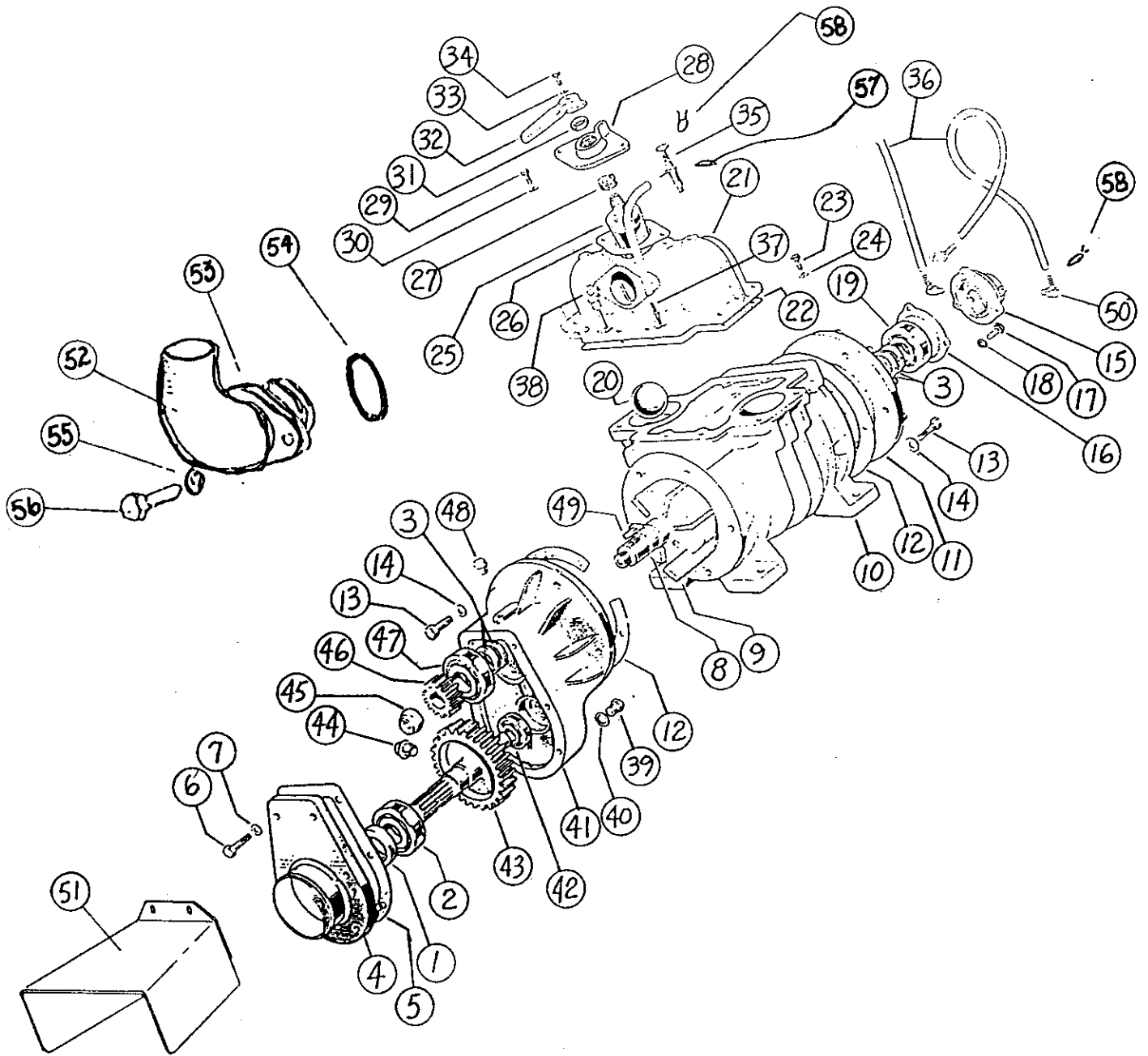


Fig. (1)

WHERE to obtain replacements.

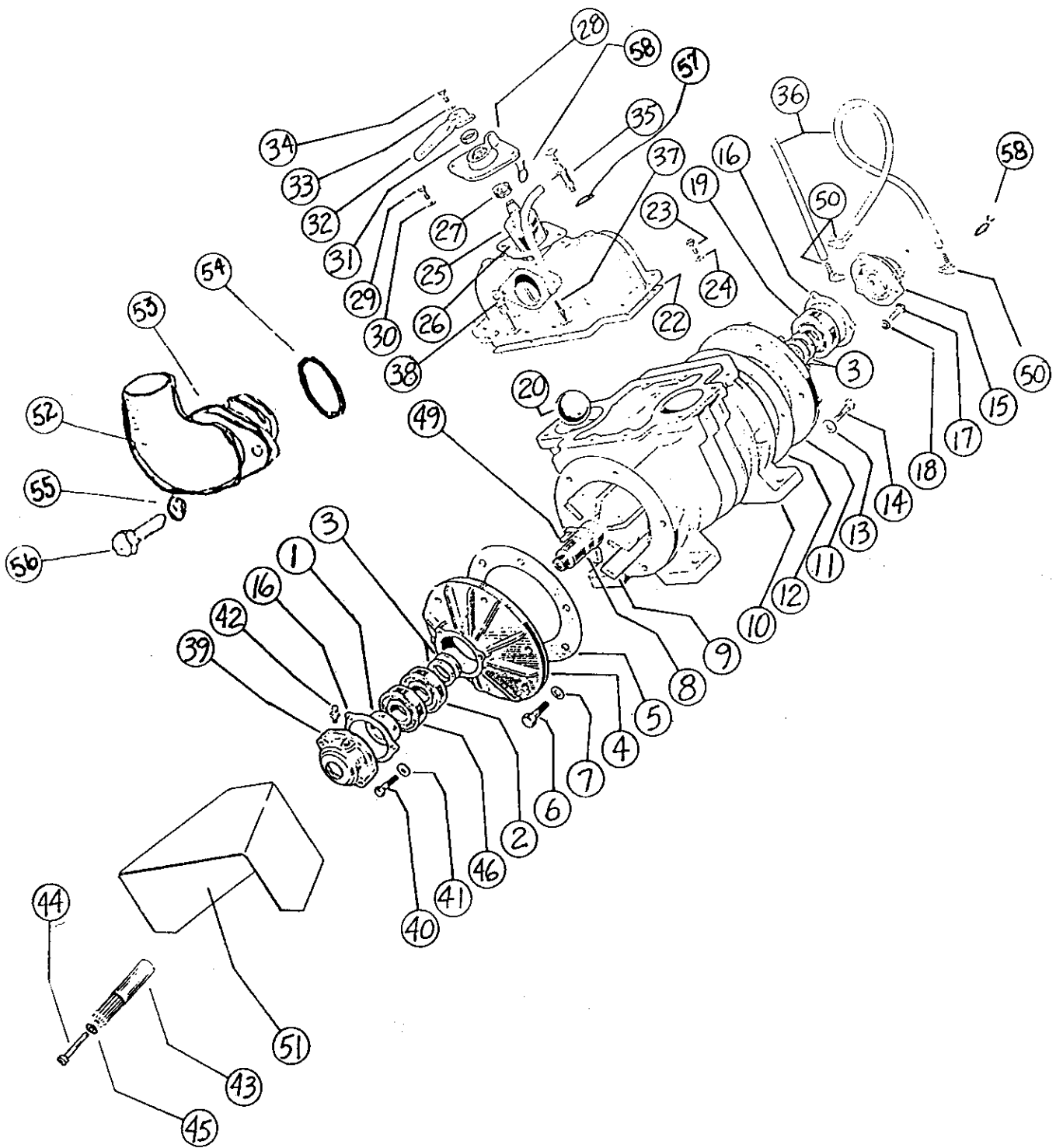
Order replacement decals by part number through your nearest dealer. Part numbers are printed on most decals, later in this section and in the parts section of this manual.



PUMP 2 PORT 540 RPM

ITEM	QTY	5000	6500	8000	DESCRIPTION
1	1		16671-AM27		Seal
2	1		16668-AM12		Bearing
3	4		16715-AM18		Seal
4	1		16729-AM29		Cover
5	1		16727-AM28		Gasket
6	6		3021-AM34		Bolt m8x25
7	6		3061-AM35		Washer m8
8	1	16692	16695	16698	Rotor AM5/D AMEC5/D AME5/D
9	7	16704	16705	16706	Vane AM7 AMEC7 AME7
10	1	16677	16678	16679	Cylinder AM1 AMEC1 AME1
11	1		16683-AM3		Cover
12	2		16685-AM4		Gasket
13	12		3034-AM16		Bolt m10x30
14	12		3062-AM17		Washer m10
15	1		16713-RIF17		Oil Pump Kit
16	1		16666-AM13		Gasket
17	3		3009-RIF9		Bolt m6x20
18	3		3059-RIF10		Washer m6
19	1		16674-AM48		Bearing
20	1		16749-AM41		Non-Return Ball
21	1		16745-AM38N		Valve Housing
22	1		16987-AM39N		Gasket
23	8		3021-AM34		Bolt m8x25
24	8		3061-AM35		Washer m8
25	1		16761-AM47N		Valve Plug
26	1		16753-AM42N		Gasket
27	1		16756-AM45		Spring
28	1		16737-AM31N		Valve Cover
29	2		3034-AM16		Bolt m10x30
30	2		3062-AM17		Washer m10
31	1		16747-AM40		Seal
32	1		16721-AM22N		Handle
33	1		3061-AM35		Washer m8
34	1		3020-AM11		Bolt m8x20
35	1		16754-RIF12		Dripper
36	1		16757-RIF18		Oil Line (3 ft.)
37	1		16708-RIF13		Fitting
38	1		16712-AM10		Dipstick
39	1		16723-AM23		Drain Plug
40	1		16725-AM24		Washer
41	1		16681-AM2		Gear Housing
42	1		16658-AM25		Bearing
43	1	16653		16654	Input Shaft & Gear AM26 AMEC26
44	1		16731-AM30		Plug - Oil Level
45	1	16659		16661	Locknut AM32 AMEC32
46	1	16738		16740	Gear AM38 AMEC38
47	1		16674-AM48		Bearing
48	1		16717-AM21		Plug - Oil Fill
49	1		16701-AM6		Key
50	3		16707-RIF11		Fitting 90°
51	1		15697		Shield
52	1		6951		Elbow 90° AM57
53	1		6932		Flange AM59
54	1		6933		O-Ring Gasket AM37N
55	2		3062		Washer m10 AM17
56	2		3037		Bolt m10x45 AM16
57	1		18568		Washer
58	4		17598		Hose Clamps

PUMP 2 PORT 540 RPM



PUMP 2 PORT 1000 RPM

ITEM	QTY	5000	6500	8000	DESCRIPTION
1	1		15668-AM76		Seal
2	1		16674-AM48		Bearing
3	4		16715-AM18		Seal
4	1		16686-AM3/P		Cover
5	1		16685-AM4		Gasket
6	6		3034-AM16		Bolt m10x30
7	6		3062-AM17		Washer m10
8	1	16691	16694	16697	Rotor AM5/D AMEC5/D AME5/D
9	7	16704	16705	16706	Vane AM7 AMEC7 AME7
10	1	16677	16678	16679	Cylinder AM1 AMEC1 AME1
11	1		16683-AM3		Cover
12	2		16685-AM4		Gasket
13	6		3034-AM16		Bolt m10x30
14	6		3062-AM17		Washer m10
15	1		16713-RIF17		Oil Pump Kit
16	2		16666-AM13		Gasket
17	3		3009-RIF9		Bolt
18	3		3059-RIF10		Washer
19	1		16674-AM48		Bearing
20	1		16749-AM41		Non-Return Ball
21	1		16745-AM38N		Valve Housing
22	1		16987-AM39N		Gasket
23	8		3021-AM34		Bolt m8x25
24	8		3061-AM35		Washer m8
25	1		16761-AM47N		Valve Plug
26	1		16753-AM42N		Gasket
27	1		16756-AM45		Spring
28	1		16737-AM31N		Valve Cover
29	2		3034-AM16		Bolt m10x30
30	2		3062-AM17		Washer m10
31	1		16747-AM40		Seal
32	1		16721-AM22N		Handle
33	1		3061-AM35		Washer m8
34	1		3020-AM11		Bolt m8x20
35	1		16751-RIF12CCW		Dripper
36	1		16757-RIF18		Oil Line (3 ft.)
37	1		16708-RIF13		Fitting
38	1		16712-AM10		Dipstick
39	1		15667-AM77		Front Bearing Cover
40	3		3026-AM56		Bolt m8x50
41	3		3061-AM35		Washer m8
42	1		16692-AM49		Grease Fitting
43	1	16741		16986	Spline Shaft AM79 AMEC79
44	1		16988-AM75		Bolt m10x100
45	1		3062-AM74		Washer m10
46	1		16660-AM78		Bearing - Front
47					
48	1		16701-AM6		Key 6x6x25m
49					
50	3		16707-RIF11		Fitting 90°
51	1		14180		Shield
52	1		6931		Elbow 90° AM57
53	1		6932		Flange AM59
54	1		6933		O-Ring Gasket AM37N
55	2		3062		Washer m10 AM17
56	2		3037		Bolt m10x45 AM16
57	1		18568		Washer
58	4		17593		Hose Clamps

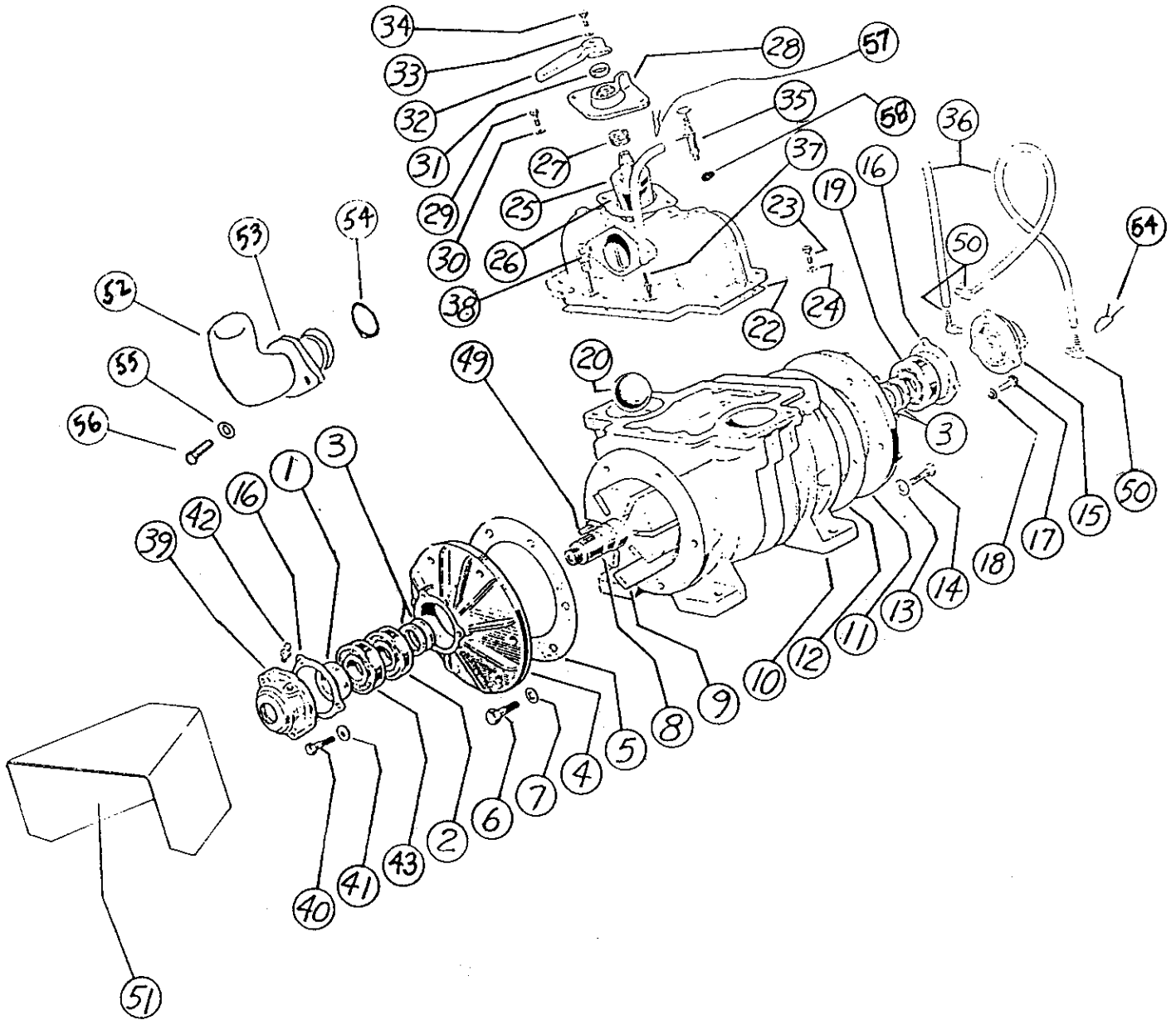
PUMP 2 PORT 1000 RPM

Weight

5000 - 320#

6500 - 400#

8000 - 420#

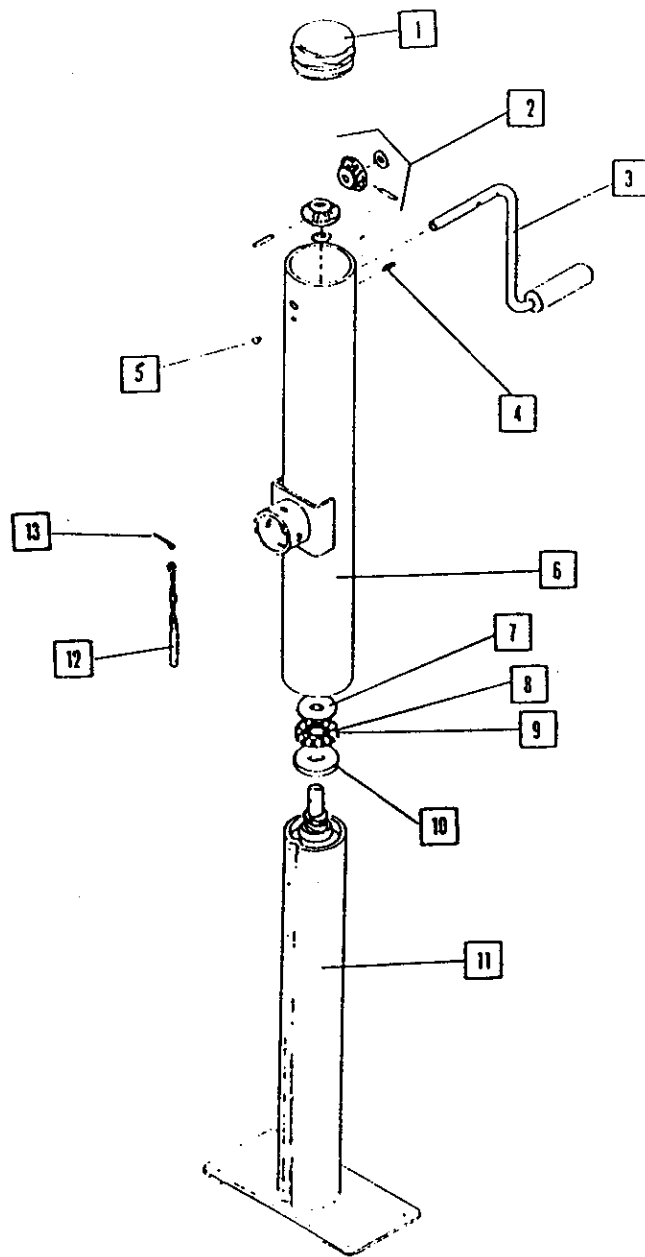
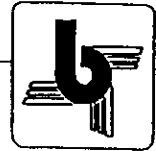


PUMP 2 PORT PUMP PULLEY DRIVE

ITEM	QTY	5000	6500	8000	DESCRIPTION
1	1		16673-AM53		Seal
2	1		16674-AM48		Bearing
3	4		16715-AM18		Seal
4	1		16686-AM3/P		Cover
5	1		16685-AM4		Gasket
6	6		3034-AM16		Bolt m10x30
7	6		3062-AM17		Washer m10
8	1	16693	16696	16699	Rotor AM5/P AMEC5/P AME5/P
9	7	16704	16705	16706	Vane AM7 AMEC7 AME7
10	1	16677	16678	16679	Cylinder AM1 AMEC1 AME1
11	1		16683-AM3		Cover
12	1		16685-AM4		Gasket
13	6		3034-AM16		Bolt m10x30
14	6		3062-AM17		Washer m10
15	1		16713-RIF17		Oil Pump Kit
16	2		16666-AM13		Gasket
17	3		3009-RIF9		Bolt
18	3		3059-RIF10		Washer
19	1		16674-AM48		Bearing
20	1		16749-AM41		Non-Return Ball
21	1		16745-AM38N		Valve Housing
22	1		16987-AM39N		Gasket
23	8		3021-AM34		Bolt m8x25
24	8		3061-AM35		Washer m8
25	1		16761-AM47N		Valve Plug
26	1		16753-AM42N		Gasket
27	1		16756-AM45		Spring
28	1		16737-AM31N		Valve Cover
29	2		3034-AM16		Bolt m10x30
30	2		3062-AM17		Washer m10
31	1		16747-AM40		Seal
32	1		16721-AM22N		Handle
33	1		3061-AM35		Washer m8
34	1		3020-AM11		Bolt m8x20
35	1		16751-RIF12CCW		Dripper
36	1		16757-RIF18		Oil Line (3 ft.)
37	1		16708-RIF13		Fitting
38	1		16712-AM10		Dipstick
39	1		15667-AM77		Front Bearing Cover
40	3		3026-AM56		Bolt m8x50
41	3		3061-AM35		Washer m8
42	1		16692-AM49		Grease Fitting
43	1		16669-AM55		Bearing Front
44					
45					
46					
47					
48	1		16763-AM52		Key
49					
50	2		16706-RIF11N		Fitting 90°-Straight Small
51			14180		Shield
52	1		6931		Elbow 90° AM57
53	1		6932		Flange AM59
54	1		6933		O-Ring Gasket AM37N
55	2		3062		Washer m10 AM17
56	2		3037		Bolt m10x45 AM16
57	4		17593		Hose Clamp
58	1		18568		Washer
59		6936	6937	6938	Repair Kit

PUMP 2 PORT 1000 RPM PULLEY DRIVE

Jack #10629

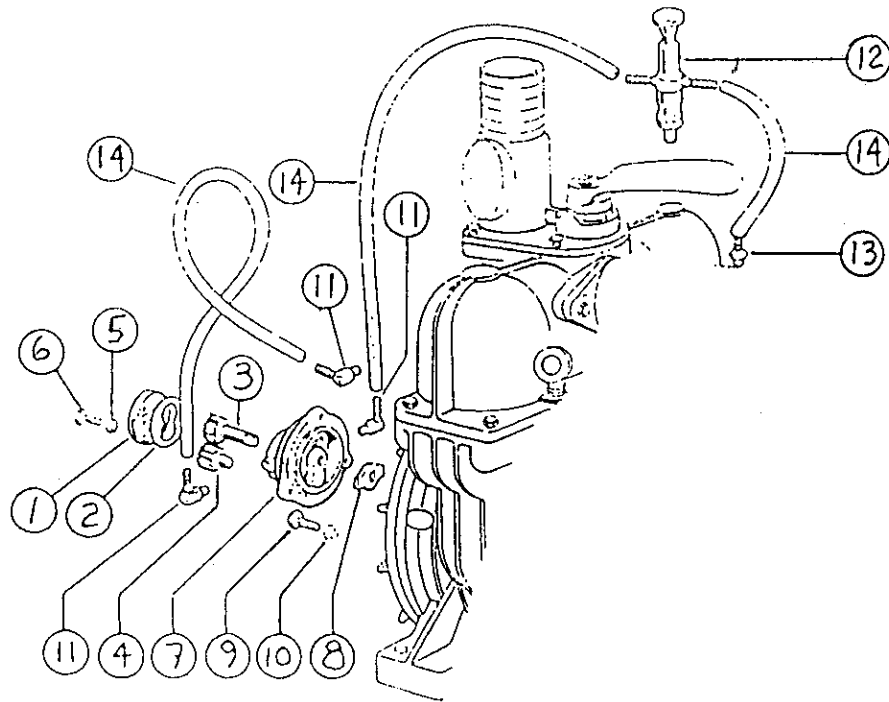


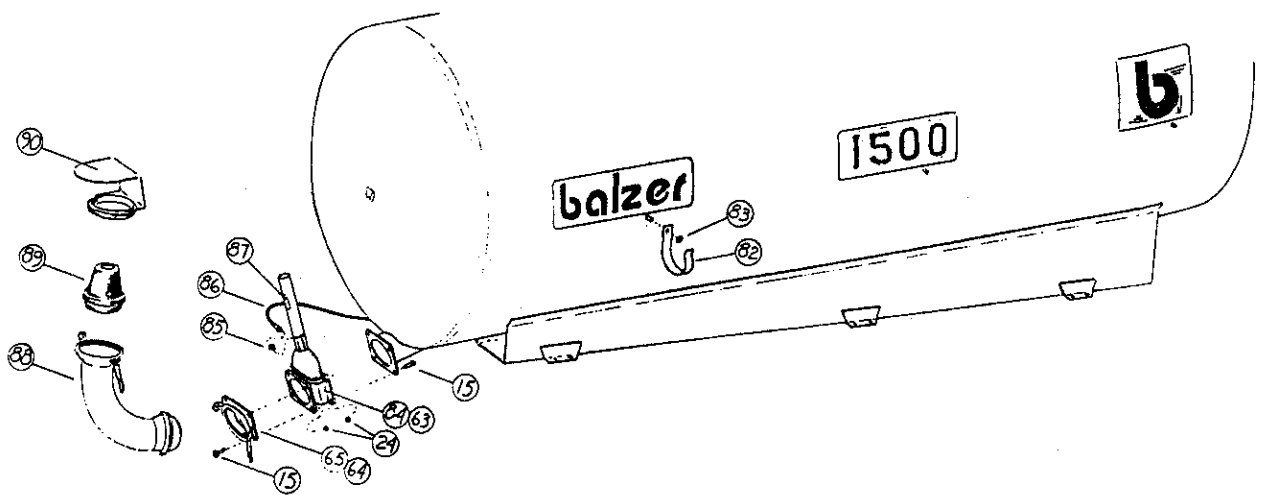
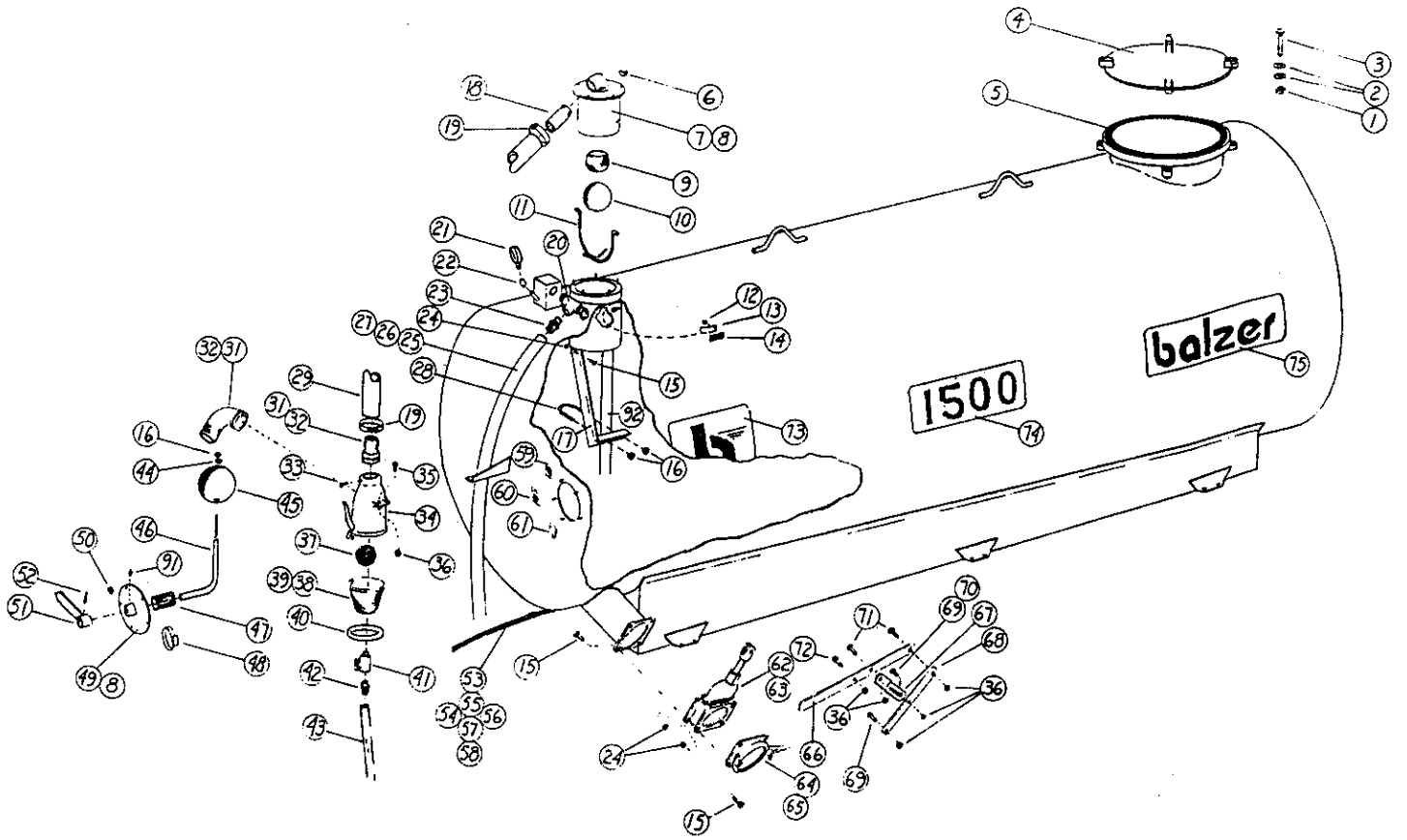
ITEM	QTY	P/N	DESCRIPTION
1	1	13047	SW Tube Cap
2	1	13046	Bevel Gear Kit
3	1	13045	Crank Assembly
4	1	2288	Zerk 3/16 Drive-In
5	1	13048	Rubber Grommet
6	1	13055	Outer Tube Assembly
7	1	13054	Thrust Washer
8	1	13053	Ball & Cage Bearing
9	1	13052	Felt Spacer
10	1	13051	Support Washer
11	1	13050	Inner Tube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

OIL PUMP KIT

**PART #16713
(ALL PUMPS)**

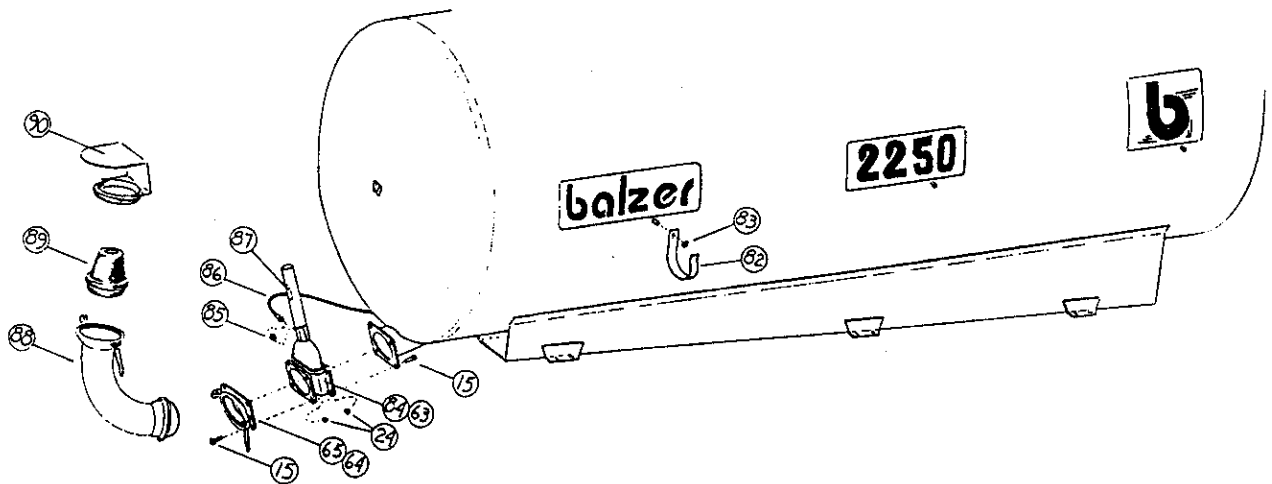
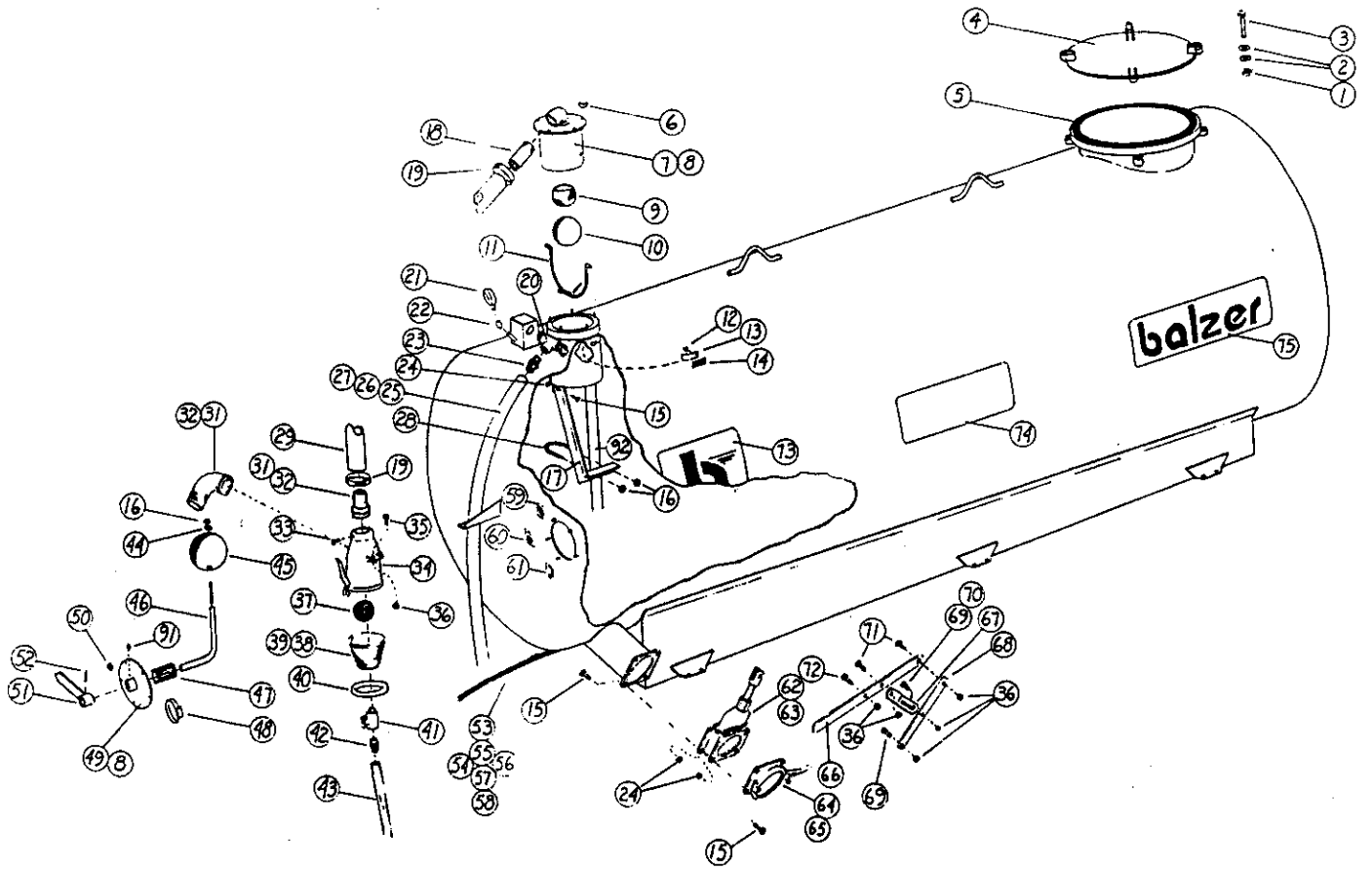
#	PART #	QTY.	DESCRIPTION
	16713	1	Oil Pump Kit
1.	16989	1	Brass Plate New Style
2.	16990	1	Gasket - New Style
3.	16991	1	Driver Gear
4.	16997	1	Gear
5.	16992	4	Washer
6.	16993	4	Bolt
7.	16994	1	Oil Pump Housing - New Style
8.	16995	1	Drive Tab
9.	3009	3	Bolt
10.	3059	3	Washer
11.	16996	3	Fitting
12.	16754	1	Dipper
13.	16708	1	Fitting
14.	16757	A.R	Mec Oil Line (Per Ft) 3 Ft. Std.





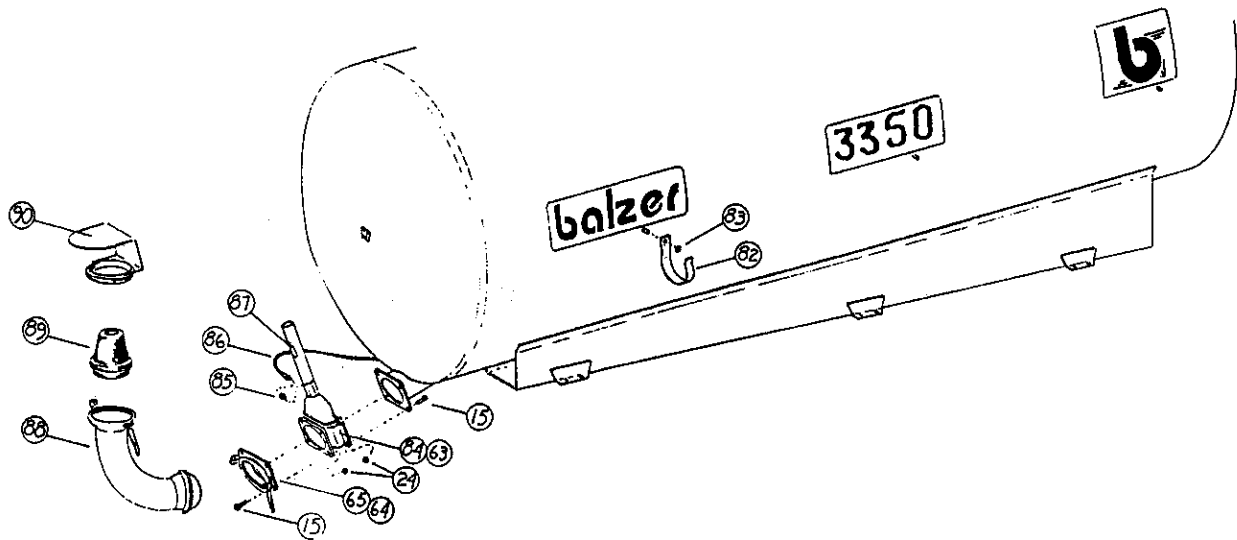
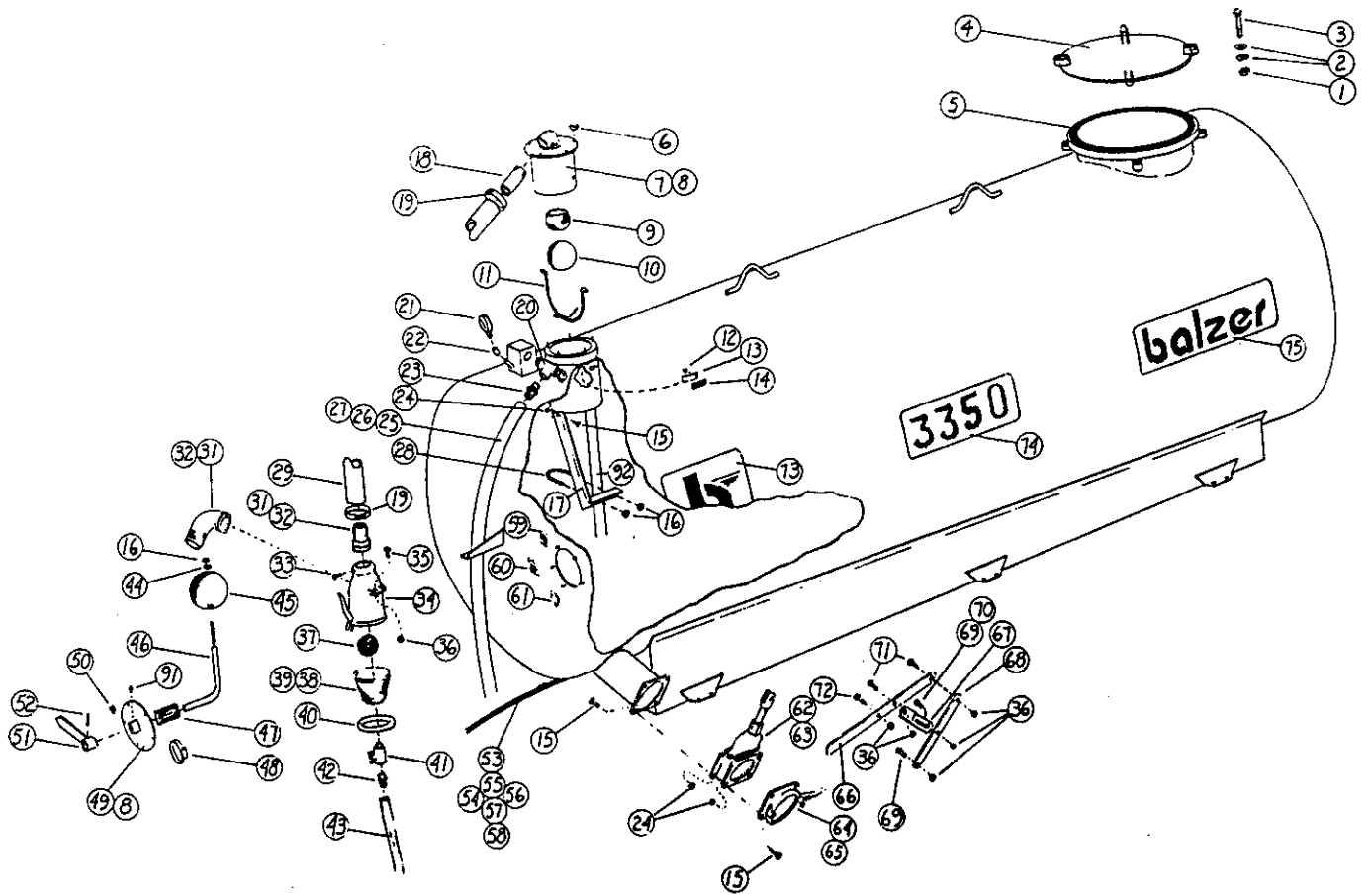
1500 MAIN TANK ASSEMBLY

ITEM	P/N	NAME	ITEM	P/N	NAME
1	2085	Nut, Hx HD. 5/8	47	10952	Seal, Hose
2	1620	Washer, Flat 5/8	48	10912	Clamp Hose 2"
3	1302	Bolt, Hex HD 5/8 x 5 1/2	49	15904	Float Plate
4	15565	Manway Lid	50	1692	Nut, Hex HD 3/8
5	15569	Gasket	51	10949	Indicator
6	1762	Wing Nut	52	1908	Pin, Spring 1/4 x 1 1/2
7	16384	Portal Cover	53	11930	Hydraulic Hose 1/4
8	15961	Gasket	54	1168	Bolt, Hex HD 1/4 x 2
9	10866	Valve Seat	55	13403	Hydraulic Pipe 1/4 x 140
10	17023	Ball Check Valve 5"	56	10996	Pipe Coupler 1/4
11	17022	Ball Retainer	57	15742	Pipe Clamp
12	16375	Nut, Hex HD 1/4 (Stainless)	58	15743	Pipe Clamp Cover
13	16372	Air Deflector	59	11039	Decal "Full"
14	16373	Rubber Flap	60	11630	Decal "1/2"
15	1249	Bolt, Hex HD 1/2 X 1 1/4	61	11038	Decal "Empty"
16	2081	Nut, Hex HD 5/16	62	15616	Valve, 6"-Double Flange
17	16426	Stabilizer, Sparger	63	15621	O-Ring 6" Valve
18	16389	Pipe 2 X 4	64	15564	Flanged 6" Female Coupler
19	15695	Hose Clamp "T" Type 3 1/2	65	11979	O-Ring 6"
20	16390	Pressure Relief Valve 1 1/2	66	15618	Lever 6" Valve
21	10964	Gauge, Pressure - Vacuum Lens only 6788	67	15620	Lock 6" Valve
22	16391	Hose Nipple 1/1/4	68	15619	Connector Bar 6" Valve
24	2084	Nut, Hex HD 1/2	69	1206	Bolt, Hex HD 3/8 x 1
25	16892	Hose 1 1/4 X 84"	70	1598	Washer Flat 3/8
26	16893	Tie Strip 15"	71	1206	Bolt, Hex HD 3/8 x 1
27	16869	Hose Clamp 1 3/4	72	1208	Bolt, Hex HD 3/8 x 1 1/2
28	16405	U-Bolt 5/16-18	73	12283	Decal "Logo"
29	16283	Hose 2 3/8 X 48"	74	11236	Decal "1500"
30	16218	Hose Fitting - Straight 2 3/8	75	12287	Decal "Balzer"
31	16331	O-Ring	76	11231	Decal "Warning-Relieve Pressure"
32	16217	Hose Fitting 90 Elbow 2 3/8	77	11234	Decal "Draw Bar Adjustment"
33	16219	Bolt, Hex HD M6 X 12	78	10744	Decal "Be Careful"
34	16215	Main Body	79	11232	Decal "L.S. Operation"
35	1207	Bolt, Hex HD, 3/8 X 1 1/4	80	14187	Decal "Danger Gases"
36	2496	Nut, Hex HD 3/8 (Top Lock)	81	11233	Decal "Tighten Wheel Bolts"
37	16220	Ball 2 3/8 Rubber	82	10954	"J" Hook
38	16221	Sight Glass	83	2359	Nut, Hex HD 1/2 (Top Lock)
39	16222	O-Ring 5 1/2	84	15678	Valve 6"-Gas/Hydraulic-15688
40	16223	Ring	85	15686	Reducer Bushing M18 x 1.5KC x 1/4 NPT
41	16332	Ball Valve	86	10989	Hydraulic Hose 1/4 x 42 1/2
42	16333	Fitting Brass 3/4 Barb	87	15694	Decal "Warning" "Gas Spring Cylinder"
43	11191	Drain Hose 36"	88	15693	Deflector Tube
44	1597	Washer, Flat 5/16	89	15786	Rubber Nozzle
45	17024	Ball 6" Stainless Steel	90	15596	Deflector
46	11905	Float Arm Weldment	91	17207	Decal "Tire Pressure" (Not Shown)
				2288	Grease Zerk Drivein 3/16
				15688	6" Activator
				13097	Breather for Activator
				15617	6" Handle Assembly



2250 MAIN TANK ASSEMBLY

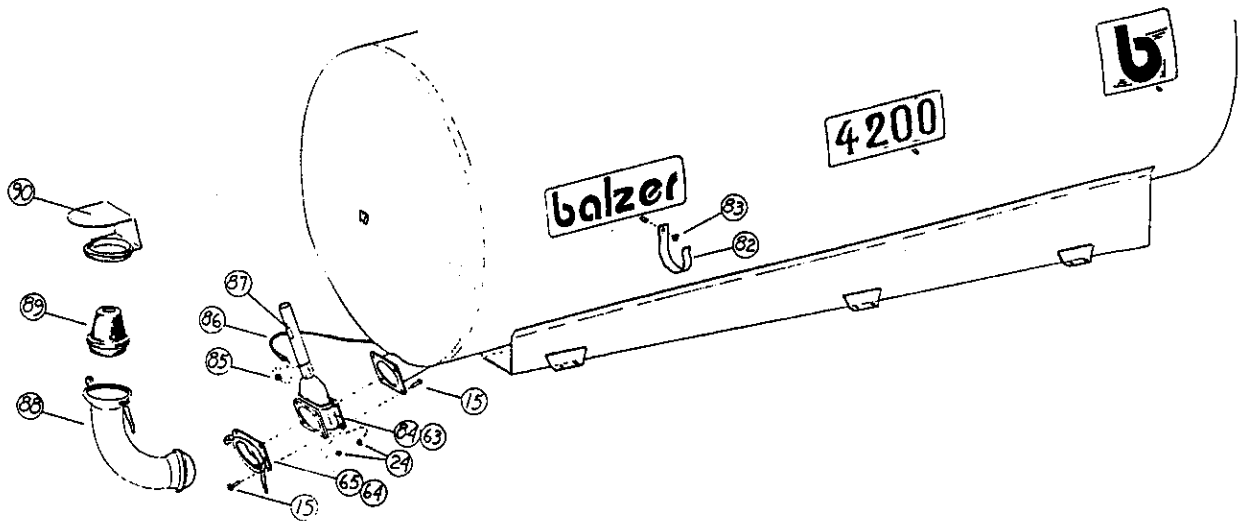
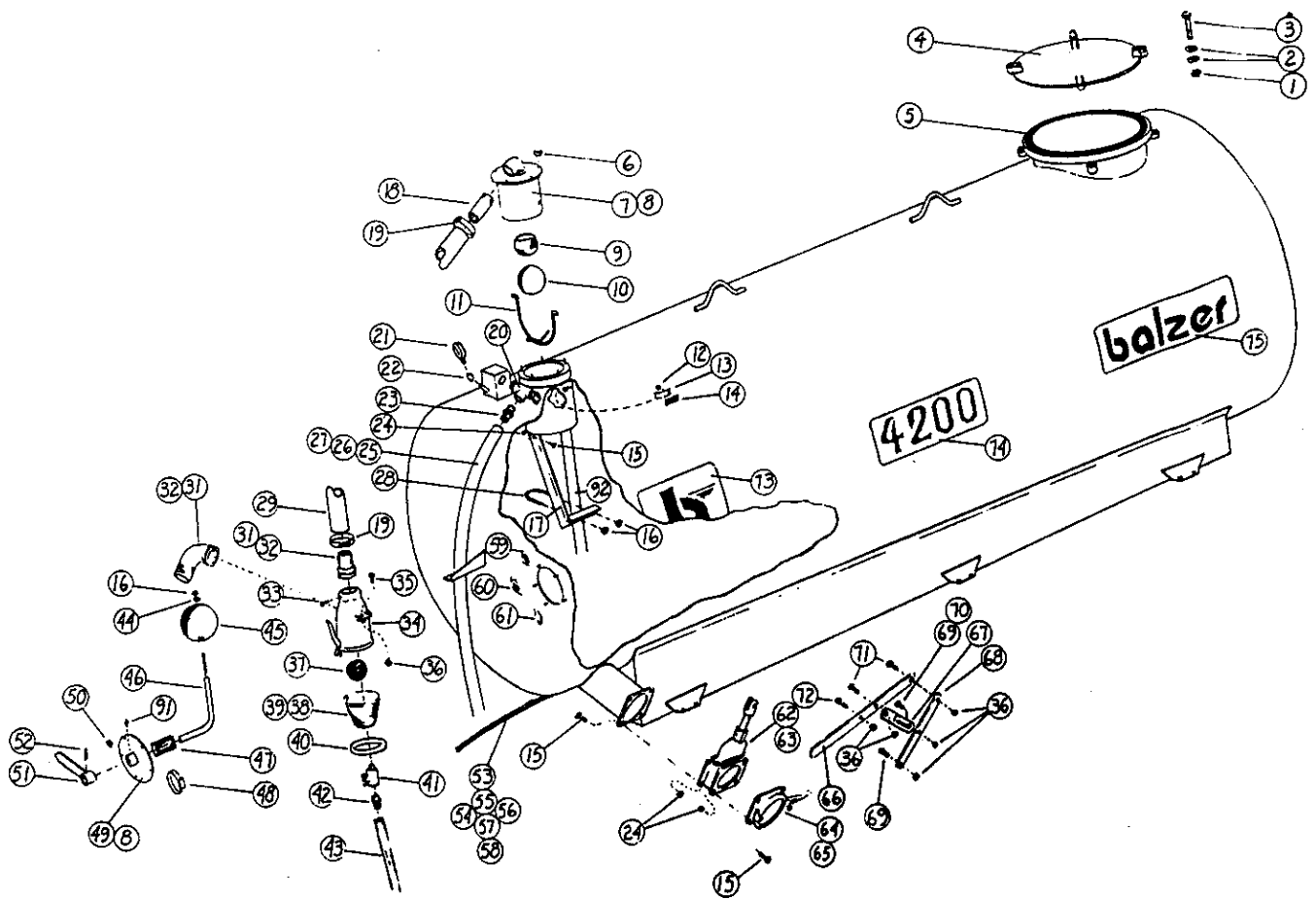
ITEM	P/N	NAME	ITEM	P/N	NAME
1	2085	Nut, Hx HD, 5/8	47	10952	Seal, Hose
2	1620	Washer, Flat 5/8	48	10912	Clamp Hose 2"
3	1302	Bolt, Hex HD 5/8 X 5 1/2	49	15904	Float Plate
4	15565	Manway Lid	50	1692	Nut, Hex HD 3/8
5	15569	Gasket	51	10949	Indicator
6	1762	Wing Nut	52	1908	Pin, Spring 1/4 X 1 1/2
7	16384	Portal Cover	53	11930	Hydraulic Hose 1/4
8	15961	Gasket	54	1168	Bolt, Hex HD 1/4 X 2
9	10866	Valve Seat	55	12826	Hydraulic Pipe 1/4 X 168
10	17023	Ball Check Valve	56	10996	Pipe Coupler 1/4
11	17022	Ball Retainer	57	15742	Pipe Clamp
12	16375	Nut, Hex HD 1/4 (Stainless)	58	15743	Pipe Clamp Cover
13	16372	Air Deflector	59	11039	Decal "Full"
14	16373	Rubber Flap	60	11630	Decal "1/2"
15	1249	Bolt, Hex HD 1/2 X 1 1/4	61	11038	Decal "Empty"
16	2081	Nut, Hex HD 5/16	62	15616	Valve, 6" - Double Flange
17	16426	Stabilizer, Sparger	63	15621	O-Ring 6" Valve
18	16389	Pipe 2 X 4	64	15564	Flanged 6" Female Coupler
19	15695	Hose Clamp 'T' Type 3 1/2	65	11979	O-Ring 6"
20	16390	Pressure Relief Valve 1 1/2	66	15618	Lever 6" Valve
21	10964	Gauge, Pressure - Vacuum	67	15620	Lock 6" Valve
22	16391	Elbow 45 1/4 NPT	68	15619	Connector Bar 6" Valve
23	16890	Hose Nipple 1 1/4	69	1206	Bolt, Hex HD 3/8 X 1
24	2084	Nut, Hex HD 1/2	70	1598	Washer Flat 3/8
25	16892	Hose 1 1/4 X 84"	71	1206	Bolt, Hex HD 3/8 X 1
26	16893	Tie Strip 15"	72	1208	Bolt, Hex HD 3/8 X 1 1/2
27	16869	Hose Clamp 1 3/4	73	12284	Decal "Logo"
28	16405	U-Bolt 5/16-18	74	15654	Decal "2250"
29	16285	Hose 2 3/8 X 54"	75	12288	Decal "Balzer"
30	16218	Hose Fitting - Straight 2 3/8	76	11231	Decal "Warning - Relieve Pressure"
31	16331	O-Ring	77	11234	Decal "Draw Bar Adjustment"
32	16217	Hose Fitting 90 Elbow 2 3/8	78	10744	Decal "Be Careful"
33	16219	Bolt, Hex HD M6 X 12	79	11232	Decal "L.S. Operation"
34	16215	Main Body	80	14187	Decal "Danger Gases"
35	1207	Bolt, Hex HD, 3/8 X 1 1/4	81	11233	Decal "Tighten Wheel Bolts"
36	2496	Nut, Hex HD 3/8 (Top Lock)	82	10954	"J" Hook
37	16220	Ball 2 3/8 Rubber	83	2359	Nut, Hex HD 1/2 (Top Lock)
38	16221	Sight Glass	84	15678	Valve 6" - Gas/Hydraulic
39	16222	O-Ring 5 1/2	85	15686	Reducer Bushing M18 X 1.5KC X 1/4 NPT
40	16223	Ring	86	10989	Hydraulic Hose 1/4 X 42 1/2
41	16332	Ball Valve	87	15694	Decal "Warning" "Gas Spring Cylinder"
42	16333	Fitting Brass 3/4 Barb	88	15693	Deflector Tube
43	11191	Drain Hose 36"	89	15786	Rubber Nozzle
44	1597	Washer, Flat 5/16	90	15596	Deflector
45	17024	Ball 6" Stainless Steel	91	17207	Decal "Tire Pressure" (Not Shown)
46	11905	Float Arm Weldment			



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

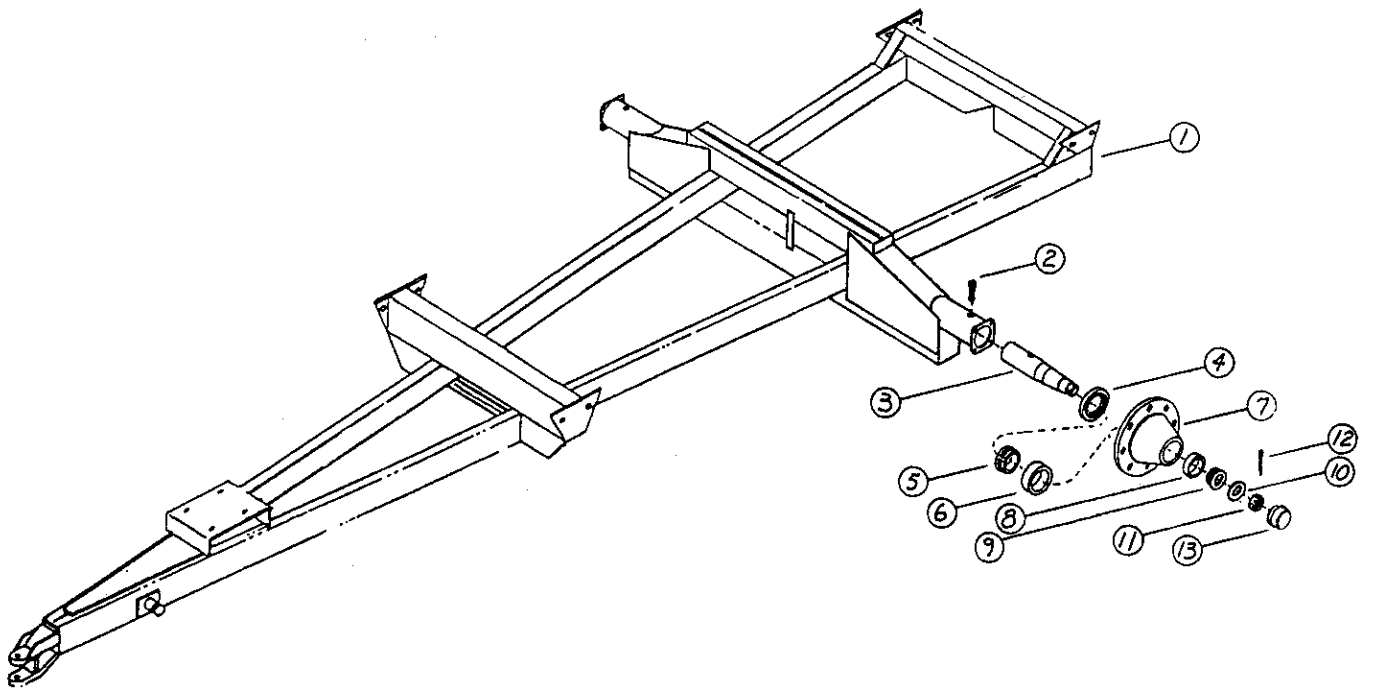
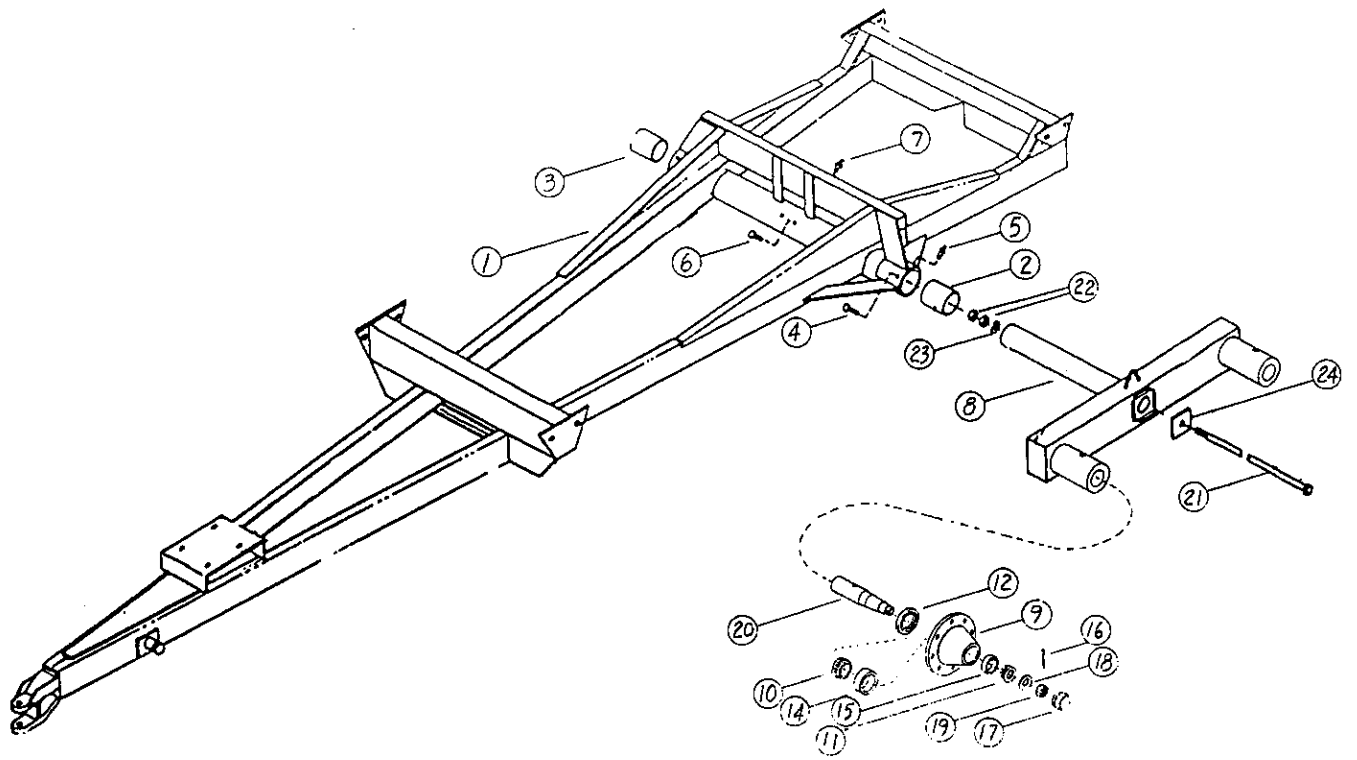
3350 MAIN TANK ASSEMBLY

ITEM	P/N	NAME	ITEM	P/N	NAME
1	2085	Nut, Hx HD, 5/8	47	10952	Seal, Hose
2	1620	Washer, Flat 5/8	48	10912	Clamp Hose 2"
3	1302	Bolt, Hex HD 5/8 X 5 1/2	49	15904	Float Plate
4	15565	Manway Lid	50	1692	Nut, Hex HD 3/8
5	15569	Gasket	51	10949	Indicator
6	1762	Wing Nut	52	1908	Pin, Spring 1/4 X 1 1/2
7	16384	Portal Cover	53	11930	Hydraulic Hose 1/4
8	15961	Gasket	54	1168	Bolt, Hex HD 1/4 X 2
9	10866	Valve Seat	55	13491	Hydraulic Pipe 1/4 X 210
10	17023	Ball Check Valve	56	10996	Pipe Coupler 1/4
11	17022	Ball Retainer	57	15742	Pipe Clamp
12	16375	Nut, Hex HD 1/4 (Stainless)	58	15743	Pipe Clamp Cover
13	16372	Air Deflector	59	11039	Decal "Full"
14	16373	Rubber Flap	60	11630	Decal "1/2"
15	1249	Bolt, Hex HD 1/2 X 1 1/4	61	11038	Decal "Empty"
16	2081	Nut, Hex HD 5/16	62	15616	Valve, 6" - Double Flange
17	16426	Stabilizer, Sparger	63	15621	O-Ring 6" Valve
18	16389	Pipe 2 X 4	64	15564	Flanged 6" Female Coupler
19	15695	Hose Clamp 'T' Type 3 1/2	65	11979	O-Ring 6"
20	16390	Pressure Relief Valve 1 1/2	66	15618	Lever 6" Valve
21	10964	Gauge, Pressure - Vacuum	67	15620	Lock 6" Valve
22	16391	Elbow 45 1/4 NPT	68	15619	Connector Bar 6" Valve
23	16890	Hose Nipple 1 1/4	69	1206	Bolt, Hex HD 3/8 X 1
24	2084	Nut, Hex HD 1/2	70	1598	Washer Flat 3/8
25	16892	Hose 1 1/4 X 84"	71	1206	Bolt, Hex HD 3/8 X 1
26	16893	Tie Strip 15"	72	1208	Bolt, Hex HD 3/8 X 1 1/2
27	16869	Hose Clamp 1 3/4	73	12284	Decal "Logo"
28	16405	U-Bolt 5/16-18	74	15653	Decal "3350"
29	16287	Hose 2 3/8 X 60"	75	12288	Decal "Balzer"
30	16218	Hose Fitting - Straight 2 3/8	76	11231	Decal "Warning - Relieve Pressure"
31	16331	O-Ring	77	11234	Decal "Draw Bar Adjustment"
32	16217	Hose Fitting 90 Elbow 2 3/8	78	10744	Decal "Be Careful"
33	16219	Bolt, Hex HD M6 X 12	79	11232	Decal "L.S. Operation"
34	16215	Main Body	80	14187	Decal "Danger Gases"
35	1207	Bolt, Hex HD, 3/8 X 1 1/4	81	11233	Decal "Tighten Wheel Bolts"
36	2496	Nut, Hex HD 3/8 (Top Lock)	82	10954	"J" Hook
37	16220	Ball 2 3/8 Rubber	83	2359	Nut, Hex HD 1/2 (Top Lock)
38	16221	Sight Glass	84	15678	Valve 6" - Gas/Hydraulic
39	16222	O-Ring 5 1/2	85	15686	Reducer Bushing M18 X 1.5KC X 1/4 NPT
40	16223	Ring	86	10989	Hydraulic Hose 1/4 X 42 1/2
41	16332	Ball Valve	87	15694	Decal "Warning" "Gas Spring Cylinder"
42	16333	Fitting Brass 3/4 Barb	88	15693	Deflector Tube
43	11191	Drain Hose 36"	89	15786	Rubber Nozzle
44	1597	Washer, Flat 5/16	90	15596	Deflector
45	17024	Ball 6" Stainless Steel	91	17207	Decal "Tire Pressure" (Not Shown)
46	11905	Float Arm Weldment			



4200 MAIN TANK ASSEMBLY

ITEM	P/N	NAME	ITEM	P/N	NAME
1	2085	Nut, Hx HD, 5/8	47	10952	Seal, Hose
2	1620	Washer, Flat 5/8	48	10912	Clamp Hose 2"
3	1302	Bolt, Hex HD 5/8 X 5 1/2	49	15904	Float Plate
4	15565	Manway Lid	50	1692	Nut, Hex HD 3/8
5	15569	Gasket	51	10949	Indicator
6	1762	Wing Nut	52	1908	Pin, Spring 1/4 X 1 1/2
7	16384	Portal Cover	53	11930	Hydraulic Hose 1/4
8	15961	Gasket	54	1168	Bolt, Hex HD 1/4 X 2
9	10866	Valve Seat	55	13491	Hydraulic Pipe 1/4 X 210
10	17023	Ball Check Valve	56	10996	Pipe Coupler 1/4
11	17022	Ball Retainer	57	15742	Pipe Clamp
12	16375	Nut, Hex HD 1/4 (Stainless)	58	15743	Pipe Clamp Cover
13	16372	Air Deflector	59	11039	Decal "Full"
14	16373	Rubber Flap	60	11630	Decal "1/2"
15	1249	Bolt, Hex HD 1/2 X 1 1/4	61	11038	Decal "Empty"
16	2081	Nut, Hex HD 5/16	62	15616	Valve, 6" - Double Flange
17	16426	Stabilizer, Sparger	63	15621	O-Ring 6" Valve
18	16389	Pipe 2 X 4	64	15564	Flanged 6" Female Coupler
19	15695	Hose Clamp 'T' Type 3 1/2	65	11979	O-Ring 6"
20	16390	Pressure Relief Valve 1 1/2	66	15618	Lever 6" Valve
21	10964	Gauge, Pressure - Vacuum	67	15620	Lock 6" Valve
22	16391	Elbow 45 1/4 NPT	68	15619	Connector Bar 6" Valve
23	16890	Hose Nipple 1 1/4	69	1206	Bolt, Hex HD 3/8 X 1
24	2084	Nut, Hex HD 1/2	70	1598	Washer Flat 3/8
25	16892	Hose 1 1/4 X 84"	71	1206	Bolt, Hex HD 3/8 X 1
26	16893	Tie Strip 15"	72	1208	Bolt, Hex HD 3/8 X 1 1/2
27	16869	Hose Clamp 1 3/4	73	12285	Decal "Logo"
28	16405	U-Bolt 5/16-18	74	15655	Decal "4200"
29	16288	Hose 2 3/8 X 69"	75	12288	Decal "Balzer"
30	16218	Hose Fitting - Straight 2 3/8	76	11231	Decal "Warning - Relieve Pressure"
31	16331	O-Ring	77	11234	Decal "Draw Bar Adjustment"
32	16217	Hose Fitting 90 Elbow 2 3/8	78	10744	Decal "Be Careful"
33	16219	Bolt, Hex HD M6 X 12	79	11232	Decal "L.S. Operation"
34	16215	Main Body	80	14187	Decal "Danger Gases"
35	1207	Bolt, Hex HD, 3/8 X 1 1/4	81	11233	Decal "Tighten Wheel Bolts"
36	2496	Nut, Hex HD 3/8 (Top Lock)	82	10954	"J" Hook
37	16220	Ball 2 3/8 Rubber	83	2359	Nut, Hex HD 1/2 (Top Lock)
38	16221	Sight Glass	84	15678	Valve 6" - Gas/Hydraulic
39	16222	O-Ring 5 1/2	85	15686	Reducer Bushing
40	16223	Ring			M18 X 1.5KC X 1/4 NPT
41	16332	Ball Valve	86	10989	Hydraulic Hose 1/4 X 42 1/2
42	16333	Fitting Brass 3/4 Barb	87	15694	Decal "Warning" "Gas Spring Cylinder"
43	11191	Drain Hose 36"	88	15693	Deflector Tube
44	1597	Washer, Flat 5/16	89	15786	Rubber Nozzle
45	17024	Ball 6" Stainless Steel	90	15596	Deflector
46	11905	Float Arm Weldment	91	17207	Decal "Tire Pressure" (Not Shown)



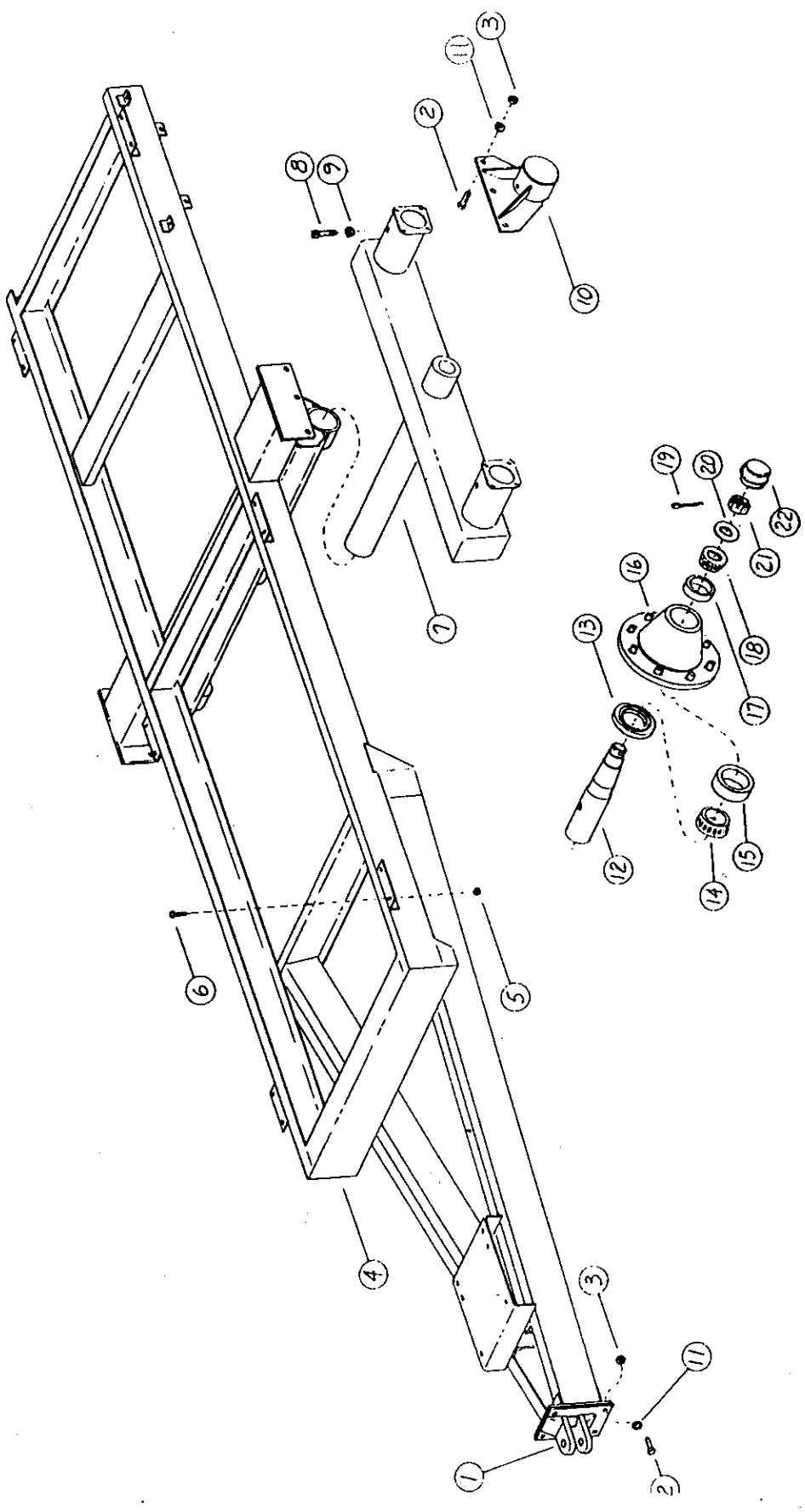
1500 TANDEM

ITEM	P/N	NAME	ITEM	P/N	NAME
1	10766	1500 Tandem Trailer	16	2045	Cotter Pin 5/32 X 1 1/2
2	15026	Bearing, Outside	17	7522	Hub Cap
3	15028	Bearing, Inside	18	1604	Washer, Flat 7/8
4	1246	Bolt, Hex HD 1/2 X 3/4	19	1753	Nut, Hex Castle 7/8
5	11247	Bolt - Zerk 1/2 X 3/4	20	15521	Spindle
6	1245	Bolt, Hex HD 1/2 X 1/2	21	8012	Axle Holding Rod
7	11221	Bolt - Zerk 1/2 X 1/2	22	1696	Nut, Hex HD 5/8
8	15519	Tandem Arm	23	1640	Lockwasher 5/8
9	14338	Hub 8-Bolt	24	7990	Plate, Axle Retainer
10	7518	Inner Cone	25	2513	Set Screw, Sq. HD 3/4 X 2
11	7519	Outer Cone	26	1697	Nut, Hex HD 3/4 (Not Shown)
12	7520	Seal	27	15840	Wheel W14C 16.1
13	7523	Bolt, Wheel (Not Shown)	28	14100	Tire 16.5 X 16.1 8 Ply
14	8491	Inner Cup	29	8842	Valve Stem
15	8492	Outer Cup	30	10629	Trailer Jack (Not Shown)

1500 2-WHEEL

ITEM	P/N	NAME	ITEM	P/N	NAME
1	15817	1500 2-Wheel Trailer	9	13148	Cone, Outer
2	2513	Set Screw, Sq. HD 3/4 X 2	10	1605	Washer, Flat 1"
3	13154	Spindle (Rework)	11	13144	Nut, Hex Castle 1"
4	13151	Seal	12	2045	Cotter Pin 5/32 x 1 1/2
5	13150	Cone, Inner	13	13143	Hub Cap w/Zerk
6	13149	Cup, Inner	14	1697	Nut, Hex HD 3/4 (Not Shown)
7	13146	Hub 8 Bolt	15	15840	Wheel, W14C 16.1
8	13147	Cup, Outer	16	15836	Tire 19L 16.1 8 Ply

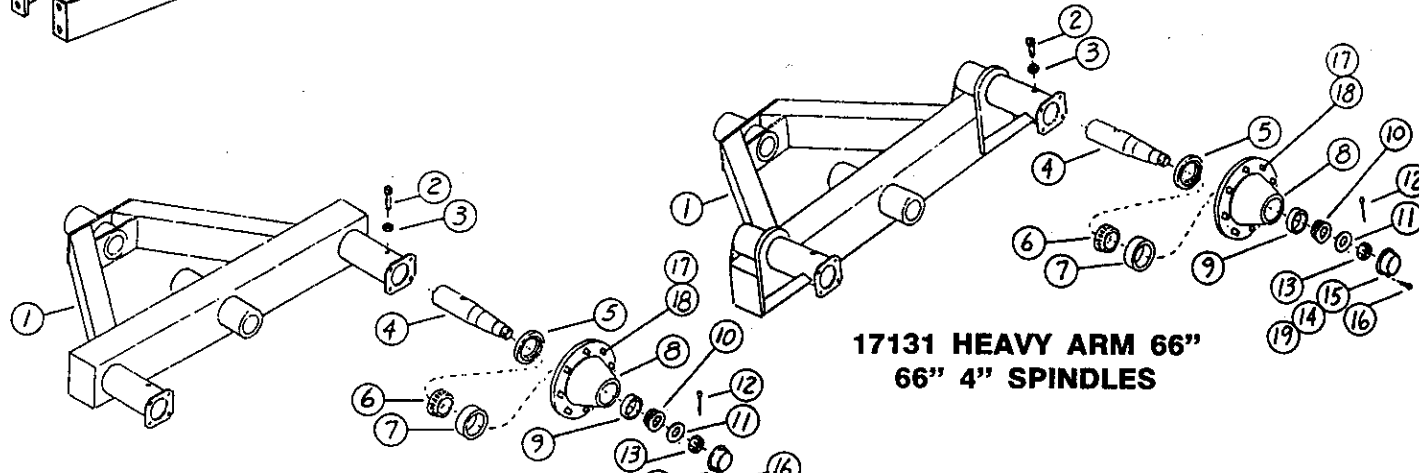
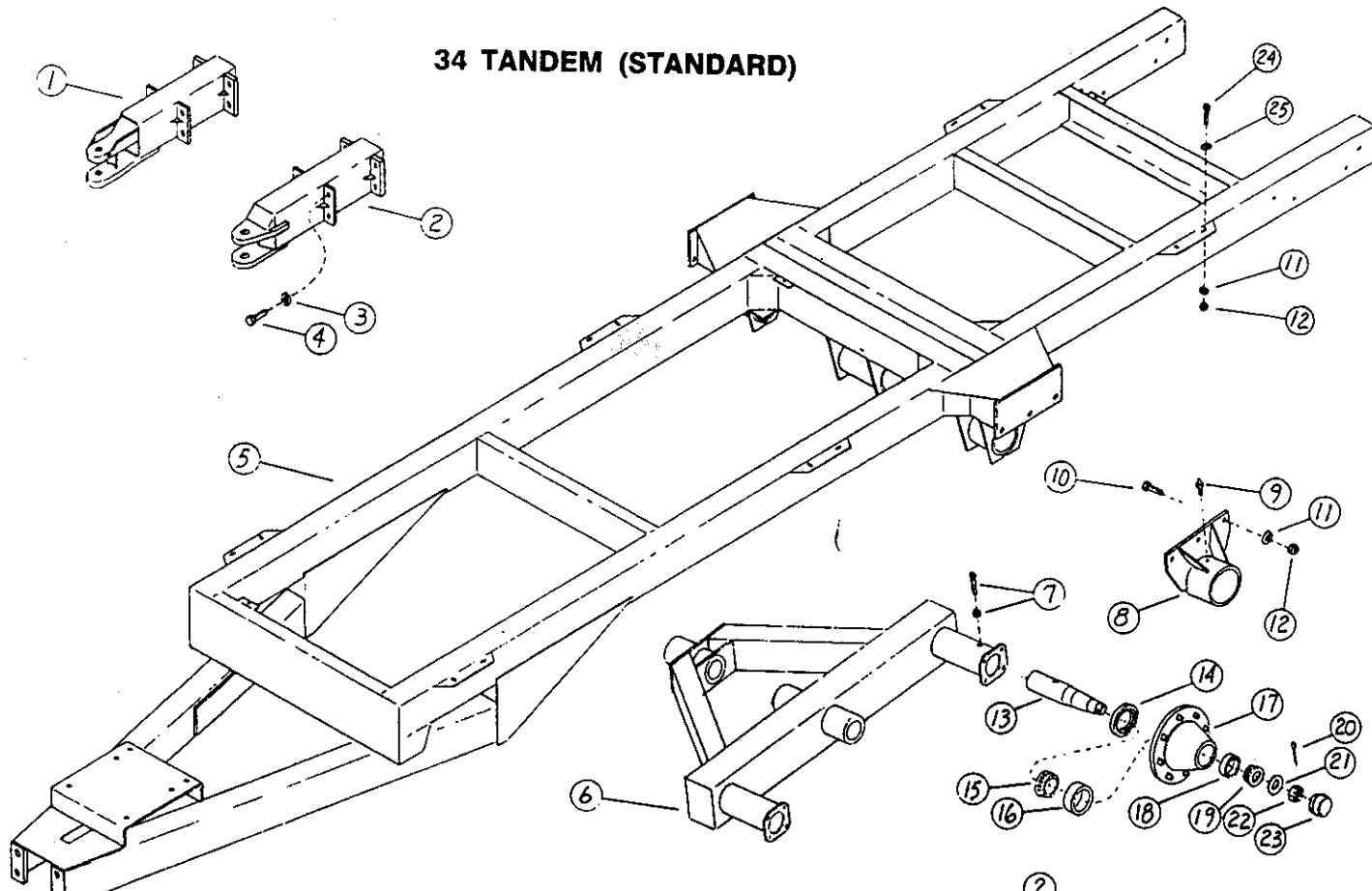
16896 - 16925 2250 TANDEM 15837 - 15575



2250 TANDEM

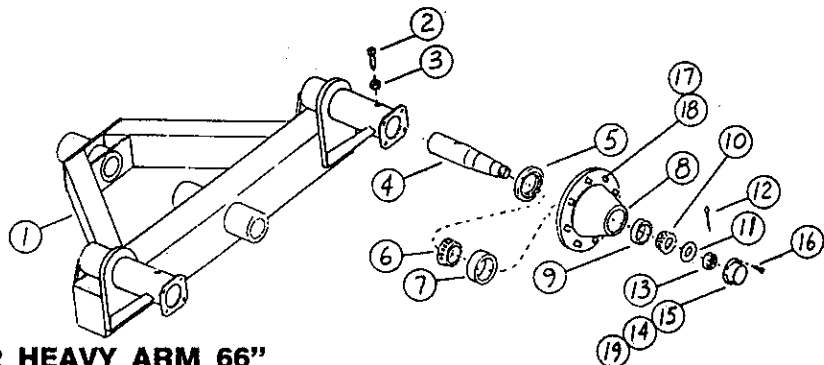
ITEM	P/N	NAME	ITEM	P/N	NAME
1	16900	Hitch	14	13138	Inner Cone
2	1291	Bolt, Hex HD 5/8 x 2	15	13139	Inner Cup
3	1696	Nut, Hex HD 5/8	16	13137	Hub 8-Bolt w/cups
4	16897	Trailer	17	13140	Outer Cone
5	1696	Nut, Hex HD 5/8	18	13141	Outer Cup
6	1289	Bolt, Hex HD 5/8 x 1 1/2	19	2045	Cotter Pin 5/32 x 1 1/2
	1602	Flat Washer 5/8	20	1605	Flat Washer 1"
	1640	Lockwasher 5/8	21	13144	Nut, Hex Castle 1"
7	15576	Tandem Arm	22	13143	Hub Cap w/zerk
8	2513	Set Screw, Sq. HD 3/4 x 2	23	13152	Bolt, Wheel (Not Shown)
9	1697	Nut, Hex HD 3/4	24	13496	Nut, Wheel (Not Shown)
10	11467	Axle Cap	25	15840	Wheel, 14C x 16.1 (Not Shown)
11	1640	Lockwasher 5/8	26	15836	Tire 19L x 16.1 8 Ply (N.S.)
12	16788	Spindle	27	8842	Valve Stem (Not Shown)
13	13142	Seal	28	10629	Trailer Jack (Not Shown)

34 TANDEM (STANDARD)



**17131 HEAVY ARM 66"
66" 4" SPINDLES**

**15508 STANDARD HEAVY
3" SPINDLES**



**16502 HEAVY ARM 66"
3" SPINDLE**

34 TANDEM (STANDARD)

ITEM P/N	NAME	ITEM P/N	NAME	ITEM P/N	NAME
1 12624	Standard Hitch	11 1640	Lockwasher 5/8	22 14332	Nut, Hex Castle 1 1/4
2 16440	Hitch (Large Pin)	12 1696	Nut, Hex HD 5/8	23 13143	Hub Cap w/Zerk
3 1641	Lockwasher 3/4	13 13154	Spindle 3"	24 1289	Bolt, Hex HD 5/8 X 1 1/2
4 1309	Bolt, Hex HD 3/4 X 1 1/2	14 13151	Seal	25 1602	Flatwasher
5 15488	Main Trailer	15 13150	Inner Cone	26 15534	Wheel W16C X 16.1 (Not Shown)
6 16493	Standard Arm (34)	16 13149	Inner Cup	27 11472	Tire 21.5L X 16.1 (Not Shown)
7 2513	Set Screw, Sq. HD 3/4 X 2	17 13146	Hub 8-Bolt (w/cups)	28 8842	Valve Stem (Not Shown)
1697	Nut, Hex HD 3/4	18 13147	Outer Cup	29 10629	Trailer Jack (Not Shown)
8 11467	Cap Axle	19 13148	Outer Cone		
9 11221	Bolt-Zerk Assy.	20 14333	Cotter Pin 3/16 X 2 1/2		
10 1291	Bolt, Hex HD 5/8 X 2	21 14330	Washer, Flat 1 1/4		

HEAVY ARM 66" - 3" SPINDLES (16502)

ITEM P/N	NAME	ITEM P/N	NAME	ITEM P/N	NAME
1 16503	Heavy Arm 66" 3" Spindle	10 14327	Outer Cone	19 2286	Zerk 1/4-28
2 2513	Set Screw, Sq. HD 3/4-10 X 2	11 14330	Flat Washer 1 1/4	20 16513	Wheel 20 X 15
3 1697	Nut, Hex HD 3/4-10	12 14333	Cotter Pin 3/16 X 2 1/4	21 16512	Tire 20 X 20 Recap
4 16341	Spindle 3"	13 14332	Nut, Hex Castle 1 1/4-12	22 6995	Valve Stem (Not Shown)
5 14322	Seal	14 14286	Hub Cap	23 16516	Wheel DW 20 X 26
6 14324	Inner Cone	15 14334	Gasket	24 16515	Tire 23L X 26 (New)
7 14325	Inner Cup	16 1183	Bolt, Hex HD 5/16 X 3/8	25 15211	Valve Stem
8 14335	Hub 10-Bolt	17 14326	Wheel Bolt 3/4 X 2 1/2	6993	Tube (For 20 X 20)
9 14328	Outer Cup	18 14329	Nut, Hex, Wheel 3/4	6994	Flat (50 X 20 X 20 Tires)

HEAVY ARM 66" - 4" SPINDLES (17131)

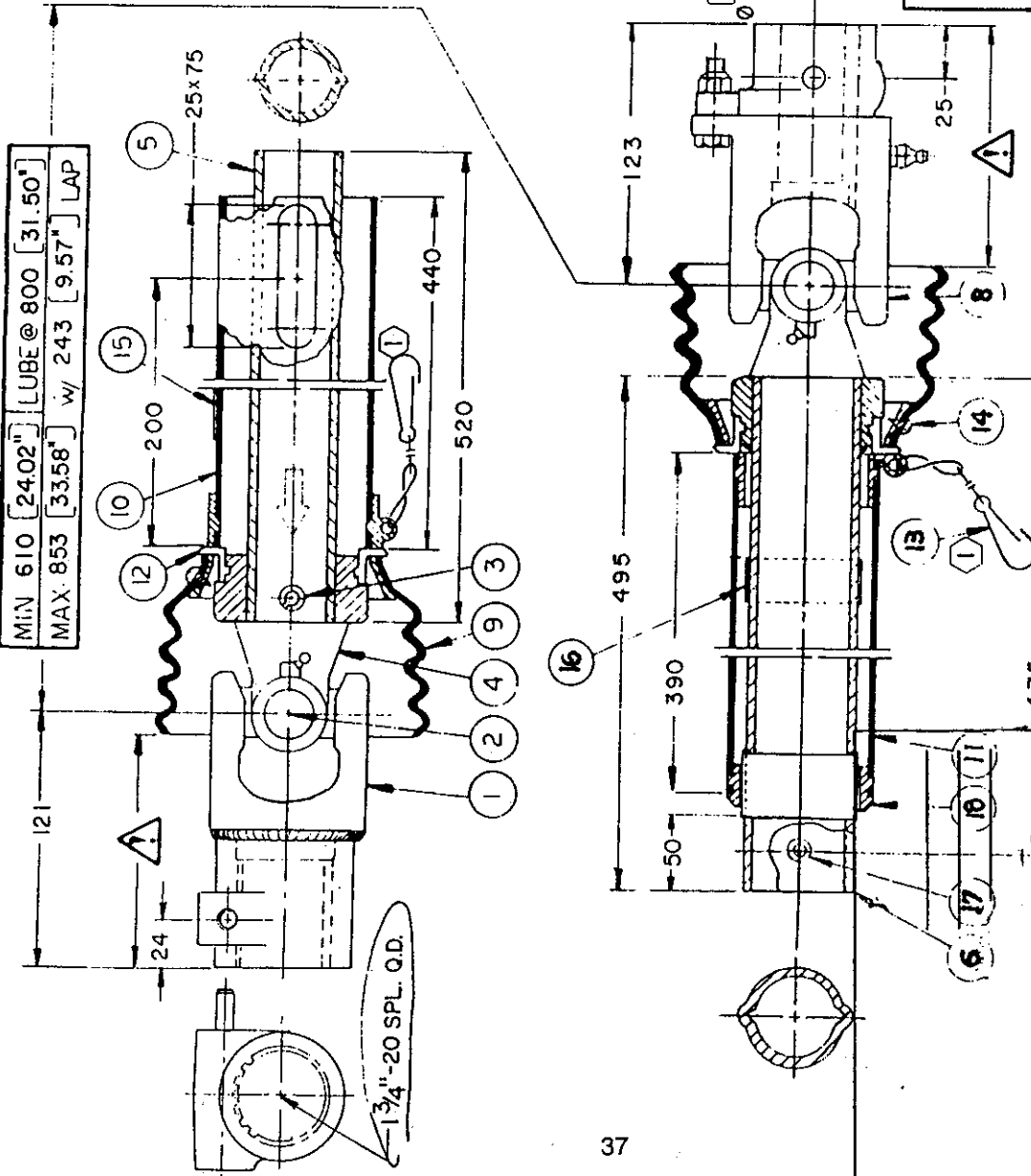
ITEM P/N	NAME	ITEM P/N	NAME	ITEM P/N	NAME
1 17132	Heavy Arm 66" 4" Spindle	10 14324	Outer Cone	19 2286	Zerk 1/2-28
2 2513	Set Screw, Sq. HD 3/4 X 2	11 17142	Flat Washer 1 3/4	20 16513	Wheel 20 X 15 (Not Shown)
3 1697	Nut, Hex HD 3/4-10	12 2074	Cotter Pin 5/16 X 3 1/2	21 16512	Tire 20 X 20 Recap (Not Shown)
4 17141	Spindle 4"	13 17143	Nut, Hex Castle 1 3/4-12	22 6995	Valve Stem (Not Shown)
5 17144	Seal	14 17147	Gasket	23 16516	Wheel DW 20 X 26 (Now Shown)
6 17145	Inner Cone	15 17148	Hub Cap	24 16515	Tire 23L X 26 (New) (Not Shown)
7 17146	Inner Cup	16 1202	Bolt, Hex HD 3/8 X 1/2	25 15211	Valve Stem (Not Shown)
8 17139	Hub 10-Bolt	17 14326	Wheel Bolt 3/4 X 2 1/2	6993	Tube (For 20 X 20)
9 14325	Outer Cup	18 14329	Nut, Hex, Wheel 3/4	6994	Flat (50 X 20 X 20 Tires)

34 HEAVY (STD. LENGTH) - 3" SPINDLES (15508)

ITEM P/N	NAME	ITEM P/N	NAME	ITEM P/N	NAME
1 15589	Heavy Arm (Std.) 3" Spindle	12 14333	Cotter Pin 3/16 X 2 1/4	23 15212	Wheel 20.s VF X 20
2 2513	Set Screw, Sq. HD 3/4-10 X 2	13 14332	Nut, Hex Castle 1 1/4-12	24 15210	Tire 48 X 25 X 20 (Used)
3 1697	Nut, Hex HD 3/4-10	14 14334	Gasket	25 16518	Tire 48 X 25 X 20 (Recap)
4 16341	Spindle 3"	15 14286	Hub Cap	26 15999	Tire 48 X 25 X 20 (New)
5 14322	Seal	16 1183	Bolt, Hex HD 5/16 X 3/8	27 16002	Wheel 26.0 VF X 20
6 14324	Inner Cone	17 14326	Wheel Bolt 3/4 X 2 1/2	28 16001	Tire 48 X 31X 20 (Used)
7 14325	Inner Cup	18 14329	Nut, Hex, Wheel 3/4	29 16520	Tire 48 X 31 X 20 (Recap)
8 14335	Hub 10-Bolt	19 2286	Zerk 1/4-28	30 16004	Tire 48 X 31 X 20 (New)
9 14328	Outer Cup	20 14190	Wheel 13.5 X 22.5	31 16513	Wheel 20 X 15
10 14327	Outer Cone	21 14189	Tire 18 X 22.5 (Recap)	32 17208	Tire 49 X 17 (Recap)
11 14330	Flat Washer 1 1/4	22 15211	Valve Stem (Common)	33 17209	Tire 49 X 17 (Used)

BILL OF MATERIALS

QTY.	WAL NUMBER	BALZER	DESCRIPTION
1	1	331065	YOKE 1 3/4" - 20 SPL. Q.D.
2	2	044439	CROSS & BEARING KIT
3	1	020614	SPRING PIN 10X65
4	1	041065	INBOARD YOKE Ov
5	1	321593	INNER PROFILE OvGEH
6	1	388051	PROFILE, SLEEVE &
			INBOARD YOKE W.A.
8	1	388074	SHEARBOLT CLUTCH
9	2	365344	SHIELD CONE 4 RIB
10	1	388052	OUT SHIELD TUBE OVL
11	1	385454	INN SHIELD TUBE RND
12	2	087279	BEARING RING SC15
13	2	044321	SAFETY CHAIN
14	2	365305	SCREW-IN ITEM 9
15	1	383333	DECAL OUT-IN ITEM 10
16	1	383334	DECAL INN-IN ITEM 6
17	1	380371	ZERK-IN ITEM 6
18	1	355154	SUPPORT BEARING
	1	339302	Q.D. PIN KIT-IN ITEM 1



**WALTERSCHEID
P.T.O.**

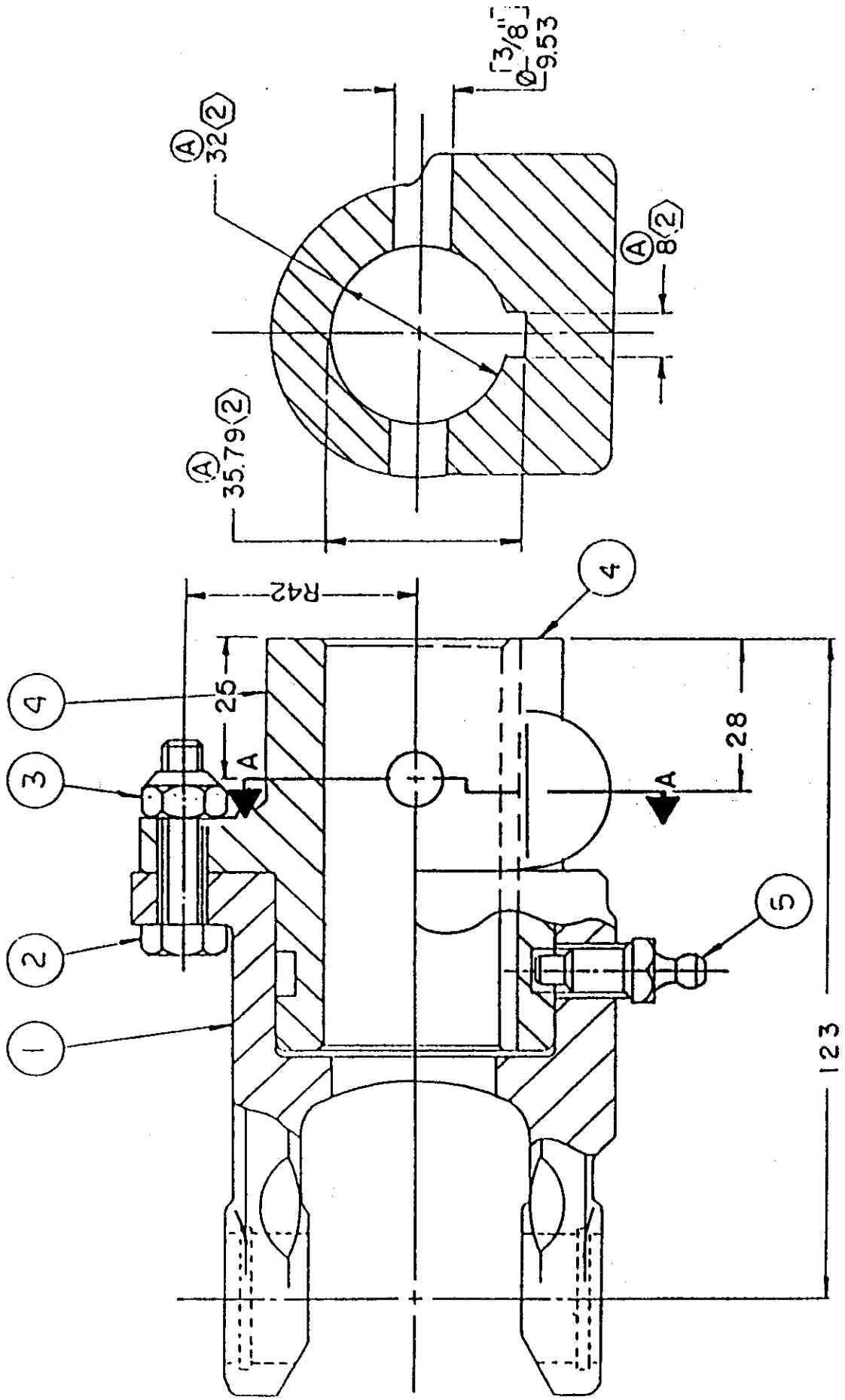
2 FIELD SERVICEABLE w/ 5/16" x 1 1/2" GRADE 5 BOLT. TORQUE SETTING: 1330 N.m. 981 LB.FT.
 1 QTY. 2 SAFETY CHAINS REQUIRED

CLUTCH SETTING	DRIVE SHAFT	SAFETY CHAINS	SAFETY CHAINS	SAFETY CHAINS
FT. LBS.	SAE	QTY.	TYPE	TYPE
1400	1032	B	1000	1000

THIS DRIVE SHAFT EXCEEDS ASAE S-331.3
 CATEGORY 2 () REGULAR / (✓) HEAVY
 DUTY SPECIFICATION

LIQUID SPREADER AIR PUMP

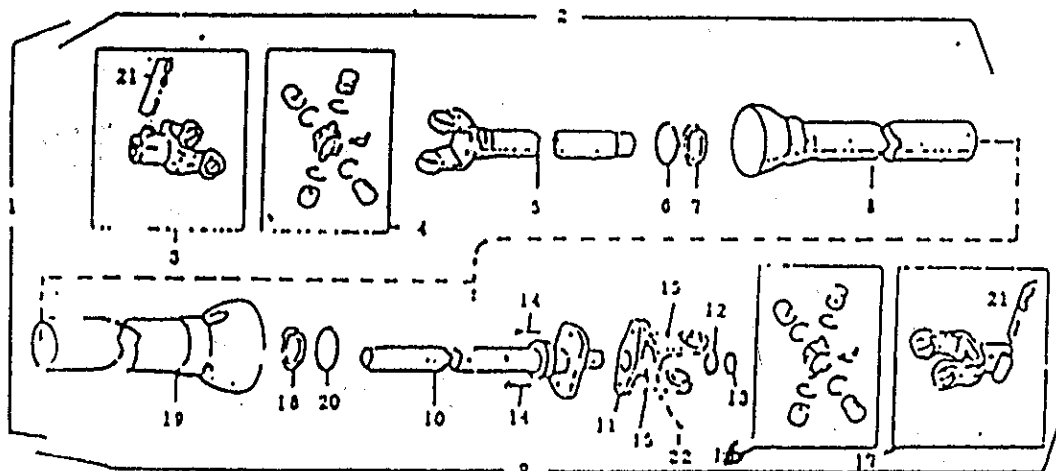
WALTERSCHEID CONTINUED



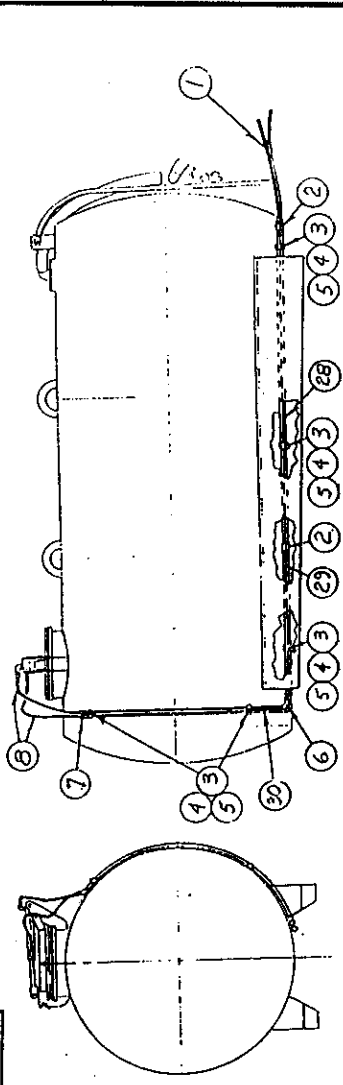
**Balzer
Part No.**

**Description
Weasler
Power Take Off Assemblies**

11034	1 - PTO "LGW" (1000 RPM)
11046	1 - PTO "LGW" (540 RPM)
11361	2 - Joint & Tube Half W/Q DFWG (1000) RPM
11342	2 - Joint & Tube Half W/Q DFWG (540) RPM
11343	3 - Q.D. Yoke Assy
11344	4 - Cross "LGW"
11362	5 - Yoke And Tube (1000) RPM
11345	5 - Yoke And Tube (540)
11346	6 - Bearing Retainer
11347	7 - Nylon Bearing
11363	8 - Male Guard Tube (1000) RPM
11348	8 - Male Guard Tube (540) RPM
11364	9 - Joint And Shaft Shear W/Q DFWG (1000) RPM
11350	9 - Joint And Shaft Shear W/Q DFWG (540) RPM
11351	10 - Shaft With Shear Flange
11353	11 - Shear Yoke
11355	12 - Washer
11356	13 - Retaining Ring
11352	14 - 1/4 - 20 X 1 1/2 QTY - 2
11354	15 - Lock Nut, 1/4 X 20 QTY - 2
11344	16 - Cross "LGW"
11365	17 - Q.D. Yoke Assembly (1000) RPM
11343	17 - Q.D. Yoke Assembly (540) RPM - Qty - 2
11357	18 - Nylon Bearing
11349	19 - Female Guard Tube
11356	20 - Bearing Retainer
11366	21 - SAF - T - Pin & Spring Kit (1000) RPM
11359	21 - SAF - T - Pin & Spring Kit (540) RPM
11360	22 - Instamatic Lube Kit (Not Shown)
17577	23 - Yoke - Straight Shaft W/Key & Thru Hole

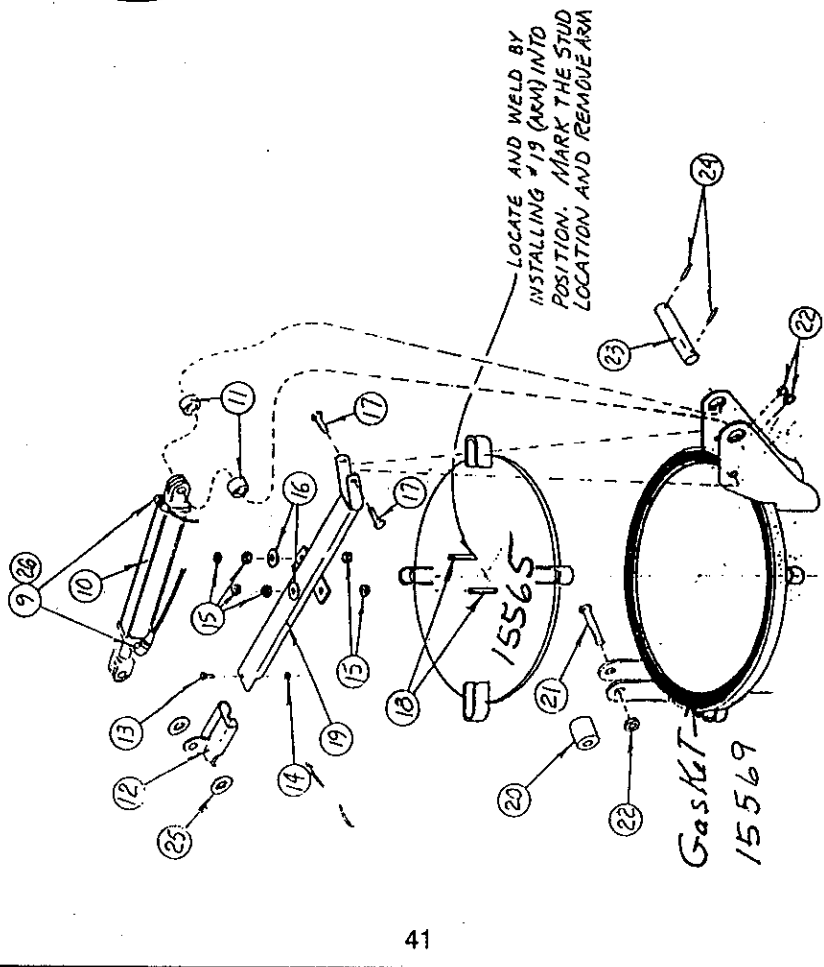


30	2	11923	Hydraulic Pipe 1/4 x 72"	23	1	15987	1" Pin x 7 1/2
	2	12002	Hydraulic Pipe 1/2 x 60"	22	3	2539	Nut, Hex HD 1/2
29	2	17074	Hydraulic Pipe 1/4 x 96"	21	1	1262	Bolt, Hex HD 1/2 x 5
	2	12002	Hydraulic Pipe 1/4 x 60"	20	1	15768	Latch Roller
	4	11923	Hydraulic Pipe 1/4 x 72"	19	1	15759	Latch Arm
28	2	11923	Hydraulic Pipe 1/4 x 72"	18	2	2500	Bolt, Hex HD, 1/2 x 3 (Full thread)
				17	2	1250	Bolt, Hex HD 1/2



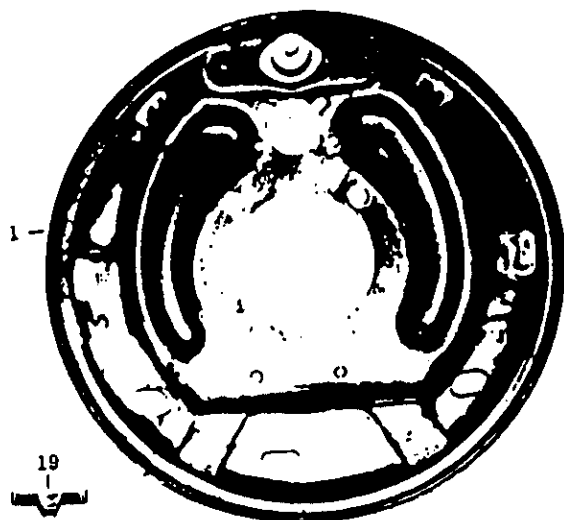
16	2	1600	Washer, Flat 1/2	16	2	10996	Coupler 1/4	3350, 4200, 5200	
15	6	1894	Nut, Hex HD 1/2	15	4	11930	Hydraulic Hose 1/4 x 110	1500, 2250	
14	1	2081	Nut, Hex HD 5/16	Item	Qty.	Part No.	Description		
13	1	1185	Bolt, Hex HD 5/16 x 1	Tolerances (Except as noted)					Decimal ±
12	1	15763	Slide Latch						Fractional ±
11	2	15767	Cylinder Spacer						Angular: ±
10	1	8210	Hydraulic Cylinder						
9	2	11631	Street Elbow 1/4						
8	2	10989	Hydraulic Hose 1/4 x 42 1/2						
7	2	15769	Elbow 45° 1/4						
6	2	14108	Elbow 90° 1/4						
5	3	1168	Bolt, Hex HD 5/16 x 1 1/4						
4	3	15743	Pipe Clamp						
3	3	15742	Pipe Clamp Cover						
2	6	10996	Coupler 1/4						
1	4	11930	Hydraulic Hose 1/4 x 110						

PART NAME		BALZER MFG. CORP.	
MATERIAL		MOUNTAIN LAKE, MINN. 56159	
SCALE		PHONE 427-3133	
DRAWN BY			
DATE			
ECO			
REVISION			

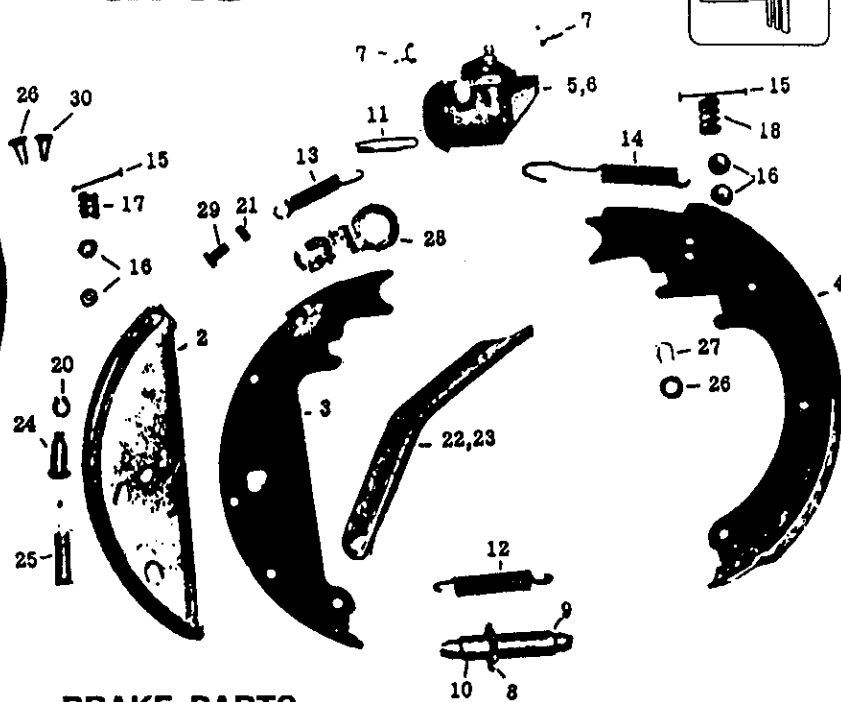


27	2	9862	Reducer Bushing 1/4 x 3/8 NPT
26	4	2010	Machine Bushing 1" ID 10 Ga.
25	2	1906	Roll Pin 1/4 x 1 1/2

Surge Brake Parts



BRAKE DRUM
Standard - 15300
Heavy - 15301



BRAKE PARTS

ITEM	QTY	P/N	NAME
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 Down (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.)
29	4	1638	Lockwasher 1/2" (not illus.)
30	1	12665	Plug - Plastic

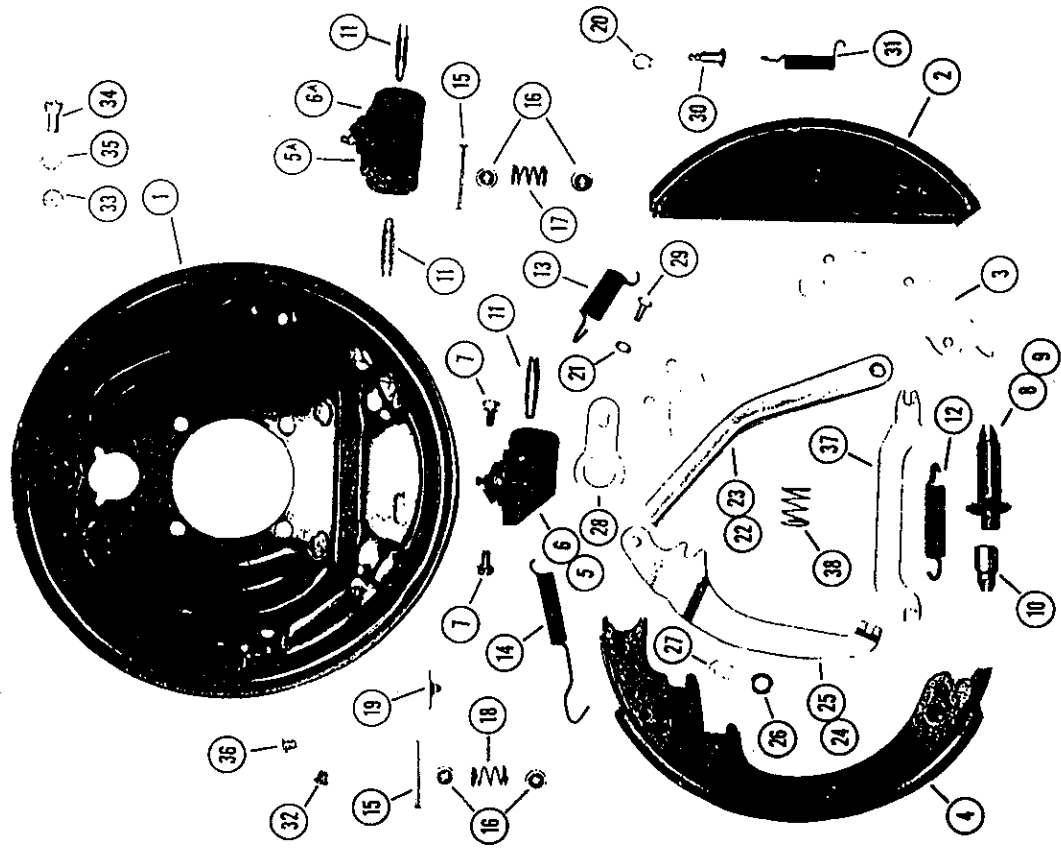
6 Bolt drum 10 Bolt wheel Hub Balance
 8 Bolt drum 8 Bolt Hub 16-19-21

HYDRAULIC

13" BRAKE PARTS LIST

REF. NO.	DICO PART NO.	DESCRIPTION	NO. REQUIRED PER ASSEMBLY	
			BALZER	DUO-SERVO
1	24737	Back Plate Assembly	17276	1
2	9739	F Brake Shoe Assembly	12634	1
3	9745	F Shoe Lever	12635	
4	9775	R Shoe Assembly	12636	2
5	9776	Wheel Cylinder Assembly - Right		
5-A	18350	Wheel Cylinder Assembly - Right		
6	9777	Wheel Cylinder Assembly - Left	17278	1
6-A	18351	Wheel Cylinder Assembly - Left		
7	23457	Screw & Lockwasher		1
8 & 9	23324	Adjusting Screw & Pivot Nut		2
10	9782	Socket - Adjusting Screw		1
11	9783	Push Rod - Wheel Cylinder	12642	1
12	9784	Spring Adjusting Screw (Yellow)	12643	2
13	9785	Spring - Front Lever (Red)	12644	1
14	9786	Spring - Rear Shoe (Orange)	12645	1
15	9788	Pin - Shoe Hold Down	12646	2
16	9789	Cup - Shoe Hold Down	12647	2
17	9790	Spring - Front Hold Down (Yellow)	12648	4
18	9791	Spring - Rear Hold Down (Black)	12649	4
19	9254	Cover Plate - Adjusting Hole	12650	2
20	7778	Retaining Ring	12651	1
21	17406	Hex - Locknut 5/16" NC	12652	
22	9731	Toggle Link R	2475	
23	9732	Toggle Link L	12653	
24	9792	Parking Lever R	12654	
25	9793	Parking Lever L	12655	
26	9794	Spring Washer	12656	
27	9795	Retainer	12657	
28	9743	Travel Link	12658	
29	7949	Travel Link Bolt - Hex Cap Screw 5-16" NC x 5-3"	12659	
30	9795	Pin-Front Shoe - with Park Linkage	1182	
30	12560	Pin-Front Shoe - without Park Linkage	12662	
31	6314	Spring - Front Shoe		
32	9797	Plug - Plastic	12663	
33	7972	Hex Nut 1/2" NF	12664	2
34	7955	Cap Screw 1/2" NF x 1"	1704	4
35	7937	Lockwasher 1/2"	2568	4
36	9404	Plug - Plastic	1638	4
37	17194	Parking Strut	12665	
38	16090	Spring - Parking Strut		
XX	15845	Wheel Cylinder Repair Kit - 1 1/8"	17280	
XX	18349	Cup	17281	1
			17282	2

*Used on Models with Parking Brake.



13" BRAKE PARTS DIAGRAM

Finger Tip Control
 #15797

15797 13" Brake LH

HYDRAULIC

13" BRAKE PARTS LIST

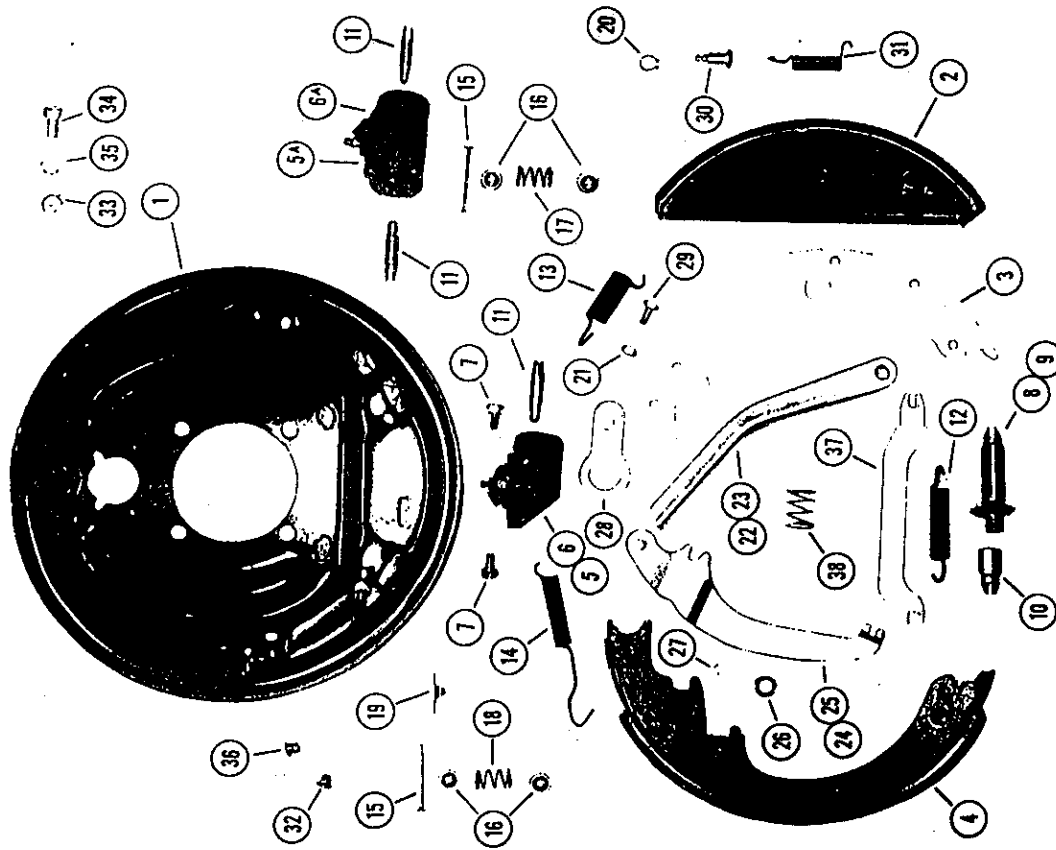
REF. NO.	DICO PART NO.	DESCRIPTION	NO. REQUIRED PER ASSEMBLY	
			BALZER	DUO-SERVO
1	24737	Back Plate Assembly	17276	1
2	9739	F Brake Shoe Assembly	12634	
3	9745	F Shoe Lever	12635	
4	9775	R Shoe Assembly	12636	2
5	9776	Wheel Cylinder Assembly - Right		
5-A	18350	Wheel Cylinder Assembly - Right	17278	1
6	9777	Wheel Cylinder Assembly - Left		
6-A	18351	Wheel Cylinder Assembly - Left		1
7	23457	Screw & Lockwasher		2
8 & 9	23324	Adjusting Screw & Pivot Nut		1
10	9782	Socket - Adjusting Screw	12642	1
11	9783	Push Rod - Wheel Cylinder	12643	2
12	9784	Spring Adjusting Screw (Yellow)	12644	1
13	9785	Spring - Front Lever (Red)	12645	1
14	9786	Spring - Rear Shoe (Orange)	12646	2
15	9788	Pin - Shoe Hold Down	12647	2
16	9789	Cup - Shoe Hold Down	12648	4
17	9790	Spring - Front Hold Down (Yellow)	12649	1
18	9791	Spring - Rear Hold Down (Black)	12650	2
19	9254	Cover Plate - Adjusting Hole	12651	1
20	7778	Retaining Ring	12652	
21	17406	Hex - Locknut 5/16" NC	2475	
22	9731	Toggle Link R	12653	
23	9732	Toggle Link L	12654	
24	9792	Parking Lever R	12655	
25	9793	Parking Lever L	12656	
26	9794	Spring Washer	12657	
27	9795	Retainer	12658	
28	9743	Travel Link	12659	
29	7949	Travel Link Bolt - Hex Cap Screw 5-16" NC x 5/8"	1182	
30	9795	Pin-Front Shoe - with Park Linkage	12662	
30	12580	Pin-Front Shoe - without Park Linkage		
31	6314	Spring - Front Shoe	12663	
32	9797	Plug - Plastic	12664	2
33	7972	Hex Nut 1/2" NF	1704	4
34	7955	Cap Screw 1/2" NF x 1"	2568	4
35	7937	Lockwasher 1/2"	1638	4
36	9404	Plug - Plastic	12665	
37	17194	Parking Strut		
38	16090	Spring - Parking Strut	17280	
XX	15845	Wheel Cylinder Repair Kit - 1 1/8"	17281	1
XX	18349	Cup	17282	2

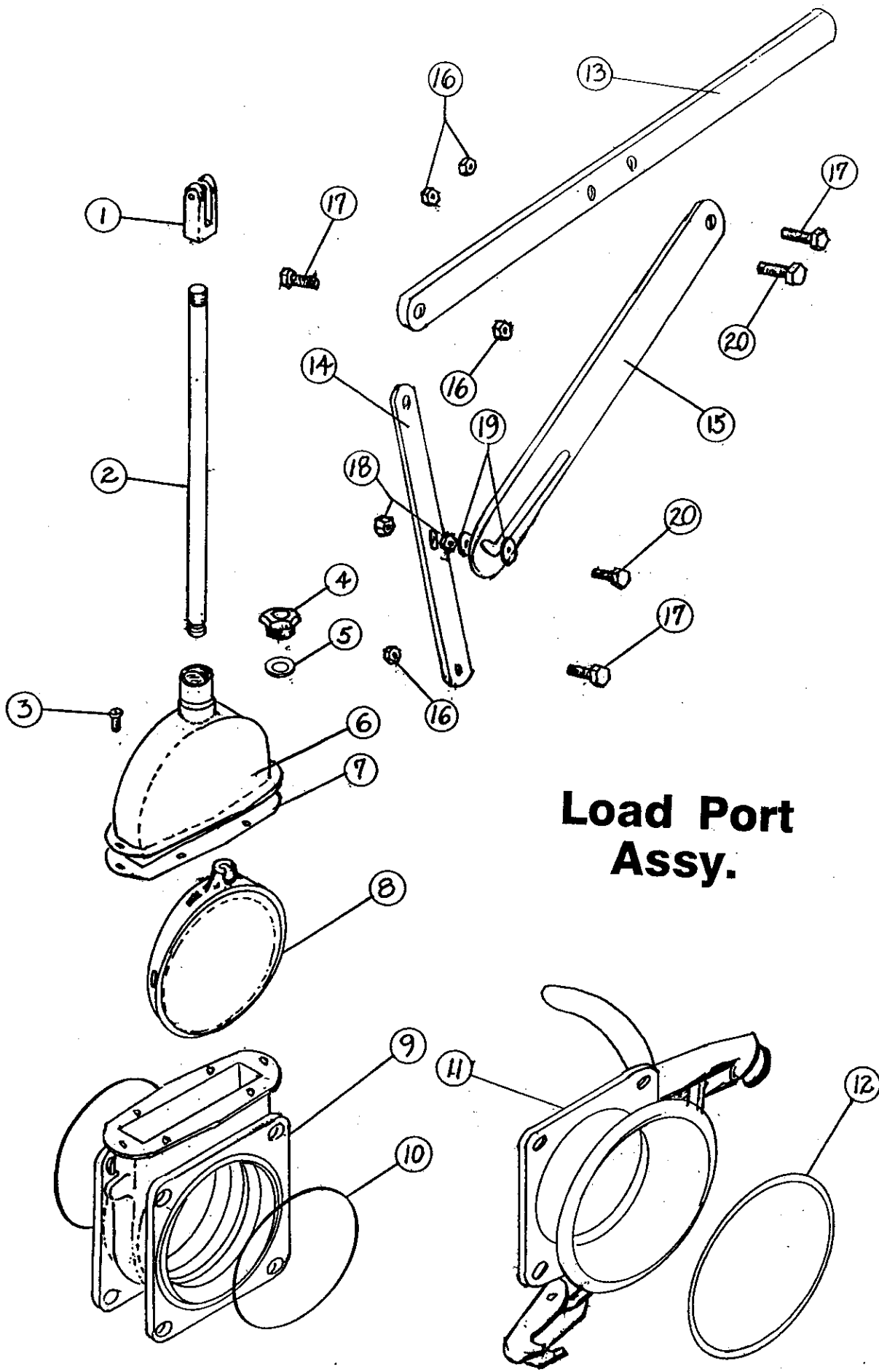
*Used on Models with Parking Brake.

15796 13" Brake RH

Finger Tip Control #15796

13" BRAKE PARTS DIAGRAM

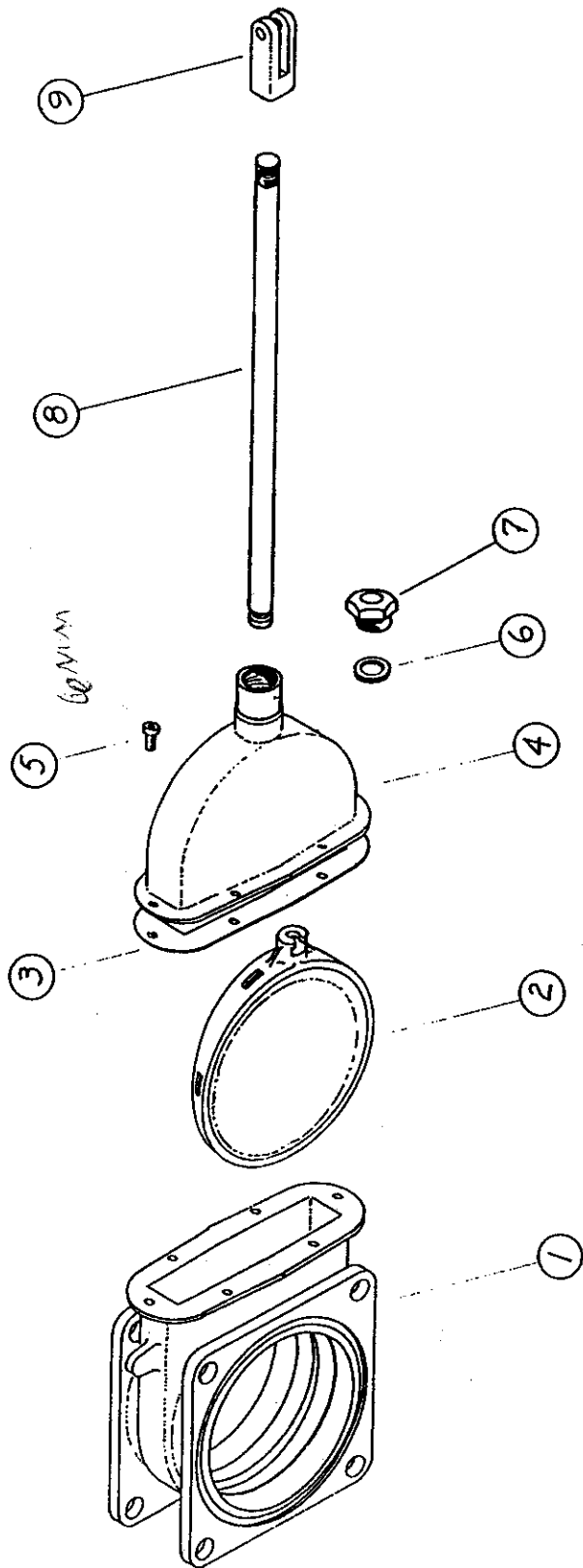




**Load Port
Assy.**

LOAD PORT ASSEMBLY

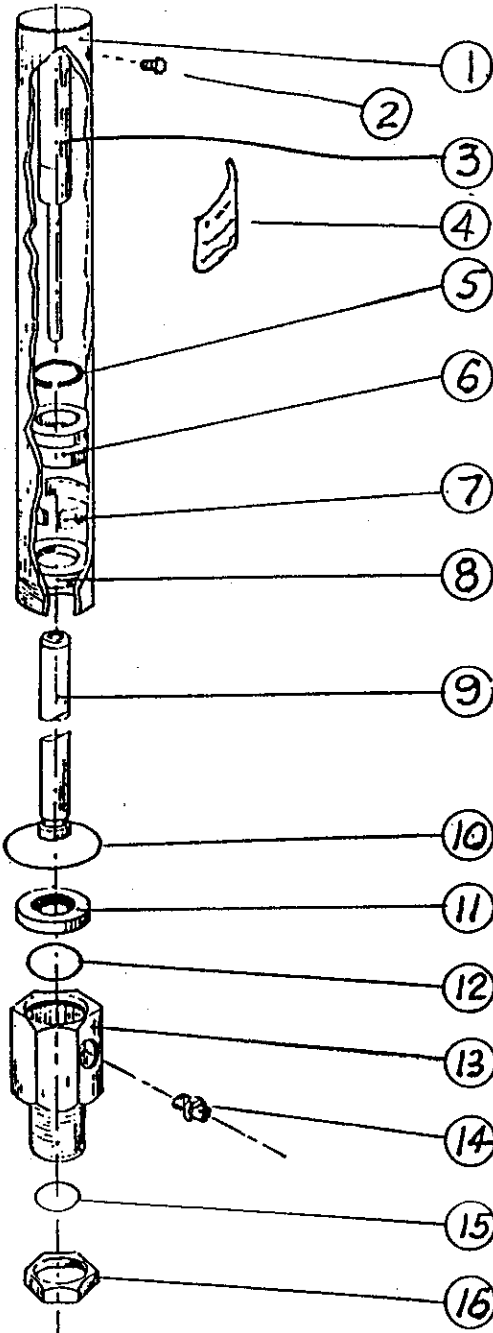
ITEM	QTY	P/N	DESCRIPTION
1	1	15691	Clevis
2	1	15690	Valve Rod 6"
3	6	15683	Soc Hd. Cap screw
4	1	15689	Bushing Nut
5	1	15684	Seal
6	1	15682	Valve, Upper Body
7	1	15681	Gasket 6"
8	1	15680	Valve Gate 6"
9	1	15679	Valve Lower Body
10	2	15621	O-Ring 6" Valve
11	1	15564	Female Coupler w/Flange
12	1	11979	O-Ring 6"
13	1	15618	Lever 6" Valve
14	1	15619	Connector Bar 6"
15	1	15620	Lock, 6" Valve
16	4	2496	Nut Hex HD 3/8
17	3	1206	Bolt Hex HD 3/8 x 1
18	2	2082	Nut Hex HD 3/8
19	2	1598	Washer 3/8
20	2	1208	Bolt Hex HD 3/8 x 1 1/2



ITEM	QTY.	PART NO.	DESCRIPTION	DECIMAL ±	FRACTIONAL ±	ANGULAR ±
10	1	15971	Handle Assembly (Not shown)			
9	1	15691	Clevis			
8	1	15970	Valve Rod			
7	1	15689	Bushing Nut			
6	1	15684	Seal			
5	4	15683	Socket Head Cap Screw 8mmx16mm-1.25 Pitch			
4	1	15969	Valve, Upper Body			
3	1	15968	Gasket			
2	1	15967	Valve Gate			
1	1	15966	Valve Lower Body			
TOLERANCES (EXCEPT AS NOTED)						
DATE						
REVISION						
ECO						
SUFS						
PART NAME						
MATERIAL						
DRAWN BY						
SCALE						
DATE						
CH. BY						
PHONE 427-3133						
MOUNTAIN LAKE, MINN 56159						
BALZER MFG. CORP.						

Valve Actuator Assembly

17066



Housing Tube (19055)

18429 Breather 1/8-n NPTF

Gas Spring (19056)

15694 Decal

O Ring (19057) 20 din7993

Piston (19058)

Guide (19059) E-DWR 30-2

Washer (19060) B118078

Rod 4" (19061)

Rod 6" (19062)

Rod 8" (19063)

O Ring 3156 (19064)

Washer (19065) B110078 NEI

O Ring (19066)

Adaptor (19067) ES,46

15687 M 18 P.1, 5

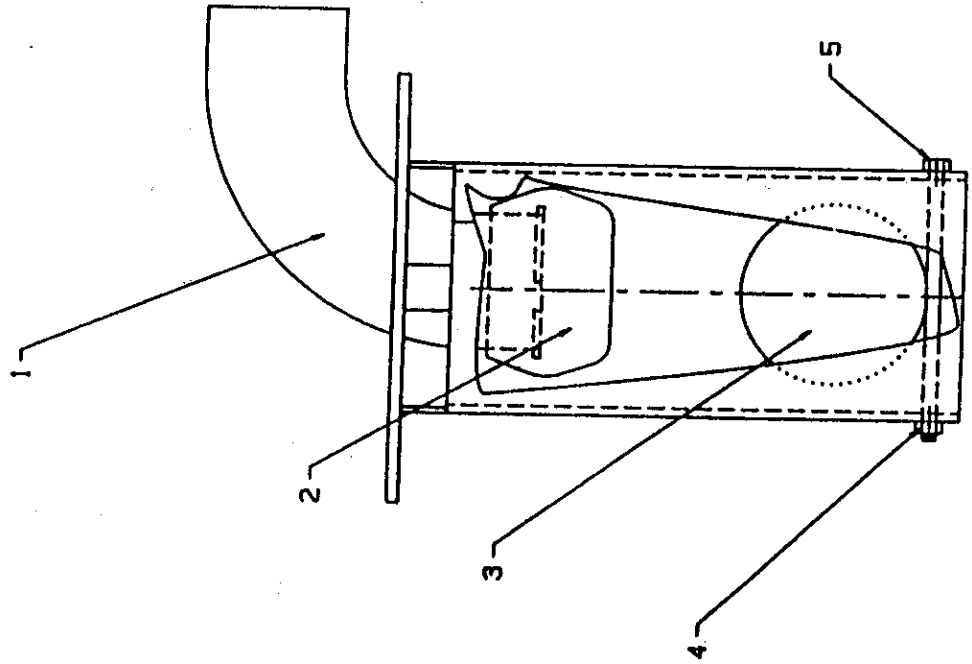
O Ring (19068) 3081-127

15685 M 30 P,2

Seal Kit (19069)

Primary Shutoff

DATE	REVISION	ECO	DESCRIPTION	PART NO.	ITEM	QTY	18564
12 7 92	REDRAWN TO COMPUTER CHANGES	2956	PORTAL COVER (WELDED)	19169	1		
			BALL SEAT	18866	1		
			BALL CHECK VALVE - 4" S.S.	17345	1		
			NUT HEX - 1/2" DIA X 1/2" S.S.	2613	1		
			BOLT HEX HD 5/16 X 6" S.S.	19170	1		

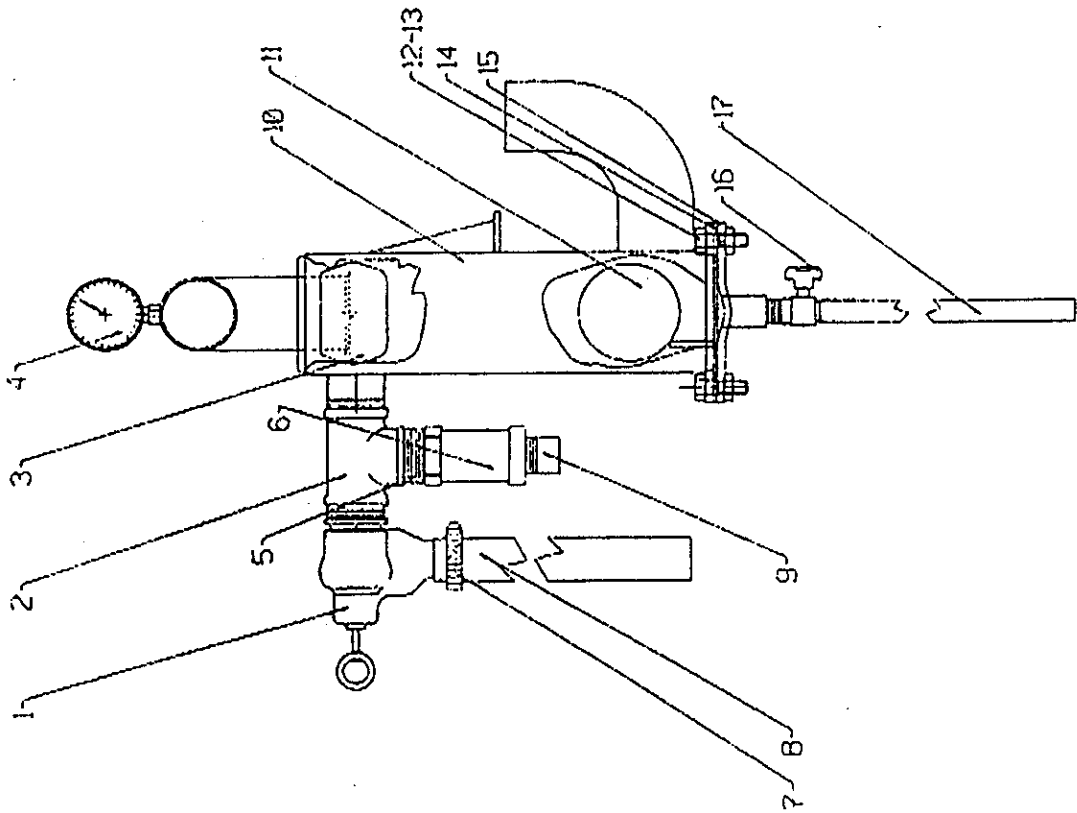


NEXT ASSY	ALL VAC TANKS	510
CITY PER	1	
MATL CODE	MATL SIZE AND DESCRIPTION	ASSY
MOVE TO FINAL ASSY	FAB : A1 : N2 : N3	SHEET 1 OF 1
ASSEMBL. AS SHOWN	WELD : 06 : N6 : 11	DO NOT SCALE
OPERATION INSTRUCTIONS	DRAWN R/L/H	
INTRINSIC OR LENGTH	CHECKED <i>[Signature]</i>	
QUANTITY	REL. DATE	DATE 12 7 92
STD. TOL.	STD. DIA.	PART NO. 18564
		PART NAME PORTAL COVER ASSY

MAGNUM SECONDARY SHUTOFF

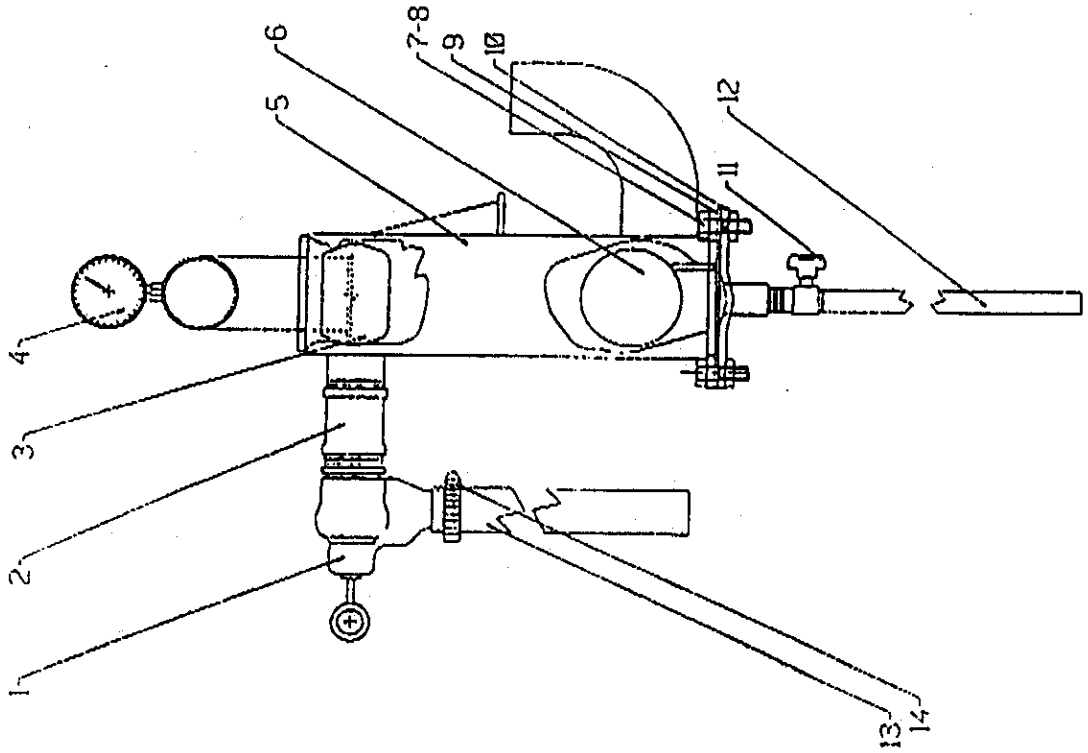
3-93

Date	Revision	Ecc	Item	Qty	Part No.	Description	19220
			1	1	16871	Pressure Relief Valve 1 1/2"	
			2	1	11684	Tee 1 1/2 NPT	
			3	1	10866	Ball Seat	
			4	1	10964	Gauge Pressure - Vacuum	
			5	1	11688	Close Nipple 1 1/2"	
			6	1	18223	Check Valve	
			7	1	18557	Hose Clamp 2 1/4"	
			8	1	18509	Hose 1 3/4 X 56" Cut From 18508	
			9	1	18350	Nipple Half 1 1/2 NPT	
			10	1	19080	Secondary Can Weldment	
			11	1	17345	Ball 4" S.S.	
			12	4	1248	Bolt Hex HO 1/2 X 1	
			13	4	2084	Nut Hex 1/2 (Serrated Flange)	
			14	1	18035	Gasket 4-Bolt	
			15	1	19163	Secondary Bottom	
			16	1	16339	Ball Valve 3/4 NPT	
			17	1	11191	Drain Hose 3/4 X 36" Cut From 11187	



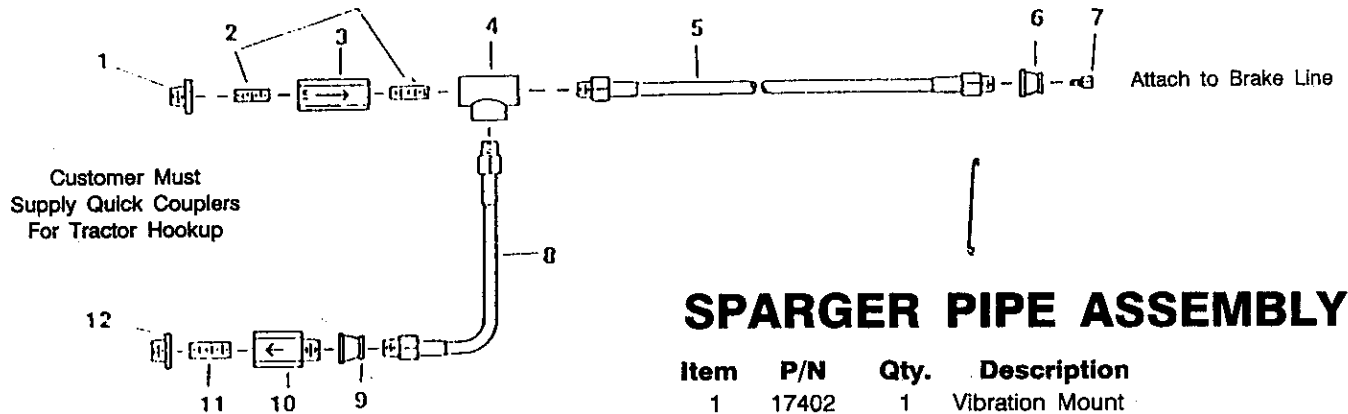
STANDARD SECONDARY SHUTOFF

Date	Revision	Eco	Item	Qty.	Part No.	Description
			1	1	18871	Pressure Relief Valve 1 1/2"
			2	1	2599	Coupler 1 1/2 NPT
			3	1	10866	Ball Seat
			4	1	10984	Gauge Pressure - Vacuum
			5	1	19080	Secondary Can Weldment
			6	1	17345	Ball 4" S.S.
			7	4	1249	Bolt Hex HD 1/2 X 1
			8	4	2084	Nut Hex 1/2 (Serrated Flange)
			9	1	16035	Gasket 4-Bolt
			10	1	19163	Secondary Bottom
			11	1	16339	Ball Valve 3/4 NPT
			12	1	11191	Drain Hose 3/4 X 36" Cut From 11187
			13	1	18509	Hose - 1 3/4 X 56" Cut From 18505
			14	1	18557	Clamp Hose 2 1/4



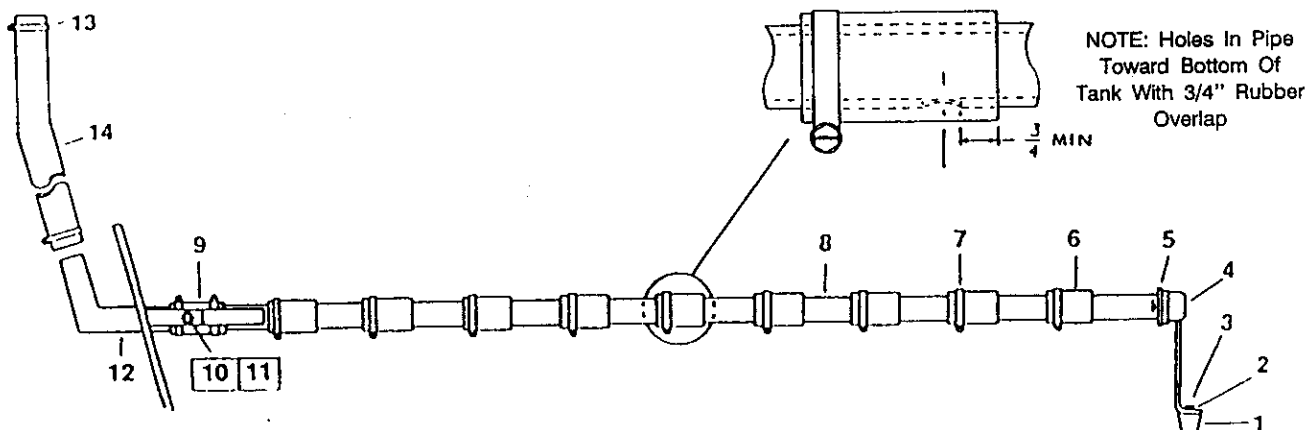
BRAKE SYSTEM FINGER TIP CONTROL

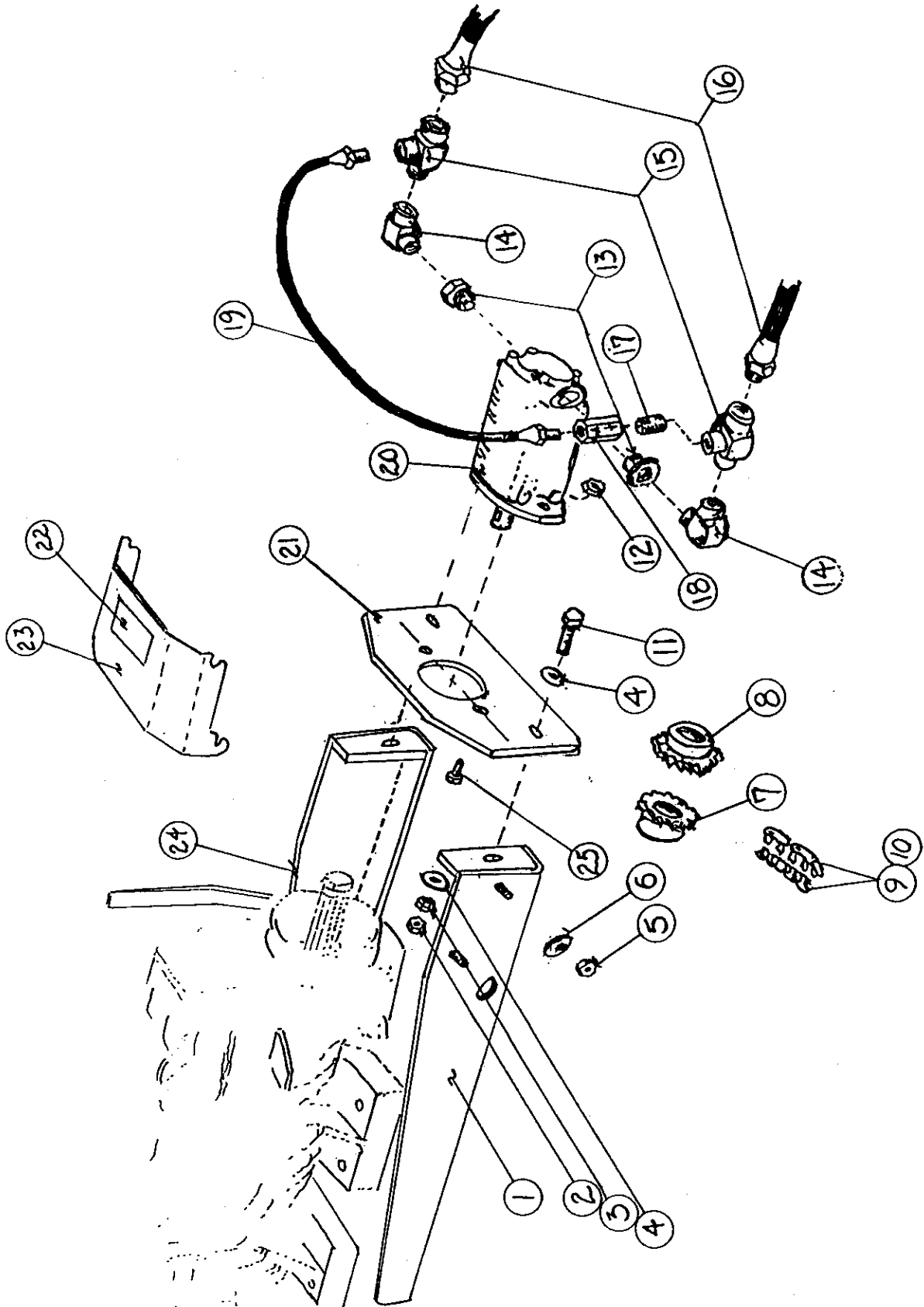
Item	P/N	Qty.	Description
1	12190	1	Reducer Bushing 1/2-1/4
2	11045	2	1/4 Close Nipple
3	11041	1	Flow Regulator
4	9957	1	Tee 1/4
5	15809	1	Hose 1/4 X 72
6	15808	1	Bell Reducer 1/4 X 1/8
7	17504	1	1/8 NPT X .188 Male Connector
8	11156	1	Hose 1/4 X 15
9	11044	1	Bell Reducer 3/8 X 1/4
10	17503	1	Relief Valve
11	8619	1	Close Nipple 3/8
12	8223	1	Bushing 1/2 X 3/8



SPARGER PIPE ASSEMBLY

Item	P/N	Qty.	Description
1	17402	1	Vibration Mount
2	1635	1	Lockwasher 5/16
3	2586	1	Nut Hex 5/16 X 24
4	17364	1	Air Tube End Stand
5	4174	1	Locknut 1 1/2 NPT
6	10911	9	Rubber Sleeve
7	10953	11	Clamp
8	17361	1	Air Tube Weldment
9	10967	1	Sleeve
10	1249	2	Bolt, Hex Hd 1/2 X 1 1/4
11	1734	2	Locknut 1/2
12	17355	1	Air Cover Plate
13	6895	2	Clamp, 'T' Type
14	17369	1	Sparger Pressure Hose

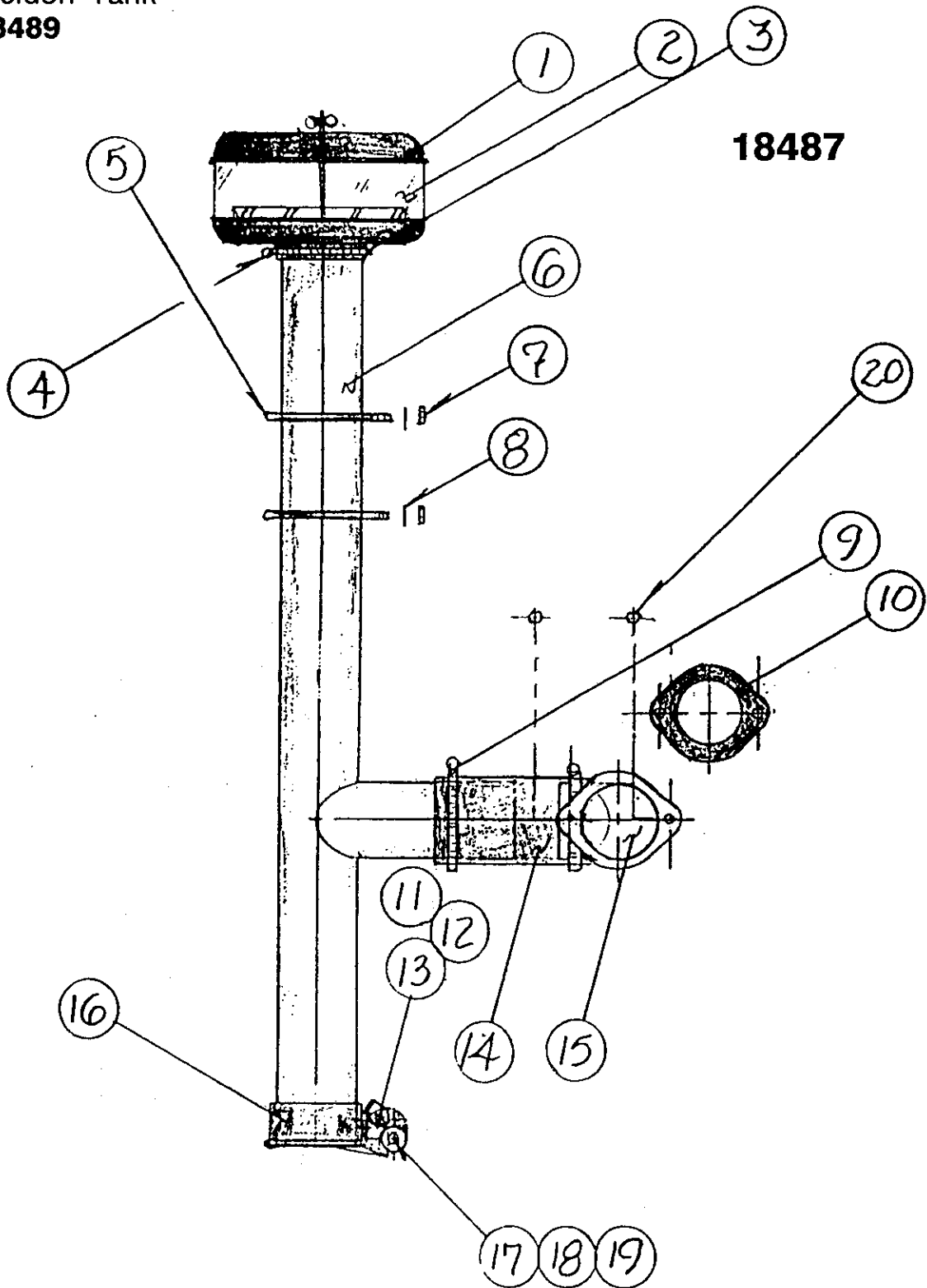




HYDRAULIC DRIVE

Item	P/N	Qty.	Description
1	15774	1	Hyd. Drive Mount R.H.
2	1694	2	Nut Hex 1/2
3	1638	2	Lockwasher 1/2
4	1600	4	Flat Washer 1/2
5	1692	2	Nut Hex 3/8
6	1598	2	Flat Washer 3/8
7	16020	1	Sprocket
8	15982	1	Sprocket
9	15984	1	Chain Double #50
10	15985	1	Chain, Connectors #50
11	1250	2	Bolt 1/2 X 1 1/2 Hex Hd.
12	2084	2	Nut 1/2 Serrated
13	8617	2	Boss O-Ring
14	8613	2	Elbow 1/2 X 90
15	11543	2	Tee 1/2
16	11303	2	Hose Hyd. 1/2 X 51
17	8604	1	Nipple 1/2 NPT
18	8605	1	Valve Check 1/2 NPT
19	10034	1	Hose Hyd. 1/2 X 18"
20	15908	1	Motor Hyd. Orbit
21	15781	1	Mount Motor
22	8155	1	Decal
23	15780	1	Shield Hyd. Mount
24	15777	1	Mount, Hyd. Drive L.H.

Bracket to
Weldon Tank
18489



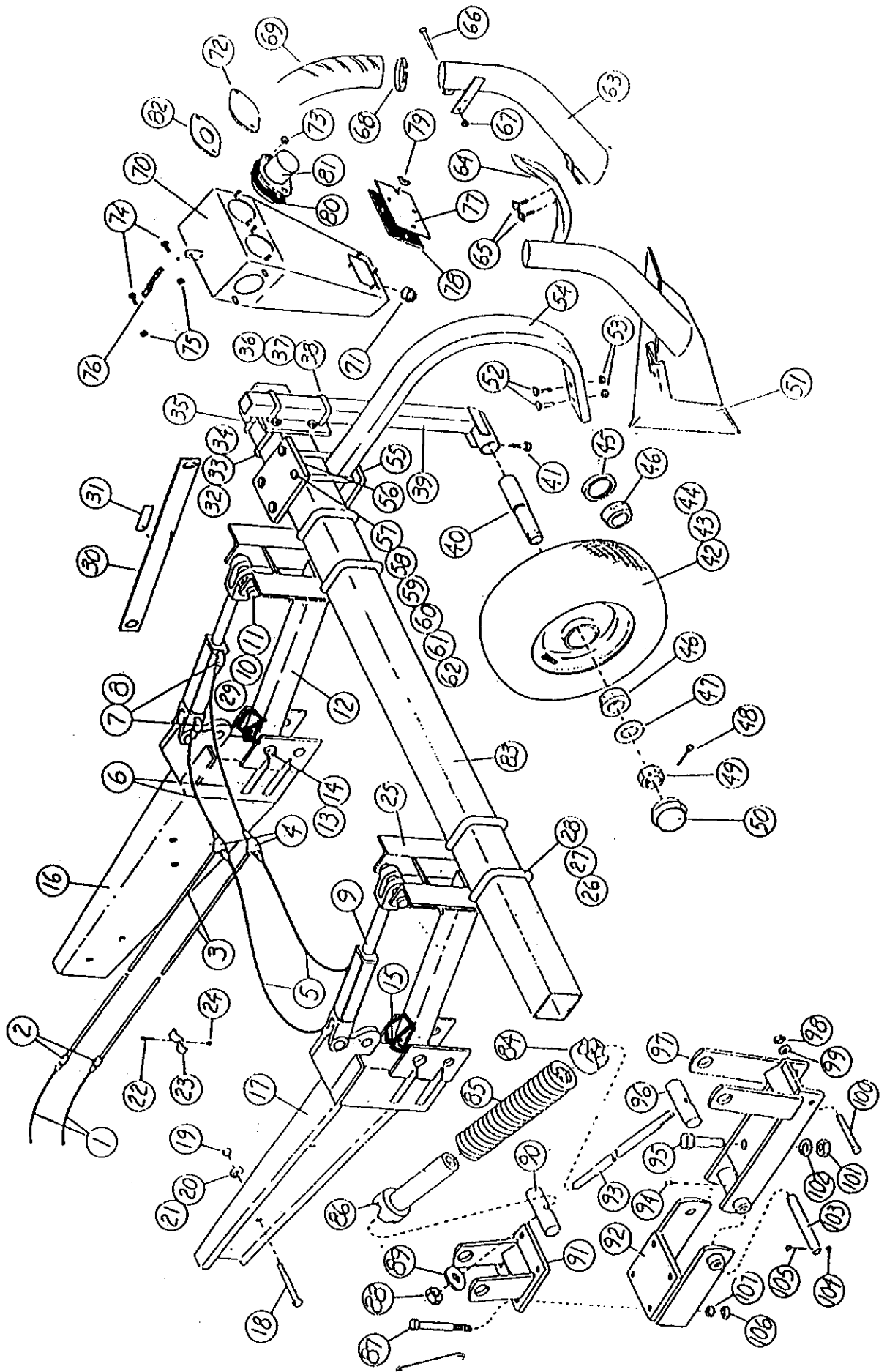
Exhaust Manifold Assy.

EXHAUST MANIFOLD ASSY.

20	2	3033	Hex HD Bolt M10 X 25
19	4	1600	Washer, Flat 1/2
18	1	1249	Bolt Hex HD 1/2 X 1 1/4
17	1	2084	Hex HD Nut Wizlock 1/2
16	1	18408	Rain Cap (Reworked) Assy 18555
15	1	18505	Pipe Flange weld
14	1	18490	Hose 7" Blk 3" ID
13	1	1186	Hex HD Bolt 5/16 - 1 1/4
12	2	2081	Hex HD Wizlock 5/16
11	1	18513	Brake, Rain Cap
10	1	15625	Gasket
9	2	15695	Clamp 86 - 91
8	2	18512	Plate U Bolt Assy 18510
7	4	1691	Nut Hex 5/16 Assy 18510
6	1	18488	Exhaust Tube Weld
5	2	18511	U Bolt Assy 18510
4	1	15691	Clamp 3 1/2 - 9 - 16 Assy 18496
3	1	18499	Base Ref NA Assy 18496
2	1	18498	Bowl Ref #P020227 Assy 18496
1	1	18497	Cover Ref #P020648 Assy 18496

Item	Qty.	Part No.	Description
Tolerances (Except As Noted)			Decimal ± Fractional: ± Angular ±
			BALZER MFG. CORP. MOUNTAIN LAKE, MN 56159 PHONE 427-3133
			Part Name Exhaust Manifold Assy
			Material Scale
			Drawn By Date
			Ch. By 18487
Date	Revision	Eco	Supps.

1500 -- 4800 Injection System



INJECTOR PARTS 1500 VACUUM

Item	P/N	Name	Item	P/N	Name	Item	P/N	Name
1	11930	Hydraulic Hose 1/4	41	2587	Bolt, Hex HD 1/2 X 1 1/2	73	1694	Nut, Hex HD 1/2
2	10996	Coupler 1/4	42	17512	Tire 18 X 8.50	74	1206	Bolt, Hex HD 3/8 X 1
3	12746	Hydraulic Pipe 1/4	43	17513	Wheel & Hub	75	2082	Nut, Hex HD 3/8
4	11043	Tee 1/4	44	12171	Valve Stem	76	16956	Chain (5 Links)
5	10989	Hydraulic Hose 1/4 X 42	45	12159	Seal	77	15720	Cover Plate
6	11997	Hydraulic Hose 1/4	46	12161	Bearing Cup	78	15719	Gasket, Manifold
7	11631	St. Elbow 90 1/4	47	12160	Bearing Cone	79	1761	Wing Nut 5/16
8	9862	Reducer Bushing 3/8 - 1/4	48	16844	Washer 3/4	80	15625	Flange Gasket
9	16240	Hydraulic Cylinder 2 X 8	49	2047	Cotter Pin 1/8 X 1 1/2	81	13102	Flange
10	16315	Linkage Pin 1"	50	12163	Nut, Hex Castle 3/4 - 16	82	16553	Flange 20
11	11059	Hair Pin Clip	51	15263	Grease Cap	82	14469	Choke 1 1/2"
12	16309	Linkage Tube	51	15643	16" Sweep	82	13155	Choke 2"
13	1350	Bolt, Hex HD 1 X 6 1/2	51	15595	20" Sweep	83	12081	Injector Bar Std. 2-4 Knife
14	1779	Locknut 1"	54	16003	24" Sweep	83	11946	Injector Bar 6 Knife
15	2286	Zerk 1/4 - 28	52	2580	Plow Bolt 1/2 X 2	84	12073	Adjustment Clamp
16	16526	Injector Mount, R.H.	53	2084	Nut, Hex HD 1/2	85	12070	Spring
17	16527	Injector Mount, L.H.	54	11961	Shank	86	12072	Spring Clamp Casting
18	1291	Bolt, Hex HD 5/8 X 2	55	11960	Mounting Plate, Bottom	87	2516	Bolt, Hex HD 5/8 X 6 GR 5
19	1696	Nut, Hex HD 5/8	56	11959	Mounting Plate, Top	88	1777	Nut, Hex HD 3/4 (Locking)
20	1640	Lockwasher 5/8	57	2520	Bolt, Hex HD 3/4 X 7 1/2 GR5	89	1603	Washer, Flat 3/4
21	1602	Flatwasher 5/8	58	1697	Nut, Hex HD 3/4	90	12069	Spring Clamp Pin
22	1187	Bolt, Hex HD 5/16 X 1 1/2	59	1641	Lockwasher 3/4	91	12066	Top Clamp
23	8214	Pipe Clamp	60	1331	Bolt, Hex HD 7/8 X 3 GR 5	92	12065	Bottom Clamp
24	2081	Nut, Hex HD 5/16	61	1642	Lockwasher 7/8	93	12071	Spring Rod
25	16313	Tool Bar Mount	62	1698	Nut, Hex HD 7/8	94	2286	Grease Zerk 1/4 - 28
26	16307	Sq. U-Bolt 3/4	63	11963	Injector Tube	95	2524	Bolt, Hex HD 7/8 X 2 3/4 GR5
27	1641	Lockwasher 3/4	64	11962	Chisel Spike 7/8 X 2	96	12068	Rear Pin
28	1697	Nut, Hex HD 3/4	65	1254	Bolt, Hex HD 1/2 X 2 1/2 GR5	97	12064	Shank Mount
29	16241	Cylinder Spacer	65	1600	Washer Flat 1/2	98	1696	Nut, Hex HD 1/2
30	12256	Transport Bracket	66	1638	Lockwasher 1/2	99	1638	Lockwasher 1/2
31	12863	Decal "Remove Before Using"	66	1694	Nut, Hex HD 1/2	100	2523	Bolt, Hex HD 1/2 X 4 GR5
32	16308	Sq. U-Bolt 5/8 X 5	67	1505	Bolt, Truss HD 5/16 X 3	101	1698	Nut, Hex HD 7/8
33	1696	Nut, Hex HD, 5/8	67	2475	Nut, Hex HD 5/16 (Top Lock)	102	1642	Lockwasher 7/8
34	1640	Lockwasher 5/8	68	10953	Hose Clamp	103	12067	Spring Clamp Pivot Pin
35	16535	Mounting Plate	69	11967	Injector Hose - Center	104	1770	Nut, Hex HD 1/4 (Locking)
36	16539	Sq. U-Bolt 1/2 X 3 1/2	69	11968	Injector Hose - Mid	105	2525	Bolt, Hex HD 1/4 X 2 GR5
37	1694	Nut, Hex HD 1/2	70	11969	Injector Hose - Outside	106	1696	Nut, Hex HD 5/8
38	1638	Lockwasher 1/2	70	13240	Manifold	107	1640	Lockwasher 5/8
39	16532	Gauge Wheel Arm	71	11870	Pipe Plug 2"	108	16492	Extension Deflector (N.S.)
40	16302	Spindle	72	13101	Plate, Blank			
	12122	Hub (Not Shown)						
	12167	Wheel Bolt (Not Shown)						

INJECTOR PARTS 2250 VACUUM

Item	P/N	Name	Item	P/N	Name	Item	P/N	Name
1	11930	Hydraulic Hose 1/4	41	2587	Bolt, Hex HD 1/2 X 1 1/2	73	1694	Nut, Hex HD 1/2
2	10996	Coupler 1/4	42	17512	Tire 18 X 8.50	74	1206	Bolt, Hex HD 3/8 X 1
3	12089	Hydraulic Pipe 1/4	43	17513	Wheel & Hub	75	2082	Nut, Hex HD 3/8
4	11043	Tee 1/4	44	12171	Valve Stem	76	16956	Chain (5 Links)
5	10989	Hydraulic Hose 1/4 X 42	45	12159	Seal	77	15720	Cover Plate
6	11997	Hydraulic Hose 1/4	46	12161	Bearing Cup	78	15719	Gasket, Manifold
7	11631	St. Elbow 90 1/4	47	12160	Bearing Cone	79	1761	Wing Nut 5/16
8	9862	Reducer Bushing 3/8 - 1/4	48	16844	Washer 3/4	80	15625	Flange Gasket
9	16240	Hydraulic Cylinder 2 X 8	49	2047	Cotter Pin 1/8 X 1 1/2	81	13102	Flange
10	16315	Linkage Pin 1"	50	12163	Nut, Hex Castle 3/4 - 16	82	16553	Flange 20
11	11059	Hair Pin Clip	51	15263	Grease Cap	82	14469	Choke 1 1/2"
12	16309	Linkage Tube	52	15643	16" Sweep	83	13155	Choke 2"
13	1350	Bolt, Hex HD 1 X 6 1/2	53	15595	20" Sweep	84	12081	Injector Bar Std. 2-4 Knife
14	1779	Locknut 1"	54	16003	24" Sweep	85	11946	Injector Bar 6 Knife
15	2286	Zerk 1/4 - 28	55	2580	Plow Bolt 1/2 X 2	86	12073	Adjustment Clamp
16	16318	Injector Mount, R.H.	56	2084	Nut, Hex HD 1/2	87	12070	Spring
17	16319	Injector Mount, L.H.	57	11961	Shank	88	12072	Spring Clamp Casting
18	1291	Bolt, Hex HD 5/8 X 2	58	11960	Mounting Plate, Bottom	89	2516	Bolt, Hex HD 5/8 X 6 GR 5
19	1696	Nut, Hex HD 5/8	59	11959	Mounting Plate, Top	90	1777	Nut, Hex HD 3/4 (Locking)
20	1640	Lockwasher 5/8	60	2520	Bolt, Hex HD 3/4 X 7 1/2 GR5	91	1603	Washer, Flat 3/4
21	1602	Flatwasher 5/8	61	1697	Nut, Hex HD 3/4	92	12069	Spring Clamp Pin
22	1187	Bolt, Hex HD 5/16 X 1 1/2	62	1641	Lockwasher 3/4	93	12066	Top Clamp
23	8214	Pipe Clamp	63	1331	Bolt, Hex HD 7/8 X 3 GR 5	94	12065	Bottom Clamp
24	2081	Nut, Hex HD 5/16	64	1642	Lockwasher 7/8	95	12071	Spring Rod
25	16313	Tool Bar Mount	65	1698	Nut, Hex HD 7/8	96	2286	Grease Zerk 1/4 - 28
26	16307	Sq. U-Bolt 3/4	66	11963	Injector Tube	97	2524	Bolt, Hex HD 7/8 X 2 3/4 GR5
27	1641	Lockwasher 3/4	67	11962	Chisel Spike 7/8 X 2	98	12068	Rear Pin
28	1697	Nut, Hex HD 3/4	68	1254	Bolt, Hex HD 1/2 X 2 1/2 GR5	99	12064	Shank Mount
29	16241	Cylinder Spacer	69	1600	Washer Flat 1/2	100	1696	Nut, Hex HD 1/2
30	12256	Transport Bracket	70	1638	Lockwasher 1/2	101	1638	Lockwasher 1/2
31	12863	Decal "Remove Before Using"	71	1694	Nut, Hex HD 1/2	102	2523	Bolt, Hex HD 1/2 X 4 GR5
32	16308	Sq. U-Bolt 5/8 X 5	72	1505	Bolt, Truss HD 5/16 X 3	103	1698	Nut, Hex HD 7/8
33	1696	Nut, Hex HD, 5/8	73	2475	Nut, Hex HD 5/16 (Top Lock)	104	1642	Lockwasher 7/8
34	1640	Lockwasher 5/8	74	10953	Hose Clamp	105	12067	Spring Clamp Pivot Pin
35	16535	Mounting Plate	75	11967	Injector Hose - Center	106	1770	Nut, Hex HD 1/4 (Locking)
36	16539	Sq. U-Bolt 1/2 X 3 1/2	76	11968	Injector Hose - Mid	107	2525	Bolt, Hex HD 1/4 X 2 GR5
37	1694	Nut, Hex HD 1/2	77	11969	Injector Hose - Outside	108	1696	Nut, Hex HD 5/8
38	1638	Lockwasher 1/2	78	13240	Manifold	109	1640	Lockwasher 5/8
39	16532	Gauge Wheel Arm	79	11870	Pipe Plug 2"	110	16492	Extension Deflector (N.S.)
40	16302	Spindle	80	13101	Plate, Blank			
	12122	Hub (Not Shown)						
	12167	Wheel Bolt (Not Shown)						

INJECTOR PARTS 3350 - 4200 - 4800 VACUUM

Item	P/N	Name	Item	P/N	Name	Item	P/N	Name
1	11930	Hydraulic Hose 1/4	41	2587	Bolt, Hex HD 1/2 X 1 1/2	73	1694	Nut, Hex HD 1/2
2	10996	Coupler 1/4	42	17512	Tire 18 X 8.50	74	1206	Bolt, Hex HD 3/8 X 1
3	12020	Hydraulic Pipe 1/4 X 187	43	17513	Wheel & Hub	75	2082	Nut, Hex HD 3/8
4	11043	Tee 1/4	44	12171	Valve Stem	76	16956	Chain (5 Links)
5	10989	Hydraulic Hose 1/4 X 42	45	12159	Seal	77	15720	Cover Plate
6	11997	Hydraulic Hose 1/4	46	12161	Bearing Cup	78	15719	Gasket, Manifold
7	11631	St. Elbow 90 1/4	47	12160	Bearing Cone	79	1761	Wing Nut 5/16
8	9862	Reducer Bushing 3/8 - 1/4	48	16844	Washer 3/4	80	15625	Flange Gasket
9	16240	Hydraulic Cylinder 2 X 8	49	2047	Cotter Pin 1/8 X 1 1/2	81	13102	Flange
10	16315	Linkage Pin 1"	50	12163	Nut, Hex Castle 3/4 - 16	82	16553	Flange 20
11	11059	Hair Pin Clip	51	15263	Grease Cap	83	14469	Choke 1 1/2"
12	16309	Linkage Tube	52	15643	16" Sweep	84	13155	Choke 2"
13	1350	Bolt, Hex HD 1 X 6 1/2	53	15595	20" Sweep	85	12070	Spring
14	1779	Locknut 1"	54	16003	24" Sweep	86	12072	Spring Clamp Casting
15	2286	Zerk 1/4 - 28	55	2580	Plow Bolt 1/2 X 2	87	2516	Bolt, Hex HD 5/8 X 6 GR 5
16	16244	Injector Mount, R.H.	56	2084	Nut, Hex HD 1/2	88	1777	Nut, Hex HD 3/4 (Locking)
17	16245	Injector Mount, L.H.	57	11961	Shank	89	1603	Washer, Flat 3/4
18	1291	Bolt, Hex HD 5/8 X 2	58	11960	Mounting Plate, Bottom	90	12069	Spring Clamp Pin
19	1696	Nut, Hex HD 5/8	59	11959	Mounting Plate, Top	91	12066	Top Clamp
20	1640	Lockwasher 5/8	60	2520	Bolt, Hex HD 3/4 X 7 1/2 GR5	92	12065	Bottom Clamp
21	1602	Flatwasher 5/8	61	1697	Nut, Hex HD 3/4	93	12071	Spring Rod
22	1187	Bolt, Hex HD 5/16 X 1 1/2	62	1641	Lockwasher 3/4	94	2286	Grease Zerk 1/4 - 28
23	8214	Pipe Clamp	63	1331	Bolt, Hex HD 7/8 X 3 GR 5	95	2524	Bolt, Hex HD 7/8 X 2 3/4 GR5
24	2081	Nut, Hex HD 5/16	64	1842	Lockwasher 7/8	96	12068	Rear Pin
25	16313	Tool Bar Mount	65	1698	Nut, Hex HD 7/8	97	12064	Shank Mount
26	16307	Sq. U-Bolt 3/4	66	11963	Injector Tube	98	1696	Nut, Hex HD 1/2
27	1641	Lockwasher 3/4	67	11962	Chisel Spike 7/8 X 2	99	1638	Lockwasher 1/2
28	1697	Nut, Hex HD 3/4	68	1254	Bolt, Hex HD 1/2 X 2 1/2 GR5	100	2523	Bolt, Hex HD 1/2 X 4 GR5
29	16241	Cylinder Spacer	69	1600	Washer Flat 1/2	101	1698	Nut, Hex HD 7/8
30	12256	Transport Bracket	70	1638	Lockwasher 1/2	102	1642	Lockwasher 7/8
31	12863	Decal "Remove Before Using"	71	1694	Nut, Hex HD 1/2	103	12067	Spring Clamp Pivot Pin
32	16308	Sq. U-Bolt 5/8 X 5	72	1505	Bolt, Truss HD 5/16 X 3	104	1770	Nut, Hex HD 1/4 (Locking)
33	1696	Nut, Hex HD, 5/8	73	2475	Nut, Hex HD 5/16 (Top Lock)	105	2525	Bolt, Hex HD 1/4 X 2 GR5
34	1640	Lockwasher 5/8	74	10953	Hose Clamp	106	1696	Nut, Hex HD 5/8
35	16535	Mounting Plate	75	11957	Injector Hose - Center	107	1640	Lockwasher 5/8
36	16539	Sq. U-Bolt 1/2 X 3 1/2	76	11968	Injector Hose - Mid	108	16492	Extension Deflector (N.S.)
37	1694	Nut, Hex HD 1/2	77	11969	Injector Hose - Outside			
38	1638	Lockwasher 1/2	78	13240	Manifold			
39	16532	Gauge Wheel Arm	79	11870	Pipe Plug 2"			
40	16302	Spindle	80	13101	Plate, Blank			
	12122	Hub (Not Shown)						
	12167	Wheel Bolt (Not Shown)						