

# **Balcrank<sup>®</sup>**

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## **JET POWER™ SERIES PUMP Model #1130-002**



Thoroughly read and understand this manual before installing, operating or servicing this equipment.

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**OPERATION, INSTALLATION,  
MAINTENANCE AND REPAIR GUIDE**

# GENERAL SAFETY REQUIREMENTS

**NOTE: THOROUGHLY READ AND UNDERSTAND THIS MANUAL BEFORE INSTALLING, OPERATING, OR SERVICING THIS EQUIPMENT.**

Because this pump can be incorporated into pressure pumping type systems, the following safety precautions should be observed:

Check equipment regularly and repair or replace worn and damaged parts.

Never alter or modify any parts of this pump. Doing so may cause damage to pump and/or personal injury.

Under no circumstances should the dispensing valve be aimed at any person or your own body at any time. Personal injury may result.

Release pressures built up in the system before any service or repair is to be completed.

Do not operate this pump above 150 psi (10.3 bar) air inlet pressure or 125 cycles per minute.

Always read and follow the fluid manufacturer's recommendations regarding the use of protective eyewear, clothing, and respirators.



## WARNING

**THIS PUMP CONTAINS ALUMINUM AND ZINC PARTS.** DO NOT use 1-1-1 Trichloroethane, methylene chloride or other halogenated solvents or fluids containing such solvents in this pump.

Use of these solvents/fluids may result in a violent chemical reaction, causing serious bodily injury, property damage, or death.

All chemicals used in the pump must be chemically compatible with the wetted parts materials shown on page 3 of this manual. Consult your chemical supplier to ensure compatibility.



## WARNING

This pump develops 720 psi (50 bar) maximum working fluid pressure, at 180 psi (12.5) maximum inlet air pressure. Be sure that any components or accessories used in the system are rated to withstand this pressure. To determine fluid output pressure, multiply the ratio of the pump by the air pressure being used.

Example:

$$4:1 \text{ ration} \times 100 \text{ psi} = 400 \text{ psi fluid output}$$

$$4:1 \text{ ratio} \times 6.8 \text{ bar} = 27.6 \text{ bar}$$



## WARNING

### PRESSURE RELIEF PROCEDURE

Follow this procedure whenever you shut of the pump, when checking or servicing any part of the system and when installing, cleaning or changing any part of the system.

1. Disconnect the air to the pump.
2. Point dispensing valve away from yourself and others.
3. Open dispensing valve until pressure is relieved.

# GENERAL DESCRIPTION

Balcrank's Jet Power™ Series medium pressure pumps are based on high quality and a time tested design. With a pressure ratio of 4:1 and an air valve capable of sustained use to 150 psi (10.3 bar) air pressure, these pumps are suitable for fluid dispensing to multiple stations at distances of 300 feet, even at reduced temperatures. Good performance is obtained with low air consumption and with quiet operation which meets OSHA standards. Threads are provided for bung or standard pipe mounting, and suction tube attachment.

The Jet Power™ air motor design features precision cast aluminum alloy parts, simple durable construction, and an external air valve module with a built-in muffler. All parts are lubricated at the factory with a life tested synthetic grease (Balcrank Part #826733). This grease coats all parts and repels air line moisture to inhibit corrosion.

The Jet Power™ pumping assembly features hardened steel pump rods, tubes, and high quality seals and packings, all incorporated in an easy to service assembly. It also features a double action pumping chamber, which provides volume delivery on both strokes.

# TECHNICAL DATA

Pressure Ratio . . . . .	4:1
Air Motor Bore (2.62" effective dia.) . . . . .	3.375"
Stroke . . . . .	2.12"
Operating Air Pressure . . . . .	40-150 psi
Air Consumption . . . . .	10 CFM
Suction Lift (In. Mercury) . . . . .	18 <sup>1</sup>
Air Inlet Port Size . . . . .	1/4" <sup>2</sup>
Material Inlet Port Size . . . . .	3/4"
Material Outlet Port Size . . . . .	1/2"
Wetted Parts . . . . .	Steel, Buna-N
Shipping Weight . . . . .	16 lbs

1 Air consumption will vary depending on pump speed.  
2 Do not exceed 15' of vertical suction rise in an installation.

# INSTALLATION

Remove pump from carton and attach to cover, bung fitting, or other mounting (Balcrank® wall mount kit #4410-003).

Blow out any foreign material from the air supply line before connecting to pump. An air line filter/regulator is recommended for all applications; wet and dirty air will shorten the life of the pump. For severe duty applications, an air line lubricator is recommended for better performance and longer pump life. Use a 10-20 weight lubricant and set for one drop every 2 minutes.

Be sure air supply is off before connecting to pump. Gradually open air regulator valve until pump begins to cycle. The pump should prime within 1 to 3 minutes. Pump a small amount of fluid at low air pressure to remove trapped air and foreign material from lines. Discard this waste material.

Consult with local and state authorities to determine proper disposal of waste material.

After the pump system is fully primed, open air supply valve until desired flow and/or pressure is obtained. Always use the lowest pressure needed to obtain the desired results. This reduces pump wear.

# TROUBLE SHOOTING

If pump does not operate properly, review the following questions carefully:

1. Is pump getting adequate supply of air? 90 psi (6.2 bar) is ideal.
2. Check drum or reservoir for adequate oil to submerge suction tube and strainer.
3. If pump operates continuously, check oil line for leaks.

After preceding questions have been reviewed, determine which of the following cases fits your specific case.

**CASE I:** Pump is not operating at all (air valve not tripping over) or air blowing constantly from the air valve.

1. The toggle of the air valve assembly may be rubbing against tripper rod (37) and the friction is preventing it from tripping. In some cases, it may only be rubbing slightly and when the pump is cycling rapidly, the toggle is moving fast enough to overcome the friction, but when the pump builds pressure and slows down, the toggle will stick. Remove the two cover screws (32) and the six air valve screws (35). Pry the toggle apart slightly and replace.
2. The six screws (35) holding the air valve to the pump body may be loose. In most cases the air valve assembly will operate with the screws loose, but it will be sluggish and air will probably leak at the air valve mounting on the pump body. The same is true if air valve gasket (34) is damaged.
3. If the air valve assembly still will not operate, it will be necessary to replace it with a new one. To replace the air valve, remove the six air valve screws (35). Remove the old air valve and replace with a new one.

**NOTE:** The air valve is sold only as an assembly. Order Part #810071.

**CASE II:** Air is escaping around air piston guide (3). This is an indication that air piston o-rings (6 & 9) are worn or damaged.

1. Unscrew pump tube (25) from the pump body (15). Remove the four screws (4) which attach air piston guide (3) to the pump body. Loosen the two tripper rod arm screws (2) and remove the tripper arm (38). Reinstall the screws. Using a screwdriver or metal rod across the air piston (1) and holding the pump rod (28), unscrew the air piston (1) from the pump rod (28). Remove air piston (1) and air packing retaining ring (7) from the pump body (15). Slide the packing retaining ring from the pump body. Slide the packing retaining ring off the air piston and inspect upper o-rings (6 & 9) and lower o-ring (10) for wear or damage.
2. Reassemble the pump in the reverse order of above.

**CASE III:** Pump is operating continuously or even occasionally when the fluid output line is shut off or delivery of fluid is reduced. This is an indication the fluid foot valve ball (22) or piston valve ball (27) are not seating properly or that the piston seal (17) is worn or damaged.

1. First check the foot valve (21) for foreign matter which may be preventing the foot valve ball (22) from seating. Next disconnect the suction line and unscrew foot valve body (21) from the pump tube (25). Check lower tube seal (28) for damage and replace if necessary. If it appears the foot valve is operable, proceed with checking the fluid piston.
2. To check the fluid piston seal and valve, unscrew pump tube (25) from the pump housing. Slide the pump tube downward and off the fluid piston. Inspect pump rod (28), spring (16) and ball (27). Replace as required. Check the main piston seal and replace as required.
3. Reassemble the pump in the reverse order of above.

**NOTE:** When reassembling the pump tube over the fluid piston seals, lightly grease the tube bore and seal for ease of assembly and to prevent seal damage.

**CASE IV:** Excess fluid escaping around the base of the pump housing. This is an indication that the upper rod packings, air or fluid, are worn or damaged. To replace the fluid packing:

1. Unscrew pump tube (25) from the pump body (15) and slide the tube over the pump rod (28).
2. Unscrew pump rod (28) from the air piston (1) and pull the pump rod from the pump body.
3. Using snap-ring pliers, remove snap ring (14) and pull backup washer (13) and seal (29).
4. Install a new seal (29) and reassemble pump in reverse order.

#### TO REPLACE THE AIR SEAL

1. Unscrew pump tube (25) from the pump body (15) and slide the tube over pump rod (28).
2. Remove the four air piston guide screws (4) and air piston guide (3).
3. Unscrew pump rod (28) from the air piston (1) and remove the pump rod.
4. Remove valve rod arm (38) from the air piston (1) and pull the air piston and retaining ring (7) from the pump body.
5. Remove the upper air seal (38) and replace. Reassemble the pump in reverse order of above.

**NOTE:** Always oil or lightly grease seal surfaces and mating components when assembling the pump to prevent possible seal damage during assembly and initial pump start up.

# REPAIR

## PUMP DISASSEMBLY

1. Disconnect all hoses from the pump.
2. Unscrew the foot valve body (21) from the pump tube (25). Disassemble and clean foot valve if required.
3. Replace o-ring (20) on the foot valve body external groove.
4. Unscrew pump tube (25) from the pump body (21) and slide downward over pump rod (28).
5. Remove the four air piston guide screws (4) and the air piston guide (3).
6. Unscrew pump rod (28) from the air piston.
7. Remove valve rod arm screw (2) and valve rod arm (38) from the air piston.
8. Slide air piston (1) and packing retaining ring (7) from the pump body.
9. Remove air valve cover screws (35) and air valve cover (31). Remove the six air valve screws (35) and remove the air valve assembly (33) and the gasket (34).
10. Slide tripper rod (37) out the top of the pump body. Unscrew the pump rod (28) and replace the spring (16); the reassembly the components.
11. Slide the packing retaining ring off the air piston and replace the upper air piston o-ring (6). Replace the piston o-ring (10). Remove upper air seal (30) and replace. Remove upper rod packing (29) and replace with o-ring facing down toward the fluid. Replace fluid piston quad ring (17).

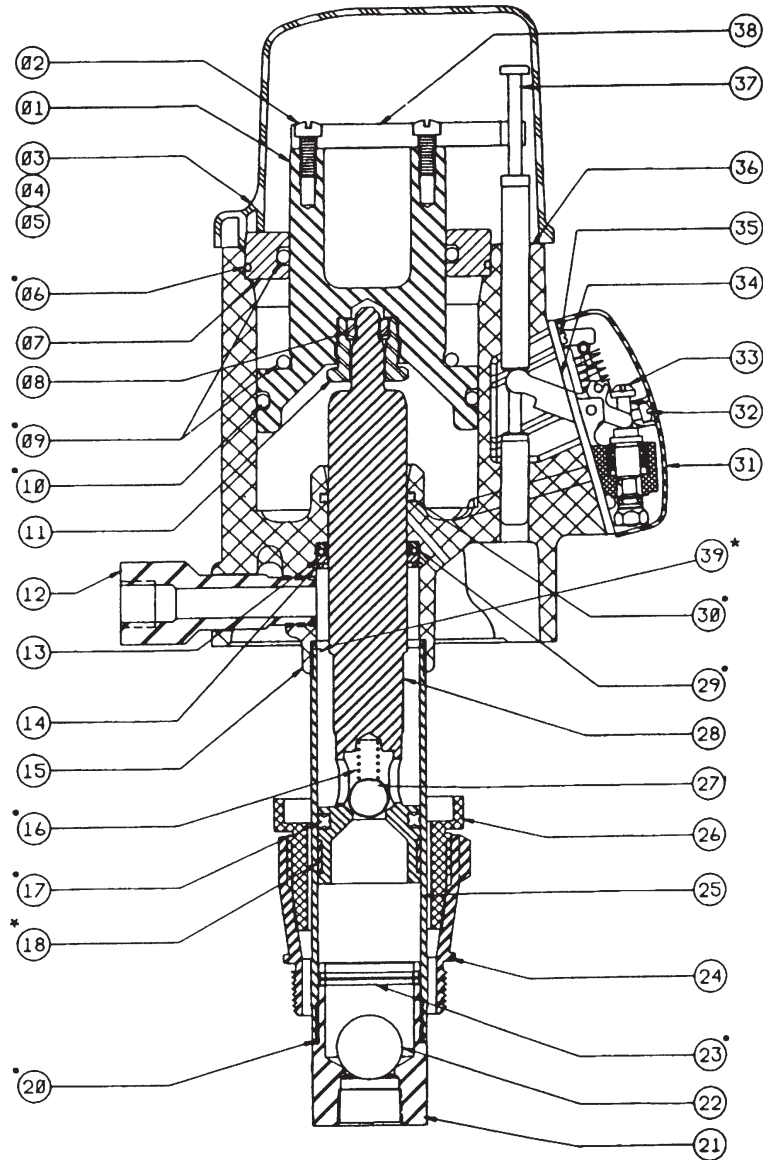
## PUMP Reassembly

NOTE: The air valve is lubricated with a life tested synthetic grease (Balcrank #826733) at the factory. It is imperative that any grease removed during routing maintenance be replaced. Contact your Balcrank service representative for replacement grease.

1. Insert tripper rod (37) into the hole from the top of the pump body.
2. Mount air valve (40) and air valve gasket (34) to the pump body with the six air valve screws (35).
3. Insert packing retaining ring (7) over the air piston (1) and insert the air piston and packing ring into the pump body.
4. Position the forks of valve rod arm (38) onto the tripper rod (37) and secure the valve rod arm to the air piston (1) using the two screws (2).
5. Insert the pump rod up through the pump body and screw the rod into the air piston assembly.
6. Install new piston bearing ring (18) onto pump rod and slide the pump tube over the pump rod and screw the tube into the pump housing.
7. Attach the foot valve assembly onto the lower end of the pump tube.
8. Reconnect the hoses and restart the pump using the initial start up procedure described in the operation section of the form.

If after trying the above remedial procedures you are unable to solve the problem, contact your nearest Balcrank Authorized Service Center for additional assistance.

ITEM	PART	DESCRIPTION	QTY
1	809166	Air Piston	1
2	807352	Screw	2
3	830006	Cap	1
4	823867	Screw	4
5	823868	Washer	4
6	814075	O-ring	1
7	809168	Retainer Ring	1
8	807465	Nut	1
9	806904	O-ring	2
10	806906	O-ring	1
11	807448	Nut	1
12	823948	Adapter	1
13	823186	Backup Washer	1
14	823187	Snap Ring	1
15	822858	Pump Body	1
16	827979	Spring	1
17	822848	Quad O-ring	1
18	822847	Piston Bearing	1
20	822846	O-ring	1
21	827834	Foot Valve	1
22	806962	Ball	1
23	822845	Ball Stop Pin	1
24	823267	Bung Adapter	1
25	822844	Tube	1
26	823269	Bung Bushing	1
27	805814	Ball	1
28	827855	Pump Rod	1
29	822857	Upper Packing*	1
30	822859	Upper Air Seal	1
31	823185	Air Valve Cover	1
32	823866	Cover Screw	2
33	810071	Air Valve Assembly	1
34	821957	Air Valve Gasket	1
35	806132	Air Valve Screw	6
36	806015	Plug (not shown)	1
37	807388	Tripper Rod	1
38	809175	Valve Rod Arm	1
39	826860	Seal	1



**Repair Kits:**

- 810071      Air Valve Assembly
- 822862      Complete Seals Kit\*

\*O-Ring in Polypak face down toward fluid.



# WARRANTY

All Balcrank® equipment sold by authorized Balcrank® distributors is warranted to their original customer to be free from defects in materials and workmanship for a period of one year from the date the equipment was sold to the original customer. Select equipment carries extended warranty terms as individually noted within the Balcrank® Lubrication Equipment & Accessories User Price List. Any Balcrank® equipment carrying an extended warranty will be warranted for the period indicated; those items carrying a “lifetime” warranty are warranted for a period of thirty years. All Balcrank® equipment determined by Balcrank® to have defective materials or workmanship within the one year warranty period will be repaired or replaced. For equipment carrying extended warranties Balcrank® will repair or replace the product including parts and labor for the first full year and will provide parts only for the remaining period of the specified warranty.

This warranty only covers equipment installed and operated according to applicable Balcrank® Service Bulletins and Installation Instructions. Any equipment claimed to be defective must be returned, freight prepaid, to an Authorized Balcrank® Service Center. If the part(s) or equipment is found to be defective, it will be repaired or replaced, and returned freight prepaid from the Authorized Service Center. If the claimed part(s) or equipment is found not to be defective, the Authorized Balcrank® Service Center will, upon written authorization being received from the original customer, repair them for a reasonable charge to the customer which will include all applicable parts, labor, and return transportation costs. Any equipment returned to Balcrank® must have the Warranty Service Claim number (WSC#) clearly marked on the outside of the carton. Balcrank’s sole responsibility is for defects in material and workmanship, and Buyer’s sole and exclusive remedy hereunder, shall be limited to repair or replacement of the defective part or equipment.

This warranty does not cover, nor shall Balcrank® be liable for repair or replacement of parts or equipment resulting from general wear and tear through use, or damage or failure caused by improper installation, abuse, misapplication, abrasion, corrosion, insufficient or improper maintenance, negligence, accident, alteration, or substitution of non-Balcrank component parts. Furthermore the Balcrank® Warranty for Lubrication Equipment and Accessories does not cover the following specific conditions:

- Failure or damage to equipment that is caused by dirt or debris in air and fluid lines. This includes, but is not limited to clogged inlet filters, strainers, or regulators; fluid meters; control handles; fluid tips; and valves.
- Failure of normal wear parts including but not limited to: “o”-rings, packings, seals and valves unless originally improperly installed by the factory.
- Products placed in applications for which their use was not intended. Examples include but are not limited to: A lubricant pump being used to pump solvents, or placing a piece of equipment intended strictly for indoor use in an outdoor application.
- Damage to equipment resulting from operation above and beyond Balcrank’s recommendations.
- Leaks at air and fluid fittings and connections.
- Damage caused by thermal expansion when adequate pressure relief was not included in the system.
- Loose suction tubes on pumps.
- Reel spring tension adjustment.

**THERE ARE NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL BALCRANK BE LIABLE FOR ANY SPECIAL, CONSEQUENTIAL, OR OTHER DAMAGES OF SIMILAR NATURE, INCLUDING BUT NOT LIMITED TO LOST PROFITS, LOST PRODUCTION, PROPERTY DAMAGE, PERSONAL INJURY, WHETHER SUFFERED BY BUYER OR ANY THIRD PARTY, IRRESPECTIVE OF WHETHER CLAIMS OR ACTIONS, LEGAL OR EQUITABLE, FOR SUCH DAMAGES ARE BASED UPON CONTRACTS, WARRANTY, NEGLIGENCE, STRICT LIABILITY, OR OTHERWISE. ANY CLAIM OR ACTION FOR BREACH OF WARRANTY MUST BE BROUGHT WITHIN TWO (2) YEARS FROM THE DATE OF SALE TO THE ORIGINAL CUSTOMER.**

Balcrank® Products Inc.  
115 Reems Creek Road  
Weaverville, NC 28787  
800-747-5300  
800-763-0840 Fax  
www.balcrank.com

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