

Balcrank[®]

**BOBCAT[™] 300 SERIES
3:1 Ratio Pump
Model #1130-005
General Lube**



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

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

General Safety

Thoroughly read and understand this manual before installing, operating or servicing the described products.



IMPORTANT

Because this pump can be incorporated into a pressurized 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 at any time. Personal injury may result.

Release pressures built up in the system before any service or repair is begun. See the pressure relief procedure below.

Do not operate this pump above 150 PSI (10.3 BAR) air inlet pressure or 300 cycles per minute.

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



WARNING

WARNING: Bobcat™ 3:1 pump (1130-005) develops 450 psi (30.7 Bar) maximum working pressure at 150 psi (10.3 Bar) maximum inlet air pressure and stall conditions. Be sure that any components or accessories used in the system are rated to withstand this pressure. To determine fluid output pressure at stall conditions, multiply the ratio of the pump by the air pressure being used.

EXAMPLE: 3:1 Pump Ratio x 100 psi air pressure = 300 psi fluid pressure at stall.



WARNING

THIS PUMP CONTAINS ALUMINUM AND ZINC PARTS. DO NOT use 1-1-1

Trichloroethane, methylene chloride or other halogenated hydrocarbon 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 fluids used in this pump must be chemically compatible with the wetted parts materials shown on page two (3) of this manual. Consult your chemical supplier to ensure compatibility.



WARNING

Pressure Relief Procedure:

Follow this procedure whenever you shut off 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.



WARNING

DANGER: Not for use with fluids that have a flash point below 100°F (38°C). Examples: gasoline, alcohol. Sparking could

result in an explosion which could result in death.



WARNING

In the presence of explosive vapors, take action to prevent static sparking. Failure to ground the pump, piping, valves, containers, or other miscellaneous equipment can result in fire or explosion. A green grounding lug is provided on the pump.

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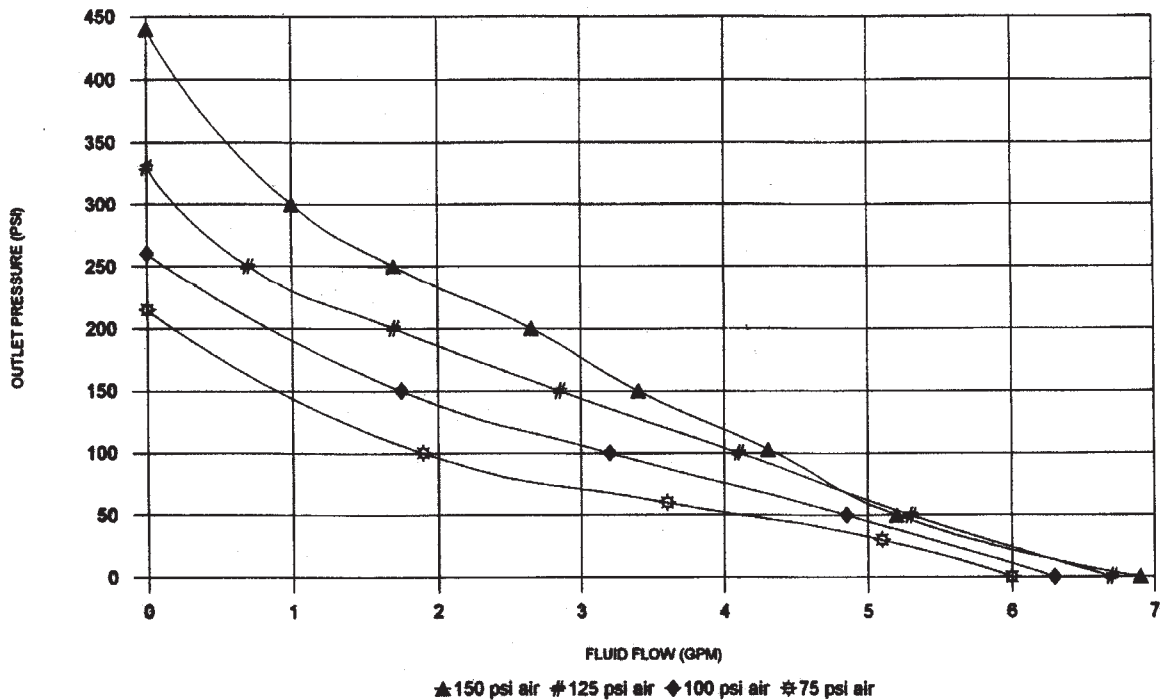
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Technical Data

Pressure Ratio	3:1
Air Pressure Operating Range	40 - 150 psi
Maximum Fluid Working Pressure	495 psi
Effective Air Piston Area	1.77 sq. in.
Effective Fluid Piston Area497 sq. in.
Stroke Length	3.88 in.
Air Inlet Port Size	1/4" NPTF
Fluid Inlet Port Size	3/4" NPTF
Fluid Outlet Port Size	1/2" NPTF
Wetted Parts: (General Lube)	Steel, Buna-N, Aluminum, Nickel Plating
Noise Level (dba)	72 - 82
Shipping Weight: (Stub Length)	15.5 lbs.

Performance/Flow Curves

Note: Test Fluid .. 10W Motor Oil



Product Description

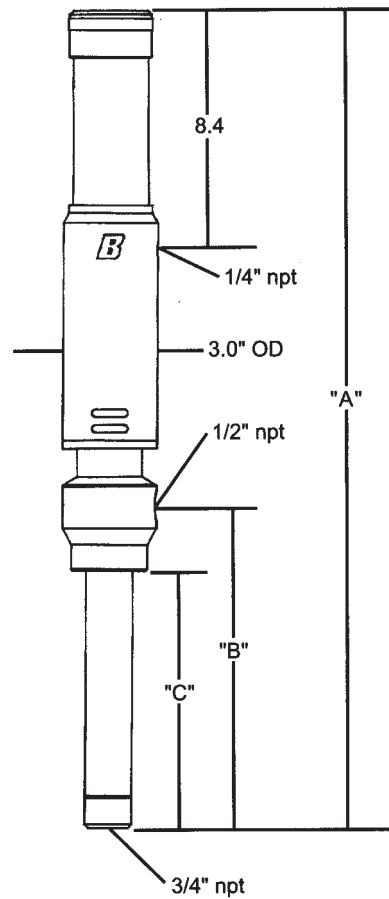
The "Bobcat™ 300" pump is a supplement to the successful "131" line of transfer pumps. The 300 provides fluid flow comparable to the 131 but with increased fluid pressure. It is suitable for transfer and long distance pumping situations; over 300 feet in some applications.

The multi-piece body contains an aluminum-housed air chamber and lower body. The lower section's flanged coupling contains a 4-hole pattern that allows 360° rotation of the inlet and outlet ports in 90° increments *without pump disassembly*. This feature is useful when installing a pump on a wall bracket that limits orientation of the hoses.

The pump contains a pair of internal exhaust mufflers which provide efficient operation with low noise levels conforming to OSHA regulations. These mufflers also act as filters, inhibiting air line debris from exiting the pump where cleaner environments are required.

The 1-piece air motor is factory-lubricated with a life-tested, synthetic grease (#826733). This grease coats all internal parts and repels air line moisture to inhibit corrosion. In addition, steel components exposed to this environment are plated or surface treated to further inhibit corrosion.

Pump Dimensions



MODEL	OVERALL LENGTH		
	"A"	"B"	"C"
1130-005	25.6"	10.5"	8.0"



WARNING: Attach a proper ground wire to the Bobcat's grounding lug (item 35) before starting the pump.

Installation

Remove pump from carton and attach telescoping tube to pump. Attach pump to cover, bung fitting, or other mountings.



CAUTION: Performance will be affected by a suction path seal that is not air tight. All threaded connections need to have Teflon™ tape or other suitable means to achieve a tight air and fluid connection.

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.*

NOTE: For severe duty applications, an air line lubricator is recommended for better performance and longer pump life. Use an SAE 10 oil and set the lubricator for 2 drops per hour. Be sure the air supply is **OFF** before connecting accessories and/or pump.

NOTE: DO NOT hang filters/regulators/lubricators or other equipment of this type directly from pump air inlet. The fittings are not strong enough to support the weight and may cause one or more to leak and/or break. A bracket should be used to support the use of these products.

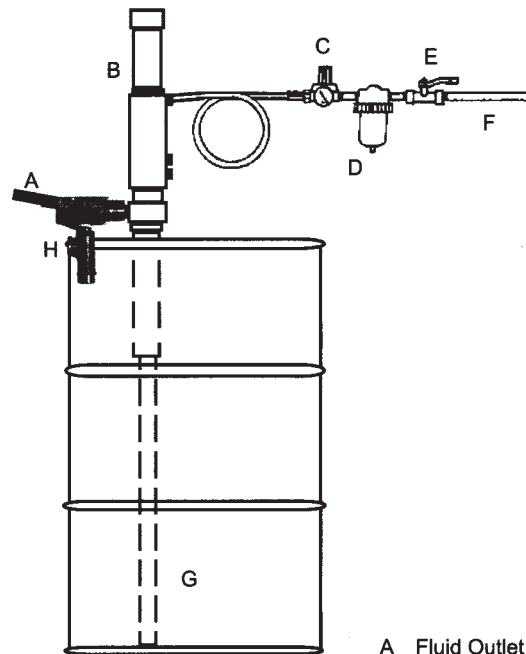


CAUTION

If you are not using a low-level cut-off at the pump fluid intake, install a pump runaway valve to shut off the air to the pump, when the pump accelerates beyond the pre-adjusted setting. A pump that runs too fast can be seriously damaged.

1. Install an air line regulator to control pump speed and air pressure for the system.
2. Install an air line filter to remove and trap contaminants that could cause unwanted wear and tear on pump air motor.
3. Install a quick disconnect coupler to relieve air pressure between the pump air motor and regulator for servicing purposes later.
4. Install fluid hose, making note of fluid and pressure compatibility of hose.

Typical Installations



Drum Installation

- A Fluid Outlet
- B 3:1 Ratio Pump
- C Air Regulator
- D Air Filter/Separator
- E Shut Off Valve
- F Air Supply
- G Telescoping Suction Tube
- H Pressure Relief Valve

OPERATION


NOTE: All fluids used in this pump must be chemically compatible with the materials used to manufacture the “wetted parts”. Consult your chemical supplier to ensure compatibility.

TO START PUMP:

1. Connect air coupler to pump and turn the air regulator to the minimum setting.
2. Direct outlet hose into an approved waste oil container.
3. Slowly adjust air regulator until pump is primed and is running smoothly. Be sure all air has been purged from system. The pump should only take a few strokes to prime. However, in a large system, it may take longer.
4. Use the air regulator to control the pump speed and cycle rate. Always use the lowest pressure needed to obtain the desired flow rate. This will increase pump and seal life!
5. Never allow a pump to run dry of the fluid being pumped. A dry pump quickly speeds up and can damage the air motor. If it speeds up, shut off air supply immediately. Refill the supply container and prime the pump to eliminate air in the fluid line.

NOTE: To prevent air from being sucked into the pump and fluid lines, if the supply container should run dry, use a low-level cutoff valve (4411-010) at the pump fluid intake.

6. Read and follow the instructions supplied with each component in your system.
7. If the pump will be unattended for any period of time, or to shut off the system at the end of the work shift, *always* follow the **Pressure Relief Procedure**.

	WARNING
Pressure Relief Procedure:	
Follow this procedure whenever you shut off the pump, when checking or servicing any part of the system and when installing, cleaning or changing any part of the system.	
<ol style="list-style-type: none">1) Disconnect the air to the pump.2) Point dispensing valve away from yourself and others.3) Open dispensing valve until pressure is relieved.	

NOTE: The air motor is lubricated with a life-tested synthetic grease (P/N 826733) at the factory. This grease coats all parts and repels air line moisture to inhibit corrosion. It is imperative that any grease removed during maintenance be replaced afterwards. Contact your local Balcrank® distributor, using the above part number, for replacement grease.

Troubleshooting Guide

NOTE: Check all other possible causes before disassembling the pump.

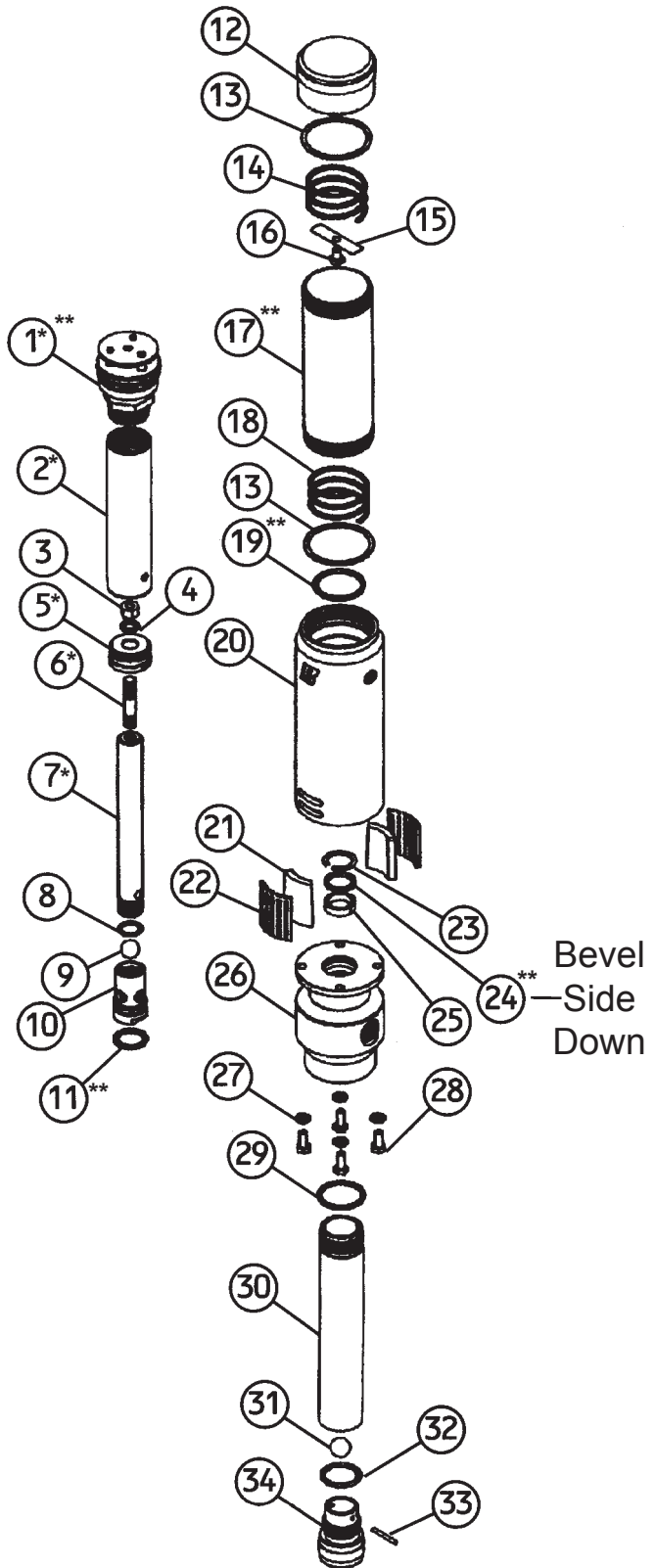
TROUBLE	PROBABLE CAUSES	REMEDY
Pump does not operate	Inadequate air supply pressure or restricted air line Clogged fluid lines, hoses, valves, etc. Damaged air motor Empty Fluid Supply	Increase air supply; clear ⁽¹⁾ Open; clear ⁽¹⁾ Service/replace air motor Refill, reprime and/or flush
Air motor not tripping over	Air motor o-rings are worn/damaged	Service/replace air motor
Air leaking from exhaust	Worn or damaged air motor o-ring and/or seal, etc.	Service/replace air motor Replace o-ring (19)
Fluid leaking from exhaust	Seal (25) is worn and/or damaged	Replace
Erratic pump operation	Air entering suction line Fluid level too low Air motor icing	Check for loose connection Refill, reprime, or flush Run pump at lower pressure; run at lower cycles per minute; clean mufflers
Pump runs "wild"	Empty fluid supply Blockage in pump tube (30) or footvalve (34) Lower ball (31) is stuck in footvalve Lower seal (11) on fluid piston (10) is worn or damaged	Refill, reprime or flush Remove pump tube; clean blockage Replace ball and reseal footvalve Replace with new seal
Fluid output on one stroke only	Retainer (33) is broken (ball floats with fluid) Upper ball (9) is lodged in piston (10)	Service and replace Service and replace
Pump operates, but output low on both strokes	Inadequate air supply pressure or restricted air lines Closed or clogged solenoid valve, meter, dispensing valve, etc. Empty fluid supply Air inlet strainer/filter clogged	Increase air supply; increase delivery line size Clear ⁽¹⁾ Refill, reprime or flush Clear ⁽¹⁾

(1) Follow the **Pressure Relief Procedure** and disconnect the fluid line. If the pump starts when the air is turned on again, the line, etc. is clogged.

Parts List

ITEM	PART	DESCRIPTION	QTY
1	827710	Air Valve Assembly*	1
2	826658	Upper Pump Rod	1
3	805723	Crimp Nut	1
4	805756	Washer	1
5	826052	Adapter	1
6	826680	Rod	1
7	827734	Lower Pump Rod	1
8	826898	#114 O-Ring, Buna-N **	1
9	827761	Ball-5/8" Dia.	1
10	827746	Fluid Piston	1
11	806898	#212 O-Ring, Buna-n **	1
12	826660	Cap	1
13	828529	Flat Gasket *	2
14	826663	Spring *	1
15	826664	Spring Retainer	1
16	826665	1/4-20 x 1/2" Screw	1
17	827727	Air Piston Tube	1
18	808439	Spring *	1
19	807342	#222 O-Ring, Buna-N *	1
20	827780	Upper Body	1
21	827766	Muffler Foam **	2
22	827767	Muffler Screen	2
23	827764	Retaining Ring **	1
24	827765	Backup Ring	1
25	827770	Polypak Seal **	1
26	827730	Lower Body	1
27	829002	1/4" Lock Washer	4
28	829001	1/4-20 x 3/4" Socket Hd. Screw	4
29	827777	#220 O-Ring, Buna-N **	1
30	827736	Pump Tube	1
31	807492	Ball-11/16" Dia.	1
32	827775	#216 O-Ring, Buna-N **	1
33	827763	Pin-1/8" Dia.	1
34	827748	Footvalve	1
35	831489	Grounding Lug (Not Shown)	1

Pump Exploded View




Repair Kits: There are two kits available to repair the "Bobcat™ 300" pump:

- 827711 (air piston parts)*
- 827712 (fluid seals)**

*Apply Red Loctite (271) on threads where indicated.

**Lightly apply grease to all o-rings and seals where indicated. Use Mobile Synthetic Lubricating Mobilith SHC PM.



! WARNING

PRESSURE RELIEF PROCEDURE:
Follow this procedure whenever you shut off 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.

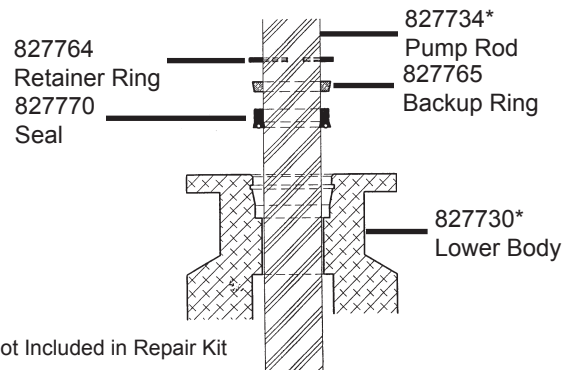
Upper Body O-ring Replacement: O-ring (19) can be removed by using a curved pick or small-bladed screw driver. Wipe o-ring groove to remove debris and replace.

Lower Body Seal Replacement: This seal must be replaced each time the lower rod is pulled through the body. The wiper seal (25) is replaced by removing screws (28) and washers (27) and separating the upper (20) and lower (26) body sections. Use snap ring pliers to remove the retaining ring (23). Remove the backup ring (24) and seal (25). Apply Balcrank lubricating grease (#826733) to the seal area and install a new seal flared side down. Work carefully to avoid seal tearing around the snap ring groove. Reassemble in reverse order.

Pump Servicing

NOTE: Air motor is lubricated with a life tested synthetic grease (#826733) at the factory. This grease coats all parts and repels air line moisture to inhibit corrosion. It is imperative that any grease removed during routine maintenance be replaced. Contact your local Balcrank® Distributor, using the above part number, for replacement grease.

Pump Disassembly: This operation must be performed before continuing to the following sections. Grip the upper pump body (20) in a padded-jaw or smooth-jaw vise. Unscrew air piston tube (17), with cap (12) attached, from the upper body. Unscrew the pump tube (30), with footvalve (34) attached, from the lower body (26). Place a 1/4" diameter rod through hole at the bottom of the lower pump rod (7). Use a 7/8" wrench to unscrew the fluid piston (10) from the pump rod (7). Remove ball (9) and set aside. Grip air motor assembly (1) by hand and pull out the entire assembly (air motor and both pump rods). Wrap the pump rods to prevent damaging the surfaces. Keep the lower spring (18) with the rod.



Lower Spring and Air Motor Replacement: Replace the spring (18) by sliding off the old spring and sliding on the new part. The air motor (1) is a 1-piece, staked assembly that cannot be disassembled for repair of internal o-rings or upper seal. Replace the entire assembly using Balcrank® Repair Kit 827711. Wrap the upper pump rod (2) with protective material or use wood/plastic blocks to grip it in a vise. Use a wrench to remove the air motor assembly at the hex adaptor (1) pump rod (2) joint. **Note:** If the upper pump rod needs replacement, do so before the new air motor is installed (refer to Replacing the Upper Pump Rod). Apply thread adhesive to the air motor before installation.

Upper Spring and Flat Seal Replacement: Unscrew cap (12) from air piston tube (17). Remove screw (16), spring retainer (15) and spring (14) and lift out upper gasket (13). Reassemble in reverse order. Replace the lower gasket (13) while the tube is off the body (20). Be sure the new gasket is flat against the body before assembling the tube.

Replacing Parts in the Footvalve: Grip pump tube (30) and footvalve (34) with separate strap wrenches. Unscrew the footvalve, drive out retainer pin (33) with a 1/8" diameter punch, remove lower ball (31) and/or o-ring (32) as necessary. When reassembling the pump tube to the lower pump body, be sure to check the upper o-ring (29) for damage and replace as necessary. Apply grease to the footvalve threads and o-rings (29,32) and reassemble.

Replacing the Upper Pump Rod: Grip only the upper rod in a vise. Use a 1/8" spanner wrench to remove the floating joint adapter (5) and air motor assembly (1) from the upper rod. Wrap the replacement upper rod in protective material before placing in the vise. Apply thread adhesive to both internal threads of the pump rod and reassemble the connecting parts.

Replacing the Lower Pump Rod: Grip only the lower rod in a vise. Use a 1/8" spanner wrench to remove the floating joint adapter (5) from the upper rod (2). Wrap the upper rod and air motor assembly and set aside. Use an adjustable wrench to remove lock nut (3). Slide off washer (4) and adapter (5). Remove connecting rod (6) with a pipe wrench. Wrap replacement lower rod in protective material before placing in the vise. Apply thread adhesive to the connecting rod (6) and reassemble with the short thread length into the rod. Replace the washer (4), adapter (5) and nut (3). Tighten nut completely then back off 1/4-turn to allow free movement of adapter. Apply thread adhesive to the adapter and reassemble.

Pump Reassembly: Apply grease to the lower pump rod end, wiper seal (25) and o-ring (19). Slide the lower spring (18) over the upper pump rod and then slide the entire upper rod/lower rod/air motor assembly through the pump. Some resistance will be encountered as the lower rod passes through the wiper seal (25). Reinstall the upper ball (9) and piston (10). Insert a 1/4" diameter rod through the pump rod and tighten the fluid piston with a wrench. File off any burrs or raised areas created during the repair process. Grease o-rings (11,29) and pump tube (30) threads before reassembling to the body. Tighten with a strap wrench. Grease the air motor assembly and inside the tube (17), reassemble and tighten with a strap wrench.

Accessories

Air Regulators

- 3260-028 1/4" nptf (mini)
- 3260-029 1/4" nptf
- 3260-030 3/8" nptf

Air Filter/Regulators

- 3260-033 1/4" nptf (mini)
- 3260-034 1/4" nptf
- 3260-035 3/8" nptf

Pump Over-Run Controls

- 3241-001 1/2" nptf
- 3241-002 1/4" nptf

In-Line Hand Operated Valves

- 3230-003 300 psi (air), 1/4" nptf
- 3230-002 2,000 psi, 1/2" nptf

Telescoping Suction Tube

4412-011

- 1" npt (fits 55 gal drum and 250 gal tank)

Hose & Tube Kit

4410-016

- 3/4" npt telescoping suction tube
- Air hose, 3/8" x 3'
- Fluid hose, 1/2" npt x 6'
- Air coupler, needle valve and nipple
- Bung Adapter

Universal Bung Adapter Kit

4411-009 (carbon steel pumps)

- Universal bung adapter mounts all Bobcat™ 300 pumps to 2" npt bung threads and wall mount brackets.

Quality Checklist

- Bill of Material checked for current content.
- Pump was tested and met Balcrank® performance standards.

I _____
certify that this product meets or exceeds
Balcrank's high quality standards.

Revision Log:

Rev. H - Added 831489 Grounding Lug.

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.

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