

Balcrank®

PANTHER® HP SERIES OIL PUMPS

3:1 Model #1130-015 Bare Pump

#1130-017 Flange Mount

5:1 Model #1130-016 Bare Pump

#1130-018 Flange Mount



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.

	<p>▲ IMPORTANT</p>
<p>Because this pump can be incorporated into a pressurized systems, the following safety precautions should be observed.</p>	
<p>Check equipment regularly and repair or replace worn and damaged parts.</p>	
<p>Never alter or modify any parts of this pump, doing so may cause damage to pump and/or personal injury.</p>	
<p>Under no circumstances should the dispensing valve be aimed at any person at any time. Personal injury may result.</p>	
<p>Release pressures built up in the system before any service or repair is begun. See the pressure relief procedure below.</p>	
<p>Do not operate this pump above 150 PSI (10.3 BAR) air inlet pressure or 200 cycles per minute.</p>	
<p>Always read and follow the fluid manufacturer's recommendations regarding the use of protective eye wear, clothing and respirators.</p>	

	<p>▲ WARNING</p>
<p>Pressure Relief Procedure:</p>	
<p>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.</p>	
<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. 	

<p>▲ WARNING</p>
<p>If a check valve is installed at the end of the suction tube, then an external pressure relief valve must be installed at the outlet of the pump.</p>

	<p>▲ WARNING</p>
<p>WARNING: Panther® 3:1 pump (1130-015) develops 375 psi (26 Bar) maximum working pressure and the Panther 5:1 pump (1130-016) develops 625 psi (43.1 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.</p>	
<p>EXAMPLE: 5:1 Pump Ratio x 100 psi air pressure = 500 psi fluid pressure at stall.</p>	

	<p>▲ WARNING</p>
<p>THIS PUMP CONTAINS ALUMINUM AND ZINC PARTS. DO NOT use 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 (2) of this manual. Consult your chemical supplier to ensure compatibility.</p>	

	<p>▲ WARNING</p>
<p>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.</p>	

	<p>▲ WARNING</p>
<p>In the presence of explosive to prevent static sparking. The pump, piping, valves, containers, or other miscellaneous equipment can result in fire or explosion. A green grounding lug is provided on the pump.</p>	

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Product Description

The 3:1 ratio Panther® pump can service as many as three dispense points at up to 500 feet. The 5:1 ratio Panther® pump is suitable for simultaneous fluid distribution of up to two dispense points at a distance of up to 750 feet.

The Panther's air motor features a precision air reversing valve mechanism with dual valve ports for improved high speed breathing. It also contains a positive trip detent spool mechanism that eliminates stalling (blowing air) by preventing the pump from being caught between strokes. It has a simple yet durable construction with all internal parts lubricated at the factory using a life-tested synthetic grease (Balcrank P/N 826733). This grease coats all internal parts and repels air line moisture to inhibit corrosion.

The Panther® pumping assembly features a stainless pump rod for superior wear and corrosion resistance. The pump's exterior is constructed from aircraft grade extruded aluminum for an outstanding strength to weight ratio. The pump also has high quality seals and is designed for overall reliability and ease of service.

Technical Data

	Models 1130-015 1130-017	Models 1130-016 1130-018
Pressure Ratio	3:1	5:1
Air Motor, Effective Dia.	2.50"	2.50"
Stroke	3.25"	3.25"
Air Motor Displacement	30.4 in ³	30.4 in ³
Cycles per Gallon ¹	30	62
Maximum Flow Rate ¹	7.4 GPM	5.4 GPM
Operating Air Pressure Range	10-150 psi (.69-10.2 Bar)	10-150 psi (.69-10.2 Bar)
Recommend Operating Range	40-125 psi (2.8-8.6 Bar)	40-125 psi (2.8-8.6 Bar)
Air Consumption, @ 100 psi Air ¹	38 SCFM	45.6 SCFM
Fluid Suction Lift	20 In. Hg.	20 In. Hg.

Common Specifications:

Ports: Fluid In 1" NPTF/1-1/2" NPTM, Fluid Out 3/4" NPTF (3:1 pump) or 1/2" NPTF (5:1 pump), Air In 1/4" NPTF

Wetted Parts: Steel, Nickel Plated Steel, Stainless Steel, Aluminum, Ultrathane, Buna-N™

Compatible Fluids: Petroleum and synthetic motor oils, gear oil, ATF, hydraulic oil

1. Free Flow @ 100 psi air.

Pump Installation



WARNING: Attach a proper ground wire to the Panther's grounding lug (item 25) before starting the pump.



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.

If mounting to a reservoir bung port, thread the pump bung adapter (4411-009) into the bung thread on the fluid reservoir, attach a suitable suction tube or hose to the pump fluid entry port, lower the pump into the mounted bung adapter, then tighten. If mounting with a double-tapped bushing (4411-018) attach the suction tube or hose to the double-tapped bushing, thread the bushing into the bung thread on the fluid reservoir, and attach pump to the double tapped bushing. The suction tube should be submerged in the tank liquid and should reach to within 1 to 2 inches from the bottom of the reservoir.

If mounting onto a wall bracket, place the pump in the bung-mount adapter provided on the bracket, then tighten the adapter clamping threads. Attach a wall mount Suction Assembly Kit to the pump, then lower the suction tube into the reservoir, adjusting height to set the end of the tube 1 to 2 inches above the bottom of the reservoir.



CAUTION: Always tighten pump down securely to avoid damage to the fluid reservoir, the pump, and nearby equipment. Be sure to use only the specified bung adapter.

Provide a drop-tee fitting, 1/4" size or larger, in the nearby air supply pipeline. From that tee, install the following pump air line assembly:

- pipe bushing or adapter (to bring the line drop size to 1/4" male)

- 1/4" pipe drop to pump level
- 1/4" pipe elbow
- 1/4"-1/2" shutoff ball valve (having an air relief vent when closed)
- 1/4"-1/2" F-R-L
- 1/4" x 3 ft. air hose
- 1/4" air line coupler and nipple.

Attach the air nipple to the air inlet port of the Panther® pump. During assembly of the air supply line, be sure to blow out all foreign materials before making connection to the pump.

Balcrank® recommends that an air line lubricator be used with turbine oil (viscosity 150-170 SSU @ 100 ° F) and set at a maximum oil feed rate of 1 drop every 2 hours of pump operation.

The pump air motor has been coated with a special synthetic grease at initial assembly (available as Balcrank P/N 826733) and does not require additional greasing except during reassembly after a repair.

Preventive Maintenance

The Panther® Pump has been designed to operate dependably with little required maintenance. However, to ensure pump longevity, the following should be observed:

- Keep the fluid free of trash and debris. Periodically check the pump inlet for foreign matter and clean when necessary.
- Run the pump at the minimum pressure required to achieve the desired flow rate (*less than 125 psi and 200 cyc/min recommended*).
- Ensure the pump receives clean, moisture free air. Check and maintain the system's air filter on a regular basis.
- Although the air motor is coated with synthetic grease upon factory assembly and can run without lubricated air, Balcrank recommends an in-line F.R.L. be installed in the pumping system.
- Never let the pump run dry of the fluid being pumped.

Pump Operation



CAUTION: Always read and follow fluid manufacturers' recommendations regarding proper use of protective eye wear, clothing and respirators.



CAUTION: Read all limitations which apply to selection of fluids which may be pumped by this product. Do not pump a fluid which is not specified to be compatible.

To Start Pump:

1. Immerse the pump's suction tube or fluid inlet into the fluid to be pumped.
2. Connect the air coupler to the pump and turn the air regulator to the minimum setting.
3. Direct pump outlet hose into an approved waste oil container.
4. Slowly adjust the air regulator until the pump is primed and running smoothly. Be sure all air has been purged from the system. The pump should prime in less than 30 seconds.
5. Use the air regulator to control the pump's speed and cycle rate. Always use the lowest pressure required to obtain the desired flow rate. This will increase pump and seal life.
6. Never allow a pump to be run dry of the fluid being pumped. A dry pump quickly speeds up, which could damage the air motor and fluid seals. If the pump suddenly speeds up, cut off the air supply as soon as possible and refill the reservoir with fluid and reprime the system.
7. Read and follow the instructions for each component in your system.
8. If the pump will be unattended for any period of time, or to shut off the system at the end of a work shift, *always* follow the **Pressure Relief Procedure** on page 2 of this manual.

Pump Repair/Service



WARNING: Before beginning pump repair, all internal pressure must be relieved. To reduce risk of personal injury, follow the **Pressure Relief Procedure** shown on pg. 2 and pg.6.

Removing the Air Motor: Remove the 4 nuts (24) from the adapter (1). Holding lower body (23) pull up approx. 2 inches from adapter (1). Unhook the tee head on rod (11) from tee slot in coupler (48). Remove 4 carriage bolts (17) from pump. Remove insert (22) from air piston (43). While holding cap (18), pull air motor assembly from upper body (20). Reassemble in reverse order, *using grease (p/n 826733) on all seals and o-rings.*

Replacing the Air Motor Seals: Place air motor on clean work surface with the air valve mechanism up. With a straight screwdriver, remove the ball detent retainers (39) from piston (43) (ensure the balls (41) are removed). With two 7/16" wrenches, remove the two nuts (33) from the top of the intake valves (46). Now, hold center rod (26) and pull valve bar assembly from piston (43). Check for wear on all seals (19, 21, 38, 42), balls (41), and springs (30,31) and replace as required. Reassemble in reverse order, using the diagram as a guide. *Use grease (p/n 826733) on all seals and o-rings.*

Pump Repair/Service

Replacing the Pump Rod Seals: Remove foot valve (10) from fluid tube (6). Remove fluid tube (6) from adapter (1) and slide off. With a 7/16" wrench, remove the 4 nuts (24). Slide the adapter (1) down about 2 inches and unhook the rod (11) from the coupler (48). With two spanner wrenches remove fluid piston (14) from fluid rod (11). Remove the fluid rod (11) from the adapter (1). Now seals (4, 5, and 13) are accessible. Inspect balls (8) and change as required. Reassemble in reverse order. Apply grease (P/N 826733) to seals (4 and 13) to ease assembly.

Footvalve: With a strap wrench attached on the tube (6) now remove foot valve (10) with a pipe wrench. Remove and inspect pin (9) for wear, straightness, etc. Replace if required. Remove footvalve ball (8) and seal (7), inspect, and replace if required. Reassemble in reverse order.

	 WARNING
<p>Pressure Relief Procedure:</p> <p>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.</p> <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 pump.



CAUTION: Before servicing, reduce fluid supply pressure to zero.

Trouble	Probable Cause	Corrective Action
Pump does not operate	Inadequate air supply pressure or restricted air line Clogged lines, hoses, valves, etc. Damaged air motor	Increase or clear air supply ⁽¹⁾ Assure air is on and valves are open Open; clear ⁽¹⁾ Service / replace air motor
Air motor is not tripping over	Air motor seals are worn/damaged	Service / replace air motor
Air is leaking from exhaust and or seal damage, etc.	Air motor seals are worn/damaged	Service / replace air motor
Fluid is leaking from the exhaust	Fluid seal (4) is worn/damaged	Replace
Erratic pump operation	Air entering suction line Pressure relief valve is stuck (pumps with internal pressure relief only) Fluid level too low Air motor icing	Check for loose connections Replace fluid piston (p/n 832022 on 3:1) (p/n 832176 on 5:1) Refill, reprime or flush Run pump at lower pressure; run at lower cycles per minute; clean muffler (44)
Pump runs continuously	Empty fluid supply Blockage in pump tube or foot valve (10) Lower ball (8) is stuck in foot valve (10) Lower seal (13) is worn or damaged	Refill, reprime or flush Remove pump tube, clear blockage Replace ball and reseal foot valve Replace
Fluid output on one stroke only or continues to operate when dispensing valve is closed	Upper ball (8) is stuck in fluid piston (14) or one or both are damaged	Replace ball and reseal
Pump operates, but pump output on both strokes is low	Inadequate air supply pressure or restricted air line Closed or clogged solenoid valve, meter, dispensing valve, etc. Air inlet strainer/filter clogged	Increase air supply; increase air supply size Clear ⁽¹⁾ 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

Panther® 3:1 Ratio Pump Lower End Models 1130-015 and 1130-017

Item	Part Number	Description	Pump Qty	Service Kit Qty
				900020
1	831663	Adapter, Fluid	1	0
2	831544	Snap Ring, Adapter	1	1
3	831542	Wear Band, Adapter	1	1
4	831540	Polypak, Ultrathane	1	1
5	828359*	O-Ring, Buna N, (-136)	1	1
	826676	O-Ring, Buna N, (-033)	1	1
6	832560	Cylinder, Pump	1	0
7	826678	O-Ring, Buna N, (-133)	1	1
8	806962	Ball, Footvalve & Fluid Piston	2	0
9	829769	Pin, Stop	1	1
10	831993	Footvalve	1	0
11	831507	Rod, Displacement	1	0
12	831638	O-Ring, Buna N, (-325)	1	1
13	832022	Fluid Piston	1	0
14	826248	Wear Band, Fluid Piston	1	1

Panther® 5:1 Ratio Pump Lower End Models 1130-016 and 1130-018

Item	Part Number	Description	Pump Qty	Service Kit Qty
				900021
1	832017	Adapter, Fluid	1	0
2	831543	Snap Ring, Adapter	1	1
3	831541	Wear Band, Adapter	1	1
4	831539	Polypak, Ultrathane	1	1
5	826860**	O-Ring, Buna N, (-130)	1	1
	830277	O-Ring, Viton 2, (-031)	1	1
6	832567	Cylinder, Pump	1	0
7	829893	O-Ring, Buna N, (-030)	1	1
8	806962	Ball, Footvalve	1	0
	805814	Ball, Fluid Piston	1	0
9	829662	Pin, Stop	1	1
10	830109	Footvalve	1	0
11	831535	Rod, Displacement	1	0
12	800360	O-Ring, Buna N, (-23)	1	1
13	832176	Fluid Piston	1	0
14	831545	Wear Ring, Fluid Piston	1	1

Models 1130-017 & 1130-018 Only

831203	Mounting Plate (Not Shown)	1	0	0
831220	Snap Ring (Not Shown)	1	0	0
808376	Gasket (Not Shown)	1	0	0

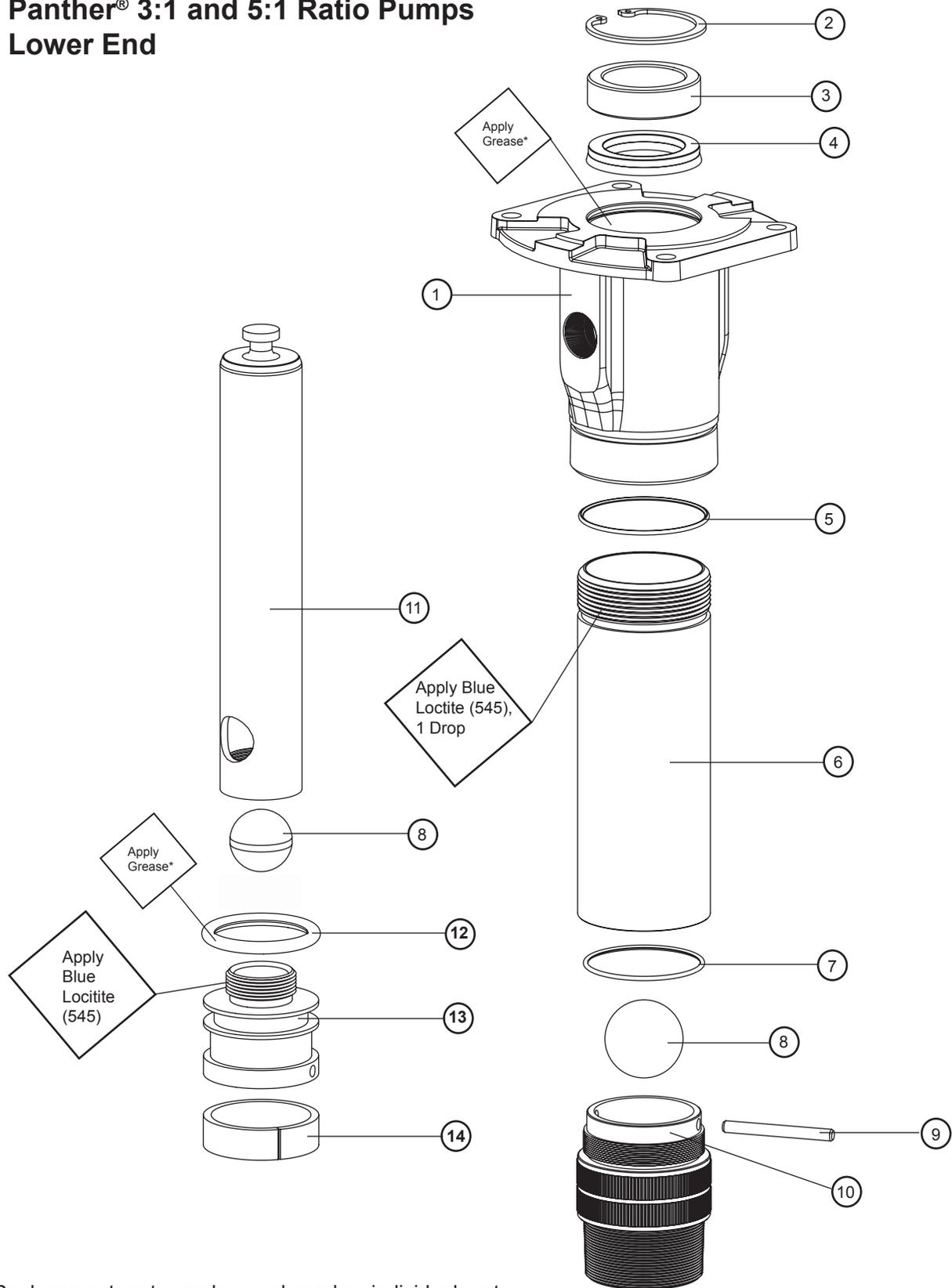
* This O-ring used on models built before 10/13/08 - Identified in service kit by twist tie.

** This O-ring used on models built before 11/10/08 - Identified in service kit by twist tie

Exploded View

Panther® 3:1 and 5:1 Ratio Pumps

Lower End



Note: Replacement parts can be purchased as individual parts (items listed with part number) or in a service kit.

Parts List

Panther® Pumps Upper End All Models

Item	Part Number	Description	Pump Qty	Service Kit Qty
				900019
17	831510	Bolt, Carriage	4	0
18	829808	Cap, Air Motor	1	0
19	829664	O-Ring, Buna N, (-239)	2	2
20	832307	Upper Body, Air Motor	1	0
21	831552	O-Ring, Buna N, (-333)	1	1
22	829450	Seal Insert, Air Motor	1	0
23	829449	Lower Body, Air Motor	1	0
24	829658	Lock Nut	4	0
25	831489	Grounding Lug	1	0

Note: Replacement parts can be purchase as individual parts (items listed with part number) or in a service kit.

Panther® Repair Kits

831014 - Complete air motor for Panther® Series pumps 1130-010 & 1130-011.

831614 - Complete air motor for Panther® HP Series pumps.

900009 - Fluid seals kit for Panther® 1130-010 pumps.

900010 - Fluid seals kit for Panther® 1130-011 pumps.

900011 - Air motor repair kit for 1130-010 & 1130-011 Panther® pumps with Delrin inserts.

900014 - Air motor repair kit for 1130-010 & 1130-011 Panther® pumps without Delrin inserts.

900015 - Air motor repair kit for Panther® grease pumps 1150-006, 1150-007, & 1150-008. (Does not include piston.)

900016 - Repair kit for lower assembly for Panther® grease pumps 1150-006, 1150-007, & 1150-008.

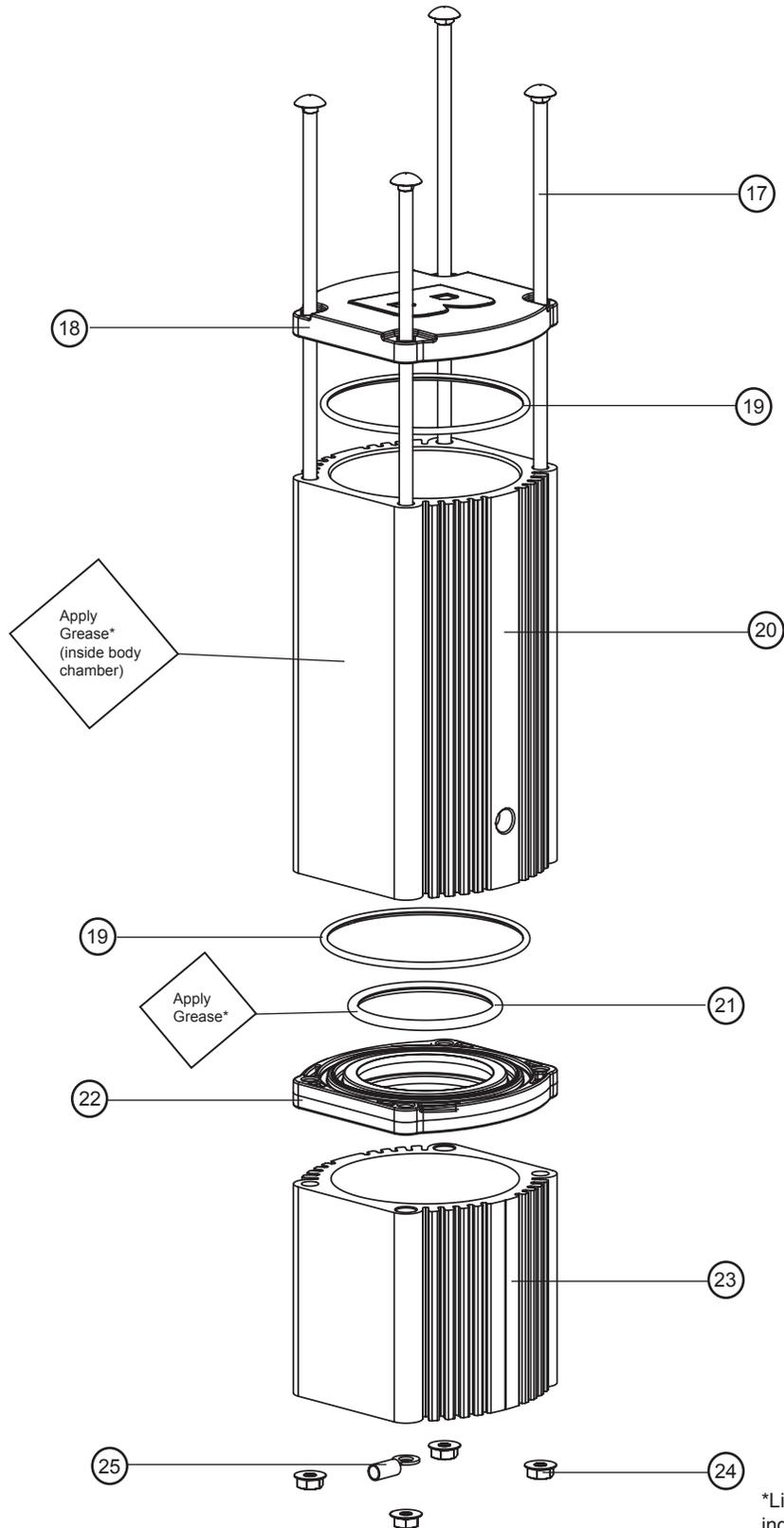
900019 - Air motor repair kit for 1130-015 & 1130-016 Panther® pumps.

900020 - Fluid seals kit for Panther® 1130-015 pumps.

900021 - Fluid seals kit for Panther® 1130-016 pumps.

900022 - Repair kit for lower assembly for Panther® grease pumps 1150-009, 1150-010, & 1150-011.

Exploded View Panther® Pumps Upper End All Models



*Lightly apply grease to surface indicated. Use Mobile Synthetic Lubricating Mobilith SHC PM.

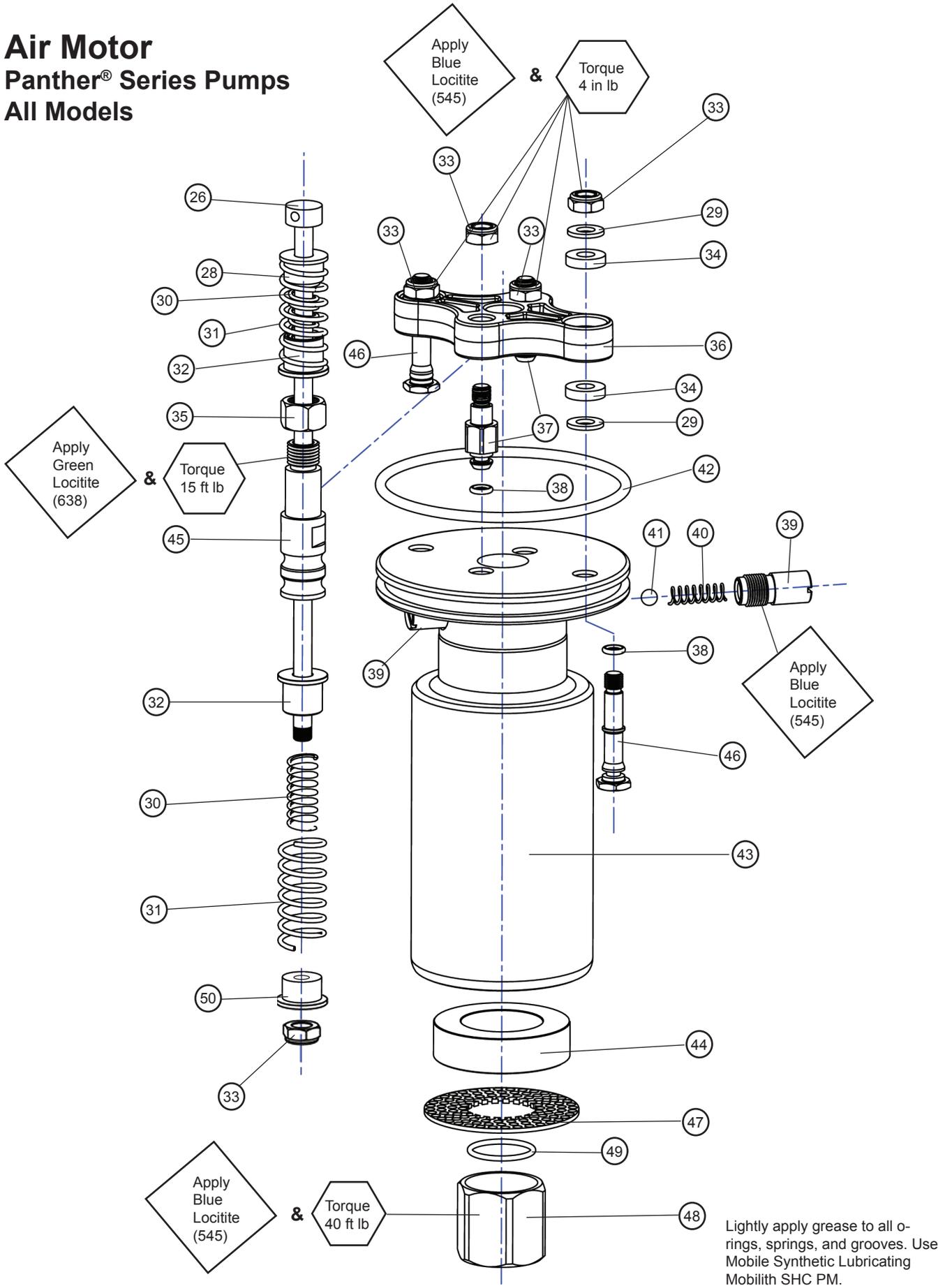
Parts List

Air Motor Panther® Series Pumps

Item	Part Number	Description	Pump Qty	Service Kit Qty
				900019
26	831779	Rod, Trip	1	1
27		Not Used		
28	831778	Delrin, Thick Shoulder	1	1
29	831532	Washer	4	4
30	830240	Spring, Inner	2	2
31	830236	Spring, Outer	2	2
32	830611	Retnr., Spring	2	2
33	808693	Nut	5	5
34	830612	Dampner	4	4
35	830143	Nut	1	1
36	829441	Valve Bar	1	1
37	830792	Valve, Exhaust	2	2
38	831551	O-Ring, Buna N, (-008)	4	4
39	829461	Retnr., Detent	2	2
40	829661	Spring, Detent	2	2
41	805810	Ball, Detent	2	2
42	831553	O-Ring, Buna N, (-236)	1	1
43	832525	Piston, Air	1	0
44	829659	Felt, Muffler	1	0
45	829999	Spool, Detent	1	1
46	830791	Valve, Intake	2	2
47	829455	Screen, Muff.	1	0
48	830723	Coupler, Rod	1	0
49	819383	O-Ring, Buna N (-019)	1	1
50	831777	Delrin, Thin Shoulder	1	1

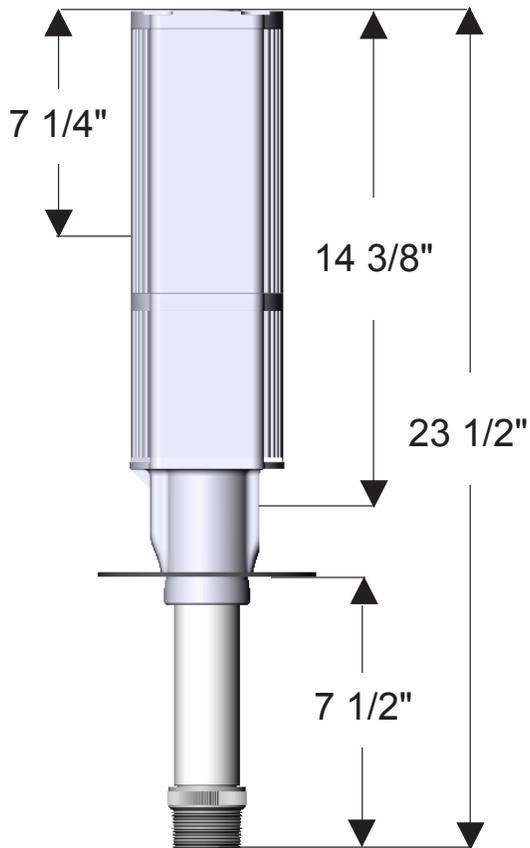
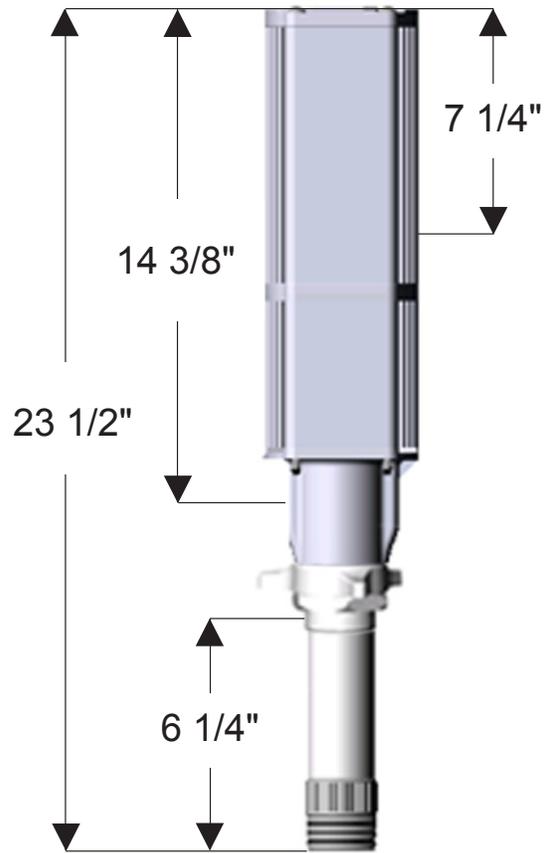
Note: Replacement parts can be purchased as individual parts (items listed with part number) or in a service kit.

Air Motor Panther® Series Pumps All Models



Pump Dimensions

**Bare Pump Models 1130-015 & 1130-016
with optional Universal Bung Adapter
(4411-009)**



**Flange Mount Pump
Models 1130-017 & 1130-018
with Flange Mount Kit included with pump**

Accessories

4411-009
Universal Bung Adapter



4411-018
Double Tapped Bushing



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:

New Release - 6/2003
Rev. A - Changed fluid piston to 831636
Rev. B - Changed quad ring to o-ring (item 13 on 3:1)
Rev. C - Changed washer (item 50)
Rev. D - Added 831777 (item 50) and 831778 (item 28)
Rev. E - Adapter was 831538
Rev F- Changed item 5 on 1130-015 & 1130-020 & added loctite note
Rev G - Changed item 5 on 1130-016 & 1130-021
Rev H - Changed item 14 & 10
Rev J - Changed item 1, was 831537
Rev K - Changed parts list page 8, drawing page 9, parts list page 10.
Rev L - Changed Loctite specification on pages 9 and 13.
Rev M - Changed Item 43.
Rev N - Changed Item 22 to current part number.
Rev O - Changes items 6 on page 8. Added new O-rings (#5) on page 8.

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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Distributed by:

Service Bulletin SB 1064
Rev. O 02/09
831601