

# **Balcrank<sup>®</sup>**

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## **PANTHER<sup>®</sup> SERIES PUMPS**

**5:1 RATIO, MODEL 1130-011**

**3:1 RATIO, MODEL 1130-010**



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

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 200 cycles per minute.

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



## 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

**WARNING:** The Panther<sup>®</sup> 5:1 pump (1130-011) develops 625 psi (43.1 Bar) maximum working pressure and the Panther<sup>®</sup> 3:1 pump (1130-010) develops 375 psi (26 Bar) maximum working pressure at 125 psi (8.6 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: 5:1 Pump Ratio x 100 psi air pressure = 500 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 (2) of this manual. Consult your chemical supplier to ensure compatibility.



## 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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## Product Description

The 5:1 ratio Panther® pump is suitable for simultaneous fluid distribution of up to four dispense points, or for pumping to distances of up to 750 feet. The 3:1 ratio Panther® can service as many as five dispense points at up to 500 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) when the pump is 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 nitrided steel pump rod and foot valve 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 Buna-N seals and is packaged in a pump that has proven reliable yet easy to service and maintain.

## Technical Data

|   | <b>Model 1130-010</b>                     | <b>Model 1130-011</b>                     |
|---|---|---|
| Pressure Ratio                              | 3:1                                       | 5:1                                       |
| Air Motor, Effective Dia.                   | 2.44"                                     | 2.44"                                     |
| Stroke                                      | 3.0"                                      | 3.0"                                      |
| Air Motor Displacement                      | 28.86 in <sup>3</sup>                     | 28.86 in <sup>3</sup>                     |
| Cycles per Gallon                           | 28  | 44  |
| Maximum Flow Rate                           | 8.5 GPM                                   | 7.0 GPM                                   |
| Operating Air Pressure Range                | 10-125 psi<br>(.69-8.6 Bar)               | 10-125 psi<br>(.69-8.6 Bar)               |
| <b>Recommend Operating Range</b>            | <b>40-125 psi</b><br><b>(2.8-8.6 Bar)</b> | <b>40-125 psi</b><br><b>(2.8-8.6 Bar)</b> |
| Air Consumption, @ 100 psi Air <sup>1</sup> | 38 SCFM                                   | 45.6 SCFM                                 |
| Fluid Suction Lift                          | 20 In. Hg.                                | 20 In. Hg.                                |

### **Common Specifications:**

Port Sizes: Fluid Inlet 1" NPTF/1-1/2" NPTM, Fluid outlet 1/2" NPT, Air inlet 1/4" NPT

Wetted Parts: Nickel Plated Steel, Nitrided Steel, Brass, Aluminum, Buna-N™

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

1. Air consumption varies with pump speed.

# Pump Installation

After removing the pump from its shipping carton, attach a suitable suction tube or hose to the pump fluid entry port.



**WARNING:** Attach a proper ground wire to the Panther's grounding lug (item 11, pg. 8) before starting the pump.



**CAUTION:** Performance will be affected by a suction path seal that is not air tight.

If mounting to a reservoir bung port, thread the pump bung adapter into the bung thread on the fluid reservoir, lower the pump into the mounted bung adapter, then tighten. 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 2 drops per minute 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.



**WARNING:** Attach a proper ground wire to the Panther's grounding lug (item 11, pg. 8) before starting the pump.

## 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

It is *imperative* to maintain pump concentricity when reassembling the Panther pump. This can be achieved by reassembling the pump ONLY in a vertical position; preferably cap-down on a work bench.



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

**Pump Disassembly / Reassembly:** Using a soft jaw vise or a suitable fixture, clamp the pump vertically on the upper body (4). If a vise is unavailable, simply place the pump cap-down on a work bench. Refer to illustrations on pages 8 thru 13 to aid in servicing the pump.

**Removing the Air Motor:** With a pipe or strap wrench, remove tube (13) from adapter (9). Remove nuts (10) from the adapter (9). Pull adapter (9) down approx. 2 inches from lower body (7). Unhook the tee head in rod (18) from tee slot in piston (45). Remove 4 carriage bolts (1) from pump. While holding cap (2), pull air motor assembly from upper body (4). 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 (36) from piston (ensure the balls (38) are removed). With a 7/16" wrench, remove the two nuts (25) from the top of the intake valve assembly. Now, hold center rod (22) and pull valve bar assembly from piston (40). Check for wear on all seals (34), balls (35), and springs (26,27,37) 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

It is *imperative* to maintain pump concentricity when reassembling the Panther pump. This can be achieved by reassembling the pump ONLY in a vertical position; preferably cap-down on a work bench.

**Replacing the Pump Rod Seals:** Remove foot valve (16) from fluid tube (13). Remove fluid tube (13) from adapter (9) and slide off. With a 7/16" wrench, remove the 4 nuts (10). Slide the adapter down about 2 inches and unhook the rod (18) from the piston (37). Remove the fluid rod (18) from the adapter (9). Now seals (8, 12, 15, and 21) are accessible. Inspect balls (14 and 19) ; change as required. Reassemble in reverse order. Apply grease (P/N 826733) to seals (8 and 21) to ease assembly.

**Footvalve:** With a pipe wrench, clamp to the tube (13). Now remove foot valve (16). Remove and inspect pin (17) for wear, straightness, etc. Replace if required. Remove foot valve ball (14) and seal (15), inspect, and replace if required. Reassemble in reverse order.



**CAUTION:** Before servicing, reduce fluid pressure to zero. For safe handling, use the recommended **Pressure Relief Procedure**.

## **Pressure Relief Procedure:**

To reduce the risk of serious bodily injury, including fluid injection or splashing into the eyes and/or onto the skin, follow the procedure below before maintaining or repairing the pump, the solenoid, or any part of the system.

1. Disconnect the air supply from the pump.
2. Open the dispensing valve into an approved waste container to relieve pressure on the system.
3. Leave any bleed-type drain valves open until you are ready to use the system again.

**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<br><br>Clogged lines, hoses, valves, etc.<br><br>Damaged air motor  | Increase or clear air supply <sup>(1)</sup><br>Assure air is on and valves are open<br><br>Open; clear <sup>(1)</sup><br><br>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 (8) is worn/damaged  | Replace  |
| Erratic pump operation  | Air entering suction line<br><br>Fluid level too low<br><br>Air motor icing   | Check for loose connections<br><br>Refill, reprime or flush<br><br>Run pump at lower pressure; run at lower cycles per minute; clean muffler (38)        |
| Pump runs continuously  | Empty fluid supply<br><br>Blockage in pump tube or foot valve (16)<br><br>Lower ball (14) is stuck in foot valve (16)<br><br>Lower seal (21) is worn or damaged       | Refill, reprime or flush<br><br>Remove pump tube, clear blockage<br><br>Replace ball and reseal foot valve<br><br>Replace                                |
| Fluid output on one stroke only or continues to operate when dispensing valve is closed | Upper ball (19) is stuck in fluid piston (20) 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<br><br>Closed or clogged solenoid valve, meter, dispensing valve, etc.<br><br>Air inlet strainer/filter clogged | Increase air supply; increase air supply size<br><br>Clear <sup>(1)</sup><br><br>Clear <sup>(1)</sup>  |

(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

### Model 1130-010

| Item | Part Number | Description                 | Part Pak Model | Pump Qty | Service Kit Qty |        | Part Pak Qty |
|------|-------------|-----------------------------|----------------|----------|-----------------|--------|--------------|
|      |             |                             |                |          | 900014          | 900009 |              |
| 1    | 829452      | Bolt, Carriage              | 90041Q04       | 4        | 0               | 0      | 4            |
| 2    | 829808      | Cap, Air Motor              |                | 1        | 0               | 0      |              |
| 3    | 829664      | O-Ring, Buna N              |                | 2        | 2               | 0      |              |
| 4    | 829448      | Upper Body, Air Mtr         |                | 1        | 0               | 0      |              |
| 5    | 831552      | O-Ring, Buna N              |                | 1        | 1               | 0      |              |
| 6    | 829809      | Seal Insert, Motor          |                | 1        | 0               | 0      |              |
| 7    | 829449      | Lower Body, Air Mtr         |                | 1        | 0               | 0      |              |
| 8    | 829670      | Polypak, Buna N             |                | 1        | 0               | 1      |              |
| 9    | 829464      | Adapter, Fluid              |                | 1        | 0               | 0      |              |
| 10   | 829658      | Lock Nut                    | 90043Q04       | 4        | 0               | 0      | 4            |
| 11   | 831489      | Grounding Lug               | 90042Q05       | 1        | 0               | 0      | 5            |
| 12   | 826676      | Seal, Adapter               |                | 1        | 0               | 1      |              |
| 13   | 829457      | Cylinder, Pump              |                | 1        | 0               | 0      |              |
| 14   | 808691      | Ball                        |                | 1        | 0               | 1      |              |
| 15   | 830306      | Seal, Footvalve             |                | 1        | 0               | 1      |              |
| 16   | 829458      | Footvalve (prior to 4/2003) |                | 1        | 0               | 0      |              |
|      | 826060      | Footvalve (after 4/2003)    |                | 1        | 0               | 0      |              |
| 17   | 829769      | Pin, Stop                   |                | 1        | 0               | 1      |              |
| 18   | 829466      | Rod, Displacement           |                | 1        | 0               | 0      |              |
| 19   | 806962      | Ball                        |                | 1        | 0               | 1      |              |
| 20   | 829465      | Fluid Piston                |                | 1        | 0               | 0      |              |
| 21   | 816853      | O-Ring, Buna N              |                | 1        | 0               | 1      |              |

Note: Replacement parts can be sold as individual parts (items listed with part number), as a set in Part Paks (90041Q04 for example), or in a service kit. Service kits available for the 3:1 Panther are listed below:

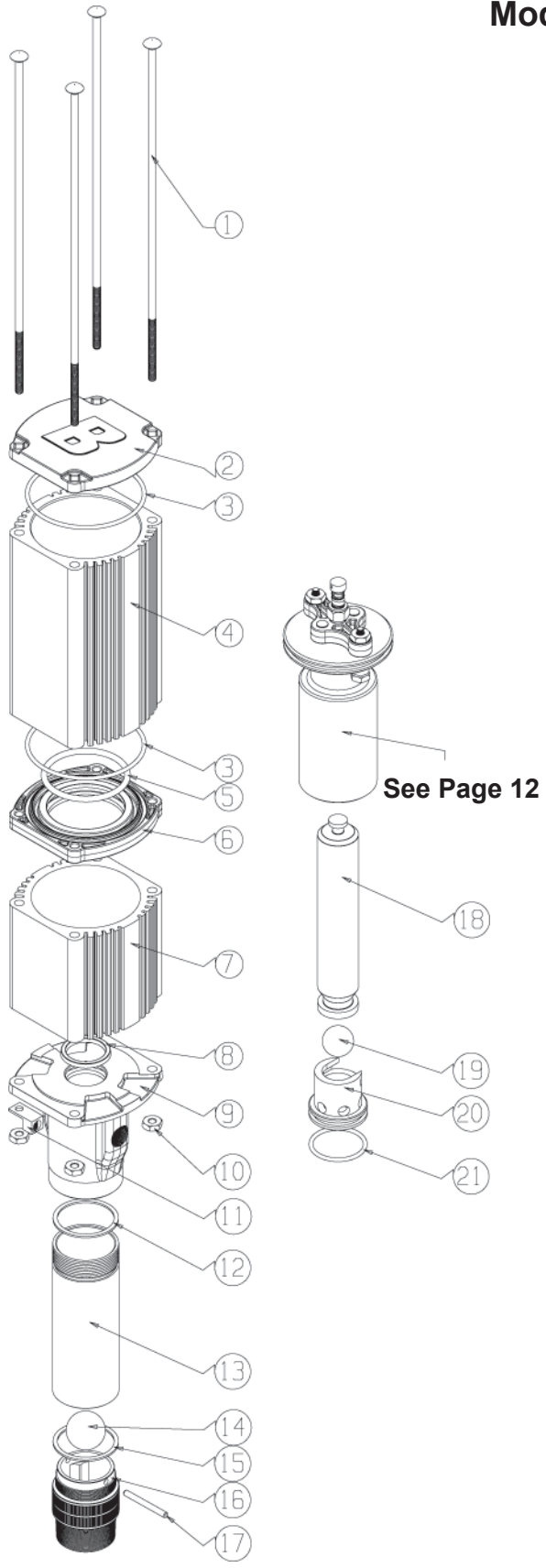
#### Service Kits:

\*Air Motor Service Kit.....900014  
 3:1 Fluid Service Kit.....900009

\*Air motor service kit is for both the 3:1 and 5:1 ratio pumps.



# Exploded View Panther® 3:1 Ratio Pump Model 1130-010



# Parts List

## Panther® 5:1 Ratio Pump

### Model 1130-011

| Item | Part Number | Description         | Part Pak Model | Pump QtyKit | Service Qty |        | Part Pak Qty |
|------|-------------|---------------------|----------------|-------------|-------------|--------|--------------|
|      |             |                     |                |             | 900014      | 900010 |              |
| 1    | 829452      | Bolt, Carriage      | 90041Q04       | 4           | 0           | 0      | 4            |
| 2    | 829808      | Cap, Air Motor      |                | 1           | 0           | 0      |              |
| 3    | 829664      | O-Ring, Buna N      |                | 2           | 2           | 0      |              |
| 4    | 829448      | Upper Body, Air Mtr |                | 1           | 0           | 0      |              |
| 5    | 831552      | O-Ring, Buna N      |                | 1           | 1           | 0      |              |
| 6    | 829809      | Seal Insert, Motor  |                | 1           | 0           | 0      |              |
| 7    | 829449      | Lower Body, Air Mtr |                | 1           | 0           | 0      |              |
| 8    | 830269      | Polypak, Buna N     |                | 1           | 0           | 1      |              |
| 9    | 829453      | Adapter, Fluid      |                | 1           | 0           | 0      |              |
| 10   | 829658      | Lock Nut            | 90043Q04       | 4           | 0           | 0      | 4            |
| 11   | 831489      | Grounding Lug       | 90042Q05       | 1           | 0           | 0      | 5            |
| 12   | 800951      | Seal, Adapter       |                | 1           | 0           | 1      |              |
| 13   | 829459      | Cylinder, Pump      |                | 1           | 0           | 0      |              |
| 14   | 806962      | Ball                |                | 1           | 0           | 1      |              |
| 15   | 829893      | Seal, Footvalve     |                | 1           | 0           | 1      |              |
| 16   | 829460      | Footvalve           |                | 1           | 0           | 0      |              |
| 17   | 829662      | Pin, Stop           |                | 1           | 0           | 1      |              |
| 18   | 829454      | Rod, Displacement   |                | 1           | 0           | 0      |              |
| 19   | 827761      | Ball                |                | 1           | 0           | 1      |              |
| 20   | 829456      | Fluid Piston        |                | 1           | 0           | 0      |              |
| 21   | 800360      | O-Ring, Buna N      |                | 1           | 0           | 1      |              |

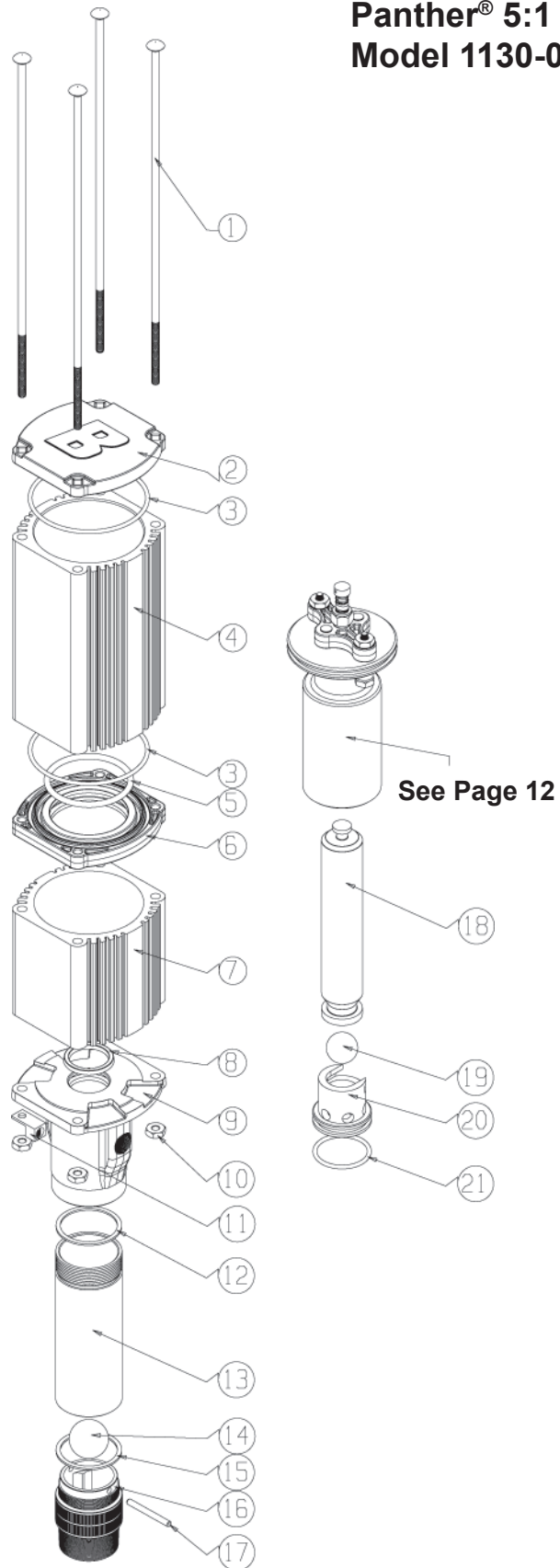
Note: Replacement parts can be sold as individual parts (items listed with part number), as a set in Part Paks (90041Q04 for example), or in a service kit. Service kits available for the 5:1 Panther are listed below:

#### Service Kits:

\*Air Motor Service Kit.....900014  
 5:1 Fluid Service Kit.....900010

\*Air motor service kit is for both the 3:1 and 5:1 ratio pumps.

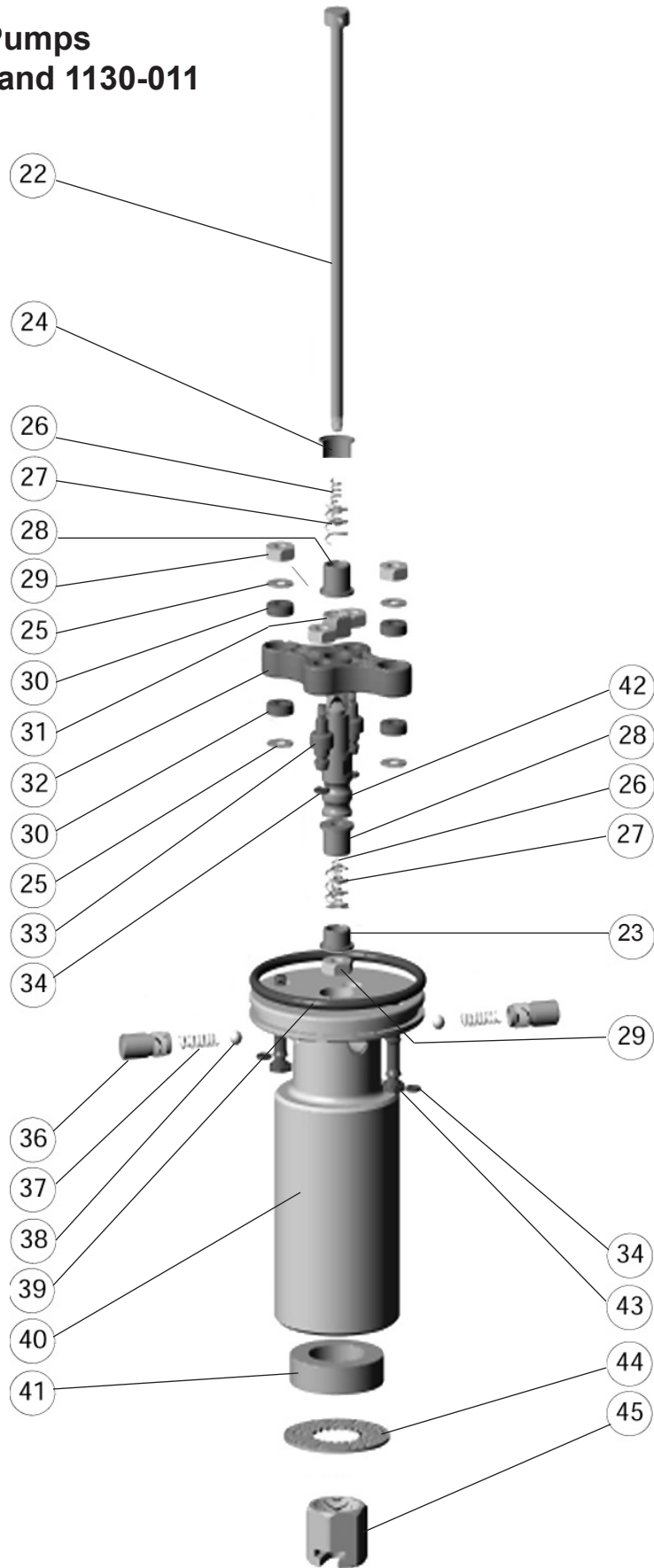
# Exploded View Panther® 5:1 Ratio Pump Model 1130-011



# Air Motor

## Panther® Series Pumps

### Models 1130-010 and 1130-011



# Parts List

## Air Motor, Panther® Series Pumps

### Models 1130-010 and 1130-011

| Item | Part Number | Description    | Part Pak Model | Pump Qty | Service Kit Qty | Part Pak Qty |
|------|-------------|----------------|----------------|----------|-----------------|--------------|
|      |             |                |                |          | 900014          |              |
| 22   | 829447      | Rod, Trip      |                | 1        | 1               |              |
| 23   | 831777      | Delrin, Thin   |                | 1        | 1               |              |
| 24   | 831778      | Delrin, Thick  |                | 1        | 1               |              |
| 25   | 831532      | Washer         |                | 4        | 4               |              |
| 26   | 830240      | Spring, Inner  |                | 2        | 2               |              |
| 27   | 830236      | Spring, Outer  |                | 2        | 2               |              |
| 28   | 830611      | Retnr., Spring |                | 2        | 2               |              |
| 29   | 808693      | Nut            |                | 5        | 5               |              |
| 30   | 830612      | Bushing        |                | 4        | 4               |              |
| 31   | 830143      | Nut            |                | 1        | 1               |              |
| 32   | 829441      | Valve Bar      |                | 1        | 1               |              |
| 33   | 830792      | Valve, Exhaust |                | 2        | 2               |              |
| 34   | 831551      | O-Ring         |                | 4        | 4               |              |
| 36   | 829461      | Retnr., Detent |                | 2        | 2               |              |
| 37   | 829661      | Spring, Detent |                | 2        | 2               |              |
| 38   | 805810      | Ball, Detent   |                | 2        | 2               |              |
| 39   | 831553      | O-Ring         |                | 1        | 1               |              |
| 40   | 830793      | Piston, Air    |                | 1        | 0               |              |
| 41   | 829659      | Felt, Muffler  | 90036Q20       | 1        | 0               | 20           |
| 42   | 829999      | Spool, Detent  |                | 1        | 1               |              |
| 43   | 830791      | Valve, Intake  |                | 2        | 2               |              |
| 44   | 829445      | Screen, Muff.  | 90035Q12       | 1        | 0               | 20           |
| 45   | 830723      | Coupler, Rod   |                | 1        | 0               |              |

Note: Replacement parts can be sold as individual parts (items listed with part number), as a set in Part Paks (90036Q20 for example), or in a service kit. All service kits are listed below:

#### Available Service Kits:

\* Air Motor Service Kit.....900014  
 3:1 Fluid Service Kit.....900009  
 5:1 Fluid Service Kit.....900010

\* Air motor service kit is for both the 3:1 and 5:1 ratio pumps.

## ***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.



**For Warranty Information Visit:  
[www.balcrank.com](http://www.balcrank.com)**

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