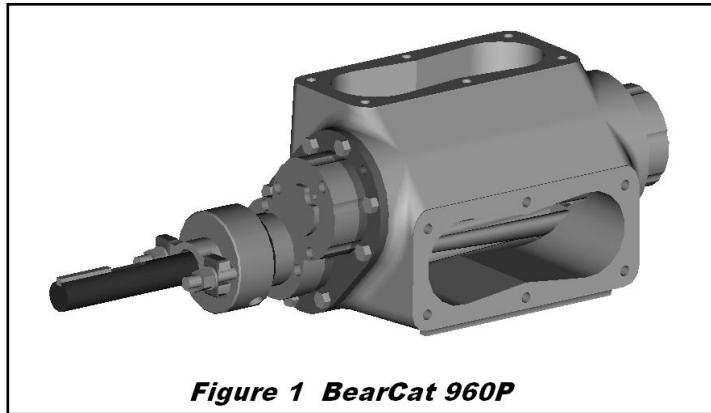


# 960 Technical Service Manual

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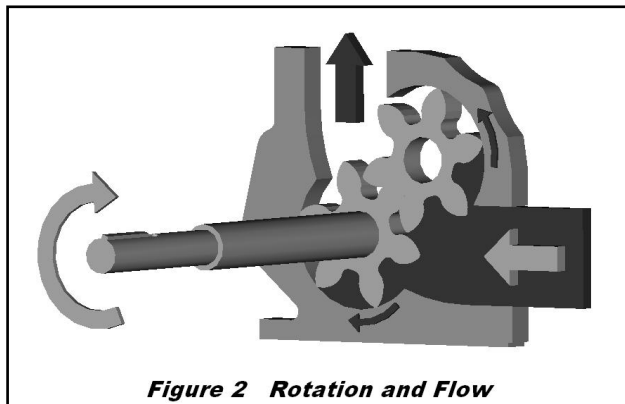


**Figure 1 BearCat 960P**

### **DANGER**

**Before starting pump, be sure all drive equipment guards are in place.**

**Failure to properly mount guards may result in serious injury or death.**



**Figure 2 Rotation and Flow**

## **INTRODUCTION**

This manual deals exclusively with the 960 series Pumps. Included in this manual are most general issues pertaining to this pump. For special applications not covered in the manual, please refer to the factory or authorized service personnel.

## **HOW IT PUMPS**

**Pumping:** The pumps operate equally in clockwise or counter clockwise rotation. The rotational direction determines which port is suction and which discharge. Figure 2 shows how the liquid travels the outside of the gears to get from inlet to outlet.

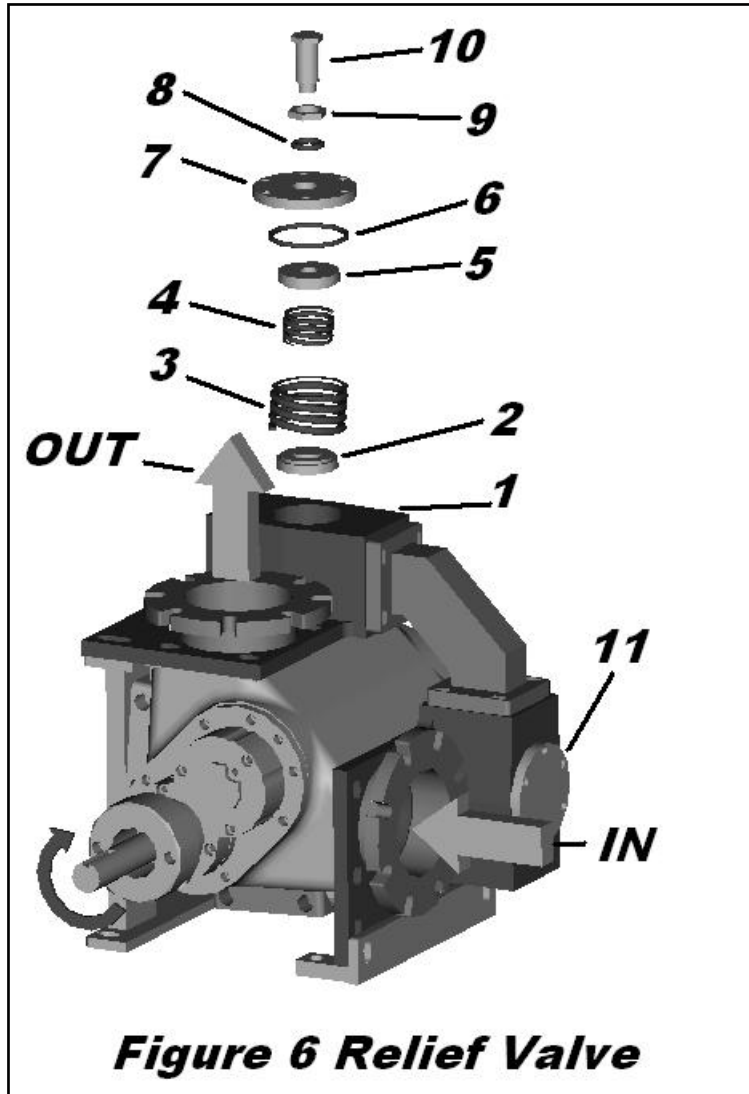
### **Pressure Relief Valve:**

BearCat Pumps are positive displacement

pumps and must have some sort of pressure protection. This may be a relief valve mounted to the backside of the pump. The Pressure Relief Valve is made up of a plate that is held against a port by a spring. The spring tension can be adjusted for varying pressures. When the pressure exceeds the adjusted amount, it pushes the plate (Inner Poppet) back, allowing the liquid to flow back to the inlet side of the pump.

If a pump is rotated in reverse of normal operation, the end plate with the relief valve must be rotated 180 degrees. Pressure relief valves cannot be used to control flow or regulate pressure.

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Item	Description
1	RV Housing Box
2	Inner Poppet
3	Outer Spring
4	Inner Spring
5	Outer Poppet
6	Cap O-ring
7	Adjuster Cap
8	Bolt O-ring
9	Adjuster Lock Nut
10	Pressure Adjuster Bolt
11	Inlet Cap

## RELIEF VALVE

It may become necessary to access the inside of the pressure relief valve. If the Relief Plate is removed for repairs, be sure to replace it in the proper orientation in relation to the outlet port. (See Figure 6)

### REMOVAL:

1. Measure the Pressure adjuster bolt distance from back of the Cap to the end of the Adjuster Bolt before proceeding.
2. Release spring compression by

loosening the Adjuster Lock Nut and Bolt.

3. Remove ½ bolts securing the Adjuster Cap. Remove items 2-6 (Fig 6). Clean and inspect.
4. Re-assemble in reverse order.
5. Set Adjuster Bolt to distance measurement established in step 1.

### DANGER

Before servicing any BearCat Pump liquid chamber or Relief Valve ensure that:

- Pressure inside pump has been completely vented through appropriate openings or connections.
- The drive system has been locked out so that it cannot be started while work is being done.
- Sufficient time has expired for the liquid to cool sufficiently inside the pump. Observe any Material Safety Data Sheets (MSDS) for the liquid to be sure these precautions are understood.

Failure to follow the above listed precautionary measures may result in injury or death.

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## Routine Maintenance

### 7.1 Bearing grease for 'R' series pumps. **Every Day!**

The bearings on an 'R' series rubber pump should be greased with high temperature axle grease just after the pump has been shut down, but while it is still hot. This will aid in not only lubricating the bearings, but also displacing the asphalt/rubber prior to start-up the next time. (5-8 pumps each bearing)

### **Warning:**

If product is hot, ensure adequate safety precautions are taken and safety gear worn.

### 7.2 Shaft seal replacement.

1. Turn pump off completely.
2. Ensure that pump is isolated from system by closing suction and discharge valves.
3. Remove any guards, couplings, bearings, or companion flanges aft the dust seal. Remove the dust seal, then worn main seal, or remove packing if packed pump.
4. Clean the shaft surface and seal bore of any asphalt / debris. Inspect and remove any sharp burrs in the keyway and shaft body. Also inspect for grove worn into shaft by old seal. An excessively deep groove will require shaft replacement.
5. **Lip Seal** (RNG-83600) - skip this step if packed pump. Clear plastic tape can be used to mask keyway prior to seal installation. Once the keyway is taped, lubricate with grease. Gently slide main seal over shaft, and into seal bore. Install new dust seal bracket.
6. **Packed Pump** (SET-83695) - skip if using modified seal. Replace packing washer. Install new packing. Offset each ring so that split is 180 deg off previous ring.
7. Replace guards, couplings etc.

## WARRANTY

**BearCat Pumps warrants all products manufactured by it to be free from defects in workmanship or material for a period of one year from date of shipment.**

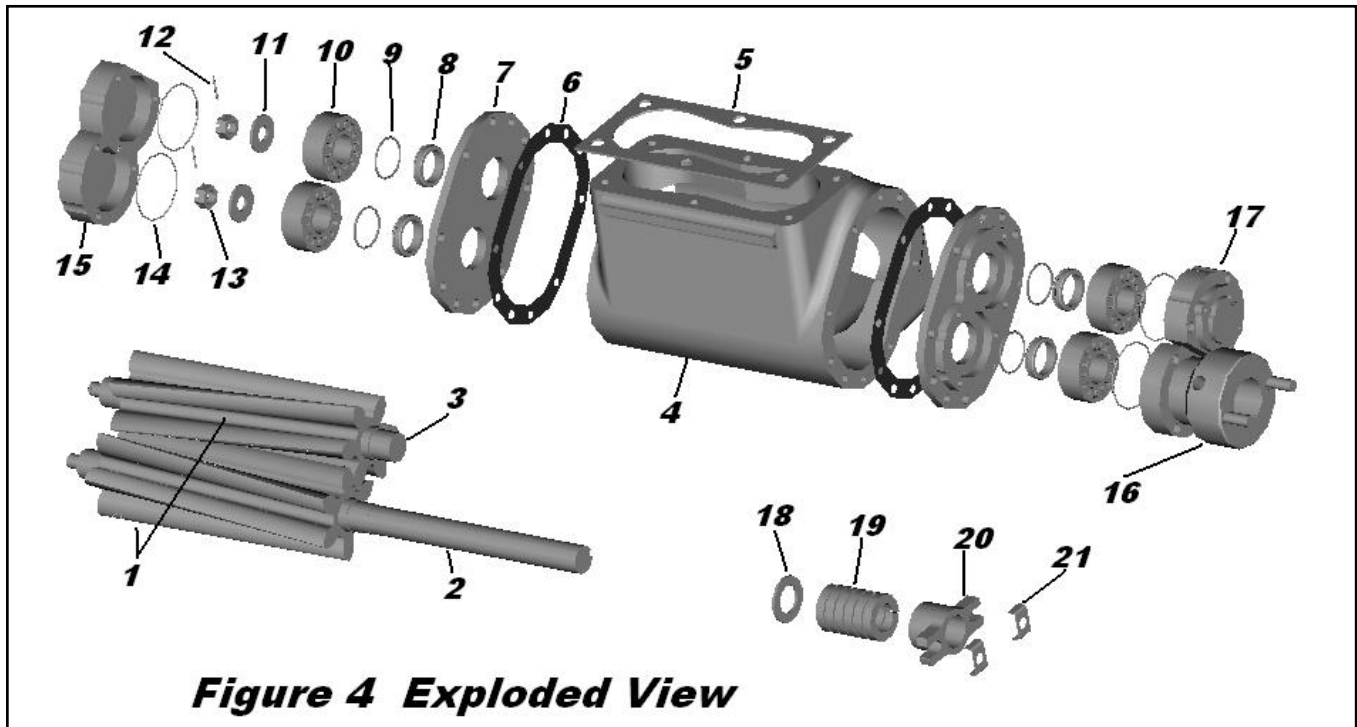
**Due to the inconsistencies in blend formulas and operating methods, BearCat Pumps does not assume responsibility for pump wear life. After material has entered a pump, all warranty claims will be determined by factory-authorized personal.**

**BearCat Pumps assumes no liability for consequential damages of any kind and the purchaser, by acceptance of delivery assumes all liability for the consequences of the use or misuse of BearCat products by the purchaser, his employees or others. BearCat Pumps will assume no field expenses for service or parts unless authorized by it in advance.**

**This is BearCat sole warranty and is in lieu of all other warranties, expressed or implied, which are hereby excluded, including in particular all warranties of merchantability or fitness for a particular purpose.**



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Item	Description	Part Number	Item	Description	Part Number
1	Gear Set	GER-83680	13	Castle Nut (2)	FAS-88678
2	Drive Shaft (short)	PTM-83643	14	Cap O-ring	RNG-83614
2B	Drive Shaft (long)	PTM-83644	15	Domed Bearing Cap (2)	HSG-83605
3	Idle Shaft	PTM-83640	16	Packing Housing	HSG-83611
4	Housing Body	HSG-83601	17	Blind Bearing Cap	HSG-83606
5	Port Gasket (2)	RNG-89071	18	Packing Washer	N/A
6	End Plate Gasket (2)	RNG-69993	19	Packing Set	SET-83695
7	End Plate (2)	HSG-83603	20	Packing Gland	BRK-83689
8	Piston Ring Bracket (4)	MSC-83666	21	Retainer Clip	BRK-83725
9	Piston Ring (4)	FAS-83614	22	½-13 x 1.5 Hex Bolt (16)	N/A
10	Bearing (4)	PTM-83612	23	3/8-16x1.75 SHCS (6)	N/A
11	Belleville Washer (2)	N/A	24	3/8-16x1.25 Hex Bolts (4)	N/A
12	Cotter Pin (2)	GER-64502	25	1/8 NPT Grease Zerk (4)	N/A

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## 960 PUMP CURVES

