

## 900-082HMP CHOP AND CHECK FOOT VALVE



**IMPORTANT: READ THIS MANUAL CAREFULLY BEFORE INSTALLING, OPERATING, OR SERVICING THIS EQUIPMENT**

**WARNING**

**WHEN REPAIRING THE AIR MOTOR TURN OFF THE AIR SUPPLY AND BLEED THE MATERIAL PRESSURE FROM THE PUMPING SYSTEM.**

### SERVICE KITS

Use only Ingersoll-Rand replacement parts to insure compatibility and longest life.

- Foot Valve Repair Kit : 900-001RK
- Packing Gland Seal Kit: 300-972P3Sk

### SPECIFICATIONS

Outlet Port Size	1 1/4 " NPT
Displacement =	12 Cubic inches per cycle.
Static Pressure Ratio 10 in. Air Motor	65:1
Static Pressure Ratio 8 in. Air Motor	42:1
Static Pressure Ratio 6 in. Air Motor	24:1
Material Pressure Operating Range	0 PSI to 6500 PSI (442 BAR)

**WARNING**

**DO NOT OPERATE AIR MOTOR AT PRESSURES ABOVE 100PSI (6.8 BAR).**

### MAINTENANCE SCHEDULE

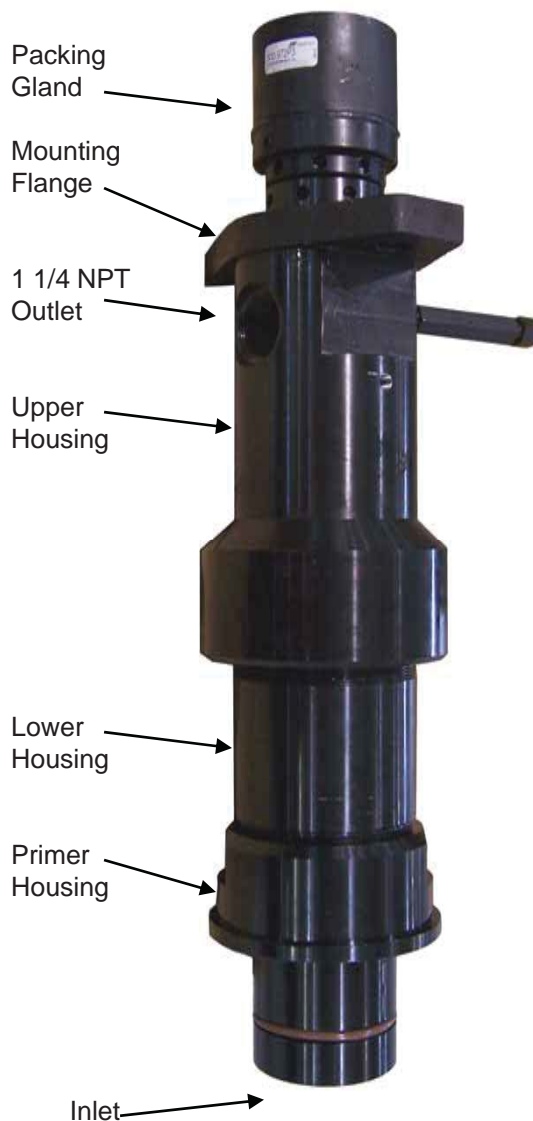
EVERY BARREL CHANGE:

1. Add oil to the Packing Gland.
2. Bleed air from Foot Valve.
3. Check for material Leakage: (rebuild if leaking at the threads)
4. Check for pump signal stroking.  
(signal stroking is the displacement rod moving very quickly in a direction without a pump output). If the pump is signal stroking, bleed air from bleeder valve opposite the outlet port. If bleeding does not correct signal stroking rebuild foot valve.
5. Depressurize when not in use.

### OPERATION

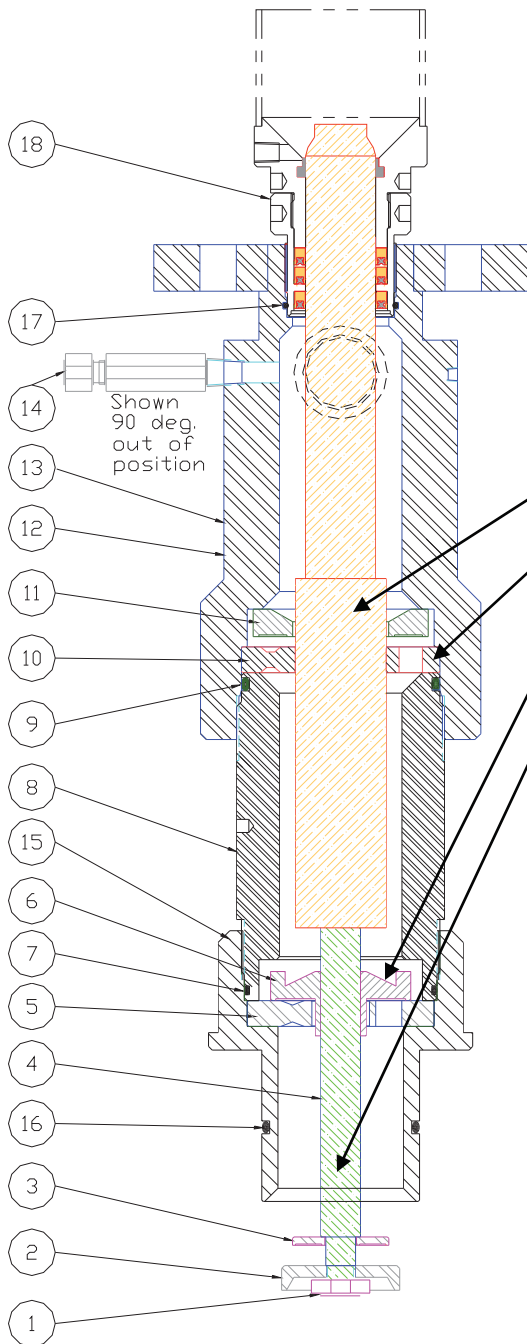
The Pump is double acting (output in both directions).

When the Pump is going in the up direction the upper check close sand material is pumped out. The lower checks open allowing the lower chamber to be filled. The primer checks help bring viscous material into the chamber. In the down direction the upper check opens and the lower check closes allowing material to be pumped out. The different diameters of the piston rod displace the material.



### 900-082HMP CHOP AND CHECK FOOT VALVE

**CAUTION** Do not over tighten the Housings.  
Maximum torque 200 ft. Lbs.



Foot Valve Pump Ratio			Vol. / Cycle
6 in	8 in	10 in	12.0 cubic In.
24:1	42:1	65:1	

#### Foot Valve Wear Tolerance Limits

- Displacement Rod Minimum O.D. = 1.9425.in
- Upper Check Plate Maximum I.D. = 1.9460.in
- Lower Check Valve Maximum I.D. = 0.8500.in
- Primer Rod Minimum O.D. = 0.8461.in

Repair Kit 900-001RK (* indicates repair kit items)			
18	1	300-972P3	Packing Gland Assembly W/Peek Seals
17*	1	350-411	O-Ring Viton
16*	1	360-002	O-Ring Viton
15	1	402-445HM	Primer Housing for Hot Melt
14	1	300-848	Bleeder Valve 1/4 NPT, Long
13*	1	401-915	Displacement Rod
12	1	402-285	Upper Pump Housing
11*	1	401-909	Upper Check Valve
10*	1	401-907	Upper Check Plate
9*	1	360-573	O-Ring Viton
8	1	401-911DM	Lower Pump Housing
7*	1	360-003	O-Ring Viton
6*	1	401-913	Lower Check Valve
5*	1	401-912	Lower Check Plate
4*	1	401-903	Primer Rod
3	1	401-902	Primer Check
2	1	401-900	Primer Plate
1*	1	350-022	Nylock Jam Nut 5/8-18
DET.	QTY.	PART No.	Description

900-082HMP FOOT VALVE



REMOVAL AND INSTALLATION PROCEDURE



**WARNING**

WHEN REPAIRING THE AIR MOTOR TURN OFF THE AIR SUPPLY AND BLEED THE MATERIAL PRESSURE FROM THE PUMPING SYSTEM



**CAUTION**

THE AIR MOTOR AND FOOT VALVE ARE VERY HEAVY.

Remove the Air Motor from the Pump.

- 1) Remove the Air Supply hose to the Air Motor.
- 2) Unscrew the 400-112 Collar that is attached to the Air Motor Piston Rod.
- 3) Remove the 3/4-10 Hex bolts that attach the spacer rods to the Foot Valve Flange.
- 4) Lift the Air Motor off of the Foot Valve.
- 5) Remove the 5 or 6 Hex Screws that hold the Primer Housing to the Follower Plate.
- 6) Remove the Foot Valve from the Follower Plate by lifting it straight out.

To Assemble.

- 1) Reverse steps 1-6.

## 900-082HMP FOOT VALVE REBUILDING INSTRUCTIONS

### DISASSEMBLY:

- 1) Clamp the Upper Pump Housing in a vice.
- 2) Remove the Primer Check.
  - a) Hold the Piston Rod from moving using a 1 1/8" wrench.
  - b) Remove the Nylock Jam Nut using a 15/16" Socket
  - c) Unscrew the shovel Check (counter clockwise).
  - d) The Shovel Valve (primer check) can slide off the Primer Rod.
- 3) Remove the Primer Housing using a Large Hex Wrench (counter clockwise).
- 4) Remove the Lower Check Plate from the Primer Housing.
  - a) Place the Primer housing so that the inlet is facing up.
  - b) Tap on the center of the Lower Check Plate using a soft dowel (wooden handle) until the Check plate drops from its counter bore.
- 5) Remove the Lower Pump Housing from the Upper Pump Housing using a Large pipe wrench (counter clockwise).
- 6) Remove the Upper Check Plate from the Upper Pump Housing.
  - a) Using channel pliers hold the Gusset of the Upper Check Plate and spin the check plate until it is out of the Upper Pump Housing.
- 7) Remove the Upper Check Valve.
- 8) The Displacement Rod can be removed from the Packing Gland.
- 9) Remove the Packing Gland from the Upper Pump Housing using spanner wrench No. 350-652.
- 10) Remove the Bleeder Valve from the Upper Pump Housing 1/4 in. NPT.
- 11) Remove all of the O-rings and discard.
- 12) Clean and inspect all parts for damage.

### ASSEMBLY:

- 1) Install the 350-411 O-ring into the Upper Housing packing gland bore and lubricate.
- 2) Install the O-rings on the Lower Pump Housing and lubricate.
  - a) 360-573 O-ring goes on the Larger diameter.
  - b) 360-003 O-ring goes on the smaller diameter.
- 3) Clamp the Upper Pump Housing in a Vice and install the lubricated Packing Gland. Tighten with Spanner Wrench No. 350-652 to 50 Ft. Lbs.
- 4) Insert the Piston Rod into the Packing Gland through the lower end of the Upper Pump Housing. The Piston rod must be straight and spinning it helps to install it.
- 5) Install the Upper Check Valve (ears up) over the Piston rod.
- 6) Install the Upper Check Plate on the Piston rod and push it into the Upper Pump Housing. It must be fully seated. The Upper Check Plate can go on in either direction.
- 7) Install the Primer Rod into the Piston Rod. The Piloted end goes into the Piston Rod. Tighten to 50 Ft. Lbs.
- 8) Thread the Lower Pump Housing into the Upper Pump Housing and tighten. CAUTION DO NOT OVERTIGHTEN Maximum torque 200 Ft. Lbs.
- 9) Install the Lower Check Valve on the Primer Rod with the ears facing up.
- 10) With the Primer Housing inlet facing down install the Lower Check Plate. The Check Plate must be fully seated. The Check Plate can go in either direction.
- 11) Thread the Primer Housing onto the Lower Pump Housing and tighten. CAUTION DO NOT OVERTIGHTEN Maximum torque 200 Ft. Lbs.
- 12) Install the 360-002 O-ring on the Primer Housing.
- 13) Install the Primer Check valve on the Primer rod. Ground surface faces down.
- 14) Thread the Primer Plate on the Primer Rod hand tight. Tapered surface faces down.
- 15) Thread the Nylock Jam Nut on the primer Rod and tighten to 15 Ft. Lbs.
- 16) Install the Bleeder Valve in the Upper Pump Housing so that the outlet hole faces down. Use Pipe sealant.
- 17) Install Air Motor Connector into the Piston Rod. See 900-021 drawing for proper settings

## 300-972P3 1 ½ INCH PACKING GLAND- PEEK

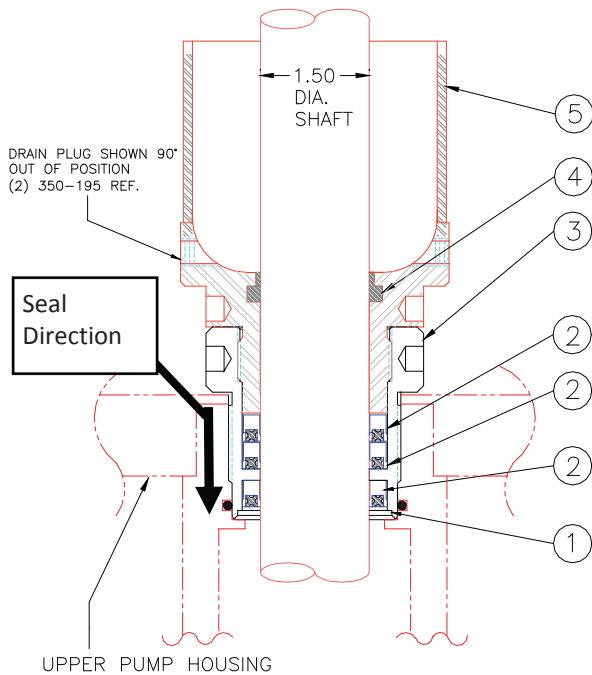


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**WARNING**

**TO PREVENT INJURY- WHEN REPAIRING THE AIR MOTOR TURN OFF THE AIR SUPPLY AND BLEED THE MATERIAL PRESSURE FROM THE PUMPING SYSTEM.**



### DISASSEMBLY

1. Unscrew the Packing Retainer from the Packing Cup.
2. Using needle nose pliers twist the Wiper out of its groove.
3. Using needle nose pliers remove the Polyseals from the bore of the Packing Cup. (The seals will be destroyed).
4. Remove the Snap Ring from the end of the Packing cup.
5. Using needle nose pliers remove the Polyseal from the end of the Packing Cup (The seal will be destroyed).
6. Clean and inspect all parts.

Seal Kit #300-972P3SK (*indicate included items)			
Detail#	Part#	Qty.	Description
5	403-259	1	Packing Retainer
4*	350-830	1	Wiper Viton
3	403-258	1	Packing Cup
2*	350-827P3	3	Peek PolySeal
1	350-810	1	Snap Ring

### ASSEMBLY

1. Lubricate the seals and wiper.
2. Install the Polyseal into the end of the Packing Cup (Heal First). The use of an arbor press squarely installs the seal.
3. Install the Snap Ring.
4. Using needle nose pliers twist the Wiper into the Packing Retainer groove with the Lip facing UP.
5. Install the two Polyseals into the Packing Retainer Lip.
  - a. Push the Polyseals one at a time into the Packing retainer with the seal lip facing down- the use of an arbor press squarely installs the seals.
6. Thread the Packing Retainer into the Packing Cup hand tight. The Packing Retainer should bottom out to the Packing Cup.

### INSTALLATION

1. Push the Packing Gland Assembly over the Dispense rod.
2. Thread the Packing cup into the Upper Pump Housing and tighten.
3. Hand tighten the Packing Retainer. (Use spanner wrench #350-652)
4. Connect the foot valve piston rod to the Air motor. (See 900-022 connector)
5. Fill the Cup With Oil (DIDP) Diisodecyl Phthalate or Wet- Sol oil #66334-B (Gallon Container)
6. Open the bleeder valve and run the pump slowly to bleed the air from the pump.
7. Close the bleeder valve.

**TROUBLE SHOOTING**

**Problem**

**Cause**

**Solution**

**Material leakage from pump housing**

Loose connections

Tighten threads on housing

Cut O’ring

Disassemble and replace o’ring

Check seated crooked in housing

Check for worn seat area in housings

Cracked housing

Replace housing

**Pump running but not delivering material (not creating pressure)**

Air lock in foot valve.

Open bleeder valve of foot valve (opposite of outlet)

Not enough down pressure on material

Elevator hand valve in down position. Increase down pressure on elevator.

No material available

Check material supply.

Lower check valve not closing or seating

Check for foreign object or worn parts, replace if needed.

Worn displacement, worn shovel rod on O.D.

Replace checks

Worn checks on I.D.

Clean checks

**Pump not delivering material on up stroke (not creating pressure)**

Foreign object on upper check, holding check open.

Replace upper check (See tolerance chart)

Worn upper check or Worn out displacement rod

Replace displacement rod (See tolerance chart)

Check elevator down pressure

See elevator (down pressure)

Air lock in foot valve

Open bleeder valve of foot valve (opposite of outlet)

**TROUBLE SHOOTING**

**Problem**

**Cause**

**Solution**

**Pump not delivering material on down stroke (not creating pressure)**

Foreign object holding lower checks open  
Worn out lower check  
Worn out shovel rod.  
Check for elevator down pressure  
Air lock in foot valve.

Clean Checks  
Replace lower check (See tolerance chart)  
Replace shovel rod (See tolerance chart)  
Check elevator down pressure  
Open bleeder valve of foot valve (opposite of outlet)

**Pump completely inoperative**

Check air supply to pump  
Check air motor for proper cycling  
Check for proper connection  
Check for elevator down pressure  
Check for foreign objects in pump  
Check for clogged or cured material in outlet line

Turn on air  
See air motor (not cycling)  
See connector settings 900-022  
Check elevator down pressure.  
Disassemble and clean  
Disassemble and clean or replace.