900-001

CHOP AND CHECK FOOT VALVE ASSEMBLY

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

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

SERVICE KITS

Use only Johnstone replacement parts to insure compatibility and longest life.

- Foot Valve Repair Kit : 900-001RK

SPECIFICATIONS

Outlet Port Size 1 ¼ " 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
Static Pressure Ratio 4 in. Air Motor 10:1
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

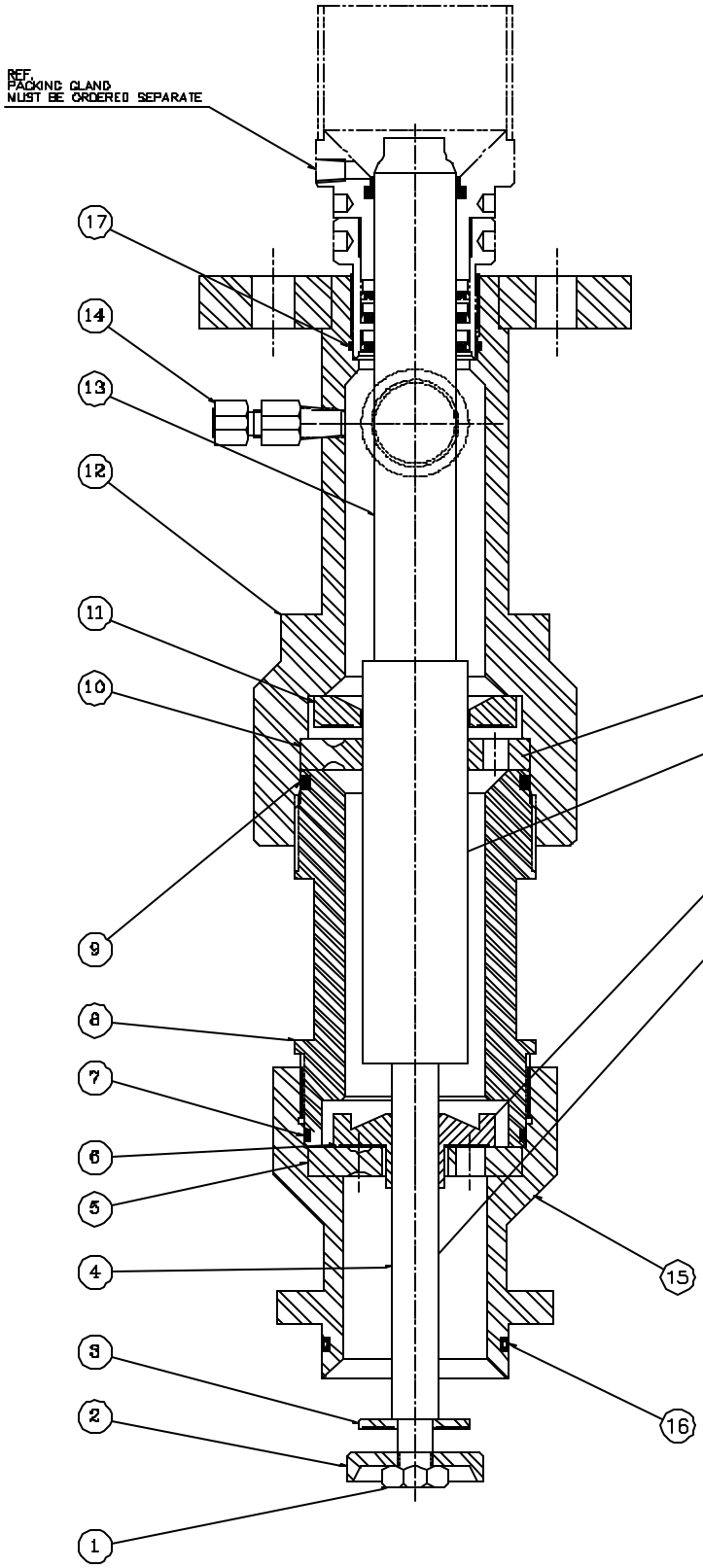
EVER BARREL CHANGE:

Add oil to the Packing Gland.
Bleed air from Foot Valve.
Check for material Leakage (rebuild if leaking at the threads)
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.

OPERATION

The Pump is double acting (output in both directions). When the Pump is going in the up direction the upper check close and 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 plates opens and the lower check plate closes allowing material to be pumped out.

900-001 CHOP AND CHECK FOOT VALVE



CAUTION: DO NOT OVER TIGHTEN HOUSINGS
MAXIMUM TORQUE 200 FT–LBS

FOOTVALVE PUMP RATIO				VOL./CYCLE
4"	6"	8"	10"	
10:1	24:1	42:1	65:1	13.0 $IN.^3$

FOOT VALVE WEAR TOLERANCE LIMITS

UPPER CHECK PLATE MAXIUM I.D. = 1.9640 in.

DISPLACEMENT ROD MINIMUM O.D = 1.9425 in

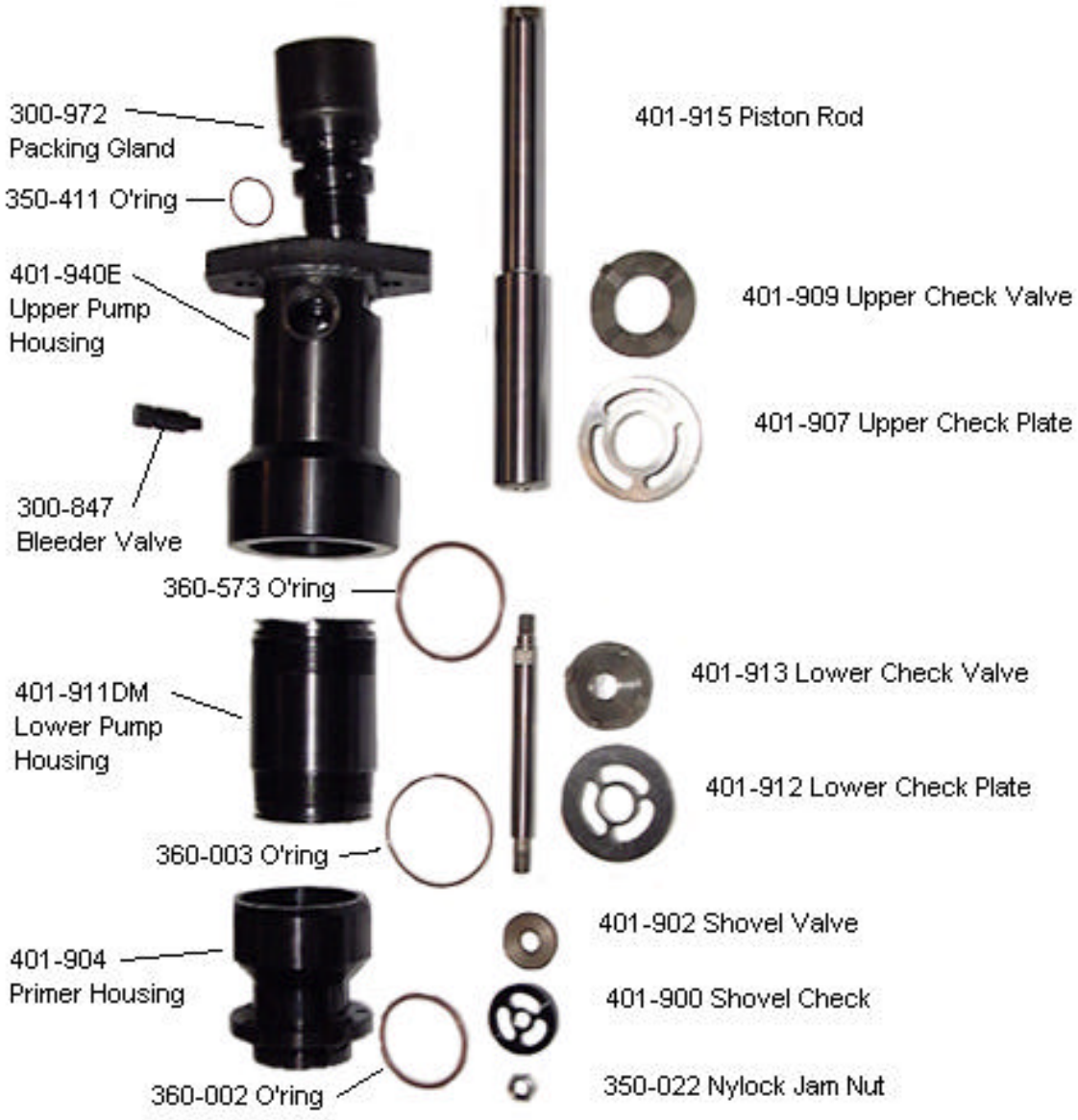
LOWER CHECK VALVE MAXIMUM I.D. = .8500 in.

PRIMER ROD MINIMUM O.D. = .8461

*REPAIR KIT #900–001RK

DET.	QTY.	PART No.	DESCRIPTION
*17	1	350–411	O'RING
*16	1	302–002	O'RING
15	1	401–904	PRIMER HOUSING
*14	1	300–847	BLEEDER VALVE
*13	1	401–915	PISTON ROD
12	1	401–940E	UPPER PUMP HOUSING
*11	1	401–909	UPPER CHECK VALVE
*10	1	401–907	UPPER CHECK PLATE
*9	1	360–573	O RING
8	1	401–911DM	LOWER PUMP HOUSING
*7	1	360–003	O RING
*6	1	401–913	LOWER CHECK VALVE
*5	1	401–912	LOWER PRIMER CHECK
*4	1	401–903	PRIMER ROD
3	1	401–902	PRIMER CHECK
2	1	401–900	PRIMER PLATE
*1	1	350–022	JAM NUT 5/8–16

900-001 FOOT VALVE



REMOVAL and INSTALL FROM PUMP

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

NOTE: THE AIR MOTOR AND FOOT VALVE ARE VERY HEAVY.

1) Remove the Air Motor from the Pump.
   a) Remove the Air Supply hose to the Air Motor.
   b) Unscrew the 400-112 Collar that is attached to the Air Motor Piston Rod.
   c) Remove the ¾-10 Hex bolts that attach the spacer rods to the Foot Valve Flange.
   d) Lift the Air Motor off of the Foot Valve.
2) Remove the 5 or 6 Hex Screws that hold the Primer Housing to the Follower Plate.
3) Remove the Foot Valve from the Follower Plate by lifting it straight out.
4) To install reverse steps 1-3.

900-001 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 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 remove 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 ¼" 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)
4) Clamp the Upper Pump Housing in a Vice and install the lubricated Packing Gland. Tighten with Spanner Wrench No. 350-652 to 30 Ft. Lbs.
5) 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.
6) Install the Upper Check Valve (ears up) over the Piston rod.
7) 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.
8) Install the Primer Rod into the Piston Rod. The Piloted end goes into the Piston Rod. Tighten to 30 Ft. Lbs.
9) Thread the Lower Pump Housing into the Upper Pump Housing and tighten. CAUTION DO NOT OVERTIGHTEN Maximum torque 200 Ft. Lbs.
10) Install the Lower Check Valve on the Primer Rod with the ears facing up.
11) 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.
12) Thread the Primer Housing onto the Lower Pump Housing and tighten. CAUTION DO NOT OVERTIGHTEN Maximum torque 200 Ft. Lbs.
13) Install the 360-002 O-ring on the Primer Housing.
14) Install the Primer Check valve on the Primer rod. Ground surface faces down.
15) Thread the Primer Plate on the Primer Rod hand tight. Tapered surface faces down.
16) Thread the Nylock Jam Nut on the primer Rod and tighten to 15 Ft. Lbs.
17) Install the Bleeder Valve in the Upper Pump Housing so that the outlet hole faces down. Use Pipe sealant.
18) Install Air Motor Connector into the Piston Rod. See 900-021 drawing for proper settings

TROUBLE SHOOTING

PROBLEM	*CAUSE*	*SOLUTION*
FOOT VALVE		
Material leakage from pump housing	Loose connections.	Tighten threads on housings.
	Cut o ring.	Disassembly 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 rod, worn shovel rod, on O.D.	Replace rods.
	Worn checks on I.D.	Replace checks.
Pump not delivering material on up stroke (not creating pressure)	Foreign object on upper check, holding check open.	Clean checks.
	Worn out upper check.	Replace upper check (See tolerance chart).
	Worn out displacement rod.	Replace displacement rod (See tolerance chart).
	Check for 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*
FOOT VALVE		
Pump not delivering material on down stroke (not creating pressure)	Foreign objects holding lower checks open.	Clean checks.
	Worn out lower check.	Replace lower check (See tolerance chart).
	Worn out shovel rod.	Replace shovel rod (See tolerance chart).
	Check for elevator down pressure.	Check Elevator down pressure
	Air lock in foot valve.	Open bleeder valve of foot valve (opposite of outlet)
Pump completely inoperative	Check air supply to pump	Turn on air.
	Check air motor for proper cycling.	See air motor (not cycling).
	Check for proper connector	See connector settings.900-022.
	Check for elevator down pressure.	Check Elevator down pressure.
	Check for foreign objects in pump.	Disassemble and clean.
	Check for clogged or cured material in outlet line.	Disassembly and clean or replace.