



Model FEP700 Series
Electric Grease Pumps
(24-Volt DC)

Bijur Delimon International
Farval/Bijur/Lubescape/Delimon-Denco
2685 Airport Road
Kinston, NC 28504
phone- 252-527-6001
www.bijurdelimon.com

PLEASE READ THIS MANUAL FULLY BEFORE CONNECTING OR USING YOUR PUMP!

For your own reference: Pump Serial No. _____

Your new FEP pump represents a step in the right direction toward proper maintenance of all kinds of equipment. The patented design is simple to understand and operate, and with little service, should give a long, useful life.

The following pages will describe the theory of operation, troubleshooting, and available parts and accessories. The accompanying diagrams should be consulted to clarify the concepts, and to help identify parts.

While unpacking your new pump, please be sure to double-check all packaging, before discarding, for any loose parts. Every effort is made to ensure that your pump is complete and well protected. However, we are aware that accidents happen, and will be happy to assist if you find something missing or broken...please call the factory.

Before placing your new pump in service, all electrical connections, from the source to the pump, should be double-checked for tightness, correct voltage, and proper polarity.

THEORY OF OPERATION...The pump end (bottom) consists of a hardened steel bushing, through which the piston runs. As the piston strokes down, grease is pushed past the check valve ball and out through the extruded discharge holes in the pump stem. As the piston strokes up, the check valve prevents drawback, and a vacuum is created inside the bushing. When the piston uncovers the suction holes in the bushing, another charge of grease is drawn in through the suction ports on the bottom of the stem and into the bushing. The cycle then repeats.

The reciprocating motion of the piston is generated by the power pack, and is transmitted through the driveshafts, with the return (up) motion caused by the return spring. The heart of the power pack is a gearmotor with a cam, which pushes the cam follower down, operating the upper driveshaft. The lower driveshaft, including the piston, is forced down against the return spring, and against the discharge pressure. At the bottom of the piston's stroke, the cam goes over-center, allowing the return spring to push everything back up. At the top of the stroke, the cycle repeats.

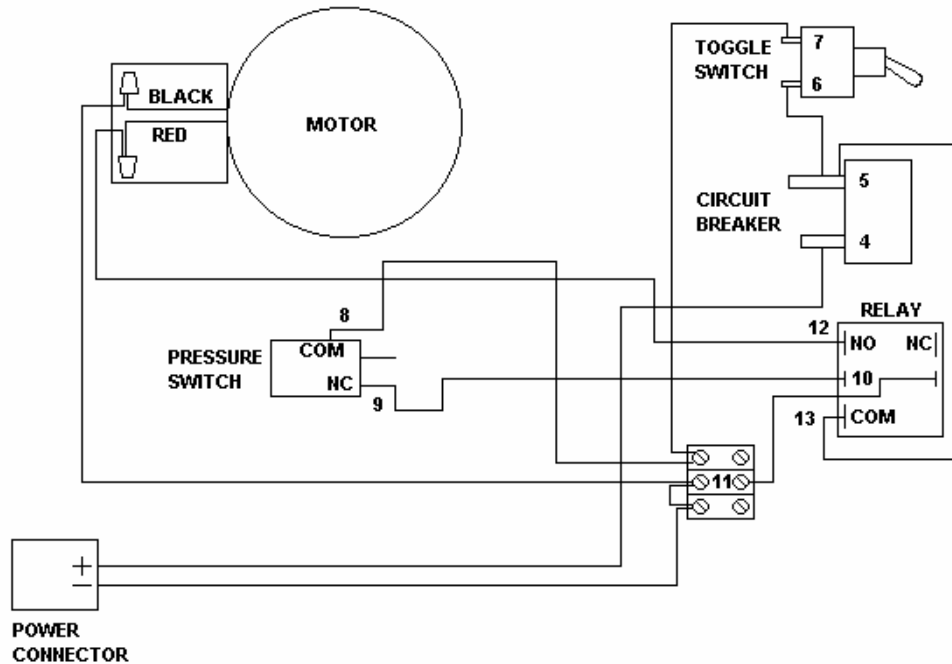
The electrical circuit includes a circuit breaker, a toggle (on-off) switch, a relay, and a pressure switch, which will stop the pump when the setpoint is reached. The adjusting cap on the pressure switch assembly can be turned clockwise (tightened) to increase the shut-off setpoint, or counter-clockwise (loosened) to decrease the setpoint. System pressure operates a spring-loaded piston, which actuates the micro-switch on the front of the assembly. When the system (hose) pressure drops about 400psi, the switch closes to allow the pump to run. The factory setpoint is about 2500-3000psi (for standard pumps), which should be adequate for most requirements. Unnecessarily high pressure operation will put undue stress on all pump components, and shorten its life.

TROUBLESHOOTING...Normal pump operation will produce a humming sound as the gearmotor spins at 200 rpm. The pump speed will decrease slightly as pressure builds, and the sound of each stroke may change slightly.

If the pump runs, but does not build pressure, it is either air-bound or the check valve is not seating properly. To prevent air entering the pump, the included follower plate should always be

placed on top of the grease. The pump will eventually pump small amounts of air out the discharge...removing the hose and running the pump will quickly release the bubble(s). If foreign particles become trapped under the check valve ball, the piston will draw back the grease just pushed out. In this case, the ball must be removed, and the seat and ball must be cleaned.

If the pump does not run at all, check all electrical connections, and the condition of the source. If good power is available to the pump, check to make sure the control circuit components are OK. The pressure in the hose should be released, the power ON, and a test light or voltmeter should be used to trace the circuit as described below.



Step 1. POWER TEST: Across post (4) and (11)...if not HOT, check source & power leads.

Step 2. BREAKER TEST: Across post (5) or (6) and (11)...if not HOT, replace breaker. Check for shorts in power circuit as cause.

Step 3. TOGGLE SWITCH TEST: Across post (7) or (8) and (11)...if not HOT, replace toggle switch.

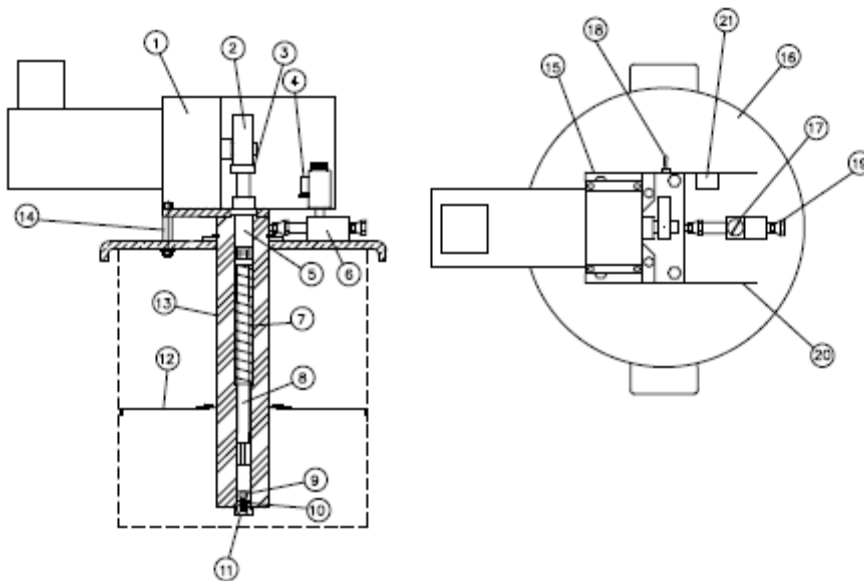
Step 4. PRESSURE SWITCH TEST: Across post (9) and (11)...if not HOT, replace micro-switch.

Step 5. RELAY TEST: Across posts (10) and (11)...if HOT, AND across posts (12) and (11)...if not HOT, replace relay.

Step 6. GEARMOTOR TEST: Across post (12) and (11)...if HOT (and motor not running), replace gearmotor.

NORMAL ADJUSTMENTS: FEP 700 Series grease pumps do not require any routine adjustments.

SPECIAL ADJUSTMENTS: The only adjustment on the pump (other than the pressure switch set-point) is the driveshaft stroke setting, set by turning the adjusting screw on the bottom of the upper driveshaft. **This adjustment should not be required unless the pump has been disassembled.** Remove the hex plug on the bottom of the pump stem, and remove the check valve spring. Hold the check valve ball firmly against its seat with a finger or suitably-sized wooden dowel, and turn on the toggle switch momentarily (long enough for at least one full stroke). The piston should just touch the ball without displacing it more than 1/64". If the piston does not touch the ball, the adjusting screw should be turned out to lengthen the stroke...do not move the adjusting screw more than one full turn at a time, or damage to the ball could result. If the piston actually pushes the ball off its seat more than 1/64", the adjusting screw should be turned in to shorten the stroke. The optimum setting is where the piston just touches the ball. To make the adjustments, the power pack assembly must be removed. **Disconnect the pump from the power source,** remove the top cover of the power pack, and disconnect the two wires on the pressure switch. Remove the 4 nuts (under the lid) securing the power pack to the lid. Carefully lift the power pack assembly straight up to clear the guide bushing & mounting bolts. Inverting the power pack assembly will allow access to the bottom of the upper driveshaft. Loosen the adjusting screw locknut & make the appropriate adjustment, then securely tighten the locknut. Reinstall the power pack assembly, & reconnect the pressure switch wires. Repeat the above procedure as required. Finally, reassemble the check ball, spring, and hex plug in the bottom of the pump stem, and the pump should be ready.



REF.NO.	PART NO.	DESCRIPTION	REQ'D.
1	FEP6222	Gearmotor, 24VDC, 700-series	1
2	FEP2255	Cam ass'y.	1
3	FEP3280	Driveshaft ass'y.	1
4	FEP6201	Switch, Micro, press. sw.	1
5	FEP3282	Guide bushing	1
6	FEP3204	Manifold, discharge	1
7	FEP4227	Spring, pump return	1
8	FEP2226	Plunger assembly, 3/8 (X12 models)	1
**	FEP2230	Plunger assembly, 3/8 (X22 models)	
9	FEP4267	Ball, check valve, 5/8"	1
10	FEP4405	Spring, check valve	1
11	FEP3288	Plug, 3/4 SAE	1
*	FEP4298	O-ring, for item 11 - SAE stem plug	1
12	FEP4249	Follower plate, X1X models	1
**	FEP3226	Follower plate, X2X models	
13	FEP2212	Pump stem assembly, 3/8 (X12 models)	1
**	FEP2222	Pump stem assembly, 3/8 (X22 models)	
14	FEP3401	Spacer, power pack	4
15	FEP3275	Base plate	1
16	FEP3276	Cover, X1X casting	1
**	FEP3284	Cover, X2X casting	
17	FEP2215	Pressure switch assembly	1
18	FEP6402	Switch, toggle, SPST	1
19	F4007	Swivel, 1/4MPT x 1/4FPT	1
20	FEP4286	Enclosure	1
21	FEP6008	Relay, 24VDC, 700-series	1

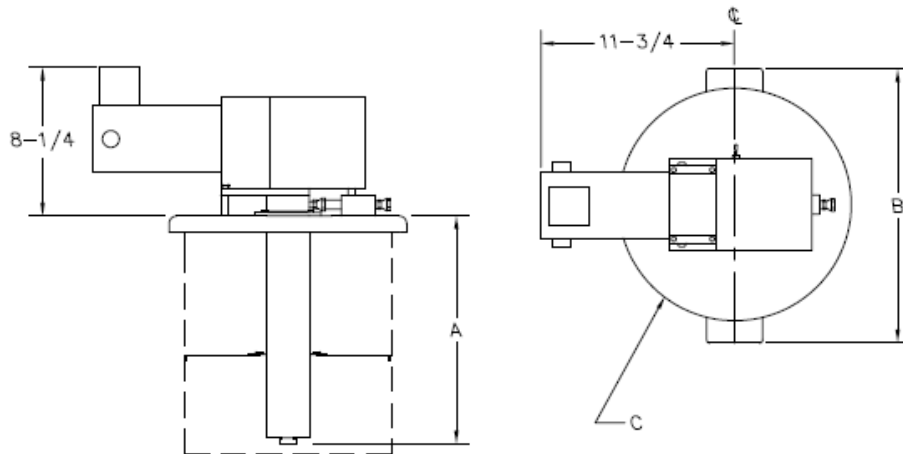
Parts not labeled on diagram:

FEP6227	LT conduit	11"
FEP4291	Cam bearing	1
FEP4287	Top cover	1
FEP3286	Seal plate, stem-lid	1
FEP4231	Seal, stem-lid	1

NOTES: ** items are options, depending on model.

Overall Pump Dimensions

	PAIL PUMP	DRUM PUMP
A	13"	25-1/2"
B	14-5/8"	17-1/2"
C	12-1/2"	15-1/4"



Wiring FEP pump to controller

