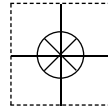


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# User's Guide

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# FPUD3-P



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The information contained in this document is believed to be correct, but OMEGA accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

**WARNING:** These products are not designed for use in, and should not be used for, human applications.

# Introduction

The FPUD3 Series drum pumps feature corrosion-resistant construction and can empty a wide variety of containers in various applications. FPUD4 Series are rated for 2,000 cps viscosity and 1.8 SG. FPUD5 Series pumps are for high viscosity applications for fluids up to 15,000cps viscosity. FMSD11 Series mixers efficiently mix from the top of a drum to the bottom with a non-vortexing, non-aerating action. These mixers can draw approximately 14 gallons of liquid per minute through a 2" diameter mixing tube up to 750 cps maximum viscosity.

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# Safety

## 1. Introduction

This manual contains all information needed for the correct installation, use and maintenance of your new Omega Engineering pump. It should be read and understood by all personnel involved in installation, operating and servicing of the pump before it is started.

## 2. Operator Qualification and Training

The personnel in charge of the installation, the operation, and the maintenance of the pump must be qualified and able to perform the operations described in this manual. Omega shall not be held responsible for the training level of personnel and for the fact that they are not fully aware of the contents of this manual.

## 3. Safety Instructions

### FOR YOUR OWN SAFETY

BEFORE using or servicing your pump, please make sure to wear the proper clothing, eye protection and follow standard safety procedures when handling corrosive or personally harmful materials.

### GENERAL DANGER

**NEVER** use a plastic pump or an open, splash-proof, TEFC or non-ATEX motor when pumping or mixing flammable or combustible material.

**ALWAYS** use and store the pump and motor in an upright position.

### DANGER: POWER SUPPLY

Refer to instructions in the appropriate motor Operation & Installation Manual.

## 4. Noise Level

Refer to specifications in the appropriate motor Operation & Installation Manual.

## 5. Modifications and Spare Parts

Any changes concerning the service of the pump as originally purchased can be executed only after written approval from Omega Engineering. It is recommended to use only Omega spare parts and approved accessories. The use of non-Omega spare parts or non-approved accessories will void warranty and removes any responsibility on the manufacturer's behalf for any damage caused to people or things.

## 6. Cleaning

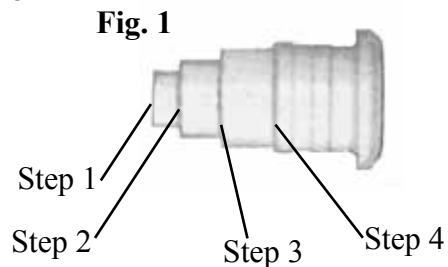
It is highly recommended to flush pumps with clean water or some other neutralizing fluid compatible with pump materials when done pumping or when switching chemicals.

# INSTALLATION & MAINTENANCE INSTRUCTIONS

## Installation

1. Remove the drum pump from its packaging and inspect for shipping damage.
2. Turn the pump coupling to verify there is no binding.
3. Verify the housing cover (item 21) is on tight (it has a left hand thread).
4. Adjust the coupling so that the empty slots in the insert are at 3 and 9 o'clock with the pump discharge at 12 o'clock.
5. Install the motor onto the drum pump per the installation instructions from the Operation & Installation Manual of the specific motor model.

**Note:** Pumps with the standard 1" barb spout include a variable orifice fitting, which initially limits the flow of the pump to 10 gpm. As it is cut away, flow will increase from 10 gpm up to maximum flow (to increase flow, simply trim back orifice). Orifice steps control flow as follows: Step 1 = 10 gpm, Step 2 = 20 gpm, Step 3 = 30 gpm, Step 4 (maximum opening) = maximum flow (see Fig. 1).



**Note:** ALWAYS use a 1" I.D. hose properly secured to the barb spout using a hose clamp.

## Maintenance

### Disassembly

1. Remove the housing cover (item 21) by turning it clockwise (left hand thread) while gripping the impeller housing (item 18).
2. Turn the impeller until a hole in the shaft can be seen through the square slot in the impeller housing (item 18), and insert 3/32 pin into the hole. Holding the pin, turn the impeller (item 20) counterclockwise (right-hand thread) and remove it.
3. Remove the impeller housing (item 18) by gripping the intake tube and spinning the housing clockwise (left hand thread). Re-insert the 3/32 pin and while gripping the pump coupling unthread (counterclockwise) and remove the shaft (item 19) from the bearing assembly (item 3).
4. Place the pump head (item 5) in a vise (do not crush) and remove the intake tube (item 9) by unthreading clockwise (left hand thread). Remove the inner upper (item 11) and lower (item 15) tubes from the head. Remove the bearing assembly (item 3) and the FKM lip seal (item 4) from the head.
5. Remove the center bearing (item 13) from the upper (item 11) and lower (item 15) tubes.

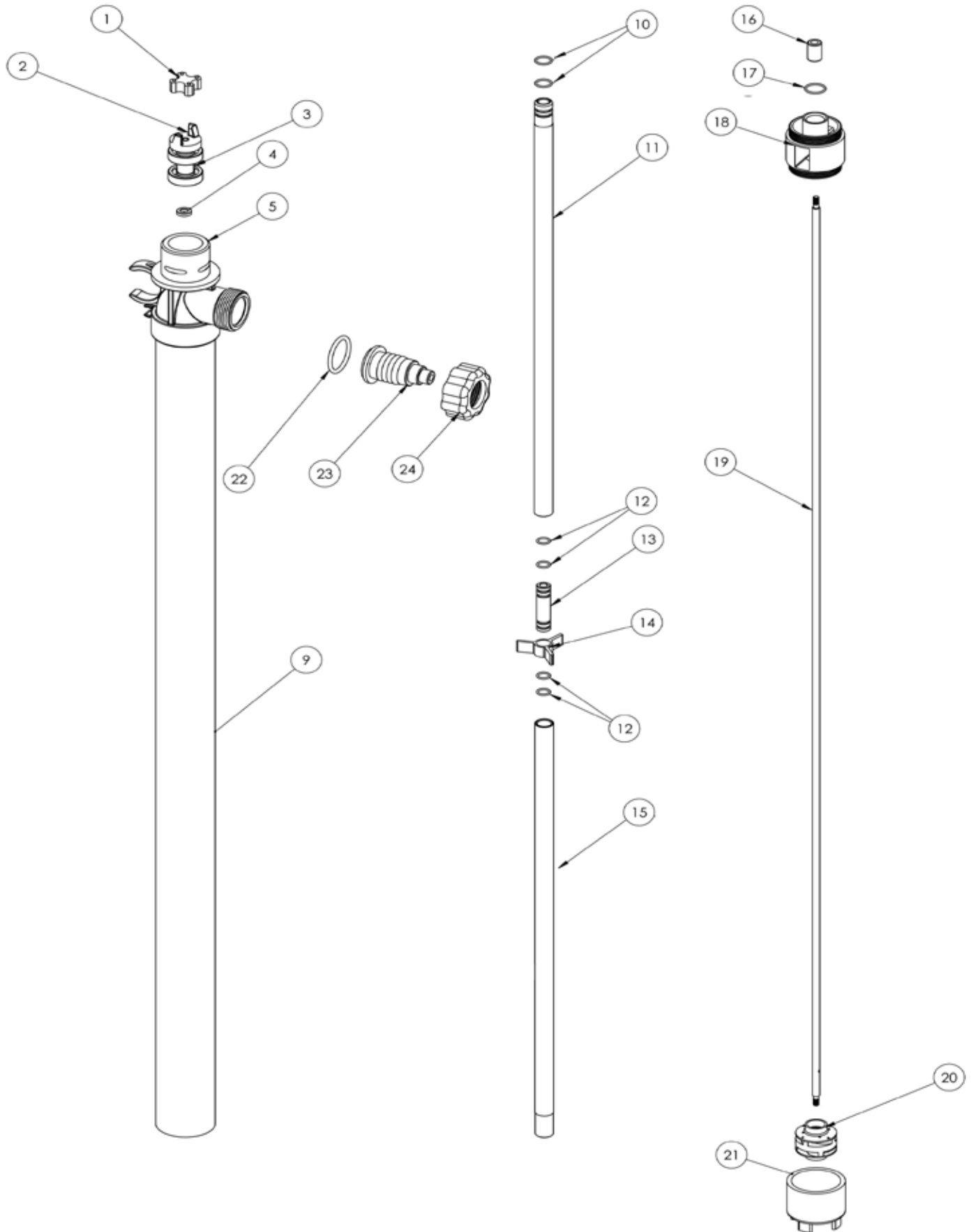
## Inspection

1. Check the housing cover (item 21), the impeller (item 20), and the impeller housing (item 18) for wear, rubbing, or damage from foreign objects. Replace if damaged.  
**Note:** The double impeller design of this pump is dependant on the impeller working correctly. Any damage to the impeller can cause pump failure.
2. Inspect the pump shaft (item 19) for wear in the bottom (item 16), center bearing (item 13) and the FKM lip seal (item 4) areas. Replace the shaft if needed.
3. Inspect the bottom bearing (item 16), center bearing (item 13), and the bearing guide (item 14) for internal wear. Inspect all o-rings (items 17,12, & 10) for nicks or chemical attack. Replace as needed.
4. Inspect the bearing assembly (item 3) for rust or corrosion. Never reuse the lip seal.

## Reassembly

1. Install new lip seal (item 4) into the pump head with the grooved side facing the bottom of the pump.
2. Thread the shaft (item 19) into the bearing assembly (item 3) with the 3/32 hole in the shaft on the other end. Carefully insert the shaft straight through the vapor seal (to avoid seal damage) from the top and seat the bearing assembly (item 3) into the pump head.
3. If o-rings are replaced -- install 2 center bearing o-rings (items 12) in the grooves, then slide the bearing guide on and then the remaining 2 o-rings. Install 2 upper inner tube o-rings (items 10), and install the impeller housing o-ring (item 17) inside the top of the housing. Apply a small amount of Vaseline to the o-rings to aid in assembly. Assemble the center bearing (item 13) into the upper (item 11) and lower (item 15) inner tubes.
4. Slide the inner tube assembly up the shaft and into the counter bore in the bottom of the head. Slide the intake tube up from the bottom, centering the bearing guide, and thread it into the head (left hand thread).
5. Gripping the coupling at the top of the pump, thread the impeller on (right hand thread). Install the housing cover (left hand thread). Turn the coupling to verify there is no binding inside the pump.

# FPUD3-P SPARE PARTS EXPLODED VIEW



Not Pictured: Item 25 (Middle Inner Tube - 60" & 72" pump lengths only) & Item 26 (Lower Middle Inner Tube - 72" pump length only)

## PUMP SPARE PARTS LIST

ITEM	QTY	DESCRIPTION	PART NUMBER	
			FPUD3-P PFM	FPUD3-P PFP
1	1	<b>COUPLING INSERT</b>		
			J100014	J100014
2	1	<b>COUPLING HALF</b>		
			J100012	J100012
3*	1	<b>BEARING ASSEMBLY</b>		
			A101110	A101110
4*	1	<b>LIP SEAL</b>		
		1/4" FKM	107592	107592
5	1	<b>PUMP HEAD</b>		
		POLYPROPYLENE	107755-1	107755-1
9	1	<b>INTAKE TUBE</b>		
		27" MODELS	107475-2	107475-2
		40" MODELS	107475-3	107475-3
		48" MODELS	107475-4	107475-4
		60" MODELS	107475-5	107475-5
10*	2	<b>UPPER INNER TUBE O-RING</b>		
		FKM	J100249	J100249
		EPDM	106519	106519
		PERLAST	105621	105621
11	1	<b>UPPER INNER TUBE</b>		
		27" MODELS	107660-2	107660-2
		40" MODELS	107660-3	107660-3
		48" MODELS	107660-4	107660-4
		60" MODELS	107660-3	107660-3
12*	4 (27-48") 8 (60") 12 (72")	<b>CENTER BEARING O-RING</b>		
		FKM	J100018	J100018
		EPDM	106798	106798
		PERLAST	105620	105620
13	1 (27-48") 2 (60") 3 (72")	<b>CENTER BEARING</b>		
		PTFE	M100010	M100010
14	1 (27"-48") 2 (60") 3 (72")	<b>BEARING GUIDE</b>		
		POLYPROPYLENE	M101603-2	M101603-2
15	1	<b>LOWER INNER TUBE</b>		
		27" MODELS	M100003-1	M100003-1
		40" MODELS	M100003-3	M100003-3
		48" MODELS	M100003-4	M100003-4
		60" MODELS	M100003-3	M100003-3
16	1	<b>BOTTOM BEARING</b>		
		PTFE	M100007	M100007
17*	1	<b>IMPELLER HOUSING O-RING</b>		
		FKM	J100019	J100019
		EPDM	106799	106799
		PERLAST	105622	105622
18*	1	<b>IMPELLER HOUSING</b>		
		POLYPROPYLENE	107316-1	107316-1
19	1	<b>MAIN SHAFT</b>		
		27" MODELS	M100004-5	M100004-1
		40" MODELS	M100004-7	M100004-3
		48" MODELS	M100004-8	M100004-4
		60" MODELS	M100004-12	M100004-9
20*	1	<b>IMPELLER ASSEMBLY</b>		
		PVDF	A100002-2	A100002-2
21*	1	<b>HOUSING COVER</b>		
			M101612-1	M101612-1



ITEM	QTY	DESCRIPTION	PART NUMBER	
			FPUD3-P PFM	FPUD3-P PFP
22	1	<b>DISCHARGE O-RING</b>		
		FKM	J100991	J100991
		EPDM	J102378	J102378
		PERLAST	107017	107017
23	1	<b>SPOUT</b>		
		1" BARB (STANDARD)	M100028-1	M100028-1
		3/4" BARB (OPTIONAL)	105439-1	105439-1
		1" MNPT (OPTIONAL)	106599	106599
24	1	<b>DISCHARGE NUT</b>		
		FOR USE WITH 1" OR 3/4" BARB SPOUT	M101610-1	M101610-1
		FOR USE WITH 1" MNPT SPOUT ONLY	106622	106622
25 (not pictured)	1	<b>MIDDLE INNER TUBE</b>		
		27" MODELS	N/A	N/A
		40" MODELS	N/A	N/A
		48" MODELS	N/A	N/A
		60" MODELS	M100003-3	M100003-3
72" MODELS	M100003-3	M100003-3		
26 (not pictured)	1	<b>LOWER MIDDLE INNER TUBE</b>		
		27" MODELS	N/A	N/A
		40" MODELS	N/A	N/A
		48" MODELS	N/A	N/A
		60" MODELS	N/A	N/A
72" MODELS	M100003-1	M100003-1		

\*Recommended Spare Parts

N/A = Not Applicable

**Note:** Bearing assembly and lip seal can be purchased as a kit using part number 108110.

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