



Polymer Preparation System

PB100-1

USFILTER Stranco Products
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PolyBlend

Model #PB100-1

INSTALLATION, OPERATION, AND MAINTENANCE INFORMATION

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**READ THIS MANUAL BEFORE YOU
INSTALL, OPERATE, OR SERVICE THIS
UNIT.**

OVERVIEW

SAFETY PRECAUTIONS

- ☐ Ensure that the control panel is grounded to avoid possible electrical shock or damage to equipment.
- ☐ Before servicing, turn off all power and assure power "lockout" to avoid possible electric shock.
- ☐ Disconnect external power to the control panel before removing or replacing fuses.

SPECIFICATIONS

Pump	Diaphragm
Inlet	1/2" FPT, Water Supply
	5/8" Hose Barb, Polymer Supply
Outlet	1/2" FPT, Solution Discharge
Water Capacity	100 GPH Primary
Polymer Capacity	1.0 GPH
Pressure Rating	100 PSI
Electrical Supply	120/1/60, 6 Amps
Dimensions	23" H x 10" W x 16" D
Weight	51 lbs.
Motor(s)	(1) 1/6 HP, 120VAC, 3.6 AMPS

INSTALLATION

LOCATION

Select a location that provides:

- Electrical Supply
- Potable Water (Clean)
- Proximity to the Point of Use
- Easy Handling and Storage of Polymer
- Access to Unit
- Protection Against Severe Weather

UNPACKING

Examine package contents for damage. Report any to freight forwarder. Check plastic bag(s) for contents against individual packing list(s).

NOTE: Disregard any moisture; this unit was wet tested.

CONNECTIONS

- Use Teflon tape on threads. Use joint compound (pipe dope) in small amounts, if necessary.
- Do not over-tighten fittings.
- Insure that supply water pressure is less than 100 psi.
- Install water isolation valve with unions.
- Insure that neat polymer feed line has a flooded suction.

NOTE: To enhance performance, reduce the number of piping turns and elevation changes.

OPERATION

GENERAL

This PolyBlend unit will perform the following functions: meter polymer dosage, regulate mixing water, provide uniform dilution and activation, operate on-line continuously, and feed solution to the point of use.

Neat polymer from the metering pump and dilution water controlled by the solenoid valve enter the mixing chamber. Dilution and activation occur, yielding prepared solution ready for use.

Neat polymer dosage rate is adjusted at pump face or at electronic controller (REM-1D, SCR, etc.). Primary dilution (and post dilution) water are controlled by individual flow control valves.

START-UP

- Step 1: Switch pump to external mode at pump face.
- Step 2: Prime polymer pump, using priming kit provided with unit.
- Step 3: Place unit power switch in Off position.
- Step 4: Energize power circuit that feeds unit. Solenoid opens. Allow mixing chamber to fill with water by opening primary dilution water control valve.

NOTE: Do not turn mixer motor on until chamber is filled with water, running dry will damage mechanical seal.

- Step 5: Place unit power switch in On position. Mixing chamber motor starts.
- Step 6: Access REM-1D controller to turn pump On/Off and for polymer output adjustment. Output can also be adjusted at pump face by varying the stroke length.

NOTE: For optimum pump performance, keep stroke frequency as high as possible. This is done by decreasing the stroke length setting. More stroke repetition with a shorter length is better than fewer strokes with a long

stroke length. If stroke length is too short, pump prime may be affected.

- Step 7: Adjust water flow at mixing chamber by turning control valve. (The other control valve should be turned for post-dilution adjustment, if applicable.)

NOTE: Do not run polymer pump unless water flow is established. Polymer alone can plug discharge plumbing.

WATER PRESSURE

This unit is equipped with a differential pressure switch. It has been factory set. See Appendix for details.

SOLUTION OUTPUT

Unit output is determined by setting pump stroke length and stroke frequency together with setting dilution water flow. Establish desired solution volume and solution concentration, then proceed.

EXAMPLE: 100 GPH (380 LPH) of .5% polymer solution desired. A 2 GPH (7.6 LPH) diaphragm pump is used.

— Determine neat polymer requirement.

$$(100 \text{ GPH}) \times (.005) = 0.5 \text{ GPH neat polymer}$$
$$(380 \text{ LPH}) \times (.005) = 1.9 \text{ LPH neat polymer}$$

— Determine pump usage.

$$(0.5 \text{ GPH}) \div (2 \text{ GPH}) = 25\% \text{ pump capacity}$$
$$(1.9 \text{ LPH}) \div (7.6 \text{ LPH}) = 25\% \text{ pump capacity}$$

— Set Controls

A 2 GPH (7.6 LPH) pump @ 100% stroke length and 25 strokes per minute will deliver 0.5 GPH (1.9 LPH). However, 2 GPH (7.6 LPH) pump @ 50% stroke length and 50 strokes per minute will also deliver 0.5 GPH (1.9 LPH) with a more homogeneous mix.

NOTE: Do not exceed polymer concentrations of 1% in the PolyBlend.

MAINTENANCE

SHUTDOWNS

If out of service more than one week, flush mixing chamber.

- Turn pump off.
- Place unit power switch in On position to establish water flow for five minutes.

If out of service for more than two weeks, flush pump and mixing chamber.

- Connect pump suction to a container of mineral oil (not water).
- Place unit power switch in On position to establish water flow.
- Turn pump on and run for three minutes.
- Turn pump off.
- Continue water flow for five additional minutes.
- Drain water from chamber and piping to prevent freezing.

RECOMMENDED SPARE PARTS

<u>QTY.</u>	<u>PART #</u>	<u>DESCRIPTION</u>
1	K2341001	Kit includes parts below:
1	SP-86PB	Pump Liquid End
1	7802910	Chamber Mechanical Seal
1	1450318	Belt, Chamber
1	1414001	Bearing, Chamber Base
1	1410002	Bearing, Chamber Top
1	26050-1	Pump Head

PUMP REPLACEMENT

<u>QTY.</u>	<u>PART #</u>	<u>DESCRIPTION</u>
1	AP51-86PB	Pump

MAINTENANCE

1. Clean ancillary water and/or polymer strainers weekly.
2. Flush system monthly following one week procedure.

3. Refer to the appendix for specific information on drawings, part identification, and components.

WARRANTY

USFilter-Stranco warrants equipment of its manufacture and bearing its trademark to be free of defects in workmanship and materials. USFilter-Stranco will at its option repair or replace at no charge any part or product of its manufacture which is returned to factory freight prepaid and found to be defective under warranty. In addition, each USFilter-Stranco product is covered by a 30 day 100% buy back guarantee of customer satisfaction. If customer is dissatisfied with the USFilter-Stranco product performance for any reason, he can return it to USFilter-Stranco for a full refund of the sale price of the product from USFilter-Stranco. The equipment must have received normal use and care and USFilter-Stranco must be notified before the 30 days are up.

Warranty Term and Duration - The warranty begins with the date of shipment. However, if the product has received start-up by an authorized USFilter-Stranco technician and USFilter-Stranco's start-up report form has been filed with USFilter-Stranco within 30 days of start-up, the warranty begins with the date of start-up. Start-up must take place within 12 months of delivery.

For products labeled PolyBlend, the warranty period is 12 months. Further, all damage to a PolyBlend system from particulates in the makeup water is excluded from warranty and is the sole responsibility of the customer.

USFilter-Stranco disclaims all liability for damage during transportation, for consequential damage of whatever nature, for damage due to handling, installation, or improper operation, or damage from other causes beyond USFilter-Stranco's control. Standard units not in outdoor configurations are not warranted in outdoor applications. USFilter-Stranco makes no warranties either expressed or implied other than these stated. No representative has authority to change or modify this warranty in any respect. However, representatives are free to offer service contracts and preventive maintenance agreements on their own, acting independently of USFilter-Stranco.

Differential Pressure Switch

Location of Differential Pressure Switch

The high pressure port connects to the inlet manifold between the solenoid valve and the rotameter/rate-adjusting valve. The low pressure port connects to the discharge side of the rotameter.

Function of Differential Pressure Switch

The differential pressure switch ensures sufficient water flow is present before the polymer pump is energized. This integral, automatic safety feature eliminates the problem of overfeeding neat polymer to an application without proper dilution.

In operation, the rate valve is adjusted to produce the desired flow through the system. This causes a pressure drop to occur across the valve which is applied to the differential pressure switch.

If supply pressure decreases enough to affect flow rate or if back pressure between the PolyBlend and the point of solution application increases enough to affect flow rate, the differential pressure across the rotameter and valve decreases. This causes power to be interrupted to the polymer pump and prevents damage to the mixing system caused by extremely high viscosity developing in the mixing chamber.

<p>NOTICE: If system pressure or flow are <u>not adequate</u>, investigate the cause of lack of flow. (For example, inadequately sized piping can produce inadequate flow.) To avoid undesirable water dilution conditions and damage to equipment, do not bypass or adjust the differential pressure switch for a lower pressure/flow setting.</p>
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Question: *Why doesn't the polymer pump turn off when I turn the water off using the rotameter?*

The differential pressure switch senses flow on either side of a pressure drop. Because the rotameter is the sensing point, the rotameter closing is the only cause of loss of flow that the differential pressure switch cannot see.

Test the differential switch by turning off the source water or the discharge flow. (See step 5 on the next page.)

Differential Pressure Switch

Adjusting the Differential Pressure Switch

Adjust the PolyBlend differential pressure switch only if pressure and flow to the system **are adequate**.

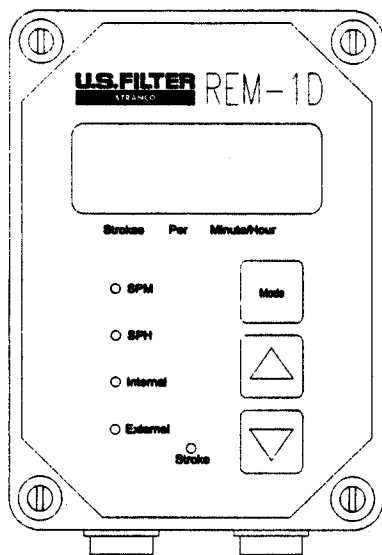
The adjustment logic is the **opposite** of what you might expect. The PolyBlend differential pressure switches have a red light (on the left side) that lights up whenever source water flow is too low and the polymer pump is disabled. The pump stops pumping when the flow is too low. Low flow may be from lack of incoming water or from too much back pressure on the outgoing side.

	Adjustment		System Reaction
1.	Turn the PolyBlend rotameter until water flow is at maximum on the flow gauge.		
2.	Screw in the <i>differential pressure knob</i> until the red alarm light goes on.		Polymer pump is disabled.
3.	Back off the differential pressure knob until the red alarm light goes off.		The pump starts again.
4.	<p>4a.</p> <p>If you want very close control of flow, leave the knob at this setting.</p> <p><i>At this setting, any loss of flow (as observed by the rotameter) results in the pump being disabled.</i></p>	<p>4b.</p> <p>If you want to make the system "more forgiving" prior to shutdown, continue to turn the knob another 1-2 turns.</p> <p><i>The further you turn the knob, the more flow can be lost before the pump is disabled.</i></p>	Step 4 determines how "forgiving" the system is before it shuts down due to inadequate flow.
5.	<p>To test sensitivity and operation, turn off the water at the source <i>or</i> the solution at the discharge.</p> <p>The float in the flow meter will fall more for the control knob setting described in step 4b than for 4a (above).</p>		As the source or discharge is turned off, the float in the flow meter falls and the pump is disabled.
6.	Set the rotameter for the desired flow.		Retest (as in step 5).

ACCESSORIES

DIGITAL DISPLAY

PUMP CONTROLLER



CUSTOMIZING YOUR PUMP INTERFACE

The U.S. Filter/Stranco REM-1D digital display pump controller serves as either a pump remote control station or proportional pump controller (4-20 mA input) or both.

REM-1D can be used to vary the output of any Liquid Metronics Incorporated (LMI) series A7, B7 or C7 metering pump (pump must be in external mode). Simply connect either end of the four conductor cable (4 conductor cable and connectors are standard) to the external input jack of the LMI pump and the other end to the four conductor cable on the bottom of the controller.

Power is supplied by the 15 VDC source from the LMI pump through the four conductor cable.

Controller output in the form of contact closures of 80 ms duration triggers the LMI pump. In the internal mode, output is 0-100 strokes per hour (SPH) or 1-100 strokes per minute (SPM). Up and down pressure sensitive, membrane keys vary the output shown on an LCD digital display.

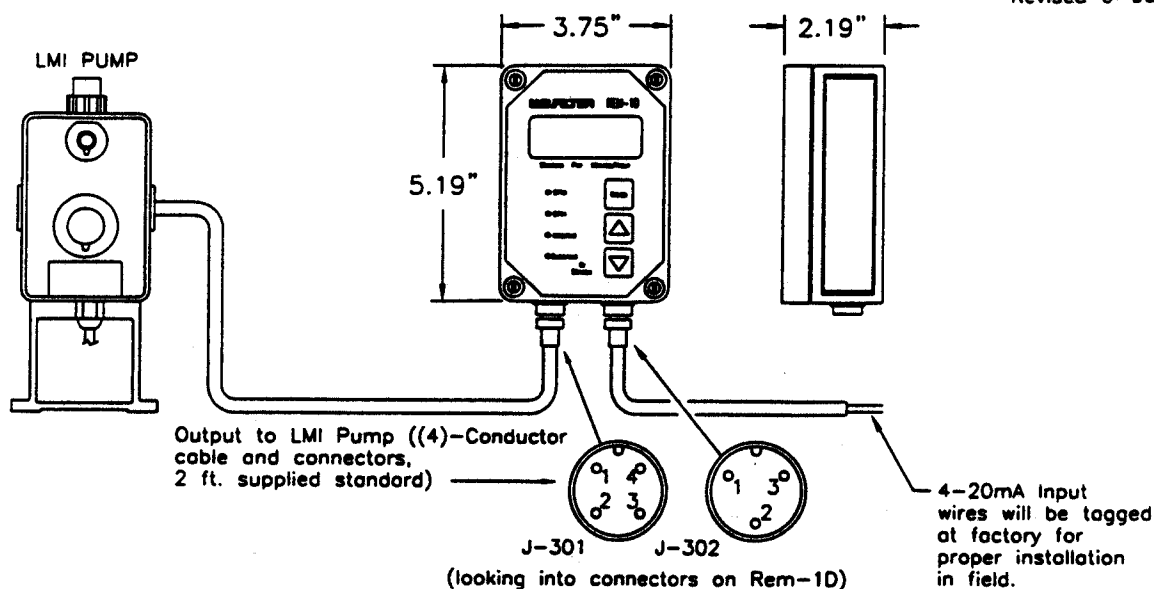
In the external mode, output is from 0-100 SPH or 0-100 SPM directly proportional to the 4-20 mA analog input signal. Ten feet of three conductor cables and connectors are supplied standard for 4-20 mA connection. Controller impedance is 220 ohms. Zero and span adjustments

In the "OFF" position, the 15 VDC power source will be present but the controller output will be zero. The display will read "OFF."

The polycarbonate-plastic, NEMA 4X enclosure may be easily wall-mounted near to or remote to the associated pump. Standard cable/connector sets for connecting pump controller are available from U.S. Filter/Stranco.

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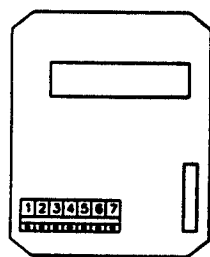
Taking care of the world's water.



STRANCO PART NOS.

RM1974183 CABLE
2723001 3 PIN CONNECTOR
25643 4 PIN CONNECTOR

NOTE : J-301 PIN NUMBERS CORRESPOND TO IDENTICAL PIN NUMBERS ON LMI PUMP REMOTE SIGNAL INPUT CONNECTORS.



CONNECTIONS INSIDE REM-1

T #2 WHITE
T #4 BLACK
T #3 GREEN
T #1 RED
T #6 BLACK
T #7 GREEN
T #5 RED

J-301, J-302 CONNECTORS

J-301, Pin #1
J-301, Pin #3
J-301, Pin #2
J-301, Pin #4
J-302, Pin #2
J-302, Pin #1
J-302, Pin #3

CABLE CONNECTIONS

RED Future Use
WHITE Power - (Common)
GREEN Pump Trigger (+15VDC)
BLACK Power + (+15VDC)
BLACK Signal Common
WHITE Shield ** (Mech. Ground)
RED 4-20 mA Signal

4-Pin Connector J-301
3-Pin Connector J-302
"External" Control
4-20mADC
220Ω Input Impedance

ZERO AND SPAN ADJUSTMENTS

Press Mode Key to enter External Mode.

1. To Calibrate 4mA Point
 - A. Input 4mA into REM-1D
 - B. Press and Hold Down Arrow Key
 - C. Press Mode Key (still pressing Down Arrow Key).
2. To Calibrate 20mA Point
 - A. Input 20mA into REM-1D
 - B. Press and Hold Up Arrow Key
 - C. Press Mode Key (still pressing Up Arrow Key).

3. To Set Display/Output Ranges

- A. Press Mode Key to enter External Mode.
- B. Press all 3 keys Simultaneously and Release. "SPM" and "SPH" LED'S will light up.
- C. Use UP/DOWN Arrow keys to set Max. Display Range.
- D. Press Mode Key to accept and then "INTERNAL" and "EXTERNAL" LED'S will light up.
- E. Use UP/DOWN Arrow keys to set Min. Display Range.
- F. Press Mode Key to accept and Return to NORMAL OPERATION.

* NOTE: GASKET KIT P/N K7809901 AVAILABLE FOR PANEL MOUNTING.

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DIAPHRAGM PUMP INFORMATION

WARNING: ALWAYS wear protective clothing, face shield, safety glasses and gloves when working near or performing any maintenance or replacement on your pump. See MSDS Sheet from polymer supplier for additional precautions.

OUTPUT ADJUSTMENT CONTROLS

In most external controlled pumps the uppermost knob serves as speed control. Graduations for the Speed Knob appear directly on the face of the control panel. The largest knob below is Stroke Control.

1. Speed Adjustment: Speed control provides adjustment of the percent of maximum strokes per minute. Turning this clockwise increases stroke frequency. **Note A7 Series Only:** When operating pump in external mode, the speed control knob should be fully turned counter clockwise. A click indicates pump is in external mode.

2. Stroke Adjustment; Stroke control provides adjustment of percent of maximum Liquifram® (diaphragm) travel. Turning this knob clockwise increases percent output per stroke. Only adjust while pump is running.

PRIMING THE PUMP

Hold tip of syringe firmly in fitting with one hand while using the other hand to pull back on plunger. Repeat until a small amount of polymer is drawn into the syringe. The pump is now primed.

PUMP CALIBRATION

Perform calibration if your system application requires it. Normally, calibration is NOT required.

You will need:

- A watch
- A calculator
- Calibrated cylinder (with at least 1000 ml capacity).
- Length of hose or tubing (same I.D. as pump ports).

1. Maintain all usual connections to the PolyBlend unit except disconnect the polymer suction line at pump input. The flow meter and pump settings should be those used for normal service.

2. Connect hose or tubing to the pump input. Place the free end of the tubing in the graduated cylinder.

3. Fill the cylinder with polymer to its measured capacity (for example, 1000 ml etc.).

4. Turn on the metering pump. Allow the pump to run until all air has been exhausted from the tubing and pump and polymer is injected into the mixing chamber.

5. Stop the pump.

6. Refill the cylinder to the measured capacity.

7. Start the pump again, and start timing as the pump runs. For best results, let the pump run long enough to pump at least half of the polymer out of the graduated cylinder. (In general, the longer the calibration period, the greater the accuracy of the measurement).

8. Stop the pump. Record the time and the level of the polymer remaining in the cylinder. Fill in the following equation to find the volume of polymer pumped per one unit of time (a minute, an hour, or a day).

$$\frac{\text{Starting ml} - \text{Remaining ml}}{\text{Calibration Period}} = \text{ml/TIME}$$

9. Compare the actual volume pumped to the desired volume, and adjust pump controls.

10. Check volume again to confirm the new settings.

PRESSURE CONTROL

(B and C series only)

A capped potentiometer is located on the face plate of the diaphragm pump. This potentiometer is for pressure control or power to the pump solenoid. Since the PolyBlend unit is equipped with a 20 PSI backpressure/check valve, the potentiometer should be set for full power or full clockwise.

NOTE: This is preset at the factory. In a case where obvious over-pumping is present, this potentiometer may be adjusted counter-clockwise.

Liquifram® (Diaphragm) Replacement

When replacing the Liquifram®, valve balls, seal rings and the injection check valve spring should also be replaced.

1. Carefully depressurize, drain and disconnect the pump discharge and suction lines. Place the suction tubing into a container of mineral oil. Turn the pump on to flush the head assembly. Once the pump head has been flushed, lift the suction tubing out of the mineral oil and continue to pump air into the pump head until the pump head is purged.

2. Start the pump. While running, set the stroke knob to zero and turn the pump off.

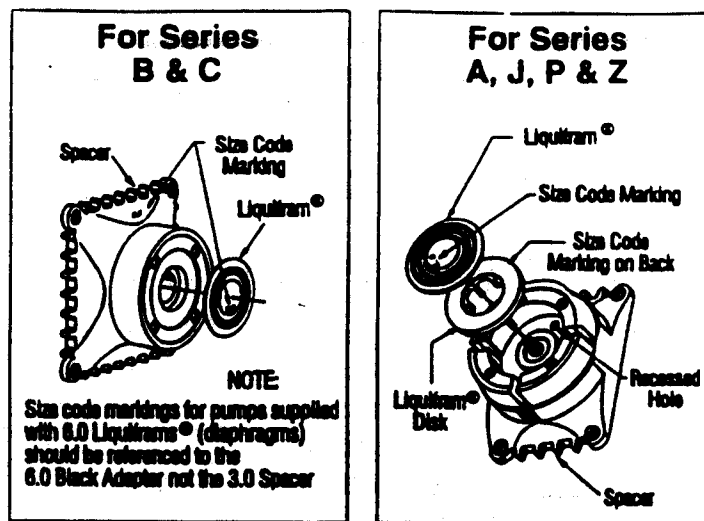
NOTE: See Section on proper zeroing.

3. With the unit off, unscrew the Liquifram® by carefully grasping the outer edge of the Liquifram® and turning it counter clockwise. Discard old Liquifram®. Remove the Liquifram® disk if so equipped (located behind the Liquifram®) and check that the size code matches the size code on the replacement Liquifram® (see illustration).

4. Reinstall the disk so the

alignment pin on the disk (if present) seats in the recessed hole in the EPU:

WARNING: Take care not to scratch the Teflon face of the new Liquifram®.

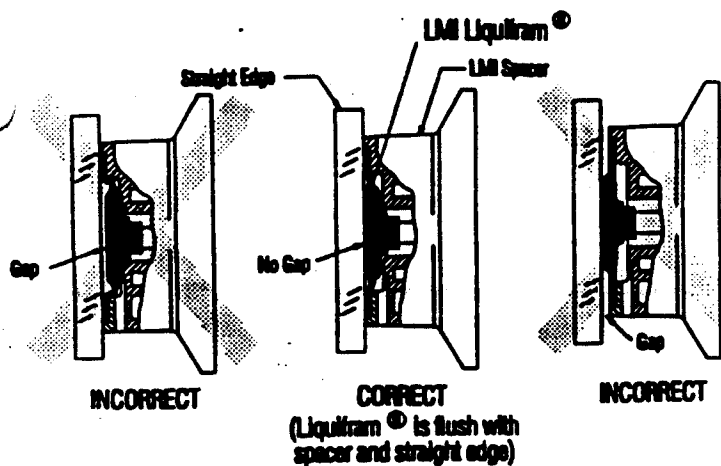


5. Start the pump and turn the stroke knob to the setting indicated on the Stroke Setting Chart which matches the pump model number located on the pump dataplate. With the pump stroking (running), screw on the new Liquifram® clockwise until the center begins to buckle inward. Stop the pump.

Liquifram® Stroke Setting Chart

<u>Pump Series</u>	<u>Stroke Knob Setting</u>
All A, B72, C72	90%
C77	70%

6. Grasp the outer edge of the Liquifram® and adjust by screwing it in or out so that the center of the Liquifram® is flush with the outside of the spacer edge (see illustration).



7. Once the Liquifram® is properly positioned, remount the pump head to the spacer using the four (4) screws. Tighten in a crisscross pattern. After one week of operation, recheck the screws and tighten if necessary.

Seal Ring, Ball and Injection Check Valve Spring Replacement

1. Carefully depressurize, drain and disconnect the discharge and suction lines. Place the suction tubing into a container of mineral oil. Turn the pump on to flush the head assembly. After flushing, lift the suction tubing out of the mineral oil and continue to pump air into the pump head until the pump head is purged. If the liquid cannot be pumped due to Liquifram® rupture, with protective gloves, carefully disconnect the tubing and four screws to remove the head. Immerse the head in mineral oil or other neutralizing solution.

IMPORTANT: Before disassembling valves, note the orientation of seal ring and ball. (See illustration).

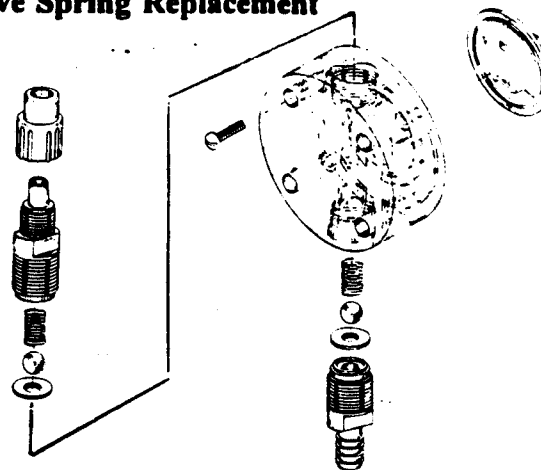
2. Carefully disconnect one tubing connection and fitting at a time and remove the worn seal ring and ball. Carefully loosen sealing by prying side to side using a small screw driver through the center hole of the seal ring.

3. Install new seal ring and ball in each location.

IMPORTANT: Note correct orientation.

4. Install the new spring in the Injection Check Valve.

Seal Ring, Ball and Injection Check Valve Spring Replacement



Order of Installation

Checking Pump for Proper Zeroing (Stroke Knob)

1. With pump running, turn stroke knob counter clockwise toward zero or end of black or red band.

2. LISTEN to the clicking as the pump is running. The pump should operate quietly at the zero position (no clicking).

3. If the pump continues to click at zero or stops clicking before zero is reached, the pump zero must be reset.

Type I - Push on Knob Rezeroing and Stroke Knob Disassembly and Assembly

1. Remove stroke knob from the pump by grasping the knob firmly and pulling it toward you.

2. Pry off the yellow cap.

3. Place the knob on a flat surface.

4. Using needlenose pliers, squeeze the inner section together while lifting the outer section up.

5. Push the inner section back onto the "D" shaped stroke shaft.

6. With the pump running, zero the pump by turning the inner section of the knob counter clockwise until the pump stops clicking.

7. Position the outer section of the knob so that the pointer aligns with zero on the nameplate or end of the black or red band.

8. Push down on the outer section (a snap sound indicates parts are locked together).

9. Replace the yellow cap over the outer section of the knob, aligning the tabs on the cap with the slots inside the knob.

Type II Collet Knob

Rezeroing and Stroke Knob Disassembly and Assembly

1. Remove Yellow Cap.

2. Hold knob with soft jaw pliers.

3. Disconnect knob by loosening 5/16" (8mm) collet nut. There is no need to remove nut.

4. Remove knob by pulling towards you.

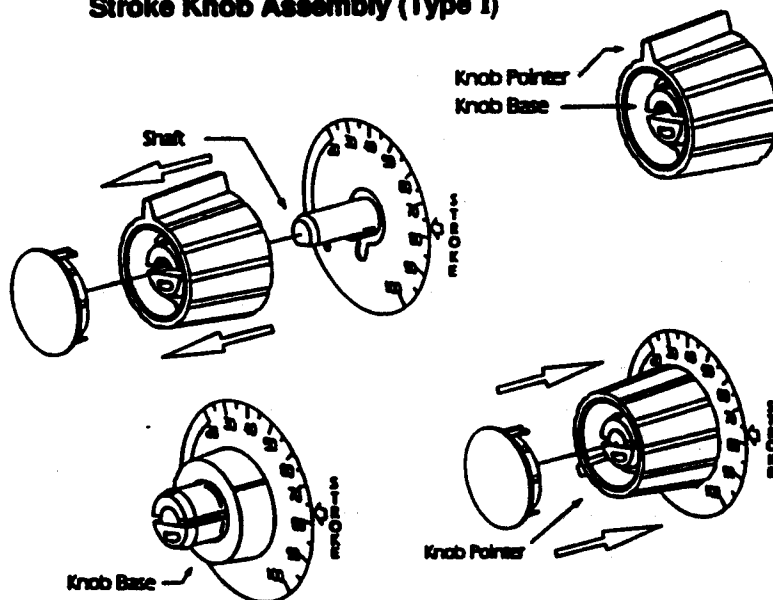
5. With pump running, zero the pump using a screw driver to turn the stroke shaft counter-clockwise until the pump just stops clicking.

6. Pump is now zeroed.

7. Position knob at zero, or the end of the low range band, and tighten 5/16" (8mm) collet nut.

8. Replace yellow cap.

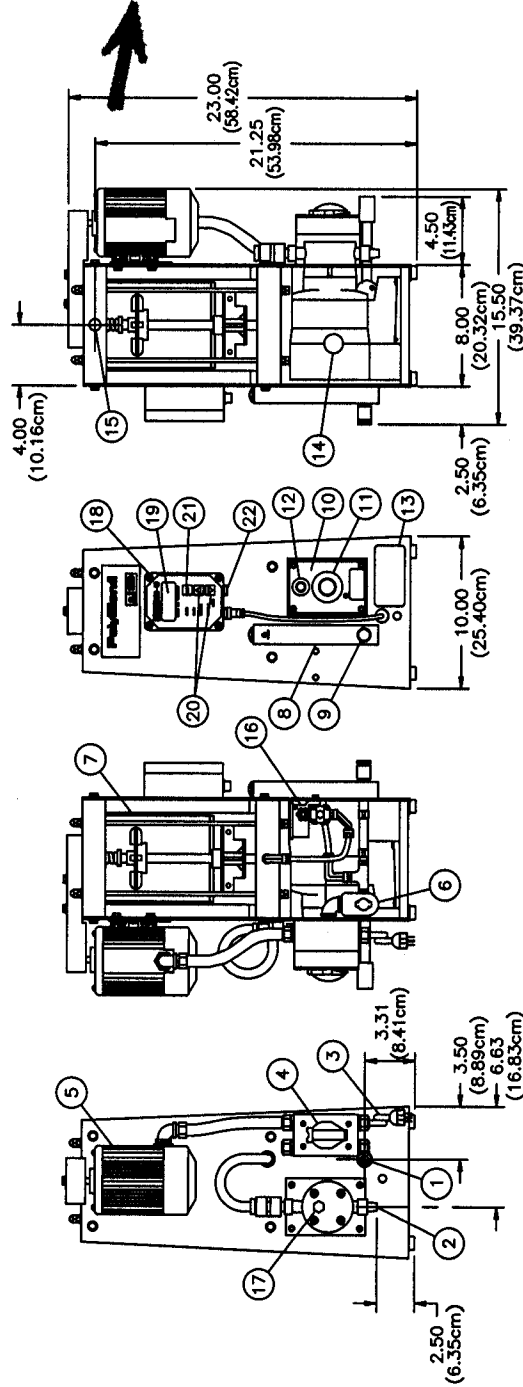
Stroke Knob Assembly (Type II)



DRAWING NUMBER:
PB100

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PB UNIT	PUMP OUTPUT	ROTAMETER RANGE
PB16-0.4	0-0.42GPH	1-16GPH
PB16-1	0-1GPH	1-16GPH
PB16-2	0-2GPH	1-16GPH
PB50-0.4	0-0.42GPH	4-50GPH
PB50-1	0-1GPH	4-50GPH
PB50-2	0-2GPH	4-50GPH
PB100-0.4	0-0.42GPH	10-100GPH
PB100-0.6	0-0.6GPH	10-100GPH
PB100-1	0-1GPH	10-100GPH
PB100-2	0-2GPH	10-100GPH
PB100-1A	0-3.8LPH	38-375LPH
PB100-0.4K	0-1.6LPH	38-375LPH
PB100-1K	0-3.8LPH	38-375LPH
PB100-2K	0-7.6LPH	38-375LPH



KEY	DESCRIPTION
1	WATER INLET, 1/2" (F/NPT)
2	POLYMER INLET, 5/8" O.D. BARB
3	POWER CORD
4	MIXER MOTOR SWITCH w/THERMAL OVERLOAD
5	MIXER MOTOR
6	SOLENOID VALVE, (WATER)
7	MIXING CHAMBER
8	ROTAMETER
9	RATE VALVE
10	DIAPHRAGM PUMP
11	STROKE LENGTH KNOB

12	STROKE RATE/EXTERNAL SELECTOR SWITCH
13	SERIAL PLATE
14	EXTERNAL INPUT SIGNAL CONNECTOR
15	SOLUTION OUTLET, 1/2" (F/NPT)
16	DIFFERENTIAL PRESSURE SWITCH
17	PRIMING PORT, (POLYMER)
18	DIGITAL DISPLAY PUMP CONTROLLER, (REM-ID)
19	LCD DISPLAY
20	INPUT KEYS
21	MODE SELECTOR KEY
22	4-20mA/ADC INPUT

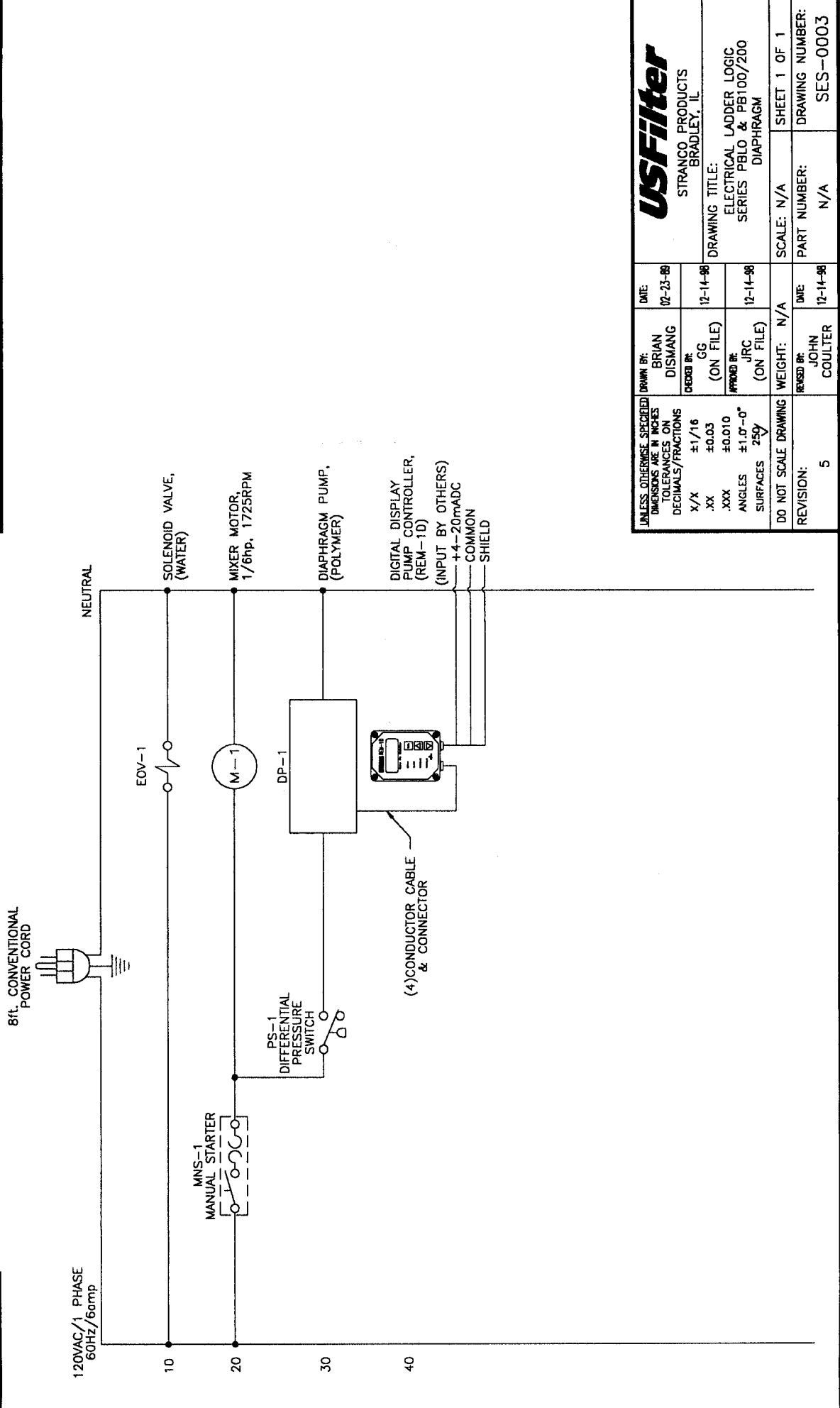
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS/FRACTIONS		DRAWN BY: BRIAN DISMANG	DATE: 01-05-94
X/X	±1/32	CHECKED BY: GG (ON FILE)	11-15-00
.XX	±0.01	APPROVED BY: JRC (ON FILE)	11-15-00
.XXX	±0.003		
ANGLES	±0°-0.5"		
SURFACES	12/19		
DO NOT SCALE DRAWING	WEIGHT: N/A	SCALE: 1/8" = 1"	SHEET 1 OF 1
REVISION: 5	DESIGNED BY: JOHN COULTER	PART NUMBER: PB100	DRAWING NUMBER: PB100

USFilter
STRANCO PRODUCTS
BRADLEY, IL

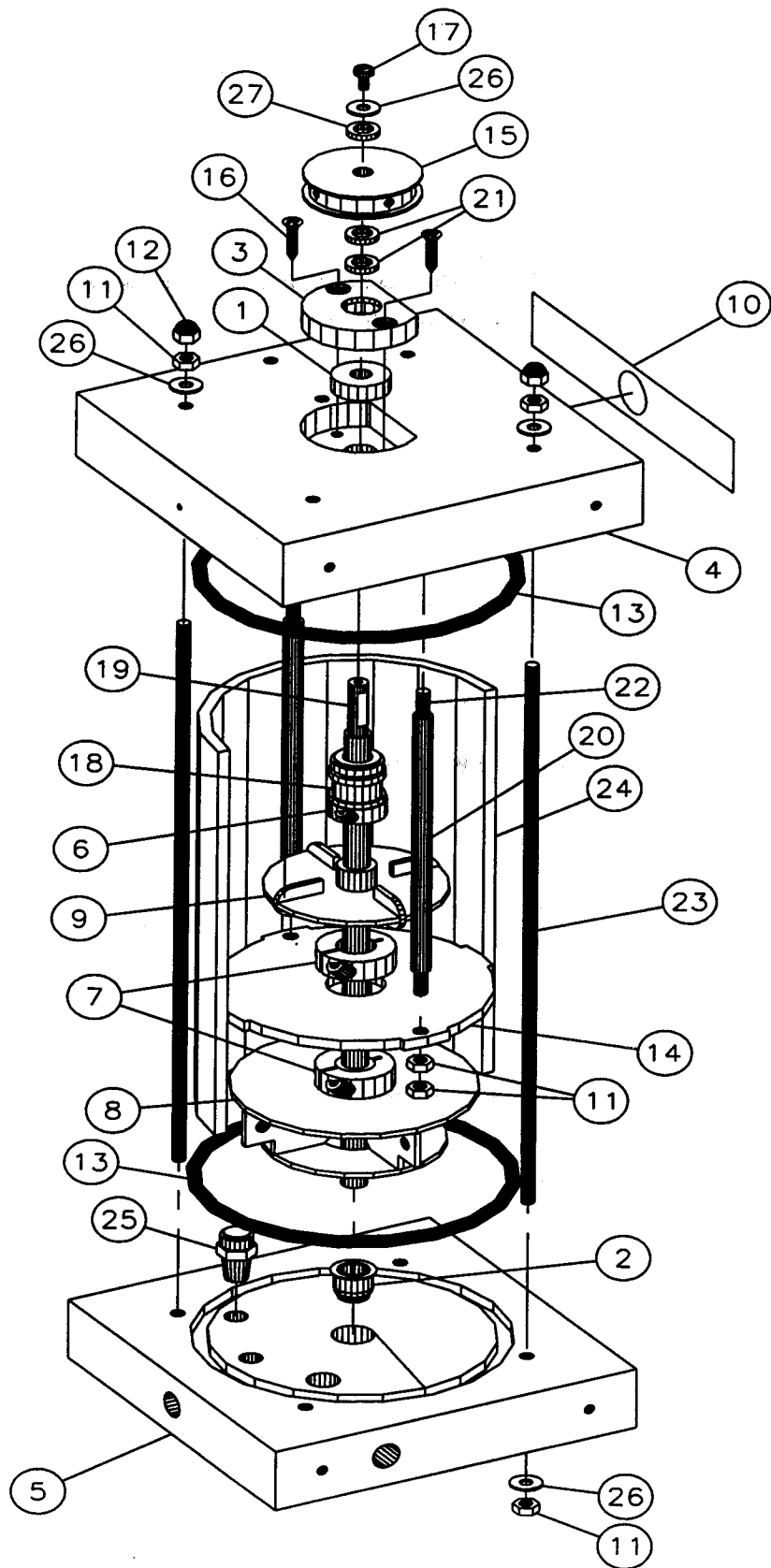
DRAWING TITLE:
GENERAL ARRANGEMENT
PB100
(STANDARD UNIT)

DRAWING NUMBER:
SES-0003

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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS/FRACTIONS X/X ±1/16 .XX ±0.03 .XXX ±0.010 ANGLES ±1.0°-0° SURFACES 25y	DRAWN BY: BRIAN DISMANG	DATE: 02-23-89	USFilter	
			STRANCO PRODUCTS BRADLEY, IL	
			DRAWING TITLE: ELECTRICAL LADDER LOGIC SERIES PBLO & PB100/200 DIAPHRAGM	
DO NOT SCALE DRAWING	WEIGHT: N/A	SCALE: N/A	SHEET 1 OF 1	
REVISION: 5	REVIEWED BY: JOHN COULTER	DATE: 12-14-98	PART NUMBER: N/A	DRAWING NUMBER: SES-0003



MIXING CHAMBER 2340101

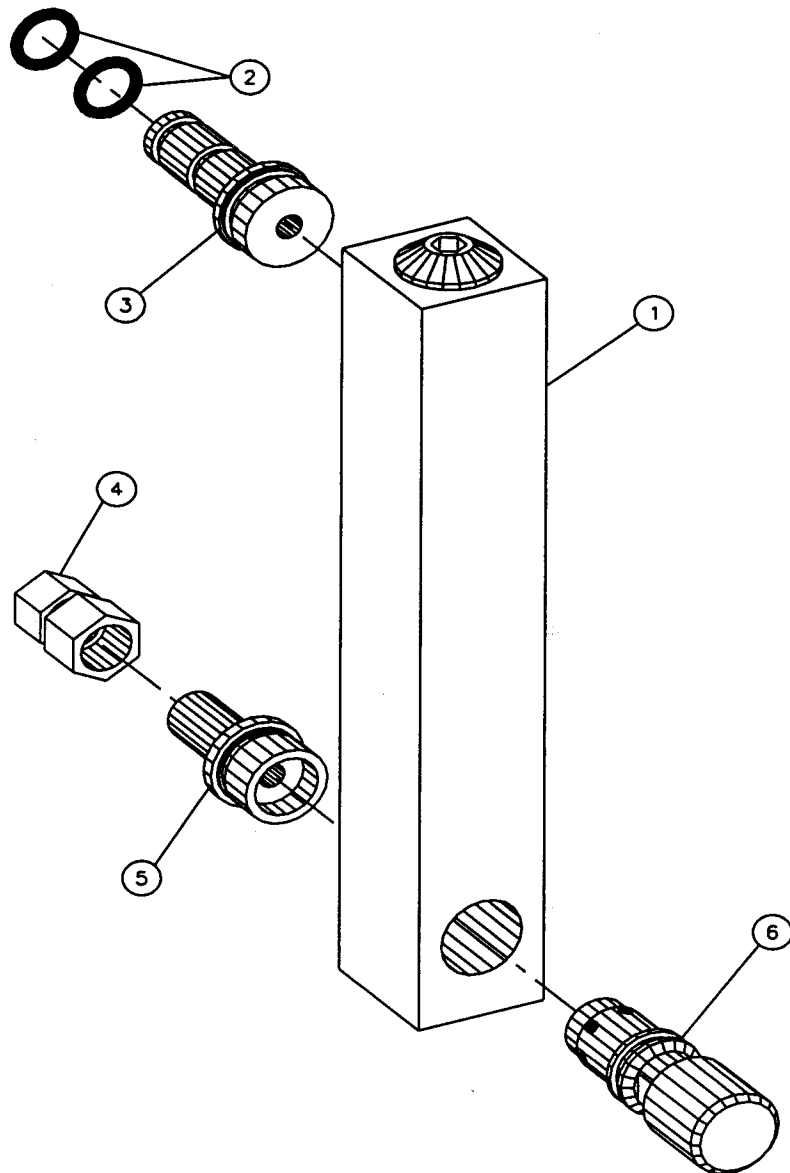
ITEM	PART NO.	DESCRIPTION	QTY.
1	1410002	BEARING	1
2	1414001	BEARING, THRUST	1
3	1419001	BEARING, FLANGE CARRIER	1
4	2124002	CAP, TOP, MIXING CHAMBER	1
5	2124003	CAP, BOTTOM, MIXING CHAMBER	1
6	2650001	COLLAR, 1/2" I.D.	1
7	2650002	COLLAR, 3/4" I.D.	2
8	5173304	IMPELLER	1
9	5173305	IMPELLER, SECONDARY	1
10	5551002	LABEL - DISCHARGE	1
11	6020031	NUT, HEX HD., 1/4"-20	12
12	6023031	NUT, ACORN, 1/4"-20, S.S.	4
13	6091801	O-RING	2
14	6676002	PLATE, BAFFLE	1
15	7071201	PULLEY	1
16	7772216	SCREW, 10-32 X 1"	2
17	7772506	SCREW, 10-32 X 3/8"	1
18	7802910	SEAL, MECHANICAL	1
19	7854303	SHAFT, IMPELLER	1
20*	8140005	SPACER ROD	2
21	8143011	SPACER	2
22	8603002	STUD	2
23	8603004	ROD	4
24	9412606	TUBE, ACRYLIC	1
25	9572304	VALVE, INJ. CHECK	1
26	9740300	WASHER, FLAT, 1/4"	9
27	8143010	SPACER	1

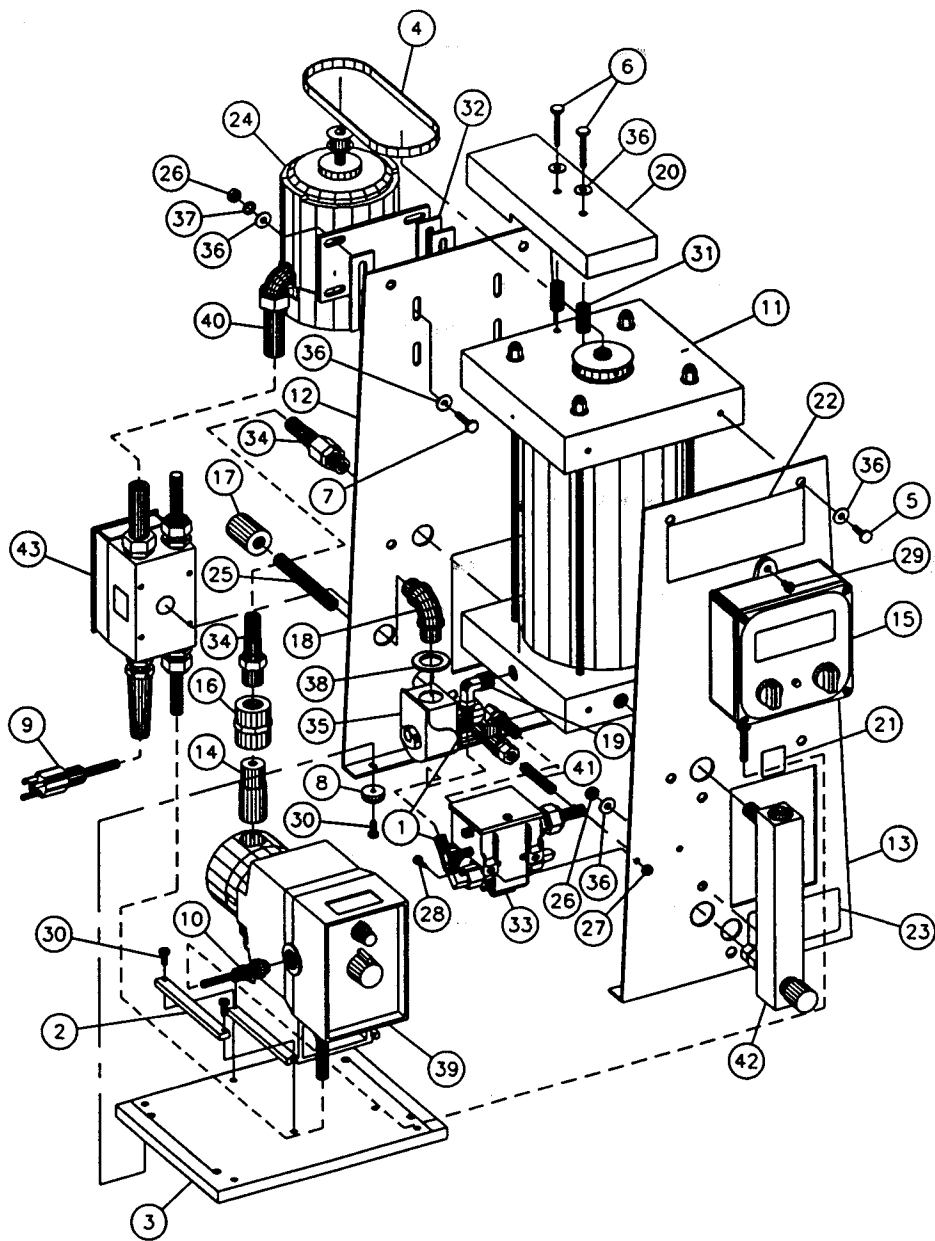
*Factory personnel identify item #20 as part RM6600021, which must be cut to a length of 6-3/4 inches. For replacements, request P/N 8140005 to receive spacer rods which are pre-cut to the appropriate length.

FLOWMETER

ITEM	PART NO.	DESCRIPTION	QTY.	UM
1	4291102	FLOWMETER, KING, 100GPH	1	EA
2	6091301	O-RING, BUNA N	2	EA
3	1040093	ADAPTER, SPUD	1	EA
4	2735634	CONNECTOR, TUBE, 1/4" FPT X 3/8" OD COMP.	1	EA
5	1048401	ADAPTER, FLOWMETER	1	EA
6	9579301	VALVE, KING	1	EA

Flowmeter Assembly - P/N 4301102





OVERALL

ITEM	P/N	DESCRIPTION	QTY	UM
1	10342	TUBING, 3/8" OD X 1/4" ID, POLYETHYLENE	1.00	FT
2	10746	BRACKET, PUMP	2.00	EA
3	1364001	BASE SUB-ASSY. PB100-0	1.00	EA
4	1450318	BELT	1.00	EA
5	1600312	BOLT, HH, 1/4-20 X 3/4 SS	8.00	EA
6	1600324	BOLT, HH, 1/4-20 X 1-1/2 SS (CAP SCREW)	2.00	EA
7	1600366	BOLT, HH, 1/4-20 X 1 SS	4.00	EA
8	1890001	BUMPER, RUBBER	4.00	EA
9	1983001	CABLE, ASSY, 110V, 8FT, GROUNDED, MALE PLG, 16/3	1.00	EA
10	1984005	CABLE ASSY.	1.00	EA
11	*****	CHAMBER ASSY, MIXING SML FRM (SEE SECTION)	1.00	EA
12	2383001	CHASSIS, BACK	1.00	EA
13	2383002	CHASSIS, FRONT	1.00	EA
14	26033	VALVE	1.00	EA
15	2846006	CONTROLLER, REM-1D	1.00	EA
16	2930004	CPLG, PVC, SCH 80 1/2 FPT	1.00	EA
17	2930420	CPLG, RED, SS 1/2 X 1/4 FT X T	1.00	EA
18	3579864	ELBOW, CONDUIT	1.00	EA
19	3581604	ELBOW, 90, BRASS 3/8 OD X 3/8 MPT	1.00	EA
20	4681310	BELT GUARD	1.00	EA
21	5551209	LABEL, WATER FLOW	2.00	EA
22	5551210	LABEL, POLYBLEND	1.00	EA
23	5554000	LABEL, SERIAL PLATE	1.00	EA
24	5902001	MOTOR	1.00	EA
25	5963028	NIPPLE, SS 1/4 X 4"	1.00	EA
26	6020031	NUT, 1/4-20, HEX SS	6.00	EA
27	6020962	NUT, 8-32, HEX	2.00	EA
28	7771558	SCREW, MACH, SS PAN HD, PHIL, 8-32 X 1/2	2.00	EA
29	7772506	SCREW, MACH, 304SS PAN HD, SLTD, 10-32 X 3/8	2.00	EA
30	7772508	SCREW, MACH, 10-32 X 1/2, SLTD PS, SS	8.00	EA
31	8140001	SPACER	2.00	EA
32	8141001	SPACER, MOTOR SHIM	3.00	EA
33	8724903	SWITCH, DIFF. PRESSURE	1.00	EA
34	9414002	TUBE BRAIDED SS, 1/2" MPT X 3/8" MPT X 14" LG*	1.00	EA
35	9571301	VALVE SOLENOID	1.00	EA
36	9740300	WASHER, SS, FLAT 1/4"	9.00	EA
37	9740330	WASHER, SS, INT TOOTH, 1/4"	4.00	EA
38	9748300	WASHER, SS, FLAT 1/8"	1.00	EA
39	*****	PUMP (SEE SECTION)	1.00	EA
40	RM2702060	CONDUIT, SEALTITE 3/8"	1.00	FT
41	RM9414061	TUBE, RIGID 304 SS 3/8" OD X 1/4" ID	1.00	FT
42	*****	FLOWMETER (SEE SECTION)	1.00	EA
43	1672002	BOX JUNCTION SUB-ASSY.	1.00	EA