

OPERATION AND MAINTENANCE MANUAL

PF-63 Series

Separator



PUROFLUX

C O R P O R A T I O N
F I L T R A T I O N A N D C O N T R O L S Y S T E M S

PF-63 SERIES SEPARATOR

Please read this OPERATION AND MAINTENANCE MANUAL thoroughly and understand all safety related issues before attempting any work on the PF-63 series separator.

INTRODUCTION

PUROFLUX is the right choice when it comes to having a more efficient, safe, and effective system. With over 30 years of combined filtration experience, PUROFLUX engineers can find a solution to a wide variety of filtration problems.

Following the guidelines listed in this manual will help to insure the safety of all personnel, which maintain the separator unit and related equipment. If there are any questions on the procedures or performance of the PF-63 series separator contact the local factory representative or call the factory direct at (805) 579-0216. Do Not, operate the separator until all questions about operating procedures are answered by a qualified representative. This manual covers recommended procedures for installation and anchoring, start-up and shut down, and safety and maintenance.

NOTE:

All recommendations are minimums. The environment/operating conditions in which the separator unit is installed will dictate the frequency of scheduled maintenance. Maintaining your PF-63 Series Separator will assure a long trouble free life.

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CHAPTER 1

RECEIVING AND INSTALLATION

Recommended procedures for the receiving of equipment and proper installation of the PF-63 Series permanent media separator.

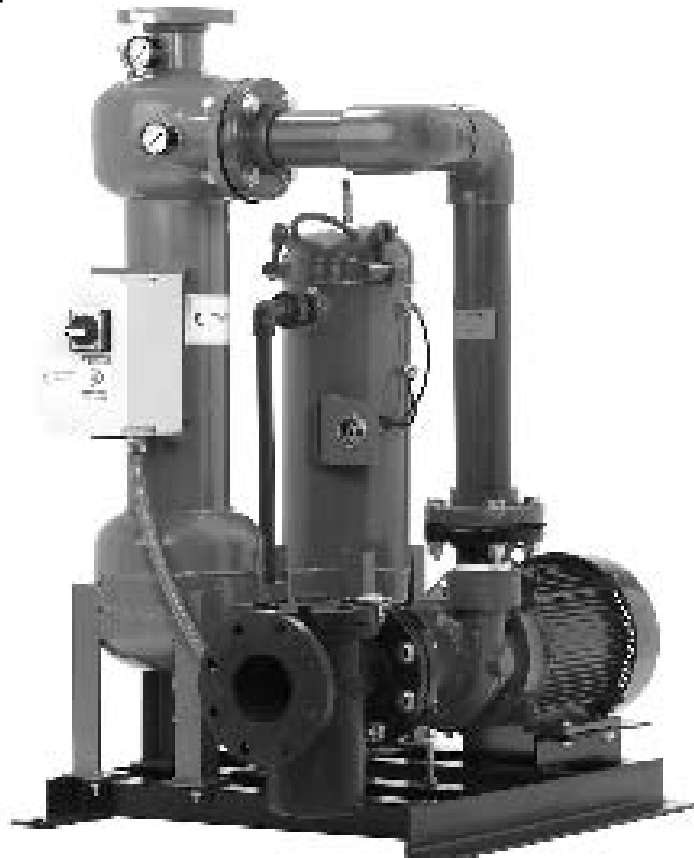
RECEIVING EQUIPMENT

Before accepting the separator equipment and prior to signing the bill of landing, all equipment should be checked thoroughly for any shipping damage. Make sure that all required equipment noted on the bill of landing is received. See Figure #1 and Table I for components to be inspected upon receiving.

Check the model and serial number against the invoice. Serial and model numbers can be found on a nameplate located on the vessel or skid.

Table I – Receiving / Inspection
SEPARATOR (PF-60 SERIES)
RECOVERY UNIT (PF-RV SERIES)
INLET/OUTLET GAUGES
INTERCONNECTING PIPING
ISOLATION VALVES
MANUAL AIR VENT VALVES
MOTOR CONTROLS (4X PANEL)
PUMP & MOTOR
PRE-STRAINER
DIFFERENTIAL PRESSURE INDICATOR

PF-63 Series Separator



DESIGN CRITERIA

The PUROFLUX PF-63 series separator is designed for use in closed circuit or open process liquid applications. Standard equipment design is 150 psi (temperature dependent).

The PF-63 series separator will remove suspended solids with a specific gravity of 1.2 or higher down to 45 micron/325 mesh.

NOTE:

Never, install the PF-63 series separator in an application where the system pressure exceeds the separator package design pressure. See figures #5 and #6 on page 12 for typical installations.

The PF-63 series separator packages utilize a PF-61 series separator in conjunction with a PF-RV series recovery system. Standard units are equipped with inlet and outlet gauges, pump and motor, C.I. pre-strainer, Sch. 80 PVC interconnecting piping, manual air vent valves, coated steel skid, flow controller, isolation valves, and differential pressure indicator for the recovery system.

SUPPORT AND LIFTING

The PF-63 series separators should be lifted only by the skid. If the unit is hoisted, lifting straps must be placed around skid and should not come in contact with the separator package components. The assembly must be fully supported from the bottom of the skid before lifting.

INSTALLATION AND ANCHORING

The PF-63 series separator is designed for use in both full flow and slip stream use on pressurized closed systems or open atmospheric systems.

1. Determine the location and orientation of where the separator is to be installed in the piping system or open sump. A four foot clearance is recommended around the separator for service.
2. Locate the separator as close to the system piping as possible.

Important Note:

Never install the PF-63 series separator in an application where the system pressure exceeds the separator design pressure of the separator package.

3. Verify that the base, wall or pad that will support the separator will accommodate the weight of the separator under operating conditions. See table II for operating weights.
4. The PF-63 separators should be rigidly anchored to the floor or wall (see the specification drawing for location and size of the anchor holes).
5. After the PF-63 series separator is installed in its permanent location, the inlet and outlet gauges (if not previously installed) should be installed on the separator vessel (see figure #1).
6. Before hook-up begins check the inlet (pump & pre-strainer), outlet and recovery system for foreign objects, which may have enter during shipment.
7. Always use appropriate hardware to match the separator connections.

NOTE:

Mating flange bolts, gaskets and other miscellaneous fittings are not included with the separator.

8. The inlet connection of the separator is located on the side of the vessel and is pre-plumbed from the pump discharge. The outlet is located at the top of the separator vessel. The purge connection is located at the bottom of the vessel and is pre-plumbed to the inlet of the recovery system. Flow to the separator must enter at the inlet connection and exit at the outlet connection.

TABLE II - WEIGHT & VOLUME			
MODEL PF-63	DRY (LBS.)	OPER. (LBS.)	VOL.(GALS)
63-012	288	356	8
63-015	290	358	8
63-020	365	475	13
63-025	403	515	14
63-030	452	572	15
63-040A	635	852	26
63-040B	755	983	26
63-050	1080	1560	36
63-060A	1495	1935	53
63-060B	1615	2055	53

SEPARATOR REQUIREMENTS

1. Puroflux separators are designed to operate within a specified range; 3 to 11 psi pressure drop across the separator is recommended. It may be necessary to install a flow control or throttling valve downstream of the separator in order to achieve the proper flow and pressure drop.

NOTE:

Operating outside the specified range of the separator can cause reduced efficiency and possible damage to the separator or system.

2. The separator package should be installed to merge with the natural flow of the system, never against it. A straight run of 5 to 6 pipe diameters up and down stream of the separator is recommended to reduce turbulence.

3. The PF-63 series separators are equipped with a pump designed to maintain proper flows through the separator system. Standard units are equipped with a pump to match the required separator system flow (gpm) @ 60 feet of head. Some installations may require that a throttling valve be installed in the outlet line to regulate the flow or the pump be altered (lower/higher discharge head) to maintain proper flows.

4. The minimum inlet pressure should be at least equal to the pressure loss anticipated through the PF-63 series separator plus the systems down stream pressure requirements.

5. The recovery system is pre-plumbed from the separator purge (waste) to the "INLET" of the recovery system. The "OUTLET" of the recovery system is plumbed back to the suction side of the pump (see figure #1).

SYSTEM PIPING OVERVIEW

1. Pipe sizes must be large enough to maintain proper flow. It is important to understand that the selection of a separator is based on the flow rate through the separator (approx. 10 ft/sec.) and not the separator pipe size (connections). If necessary reduce pipe runs at the separator connections to maintain proper fluid velocity. Always follow good piping practices when running piping. The separator connections may be smaller than the actual piping between the separator and system. Upon request Puroflux can provide a typical installation drawing.

2. PVC, copper, steel or galvanized pipe are all acceptable, and may be used when installing the separator. The choice of piping materials will depend on the design criteria and conditions of each installation.

SEPARATOR UNIT PIPING:

Piping should be installed for PF-63 series separators on pressurized system or slip stream applications as follows:

1. Table III. shows PF-63 series separator piping connections and sizes.

NOTE:

Do Not reduce the pipe sizes listed, the pipe sizes are minimums. If long runs, excessive fittings or lifts are necessary, enlarge the pipe diameter in order to reduce friction loss.

2a. Closed circuit or pressurized system) Run an influent line from the pressure side of the system piping to the pump inlet connection labeled "INLET"..

NOTE:

The influent line should be piped from the discharge side of the process system pump. A service valve and flange/union should be installed in this line near the separator. For application on pressurized systems where the system pump is utilized, the separator package pump may not be required or should be sized to meet the dynamics of the system.

2b. (Open system or sump) Run an influent line from the deep or depressed portion of an open sump to the pump inlet connection labeled "INLET".

NOTE:

If the separator package or the piping run is above the water level a check or foot valve maybe required to maintain prime. A service valve and flange/union should be installed in this line near the separator.

3a. (Closed circuit or pressurized system) Run an effluent line from the separator return labeled "OUTLET" back to the system piping (low pressure side).

NOTE:

The effluent line should be piped to the suction side of the process system pump. A flow control or throttling device is recommended in the effluent line (separator return) to regulate flow through the separator. A service valve and flange/union should be installed in this line near the separator.

3b. (Open system or sump) Run an effluent line from the separator return labeled "OUTLET" back to the system sump on the opposing side of the suction (influent) line.

NOTE:

If the system dynamics dictate a lower or higher discharge pressure, the pump & motor may require a change to match the actual system dynamics. A flow control or throttling device could also be installed in the effluent line to regulate flow through the separator. A service valve and flange/union should be installed in this line near the separator.

NOTE:

It is important that all piping and components associated with the filter system installation must be supported to eliminate stress on the filter and piping.

Always follow local, county, state or other government authority's requirements for piping hook-ups.

TABLE III - SIZE & CONNECTION

MODEL PF-63	INLET(INCHES)	OUTLET (INCHES)
63-012	2 (FLNG)	1-1/4 (MPT)
63-015	2 (FLNG)	1-1/2 (MPT)
63-020	2 (FLNG)	2 (MPT)
63-025	3 (FLNG)	2-1/2 (MPT)
63-030	3 (FLNG)	3 (FLNG)
63-040A	4 (FLNG)	4 (FLNG)
63-040B	4 (FLNG)	4 (FLNG)
63-050	6 (FLNG)	5 (FLNG)
63-060A	6 (FLNG)	6 (FLNG)
63-060B	8 (FLNG)	6 (FLNG)

PUMP PRE-STRAINER

The pump pre-strainer is mounted in front of the pump and is utilized to protect the pump from large debris. The pre-strainer contains a corrosion resistant stainless steel basket with 1/8 inch mesh. The pre-strainer basket must be kept clean and free of debris.

NOTE:

Always relieve internal vessel pressure and follow the shut down procedure before attempting any service work. Remove the pre-strainer lid bolts and remove the lid. Remove the basket and clean all debris from inside the basket. Replace the basket and lid, (check gasket alignment) and re-tighten the bolts. Make sure the gasket is in good condition. A cracked or torn cover gasket can cause air leaks and poor performance. Replace if necessary.

PUMP AND MOTOR

For standard units the pump wet end is cast iron bronze fitted. The close coupled pump and motor assembly is bolted together with hex bolts for ease of maintenance or repair. The pump utilizes a standard mechanical seal pressed into the motor bracket, which is bolted directly to the pump volute. The pump shaft slides over the motor shaft and the pump impeller is keyed on to the end of the motor shaft and locked in place with a hex jam nut or cap screw.

The pump design conditions for the PF-63 series separators are the flow rates (GPM) listed in table IV. @ 60 feet of head (TDH). This correlates to approximately 26 psi discharge pressure at design flow. Motor horsepowers are also listed.

WARNING:

Always disconnect and lock out all electrical power to the separator package prior to performing pump maintenance.

TABLE IV - MOTOR HORSEPOWERS			
FLOW RATE @ 60 TDH			
MODEL PF-63	MOTOR(HP)	SYSTEM (GPM)	PURGE (GPM)
63-012	1-1/2	40	10
63-015	2	65	10
63-020	3	100	10
63-025	5	150	10
63-030	5	200	10
63-040A	7-1/2	280	15
63-040B	10	400	15
63-050	15	550	15
63-060A	20	880	20
63-060B	25	1200	20

ELECTRICAL CONTROLS

Standard separator packages are equipped with a NEMA type 4X control cabinet containing a door disconnect switch with thermal overload and short circuit protection.

IMPORTANT NOTE:

Standard voltage is 460v/3Ø/60 hz, 230v/3Ø/60 hz, 208v/3Ø/60 hz. All other voltages are optional.

WIRING REQUIREMENTS

1. Install circuit breaker between the closest branch distribution panel and the control panel.
2. See table IV. and V. for amp draws and pump horsepower. The control box is pre-wired and includes a door disconnect switch with overload and short circuit protection. Reference Figure #4.
3. Optional: Hand-Off-Auto Switch (HOA) may be supplied. The HOA switch is used to control the pump motor. In the "Hand" mode the pump will start locally only. In the "Auto" mode the pump motor will be started from a remote location.

NOTE:

The signal from the remote location is a dry contact. In the "Off" position the pump is off however, there is voltage at the control panel.

NOTE:

Always follow local, county, state or other government authority's requirements for electrical hook-up.

TABLE V - HORSEPOWER / AMPERES		
MOTOR HP	MOTOR VOLTAGE	AMPERAGE 3 PHASE
1	208, 240, 460	5, 4, 2
2	208, 240, 460	8, 7, 4
3	208, 240, 460	11, 10, 5
5	208, 240, 460	17, 16, 8
7 1/2	208, 240, 460	25, 22, 11
10	208, 240, 460	32, 28, 14
15	208, 240, 460	48, 42, 21
20	208, 240, 460	62, 54, 27
25	208, 240, 460	78, 68, 34

Chapter 2

OPERATION AND MAINTENANCE

Recommended procedures for, the proper operation and general maintenance of the PF-63 Series separator.

Please read this entire OPERATION and MAINTENANCE MANUAL thoroughly and understand all safety related issues before attempting any work on the PF-63 series separator.

THEORY OF OPERATION

The Puroflux PF-63 series separator utilizes high centrifugal forces to separate solids from liquids. The suspended particulate is simply dropped from the carrying fluid where it is collected for discard. The PF-63 separators do not require a backwashing and will not interrupt throughput when purging. Because no backwash is required large amounts of system fluids will not be wasted. The 60 series separator collects and concentrates particulate as it falls from the process fluid into the accumulation chamber. Because the separator and the accumulation chamber are at equal pressures, there is no need for any additional pressure to induce purging.

Influent is feed via the system pressure or external booster pump tangentially into the separator acceptance chamber. The influent is spun in a downward motion pushing the suspended particulate to the walls of the separator vessel by centrifugal forces. Suspended solids are forced downward into the collection chamber for purge. The clean liquid then reverses direction moving upward entering the vortex finder where it is then returned back to the process system.

Purging the accumulation chamber is done without excess waste of system fluid while the separator package remains "on-line". The purge is set at a constant flow to the recovery system. The purged waste is concentrated in the recovery system while the clean fluid is drawn back into the system flow.

RECOVERY SYSTEM

The purged waste from the separator enters the inlet of recovery system and is distributed over the bag(s) evenly. Suspended solids are trapped by the bag. The effluent (filtered) then passes from the recovery system through the outlet and returned back to the separator system inlet. The trapped particles cause the differential pressure across the bag(s) to rise. When the pressure differential reaches a maximum of 25 psid the bag(s) will require a change out. The bag(s) can be removed following the procedure outlined in the section Bag Change.

GENERAL MAINTENANCE PROCEDURES

Always follow the start-up and shut down procedures before and after any service or maintenance is done on the separator unit. The PF-63 series separators are designed for low maintenance and minimal service. With proper care the PF-63 series separators will give trouble free service. The following is a list of maintenance check points and schedules.

1. Visually inspect separator package every 48 hours (min.) for proper operation. Check for unusual noise or vibration.
2. Read pressure gauges (gauge reading should not exceed design pressure).
3. Clean pump pre-strainer (check as often as environment dictates).
4. Check the gasket condition each time the pre-strainer is serviced.
5. Check voltage and amperage draw on motor.
6. Read differential pressure indicator (indicator reading should not exceed 29 psid).
7. Replace or clean bag(s) @ 25 psid (recommended). Refer to Bag Change section.
8. Inspect recovery system internal assembly each bag change.
9. Clean or replace bag(s) before blind-off occurs (check as often as environment dictates).
10. Lubricate the O-ring on retainer basket and cover each time the recovery system is serviced.

WARNING:

Close and lock out all isolation valves to the separator package prior to performing maintenance.

START-UP PROCEDURE

Before initial start-up or after a shutdown period, the filter unit should be thoroughly inspected.

Important Note

Perform the first two recommendations with the electric power off and locked out. Refer to the Fluid Treatment section regarding the safeguarding of maintenance personnel from biological contaminants prior to start-up.

1. Check the pump pre-strainer by removing the lid, inspect the cover gasket for wear, then, replace it if necessary. Clean debris from the pre-strainer basket. Prime the pump if necessary and replace the basket, lid and fasteners.

NOTE: All electrical power to the separator package must be locked out.

2. Turn the pump and motor shaft by hand to ensure free rotation.

NOTE: All electrical power to the separator unit must be locked out bolts.

3. Check the recovery system by loosening the bolts holding the "T-bolt" lid. Inspect the cover o-ring for cracks or wear, replace it if necessary. Refer to Bag Change section.

4. Clean any debris from the bag(s) or support basket. Inspect the bag(s) for wear or debris. Change if necessary.

5. Inspect the basket o-ring and retaining basket and bag(s) for proper installation.

6. Lubricate O-rings.

7. Verify that the recovery system cover is properly positioned and locked down secure.

8. Verify that the service valves in the inlet and outlet line are open. Bump the motor and check the arrow on the pump volute for proper rotation. Turn the pump motor off. Do not run the pump for an extended period of time rotating backwards. Have a qualified electrician change leads to correct rotation.

9. Open the manual air relief valves on top of the separator and recovery system. Open the inlet isolation valve to the recovery system only.

NOTE: The outlet isolation valve on the recovery system should remain closed. Start the pump and fill the separator and recovery system. Once a steady stream of water is coming out and all air has been evacuated the manual air relief valves can be closed. Now slowly open the outlet valve on the recovery system.

10. Check the voltage and current of all leads on the pump motor. The correct amperage draw can be found on the motor nameplate or in table V.
11. Check the separator package for any unusual noise or vibration. Shut separator unit off and contact your local PUROFLUX representative if there are any questions about the operation or performance of the separator unit.
12. Check the separator package and all integral piping to the unit for any air or fluid leaks. All air leaks must be found and repaired. Failure to do so could result in poor performance or personal injury.
13. Check the gauges and pressure differential indicator and record the clean start up differential pressures. Use the starting pressure as a bench mark whenever routine maintenance is preformed.
14. After several hours of run time from start up perform steps 10 through 13 again.

BAG CHANGE

The most important step in changing filter bags is to make sure that the pressure is relieved prior to opening the unit. This can be accomplished by the following steps. NOTE: A bag change can be done while the separator remains in service. However, it is recommended that the separator package be shut down while performing a bag change.

1. Close the outlet isolation valve in the line leading from the recovery system outlet back to the system pump suction.
2. Close the inlet isolation valve leading from the separator purge to recovery system inlet.
3. Open the manual air vent on the top of the recovery system to relieve any internal pressure.
4. If required, open the drain plug. The fluid drained from the recovery system may be returned to the system.
5. Loosen the "T" bolts on the cover so that they are free and can be swung down. Raise cover by lifting up on the handle located on the vessel cover and rotate it back on the hinges. The bag hold down bar is part of the recovery system cover and will rotate back when the cover is opened.

NOTE:

For the RV 3S & 3T series the bag hold down ring is secured in place by a 3/8" nut and washer located in the center of the retaining basket plate. To remove the hold down ring, remove the nut and washer then lift the ring vertically.

For the RV 3S & 3T series raise the cover by turning the handles on the davit clockwise until the cover is clear of the recovery system housing. Swing to either side.

6. Remove dirty filter bag. Lift the bag straight up by the lifting strap.

NOTE:

If the bag is completely blinded off, the bag may not drain and may be heavy.

7. Inspect the retaining basket and O-ring. Remove and clean if necessary. Replace retaining basket with O-ring.

8. If the bag is not worn or in need of replacement, it can be washed. To wash the bag, turn it inside out and flush with a hose. Replace the bag if the differential pressure does not return to the clean start-up differential pressure. Replace by inserting the clean filter bag into the retaining basket (already installed) and form the bag to the contours of the basket by pressing against the retaining basket. The bag support ring must be seated flush on retaining basket.

9. The bag hold down is part of the recovery system cover and will position itself when the cover is placed back into position.

NOTE:

For installation of the bag/basket hold down ring on RV 3S & 3T series, place it over the retaining plate stud located in the center of the retaining basket plate. Secured the hold down ring with the 3/8" nut and washer. Do not over tighten the hold down nut..

10. Inspect the cover and O-ring for foreign matter, and clean all surfaces. Check positioning of the O-ring, which should be properly seated in the recovery system cover.

11. Close cover carefully. Do not drop.

WARNING:

The cover is heavy, be careful not to pinch hands and/or fingers.

12. Re-tighten "T"-bolts evenly and securely.

NOTE:

Always follow the start-up procedures whenever the recovery system has been turned off.

SHUTDOWN

The following services should be performed when the unit is to be **shutdown** for a prolonged time period.

1. Shut off, and lock out all electrical power.
2. Close the service valves in the inlet and outlet lines to and from the separator package.
3. Relieve all pressure from the separator package and piping. Open the manual relief valves located on top of the separator and recovery systems (leave the valves open).
4. Drain all external piping to and from the separator package.
5. Open the drain plugs on the pump pre-strainer housing and the pump volute. Allow all the liquid to drain and then replace the drain plugs.
6. Remove the drain plug located at the bottom of the recovery system. Allow the liquid to drain. After all liquid has drained, replace the drain plug.
7. Remove the lid on the pump pre-strainer and clean debris from the pre-strainer basket. Inspect the gasket, replace if necessary. Replace the basket and lid.
8. Loosen the "T" bolts on the lid of the recovery system so that they are free and can be swung down.
9. Clean or change the bag. Refer to Change Bag section.
10. Inspect the cover and retaining basket O-rings for cracks or wear. Change if necessary.
11. Lubricate O-rings.
12. Reposition and secure the recovery system cover.
13. Close the manual air relief valves located on the top of the separator and recovery system.

CHAPTER 3

SHUTDOWN

The following service should be performed if the separator is **off line** for a prolonged time period. Some items listed are optional components.

1. Run the separator unit through a complete purge cycle.
2. Shut off and lock out all electrical power.
3. Close the service valves in the separator inlet, outlet and purge lines.
4. **Relieve all pressure from the separator vessel and piping.**
Open the manual air relief valve located on top of the vessel and leave the valve open.
5. Drain all external piping.
6. Open the purge valve and allow the vessel to drain fully. Once the separator is empty close the purge valve. Open the drain plug on the pump pre-strainer housing. Allow all the liquid to drain and then replace the drain plug.
7. Remove the lid on the pump pre-strainer and clean debris from the pre-strainer basket. Inspect the O-ring and lubricate the O-ring if necessary. Replace the basket and lid.
8. Close the manual air relief valve located on the top of the vessel

DIFFERENTIAL INDICATOR OPTION

The PF-RV series recovery system can be supplied with an optional remote differential pressure indicator (dry contact). The indicator is supplied in NEMA 4X fiberglass control cabinet, with dry contact alarm and terminal blocks. It can be use with 12 or 24 volts. Do not hook-up any higher voltages. Refer to wiring diagram provided with remote alarm controls.

OPERATION IN COLD WEATHER

When the PF-63 series separator is exposed to below-freezing temperatures, it will require protection to prevent freezing. An indoor installation in a heated room is the best way to preventing freezing of any liquid in the separator package. If an indoor installation is not practical, sufficient insulation or supplemental heat must be supplied. Heat tape and insulation around the liquid filled components must be used to prevent freezing. The separator package should be drained when not in use for long periods of time. See Shutdown Procedure below.

RECOMMENDED SPARE PARTS

PUROFLUX maintains a complete stock of replacement parts. When ordering replacement or stock parts, be sure to include the unit serial and model numbers.

The following spare parts are recommended:

1. Inlet/outlet gauges
2. Pump pre-strainer gasket
3. Pump seal and gasket kit
4. O-ring for recovery system cover
5. O-ring for retainer basket
6. Replacement bags

FLUID TREATMENT

Separation is an effective way of reducing the level of suspended solids in a system. However, it is only one portion of a complete treatment program. Dissolved solids will not be removed from the system by separation. It is important to realize that the dissolved solids will concentrate, and can cause damage to a system. Furthermore airborne impurities and biological contaminants may be introduced into the system.

To control all potential contaminants, a treatment program must be employed by a competent professional. Such treatment should be initiated before the system start-up and continued regularly thereafter.

SAFETY

All electrical, mechanical, and rotating machinery are potential hazards. It is important to be familiar with the design, construction, and operation of all equipment before performing any work. Always use adequate safeguards (including use of protective clothing where necessary or required) whenever installing, operating or working on the equipment.

Care should be taken when working on, near, or around this equipment. Appropriate safeguards must be established to prevent the personnel and/or public from injury and to prevent damage to the equipment, affiliated system and premises.

It is important to be thoroughly familiar with the equipment, associated system, controls, and the procedures set forth in this manual. Only qualified personnel should operate, maintain, and repair this equipment. Always follow proper procedures and use the correct tools, when handling, lifting, installing, operating, maintaining, or repairing the equipment. This will aid in the prevention of personal injury and/or property damage.

WARRANTY

PUROFLUX will guarantee all products to be free from manufactured defects in materials and workmanship for a period of 12 months from the date of shipment. In the event of any such defect, PUROFLUX will repair or provide a replacement. **NOTE:** Pump seals are **NOT** covered under standard warranty.

NOTE: Replacement part(s) may be new or remanufactured, at Puroflux's option. All warranty products, which prove to be defective will be shipped F.O.B. Puroflux's plant. Puroflux will not replace, repair or pay for any charges without a written agreement prior to such work.

This warranty is not extended to any defects which can be attributed to having been caused by accident, alteration, abuse, misuse, consumer negligence, normal expected wear, chemical corrosion or outside influences.

To obtain any needed repair(s) or replacement of defective parts or product, a Return Goods Authorization (RGA) number must first be obtained from PUROFLUX. This will be the record for tracking all items returned to PUROFLUX. The RGA form must be returned with the defective items in order to insure proper credit.

Before the replacement part can be sent a purchase order must be issued to cover the cost of each replacement part and shipping. Upon inspection and an issue of credit of the defective items by PUROFLUX and/or PUROFLUX'S vendor(s), credit will be issued.

NOTE: Items deemed defective will be replaced with a new or remanufactured part (at PUROFLUX'S option). This includes both mechanical and electrical components.

NOTE: Shipping and handling, labor, or repair charges are not covered by PUROFLUX'S warranty policy.

NOTE: The return of defective items must be made within thirty (30) days of shipment or the invoice will be considered due and payable.

NOTE: Any damage to the filter unit during shipment must be claimed at the time of accepting the separator (note all damage to the filter unit on the bill of lading before signing). All damages received during shipping are the sole responsibility of the freight company and must be taken care of through the freight company.

TABLE III

**SEPARATOR SPECIFICATION TABLE II.
THREADED SEPARATOR (1/2" THRU 2-1/2")
(Flanged Option Available)**

MODEL	60-005	60-007	60-010	60-012	60-015	60-020	60-025
THREAD SIZE	1/2" (MPT)	3/4" (MPT)	1" (MPT)	1-1/4" (MPT)	1-1/2"(MPT)	2" (MPT)	2-1/2"(MPT)
PURGE SIZE	1/2"(FPT)	3/4"(FPT)	3/4" (FPT)	1"(FPT)	1"(FPT)	1"(FPT)	1"(FPT)
VOLUME(GALLONS)	1	1-1/4	1-1/2	2	2	6-1/2	7
WEIGHTDRY (LBS)	11	14	15	22	23	30	30
WEIGHT OPER (LBS)	19	24	27	39	40	85	89
FLOW RANGE	6-12	12-24	20-40	30-55	45-80	65-120	100-160

TABLE III

FLANGED SEPARATOR (3" THRU 20")

MODEL	60-030	60-040	60-050	60-060	60-080	60-100	60-120	60-140	60-160	60-180	60-200
FLANGE SIZE	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"
PURGE SIZE (FPT)	1" (FPT)	1-1/2" (FPT)	1-1/2" (FPT)	1-1/2" (FPT)	1-1/2" (FPT)	2" (FPT)	2" (FPT)	2" (FPT)	3" (FPT)	3" (FPT)	3" (FPT)
VOLUME (GALLONS)	7-1/2	13	18	30	50	110	160	290	340	510	710
WEIGHT DRY (LBS)	70	140	180	215	340	565	910	1365	1595	2120	2525
WEIGHT OPER (LBS)	133	250	331	467	760	1489	2250	3800	4450	6400	8490
FLOW RANGE	150-280	270-500	400-705	690-1265	1000-1700	1670-3200	2340-4250	3100-5400	4000-7400	5150-9300	6800-12000

(Consult Factory for Larger Units)