

AFP-150 DC



Table of Contents

System Overview.....	1
Control Panel Overview.....	2
Technical Specifications	3
Primary Inspection, Installation, & Electrical Installation	4
Piping Installation	5
Initial Setup.....	6
Digital Timer Instructions: Set Date and Time	7
Digital Timer Instructions: Set Schedule Timer.....	8
Digital Timer Instructions: Set Manual Timer.....	9
Digital Timer: Alarms.....	10
Backflushing Instructions.....	11
Filter Element Replacement	12
Troubleshooting	13

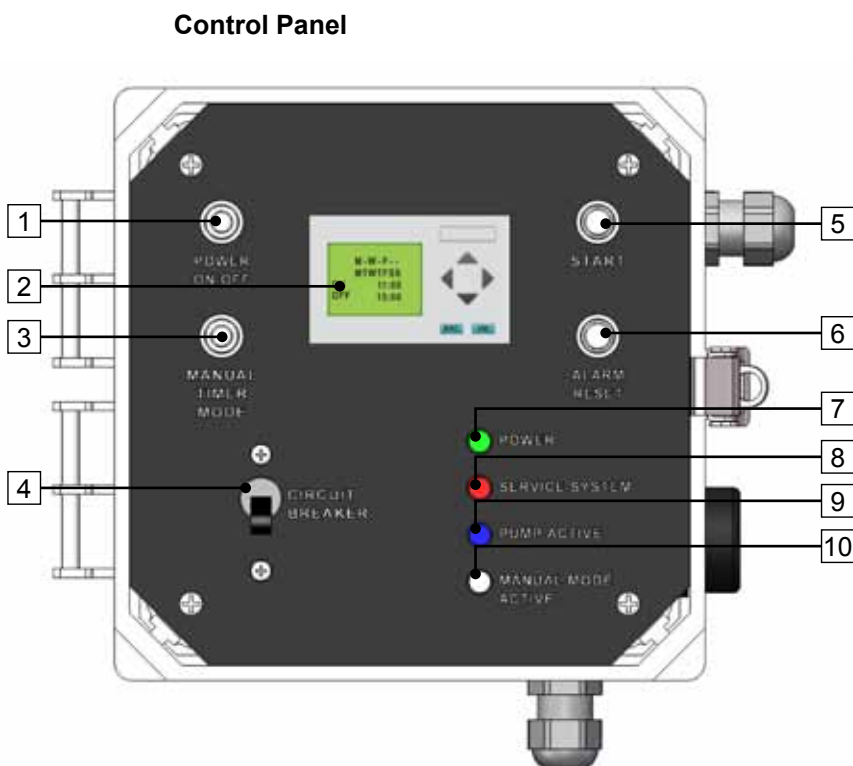
1. Serial number plate
2. Vacuum gauge
3. Fuel/water separator
4. Inlet
5. Water sensors
6. Drain valve - *Push in and turn counter-clockwise to open*
7. Control panel
8. Hinged cover - *covers pump and outlet*
9. Outlet
10. 2 micron filter
11. Spill sensor
12. Drip pan
13. Pump

Wall Mount Version



Control Panel

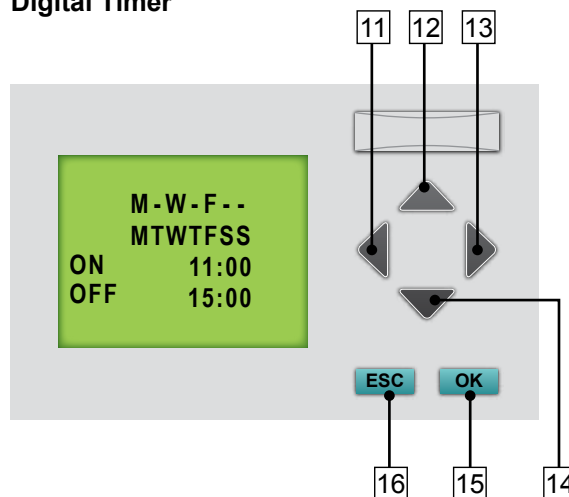
1. Power button
2. Digital timer
3. Manual timer mode button
4. Circuit breaker
5. Start button
6. Alarm reset button
7. Power on light - *indicates when system is on*
8. Service system light - *indicates an alarm has been triggered and user must service the system*
9. Pump active light - *indicates fuel polishing system is running*
10. Manual timer mode active light - *indicates system is operating in manual timer mode (not schedule timer mode)*



Digital Timer

11. Left key
12. Up key
13. Right key
14. Down key
15. OK key
16. Escape key

Digital Timer



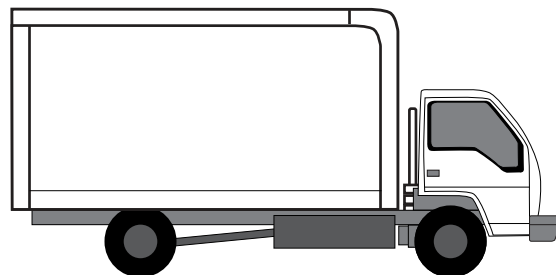
Flow Rate	Approximately 150 GPH (568 LPH)	
Dimensions (H x W x L)	Wall Mount	22.25" x 22.25" x 8.25" (565 mm x 565 mm x 210 mm)
Circuit Breaker	10A@12V, 5A@24V	
Service Space	4" on top and bottom, to facilitate changing filter elements and draining water and particulate from the bowl	
Pump	Brass Gear stainless shaft- double lip seal	
Max. Lift	5 ft. (1.52 m) vertical lift (lines>1/2")	
Timer	Digital PLC	
Inlet	1/2" male JIC flare fitting	
Outlet	1/2" male JIC flare fitting	
Filter Torque Values	Bowl Retainer Ring	8 Nm (105 in-lbs)
	Lid	8 Nm (105 in-lbs)
	Bleed Screw	6 Nm (50 in-lbs)
Additional Options	Enclosure	
	Stand for enclosure	

Warning

- The system has been developed to be used with diesel fuel only, DO NOT USE WITH GASOLINE.
- The system is designed to meet environmental standards for safe operation (NOT for use with fluids that have a flash point below 100°F (38°C), e. g.: Gasoline, alcohol,...)

Primary Inspection

- Upon delivery inspect the AFP (Automated Fuel Polishing) for any damage that may have occurred during shipment.
- Inspect the interior of the unit for mechanical or electrical damage.
- If the unit is damaged upon delivery, contact the shipping company immediately.



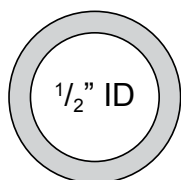
Mounting

- The AFP should be wall mounted on a hard, level surface.
- This unit is designed for well-ventilated indoor use and should be located as close to the tank as possible.
- Unit should not be mounted more than 5' above the tank or farther than 10'. Mounting farther than this will require back flow protection.

Electrical Installation

Warning

- Installation of unit should only be performed by qualified installation personnel who have thoroughly read and understands the installation instructions covered in this manual.
- To avoid the risk of electric shock, make sure that the power supply is disconnected. Ensure that the power supply is at zero volts with a multimeter before making any electrical connections.
- To ensure operator safety the AFP must be connected to properly grounded power sources.
- Make sure that your unit and power supply are configured for the same voltage rating.
- Dry contacts are for external use.
- External control voltage must be supplied by customer.



Use quality approved fuel line materials with at least 1/2" inner diameter line. Smaller plumbing will place excessive load on the motor and shorten its life. A full port ball valve should be installed on the inlet and outlet ports of the AFP (Automated Fuel Polishing).

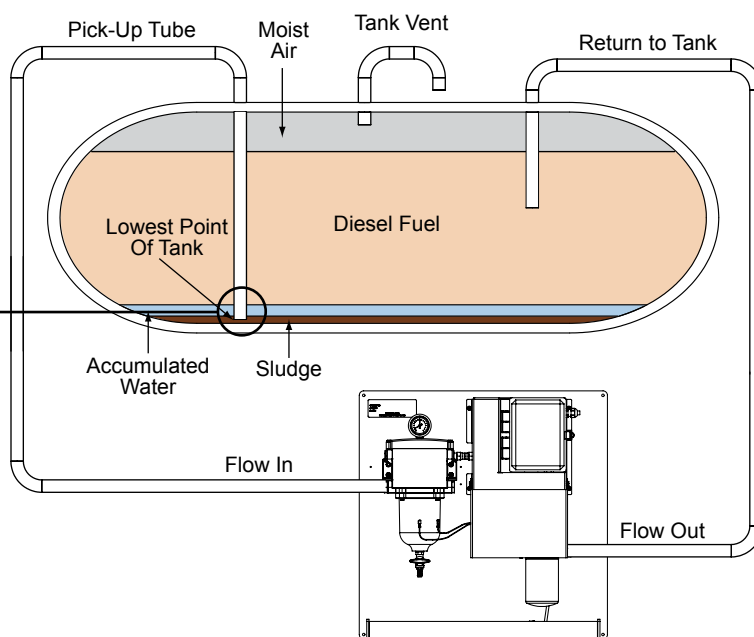
Note: It is recommended to install a foot valve to keep the system primed, especially if the system is located above the lowest possible fuel level in the tank.

If the AFP is mounted below tank top level, a priming tee should be installed on the highest point of the suction line to be able to easily prime the systems delivery line. The return line(s) (discharge) should be connected to the outlet of the pump "OUT" port and enter the tank as far as possible from the pick up tube. For optimal performance, ensure that the outlet, discharge or return, line(s) are free and nothing is restricting their flow.

Installation Precaution

The suction line of the AFP must be independent and separate from the suction line of the engine. Do not integrate into engine fuel system.

The pickup tube/line(s) (suction) should originate from the lowest point of the tank and should be connected directly to the IN port. For optimal performance, ensure that the inlet (suction) line(s) is free and nothing is restricting flow.



1

Open the fuel supply valve.
Prime fuel system and
check for leaks.

2

Set gauge pressure indicator
(red needle) slightly to the
left of the black needle prior
to operation.

The gauge will indicate
maximum vacuum pressure
during system operation.



3

Choose timer mode:

Manual Timer Mode

Operate in this mode if system will run one set time.

- Must press manual timer mode button to activate / deactivate.
- Manual timer mode light will be ON.
- Pump will start upon pressing the start button.
- Pump will automatically shut off after the preset run time.

Schedule Timer Mode

Operate in this mode if system will start/stop
automatically on the programmed days of the
week and times.

- Must press manual timer mode button to activate / deactivate.
- Manual timer mode light will be OFF.
- Pump will automatically start and stop according to the preset date and time.

4

Press start button.
Power on indicator will be lit.

If in manual timer mode, pump will immediately
begin running.

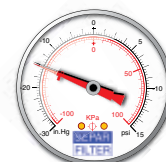
If in schedule timer mode, pump will only begin
running if within programmed date/time to run.

Verify the pump is operating by checking vacuum
gauge located on the filter. Gauge will be reading
0-5 in-Hg of vacuum.

5

When the indicator reaches
15 in-Hg, it is time to drain or
change the filter element.

The same procedure is
necessary if the water level
reaches 30% of the clear bowl.



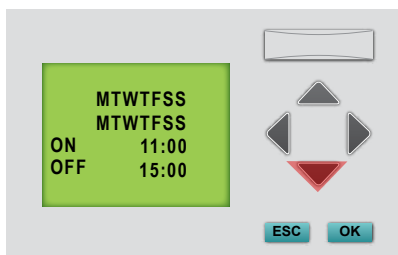
Emergency Stop Button

The emergency stop button is located on the
right side of the enclosure, if equipped.
Turn clockwise and press down to shut down
the operation.
Press the reset button. Then press the start
button to resume operation.



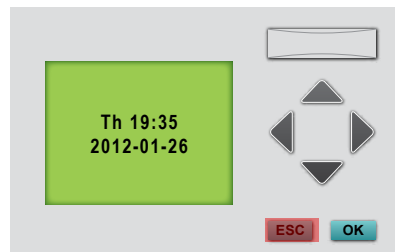
1

Starting at the program screen, press DOWN key to view current time screen.



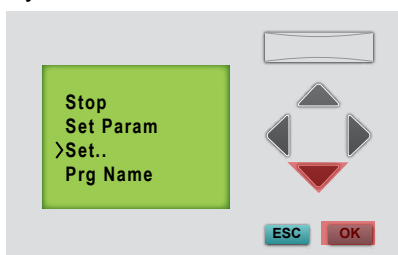
2

The current date and time is displayed. Time is shown as 24 hr clock. Date is shown YYYY-MM-DD. Press ESC key.



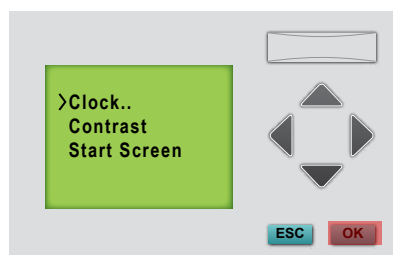
3

Use the DOWN arrow to move the cursor to Set.. option. Press OK key to continue.



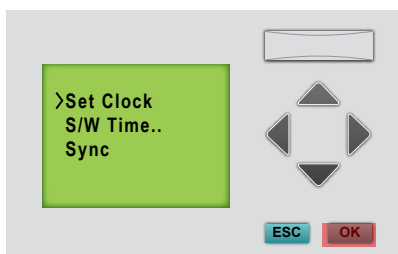
4

Select Clock.. option. Press OK key to continue.



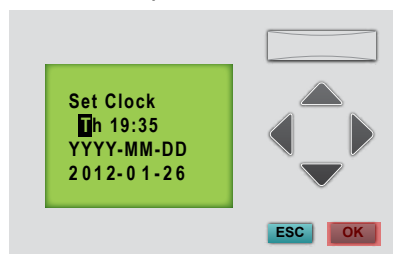
5

Select Set Clock option and press OK key to continue.



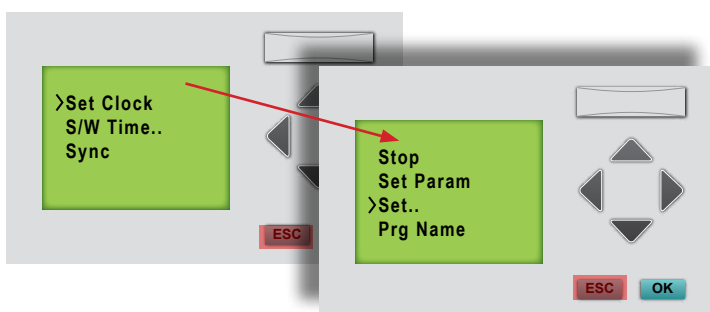
6

Flashing black box indicates your selection. Use LEFT/RIGHT key to move selection. Use UP/DOWN key to change date and time. Press OK key when finished and to return to previous menu.



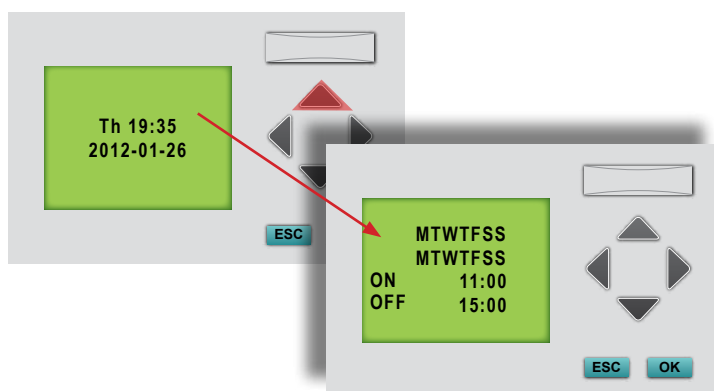
7

Press ESC key. Press ESC key again to return to current time screen.



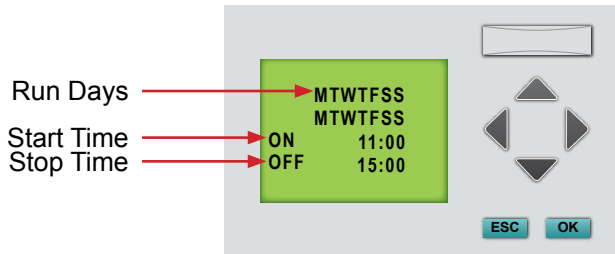
8

Now shown is the current time screen. Press UP key to return to program screen.

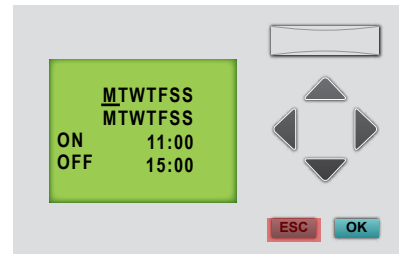


Digital Timer Instructions: Set Schedule Timer

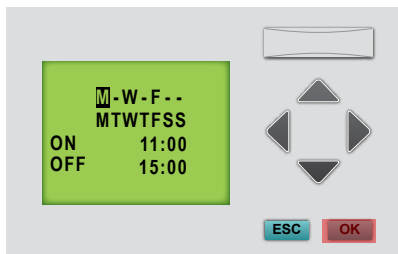
- 1** *When using this method, follow sequence exactly or damage to program can occur (non-warrantable situation).*
- A. Ensure the breaker is ON.
 - B. Move the red power switch to the ON position and power indicator light is on.
 - C. Ensure timer mode is switched to Schedule Timer.



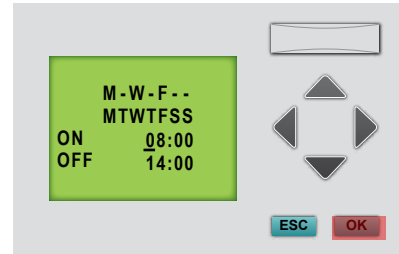
- 2** Hold the ESC key until flashing underline appears under the first day of the week. This flashing underline indicates your selection. Use the LEFT/RIGHT keys to move between the dates, start time, and stop time.



- 3** **Change the run days**
With the flashing underline in the days row, press the OK key until flashing box appears. Use the LEFT/RIGHT key to move between days. Use the UP/DOWN key to program run days. A dash(-) indicates the system will not run on that day. Press OK key when finished and the cursor will return to flashing underline.



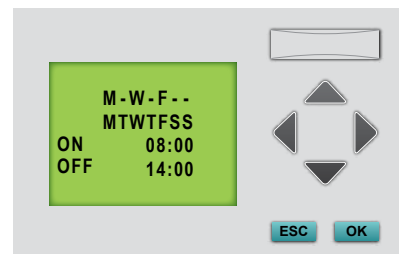
- 4** **Change the run time**
With the flashing underline in the days row, use the LEFT/RIGHT key to move to start time (ON). Press OK key until flashing box appears. Use UP/DOWN key to change time. Press OK key when finished and the cursor will return to flashing underline. Repeat with stop time (OFF).



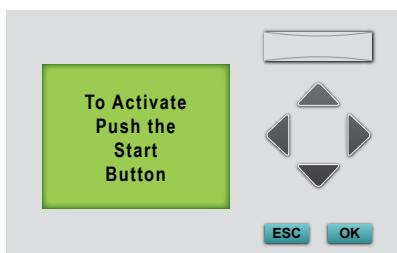
- 5** Press ESC to save. Flashing underline will disappear.



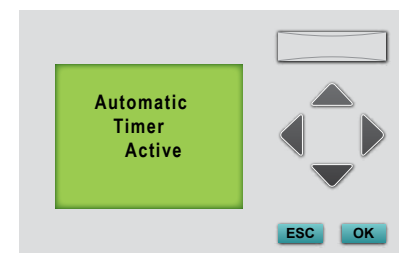
- 6** Setting the schedule timer is finished. In this example, system will run on Monday, Wednesday and Friday. System will start at 8:00 am and stop at 2:00 pm.



- 7** Every 5 seconds, screen will request user to push Start button to activate program.

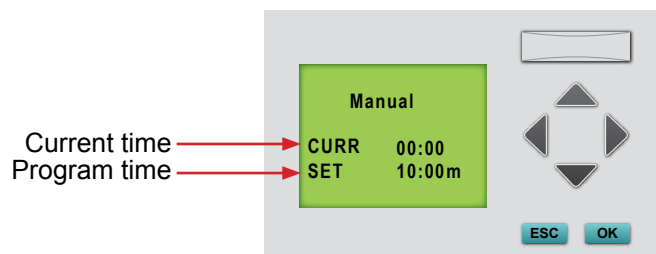


- 8** Afterwards, every 5 seconds screen will indicate the schedule timer is active.



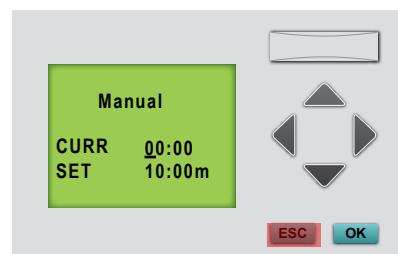
1

Top row indicates current time.
Bottom row indicates program time.



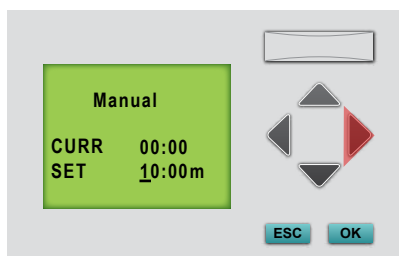
2

Press and hold ESC key until flashing underline appears. This indicates your selection.



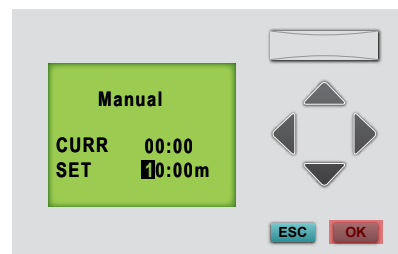
3

Use RIGHT arrow key to move underline to program time (SET).



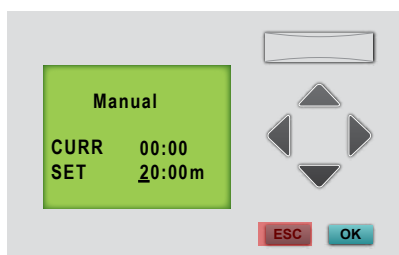
4

Press OK key and flashing box appears. Use UP/DOWN key to change time. The "m" indicates minutes and can be changed to "h" for hours. When finished, press OK key.



5

Flashing box will return to flashing underline. Press ESC to save. Flashing underline will disappear.



6

In the screen shown below, the system is set to run for 20 minutes and will stop once the time has expired.

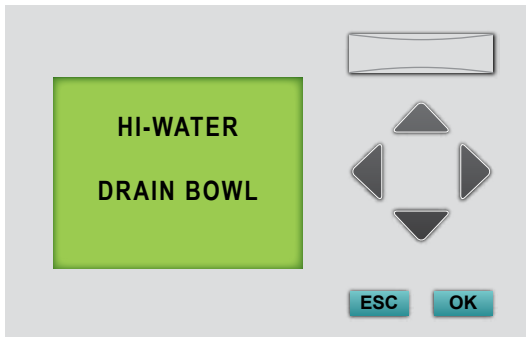


There are three different alarms installed in the unit.

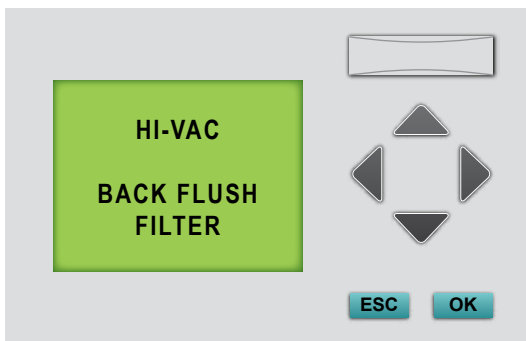
If one of the alarms should sound: De-energize system when servicing unit.

1. Follow the directions displayed on the screen.
2. Press RESET/STOP button
3. Wait at least 2 minutes, then press START to restart the unit.

If you have successfully cleared the alarms, the unit should restart.

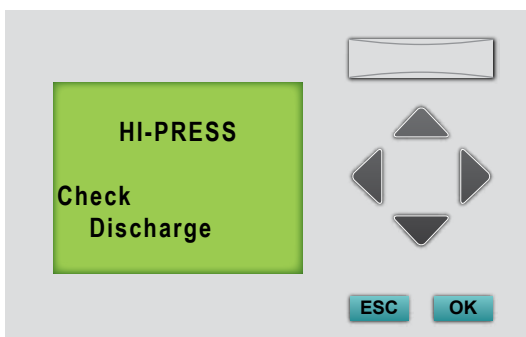


High Water Alarm



High Vacuum Alarm

Backflushing procedure can be executed up to 5 times before replacing the filter element.



Hi Pressure Alarm

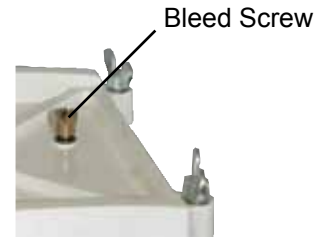
Prior to servicing the filters, ensure that the engine is OFF.

Backflushing is for particulate removal only and will not remove sludge once embedded in the filter media.

1

Turn the system off and shut off the fuel supply valve.

Open the bleed screw located at top of filter lid by slightly unscrewing it. This will break the vacuum in the filter allowing water and small particulates to be released from the filter element.



2

Allow water and dirt to settle into bowl. Large droplets of water and dirt will fall to the bottom of the bowl.



3

PUSH in and turn counter-clockwise to open drain valve.



4

Drain out the water and dirt that has accumulated in the bottom of the bowl.



5

Close drain valve by pushing and turning clockwise. Allow dirt and water to settle again. As the fuel is drained out of the separator in step 4, more dirt and water will be flushed from the filter and will collect in the bottom of the bowl.



6

If necessary, repeat step 4 and 5. Open fuel supply valve.






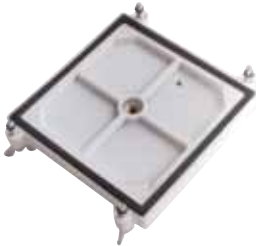




7

Prime the filter and close the bleed screw (refer to Technical Specifications for torque values).



Prior to servicing the filters, ensure that the unit is OFF.

<p>Step 1 Shut off the fuel supply valve and isolate unit before servicing the filter.</p> 	<p>Step 2 Loosen the lid screws evenly.</p> 
<p>Step 3 Remove the lid.</p> 	<p>Step 4 Take out the spring cassette.</p> 
<p>Step 5 Lift out filter element by the handle. Replace with new filter element and re-fit the spring cassette.</p> 	<p>Step 6 Inspect lid gasket. Replace if necessary.</p> 
<p>Step 7 Fit lid checking for correct positioning. Evenly tighten in the sequence shown (refer to Technical Specifications for torque values).</p> 	<p>Step 8 Open the fuel supply valve, prime fuel system and check for leaks.</p> 

Replacement Filter Element

Element #	Description
01010	10 Micron
01030	30 Micron (Standard)
01060S	60 Micron (Stainless Steel)

Problem	Possible Causes
No fuel delivery	<ul style="list-style-type: none"> • Pump does not run • Pump and filter are not primed • Fuel supply or discharge line blocked. Check the alarm • Lift is too high • Air leak in fuel supply to pump • Inlet or outlet valve closed. Check the solenoid valve • Foot (check) valve installed backwards
Insufficient fuel delivered	<ul style="list-style-type: none"> • Air leak at inlet • Lift too high • Pump worn • Inoperative foot valve • Piping improperly installed or dimensioned • Filter/water separator plugged
Rapid pump wear	<ul style="list-style-type: none"> • Pump has been run dry or insufficient fuel • Plumbing on inlet side not appropriately dimensioned. Pump requires too much power • Air in plumbing lines • Liquid too viscous
Noisy operation	<ul style="list-style-type: none"> • Insufficient fuel supply • Air leaks in the inlet pipe • Air or gas on the suction side
Motor does not turn or turns intermittently	<ul style="list-style-type: none"> • Control power not available • Tripped circuit breaker on control board • Pump failed and seized • Motor failure • Check service switch is in the ON position (-)
Pump leaks fuel	<ul style="list-style-type: none"> • Loose pump plumbing fittings • Worn pump shaft seal • Excessive heat from over head storage tank • Worn pump O-rings or seals