

FPS-500

Fuel Polishing System

Eliminates Microbial Contamination

Operating Manual



- **Stabilizes Fuel**
- **Removes Water & Sludge**
- **Prevents Tank Sediments**
- **Improves Engine Reliability**
- **Optimizes Fuel Quality**

Optimal Fuel Quality Provides Peak Engine Performance

More Power • Less Smoke • Saves Fuel



Fuel Polishing System

FPS-500



The FPS-500 is a Three Stage Fuel Polishing System:

The **ALGAE-X® FPS-500** keeps diesel and middle distillate fuels in “pristine condition”.
Ideal for use in: tanks of vessels, vehicles, generators and heavy equipment.

Stage 1: The **ALGAE-X® Fuel Conditioner** reverses the process of fuel deterioration, buildup of tank sludge and stabilizes the fuel.

Stage 2: The centrifugal water separation system removes water.

Stage 3: The fine filter removes solid contaminants.

Flow rate:	150 gph
Tanks:	up to 1,000 gallons
Size:	17.25”H x 15”W x 5.25”D
Weight:	23 lbs
Power:	12 V DC (standard)
Port Size:	1/2” SAE

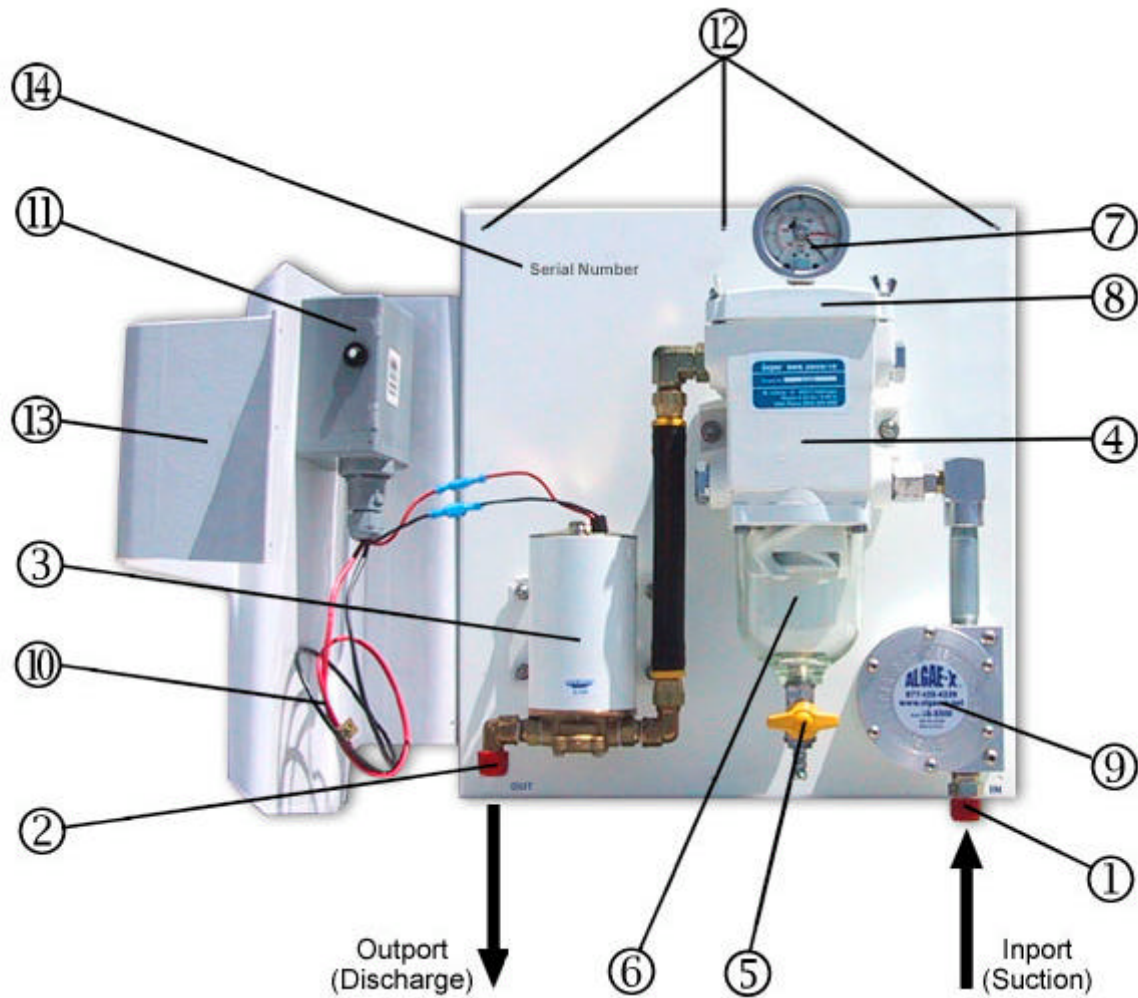
The **FPS-500** is a wall mounted, fuel polishing system providing Optimal Fuel Quality for Peak Engine Performance. Since fuel is inherently unstable, solids begin to form and the accumulating tank sludge will eventually clog your filters and damage your injectors. It will cause engines to smoke, lose power and ultimately break down.

The **FPS-500** conditions and stabilizes the fuel, eliminates microbial contamination, removes water, tank sludge and contaminants from the tanks. The principal components of the system are an **LG-X 500 Fuel Conditioner**, a continuous duty gear pump, a timer and a fuel filter water separator/coalescer with a vacuum gauge. The **LG-X 500** decreases the size and mass of fuel droplets which leads to better filtration and water separation, clear and bright fuel, optimal combustion and clean tanks.

The system is compact, easy to install, operate and maintain. The **ALGAE-X®** unit is self-cleaning, has no moving parts, no electrical hookup, and requires zero maintenance. The filter/water separator unit removes water and particulate from the fuel. It can be easily drained, by opening the valve on the bottom. The filter element can be back-flushed several times before replacing.

ALGAE-X Total Fuel Management Systems

FPS-500 Fuel Polishing System



- | | |
|--|--|
| 1) Fuel Inlet | 8) Lid for filter replacement |
| 2) Fuel Outlet | 9) ALGAE-X [®] Magnetic Fuel Conditioner LG-X 500 |
| 3) Motor with coupled Gear Pump | 10) Lead wires for electrical hookup |
| 4) Water Separator and Filter | 11) Mechanical Timer |
| 5) Drain valve (push and turn to open) | 12) Mounting Holes (6) |
| 6) Sight bowl | 13) Open Cover |
| 7) Vacuum gauge (black finger – actual value / red finger – highest value since reset) | 14) Serial Number |

INSTALLATION

! WARNING ! The system is not for use with fluids that have a flash point below 100°F (38°C, e.g.: gasoline, alcohol). Sparking could result in an explosion.

1. Mounting:

The FPS-500 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. Allow about 4" of space on top of the unit to change the filter element comfortably and sufficient space on the bottom to drain the system. This space is also necessary to ensure sufficient ventilation of cooling air for the motor.

2. Electrical:

Make sure that the motor has the same rated voltage as your electrical system. FPS systems are available in 12V DC, 24V DC, 110V AC and 230V AC. The systems with either 12 V DC or 24 V DC motor connect to the positive lead from your battery with the red wire of the motor and to the negative lead with the black wire. After the initial wiring of the motor check system operation to insure that it is running in the correct direction. If the motor is running in the wrong direction, reverse the two electrical leads.

! WARNING ! The system is designed to run only in one direction. Changing polarity of the leads causes the pump to run in the opposite direction. This may cause serious damage to the system and the unit may no longer work properly.

3. Connecting the system "IN" port: (suction)

A valve should be installed on the inlet of the FPS-500. Use proper quality approved fuel line materials. The pick-up tube/line should originate from the lowest point of the tank and should be connected directly to the system's ALGAE-X[®] Magnetic Fuel Conditioner. For optimal performance, insure that the inlet (suction) line(s) are free and nothing is restricting their flow. Use 1/2" minimum ID hose or other suitable plumbing to connect system to the tank(s). Smaller plumbing will place excessive load on the motor and shorten its life.

! WARNING ! The gear pump is capable of developing extremely high pressure. Care must be taken not to operate the pump with either the suction (inlet) or discharge (outlet) lines closed. Serious damage may occur.

4. Connecting the system "OUT" port: (discharge)

A valve should be installed on the outlet of the FPS-500. Approved piping should be plumbed to return fuel from the outlet of the pump to the tank. This line should enter the tank as far away from the FPS-500 suction line(s) as possible. For optimal performance, insure that the outlet (discharge or return) line(s) are free and nothing is restricting their flow. Use 1/2" minimum ID hose or other suitable plumbing to connect the system to the tank(s). Smaller plumbing will place excessive load on the motor and shorten its life.

! WARNING ! The gear pump is capable of developing extremely high pressure. Care must be taken not to operate the pump with either the suction (inlet) or discharge (outlet) lines closed. Serious damage may occur.

IMPORTANT INSTALLATION PRECAUTIONS

The suction line of the system should be independent from the suction line of the engine. If not possible, appropriate valves must be installed to completely separate the FPS-500 from the engine fuel system to prevent any possible interference with safe engine operation.

The discharge should also be independent of the engine fuel return line to the tank. If the return line from the engine and the discharge of the FPS-500 are combined in any way, adequate valves should be installed to prevent any possible interference with safe engine operation. (Many engines are already equipped with a check valve – check with engine manufacturer). If either of the lines from the FPS-500 is common with the lines from engine, the FPS-500 should be disabled during engine operation.

GENERAL SPECIFICATION

FPS-500

Flow Rate	approx. 2.5 gpm / 150 gph
Wall Mounting.....	17.25" x 15" x 5.25" (H x W x D)
System Weight	23 lbs
Operation temperature	32 - 104° F; 0 - 40° C
Electrical	12 V DC, 15 A (standard) - 24 V DC / 7.5 A also available (110 V AC or 230 V AC available on the FPS-750 model)
Service Space	4" space on top and bottom, to facilitate changing filter elements and draining water and particulate from the bowl
Pump	Brass Gear Pump
Timer	Spring wound mechanical timer up to 6 hours
Inlet	1/2" SAE male flare fitting
Outlet	1/2" SAE male flare fitting

**The FPS-500 is designed to meet environmental standards for safe operation
(NOT for use with Gasoline).**

OPERATION

! WARNING ! Only run the system when you are able to supervise it. Operating the FPS-500 on an unattended vehicle or vessel is NOT recommended.

It is necessary to prime the filter before initial use. Remove the top filter cover by removing the four wing nuts. Fill the bowl and filter body with diesel fuel and replace the cover. The timer can now be set to the desired run time. The pump will automatically shut off after this pre-set time. Set the tell-tale gauge pressure indicator (red pointer) to slightly above the black needle prior to operation. The gauge will indicate maximum vacuum pressure during system operation. When the indicator reaches 15 in. hg, it is time to back-flush or change the element.

Servicing and Back-flushing the FPS-500 filter:

1. Turn off the FPS-500 pump motor
2. Open the brass colored bleed screw on the top of the filter cover
3. Place a fuel waste container below the yellow safety drain valve at the bottom of the filter bowl
4. Open the yellow safety drain valve (push & turn counter clockwise)
5. Close after approximately 2 seconds
6. After approximately 10 seconds reopen the drain valve
7. Close after visible sediment, particles and water are drained
8. Prime the filter by removing the cover (4 wing bolts) and pouring clean diesel fuel into the filter body until the fuel level reaches the top of the filter body
9. Replace the lid. Note: evenly tighten the wing bolts to ensure a good seal
10. Close bleed screw on top of the lid
11. The FPS-500 is ready for operation

Note: Elements can be back-flushed up to 5 times before replacement is required

We recommend treating the fuel with the ALGAE-X[®] Fuel Catalyst (AFC-705). This will enhance and accelerate the tank cleaning process by breaking down and dissolving existing tank sludge. AFC-705 will decontaminate compartments of the tank that are out of reach of the suction line. Initially using a double dose of one to twenty-five hundred (1:2500) instead of one to five thousand (1:5000) has proven to be very helpful in accelerating the cleaning rate. AFC-705 contains corrosion inhibitor, lubricity enhancer and combustion catalyst.

After initial treatment of tank(s) AFC-705 should always be used to stabilize the fuel (in particular when fuel is stored long-term).

FUEL POLISHING SYSTEMS WARRANTY

LIMITED WARRANTY

ALGAE-X[®] International makes every effort to assure that its products meet high quality and durability standards and expressly warrants the products described herein, against defects in material and workmanship for a period of one (1) year from the date of purchase. This warranty is not intended to supplant normal inspection, care and service of the products covered by the user, and shall not obligate ALGAE-X[®] to provide free service during the warranty period to correct breakage, maladjustment or other difficulties arising out of abuse, misuse, or improper care and maintenance of such products. Our express warranty is subject to the following terms and conditions:

1. This warranty shall only extend to and is only for the benefit of original purchasers who uses the products covered hereby
2. Any warranty claim received by ALGAE-X[®] after one (1) year from the date of purchase will not be honored even if it is claimed that the defect occurred prior to one (1) year from the date of purchase.
3. This warranty shall not apply to products (1) which have been tampered with, altered or repaired by anyone other than ALGAE-X[®] without the express prior written consent of ALGAE-X[®] (2) which have been installed improperly or subject to misuse, abuse, accident, negligence of others, improper operation or maintenance, neglect or modification, or (3) which have had the serial number altered, defaced or removed.
4. The liability of ALGAE-X[®] under this warranty is limited to the repair or replacement of the defective product. ALGAE-X[®] assumes NO LIABILITY for labor charges or other costs incurred by any purchaser incidental to the service, adjustment, repair, return, removal or replacement of products. ALGAE-X[®] ASSUMES NO LIABILITY FOR ANY GENERAL, SPECIAL, INCIDENTAL, CONSEQUENTIAL, CONTINGENT OR OTHER DAMAGES UNDER ANY WARRANTY, EXPRESS OR IMPLIED, AND ALL SUCH LIABILITY IS HEREBY EXPRESSLY EXCLUDED.
5. ALGAE-X[®] MAKES NO WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE, WITH RESPECT TO THE PRODUCTS COVERED BY THIS WARRANTY POLICY, EXCEPT AS EXPRESSLY PROVIDED FOR HEREIN. NO EMPLOYEE, AGENT, REPRESENTATIVE OR DISTRIBUTOR IS AUTHORIZED TO MAKE ANY WARRANTY ON BEHALF OF ALGAE-X[®] OTHER THAN THE EXPRESS WARRANTY PROVIDED FOR HEREIN.
6. ALGAE-X[®] reserves the right at any time to make changes in the design, material, function and specifications of its products. Any such changes shall not obligate ALGAE-X[®] to make similar changes in such products that were previously manufactured.

WARRANTY CLAIM PROCEDURE

To make a claim under this warranty, please call our ALGAE-X[®] at (877) 425-4239. We will need the following information: Name and location where unit was purchased, the date of purchase, model number, serial number, and a detailed explanation of the problem you are experiencing. The Customer Service Representative may, at the discretion of ALGAE-X[®], arrange for a Field Engineer to inspect your system. If the inspection discloses a defect covered by its limited warranty, ALGAE-X[®] will either repair or replace the defective parts or products. ALGAE-X[®] assumes no liability, If upon inspection, ALGAE-X[®] or its representative determines that there is no defect or that the damage to the system resulted from causes not within the scope of this limited warranty. For service and sales, please contact ALGAE-X[®]:

ALGAE-X[®] International
P.O. Box 4011 Fort Myers Beach, FL 33932 ?877-425-4239 ?Fax: 239-463-7855
Internet: www.algae-x.net ?Email: algae-x@algae-x.net

TECHNICAL ASSISTANCE AND ORDERING

Please write to, fax, email or call:

ALGAE-X[®] International
P.O. Box 4011, 1661 Estero Blvd. #18
Fort Myers Beach, FL 33932

Tel: 239-463-0607
Fax: 239-463-7855

Email: algae-x@algae-x.net
Internet: www.algae-x.net

Please provide the following information:

Serial Number of your FPS-500 (located on the inside behind the timer)
the required part numbers and quantity.

Replacement filter elements:

01030 – 30 Micron filter element
01010 – 10 Micron filter element
01060S – 60 Micron Stainless Steel re-usable filter elements

Also available:

- ALGAE-X[®] Fuel Polishing Systems in kit form
- Larger capacity, custom designed systems for higher flow rates and larger tanks

FPS-500 SYSTEM IDENTIFICATION

Serial Number: _____ (e.g. B 030010 – 5001)

System Specification:

Voltage:

- 12 V DC
- 24 V DC

Filter Element:

- 30 Micron
- 10 Micron
- 60 Micron Stainless Steel

Inspected by: _____ Date: _____