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Model: PFS165

Owners Manual Version 1.2

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Introduction

Congratulations on your purchase of the PortableFuelingSystems.com PFS165! The PFS is designed for the transport, storage and dispensing of a variety of fuels. Aviation, automotive, and diesel fuels may all be used with your PFS. The PFS was designed by a pilot for the purpose of delivering fuel to airplanes. All desired aviation related safety features have been designed into the system and providing the safest, most reliable portable fuel dispensing device on the market.

Features

- Operated by compressed air. No electrical components to cause safety concerns.
- High flow regulator provides for continuous operation.
- Two safety pressure valves, designed for automatic ventilation.
- Components are designed to withstand twelve times the expected operating pressure, and five times over the safety valve pop-off limit.
- Air filter to remove water and contaminants from air supply.
- Relief valve to allow manual removal of pressure from tank.
- Shutoff valves to allow changing and cleaning of filters without emptying the tanks.
- Screw on fuel filter for easily replacement when full.
- Water absorbing fuel filter to remove all water as fuel is being dispensed.
- Long, 12' fuel hose to reach high fuel tanks, and optional 20' fuel hose.
- Anti-static fuel hose to prevent electrical charge build up caused by fueling.
- Standard automotive unleaded-sized fuel nozzle facilitates filling of almost any fuel tank.
- Manual fuel nozzle allows complete control over the fuel flow rate and shutoff.
- Bonding wire to remove any voltage potential between the vehicle and the PFS.
- Optional 40BC rated fire extinguisher to meet airport regulations for carrying of on-board fire extinguishers.
- Optional off-road kit including 10-inch pneumatic tires.

Operation

The PFS operates by using air pressure to push fuel through the filter and out of the nozzle. In order to operate the PFS, the system must first be filled with fuel and compressed air. Once the system is filled with compressed air and fuel (refer to directions below), it is primed and ready for use.

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Adding fuel to the PFS fuel tank:

- 1) To fill the PFS, start by opening the pressure relief valve on the back of the fuel tank, and opening the air shutoff valve.
- 2) When all pressure has been removed, close the release valve and air shut off valve. Failure to close shutoff valve prior to filling and transportation may cause fuel to leak back into the air system, and may cause damaged or discolored parts.



Figure 1: Fuel Tank Release Valve (Shown Open)



Figure 2: Air Shutoff Valve (Shown Closed)

- 3) Remove the top cap of the fuel tank.

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Figure 3: Fuel Tank Filler Spout

If filling from a station that has an automatic shutoff nozzle, insert the nozzle completely into the tank and stop filling when the nozzle shuts off. **DO NOT TOP OFF THE TANK!** Topping off the tank may allow fuel to leak into the air system and cause damage. Regardless of what method is used to fill the tank, do not fill past the base of the filler neck.

- 4) Replace the fuel tank cap, and keep air shutoff valve closed while transporting the fuel.

Filling the compressed air tank:

The compressed air tank can be filled either using the standard Schrader valve (tire nozzle) or by removing tank hose via the quick connect into the regulator, and attaching the tank directly to an air compressor. When using the Schrader valve, it is not necessary to open the air tank valve prior to filling the tank.



Figure 4: Using the Schrader Valve to Fill

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Figure 5: Air Tank Valve (must open to fill via quick connect)



Figure 6: Using the Quick Connect to Fill

When filling via a direct connection to an air compressor, an adaptor is required to connect the compressor to the air tank. These adaptors may be purchased at PortableFuelSystems.com.

When filling the air tank from a compressor, the air tank valve must be open to allow air to enter. Take precautions to not over-tighten or over-loosen the air valve so as to prevent slippage and wear of the plastic piece. Be sure to *LIGHTLY* close the valve prior to disconnecting from the air compressor to keep air from escaping the air tank.

DO NOT FILL AIR TANK MORE THAN 120 PSI

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Figure 7: Air Tank Pressure Gauge (120psi)

To operate the tank:

- 1) The first step in using the PFS is to make sure to **ALWAYS GROUND THE PFS AND THE TANK TO BE FILLED** by using the provided green bonding wire. The bonding wire should be attached to a bare metal solid ground point such as the exhaust tail pipe of the vehicle being fueled.



Figure 8: Attached Bonding Wire

- 2) Turn on the compressed air valve to pressurize the tank.
- 3) Now, open the air shutoff valve.

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Figure 9: Air Shutoff Valve (Shown Open)

The tank should take 2 to 3 seconds if the tank is full of fuel, longer if the tank is empty, or if the system is low on compressed air.

- 4) Next, open the fuel shutoff valve at the bottom of the tank.



Figure 10: Fuel Shutoff Valve (Shown Open)

- 5) The pump is now ready to use. Simply insert the nozzle into the tank to be filled and engage the handle. Note that the flow rate may be adjusted at the nozzle by applying more or less pressure to the nozzle handle. To stop the flow of fuel, simply release the handle.

CAUTION: KEEP FACE AWAY FROM NOZZLE WHILE FILLING. AS FUEL DRAINS FROM TANK, AIR PRESSURE MAY CAUSE MISTING AND SPLATTERING OF FUEL!

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Figure 11: Fueling a Car

Closing the tank for storage:

- 1) While your PFS is designed very well, it is important and safe to turn off the fuel shutoff valve while the tank is in storage. Leaks can further be prevented by minimizing strains on the system, and observing the safety precautions.



Figure 12: Fuel Shutoff Valve (Shown Closed)

- 2) Shut off the compressed air valve to maintain pressure while in storage.



Figure 13: Air Tank Valve

- 3) If the tank will not be used for a long period of time, pressure in the tank should be removed. If use will resume in a relatively short period of time, the

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fuel tank may be left pressurized and ready for use. To remove the pressure in the tank, simply open the tank pressure release valve, and open the air shutoff valve. Once the pressure is removed, close the pressure release valve to keep moisture and other foreign objects from entering the air path.

Note that leaving the compressed air tank valve open while opening the fuel tank release valve will cause all air in the compressed air tank to be vented. For best results when removing pressure from the fuel tank, disconnect the air tank quick connect prior to opening the pressure release valve.



Figure 14: Tank Pressure Release Valve (Shown Open)



Figure 15: Tank Pressure Release Valve (Shown Closed)

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It is best to keep the fuel tank full while it is being stored. However, if the fuel tank is full and subsequently stored in direct sunlight, it is possible for the fuel to expand to the point of being forced back into the air system, or out of the fuel tank safety valve. Therefore, if the tank is to be stored outdoors, it is best to not keep the tank completely full to allow room for expansion of the fuel.

Storing the hose and Bonding wire:

Store the fuel hose and bonding wire by simply wrapping them around the tank and handles of the PFS.

Maintenance

Periodically inspect all hoses for cracks or leaks. If cracks or leaks are found, do not use the tank until the affected part has been replaced. You can order new parts from www.portablefuelsystems.com.

Periodically inspect the fuel tank and compressed air tank for signs of wear or damage. Replace any parts that are visibly stressed or worn prior to use.

If fuel spills on the outside of the tank, immediately wipe it off with a damp cloth (using a mild detergent or soap is ok). The stickers and paint are not designed to be impervious to fuels or other liquids. The stickers on the tank are considered safety items, and thus need to be replaced if damage occurs. To replace the stickers, please contact PortableFuelSystems.com at www.portablefuelsystems.com to request new ones.

Periodically drain any water or debris from the air filter by pressing up on the button at the bottom of the air filter.

If the fuel tank is filled too full, fuel may become trapped in the air filter because of either expansion or transport. If fuel becomes trapped in the air filter bowl, simply drain the fuel from the bottom of the bowl by pressing up on the button and using a clean cup to capture the fuel. The fuel may be placed back into the tank.



Figure 16: Draining the Air Filter

Troubleshooting

Fuel tank safety valve:

The fuel tank safety valve is designed to automatically release pressure then the tank pressure gets to high. This can happen if the tank is pressurized and subsequently left in the sun, or for other various reasons. When this does happen, you will hear a hissing sound of air escaping through the valve. This is normal, and no cause for alarm. This valve will automatically close when the pressure is back within a safe range.



Figure 17: Fuel Tank Safety Valve

Air tank safety valve:

The air tank safety valve is located at the base of the air tank filler neck. This valve will open any time the pressure in the air tank is unsafe (at approximately 125psi). This can be caused by overfilling of the tank or by having the tank at max temperature and then leaving the tank in the sun. This valve is also an automatically closing valve, and will close when the air pressure is within safe limits.



Figure 18: Air Tank Safety Valve

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Changing the fuel filter:

If fuel flow becomes slow, it is time to change the fuel filter. This is easily accomplished by loosening the large retaining clamp securing the filter, and simply unscrewing the filter from the filter adapter.

When replacing the filter, reverse the steps above, and make sure the large hose clam is securely tightened as this supports the underlying pipe work at the bottom of the PFS. Do not over tighten the fuel filter or the retaining clamp as damage or a leak could occur.

To order new filters please visit www.portablefuelsystems.com.

Safety Precautions

- Do not make any modifications to any part of the tank.
- Wear safety goggles whenever working around the air tank or fuel.
- Do not pressurize air tank to more than 120 PSI.
- Always attach bonding wire before fueling.
- Relieve tank pressure prior to removing fueling cap.
- Do not bypass fuel filter or air filter.
- Do not bypass safety valves.
- Do not fill past the base of the filler neck.
- Use shutoff valve at bottom of tank prior to removing fuel filter.
- Do not pull or adjust position of tank by hose. Breakage or a leak will occur.
- Shut off all valves when fueling and when the tank is not in use.
- Do not allow fuel to come in contact with outside of tank.
- Do not use or store in enclosed areas.

KEEP FACE AWAY FROM NOZZLE WHILE FILLING. AS FUEL DRAINS FROM TANK, AIR PRESSURE MAY CAUSE MISTING AND SPLATTERING OF FUEL!

It is best to keep the fuel tank full while it is being stored. However, if the fuel tank is full and subsequently stored in direct sunlight, it is possible for the fuel to expand to the point of being forced back into the air system, or out of the fuel tank safety valve. Therefore, if the tank is to be stored outdoors, it is best to not keep the tank completely full.

Do not drop or dent either the fuel or air tanks as this will permanently decrease the structural stability and integrity of the tanks and may cause serious injury or death.

**Do not use the PFS if it has been damaged in any way! Contact
PortableFuelSystems.com for replacement parts or service.**

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Quality Assurance and Test Checklist

Each PFS will come with a completed quality assurance and test checklist. This checklist is designed to make sure each system complies with the safety and quality standards set forth by PortableFuelSystems.com. Each of the below tests should be initialed by the person doing the testing if applicable. If not applicable to the provided system,, the checklist item should be marked N/A to indicate the item was reviewed by the test person.

1) Visual check

- a) Hose/nozzle attached/not damaged. _____
- b) Fuel filter (if applicable)
 - 1. Correct filter attached. _____
 - 2. Correctly attached/not damaged. _____
- c) Air tank attached/not damaged (if applicable). _____
- d) Main tank not damaged. _____
- e) System rolls freely on level ground/wheels appear aligned. _____
- f) All valves operate correctly/freely. _____
- g) All stickers are applied. _____
- h) Nuts/bolts/plugs/clamps
 - 1. Bonding wire attach bolt is secure with wire attached. _____
 - 2. Bonding clamp attached to bonding wire. _____
 - 3. Frame is securely attached to main tank (4-bolts). _____
 - 4. Off-road axle adapters are securely attached (2-bolts) . _____
 - 5. Air tank attach bolts are secure (2-bolts, if applicable). _____
 - 6. Fuel tank plug is securely installed. _____
 - 7. Air hose barb clamp attached/secure (if applicable). _____
 - 8. Fuel filter mounted/clamped securely. _____
 - 9. Clamp attaching air filter to frame is secure. _____

2) Pressure Checks

- a) Fuel tank safety valve check
 - 1. Automatic opening pressure (valid range: 15psi to 35psi). _____
 - 2. Automatic closing pressure (valid range: 15psi to 35psi). _____
 - 3. Valve is safety wired. _____
- b) Fuel tank holds pressure (min. of 5 minutes all valves shut off). _____
- c) Air tank holds 125PSI (if applicable). _____
- d) Fuel hose and nozzle emit no hissing sounds when pressurized. _____
- e) Pressure holds when fuel hose and nozzle are pressurized. _____
- f) When nozzle handle pressed, air pressure is released from tank. _____
- g) Tank pressure stabilizes at 10psi in normal operation. _____

3) Electrical Check

- a) Bonding clip to fuel tank resistance (valid range: 0 to 2 ohms). _____
- b) Bonding clip to nozzle resistance (valid range: 0 to 2 ohms). _____
- c) Bonding clip to air tank regulator base (valid range: 0 to 2 ohms). _____
- d) Bonding clip to wheel axel (valid range: 0 to 2 ohms). _____