

Fueltec Models 950AW & 955SS Mobile Fuel Tank Cleaning Systems



Operation Manual

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FEATURES

- **Stainless steel filter housings to resist the acids found in today's diesel and ethanol blended gasoline.**
- **Filtration down to one micron, water removal to less than 100 parts per million.**
- **Exceeds ISO particle code of 18/16/13 to meet engine manufacturers clean fuel requirements.**
- **Air operated diaphragm fuel pump intrinsically safe for all fuels.**

INTENDED USE AND OPERATING PRINCIPAL

This System is designed to be used with diesel fuel, gasoline, jet fuel, heating oil, kerosene, and ethanol blended fuels for removing water and other contaminants from fuel tanks.

The System has three modes of operation:

1. **Bulk Fluid Transfer without Water Separation or Filtration** is used when several inches of water are measured on the tank bottom. This water can be pumped directly into a container without wasting filters or having to empty the Separator water trap.
2. **Fuel/Water Separation and Filtration** mode is used to separate the remaining water and filter the fuel after the bulk water has been removed.
3. **Filtration without Water Separation** can be done at a higher flow rate than with water

950AW & 955SS Mobile Fuel Tank De-Watering and Filtration Systems

- In operation the system pulls fluid from the fuel tank bottom by a vacuum created by the fuel pump.
- A bag type filter is first to remove sludge and solid contaminates from the tank bottom fluid which may also contain water.
- The fuel/water mix leaves the fuel pump under pressure (**do not exceed 40 PSI**) and is forced through a filter/ coalescer where the tiny water droplets are made larger and separate from the fuel.
- The Teflon separator prevents the water droplets from traveling with the fuel. The water falls to the bottom of the water trap.
- A clear sight tube allows you to see the level of the water that has been separated.
- **With the system running; you can open a valve and send the water to a waste container and the clean fuel back to the fuel storage tank.**
- The water level in the sight tube stops rising when all of the water has been vacuumed and separated from the fuel storage tank.
- **Tank Cleaning is Done With No Loss of Product**

WARNING: Read carefully and understand all INSTRUCTIONS before operating. Failure to follow the safety rules and other basic safety precautions may result in serious personal injury, or death.

It is important that you read the entire manual to become familiar with this product before you begin using it.

This machine is designed for certain applications only. FuelTec Systems cannot be responsible for issues arising from modification. We strongly recommend this machine is not modified and/or used for any application other than that for which it was designed. If you have any questions relative to a particular application, DO NOT use the machine until you have first contacted FuelTec Systems to determine if it can or should be performed on the product.

Item	SPECIFICATIONS	Model 950AW	Model 955SS
1	Chassis Steel and Aluminum Brite Tread	Standard	Standard
2	Air Diaphragm Fuel Pump flow rate*	0– 720 GPH	0– 2100 GPH
3	Compressed Air Required at 40 PSI	10-16 CFM	20-25 CFM
4	Maximum Lift wet	22 feet	22 feet
5	Primary Stainless Steel Filter Housing	24 inch bag	24 inch bag
6	Fuel Pressure Working Max.	40 PSI	40 PSI
7	Separated Water Trap Capacity	2 gallons	2 gallons
8	Filter/ Coalescer Micro-glass (Mil Type)	CF-10 inch	CF-20 inch
9	Water Separator Teflon coated Stainless Steel	S-11 inch	S-22 inch
10	Supply & Return Fuel Hose with cam-lock connectors	1 inch X 12 foot	1 inch X 12 foot
11	Separated Water Sight Gauge	Standard	Standard
12	Swing Bolt Housing Cover for Quick Filter Change	Standard	Standard
13	Separated Water Drain while System is Running	Standard	Standard
14	Filter Condition Vacuum Gauge	Standard	Standard
15	Coalescer Pressure Gauge	Standard	Standard
16	Air Regulator and Pressure Relief Valve	Standard	Standard
17	Width X Length X Height.. Lbs.	32x47x60..250lbs.	32x47x61.. 325 lbs.

* Flow rates may vary with compressed air supply, filter type and condition, length and size of hoses, and size and shape of fluid pickup and return tubes.

General Safety Regulations

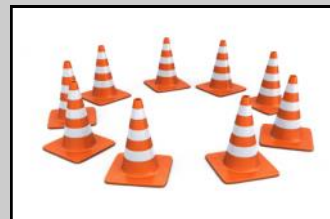
WARNING: Maximum air pressure setting not to exceed forty (40) psi.

WARNING: The warnings, cautions, and instructions discussed in this instruction manual cannot cover all possible conditions or situations that could occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

SAVE THESE INSTRUCTIONS

WORK AREA

- **Mark work area with orange colored safety cones placed in a radius of at least twenty five (25') feet from fuel tank cleaning equipment, fuel containers, and fuel tank openings.**
- **Place Flammable Liquid Warning Signs within work area**
- **Keep work area clean**, free of clutter and well lit. Cluttered and dark work areas can cause accidents.
- **Keep children and bystanders away** while operating this system. Distractions can cause you to lose control, so visitors should remain at a safe distance of at least twenty five (25') feet from the work area.
- **Be aware of all power lines, electrical circuits**, water pipes and other mechanical hazards in your work area, particularly those hazards below the work surface hidden from the operator's view that may be unintentionally contacted and may cause personal harm or property damage.
- **Be alert of your surroundings.** Using your system in confined work areas may put you dangerously close to unsafe conditions.
- **Keep Air Compressor at least twenty five feet (25') feet from fuel tank cleaning equipment, fuel containers, and fuel tank openings.**



PERSONAL SAFETY

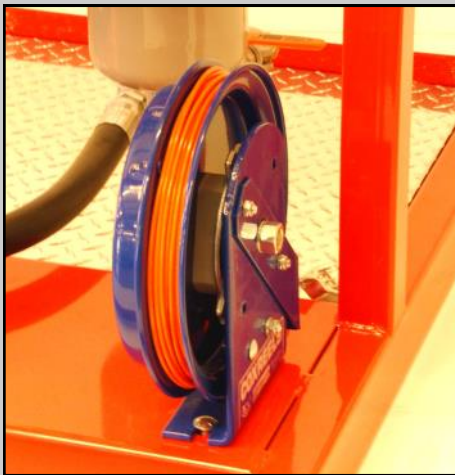
- **Stay alert**, watch what you are doing and use common sense when operating or maintaining the system. Do not install or maintain the system while you are tired or under the influence of drugs, alcohol or medication. A moment of inattention while installing or maintaining the system may result in serious personal injury or death.
- **Dress properly while operating this system.** Do not expose bare skin or eyes to fuels. **Prolonged contact with fuel can damage the skin.**
- **Use safety apparel and equipment.** Use safety goggles or safety glasses with side shields which comply with current national standards, or when needed, a face

FUEL TANK SAFETY

- Purge fuel tank (fill airspace inside the tank between any fuel and the top of the tank) with argon or CO₂ prior to drilling or sawing holes that penetrate the tank to minimize the risk of explosion.
- Maintain a purged condition while installing fittings on a fuel tank.

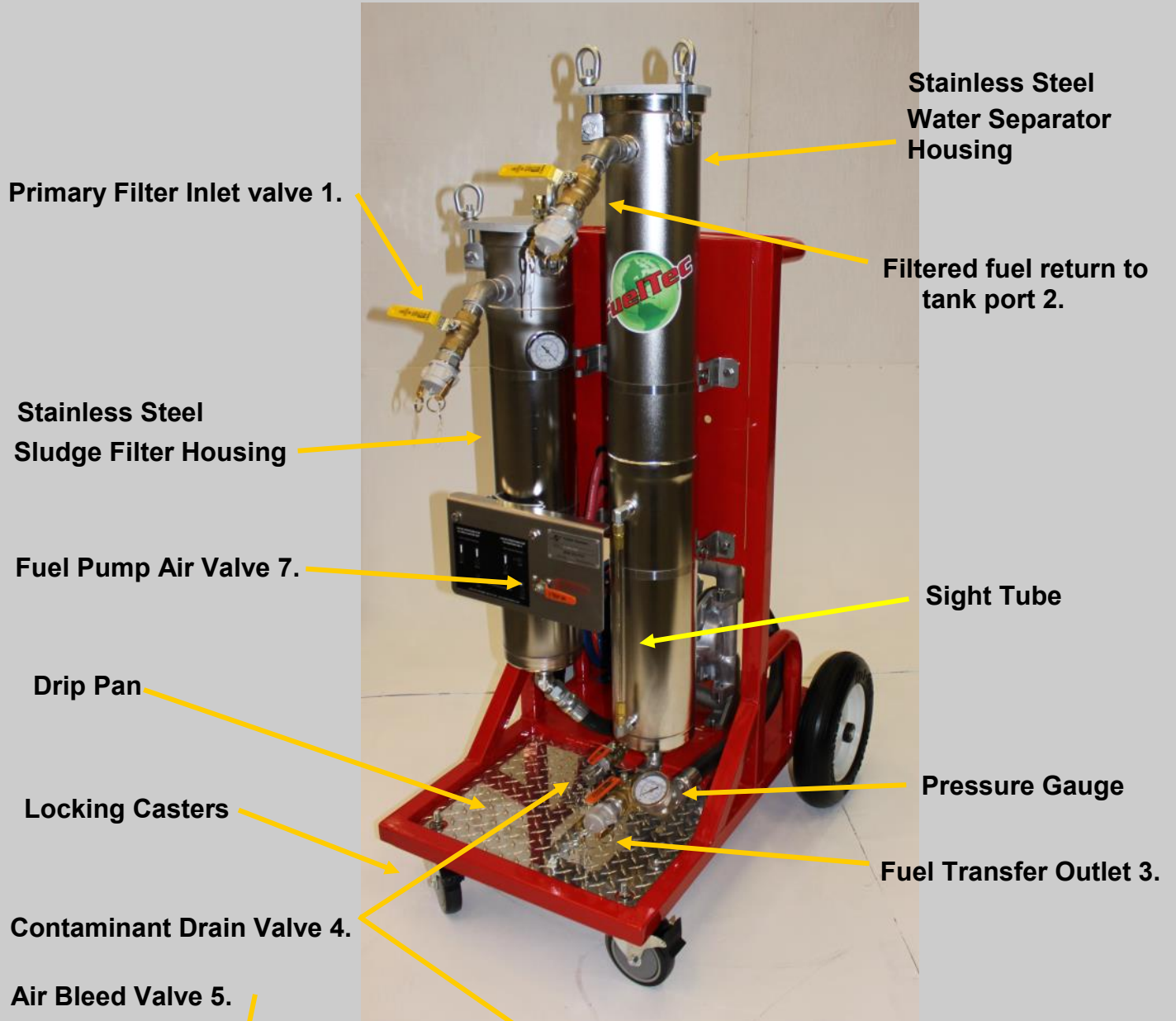
STATIC GROUND

- Always attach a static discharge cable from the Fueltec System to the fuel tank being serviced.



The flowing movement of flammable liquids like gasoline inside a pipe can build up static electricity. Non-polar liquids such as gasoline, diesel, kerosene and light crude oils exhibit significant ability for charge accumulation and charge retention during high velocity flow. Static electricity can discharge into a fuel vapor. When the electrostatic discharge energy is high enough, it can ignite a fuel vapor and air mixture. Different fuels have different flammable limits and require different levels of electrostatic discharge energy to ignite.

Electrostatic discharge while fueling with gasoline is a present danger at gas stations. Fires have also been started at airports while refueling aircraft with kerosene. **The use of a static discharge cable can help to prevent or safely dissipate the build up of static electricity.**



Supply & Return Hoses... The Systems come with two (2) 1" X 12' hoses equipped with cam lock fittings and adaptors.



Fabricate suction tubes of the proper length to reach the tank bottom you are servicing.

Suction and return tubes can be fabricated from PVC, Aluminum, Stainless Steel, or iron pipe. Flexible suction tubes can be made from polyurethane tube, nylon 11 tube, and PTFE (Teflon) tube.

Optional return manifolds are available from Fueltec.



Return Manifold for 2" tank opening is shown with pickup tube inserted.

Pickup tube draws fluid from the tank bottom. Clean dry fuel is returned to tank through manifold ports.

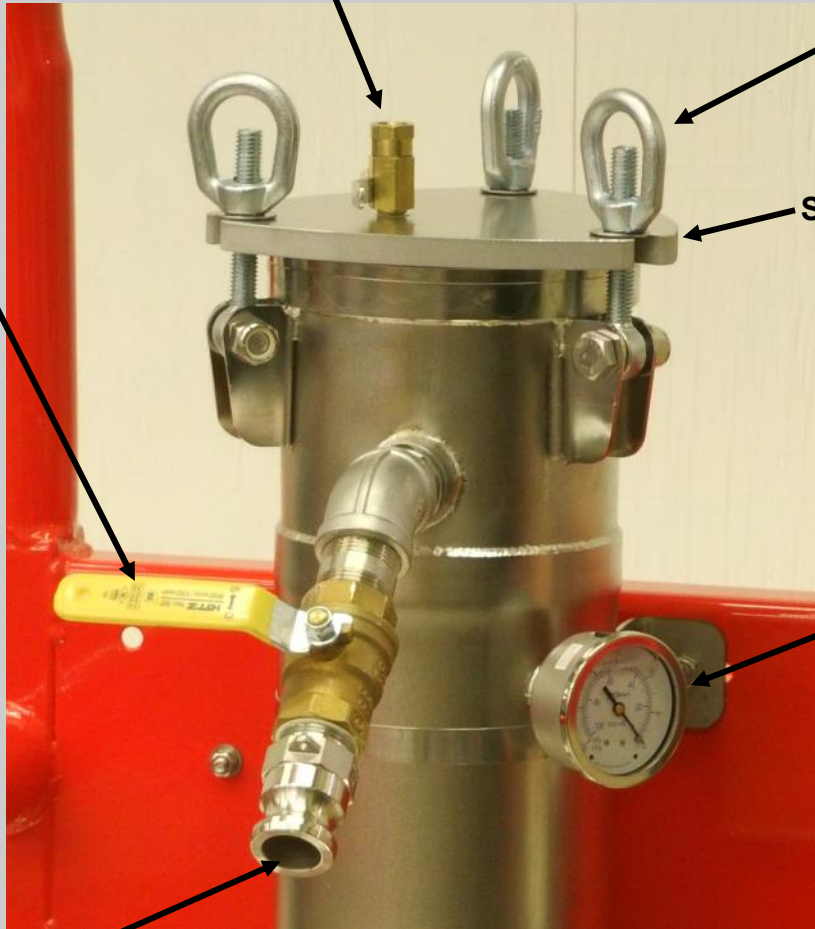


Air Bleed Valve 6.

Swing Bolt Eye Nut (hand tighten)

Primary Filter inlet valve 1.

Sludge Filter Cover



Vacuum Gauge

Sludge Filter inlet port 1.



Fuel Pump Air Valve



WARNING:

Set air pressure regulator not to exceed forty (40) psi at any time

BAG FILTER REPLACEMENT



1. Open air bleed valve 6., close primary filter inlet valve 1. (page 6)
2. Run fuel pump for 30 seconds to drain housing.
3. Loosen swing bolt eye nuts and remove housing cover.
4. Remove bag filter hold down.
5. Remove and dispose soiled filter bag after each use.
6. Insert new filter bag into housing and seat bag flange on housing baffle plate.
7. Insert filter hold down.
8. Install filter housing cover and swing bolts into slots in cover.
9. Tighten swing bolt eye nuts hand tight then 1/4 turn more. (*do not over tighten*)
13. Close air bleed valve 6. and open primary filter inlet valve 1. (page 6)
14. Resume operation.

FILTER BAG SELECTION

- Gasoline: 1 micron to 10 micron bag
 Kerosene: 1 micron to 10 micron bag
 Jet Fuel: 1 micron to 10 micron bag
 No. 2 Diesel: 5 micron to 10 micron bag

Note: Fuel tanks with heavy sludge build up will require multiple bag changes.

Do not operate this system without filter bags installed.

Coalescer and Separator Replacement



Filter/ Coalescer



Water Separator

1. Close fuel pump valve and shut off air supply to system.
2. Open air bleed valve 5., open contaminant drain valve for one minute then close both valves.
3. Loosen swing bolt eye nuts and remove housing cover.
4. Loosen 3/8" hex separator retaining nut.
5. Remove Separator cartridge. (coalescer may come with it)
6. Apply Vaseline to new coalescer o-rings and insert coalescer into separator.
7. Insert coalescer and separator into housing until 3/8" tie-rod protrudes through top of separator.
8. Install 3/8" o-ring, washer, and hex nut onto tie-rod and tighten to 5 ft/lbs.
9. Install housing cover, swing bolts into place and hand tighten eye nuts then 1/4 turn more. (caution: Do not over tighten eye nuts)
10. Resume operation.



Maximum Water Separation & Filtering
Connect Return to Tank Hose to Port 2.

Connect Pickup Tube Hose to Filter Port 1.
Open Valves 1. & 2.



Note 3-Way
Valve position

Fast Filter Without Water Separation
Connect Pickup Tube Hose to Filter Port 1.

Connect Return Hose to Port 4.

Open Valves 1. & 3. Close Valve 2.
Fuel will flow through primary filter only.

Note 3-Way
Valve positions



Caution: Do not use this option if water is found in the fuel tank as the fuel and water may become emulsified beyond separation.

Typical Fuel Tank De-Watering and Filtration:

Underground and Aboveground Fuel Storage Tanks:

- Remove cap or fitting to access tank bottom.
- Test for high bulk water level with Water Gauging Paste or Sampler.
- Set the System Mode to bulk transfer to remove all but the last inch of bulk water from the tank.
- Insert supply and return manifold into tank opening and connect system hoses. Pump out bulk water.
- Set the System Mode to Separate Water.
- Operate the system and observe the separated water level in the water trap.
- Empty the water trap as the system is running; stop operation when water is no longer accumulating in the trap.
- If suspended particulates are observed in the sight tube after water has been removed; Set the System Mode to Filtration.
- Use 5-10 micron filters for diesel and 1-5 micron filters for gasoline & ethanol
- Operate system until the fuel is clear.

First Start Up of the System to Service a Fuel Tank

1. Close air bleed valve 6. page 6, contaminant drain valve 8. pages 7, and fuel pump valve 7..
2. Install Bag Filter as shown on page 9.
3. **Prime pump by filling sludge filter housing with one gallon of product.**
4. Attach 40 psi air supply from outside source to fuel pump valve 7.
5. Attach fluid supply hose to sludge filter port 1.
6. Attach fluid return hose to return flow control valve port 2.
7. Attach pickup supply & return tubes & manifold to hoses.
8. **Adjust air supply regulator to a maximum 40 psi.**
9. Attach the Static Ground to the tank being serviced with the spring clip.
10. Insert Manifold into fuel storage tank opening and connect hose.
11. **Insert fluid supply pickup tube into the tank manifold to a point just under the fluid level until the fuel pump is primed.**
12. Open air supply valve 7. & adjust flow rate
13. Open Supply Port Valve 1. full open.
14. Open Return Valve 2. Pump will start to cycle.
15. Fluid should appear in sight tube within three minutes.
16. Cycle pump until the system is full of clean fuel.
17. Close supply port valve 1. until vacuum gauge reads 12Hg. Then open supply port valve 1. full open.
18. Move the fluid pickup tube to the lowest portion of the fuel tank to remove the contaminates **only after steps 1 thru 16 have been completed.**
19. Watch sight tube for the presents of water. (water on bottom fuel on top)
20. When water level reaches six (12") inches; open contaminant drain valve 8. and place drain hose into waste container.
21. Control water level in sight tube with drain valve 8. & return to tank valve 2. ***(This allows you to send the separated water to a waste container and the cleaned fuel back to the tank without any loss of fuel)***
21. The water level in the sight tube stops rising when all of the water has been vacuumed and separated from the fuel storage tank.
22. The air operated fuel pump allows you purge the fuel from the system after tank cleaning is completed. ***(this can't be done with an electric pump)***



23. Observe Vacuum Gauge 3. two minutes after fluid appears in sight tube; The initial Vacuum reading will be determined by the elevation of the supply port 1. relative to the elevation of the fluid level in the tank being serviced. Make note of this first gauge reading. As the bag filter accumulates debris the vacuum reading will increase. When the gauge reading has increased 8" Hg. above the initial reading; the filter bag needs to be changed.

24. Observe the Pressure Gauge. When the gauge reads 22PSI, the coalescer filter needs changing.



Use only Fueltec 24" Bag Filters in this System

1 micron.... 1M24

5 micron.... 5M24

10 micron.... 10M24



Use only Fueltec Filter/ Coalescers in this System

CF-10 for the 950AW

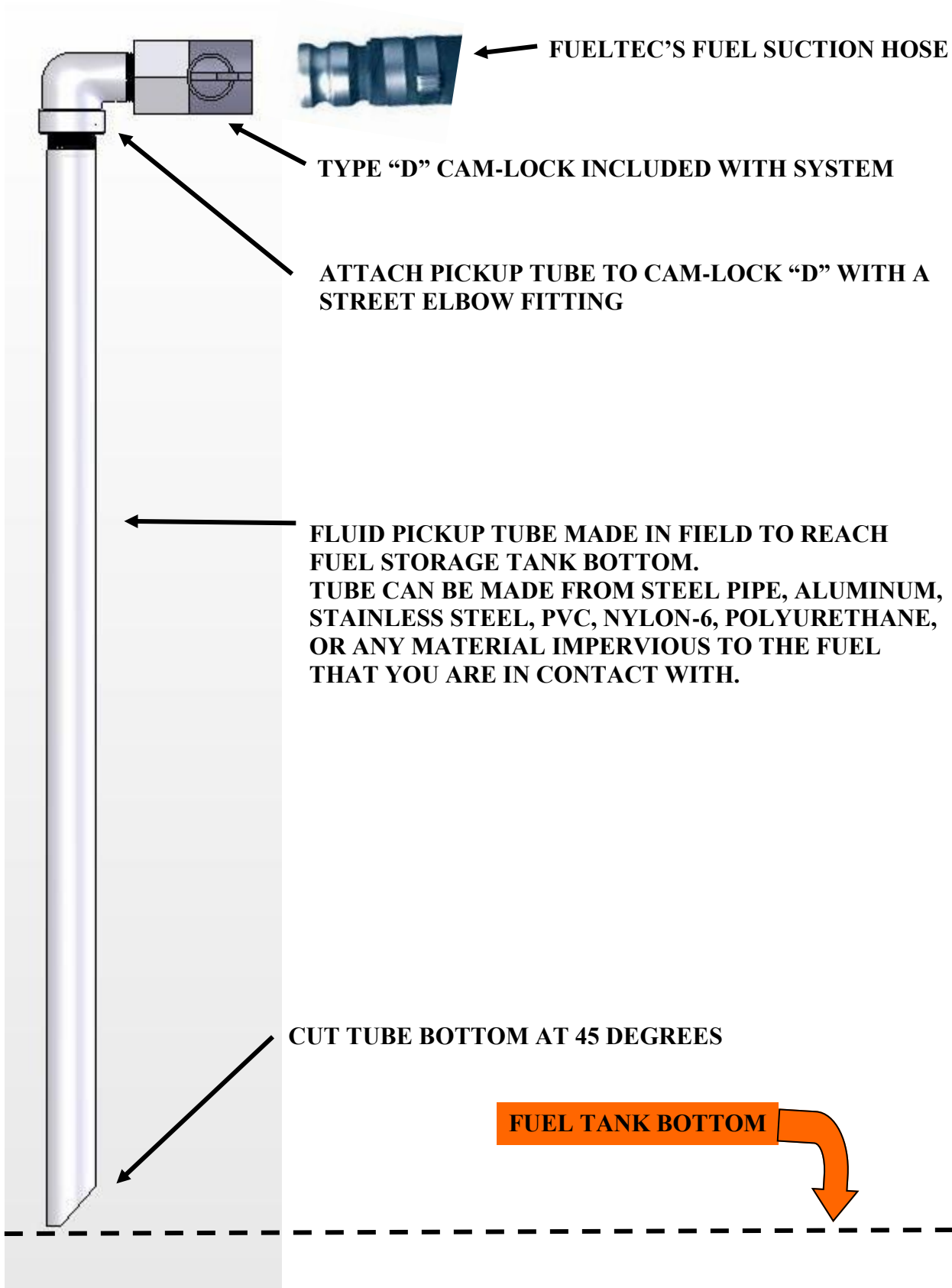
CF-20 for the 955SS

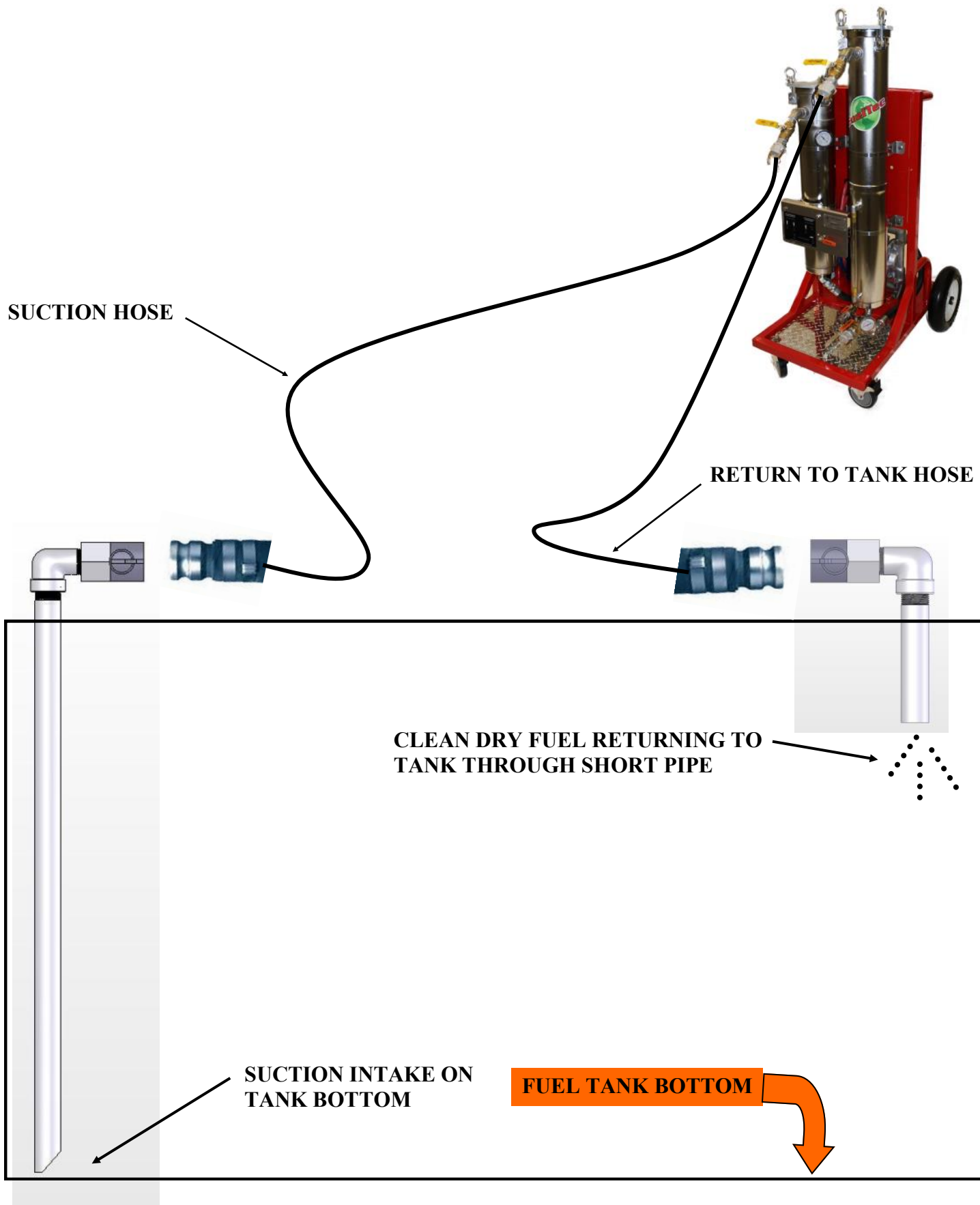
Water Separators

S11 for the 950AW

S22 for the 955SS

FLUID PICKUP TUBE BUILDING FOR FUELTEC'S MOBILE SYSTEMS





TANK CLEANING USING THE FUELTEC M-2 SUPPLY & RETURN MANIFOLD ALLOWING SUPPLY AND RETURN THROUGH ONE 2" TANK FITTING TYPICAL ON GENERATOR BASE TANKS

