OilSafe®

Advanced Bulk System

Owners Manual

IMPORTANT

- Please read this Owners Manual carefully and thoroughly before installing and operating your Advanced Bulk System.
- Please retain this owners manual for future reference after reading it thoroughly.

Advanced Bulk System
Owners Manual

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FOR YOUR RECORDS

Write the model and serial numbers here:
(You can find them on the Serial/Model No. Plate mounted at the rear of your system on a lower tank frame rail.)

Serial / Model #: _____

Supplier Name: _____

Date Purchased: _____

READ THIS MANUAL

Inside you will find important information on how to use and maintain your OilSafe Advanced Bulk System.

INTELLECTUAL PROPERTY

EXPLANATION OF SYMBOLS USED

This manual contains some common symbols and indications to alert you to specific areas of importance.

WARNING!

A situation that, if not avoided, could result in severe property damage, equipment damage, severe injury, or even death. FAILURE TO FOLLOW this warning will void your product warranty.

CAUTION!

A situation that, if not avoided, could result in property damage, equipment damage, or injury. FAILURE TO FOLLOW this caution will void your product warranty.

IMPORTANT:

This text will be used before text that has been designated as important to the proper installation, operation, or maintenance of your system. FAILURE TO READ and understand this text may result in improper installation, operation, or maintenance procedures and may void your warranty.

TIP:

This text will be used to highlight text that is helpful in the installation, operation, and maintenance of your system.

NOTE:

This text will be used to highlight text that is important to read in order to fully understand the terms and procedures used in this manual.

WARNINGS AND CAUTIONS

The OilSafe® Advanced Bulk System is designed for the storage of machinery lubricating oils and other NON-VOLATILE fluids. STORAGE OF FLUIDS WITH A FLASHPOINT BELOW 150°F (65.5°C) IS STRICTLY PROHIBITED.

Components within this system consist of materials that may not be compatible with your fluid. ALWAYS consult your supplier and refer to the fluid manufacturer's Material Safety Data Sheet ("MSDS") before introducing a fluid to this system.

WARNING!

When replacing tanks, a Whitmore employee must be present to participate in, or supervise the removal of tanks on frames.

ALWAYS ensure the main power supply is first locked out and the system depressurized before any service is performed on this system. NEVER connect or disconnect lines or change filter elements or undertake any service work when this system is running or energized. SEVERE INJURY OR DEATH MAY OCCUR.

CAUTION!

System Operating Pressure should NEVER exceed 300 PSI. Operating pressures can be regulated by adjusting pump bypass relief valves located on pump heads to suit specific lubricant viscosities and temperatures.

IMPORTANT:

ALWAYS REFER TO THIS MANUAL OR CONSULT YOUR SUPPLIER FOR MORE INFORMATION.

- ALWAYS ensure that you wear appropriate Personal Protective Equipment ("PPE") when operating this system.
- ALWAYS ensure that all system hoses, filters and fittings are securely fastened and in good working condition.
- THE OIL DRUM MUST ALWAYS BE VENTED TO ATMOSPHERE (preferably utilizing a Desiccant Air Breather).
- When dispensing or recirculating ALWAYS ensure the grounding cable is connected to the drum or barrel before starting the pump.
- ALWAYS ensure the system is appropriately grounded to earth utilizing relevant grounding equipment as specified and installed by your authorized electrical personnel in accordance with your local and federal regulations and safety procedures.
- Ambient room temperature where the system is installed should be in the range of 60°F (15°C) TO 80°F (26°C) with optimum room temperature being 70°F (21°C). For ambient temperatures below 60°F (15°C) consult the manufacturer or your supplier for the supply of electric blanket heaters for oil barrels, pails and bulk tanks to ensure stability of lubricant viscosity, condition and system performance. Temperatures less than (<60°F / 15°C) can result in lubricant viscosity increasing above the rated ISO Code you specified at the time of order. Such adverse viscosity changes can cause higher system operating pressures than those set at the factory. System operating pressure should never exceed 300 PSI as this can cause a gasket failure on the spin-on filter resulting in a high pressure oil leak. Normal system operating pressure should be less than 240 PSI. Operating pressures above 240 PSI will necessitate adjustment of the pump pressure relief bypass valve located on the pump head. Contact the manufacturer for more information prior to commissioning the system if the ambient room temperature will ever fall below 60°F (15°C).

WARNING!

FAILURE TO FOLLOW System installation, safety and operating instructions may result in SEVERE INJURY OR DEATH, damage to plant and equipment and void warranties.

OILSAFE LIMITED WARRANTY

OilSafe ("OS") warrants to the original product purchaser (hereinafter the "Customer") that the OS product for which the Customer received this warranty was designed, developed and manufactured using all due reasonable commercial care and good manufacturing practices. OS' products shall be free from defects in material and workmanship for 365 days from the original date of purchase by Customer. OS' sole obligation under this warranty is to repair or replace the product, at OS' option. OS must be notified by Customer in writing of any claim under this warranty within 30-days of any claimed lack of conformity of the product. THIS WARRANTY IS INTENDED TO BE IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED. OS SPECIFICALLY DISCLAIMS THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Warranty Limitations:

In no event shall OS be liable for any loss, inconvenience or damage, whether direct, incidental, consequential or otherwise, resulting from breach of any express or implied warranty or condition, of merchantability, fitness for a particular purpose or otherwise with respect to this product, except as set forth herein. Some states or countries do not allow limitation on how long an implied warranty lasts so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights, which may vary, from location to location. This warranty will be interpreted pursuant to the laws of the United States and the State of Illinois. The original English language version (meaning) of this warranty controls over all translations; OS is not responsible for any errors in translation of this warranty and/or any product instructions. This warranty is not intended to confer any additional legal, jurisdictional or warranty rights to you other than those set forth herein or required by law. If any portion of this warranty is held to be invalid or unenforceable for any reason, such finding will not invalidate any other provision. For products purchased in countries other than the United States, please contact OS' authorized representative (i.e., the 'company' or 'person' who represented OS or brokered the 'sale') in the country where the product was purchased.

Warranty Service Options:

For service under this warranty you must notify OS in writing. Such notification must specify in writing the product in question by model and serial number, applicable purchase order number and/or the original of date of your written notification.

You may contact OS as follows:

OilSafe by Whitmore

930 Whitmore Drive
Rockwall, TX 75087 USA

Telephone: (972) 771-1000
Fax: (972) 722-3252
Email: sales@oilsafe.com
www.oilsafe.com

Any insurance and/or shipping costs incurred in returning your OS product for service pursuant hereto are your responsibility. OS will not be responsible for any products lost or damaged in shipment.

Warranty Exclusions:

Representatives and brokers of OS products are not authorized to modify this warranty in any way. It is the Customer's responsibility to regularly examine the product to determine the need for normal service or replacement. This warranty does not cover the following:

- Products that have been modified, neglected or poorly maintained, misused, abused or involved in accidents or natural disasters.
- Damage occurring during shipment of the product (such claims must be presented directly to the freight forwarder or shipping company).
- Damage to the product resulting from improper maintenance or repair, the use or installation of parts and/or accessories that are not compatible with the original intended use of the product, or the failure to follow the product warnings and usage instructions.
- Damage or deterioration to the surface finish, aesthetics or appearance of the product.
- The labor costs required to remove and/or refit and readjust the product covered by this warranty.
- Normal wear and tear to the product.
- Filter Cartridges, Desiccant Air Breathers, Level Gauges and other consumable items.
- Service Trips to Customer's location to teach Customer how to use the product.
- Defects that result from improper installation or damage not cause by OS.
- Damage to the product caused by accident, fire, floods or other acts of God.

1. INTRODUCTION

Thank you for purchasing an **OilSafe® Advanced Bulk System**. This System was designed to store and dispense bulk lubricants in the workplace. The system was designed with quality in mind and is fully modular. The interchangeable series of tanks, frames, pumps, filters, and storage modules have been customized for your application. The installation, operation, and maintenance instructions in this document will provide you with all the information you will need for the lifetime of your system.

The system was specially configured per your specification. It features up to four standard tank sizes mixed and matched to your specifications, and color-coding to prevent cross-contamination and misapplication of fluids. Your system was designed to store and dispense lubricants up to ISO 680 (if specified at the time of order).

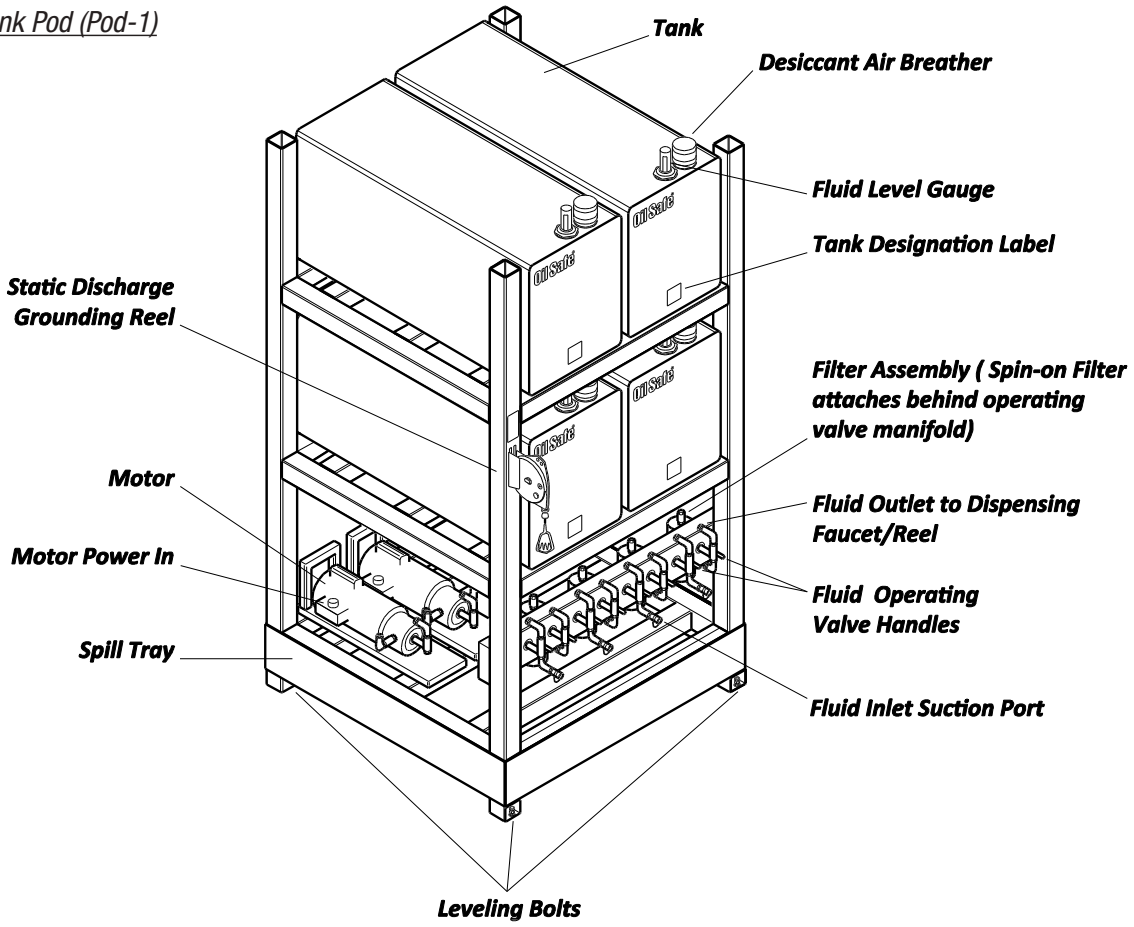
Throughout this document, we will be referring to each individual frame set (that houses a set of tanks, motors, pumps, spill pan, faucets etc.) as a "Tank Pod" (or "Pod-1" in the event you have purchased more than one Pod).

Each Tank Pod can contain many different varieties of tanks including:

- One - 240 gallon tank
- Two - 120 gallon tanks
- Four - 65 gallon tanks (configuration shown in this manual)
- Eight - 30 gallon tanks
- Any combination of these tanks can be configured for your system as desired and any number of Pods can be purchased to accommodate the total number of tanks required to meet your applications.

Each Dispensing Pod can contain up to FOUR (4) Dispensing Faucets.

FIGURE 1: *Tank Pod (Pod-1)*



2. PARTS AND PRE-INSTALLATION CHECK LIST

IMPORTANT:

CHECK packaging list to ensure you have all applicable parts before continuing. CONTACT YOUR SUPPLIER if it appears that any parts are missing or damaged. Refer to the specification sheet for your customized system for detailed system informa-tion including electrical requirements, and total weight of system.

Please make sure operating valves are in "Recirculation" positions before start-up and at shut-down of units. This provides the lowest amp draw and system pressure, ensuring the safest conditions for operators during start-up and shut down of the unit.

Each system section is referred to as a "Pod" in this manual. Check that you have received the appropriate number of Pods for your order. OilSafe has completed the assembly for each individual Pod. The only installation and assembly required after delivery is the placing of the Pods, and connecting the Pods together.

Each Bulk Tank has its own piping system designed to keep fluids segregated.

NOTE: For this manual, the Tank Pod/s will each be shown with four 65 gallon Bulk Tanks.

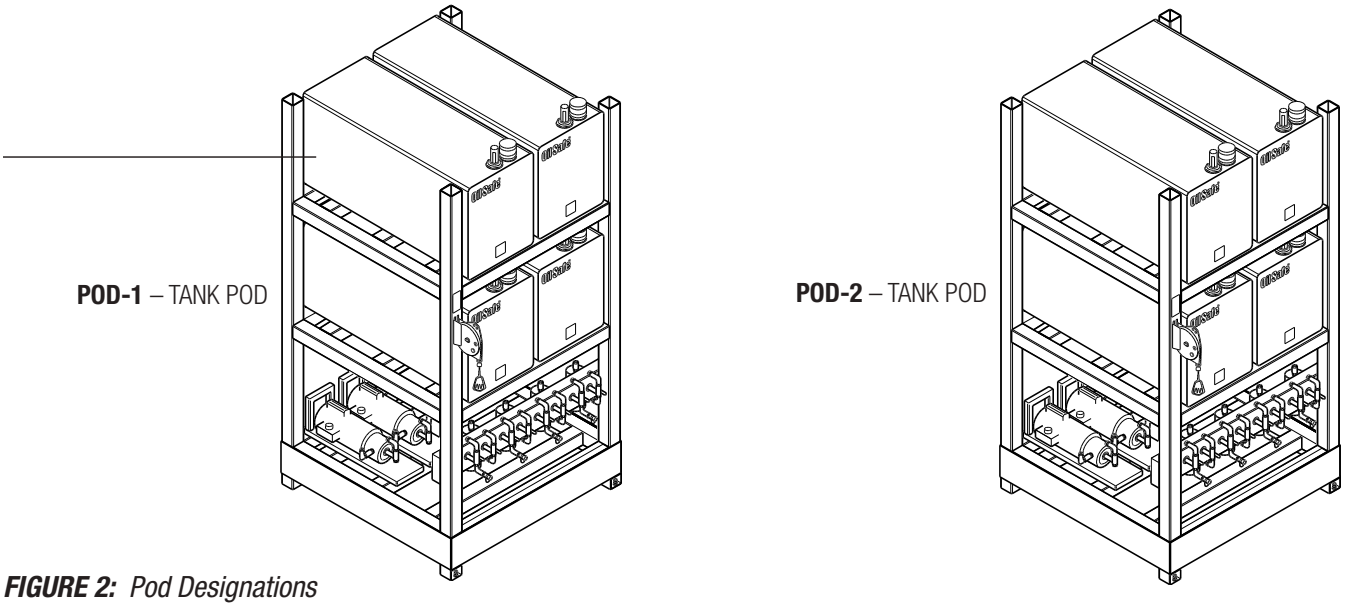


FIGURE 2: *Pod Designations*

Bulk Tank System Checklist

- 4 Bulk Tank (240, 120, 65, or 30 gallon tank, color-coded per order specifications, pre-installed)
- 4 Motor/Pump (pre-installed)
- 4 Dispensing Faucet (standard style comes with color-coded ball knob, fire upgrade comes as a brass valve)
- 4 Spin-on Filter
- 4 Fluid Level Gauge
- 4 Desiccant Air Breather Air Filter
- 4 Suction Hose Assembly
- 4 System Pressure Gauge
- 4 Isolation Valve (located on underside of tank)

Optional Equipment

- 4 Fluid Level Gauge Overfill Alarm
- 4 Spill Pan Connector Kit - Part# SP-CK-(# of pods to be connected)

3. STATIC DISCHARGE GROUNDING REEL

Static Discharge Grounding Reels are used to ground static charges on service equipment during the transfer of combustible fuel and other flammable liquids. The Static Discharge Grounding Reels supplied with your OilSafe® System are spring operated automatic retrieve reels containing standard steel aircraft cable.

The reel is compact in design, for convenient mounting to your OilSafe® tank frame and provides a light, constant spring tension on the grounding cable, keeping the cable from becoming tangled.

The reels are constructed of steel and are equipped with a 100-ampere ground clamp and rubber covered bumper. An instant-acting lock and release provides operator convenience.

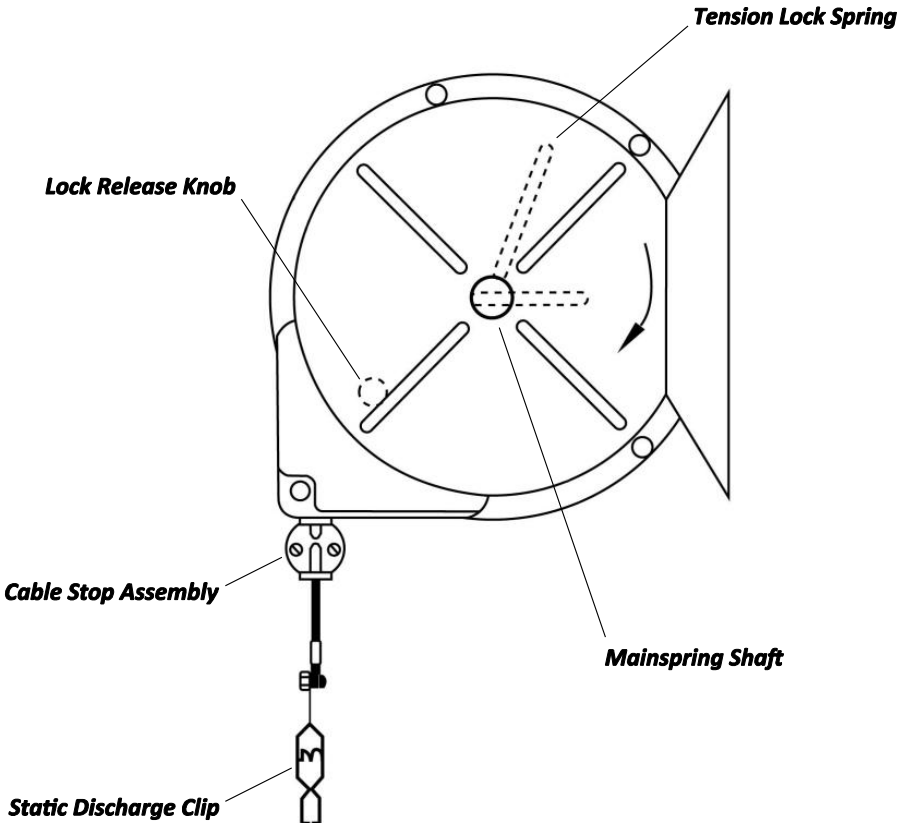
IMPORTANT:

CARE MUST BE TAKEN when reeling the cable back onto the reel. DO NOT let go of the cable – walk it back towards the reel, keeping tension on the cable at all times.

The cable stop assembly may be adjusted to any position. The mechanical locking device works positively at all times and in any position, regardless of the cable retraction speed. The lock engages at the desired position by pulling the cable approximately ½". The lock release knob completely disengages the lock to constant tension. Care should be taken to mount the reel on the front face of the OilSafe® tank frame where threaded holes have been provided.

For instructions on use, see page 18.

FIGURE 3: *Static Discharge Grounding Reel*



4. INSTALLATION AND SETUP

Tools, Materials, and Personnel Requirements:

- A minimum of two people are recommended to complete this install.
- Electrical hook-ups and installation should be completed by your authorized electrical personnel in accordance with all local and federal laws and regulations.
- A hand pallet truck is required to move each Pod into position.
- 3/4" wrench for system leveling/jacking bolts.
- 2-3/8" wrench to tighten Fluid Level Gauge.
- Spin-on filter wrench.
- Personal Protective Equipment ("PPE") should be worn when installing and operating this system.

Determine Placement:

1. The system should be installed indoors on a flat, level surface with sufficient load-bearing capacity to support the total system weight. **See Table 5 on page 35.**
2. Each electrical motor requires a separate power outlet. See your specification sheet (or system supply quotation) for electrical requirement details. Give consideration to whether more than one pump could be running at the same time, in which case it is recommended that each power outlet be wired with independent circuits. CONSULT WITH AN AUTHORIZED AND TRAINED ELECTRICIAN.
3. BEFORE beginning installation, determine where your system will be installed and ensure sufficient power outlets have been installed at the rear of the system, positioned behind where the motors will be located. Each power outlet should be equally spaced along the wall and be placed approximately 12" up from floor level.

IMPORTANT:

- It is important to note the effect of the ambient temperature in which the system is placed for operation. System room temperature should be in the range of 60°F (15°C) TO 80°F (26°C) with optimum room temperature being 70°F (21°C). For ambient temperatures below 60°F (15°C) consult the manufacturer or your supplier for the supply of electric blanket heaters for oil barrels, pails and bulk tanks to ensure stability of lubricant viscosity, condition and system performance.
- Temperatures less than (<60°F / 15°C) can result in lubricant viscosity increasing above the rated ISO Code you specified at the time of order. Such adverse viscosity changes can cause higher system operating pressures than those set at the factory.
- System operating pressure should never exceed 300 PSI as this can cause a gasket failure on the spin-on filter resulting in a high pressure oil leak. Normal system operating pressure should be less than 240 PSI. Operating pressures above 240 PSI will necessitate adjustment of the pump pressure relief bypass valve located on the pump head.
- Contact the manufacturer for more information prior to commissioning the system if the ambient room temperature will ever fall below 60°F (15°C).

5. INSTALLATION

DANGER

CAUTION!

Personal Protective Equipment ("PPE") should be worn when installing and operating this system.

System Operating Pressure should NEVER exceed 300 PSI. System operating pressures can be regulated by adjusting pump bypass relief valves located on pump heads to suit specific lubricant viscosities and temperatures.

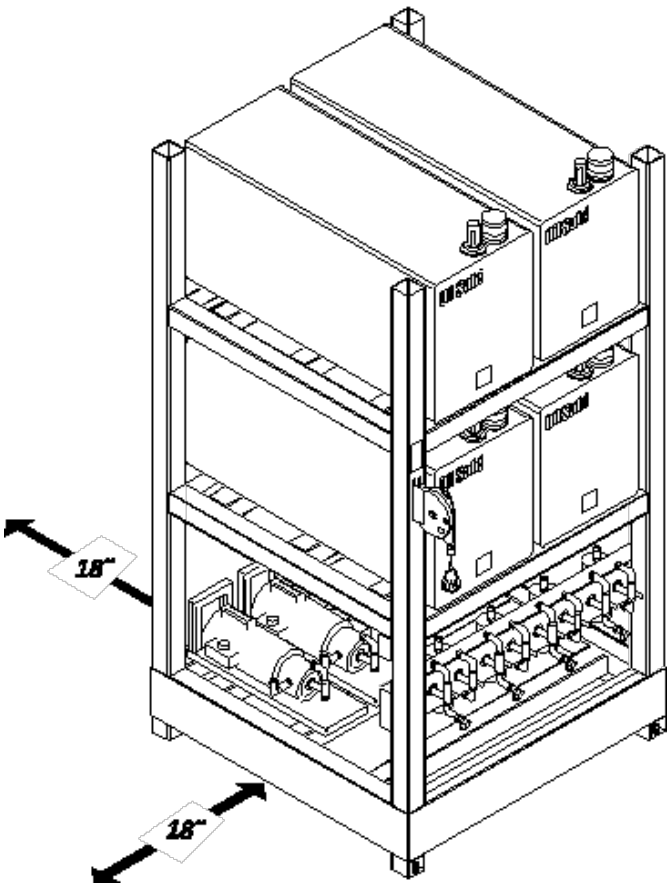
System SHOULD NOT be operated in a location with an ambient room temperature less than 60°F/15°C Contact the manufacturer for more information relating to service in cold environments.

STEP 1. The system is delivered pre-assembled, packaged, and marked "Pod-1", "Pod-2" etc. depending on the specific customized system. This will indicate the respective Pod's position within the system from left to right, when viewed from the front.

STEP 2. Locate Pod-1 and remove and appropriately dispose of the freight packaging.

STEP 3. Using a suitable hand pallet truck, position Pod-1 into its service position, ensuring that there is at least 18" of free clear space at the rear and 18" either end of the system. This will enable personnel to access the system for service work. **See Figure 4.**

FIGURE 4: *Minimum Clearance Requirements*



5. INSTALLATION

STEP 4. Using a level and the provided jacking bolts in the base frame, adjust the Pod until it is level from front to back, side to side, and top to bottom. Check to ensure it is square to any adjacent rear or side walls.

STEP 5. Locate Pod-2 and remove and appropriately dispose of the freight packaging.

STEP 6. Using a suitable hand pallet truck, position Pod-2 to the right of Pod-1 so that the spill transport pallets are square and flush next to one another. **See Figure 5 and Figure 6.**

STEP 7. Using a level and the provided jacking bolts in the base frame, adjust the Pod until it is level from front to back, side to side, and top to bottom, and square with the adjacent Pod.

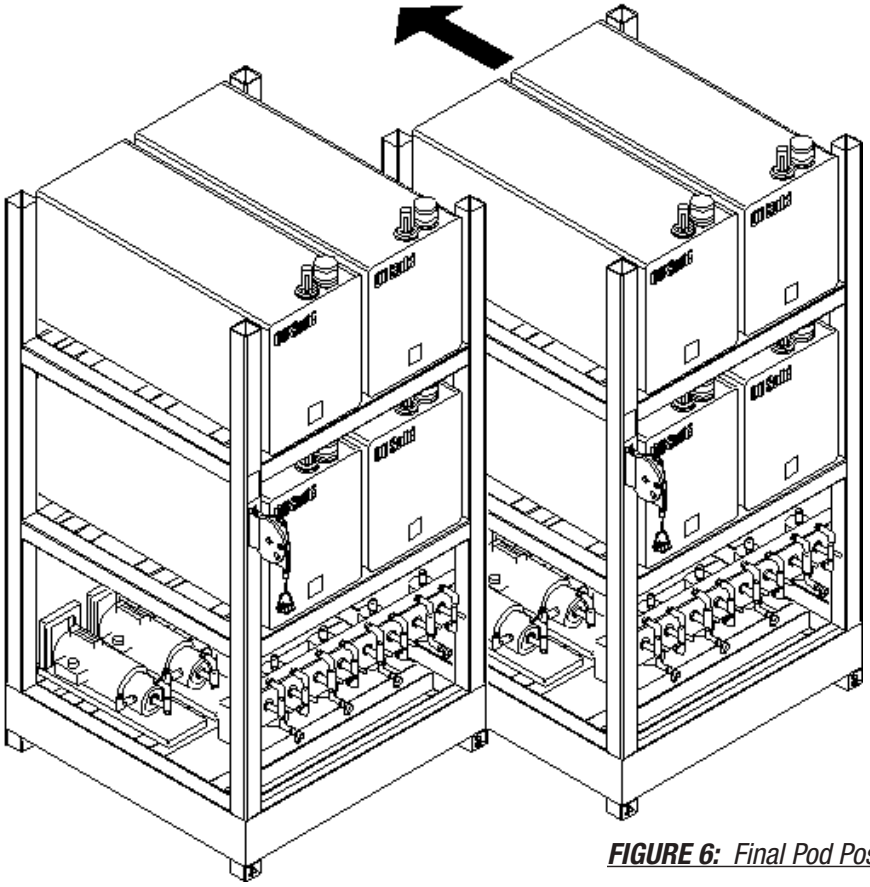


FIGURE 5: *Pod-2 Placement*

FIGURE 6: *Final Pod Positioning*

DANGER

CAUTION!

ALWAYS keep hands and feet clear of mating and moving parts when moving the Pods into position.

5. INSTALLATION

Optional Equipment - New Product! Spill Containment Connector Kit

OilSafe Bulk Systems are now configured to allow the containment pans to be connected at the back of each frame simply by ordering an optional **Spill Containment Connector Kit.** The kit can be installed in a few minutes and is easily disconnected if it becomes necessary to move frames.

SPILL CONTAINMENT CONNECTOR KIT	PART # 'S
2 - Pod Connector Kit	SP-CK-2
3 - Pod Connector Kit	SP-CK-3
4 - Pod Connector Kit	SP-CK-4
5 - Pod Connector Kit	SP-CK-5
6 - Pod Connector Kit	SP-CK-6
7 - Pod Connector Kit	SP-CK-7
8 - Pod Connector Kit	SP-CK-8
9 - Pod Connector Kit	SP-CK-9
10 - Pod Connector Kit	SP-CK-10

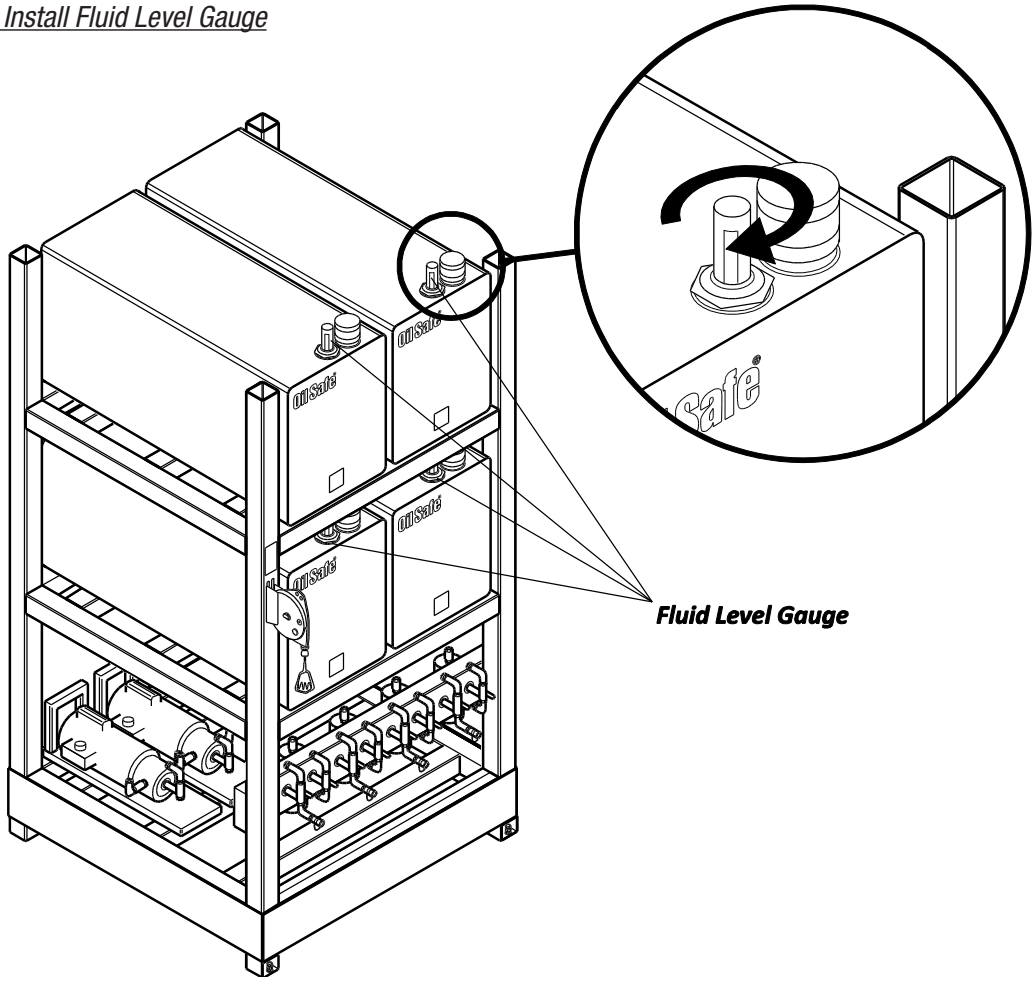
If connecting more than 10 pods, please affix the appropriate number of pods at the end of the Part#.

5. INSTALLATION

STEP 8. Installing the Fluid Level Gauges **See Figure 7 and Figure 8 for details.**

- **a.** Unscrew and remove the red locking nut.
- **b.** Remove the calibration.
- **c.** Gently pull up the red indicator.
- **d.** Carefully insert the float assembly into the tank.
- **e.** Screw the aluminum bushing into the tank port until tight and ensure the arrow on the flat side of the hex bushing is pointing toward the rear of the tank.
- **f.** Gently lower red indicator to its resting position and then gently raise and lower it to ensure the float mechanism is free and clear inside the tank.
- **g.** Reinstall the calibration.
- **h.** Fasten the red locking nut (as illustrated).

FIGURE 7: *Install Fluid Level Gauge*



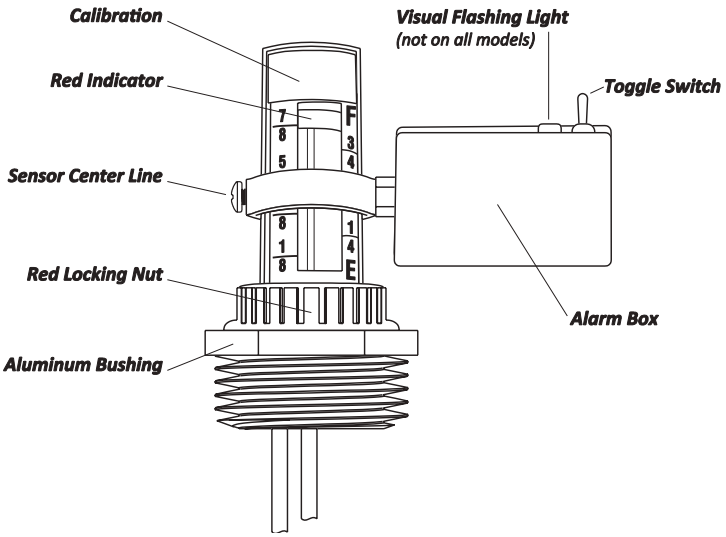
5. INSTALLATION

NOTE: For systems that have overfill alarms, follow STEPS 11 - 14 to install your overfill alarm. If you purchase an overfill alarm at a later date, these instructions will allow you to install the overfill alarm at that time.

STEP 9. If this is an initial installation, and you ordered your bulk system with an overfill alarm, proceed to STEP 13.

STEP 10. To install the alarm on an existing gauge, first install the magnet (provided) on your gauge. (If you ordered the alarm with a gauge, the magnetized indicator will already be installed, skip to STEP 13.) **See Figure 8 for Alarm details.**

FIGURE 8: *Overfill Alarm*



STEP 11. Remove the red locking nut that holds the top of the gauge in place. After you remove the nut, you will be able to remove the calibration (the plastic tube that shows your tank level) and you should have access to the red indicator. Pull the indicator off by pulling gently upward.

STEP 12. Make a mark on the indicator rod ½" from the top. Take the small metal clip (provided) and push it onto the rod down to the mark. Then push the magnet onto the same rod until it is sitting flush on top of the small metal clip (you may have to file off any burrs on the end of the rod in order to fit the magnet onto the rod.)

STEP 13. Once the clip is installed with the magnet on top of it, you will then reinstall your red indicator. Be sure to use the new red indicator provided with the alarm, and discard the old indicator.

STEP 14. Install the 9-volt lithium battery into the alarm box.

STEP 15. Loosen the set screw located on the aluminum ring of your alarm. Slide the ring over the calibration down to the center line level where you wish the alarm to activate and tighten the set screw to hold the alarm in place.

STEP 16. The switch located on the alarm can be used to silence the audible alarm (where fitted) after it goes off. It will automatically reset to re-alarm when the magnet moves back out of the alarm area. The switch can also be used to test the battery. Toggle it once to activate it and once more to reset it.

IMPORTANT:

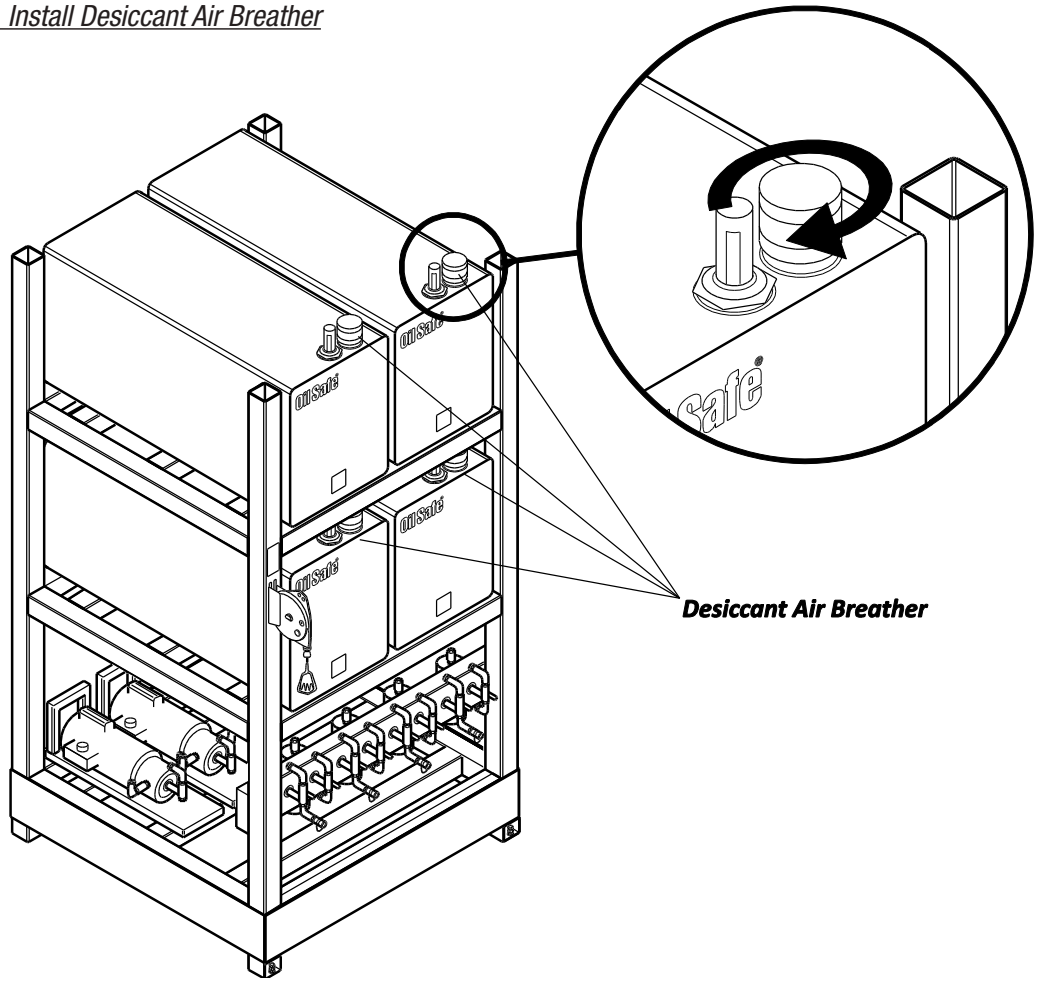
- The Switch is a toggle switch. It is meant to be moved left and right. **DO NOT** push down on the toggle switch.

5. INSTALLATION

Installing the Desiccant Air Breather (See Figure 9 for details)

STEP 17. Install the Desiccant Air Breather air filter to each tank by screwing it (clockwise) into the threaded opening on the top right of the Bulk Tank. Remove the elastic white band on the top of the Desiccant Air Breather to activate the breather.

FIGURE 9: *Install Desiccant Air Breather*



STEP 18. Install the Spin-on Filter as follows (if not already installed);

- **a.** Ensure all sealing surfaces are clean and free of damage.
- **b.** Apply a light film of clean oil to the sealing surfaces of the filter gasket (NOTE – never use grease to lubricate the gasket) and then carefully insert the sealing gasket into the mating female annular seat in the filter head being sure to attain a firm flush seat with the gasket.
- **c.** Screw the new filter element on carefully, avoiding cross-threading. After the sealing gasket contacts the mounting base, tighten the filter with a Spin-on Filter wrench (not provided) per the instructions found on the filter. **DO NOT OVERTIGHTEN.**

5. INSTALLATION

IMPORTANT:

- Per the manufacturer's recommendation, write the installation date of the Spin-on Filter on the provided sticker located on the filter. The first filter should be replaced after the first 50 hours of system service. Subsequent filters should be replaced per the instructions in the **Maintenance Section of this manual on page 22.**

STEP 19. Install the Static Discharge Grounding Reel securely to the front face of the Tank Pod (Pod-1) frame using the threaded holes provided in the frame and the mounting bolts supplied with the reel.

STEP 20. Pull the grounding cable out to determine if the tension is sufficient for the intended use.

a. If additional tension is needed, apply a wrench to flats on the mainspring shaft, rotating counter-clockwise until the desired tension is reached.

b. If mainspring tension is too high, it may be decreased by depressing the tension lock spring on the opposite side of reel. **DO NOT** remove more tension than desired. If too much tension is removed, increase tension as described above.

STEP 21. Install the dispensing faucets supplied with your system into the threaded ports provided on the front face of the control panel. Use of appropriate thread sealing paste is recommended on threaded joints.

6. ELECTRICAL INSTALLATION

STEP 22. Plug the power cords into the individual wall outlets as designated in the specification sheet.

NOTE: There will be one (1) power supply cord for each motor and each will be labeled to correspond to its related motor/tank.

WARNING!

Failure to follow system installation, safety and operating instructions may result in severe injury or death, damage to plant and equipment and void manufacturer warranties.

The following instructions should be carried out by a **trained and authorized** electrician or electrical personnel in accordance with your local and federal regulations and safety procedures. **Always** ensure the system is appropriately grounded to earth utilizing the grounding lugs provided at the rear base of the system, together with relevant grounding equipment as specified and installed by your authorized electrical personnel.

The system should be grounded before use. Grounding Lugs are provided at the rear base of the system on the inner face of the frame uprights. At the rear of the system, locate the power supply cord(s) coming from the electrical motor/s.

7. INITIAL OPERATION

IMPORTANT:

- **Follow these steps the very first time you use your system.**

WARNING!

The Tank Isolation Valves (located on the underside of each tank) must be in the open position when operating the system and in the closed position when servicing the system.

CAUTION!

Personal Protective Equipment ("PPE") should be worn when installing and operating this system. ALWAYS monitor the system whenever the pump is running or fluid is dispensing.

System Operating Pressure should NEVER exceed 300 PSI. System operating pressures can be regulated by adjusting pump bypass relief valves located on pump heads to suit specific lubricant viscosities and temperatures.

System SHOULD NOT be operated in a location with an ambient room temperature less than 60°F/15°C Contact the manufacturer for more information relating to service in cold environments.

The first time the system is used there will be some air that has been trapped in the hoses. This is normal and will not affect the system. Simply wait for the air to stop coming out of the lines and fluids to dispense normally before continuing. If air continues to come out of the hoses after the initial use, there may be a problem with a seal or a hose. **See the Troubleshooting section (page 26)** of this manual, or contact your supplier for additional support. Ensure that the Tank Isolation Valves located on the underside of each tank are in the open position before continuing.

Using the Operating Valve Handles

Each tank assembly has two operating valve handles located on the front of the Tank Pod. The position of these handles will determine how your system will pump the fluid. There will be a placard on the front of the Tank Pod indicating which position the handles will need to be in for each setting.

To fill the tank(s) – place both valves in the "UP" position, so the handle is parallel to the ground. To re-circulate the fluid in the tank(s), turn the left-side handle (above the inlet valve) so it is perpendicular to the floor, and keep the right-side handle parallel to the floor. To dispense the fluid in the tank(s) (normal operation), turn both handles to be perpendicular to the floor.

OPERATING VALVE POSITIONS

FILL	RECIRCULATE	DISPENSE
Left – Up	Left – Down	Left – Down
Right – Up	Right – Up	Right – Down

7. INITIAL OPERATION

Filling the Tank(s) (See Figure 10 and Figure 11 for details)

IMPORTANT:

- **If you have not installed your Spin-on Filter, make sure you do so before proceeding.**

STEP 1. Locate the Suction Hose Assembly. Each tank will have its own individual Suction Hose Assembly. **See Figure 10.**

STEP 2. Place the tube-end of the Suction Hose Assembly into the oil drum or container (55-gallon drum). **See Figure 11.**

FIGURE 10: *Suction Hose Assembly*

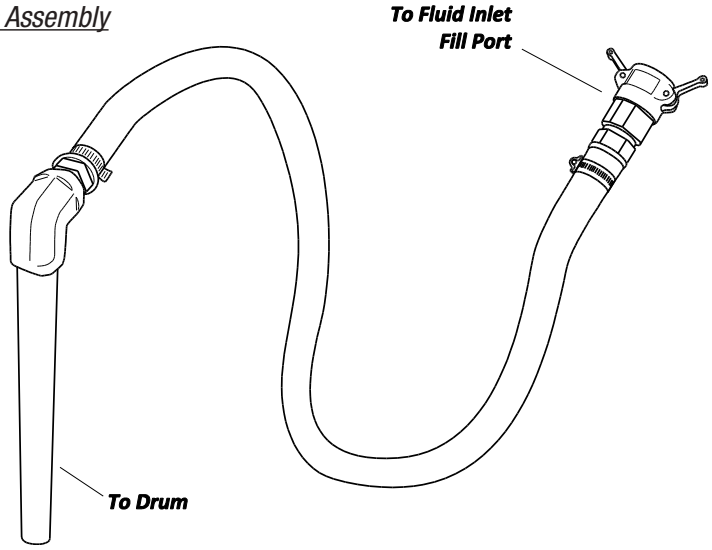
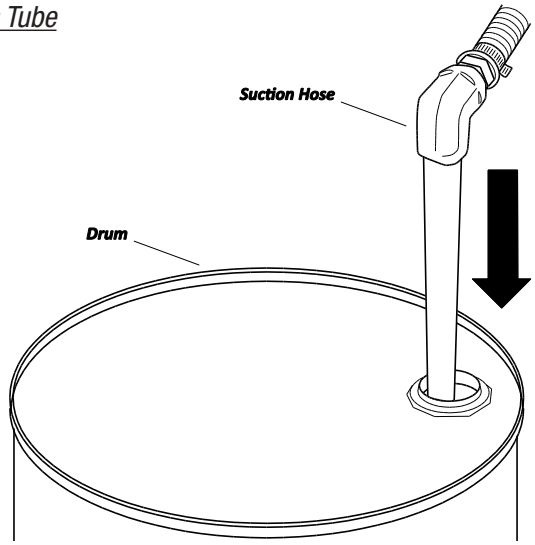


FIGURE 11: *Place Suction Tube*

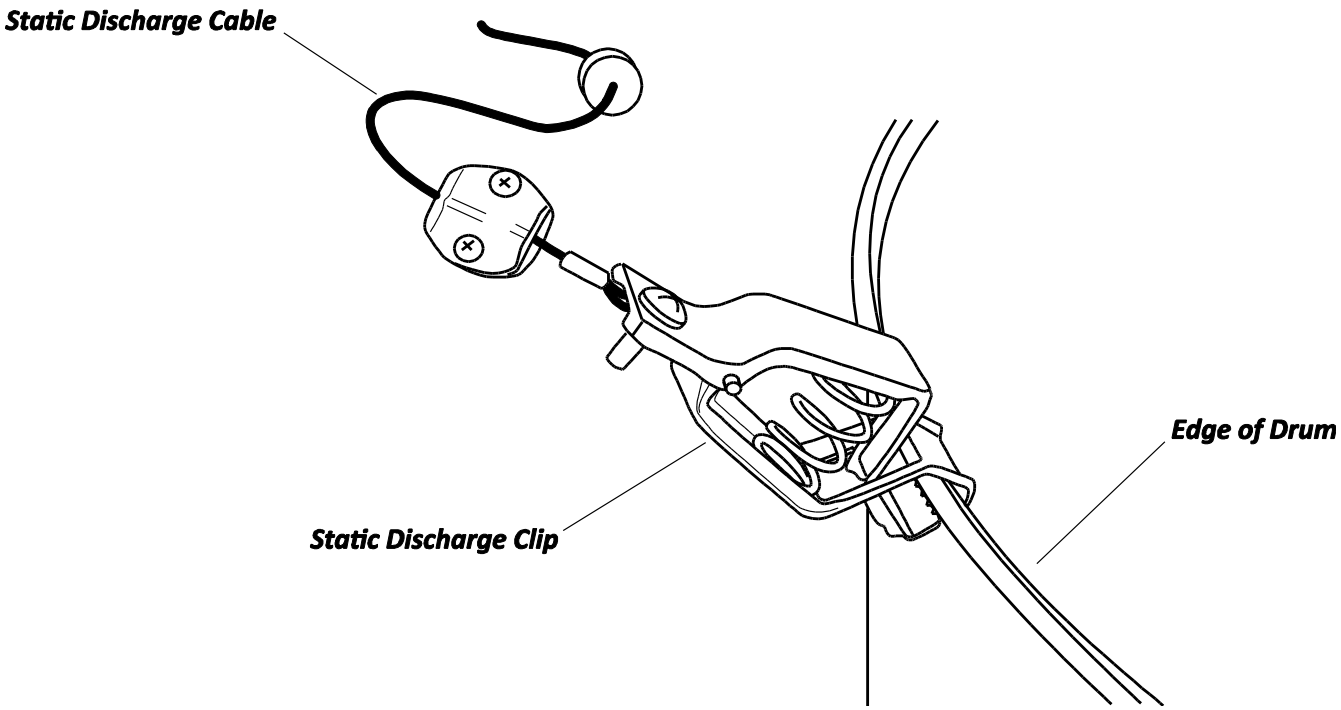


7. INITIAL OPERATION

Filling the Tank(s) (See Figure 12 for details)

STEP 3. Attach the Static Discharge Cable to the drum. **See Figure 12.**

FIGURE 12: *Attach Static Discharge Cable*



DANGER

CAUTION!

When filling Bulk Tanks from drums or barrels always ensure the Static Discharge Clip is connected to the drum or barrel before starting the pump.

7. INITIAL OPERATION

Filling the Tank(s) (See Figure 13 and Figure 14 for details)

STEP 4. Remove the fill port inlet end cap of the appropriate tank by lifting the tabs and pulling the end cap off. Clean the inlet of any debris before continuing. **See Figure 13.**

STEP 5. Attach the coupling-end of the Suction Hose Assembly to the front of the unit. **See Figure 14.**

STEP 6. Put the operating valve handles for the tank in the "Fill" position (up and up) and also ensure the dispensing faucets are in the closed position.

STEP 7. Press the START button above the corresponding Dispensing Faucet to begin loading the Bulk Tank.

STEP 8. Monitor the Bulk Tank Fluid Level Gauge to avoid over-flow situations.

STEP 9. When the tank is full, raise the suction tube vertically out of the oil drum and allow the pump to pull through any residual oil remaining in the suction hose assembly then press the STOP button above the Dispensing Faucet to turn off the pump.

STEP 10. Remove the hose from the fill port inlet, replace the inlet end cap and then store the suction hose assembly for future use.

STEP 11. Remove the Static Discharge Clip.

FIGURE 13: *Remove Fill Port Inlet End Cap*

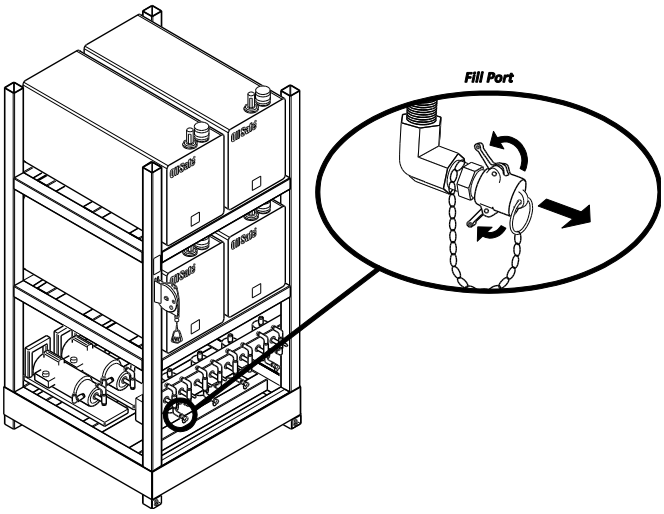
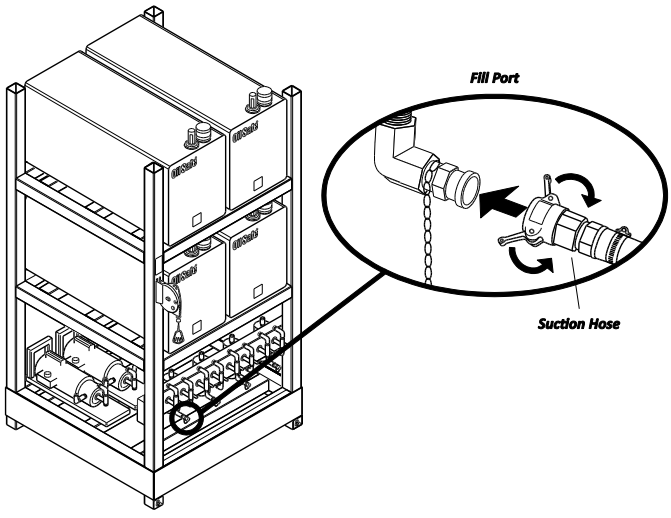


FIGURE 14: *Attach Suction Hose Assembly to Fill Port Inlet*



DANGER

CAUTION!

Care must be taken when reeling cable back onto the reel. **DO NOT** let go of the cable – walk it back towards the reel, keeping tension on cable at all times.

7. INITIAL OPERATION

NOTE: OilSafe recommends an initial Re-Circulation ("Kidney-Loop") of the fluid at the first fill. Refer to Re-Circulation ("Kidney-Loop") Cycle Time Guide in the **Data Tables section (page 35)** for approximate run times to complete single pass filtration of each tank.

Re-Circulation ("Kidney-Loop") Cycle

STEP 12. Put the operating valves in the "Re-Circulate" configuration – (left "DOWN", right "UP").

STEP 13. Run each filled Bulk Tank for the approximate times set out in the Re-Circulation ("Kidney-Loop") Cycle Time Guide table in the Data Tables section (page 35).

Dispenser Faucets

STEP 1. Press START to start the pump.

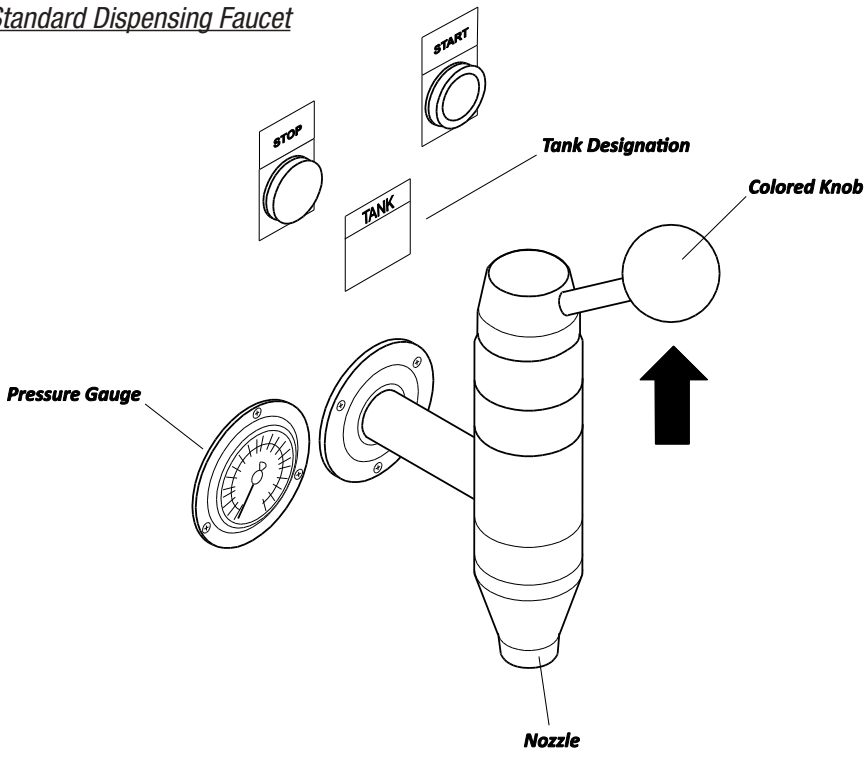
STEP 2. Place a clean fluid transfer or storage container under the tap (approximately 5 Gallon (10 Liter)) capacity.

STEP 3. Lift up on the handle **See Figure 15 (standard faucet style illustrated)**.

STEP 4. Release the handle and the flow will stop.

STEP 5. Press STOP to stop the pump.

FIGURE 15: *Operating the Standard Dispensing Faucet*



7. INITIAL OPERATION

Dispenser Faucets (continued)

NOTE: Due to the air that has been trapped in the hoses during assembly, air will come out of the faucet initially. Keep the faucet in the open position until fluid is flowing at a steady pace.

CAUTION!

Do not wedge anything under the handle to force it to stay open.

NOTE: Leaving the pump running against a closed Dispensing Faucet will not cause a pressure problem with the System, provided the pump pressure bypass relief valves on each pump have first been set to suit the particular oil viscosity and ambient room temperature, as the fluid will bypass back to the corresponding Bulk Tank via the pump bypass pressure return hose.

Normal System operating pressure should be less than 240 PSI when pumping against a closed faucet and should never exceed 300 PSI. Refer to the Trouble Shooting section at the rear of this manual for the bypass valve pressure setting procedure should your system operating pressure require adjustment. When the system is running, it should be monitored AT ALL TIMES.

8. MAINTENANCE

PERIODIC MAINTENANCE SHOULD BE SCHEDULED AND PERFORMED ON YOUR SYSTEM EVERY THREE MONTHS AFTER YOUR INITIAL INSTALLATION.

Requirements Prior to Maintenance:

WARNING!

ALWAYS ensure the main power supply is first locked out and the system depressurized before any service is performed on this system. NEVER connect or disconnect lines, change filter elements, or undertake any service work when this system is running or energized. SEVERE injury or death may occur.

The Tank Isolation Valves (located on the underside of each tank) must be in the open position when operating the system and in the closed position when servicing the system.

DANGER

CAUTION!

Personal Protective Equipment ("PPE") should be worn when installing and operating this system.

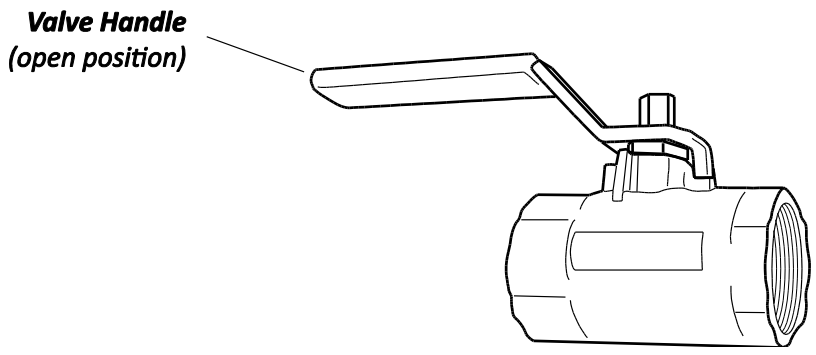
Before performing any maintenance on the system, the Bulk Tanks should be isolated by using the Tank Isolation Valves located on the underside of the tank. **The Tank Isolation Valves should be closed in the following situations:**

- Maintenance is to be performed on the system.
- The system needs to be moved.
- In the event of a fire, disaster, or other emergency situations.

Tank Isolation Valves

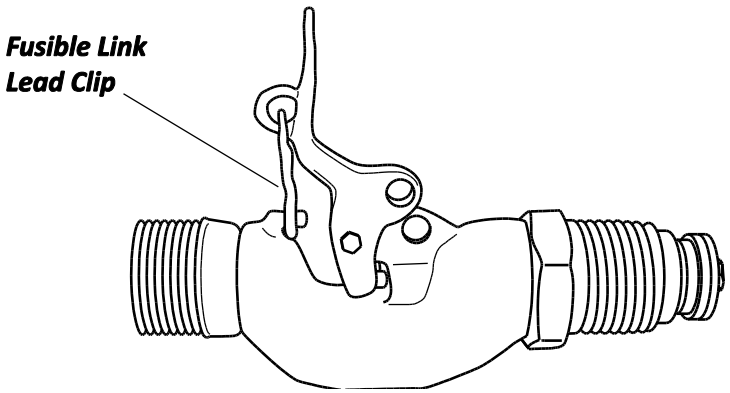
Your system will contain either a normal T-Ball Valve as the Tank Isolation Valve, or it may include a fusible link fire safe valve ("fire safe valve"). To isolate the system with the normal T-Ball Valve, simply move the handle of the valve such that it finishes perpendicular (90°) to the valve body. The valves are located on the underside of the tank. **See Figure 16 for a normal T-Ball Tank Isolation Valve that is in the open position.**

FIGURE 16: *Normal T-Ball Tank Isolation Valve in the Open Position*



If your system contains a fire safe valve (see your specification sheet for details), the valve can be closed by releasing the fusible link lead clip on the top of the valve. In the event of a fire, the lead clip will melt, forcing the valve to automatically close and secure your fluid. **See Figure 17.**

FIGURE 17: *Fire Safe Isolation Valve in the Open Position*



Maintenance Checklist:

EVERY 3 MONTHS:

- 4 Check Spin-on Filters.
- 4 Check Desiccant Air Breathers.
- 4 Confirm with your fluid supplier how frequently your fluid should be re-circulated to maximize fluid life. Should a Re-Circulation ("Kidney-Loop") cycle be recommended, run a recirculation cycle for the suggested times set out in the Tank Re-Circulation ("Kidney-Loop") Cycle Time Guide in the Data Tables section (page 35).
  - Put the valves in the "Re-Circulate" configuration (left "DOWN", right "UP").
  - Run each filled Bulk Tank for suggested time.

EVERY 6 MONTHS:

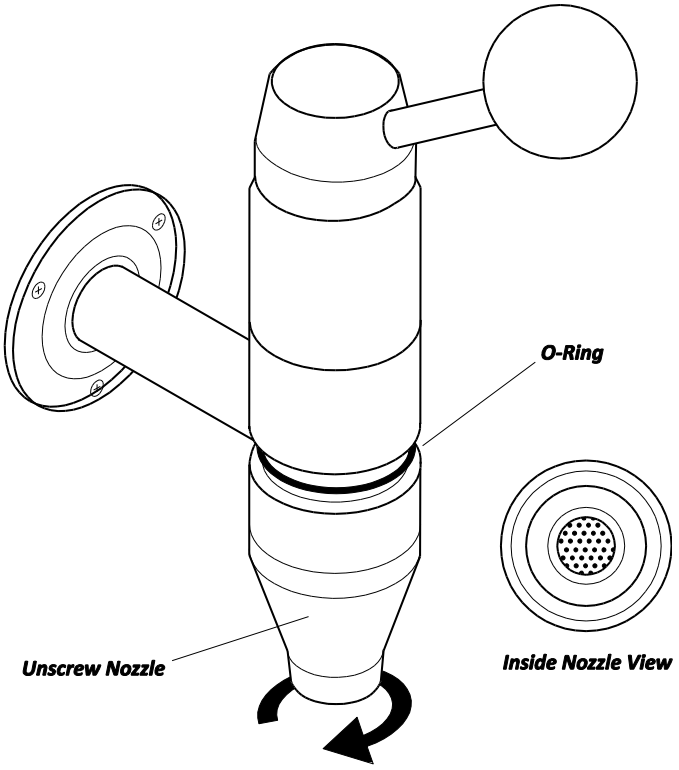
- 4 Replace Spin-on Filters as required.
- 4 Replace Desiccant Air Breathers as required (orange beads will turn dark green indicating the filter is used).
- 4 Check the batteries on any installed over-fill alarms. Batteries should be changed once per year.
- 4 Inspections:
  - Inspect all hoses for cracks or kinks.
  - Inspect all hose fittings for cracks or leaks.
  - Inspect and tighten all bolts.
- 4 Clean external surfaces: (Use an environmentally friendly cleaning/degreasing fluid and warm water. Rinse completely before replacing.)
  - Remove drip-pans from beneath the faucets, clean the entire grate and flush the pan.
  - Remove faucet nozzles by unscrewing, clean heads and o-rings. **See Figure 18 (for standard faucets).**

8. Maintenance Checklist

EVERY 6 MONTHS:

- 4 Flush out the spill transport pallet (bottom of the pods) with hot water and cleaner/degreasing fluid.
- 4 Use a clean and damp rag and wipe down the motor and all painted surface areas.
- 4 Polish all stainless steel areas with stainless steel cleaner.
- 4 Dust the motor fan.
- 4 Check tension on Static Discharge Reel.
  - If additional tension is needed, apply a wrench to the flats on the mainspring shaft, rotating counter-clockwise until the desired tension is reached.
  - If mainspring tension is too high, it may be decreased by depressing tension lock spring on the opposite side of the reel. DO NOT remove more tension than desired. If too much tension is removed, increase tension as described above.
- 4 Inspect the Static Discharge Cable for fraying. Lubrication is not required for the reel.

FIGURE 18: *Removing Faucet Nozzle*



9. MOVING YOUR SYSTEM

IF YOUR SYSTEM NEEDS TO BE MOVED FROM ITS PREVIOUSLY INSTALLED LOCATION FOR ANY REASON, USE THE FOLLOWING PROCEDURE TO SECURE YOUR SYSTEM PRIOR TO MOVING.

STEP 1. Pump all Bulk Tanks empty.

STEP 2. Depressurize the system by opening each faucet without the pumps running.

STEP 3. Lock out the main power supply.

STEP 4. Close the Tank Isolation Valve on the bottom of all tanks**.**

STEP 5. Flush out the spill transport pallet (bottom of the pods) with hot water and cleaner/degreasing fluid.

STEP 6. Disconnect the following for each tank assembly:

- **a.** Power cord from wall outlet.
- **b.** Faucets from control panel – if these will interfere with packing/transport.
- **c.** Tank level gauge and desiccant breather from any upper tanks.
- **d.** Place the hoses and cords in the spill pan at the bottom of the Pod.

STEP 7. Repeat all steps until each pod is isolated similar to how it was delivered initially.

STEP 8. Using a hand pallet truck, position the Tank Pod (Pod-1) into its new service position, ensuring that there is at least 18" of free clear space at the rear and each end of the system.

STEP 9. Continue to follow the normal installation steps for the system..

WARNING!

OilSafe DOES NOT recommend changing the type of fluid dispensed by a pump. Each system is custom-built to customer specifications including the type of fluid stored. Contact your supplier if your fluid storage needs change to remove the possibility of cross-contamination and incompatibility of system materials or components with a new fluid.

Also be aware of any change in ambient room temperature in the new location. Ambient room temperature should not be less than 60°F (15°C).

10. TROUBLESHOOTING

WARNING!

ALWAYS ensure the main power supply is first locked out and the system depressurized before any service is performed on this system. NEVER connect or disconnect lines, change filter elements, or undertake any service work when this system is running or energized. SEVERE injury or death may occur.

The Tank Isolation Valves (located on the underside of each tank) must be in the open position when operating the system and in the closed position when servicing the system.

The following troubleshooting procedures will help you identify and correct problems with your system. Every part of the system has been designed per your specifications and should not require maintenance, repair, or calibration beyond what was described in the maintenance section of this document.

If any of these troubleshooting procedures do not solve the issue, contact your supplier for additional support.

Issue	Steps to Resolve
Fluid Level Gauge is not reading correctly.	1. Remove the gauge. 2. Wipe the gauge and float assembly with a lint free cloth to remove any excess fluid. 3. Ensure all hinged joints and fittings are in good condition and moving freely and reinstall. 4. If the gauge is still not working correctly, remove it and contact your supplier for a replacement. **NOTE:** Overfilling the tanks may cause damage to the Fluid Level Gauge and cause it to read incorrectly.
The tank is not filling correctly.	1. Check to ensure the valves on the front of the unit are in the correct position. 2. Check all fittings for cracks or leaks. 3. Check all hydraulic hoses for cracks or leaks. 4. Check the motor to ensure it is rotating in the correct direction. If not, contact your authorized Electrician. 5. Check the Tank Isolation Valves and ensure they are in the OPEN position. 6. Check the Pressure Gauge to make sure that the pressure level is registering when the motor is running 7. If the Pressure Gauge is running above its normal range, it is time to replace your Spin-on Filter. Replace and check your Pressure Gauge again 8. Check the seals on the Suction Hose Assembly coupling to ensure they are not cracked or damaged. Replace if necessary. 9. Ensure the Desiccant Air Breather has had the white rubber band removed (if factory supplied breather).

10. TROUBLESHOOTING

Issue	Steps to Resolve
The tank is not dispensing liquid correctly.	1. Check to ensure the valves on the front of the unit are in the correct position. 2. Check all fittings for cracks or leaks. 3. Check all hydraulic hoses for cracks or leaks. 4. Check the motor to ensure it is rotating in the correct direction. 5. Check the Tank Isolation Valves and ensure they are in the OPEN position. 6. Check the Pressure Gauge to make sure that the pressure level is registering when the motor is running. 7. If the Pressure Gauge is running above its normal range, it is time to replace your Spin-on Filter. Replace and check your Pressure Gauge again. 8. Check and clean the Dispensing Faucet to remove dirt, debris, or clogs. 9. Check the o-ring on the Dispensing Faucet. Replace if necessary.
The motor stops working.	1. Check electrical enclosure to ensure power is applied to the pump. 2. Check all circuit breakers to ensure power is available. Check the power cord from the electrical enclosure to the motor for cracks or problems. 3. Check the power cord connector at the motor to ensure all the pins are seated correctly and that the connector is clean of dirt and debris. 4. Check that the Emergency System Stop Button is not set to the off position. 5. Have an electrician consult the electrical system specification to troubleshoot the system.
The Stop or Start Buttons do not light up correctly.	1. Ensure the power supply to the motor set is on. 2. Have an electrician consult the electrical system specification to troubleshoot the system.

10. TROUBLESHOOTING

Issue	Steps to Resolve
The pump system pressure is above 240 PSI.	1. Locate the pump bypass pressure relief valve on the side of the pump head. 2. Using a wrench, loosen the lock nut on the valve spindle by turning it counter clock wise. 3. Turn the valve spindle counter clock wise until it comes to a stop. This will result in the pressure relief valve now being in the lowest possible pressure setting. 4. Position the operating valves (at the front of the system) for the pump in question into the dispense position (down and down). 5. Have an additional operator stand at the control panel and start the pump and have them monitor the pump pressure gauge. Normal system pressure when running the pump in dispense mode **(with the dispensing faucet in the closed position)** should be in the range of 150 PSI – 240 PSI. 6. To increase the pressure back up to be within the normal 150 – 240 PSI range, carefully adjust the bypass pressure relief valve spindle (with the pump running) by slowly turning the valve spindle clock wise while the operator monitors the pressure gauge. This pressure setting re-adjustment will likely take 1.5 to 2.5 turns of the valve spindle depending on oil viscosity and operating temperature. 7. Once the desired pressure has been achieved, re-tighten the valve spindle lock nut by turning the nut clock wise.
The pump system pressure is above 240 PSI and the system is operating in a cold environment (less than 60°F / 15°C).	1. Ambient room temperature where the system is installed should be in the range of 60°F (15°C) TO 80°F (26°C) with optimum room temperature being 70°F (21°C). For ambient temperatures below 60°F (15°C) consult the manufacturer or your supplier for the supply of electric blanket heaters for oil barrels, pails and bulk tanks to ensure stability of lubricant viscosity, condition and system performance. 2. Temperatures less than (<60°F / 15°C) may result in lubricant viscosity increasing above the rated ISO Code you specified at the time of order. Such adverse viscosity changes can cause higher system operating pressures than those set at the factory. System operating pressure should never exceed 300 PSI as this can cause a gasket failure on the spin-on filter resulting in a high pressure oil leak. 3. If pump system pressure is above 240 PSI, adjust the pump bypass pressure relief valve as set out above.
High pressure oil leak from spin-on filter (blown gasket) – likely caused by system overpressure above 300 PSI.	1. Remove spin on filter, clean sealing faces and re-install with new gasket. 2. Check that the ambient room / oil temperature is above 60°F (15°C). 3. Follow the pump bypass pressure relief valve re-adjustment procedure set out above in the issue titled “The pump system pressure is above 240 PSI”.

11. REPAIR AND REPLACEMENT PROCEDURES

WARNING!

ALWAYS ensure the main power supply is first locked out and the system depressurized before any service is performed on this system. NEVER connect or disconnect lines, change filter elements, or undertake any service work when this system is running or energized. SEVERE injury or death may occur.

The Tank Isolation Valves (located on the underside of each tank) must be in the open position when operating the system and in the closed position when servicing the system.

The major components of the system were designed to be line replaceable. Before attempting any repairs or replacement, contact OilSafe in the event your part is covered by warranty.

You may contact OS as follows:

OilSafe by Whitmore

930 Whitmore Drive
Rockwall, TX 75087 USA

Telephone: **(972) 771-1000**
Fax: **(972) 722-3252**
Email: **sales@oilsafe.com**
www.oilsafe.com

Do not disassemble any part of the system without authorization from OilSafe. Failure to receive this authorization will void your product warranty.

The following parts of your system are replaceable. Contact your supplier for ordering information.

- The Tank and Motor can be replaced.
  Contact your supplier for specific instructions and have your system specification sheet at hand.

12. REPLACEMENT PARTS

Tank Desiccant Air Breather *(Part # 46Z134)*

This is the air filter on the top of the tanks. When the colored beads on the inside of the breather turn from orange to dark green, it is time to replace the filter. The filter can be screwed on and off.

Tank Level Gauge *(30G / 65G / 120G / 240G)* – Top Mount, Mechanical Float

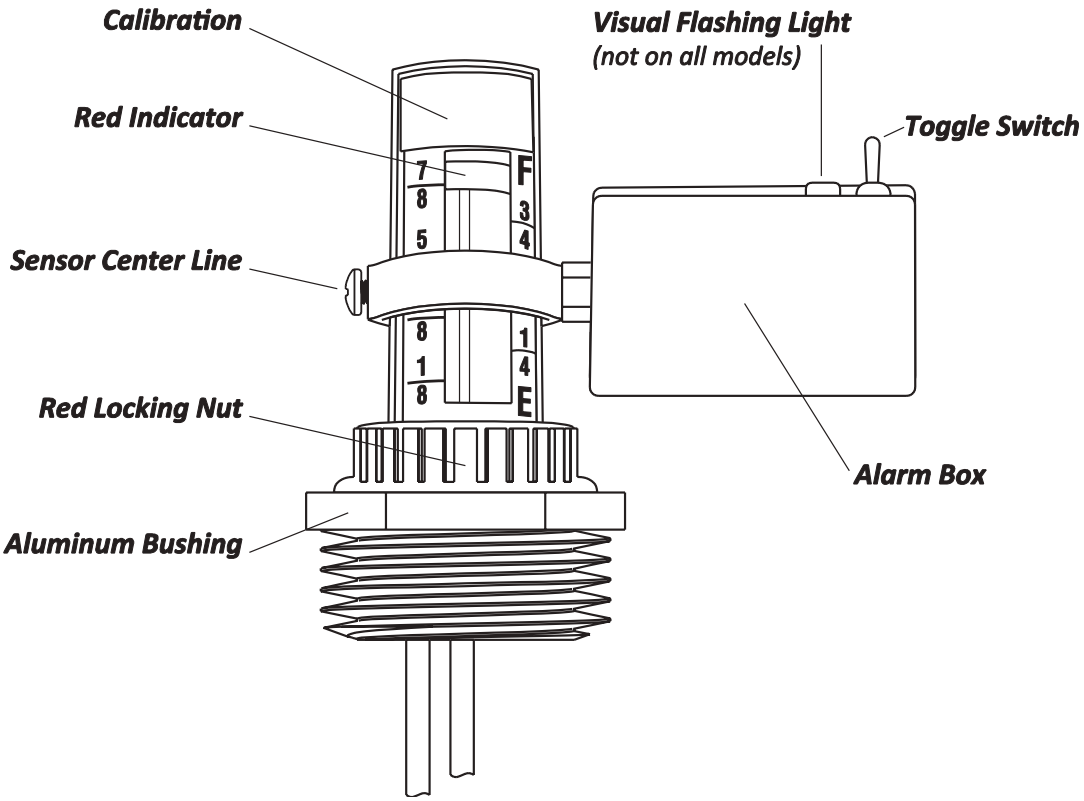
The Tank Level Gauge is located at the top center of each tank. It can be removed and replaced by screwing it on or off.

Direct Mount Overfill Alarm *(Part #'s: 921100, 921101, or 921102)*

This is optional equipment which signals if your tank is overfilling. There is an audible only alarm, a flashing light only alarm, and an alarm which combines the audible alarm and a flashing light. These alarms are fitted to the Tank Level Gauge located on the top of every tank.

The alarm has a 9-Volt lithium battery which should be replaced at least once per year. Battery life is shortened if the unit is left in alarm mode for extended periods of time. **See Figure 19 below.**

FIGURE 19: *Overfill Alarm*



12. REPLACEMENT PARTS

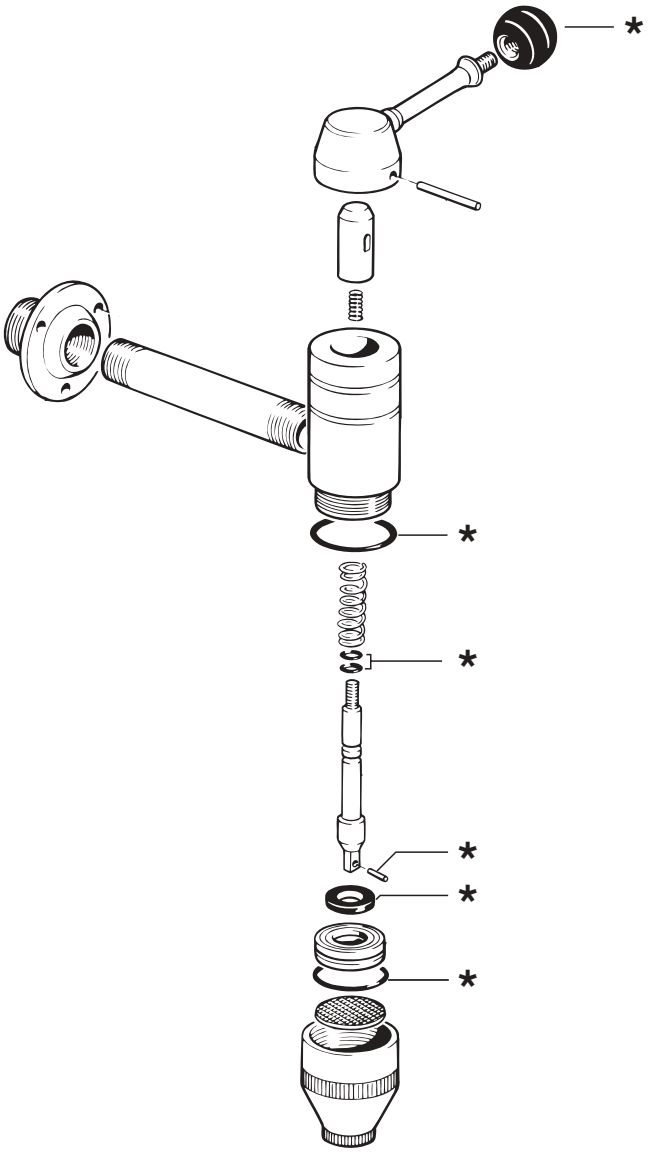
Colored Ball Knob for Standard Steel Shut Off Valve *(Available in 10 colors – See Table 1 on page 33 for Part #'s)*

The ball knob on the end of the Dispensing Faucet Handle is color-coded to match the fluid tank it corresponds with. If the ball knob is damaged or requires replacing for any reason, it can be removed by unscrewing it from the handle and replacing it with a new knob. Be sure to keep the color-coded system in place to allow users to easily recognize which Dispensing Faucet goes with each tank.

Steel Auto Shut-off Faucet *(with Black Ball Knob)*

The Steel Auto Shut-off Faucet can be removed and replaced as needed. There are also spare parts available for the Steel Auto Shut-off Faucet as noted by asterisks. **See Figure 20 below.**

FIGURE 20: *Steel Auto Shut Off Faucet – Exploded View*



12. REPLACEMENT PARTS

Spin-on Filter (3, 6, 12, or 25 um – micro glass)

This is the filter for the tank. The micron rating required will depend on your stated specification. Contact your supplier for additional information.

Static Discharge Grounding Reel (Retractable - 25 ft)

The Static Discharge Grounding Reel can be removed and replaced. Disassembly of the reel will void any warranty. Contact your supplier for additional information.

Suction Hose Assembly - Stainless Steel Tube with Reinforced PVC Hose

The Suction Hose Assembly used to load fluid from 55 gallon drums can be replaced. Contact your supplier for additional information.

TABLE 1: *Spare and Replacement Parts List*

Item Description	Type	Part #
Direct Mount Overfill Alarm (Audible Only) - fits to Tank Level Gauge	Alarm	921100
Direct Mount Overfill Alarm (Flashing Light Only) - fits to Tank Level Gauge	Alarm	921101
Direct Mount Overfill Alarm (Audible & Flashing Light)- fits to Tank Level Gauge	Alarm	921102
Colored Ball Knob for Steel Faucet Shut Off Valve - Beige	Ball Knob	921000
Colored Ball Knob for Steel Faucet Shut Off Valve - Black	Ball Knob	921001
Colored Ball Knob for Steel Faucet Shut Off Valve - Blue	Ball Knob	921002
Colored Ball Knob for Steel Faucet Shut Off Valve - Dark Green	Ball Knob	921003
Colored Ball Knob for Steel Faucet Shut Off Valve - Gray	Ball Knob	921004
Colored Ball Knob for Steel Faucet Shut Off Valve - Mid Green	Ball Knob	921005
Colored Ball Knob for Steel Faucet Shut Off Valve - Orange	Ball Knob	921006
Colored Ball Knob for Steel Faucet Shut Off Valve - Purple	Ball Knob	921007
Colored Ball Knob for Steel Faucet Shut Off Valve - Red	Ball Knob	921008
Colored Ball Knob for Steel Faucet Shut Off Valve - Yellow	Ball Knob	921009
Tank Desiccant Air Breather	Breather	46Z134
Steel Auto-Shut Off Faucet (with Black Ball Knob)	Faucet	921020
Brass Faucet – Fire Upgrade Option – ¾"	Faucet	921110
Brass Faucet – Fire Upgrade Option – 2"	Faucet	921111
Spin-on Filter - 3um -β200 - Micro Glass	Filter	469903
Spin-on Filter - 6um - β200 - Micro Glass	Filter	469906
Spin-on Filter - 12um - β200 - Micro Glass	Filter	469912
Spin-on Filter - 25um - β200 - Micro Glass	Filter	469925
Tank Level Gauge (30G / 65G / 120G) - Top Mount, Mechanical Float	Gauge	921105
Tank Level Gauge (240G) - Top Mount, Mechanical Float	Gauge	921106
Blind End Cap (1") for Fill Port Inlet Dixon Coupling	Hardware	921180
Steel Auto-Shut Off Faucet - Complete Gasket Kit - Spare Part for 921020	Seal O-Ring/Gaskets	921025
Static Discharge Grounding Reel (Retractable 25ft)	Reel	921275
Steel Auto-Shut Off Faucet Dispenser Nozzle O-Ring – Spare part for 921020	Seal O-Ring	920120
Dixon Coupling - Rubber Sealing Washer (1')	Seal - Rubber Washer	921190
Suction Hose Assembly - Stainless Steel Tube w/ Reinforced PVC Hose	Tube	921300

13. TANK OR MOTOR REPLACEMENT

For repair or replacement of a tank or motor, contact your supplier for ordering information. Prior to servicing, the tank should be pumped empty and then isolated using the Tank Isolation Valves on the underside of the tank, power should be disconnected from the system, and all hoses and cords removed from the tank assembly. There are two holding down bolts on the underside of the tank that must be removed prior to uninstalling the tank.

The motor/pump assembly is secured to the pod using a removable skid which is bolted to the pod. For motor removal and replacement, disconnect all lines from the motor/pump and remove the skid bolts. The motor/pump skid can then be pulled out and the new motor/pump can be set into place and connected.

When servicing, removing, or replacing parts, there may be specific tools required. **Table 2** below lists tool specifications for servicing, removing, or replacing equipment.

TABLE 2: *Tools and Wrench List*

Item Description	Fastener	Tool	Size
Dispensing Console - Faucet Mounting Screws	No. 10/24 Cap Screws	Hex Key	1/8"
Dispensing Console - Pressure Gauge Face Mounting Screws	No. 6 Cap Screws	Hex Key	5/64"
Dispensing Console - Stainless Splash Plate - Mounting Screws	5/16" UNC Cap Screws	Hex Key	3/16"
Dispensing Console - Steel Mounting Plate Screws	5/16" UNC Cap Screws	Hex Key	3/16"
Hose Connections - all discharge hydraulic hose connections	3/4" JIC Hose Coupler	Wrench	1-1/4"
Hose Connections - all pump by-pass return hose connections	1/2" JIC Hose Coupler	Wrench	7/8"
Hose Connections - all suction hydraulic hose connections	1" JIC Hose Coupler	Wrench	1-1/2"
Hose Connections - all system pressure gauge hose connections	1/4" JIC Hose Coupler	Wrench	9/16"
Hose Connections - Dixon Cam & Groove Coupling (Male Adaptor)	1" NPT Male Adaptor	Wrench	1-1/2"
Motor - Holding Down Bolts	5/16" UNC Bolt	Wrench	1/2"
Motor/Pump Manifold Foundation Bracket - Holding Down Bolts	3/8" UNC Bolt	Wrench	9/16"
Motor/Pump Skid - Holding Down Bolts	3/8" UNC Bolt	Wrench	9/16"
Static Discharge Grounding Reel - Mounting Bolts	1/4" UNC Bolt	Wrench	7/16"
System Leveling/Jacking Bolts	1/2" UNC Bolt	Wrench	3/4"
Tank - Mechanical Float Level Gauge - Steel Bung Adaptor	2" NPT Bung Adaptor	Wrench	2-3/8"
Tank - Sealing Plug (Rear Face - Bottom Auxiliary Port)	1" NPT Hex Socket Plug	Hex Key	5/8"

14. DATA TABLES

TABLE 3: *Tank Re-Circulation ("Kidney-Loop") Cycle Time Guide*

ISO Viscosity	32	46	68	100	220	320	460	680
Pump Flow Rate *(GPM)*	5	5	5	5	5	3	3	3
Rated Tank Size *(Gallons)*	**APPROXIMATE CIRCULATION TIME** *(Minutes)*							
30	42	42	42	42	42	70	70	70
65	91	91	91	91	91	152	152	152
120	168	168	168	168	168	280	280	280
240	336	336	336	336	336	560	560	560
Single Pass Filtration Factor	7							

Reservoir Size x 7 / Pump Flow Rate = Time

*Times will be a function of initial oil cleanliness, oil grades, oil temperature and other factors. Times based on a rated full tank (not brimful capacity)

* Flow rate values are approximate.

* For oils ≤ ISO 220 - motor pump set was 1HP / 115V / 60Hz / 14A / 1750 RPM, positive displacement direct coupled gear pump.

* For oils ≥ ISO 320 - motor pump set was 0.75HP / 115V / 60Hz / 10A / 1170 RPM, positive displacement direct coupled gear pump.

* Factory supplied Micro-glass, β200 spin-on filters.

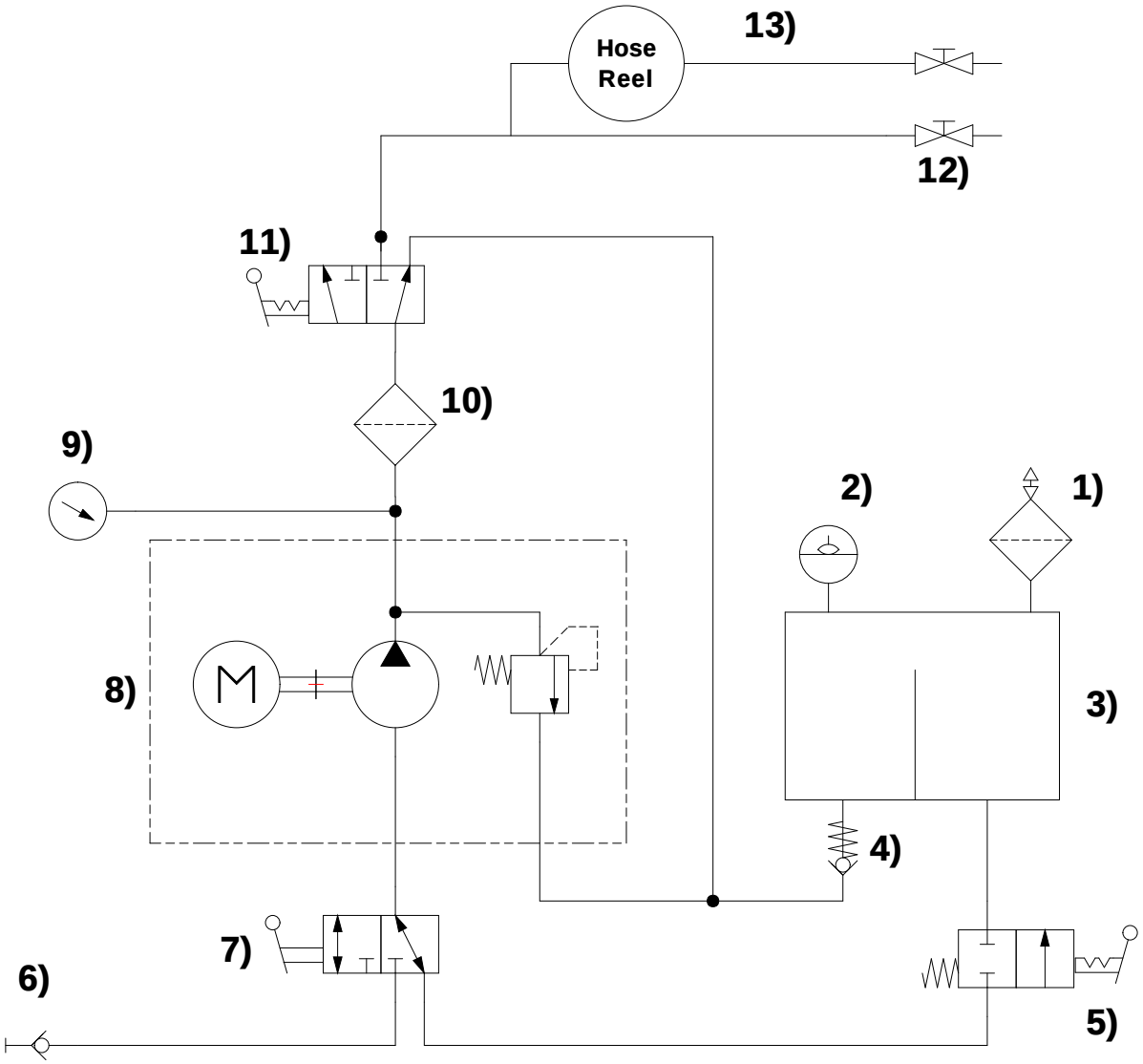
TABLE 4: *OILSAFE® Bulk Oil Tank Capacities (in Gallons)*

STANDARD TANK SIZE	APPROX. BRIM FULL CAPACITY
30 Gallons	36 Gallons
65 Gallons	73 Gallons
120 Gallons	150 Gallons
240 Gallons	300 Gallons

TABLE 5: *System Weights and Dimensions*

ITEM	APPROX. DIMENSIONS	APPROX. WEIGHT *(empty)*
Tank Pod (incl. Tanks)	45-1/2" (w) x 45-1/2" (d) x 88" (h)	1,650 lbs
30 Gallon Tank	9-3/8" (w) x 39-1/2" (d) x 23" (h)	107 lbs
65 Gallon Tank	19" (w) x 39-1/2" (d) x 23" (h)	144 lbs
120 Gallon Tank	38-1/2" (w) x 39-1/2" (d) x 23" (h)	232 lbs
240 Gallon Tank	38-1/2" (w) x 39-1/2" (d) x 46" (h)	360 lbs

OilSafe Advanced Bulk System
Plumbing Schematic - Rev2



1) Desiccant Breather #Z134
2) Level Indicator
3) Reservoir with integral baffle (seperating suction from return)
4) Return check valve
5) Fire protection valve with fusible link
6) 3/4" Female quick disconnect
7) Suction 3-way ball valve
8) 1HP-1200rpm motor & 3gpm(11.4lpm) 150psi(10.3bar) pump
   or Pneumatic diaphragm pump
9) Pressure gauge
10) Oil filter with condition indicator
11) Dispense or recirculate 3-way ball valve
12) Dispensing tap for container filling
13) Optional hose reel and dispensing gun

CUSTOMER SERVICE AND WARRANTY ISSUES

For any customer service, ordering requests, or warranty issues, please contact your authorized supplier or OilSafe.

You may contact OS as follows:

930 Whitmore Drive
Rockwall, TX 75087 USA

Telephone: **(972) 771-1000**
Fax **(972) 722-3252**
Email: **sales@oilsafe.com**
www.oilsafe.com

NOTES:

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