OilSafe®

QuadCon™
Lubrication Management System

Owner's Manual

Document #OSOM-QUADCON Rev1

IMPORTANT

- Please read this Owner's Manual carefully and thoroughly before installing and operating your Lubrication Management System.
- Please retain this Owner's Manual for future reference after reading it thoroughly.

FOR YOUR RECORDS

Write the model and serial numbers here: *(You can find them on the Serial/Model No. Plate mounted atthe 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 QuadCon system.

Explanation of Symbols Used

This manual contains 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 TOFOLLOW 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® QuadCon 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.

CAUTION!

System Operating Pressure should NEVER exceed 150 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.
- ALWAYS ensure that the system Pressure Return Hoses (discharging to the upper port on the underside of each tank) are never restricted or damaged.
- THE BULK TANKS MUST ALWAYS BE VENTED TO ATMOSPHERE (preferably utilizing a Desiccant Air Breather).
- When filling Bulk Tanks from drums or barrels, 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 the grounding jacks provided at the rear base of the system, together with 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 150 PSI. 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.

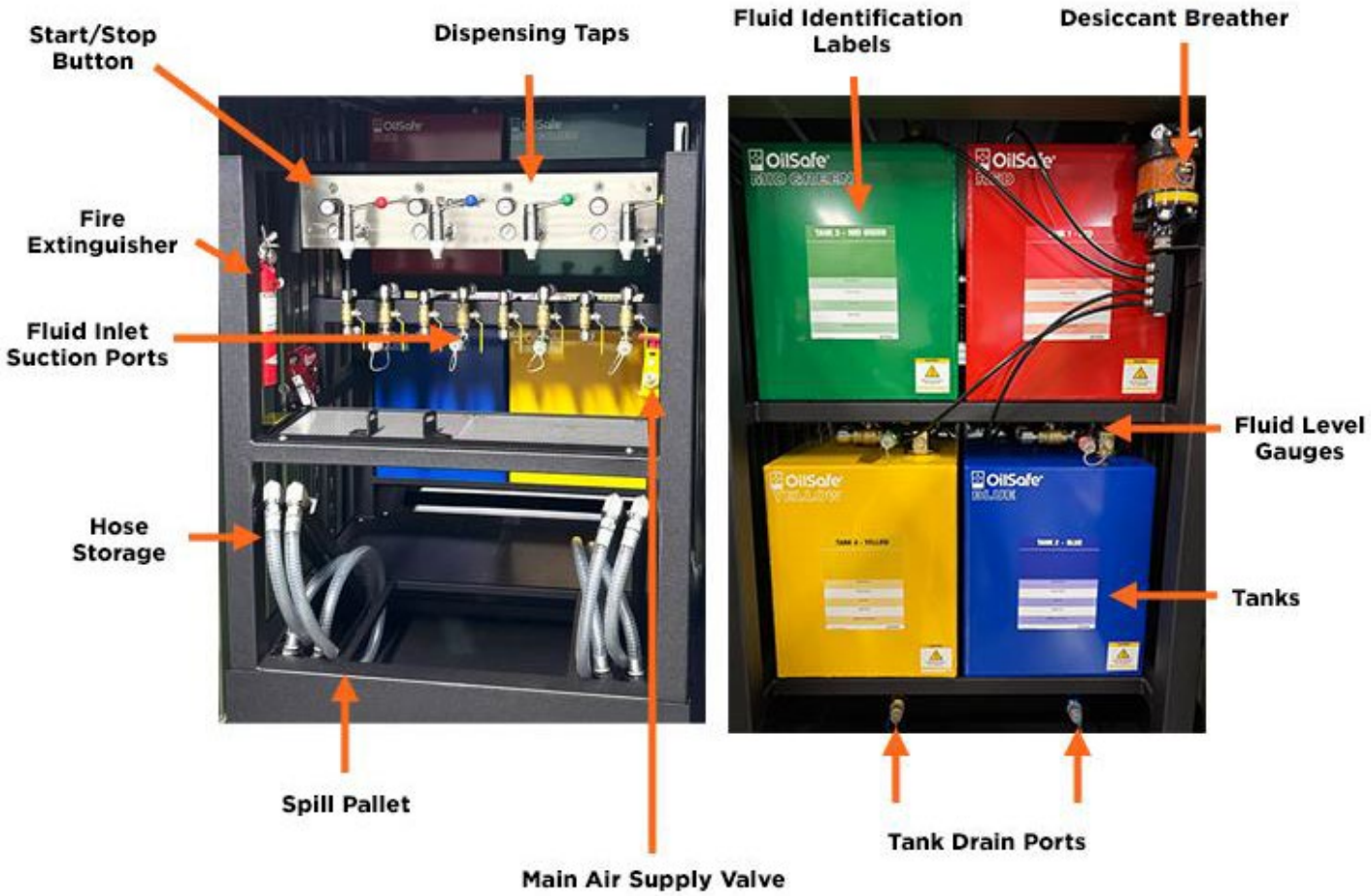
Introduction

Thank you for purchasing an OilSafe® QuadCon 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 configured per your specification. It features four 65 Gallon (250L) tanks color-coded 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).

See image below for your system:

Figure 1



Parts and Pre-Installation Checklist

Ensure operating valves are in "Recirculation" positions before start-up and at shutdown of units. This provides the lowest amp draw and system pressure, ensuring the safest conditions for operators during start-up and shutdown of the units.

IMPORTANT:

CHECK packaging list to ensure you have all applicable parts before continuing. CONTACT YOUR SUPPLIER if any parts are missing or damaged.

- **4 Bulk Tanks 65-gallon size, color-coded, pre-installed**
- **4 Pneumatic Pumps (pre-installed)**
- **4 Dispensing Taps (with color-coded knobs)**
- **4 Spin-on Filters**
- **8 Fluid Level Gauges**
- **1 Desiccant Air Breather**
- **4 Suction Hose Assemblies (in holders)**
- **4 System Pressure Gauges (installed)**
- **8 Isolation Valves (located on underside of tank)**

Personnel and PPE Requirements

- A minimum of two people is recommended to complete installation and setup.
- Personal Protective Equipment ("PPE") should be worn when installing and operating this system.
- Be sure to turn the air regulator all the way out (counterclockwise) before starting the unit.

Determine Placement:

1. The system should be installed on a flat, level surface with sufficient load-bearing capacity to support the total system weight of 3,800 pounds.
2. Your pneumatically operated system should be prepared with the same considerations, sizing pneumatic lines and circuitry by following OSHA safety guidelines. (Minimum supply air hose size should be 3/8" ID).
3. System Operating Pressure should NEVER exceed 150 PSI. System operating pressures can be regulated by adjusting the air regulator located on the frame.
4. It is important to note the effect of the ambient temperature in which the system is placed for operation. The ideal temperature should be in the range of 50°F (10°C) to 100°F (38°C). For ambient temperatures below 50°F (10°C) consult the manufacturer of your lubricants for specifications of the lubricants.
5. Temperatures less than 50°F (10°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.

Pneumatic Systems

WARNING!

Always ensure compressed air is properly locked-out, according to OSHA regulations before proceeding.

At the front of the system, connect the air supply hose to the Main Air Valve. See Figure 1 on page 5.

Initial Operation

IMPORTANT:

- ***Follow these steps the first time you use your 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 150 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 of less than 60°F (15°C). Contact the manufacturer for more information relating to service in cold environments.

WARNING!

NOTES:

1) Be sure to turn the air regulator all the way out (counterclockwise) before starting the unit.
2) 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 first time the system is used there will be 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 14)** 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 & Modes of Operation

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 valve handle UP so it is parallel to the floor and place the right valve handle DOWN so it is perpendicular to the floor. To dispense the fluid in the tank(s) (normal operation), turn both handles down so they are perpendicular to the floor.

WARNING!

Ensure the ball valves are in "Recirculation" positions before start-up and at shutdown of unit. This provides the lowest system pressure, ensuring the safest conditions for operators during start-up and shutdown.

OPERATING VALVE POSITIONS		
FILL	**RECIRCULATE**	**DISPENSE**
Left – UP	Left – UP	Left – DOWN
Right – UP	Right – DOWN	Right –DOWN

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.

IMPORTANT:

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

The cable stop assembly may be adjusted to any position. The mechanical locking device works positively and in all positions, 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.
See below for instructions on use. Test the Static Discharge Grounding Reel.

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 counterclockwise 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.

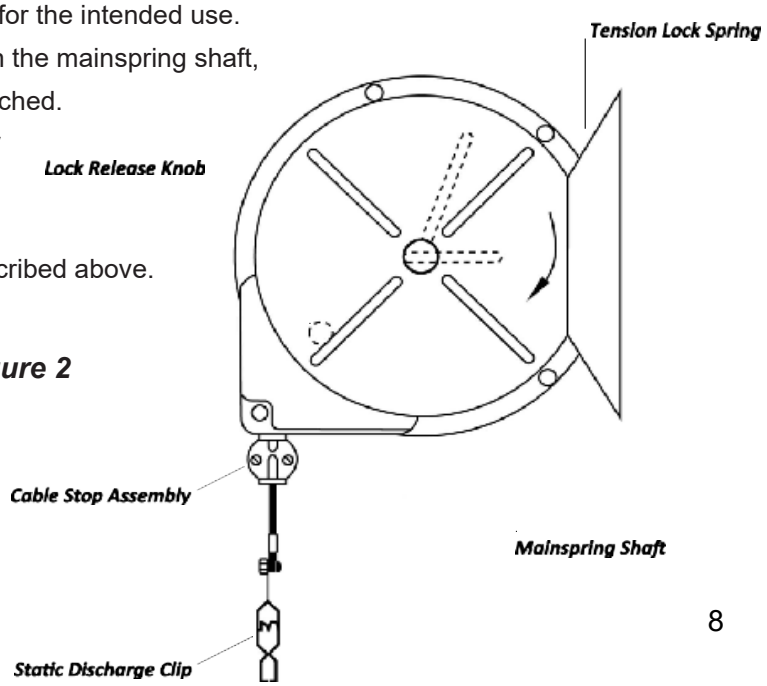


Figure 2

Filling the Tank(s)

STEP 1. Locate the Suction Hose Assembly. Each tank will have its own Suction Hose assembly. **See Figure 3.**

STEP 2. Place the tube-end of the Suction Hose Assembly into the oil drum or container (55-gallon drum). **See Figure 4.**

Figure 3: *Suction Hose Assembly*

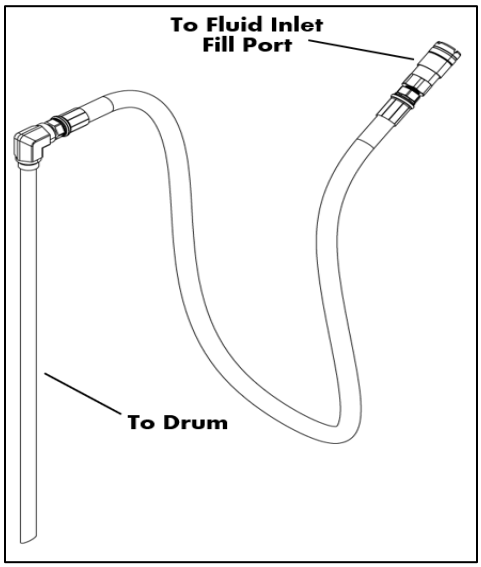
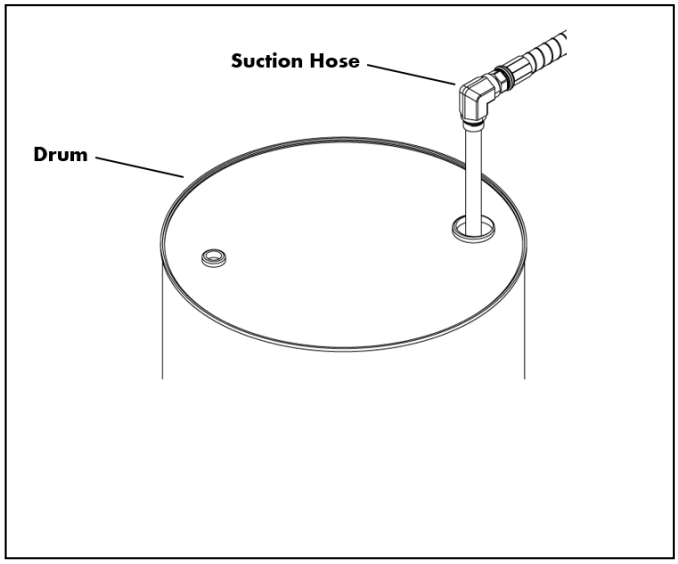


Figure 4: *Placement in drum*



STEP 3. Attach the Static Discharge Cable to the drum. **See Figure 2.**

STEP 4. Remove dust cap from quick disconnect. **See Figure 5.**

STEP 5. Connect color-matching quick disconnects (Suction Hose & QuadCon frame). **See Figure 6.**

STEP 6. Put the operating valve handles for the tank in the "Fill" position (up and up).

DANGER **CAUTION!**

When Filling Bulk Tanks from drums or cans always ensure the Static Discharge Clip is connected to the drum or can before starting the pump.

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 filling of tank.

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. Separate ¾" quick disconnects, replacing dust caps over each connector half. Store the suction hose assembly for future use.

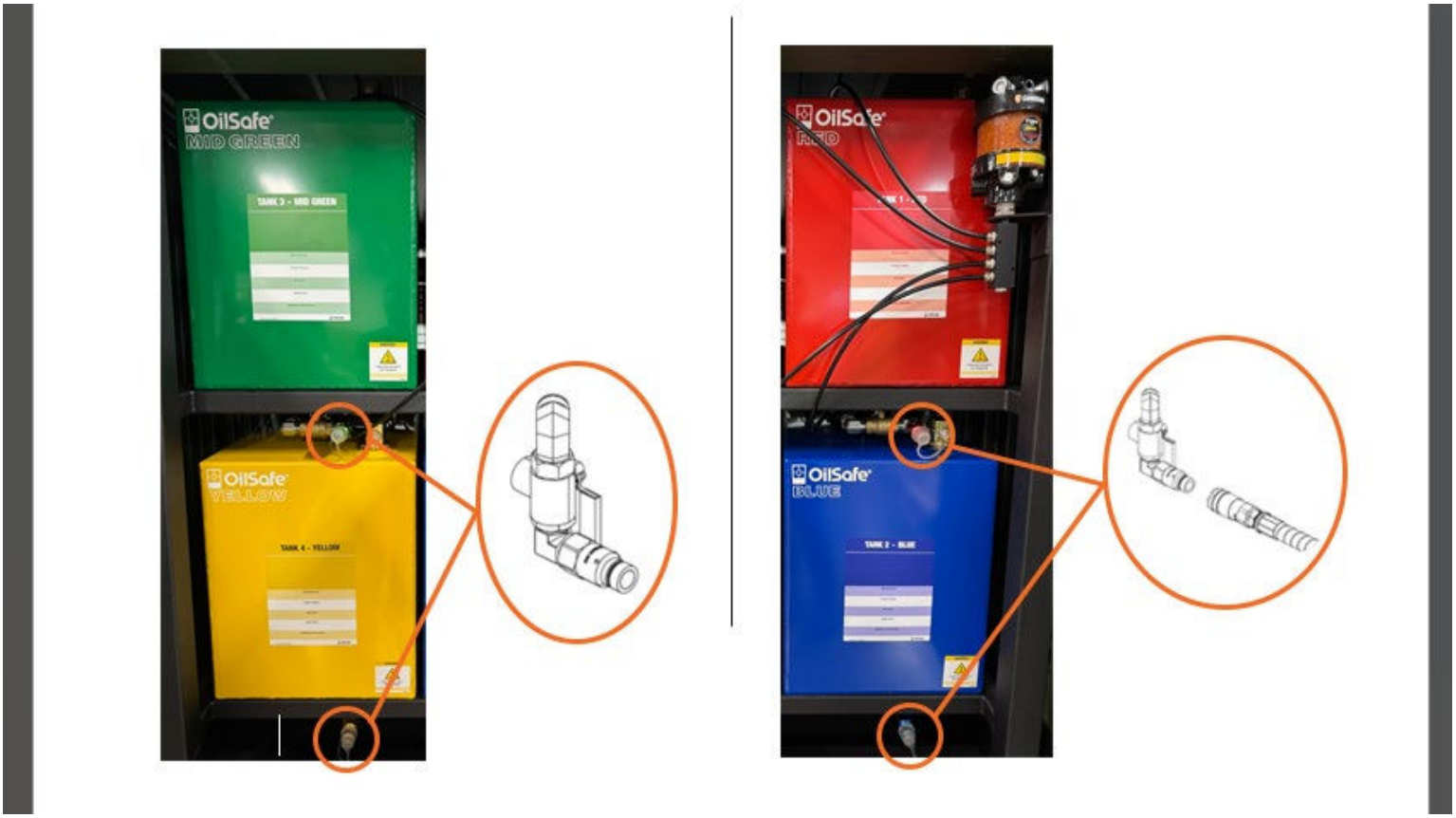
STEP 11. Remove the Static Discharge Clip.

IMPORTANT:

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.

Figure 5

Figure 6



NOTE: OilSafe recommends an initial Re-Circulation ("Kidney-Loop") of the fluid at the first fill, to pre-filter oils before they are consumed or used. Refer to Re-Circulation ("Kidney-Loop") Cycle Time Guide in the **Data Tables section (page 17)** for approximate run times to complete single pass filtration of each tank.

Re-Circulation ("Kidney-Loop") Mode

STEP 1. Put the operating valves in the "Re-Circulate" configuration – (left "UP", right "DOWN").

STEP 2. Press start button to 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 17).**

Dispensing Mode

STEP 1. Place valve handles into Dispense Mode, then press START to start the pump.

STEP 2. Place a clean fluid transfer or storage container under the dispensing tap.

STEP 3. Lift up on the handle.

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

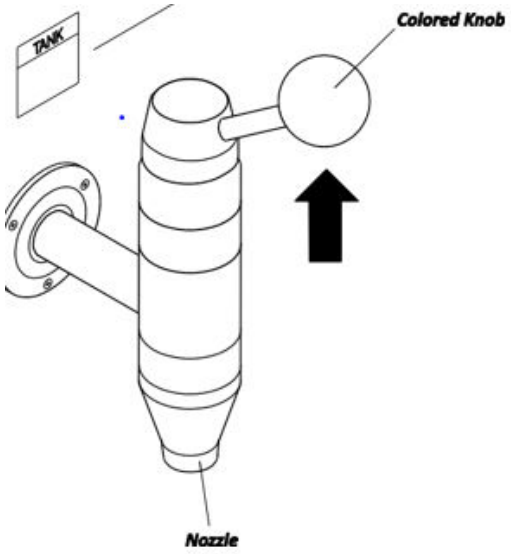
STEP 5. Press STOP to stop the pump.

STEP 6. Return valve handles to Recirculation Mode.

NOTE: Due to 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.

Figure 7



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 is 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.

CAUTION

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

Maintenance Checklist:

EVERY 3 MONTHS:

- Check Spin-on Filters.
- Check Desiccant Air Breathers.
- Confirm with your fluid supplier how frequently your fluid should be recirculated to maximize fluid life. Should a recirculation ("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 17).**
- Put the valves in the "Re-Circulate" configuration (left "UP", right "DOWN").
- Run each filled Bulk Tank for suggested time.

EVERY 6 MONTHS:

- Replace Spin-on Filter Elements as required.
- Replace Desiccant Air Breathers as required (orange beads will turn dark green indicating the filter is used up).
- Inspections:
  - Inspect all hoses for cracks or kinks.
  - Inspect all hose fittings for cracks or leaks.
  - Inspect and tighten all bolts.
- Clean external surfaces: (Use 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 dispensing nozzle by unscrewing, clean nozzle and O-rings.
- Flush out the spill transport pallet (bottom of the pods) with hot water and cleaner/degreasing fluid.
- Use a clean rag and wipe down pneumatic pumps and all painted surface areas.
- Polish all stainless-steel areas with stainless steel cleaner.
- Check tension on Static Discharge Reel.
  - If additional tension is needed, apply a wrench to the flats on the mainspring shaft, rotating counterclockwise 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.
- Inspect the Static Discharge Cable for fraying. Lubrication is not required for the reel.

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.

Auxiliary Tank Emptying

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 air power supply.

STEP 4. Close the ball valve on the bottom of all the tanks.

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

STEP 6. Place the hoses and Quick Disconnects into their respective holders.

Alternative Tank Emptying *(if no power supply)*

STEP 1. Open the back doors; tanks must be empty before transport.

STEP 2. Attach the hose to the corresponding emptying quick connect.

STEP 3. Place the suction wand into the storage drum.

STEP 4. Turn the ball valve to the open position, and fluid will begin to transfer.

STEP 5. When empty, turn the ball valve to the closed position and store the suction wand.

Troubleshooting

WARNING!

ALWAYS ensure the main power supply is first locked out and the system is 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 Fire Safety 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 Pressure Gauge to make sure that the pressure level is registering when the motor is running. 6. If the Pressure Gauge is running above its normal range, it is time to replace your oil filter element. Replace the filter element and check your Pressure Gauge again. 7. Check the seals on the Suction Hose Assembly coupling to ensure they are not cracked or damaged. Replace if necessary.

The tank is not dispensing liquid correctly.	1. Check to ensure the valve handles on the front of the unit are in the correct positions. 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 Fire Safety 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 oil filter element. Replace the filter element 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.
Oil drips or leaks.	1. Turn the system off and see if tightening the connection resolves the issue. 2. Contact the manufacturer or your supplier to discuss the best way to resolve.
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). 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. 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.

Repair and Replacement Procedures

WARNING!

ALWAYS ensure the main power supply is first locked out and the system is 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 replaceable. Before attempting any repairs or replacement, contact OilSafe in the event your part is covered by warranty.

Contact OilSafe as follows:

930 Whitmore Drive
Rockwall, TX 75087

(972) 771-1000
orders@whitmores.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 to order. See page 17 for the spare parts list and part numbers.

Replacement Parts

- **Tank Desiccant Air Breather Replacement Cartridge**

This is the air filter on the side of the tanks, attached to the frame. When the colored beads on the inside of the breather turn from orange to dark green, it is time to replace the cartridge. Unscrew the top of the breather, unscrew the cartridge and replace with new.

- **Tank Level Gauge – Top Mount, Mechanical Float**

The Tank Level Gauges are located at the top of each tank. They can be removed and replaced by screwing on or off.

Pump Replacement – All pumps are on the lower level

Ensure the air valve is shut off and the main air supply line is disconnected. Remove the hoses and fittings from the pump. Unbolt the pump from the platform. Replace with new pump. Re-attach the hoses and fittings. Re-attach the main air line. Turn on the main air valve.

TABLE 1: *Spare and Replacement Parts List*

Item Description		Part #
Colored Ball Knob for Dispensing Tap - Blue	Ball Knob	821002
Colored Ball Knob for Dispensing Tap Mid Green	Ball Knob	821005
Colored Ball Knob for Dispensing Tap - Red	Ball Knob	821008
Colored Ball Knob for Dispensing Tap - Yellow	Ball Knob	821009
Tank Desiccant Air Breather (Replacement Cartridge)	Breather	GRC5SC
Pneumatic Pump	Pump	821130
Tank Level Gauge - Top Mount, Mechanical Float	Gauge	821105
Static Discharge Grounding Reel (Retractable 25ft)	Reel	821275
Replacement Suction Hose		821310
Replacement Suction Hose & Tube		821300
Replacement Quick Coupler – Female – Blue		F12Blue
Replacement Quick Coupler – Female – Mid Green		F12MidGreen
Replacement Quick Coupler – Female – Red		F12Red
Replacement Quick Coupler – Female – Yellow		F12Yellow
Replacement Quick Coupler – Male – Blue		M12Blue
Replacement Quick Coupler - Male – Mid Green		M12MidGreen
Replacement Quick Coupler – Male – Red		M12Red
Replacement Quick Coupler – Male - Yellow		M12Yellow

TABLE 2: *Tank Recirculation ("Offline") Cycle Time Guide*

ISO Viscosity	32	46	68	100	220	320	460	680
Pump Flow Rate *(GPM)*	3	3	3	2.5	2.5	2	2	1.5
APPROXIMATE CIRCULATION TIME *(Minutes)*								
	90	90	120	120	150	180	210	240

Reservoir capacity x (4 to 6 turns) / Pump Flow Rate = Time in minutes

*Times will be a function of initial oil cleanliness, oil grades, oil temperature and other factors.

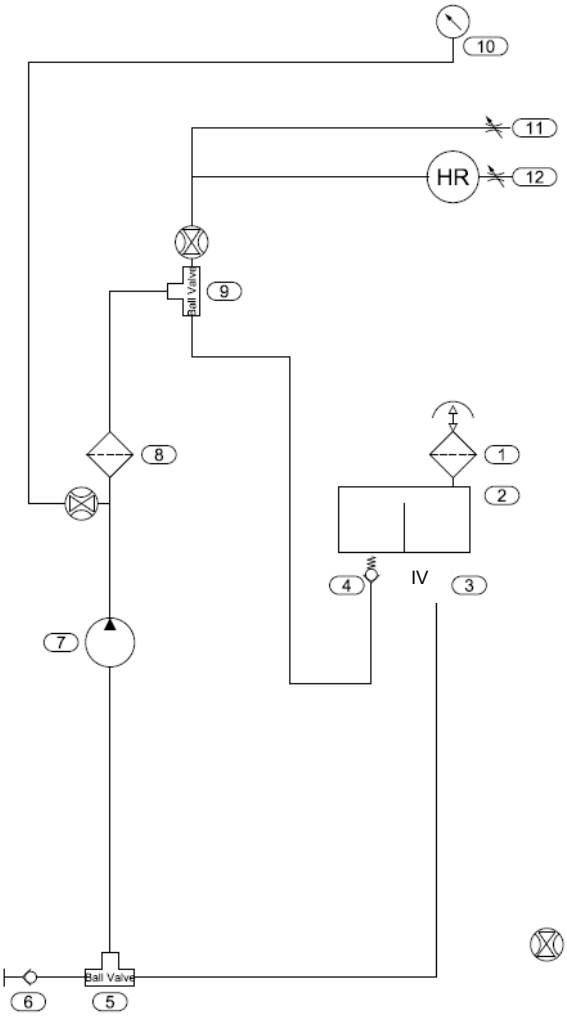
* Flow rate values are approximate.

TABLE 3: *System Weights and Dimensions*

ITEM	APPROX. DIMENSIONS	APPROX. WEIGHT
QuadCon with empty tanks	5' X 8" x 8'	3,800 lbs.

Plumbing Schematics

Pneumatic Pump

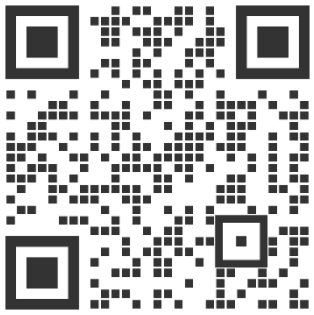


1. Desiccant Breather
2. Oil Tank
3. Isolation Valve
4. Isolation Valve for return flow
5. Ball Valves for tank or remote suction
6. Quick Disconnect for hose suction
7. Air Operated Oil Pump
8. Oil Filter with indicator
9. Ball Valve to circulate or dispense
10. Pressure Gauge
11. Dispensing Tap
12. Option Hose Reel and Dispensing

⊗ Connection Required During Set-Up

Limited Warranty

Click Here or scan QR code



Notes:

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

930 Whitmore Drive
Rockwall, TX 75087

(972)771-1000
orders@whitmores.com
www.oilsafe.com