LIQUITAINER

c UL us LISTED

OPERATIONS MANUAL

Version 3.4 | March 2023

PETRO INDUSTRIAL

PLEASE NOTE:
ALL BOLTS, NUTS AND FITTINGS MUST BE CHECKED AND TIGHTENED PRIOR TO FIRST FILL

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Contents

PETRO LT SERIES MODEL RANGE SPECIFICATIONS

MODEL	GROSS VOLUME (L)	SAFE FILL LEVEL (L)	EXTERNAL DIMENSIONS (L x W x H) (mm)	TARE WEIGHT (empty) (kg)	INNER TANK (mm/material)	OUTER TANK (mm/material)	CONTAINER FOOTPRINT	INTEGRATED PUMP BAY
LT12	12,000	11,240	3,000 x 2,438 x 2,896	4,540	6/Q35B Mild Steel	6/Q35B Mild Steel	10FT HIGH CUBE	YES
LT20	20,000	17,285	3,000 x 2,438 x 2,896	4,500	6/Q35B Mild Steel	6/Q35B Mild Steel	10FT HIGH CUBE	NO
LT30	30,901	29,350	6,058 x 2,438 x 2,896	7,500	6/Q35B Mild Steel	6/Q35B Mild Steel	20FT HIGH CUBE	YES
LT38	38,000	35,340	6,058 x 2,438 x 2,896	7,500	6/Q35B Mild Steel	6/Q35B Mild Steel	20FT HIGH CUBE	NO
LT68	69,023	65,570	12,192 x 2,438 x 2,896	14,500	6/Q35B Mild Steel	6/Q35B Mild Steel	40FT HIGH CUBE	YES
LT75	75,370	73,500	12,192 x 2,438 x 2,896	14,500	6/Q35B Mild Steel	6/Q35B Mild Steel	40FT HIGH CUBE	NO

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TANK GAUGE PROBE INSTALLATION

For shipping of the tank, the Tank Gauge probe is rolled up and cabled tied to the top to stop the probe from being damaged.

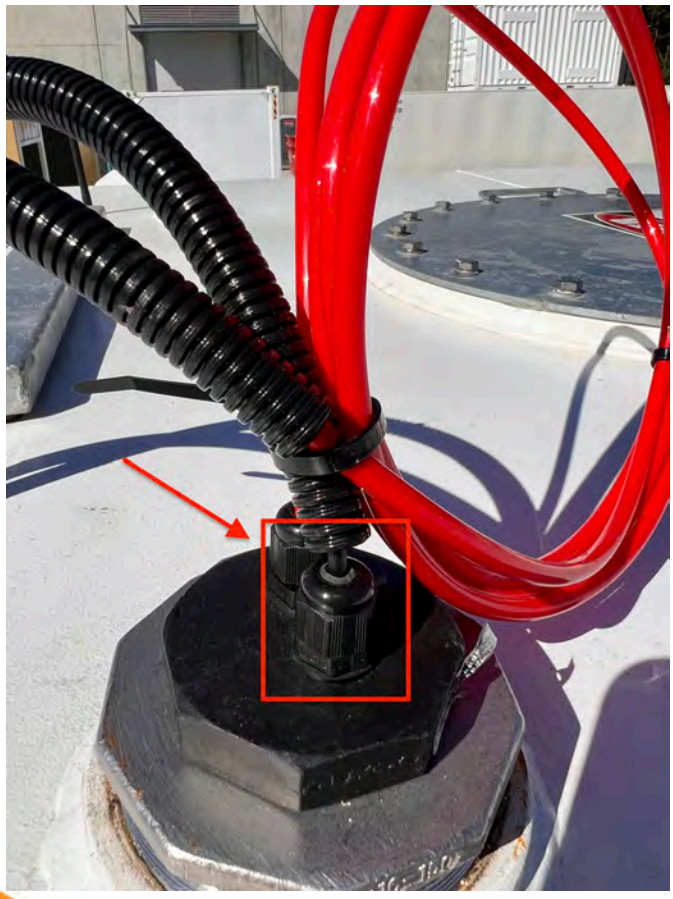
The probe cable will be a red tube (OCIO) or a black cable (OLE). You will need side cutters to remove the cable tie.

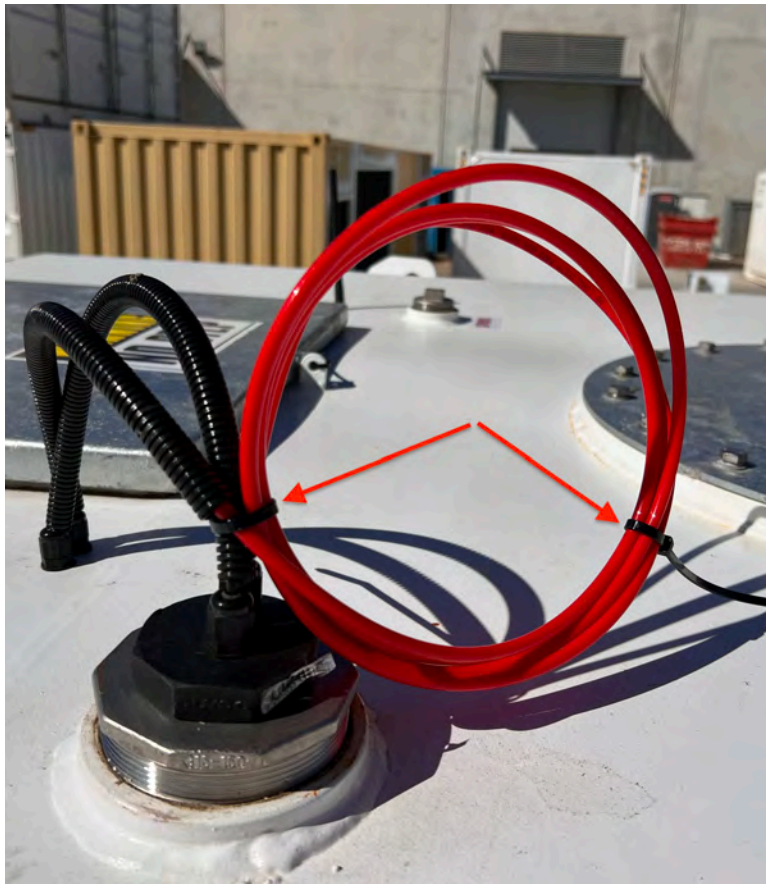
1. Loosen the black plastic electrical gland

2. Cut the cable ties.

3. Lower the probe cable to the bottom of the tank

4. Tighten the black plastic electrical gland.





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PRIOR TO FILLING THE TANK:

Before filling ensure that the tank air vent is fitted. In order to fill the tank you must ensure that the tank can freely vent to atmosphere.

Your LT SERIES self bunded tank is fitted with a dedicated 80nb Fill Line.

Major components of this fill line include:

- 80nb PETRO Camlock Dust Cap Assembly
- 80nb PETRO Male Camlock Fitting
- 80nb 150# PETRO Fire Safe Cast Steel 2 piece full bore ball valve Flanged 316 St/St ball and Stem PTFE Seats, Fire Safe gland packing.

- Single 80nb PETRO Overfill Protection Valve c/w Float Assembly.
- PETRO Battery Operated Overfill Alarm Unit.

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TANK FILLING PROCEDURE:

The tank should not be filled to more than 95% of the tank's rated capacity.

1. Dip the tank to determine the current contents and therefore available ullage in the tank
2. Remove warning tag from fill point
3. Ensure air vent is fitted and is unobstructed to allow free air venting from the tank
4. Remove Camlock Dust Cap Assembly
5. Connect tanker filling hose to the tank fill point
6. Open ball valve
7. Commence pumping into the tank
8. Once the tanker has discharged the metered quantity, turn the ball valve to the closed position
9. The tanker is to empty the hose and fill point slops
10. Using the slops bucket from the tanker, placed this under the hose connection point
11. Disconnect the tanker hose from the tank fill point
12. Residue fuel will be captured in the truck slops bucket

The LIQUITAINER tank is fitted with an audible overfill alarm in accordance with the requirements as defined by AS1940. This alarm will sound should the tank contents near the determined safe fill level.
(please refer to appendix A attached to the end of the document for Alarm Operations Manual)

The PETRO overfill alarm is required to be tested on a monthly basis. Press the test button and test for operation. Should the audible alarm not sound, replace the 9V battery.

The LIQUITAINER tank is fitted with a mechanical overfill protection valve. This is a LAST RESORT device and should not be used as the primary means for shutting the fill line when filling the tank.

Every 6 months the PETRO Overfill Valve should be tested for operation. The plug / float assembly should be operated and tested for free movement. The plug should be lubricated every 6 months with a spray on lubricant product.

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DISCHARGING FROM THE LIQUITAINER:

In accordance with the requirements of AS1940 all openings to the LIQUITAINER tank are located above the liquid level of the tank. You CANNOT gravity feed from a LIQUITAINER tank.

The LIQUITAINER tank, in accordance with AS1940, is fitted with an 80nb PETRO Anti Syphon Valve. The valve is located within the tank at the beginning of the suction line from the tank. The Anti Syphon valve is design to perform two tasks:

1. **Anti Syphon** – a pump is required to draw fuel from the LIQUITAINER tank. This positive suction lifts the spring / seat of the anti syphon valve, allowing fuel to flow vertically within the tank, through the two walls of the tank located above the liquid level of the tank, then down to the suction inlet of the pump.

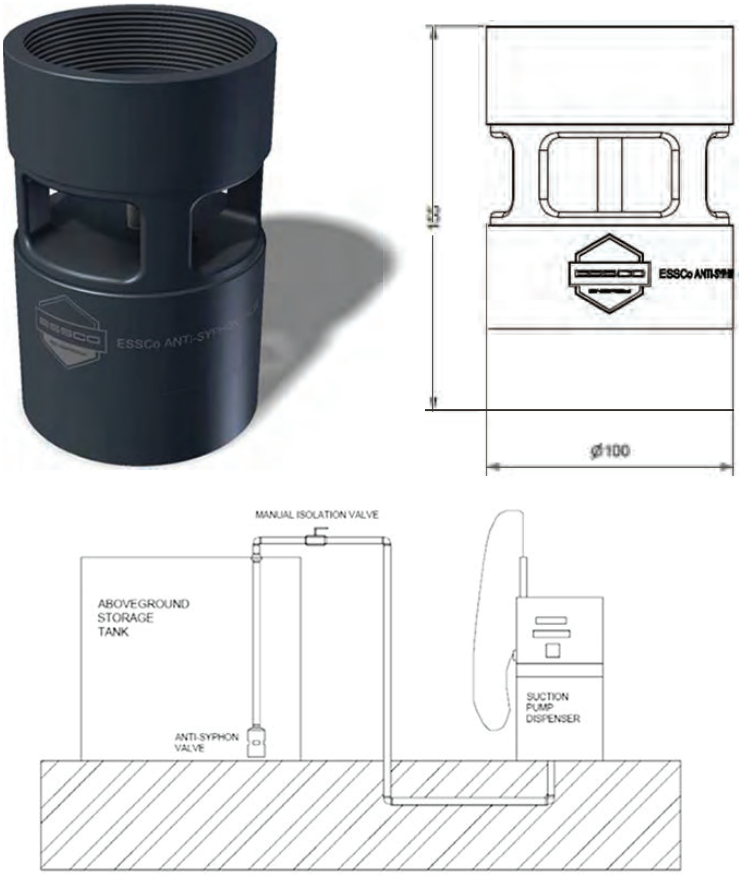
   Once the pump ceases operation, the flow from the tank will stop, with the spring closing the seat within the anti syphon valve. Should the dispensing equipment be forceably removed from the tank due to a vehicle colliding with the equipment, or a vehicle driving off with the hose / nozzle still attached, flow from the tank will be stopped by the anti syphon valve.

2. **Foot Valve** – the PETRO Anti Syphon Valve is designed and indeed positioned to also operate as a foot valve. The valve is designed to retain a full head of fuel on the dispensing equipment in order to provide an easy start for the next pumping operation.
   This is particularly important for centrifugal style pumps that do not provide self priming operation.

ESSCo ANTI-SYPHON VALVE

INTRODUCTION

The ESSCo Anti-Syphon valve is designed to fit on Above Ground Fuel Storage Tanks to prevent accidental loss of product through syphoning downstream of the suction line. The Anti-Syphon valve uses a patented balancing diaphragm design to maintain a low cracking pressure almost unaffected by the change of product level. This combined with its engineered flow path geometry ensure high flow efficiency for suction pump and dispensing equipment, and prevents suction line vapour lock.



SPECIFICATIONS

PORT SIZE	G3"	NPT3"
HYDROSTATIC HEAD'	0~4.6 m	O- 15 ft.
CRACKING PRESSURE	0.07 - 0.14 bar	1.0 ~ 2.0 psi
INTERNAL RELIEF	1.2 ~ 2.5 bar	17~36psi

'Hydrostatic head based on S.G.=0.8

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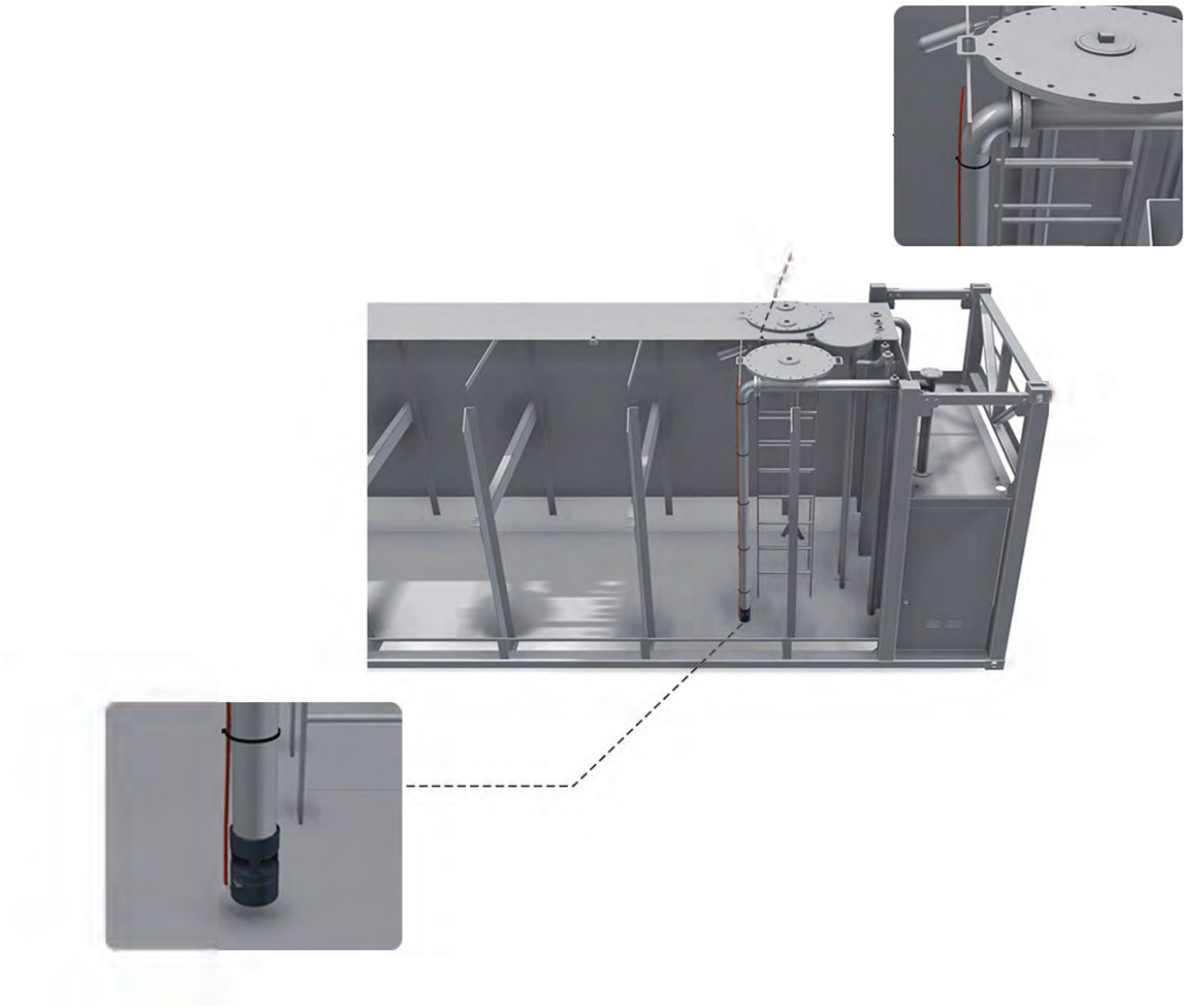

INSTALLATION

- Install the ESSCo Anti-Syphon to the inlet of suction line at the bottom of storage tank.
- Use a strap wrench, apply anaerobic thread sealing compound compatible with product in storage. DO NOT OVER TIGHTEN!
- Run the vent tube up alongside the suction pipe, affix with cable tie every 0.5 meter. Secure the top of the vent tube at the highest point inside the tank, making sure it is well above safe fill level.
- Prime the suction line with suction pump, test for anti-syphon function before putting system into operation.

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PRIMING POINT:

Located within the suction line, positioned on the top dipping platform, the LIQUITAINER tank features a removable priming point. This priming point is designed to provide easy access to pour fuel into the suction line of the dispensing equipment. This provides a prime in order to allow centrifugal style pumps to commence dispensing operation. This priming point can also be used to purge air from the line during initial site commissioning.

ISOLATION VALVE:

The LIQUITAINER tank is supplied with a 80nb PETRO 150# Fire Safe 2 Piece Full Bore Flanged ball valve an the suction line main isolation valve. This valve is found mounted under the dipping platform, located on the roof of the front bunded pump bay housing.

When using a NMI approved bowser (such as a Compac or Gilbarco bowser) particular note should be made of the need to provide a shut off, or bleed tubing from the bowser air eliminator outlet. Fuel can weep through this air eliminator outlet due to the head of pressure placed on the bowser due to the anti syphon valve retaining a prime of fuel in the suction line when the bowser is not discharging.

A Tokheim Valve (for retail applications) or Normally Closed Solenoid Valve (for commercial applications) should be located in the suction line prior to the bowser unit. You should consider running tubing from the air eliminator outlet back to the main tank unit.

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INTERSTITIAL SPACE:

Your LIQUITAINER tank is a double wall tank fabricated in accordance with the design requirements of AS1940, AS1692 and AS1657. Our design provides a complete 360deg wrap of the inner tank. The LIQUITAINER roof, floor and walls all feature a true double skin protection.

The interstitial space (gap between the two walls) is minimal. The majority of gap is provided under the floor of the tank. The logic to this design is that should be inner tank leak, the fluid will drop to the outer vessel.

We provide a bund dip tube tube from the roof of the tank through to the bottom interstitial space of the LIQUITAINER tank. A dipstick is provided in order to allow you to dip this interstitial space and check for any leakage through to the outer tank

You MUST check this interstitial space on a regular basis.

Using Kolor Kut Hydrocarbon Finding Paste (available from the PETRO Industrial Web Store – link as follows: http://petroindustrial.com.au/prod640.htm

Smear the end of the dip stick with paste. Insert the dip stick into the Bund Dip point. Wiggle around in the dip tube. After 2 minutes remove and check if any indication of hydrocarbons are found. If a leak is detected please immediately contact PETRO Industrial for advice / instruction.

AIR VENT:

The LIQUITAINER tank is provide with a 80nb PETRO Air Vent Assembly. Whilst this air vent is fit for purpose we recommend the use of the DONALDSON TRAP Air Vent Filter. This TRAP filter removes dust and water from air entering the LIQUITAINER tank. The removal of moisture from the air entering the tank is particularly important to prevent the build up of condensation within the tank, that could lead to corrosion and possible grow of algae within the contents of the tank.

More information relating to the DONALDSON TRAP filter can be found on the PETRO Industrial Web Store – link as follows: http://petroindustrial.com.au/prod2665.htm

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INTERSTITIAL SPACE EMERGENCY VENT:

The LIQUITAINER tank features an Interstitial Space Emergency Vent. This vent is designed to relie**ve** the build up of pressure in the interstitial space in the event of a fire, or otherwise heating of the inner tank contents.

Please check 6 monthly that this vent is clean and clear of any obstructions to ensure its operation in the event of a fire.

PLATFORM / LADDER ASSEMBLY:

The LIQUITAINER tank is supplied with an AS1657 designed and approved dipping platform and ladder assembly. This platform is designed to provide safe access to the top of the tank for the primary purpose of accessing the Overfill Alarm, Main Tank and Bund Dip points. This platform can also be used for access to the tank manway for maintenance requirements.

The ladder is designed to be removed and mounted either on the right or left hand side of the tank, depending upon site requirements. If the ladder is moved, please ensure the gateway is also moved to block the opposite gap to protect operators from a possible fall from this platform.

The ladder is to be moved to its extended position prior to operation.

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MOVING YOUR LIQUITAINER:

The LIQUITAINER tank should only be moved when completely EMPTY. The LIQUITAINER tank carries the CSC Certificate confirming that the tank has been manufactured, tested and approved as a standard shipping container. The LIQUITAINER tank can transported by Road, Rail or Sea as a standard shipping container.

DOORS:

Your LIQUITAINER tank is supplied with doors to provide a secure, weatherproof bunded pump bay housing to mount your dispensing equipment. The doors are supplied with 2 x heavy duty keys. Please consult a locksmith should these keys be lost and need replacement.

BUNDED PUMP BAY HOUSING – SIDE PANELS:

You will note there are removable panels located within the side panels of the bunded pump bay housing. These removable panels allow you to run pipework or electrical cabling into the bunded pump bay without having to cut the main side panel assembly.

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SCHEDULED MAINTENANCE:

It is important that you put into place a preventative maintenance schedule for your Liquitainer Self Bunded Storage and Dispensing Tank. Particular areas of focus should be as follows:

Tank

Updraft Vent (Breather)

- The Liquitainer Tank is of a free venting design.
- For every litre of fluid filled into, or taken from the Liquitainer tank a litre of air travels through the main tank breather.
- It is important that this breather remains clear and unblocked.
- Any blockage of this breather can result in structural damage to the tank.
- The Liquitainer tank is only rated to a maximum pressure of 21kpa (3psi)
- Monthly - Remove and wash / clear vent of all dust and other particles. Should this vent block

Interstitial Emergency Vent

- This vent provides relief to the interstitial space in the event of a fire.
- In the event of a fire the air within the interstitial space will pressurise. This Vent provides a vital job to relieve this pressure.
- Monthly - Please check vent operation on a monthly basis, lubricate as required.

De-Watering

- Over time water will build up in the bottom of your Liquitainer Tank.
- Moisture from the air flowing through the tank breather can be removed by using the Donaldson TRAP Breather product, more information can be found as follows: http://petroindustrial.com.au/default/filter-donaldsondff0078-breather-trap-1-5-bsp-male.html
- We provide a 25mm Tank Dewatering Point on top of the Liquitainer Tank located central to the tank. This 25mm line extends to just off the bottom of the tank at the lowest point of the tank.
- Dip tank using tank dip stick smeared with Kolor Kut Water Finding Paste. Only smear bottom 100mm or so of the dipstick with the paste. If water is present the paste will change colour. This indicates the water height in the tank. For more information regarding Kolor Kut Water Finding Paste please click on the following link - http://petroindustrial.com.au/default/kolor-kut-water-finding-paste-3-oztube.html
- Using a hand operated pump, remove liquid into bucket or other appropriate storage medium using 25mm suction tube until clear diesel flows
- Re-check tank water level by following above procedure using Kolor Kut Water Finding Paste.

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Bunded Pump Bay Housing

- This design feature of the tank is designed to capture spilt product over time. It is an area of the tank that requires regular maintenance and good housekeeping.
- We DO NOT include a drain bung as this would only invite operators to empty the contents of the bunded pump bay housing onto the ground, resulting in an ongoing risk of hydrocarbon contamination on site.
- You need to use absorbent pads and other cleaning tools to remove liquid from this housing regularly.

Overfill Alarm

- MONTHLY - Test operation, replace batteries as required. Interstitial Dip
- MONTHLY - Dip interstitial space of the tank using Kolor Kut Hydrocarbons Gauging Paste. More information about this product can be found at the following web link - http://petroindustrial.com.au/default/kolorkut-hydrocarbon-gauging-paste-2-25-oz-plastic-jars.html

Suction Strainer

- MONTHLY – if a pre-pump suction strainer is included with your Liquitainer Tank please remove the element and clean on a monthly basis

Pumps

- Please maintain in accordance with the pump manufacturers maintenance manual provided

Filters

- MONTHLY – inspect and clean filter element, replace as required. Filter elements are a cheap insurance policy against contaminated product flowing through to your equipment.

Meters

- Please maintain in accordance with the meter manufacturers maintenance manual provided
- SIX MONTHLY – calibrate in accordance with the meter manufacturers manual provided

Hose

- MONTHLY – inspect for damage, replace as required

Nozzles

- MONTHLY – test for nozzle seal leak. Repair and replace as required

Paint Finish Care Instructions

- MONTHLY - Wash tank surface with wash and wax to keep surface clean from dust build up, pollution fall out and any other corrosive air born particles that might accumulate on the painted surface.

Structural Integrity Verification

- EVERY 10 YEARS - As a requirement under AS1940 structural integrity verification must be achieved through a pressure test.

PETRO Industrial stocks a full range of spare parts for your Liquitainer Tank, please contact one of our branch locations. Branch locations are as follows: -

http://petroindustrial.com.au/default/contact

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