PETRO INDUSTRIAL

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LIQUITAINER

Operations Manual

Version - 1.1

Date – Nov 2012

Contents

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 LIQUITAINER 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	
• 80nb PETRO Overfill Protection Valve c/w Float Assembly	
• PETRO 9V Battery Operated Overfill Alarm Unit	

Tank filling procedure is as follows:

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

- Dip the tank to determine the current contents and therefore available ullage in the tank
- Remove warning tag from fill point
- Ensure air vent is fitted and is unobstructed to allow free air venting from the tank
- Remove Camlock Dust Cap Assembly
- Connect tanker filling hose to the tank fill point
- Open ball valve
- Commence pumping into the tank
- Once the tanker has discharged the metered quantity, turn the ball valve to the closed position
- The tanker is to empty the hose and fill point slops
- Using the slops bucket from the tanker, placed this under the hose connection point
- Disconnect the tanker hose from the tank fill point
- 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.

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.

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.

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 monthly 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

INTERSTITIAL SPACE EMERGENCY VENT

The LIQUITAINER tank features an Interstitial Space Emergency Vent. This vent is designed to relief 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.

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.

ROLLER DOOR

Your LIQUITAINER tank is supplied with a roller door assembly to provide a secure, weatherproof bunded pump bay housing to mount your dispensing equipment. The roller door is supplied with 2 x heavy duty keys that will be located inside the dip hatch when they are transported.
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-donaldson-dff0078-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-oz-tube.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.

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/kolor-kut-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

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

CERTIFICATE OF COMPLIANCE

Certificate Number	20120912-MH49221
Report Reference	MH49221-20120911
Issue Date	2012-SEPTEMBER-12

Issued to: PANUS ASSEMBLY CO LTD
27/1 MOO 3 KOODNGONG
PANUSNIKOM 20140 THAILAND

This is to certify that representative samples of ABOVEGROUND FLAMMABLE-LIQUID TANKS
Secondary Containment Types of Aboveground Steel Tanks for Flammable and Combustible Liquids:

Design Shapes – Rectangular
Tank Options – Lift Lugs, Supports

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: UL 142, Steel Aboveground Tanks for Flammable and Combustible Liquids
ULC-S601, Shop Fabricated Steel Aboveground Tanks for Flammable and Combustible Liquids

Additional Information: See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Listing Mark for the US and Canada should be considered as being covered by UL's Listing and Follow-Up Service meeting the appropriate requirements for US and Canada.
The UL Listing Mark for the US and Canada generally includes: the UL in a circle symbol with “C” and “US” identifiers: c UL us the word “LISTED”; a control number (may be alphanumeric) assigned by UL; and the product category name (product identifier) as indicated in the appropriate UL Directory.

Look for the UL Listing Mark on the product.

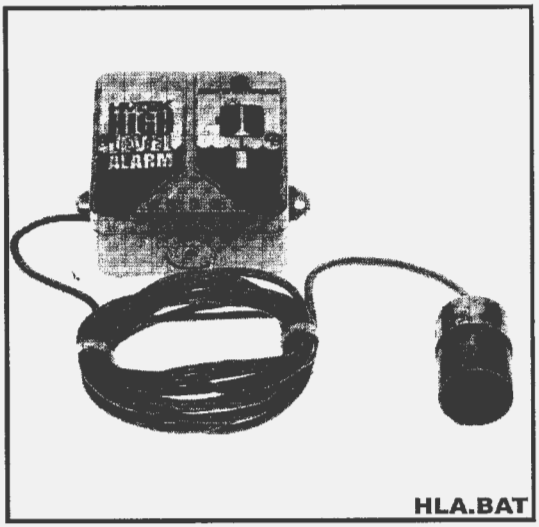
William R. Carney

William R. Carney, Director, North American Certification Programs

UL LLC

Technical Data

HYTEK HIGH LEVEL ALARM



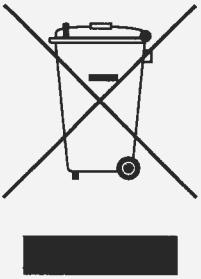
Applies to the following models **only:**

- HLA.BAT.P
- HLA.BAT.S

Please read carefully before commencing installation

Registered Office: HYTEK (GB) LIMITED, Delta House, Green Street, Elsenham, Bishop's Stortford CM22 6DS
UK. Registered in England No. 1915382
Tel: +44 (0) 1279 815 600 Fax: +44 (0) 1279 812 978 email: info@hytekgb.com Web: www.hytekgb.com

ENVIRONMENTAL INFORMATION



European Directives 2002/96/EC and 2003/108/EC require that the equipment bearing this symbol on the product an/or its packaging must not be disposed of with unsorted municipal waste. The symbol indicates that this product must be disposed of separately from regular household waste streams. It is your responsibility to dispose of this and other electric and electronic equipment via designated collection facilities appointed by the government or local authorities.

IMPORTANT WARNING NOTES

1. The Hytek high level alarm MUST NOT be used to monitor petrol or other flammable liquids.

2. It is designed for use with diesel, gas oil, water, hydraulic oil and heating oil.

3. It must not be sited adjacent to a petrol dispenser or in any other hazardous zone.

4. Installation of this equipment should be carried out by a qualified fuel installation engineer.

5. The installation must conform to all relevant electrical and local authority regulations and standards.

PRODUCT DESCRIPTION

The system consists of a weighted float switch that is connected, with a 3 metre fuel resistant cable, to the weatherproof High-level alarm box containing the visual and audible alarms.
The Hytek high-level alarm is designed to provide visual and audible alarms whenever a predetermined level, in a fuel storage tank, is reached.

INSTALLATION

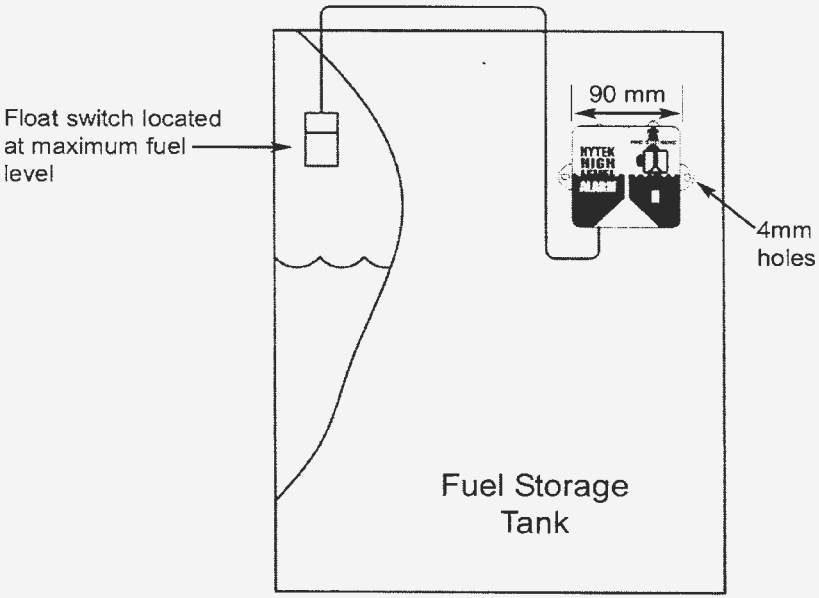
1. Using the mounting lugs provided, fix the High-level alarm box in the position required ensuring the light and green button are located at the top.

2. Feed the float switch through a hole/port in the top of the fuel storage tank. Position the float switch so it will be activated when the fuel level in the tank reaches the required maximum height and secure in position using the p-clip and self tapping screw provided.

3. Remove the Hytek high-level alarm box cover (2 screws on the front) and connect the battery connector to the battery.

4. Press green button on top of Hytek high-level alarm box. Ensure a series of short beeps can be heard and the light flashes. Replace cover and screw down firmly.

INSTALLATION DIAGRAM



OPERATION

The Hytek high-level alarm will operate when the float switch is activated by a rising liquid level in the fuel storage tank. The alarm will sound as a rising beep every 2.5 seconds and the light will flash simultaneously.

To silence the alarm, press the green button. The light will continue to flash until the liquid level in the tank drops below the level of the float switch.

The battery will power the Hytek high-level alarm for 72 hours in full alarm mode with both the sounder and light activated. Low battery power is indicated by a short beep every 25 seconds.

When the battery is low and the Hytek high-level alarm is activated. The alarm will sound as a rising beep every 5 seconds to conserve power.

The light will flash every 25 seconds in normal operation (not in alarm mode) to indicate that the Hytek high-level alarm is operating correctly.

FAULT INDICATION

If the float switch is disconnected or the cable has been severed the Hytek high level alarm will emit a short beep every 5 seconds.

The light and sounder can be tested at any time by pressing the green button once. If the Hytek high-level alarm is functioning correctly a short series of beeps will sound and the light will flash.

E.C. DECLARATION OF CONFORMITY

Date of Issue:	11th March 2009
Equipment Details:	High Level Alarms HLA.BAT.S, HLA.BAT.P
Applicable Standards:	EMC EN61326:1997 Class B Emissions (+A1/A2) EN61326:1997 Industrial Location Immunity (+A1/A2) EN61000-3-3:1995 Electromagnetic Compatibility (+A1) Part 3:Limits – section 3 S.I. 1992/3037 S.I. 1994/2063 (Amendment) Entry Into Force:- 1 January 1993 Primary Legislation:- The European Communities Act 1972 Machinery Directive 98/37/EC (2006/42/EC) Waste Electrical and Electronic Equipment Regulations 2006 2002/96/EC 2003/108/EC
Authorized By:	Clive Wellings - Technical Manager Hytek
Declaration Number:	EC056

S462/2