fuel chief

PREMIUM STORAGE SOLUTIONS

INSTALLATION, OPERATION & MAINTENANCE MANUAL FOR CONTAINER SERIES

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Contents

OVERVIEW

This manual contains a general overview of the Fuelchief FTN & FT Series. From here on in the FT range will be classed as the FTN except for when specific to the FT Range. Customised tanks are not covered in this manual.

All written and visual data contained in this document reflects the latest product information available at the time of publication.

Fuelchief reserves the right to make changes at any time without notice.

INTRODUCTION

Congratulations on purchasing the industries most up to date and versatile fuel storage system. In order to obtain the most from your purchase please read this manual thoroughly before installing or using your Fuelchief equipment.

Fuelchief is the market leading manufacturer and marketer of portable, self contained, hydrocarbons storage and dispensing equipment.

In general, the Fuelchief FTN Series unit is designed around easy to use and transport when neccesary. Portability is the key design feature of tank unit and it can be easily and economically transported by rail, road or sea.

The design of the Fuelchief FTN Series includes 'self bunding' and the tank can be situated onsite, within nominated separation distances, without the need for an external bund to be constructed. This feature also allows the tank to be readily relocated if required, without the need to construct any additional bunding.

For the most up to date information regarding Fuelchief FTN Series equipment and products please refer to our web site **www.fuelchieftanks.com**

STANDARDS

Fuelchief equipment has been designed to meet the following standards for both Australia and New Zealand. These standards should continue to be used for the ongoing operation and maintenance of the equipment;

AS1692 - 2006
STEEL TANKS FOR FLAMMABLE AND COMBUSTIBLE LIQUIDS

AS1692 - 2006 covers the design requirements for tanks used for the storage of flammable and combustible liquids. The FTN & FT Series tanks are designed to meet or exceed these requirements

AS1940 - 2004
THE STORAGE AND HANDLING OF FLAMMABLE AND COMBUSTIBLE LIQUIDS

AS1940 - 2004 is the Australian standard covering the design, operation and maintenance of flammable and combustible liquid storages. The FTN & FT Series is designed to meet the requirements of AS1940 – 2004, if correctly installed. It is the customers responsibility to ensure the tank is installed to this standard.

AS1657 - 2013

FIXED PLATFORMS, WALKWAYS, STAIRWAYS AND LADDERS

NZ CODE OF PRACTISE COP 24
STEEL ABOVEGROUND TANKS FOR COMBUSTIBLE LIQUIDS

Above ground stationary tanks with integral secondary containment.

UL142 / ULCS601
STEEL ABOVEGROUND TANKS FOR FLAMMABLE AND COMBUSTIBLE LIQUIDS

UL142 / ULC142 ULCS601 (Canadian approval) covers the design and testing requirements for above ground tanks for the storage of flammable and combustible liquids.

An up-to-date copy of AS1940 - 2004 should be kept on-site at all times and referred to regularly in addition to any recommendations in this manual.

REGULATIONS

Some State and Local Governments may have their own regulations governing the storage of flammable and combustible liquids, as well as environmental protection regulations.

A licence to store / sell fuel is often required in most regions. Please check with your state and local authority to ensure compliance.

The Environmental Protection Authority (or regional equivalent) may require licensing and / or approval of bulk fuel or lubricants storages, and may require the installation of water run off protection devices. Please check with your individual state EPA office for specific requirements.

Please check all State and Local Government regulations in the area before installation as these may take precedence over AS1940

WARRANTY

Below sets out Fuelchief's warranty and terms and conditions for the FTN Series tanks

TERMS AND CONDITIONS

Fuelchief guarantee the FTN Series tanks to be free from defects in material and workmanship for three (3) years from the date of shipment.

Pump sets and all other componentry are guaranteed to be free from defects in material and workmanship for one (1) year from date of shipment.

Each tank must be commissioned by Fuelchief or one of their authorized agent otherwise warranty is void.

The obligation under this warranty, statutory or otherwise, is limited to replacement or repair at the Fuelchief factory, or at a point designated by Fuelchief, of such as appear to us, upon inspection at such point, to have been defective in material or workmanship.

The warranty does not obligate Fuelchief to bear the cost of labour or transportation charges in connection with replacement or repair of defective parts; nor shall apply to a pump which repairs or alterations have been made unless authorised by Fuelchief in writing.

No warranty is made in respect to electrical control panels, pumps, motors or trade accessories, such as being subject to warranties of their respective manufacturers.

No express, implied mor statutory warranty, other than herein set forth is made or authorised to be made by Fuelchief.

In no event shall Fuelchiefbe liable for consequential damages or contingent liabilities arising out of the failure or any pressure/pumpset or parts thereof to operate properly.

The Fuelchief warranty registration form must be completed and sent back to sales@fuelchieftanks.com within 14 days of tank being delivered to customer.

Fuelchief warrants that each new and unused item of equipment (hereinafter called the Product) is of good workmanship and is free from mechanical defects, provided that:

- The Product is installed and operated in accordance with the printed instructions of Fuelchief
- The Product is used under normal operating conditions for which it is designed
- The Product is not subject to misuse, negligence or accident
- The Product receives proper care, lubrication, protection and maintenance under the supervision of suitably qualified personnel
- The Fuelchief Warranty Registration, copy attached, is completed, signed and returned to Fuelchief by the customer within 14 days of delivery of the equipment to site

Fuelchief offers a 3-year structural warranty on the tank only, this does not include any pipework or valves (internal or external) associated with the tank.
All other Warranties that are not covered by their own inherit warranty expires 12 months after shipment date to first user.

This warranty does not apply to:

- Fluids
- Filters
- Fuses
- Bulbs

And other consumable or normally wearing type items unless found to be defective prior to use

Fuelchief does not warrant the following components:

- Engines (Gasoline or Diesel)
- Compressors (Air or Freon)
- Storage Batteries
- Engine Starters
- Generators
- Alternators
- Regulators
- Governors
- Transmissions
- Any other major component having its own inherent warranty

Many of the foregoing components are warranted directly by the manufacturer and are serviced by a worldwide network of distributors and others authorised to handle claims for component manufacturers. A first user's claim should be presented directly to such an authorized component service outlet.

In the event any component manufacturer has warranted its component to Fuelchief and will not deal directly with a first user, then Fuelchief will cooperate with the first user in the presentation of a claim to such manufacturer.

Under no circumstances does Fuelchief assume any liability for any warranty claim against or warranty work done by, or on behalf, of any manufacturer of the foregoing components.

This warranty is extended by Fuelchief only to the purchaser of new products from Fuelchief or one of its authorised distributors. The products purchased under this warranty are intended for use exclusively by the buyer and its employees and by no other persons and, therefore, there shall be no third-party beneficiary to this warranty.

A claim of defects in any Product covered by this warranty must be in writing and is subject to Fuelchief factory inspection and judgment. Fuelchief liability is limited to repair only. Fuelchief will replace the defective product, F.O.B. factory, once the purchaser, at its expense, has returned the defective product to Fuelchief nominated shipping place.

Replacement and exchange parts will be warranted for the remainder of the original warranty, or for a period of ninety days, whichever is the greater.

Under no circumstances whatsoever shall Fuelchief and its authorised distributors be liable for any special or consequential damages, whether based on goodwill, lost resale profits, work stoppage, impairment of other goods or otherwise, and whether arising out of breach of any express or implied warranty, breach of contract, negligence or otherwise, except only as may be required by applicable law.
Continued use of Product (s) after discovery of a defect voids all warranties.

Expect as authorised in writing, this warranty does not cover any equipment that has been altered by any party other than Fuelchief.

There are no warranties which extend beyond the description of the face hereof. Fuelchief makes no warranties, express or implied, of merchant ability or fitness for a purpose.

Fuelchief neither assumes nor authorises any person for Fuelchief any liability in connection with the Products sold, and there are no oral agreements or warranties collateral to of affecting this written warranty.

The laws of the Australia and New Zealand hereunder shall govern this warranty and all undertakings of Fuelchief.

At all times, safety must be considered a principal factor in the installation, servicing and operation of the product. Skilled and technically qualified personnel should always be employed for such tasks.

FAILURE TO RETURN THIS REGISTRATION FORM WILL VOID THE FUELCHIEF WARRANTY OFFERED.

INSTALLATION

The below section of this manual covers the steps that should be taken to unload, position and assemble your tank unit. Due to the customisable nature of the FTN Series, some items shown below may not apply to your product.

SITE PREPARATION

The relevant site area and plant shall be prepared and comply with AS1940 or as per Country's Standards in a way that reduces the potential for fire, explosion, or exposure of persons to a hazardous substance.

Precautionary measures shall include the following, as appropriate:

a) Identification of both the equipment to be worked on and other affected equipment.
b) Depressurisation and disconnection of such equipment.
c) Isolation and locking-off of the equipment from other equipment.
d) Purging of the equipment.
e) Where the work to be carried out may impact upon hazardous substances, the removal of those substances from the immediate vicinity is required.
f) Sealing-off of sewers.
g) Provision of appropriate fire-protection equipment.
h) Provision of Spill Kits
i) Provision of Eyewash / Emergency Shower systems as required
j) Testing of the work environment for flammable or hazardous vapours and oxygen content.

Fuelchief also recommends that a Risk Assessment is carried out as part of the precautionary measures before any task is commenced.

TANK FOUNDATION

Fuelchief equipment is designed to be placed on a hard level surface such as a concrete slab, earth hardstand or concrete footings; no bunding required under normal conditions.
The site must have adequate bearing capacity for the weight of the tanks and associated equipment.
Also take into consideration the likelihood of floods, bush fires and other naturally occurring events. Fuelchief recommends a Civil engineers report be obtained before placing tank insitu.

LIFTING AND UNLOADING

Tanks are supplied with shipping container twist-lock points for lifting and movement of the tank units.

- The tank lifting attachments are only designed to be used when the tank is EMPTY.
- Only competent persons with suitable lifting equipment should be used to carry out any tank unloading or lifting and undertake a lift study.
- Care must be taken with pumping equipment and accessories when unloading.

The lifting arrangement below shows such vital information as,

- Maximum Change angle.
- Lifting points.
- Spreader bar width

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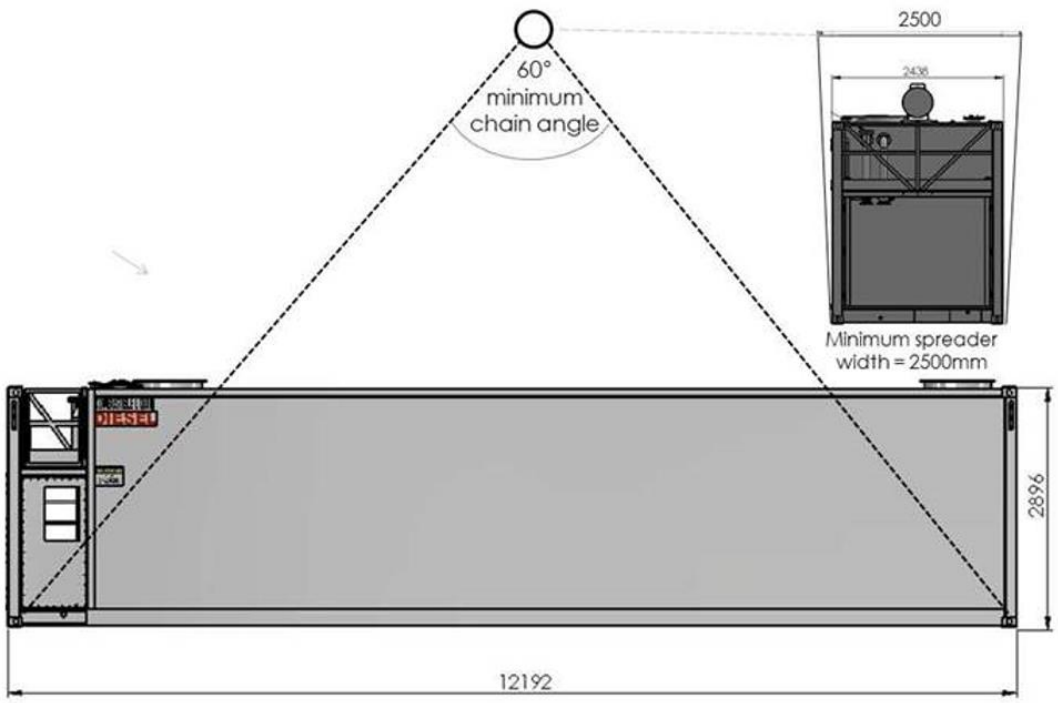

TANK WEIGHTS AND DIMENSIONS

The table below shows tank weights and dimensions and should always be referred to prior to any lift being performed. The weights listed are for ***bare tank only,*** consideration will need to be given for any extra equipment fitted to the tank at the time of lifting.

FTN Series Tanks (4.5mm)						
Model	Capacitiy (Litres)	Safe Fill (Litres)	Tare Weight (Kg)	Length (mm)	Width (mm)	Height (mm)
FTN12	12500	11200	TBC	3000	2438	2896
FTN20ss	22500	20000	TBC	6058	2438	2896
FTN30	31000	28000	6460	6058	2438	2896
FTN55ss	60000	54000	TBC	12188	2438	2896
FTN68	68800	61900	12500	12188	2438	2896
FTN80	82100	75000	17000	14630	2438	2896
FTN90	87800	80500	TBC	14630	2438	2896
FTN105	102000	94500	TBC	14630	2500	3200
*Due to custom nature of tank, weight may vary depending on application and design, does not include ladder in overall length						

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FT Series Tanks (6mm)						
Model	Capacitiy (Litres)	Safe Fill (Litres)	Tare Weight (Kg)	Length (mm)	Width (mm)	Height (mm)
FT12	12500	11200	4580	3000	2438	2896
FT20ss	22500	20000	7810	6058	2438	2896
FT30	30000	28000	8400	6058	2438	2896
FT55ss	60000	54000	14520	12188	2438	2896
FT68	68800	61900	14950	12188	2438	2896
FT80	83500	75000	TBC	14630	2438	2896
FT90	87800	80500	TBC	14630	2438	2896
FT105	102000	94500	TBC	14630	2500	3200
*Due to custom nature of tank, weight may vary depending on application and design, does not include ladder in overall length						

FP Series Tanks (6mm)						
Model	Capacitiy (Litres)	Safe Fill (Litres)	Tare Weight (Kg)	Length (mm)	Width (mm)	Height (mm)
FP12	11,700	10,530	TBC	3000	2438	2896
FP18	17,700	15,930	TBC	6058	2438	2896
FP30	30,500	28,880	6200	6058	2438	2896
FP36-NPB	36,700	33,030	TBC	6058	2438	2896
FP69	69,000	65,550	10940	12188	2438	2896
FP75-NPB	74,800	67,320	TBC	12188	2438	2896
FP84	83,700	75,330	TBC	14630	2438	2896
FP90-NPB	90,000	81,000	TBC	14630	2438	3200
FP94	94,000	84,600	TBC	14630	2438	3200
FP100-NPB	100,000	90,000	TBC	14630	2438	3200
*Due to custom nature of tank, weight may vary depending on application and design, does not include ladder in overall length.						

FM Series Tanks (6mm)						
Model	Capacitiy (Litres)	Safe Fill (Litres)	Tare Weight (Kg)	Length (mm)	Width (mm)	Height (mm)
FM30	30,500	27,450	TBC	6058	2438	2896
FM68	67,500	60,750	13,300	12188	2438	2896
*Due to custom nature of tank, weight may vary depending on application and design, does not include ladder in overall length.						

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PROTECTION

The installed tank shall be protected from vehicular collision by adequate barriers or bollards where appropriate. When considering the size, location and frequency of bollards it is vital that the size, speed and weight of machinery and implements operating within the fuel storage area be considered.

Each installation should have a Traffic Management plan in place to reduce the risk of tank impact from moving plant and machinery within the facility. Signage and layout of the facility to reduce pedestrian / vehicle interaction will help ensure the safety of operators at the fuel tank.

If the product receipt or loadout is planned to occur at night, a suitable lighting system should be installed to prevent accidendal damage to either the tank or vehicles

FIRE

Fuel tanks are not generally considered fire risks in themselves. However, they must be protected from external fires, this requires that they are located away from potential sources of fire. Refer to the Goverment, State or local laws for guidence.

WATER COURSES

The presence of a water course is considered a significant risk location, and if possible, tanks should not be located in these areas. Please refer Local State and Government regulations before installing your diesel tank.

SECURITY

User and owners of fuel tanks have the responsibility for ensuring that the system is secure and if pollution occrs as a result of vandislims they may be liable to prosecution. On the FTN Range of tanks, all connections to the tank are secured when the cabinet is locked. It is recommended that it is locked at all times, apart from authroised use.
Where the tank is coupled to a generator with flexible hoses, the tank should be positioned as close as possible to the generator and additional security or monitpring of the tank and feed and return lines should be considered for remote areas.

SPILL KITS

It is recommended that a spill containment kit be kept onsite to deal with any spillages. Fuelchief have a range of spill kits avaialble for purchase.

UNPACKING

Although Fuelchief equipment is designed for ease of installation, a number of components are packaged for transport and must be unpacked and **installed prior to use**. Some items shown below are optional extras and may not apply to your specific installation.

Tank units without pumpbays fitted (FTN90 and FTN105) may have the vent pipe and any extras packaged inside the tank or on a separate pallet. The manway must be removed from the tank to access these inclusions and they must be removed before fuel is introduced to the tank.

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STANDARD INCLUSIONS

Standard inclusions are items included with every tank unit purchased.

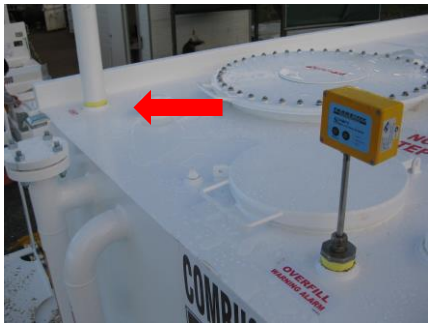
They include:

- Vent Pipe
- Hi Level Alarm (Aus Only)
- Access Ladder
- Platform End Rail

VENT PIPE

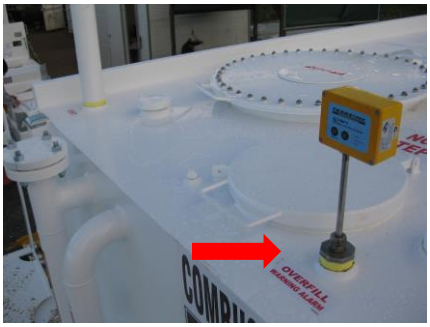
The Vent Pipe should be screwed into the 80nb BSP female housing located on the top of the tank, marked VENT. Thread tape or other suitable thread sealant should be used when mounting the air vent to the tank unit. The standards vent pipe vents both the primary and interstitial compartments.

The vent pipe is generally packed in and secured in the pump bay where fitted.



OVERFILL WARNING ALARM

The Overfill Warning Alarm should be screwed into the 50nb BSP female housing located on the top of the tank, marked OVERFILL WARNING ALARM. Thread tape or other suitable thread sealant should be used when mounting the Overfill Warning Alarm to the tank unit.



VENT PIPE AND OVERFILL WARNING ALARM MUST BE FITTED BEFORE USE

PLATFORM ACCESS LADDER AND GUARD RAIL

The access ladder may be installed as standard from the factory. If the ladder isnt installed it may be due to limitions during transport. The ladder is able to be installed on either side of the pump bay and is easiler changed over. The platform guard rail then needs to be installed on the opposite side to prevent falls from the platform.

ELECTRICAL

The FTN Series tanks should be connected to the site electrical system (where appropriate) by a suitably qualified electrician using only adequately rating components to individual State requirements and in accordance with AS3000 and AS1940.

The Electrical Input is located on the right hand side of the tank and it allows the entry of cable to the pumpbay without the cable passing through the spill containment area.

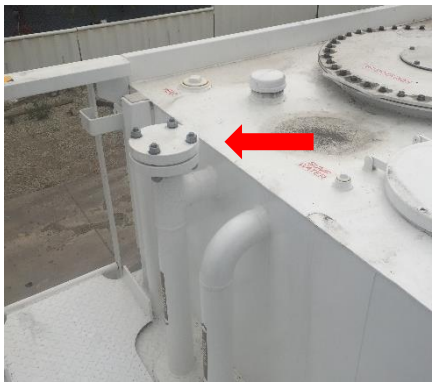
The Earth connection is located at the front of the tank on the right and left hand sides on the first supporting rail. These have been label as “EARTH”. Connection of an the earth strap is as per AS3000.

At **NO TIME** should drilling or welding be conducted on the tank without prior approval from Fuelchief or working knowledge of our tanks. Under no circumstances will Fuelchief warrant any breeches of the Interstitial space caused by drilling or welding on the tank.

PRIMING THE SYSTEM

When first commissioned, after maintenance or if run dry it will be necessary to reprime the dispensing system on the FTN Series tanks. Operation of the Dispensing System while not properly primed can lead to:

- Premature failure of pump and metering components
- Inconsistent readings of metering devices
- Higher than anticipated operating pressures and temperatures
- Excessive noise



The process to reprime the system is detailed below:

- Ensure that all valves on the dispensing line are in the OPEN position.
- Remove the prime point on the tank. This is the 3” flange located on the top of the tank suction pipe. When standing on the platform and looking toward the rear of the tank, it is the pipe on the left-hand side that protrudes through the platform and into the front wall of the tank.
- Prime the suction line until the diesel reaches the top of the prime point and does not drop. Refit the flange and ensure properly sealed and studs are correctly tightened.
- Inspect the pipeline for leaks.
- Open the DIP cap on the roof of the tank and remove the dipstick from the tank.
- Place the LV Dispensing nozzle into the DIP fitting and pump enough product to ensure that no air remains in the system.
- Note the flowrate and ensure it matches the required amount.
- Repeat the steps above using the HV Dispensing nozzle. As the nozzle may not be easy to adapt to the DIP fitting of the tank, it is acceptable to fill into vehicles if necessary.

PROTECTION

The installed tank shall be protected from vehicular collision by adequate barriers or bollards where appropriate. When considering the size, location and frequency of bollards it is vital that the size, speed and weight of machinery and implements operating within the fuel storage area be considered.

Each installation should have a Traffic Management plan in place to reduce the risk of tank impact from moving plant and machinery within the facility. Signage and layout of the facility to reduce pedestrian / vehicle interaction will help ensure the safety of operators at the fuel tank.

If the product receipt or loadout is planned to occur at night, a suitable lighting system should be installed.

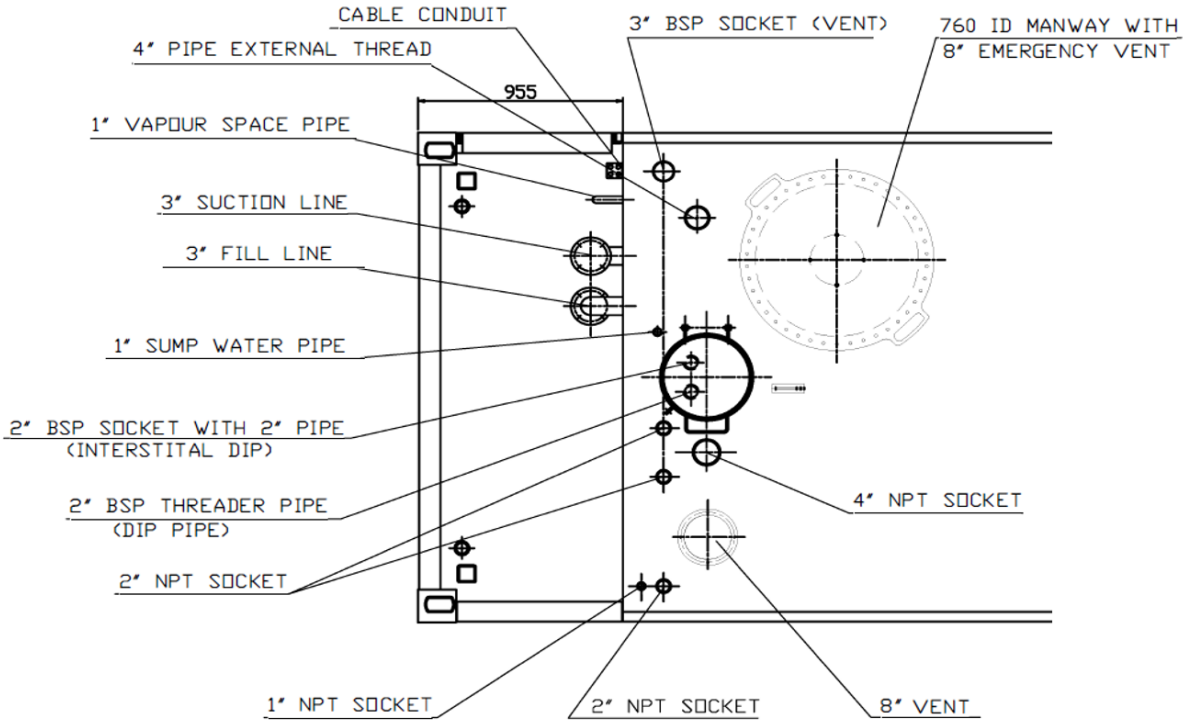
GENERAL TANK DETAILS

The below section provides general layouts and description of the various outlets and features of the Fuelchief FTN Series tanks. Customised tanks are not covered in this manual.

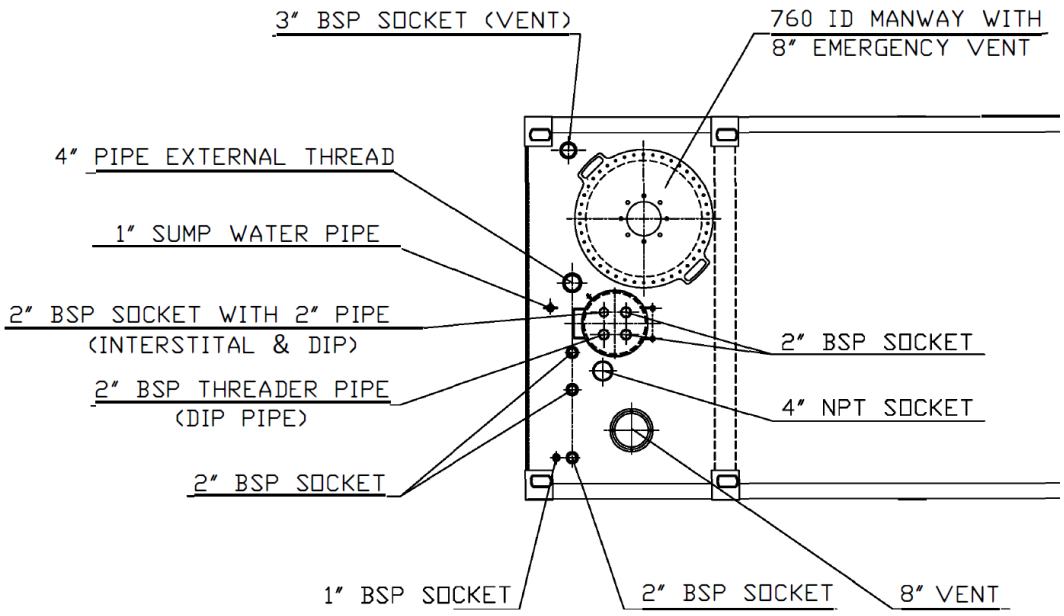
LAYOUTS

FTN Series:

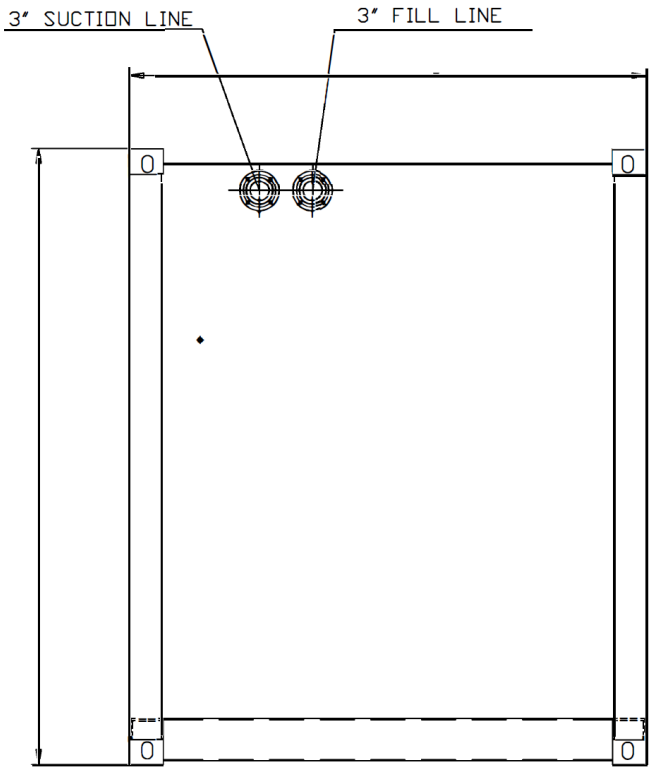
Top of the tank:
(FTN12 to FTN80)



Top of the tank:
(FTN90 & FTN105)



Front of the tank:
(FTN90 & FTN105)



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GENERAL TANK DETAILS

TANK FILL OR INLET

The standard tank fill fitting is a 3" (FTN12 to FTN80) male camlock fitting in Australia and New Zealand. The fill point is located in the front of the tank, on the righthand side. Access is via the main right hand door
(Note that some tanks may be configured differently to suit customer requirements).

Some FTN Series units are set up with a tanker unloading pump, whereas others utilise the delivery truck's pump. In either case, the tank inlet pipework should include a check (one-way) valve to prevent any backflow on completion of delivery.

An anti-syphon hole is also provided in the internal fill pipe to prevent product siphoning out of the tank fill point.

All FTN Series units also include an internal overfill protection "float valve" on the tank inlet line which will shut off flow into the tank in the event that the tank level increases to more than 90% of the tank's capacity.

TANK OUTLET OR SUCTION POINTS

The tank outlet is a 3" (80nb) ANSI 150 flanged fitting located at the front of the tank, on the left hand side. (Note that some tanks may be configured differently to suit customer requirements).

All FTN Series units include an anti-syphon valve (or valves) fitted internally on the tank outlet line, to prevent the contents of the tank from syphoning out should there be a leak or break in the outlet pipework or equipment. The valve relies on outlet pump suction to open it.

Note: The anti-syphon valve is designed to protect against accidental syphoning of product in the event of a downstream equipment failure. It should not be used as the only or primary method of preventing product release from the tank. It should be used in conjunction with other manual or automated valves.

The tank suction pipe is positioned to draw product from close to the bottom of the tank, but are designed to leave a quantity of "unpumpable" product in the tank to prevent small amounts of sediment/water from being discharged from the normal outlet. Thus, when no further product can be pumped out of the tank, some product will still remain.

DIP POINT

A dipstick for product measurement is located beneath the cap at the top of the tank, access via the platform (FTN12 to FTN80). This dipstick is graduated for the nominal capacity of the tank and shows the maximum safe fill level. The maximum safe fill level should never be exceeded.

Note: Dipsticks give a good indication of tank contents but are normally supplied as a "standard" dipstick for a particular tank size. ie: They are NOT specifically calibrated to each individual tank, and minor variances may occur as a result of tank manufacturing tolerances.

DIPPING PROCEDURE

1. Open the dip cap and raise the dipstick to a height where the product level can be seen
2. Note the approximate level of the product

3. Wipe down the dipstick with an absorbent rag
4. Return the dipstick to the tank, lowering it gently till the dip the stick touches the bottom of the tank
5. Pause with the stick in contact with the bottom of the tank and raise it quickly to where the liquid level can be read
6. Record the reading
7. Repeat the above twice more, to obtain 3 readings
8. Take the average of the three readings as the dip for the tank
9. Return the dipstick to the tank
10. Refit or close the dip cap

WATER DRAIN

Water contamination increases static electricity generation and promotes biological growth which can be difficult and expensive to remove as well as causing contamination and filter blockages.

Water in fuel or lubricants is also undesirable because of the damage it can cause to engines and fuel systems. Water can be received with product delivery, can occur through leaking or incorrectly fitted tank-top fittings and occurs naturally as the result of condensation in tanks during cooler nights.

Fuelchief units are constructed with a purpose built water catchment sump located in the bottom of the tank. The floor of the tank is sloped, creating a low point in the tank to collect water. Fuel and lubricants are lighter than water and will therefore sit on top of any water in the tank.

MONITORING OF INTERSTITIAL (BUND)

The Fuelchief FTN Series has an interstitial space between the inner and outer tank wall. The interstitial space is the ‘gap’ between the tanks’ primary and secondary containment ‘skins’ and is the units inherent protection against leaks from the inner tank. Also known as the “bund”

Should the contents of the primary containment leak into the secondary containment space, the tank unit will no longer be considered a self bunded tank, and rectification will be required to restore the integrity of the tank.

The interstitial state is monitored by using a dipstick to check for any sign of product.
If product it is detected, it is likely that a leak has occurred in the internal tank and should be investigated immediately. Contact Fuelchief for further information on 1300 899 038

To prevent over-pressurisation of the interstitial space in a fire or from other causes, 200mm relief valves are provided. It is important that the relief valves never be disabled or removed.

Removal of product is covered in the maintenance section of this manual.

CONFINED SPACE ENTRY

NOTE: While the tanks are fitted with a top access manhole, the inside of the tank is considered a **CONFINED SPACE**. Under no circumstances should any person enter the tank without appropriate permits, isolations and training.

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SAFETY

At all times, safety must be considered an important factor in the installation, servicing and operation of the product. Skilled and technically qualified personnel should always be employed for such tasks. The below mentioned instructions and information should be followed whenever using your Fuelchief equipment.

FUEL NOZZLES

Please do not lock or prop open fuel nozzles, this is both illegal (in some regions and industries) and dangerous. The nozzle may dislodge and spill fuel onto the ground or your clothing. It can also cause fuel to overflow from your vehicle's tank.

FILLING PORTABLE CONTAINERS

Only approved containers can be filled (has Standard AS2906 label or mark) with petrol or other fuels. They must be metal or plastic containers and can be purchased from Service Stations.

By law, filling of larger containers such as 205 litres (44 gallon) drums is illegal. When filling containers they must be placed firmly on the ground, in the open air, not in the boot of a car or ute, as this can increase the risk of fire and explosion.

IGNITION SOURCES

SMOKING

By law you and your passengers are required to extinguish your cigarette, cigar or pipe before entering a refuelling or fuel storage area.

MOBILE PHONES

Dropping a mobile phone or turning a mobile phone on or off may cause a spark, which can ignite fuel vapours. Using a mobile phone while refuelling can cause a lapse in concentration. This could result in over filling your fuel tank and causing a fuel spill

STATIC ELECTRICITY

Static electricity is made by two different surfaces rubbing together and can ignite fuel vapours. This can be a problem if you get in and out of your vehicle repeatedly.

VEHICLES ENGINES

By law your vehicle must be switched off and remain off when refuelling

JUMP STARTING VEHICLES

If a vehicle requires being jump started, it must be pushed away from the refuelling station. A spark could ignite fumes which could cause a fire.

FUEL SPILLS

1. If product is spilled, discharging activities and the operation of pumps and motors must cease immediately. Press pump and / or emergency stop. Warn all persons away from the area.
2. Close all valves. If less than 1 litre, clean the area down before continuing the discharge. If more than 1 litre, proceed as below.
3. Advise site / facility supervisor immediately.

4. Place the fire extinguishers within easy reach, in case of fire.
5. Guard against product flowing outside the discharge area and contain any product flow using a spill kit or any other means available (such as sand and earth).
6. If the spill has spread toward the switchboard area, turn off main power supply and evacuate.
7. If a large amount of combustible product (eg. Diesel) has been spilt and no other hazard exists, the vehicle may be moved (if necessary) under its own power. Ensure there are no naked flames, smoking or hazardous activity (eg. welding) taking place in the vicinity. Take care not to spread the liquid even more.
8. Clean up spill. Do not proceed with delivery until all potential hazards have been controlled or removed.
9. Any contaminated clothing must be removed.

FIRE

1. Immediately stop the flow of product. Press 'Emergency Stop'.
2. Raise the alarm. Dial 000 (Aus.) or 111 (NZ) or your countries Emergency Phone Number.
3. If possible, close all valves, and disconnect from customer's tank.
4. If safe to do so, attempt to extinguish the fire using portable fire extinguishers.
5. Remove any other vehicles to a safe distance, away from the hazardous area.
6. If the vehicle is on fire do not attempt to move it.
7. If the fire grows beyond control, evacuate any persons in the vicinity to a distance of at least 50 metres from the vehicle.

MAINTENANCE

This section of the manual covers regular maintenance activities that are required for most equipment supplied from Fuelchief. Not all procedures will be applicable to each tank. Documentation for the equipment supplied at the time of purchase should also be used to assist when servicing the equipment.

VENT (CLEANING AND REPLACEMENT)

FREE TO AIR VENT (Standard)

- Remove the vent assembly from the top of the vent pipe.
- Remove the 3 x screws in the top of the vent, this will allow the vent to be disassembled.
- Clean each individual part with a suitable cleaner, rinse with water to ensure no residue left from the cleaning process, dry and re-assemble.
- Refit the vent on top of the vent tube

DESICCANT BREATHERS (If fitted)

Tanks fitted with Donaldson desiccant breathers will require element replacement every 4 months (recommended by manufacturer) or when the Vacuum Indicators on the vent pipe turn red. To change the filter elements;

- Remove the Tank Breather assembly from the roof of the tank via the camlock connection on the base of the pipe.
- Unscrew the Donaldson elements from the vent pipe and clean the internal thread of any rust / scale / thread tape.
- Unpack and inspect the replacement Tank Breather. Thread tape and install the Tank Breathers to the vent pipe, tighten until firm and sealed from the ingress of dust and moisture.
- Mark the installation date on the filter units and reinstall on the roof of the tank.

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HI LEVEL ALARM BATTERY

The 4 x AAA Batteries inside the Fuelchief Hi Level Alarm will require replacement every 12 months to ensure that the alarm is operational in the event that the tank is overfilled. To change the batteries:

- Remove the 4 x Philips head screws from the face of the Hi Level Alarm
- Disconnect the small lead between the face and the internal circuit board.
- Slide the Perspex cover from the battery holder (if present), do not cut the cable tie as this secures the holder to the circuit board.
- Replace batteries and dispose of old batteries appropriately.
- Re-assemble the SCAMP by performing the reverse of the above steps.
- Test operation by holding the CANCEL button, the BATTERY GOOD light on the face of the SCAMP shall illuminate

CHECKING FOR WATER

Checks for water should be made monthly and should be checked via the dip stick (during a normal dipping procedure). To do so:

- Remove the dipstick and apply a small amount of water finding paste onto the bottom front face of the dipstick. Smear the paste evenly over the lower 100-150mm of the dipstick
- Insert the dipstick ensuring it touches the bottom of the tank, then remove it and check to see if the paste has changed colour from green to vivid purple (This indicates the presence of water in the bottom of the tank)
- If more than 10mm of the paste has changed colour, perform a water drain on the tank to remove the water

REMOVAL OF WATER

Water can be removed from tanks via the water removal drain. Water removal from tanks requires the use of Personal Protective Equipment similar to bulk product handling, i.e. safety footwear, eye protection and PVC gloves.

- Connect a small electric, air or manually operated pump to the water drain point
- Place bucket under the pump outlet and operate pump.
- Continue pumping until no water is found.
- Record that the tank has been inspected and drained, and record the quantity drained.
- Dispose of drained product into site approved waste oil disposal system.

INTERSITIAL (BUND) EMPTYING

Diesel can be removed from the tanks interstitial via the Interstitial dip tube. Product removal requires the use of Personal Protective Equipment similar to bulk product handling, i.e. safety footwear, eye protection and PVC gloves.

- Connect a small electric, air or manually operated pump to the interstitial dip point or place a long enough hose down the dip tube untill the bottom of the tank is reached.
- Place bucket under the pump outlet and operate pump.
- Continue pumping until all diesel has been removed.
- Record that the tank has been inspected and drained, and record the quantity drained.

The front cabinet bund area can also be drained at the same time using the above “Interstitial/Bund Emptying” procedure with the addition of a small length of suitable hose attached to the suction side of the pump to reach the bottom of the bund.

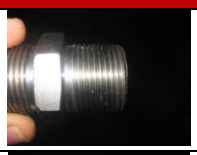
To prevent fuel containination, it is advised that the fuel removed from either the interstitial space or front bund not be returned to the the tank but be disposed into site approved waste oil disposal system.

WARNING: DRAININGS CAN CAUSE DAMAGE TO THE ENVIRONMENT. DO NOT POUR DOWN DRAIN AND DISPOSE OF IN ACCORDANCE WITH LOCAL REGULATIONS!

FITTING INSPECTION AND TIGHTENING

It is recommended that periodic inspections are carried out on the pipeline and fittings in your Fuelchief unit. A visual inspection of fittings will usually indicate if joints have come loose. The below information can be used to aid any repairs which need to be performed.

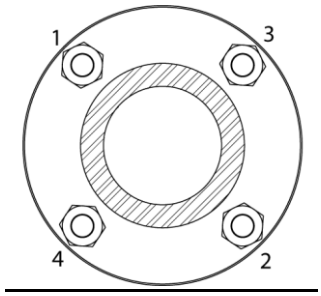
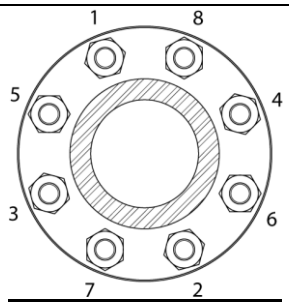
THREAD SEALANT APPLICATION

Step	Process	Photo
1	Check that the thread is clean and free from dirt, oil, thread tape etc.	
2	Apply a small, even amount of Thread Sealant around the thread, a few mm from the end of the thread.	
3	Work the Thread Sealant evenly into the first 5 or so threads. Remove any excess Thread Sealant from the thread before installing.	
4	Check that no Thread Sealant has found its way inside the fitting as this can block or contaminate fuel systems.	
5	Tighten the fitting into place. Tighten it until firm / tight. If at any stage the fitting is “backed off” it must be removed, cleaned and the Thread Sealant reapplied to ensure a seal. Once tightened, do not disturb (move) the fitting as this can break the seal on the Thread Sealant.	

FLANGE IDENTIFICATION

The tables below are to aid in the identification of the various flange sizes fitted to Fuelchief pump packages and their required torque value.

NOTE: THE VALUES GIVEN ARE FOR CARBON STEEL / STAINLESS STEEL FLANGE TO FLANGE CONNECTIONS AND DO NOT APPLY FOR FLANGE TO EQUIPMENT CONNECTIONS OR CONNECTIONS WHERE THE MATERIALS DIFFER FROM THOSE MENTIONED ABOVE.

Flange Type	Procedure	Photo
4 Bolt – ½" to 3 ½"	Chase up nuts by hand so that both flange faces are flush against the gasket and aligned. Torque each nut to 25% of required torque, nuts 1-4, then 50%, 75% and finally 100% of required torque. (Torque requirements shown on the next page)	
8 Bolt – 4" and up	Chase up nuts by hand so that both flange faces are flush against the gasket and aligned. Torque each nut to 25% of required torque, nuts 1-8, then 50%, 75% and finally 100% of required torque. (Torque requirements shown on the next page)	

FLANGE TIGHTENING

The Torque Values below are based on using Grade 8.8 B7 Studs with 2H Raised face nuts. The raised face always faces down onto the surface being tightened.

Bolt torque values for ASME B 16.5 Class 150#
RF Flanges with A193GrB7 Bolts
for compressed sheet, GYLON® and GRAPH-LOCK® gaskets

Nom. Pipe Size (Inches)	No. of Bolts	Size of Bolts (Inches)	Internal Pressure (psig)	Minimum Torque (ft.-lbs)	Preferred Torque ft.-lbs.
0.50	4	0.50	300	9	28
0.75	4	0.50	300	13	40
1.00	4	0.50	300	17	53
1.25	4	0.50	300	26	60
1.50	4	0.50	300	35	60
2.00	4	0.63	300	69	120
2.50	4	0.63	300	81	120
3.00	4	0.63	300	119	120
3.50	8	0.63	300	66	120
4.00	8	0.63	300	84	120
5.00	8	0.75	300	117	200
6.00	8	0.75	300	148	200
8.00	8	0.75	300	200	200
10.00	12	0.88	300	188	320
12.00	12	0.88	300	250	320

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GENERAL MAINTENANCE CHECK LIST

INSPECTION PROCESS							
V = Visual inspection		P = Physical Check		L - Lubricate		R = Replace	C = Calibrate/Certify
INSPECTION TIMES							
ITEM	Daily	Weekly	Monthly	6 month	Yearly	Other	Reference /Comment
GENERAL							
Hosue Keeping	V			P			Remove rubbish etc
Fire Exinguishers etc				P, C			V = Check equipment is in place and unused P = Test & Certify as per regulations
Notices and signs				V			Inspect for damge, wear and readability
Tank surrounds				V			Check condition of slab, hard base etc
TANK							
Vents, fittings and pipelines		V		P			V = Visual checks for leaks and damage. P = Physical check, bolt tightness, paint deterioration
Interstitial Space		P					Dip for product and water
Water Drain Tanks		P					P = Physical check, remove if found
Overfill Alarms			V		P		V = Press alarm TEST button P = Remove from tank, submerge float in water and test operation. Replace 4 x AAA bateries inside unit
Tank & Pipework Earthing				V	P		V = Visual Check OK P = Test continuity as per AS1940, AS1020, AS3000 and AS1768
Walkways and Ladders					P		Physical check bolt tightness and overall condition
Pumpbay		V					Check drain is sealed, remove spilled product or water from the pumpbay

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DISPENSING							
Pipework, valves and fittings		V			P		V =Visual check for leaks or damage P = Check bolts for tightness, paint for deterioration.
Dispensing pump		V			P		V = Visual check for leaks and damage P = Check bolt tightness, paint deterioration and overall condition. Coupling condition and alignment
Hoses and Nozzles	V				P	C	V = Visual check for leaks and condition P = Physical check (pressure test) and test continuity to AS2683 C = recertification (if applicable)
Filter Module		V			P	R	R = Replace filters as necessary V = Check for leaks and damage P = Check bolt tightness, paint deterioration, fitting condition
Strainer	V		P				V = Visual checks for leaks P = Check and clean as necessary
Petrol/Diesel Engine		V		L, R		L, R	V = Check oil / water level L, R = Service engine, replace fluids, filters etc as per manufacturer specification. Check drive coupling, mountings, guards etc.
TANKER UNLOADING							
Tanker Unloading pipework / valves / fittings	V	V			P		V = Visual check for leaks or damage P = Check bolt tightness, paint detrioation
Tanker Unloading Strainer	V		P				Check and clean as necessary

Tanker Unloading Filter		V			P	R	R = Replace filters as necessary V = Check for leaks and damage P = Check bolt tightnes, paint deterioration, fitting condition
Tanker Unloading Pump		V			P		V = Visual check for leaks and damage P = Check bolt tightness, paint deterioration and overall condition
Flowmeter		V			P, C		V = Check for leaks and operation P = Check bolt tightness, paint deterioration and overall condition. C = Calibration check
Tanker Discharge Hoses		V			P	C	V = Visual check for leaks and condition P = Physical check (pressure test) and test continuity to AS2683 C = recertification (if applicable)
Static earthing cable and clamp		V			P		V = Check condition of cable and clamp P = Check bolt tightness and continuity to AS1020 and AS1940

MAINTENANCE AND TECHNICAL SUPPORT CONTACT DETAILS

PHONE: 1300 889 038 (AUS)

03 384 2380 (NZ)

EMAIL: support@fuelchieftanks.com

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ANNUAL INSPECTION CHECKLIST

ANNUAL INSPECTION CHECKLIST			
Site Name:		Inspection Date:	
Location:		Tank ID:	
Inspector Name:		Signature:	

ITEM	STATUS			COMMENTS
	YES	NO	N/A	
Is the containment structure in satisfactory condition?				
Drainage pipes / valves are fit for continued service?				
Is there evidence of tank settlement or foundation washout?				
Is there evidence of cracking or flaking in the concrete foundation?				
Are tank supports and exterior in satisfactory condition?				
Is water able to drain away from the tank?				
Is tank earthing secure and in good condition?				
Is there evidence of paint cracking, peeling or damage?				
Is there evidence of distortion, buckling, denting or bulging?				
Are flanged connection bolts tight and fully engaged with no wear or corrosion?				
Is there excess water lying on the top of the tank?				
Is there evidence of coating cracking, peeling or blistering on the top?				
Are there any visual holes anywhere in the exterior of the tank?				
Are vents free from obstructions?				
Is the Overfill Warning Alarm operational? (change battery annually)				

Does the mechanical overfill protection device function properly?				
Is the Emergency Stop functioning correctly?				
Are there any noticeable leaks from the tank, pipework, fittings, hoses or pumps?				
Is the electrical wiring for control boxes, pumps, lights, etc in good condition?				
Is the site lighting functioning correctly?				
Is all safety equipment and PPE including fire extinguishers present and functioning correctly?				
Is there excess liquid in the pump bay bund? (pump out excess)				
Are walkways and ladders in good condition and free from obstructions?				
	A shaded cell means a non-conformance that requires action to resolve the problem.			

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SHORT & LONG TERM STORAGE PROCEDURES

The following is a list of recommended short and long term storage practices for Fuelchief units. The steps below may not apply to all units depending on installation type, environment etc and are to be used as a guide only.

PREPARATION

1. Clean out tank pump bay and remove any spilt hydrocarbons, rubbish etc from the floor of the bunded pumpbay area. Long term storage could have water ingress and overflow to environment.
2. Roll all hoses up neatly keep out of dirt to avoid soiling. Roll up and store all hoses above the bunded level of the tank to prevent immersion of the hoses in water (should water collect in the pumpbay) for extended periods of time.
3. Cover all nozzle ends to prevent dust, moisture, insects etc from entering the nozzle.
4. Stow all nozzles in nozzle holsters (if fitted).
5. Retract static line and store on the static line reel.
6. Ensure all valves are open for thermal expansion.
7. Check and tighten all nuts / bolts / glands to ensure seepage and drips don't occur.
8. Ensure man-way gaskets are in good condition then tigten all man-way bolts. The "manways" are the confined space access panels on the roof of the tank unit.
9. Check dipstick and record tank contents.
10. Tighten all top of tank plugs / flanges / caps etc.
11. Cover day-light sensor cell if fitted to prevent unneccesary deterioration of the unit.
12. Spray all moving shafts on valves with lubricant or water dispersant spray to prevent seizure during periods of non-use.
13. Press all emergency stops in to prevent accidental start up of the unit.
14. Isolate main power supply, tag & date
15. Close and lock ladder.
16. Ensure all hatches have been padlocked to ensure no unauthriesd use or access.

RETURN TO SERVICE

1. Unpack, release etc all items stored in the above steps
2. Perform a dip of the tank contents and check for water. The steps required to remove water from your Fuelchief unit are included in this Installation, Operation and Maintenance Manual.
3. A fuel sample should be taken for analysis before fuel is dispensed from or added to your Fuelchief unit to ensure that the fuel quality has not degraded to an unusable state during storage.
4. Inspect all pipeline and equipment for signs of damage and deterioration. The electrical system should also be inspected by a qualified electrician.
5. Prime the system using the priming procedure as detailed in this Installation, Operation and Maintenance Manual.
6. The first dispense of fuel should be inspected or tested before use to ensure the fuel has not become unusable while stored in the pipeline.
7. Perform dispenses through all nozzles and test system controls to ensure system operates as per design

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SPARE PARTS LIST

Below is a general list of spare parts available for the FTN/FT/FP/FM range of tanks and pumping equipment.

Please contact Fuelchief on **1300 899 038** or your BDM.

FTN & FT Series Tanks				
Item N°	Decription	Fuelchief Part N°	Approx Lead TIme	Tank/Pump Package
1	Hi Level Alarm (Aus models)	LEGA-0006	1 day	All Tanks
2	3” Overfill Protection Valve	CUSTOM	14 days	All Tanks
3	3” Anti Syshon Valve	CUSTOM	14 Days	All Tanks
4	3” Vent cap	VENT-0005	1 day	All Tanks
5	Decals	CUSTOM	1-2 days	All Tanks
6	2” Todo Dry break coupling (NZ models)	TODO-0001	1 day	All Tanks
7	3” Gasket	GASK-0006	1 Day	All Tanks
8	3” Firesafe Ball Valve	BVF-0005	3-5 days	All Tanks
9	3” Back Check Valve (Aus models)	WCV-0002	3-5 days	All Tanks
10	3” Camlock Type A (Aus models)	CLA-0041	1 day	All Tanks
11	3” Camlock Type DC(Aus models)	CLA-0047	1 day	All Tanks
12	3” Ball valve (NZ models)	BVG-0010	1 day	All Tanks

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WARRANTY REGISTRATION FORM

Please print, complete all information and return to Fuelchief.

Warranty Registration					
Purchaser Information					
Company Name:					
Address:					
Town/Suburb:		State:		P/Code:	
Phone N°:					
Email address:					

Tank Information	
Sales Order (if known):	
Model:	
Serial Number:	
Date received:	
Date Commissioned:	

Tank Location				
Company Name:				
Address:				
Town/Suburb:		State:		P/Code:

Commissioning Details	
Company Name:	
Tech Name:	
Phone N°	

Completed by:			
Name:		Signature:	
Position:		Date:	

Retrun to Fuelchief		
Via Post (AU)	Via Post (NZ)	Via Email
Fuelchief Warranty 26 Saleyards Rd Parkes NSW 2870 Australia	Fuelchief Warranty 5 Tanya St Bromley, Christchurch 8062 New Zealand	support@fuelchieftanks.com

LIMITATIONS OF THE MANUAL

This manual contains a general overview of the Fuelchief FTN/FT Series Tank. These guidelines and recommendations may or may not be appropriate for every Purchaser.

The Purchaser is solely responsible for setting the policies and procedures needed to operate its business according to the laws, regulations, and customs of its legal jurisdiction.

The Purchaser is also solely responsible for the effects of these business policies and procedures and the statements and actions of its employees while on the job.

Fuelchief reserves the right to change the contents of this manual without notification at any time.

FOR UP-TO-DATE PRODUCT INFORMATION OR ADDITIONAL INFORMATION VISIT

WWW.FUELCHIEFTANKS.COM

NOTES:

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