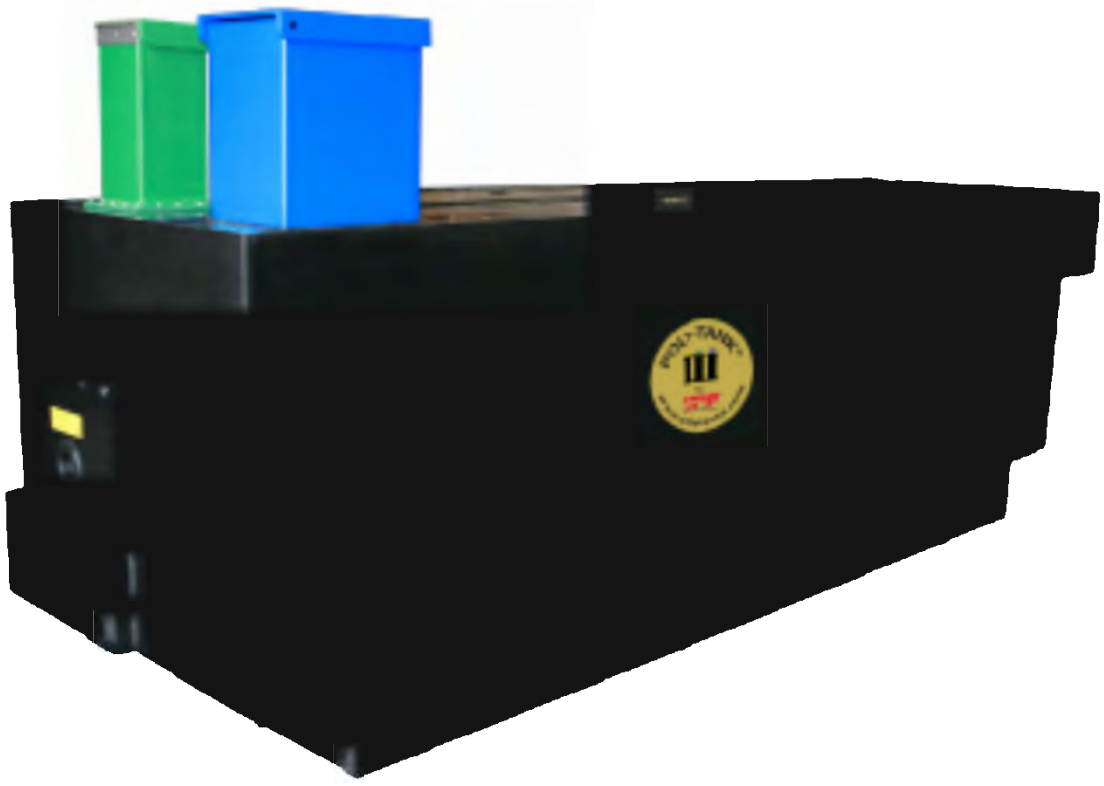
UNITED PLASTIC FABRICATING

ATTENTION

POLY-TANK® OPERATION AND MAINTENANCE INSTRUCTIONS



990-1147 Rev B

1-800-638-8265

POLY-TANK®

OPERATION AND MAINTENANCE INSTRUCTIONS

UNITED PLASTIC FABRICATING, INC

165 Flagship Drive

North Andover, MA 01845

The water and/or foam tank(s) in your apparatus have been manufactured by United Plastic Fabricating, Inc. (UPF). The information contained herein addresses tank maintenance and the proper use of the vehicle's components that interface with the tank(s).

The information in this document is to be included with the vehicle's operational manual to ensure the fire department is familiar with all aspects of the UPF POLY-TANK®III. For other tank-related questions, **call UPF at 1-800-638-8265 or 978-975-4520.**

The following safety symbols are used in this document:

DANGER

IMMEDIATE HAZARDS WHICH <u>WILL</u> RESULT IN PROPERTY DAMAGE, PRODUCT DAMAGE, SEVERE PERSONAL INJURY AND/OR DEATH.

WARNING

HAZARDS OR UNSAFE PRACTICES THAT <u>COULD</u> RESULT IN PROPERTY DAMAGE, PRODUCT DAMAGE, SEVERE PERSONAL INJURY AND/OR DEATH

1) EQUIPPING AND USING YOUR TRUCK WITH A UPF POLY TANK

Any tank top that will have long-term exposure to the sun or elements must have some type of protection applied. This can be paint, non-slip coatings, diamond plate, or hose bed covers. This will ensure a long trouble-free operation of your tank.

It's common to store equipment on top of your UPF Poly-Tank®, Be sure that there are no point loads and that the maximum load per square foot does not exceed 200 lbs. Should you wish to install equipment either by drilling or adding fasteners to the tank or accessory components, please contact UPF for assistance.

2) CLEANING YOUR WATER TANK

Although your UPF Poly-Tank® is resistant to sediment build-up, the use of non-chlorinated rural water sources to refill your tank, may result in sediment build-up and organic growth. Adding household bleach in most cases, will eliminate any organic growth. The use of boat bilge cleaner can be used to help hold solids in suspension while the tank is flushed. Please be sure to follow the chemical manufacturer's instructions.

3) TANK MAINTENANCE AND/OR SERVICE

The water and/or foam tank(s) are designed to be completely maintenance-free throughout their service life. None of the polypropylene components require routine maintenance. Always use care when removing or reinstalling bolt-on accessories. Over-tightening fasteners or threaded fittings can damage the threads in the plastic. If you need help with fastening instructions or if you ever require service, please contact United Plastic Fabricating, Inc. at 1-800-638-8265. Should OEM installed fasteners require retorquing, please use the reference torque chart below. Please note that different types of fasteners are used that have specific requirements.

THREAD GUAGE	INSERT TYPE	MAXIMUM RETAINABLE TORQUE	DRILL SIZE	THREAD ENGAGEMENT
1/4-20	THREADED PLASTIC	14 INCH POUNDS	#7	1/2"
10-32	BRASS INSERT	13 INCH POUNDS	15/64	1/2"
1/4-20	BRASS INSERT	30 INCH POUNDS	5/16	1/2"
5/16-18	BRASS INSERT	60 INCH POUNDS	3/8	1/2"
3/8-16	BRASS INSERT	95 INCH POUNDS	15/32	1"
1/4-20	HELICOIL	14 INCH POUNDS	17/64	1/2"
5/16-18	HELICOIL	20 INCH POUNDS	21/64	1/2"
3/8-16	HELICOIL	45 INCH POUNDS	25/64	3/4"
7/16-14	HELICOIL	7 FT POUNDS	29/64	3/4"
1/2-13	HELICOIL	10 FT POUNDS	17/32	3/4"
5/8-11	HELICOIL	20 FT POUNDS	21/32	1"
3/4-10	HELICOIL	60 FT POUNDS	25/32	1 1/8"

4) FILLING THE WATER TANK

Typically, the apparatus has one or more means to fill the water tank. This includes the manual fill tower located on the top of the vehicle, a gated “TANK FILL” line which allows water from the discharge side of the pump to enter the tank, and a “DIRECT FILL” which allows water to go directly from a pressurized source into the tank.

WARNING

Definition on page 2

Should the operator be filling at a rate in excess of 200 GPM as the tank reaches the “FULL” level, excess water may force the fill tower lid to open and spill water from the tower into the hose bed area.

Some fill tower lids are constructed with a pin and socket lid latch which is inside the tower. If the lid is forced open due to excessive internal pressure, the lid needs to be secured again. This is done by pressing down on the lid surface opposite the hinged side. The pin will re-engage the socket. The lid is now reset. Never add a latch to prevent the tower lid from opening. Never prevent the lid from opening by placing an obstruction over the lid. If lid is not secured with the pin(s) engaged in the sockets, the overall height of the vehicle may be affected.

WARNING

Definition on page 2

The water tank is designed to be filled at a maximum rate equal to the tank capacity (expressed in GPM) with a maximum flow rate of 1000 GPM (3,800 LPM) on tanks 1,000 gallons or greater. The maximum inlet pressure must not exceed 100 PSI at the tank inlet fitting. See table one below.

Table I

Tank Size (US Gallons/Liters)	Maximum** Tank Fill Rate (GPM/LPM)	Maximum Tank Inlet Pressure*(PSI/BAR)
300 gal./1,135	300 gal./1,135	100/6.9
500 gal./ 1,895	500 gal./ 1,895	100/6.9
750 gal./ 2,840	750 gal./ 2,840	100/6.9
1,000 gal./ 3,785	1,000 gal./ 3,800	100/6.9
1,250 gal./ 4,735	1,000 gal./ 3,800	100/6.9
1,500 gal./ 5,680	1,000 gal./ 3,800	100/6.9
2,000 gal./ 7,570	1,000 gal./ 3,800	100/6.9
2,500 gal./ 9,465	1,000 gal./ 3,800	100/6.9
3,000 gal./ 11,355 or greater	1,000 gal./ 3,800	100/6.9

*In most cases the inlet pressure must be limited to maintain safe tank fill rates.
For any situation that is unique to your department's standard operating procedures, or where residual water supply sources may exceed 100 PSI, please contact UPF for additional information.
** Higher fill rates may be permissible in some applications. Please contact UPF for further approval.

DANGER

Definition on page 2

In cases where water flow into the tank exceeds the referenced rates in Table I, the tank may become "OVER-PRESSURIZED" and result in damage or failure of the tank. Over-pressurization is considered to be in excess of the normal operating design parameters of the tank. Damage resulting from over-pressurization is NOT covered under the terms of the tank warranty. (Refer to the tank warranty as issued by UPF for your particular apparatus/use)

5) RECIRCULATING WATER

When using the tank fill as a recirculating line to prevent overheating of the pump, do not open the tank to pump valve to the fully open position. Pump cavitation may occur due to excessive turbulence inside the tank. Use the "recirculation line or "pump cooler" line if provided for this situation.

6) VENTING SYSTEM

All water tanks produced by UPF are considered to have an ATMOSPHERIC venting system. This means the tank is vented to the atmosphere by means of a vent/overflow pipe. As the water is pumped into the tank, the air being displaced is vented through the vent pipe, which also serves as the tank overflow.

WARNING

Definition on page 2

As the water tank level approaches "FULL", the flow of water into the tank must be reduced to no more than 200 gallons per minute regardless of the tank's capacity. At this point, the water continues to fill the tank and rises into the fill tower on top of the tank. The water is then diverted out the overflow pipe to an exit point, typically behind the rear axle of the vehicle. All tanks have unique internal vent pipe routing. Because of this, overflow performance may vary in each tank design. Never cap off, plug or block off the overflow inlet or exit.

DANGER

Definition on page 2

NEVER modify or add fasteners to the fill tower lid. Use only genuine UPF replacement parts. Altering the design or operation of the fill tower lid could result in product damage, property damage, and severe personal injury or death.

7) PUMPING FROM OR DUMPING FROM THE WATER TANK

As described in section six, the water tank is designed to be operated with an atmospheric vent system that was sized to adequately vent the tank during water evacuation. The fill tower lid does not need to be opened for tank-to-pump operation or dumping water through gravity dump valves.

8) WATER TANK OVERFLOW

All tanks are constructed with a vent/overflow pipe for proper venting and to route excess water to a point behind the rear axle should the tank be “OVER FILLED” during the fill process. This vent/overflow pipe and fill tower lid must remain unobstructed at all times.

Depending on the height and location of the fill tower, which contains the vent/overflow pipe entrance, you may experience minor water spilling from the overflow pipe while driving under certain road conditions. This is normal.

9) FILLING THE FOAM TANK

The foam tank has either a fill tower with a hinged and latched lid or a pipe fill tower with a cap. Foam tanks with square or rectangular towers have a 3” or 4” pipe in the center which is an “anti-foaming” fill tube. The concentrate should be poured into this pipe to prevent aeration of the foam as it enters the tank.

Open the lid or remove the cap and pour the desired foam into the tank. The tank capacity is designed to be full when the foam level is at the top of the tank and not up into the fill tower. The tower area is an expansion area for the foam. It is important not to overfill the tank.

WARNING

Definition on page 2

Some vehicles have an external foam pump to on-load foam into the foam tank. For these situations it is required that the foam tower lid be opened before filling procedures begin. Opening the lid prevents any chance of the foam tank being over-pressurized due to overfilling.

! THE POLY-TANK® FOAM TANK SHOULD BE COMPLETELY FILLED TO THE FULL LEVEL AND THE LID CLOSED AND LATCHED AT ALL TIMES EXCEPT WHEN FILLING.

! AT NO TIME SHOULD TWO DIFFERENT TYPES OR BRANDS OF FOAM BE STORED IN THE SAME FOAM TANK. WHEN CHANGING FOAM BRANDS, CONCENTRATES OR PERFORMING MAINTENANCE, THE FOAM TANK AND SYSTEM MUST BE THOROUGHLY FLUSHED TO ENSURE PROPER OPERATION.

10) FOAM TANK VENTING

All UPF foam tanks have lids that are fitted with a seal. A pressure vacuum vent is required on all foam tanks to prevent a free air exchange when the tank is not in use but will allow for the normal thermal effects that cause the foam to expand or contract. This vent is fully automatic and will provide the proper air flow when the foam is being drawn out of the foam tank.

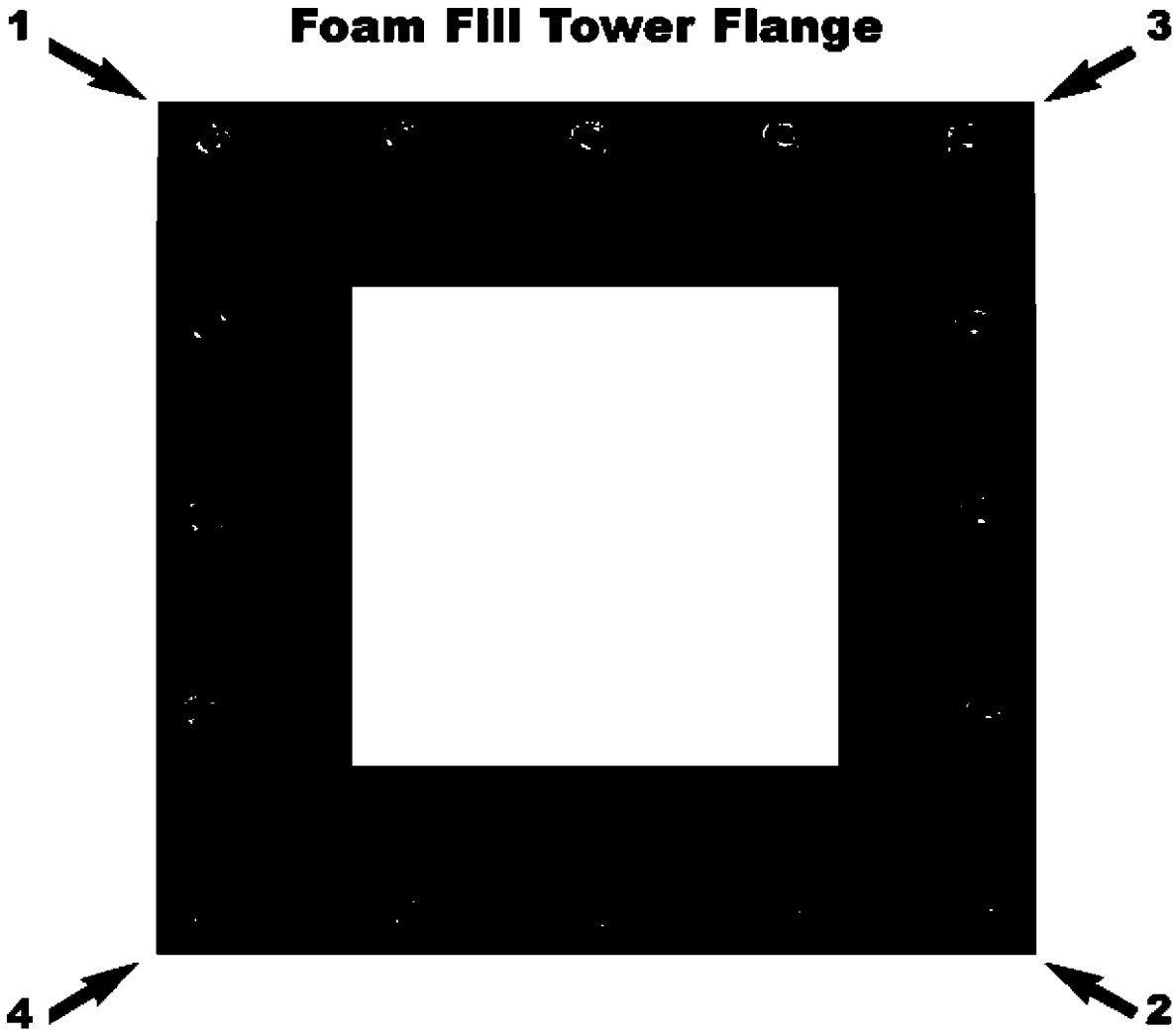
11) CLEANING THE FOAM TANK

Some standard foam tanks or foam cells manufactured by UPF have a removable fill tower to provide access should the inside of the foam tank need to be cleaned out. Simply unbolt the tower from the top of the tank to gain access. Once the tank is cleaned, reinstall the fill tower.

WARNING

Definition on page 2

DO NOT OVER TIGHTEN TOWER ATTACHING SCREWS! DO NOT USE POWER TOOLS TO TIGHTEN FASTENERS. The proper torque setting for these fasteners is 35 - 40 inch pounds. Start with the four corner bolts (see diagram below). Should any of the fasteners become damaged, contact UPF for alternative attachment methods.



12) LIFTING OR REMOVING THE TANK

Definition on page 2

DANGER

Should the need arise to remove the tank from the truck; it is important to properly fit the tank with the correct lifting hardware. Each tank requires a unique lifting arrangement and it is required that you contact UPF before attempting to lift any tank. Improper tank rigging may cause tank damage as well as serious personnel injury or death. The tank must completely drained of all liquids before lifting. The lift arrangement is designed to lift the weight of only the empty tank. Consult UPF Engineering for any and all tank lifting questions.

NEVER USE SLINGS, CHAINS, CABLE OR ROPE TO "RIG THE TANK" AS SERIOUS TANK DAMAGE MAY RESULT.

NEVER STAND OR PLACE ANY PART OF YOUR BODY UNDER THE TANK WHILE IT IS SUSPENDED.

In cases where the tank is to be removed, it is important not to rest the tank on any external features that may be on the bottom of the tank such as sumps or overflow pipes. Properly set the tank on a level surface using suitable cribbing to prevent damage to the features on the bottom of the tank. Cribbing must extend the full width of the tank. If the tank is stored outside, it should be covered to prevent direct sunlight exposure and entry of foreign objects. Request UPF product bulletin 999-1010 for further details.

13) STORAGE

Tanks designed for direct exposure to sunlight are manufactured from polypropylene material which contains UV inhibitors. This material is designed to be intermittently exposed to sunlight for short periods of time without damage.

Definition on page 2

WARNING

Never store your tank in direct sunlight. UPF recommends that the tank always be covered by a tarpaulin or other ultra-violet resistant cover when stored outside. Never allow tanks with protective film masking on the plastic sheet to be exposed to direct sunlight to prevent fusion of the masking to the tank. Never allow water

or foam to remain in tanks in climates that are subject to freezing temperatures. Be sure all sumps and plumbing are drained.

14) WARRANTY

Every UPF POLY-TANK® is thoroughly inspected and tested. Should any problems develop with your UPF POLY-TANK® Water/Foam Tank, you must submit a claim through Company's website https://www.unitedplastic.com/contact/product-support/

15) SUMMARY

It is recommended that you maintain all the tank related information in a location that provides quick access. While you will normally not have to use this information for the service life of your apparatus, UPF will be able to respond more rapidly if it is available when you call for either service or warranty.

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