



TransTank[®]
INTERNATIONAL

Operator's Product HandBook

LiquidLocker[™]

Anti-Surge Baffling Safety System



“HELPING TO DEVELOP AND PROTECT THE LAND”

Contents

Safety	4
General Safety Instructions	4
General Information	5
Specifications	5
Description	5
Machine Limitations	6
Driving Stability	6
Operating Instructions	6
Risk Assessment	8
Maintenance	9
Periodic Checks	9
Warranty	10
Warranty Policy	10
What this Warranty Does Not Cover?	10
How to Obtain Service Under this Warranty?	10
Warranty Limitations	10

Disclaimer

All information, illustrations, and specifications contained in this manual are based on the latest product information available at the time of this publication's printing. TransTank International (TTi) reserves the right to alter and substitute specifications and methods at any time, in line with our commitment to continuous improvement.

No patent liability is assumed with respect to the use of information contained within this manual. While every precaution has been taken in the preparation of this manual, TTi assumes no responsibility for errors or omissions.

Thank you for purchasing a TTi LiquidLocker™ Ball Baffle safety system (LiquidLocker). The system will provide significant improvement to the stability of your cartage tank, particularly with partial loads, when used in accordance with this manual.

All TTi LiquidLocker balls are moulded from quality polypropylene, purpose designed and manufactured to high standards. The LiquidLocker ball baffle unit is available in two sizes – 195mm and 380mm diameter. The smaller unit is suitable where the tank opening is less than 380mm.

Due to its irregular shape, the LiquidLocker balls interlock, preventing any movement of the balls inside the tank. Whether it's water, diesel or any other compatible liquids, the LiquidLocker ball baffle system will reduce fluid movement while the tank is in motion. The system takes up just 2% of the tanks' total volume.

The LiquidLocker balls are easy to assemble and install, requiring no special tools or skills, and can be installed in any fibreglass, steel, aluminium or poly cartage tank.

TTi warrants that the LiquidLocker system has been designed and built for its intended purpose of providing a high level of vehicle stability while in motion.

The owner is responsible to ensure that the cartage tank is operated in accordance with Australian WorkSafe requirements, applicable road rules and local council regulations. TTi is not liable for any loss, injury or death resulting from the failure to observe all safe working regulations as required by law.

Safety

This manual is intended for use by personnel experienced in the use of this and similar equipment. Read and understand this manual before attempting to operate or perform routine maintenance on this equipment. Your safety is of prime priority.



A WARNING highlights an essential operating or maintenance procedure, practice, condition or statement, which, if not strictly observed, could result in injury or death of personnel, or long-term health hazards.



A CAUTION highlights an essential operating or maintenance procedure, practice, condition or statement, which, if not observed, could result in damage or destruction of equipment.



A NOTE highlights or clarifies an essential systems description, operating or maintenance procedure, condition or statement.

General Safety Instructions

1. The LiquidLocker system is designed and manufactured solely for the purpose of improving the cartage tank vehicle's stability while in motion. The LiquidLocker system is not a substitute for driver/operator training, skill, experience or responsibility to drive safely at all times and in all environments.
2. When assembling the LiquidLocker ball, the edges may be sharp – wear protective gloves.
3. When installing the LiquidLocker Ball baffle system into your tank, observe all relevant safety legislation and procedures, such as working at heights and in confined spaces.
4. Do not operate any equipment fitted with the LiquidLocker while under the influence of alcohol or any drugs that could impair your capabilities in any way.
5. Ensure the capacity of the vehicle is suitable for the loaded mass of the cartage tank with the LiquidLocker system. Refer to the vehicle's operator manual for safe working loads and relevant safety instructions. Do not exceed the carrying and braking capacity as specified by the vehicle manufacturer.
6. Not suitable for single-piece tanks of more than 18,000L capacity without internal rigid baffles.
7. Only suitable for liquids up to 1.3 Specific Gravity.

General Information

Specifications

LiquidLocker Ball Baffle System	Food grade polypropylene, 2-part clip together balls, either: <ul style="list-style-type: none">• 195mm diameter• 380mm diameter
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Description

The TTI LiquidLocker system is designed to minimise liquid surge, therefore creating safer transportation of fluids. The system demonstrates measurable improvements in braking performance and dynamic stability and controllability. The system has been independently tested, with the report available upon request.

Each LiquidLocker ball comprises two halves when supplied as a kit to install in your tank. Each half is identical with both male and female interconnection points.

The LiquidLocker system, as installed in a TTI tank, is shown in Figure 1.



Figure 1 – LiquidLocker Ball Baffle System

Machine Limitations

The LiquidLocker system is subject to operating limitations. It is the operators' responsibility to ensure that the equipment is being operated safely and within these limitations.

Driving Stability

The cartage tank fitted with the LiquidLocker Ball Baffle system is heavy when filled with fluid. To maintain stability while operating the unit:

- Ensure the vehicle's tyres are inflated to their correct pressure at all times. Underinflated tyres can cause excessive lateral motion of the tyre, which may cause a rollover.
- Allow extra room for braking and turning when the tank is full.
- Ensure any side gradient (slope) is accounted for, especially when the cartage tank is full, as the unit may have a higher centre of gravity.

Operating Instructions

Your LiquidLocker Ball Baffle system is delivered fully assembled and installed when supplied with a TTI product. Where the LiquidLocker system is delivered as a separate product, each unit needs to be assembled and installed using the following instructions:

1. Complete the warranty registration online at www.tti.com.au/warranty-registration, or use the Warranty Registration Card at the back of this handbook.
2. Store this handbook in a safe and easily accessible place for future reference.



CAUTION! The operator must fully understand all aspects of this handbook. Do not operate the cartage tank with the LiquidLocker system if you are unfamiliar with unit until you have read this handbook and the manual supplied with your tank.

3. Read and thoroughly understand this handbook, paying particular attention to all safety requirements, before using the LiquidLocker system installed in your tank for the first time.



CAUTION! Wear protective gloves to prevent cuts from edges of the ball halves.

4. Each LiquidLocker ball is supplied in two halves. Wearing protective gloves, select two halves.
5. Align the locating pins and connection points, refer to Figure 2. Firmly press to clip the two halves together. Ensure each connection point has fully engaged.

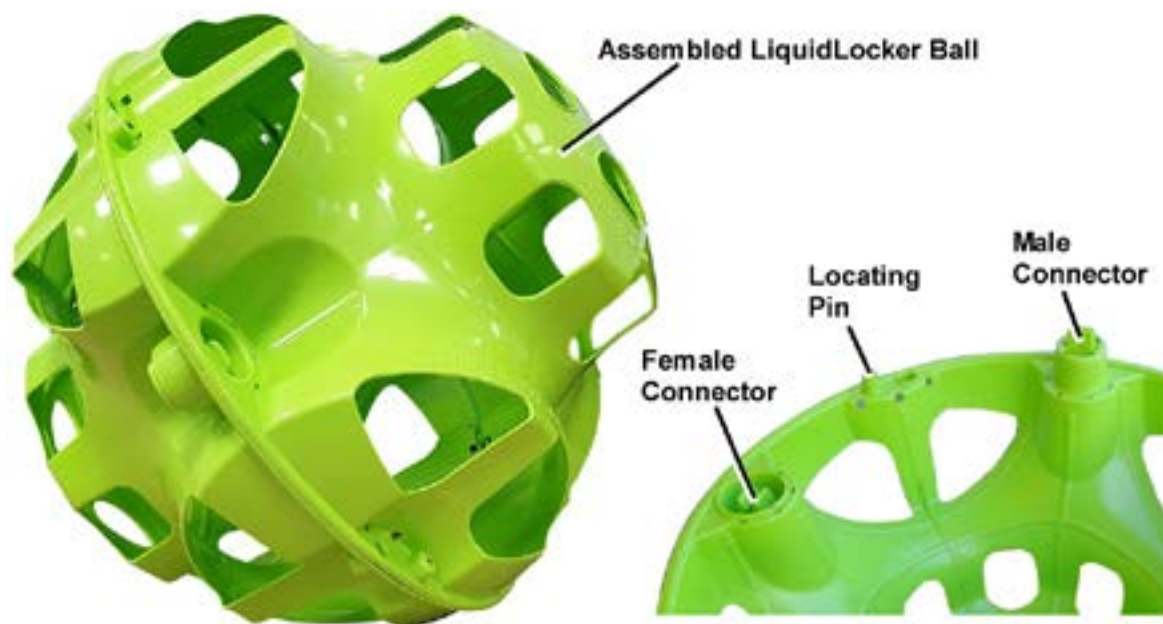


Figure 2 – Component Identification



WARNING! To access the interior of the tank may require climbing. Ensure all safety requirements applicable to confined spaces and working at heights are strictly followed.



NOTE! Installing the LiquidLocker balls is easier if the tank is 20% full of liquid.

- With all balls assembled, they can now be installed into the tank. Access the tank's opening and place the balls inside, rolling the first ones to the far end of the tank, to allow an even distribution of LiquidLocker balls throughout the tank.

Risk Assessment

Task	Hazard	Risk	Control Measure/Mitigation
<p>Ensure liquid cartage tank is mounted correctly and securely on the vehicle.</p> <p>Do not overload vehicle beyond its allowable limit</p>	<p>Unsecured load; overloaded vehicle; manual handling; slips, trips or falls; fingers jammed; overhead power lines, electricity.</p>	<p>Medium</p>	<ul style="list-style-type: none"> • Read/follow decals on tank; • Follow safe manual handling techniques; • Keep fingers clear; • Keep tank unit at least 8m away from any overhead powerlines; • Keep liquid away from electrical sources; make sure tank mounting • Complies with all relevant codes of practice and transport authority requirements.
<p>Join & clip 2 half ball end pieces together to form the ball baffles needed, store them ready for placement safely & carefully inside the tank.</p>	<p>Manual handling; slips, trips or falls; fingers jammed.</p>	<p>Low</p>	<ul style="list-style-type: none"> • Follow safe manual handling techniques as above; • Keep work area clear as balls are assembled.
<p>Climb onto the back of the truck, using any foot placements and hand rails provided.</p>	<p>Manual handling slips, trips or falls; falling from height.</p>	<p>Medium</p>	<ul style="list-style-type: none"> • Follow safe manual handling techniques as above; • Use vehicle foot placements & hand rails to avoid falls.
<p>Use a ladder or elevated work platform to reach the lid of the tank. Safely & carefully place the balls inside the tank.</p> <p>(Note: It is easier to load if the tank is 20%full of liquid & the rear end of the tank is loaded first)</p>	<p>Manual handling; slips, trips or falls; falling from height.</p>	<p>High</p>	<ul style="list-style-type: none"> • Follow safe manual handling techniques as above; Wear non slip footwear; • Read & follow instructions on side of ladder to prevent falling; • Fill tank to 20% & load rear of tank end first.
<p>Fill the tank with the rest of the balls and liquid to suit.</p> <p>(Note: Drive vehicle a short distance to allow balls to evenly distribute, if needed, then complete total ball insertion).</p>	<p>Manual handling; slips, trips or falls; falling from height.</p>	<p>Medium</p>	<ul style="list-style-type: none"> • As above for 1. • Ensure fall prevention strategy exists if on the tank, whilst on the back of a vehicle filling the tank-work platform or hand rails in place &/or the person filling the tank is secured with a safety line or harness fall arrest system in place; • Follow Safety Data Sheet.

Task	Hazard	Risk	Control Measure/Mitigation
Check that transport vehicle is safe before use. Take into account the sway of liquid in the tank when driving.	As above for 1-5 where applicable; work in heat & cold; noise; strap/chain breakage; hose entanglement; exhaust fumes; terrain & slopes.	High	<ul style="list-style-type: none"> As above; wear clothes to suit heat & cold; wear hearing protection if pump noise > 85 dBa; follow the manufacturer's safe operation instructions for the vehicle and the pump/spray unit; don't overload- water weighs 1kg per 1 litre; secure load to vehicle; keep hose attachments tidy; only use experienced licensed liquid tank drivers and ensure they comply with state road driving rules.
Clean up, maintenance & storage of tank.	As above for 1-6 where applicable.	Low	<ul style="list-style-type: none"> As above; store tank in a dry, well ventilated area.

Maintenance

Your LiquidLocker Ball Baffle system requires minimal maintenance but regular cleaning and checks will ensure safe and reliable service over its lifetime. Periodic checks and inspections will identify any potential issues, enabling timely rectification and minimising downtime.

Periodic Checks

The following checks and cleaning operations should be undertaken on a regular basis. The frequency of these activities will depend on the nature of the operating environment and the operational hours of the cartage unit.

Clean the unit and inspect it for any signs of damage or wear. Replace any LiquidLocker balls if they are damaged.

If the cartage unit is to be stored for an extended period, ensure the tank is empty and clean. Store the unit in a clean, dry and well-ventilated area.

Warranty

Warranty Policy

TTI will, at its option, repair or replace without charge any part covered by this warranty which is found to be defective in material and/or workmanship within one (1) year after date of sale to the original retail purchaser. If the product is used for rental purposes, this warranty is limited to ninety (90) days.

Upon request, the customer will make the defective part available for inspection and/or return the defective part to TTI, transportation charges prepaid. All parts and components are covered by this warranty except the following, which are warranted separately by their respective manufacturers:

- engines
- gearboxes
- pumps
- regulators

TTi does not assume any warranty obligation, liability or modification for these items, which are covered exclusively by the stated warranty of the respective manufacturers.

What this Warranty Does Not Cover?

This warranty does not cover:

1. Defects caused by depreciation or damage caused by incorrect mounting, normal wear, accidents, improper maintenance, improper use or abuse of the product, alterations or failure to follow the instructions and warnings provided.
2. Any charges for making service calls, clean up time and transport charges.
3. The use of non-genuine parts on equipment supplied by TTI. This will automatically negate any warranty.

How to Obtain Service Under this Warranty?

Warranty service can be arranged by contacting your dealer, or by contacting TTI directly on 1800 816 277.

Proof of warranty registration and date of purchase may be required to verify warranty coverage. Any defective parts returned to TTI must be accompanied by a Return Goods Note. This form can be obtained by contacting Product Support on 1800 816 277 or emailing ProductSupport@tti.com.au.

Warranty Limitations

Warranty limitations are as follows:

1. There is no other express warranty. Any warranty that may be implied from this purchase including merchantability and fitness for purpose is hereby limited to the duration of this warranty and to the extent permitted by law. Any and all implied warranties are excluded.
2. TTI will not be liable for any incidental, consequential or special damages and/or expenses in connection with the purchase or use of this equipment, to the extent permitted by law.
3. Only the warranty expressed in this limited warranty shall apply and no dealer, distributor or individual is authorised to amend, modify, or extend this warranty in any way. Accordingly, additional statements, whether oral or written, do not constitute warranties by TTI, and should not be relied upon.
4. Not suitable for single-piece tanks of more than 18,000L capacity without internal rigid baffles.
5. Only suitable for liquids up to 1.3 Specific Gravity.



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