Letina

STAINLESS STEEL TECHNOLOGY

# INSTRUCTION MANUAL


## Tanker Semi-Trailer
## for Food and Neutral Liquids


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# 1. Contents of the manual

For the documentation of your Letina tank trailer you need the following manuals:

- Letina documentation
- Manual of the SAF support device
- Brochure of the Berger chassis
- Manual of the tank

Your contact person at Letina


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# 2. General operation instructions

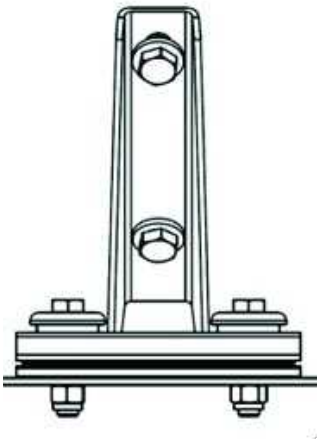
## 2.1 Identification of the vehicle

The law requires the placement of a vehicle identification number (VIN) on vehicles and their superstructural parts for identification purposes. To streamline certain processes, it is important to specify this number.


## 2.2 Tank screw connection

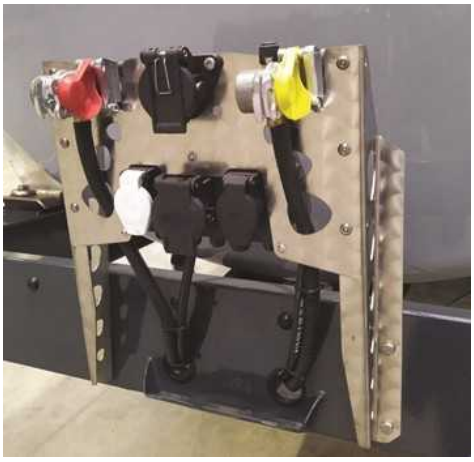
Inspect the tank support bolt after the first discharge. For M16, use 16 kgm, and for M18, use 27 kgm.

Subsequently, perform checks every 3 months.



## 2.3 Electric and Air connections

**1x** 15-pole socket (braking system)
**2x** air connections supply/brake
**2x** 7-pole socket (lighting system)
**1x** 15-pole socket (lighting system)



## 2.4 Coupling

Please ensure to follow the procedure outlined below:

1. Lower the air suspension of the semi-trailer truck.
2. Move the semi-trailer truck back up to 20 cm in front of the kingpin.
3. Raise the semi-trailer truck's air suspension until it aligns with the kingpin plate.
4. Fully retract the semi-trailer truck.
5. Raise the semi-trailer truck's air suspension to its maximum height.
6. Ensure the fifth wheel is properly closed and secured.
7. Retract the landing gears and secure the crank.
8. Connect the compressed air line.
9. Connect the electrical cable and ABS line.

***CAUTION!***
*Driving with unaffiliated ABS wiring is illegal!*

## 2.5 Uncoupling

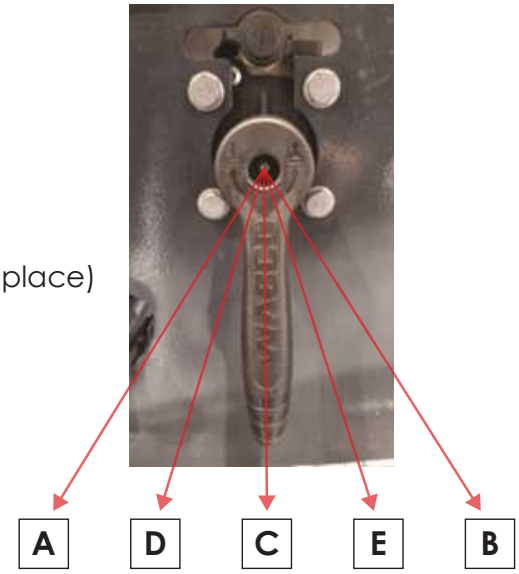
Please ensure to follow the procedure outlined below:

1. Raise the semi-trailer truck's air suspension to its maximum height
2. Lower the trailer's air suspension, release parking the brake, activate the parking brake.
3. Extend the landing gears to the floor.
4. Release the fifth wheel lock as described in the trailer's manual.
5. Disconnect the ABS wiring and lighting wiring.
6. Separate the compressed-air lines: Start with the red coupling head (supply), followed by the yellow one (brake). During this process, the trailer's parking brake will automatically engage.
7. Move the semi-trailer truck forward by approximately 30 cm and ensure the fifth wheel is triggered.
8. Drive out the semi-trailer truck.
9. On uneven terrain or slopes, secure the trailer with chocks to prevent it from rolling.

## 2.6 Lifting and lowering valve

Please ensure the lifting and lowering valve is set to the "riding position" (central position = C) before driving. Failing to follow this procedure may result in damage to the suspension and chassis, as well as exceed the legally permitted total height.

**A** ..... **Lower** (locks in place)
**B** ..... **Lift** (does not lock in place)
**C** ..... **Riding position** (middle, locks in place)
**D+E** ..... **Stop level** (locks in place)




## 2.7 Wheel change

When changing the wheel, ensure the rim does not come into contact with the threads of the bolts to avoid damaging them. If the threads are damaged, screwing the wheel nuts on could become difficult, and in the worst case, the nut may seize on the damaged bolt.

For more information, please refer to the axle manual.

## 2.8 Wheel nuts

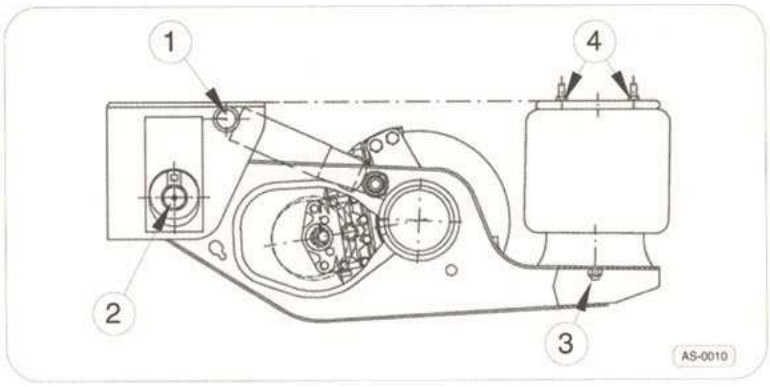
Wheel nuts need to be tightened crosswise over the locking torques (=600 Nm) in accordance with the axis manufacturer's manual.

***CAUTION!***
*After the first 50 km, the locking torques of the wheels nuts on newly mounted wheels have to be checked. The same is true for every following wheel change in the future.*

The wheel nuts of disc wheels have to be tightened crosswise and tightening torques are to be observed. Before mounting the wheel nuts, the threads should be slightly oiled (do not use oil which includes molybdenum disulfide [MoS2]!).

## 2.9 Axles

Operating details can be found in the manufacturer's enclosed documents.




| Item | Screw connection | Inspection torque (Nm) | Width across flats (WAF) |
|---|---|---|---|
| -1- | M20x1.5 | 600 | 30 |
| -2- | M30 | 1200 | 46 |
| -3- | M15 | 80 | 24 |
| -4- | M12 | 40 | 19 |

***RECOMMENDATION***
*Conduct a semi-annual inspection with qualified personnel.*

## 2.10 Landing gears

Operating details can be found in the manufacturer's enclosed documents.

## 2.11 Driving

### Before each drive:

*Picture 1*

We assume the personnel's roadworthiness and the vehicle's legal approval in accordance with regulations to ensure it is ready for use. The following points must be checked before every trip to ensure the safety of the driver and other road users:

• All air bellows must be checked for any wrinkling. If wrinkles are present (see Picture 1), the air level inside the bellow should be increased using a lifting and lowering valve until the wrinkles disappear. The bellows must not be crumpled before driving. Failing to check the air bellows before driving may result in damage to the air suspension system.
• The fifth wheel has to be locked and secured properly.
• The landing gears must be fully retracted, and the crank should be in place.
• Air and electrical connections must be properly connected.
• The brake system, including the ABS brake, must be operational.
• The lighting should function properly, and the windows should be clear (centered position).
• The wheels and tyres must be in good condition, and the tyre pressure must be set correctly
The wheel chocks should be securely stored in their holder.
• The reservoir pressure for the service brake system and air suspension should be sufficiently high.
• The air tank must be drained (press the drain valve to do so).
• The parking brake must be released.
• The trailer's total weight must comply with legal limits.
• The equipment must be fully available and securely fastened.
• Water and/or snow must be completely removed from the vehicle before it can be driven on public roads.

*Picture 2*

## 2.12 Double release valve of the service brake/parking brake

### Service brake

The black release button (see picture) is used to release the brake when the towing vehicle is uncoupled.

1. Pushing the black button
→ release the brake

2. Pulling the black button
→ switch the brake

By connecting the air lines, the trailer will be automatically slowed.

### 2.13 Releasing in case of a pressure drop

Spring-loaded diaphragm cylinders are equipped with a mechanical emergency release device. In the event of a pressure drop in the brake system, the brake will be engaged by a preloaded spring. To release the brake, remove the hexagon screw from the center of the back of the cylinder.

***CAUTION!***
*Only authorized workshops are qualified to repair the diaphragm cylinder, as it contains a preloaded spring and requires proper safety precautions.*

### 2.14 Ordering spare parts

In any case, we require the chassis number and the precise specification or serial number of the spare part, or, if needed, a photo.

# 3. Manual of the tank

### 3.1 Tank fastening

***IMPORTANT!***
The screw fastening of the tank should be regularly checked as follows:

- After the first trip without a load (at least 100 km)
- After the first trip with a load and an empty tank
- After 15 trips with a load and an empty tank
- Then, every 3 months with an empty tank

**Regular inspections of the tank fastening's screw connections are crucial to ensure the tanks' longevity and optimal performance.**

**Screw tightening torque:** M16 screws → 16 kgm
M18 screws → 27 kgm

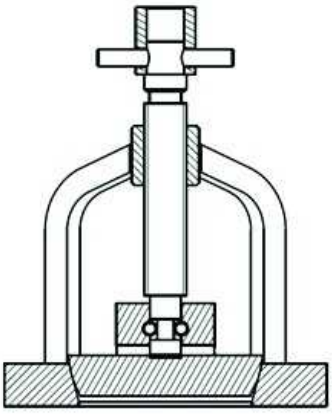
## 3.2 Unloading process

It is essential to open the manhole covers and keep them open during both the unloading and cleaning processes. The emptying procedure is identical to the cleaning procedure. To prevent implosion, refer to the subsection " Handling during the cleaning process."

## 3.3 Bottom valve

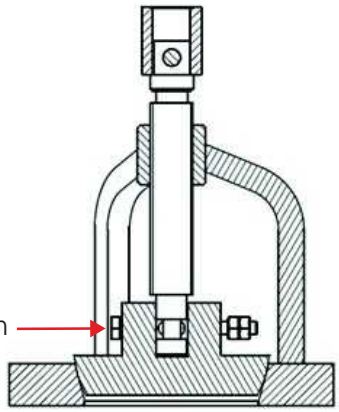
It is crucial to ensure that the bottom valves are either fully open or fully closed. The closure elements are linked by a threaded rod and secured with two M6 screws for bottom valve Ø100. These screws should be inspected every six months.

Bottom valve front section:



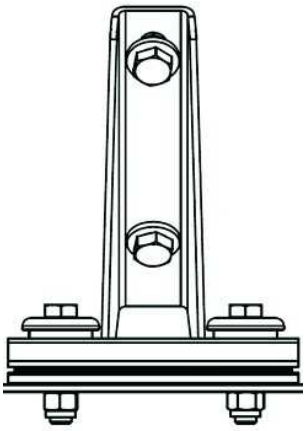
Screw M6x80 mm

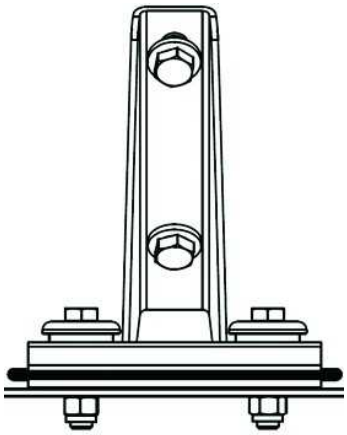
Bottom valve side section:



## 3.4 Rubber buffers

Excessive pressure on the rubber buffers could distort their shape, causing the rubber to protrude from the sides of the supports, even when the tank is empty.





***CAUTION!***
*In such instances, it is essential to get in touch with our engineering soon as possible.*

### 3.5 Stainless steel impurities

All types of stainless steel used in our tanks come with test certificates confirming compliance with international standards.

External factors may cause rust stains on the outer surfaces. These stains can be easily removed using acid, which is available from us.

### 3.6 Handling during the cleaning process

The threaded connections of the cleaning line are exposed to vibrations and thermal expansion, which may cause them to loosen. If one screw is insufficient, we recommend using an additional circlip (thread seal Loxeal 58-10 with activator 11).

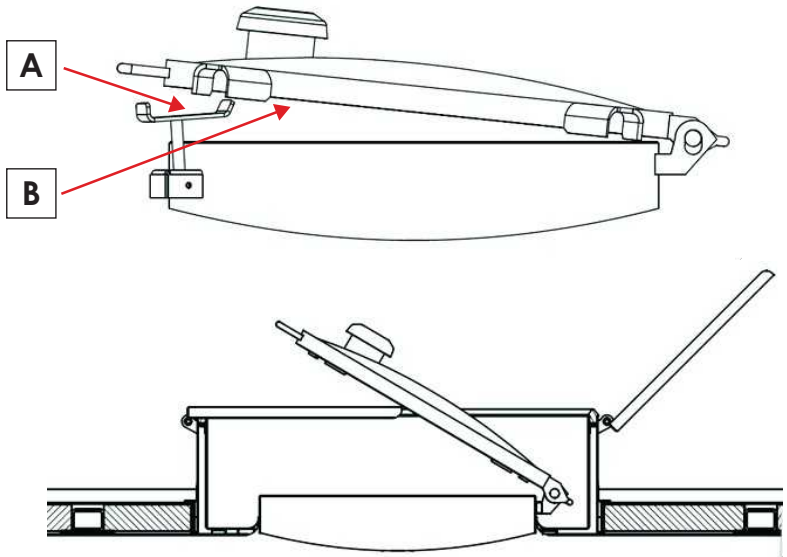
During the cleaning process, it is essential to fully open the manhole covers to avoid the risk of implosion.

### 3.7 Manhole cover with safety mechanism

1. Open the manhole cover above safety mechanism.
2. Lower the manhole cover until manhole cover touch safety mechanism.

After these two steps are done on each chamber, the cistern is ready to be cleaned or ready to discharge.

**A** …… Safety mechanism
**B** …… Manhole cover



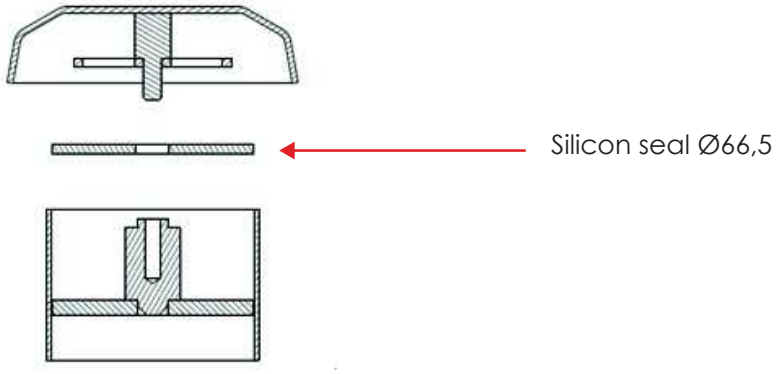

In case there is no safety mechanism, it is essential to follow these steps:

1. Open both doors of the box.
2. Open the manhole cover.
3. Close one of the box doors.

The manhole cover must be supported by box door.

### 3.8 Seals of the vent valves on the manhole cover

We recommend cleaning all seals of the vent valves on the manhole cover during each cleaning process, as shown in the drawing below.

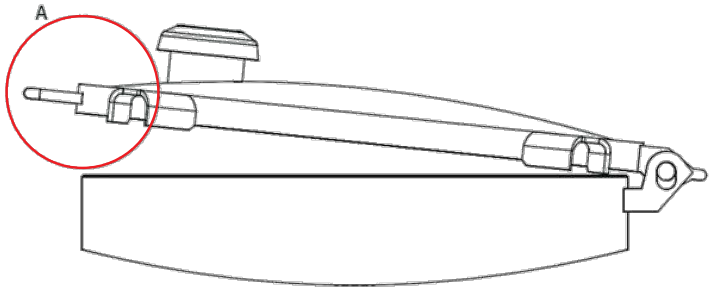



### 3.9 Seals of the manhole collar

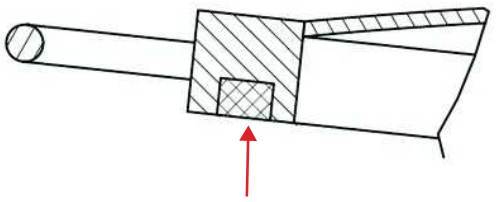
You should inspect the seals for wear at least once a quarter and replace them if there are any cuts, scratches, cracks, or other damage.

**Replacing seals**

After removing the old seals, thoroughly clean the cover surfaces. Apply a uniform layer of silicone to the contact surfaces of the seal and cover, and also coat the contact surfaces of the new seal before inserting it.




***Detail A:***



Manhole's silicon seal

***IMPORTANT!***
*If the above-mentioned procedure is not followed, corrosion of the manhole cover and other parts may occur.*

### 3.10 Outer stainless steel bands

If the tightening of the tank mounting screws is insufficient, the outer stainless steel bands may become loose from the tank shell. This can result in two possible scenarios:

Case a) The cladding is raised on one side
Case b) The cladding is raised on both sides



Cladding and outer stainless steel bands raised

There are two technical solutions to prevent outer stainless steel bands raising. The first one is without a nut, and the second one is with a nut.

Procedure A without a nut:

1. Tighten the bolts of the outer stainless steel bands
2. Apply the thread locker

Procedure B with a nut:

1. Tighten the bolts of the outer stainless steel bands
2. Tighten the nut of the outer stainless steel bands

# 4. Maintenance

## 4.1 Kingpin

Inspect the kingpin and fasteners weekly for tightness and wear using a 2'' king pin gauge or a vernier caliper.
Regularly verify the tightening torques (= 190 Nm) of the fastening bolts in accordance with the manufacturer's instructions.
Continuously check the friction plates for signs of wear, damage, and proper lubrication.
When replacing the kingpin and fittings, ensure that only certified components with approval marks are used.

## 4.2 Air bellows

All air bellows should be inspected for wrinkles. If any wrinkles are found, increase the air level inside the bellow using a lifting and lowering valve until the wrinkles disappear. During deflation, the bellow should not form any wrinkles.

Failing to check the air bellows before driving could result in damage to the air suspension system.

## 4.3 Wheel nuts

Wheel nuts must be tightened in a crosswise pattern, adhering to the specified locking torques (=600 Nm), as outlined in the manufacturer's manual for the axis.

## 4.4 Frames

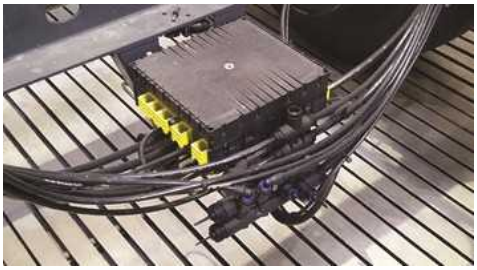
During the cleaning process, the frames should be tested for crack formation. Regular cleaning facilitates the detection of damage and increases the lifespan of the lacquer coat.

## 4.5 Bulkheads fittings

Regular visual inspections are essential to identify loose fittings, cracks, or other forms of damage. Conducting these inspections at consistent intervals helps maintain the integrity and safety of the equipment.

## 4.6 Wabco compressed air system

All compressed air lines, components, and fittings should be regularly inspected through listening tests and visual checks to detect air leaks and potential points of damage.



## 4.7 Double release valve of the service brake/parking brake

The double release valve should be visually inspected regularly to check for any damage and ensure it is functioning properly.


## 4.8 Air reservoir

At the bottom of the pressure tank, there is a drain valve. The actuating bolt is positioned laterally and should be pulled until no more condensate leaks from the valve opening.

## 4.9 Lifting axis

We recommend conducting regular visual inspections for loose fittings, damaged piping, or cracks on the air bellow.

## 4.10 Lifting and lowering valve

Please remember to set the lifting and lowering valve to the "riding position" (central position) before driving. If forgotten, the "riding position" will automatically engage once the speed reaches 30 km/h.

For loads lighter than 18 t, the lift axle will automatically raise. It is also equipped with an automatic starting aid.

Failure to follow these guidelines may result in damage to the suspension and chassis, as well as exceed the legally permitted total height.

In case of any questions or defects, please feel free to contact the manufacturer or workshop in charge.

## 4.11 Cleaning and fostering of the vehicle

During the vehicle cleaning process, please observe the following points:

1. Within the first 3 months, use only cold water instead of steam cleaners or similar equipment.
2. Use plenty of clean water for washing to avoid scratches on the paintwork. Keep lacquered s surfaces as cool as possible, and avoid direct sunlight.
3. Do not exceed water temperatures of 60°C.
4. Avoid using any aggressive cleaning materials.
5. Maintain a minimum distance of 30 cm between the spray nozzle and the surface being cleaned.
6. Any paint damage should be addressed and repaired as soon as possible.

***CAUTION!***
*Before using high-pressure washers or steam cleaners, ensure that all lubrication points are greased to the point of preventing any leakage.*

## 4.12 Lacquering

We recommend avoiding the use of high-pressure washers or steam cleaners when cleaning the vehicle during the first three months.

A sudden thermal shock (cold-heat shock) can have negative effects, such as when a cold vehicle is driven into a warm hall at low outdoor temperatures. The condensation that forms between the paint and the metal can temporarily affect the lacquer, although this damage is not visible to the human eye.

# Notes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