



USE AND MAINTENANCE MANUAL

SOR REFRIGERATED SEMI-TRAILER



SUPPLYING REFRIGERATED VEHICLES SINCE 1970

SOR

www.soriberica.com

Dear Customer,

Thank you for demonstrating your trust in our company by purchasing this SOR vehicle. We are convinced that this SOR refrigerated semi-trailer will satisfy all your expectations.

The purpose of this manual is to provide a full explanation of how to perform adequate maintenance on your vehicle. We recommend you read it carefully.

The specifications, information on the design and illustrations shown in this instructions manual may be changed at any time. In addition, this manual could be affected in the event that the vehicle is manufactured in accordance with specific characteristics defined or requested by the customer.

SOR IBERICA S.A. keeps abreast of the latest developments in manufacturing techniques, and we therefore reserve the right to make modifications without notice during production with respect to both the fittings and the specifications and their adaptation for maintenance purposes.

We wish to remind you that our sales and after-sales service department is at your disposal to clarify any doubts or queries you may have.



Again, thank you, and have a good trip!
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Versión en español



General description. When purchasing a unit

Remember that we always deliver the unit ready to perform its function UNDER NORMAL OPERATING CONDITIONS. There is no need to modify any of its components. Bear in mind that in the event of making alterations, you will be responsible for any faults that this could cause. All repairs must be made in repair shops authorised by SOR IBERICA S.A

BODYWORK MAINTENANCE ■

Carry out regular visual inspections to ensure that:

A. The lighting devices function correctly, for reasons of safety and for the sake of other drivers.

1.1 Clearance marker lights.

Due to the passing of time or daily operations, the clearance marker lights may be damaged. If this occurs, cracks could form on them, with the risk of water entering the device and causing it to fail along with the rest of the electrical installation.

Therefore, in the event of breakage, make sure that the contacts are in good condition and replace the device. If they do not function, check the protective fuses of the tractor vehicle. It is advisable to check these lights from time to time, otherwise if water enters, it could damage the connections and even cause problems in the installation. Such operations must be carried out in an authorised repair shop.

B. The interior lighting devices function correctly.

1.2 Interior recessed lights.

The interior lighting strips of the trailer are exposed to moisture. In the event that all the interior lights do not work, first check the protective fuse of the installation and if it is out of use, replace it with another of the same type. In the event of detecting a lighting failure in any strip and it is necessary to replace the interior bulbs, make sure the external cover is corrected mounted to prevent the entry of water or moisture that could damage the internal contacts, causing a short circuit in the installation. If the unit has roof-mounted led light strips with devices that cannot be repaired, they must be replaced with new ones of the same type. Such operations must be carried out in an authorised repair shop.

If the unit is going to be cleaned, make sure that the water jet never touches the internal lights directly, as it could make water to enter them and cause a failure or a short circuit.

C. Sealing of the unit.

1.3 Loss of cold through doors and ventilation windows.

Check, during normal use of the vehicle, to ensure that the rubber seals of the doors and ventilation windows are not damaged, detached or in poor condition. A rubber seal in poor condition could not only cause a loss of cold but also force the cooling equipment to work harder to offset such thermal losses. Repair or replace the seals as soon as you detect this failure. Do the same in the case of installing ventilation windows on the rear doors or at the front. A fast and effective way to check the sealing is to stand inside the trailer with doors fully closed and check if any light comes in from the exterior.

1.4 Drain pipes.

In the event that drain pipes are mounted to evacuate water, check they are in good condition (breakages, cracks, etc.) Bear in mind that if they are not in good condition they could cause a loss of cold and the entry of extrange objects. Replace them if they are in poor condition. Such operations must be carried out in an authorised repair shop.

1.5 Hinges and locks.

Every year, check the torque is 35Nm for all M-10 hinges oval head bolts, 20 Nm for M-8 bridges oval head bolts and 26 Nm for M-8 lock cylindrical bolts.

D. Check the general condition of the unit interior.

1.6 Unstuck or open kickstrip.

If you observe that the kickstrip unstuck is detached from the lateral panel or that rivets are missing due to incorrect loading or unloading operations, repair them immediately. A lack of maintenance in this area could cause more and costly severe damages (entry of water, flaking of and damage to insulation materials). Such operations must be carried out in an authorised repair shop.

1.7 Rails and other anchoring elements.

Poor anchoring, shifting of the load or bumps during loading or unloading operations may cause the interior fastening elements to be detached, and by the way, damage the interior panels. Such damages must be repaired immediately, otherwise the internal structure of the panels can be severely affected. Such operations must be carried out in an authorised repair shop.

A different type of anchoring elements exists for each type of load. Choosing the most

appropriate one will prevent damage to the unit and above all, lead to cost savings in the long term. Take into account the recommendations of the rail manufacturer regarding the fact that stress in the rail must always be longitudinal and it must never be pulled in a crosswise direction.

1.8 Knocks and internal scratches.

Any interior knock that cause delaminations must be repaired immediately. Such a breakage could affect the insulation of the side, floor and/or roof. Contact an authorised repair shop immediately to have it repaired.

In relation to the floor panel, pay special attention to the support of the dock loading ramps. The ramps must rest on the stainless steel profile of the rear frame or on the protective plate provided for that purpose. Otherwise damage could be caused that leads to the rapid deterioration of the internal insulation. In the event of the floor being damaged, contact an authorised repair shop immediately to have it repaired.

E. Check the general external condition of the unit.

1.9 Damage to the sidewalls, roof, cappings and frontwall.

Proceed in the same way as indicated above with respect to the external panels in general. Check the unit from time to time and in particular, the cappings. They must be intact and perfectly attached along their entire length. If any part of a profile is repaired, it must be a SOR IBERICA S.A. original piece. Such repairs must be carried out in an authorised repair shop.

1.10 Coupling of trailer to chassis.

Check the anchoring of the cylindrical and hex bolts (M-14) of the trailer coupling every year. The tightening torque should be 135 Nm. If this is not the case, contact an authorised repair shop for them to be checked and adjusted. The torque must not be above or below the one indicated.

1.11 Sealing of the unit.

The stress to which the trailer is subjected over time and in everyday operations may cause accidental partial losses in the sealing of the box. It is your responsibility to check it from time to time. Bear in mind that the slightest crack, scratch or loss of sealing in a

refrigerated box could cause major damage if they are not repaired immediately. Such damages may create water channels that could rapidly deteriorate the insulation materials. Contact an authorised repair shop for the appropriate repairs to be made.

1.12 Shock absorption systems.

If for any reason any of the different shock absorption system elements mounted at the rear of the unit would be damaged (rear rubber plugs, rollers system, split bumper, etc.) contact an authorised repair shop so that they can replace it with a new one of the same type. Bear in mind that lack of maintenance in this regard could cause damages to other body parts or to the chassis

In general, it is very important to make a general visual inspection of the state of the reefer box (scratches, flaking, knocks, rear frame, hinges, locks, etc.) and if necessary, please follow up our instructions.



2.1 Instructions for use

Before using the semi-trailer, it is advisable to:

- Read and follow the instructions set out in this manual.
- Read and follow the instructions in all other manuals supplied with this unit.
- Follow the maintenance and inspection instructions.
- In the event of any irregularity, contact an authorised service immediately to correct it.



2.1.1 Checks to be performed before starting the vehicle

- Tyre inflation pressure.
- Operation of lights.
- Operation of the braking system.
- Check the inflation of the air suspension balloons (perform this check after a quick loading and unloading operation).

2.1.2 Parking brakes

- a. Without the tractor head.

In this case the unit's emergency brake is applied.

- b. Parking brake.

The braking system control device (a red button) is located behind the mechanical feet on the left hand side. Unless other position was indicated in the order.

WARNING: The parking brake must be deactivated before starting the vehicle. It is not an automated system.

WARNING: Regularly check to make sure the chassis braking and pneumatic systems are operating correctly.



2.1.3 Mechanical feet

Prior to start up, make sure they are properly stored and that the lever is housed inside the support.

Before also uncoupling the unit, make sure that the mechanical support feet are fully unfolded; when unfolding them for uncoupling, perform this operation on firm ground.

The mechanical feet have two speeds:

A fast speed, used when they are in the air.

A slow speed, used when they are about to rest on the ground.

2.1.4 Pneumatic connections (air)

To connect the hoses, they must be unwound to ensure that their length is adequate for all types of manoeuvres. To connect them, open the coupling heads of the tractor and semi-trailer. Make a visual inspection to make sure they are not blocked and place one against the other, to check for leaks.

The red pipe is the continuous air pressure hose and the yellow one is the brake signal hose.

2.1.5 Electrical connections

Check that all three connectors are always connected:

24S – 24N and ISO 7638 cable

WARNING: Do not move the unit unless all the electrical and pneumatic connections have been connected.

24N connection (ISO 1185), compulsory heptapolar electrical connection.

24S connection (ISO 3731), optional heptapolar electrical connection with anti-fog, reverse and auxiliary lamps.

2.1.6 EBS connection

The ISO 7638 cable must always be connected, as the semi-trailer is fitted with EBS.

Otherwise electrical/electronic system installed such as ELM or ECAS, elevator... will not function. Bear in mind that all auxiliary electrical systems must always be supplied with voltage.

2.1.7 Suspensions

Before starting the vehicle, check:

That the position of the up-down valve is in running order.

If the unit is fitted with an automatic return system, drive at a speed of less than 25 km/h for the first kilometre to allow the suspension to return to its working height.

Do not drive with empty suspensions in a trailer with a self-steering axle if it is not fixed in a straight position.

Before separating the semi-trailer cabin, empty the suspension, check that the mechanical feet are lowered and unplug the pins.

Operating the up-down valve and suspension:

This valve has five positions:

1. Running order or central position.
2. Up stop.
3. Up.
4. Down stop.
5. Down.

If the unit has combined boat/road transportation, when embarking the up-down valve must be in the down position as far as it will go to prevent it from moving on the vessel. The driving speed in this case should not exceed 25km/h.

2.1.8 Lift axle

If the unit is fitted with this device, it is mounted with an automatic valve, i.e., it operates depending on the weight load.

The down position is achieved by braking three times in succession. The axle will remain lowered until the contact is removed. When the contact is inserted again, the valve will resume automatic operation, depending on the load.

2.1.9 Tyres and tyre rims

Wheels are the only elements in direct contact with the ground.

The general functions of the tyre rims are:

- To anchor the axle to the bushing.
- To ensure the tyre is sealed.
- To support the load and tyre.

Tyre has the following functions:

- It guides the whole unit.
- It provides adherence during braking and driving.
- It eliminates the water on the road in contact with itself.
- It optimises the mileage performance.

WARNING: Tyre pressure.

If the tyre is over-inflated or under-inflated, this will reduce its performance in terms of mileage and the transmission of stress and braking.



Wheels fixing - torque

WARNING: Check the tightening torque after each trip.

Consequences in the event that the tyre is:

- A) Under-inflated: this will cause the exaggerated bending of the tyre casing, causing the heating of the tyre, also increased rolling resistance and premature wear. In extreme cases, the lack of inflation may destroy the tyre.
- B) Over-inflated: this will reduce the mileage performance and lead to a higher sliding rate. As a result, irregular and faster wear, particularly of the driving axles.

WARNING: Check the state of the wheels from time to time to ensure they are



correctly inflated and have no apparent damage and also that the screws are properly tightened.

WARNING: Replacing the treads.

Control the wear of the tyre treads so that they can be replaced before they reach 2.3mm.

WARNING: Geometry of the vehicle (axle alignment).

Check regular wear of the tyre. If it is not regular, have the axles aligned in an authorised repair shop.



2.2 Chassis maintenance

Adequate maintenance of the unit will lengthen the life of the vehicle. It is also an economical and safe procedure over the long term.

Always use original spares parts and try not to alter the unit. If you need to make modifications to the chassis, we recommend you consult the manufacturer or an authorised

repair shop. Bear in mind that once the unit has been modified, the manufacturer will not be held responsible for it.

2.2.1 Maintenance of axles:

Follow the instructions in the axle manufacturer's maintenance manual that is supplied along with this manual, paying special attention to the following aspects:

- After the first trip with a load, perform a visual inspection for wear.
- Check that all axle and suspension tightening torques are in accordance with the manufacturer's instructions.
- Check the brake levers every six months (in the case of automatic levers).
- Check the correct operation of the brakes every month.
- Grease the bushing every six months.
- Change the bearing grease after 500,000 km or every three years.
- For all the greasing systems, use the grease recommended by the manufacturer.
- Check the clearance of the bushing bearings.
- Apart from following the instructions of the manufacturer, it is advisable to check the tightening torques once a year.

2.2.2 Maintenance of the electrical system:

Every month, perform a visual inspection of the following elements:

- Cable glands of the electrical box.
- Electrical coupling interconnections.
- Pilot lamp and pilot lamp cable gland connections.

As the system is sealed, it requires no special maintenance. It is sufficient to perform a visual inspection and take the appropriate action.

2.2.3 Regular reviews based on mileage

1. After being put into service (between 300 and 500 km) check the tightening torque of all the wheel nuts. This check must be made after each change of wheel.
2. Every 10,000 km perform a visual check for wear on the tyres and confirm whether it is regular. If not, contact the technical service to check the axle alignment.
3. Every 10,000 km eliminate water condensation from the air circuit (in freezing conditions, perform this operation every day).
4. Every 50,000 km:
 - a. visual check of the state of the tyres.
 - b. check for wear of brake pads/locks.
 - c. cleaning of pneumatic pipe filters.
 - d. greasing of unit (if necessary).



2.2.4 Regular checks over time.

Every week:

- Air tank (purge liquids and in freezing conditions, do this every day).
- Tightening torque of wheels, tyre pressure and brake pads.
- Make a visual inspection of the state of pilot lamps, cables, reflector lights, tyres etc. and replace all damaged elements.
- Check that the EBS and failure lamp function correctly.

Every month:

- Condition of the fifth wheel and greasing of that wheel.
- Adjust the braking system if necessary.
- Air circuits.
- Suspension.
- Greasing of connections.
- In general, check screws/nuts/bolts every 10,000 km or at least once a month..

Every year: Make a visual inspection to ensure:

- The polyamide tubes have no scratches.
- They have no twisted or folded zones.
- The connection fittings are properly connected.
- The polyamide tubes and electrical installation are properly clamped to the chassis.





ADVICE ON USE AND MAINTENANCE OF SINGULAR UNITS

3.1 Hanging meat semi-trailers

- Make sure the load is correctly distributed on all the rails and along their whole length, to guarantee the load is evenly laid out along the roof.
- Secure the load with the braking systems installed to prevent it from shifting.
- Check the screws of the meat rails every six months, Tightening torques:
 - M8 supports = 26Nm
 - M10 supports = 50Nm
- Check the state of the chassis reinforcements every six months.
- Inspect the screws of hinges and locks at least once a month.

3.2 Units with dividing panels

Use of the dividing panels.

- The panel is fixed to the roof guides by pushing it gently upward.

- To lower it pull the outer tab down.
- Use the inner tab to move the panel.
- Push the panel to the desired position.
- Once in position, fix the panel to the rail or floor with the locks (depending on the model) taking care not to pinch the panel rubbers with the lock.
- To make it easier to move the panel, it is advisable to keep the panel window open.
- When driving, even on short trips or in the unloading area always fix the panel to the roof to prevent malfunctions.

WARNING: If the dividing panel has a fan, check that the fan cable has been disconnected before moving the panel.

3.3 Units prepared for vessels

- Check the suspensions are empty before lashing the unit.
- Check the tightening torque of the unit screws every month.
- Every week, make a visual inspection of the trailer in order to rapidly detect irregularities.



CLEANING THE UNIT ■

Only regular cleaning and maintenance can guarantee a good state of cleanliness and respect for the hygienical conditions of transport.

The parts of the body most exposed to dirt are the gaskets and the rails. Special attention must be paid to the cleanliness of all these items.

Washing operations must be carried out with non-aggressive cleaning products (PH between 5 and 9), at a temperature below 50 ° C.

The washing lance must be used more than 30 cm from the support and the pressure must not exceed 60 bar (or 60cm for 180 bar). Do not insist on the electrical components (connector, control box, lights, etc.).

Rinse thoroughly after washing.

Cleaning composite panels coated with gelcoat must be done with hot water (at a temperature of maximum 70°C and at a pressure below 80 bar). In any case, try to avoid large variations in temperature as much as possible when washing the units. Never wash a box in negative temperatures or with hot water. Wait for it to lose the cold.

Products prohibited for cleaning:

- Abrasive cleaning products.
- Strong basic solutions (ammonia, soda ...)
- Organic solvents (acetone), chlorines (trichlorethylene), aromatics (xylenes, toluene).

ADVICE ON SECURING THE LOAD ■

- During loading, the cooling engine must be stopped.
- Just forklifts under 5Tm are authorized for loading and unloading goods.
- It is strictly forbidden to slide the wheels of the forklifts inside the cavity.
- During loading and unloading process, avoid any contact or impact against the body walls.
- When arranging the load, it must be taken into account that the air must be able to circulate freely above, below and along the sides of it. In addition, there must be a passage for the air return on the front.





In addition, a clearance of at least 6 to 8cm must be left between the front and the load and 15cm between the top of the face and the roof.

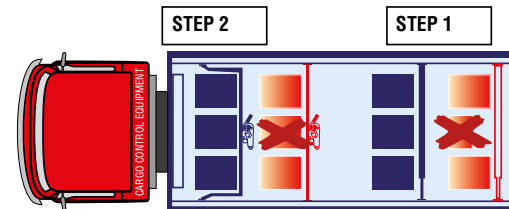
If the box is equipped with air flow channel, make sure the load does not rub on it in any case.

- Finally, the load must be evenly distributed over the entire length and width of the cavity. Please repeat the GGW indicated in the documents and plates of both the truck and the semi-trailer.

- In case your unit is Multi-temperature:

- 1 respect the instructions for use of the partition walls
- 2 use load securing devices
- 3 in no case use the partition walls as a load securing element.
- 4 the inlet and outlet of the evaporators must be free.

Internal bars and belts:



Bars: the load must always be in contact with the transversal bar. (Step 1).

Belts: do not fasten them perpendicularly, one part must be horizontal as shown in the figure above. (Step 2).