

# INSTRUCTION MANUAL

## Caravan N-Cross



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## 1. INTRODUCTION

Thank you for choosing a caravan made by Fabryka Przyczep NIEWIADÓW Sp. z o.o.

Thanks to more than 50 years of experience, we can provide you with a durable and safe product.

Before using the caravan, please carefully read this instruction manual and follow the guidelines specified below.

Striving to continuously improve the quality of our products, we reserve the right to introduce changes resulting from ongoing modernisations, which have not been included in this instruction manual.

Confident that you will be satisfied with our product, we wish you a safe journey.

## TECHNICAL DATA

Length	5610 mm
Total width	2170 mm
Total height	2400 mm
Bodywork length	3750 mm
Interior bodywork width	2,050 mm
Interior bodywork height	1850 mm
Wheel track	1870 mm
Kerb weight	
- N-Cross -L	770 kg
- N-Cross -DS	795 kg
Permissible total weight	750 kg to 1000 kg up to (1300kg-option)
Number of sleeping spots	
- N-Cross -L	3
- N-Cross -DS	4
Dimensions of sleeping spots	
- N-Cross -L	- front: 2050x1300 (mm) - back: 2000x650 (mm)
- N-Cross -DS	- front: 2050x1300 (mm) - rear: two seats 2000x650 (mm)

Please note that the actual measurements may slightly deviate from the weight and dimensions provided in the description.

### **NOTE !**

**Additional equipment for the caravan should be regarded as a load.**

### 3. EQUIPMENT

#### 3.1. BASIC EQUIPMENT

- |   |          |
|---|----------|
| 1. Keys for the front door and drawbar box -        | - 3 pcs. |
| 2. Drawbar jockey wheel                             | - 1 pc.  |
| 3. Support crank                                    | - 1 pc.  |
| 4. Water tank                                       | - 1 pc.  |
| 5. Rubber ties or straps for gas cylinders          | - 3 pcs. |
| 6. Gas stove  | - 1 pc.  |
| 7. Sink   | - 1 pc.  |
| 8. Gas appliance for indoor heating                 | - 1 pc.  |
| 9. Cooler (gas/230V/12V)                            | - 1 pc.  |
| 10. Electric heater (5l) for 230V                   | - 1 pc.  |
| 11. Travel toilet                                   | - 1 pc.  |
| 12. 230V connection cable with a length of 25 lin.m | - 1 pc.  |
| 13. Electric water pump                             | - 1 pc.  |
| 14. Caravan instruction manual                      | - 1 pc.  |
| 15. Gas stove manual                                | - 1 pc.  |
| 16. Cooler manual                                   | - 1 pc.  |
| 17. Indoor heating device manual                    | - 1 pc.  |
| 18. Electric heater manual                          | - 1 pc.  |
| 19. Travel toilet manual                            | - 1 pc.  |

#### 3.2. INTERIOR LAYOUTS

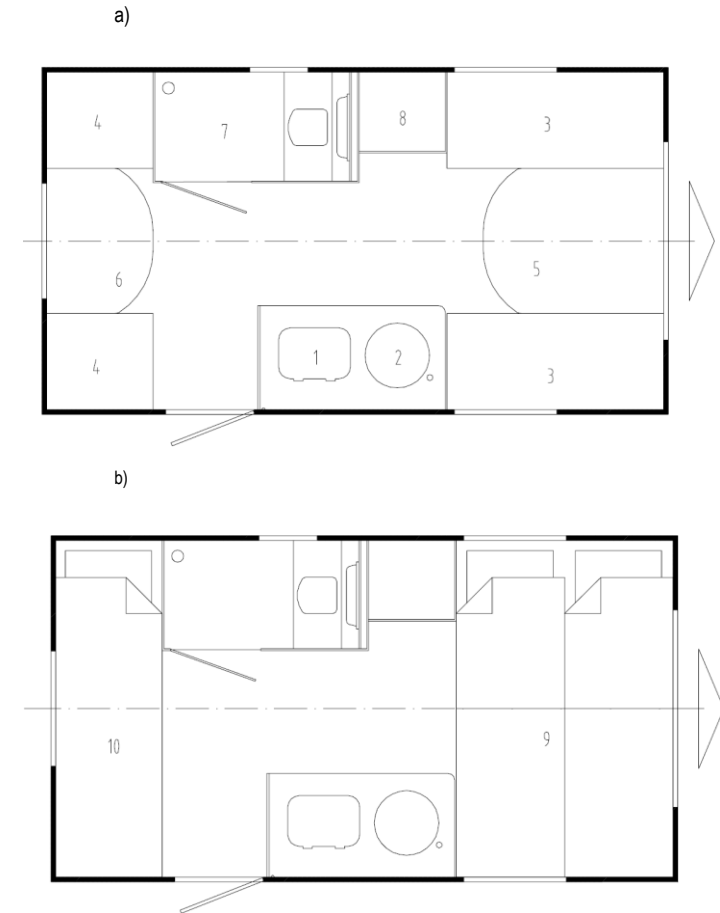


Fig. 1 Day layout (a) and night layout (b) of the N-Cross - L caravan (1 - gas stove, 2 - sink, 3- front sofa, 4.-back sofa, 5- long table, 6- short table, 7-bathroom, 8-wardrobe, 9- sleeping spot 130x205 cm, 10- sleeping spot 60x205 cm)

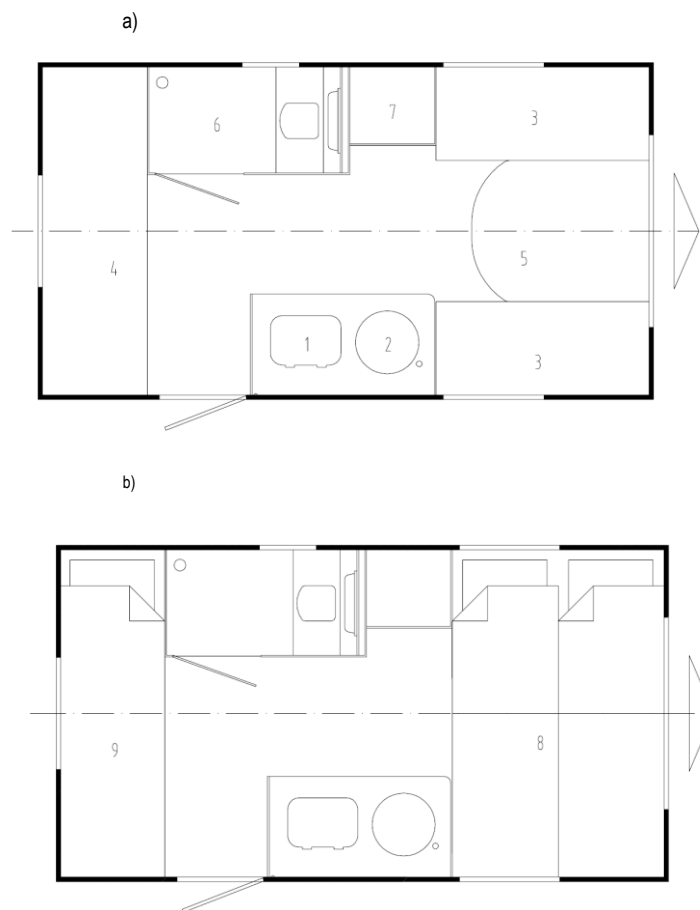


Fig. 2 Day layout (a) and night layout (b) of the N-Cross - DS caravan (1 - gas stove, 2 - sink, 3 - front sofa, 4 - two sleeping spots 65x193 cm, 5 - table, 6 - bathroom, 7 - wardrobe, 8 - sleeping spot 130x205 cm, 9 - two sleeping spots 60x205 cm).

### 3.3. ADDITIONAL EQUIPMENT

Fabryka Przyczep NIEWIADÓW Sp. z o.o. offers the following optional equipment for its caravans:

1. Doorstep
2. Spare wheel
3. Spare wheel holder
4. Battery 60 Ah
5. Battery 80 Ah
6. Axle shock absorbers
7. Bike rack Omnibike 2
8. Gas boiler
9. Underfloor heating
10. Additional floor insulation
11. Heating with hot water system - Truma Combi G
12. Heating with hot water system - Truma Combi G/E
13. Set of roller blinds
14. Oven with a grill Thetford Duplex MK3
15. Door mosquito net
16. Second rail of the porch awning
17. Silver hubcaps set (2 pcs)
18. AKS ball coupling
19. Aluminium rims
20. Photovoltaic installation for battery charging
21. Refrigerator DOMETIC RM4210 12V/230V/gas 80l

### 4. CARAVAN OPERATION

#### 4.1. HITCHING

1. The caravan should be hitched to the tow ball of the vehicle using a ball coupling. The correct method of hitching the coupling to the tow ball is provided in item 5.2. of this instruction manual.

2. The breakaway cable must be hooked up in a way that allows it to apply the caravan brakes if the coupling comes off the tow ball. To do this, make a loop out of the cable, place it beneath the ball, and fasten a snap hook to the cable to prevent it from slipping from the tow ball (Figure 3).



Fig. 3

3. Connect the caravan wiring system to the socket of the towing vehicle. The caravan has a 13-pin connector compliant with ISO 11446.

**NOTE !**

***The tow ball should measure  $\varnothing 50_{-0.39}$  mm and its horizontal axis should be located 350÷ 420 mm from the ground when the vehicle is loaded to its permissible total weight.***

**4.2. LOADING**

When loading, make sure that the load is evenly distributed in the caravan and applies appropriate pressure on the tow ball. The load must be secured to prevent it from moving. Heavy objects should be placed near the wheel axle (e.g. in sofas).

Pressure applied on the tow ball should amount to approximately 4% of the actual weight of the loaded caravan, but a load of about 25 kg ensures the correct operation of the set while driving.

It is allowed to apply higher pressure, which should not exceed the maximum value specified in the vehicle documentation and the caravan homologation certificate.

**NOTE !**

***If loading is not performed in accordance with the above rules, the negative pressure applied on the coupling may result in the disconnection of the coupling and the tow ball.***

**4.3. BEFORE DRIVING**

1. Check if the coupling is properly hitched to the vehicle tow ball.

2. Check if the caravan lights are working properly.
3. Check if the load is properly distributed and secured against movement.
4. Put the tables in the "sleeping" position.
5. Turn off all gas appliances.
6. Check the tightness of the fixing screws securing wheels.
7. Disconnect the jockey wheel or pull it upwards as far as possible, pointing the wheel towards the caravan, and lock it in that position.
8. Lift the folding supports as much as possible.
9. Check if all doors, windows and the roof vent are properly closed.

**NOTE !**

***The roof vent must be shut tightly when driving.***

In addition, the following advice and recommendations should be followed:

- to avoid damaging clothing and bedding by rubbing against the edges of furniture, they should be transported in covers,
- water containers should be emptied before each trip to avoid unnecessary loading of the caravan,
- when camping on sloping terrain, it is necessary to place chocks under both wheels and apply the parking brake,
- when parking the caravan on soft ground, place pads of at least 200x200 mm under the folding supports.

**4.4. DRIVING**

When driving, remember that:

- the braking distance of the vehicle-caravan set is greater than that of the vehicle alone,
- it is important not to drive the vehicle at full speed at all times and maintain an increased distance from other vehicles to be able to increase speed in the event of slippage,
- exercise particular caution at turnings, especially if the surface is wet.

**4.5. UNHITCHING**

1. Disconnect the wiring system, place the plug in the holder.
2. Disconnect the breakaway cable.
3. Unhitch the caravan from the tow ball of the vehicle.

Use the jockey wheel to raise the drawbar and unhitch the coupling from the tow ball. When lifting the drawbar, exercise particular caution due to the weight of the load.

After unhitching the caravan, place a cover over the tow ball to prevent grease from getting on the ball.

## **5. OPERATION, SERVICE, CHASSIS MAINTENANCE**

### **5.1. GENERAL INFORMATION**

It is necessary to regularly check the screw connections, particularly the tightness of the suspension system and drawbar assembly, as well as the overrun device and wheels.

### **5.2. BALL COUPLING**

Depending on their type, caravans made by Niewiadów sp. z o.o. can be equipped with ball couplings manufactured by KNOTT or AL-KO. To correctly hitch the coupling, it is necessary to:

1. Unlock the coupling lever by pressing on the projection (or pulling the lever upwards, which applies to certain types of KNOTT couplings);
2. Rotate the coupling lever towards the front;
3. Place the coupling on the tow ball and press lightly; the coupling will lock and secure automatically;

KNOTT and some types of AL-KO couplings are equipped with indicators of the hitching status. When properly fastened, the indicator will show a green field (KNOTT) or a green field will appear above the spherical part of the coupling body (AL-KO).

If the ball coupling is properly hitched, there should be no detectable play between the coupling and the tow ball. Detectable play indicates that the tow ball or ball coupling is worn, and the vehicle should not be driven.

If a caravan with KNOTT or AL-KO ball coupling is not typically equipped with a lock to prevent unauthorised unhitching, it is possible to purchase such a lock as a piece of additional equipment.

### **5.3. SUSPENSION**

All caravans manufactured by NIEWIADÓW Sp. z o.o are fitted with axles with rubber spring elements. The suspension system does not require maintenance, but should be subjected to technical inspections in accordance with rules provided in item 8.

### **5.4. WHEELS**

In order to ensure proper and safe driving, all caravan wheels must have the same pressure.

The optimum tyre pressure for caravans loaded to their maximum permissible total weight should fall in the range of  $0.19 \pm 0.01$  MPa.

In order to ensure a long service life of tyres, it is necessary to:

- maintain the required tyre pressure,
- avoid driving over kerbs,
- when storing the caravan for long periods of time, support it to prevent the wheels from touching the ground,
- avoid prolonged static loading.

Use a 19 mm socket wrench to screw on the wheels.

### **5.5. BRAKING SYSTEM**

Caravans manufactured by NIEWIADÓW sp. z o.o. are fitted with an overrun braking system, which consists of:

- overrun device
- transmission,
- wheel braking mechanisms.

During vehicle braking, the inertia of the caravan exerts pressure on the overrun device, which actuates the braking mechanisms in the caravan wheels via transmission cables. The design of the braking mechanisms allows reversing without additional maintenance. When switching from reversing to driving forward, the braking system is automatically ready to brake.

The caravan has a parking brake system that is activated by a hand lever located at the overrun device and allows to stop the caravan on slopes up to 16%.

The parking brake is only effective when the ratchet lever is on the last tooth.

Insufficient engagement of the lever causes the caravan to brake forwards without providing adequate braking in the rearward direction.

When parking on a slope for an extended period of time, it is recommended to place chocks under the wheels in addition to applying the handbrake.

The caravan braking system requires maintenance and adjustment as described in item 8

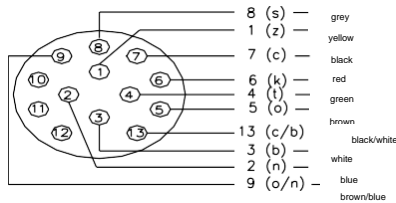
## 5.6. JOCKEY WHEEL

It is designed to support the front of the caravan when rolling, hitching to a car, or changing a road wheel.

Make that the jockey wheel bolt is always lubricated with grease.

## 5.7. SIGNALLING SYSTEM

The caravan is equipped with a 12-volt signalling system. Below you can see how to connect the wires to the terminals of the 13-pin connector and what are the colours of the wires connected to the corresponding lights.



1	L	yellow	z	Left indicator light
2	+	blue	n	Fog lamp
3	31	white	b	Mass
4	R	green	t	Right indicator light
5	58R	brown	o	Right position lamp Registration plate light
6	54	red	k	Brake light
7	58L	black	c	Left position lamp Registration plate light
8	-	grey	s	Reversing light
9	-	brown/blue	o/n	Interior power supply
13	31	black/white	c/b	Chassis ground for pin 9

## 6. BODYWORK

### 6.1. KITCHEN SET

The kitchen set includes a gas stove and a sink. These items have dark glass lids.

The stove is adapted for propane-butane gas combustion and can be connected to a gas cylinder only through a suitable pressure reducer (30mbar)

When using a stove in the caravan, provide a continuous exchange of air to ensure that there is sufficient air for gas combustion and for fumes to escape (open vents or windows)

#### To light the burners:

-open the gas cylinder valve and the corresponding valve (applicable when the trailer is equipped with more than one gas-consuming appliance) in the kitchen cabinet

-light the lighter and bring it close to the burner holes

-turn the valve knob of the selected burner from the "closed" position counterclockwise to the low or high flame position, press and hold the knob until the gas ignites.

To extinguish the flame, turn the knob to the "closed" position.

**When not using the stove, the gas cylinder valve should be closed.**

#### **NOTE !**

***The stove must be used in accordance with the information contained in the stove manual which is supplied with the caravan. It is not allowed to connect the stove directly to the cylinder without using a proper reducer***

### 6.2. COOLER

Coolers used by NIEWIADÓW Sp. z o.o. have three power sources:

- 230V

- 12V

- propane-butane gas.

**For a detailed description of the operation, use, and specifications of the cooler, please refer to the cooler manual that is provided with the caravan.**

### 6.3. INTERIOR HEATING

Caravans are equipped with interior heating units powered by propane-butane gas with a working pressure of 30mbar.

To start the heater:

- connect the gas cylinder through a suitable reducer
- unscrew the heating valve located in the kitchen cupboard,
- turn the knob on the appliance (the gas in the appliance ignites automatically).

**When not using the heater, the valve in the kitchen cabinet that supplies gas to the appliance should be closed.**

**A detailed description of the operation, use and technical data of the heater can be found in the user manual of the appliance.**

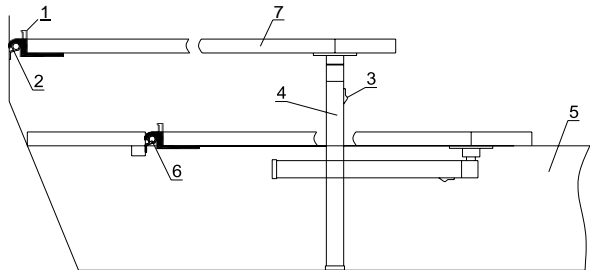
### 6.4. SEATING AND SLEEPING AREA

To create a seating area:

- attach the table hooks (mounted at the edge of the table) to the aluminium slat (2) located on the caravan wall,
- unfold the table leg (4) by pushing the button (3),
- press down the buttons (1) of the table hooks.

To create a sleeping area:

- press down the buttons (1) of the table hooks,
- fold the table leg (4) by pushing the button (3),
- remove the table from the aluminium slat (2) and place it on the slat (6) while laying the table on the bed edges (5).



### 6.5. INTERNAL SYSTEMS

#### 6.5.1. 12V WIRING SYSTEM

The 12V internal wiring system is used to power the following devices:

- cooler
- water pump
- gas boiler
- interior lighting
- and other devices adapted to 12V voltage.

12V voltage is obtained from the power supply unit or from the car battery. The system is connected to the vehicle with a 13-pin connector according to ISO 11446

#### 6.5.2. 230V WIRING SYSTEM

To turn on the electrical power supply:

- connect the caravan to an external 230V power supply (using an extension cord)
- plug the power supply unit into the 230V socket next to the power supply unit
- switch on the residual current circuit breaker (located next to the power supply)

**NOTE !:**

1. Never use portable cooking appliances or heaters other than electric heaters that are not sources of direct thermal radiation due to the risk of fire or suffocation.
2. Never allow unqualified persons to modify electrical systems and equipment (230V and 12V).



### 6.5.3. GAS SYSTEM

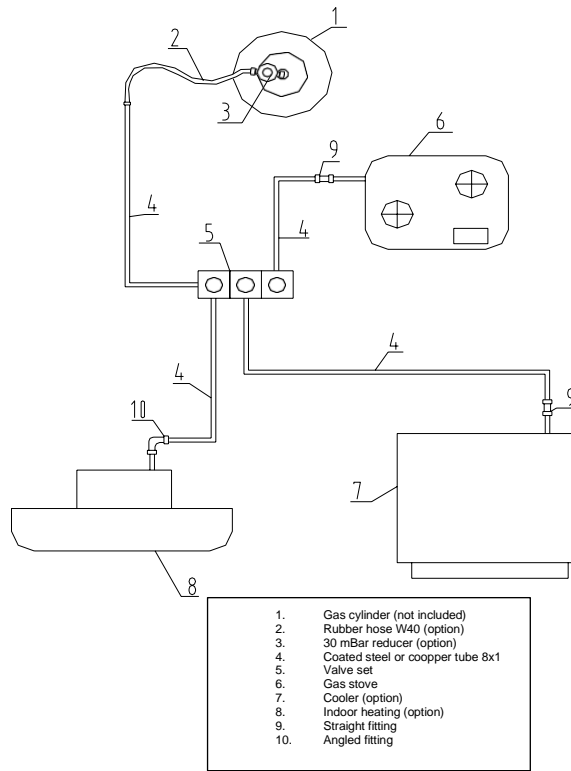


Fig. 8. Gas installation diagram.

Before starting any of the devices, connect the gas cylinder (1) (not supplied) to the system through a reducer (3)

(the valves (5) in the kitchen cabinet – if present – should be closed at this time).

After connecting the cylinder and checking for leaks, unscrew the appropriate valve in the kitchen cabinet (5) depending on which appliance you want to use.

#### NOTE !

*All gas appliances provided in caravans are designed to burn a mixture of propane-butane gas at a pressure of 30mbar, that is why the reducer must be adjusted to such pressure to ensure proper operation of these appliances.*

#### 6.5.3.1. INSTALLATION OF GAS

##### Rules for the installation of gas cylinders.

1. Place the gas cylinder in the special basket inside the container and then secure it to the container with rubber strips or belts.
2. If there is a warranty seal on the cylinder valve, remove it by making a slight cut and tearing it off.
3. The reducer connection on the valve has a **left-hand thread**. Use a 27mm wrench to loosen the plastic cap **and turn it right** (clockwise). Tighten the reducer cap by turning it counterclockwise.

#### NOTE !

*Before removing the plastic nut located on the terminal of the reducer (on the cylinder valve), check if the cylinder valve is closed.*

*It is recommended that the gas cylinder be connected by a person who has a qualification certificate authorising gas works*

##### Rules for checking the tightness of the connection.

1. All connections should be checked for leaks each time a cylinder is connected to the reducer. For this purpose, lubricate the hose connection points, the valve and the connection between the valve and the reducer with soapy water or spray it with a soapy substance and then open the valve. The absence of expanding gas bubbles indicates that the system is free of leaks.

**2. In the event of leakage of gas from the system**, it is necessary to: - close the cylinder valve, - extinguish all sources of open fire, - do not use devices that may cause sparks (electric sockets, power switches, radios, TV sets, etc.), - open the doors and windows and ventilate the room thoroughly (liquid gas, being heavier than air, accumulates in the lower parts of the room). In justified cases, notify your vendor - the gas supplier.

**3. In the event of a fire in the room or cylinder**, if possible, turn off the valve and remove it from the room into the open air. If this is not possible, cool the cylinder as much as possible using a stream of water or heavy wet rags. The presence of gas cylinders in the room on fire should be reported to the supervisor of the firefighting brigade.

**NOTE!:**

- 1. It is forbidden to check the system for leaks using a flame.**
- 2. It is not allowed to cover air vents.**
- 3. It is necessary to regularly check the condition of gas hoses and, when the need arises but always before the expiration date indicated on the hoses, replace them with new ones, exclusively approved for use in gas systems.**
- 4. One approved dry powder or ISO 7165 compliant fire extinguisher, with a capacity of at least 1 kg, and a fire blanket should be located near kitchen appliances, in the vicinity of the front door. It is necessary to familiarise yourself with the fire extinguisher manual and the local fire protection regulations. Fire extinguisher and blanket not included**
- 5. Never allow unqualified persons to modify LPG systems or equipment.**

**NOTE !**

***Improper handling can result in significant amounts of gas escaping or poor combustion, which can cause a fire or poisoning. Carbon monoxide exhaust poisoning manifests as tinnitus, heaviness, increased heart rate, dizziness, vomiting and general weakness. The person affected should be given first aid and an ambulance should be called. When giving first aid, you should:***

- take the person affected out into fresh air***
- facilitate breathing by unzipping their clothing,***
- administer sobering agents for inhalation (e.g. ammonia),***
- cover the patient with a blanket and do not let them fall asleep***
- call for medical help and constantly supervise the patient until medical help arrives***

#### **6.5.4. PLUMBING SYSTEM**

The plumbing system includes:

- water supply lines
- water tank, capacity 30 l
- water drain line
- electric valve tap
- electric pump

The water tank is located in the left front sofa.

Place the pump in the water tank. Water flows out of the tap when the valve is turned (the pump is turned on automatically).

The water used is discharged through a system of water lines under the caravan.

It is recommended to park the caravan in a caravan site over a drainage grate so that the water flowing out does not spill over the sides.

#### **6.5.5. TRAVEL TOILET**

The caravan is equipped with a travel toilet. The toilet is fitted with a tank, accessed from the outside of the caravan through a special door.

**For a detailed description of the use and operation of the travel toilet, please refer to the manual supplied with the caravan.**

#### **7. BODYWORK MAINTENANCE**

##### **Caravan body and windows**

Bodywork maintenance consists in keeping it clean. The laminate can be secured against dirt absorption using wax preparations designed for car bodyworks and wet cleaned, preferably with special washing agents. Windows should be washed using a soft cloth, thoroughly rinsed with water and protected against scratches.

### **Mattresses and curtains.**

Mattress covers and curtains should be washed using laundry detergent.

### **Furniture.**

The stove and sink should be cleaned using water mixed with detergent and wiped dry.

Do not use agents that may scratch the surface or cause chemical damage.

### **Floor**

The floor should be cleaned using warm water mixed with detergent. The floor should be periodically polished with wax or another floor maintenance product.

### **After the end of the season:**

- wash the caravan body with car shampoo,
- check the condition of seals at all elements attached to the caravan (aluminium slats, manoeuvring handles, lights, windows) – losses of sealant should be supplemented with silicone or MS sealant,
- secure the pins of the connector plug with an agent providing temporary protection (e.g. WD40),
- Apply a coat of automotive protective wax to the caravan body,
- remove any remaining water from the water system and the travel toilet.

## **8. Technical inspections**

Periodic inspections are essential for safe and reliable use of the caravan. The User must have the following inspections performed by a specialist workshop

<b>Date</b>	<b>Type of activity</b>
after 2,000 km or no later than after 6 months*	Wheel bearing inspection. Lubrication of the bearing sleeves of the overrun device
after 5,000 km or after 12 months*	Brake system inspection. Brake shoe adjustment. Lubrication of the bearing sleeves of the overrun device
after 10,000 km after 12 months*	Lubrication of the brake cables and other components of the brake system
after every 10,000 km or every 12 months	Brake system inspection, adjustment and lubrication. Lubrication of the bearing sleeves of the overrun device

\*) whichever comes first

## **9. USER GUIDELINES**

When towing the caravan:

- It is important not to drive the vehicle at full speed at all times and maintain an increased distance from other vehicles to be able to increase speed in the event of slippage,
- Exercise particular caution at turnings, especially if the road is wet,
- The braking distance of the vehicle-caravan set is greater than that of the vehicle alone,
- When the caravan is parked on a slope, place wheel chocks under the wheels, and if the caravan is equipped with a brake system, apply the brakes using the hand lever.
- The maximum permissible weight of the caravan must not exceed that stated in the towing vehicle documents, even if the law provides for higher values.