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CARAVAN

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USER MANUAL

CROSS X1+ / X3 / C3

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CONTENTS

1. PREFACE

Thank you for choosing DeCamp Caravan!
This booklet has been created to provide you with a general guide for the maintenance and usage of your caravan. The contents of the booklet will likely answer most of your questions. If not, please contact your authorized dealer. It is recommended to read this entire booklet before embarking on your first journey. While reading the booklet, you will come across texts that start with warnings, cautions, and notes for your safety and comfort.

WARNING: If ignored, it can cause physical harm to the user.

CAUTION: If ignored, it can cause damage to the caravan.

NOTE: This is a reminder and should be taken into consideration.

WARNING:
- Electrical cables pass through the walls of your caravan. Please do not drill holes and screws into the walls of the caravan from the inside or outside without the knowledge of the manufacturer. In case of damage to the electrical installation, the responsibility belongs to the buyer.

MAINTENANCE NOTE:
- Use only distilled water when cleaning your caravan. Chemicals may damage the paintwork.
- Protect the paintwork of your caravan against salt.
- If you have stayed on the sea canal or if your caravan has come into contact with the solution poured on the roads in snowy weather, wash your caravan to remove the salt within 1 week at the latest. Otherwise the paintwork of the caravan may be damaged.

2. SAFETY

-All passengers must know the exit routes of the vehicle.
-Keep an approved type of fire extinguisher with a capacity of at least 1 kg (2.2 lbs) next to the main door.
-Keep young children away from hot surfaces.
-Ensure the step is securely positioned and fastened when the caravan is in motion. Do not use a damaged or broken step.
-The torque setting of the caravan wheel nuts should be checked after traveling 50 km (30 miles) from the dealer. Afterward, check the wheel nuts before every journey.
-Never attempt to lift the towing handle by hand when connecting the caravan to the towing vehicle or at any other time. Always raise or lower the towing handle by turning the handle on the jockey wheel.
-Always pay attention to the green button on the front edge of the hitch head before starting the towing process.

2.1. FIRE

2.1.1. In Case of Fire;

-Evacuate everyone from the caravan using the fastest exit route as quickly as possible.
-Do not attempt to collect personal belongings.
-Raise the alarm, call the fire department.
-Shut off the gas supply valve if safe.
-Turn off the electrical source.

2.1.2. After the Fire is Under Control:

-After using a dry powder extinguisher, it is recommended to evacuate the caravan until the powder settles.

2.2. VENTILATION

-The ventilation holes in the caravan are designed according to European standards.
-Do not obstruct or block the ventilation channels, as this may hinder proper airflow.

WARNING: Do not block the ventilation holes!

-Carbon monoxide gas generated within the caravan triggers the smoke detector. If the smoke detector becomes active, the cause should be investigated, and the issue should be resolved before using the device again.
-Regularly inspect the ventilation holes and clean them if necessary using a small brush and a household vacuum cleaner.

2.3. Gas

-All gas equipment is located in the same compartment. It is important not to block or obstruct the ventilation holes in this area.
-Regularly inspect the flexible gas hose and regulator, and replace them if necessary.

WARNING!: If you smell gas or suspect a gas leak, evacuate the caravan immediately. Then, turn off the gas supply. Contact a professional to determine the cause of the gas leak.

2.4. CHILDREN

-Do not leave children alone inside the caravan.
-Keep items like lighters and medications out of reach of children.
-Children under the age of 14 might fall from the caravan.

2.5. CEILING BED

-Children under the age of 14 should be supervised while using the ceiling bed.
-Do not allow children under the age of 7 to use the ceiling bed.

2.6. BASIC WARNINGS

2.6.1. Thins to Check Before Starting the Journey;

-Ensure that the battery is fully charged.
-Make sure the entrance steps are closed.
-Ensure that the lights are turned off.
-Make sure the diesel heater is turned off.
-Check that the pop-up roof is closed and the safety lock preventing its opening is engaged.
-Verify that the doors and cabinet doors are locked.
-Do not keep breakable, flammable, or explosive items inside the caravan.
-Confirm that the stabilizer legs of the caravan (two at the front and two at the back) are retracted.
-Check the tire pressure.

2.6.2. Precautions to Take While Traveling;

-Do not travel inside the caravan.
-Do not exceed the specified speed limit.
-Ensure that breakable items inside the caravan are secured.
-Check the distance between the caravan and the vehicle while making right and left turns.
-When descending a slope, use the engine brake to slow down in a controlled manner rather than making sudden brakes.

2.6.3. Precautions to Take While Camping:
-When using the diesel heater, ensure that the fuel tank is full.
-Make sure the stabilizer legs are extended.
-Ensure that the handbrake is engaged.

WARNING!: 12 volt electrical systems can lead to fire due to short circuit, overheating or a defective component. It is therefore important to use electrical equipment correctly, carry out regular maintenance and safely check the electrical systems of vehicles. To reduce the risk of fire, open-ended cables should be insulated and the temperature of the system should be controlled.

WARNING!: Electrical wiring and plumbing pass between the wall layers of your caravan. Consult your manufacturer before making any adjustments to the walls (such as drilling or screwing). Otherwise, it may short circuit and cause a fire.

3. CARAVAN and TOWING VEHICLE

3.1. DRIVER'S LICENSE and SPEED LIMIT

INFO: Speed limits and driver's license requirements vary from country to country.

3.1.1. Driver's License; According to European standards:

- If you obtained your driver's license before January 1, 1997, you have the right to drive vehicles weighing up to a total of 8250 kg, including the vehicle and trailer. You can also tow a minibus exceeding 750 kg.
- If you obtained a B category driver's license after January 1, 1997, you can tow a trailer up to 750 kg as long as the total weight of the vehicle and trailer does not exceed 3500 kg.
- If you intend to tow a trailer heavier than 750 kg, and the combined weight of the towing vehicle and the trailer exceeds 3500 kg, you need to obtain a B+E category license.

3.1.2. Speed Limit;

WARNING!: Local speed limits and restrictions should always be adhered to.

- According to European standards, towing caravans, when no lower limit is specified, can be towed at a maximum speed of 50 mph (80 km/h) on single carriageways, and a maximum of 60 mph (100 km/h) on dual carriageways and motorways.

3.2. CARAVAN LOADING GUIDE

WARNING!: Never get into the caravan without lowering the stabilizer legs (2 at the front and 2 at the back).

3.2.1 Precautions to Take Before Loading:

- Ensure that all doors and windows are closed and securely locked.
- Secure all cabinet doors and items that can open and close.
- Secure all movable items inside the caravan.
- Install the safety device for the refrigerator and the gas cylinder.

3.2.2. Guidelines for Placing Loads:

- Place heavy items close to the floor. Ensure that the placed item is aligned with the axle (see Figure 1).
- Align the load evenly within the caravan (see Figure 2).
- Avoid loading items at the ends of the caravan. This can cause a pendulum effect (see Figure 3).

WARNING!: Before setting off, close the gas systems.

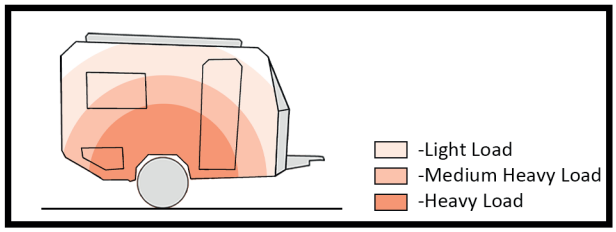


Figure 1: Proper Weight Distribution

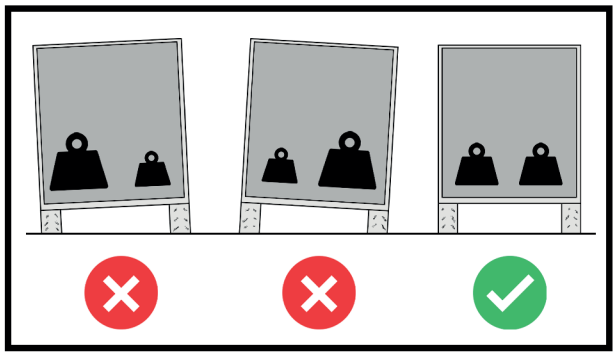


Figure 2: The load placed in the caravan should be centered to distribute weight equally on both sides.

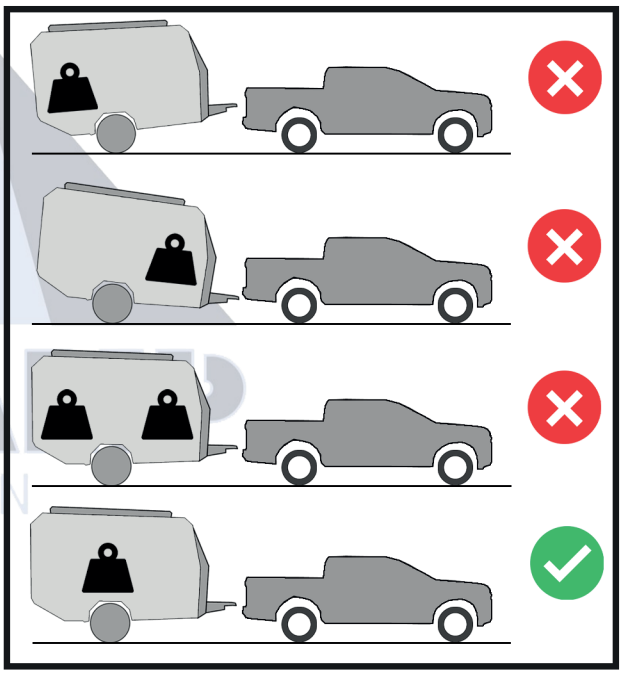


Figure 3: Load Positioning

CAUTION!: Do not overload the rear storage compartment.

WARNING!: Secure all heavy or bulky items before traveling.

WARNING!: Please ensure that the items you intend to carry (optional equipment, bicycles, sailboards, pets, etc.) are securely locked.

WARNING!: Under no circumstances exceed the caravan's maximum carrying capacity.

3.2.3.
Considerations Regarding the Rear Suspension of the Towing Vehicle:

-It is important for the rear suspension of the towing vehicle not to sag excessively due to the weight on the hitch. Otherwise, steering and vehicle stability can be negatively affected (see Figure 4).

-The greater the distance between the rear axle of the towing vehicle and the hitch, the greater the impact of the weight on the hitch on the suspension.

-After testing the caravan, the rear suspension of the towing vehicle can be stiffened. However, keep in mind that it might provide a tighter driving experience when not towing the caravan.

-It's important for the caravan to be slightly nose-down or level when being towed.

WARNING!: Check the tire pressures of the towing vehicle according to the user manual.

- If you have any doubts about the suitability of the tow hitch for towing the caravan, consult the manufacturer of the tow hitch.

WARNING!:

- Do not exceed the gross vehicle weight.
- Do not exceed the allowed maximum load amount.
- Do not exceed the allowed maximum towing weight.
- Do not exceed the vertical static load on the caravan connection.
- Do not exceed the maximum vertical load on the tow hitch.

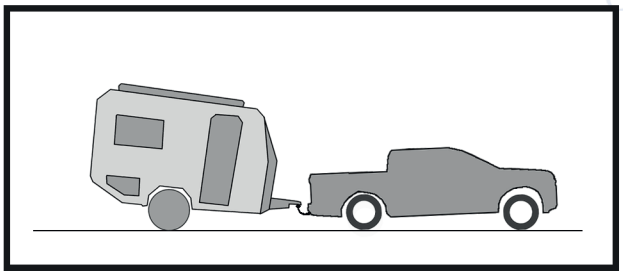


Figure 4: An example of rear suspension

3.3. ATTACHING the CARAVAN to the TOWING VEHICLE

3.3.1. Lower the caravan's stabilizer legs:

- Lower the support wheel until it's tightened.
- Gradually release the stabilizer legs to maintain the balance of the caravan.

-After loosening adequately, pull the handle on each stabilizer leg towards yourself and fold it. Release the handle when it reaches the desired position, and ensure it is properly seated in place.

Figure 5.1

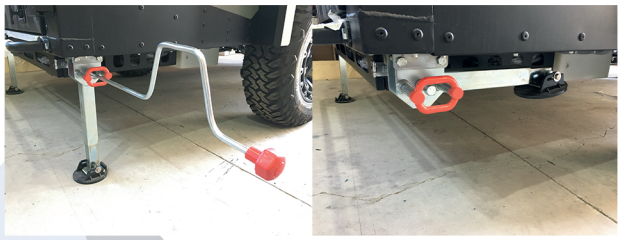


Figure 5.2; to loosen the stabilizer leg, turn it counterclockwise.
Figure 5.3; Close the stabilizer leg by pulling the red-colored handle.

3.3.2. Couple the Coupling Head and Tow Hitch:

- Lift the stabilizer handle upwards while holding the stabilizer.
- Lift the coupling lever upwards by pressing the internal safety button.
- Release the handbrake.
- Align the coupling head with the tow hitch (if needed, use the jockey wheel to raise the coupling head to match the tow hitch).
- Gently lower the coupling head onto the tow ball by loosening the jockey wheel. At this stage, you will see the coupling lever locking in place.

Figure 6.1; AL-KO coupling and stabilizer.
Figure 6.2; coupling lever.

3.3.3. Attach the Steel Cable:

- Thread the hook of the cable through the tow hitch.
- Then, attach the hook back onto the cable.

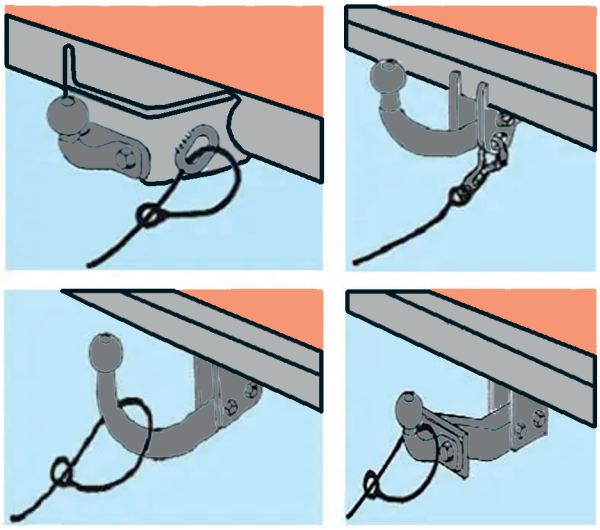


Figure 7; Depending on the type of tow hitch, the methods of attaching the steel cable can vary.

3.3.4. Plug in the Caravan Socket:

- Plug the 7-pin caravan socket into the socket on your towing vehicle (Ensure correct connection by aligning the notches on the plug and socket; they should be at the same level).

Figure 8; caravan socket and plug.

3.4. TOWING the CARAVAN

- Keep in mind that the caravan is wider than the towing vehicle.
- Avoid hitting the caravan's wheels on curbs.
- Maintain a larger following distance between your vehicle and other cars.
- Remember that you are twice as long as usual with the caravan attached.
- Perform all maneuvers as smoothly as possible.

CAUTION: Ensure that the caravan chassis does not touch the ground.

3.4.1. Speed Limit:

- Adhere to local speed limits.
- On single carriageways, a maximum of 50 mph (80 km/h) can be maintained, while on dual carriageways, a maximum of 60 mph (100 km/h) is permitted.

3.4.2. Usage on Highways:

- Caravans cannot be towed in the outer lane of 3 or 4-lane highways.
- Reduce speed in strong crosswinds or gusty winds.
- Maintain a safe distance from tall vehicles (trucks, buses, etc.) when they pass by or you pass them.

3.4.3. Starting:

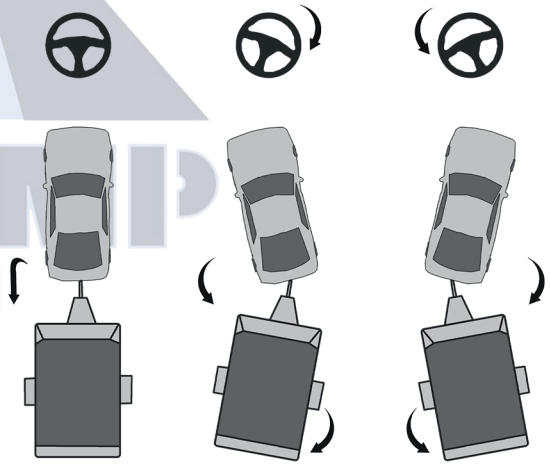
- Allow for extra engine power when towing caravans.
- Avoid sudden acceleration and sudden braking.
- Always release the clutch slowly. Otherwise, the transmission of the towing vehicle could be damaged.
- Use the appropriate gears when shifting.

3.4.4. Snaking Motion:

- This refers to the towing vehicle and caravan moving in a snaking pattern.
- If you experience a snaking motion, stop the vehicle in a controlled manner. Avoid braking as much as possible.
- It could be caused by factors such as insufficient tire pressure, inadequate nose weight, or incorrect loading.

3.4.5. Reversing Maneuver:

- To acquire reversing skills, practice should be done in a spacious area.



3.5. DETACHING the CARAVAN from the TOWING VEHICLE

3.5.1. Selecting a Parking Spot:

- When parking the caravan, ensure that it doesn't obstruct other vehicles, choose a flat and firm surface, and avoid wet ground.
- It's important for the caravan to be level for the proper functioning of the refrigerator and other equipment. You can use a spirit level to determine if the caravan is level.
- If you must park on an incline, park with the front facing downhill and use chocks.

3.5.2. Detaching Process:

1- Apply the handbrake:
Lift the caravan's handbrake upwards. Ensure it's fully engaged.

2- Lower the jockey wheel:
Turn the jockey wheel handle in a counterclockwise direction. Continue until the wheel touches the ground.

3- Disconnect the emergency cable and the 7-pin plug.

4- Disconnect the caravan from the tow hitch:
If present, raise the stabilizer. Lift the coupling lever to detach the caravan, while simultaneously lowering the jockey wheel. Continue this process until the caravan is separated from the tow hitch.

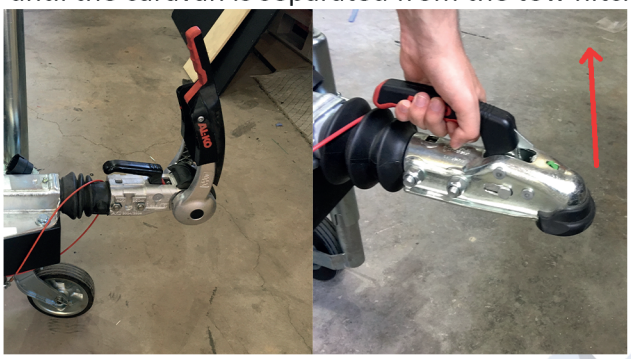


Figure 9; raise the stabilizer to the highest setting.
Figure 10; Lift the coupling lever in the upward direction (towards the hitch).

5- Lower the stabilizer legs:
Lower the stabilizer legs at the corners and tighten them until they make contact with the ground. In cases where the ground is soft, you can place a flat piece of wood under the stabilizer legs. This increases the surface area and provides better stability.

CAUTION: Do not use the stabilizer legs to lift the caravan. Only use them as stabilizing devices.

WARNING: Before detaching the caravan, ensure that the towing vehicle's handbrake is engaged, and the vehicle is in 1st gear (with the engine off).

3.6. WHEELS and TIRES

3.6.1. Tires:

- The caravan should have tires with the same specifications on both sides.
- The tire tread depth requirements that apply to motor vehicles also apply to caravans.
- It's important to occasionally rotate the caravan's wheels to balance wear.
- If the caravan won't be used for an extended period, the wheels and tires should be stored away from external influences, or the caravan can be lifted to relieve the tires of the load.
- Check for any damage on the tires. If damage is detected, consult a professional.
- The caravan industry recommends changing tires that are older than 7 years. Ideally, they should be replaced around the age of 4.
- Clean tires only with water and soap.
- If the caravan won't be used for more than 1 month, it's recommended to remove the tires and store them vertically on a rack.
- Use natural materials instead of synthetic ones to store the tires.
- Avoid direct sunlight on the tires.
- If you haven't removed the tires, rotate them regularly. This reduces the likelihood of cracking.
- The caravan should maintain the recommended tire pressure per tire. The towing vehicle's tires should be inflated to the pressure recommended by the vehicle manufacturer (it's recommended to have slightly higher pressure while towing the caravan). This ensures safety and stability.
- Check the tire pressure of the caravan before traveling and when the tires are cold.
- Incorrect tire pressures can reduce tire lifespan and negatively impact the towing vehicle's performance.

3.6.2. Wheels:

- Wheel bolts should be tightened correctly and evenly. Over-tightening or under-tightening the bolts is equally dangerous.
-Wheel condition should be regularly checked. If a wheel needs replacement, make sure it has the same specifications as the original one.

Wheel Replacement:

1- Lower the stabilizing jacks to secure the caravan.

2- Loosen the bolts of the wheel that needs replacement. Do not fully remove them.

3- Lift the caravan slightly off the ground using a jack, exposing the wheel that needs replacement.

4- Remove the wheel bolts and then take off the wheel.

5- Place the spare wheel onto the wheel hub and reverse the previous steps.

6- Ensure that the wheel bolts are tightened with the correct torque.

INFO: Al-Ko jacks are not included as standard in some models. Contact an Al-Ko dealer to obtain one.

WARNING: Support legs should not be used as jacks. They are only for stabilizing purposes.

INFO: Use an appropriate wrench to loosen and tighten the wheel bolts.

INFO: Please remember to regularly check the wheel torque setting.

INFO: Before using the jack, make sure its lifting capacity is suitable for the caravan.

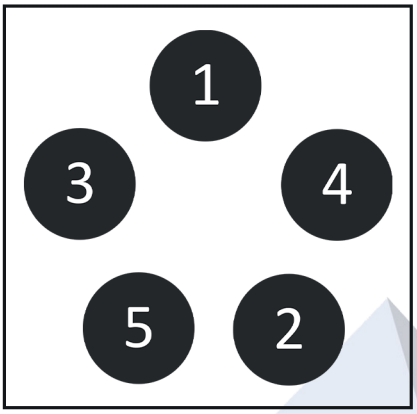


Figure 11; Tighten the wheel bolts in the sequence shown in the diagram.

Figure 12; If the green safety button on the coupling is up, it means the coupling is properly seated on the towing ball.

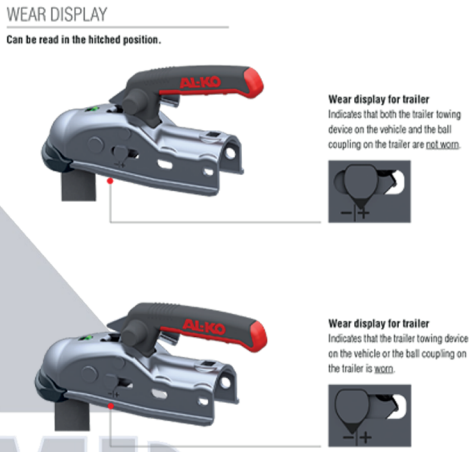


Figure 13; -If the indicator next to the coupling lever points to '-', it indicates that the coupling lever is worn and needs attention.

3.7. TOWING COMPONENTS

3.7.1. Al-Ko Braked Coupling;

-Check if there are any components that could prevent the coupling and towing element from being attached.

-The coupling lever will not close completely until it is seated on the towing hitch, while the lever is in the open position.

-Ensure that the towing ball is clean when placing the opened coupling onto it.

-When the lever is seated on the towing ball, you will hear a distinct clicking sound, and the green safety button will become visible.

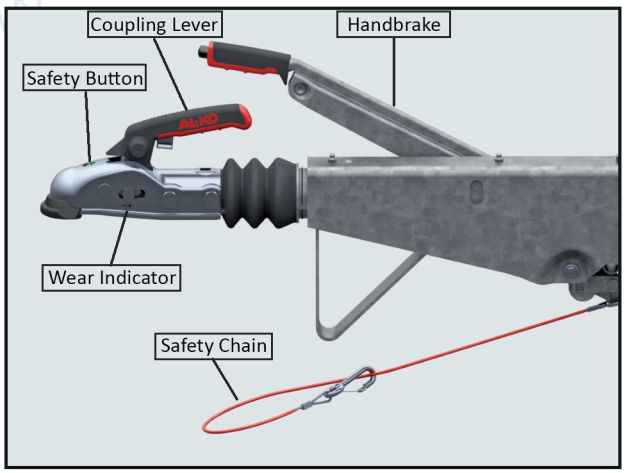


Figure 14; braked coupling.

3.7.2. Al-Ko Stabilizer;

Maneuver

- The stabilizer lever should be in the 'up' position when the coupling and drawbar are connected.
- While the tow vehicle and the caravan are connected, press the stabilizer lever downward with your hand. This action creates balancing force by pressing the friction pads against the towball.
- Do not use the stabilizer lever for manual maneuvering by hand.
- Make sure your hand does not touch the coupling lever while opening or closing the stabilizer cover. Otherwise, your hand might get caught.
- Adjust the stabilizer lever with your hand. Forcing it with different tools could cause damage.
- The stabilizer lever can be pulled 'up' to make maneuvering easier.
- To ensure that the stabilizer is correctly attached, make sure the coupling lever is down and the red button on the stabilizer lever is up.

Dismantling

1. Pull the stabilizer lever as high as you can.
2. Use the coupling lever to disconnect the coupling from the drawbar.
3. Disconnect the stabilizer from the drawbar.

Stabilizer Friction Pads Maintenance:

- Stabilizer pads are prone to wear over time. With proper maintenance, they can last approximately 50,000 km (30,000 miles).
- Lower the stabilizer lever down until you feel resistance (the friction pads should make contact with the coupling head).
- Check the arrowheads on the stabilizer lever. If the arrowheads align with the green double line, the pads are in good condition. If they don't align, the friction pads are worn.
- If the friction pads are worn, they need to be replaced.
- Keep the friction pads free from oil and dirt to extend their lifespan.
- Friction pads do not require lubrication. They can be cleaned with fine sandpaper before a journey.
- When the stabilizer lever is used correctly, the arrowheads align with a black line.

CAUTION: It is recommended to have the stabilizer engaged on uneven terrains. Otherwise, you may cause damage to your towing vehicle and caravan.

Usage area

- **Windy Conditions:** Stabilizers provide better stability when driving in windy conditions, preventing the trailer from swaying excessively due to crosswinds.
- **Hilly or Mountainous Terrain:** When towing on steep inclines or declines, stabilizers can help minimize the risk of sway and maintain control over the entire outfit.
- **Curvy Roads:** Stabilizers can assist in maintaining control around sharp curves and bends, reducing the potential for fishtailing.
- **Overtaking:** Stabilizers offer improved stability when being overtaken by larger vehicles, preventing sudden jerks or instability.
- **Uneven Surfaces:** When driving on rough or uneven surfaces, such as gravel roads or dirt tracks, stabilizers help maintain a smoother and more controlled towing experience.
- **Emergency Situations:** Stabilizers can help maintain control during sudden maneuvers or emergency braking situations.

3.7.3. Al-Ko Support Leg;

Figure 15; Al-Ko support leg.

-The support legs are used to keep the caravan stable during camping. They should not be used to lift the caravan.

-Fold the jockey wheel by pulling the hitch handle towards yourself. You can place it into the socket every 45 degrees. After positioning it correctly, release the hitch handle. Make sure the handle is securely seated in the socket.

-To adjust the height of the support leg, use the key that comes with your caravan to turn the central bolt on the jockey wheel. Turning it counterclockwise will extend the support leg, and turning it clockwise will shorten it.
-The support legs should touch the ground to stabilize the caravan. The weight should be on the tires and the jockey wheel (when connected to the towing vehicle).
-In muddy or uneven terrain, you can place a flat piece of wood under the support legs to prevent them from sinking into the ground. This will increase the surface area and provide better stability.

CAUTION!: The support legs should not be closed forward.

CAUTION!: Lower the support legs in an upright position.

3.7.4. Jockey Wheel;
-If you turn the winding handle clockwise, the front of the caravan will lower; turning it counterclockwise will raise the front of the caravan.
-When at your campsite, adjust the jockey wheel to level the caravan. You can use a spirit level to ensure it's level.
-In some models, the jockey wheel can be detached and reattached. To remove the wheel, loosen the black-colored handle until the bolt comes out. Make sure the caravan is still connected to the towing vehicle before performing this operation.

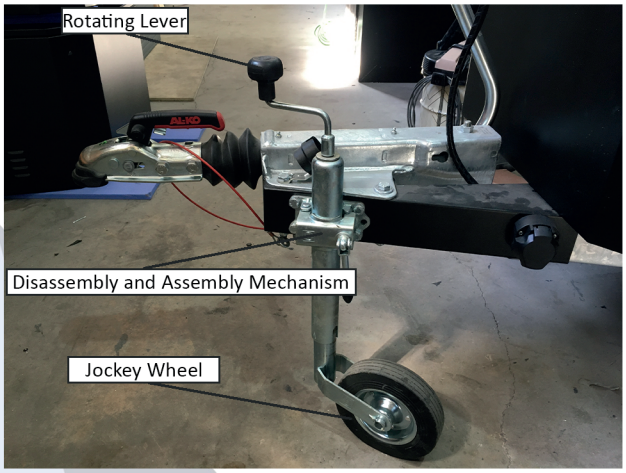


Figure 16; Al-Ko jockey wheel

3.8. VARIOUS EQUIPMENTS

- **Awning:** A tent attached to the side of the caravan.
- **Fire Blanket:** A fire blanket approved to BS 6575 helps you deal with "oil pan" fires.
- **Fire Extinguisher:** It is highly recommended to have a fire extinguisher in the caravan.
- **Gas Cylinder:** Two cylinders can be used for continuous gas supply. While one cylinder is connected, the other can be kept as a spare.
- **Jack:** It is recommended to have a suitable jack in the caravan. Make sure it has the appropriate lifting capacity.
- **Spare Wheel:** It is advisable to always have a spare wheel in the caravan.
- **Spirit Level:** Useful for leveling the caravan.
- **Torque Wrench:** Used for tightening and loosening wheel bolts.
- **Wooden Blocks:** These can be placed under support legs and support wheel when the ground is uneven or wet.
- **Caravan Mirror:** An attachment added to the rear-view mirror for better visibility while towing.

4. CARAVAN SERVICES

4.1. WATER PLUMBING

- All used connection components comply with BS6920 standards. They do not affect the quality of clean water.
- Before the initial use of the system, it is recommended to clean it twice. Regular cleaning is also necessary when not in use.
- During periods of inactivity, draining the water from the system is necessary.
- At the beginning and end of the season, water plumbing parts should be cleaned with a disinfectant liquid.

INFO: While refilling the tank, make sure that the water source is drinkable.

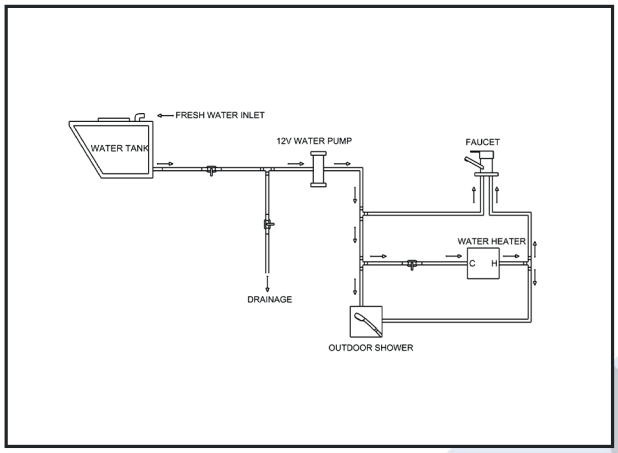


Figure 17; X1 water plumbing.

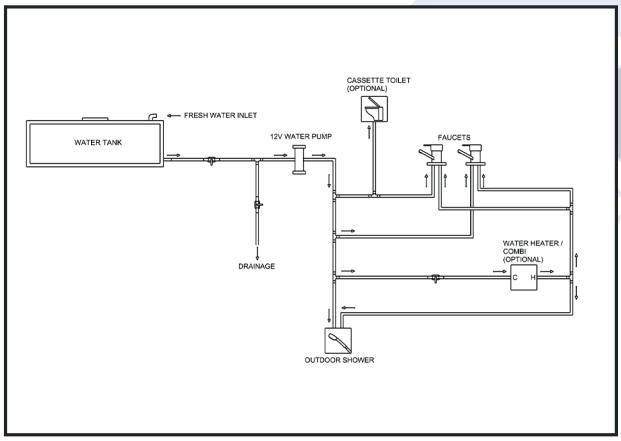


Figure 18; X3-C3 water plumbing.

4.1.1. Installation:

- Open the exterior water cap of the caravan by turning it counterclockwise with a key.
- Ensure that the drain valve is closed and other valves are open.
- Fill the tank with clean drinking water.
- You can monitor the tank's fill level using the water level indicator.
- Turn on the pump by switching its key to the "on" position on the control panel.

Figure 19; water filling cap.

4.1.2. Plumbing Connections:

- In the water plumbing, there are quick-connect pneumatic fittings along with 12mm polyurethane water pipes. The use of quick-connect plumbing products is fast and practical.
- To attach a pipe to a pneumatic connector, simply press it in. To detach the pipe, press the ring of the connector and pull the pipe. To prevent water leaks, ensure that the pipe is cut straight.

4.1.3. Draining the Water:

- Your caravan is designed to be usable throughout the year. During periods of inactivity, it's important to drain the water from the system.
- The water leaving the water tank is divided into two pipes. One goes to the water pump, and the other is the drain pipe.
- A valve is located on the drain pipe, which allows for the complete drainage of water from the system.
- To drain the water from the system, simply open the drain valve. You might need to sweep out any remaining water in the tank.

CAUTION: Before traveling, the liquid in the tank should be emptied. The liquid present during travel negatively affects the carrying capacity.

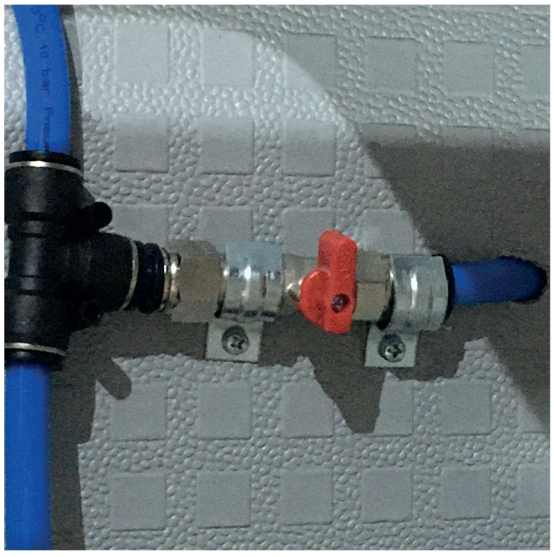


Figure 20; drain valve.

4.1.4. Maintenance:

- At the beginning or end of the season, a disinfectant solution should be used to clean the water system. The disinfectant solution should not contain chlorine.
- You can obtain the disinfectant solution from your dealer or pharmacy. Make sure you're using the correct product.
- You can clean the plumbing components using a sponge or cloth.
- Thoroughly rinse the system.

CAUTION: The use of inappropriate disinfectant products can lead to the deterioration of system components and the mixing of toxic substances into the drinking water.

4.1.5. Winterizing:

- Freezing temperatures during winter can lead to water damage in the system. Draining the water reduces the risk of freezing damage.
- For winterization, follow the steps below:

1. Leave the drain valve and other valves open.
2. Set the bathroom and kitchen faucets to a mid-open position.
3. Open the showerhead and let the water drain out.
4. Open the drain valve of the water heater.

Please note that this translation is accurate, but I advise you to consult the original instructions or a professional for precise technical guidance.

INFO: Freezing damage is not covered by the warranty.

WARNING: Do not pour antifreeze into the water system before the winter season. Ingesting toxic substances like antifreeze can lead to death.

CAUTION: Freezing of the system can result in damage to parts and pipes.

4.1.6. Water Pump (Hydrofor):

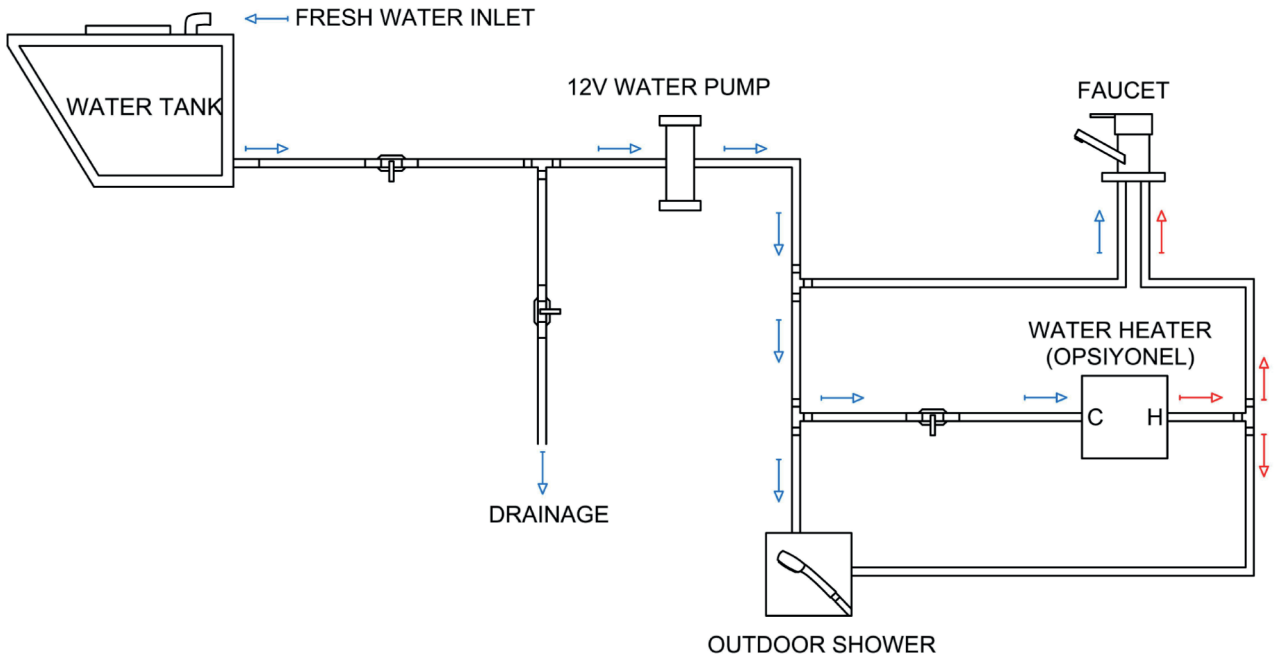
- The water pump, or hydrofor, maintains a certain pressure for water flow in the system. It's usually located near the water tank.
- To start the water pump, switch the on/off button on the control panel to the "on" position.
- It's recommended to keep the water pump on during your camping trip; there's no need to turn it on and off frequently.
- The water from the tank that reaches the water pump is divided into two paths. One goes to faucets and, if available, the cassette toilet. The other goes to the water heater.
- When the water pump is running, the water pressure remains steady at a certain level. As faucets are used, the pressure may decrease over time. To restore the pressure, you can temporarily close the faucets until the pump pressure is adjusted.

Figure 21; hydrofor

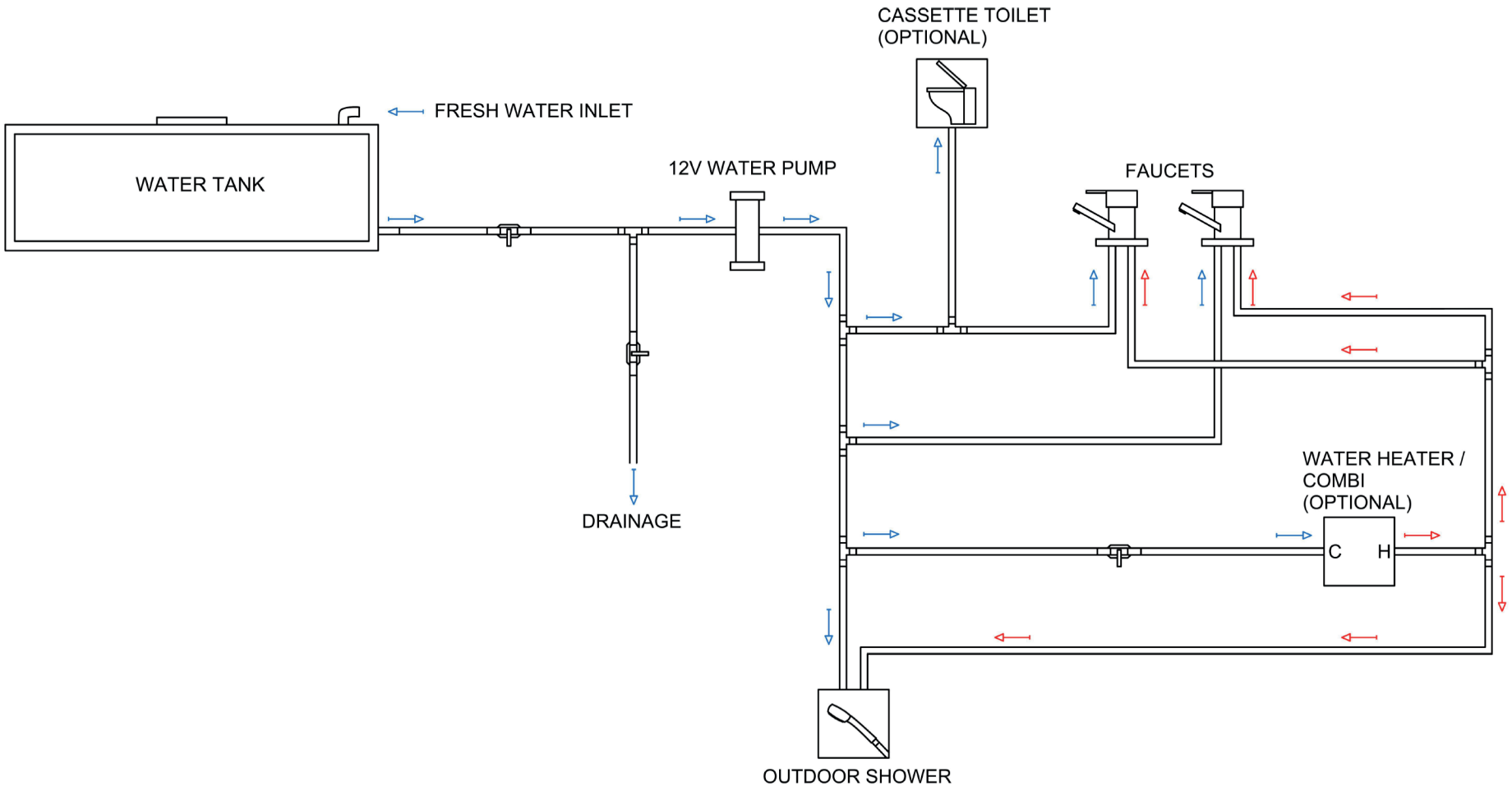
4.1.7. Problems in Water Plumbing and Possible Solutions;

The problem.	What needs to be done.
The pump is not working.	Check if the pump is operational. Inspect whether the main circuit breaker is on. Verify if the pump switch is in the 'on' position. Examine for any blockages or bends in the pipes.
The pump is running but there is no water coming.	Check if the water tank is empty. Inspect for any leaks in the pipes. Determine if the water system is clogged.
The pump is running but not turning off.	"Check for any leaks in the system. If there's a leak, attempt to address it. Determine if the water system is clogged. Check if the tank is empty."
The pump is running when the faucets are closed.	Check for any leaks in the system. Determine if the water system is clogged. Verify if the battery is charged.
The water pressure is low.	Check for any leaks in the system. Determine if the water system is clogged. Verify if the battery is charged. Replace damaged connections. Ensure that the drainage valve is closed and that there are no leaks in the system.

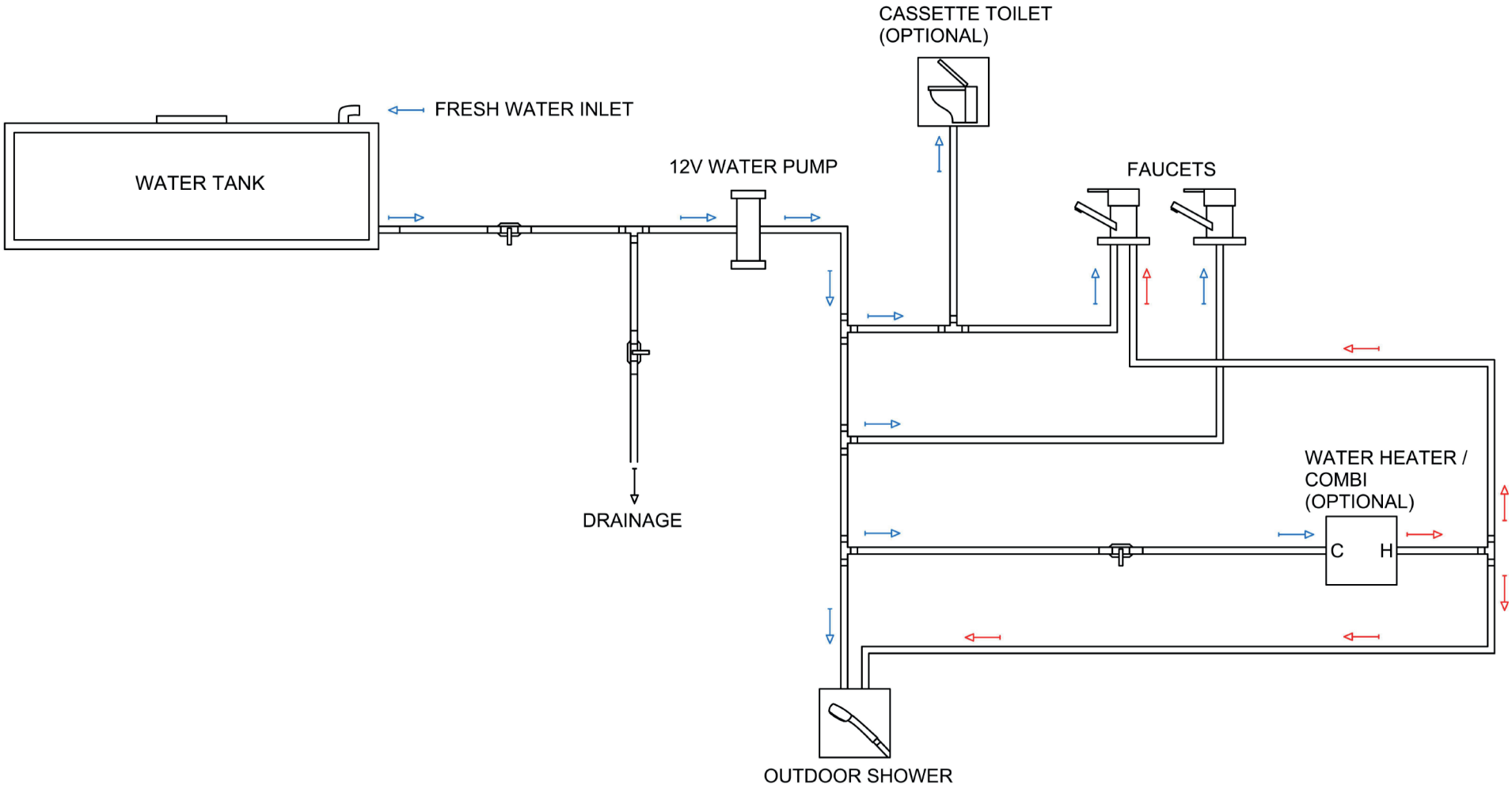
X1+ WATER PLUMBING



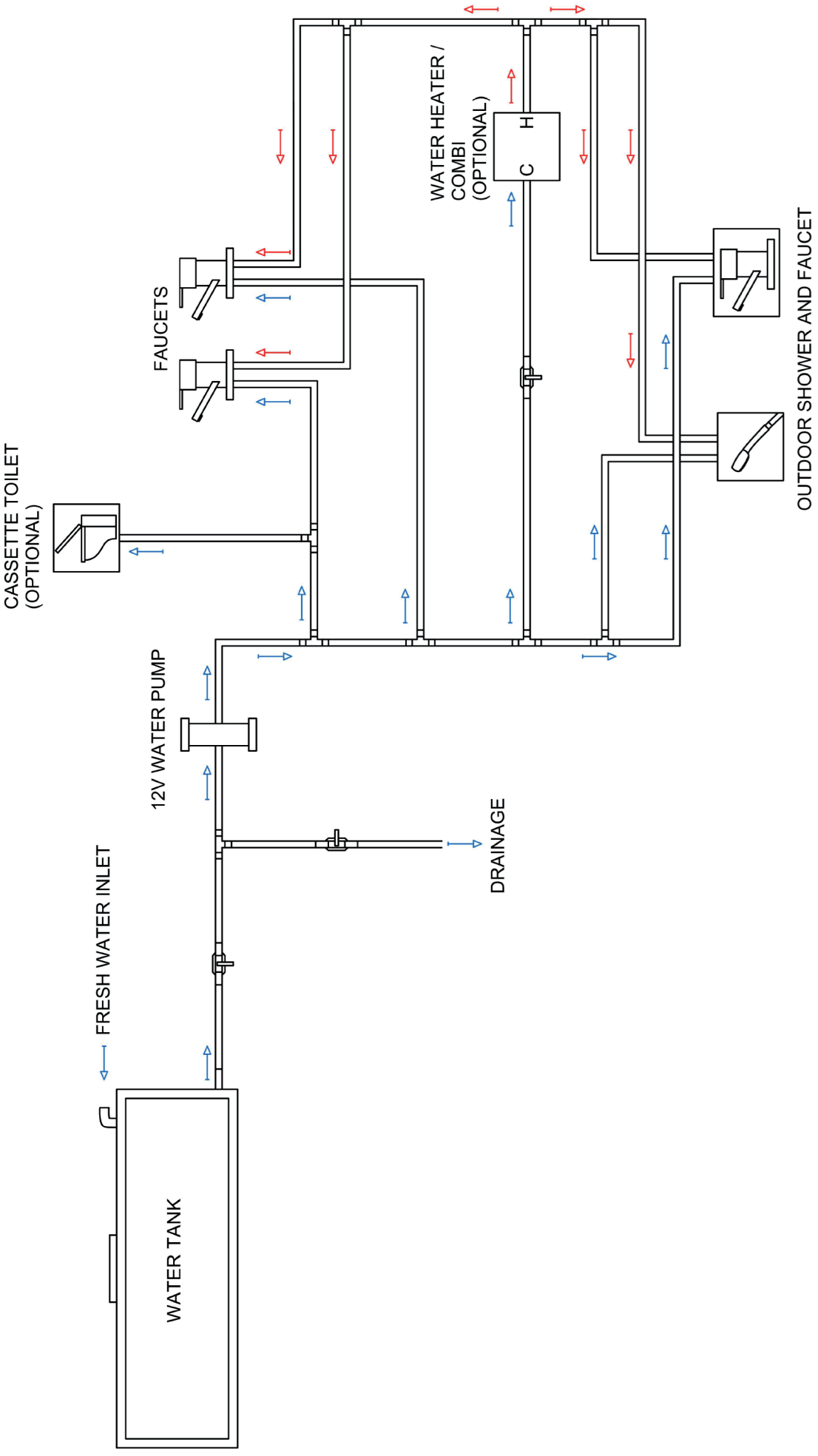
X3 WATER PLUMBING



C3 WATER PLUMBING



X5 WATER PLUMBING



4.2. GAS PLUMBING

WARNING: Gas systems and device repairs should be carried out by experts. If you encounter a problem, contact your dealer.

-The gas from the cylinder goes to the regulator, and from there to the gas-operated equipment.
-There is a separate isolation valve for each equipment.

Figure 22; gas cylinder holder and regulator.

4.2.1. Types of Gas Cylinders;

-The most suitable fuel source for a caravan is an LPG (liquefied petroleum gas) cylinder.
-There are two types: propane and butane.
-A propane cylinder works even at temperatures as low as -40 degrees.
-Butane does not work at temperatures below 2 degrees.

4.2.2. Gas Safety;

WARNING: If you smell gas or are in a fire situation, isolate gas appliances. Close the valves. Empty and ventilate the caravan.

-LPG is not poisonous, but in case of a leakage, it can displace oxygen and clean air in the surroundings, making it dangerous.
-Ventilation holes should be open.

4.2.3. Precautions:

- If you suspect a gas leak, do not try to locate the source using an open flame. Avoid using electrical devices and light switches.
- Regularly inspect the gas plumbing and hose. You can use soapy water to detect leaks.
- LPG cylinders should be stored outside and protected from freezing.
- The gas system should be checked by a professional annually.

WARNING: Flammable materials should be kept away from heat sources.

WARNING: Flammable materials should be kept away from heat sources.

WARNING: Stoves should not be used as space heaters.

4.2.4. Regulator:

-Gas flow is controlled through the regulator. Both the regulator and all gas equipment operate at 30 mbar pressure. This makes them compatible with both butane and propane cylinders.
-Complies with EN 12864 requirements.
-It has an impact-locking sensor that cuts off gas flow during impacts.
-Suitable for use in Europe.

INFO: During travel, the regulator valve should be closed.

WARNING: When the caravan is not in use, the valve of the gas cylinder should be closed.

Figure 23; gas hose and regulator.

4.2.5. Problems in Gas Plumbing and Possible Solutions;

The problem	What needs to be done
"The stove isn't lighting up."	Check the gas level in the cylinder. Inspect the valve of the cylinder. Verify if the gas taps are open. Refer to the stove's manufacturer instructions.
"The boiler/heater isn't turning on."	Check the gas level in the cylinder. Inspect the valve of the cylinder. Verify if the gas taps are open. Ensure the exhaust outlet of the boiler is clear. Reset the device. Refer to the device's user manual.

GAS PLUMBING DIAGRAM

Oven

Gas Cylinder

Gas Regulator

Truma Combi 4 (Optional)

4.3. ELECTRICAL INSTALLATION

4.3.1. 220V Electrical Installation;

- Be cautious when working with the electrical installation.

4.3.1.1. Connecting the Caravan to the Electrical Source;

- Check the compatibility of the electrical source with your devices.
- Ensure that the installation has proper grounding. Do not accept a socket without proper grounding.
- Make sure the residual current device in your caravan has been tested within the last month. Test it again after connecting the caravan to the electrical source.
- Ensure that the main switch of the electrical source is turned off.
- Make sure the residual current device is turned off.
- Connect the plug of the power cable to the electrical source.
- Turn on the main switch of the electrical source.
- Turn on the residual current device.

Figure 24; three-pin 220V power cable.

4.3.1.2. Disconnecting the Caravan from the Electrical Source;

- Turn off the main switch of the electrical source.
- Turn off the residual current device.
- Leaving the main electrical source and power cable open is dangerous.

INFO: If you encounter any issues, consult a certified professional. Do not make changes on your own.

INFO: The electrical installation of the caravan should be tested and a report should be generated according to the electrical installation regulations every 12 months.

4.3.1.3. International Connections;

- Electrical connections abroad might have reversed polarity.
- When the polarity is reversed, it means there won't be electrical isolation. In this case, the plug should be disconnected.
- Devices can be acquired to check if the electrical source has reversed polarity.

4.3.1.4. Fuse Box:

- It prevents overloading of the 220V supply in the caravan.
- Provides ground fault protection.

Figure 25; fuse box.

4.3.1.5. Mini Circuit Breaker;

- The mini circuit breaker serves as a fuse.
- It automatically switches off and goes to the 'off' position in case of a fault.
- After resolving the fault, it can be switched back to the 'on' position to reset.
- If there's a grounding fault, the circuit breaker will trip.
- Simultaneous operation of too many devices can also cause the circuit breaker to trip.

Figure 26; mini circuit breaker.

CAUTION: Do not turn the mini circuit breaker in the opposite direction!

4.3.1.6. Using Electricity;

- All switches in the fuse box should be on.
- Mini circuit breakers should be in the on position.
- Not all equipment may operate simultaneously. Check the total amp value of connected equipment against the amp value of the main electrical connection.
- Main electrical connections at caravan parks can provide around 16 amps of output. Residential electrical sources may drop down to 5 amps.
- If the total load exceeds the source, the circuit breaker can trip.
- The combined value of some equipment using 220V is;

Refrigerator (220V)	0.5 Amper
TV	2.5 Amper
Phone Charger	1.0 Amper
Air Heater	8.5 Amper
Microwave Oven	10.0 Amper
Air Conditioner	4.0 Amper

- Check that the total value of equipment using 220V does not exceed the amp value of the input source.

4.3.2. 12V Electrical Installation;

- The caravan is equipped with a standard 12V electrical installation.
- The 220V electrical source is converted to 12V and charges the battery when the caravan is not in use.

4.3.2.1. Precautions When Using the Battery:

- The battery should not be moved.
- Do not place metal objects in the compartment where the battery is located.
- Avoid continuous charging of the battery when the caravan is not in use.

CAUTION: Do not use a car-type battery charger. It can damage your battery.

CAUTION: Make sure that electrical devices (refrigerator, TV, etc.) are in the 'off' position when the caravan is not in use. Otherwise, your battery could drain.

4.3.2.2. Adding an Additional Battery:

- When adding an extra battery, make sure that the battery to be added has the same brand and specifications as your current battery.
- For adding a battery, get in touch with your dealer or a professional.

CAUTION: Making changes to cable connections is not recommended. For such operations, consult your dealer.

Electrical Installation Problems and Solutions:

The problem	Possible Cause	Solution
The lights don't work.	The fuse may have blown	Replace the fuse glass.
	The key may be broken	Replace the key.
	Battery empty./ No power coming on can be	Charge the battery./ Check out solar energy system errors.
	The circuit breaker or fuse may be closed.	Activate it.
"Electrical equipment does not work (refrigerator, booster, heater etc.)"	The fuse may have blown	Replace the fuse glass.
	The key may be broken	Replace the key.
	Battery empty./ No power coming on can be	Charge the battery./ Check out solar energy system errors.
	The equipment may be faulty.	The use of faulty equipment problem solving in the manual/ Check the equipment's own user manual

CAUTION: Care must be taken when replacing switches and fuses. Replacement with the correct amperage part be sure to do it. It is recommended to consult a specialist for this procedure.

X1 ELECTRICAL INSTALLATION

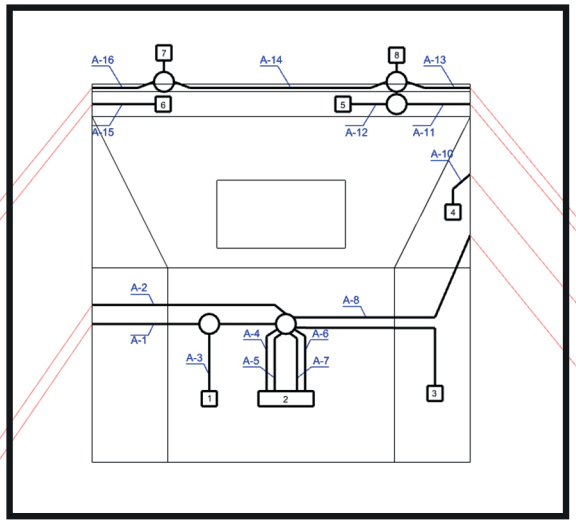


FIGURE 1

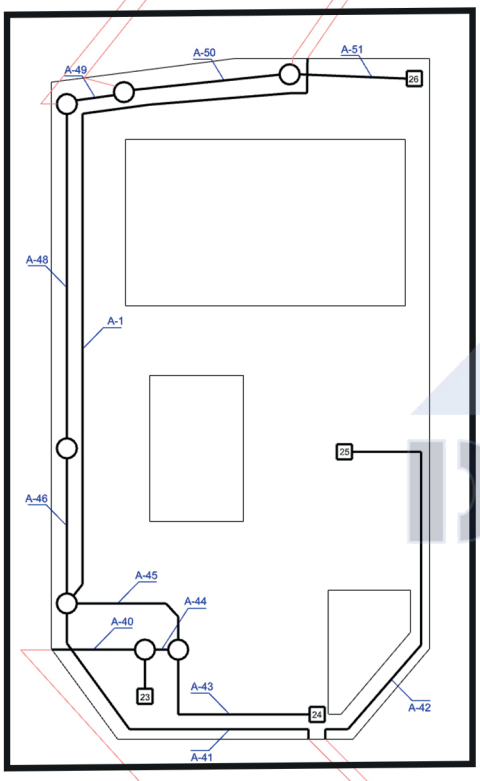


FIGURE 4

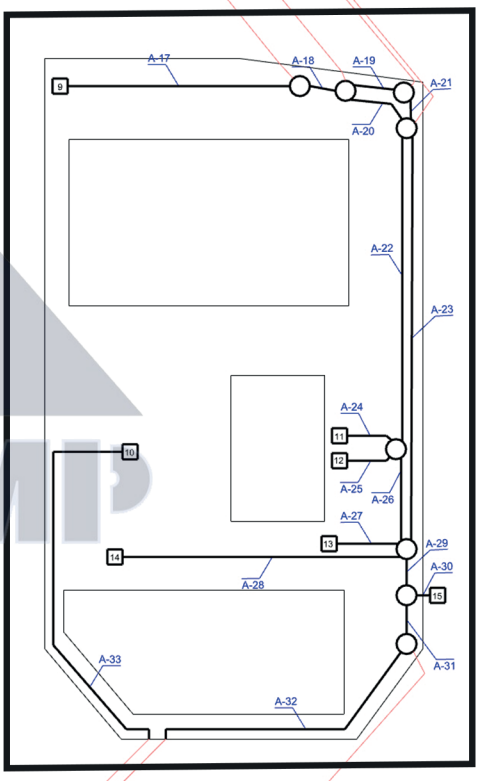


FIGURE 2

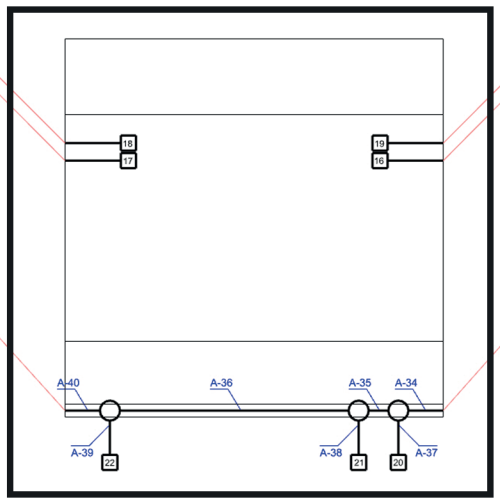
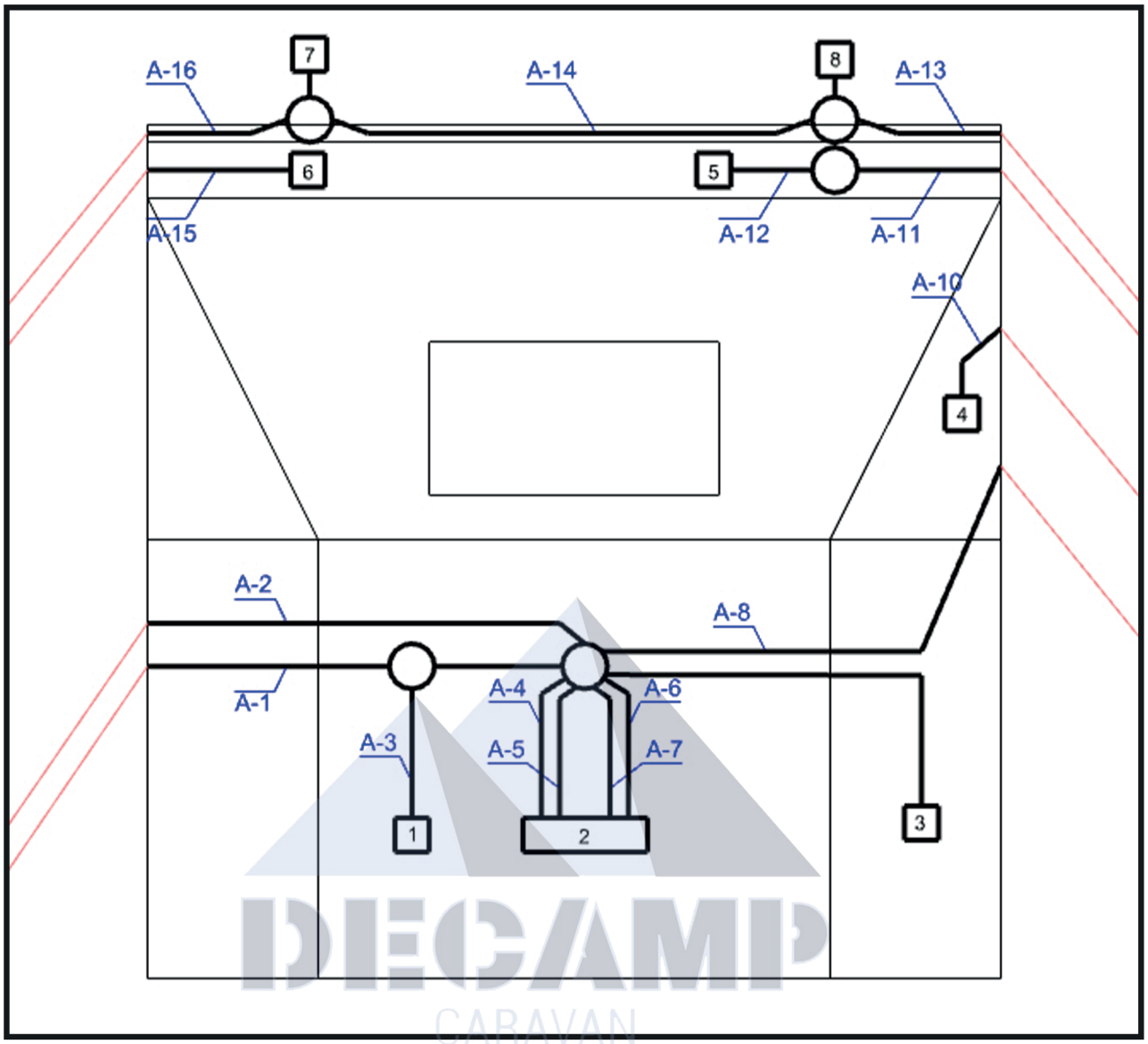


FIGURE 3

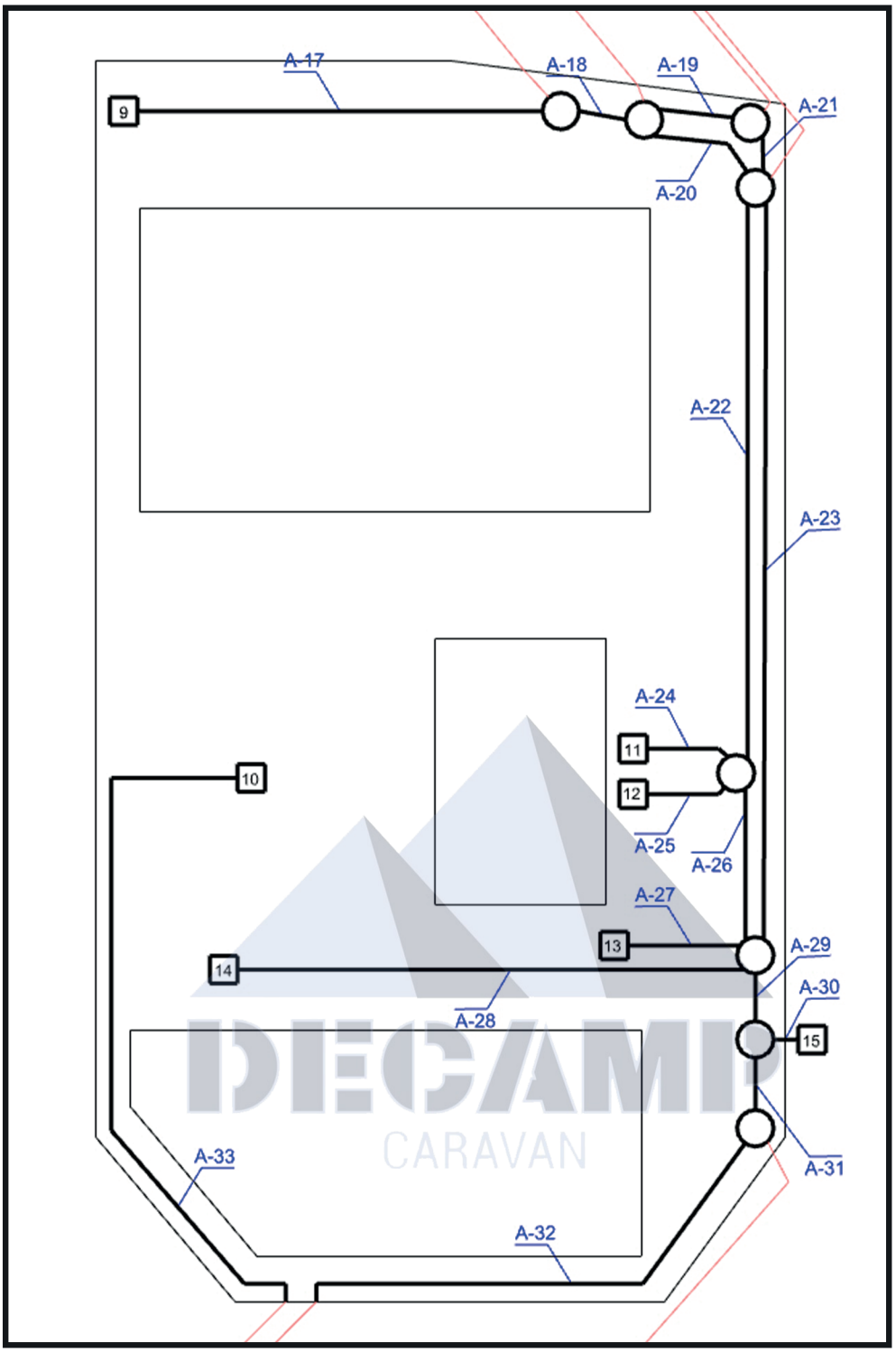
FIGURE 1



CODE	PRODUCT
1	SPACE HEATER + CARAVAN SOCKET
2	SOLAR ENERGY SYSTEM
3	220V ELECTRIC INPUT
4	PANEL
5	INTERIOR LED LIGHTING
6	OFF-ROAD LED BAR
7	ROOF LAMP
8	ROOF LAMP

CODE	CABLE THICKNESS (mm)	CODE	CABLE THICKNESS (mm)
A-1	(7x1)+1.5	A-10	12x1.5+4x2.5+4x4+(2x0.75)
A-2	(3x1.5)	A-11	2x1.5
A-3	(7x1)+1.5+(2x0.75)	A-12	2x1.5
A-4	(2x0.75)	A-13	3x1.5+2x2.5
A-5	(3x1.5)+(2x0.75)	A-14	3x1.5+2x2.5
A-6	(3x1.5)	A-15	(2x0.75)
A-7	4x4+2x1.5+(2x0.75)	A-16	3x1.5+2x2.5
A-8	4x4+2x1.5+(2x0.75)		

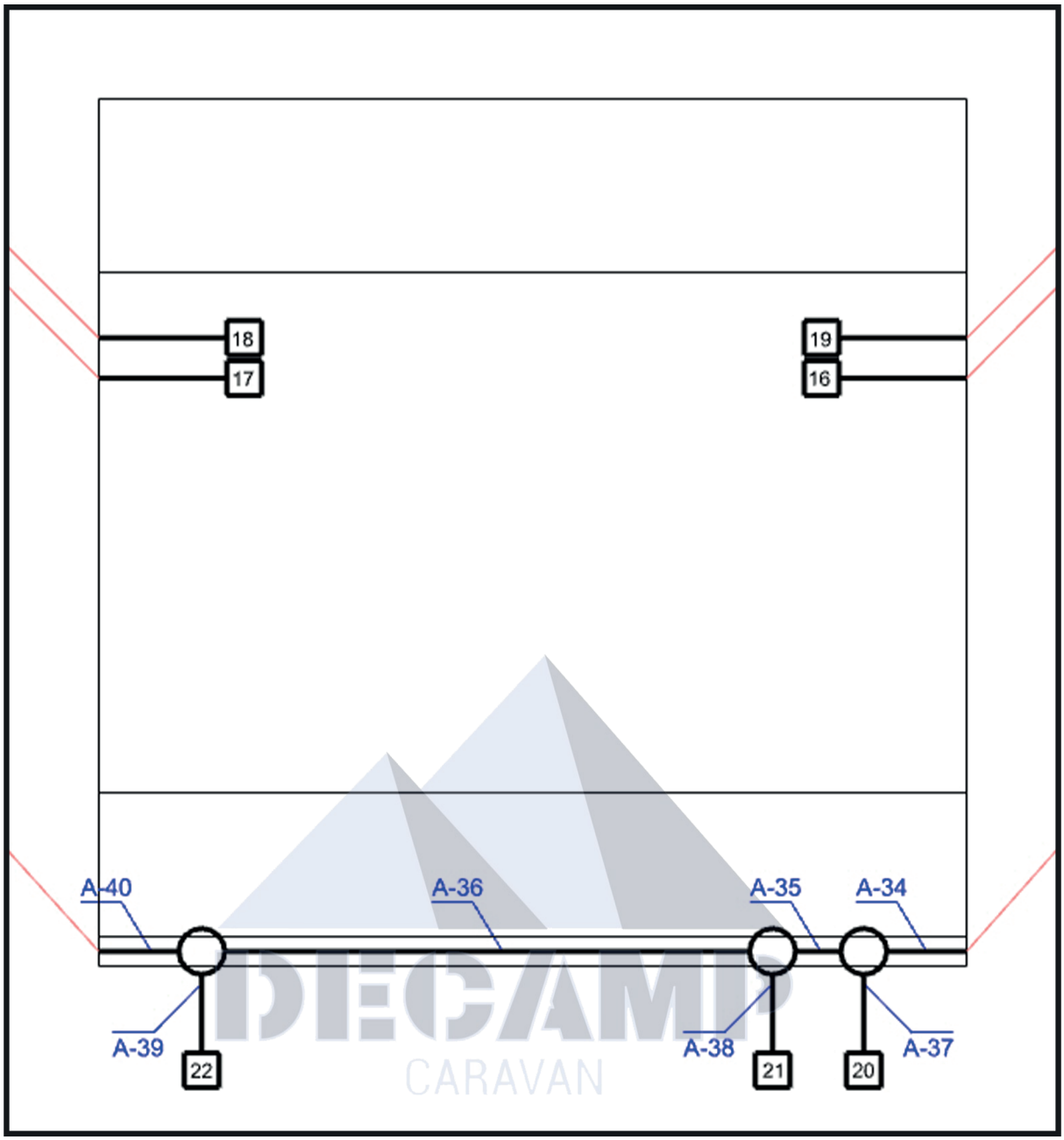
FIGURE 2



CODE	PRODUCT
9	SIDE MIRROR INDICATOR
10	TURN SIGNAL LIGHT
11	INTERIOR LED LIGHTING
12	EXTERIOR DOOR LED LAMP
13	220V SOCKET + 12V USB
14	WATER HEATER
15	SOLAR ENERGY PANEL

CODE	CABLE THICKNESS (mm)	CODE	CABLE THICKNESS (mm)
A-17	2x(2x0.75)	A-26	3x1.5+(3x1.5)
A-18	(2x0.75)+2x1.5+4x4	A-27	2x4+3x1.5+4x1.5
A-19	4x1.5+2x(2x0.75)+2x2.5	A-28	(3x1.5)
A-20	(3x1.5)+3x1.5+2x2.5+2x4	A-29	(3x1.5)+2(2x0.75)+2x4
A-21	2x(2x0.75)+(3x1.5)+3x1.5+2x2.5	A-30	(2x0.75)
A-22	3x1.5+(3x1.5)	A-31	(3x1.5)+(2x0.75)+2x4
A-23	2x(2x0.75)+4x4+2x1.5	A-32	2x(2x0.75)
A-24	2x1.5	A-33	(2x0.75)
A-25	2x1.5		

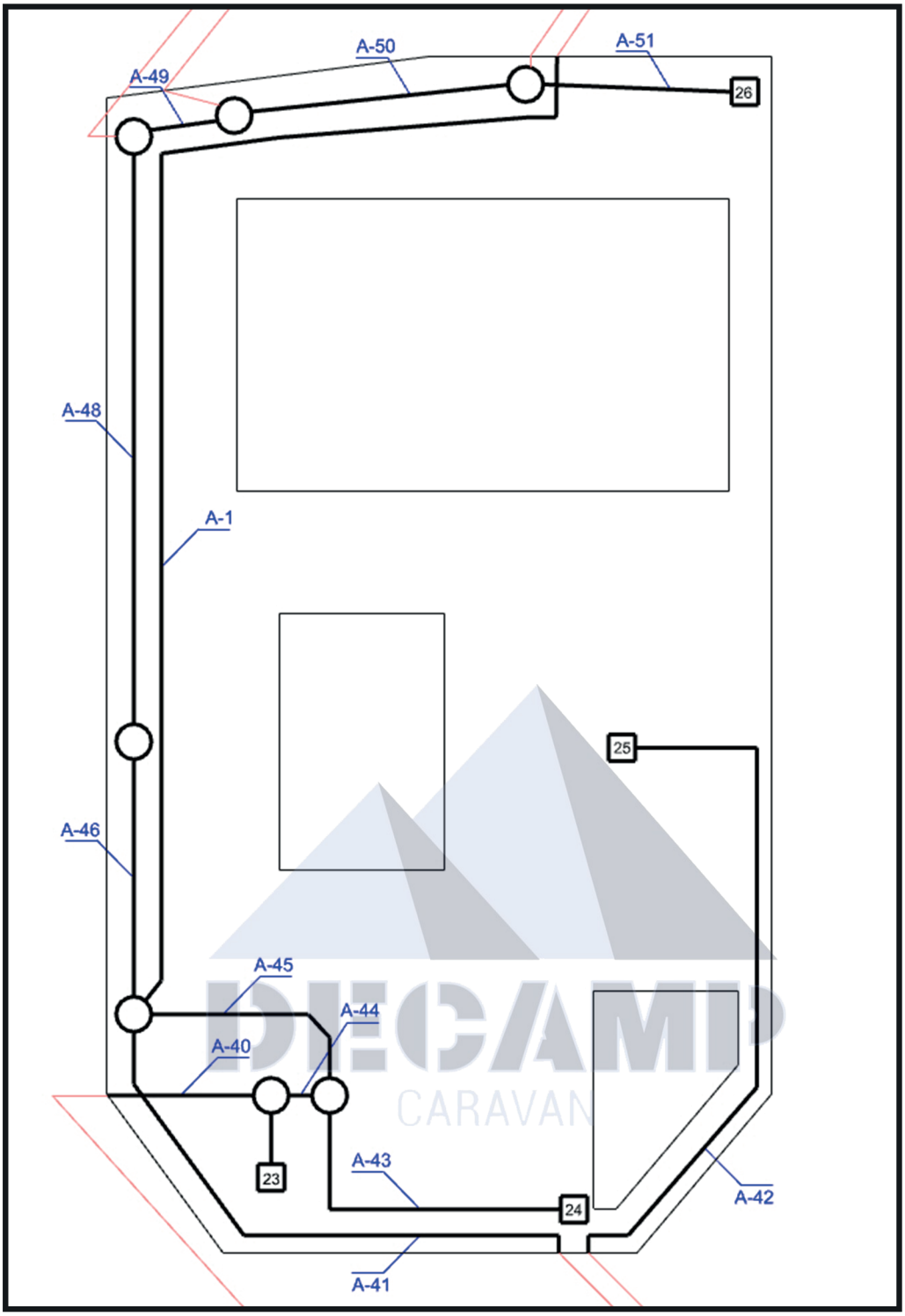
FIGURE 3



CODE	PRODUCT
16	REAR STOP LIGHTS
17	REAR STOP LIGHTS
18	REAR STOP LIGHTS
19	REAR STOP LIGHTS
20	SOLAR PANEL
21	REAR FOG LIGHT
22	REAR FOG LIGHT

CODE	CABLE THICKNESS (mm)
A-34	(3x1.5)+2x1.5+2x4
A-35	(3x1.5)+2x1.5
A-36	(3x1.5)+2x1.5
A-37	2x4
A-38	2x1.5
A-39	2x1.5
A-40	(3x1.5)+2x1.5

FIGURE 4



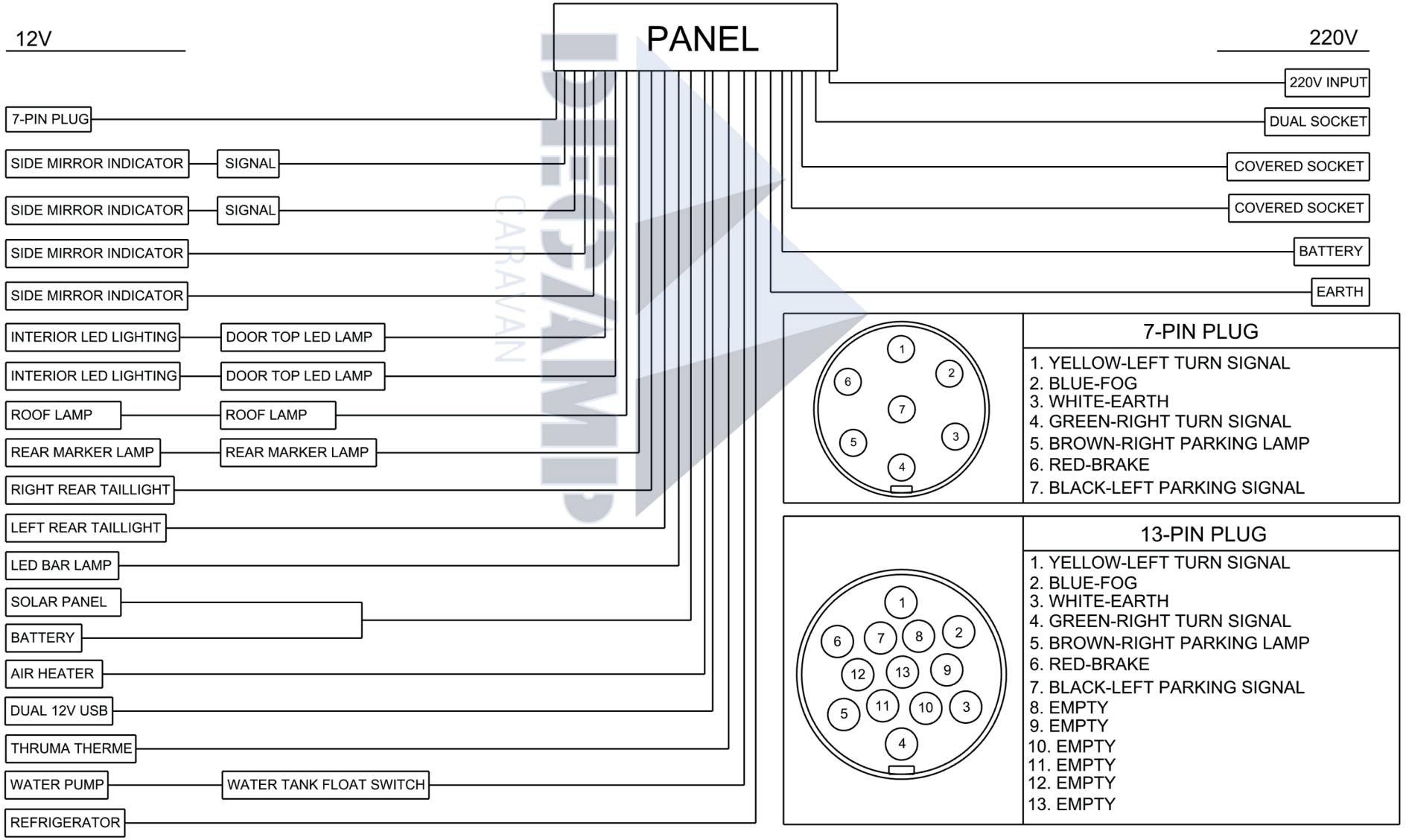
CODE	PRODUCT
23	PANEL
24	BOOSTER PUMP
25	TURN SIGNAL LIGHT
26	SIDE MIRROR INDICATOR
27	LED INTERIOR LIGHTING
28	EXTERIOR DOOR LED LAMP

CODE	CABLE THICKNESS (mm)	CODE	CABLE THICKNESS (mm)
A-1	P	A-45	2x2.5+(3x1.5)
A-40	(3x1.5)+2x1.5	A-46	2x2.5+(3x1.5)+(2x0.75)
A-41	(7x1)+1.5+(2x0.75)	A-48	(3x1.5)+2x2.5+(2x0.75)
A-42	2x(2x0.75)	A-49	(2x0.75)
A-43	(3x1.5)	A-50	(2x0.75)
A-44	(2x0.75)+(3x1.5)+2x1.5	A-51	(2x0.75)

X1 ELEKTRICAL DIAGRAM

KITCHEN PANEL			INTERIOR PANEL		
LED KITCHEN LIGHT	REAR LED BAR	12V VEHICLE SOCKET	LEFT EXTERIOR DOOR LAMP	RIGHT EXTERIOR DOOR LAMP	12V VEHICLE SOCKET
WATER PUMP	12V DUAL USB	220V SOCKET	LEFT INTERIOR LED LIGHTING	RIGHT INTERIOR LED LIGHTING	12V DUAL USB 220V SOCKET

VİKO VTR2	VİKO 4VTB-SN2
CATTERY CHARGER	SOCKETS



7-PIN PLUG

1. YELLOW-LEFT TURN SIGNAL
2. BLUE-FOG
3. WHITE-EARTH
4. GREEN-RIGHT TURN SIGNAL
5. BROWN-RIGHT PARKING LAMP
6. RED-BRAKE
7. BLACK-LEFT PARKING SIGNAL

13-PIN PLUG

1. YELLOW-LEFT TURN SIGNAL
2. BLUE-FOG
3. WHITE-EARTH
4. GREEN-RIGHT TURN SIGNAL
5. BROWN-RIGHT PARKING LAMP
6. RED-BRAKE
7. BLACK-LEFT PARKING SIGNAL
8. EMPTY
9. EMPTY
10. EMPTY
11. EMPTY
12. EMPTY
13. EMPTY

X3 ELECTRICAL INSTALLATION

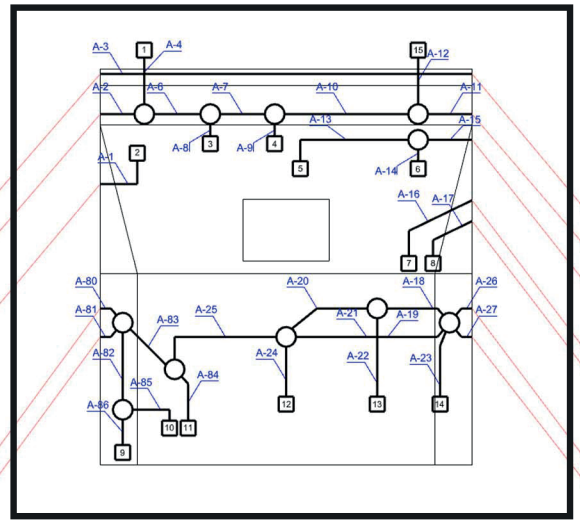


FIGURE 1

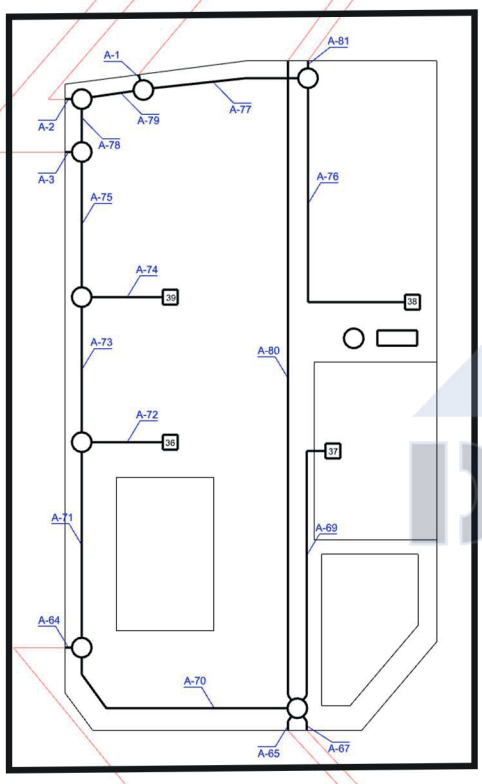


FIGURE 4

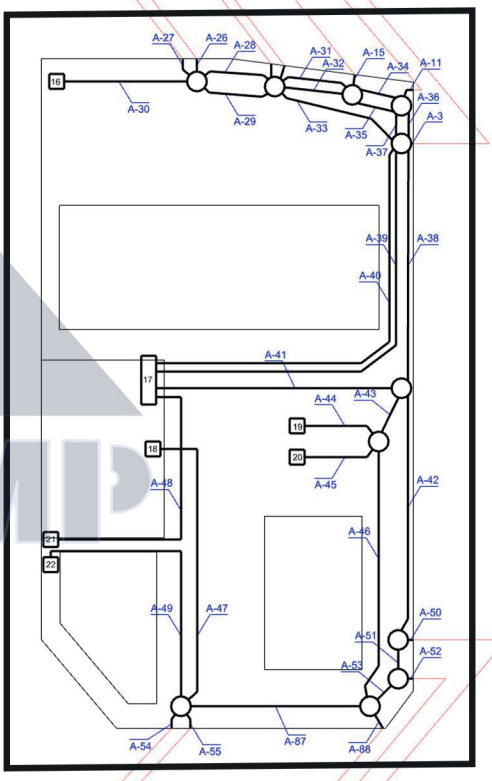


FIGURE 2

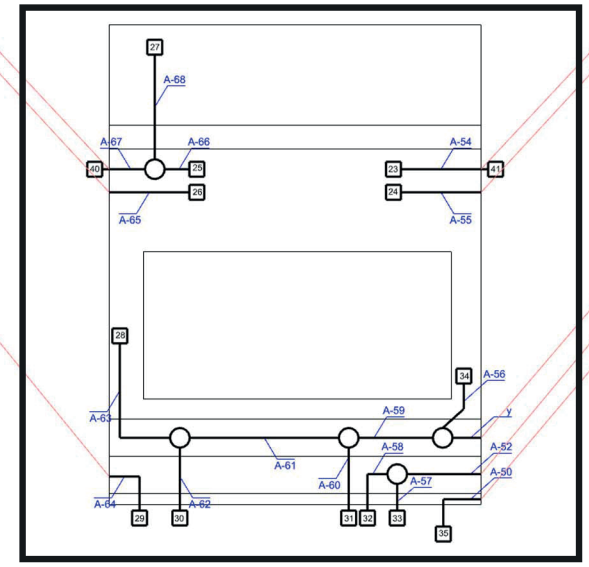
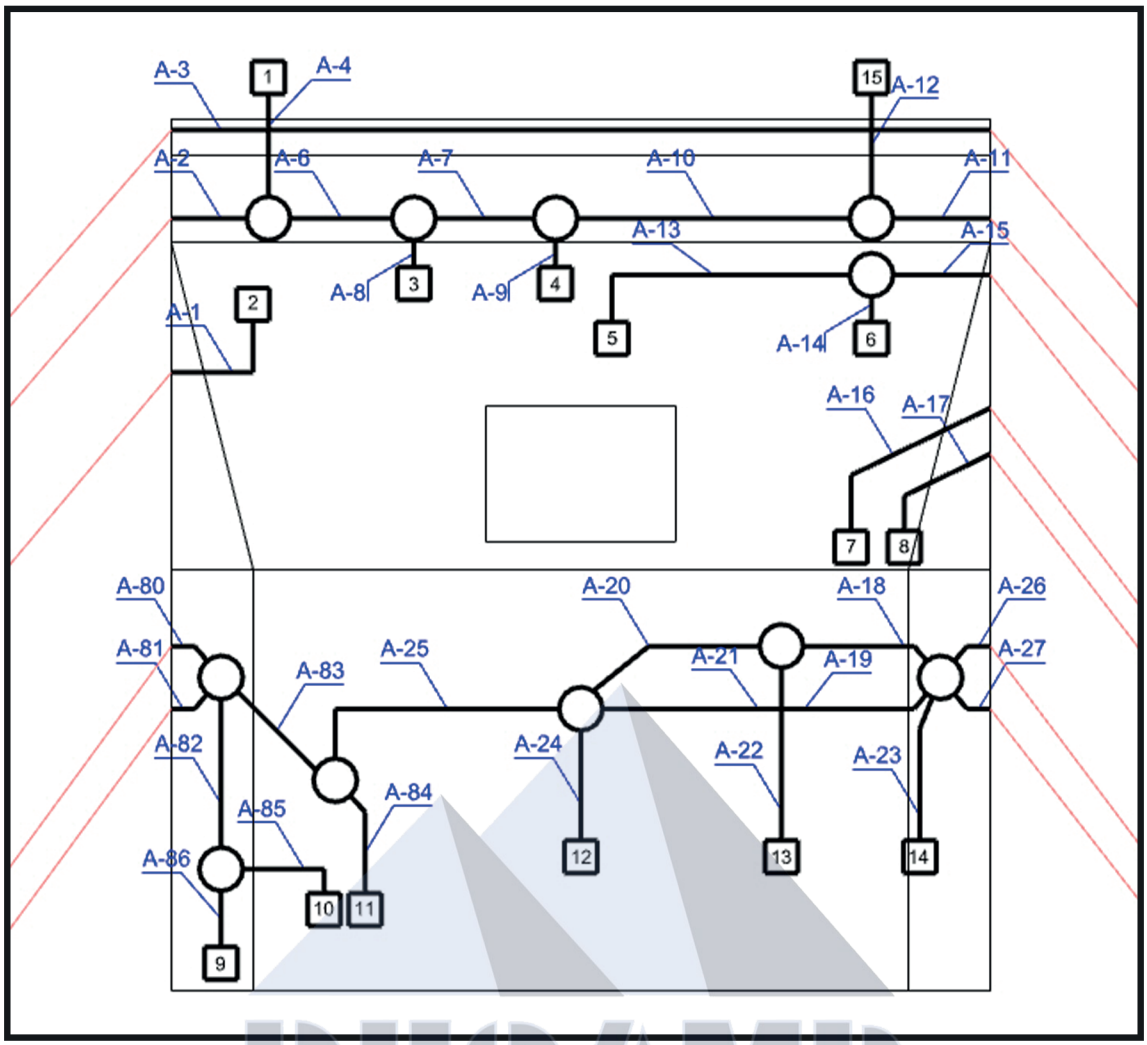


FIGURE 3

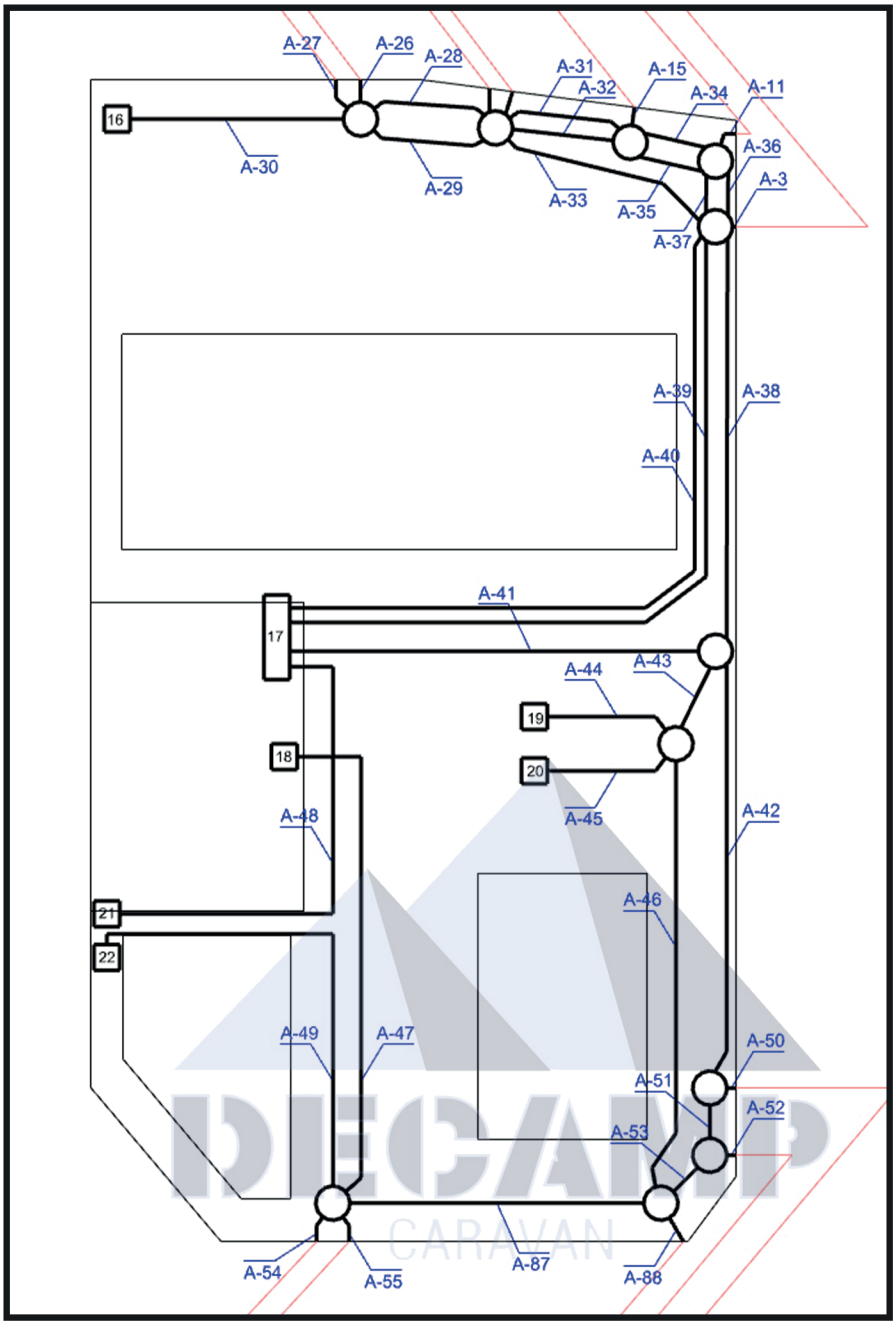
FIGURE 1



CODE	PRODUCT
1	ROOF LAMP
2	OFF-ROAD STROBE FOG LAMP
3	BATHROOM LAMP
4	1m KITCHEN LED BAR
5	KITCHEN LAMP
6	OFF-ROAD STROBE FOG LAMP
7	OUTLET + USB
8	GAS ALARM
9	SIDE MIRROR INDICATOR
10	CASSETTE TOILET
11	SPACE HEATER + CARAVAN SOCKET
12	LED BAR 25cm + HEATER FUSE
13	REMOTE-CONTROLLED LED DIMMER
14	DUAL SOCKET + REFRIGERATOR
15	ROOF LAMP

CODE	CABLE THICKNESS (mm)	CODE	CABLE THICKNESS (mm)
A-1	2x(2x0.75)	A-18	2(2x0.75)+2x2.5+2x4
A-2	2x1.5	A-19	(3x1.5)
A-3	(3x1.5)+ 3x1.5	A-20	2x2.5+2x4
A-4	(2x0.75)	A-21	(3x1.5)
A-5	opsiyonel (2x0.75)	A-22	2x(2x0.75)
A-6	2x1.5+(2x0.75)	A-23	(3x1.5)+2x4
A-7	3x1.5+(2x0.75)	A-24	2x0.75+2x1.5+2x2.5+2x4
A-8	2x1.5	A-25	2x0.75+2x1.5
A-9	2x1.5	A-26	2x2.5+2x(2x0.75)+4x4
A-10	4x1.5+(2x0.75)	A-27	2x(3x1.5)
A-11	4x1.5+(2x0.75)	A-80	7x1+1x5
A-12	2x1.5	A-81	(2x0.75)
A-13	3x1.5	A-82	2x1.5+(2x0.75)
A-14	(2x0.75)	A-83	7x1+3x1.5
A-15	(2x0.75)+3x1.5	A-84	7x1+1x.5+2x0.75
A-16	(3x1.5)+4x2.5	A-85	2x1.5
A-17	12x1.5	A-86	(2x0.75)

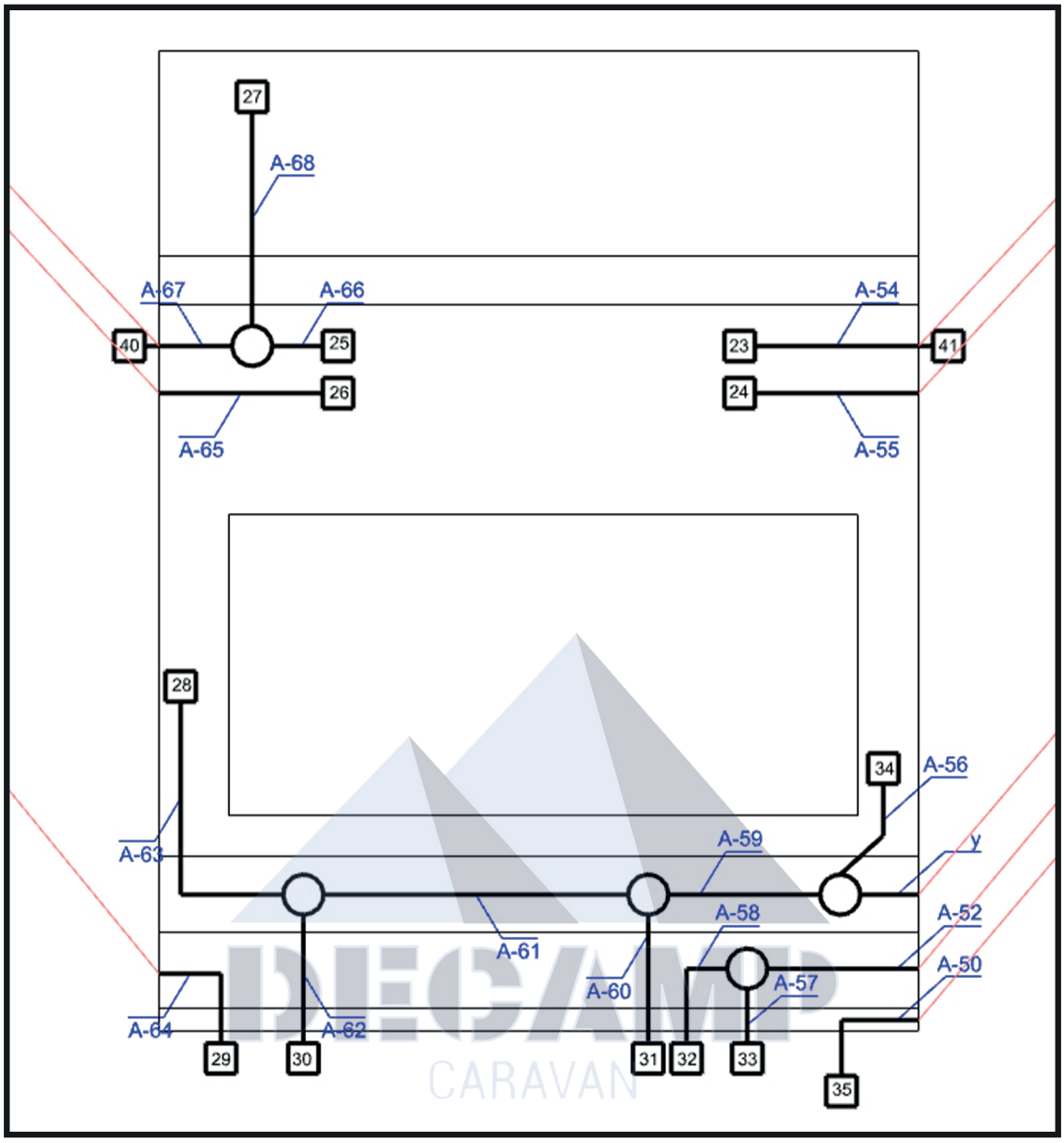
FIGURE 2



CODE	PRODUCT
16	SIDE MIRROR INDICATOR
17	SOLAR ENERGY + BATTERY + PANEL
18	TURN SIGNAL LIGHT
19	EXTERIOR DOOR LED LAMP
20	INTERIOR LIGHTING
21	SOLAR ENERGY + BATTERY + PANEL 220V CONNECTION
22	SOLAR ENERGY + BATTERY + PANEL 220V CONNECTION

CODE	CABLE THICKNESS (mm)	CODE	CABLE THICKNESS (mm)
A-3	(3x1.5)+ 3x1.5	A-41	2x4+2x2.5+(2x0.75)+5x1.5
A-11	4x1.5+(2x0.75)	A-42	2x1.5+2x4+2x2.5
A-15	(2x0.75)+3x1.5	A-43	3x1.5+(3x1.5)
A-26	2x2.5+2x(2x0.75)+4x4	A-44	2x1.5
A-27	2x(3x1.5)	A-45	2x1.5
A-28	2x(2x0.75)+2x(3x1.5)+2x2.5	A-46	(3x1.5)
A-29	4x4	A-47	(2x0.75)
A-30	2x(2x0.75)	A-48	(3x1.5)
A-31	6x1.5+2x2.5+2x(2x0.75)	A-49	(3x1.5)
A-32	4x4	A-50	(2x0.75)
A-33	(3x1.5)	A-51	2x(2x0.75)+2x4+2x2.5+2x1.5
A-34	7x1.5+2x(2x0.75)	A-52	2x(2x0.75)+2x4
A-35	4x4+2x2.5	A-53	2x2.5+2x1.5+(2x0.75)
A-36	11x1.5+(2x0.75)	A-54	2x(2x0.75)
A-37	4x4+2x2.5	A-55	(2x0.75)
A-38	(2x0.75)+(3x1.5)	A-87	(3x1.5)+(2x0.75)
A-39	11x1.5	A-88	2x2.5+2x1.5
A-40	4x4+2x2.5		

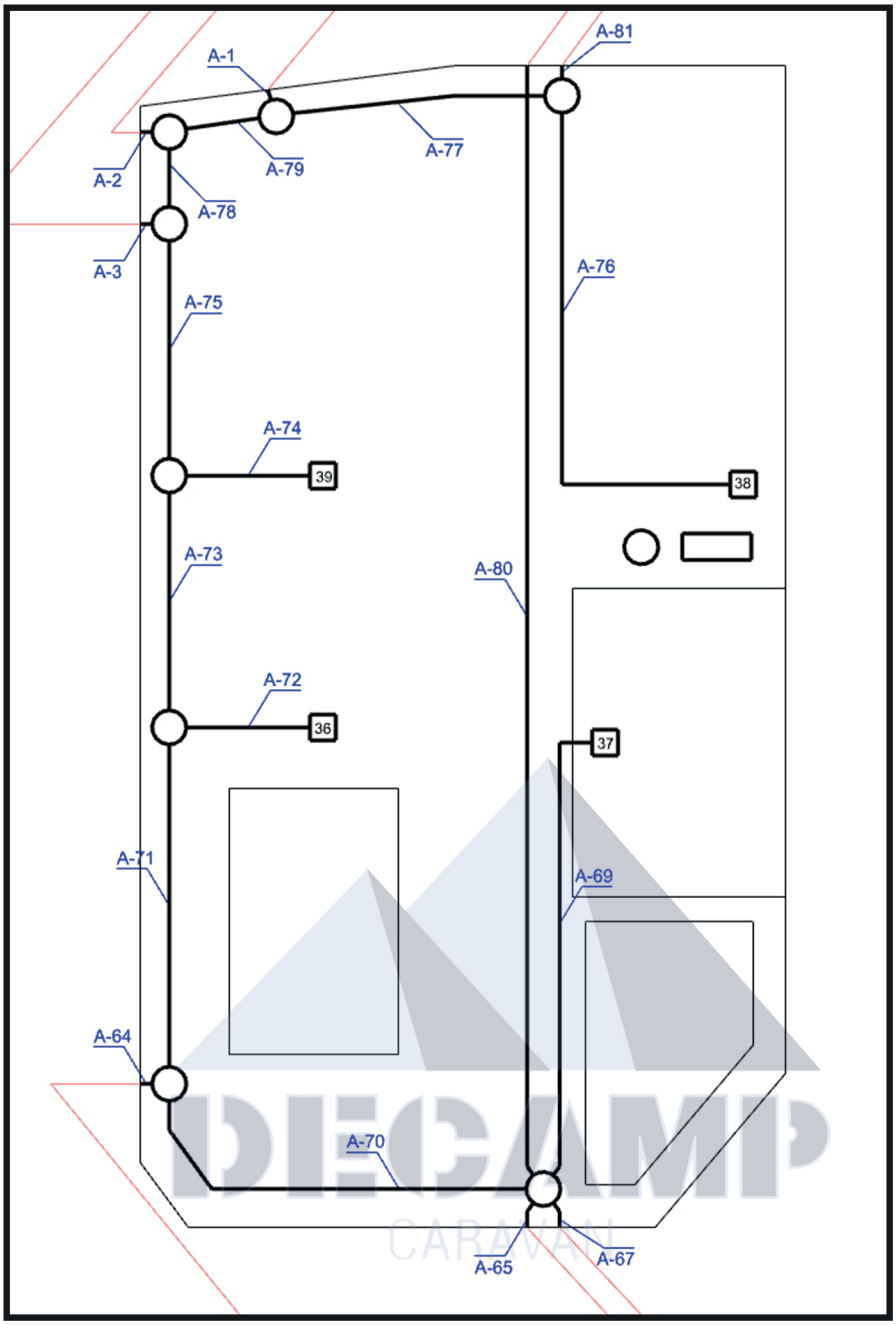
FIGURE 3



CODE	PRODUCT
23	REAR STOP
24	LICENSE PLATE LAMP
25	REAR STOP + LICENSE PLATE LAMP
26	REAR STOP + LICENSE PLATE LAMP
27	BUMPER
28	READING LAMP
29	ROOF LAMP
30	REAR TAILLIGHT
31	REAR TAILLIGHT
32	SOLAR PANEL
33	ROOF LAMP
34	REAR LED BAR 1m + USB
35	TOUCH-CONTROLLED CEILING LIGHT
40	SIDE MIRROR INDICATOR
41	SIDE MIRROR INDICATOR

CODE	CABLE THICKNESS (mm)	CODE	CABLE THICKNESS (mm)
A-50	(2x0.75)	A-61	2x1.5+(2x0.75)
A-52	2x(2x0.75)+2x4	A-62	4x1.5
A-54	2x(2x0.75)	A-63	(2x0.75)
A-55	(2x0.75)	A-64	2x(2x0.75)
A-56	2x2.5+3x1.5+(2x0.75)	A-65	(7x1)
A-57	2x(2x0.75)	A-66	4x(2x0.75)+1x1.5
A-58	2x4	A-67	3x(2x0.75)+1x1.5
A-59	3x1.5+(2x0.75)	A-68	(2x0.75)
A-60	4x1.5	A-88	2x2.5+2x1.5

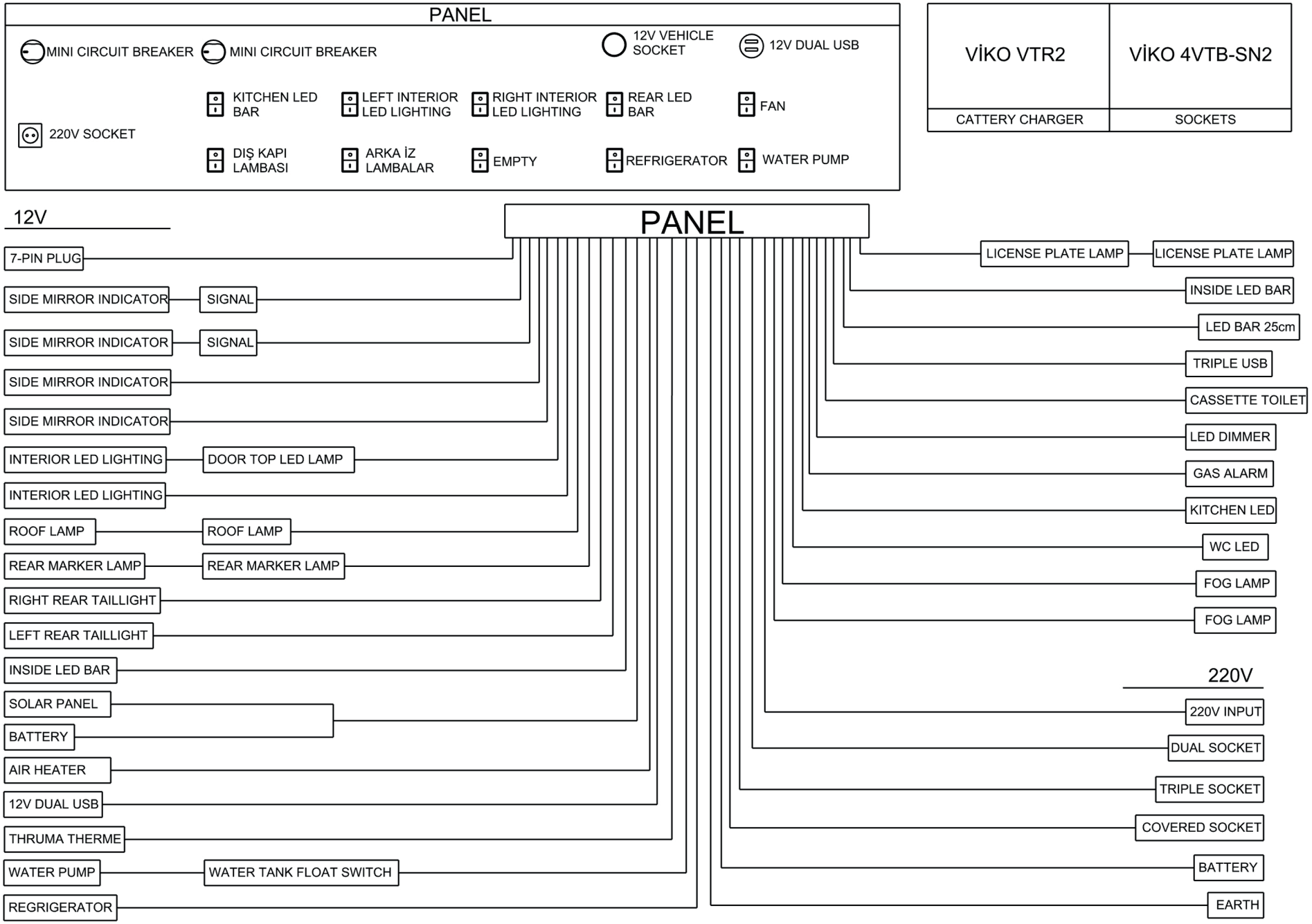
FIGURE 4



CODE	PRODUCT
36	INTERIOR LIGHTING
37	TURN SIGNAL LIGHT
38	BOOSTER PUMP + FLOAT SWITCH
39	TRIPLE SOCKET + USB

CODE	CABLE THICKNESS (mm)	CODE	CABLE THICKNESS (mm)
A-1	2x(2x0.75)	A-73	2x1.5+(2x0.75)
A-2	2x1.5	A-74	(3x1.5)
A-3	(3x1.5)+ 3x1.5	A-75	(3x1.5)+2x1.5+(2x0.75)
A-64	2x(2x0.75)	A-76	3x1.5
A-65	(7x1)	A-77	3x1.5+(2x0.75)
A-67	3x(2x0.75)+1x1.5	A-78	5x1.5+(2x0.75)
A-69	(2x0.75)	A-79	3x1.5+(2x0.75)
A-70	(2x0.75)	A-80	7x1+1x5
A-71	(2x0.75)	A-81	(2x0.75)
A-72	2x1.5		

X3 ELECTRICAL DIAGRAM



4.3.3. Electrical Installation Equipment;

4.3.3.1. Solar Energy Components;

-The solar energy system generates 12V power as long as the solar panel receives light and stores it in the battery.

-The equipment in the solar energy system includes:

Solar Panel:

-Regular maintenance is important to ensure the efficient operation and longevity of the panel.

-Dust, dirt, or leaves accumulating on the panel can obstruct sunlight and lead to efficiency loss. Generally, panels can be cleaned with rainwater, and extra cleaning might not be necessary. However, in areas with high levels of pollution, you can use a soft brush or cloth to clean the panel surface.

-Regularly inspecting the solar panels is crucial. If you notice any cracks, breaks, or damages on the panel surface, consult an expert or contact your dealer. Also, checking the connections of the panel is important to detect loose or oxidized connections.

-Tree shadows falling on your panel can reduce efficiency. Therefore, it's important to keep your panel away from trees or objects that create shade.

INFO: Due to the sloping nature of your caravan's sunroof, tilting the solar panels towards the sun during camping will increase their efficiency.

INFO: Clean solar panels regularly for optimum operation.

Figure 27; solar panel.

Battery:

-The 12V battery in your caravan stores electrical energy.

-The battery is charged in two ways:

Mains Charging: You can charge the battery by connecting your caravan to mains electricity. You can find this option in campgrounds or caravan parks.

Solar Energy: Charging the battery using solar panels is an environmentally friendly and practical way to meet your caravan's energy needs. Solar panels collect energy from sunlight during the day and charge the battery.

- It's important for your caravan to have a sufficient battery capacity to meet its energy needs. Battery capacity is usually expressed in ampere-hours (Ah). A higher Ah value allows for longer energy storage. When determining battery capacity, consider the power consumption of the electrical devices you'll use in your caravan.

INFO: Make sure that the charge does not fall below 30 per cent for longer life of the gel battery.

INFO: Make sure to use the li-on battery between 20% and 80% of its charge for longer life.

Inverter:

-An inverter converts the 12V energy it receives from the battery into 220V, which is mains electricity.

-You can control the inverter using the on/off switch located on it.

-Technical Specifications:

Input Voltage: 220V AC

Waveform: True Pure Sine Wave

USB Input: 5V 2.1A

Voltage Range: 10.5 to 15VDC

LED Indicator: Green for power, red for faulty condition

Soft Start: Yes, 3-5 seconds.

INFO: During use, make sure that the on/off switch on the inverter is not turned off.

Solar Charge Controller:

-Solar charge controllers direct the energy from solar panels to charge the batteries, regulating the current and voltage in the process.

-They also prevent issues like overcharging and over-discharging, ensuring the safe and efficient operation of the solar energy system.

Figure 28; solar charge controller

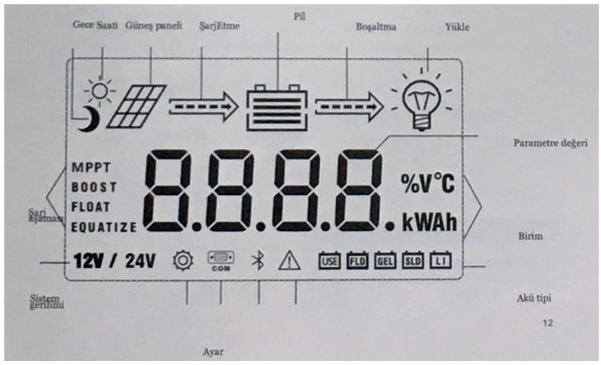


Figure 29; solar charge controller interface

CAUTION: Check the mppt interface. Make sure that the correct type of battery and voltage are defined. Voltage should always be 12V.

Battery Charger:

-A battery charger is a device used to restore or maintain the energy storage capacity of batteries. Batteries are devices that store chemical energy which can be stored and later used. Over time, batteries lose their energy and reach low levels. A battery charger allows these batteries to be recharged.

-Typically, it includes safety features such as overcharge protection, overcurrent protection, and reverse polarity protection. These features ensure the battery is charged safely and effectively, preventing overheating, ignition, or other harmful conditions.

Figure 30; battery charger

Transfer Switch:

-A transfer switch is used to automatically switch between the 220V mains electricity (inverter) within the caravan's internal electrical system and external electricity sources (campground power, etc.).

Figure 31; transfer switch

INVERTOR FAULTS:

Fault	Possible Cause	Solution
A audible alarm is heard	The input voltage is dropping very low	Charge the battery
Red indicator 'Fault' lights	There is an issue on the input side. Battery voltage is either too low or too high. The 110/230V AC output is shut off.	Check the input voltage. Ensure it falls within the converter's specifications. When the input voltage is within the limits, the inverter automatically restarts.
	Temperature protection is active.	Check if the fan is operating and if there are adequate ventilation possibilities for the converter. The inverter is located in a high-temperature environment. Place the inverter in a cooler environment. Reduce the load.
The red 'Fault' indicator blinks slowly.	Issue with the output.	There is a short circuit and an overload. Check for faults in electrical consumer devices and the total load amount. The inverter will automatically restart once the issue is resolved.
Power' LED lights are on, but the connected equipment is not functioning.	The battery capacity is too low to provide the required power.	Connect a higher capacity battery set.
	The connection between the battery and the inverter is weak.	Check all connections and cables.
	The cables being used are too thin.	Install the cables according to their length and capacity.
	The desired power exceeds what the converter can provide.	Check the power consumption of the connected equipment to ensure it is compatible with the converter's specifications.
The inverter is not working at all. All LEDs are off.	"There is no input voltage.	Check the connections between the battery and the inverter.
	The external fuses on the battery cable are faulty.	Replace the fuses.
	The input voltage is below the minimum value.	The battery voltage is very low, or the battery is faulty.
	The input voltage is above the maximum value.	Check if the system voltage matches the converter. Verify the system in DC power sources that provide very high voltage.
	Internal fault	If the inverter still doesn't work after checking the entire system, it can be sent back for repair.
"The connected equipment generates interference.	Grounding is not connected.	Connect the inverter's 'ground' connection to the vehicle's chassis or negative terminal.
	Wiring corresponds to the converter's enclosure.	Make sure the cables do not touch the converter's enclosure.

SOLAR CHARGE CONTROLLER FAULTS:

Fault screen	Explanation	Control Device Operation	Indicator Status
E0	Normal	-	LED Indicator
E1	Over-discharge	Turn off the load	BAT indicator is slowly flashing, ERROR indicator is continuously lit
E2	Overvoltage in the battery	Turn off the charging	BAT indicator is rapidly flashing, ERROR indicator is continuously lit
E3	Low voltage warning	Battery level indicator	ERROR indicator is constantly on
E4	Short circuit in the load	Turn off the load	The load indicator is flashing rapidly, and the ERROR indicator is constantly on
E5	Overload current	Delay in shutting down the load	The load indicator is flashing rapidly, and the ERROR indicator is continuously on
E6	Excessive temperature in the device	Run with less power	ERROR indicator is continuously on
E7	Battery overheating	Turn off the charger	ERROR indicator is continuously on
E8	The solar panel power is too high	Charge with limited current	"ERROR indicator is continuously on
E10	Solar panel overvoltage	Disable charging	ERROR indicator is continuously on
E13	Solar panel reverse polarity	Disable charging	ERROR indicator is on continuously
E15	Battery not connected or lithium battery supply protection	1. Activates charging when the lithium battery meets the charging conditions	ERROR indicator is on continuously
E16	Battery overtemperature (E7 and E16 during charging and discharging are different in that they have separate upper limit protection temperatures)	Switch off the load	ERROR indicator is on continuously
E18	BMS overcurrent protection	Switch off the charger	ERROR indicator is on continuously
E20	Battery reverse polarity	Switch off charging and switch off the load	ERROR indicator is on continuously

4.3.4. Control Panel;

4.3.4.1.Cross X1+:

Figure 31;

1	RIGHT EXTERIOR DOOR LED
2	LEFT EXTERIOR DOOR LED
3	USB CHARGING PORT
4	12V VEHICLE SOCKET INPUT
5	AMPERAGE VALUE
6	AMBIENT TEMPERATURE
7	RIGHT INTERIOR LED LIGHTING
8	LEFT INTERIOR LED LIGHTING
9	FUSE
10	220V COVERED SOCKET
11	TOGGLE LED SCREENS

Figure 32;

1	KITCHEN LED BAR
2	REAR TAILLIGHT
3	CLEAN WATER LEVEL
4	WATER BOOSTER PUMP
5	USB CHARGING INPUT
6	12V VEHICLE SOCKET INPUT
7	220V COVERED SOCKET

4.3.4.2. Cross X3:

1	MINI CIRCUIT BREAKER
2	MINI CIRCUIT BREAKER
3	AMBIENT TEMPERATURE (CELSIUS)
4	AMPERAGE VALUE
5	12V VEHICLE SOCKET INPUT
6	USB CHARGING INPUT
7	CLEAN WATER LEVEL INDICATOR
8	220V COVERED SOCKET
9	KITCHEN LED BAR
10	EXTERIOR DOOR LAMP
11	LEFT INTERIOR LED LIGHTING
12	REAR TAILLIGHTS
13	RIGHT INTERIOR LED LIGHTING
14	OPTIONAL (INVERTER)
15	REAR LED BAR
16	REFRIGERATOR
17	FAN
18	BOOSTER PUMP

Figure 33;

4.3.4.3. Cross C3:

1	220V COVERED SOCKET
2	CLEAN WATER LEVEL INDICATOR
3	CIRCUIT BREAKER
4	AMBIENT TEMPERATURE
5	CIRCUIT BREAKER
6	LEFT INTERIOR LED LIGHTING
7	RIGHT INTERIOR LED LIGHTING
8	KITCHEN LED BAR
9	REAR LED BAR
10	FAN
11	BATHROOM FAN
12	EXTERIOR DOOR LAMP
13	REAR TAILLIGHT
14	WATER BOOSTER PUMP
15	12V CAR SOCKET INPUT
16	AMPERAGE VALUE
17	USB CHARGING INPUT 12V

Figure 34;

4.3.5. LIGHTING COMPONENTS

OUTDOOR LIGHTING COMPONENTS		INTERIOR LIGHTING COMPONENTS	
NAME	FIGURE	NAME	FIGURE
ROOF LAMP		RECTANGULAR LED LAMP 14 cm	
SIDE MIRROR INDICATOR		"TOUCHSCREEN RECTANGULAR LED LAMP 14 cm	
REAR LED OFF ROAD BAR 20 cm		LED STRIP LIGHT 100 cm	
SIGNAL LIGHT		LED STRIP LIGHT 76 cm	
SIDE DOOR LED LAMP		LED STRIP LIGHT 20 cm	
RIGHT REAR LED TAILLIGHT		LED READING LAMP	
LEFT REAR LED TAILLIGHT			
LED BAR 100 cm			

5. EQUIPMENTS

5.1. WATER HEATERS

Truma Therme TT 220V Water Heater:

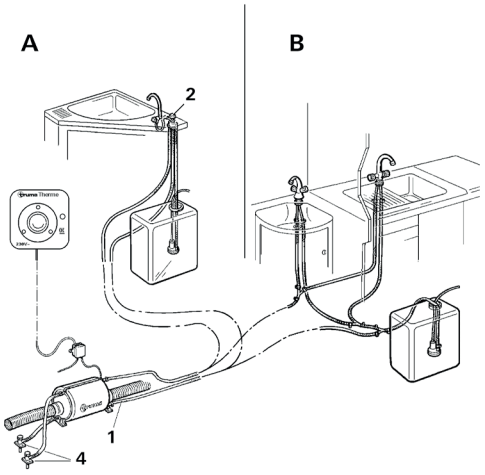


Figure 35 ; truma therme

Safety Warnings:

- Before operation, make sure to read the user manual! The device owner is responsible for using the device appropriately for its intended purpose.
- Therme should never be operated with electricity without water! Remember to turn off the device when the caravan is not in use! When there is a risk of freezing, empty the device! Warranty claims cannot be made for damages caused by freezing!
- The yellow label provided with the device, containing warning information, must be affixed by the installer or the vehicle owner in a place easily visible to all users inside the vehicle (e.g., wardrobe door)! Missing labels can be requested from Truma.
- Repair procedures should only be performed by a professional!
- This device is intended for use by persons aged 8 and above, as well as individuals with reduced physical, sensory, or mental capabilities, or those without experience and knowledge of device usage, provided they are supervised or have been informed about safe device usage and understand the potential risks. Children are prohibited from playing with the device.
- Therme is designed for operation without pressure. The pressure relief valve should not be installed between Therme and the submersible pump on the cold water supply line (1) to allow excess pressure generated during heating to be discharged.
- When connecting to a central water supply (city connection) or using more powerful pumps, a pressure reducer should be used with Therme to prevent the pressure from exceeding 1.2 bar.
- The components of the device that come into contact with water are suitable for use with drinking water.

Filling Therme with water:

Turn the drainage and vent valves (4) fully closed by turning them.

In the pre-mixer:

Set the adjustment knob (2) on the pre-mixer valve to the red symbol (hot) until it reaches the resistance point.

In the mixer tap:

Open the hot water valve on the pre-selected mixer tap or move the single-lever mixer to the "hot" side.

Keep the faucets open until all the air inside Therme is completely expelled and water starts flowing.

Electric operation:

Set the switch (3) on the control unit to the "On" position. The indicator light will show that the device is in operation. The water temperature is set to 65°C using the thermostat.

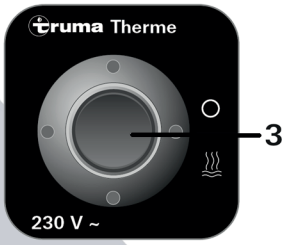


Figure 36 ; truma therme on/off button.

INFO: The electric heater is equipped with an over-temperature fuse. If a malfunction occurs in the control unit, close the device, wait for 5 minutes, and then turn it on again.

Water Drainage:

Mix the water temperature according to the position of the mixing faucet or pre-mixer valve. Ensure that the water pump is turned off after water drainage.

Draining the Therme device:

1. Disconnect the power to the water pump (from the main switch or transformer).
2. Empty the water from the tank (or remove the water pump from the tank).
3. Open the kitchen and/or bathroom water faucets and, if present, turn the pre-mixer valves to the hot side.
4. Fully open the drainage and vent valves (4) by turning them.
5. Check if the water (5 liters) has completely drained.

Our company is not responsible for damages caused by freezing!

Maintenance:
- The limescale in the device should be regularly dissolved (at least twice a year).
- For cleaning, disinfection, and maintenance of the Therme, we recommend using suitable maintenance products available on the market.
- Products containing chlorine are not suitable.

Troubleshooting guide:

Fault	Cause	Rectification
Not heating up.	– No operating voltage.	– Restore power supply.
Taking an extremely long time to heat up in 230 V operation	– Heating element furred.	– Descale water system (see maintenance).

If this does not solve the problem, please contact the Truma Service.

Technical Data:
The technical data is determined according to Truma's control conditions.
Water capacity:
5 liters.
Operating pressure:
max. 1.2 bar (only for pumps without check valve).
Power supply:
230 V ~, 50 Hz.
Power consumption:
1.3 A (300 W).
Temperature limit:
65 °C.
Overtemperature fuse:
85 °C.
Heating time approx. 15°C to approx. 60°C:
approx. 50 minutes.
Weight (without contents):
Complete with drain and ventilation valves:
2 kg.
Dimensions:
Length 37 cm, height 23 cm, width 22 cm.

5.2. AIR HEATER

Eberspächer Fuel-Powered Space Heater
Before starting, perform a safety check:
- When the system hasn't been used for a long time, check if all structural components are properly in place and tighten bolts if necessary.
- Perform a visual check for fuel system leaks

Heating operation at high altitudes:
- Heating operation is possible without altitude adaptation up to 1500 m.
- Heating operation between 1500m and 3000m can be done briefly (e.g. passing through or during a break) without altitude adaptation on the heating device.
- Extended stays such as winter camping require altitude adaptation of the heating device.
- Altitude adjustment of the heating device is achieved through the installation of an atmospheric pressure sensor.
- Heating devices suitable for high altitudes bear the "H-Kit" sign next to the factory plate.

First Start;
The following points should be checked by the workshop that performed the installation after the first start:
- After the installation of the heating device, the entire fuel supply system must be thoroughly vented.
- During the trial run of the heating device, all fuel connections should be checked for leaks and proper placement.
- In case of a malfunction during the operation of the heating device, the cause of the malfunction can be determined and resolved with the help of diagnostic equipment.
- During the initial use of the heating device, a slight odor may occur for a short period. This is normal for the first few minutes of use and does not indicate any error in the device.

Startup:
- Upon activation, the indicator light in the "Use" section will illuminate.
- The glow plug will be activated and the fan will operate at low speed.
- If a significant amount of residual heat from the previous heating operation is still present in the heat exchanger, the fan will run initially (Cool Blow).
- When the residual heat is depleted, the heating operation will start.

Airtronic Startup:
- After approximately 60 seconds, the fuel supply engages and the fuel-air mixture ignites in the combustion chamber.
- When the combined sensor (flame sensor) detects the flame, the glow plug is deactivated after 60 seconds. The heating device will now be in operational mode.

Airtronic M Startup:
- Approximately 60 seconds later, the fuel delivery activates, and the fuel-air mixture ignites in the combustion chamber.
- After about 90 seconds from flame detection by the flame sensor, the glow plug is turned off. The heating device is now in operating mode.
- An additional 120 seconds later, the heating device has reached the "POWER" setting level (maximum fuel amount and maximum fan speed).

Usage element and temperature selection:
- The interior temperature of the cabin can be pre-selected with the control device.
- The obtained temperature ranges from +10°C to +30°C and depends on the selected heating device, the area to be heated, and the external temperature.
- The value set on the control device will be determined based on experience.

Settings during heating operation:
- During heating operation, room temperature or the temperature of the heated air intake will be continuously measured.
- The setting operation will start when the temperature measured is higher than the programmed temperature in the usage element.
- The heating device allows for 4 setting levels for the hot current sent by the heating device, adapted according to the temperature requirement. The fan speed and fuel quantity correspond to the respective setting level during this process.
- Even at the lowest setting level, if the set temperature is exceeded, the heating device will transition to a cooling process with fan supply in the "OFF" setting level in about 4 minutes.
- Following this, the fan will continue to operate at the minimum speed until the fan restart stage (recirculation operation) or it will be turned off (fresh air operation).

Fan operation:
- In fan operation, press the "heating / ventilation" toggle switch first and then activate the heating device.

Shutdown:
- The indicator light will turn off when the heating device is turned off, and the fuel supply will be stopped.
- A fan supply lasting about 4 minutes will follow for the cooling process.
- The glow plug will be activated for 40 seconds during the fan supply for cleaning.

Special condition:
- If fuel delivery hasn't occurred yet by the shutdown phase or if the heating device is in the "OFF" setting level, the heating device is stopped without subsequent operation.

Control and safety mechanisms:
If the heating device doesn't trigger within 90 seconds from the start of fuel delivery, the startup process is repeated. If the heating device doesn't ignite again 90 seconds after fuel delivery, a fault shutdown occurs. As a result, fuel delivery is stopped, and the fan supply is turned on for approximately 4 minutes.
- If the flame goes out spontaneously during operation, a new startup process will be initiated first. If the heating device does not ignite within 90 seconds from the resumption of fuel delivery or if the flame goes out again within 15 minutes after ignition, a fault shutdown occurs. Consequently, fuel delivery is stopped, and the fan supply is turned on for approximately 4 minutes. The fault shutdown can be removed through a brief shutdown and restart. Do not repeat the shutdown and restart process more than 2 times.
- In case of over-heating, the combined sensor (flame sensor / over-temperature sensor) activates, fuel supply is cut off, and a fault shutdown occurs. After resolving the over-heating issue, the heating device can be restarted by shutting it down and turning it back on.
- When the lower or upper voltage limit is reached, a fault shutdown will occur 20 seconds later.
- If there is a faulty glow plug, fan motor, or disconnected electrical cable leading to the dosage pump, the heating device will not operate.
- If the faulty combined sensor (flame sensor / over-temperature sensor) or a disconnected electrical cable is present, the heating device will operate and a fault shutdown will occur during the operating phase.
- The fan motor's speed is regularly monitored.
- If the fan motor is not running or the speed deviates by more than 10%, a fault shutdown will occur 30 seconds later.
- Upon the heating device's shutdown, the glow plug will be activated for 40 seconds during the fan supply to clear any combustion residues (afterburning).
- Do not repeat the shutdown and restart process more than 2 times.

Mandatory shutdown in ADR operation (only for diesel heating devices, 24 Volt):
- In vehicles transporting dangerous goods (e.g., fuel vehicles), the heating device must be turned off before entering a hazardous area (refinery, gas station, etc.).
- If ignored, the heating device will automatically shut down under the following conditions:
+ When the vehicle engine is turned off.
+ When an additional group is activated (for auxiliary operation such as drainage pump).
Subsequently, the fan will be briefly supplied with power for a maximum of 40 seconds.

In case of an emergency shutdown, the following steps should be taken:
- Turn off the heating device on the usage element.
- Pull the fuse.
- Disconnect the heating device from the battery.

Please check the following points in case of possible malfunctions:
- If the heating device doesn't work after being activated, turn it off and then on again.
- If the device still doesn't work, check the following aspects:
+ Is there enough fuel in the tank?
+ Are the fuses in good condition?
+ Are the electrical cables, connections, and circuits in good condition?
+ Has the hot air duct, combustion air duct, or exhaust outlet been blocked?

Troubleshooting:
- If the heating device remains faulty after checking these points or if other missing functions arise in your heating device, contact your dealer.
- Please note that warranty service requests will be voided if the heating device is altered by unauthorized organizations or by using foreign manufacturer parts.

Maintenance notes:
- Run your heating device for about 10 minutes once a month, except during heating cycles.
- Before the heating period, perform a test run with the heating device. If there are instances of prolonged strong combustion or unusual combustion noises, or if there is a smell resembling fuel or burnt electric/electronic components, the heating device should be turned off, and the operation should be discontinued by removing the fuse. In this case, restarting should only be done by personnel trained in Eberspächer heating devices after successful inspection.

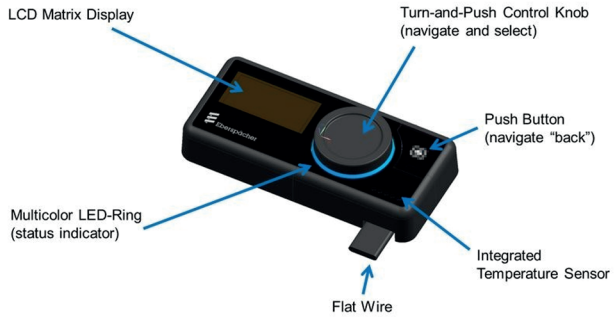


Figure 39 ; heater control button.

- The openings of the hot air duct, combustion air duct, and exhaust duct should be inspected during extended periods of inactivity and cleaned when necessary.

5.3. TRUMA COMBI

Figure 38 ; truma combi

-The device can only be used for heating drinking water and for heating the interior of the vehicle.
-For safe and proper usage, carefully read and follow the operating instructions and other related documentation, and keep them for future reference. Relevant applicable laws, guidelines, and standards should be considered.

FrostControl:
- It's a safety valve that operates without electricity. When there's a risk of freezing, the boiler automatically empties the water through a drainage port.
- When high pressure builds up in the system, the safety valve intermittently balances the pressure.

Opening the safety/drain valve:
- Rotate the rotary switch 180° until it goes inside, and the push button comes out. The water in the boiler flows out through the drainage port.
- To ensure safe drainage, prevent any accumulation of debris (snowy slush, ice, twigs, etc.) at the FrostControl's drainage port! Warranty claims cannot be made for damages caused by freezing!

Closing the safety/drain valve:
- Ensure that the rotary switch is in the "Operation" (position a) position and is parallel to the water connection and inside.
- Close the safety/drain valve by pressing the push button. The push button should go inside in the "closed" position.

- However, when the temperature in the safety/drain valve is above approximately 7°C, the safety/drain valve can be manually closed through the push button (position b) and the boiler can be filled.
- Truma provides a heating element as an accessory that can be inserted into FrostControl and secured with a safety plate. This heating element heats the FrostControl to approximately 10°C when the Combi is in operation. This allows the boiler to be filled shortly after regardless of the temperature at the installation site.

Automatic opening of the safety/drain valve:
- When the temperature in the safety/drain valve is below approximately 3°C, the safety/drain valve opens automatically, and the push button comes out.
- The water in the boiler flows out through the drainage port.

Safety/drain valve:
- The safety/drain valve automatically balances the pressure when high pressure builds up in the system. In this case, water is intermittently drained outside through the drainage port.
- This safety/drain valve does not protect the water tank from damage due to freezing.

Filling the boiler:
Ensure that the safety/drain valve is closed.
If the temperature in FrostControl is below approximately 7°C, turn on the heater to warm up the installation location and FrostControl.
After a few minutes, when the temperature in FrostControl rises above 7°C, the safety/drain valve can be closed.
Turn on the water pump (main switch or pump switch).
Open the hot water taps in the kitchen and bathroom (set the water mixer or single-lever faucet to the "hot" position).
Keep the taps open until all air inside the boiler is completely purged and water flows continuously.
Even if only the cold water supply is operating, the boiler tank fills with water. To prevent damage due to freezing, the boiler should be drained through the safety/drain valve even if it won't be used.
- If freezing occurs, the filling process might not happen due to frozen water. By briefly operating the system (maximum 2 minutes), the ice in the boiler can be thawed. Frozen pipes can be thawed by heating the interior.
- When connecting to a central water supply (country or city connection), a pressure reducer should be used to prevent the pressure in the boiler from exceeding 2.8 bar.

Draining the boiler:
- If the motorhome/caravan will not be used during the freezing period, the boiler must be drained completely!
- Turn off the water pump (main switch or pump switch).
- Open the hot water taps in the kitchen and bathroom.
- Place a suitable container (10 liters) under the drainage port of the safety/drain valve to catch the flowing water.
- Open the safety/drain valve. (Refer to the "Opening the safety/drain valve" section). The boiler drains directly to the outside through the safety/drain valve.
- Check if all the water (10 liters) inside the boiler has completely drained out through the safety/drain valve.

Using the Combi system:
- Check if the protection fuse of the electrical supply at the campground is sufficient for the set power of 900 W (3.9 A) or 1800 W (7.8 A) through the energy selection switch.
- Unroll the cable reel completely to prevent the power supply cable from overheating.
- Verify that the flue is open and ensure nothing is covering it, such as a lid.
- Open the gas cylinder and the quick-closing valve on the gas supply line.
- If necessary, fill the boiler with water (refer to the "Filling the boiler" section).
- Turn on the device using the control unit.

Turning off:
- Turn off the heater using the control unit.
- The shutdown process might be delayed by a few minutes due to subsequent internal operations of the heater.
- If there's a risk of freezing, make sure to drain the water!
- If the device won't be used for an extended period, close the quick-closing valve on the gas supply line and the gas cylinder.

Maintenance:
- Maintenance, repair, and cleaning should not be performed by children.

Work carried out by expert personnel:
- Check with an expert if there is any dirt in the device and have it cleaned by a professional if necessary.

Work by the user:
- Clean the installation site at least once a year.
- To remove lime deposits and ensure no blockages, the safety/drain valve should be operated regularly (at least twice a year).

Cleaning for accumulated dirt and maintenance notices:
- For cleaning the boiler and removing accumulated dirt, we recommend using appropriate maintenance products available in the market. Do not use chlorine-based products.
- A chemical method to combat microorganisms inside the device can be supported by regularly heating the water in the boiler to 70°C.

Only in connection with CP Plus control unit for Combi E:
- Select the "gas operation" operating mode in the CP Plus control unit.
- Set the water temperature to 60°C.
- Turn on the device.
- When the water in the boiler reaches 60°C, the burner will turn off. The device should remain active for at least 30 minutes, and hot water should not be used during this time.
- The residual heat in the heat exchanger will heat the water up to 70°C.

Fuses:
- Electrostatic charge can cause damage to the electronic system.
- Perform potential equalization before touching the electronic system!

12 V fuse:
- Disconnect the polarized device from the 12V power supply before opening the connection location cover.
- The fuse is located on the electronic circuit underneath the connection location cover.
- Replace the device fuse only with a fuse of the same specification.

Device fuse: 10 A – fast-acting – 5 x 20 mm (F 10 A)

230 V fuse (Combi E):
- During replacement of the fuse or mains connection lines, there's a risk of electric shock leading to a life-threatening situation.
- Fuses and mains connection lines should only be replaced by a qualified person!
- Before opening the electronic circuit cover, the device should be disconnected from the mains.
- The fuse is located in the power electronic circuit under the electronic circuit cover.
- This sensitive fuse should only be replaced with a fuse of the same specification: 10 A, fast-acting, breaking capacity "H".

Overheating protection 230 V (Combi E):
- The 230 V heating operation has a mechanical overheating switch.
- For example, if the 12 V power supply is cut off during operation or subsequent operating time, the temperatures in the device can trigger the activation of the overheating protection.
- To reset the overheating protection, wait for the heater to cool down, remove the connection location cover, and press the Reset button.

FAULTS

Error	Cause / Remedy
Water taking an extremely long time to heat up.	Water container furred. / Descale water system (see maintenance).
Water running off – boiler cannot be filled.	safety / drain valve open. / Close safety / drain valve.
Boiler cannot be drained, even though the safety / drain valve is open.	Safety / drain valve drainage socket blocked. / Check opening for soiling (slush, ice, leaves etc.) and remove if necessary.
Water dripping / flowing from drainage socket of the safety / drain valve.	Water pressure too high. / Check pump pressure (max. 2.8 bar). If the boiler is connected to a central water supply (rural or urban connection), a pressure reducer must be used that will prevent pressures higher than 2.8 bar from occurring in the boiler.
After the heater has been switched off, the FrostControl opens.	At temperatures of less than approx. 3 °C the FrostControl opens automatically / Switch heater on / Without heater operation the FrostControl cannot be closed again until the temperature reaches approx. 7 °C / Use heating element for FrostControl.
The FrostControl can no longer be closed.	Temperature at FrostControl less than approx. 7 °C / Switch heater on / Without heater operation the FrostControl cannot be closed again until the temperature reaches approx. 7 °C.
	Rotary switch is not set to “Operation”. / Turn the rotary switch of the FrostControl to “Operation”, then press the pushbutton until it engages.

If these actions do not remedy the problem, please contact Truma Service.

EBERSPAECHER HYDRONIC S3 DIESEL HEATER

Operation Of the Heater (Preheating);

-When the heater is switched on, the light on the control unit comes on.
-The water pump starts to run.
-After a certain program sequence, the fan, fuel pump and spark plug start to work and the combustion
starts it.
-After a certain time, the spark plug is deactivated.

Heating Mode:

-According to the heating requirement, the heater is set to operate in the appropriate mode.
-If the fluid temperature reaches 86 C, the heater switches to the lowest mode (1300W) and the heater
after-run mode.
-The heater stops after running for approximately 180 seconds.
-The water pump and fan motor continue to run in after-run mode.
-The heater can be used for hot air and hot water or only for hot water.

Control and Security Tools:

-Startup if the heater does not ignite 90 seconds after activating the fuel pump
is repeated.
-If the heater does not fire for another 90 seconds, the heater switches off. A certain unsuccessful operation
the heater's brain is locked after the attempt.
-If the flame stops by itself during operation, the heater restarts.
-If the heater does not ignite 90 seconds after the fuel pump has started or 15 minutes after ignition
if it goes out again, the heater switches off. This can be corrected by turning the heater on and off.
-The heater switches off when the lowest and highest voltage level is exceeded.
-The heater switches off if the spark plug is deformed or the fuel pump connections are faulty.
does not start working.
-The speed of the fan motor is continuously monitored. The fan motor is installed or the
-If it drops below 40% of its speed and the fan motor does not start, the heater switches off after 60 seconds.

Cooling System Filling:

-Before filling the water system, make sure that all pipe and hose connections are tight and complete.
-The fluid is seated.
-Eberspaecher recommends the use of an antifreeze mixture to prevent fluid freezing and corrosion.
-Recommends The mixing ratio of the antifreeze mixture depends on the weather conditions where the heater is used.
-Depending on the temperature of the heater.

It is Recommended That the Following Checks are Carried out Before the Heater is Switched on;

-Make sure that all water connections are secure.
-Make sure the battery is fully charged.
-Make sure there is enough fuel in the fuel tank.
-Make sure that the battery terminals are connected correctly.
-Now start the heater.

INFO: The first 5 minutes after starting the heater and approximately two hours after operation. Check the heater regularly for leaks.

INFO: The antifreeze mixture may need to be changed after a certain period of time. Manufacturer please take a look at the recommendations.

In Case of Error, Please Follow the Instructions Below:

-If the heater does not start after being switched on:
+Turn the heater off and on again
-If the heater still won't start:
+Is there fuel in the tank?
+Is there a problem with the fuses?
+Are there any problems with electrical cables, connections, etc.?
+Is there anything blocking the air intake and exhaust?

Emergency Shutdown:

If an emergency shutdown is needed during operation;
-Turn off the heater from the control panel,
-Or pull the fuses
-Or disconnect the heater from the battery.

REICH EASYDRIVER PRO (MOVER)

- Check whether the drive rollers are in contact with the tyres before manoeuvring The manoeuvring process may only be performed in this position.
- Practice handling the remote control and its functions in open terrain when using the easydriver for the first time.
-The installation of an easydriver usually reduces the ground clearance. Please consider the reduced ground clearance when driving and manoeuvring (80 mm minimum ground clearance 120 mm recommend ed).
- Check whether the drive rollers are in the rear position before driving off.
- Secure the vehicle before swivelling off the drive rollers!
- The caravan/trailer may only be moved by the towing vehicle when the manoeuvring drive has been swiv elled off.
- You may not operate the easydriver if it is faulty! Have the device inspected by an authorised, special ised workshop.
- The battery must be disconnected and protected against reconnection before any installation, mainte nance or assembly work takes place. Working with live voltage poses a mortal danger.
- Batteries must be handled, stored and disposed of according to the manufacturer's instructions. Used-up batteries must be recycled. Risk of acid burns: Battery acid is very corrosive. Keep children away from acid and batteries. Check the battery for firm attachment Adhere to the instructions on the battery and regularly check it. Exchanging or charging must be per formed with great care.
- The technical data such as climbing ability and total weight of the caravan may under no circumstances be exceeded.
- Loosen the parking brake of the caravan/trailer before starting to manoeuvre with the manoeuvring drive. Re-tighten the parking brake after manoeuvring and only then swivel off the driving rollers.
- The easydriver does not replace the parking brakel Persons (in particular children) may not remain in the caravan/trailer or within its manoeuvring range during operation.
- Never allow children to play with the easydriver.
- The easydriver may only be operated by adults.
- Do not stay near the drive rollers during operation .
- The tyres of the caravan must be of the same type The tyre pressure must correspond to the pressure specified in the operating instructions of the caravan / trailer.
- Point the towbar dowriwards where possible whe manoeuvring on inclines.
- Never use the easydriver when the caravan /trailer is still connected to a towing vehicle.
- Observe the caravan/trainer and its prox. You may not operate the easydriver if it is faulty! Have the device inspected by an authorised, special ised workshop limity during the manoeuvrinq process. The total weight and the payload of the caravan/ trainer are affected by the easydriver.
- Do not use the easydriver as a jack support.
- Remave sharp stenes from the tyres before using the easydriver.

TRUMA MOVER SMART M

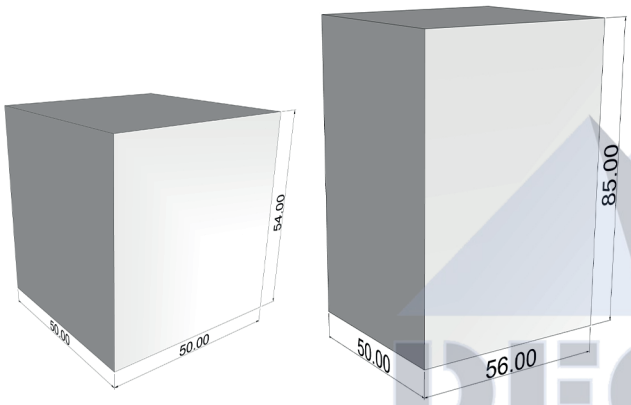
Designation	Mover smart M
Range of use	Single-axle caravans with a gross weight of up to 1800 kg
Max. climbing ability	13 %
Operating voltage	12 V AC/DC
Maximum power consumption	100 A
Average power consumption	28 A
Quiescent current Inserted plug or adapter Removed plug or adapter	 60 mA (30 mA)
Maximum speed	0,15 m/s
Weight (not including battery)	33 kg
Remote control frequency	Class 1, 868 MHz
Remote control battery	9 V battery (MN 1604)

5.4. REFRIGERATOR

- Before using the refrigerator for the first time, carefully read the operating instructions provided by the refrigerator manufacturer that comes with your caravan.
- These instructions provide the necessary guidance for the proper use of your refrigerator. Pay particular attention to the safety instructions.
- Observing the instructions and usage recommendations is important for safely handling the refrigerator, preventing injuries, and avoiding damage to the refrigerator. You must understand what you have read before performing a task.
- Store these instructions in a safe place near the refrigerator so that you can refer to them at anv time.

TECHNICAL DETAILS

Capacity (L)	130
Net weight (kg)	25,5
Voltage (V)	DC 12, DC 24
Refrigerant gas	R134a
Certifications	CE, E-Mark, EMC, UL



Dimensions (HxWxD) (mm)	755x525x550
Consumption (kWh/24h)	0,438
Power absorption (W)	60
Climate class	ST

INFO: X1+ Refrigerator space; 50x50x54 (DxLxH), X3 and C3 refrigerator space; 50x56x85 (DxLxH).

INDEL B CR 130

- Cruise refrigerators are true compressor refrigerators designed to provide similar high performance to the refrigerator in your home, and they are meant for storing food at safe temperatures.
- Designed for long journeys, the Cruise 130 is one of the largest motorhome refrigerators in its class, equipped with practical adjustable shelves that can hold 1.5-liter bottles both inside the shelf and within. It comes equipped with the Easyfix mounting system.

INDEL B CR 49

- Cruise refrigerators are genuine compressor refrigerators designed to offer similar high performance as the refrigerator in your home, and they are intended for preserving food at safe temperatures.
- This refrigerator is one of the smallest built-in compressor refrigerators designed for caravans and fixed installations in caravans. It features a freezer compartment and varies in depth and hinged opening. It can hold bottles both vertically and horizontally. Equipped with the Easyfix mounting system.

TECHNICAL DETAILS

Capacity (L)	49
Net weight (kg)	16,5
Voltage (V)	DC 12, DC 24
Refrigerant gas	R134a
Certifications	CE, E-Mark, EMC, UL

Dimensions (HxWxD) (mm)	530x380x495
Consumption (kWh/24h)	0,278
Power absorption (W)	45
Climate class	ST

5.5. COOKING EQUIPMENT

- Carefully read the usage instructions provided by the mini stove manufacturer that comes with your caravan.
- Pay special attention to the safety instructions.
- It is important to handle the instructions, procedures, and recommendations safely to prevent injuries and damage to the device. You must understand what you have read before using the stove.
- Store these instructions in a safe place near the device so that they can be referred to at any time.

Navy Load Single Built-in Stove NL22000;

Part Number: NL.22000
Number of Burners: 1
Power: SR 1.8 KW
Power Source: LPG 28-30 MBAR
Consumption: 131 G/H
Safety Equipment: THERMOCOUPLE
Ignition: MANUAL
Material: STAINLESS STEEL 304
Surface: MIRROR POLISH
Product Size: 323X263
Embedded Size: 305X245
Net Weight: 1.7 kg
Plate: CE
Warranty: 2 YEARS

Navy Load Double Built-in Stove NL22001;

Part Number: NL.22001
Number of Burners: 2
Power: 1 X SR / 1 X A 2.8 KW
Power Source: LPG 28-30 MBAR
Consumption: 204 G/H
Safety Equipment: THERMOCOUPLE
Ignition: MANUAL
Material: STAINLESS STEEL 304
Surface: MIRROR POLISH
Product Size: 323X353
Embedded Size: 305X330
Net Weight: 2.5 kg
Plate: CE
Warranty: 2 YEARS

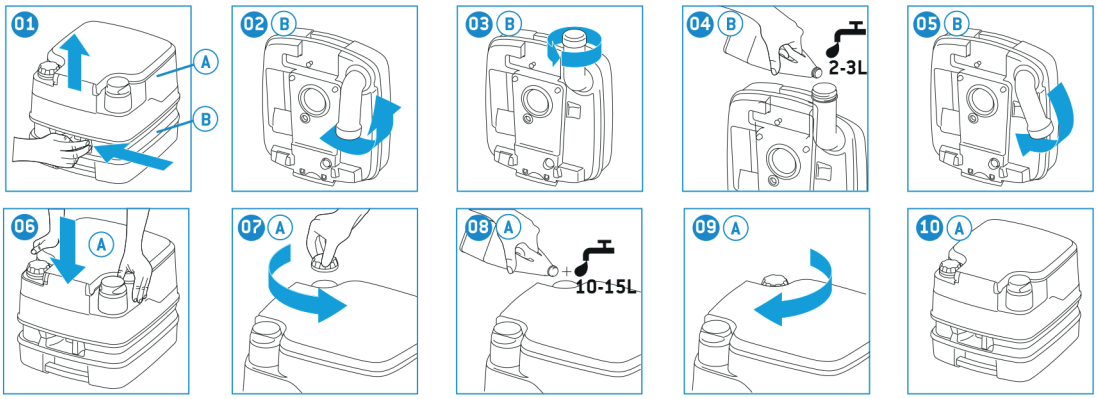
5.6. TOILET

- Carefully read the usage instructions provided by the toilet manufacturer.
- It is important to handle the instructions and recommendations for procedures safely to prevent injuries and damage to the device.
- Store these instructions in a safe place near the device so that they can be referred to at any time.

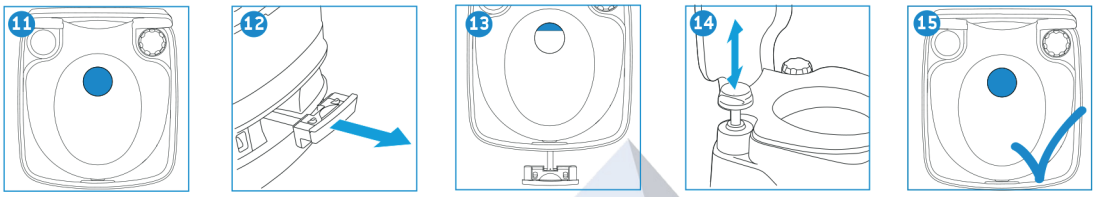
THETFORD PORTA POTTI PORTABLE TOILET USER MANUAL

QUICK START

PREPARING FOR USE

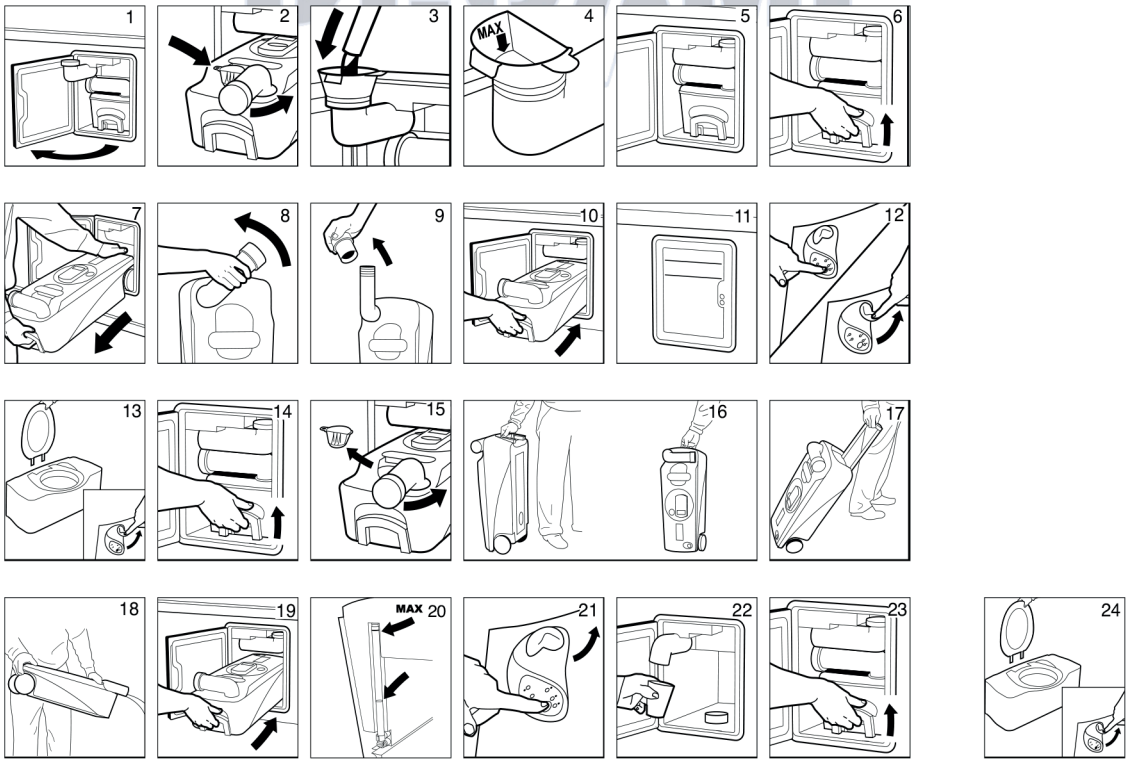


TOILET USAGE



EMPTYING THE TANK

THETFORD CASSETTE TOILET USER MANUAL



5.6. REICH OUTSIDE SHOWER POINT

Usage:

- Insert the shower head's inlet socket into the outlet of the exterior shower compartment and gently fit it into place.
- You can turn the water on and off by pressing the pedal on the shower head.
- To adjust the water temperature, turn the temperature adjustment valve. Turning it clockwise will make it cold; turning it counterc lockwise will make it hot.

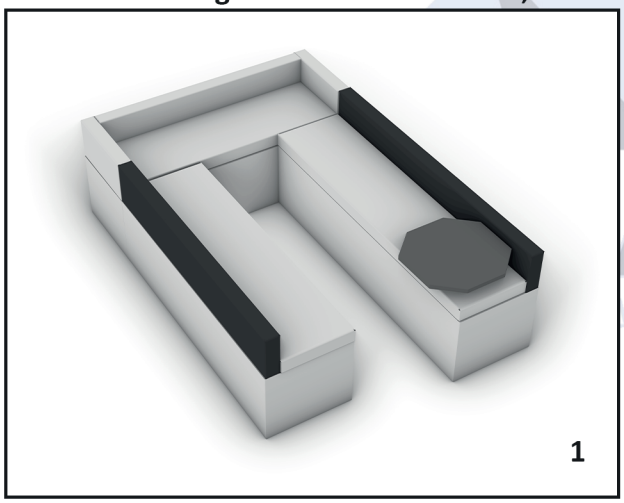
Figure 39 ; outside shower point

5.7. 24" TV

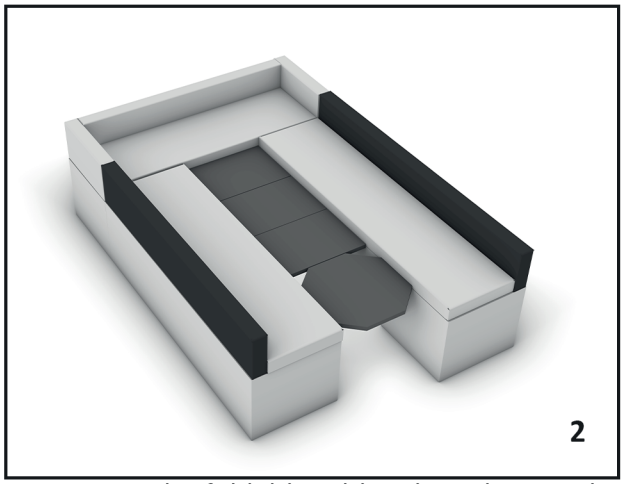
- For detailed information, please refer to your television supplier's website and user manual.

5.8. SEATING ARRANGEMENT AND BED

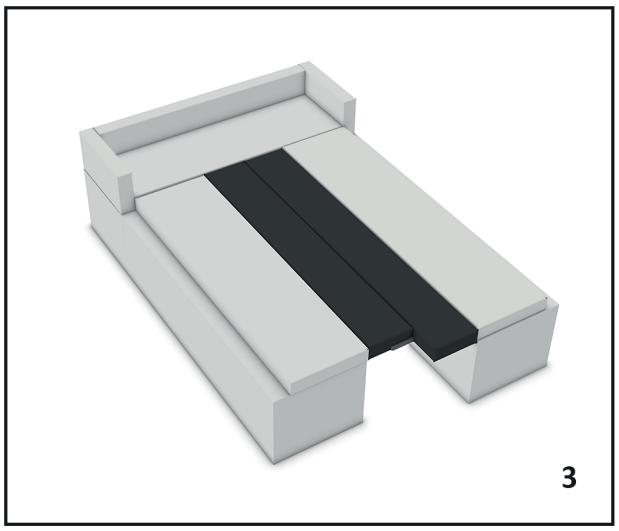
5.8.1. Converting Cross X3 Seats to Bed;



1- Cross X3 seating arrangement.

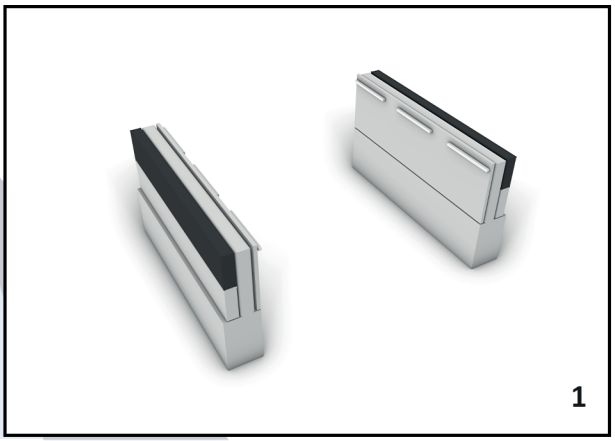


2. Remove the foldable table. Place the panels that fit between the seats and the table.

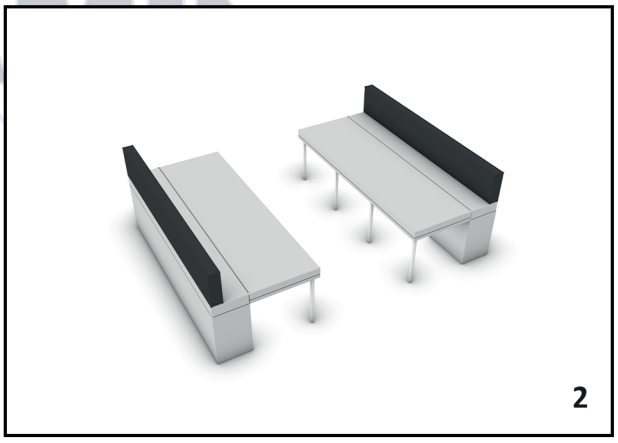


3. Place the cushions shown in the picture between the seats.

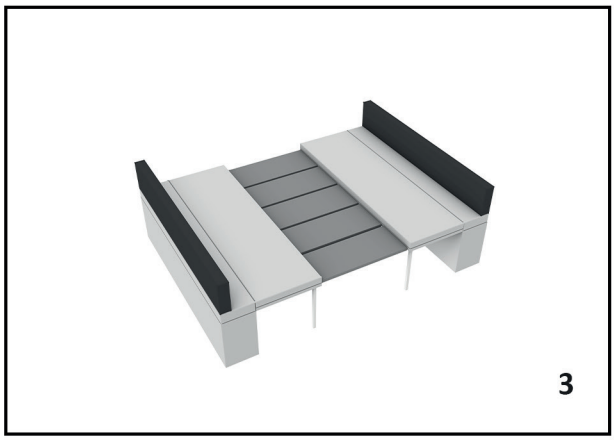
5.8.2. Converting Cross C3 Seats to Bed;



1- Cross C3 seating arrangement.

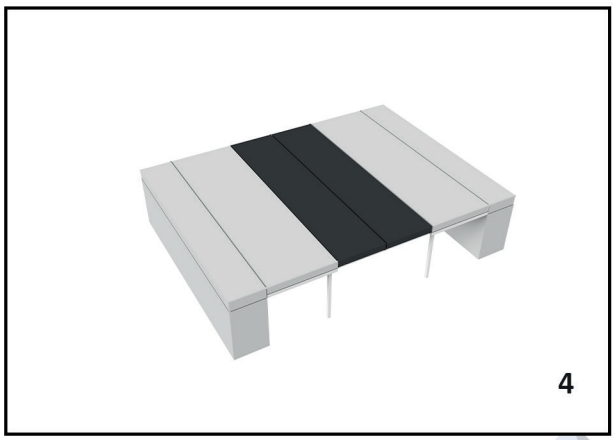


2- Open the legs of the chairs. Unlock the child lock attached to the wall using a key and lower the seats.



3

3- Place the panels between the seats.



4

4- Place the cushions shown in the picture between the seats.

INFO: To lift the seat, reverse the method described.

5.8.3. Ceiling Bed;

Figure 40 ; ceiling bed

INFO: Before using the ceiling bed, open the pop-up roof.

WARNING!: Children under the age of 14 should be supervised while using the ceiling bed.

WARNING!: Do not allow children under the age of 7 to use the ceiling bed.

CAUTION: Trying to open the ceiling bed while the pop-up roof is closed can cause damage to your caravan.

WARNING!: Before climbing onto the ceiling bed, make sure the ladder is securely in place.

Figure 41 ; stair for ceiling bed

- Before climbing onto the ceiling bed in all models, lift the lid.
- For the Trekking C3 model, place the foldable ladder as shown in the visual.

5.9. OUTSIDE DOOR

Figure 42 ; outside door handle

- To open the door from the outside, pull the door handle towards yourself.
- On the outer door lock, there are two keyholes.
- If you lock the keyhole on the door handle, the door handle locks; if you lock the other keyhole, the door lock unlocks. In both cases, the door cannot be opened.

INFO: If you fully open the door, the stopper will hold the door and prevent it from closing on its own.

Figure 43 ; outside door lock

- To open the door from the inside, pull the door handle towards yourself.
- If you turn the red-colored piece underneath the door handle counterclockwise, the door locks.

5.10. REAR DOOR

Figure 44 ; rear door

- There are two door locks on the rear door, one on the right and one on the left.
- Follow the steps below to open the rear door:

1. Pull the lock's release handle towards yourself to disengage it from its socket.
2. Turn the handle a quarter turn to the right or left.
3. Perform the same process for the other lock as well.
4. Hold onto the grip handle in the middle of the door and pull it towards yourself.

INFO: To close the rear door, reverse the steps mentioned above.

WARNING!: The rear door can swing open and cause injury. Before opening this door, step back one step to avoid any harm.

WARNING!: Keep your children away while opening the rear door. Do not allow children under 12 years old to open it.

Figure 45 ; rear door lock

- To lock the rear door, turn the piece on top of the release handle with your finger in the clockwise direction. Lock it using a key.

5.11. POP UP ROOF

- To open the pop-up roof, you first need to unlock the roof's latch. After unlocking it, hold the roof by the grip handle and push it upwards.

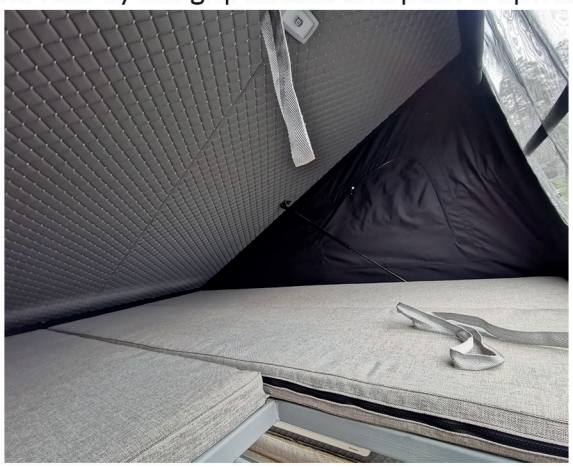


Figure 46 ; pop up roof

CAUTION!: Before starting your journey, make sure the roof lock is engaged.

5.12. WINDOWS

5.12.1. Shock Absorber Window;

- To open the window with a shock absorber, press the central button with your thumbs and turn the interior handle 90 degrees to open the window.

Figure 47 ; shock absorber window

5.12.2. Sliding Window;

- Slide the opening wing of the sliding window towards the non-opening wing by pressing the handle.
- After closing the window, make sure the lock is engaged.

Figure 48 ; slinding window

5.13. FOLDABLE TABLE

- In Cross X3 models, there is a foldable table.
- You can remove the tray of the foldable table by loosening the screw underneath it. This tray is also used for setting up the bed.

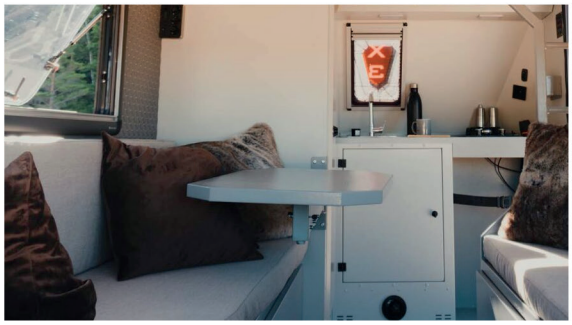


Figure 49 ; foldable table

5.14. AWNINGS

5.14.1. Thule Awning;

- Please read the user manual of your product carefully.
- For detailed information about the product's features and installation, you can refer to the seller's website or the video provided below.

Figure 50 ; thule awning

5.14.2. Outdoor Shower Awning;

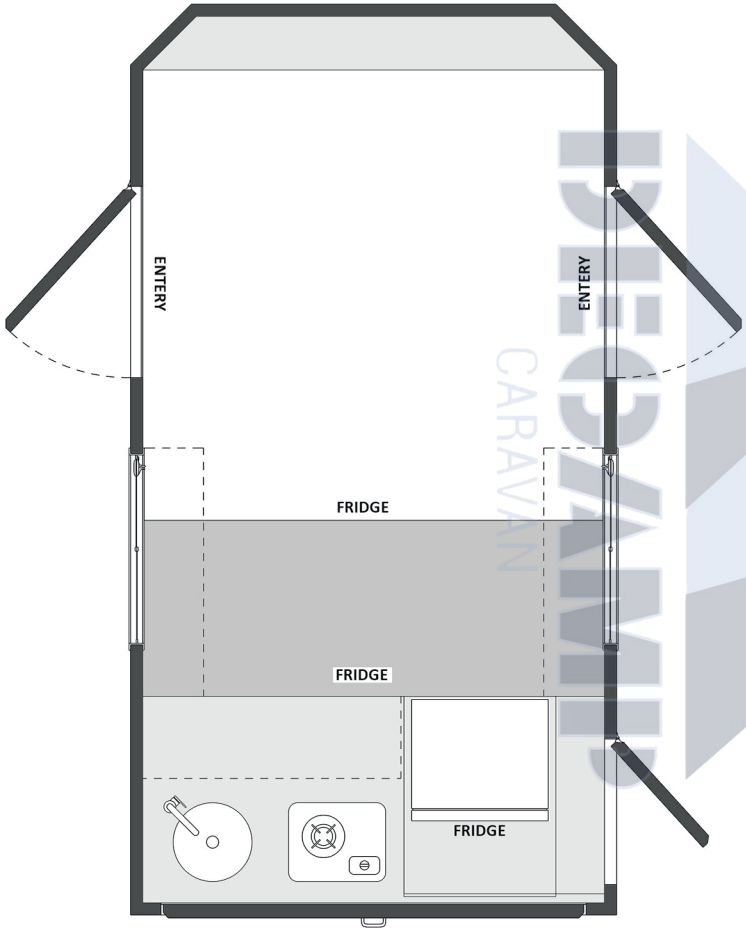
- Please read the user manual of your product carefully.
- For detailed information about the product's features and installation, you can refer to the seller's website.

5.15. FIAMMA BICYCLE CARRIER

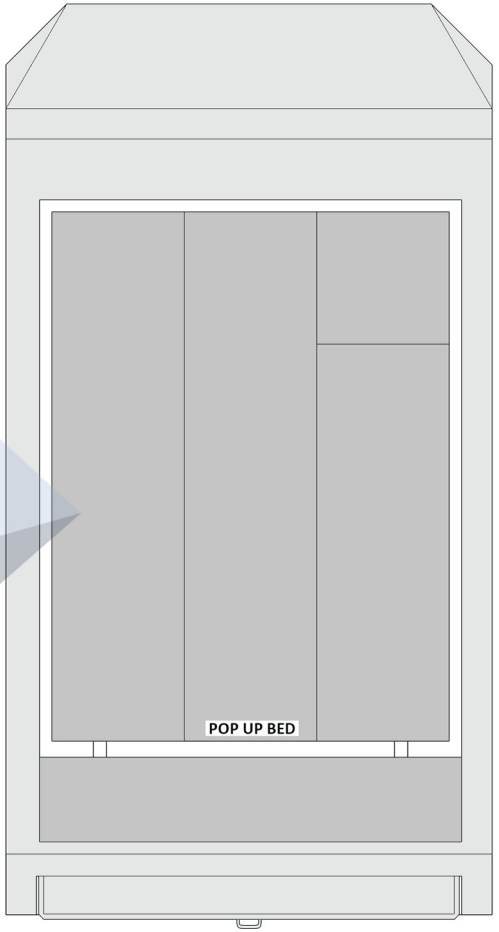
- When using the bicycle carrier, do not exceed the maximum weight capacity recommended by your supplier.
- Attaching bicycles to the back can cause excess weight at the rear of the caravan. Ensure the weight distribution of the caravan is balanced and maintained.

Figure 51 ; fiamma bicycle carrier

PLANS FOR CROSS X1+

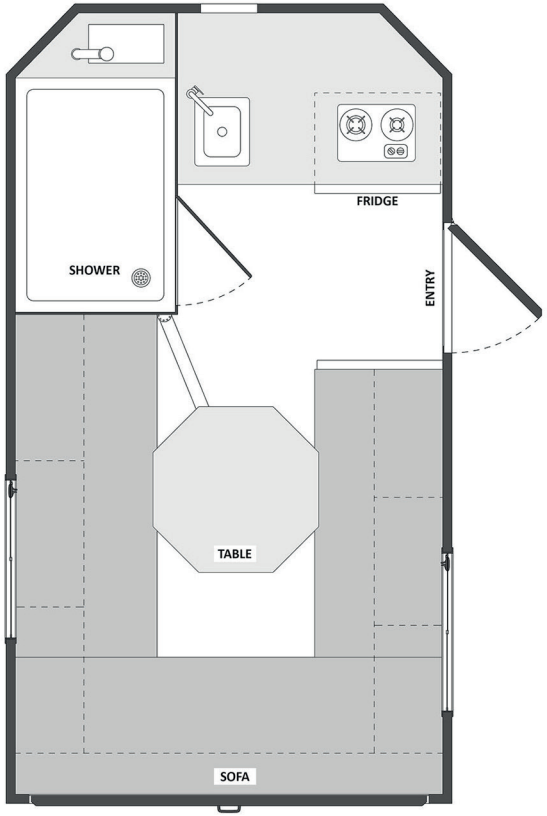


SEATTING PLAN



POP UP BED

PLANS FOR CROSS X3



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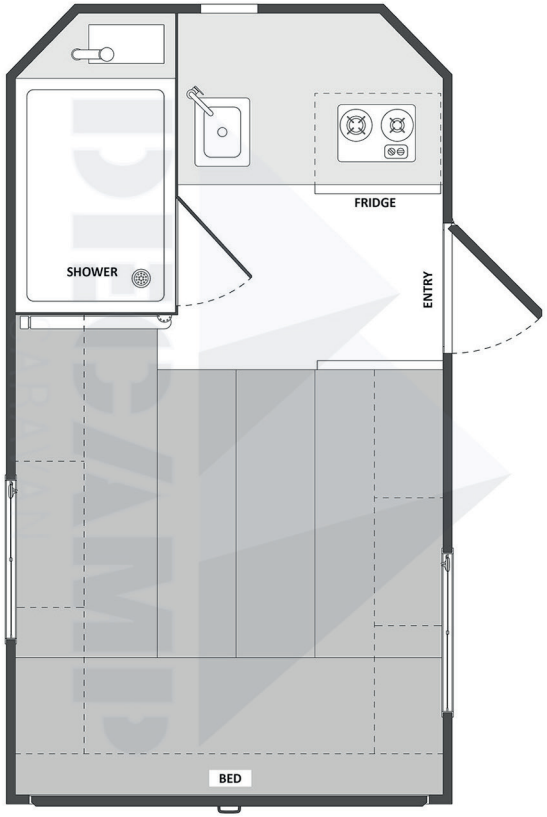
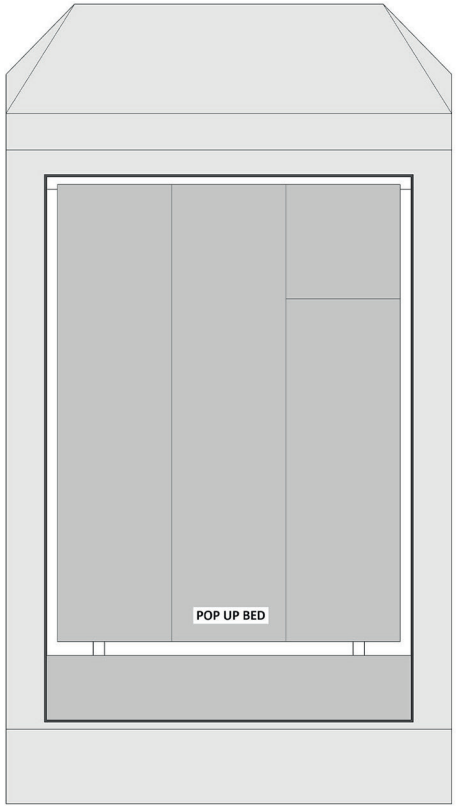
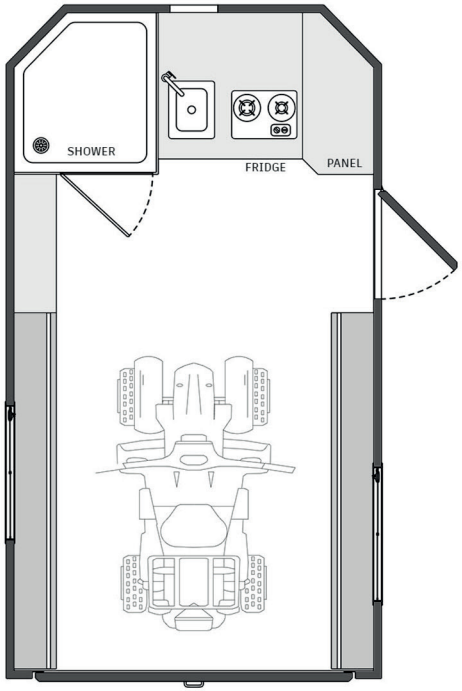


BED PLAN

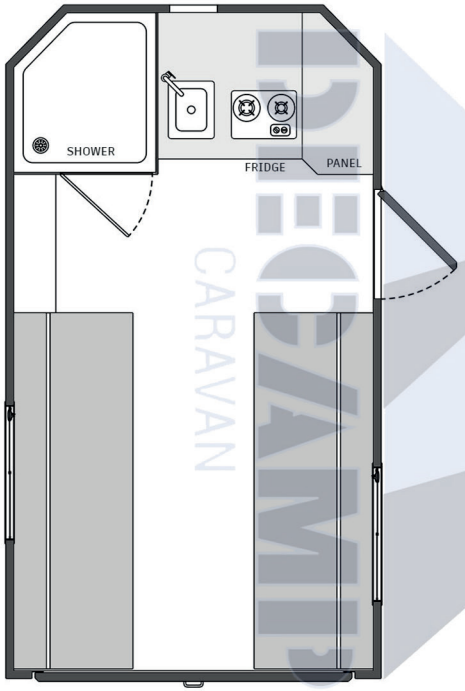


POP UP BED

PLANS FOR CROSS C3



TRANSPORT AREA



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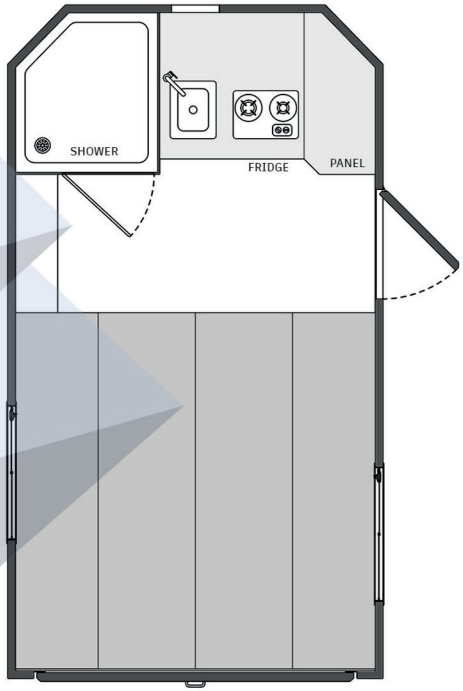

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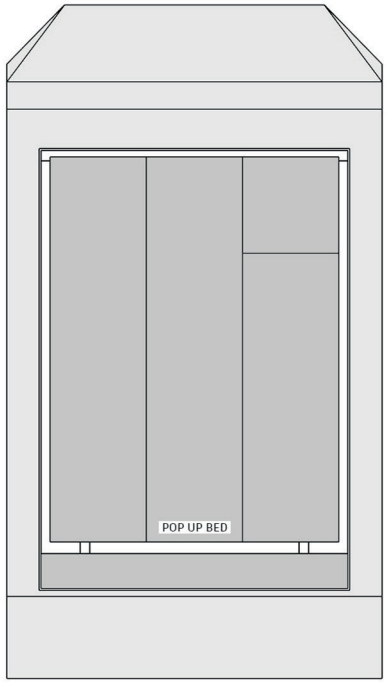
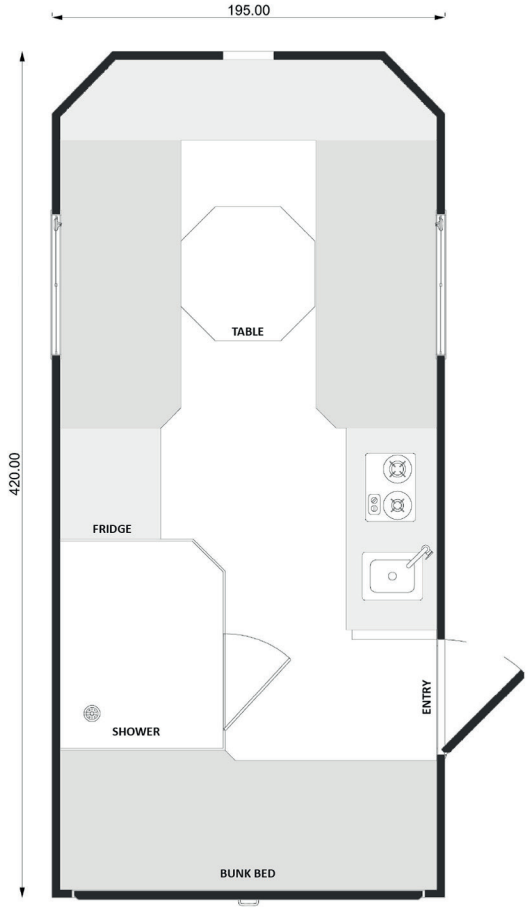


POP UP BED

PLANS FOR CROSS X5



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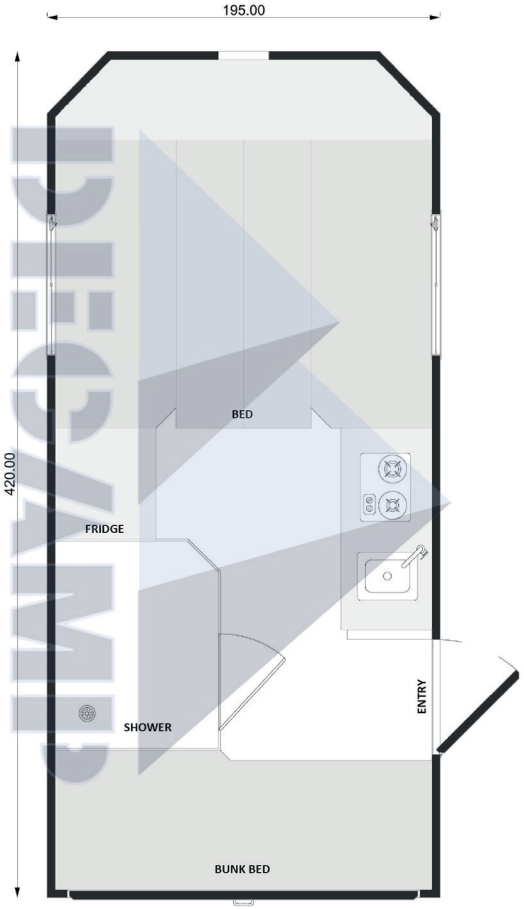
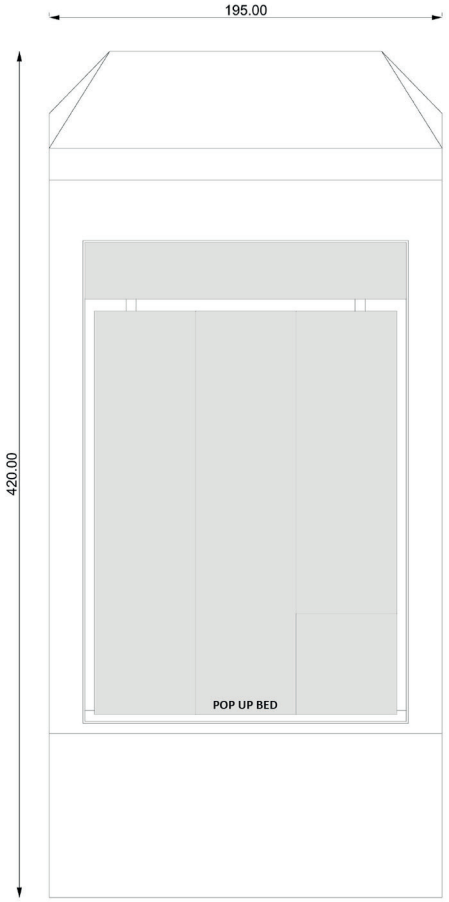


BED PLAN



POP UP BED

7. COUNTRY REGULATIONS

When using a caravan, there are some fundamental rules you should consider:
1. Follow Public Road Regulations: While traveling with your caravan, adhere to traffic rules and regulations. Observe designated speed limits and pay attention to traffic signs.
2. Be Cautious When Parking in Residential Areas: When parking your caravan, especially in public or private residential areas, park in designated spots and avoid obstructing other vehicles.
3. Preserve Nature and the Environment: Show respect for nature and the environment. While camping and exploring, be careful not to harm natural areas. Dispose of your trash in designated bins and avoid leaving a trace.
4. Maintain Your Caravan Properly: Regularly take your caravan to an authorized service center for maintenance and repairs. This is essential for ensuring a safe and enjoyable travel experience.
5. Use Electricity and Water Wisely: Use the electrical and water facilities in your caravan correctly. Use electrical devices compatible with the appropriate amperage and voltage. Conserve water resources and prevent unnecessary waste.
6. Monitor Your Caravan's Weight: Pay attention not to exceed your caravan's carrying capacity. Adjust the weight balance between your vehicle and the caravan correctly and avoid overloading.
7. Research Your Campsite in Advance: Research the campsite you plan to visit beforehand and make reservations if necessary. Abide by the campsite's rules and respect the peace of other campers.
8. Practice Safe Driving: Drive your caravan safely. Factor in braking distances and handle turns carefully, following safe driving techniques.
9. Leave Your Campsite Tidy: Leave your campsite clean and organized when departing. Gather your equipment, leave the environment undisturbed, and don't leave any trash behind.
By following these rules, you can enhance the safety and enjoyment of your caravan use while demonstrating your responsibility for the environment. Remember, it's everyone's duty to protect nature, and we should work together to leave a beautiful environment for future generations.

Shoreline Rules;

- While walking and exploring, be mindful not to harm the environment and avoid disturbing the natural wildlife.
- Preserve the natural life and vegetation along the coast. Leave living organisms undisturbed and refrain from removing dead shells.
- Avoid disturbing marine life and refrain from fishing, especially protected species.
- Collect your trash and keep the beach and coastal areas clean to minimize environmental impact.
- Follow designated paths and trails along the shore and refrain from entering private areas without permission.
- Show respect to others and nature during activities at the shore, avoiding noise and disturbance.
- When setting up tents or camping along the coast, take care not to disturb the natural environment or contribute to pollution.
- Strive to leave no trace and minimize your impact on the environment while visiting the coast.
- Adhere to local rules and regulations when visiting the shore, contributing to the preservation of natural areas.

DEALER FORM

1. DEALER NAME: .....

2. PHONE NUMBER: .....

3. E-MAIL: .....

4. SERIAL NUMBER: .....

5. INITIAL SERVICE DATE: .....

6. DEALER SALES CONTACT: .....

7. DEALER PARTS REPLACEMENT: .....

8. DEALER SERVICE CONTACT: .....


DECAMP
CARAVAN


DECAMP
CARAVAN