

migrator

USE & MAINTENANCE



BASICS



Your migrator dealer will provide quality maintenance and any other assistance you may require.

If there is not a migrator dealer near you, please e-mail the following address with the subject "service":
office@fimcaravans.com

❖ **OWNERS:**

FIM Caravans Customer Service: office@fimcaravans.com
Please access our website for further information: www.fimcaravans.com

FIM Caravans Romania welcomes you to the family of migrator Owners!

This Handbook has been designed to enable you to derive the maximum benefits and enjoyment from your mini-caravan, its information will not be of benefit to both experienced and new users alike.

Several sections are common to all versions of the model, the specific sections relative to a particular model are clearly indicated. All enquiries regarding your mini-caravan must be addressed in the first instance to the dealer from whom the caravan was first purchased.

Your mini-caravan is designed to give many years of use, regular maintenance is however necessary to ensure trouble free service. Your FIM Caravans Retailer is equipped to offer service facilities, repair work and any spare parts you may require.

Always consult your FIM Caravans Retailer before additional equipment is fitted to ensure appropriate fixing support is available.



In any correspondence the caravan V.I.N. should always be quoted, this can be found on the front right side of the chassis.

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SAFETY

This handbook contains the information that you will require for safe enjoyment of your tourer. All of the information contained here is important. However to draw your attention to specific items we have prefixed them with the following symbols to indicate a warning, caution or note respectively:



WARNINGS are items that if ignored can cause the user(s) physical harm.



WARNINGS are items that if ignored can result in the caravan becoming damaged.



INFORMATION are reminders that should be understood.



To ensure all the occupants of your mini-caravan enjoy a safe and relaxed environment please observe the following:

- Ensure all occupants are aware of their escape routes in the event of a fire;
- Always keep routes and exit points clear from obstruction and debris;
- Provide one dry powder fire extinguisher of an approved type or complying with ISO 7165 at least 1 kg capacity by the main door, and fire blanket next to the cooker. Familiarise yourself on your fire extinguisher and the local fire precaution arrangements;
- Ensure the mini-caravan is serviced and maintained in accordance with this manual and the appliance manufacturer's recommendations. Also, that any replacement parts for an appliance conform to the appliance manufacturer's specifications and should be fitted by them or an authorised agent;
- Your mini-caravan is a compact living environment, and appliances should be treated in the same way as those in a standard home to prevent any accidental scalding - keep young children away from hot surfaces;
- Your mini-caravan is supplied with a Fim Caravans approved incorporated caravan step. Always take care entering or exiting your mini-caravan. Do not use a broken or damaged step, see your close Fim Caravans approved Service in case of damage;



DRIVING USAGE

- The torque setting of the mini-caravan's wheel bolts should be checked after the first 50 km (30 miles) after collection of the caravan from the retailer. Thereafter, the wheel bolts should be checked before every journey. The torque settings and tightening sequence are detailed on **page 6** of this handbook;
- The torque setting of the mini-caravan axle system should be checked as follows:



- After first **500 km** or **6 months**: **Check brake system, adjust if necessary.**
- Every **5000 km** or **12 months**: **Check brake pads**
Adjust brake system
- Every **10 000 km** or **24 months**: **Maintain the brake system**



The trailer brake is subject to increased wear if continuously driven uphill.



For the back door ALWAYS LOCK with exterior extra locks present in the low corners of the back, before DRIVING!





- Never attempt to lift the tow hitch with your hands when hitching the caravan to the tow vehicle or at any other time. Always raise or lower the tow hitch by winding the handle on the jockey wheel;



- **Always ensure that the hand brake is in the full horizontal/released position, before towing/driving the caravan.**

- Break away cable
- Purpose- To apply a trailer's brakes if it becomes separated from it's towing vehicle. Having done this the cable assembly is designed to part allowing the trailer to come to a halt away from the towing vehicle.
- When the breakaway cable is attached, check to ensure:
 - A. that the cable cannot snag in use on the trailer coupling head, jockey wheel, or any accessory, e.g. a stabilizer, cycle carrier, etc.
 - B. that there is sufficient slack in the cable to allow the towing vehicle and trailer to articulate fully without the cable ever becoming taut and applying the brakes.

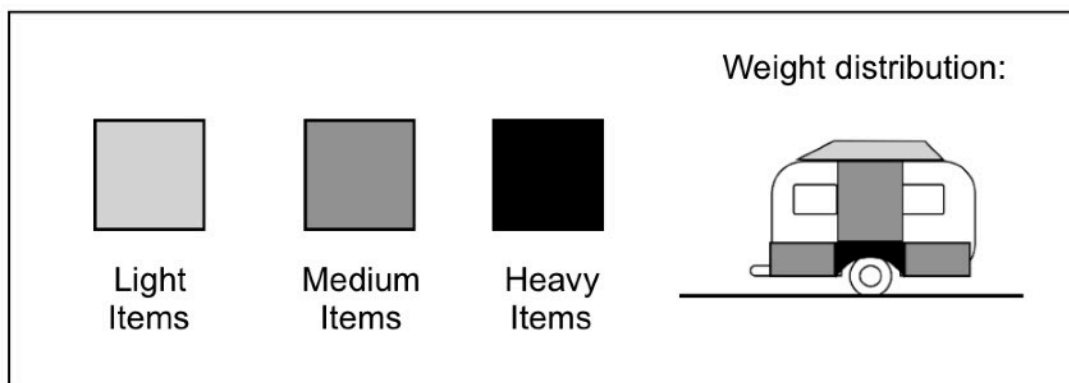
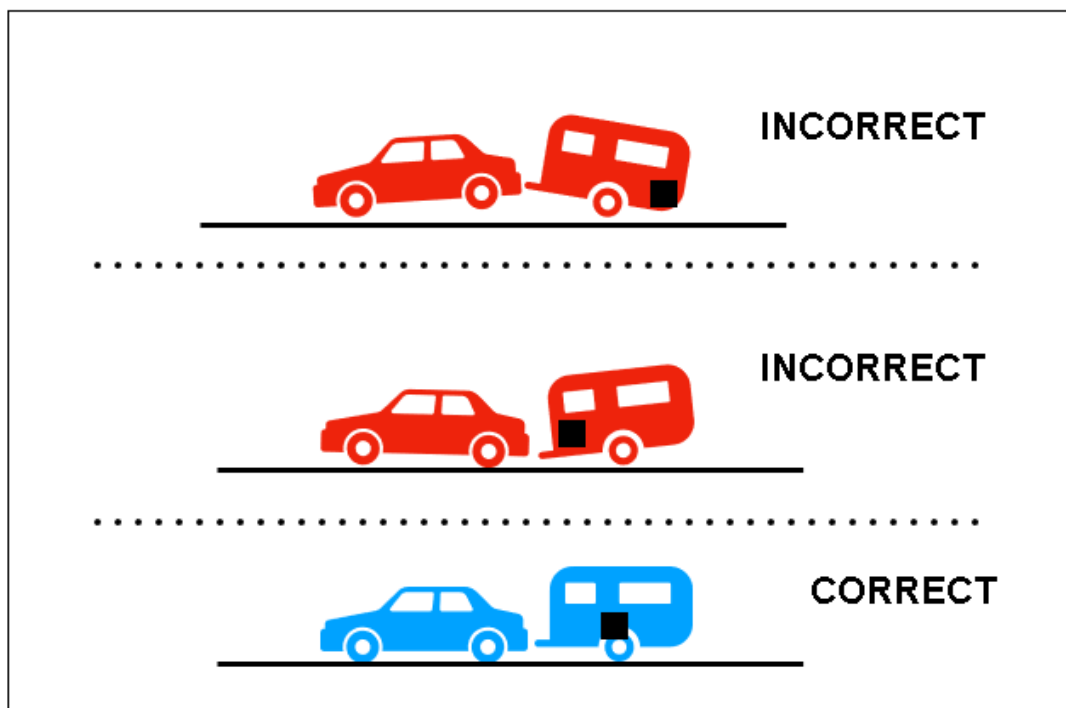


- For peace of mind you might wish to check the state of the cable by positioning the trailer and towing vehicle at extreme angles before setting off.
- C. that it is not so slack that it can drag on the ground. If left loose, the cable may scrape along the ground and be weakened so that it subsequently fails to do it's job. The cable may also be caught on an obstacle when in motion thus engaging the trailer brakes prematurely.
- Having followed this advice, should you feel that a satisfactory coupling arrangement cannot be achieved, consult your trailer or tow-bar supplier or service agent.

- Please take care that you have allowed for the weight of all items you intend to load into the caravan.

- **Nose weight**

- It is recommended that the nose weight should be varied to find the optimum for towing dependent upon the actual laden weight of the caravan. Experience has shown that the nose weight should be approximately 7% of the actual laden weight (i.e between 50 and 100 kg). However, this may be limited by the towing vehicle or caravan manufacturer's limit nose weight. Check with the car and caravan handbook, or consult your retailer.



● Wheels and tires checkups

- 1. All wheel bolts are tightened to the correct torque. For alloy wheels the wheel bolts should be tightened to a torque of **110 Nm (Newton Meters)**, for steel wheels the wheel bolts should be tightened to a torque of **88 Nm**.
-
- 2. Inspect all wheels and tires for signs of deterioration or damage.
- 3. Tire pressures are correct according to the service handbook

● Doors and locks



Make sure that all doors are closed and locked before driving!

For the back door ALWAYS LOCK with exterior extra locks present in the low corners of the back, before DRIVING!

- Before commencing any journey always ensure that the roof-light (roof vent) is closed and the handle is securely fastened.
- All gas appliances and the gas bottles must be turned off whilst towing.
- It is recommended that a minimum of **2 people** work together when hitching up the caravan to the tow vehicle.

● Hitching the caravan to the tow vehicle

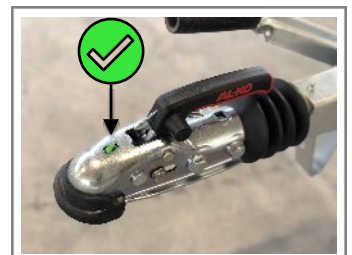
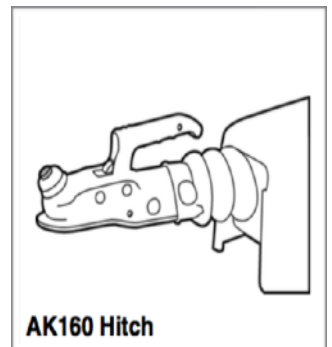
- Ensure that the caravan is in a suitable position, and secure with the handbrake fully on. **Fully raise all four corner steadies. Shut and lock the caravan exterior.**
- Gauge the weight of the cars tow ball then raise or lower the height of the caravans towing hitch to ensure that it is high enough to pass over it cleanly and not hit the tow ball. Rotating the caravans jockey wheel handle can do this. **Clockwise to lower, Anti-clockwise to raise.**
- The assistant should position themselves by the front near side of the caravan so that they can extend an arm horizontally to indicate the position of the caravan's towing hitch.
- Remove car's tow ball cover and keep it in a secure place in the car. Slowly reverse the towing vehicle towards the caravan.



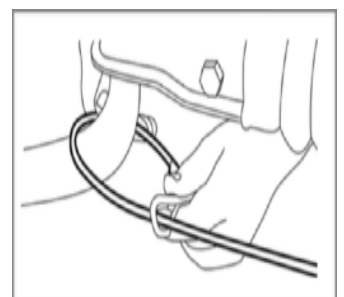
- When reversing the towing vehicle towards the caravan always ensure that any pedestrians and your assistant are visible at all times.
- When reversing aim the tow ball of the car directly at the caravan towing hitch.
- When the car's tow ball is as close to the caravan's towing hitch as possible **fully apply the car's handbrake, turn off the engine** and leave **the car in first gear (Park or "P" Position for Automatics)**.
- The final positioning should be carried out by manoeuvring the caravan by hand. Carefully release the caravan handbrake.
- Manoeuvre the caravan by hand to position the caravan's tow hitch directly over the car's tow ball.



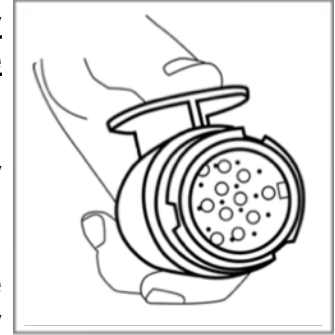
- Always manoeuvre the caravan by pushing/ pulling on the grab handles only. Not the body. When the caravan is in the correct position **fully apply the handbrake**.
- Raise the handle on the caravan tow hitch until it clicks and remains at an angle.
- Rotate the jockey wheel handle clockwise to lower the caravan hitch onto the car's tow ball. When the tow hitch clicks and the handle drops to the horizontal position it is engaged.
- The hitch head is fitted with a visual indicator on the front radius to show whether or not it is properly connected to the tow ball. **A green band will show**



- Connect braking cable as per the instructions in the previous section.
- **Test that the hitch is now fully engaged by slightly raising**



caravan hitch from the car tow ball by winding the jockey wheel handle anti-clockwise. The hitch should not release from the car tow ball.

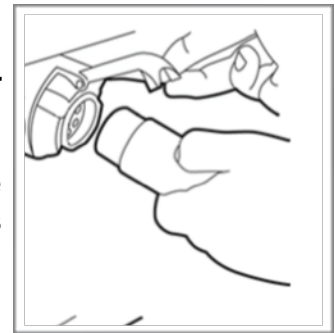


- Only raise the rear of the car enough to check the hitch is fully engaged.
- Turn jockey wheel winding handle to lower caravan. When the wheel is fully retracted, release the clamp and raise the jockey wheel to it's travel position.

● **Always ensure that the hand brake is in the full horizontal/released position, before towing/driving the caravan.**

- Once the jockey wheel is at it's travel position and the wheel is located in the recess in the hitch cover tighten clamp again. The caravan will be fitted with a single 13 pin connector that comes also with a 7pin adaptor, for cars that have the 7 pin connection.
- Connect the relevant lead ensuring there is enough loose cable for cornering , but not too much which can drag on the ground.

● **Check all car and caravan road lights are working and the operation of the brake lights.**



- Pick up any levelling pads or levelling boards. Check round the caravan for anything left behind. Fully release the caravan's handbrake. Carry out a second check that the hitch is secure and the secondary braking cable is connected.
- Adjust all of the car's driving mirrors from driving seat to ensure good rear wards visibility.



Passengers are forbidden to ride in the caravan at any time!

1. Snaking

This is a term used to denote an unstable car and caravan combination where the caravan “weaves” from side to side often causing a similar swaying movement in the car itself. Possible causes are:

- A. Insufficient tire pressures on either caravan or tow vehicle.
- B. Tow vehicle too light or otherwise unsuitable.
- C. Incorrect loading or weight distribution.
- D. Excessive speed especially downhill
- E. Side winds.
- F. Overtaking.
- G. Being overtaken by high-sided vehicle.
- H. Erratic driving.
- I. Mixing radial and cross ply tires.
- J. Nose of caravan is towing too high.
- K. Insufficient nose weight.

For best stability aim at an 85% ratio of weights.

2. Stabilisers

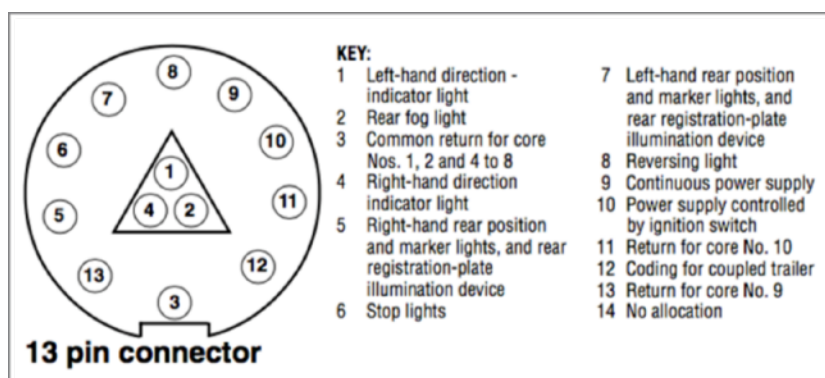
A stabiliser should never be used to try to improve a caravan/towing vehicle combination that has poor stability as instability may appear at higher speed. However, a good stabiliser can make an acceptable caravan/towing vehicle combination more comfortable and easier to handle.



Holes should not be drilled in either the coupling head or drawbar without prior consultation with the chassis manufacturers.

If you do find your outfit snaking, try to keep the steering wheel in a central position as far as possible, slow down gently and avoid braking if possible.

3. Road lighting



The 13 pin (black) connector

Where the connector for the car does not match that of the caravan an adaptor for 7 pin will be required. Please Ask your supplying retailer for more information.

Types of tires fitted

The tires fitted in standard by FIM Caravans are suitable for towing at sustained speeds of up to **130 Km/h (81 mph)** to allow for use in countries which permit this speed.



The standard permitted legal speed in the EU is 80 Km/h (50 mph).

Radial and cross ply tires should never be mixed. It is dangerous and can cause snaking.
Fit only tires that are of the identical specification on each side.

The legal requirements for tread depth (1.6 mm) on motor vehicles apply also to caravans.

In order to equalise wear it is suggested that wheels be balanced and changed around from time to time. When caravans are not in use for extended periods, wheels and tires should be removed and stored in dry conditions and away from the outside elements. Alternatively caravans should be jacked up to relieve the load from the tires.

It is dangerous to neglect tire damage. Should you detect a blister, rupture or cut exposing the casing, or if it has suffered a violent impact (for example against a kerb), such that there is a risk of internal damage, it is advisable to have it examined by a tire specialist as soon as possible.



The caravan industry recommends that, for safety reasons tires more than 7 years old from the date of manufacture be replaced, but preferably replaced at 4 years old. The tires may have deteriorated by this time, regardless of thread depth.



Always check your caravan and tow vehicle tire pressures when cold and prior to any journey. Also check tire condition for blisters, ruptures or cuts exposing the casing and any damage to the wheel (violent impact/ kerb damage) before/after any journey (inclusive of spare). If in doubt it is advisable to have it examined by a tire specialist as soon as possible. Incorrect tire pressure can seriously effect towed vehicle performance and the longevity of the tire.

Consult your tow vehicle manufacture for the correct tow vehicle tire pressures for towing.

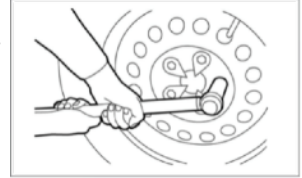
4. Wheels

Caravan wheel bolts must always only be tightened to the appropriate setting by tightening each opposite fixing in succession to the correct torque. Always use a calibrated torque

wrench. **Do not use a corner steady brace, power or electric wrench.** It is as dangerous to over tighten wheel bolts as it is to not tighten them sufficiently.



The torque settings should be checked after the first 50 km/ 30 miles. For alloy wheels the wheel bolts should be tightened to a torque of 110 Nm, for steel wheels the wheel bolts should be tightened to a torque of 88 Nm.



The condition of wheels should be checked regularly particularly for distortion of flanges and the wheel dish. Wheels damaged or distorted, or having the wheel bolt seating cracked or deformed must not be repaired.

If a wheel or tire has to be changed it should be of the same type of construction and size as originally fitted.

Only use a spare wheel and tire recommended by Fim Caravans, which should be of the same specification as those fitted to the caravan.

Always ensure mating surfaces and bolt seating areas are clean and dry. Wheel bolts should never be lubricated.

- **Spare wheels**

-migrator model is fitted with an wheel and tire as optional equipment. This is located on the front of the caravan.



Alloy wheel bolts used on a steel spare wheel should be torqued to the same settings.



Always ensure that the spare wheel carrier is fully tightened.

Changing a Wheel

- For migrator caravan the spare wheel (optional) is located on the front of the caravan.
- Always ensure that the tow vehicle and caravan are in a safe position before attempting to change the caravan's wheel. We recommend leaving the caravan hitched to the tow vehicle when changing the caravan's wheel. The tow vehicle should be left in gear (or "P"/ Park for automatic) with the handbrake on both the car and caravan fully applied.
- Lower the corner steadies as a safety measure to stabilise the caravan. Chock the unpunctured wheel on the opposite side of the caravan to prevent any movement.

- D. Slacken off the wheel bolts by no more than one quarter of a turn on the wheel that requires changing. Do not fully undo them.
- E. Place the jack plate under the axle tube as near as possible to the main longitudinal member.
- F. Jack up the caravan until the wheel for removal is just off the ground.
- G. Remove the wheel nuts and remove the wheel
- H. Fit the spare wheel, then reverse the above procedure. Ensure that the wheel bolts are fitted, and tightened in the correct sequence to the right torque (See page... for tightening sequence and torque setting.
- I. Remember to tighten all bolts to the correct torque and recheck after 50 km/ 30 miles.



Under no circumstances should the corner steadies be used as a jack they are only a means of stabilising the caravan.

Try to choose an area that is dry, reasonably level and preferably with a hard base.

If you have no alternative but to pitch on a slope ensure that, for when you leave, you are facing down the slope

It is good practice to chock the wheels of the caravan when parked on a slope even though the caravan brakes are applied (if fitted). Fully apply the caravan handbrake (if fitted).

Unclamp and lower the jockey wheel to the ground.

Re-clamp it in this position. Operate the button on the hitch head and move the handle forward to release the mechanism. Operate the jockey wheel handle until the coupling head is clear of the towing ball.



Serious damage will occur unless the button is depressed first and the handle lifted forward before the caravan is lifted manually. This prevents the nose weight being transmitted through the button.

Re-clamp Jockey wheel if necessary.
Disconnect the secondary braking cable.
Disconnect the 13 pin plug and return it to its holder.
Replace towball cover.
Park your vehicle alongside the caravan on the offside.

Levelling the caravan

Levelling must be carried out in both directions in order for the refrigerator and other equipment to function correctly.

The positioning of the jockey wheel can be used to help level the caravan.

Lower the corner steadies until they are in firm contact with the ground.



Under no circumstances should the corner steadies be used as a jack they are only a means of stabilising the caravan.

Levelling pads or boards should be used under the steadies where the ground is soft or uneven.



In extreme cases where it is necessary to raise a wheel off the ground for levelling purposes, further adequate support should be applied under a wheel so that the corner steadies do not take any undue strain.

Towing brackets (coupling ball)

All tow cars registered since 1 August 1998 must be fitted with a European type-approved towing bracket, by law. It is recommended that other cars not affected by this law use only towing brackets designed and tested to European standards.



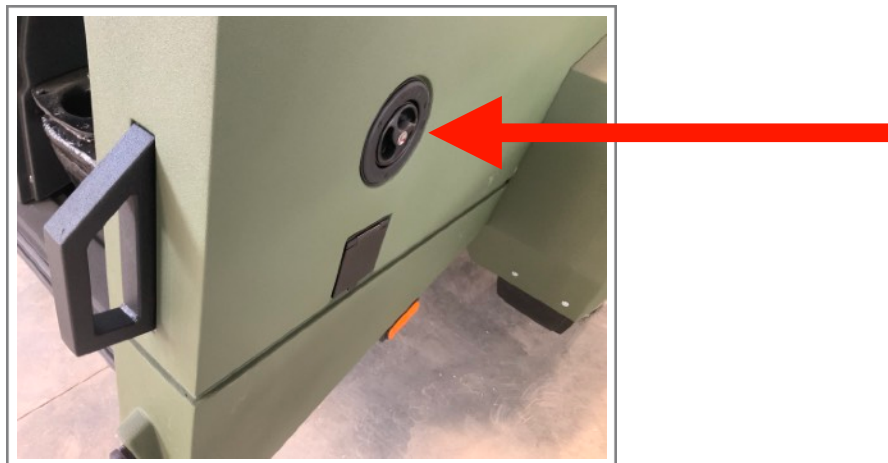
CAMPING USAGE

THE WATER SYSTEM

On board water supply

This is located under the sink cabinet, in the back section of the mini-caravan.

To fill , open the lock up knob with the key provided. (Located on the right back side of the caravan)



The capacity of the inboard water tank is approximately aprox. **40 litres (9 gallons)**
Water can now be obtained from the in -board tank by switching pump witch on the control panel (**PC-380 or PC-180**) and then switching the water tap situated in the sink area.
A pictogram will signal on/off on the control panel. Also it will show the water level present in the water tank.

Always ensure that the inboard water tank is empty when towing.



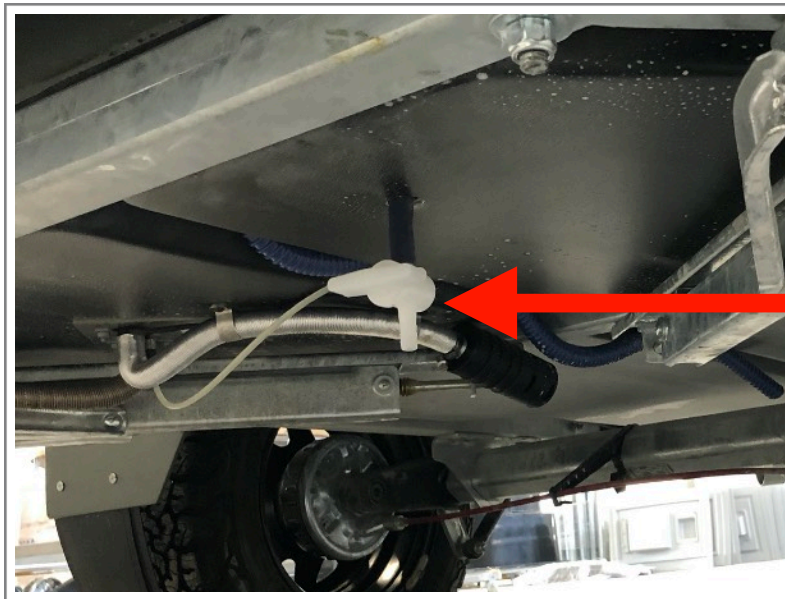
TROUBLESHOOTING

FAULT	CAUSE	SOLUTION
Pump doesn't run		<ul style="list-style-type: none"> • Check power supply • Attach leads/clean connections • Check tap microswitch if present
	Fuse has blown	<ul style="list-style-type: none"> • Replace fuse do not exceed recommended fuse size.
	Blockage in pipework	<ul style="list-style-type: none"> • Check pipework for kinks.
Pump runs but no water appears	No water getting to pump	<ul style="list-style-type: none"> • Check the water tank is not empty • Check all connections from tank to inlet of pump are secure, any air leaks will prevent prime. To test for air leaks hold shower head underwater and operate pump. If air bubbles are visible coming from the shower head an air leak is present.
Noisy operation	Pump drawing air	<ul style="list-style-type: none"> • See cause "No water getting to pump"
	Noise created by vibration	<ul style="list-style-type: none"> • Check pump is secured to solid surface. • Check pump body is clear of hard surfaces. • Locate away from interfering surfaces. • Check pipework is securely supported.
Low flow	Bore of pipework/connections too small	<ul style="list-style-type: none"> • Check for kinks in pipework • Check pipework is not blocked.
	Power supply to the pump	<ul style="list-style-type: none"> • Check battery is not discharged.
	Pipework/connections crushed due to overtightened jubilee clips	<ul style="list-style-type: none"> • Replace damaged connections
	Water leaking at outlet side of pump	<ul style="list-style-type: none"> • Check pipework/fittings for leaks and repair • Check system drain plugs are closed

Draining and Winterisation of the Water System

Caravans may be in use all year round, but when not in use, even for short periods, this procedure should be followed. One night of freezing temperatures is all that is required for expensive, permanent damage to water system components.

- Open all taps, shower controls and shower rose on/off controls, to allow water to drain.
- Remove shower heads:
 - to remove shower heads, unscrew by hand, then shake out and store in a dry place.
- Disconnect flexible hose from bottom of filter connection to drain thoroughly.
- The submersible pump should be shaken out and stored in a dry place.
- Open drain plug on water tank. **(located under the back of the caravan)**



Ventilation

All ventilation complies with EN 721 and vents should not be obstructed in any manner as this could lead to insufficient fresh air. In this case the confined atmosphere becomes depleted of oxygen which leads to the formation of the highly poisonous “carbon monoxide”. Carbon Monoxide is odourless, colourless and tasteless and will rapidly cause unconsciousness and death with little no warning prior to collapse.

There is no danger when adequate ventilation is provided.

- For a plus of protection, Fim Caravans provides each caravan with a CO2 warning sensor.
- **This should be always ON !**



Under no circumstances should the caravan’s ventilation be blocked or obstructed in any way.

High level ventilation is via the roof light.

The mesh screens of the roof light should be kept free of obstructions by dust, leaves, insects etc. Inspect regularly and use a brush and soapy water as necessary.



Do not make any additional openings in the sides or the roof.
Never use portable cooking or heating equipment, other than electric heaters that are not of the direct radiant type in your caravan, as it is a fire asphyxiation hazard.

Appliances such as cookers with naked flames should never be used for room heating.

No appliances shall be used inside when being connected to the external socket.

The electrical system - 230 VOLT

The electrical system - 230 VOLT

As in the home, care must be exercised when handling mains electricity.

Your attention is drawn to the following notice as laid by the Institute of Electrical Engineers.

Instructions for electricity supply- low voltage (230 v)

On arrival at caravan site

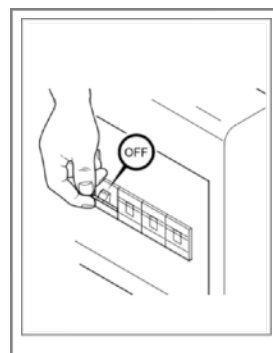
Before connecting the caravan installation to the main supply:



- Check that the mains supply is suitable for your installation and appliances, i.e. whether it is A.C. or D.C. and whether it is at the correct voltage, frequency and polarity.
- Check that your installations will be properly earthed. Never accept a supply from a socket outlet or plug having only two pins, or from a lighting outlet.

Check that any residual current device (earth leakage circuit breaker) in the mains supply to the caravan has been tested within the last month. After connection to site supply, test again.

- Make sure that the switch at the site supply point is off.
- Make sure that the caravan RCD unit is switched off.



- Remove any cover from the electricity inlet provided on the caravan, and insert the connector of the supply flexible cable.
- Remove any cover from the socket outlet provided at the site supply point, and connect the plug at the other end of the supply cable to this. Switch on the main switch at the site supply point.
- Switch on the caravan RCD unit.

In case of doubt, consult the site owner or his agent.



On leaving the caravan site first switch off the site supply switch off the caravan RCD unit then disconnect the pitch lead

In case of difficulty consult an approved electrical installation contractor (who may be the local electricity board). It is dangerous to attempt modifications and additions.



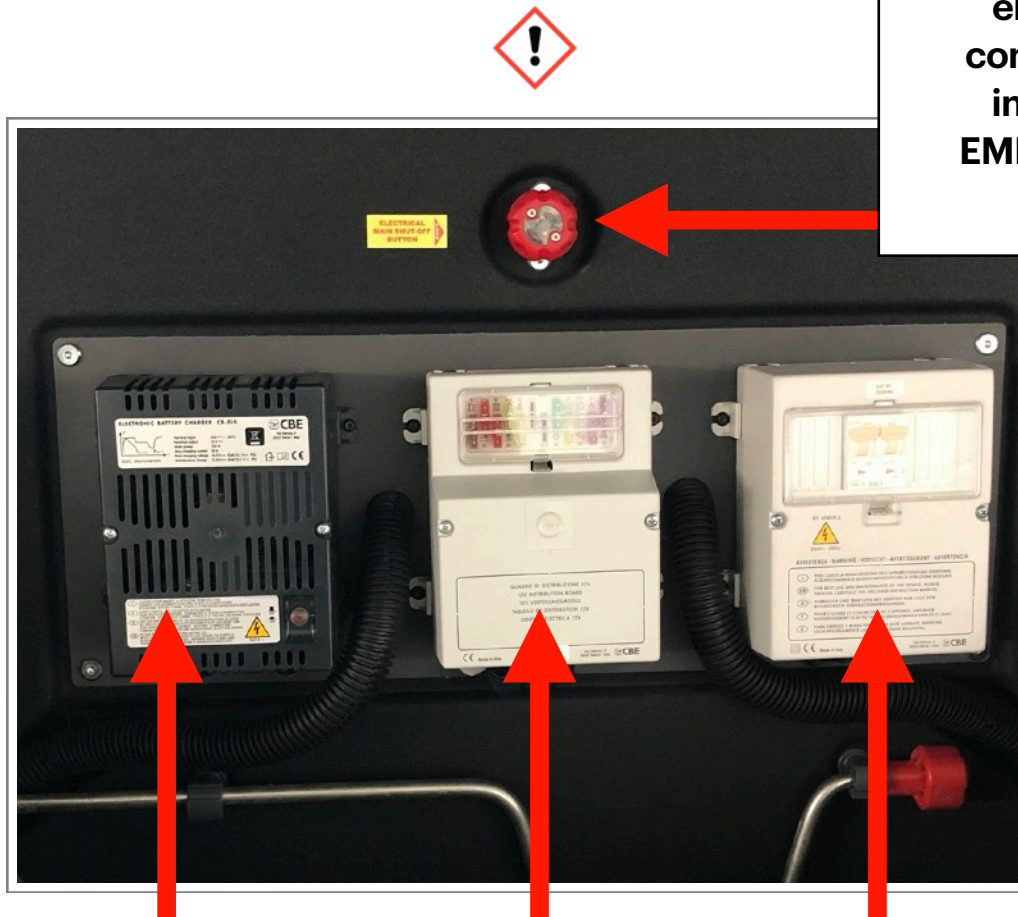
Every 12 months, the caravan electrical installation should be inspected and tested.

Main unit

The mains unit replaces the conventional fusebox. Similar, but larger units are often fitted in newer houses.

The unit gives overload and earth leakage protection for 230V electrical supply in your caravan.

Electrical main shut-off
PUSH to cut all electrical connections in case of **EMERGENCY**



Charger Box

12 V Fuse Box

230 V Fuse

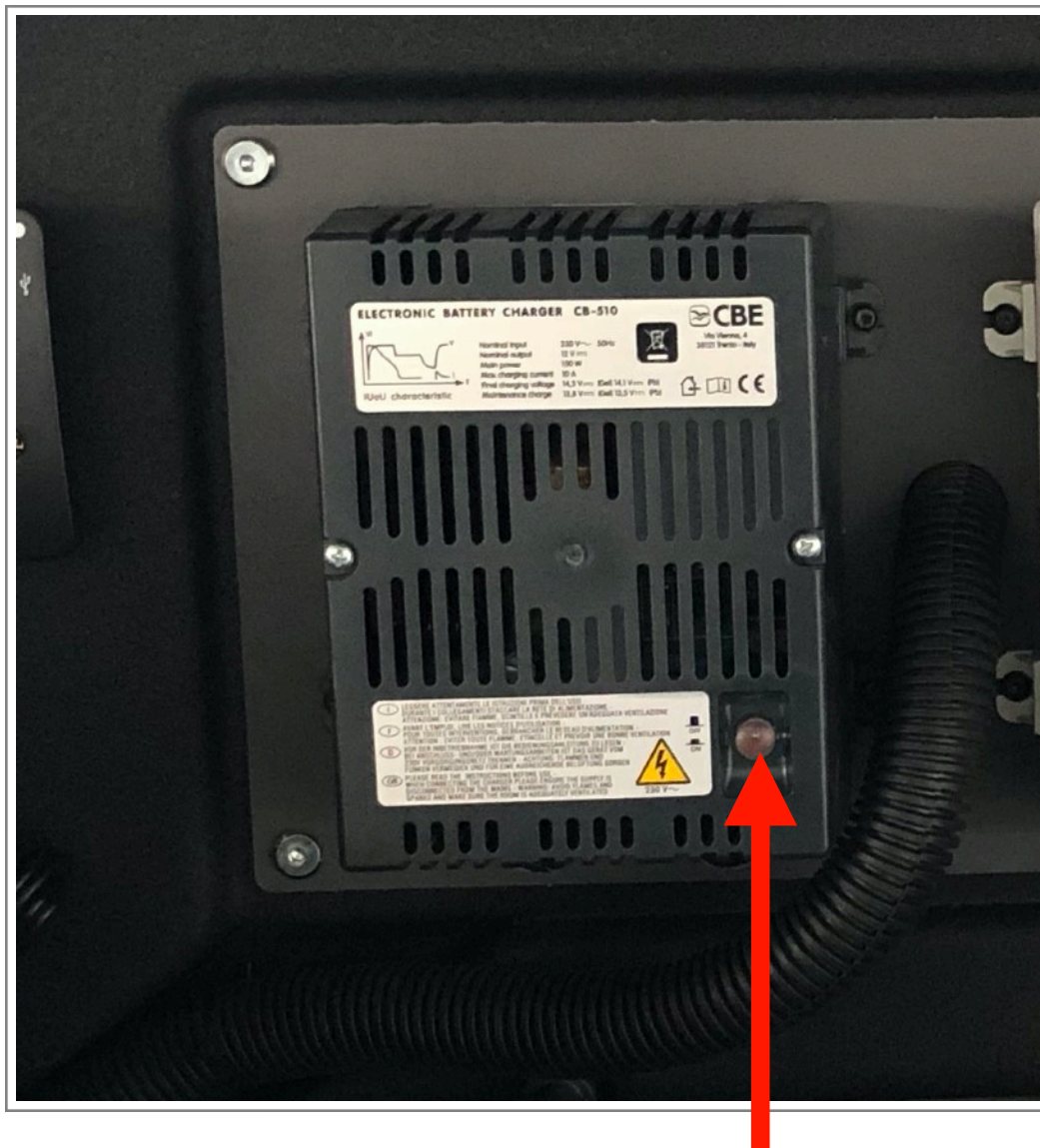


After connecting the caravan to the 230V net, PUSH the button present on the Charging Box.(see photo below).

It will turn RED when it's ON. Only when this button it's ON, the caravan battery will start charging.

After disconnecting the caravan off the 230V net, PUSH the button present on the Charging Box.(see photo below).

The button will stop illuminating RED and it indicates it's OFF .



**PUSH TO START
CHARGING**

Main parts of the electrical system:

CONTROL PANEL “PC380-ST”:

- Mains control, battery test, tank test, temperature test and clock function.

12V DISTRIBUTION BOX “DS300-ST”:

- protection fuses
-

ELECTRONIC TANK PROBE:

- It measures the content of the drink water tank, visualisation in %.

LEISURE BATTERY “B2”:

- It gives power to all users.

CAR BATTERY “B1”:

12 Volt Control Panel

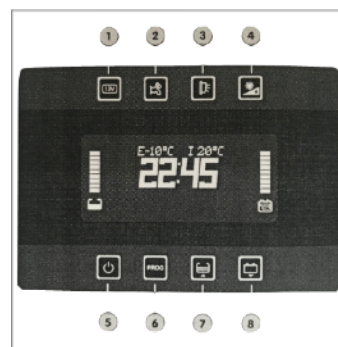
When the car is not connected the battery and the power supply will be used to power the caravan.

The control panel in the front interior console is fitted with a 12 volt switch; this enables you to isolate 12 volt supply in the caravan.

PC 380

The control panel controls the operation of various 12 V equipment:

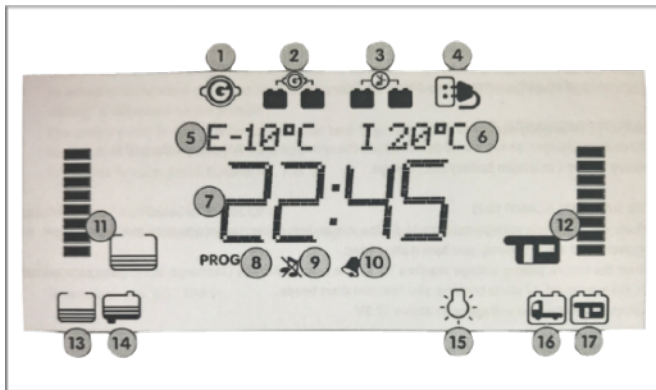
1. 12 V button (lights, 12V sockets, electric antenna “SAT” and awning light)
2. Button to switch the pump on and off.
3. Awning light button
4. Button with integrated twilight sensor to set the intensity of the LED backlighting in a “night” situation (see also “Twilight” function)
5. On/off main button (to turn on/off press for 2 seconds): at the start-up the display carries out a function test and shows all symbols(including unused symbols).
6. “PROG” button for system setting (see SETTING)
7. Button for the control of drink, waste and auxiliary (optional) water tank (in %), for drinking water refilling function operation (see “DRINK WATER TANK REFILLING” function) and the regulation of the programmable parameters settings (see SETTING)



Note: The watch is supplied from the leisure battery (B2).

Should B2 be disconnected, the watch is able to keep working, without visualisation, for about 1 week

Main Visualisation



(Fig. 14)

1. It indicates that the engine is on.
2. It displays that the battery parallel is on when engine is on.
3. It displays that the car battery recharging unit is on.
4. It displays that the 230 V net is connected.
5. External temperature digital indicator.
6. Internal temperature digital indicator.
7. Clock digital display.
8. It displays the setting menu.
9. It displays that the tones are off.
10. It displays that the alarm clock is set.
11. Drinking water tank status display.
12. "B2" leisure battery status display.
13. It displays that the drinking water tank is empty.
14. It displays that the waste water tank is full.
15. It displays the minimum voltage device is on.
16. It displays that the car battery (B1) has run down.
17. It displays that the leisure battery (B2) has run down.

Functions

CAR BATTERY ALARM (B1)

When car battery voltage goes below 12V, Car Battery Discharge alarm goes on and the symbol (ref. 16) starts blinking.

Alarm goes off when the voltage goes above 12,5 V.

CAR BATTERY RECHARGE (B1)

With battery charger: an electronic device allows the recharge (max 2A) of car battery (B1).

Priority is given to leisure battery (B2) charge.

LEISURE BATTERY ALARM (B2)

When leisure battery voltage reaches 11.5 V the leisure battery reserve alarm goes automatically on, the symbol (ref. 17) starts blinking, you hear a short beep.

When the leisure battery voltage reaches 10.5 V, the Leisure Battery Discharge alarm goes automatically on, the symbol (ref. 17) starts blinking, you hear two short beeps.

Alarm go off when the voltage goes above 12.5 V.

LEISURE BATTERY RECHARGE (B2)

- A. Through engine alternator: through spreader relays while engine is running. The ignition controls the relays electronically : parallel, fridge, awning light etc.
- B. Trough 230 V net: pad system through battery charger.
- C. Trough solar panel: trough solar charge regulator.

MINIMUM VOLTAGE CONTROL (BATTERY PROTECTION)

The electronic battery protection device disconnects the 12 V users when leisure battery reaches 10 V and disables: pump, lights, awning light.

Symbol (ref.15) is the visual alarm signal.

It is possible to connect all users for one more minute by pressing the on/off (ref. 5 on control panel).

The control panel automatically turns off with a voltage lower than 9.5 V.

Users are automatically reconnected with a voltage higher than 13.5 V.

This device doesn't control the 12 V users connected directly to the leisure battery B2

TANKS

- A. Drinking water tank with electronic probe: visualisation in % (steps of 10 %)
- B. Waste water tank with screw probe.

DRINKING WATER TANK ALARM

Alarm turns on when drinking water level goes below 10% of the tank capacity and automatically turns off when level exceeds 20%.

Alarm is acoustic, visual (symbol ref. 13 blinking).

WASTE WATER TANK ALARM

Alarm turns on when the waste water level exceeds the screw sensor level.

Alarm is shown acoustically and visually with the symbol ref. 14 blinking.

DRINKING WATER TANK REFILLING

This function is used during the drinking water refilling and indicates the water level during refilling.

To activate this function press the "test tank" button ref. 7 for more than 2 seconds, until the "water refilling" is displayed on the screen.

The control panel beeps in order to warn that the tank is getting filled: one short beep at 75%, two short beep at the 85% and a long beep at 95 %.

To exit this function press buttons ref. 7 or 8.

AWNING LIGHT AUTOMATIC TURN OFF

An electronic device switches off the awning light when engine is turned on. (NOT available for caravans)

DIGITAL CLOCK

To set clock see "SETTING"

ALARM CLOCK

To set and activate /deactivate the alarm clock see "SETTING".

To reset alarm press any test button; there is no delayed alarm!

TEMPERATURE

Both interior and exterior temperatures have a sensor, which is placed inside or outside of the vehicle.

The precision of the temperature value is $\pm 1^{\circ}\text{C}$.

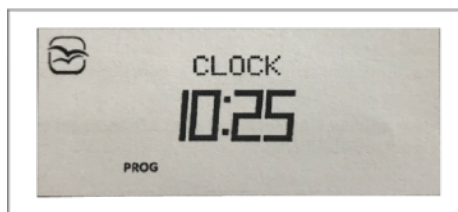
TWILIGHT FUNCTION

In a "night" situation, a sensor positioned near the display causes the intensity of the LED backlight to automatically be reduced to the level preset by the user (to set see SETTING).

User's SETTING

- To enter the set mode, press the "PROG" button (ref. 6) for more than 2 seconds from the main clock screen.
- Select, by pushing the arrow keys ref. 7 and 8, the setting menu you want to operate and then confirm by pushing the "PROG" button (ref. 6)
 1. by selecting "CLOCK" you operate the menu to set the parameters clock and alarm clock
 2. by selecting "DISPLAY" you operate the menu to set the display parameters.
 3. by selecting "SETTING" you operate the menu to set the system parameters.
- By using the arrow keys ref. 7 and 8 you can modify the setting of the parameters.
- Confirm the setting by pushing the "PROG" button (ref. 6), you then go automatically to next parameter.
- To abandon programming and save changes, select "EXIT" and then choose to save or not save changes.
- To exit without saving wait 20 seconds without pressing any key.

CLOCK



Clock setting:

- HOURS (blinking)
- MINUTES (blinking)

ALARM CLOCK



Activation of alarm:

- ON (activation)
- OFF (deactivation)

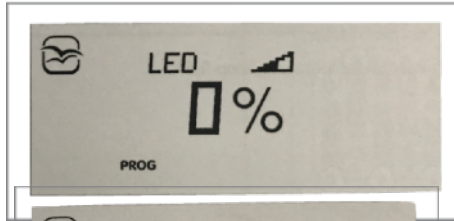


Set alarm clock time (only if alarm clock has been previously activated):

- HOURS (blinking)
- MINUTES (blinking)

DISPLAY

BUTTONS BACKLIGHT SETTING

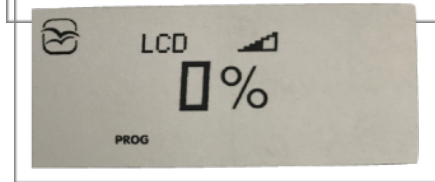


Intensity setting of the buttons LED backlight in a “night” situation (see also the “TWILIGHT” function)

-(0÷100 %)

DISPLAY BACKLIGHT SETTING

Display’s backlight setting when control panel is in stand-by.



-(0÷100 %)

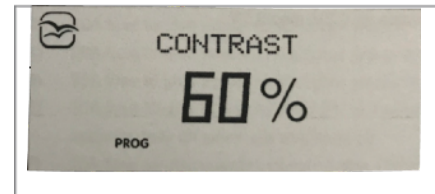
DISPLAY BACKLIGHT CLOUR

Display backlight colour selection



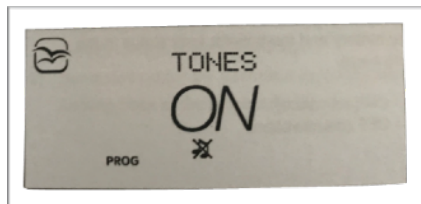
DISPLAY CONTRAST

Display contrast setting



-SETTING-

ACOUSTIC ALARMS

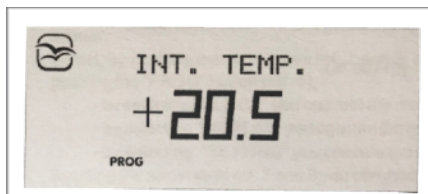


**Activation/Deactivation
of acoustic alarms:**

-ON (activation)

-OFF (deactivation)

TEMPERATURES



Setting internal temperature, step 0.5 ° C



Setting external temperature, step 0.5 ° C

VOLTMETERS SETTING



Setting of the leisure battery “B2” voltmeter.

Max. value +/- 0.5 V, step 0.1 V.

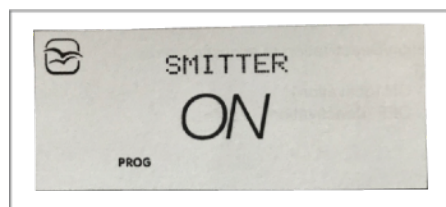


Setting of the car battery “B2” voltmeter.

Max. value +/- 0.5 V, step 0.1 V.

SMITTER

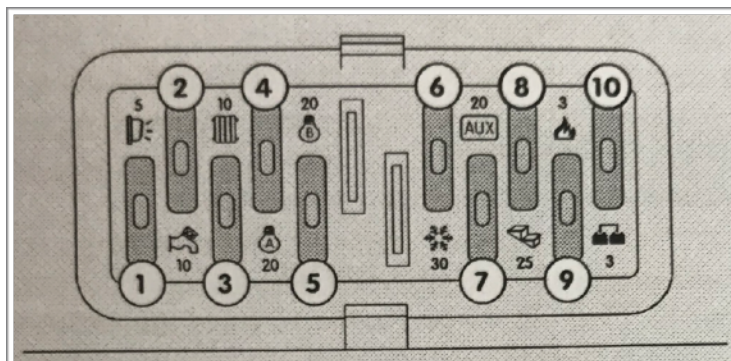
Activation /Deactivation visualisation in bars of the leisure battery and fresh water tank status in the starting page.



-ON (activation)

-OFF (deactivation)

Distribution box (12 V fuses)



1. 5A fuse to give power to the awning light
2. 10A fuse to give power to the water pump
3. 10A fuse to give power to the heating/boiler
4. 20A fuse to give power to the lights group “A”
5. 20A fuse to give power to the lights group “B”
6. 30A fuse to give power to 12V AES or 3-way function fridge. The 3-way function fridge switches automatically off when engine is off.
7. 20A fuse for the auxiliary power supply (solar regulator), which is directly connected to the leisure (B2) battery.
8. 25A fuse for the electrical step power supply, connected directly to the leisure (B2) battery
9. 3A fuse for the gas power (fridge , kitchen, boiler valve, etc.) connected directly to the leisure (B2) battery.
10. 3A fuse for OUT D+ simulated exit protection
11. AES fridge connection’ It is a bridge, which excludes the 3 way function fridge and is used to connect the AES fridge directly to the B2.

12. Simulated output D+ alternator to control the electrical step, AES refrigerator , electrical draining valve etc.)

Main parts of the electrical system

CONTROL PANEL “PC180-ST” -Mains control, battery test, tank test

12V DISTRIBUTION BOX “DS300-ST” - protection fuses

4-RODS TANK PROBE -It measures the content of the drink water tank, 4 LEVEL visualisation.

LEISURE BATTERY “B2” -It gives power to all users.

CAR BATTERY “B1”

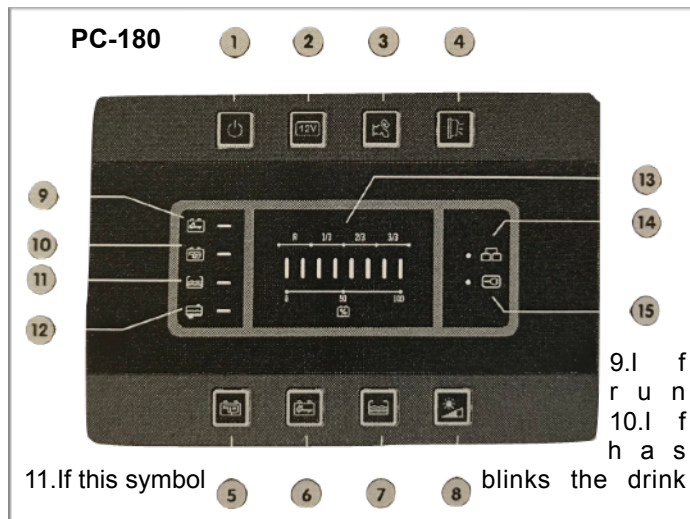
12 Volt Control Panel

When the car is not connected the battery and the power supply will be used to power the caravan.

The control panel in the front interior console is fitted with a 12 volt switch; this enables you to isolate 12 volt supply in the caravan.

The control panel controls the operation of various 12 volt equipment:

1. Mains general button ON/OFF; LED flashing indicates that the battery is low and that low voltage device will turn on.
2. 12V button; controls the lights, 12V sockets and heating.
3. Water pump button; it controls the pump relays.



4. Awning light button;
5. Button to check the leisure battery (B2)
6. Button to check the car battery (B1)
7. Button to check the drink water tank and for drinking water refilling function operation.
8. Button with integrated twilight sensor to set the intensity of the LED backlighting in a “night” situation (see also the “TWILIGHT” function)
9. If this symbol blinks the car battery (B1) has run down.
10. If this symbol blinks the leisure battery (B2) has run down.
11. If this symbol blinks the drink tank is empty.
12. If this symbol blinks the waste water tank is empty.

13. LED display:

- Voltmeter for the control of the car and leisure battery voltage (scale 0 to 100%).
- Drinking water tank level (Emergency level, 1/3, 2/3, 3/3)

14. It shows the leisure battery recharging through engine alternator

15. LED to signal 230 V net ON.

Functions

CAR BATTERY ALARM (B1)

When car battery voltage is lower than 12V, car battery alarm is automatically activated together with symbol ref.10 blinking.

LEISURE BATTERY ALARM (B2)

When leisure battery voltage is lower than 11 V , leisure battery alarm is automatically activated together with symbol ref. 9 blinking.

MINIMUM VOLTAGE CONTROL (BATTERY PROTECTION)

An electronic device switches all the 12 V mains off, when the leisure battery reaches the minimal voltage level of 10V. It is possible to switch on again all the mains for 1 minute by switching off and then on again the main switch.

The fridge , the electrical step and the mains powered directly from B2 are excluded from this device.

TWILIGHT FUNCTION

In a "night" situation, a sensor positioned behind the Button ref.8 causes the intensity of the LED backlight to automatically be reduced to the level preset by the user (to set, hold button ref.8 down for over 3 seconds, until the device reaches the desired level).



ADVICE AND CHECKS

IMPORTANT: Maintenance interventions on the electric implant must be carried out by specialised personnel. Before carrying out maintenances disconnect the battery and the 230 V alimentation line.

BATTERIES

Read with care the instructions of use and maintenance of the batteries. The acid kept in the batteries(if provided with acid based batteries) is poisoning and corrosive. Avoid any contact with skin and eyes.



If the battery is completely discharged it needs recharging for minimum 12 hours. If discharged for more then 8 weeks it may be damaged.

Check periodically the level of the liquid of the battery (with acid); the GEL\AGM battery does not need any maintenance but a continuous recharging. Check the correct tightening of the connection biding screw and brush off the oxyde. If the leisure battery is removed, isolate the positive pole(in order to avoid short-circuits). In case of longer stop, the services battery has to be disconnected or recharged regularly.

TANK PROBES

Never let water in the tanks for long time, in order to avoid fouling, especially in the waste water tank.



230 V CUT-OUT BOX

Before taking away the cover, check that the 230V socket is disconnected. In order to avoid damages to the box, check the correct tightening of the connections. In order to cut power to the whole 230 V system, please take care that the 230 V main switch must be on the "0"(OFF) position. Connect and disconnect the external 230 V net only when the main switch is off. In case of automatic switch break, find the damage before giving power again to the electrical system.

FUSES

Replace the fuses after finding out the real cause of the damage only. When the fuses are replaced respect the value of the amperage established.

MAINTENANCE AND CARE

Drilling or welding of parts or accessories



The chassis is designed and built to precise tolerances and must not be drilled or welded (except in accordance with certain AL-KO Accessory Operating Instructions). Failure to comply will invalidate all warranties

Suspension system

The chassis is Hot Dipped Galvanised. This is regarded as one of the best forms of corrosion protection. It does however require minimal maintenance in certain circumstances. When new, the chassis is of a bright and shiny appearance. As the galvanising cures during the initial 2/ 3 month period, this will gradually change to a medium/dark grey colour. This grey finish is the ideal, giving the correct protective coating.

During this curing period the surface should be protected to avoid possible wet storage stain, in the form of a soft, light coloured, porous, oxidation layer. If the chassis members are in contact with any salt deposits from roads this should immediately be washed off with a high pressure washer.

Salt attracts moisture allowing the surfaces to remain wet, this prevents curing and also allows formation of wet storage stain. It is recommended that the chassis/ components are washed off, using a pressure washer on an annual basis (especially after winter usage), to avoid undesirable build up of salt and dirt deposits.

The galvanised chassis should not be painted or subjected to any other protective treatment.

Should the galvanising become superficially damaged exposing the steel core, this should be cleaned and treated with a Cold Galvanising Spray obtainable from vehicle accessory outlets. Damage to chassis members through impact etc, **MUST NOT** be straightened or welded. Damaged chassis members **MUST** be replaced.



Operation

AL-KO overrun devices are a mechanical type, using a hydraulic damper.

Coupling up

Manoeuvre towing vehicle or trailer to coupling point. Overrun devices fitted with 50 mm coupling head:

- Fully open coupling head handle and secure hitch onto the coupling ball.
- Thread the breakaway cable through the breakaway cable guide provided and connect it to attachment point provided on towing bracket.



The breakaway cable operates the handbrake (emergency brake), in the event of the caravan/trailer becoming detached from the towing vehicle during towing.

For this emergency brake to work correctly, it is absolutely essential that the following points are observed:

1. The breakaway cable **MUST** run through the breakaway cable guide.
2. The breakaway cable **MUST NOT** be wrapped around the jockey wheel, as this disables the emergency brake.
3. The cable **MUST** run as straight as possible and not be restricted.
4. Ensure the cable is long enough to allow for cornering and will not become taut or snag during use, as this could result in the handbrake operating whilst towing.



Corner Steadies

Corner Steadies are as stated, for the purpose of steadying the caravan corners. They are **NOT JACKS AND SHOULD NEVER BE USED AS SUCH**. The screw and pivot pins should be lubricated periodically to ensure their satisfactory operation.



Standard AL-KO caravan chassis use M12 bolts. These must always only be tightened to the correct torque setting as recommended by the vehicle manufacturer.

General maintenance

Exterior care

We recommend that you DO NOT take your recreation vehicle through automatic car washes and extreme caution should be used if utilising any type of high pressure water jet around all attachments, doors, windows, appliance vents, etc. to avoid forcing water inside the unit, possibly damaging components.

Roof

All roofs require maintenance. At least once a year, inspect all seams: front and rear, around all vents, and along all mouldings. If you notice any deterioration in the seal, scrape off any cracked, lifting or loose sealant and reseal the area.

Contact your dealer for the appropriate sealant to use. The proper care, cleaning and maintenance of your roofing is quite simple because of the basic properties and longevity of the material itself.

DO NOT USE solid or granulated cleaners, as they will ruin the natural finish.

Fiberglass Body

Fiberglass walls are very durable and are easy to maintain. Standard automotive cleaning soaps work well for general cleaning and maintenance. Special cleaners are available at automotive and RV stores.



Scratches and chips can be easily fixed by an experienced fiberglass repair shop. Any major damage should be repaired as soon as possible to prevent cracks from becoming larger.

Furniture

To clean furniture, frequently vacuum or brush it lightly to remove dust and dirt. For best results, have it professionally dry cleaned.

Paneling

To clean the paneling, use a mild solution of soap and lukewarm water with a soft sponge or cloth. DO NOT use abrasive cleaners. It may cause scratches and the panel may become dull.

Grease spots and stubborn dirt can be cleaned with an all-purpose spray cleaner. DO NOT use cleaners that contain bleach.



Mattresses/ Care of your upholstery

Please use common sense and treat your furniture as you would at home. Remember, your travel trailer is a small living area, so soiling may occur more frequently and the fabric will probably need more attention than your furniture at home.

Please follow these guidelines for cleaning upholstery fabrics on the cushions/bed mats. Frequent vacuuming with a brush attachment or a light hand brushing will help remove dust, hair, sand and other particles which may dull the look of the fabric and accelerate wear. The fabric can be gently steam cleaned on the cushions or mats if necessary.

Solvents are not recommended since they may have an adverse reaction to the specific backing of your upholstery fabric.

Do not saturate the area. Clean in a well ventilated area and avoid products containing toxic materials. Always pretest a small area before proceeding.

CAUTION: Do not dry clean the covers of the cushions/bed mats. If the covers are dry cleaned, the vinyl will become hard and crack.

Containers/ Luggage area

Under the designed space for mattress there are 2 special compartments where you can storage up to 120 l (wardrobe capacity).

This space is shaped out of the monobloc fiberglass body. Because of this we strongly advice you to not saturate the area. Just well ventilate the area and avoid cleaning with products containing toxic substances. Before cleaning always pretest a small area before proceeding.

Kitchen unit

Migrator is equipped with a semi kitchen (depending on your options).

The shape and the volume of the kitchen may vary. It may also come with a half upper side kitchen cabinet: empty or with fridge 35 l.

The material of the kitchen is mainly fiberglass structure with HPL\HPO finishes. This way it's light, but strong enough to ensure your comfort for the kitchen area. To clean the kitchen unit use a mild solution of soap and lukewarm water with a soft sponge or cloth. **DO NOT** use abrasive cleaners. It may cause scratches and the panel may become dull.

Grease spots and stubborn dirt can be cleaned with an all-purpose spray cleaner. **DO NOT** use cleaners that contain bleach!

Free standing Table

The free standing table is part of the Kitchen cabinet. It is incorporated in the lower kitchen cabinet, and can serve you as a regular table, or as a support for a kitchen chopping board. Its function is also to mask the water tank of the kitchen unit.

MAXIMUM LOAD 25 Kg.

To clean the free standing table use a mild solution of soap and lukewarm water with a soft sponge or cloth. **DO NOT** use abrasive cleaners. It may cause scratches and the panel may become dull.

Grease spots and stubborn dirt can be cleaned with an all-purpose spray cleaner. **DO NOT** use cleaners that contain bleach.

Shower & Sink Unit

The sink unit is part of the kitchen area.

It contains a sink water tap, incorporated in the lower kitchen cabinet. This way it saves space, and still offers you everything you need in your kitchen area.

It also contains a water pump, of 12V and a 40 l Fresh water tank, that are incorporated in the kitchen structure.



in order to activate the water tap from the sink, you first need to turn on the water pump, from the main control panel PC 380\180.



The shower socket is located on the right back side.
in order to activate the shower, you first need to turn on the water pump, from the main control panel PC 380\180.



Guidance on cleaning the portable water tank



The portable water tank is easy to use. You may add water to the tank through the dedicated space. On the outside of the mini-caravan body, aligned with the kitchen unit, there is a circular space that allows you to add water to the tank.

The used water is automatically drained and through a funnel, you may choose where to dispose it.

Tip: The funnel runs under the body of the mini-caravan, but do to it's length you may direct it to whatever direction you want/need.

For a clean water tank we recommend you to use frequently the shower & sink unit. Also, if you feel the need to clean it you may use mild solution of soap and warm water. After this operation just drain and refill the tank until there is no more foam.

DO NOT use cleaners that contain bleach or TOXIC solutions.

Safety precautions

A caravan or mobile home fire is always serious and can have disastrous consequences. By following a few simple steps and having a basic level of awareness you can reduce the risk of a fire in your mini-caravan.

Siting Your Caravan

When siting your mini-caravan it is important to try and site it at least six metres away from others, therefore lowering the risk of fire spreading. It is also important to keep your mini caravan ventilated and don't block any air vents. If you are on a caravan site get to know where all the fire fighting firefighting equipment is located.



Your caravan is equipped with a fire extinguisher. This will enable you to tackle a small fire and can minimise the risk of a fire spreading and getting out of hand.

Ensure that everyone knows how to use the extinguisher and how to raise the alarm in the event of a fire.

We would recommend a water mist extinguisher as it will tackle most small fires, including electrical fires.

Cooking Safety



When cooking in your mini-caravan it is important that you never leave your cooker unattended, especially when children are present.

Turn the pan handles away from the edge of the cooker to reduce the risk of the pan being knocked off.

Ensure that there are no curtains, towels or other combustible materials hanging down near your cooker. Keep worktops near cooking equipment free from paper and other sources of fuel.



Electrical Appliances & Safety

Check appliances in your mini-caravan as often as possible to ensure electrical wiring is in good order. Ideally it should be tested regularly by a qualified electrician. Never use equipment that has damaged plugs or cables.

Always ensure that your cables are not wedged under heavy objects, this could damage the internal wiring and cause a fire.

Make sure all heaters, cookers and TV sets are switched off last thing at night or when leaving your mini-caravan. Never block heaters as it can cause a fire and remember that heaters need air, so open a door or window.



Do not overload electricity sockets and avoid using multi-adaptors.



Do not run appliances from a light socket. If you need to use extension cables ensure that they are fully extended, especially if it is a rolled cable within a drum.



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