



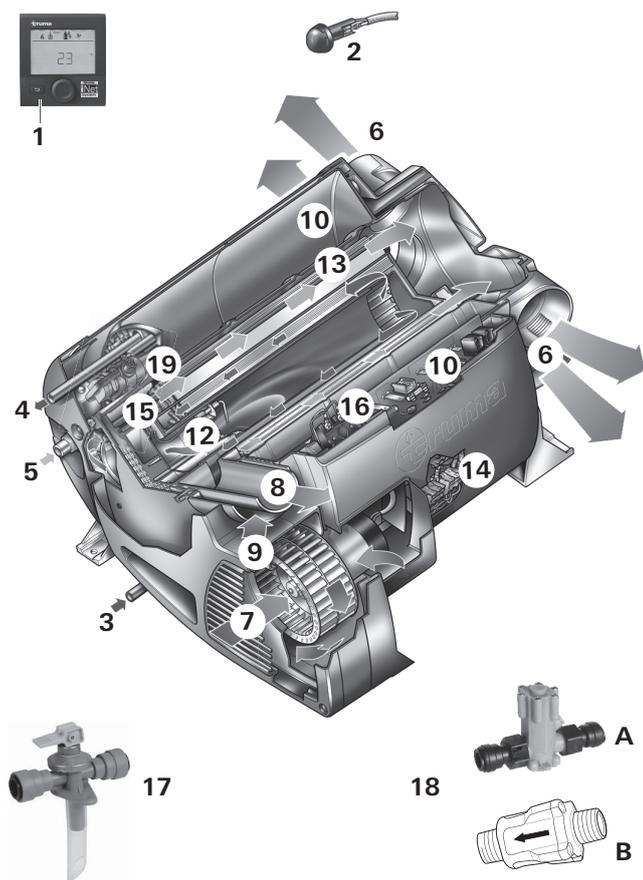
Truma Combi 2 E / 4 E AU

AUS **Operating instructions**
Installation instructions

To be kept in the vehicle!

Page 2

Page 11



- 1 Control panel (digital)
- 2 Room temperature sensor
- 3 Cold water connection
- 4 Hot water connection
- 5 Gas connection (with pressure test point – not shown)
- 6 Hot air outlets
- 7 Recirculated air intake
- 8 Waste gas discharge
- 9 Combustion air infeed
- 10 Electronic control unit
- 11 Water container (10 litres)
- 12 Burner
- 13 Heat exchanger
- 14 Power electronics
- 15 Heating elements 240 V
- 16 Overheating switch 240 V
- 17 Drain valve
- 18 Water pressure reducer (A and B)
- 19 P&T relief valve

Fig. 1

Table of contents

| | |
|--|----|
| Symbols used | 3 |
| Safety instructions | 3 |
| Function description | 5 |
| Operating instructions | |
| Control panels | 6 |
| Room temperature sensor | 6 |
| Drain valve | 6 |
| P&T relief valve | |
| (Pressure and temperature relief valve) | 6 |
| Filling the hot water system | 6 |
| Draining the hot water system | 7 |
| Start-up | 7 |
| Switching off | 7 |
| Maintenance | 7 |
| Fuses | 7 |
| Fuse 12 V | 7 |
| Fuse 240 V | 7 |
| Overheating protection 240 V | 8 |
| Faults | 8 |
| Troubleshooting guide (water supply) | 8 |
| Technical data | 9 |
| Accessories | 9 |
| Truma warranty policy | 10 |

Installation instructions

| | |
|---|----|
| Intended use | 11 |
| Approval | 11 |
| Regulations | 11 |
| Selecting a location | 11 |
| Securing the device | 12 |
| Exhaust gas removal | 12 |
| Installing the wall cowl | 12 |
| Connecting the exhaust double duct to the device | 13 |
| Recirculated air intake | 13 |
| Warm air distribution | 13 |
| Gas connection | 14 |
| Water connection | 14 |
| Mounting of the discharge pipe | 15 |
| Mounting the drain valve | 15 |
| Installation of the pressure reducer | 15 |
| Water pipe routing | 15 |
| Installing the room temperature sensor | 16 |
| Installing the control panel | 16 |
| Electrical connections | 16 |
| 12 V $\overline{=}$ voltage supply | 17 |
| Room temperature sensor | 17 |
| Control panel / air conditioning system | 17 |
| Electrical connection 230 ~ / 240 V ~ – option – | 17 |
| Function test | 17 |
| Warnings | 17 |

Trademark information

Truma Combi, referred to as Combi below.

Symbols used



The unit must only be installed and repaired by an expert.



Symbol indicates a possible hazard.



Comment including information and tips.



Observe the ESD regulations! An electrostatic charge can destroy the electronics. Ensure potential equalisation before touching the electronics.

Safety instructions

If the gas system is leaking or if there is a smell of gas:

- extinguish all open flames
- open windows and door
- close all quick-acting valves and gas cylinders
- do not smoke
- do not activate any electric switches
- ask an expert to inspect the entire system!

Ensuring a safe operating environment

- The unit may be operated only with appropriate Truma control panels and accessories.

- **Danger of suffocation!** To ensure dissipation of exhaust gases, operate the appliance outdoors only. Never use in enclosed spaces or tents or breathe in the exhaust gases.

- If the cowl has been placed near or directly beneath an opening window, the appliance must be equipped with an automatic shut-off device in order to prevent operation with the window open.

- **Do not** place articles on or against this appliance.

- **Do not** use or store flammable materials near this appliance.

- **Do not** spray aerosols in the vicinity of this appliance while it is in operation.

- **Do not** modify this appliance.

- **Do not** use any after market air filters or air grills. The use of such components may cause the unit to overheat.

- Keep flammable materials away from the area in front of the hot air outlets. Never block the hot air outlets.

- In order to avoid overheating of the appliance keep the air inlets of the device, the air openings to the area in which the appliance is installed and the spacing around the appliance free of obstruction.

- Keep the cowl for the exhaust duct and combustion air intake free of blockages (slush, ice, leaves etc.) at all times.

- **Warning:** Air from the discharge vent may be hot. Do not place combustible materials directly in front of the discharge vent. Keep curtains, bedding and other flammable materials away from the vent.

- Water may drip from the discharge pipe of the P&T relief valve and this pipe must be left open to the atmosphere.

- Any discharge pipe connected to the P&T relief valve is to be installed in a continuously downward direction and in a frost free ambient.

Obligations of the operator / vehicle owner

- The operator is responsible for the water filled into the Combi water container and its quality.

- The vehicle owner is responsible for correct operation of the appliance.

- The installer or vehicle owner must apply the yellow sticker with the warning information, which is enclosed with the appliance, to a place in the vehicle where it is clearly visible to all users (e.g. on the wardrobe door)! Ask Leisure-Tec Service to send you stickers, if necessary.

- For your own safety it is absolutely necessary to have the complete gas installation regularly checked by an expert (at least every 2 years). The vehicle owner is always responsible for arranging the gas inspection.

- Check gas hoses regularly and have them replaced if they become brittle.

- The use of upright gas cylinders from which gas is **taken in the gas phase** is mandatory for the operation of gas regulators, gas equipment and gas systems. Gas cylinders from which gas is taken in the liquid phase (e. g. for forklifts) must not be used, since they would result in damage to the gas system.
- The operating pressure for the gas supply is 2.75 kPa and must correspond to the operating pressure of the appliance (see type plate).
- LPG systems and pressure regulators must comply with the technical and administrative regulations of the country in which the appliance is used (AS/NZS 5601).
- We recommend the gas pressure control system Truma MonoControl CS for vehicles and the Truma gas pressure control system DuoControl CS for dual-cylinder gas systems.
- The flow rate of the pressure control device must correspond to at least the maximum consumption of all devices installed by the system manufacturer.
- At temperatures of around 0 °C or less the gas pressure regulator and the changeover valve should be operated using the EisEx regulator heater.
- Controller connecting hoses that meet national regulations must always be used in the respective country for which the equipment is destined.
- Ensure that the inside of the vehicle is sufficiently ventilated. When the unit is started up, there may be some smoke and/or smell due to dust or dirt. Especially if it has not been used for a long time.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

- The integrity and tight fit of the exhaust gas double duct must be checked regularly, particularly at the end of long trips. Also check the mounting of the appliance and the cowl.

Safe operation while driving

- Shut OFF gas and the LPG tank when moving the RV. This disables all gas appliances and pilot lights. Gas appliances must never be operated while vehicle is in motion.
- Liquefied gas equipment may not be used when refuelling, in multi-storey car parks, in garages, or on ferries.
- If the heater is not being used, always drain the water if there is a risk of frost. **No warranty claims for frost damage will be accepted.**
- To prevent damage to the device from spray water, such as when cleaning the vehicle, do not spray water directly into the wall cowl.

Safe handling of malfunctions

- If you notice unusual sounds or smells, close the gas supply and switch the Combi off.
- Danger of fire / explosion if you attempt to use a Combi that has been damaged by flooding or if the vehicle has been involved in an accident. A damaged Combi must be repaired by an expert or be replaced.
- The damaged Combi may have to be replaced with a new one.
- Only carry out repairs yourself if the solution is described in the troubleshooting guide of this manual.
- Following a blow-back (misfire) always have the exhaust duct checked by an expert.

Safe maintenance and repair

- The unit may only be repaired and cleaned by authorised persons.
- Children must not carry out maintenance, repair or cleaning work.

- Guarantee claims, warranty claims and acceptance of liability will be ruled out in the event of the following:
 - modifications to the unit (including accessories),
 - modifications to the exhaust duct and the cowl,
 - failure to use original Truma parts as replacement parts and accessories,
 - failure to follow the installation and operating instructions.
- It also becomes illegal to use the appliance, and in some countries this even makes it illegal to use the vehicle.
- With a new Combi or if the unit has not been used for some time, rinse all hot/cold water hoses with drinking water thoroughly before use.
- Failure to operate the drain valve and the P&T safety valve at least once every six months may result in the water heater exploding. Continuous leakage of water from the valves may indicate a problem with the water heater.
- The drainage socket of the drain valve must be free of blockages (slush, ice, leaves, etc.) at all times so the water can drain easily! No warranty claims for frost damage will be accepted.
- The operation of the overheating protection 240 V indicates a possibly dangerous situation. Do not reset the overheating protection 240 V until the water heater has been serviced by a qualified person.

Function description

The Combi 2 E / 4 E (Australia) liquefied gas heater is a warm-air heater with integrated hot water system (10 litre capacity). The burner is fan-assisted, which ensures that operation is problem-free, even when on the move. The unit also has heating elements for electrical operation.

In **heating and hot water mode** the heater can be used to heat the room and heat water at the same time. If only hot water is required, select **hot water mode**.

3 different options are available for operating the unit:

- **gas mode** only
LPG for autonomous use
- **electrical mode** only
240 V for stationary use on camp sites
- or gas and electrical mode – **mixed mode**
Only possible in heating and hot water mode.

Heating and hot water mode

In **heating and hot water mode**, the unit automatically selects the required operating level according to the temperature difference between the temperature set on the control panel and the current room temperature. If the hot water system has been filled, the water is automatically heated as well. The water temperature depends on the selected operating mode and the heater output.

All 3 energy selection options can be used for winter deployment.

- In **gas mode** the unit automatically selects the operating level that is required.
- In **electrical mode** output of 980 W (4.1 A) or 1960 W (8.1 A) can be manually preselected in accordance with the fuse protection at the camp site.

If more output is required (e.g. heating up or low outside temperatures) gas or mixed mode should be selected so that enough heating power is always available.

- In **mixed mode** 240 V electrical mode is preferred if the power requirement is low (e.g. for maintaining the room temperature). The gas burner is not enabled until the power requirement is higher, and is the first to switch off during heat-up operation.

Hot water mode

(with filled hot water system only)

Gas mode or 240 V electrical mode is used to generate hot water. The water temperature can be set to 60 °C.

- In **gas mode** the water is heated at the lowest burner setting. Once the water temperature has been reached, the burner switches off.
- In **electrical mode** output of 980 W (4.1 A) or 1960 W (8.1 A) can be manually selected in accordance with the fuse protection at the camp site.

 **Mixed mode** is not possible. With this setting the unit automatically selects electrical mode. The gas burner is not enabled.

Operating instructions

Read the safety instructions and operating manual carefully before starting the unit.

i Operating instructions can be viewed in offline mode with a mobile device and the Truma App. Download the operating instructions when you have a WiFi connection and save them on your mobile device.

i Before using for the first time, it is essential to flush the entire water supply system with clean water. If the heater is not being used, always drain the water if there is a risk of frost. **No warranty claims for frost damage will be accepted.**

Control panels

The control panels are described in a separate operating instruction.

Room temperature sensor

To measure the room temperature, an external room temperature sensor (2) is located in the vehicle. The position of the sensor is determined by the vehicle manufacturer, depending on the vehicle model. More information can be found in the operating instructions for your vehicle.

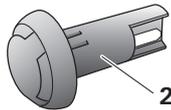


Fig. 2

The temperature setting on the control panel depends on personal heating requirements and the design of the vehicle, and must be determined individually.

Drain valve

The drain valve automatically equalises the pressure in the event of overpressure in the system. When this occurs, the water is drained to the outside in intermittent bursts via a drainage socket.

i This drain valve does not protect the water container from **frost damage**.

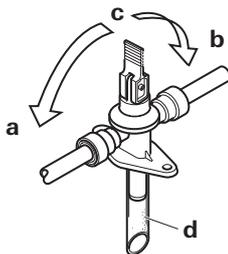


Fig. 3

- a = Lever in position "Operational – closed"
- b = Lever in position "Operational – closed"
- c = Lever in position "Drain"
- d = Drainage socket (led outside through floor of vehicle)

Opening the drain valve

- Move lever to position (c) – vertical. The water from the hot water system drains through the drainage socket (d).

! The drainage socket (d) of the drain valve must be free of blockages (slush, ice, leaves, etc.) at all times so the water can drain easily! **No warranty claims for frost damage will be accepted.**

Closing the drain valve

- Move lever to position (a) or (b) – horizontal.

P&T relief valve

(Pressure and temperature relief valve)



Risk of scalding injury from hot water and/or tampering with the P&T relief valve!

- Do not actuate the P&T relief valve as long as the appliance is still hot.
- Do not place a plug or reducing coupling in the discharge pipe (Fig. 3a - 19a) of the P&T relief valve.
- Do not operate the water heater without a functioning P&T relief valve.

The P&T relief valve (19) is a safety component and must not be removed for any reason other than replacement.

The P&T relief valve is not serviceable; if defective it must be replaced (failure to reuse an old P&T relief valve). It must be replaced by a certified service technician.

Tampering with the P&T relief valve will void the warranty.

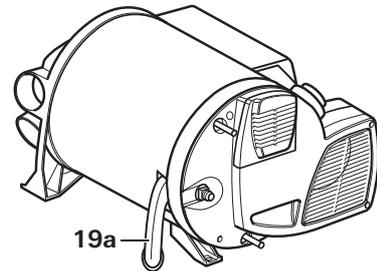


Fig. 4

Filling the hot water system

Check whether the drain valve is closed (see "Closing the drain valve").

- Switch on the power for the water pump (main switch or pump switch).
- Open hot water taps in kitchen and bathroom, (set preselecting mixing taps or single-lever fittings to "hot"). Leave the fittings open for as long as it takes for the hot water system to displace the air and fill up and the water to flow without interruption.

i If only the cold water system is being operated without the hot water system, the hot water system also fills up with water. To avoid frost damage, the hot water system must be drained via the drain valve, even if it was not operated.

In the event of frost, filling may be prevented by residual water that has frozen. The hot water system can be thawed out again by briefly starting it up (max. 2 minutes). Frozen lines can be thawed out by heating up the interior.



If connected to a central water supply (rural or urban connection), a pressure reducer must be used, which will prevent pressures of greater than 280 kPa from occurring in the hot water system.

Draining the hot water system

! If the motor home / caravan is not used during the winter, the hot water system must be drained! **No warranty claims for frost damage will be accepted.**

- Switch off the power to the pump assembly (main switch or pump switch).
- Open hot water taps in kitchen and bathroom.

i In order to check the water that is flowing out, place an appropriate container (capacity 10 litres) beneath the drainage socket (d) of the drain valve.

- Open drain valve (see "Opening the drain valve").

The hot water system is now drained directly to the outside via the drain valve. Check whether all of the water in the hot water system (10 litres) has been drained into the container via the drain valve.

Start-up

The use of the installed control panel is described in separate operating instructions.

The interior can be heated in gas, electrical or mixed mode, either with or without water, depending on the setting.

Check whether the power supply fuse protection at the camp site is adequate for the 980 W (4.1 A) or 1960 W (8.1 A) that have been selected.

The cable drum must be fully unwound in order to prevent the power cable from overheating.

- Check to make sure the cowl is unobstructed. Be sure to remove any covers that may be present.
- Open gas cylinder and quick-acting valve in gas supply line.
- Fill hot water system with water if necessary (see "Filling the hot water system").
- Switch on heater at control panel.

Switching off

- Switch off heater at control panel.

i The switch-off procedure may be delayed by several minutes because of internal heater operations.

Always drain water if there is a risk of frost!

If the heater is not going to be used for a long period of time, close the quick-acting valve in the gas supply line and turn off the gas cylinder.

Maintenance

Only original Truma parts may be used for maintenance and repair work!

! Servicing should be carried out only by authorised personnel.

Please contact Leisure-Tec Service Centre for service and repairs.

! Failure to operate the drain valve and the P&T safety valve at least once every six months may result in the water heater exploding. Continuous leakage of water from the valves may indicate a problem with the water heater.

Biofilm, deposits and limescale must be removed using chemicals to protect the unit from infestation by microorganisms. Only chloride-free products must be used in order to prevent damage to the unit.

The effectiveness of the use of chemicals to combat microorganisms in the unit can be increased by heating the water in the hot water system to 70 °C at regular intervals.

- Select "Gas" mode.
- Set water temperature to 60 °C.
- Switch on device.

i Once the water in the hot water system has reached a temperature of 60 °C, the burner will switch off. The unit must stay switched on for at least 30 minutes and no warm water may be removed. The residual heat in the heat exchanger will heat the water up to 70 °C.

Fuses

Fuse 12 V

The fuse is in the electronics beneath the connection cover. Replace the unit's fuse only with an identical fuse.

Device fuse: 10 A – slow – 5 x 20 mm

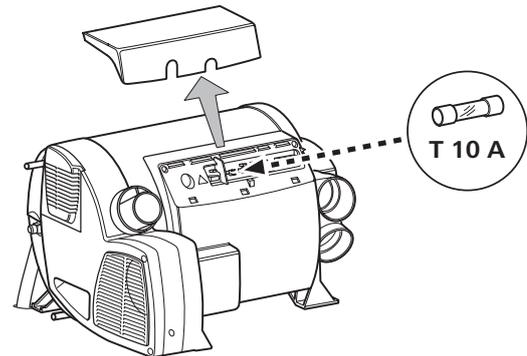


Fig. 5

Fuse 240 V

The fuse and the power supply lines must only be replaced by an expert!

! The unit must be disconnected from the mains (all poles) before opening the electronic housing lid.

The fuse is in the power electronics (16) beneath the electronic housing cover.

This fine fuse must always be replaced with a fuse of the same type: 10 A, slow, interrupting capacity "H".

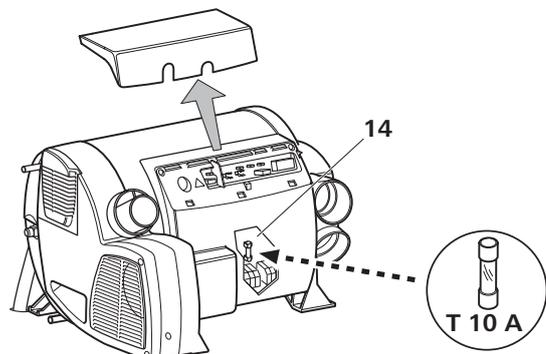


Fig. 6

Overheating protection 240 V

 The operation of the overheating protection 240 V indicates a possibly dangerous situation. Do not reset the overheating protection 240 V until the water heater has been serviced by a qualified person.

The 240 V heating facility has a mechanical overheating switch. If the 12 V power supply is interrupted during operation or during the after-run period, for example, the temperatures within the unit could activate the overheating protection.

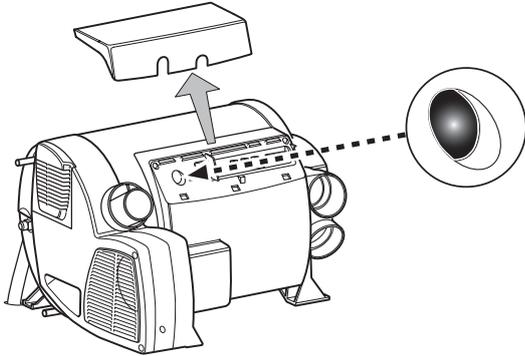


Fig. 7

To reset the overheating protection, allow heater to cool, remove connection cover and press red reset button.

Faults

Faults – Heater

Descriptions of possible fault causes and a troubleshooting guide can be found in the operating instructions for the control panel that is installed.

Faults – Water supply

Possible fault causes and a troubleshooting guide – See “Troubleshooting guide (water supply)”.

Troubleshooting guide (water supply)

| Fault | Cause / Remedy |
|---|---|
| Water taking an extremely long time to heat up. | Water container furred. / Descale water system (see “Maintenance”). |
| Water running out, cannot fill hot water system. | Drain valve open. / Close drain valve. |
| Cannot empty hot water system, even though drain valve is open. | Drain valve draining connection blocked. / Inspect opening for blockages (slush, ice, leaves, etc.) and remove blockage if necessary. |
| Water dripping/flowing from draining socket of drain valve. | Water pressure too high. / Check pump pressure (max. 280 kPa). If connected to a central water supply (rural or urban connection), a pressure reducer must be used, which will prevent pressures higher than 280 kPa entering the hot water system. |
| When opening the cold water tap, hot water comes out. | Hot water flows back through the cold water supply. / Fit a non-return valve in the cold water supply (refer to installation instructions “Water connection”). |

If these measures do not rectify the fault, please contact the nearest Leisure-Tec Service Centre.

Disposal

The device must be disposed of in line with the administrative regulations of the respective country in which it is used. National regulations and laws must be observed.

Technical data

determined in accordance with EN 624 or Truma test conditions

Protection type / protection class

IP21 / class I

Type of gas

LPG (Liquefied Petroleum Gas – propane / butane)

Operating pressure

2.75 kPa (see type plate)

Water capacity

10 litres

Maximum working water pressure

500 kPa

P&T relief valve setting

500 kPa – 99 °C – 10 kW

Heating up time from approx. 15 °C to approx. 60 °C

Hot water system approx. 23 minutes

(measured according to EN 15033)

Heater + hot water system approx. 90 min.

Pump pressure

max. 280 kPa

System pressure

max. 450 kPa

Nominal input (Propane)

Combi 2 E (Australia): 6.9 MJ/h

Combi 4 E (Australia): 13.6 MJ/h

Thermal output

Electrical operation (240 V): 980 W / 1960 W

Mixed operation (gas and electrical): max. 3900 W

Gas operation

Combi 2 E (Australia): max. 1950 W

Combi 4 E (Australia): max. 3900 W

Gas consumption (Propane)

Combi 2 E (Australia): 130 g/h

Combi 4 E (Australia): 130 – 260 g/h

Air delivery volume (free-blowing without hot-air pipe)

with 3 hot-air outlets max. 249 m³/h

with 4 hot-air outlets max. 287 m³/h

Current input at 12 V ---

Heater + hot water system

Short-term max. 5.6 A (average power consumption 1.1 A)

Heating up of hot water system: 0.4 A

Stand-by: 0.001 A

Current input at 240 V \sim

4.1 A (980 W) or 8.1 A (1960 W)

Weight (not containing water)

Heater unit: 16.2 kg

Heater unit with

peripheral devices: 16.8 kg

Water pressure reducer

Flow range water: 0 – 10 litres/min.

Maximum inlet pressure: 700 kPa

Maximum outlet pressure: 200 kPa



Dimensions

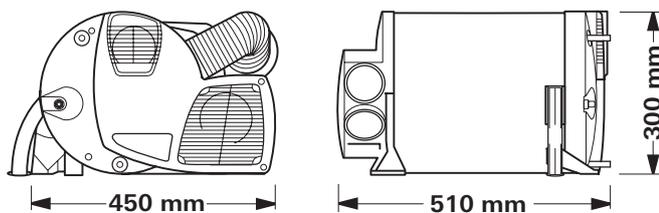


Fig. 8

The right to make technical modifications is reserved!

Accessories

Truma CP plus

Digital control panel Truma CP plus with automatic air conditioning system for the Truma heaters Combi and Truma air conditioning systems Aventa eco, Aventa comfort (from serial number 24084022 – 04/2013), Saphir comfort RC and Saphir compact (from serial number 23091001 – 04/2012)

- The automatic air conditioning system function automatically controls the heater and the air conditioning system until the required temperature is reached in the vehicle..



Fig. 9

Accessories (without picture) for control panels

- Cable available in different lengths

Truma warranty policy

The warranty is given by Leisure-Tec Australia Pty. Ltd., 50 Metrolink Circuit, Campbellfield, Victoria, 3061, Australia for 12 months from the date of purchase against any defect arising from faulty materials or workmanship.

Repairs will be carried out during normal business hours only by Leisure-Tec Australia Pty. Ltd., or its duly authorised service agents, and are subject to the warranty conditions and exclusions hereunder.

Warranty conditions

- The company will only provide service on presentation of proof of purchase, on either the Truma product, or the Caravan / RV / Pleasure Craft in which the Truma product has been installed, to any authorised service agent. The purchaser must allow the service agent to photocopy the proof of purchase to facilitate his claim to the manufacturer.
- Warranty repairs can only be performed by authorised service agents and under no circumstances will Leisure-Tec reimburse repairs carried out by unauthorised persons. Tampering with any part of the product by unauthorised personnel will automatically void the warranty.
- The product must be used solely for domestic purposes. If the product is used for commercial purposes the warranty is 6 months only.
- Where applicable, the products must be used on the appropriate electrical voltage, gas type and pressure, or fuel source.
- If at any time during the warranty period any part or parts are replaced with a part or parts not supplied or approved by Truma, this warranty shall immediately become void.

Important notice

Before calling a service technician please check carefully the operating instructions, warranty terms and conditions. If the product fails for any of the reasons detailed therein, or is faulty due to abuse, misuse or improper installation, then a service fee shall be charged to the purchaser.

If you have any queries regarding the interpretation of the warranty you should contact Leisure-Tec Australia Pty. Ltd.

Whilst this book represents service outlets at the time of printing, changes occur from time to time. Should you have any queries or wish to locate your nearest authorised service agent please contact Leisure-Tec Australia Pty. Ltd.

Warranty does not cover

- Any heater which has been:
 - (a) Subject to misuse, neglect, accident or alteration by any person.
 - (b) Damaged or destroyed by fire, flood, act of God or other inevitable accident.
- Fair wear and tear.
- Damage from foreign substances such as dirt or liquid.
- Travelling expenses or call out fee to and from authorised service agents' premises.
- Accommodation or Site Expenses.
- Cleaning of the system or cleaning and adjustment of the gas system. This is considered to be a part of normal product maintenance.
- Non operation of the heater or resultant damage to the unit where the heater has been operated in an out of level situation.
- Freight cost of the appliance or parts, to or from, point of service or transit damage.
- Leisure-Tec / Truma are not responsible for resultant loss or damage sustained by the purchaser.
- Non operation of the appliance or resultant damage to the unit where the appliance has not been installed, ventilated, flued or operated in accordance with the manufacturer's instructions.

Apart from any warranties implied by the Trade Practices Act 1974 or any relevant State legislation all other warranties express or implied whether arising by virtue of statute or otherwise are hereby excluded.

Installation instructions



Read the installation instructions carefully prior to starting work and observe the instructions!

! Non-compliance with installation instructions or incorrect installation can result in endangerment of persons and property.

This appliance shall be installed in accordance with the manufacturer's installation instructions, local gas fitting regulations, municipal building codes, electrical wiring regulations, AS/NZS 5601 "Gas installations", AS/NZS 3500.4 "Plumbing and Drainage Part 4: Heated Water Services" and any other statutory regulations.

This appliance delivers hot water at temperatures exceeding 50 °C. Refer to AS/NZS 3500 and local regulations regarding the need for additional hot water delivery temperature control when hot water is supplied to sanitary fixtures primarily used for the purpose of personal hygiene.



Please pay attention to the ESD regulations!

Intended use

The Combi 2 E / 4 E (Australia) liquefied gas heater is a warm-air heater with integrated hot water system (10 litre capacity).

The heater comes with additional electric heating elements, for operation with a mains voltage of 240 V ~.

This unit was designed for installation in motor homes and caravans. The equipment must not be installed in buses (vehicle classes M2 and M3) or vehicles for transporting hazardous goods. If the equipment is installed in special vehicles, the applicable regulations must be followed.

Vehicles for hazardous materials

Combustion heaters for gaseous fuel are not permitted.

Approval

AGA Certification Number

8469

The year when the equipment was first put into operation must be indicated with a check on the type plate.

Regulations

Guarantee claims, warranty claims and acceptance of liability will be ruled out in the event of the following:

- modifications to the unit (including accessories),
- modifications to the exhaust duct and the cowl,
- failure to use original Truma parts as replacement parts and accessories,
- failure to follow the installation and operating instructions.

It also becomes illegal to use the appliance, and in some countries this even makes it illegal to use the vehicle.

In-vehicle installations must comply with the technical and administrative regulations of the respective country of use (e.g. AS/NZS 5601.2 for vehicles). The national regulations and rules must be complied with.

More information on the regulations in the relevant destination countries can be requested from our foreign representatives (see www.truma.com).

Selecting a location

The unit and its exhaust duct must always be installed so that they are easy to access at all times for service work (e.g. gas and water connection via a service flap, furniture doors etc.) and are easy to remove and install.

The distance between the unit and surrounding furniture items or vehicle components must be at least 10 mm on all sides.

The flue and warm air ducts can be installed without clearance. Make sure that there is at least 10 mm clearance to combustible materials around the warm air discharge vent and 500 mm in front of the vent. Locate the vent so that curtains, bedding, etc. cannot be blown directly in front of or come into contact with the warm air vent.



For warm air ducting only Truma ducts must be installed.

The scope of delivery includes a second type plate (duplicate) with removable bar code.

If the type plate on the heater is not visible after the heater has been installed, the second type plate (duplicate) must be affixed to the unit in a clearly visible location.

The duplicate must only be used in conjunction with the original.

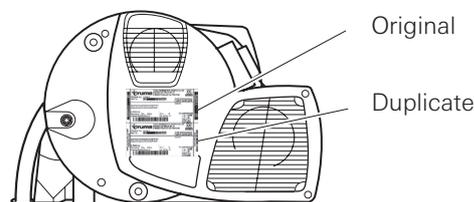


Fig. 10

In order to heat the vehicle evenly throughout, the heater must be installed in a location in the vehicle that is as **central** as possible in a wardrobe, stowage compartment or the like at a suitable height, so that the air distribution ducts can be routed with equal lengths. Appropriate openings must be present in the installation compartment so that air can be drawn in – see relevant sections concerning circulated air intake and warm air distribution.



In order to reduce the potential danger caused by a heater becoming loose in the event of an accident, the upper covering plate (17) of the installation cabinet can be screwed to other pieces of furniture in a position that makes it flush with the heater. Depending on the installation situation, it may be necessary (especially with rear-mounted fixtures) to install a stable furniture console (18) in front of (next to) the heater, perpendicular to the direction of travel. For this purpose, a solid spacer (minimum cross section 30 x 50 mm) can be attached at a height of approx. 180 mm above the floor, or a board (18a) for sliding in on a stable furniture console.

There must not be any heat-sensitive materials beneath the unit (e.g. floor coverings such as PVC, cables etc.), since high temperatures can occur at the base of the unit.

In order to prevent damage to components inside the equipment, no cables or water lines of any kind may be attached to the equipment's insulation.

The operation of important vehicle components must not be adversely affected.

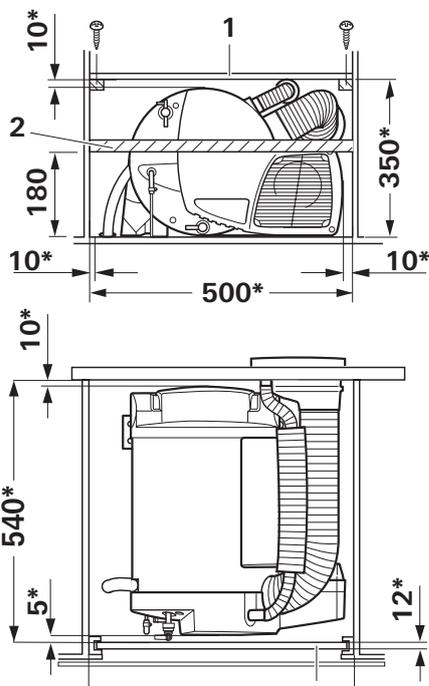


Fig. 11

* Minimum dimensions – additional space must be provided for the gas connection, water connections and the FrostControl depending on the installation situation. All dimensions in mm.

The cowl must be placed in such a way that exhaust gas cannot find its way into the vehicle interior.

 The cowl must be in the form of a wall or roof cowl

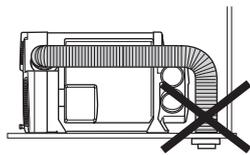


Fig. 12

The wall or roof cowl must be attached so that there is no fuel tank filler neck or fuel tank breather opening within 500 mm (R). There must also be no living area ventilation openings or window openings within 300 mm.

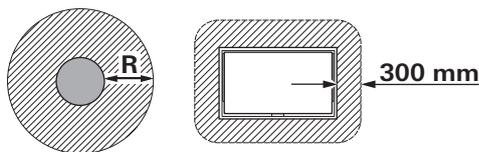


Fig. 13

 If the cowl is being installed directly underneath a window that will be opened, installation of an electric window switch (part no. 34030-34700) is recommended.

Information about roof windows

In the case of roof windows (pop-out), the cowl top needs to protrude at least 10 cm above the opened window. If the cowl is next to the window, steps must be taken to ensure that, depending on where it is installed (opened on the right or left), no exhaust air can enter the open window (e.g. via wind) and that the cowl has a good supply of incoming air.

Refer to AS/NZS 5601.2 – Gas Installations, for location requirements of the flue terminal.

Securing the device

Check whether the vehicle has a load-bearing floor or false floor for securing the heater. If the floor is unsuitable, create a load-bearing surface beforehand by gluing a plywood board to the floor, for example.

Screw heater to vehicle floor or false floor using four B 5.5 x 25 screws (included in scope of delivery). Depending on the situation, it may be possible to secure the heater with three screws; in this case, always screw aluminium feet (a) and selectively one of the plastic feet (b) to the vehicle floor.

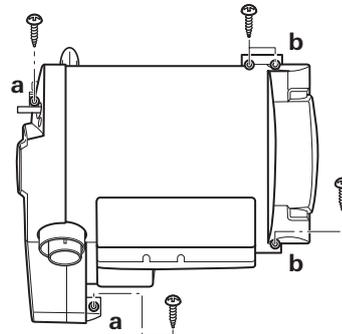


Fig. 14

 **The heater must be screwed to the floor of the vehicle or the false floor in order to prevent the gas system from becoming damaged because of movement while driving!**

Exhaust gas removal

Only Truma exhaust duct AA 3 (part no. 39320-00) and combustion air infeed ZR 80 (part no. 39580-00) may be used for the Combi 2 E / 4 E (Australia) heater because the unit was tested and approved only with these ducts.

Do not crush or kink these ducts during installation.

 The roof cowl is available as an accessory to the heating device – assembly instructions are enclosed with the delivery.

Installing the wall cowl

Permissible duct lengths

The length specifications refer to the combustion air intake duct.

Ducts with a length of at least 60 cm to a maximum of 100 cm can be routed with any amount of rise for the wall cowl, or with a maximum fall of 20 cm.

Duct lengths from 100 cm to max. 200 cm may only be installed rising.

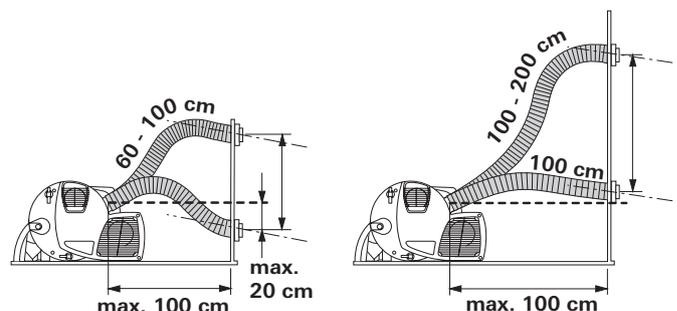


Fig. 15

The ducts must be cut to length so that they protrude from the hole for the cowl after installation. The exhaust duct (1) must be 10 % longer than the combustion air intake duct (5). This avoids exhaust duct expansion and tensile load.

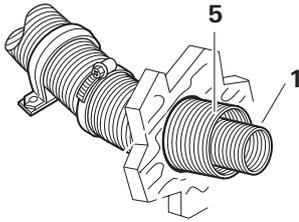


Fig. 16

Installing the wall cowl

Install wall cowl (arrow pointing up) on an even surface around which wind can flow from all sides. Drill opening with a diameter of 83 mm (duct hole must be lined with wood in cavities). Seal with provided rubber seal (8). Use flexible body sealant on textured surfaces – do not use silicone!

Before pushing the exhaust double duct through the hole, slide clamp (7) over duct.

Slide rubber seal (8 – **smooth side towards cowl, sealing lips towards wall**) onto inner part of cowl (9).

Compress beginning of exhaust duct (1) (approx. 2 cm thereof) so that the coils are lying against each other.

Slide clip (2 – claws facing cowl) over exhaust duct (1).

Slide exhaust duct (1) onto connection as far as it will go (11 – bend facing upwards).

Slide on clip (2) as far as it will go (end position must be between claws of clip) and screw in place.

Slide combustion air intake duct (5) onto toothed connecting piece (12).

Attach cowl inner part (9) with six screws (13), fit outer part of cowl (14) and screw on with two screws (15) (screws B 3.5 x 25, included with delivery).

Use clip (7) to attach combustion air intake duct to connection (12) from inside and (if length greater than 60 cm) attach to wall with at least one clip ZRS (16 – part no. 39590-00).

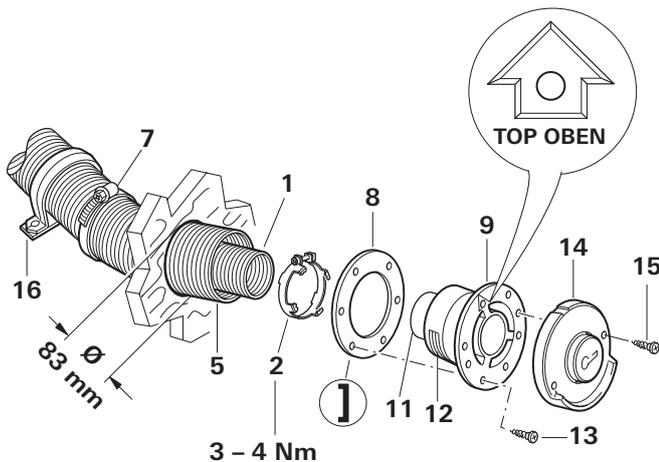


Fig. 17

Connecting the exhaust double duct to the device

Compress exhaust duct (1) at its beginning so that the coils lie next to each other. Slide clip (4 – claws toward unit) over exhaust duct (1). Slide clip (7) onto combustion air intake (5). Slide exhaust duct (1) all the way onto connection (3). Slide exhaust duct clip (4) as far as it will go (end position must be between claws of clip) and screw in place. Slide combustion air intake duct (5) onto connection (6) and secure with clip (7).

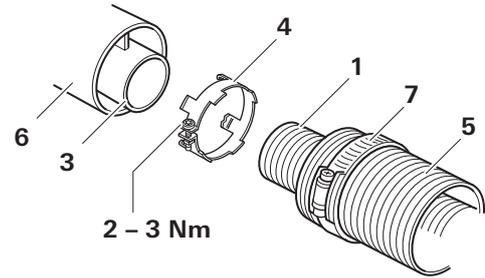


Fig. 18

Recirculated air intake

The circulated air is drawn in by the unit. This must have one large or several small openings with a total area of at least 150 cm² between the living compartment (not the rear storage space) and the installation compartment.

If a grid (not in scope of supply) is installed (Fig.19), the same size requirement regarding cross-sectional area (150 cm²) for drawing in air must be observed.

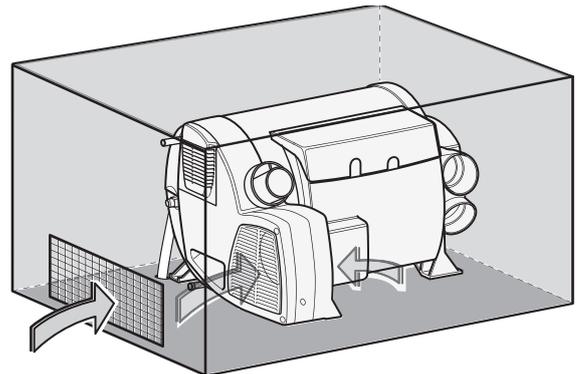


Fig. 19

The circulated air inlets must be arranged so that exhaust from the vehicle engine or the heater cannot be drawn in under normal operating conditions. It must be ensured by means of construction design that the heating air introduced into the vehicle is not polluted.

Warm air distribution

Most of the warm air is led into the floor area of the living compartment via flexible ducts.

The 4 connections on the unit are designed for the 65 mm diameter ÜR duct (part no. 40230-00).

! Only Truma ducts are approved with the heating system and must be used.

Use only pressure-safe ducts in compliance with Truma quality requirements. Other ducts that do not meet our quality standard (particularly crown pressure resistance, duct diameter and number of grooves) must not be used.

If the warm air duct has to be subjected to a considerable amount of bending immediately behind the warm air outlet of the unit in confined spaces, we recommend the use of the BGC 90° elbow (part no. 34091-01). This elbow makes it possible to connect a ÜR warm air duct with a diameter of 65 mm or a VR warm air duct with a diameter of 72 mm.

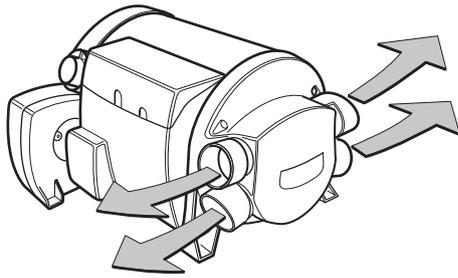


Fig. 20

With a duct length of less than 2 m the air outlet must not be installed higher than the warm air duct muff. With a duct length of less than 50 cm, the duct must create a siphon between the connection and the outlet.

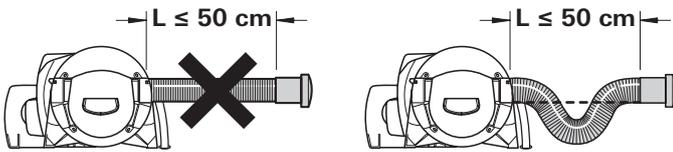


Fig. 21

These measures prevent undesirable heating of the vehicle due to convection (cowl effect) during operation in hot water mode.

i The ducts for warm air distribution must be firmly inserted into the connections. A clip is attached to each connection to provide a more secure grip.

For optimum warm air distribution, Truma always recommends using the 4 warm air outlets of the heater. If only three warm air outlets are needed, one of the lower warm air outlets must be sealed with a blank cover VD-Combi (part no. 34310-01). The blank cover must be firmly pushed into the moulded part of the heater until it audibly engages and is firmly seated. Check for firm seating.

i If four warm air outlets are being used, a closable end outlet EN may be installed in **one** warm air branch. If there are only 3 warm air outlets, it must be ensured that if a closable end outlet is being used (e.g. bathroom), a second non-closable nozzle is installed in the warm air branch.

Gas connection

! A gas pressure regulator has to be used, which ensures gas supply at gas pressure level 2.75 kPa. The gas supply's operating pressure must be the same as the unit's operating pressure (see type plate). The gas installation must comply with AS/NZS 5601.2.

The gas inlet connection on the Combi 2 E / 4 E (Australia) is a 8 mm connection.

Prior to connecting the appliance, make sure that the gas lines are free from dirt, chips and such!

Gas-connection muff (21) on the unit may not be shortened or bent.

Route the pipes in a way that will facilitate removing the unit for service tasks.

To connect, the UNF 1/2" – 20 (SAE Male AN Flare) gas inlet connection (20) provided with the appliance must be used. The gas inlet connection is preinstalled. Carefully counterhold with another spanner when tightening!

For connection to 8 mm steel piping Leisure-Tec provides an adapter UNF 1/2" x RVS 8, part no. 70020-02700.

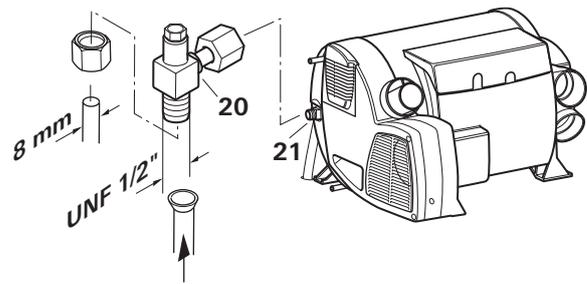


Fig. 22

Route the pipes in such a way that the appliance can be removed again for servicing.

Refer to AS/NZS 5601.2 – Gas Installations, for gas pipe sizing.

It is mandatory that the tightness of the gas installation is proved before starting up for the first time.

Check for gas leaks (do not check for gas leaks with a naked flame), then check that the gas pressure is as follows:

LPG: 2.75 kPa

Keep the number of separable connections in the gas supply line in rooms frequented by people to a technically feasible minimum.

The gas system must comply with the technical and administrative provisions of the individual country of use (in Australia, AS/NZS 5601 for motor vehicles).

Water connection

For operating the water heater it is possible to use all pressure pumps and submersible pumps up to 280 kPa, also all mixing taps with or without electrical switch.

! In order to guarantee complete emptying of the water and to prevent pressures of greater than 450 kPa occurring in the hot water system, the enclosed pressure reducer (18), the enclosed water connectors (27 + 28) and the enclosed drain valve (24) must be used!

When using pressure pumps with high switching hysteresis, hot water may flow back through the cold water tap. To prevent the backflow, we recommend that a non-return valve (nrv – not included in the scope of supply) be fitted between the outlet to the cold water tap and the drain valve.

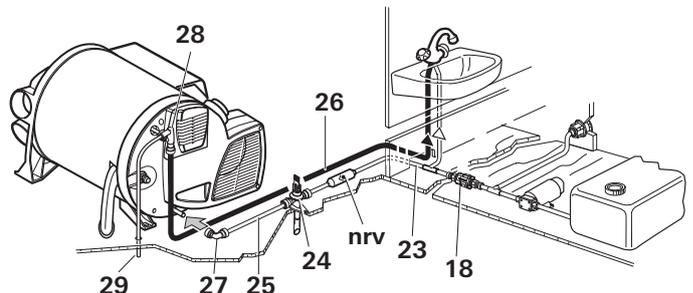


Fig. 23

i The supplied water connectors (27 + 28) and drain valve (24) have a 12 mm rigid piping connection (e. g. John Guest System). For connecting to rigid pipes with other diameters appropriate adapters (not included in scope of delivery) must be used.

Hoses with a diameter of 12 mm that are drinking water compatible, pressure-resistant (up to 450 kPa) and hot water-resistant up to +80 °C must be used to connect the unit and the accessories. We recommend the use of John Guest pipes, insertion sleeves and hose clamps.

As accessories Truma supplies the water connectors (27 + 28) and drain valve (24) with a 10 mm / 3/8" diameter hose nipple.

i The included elbow fittings (27 + 28) must always be used in order to completely empty the water and prevent the water pipes on the unit from leaking over the long-term!

Elbow fitting (28 – with aeration valve) is connected to the upper warm water connection; the second elbow fitting (27) is connected to the lower cold water connection.

i Route all water lines so they drop down into drain valve! **No warranty claims for frost damage will be accepted.**

Mounting of the discharge pipe

! The discharge pipe (Fig. 25 - 19a) is to be installed directly to the outside at a position protected against splash water (apply splash guard, if necessary).

- There must be no tap, valve or other restrictions in the discharge pipe.
 - The discharge pipe must not be connected to other piping.
 - The discharge pipe must fall continuously and free of kinks from the P&T relief valve to the point of discharge.
 - The discharge pipe must not discharge into a safe tray.
- Drill a hole with 22 mm diameter and pass through the discharge pipe.

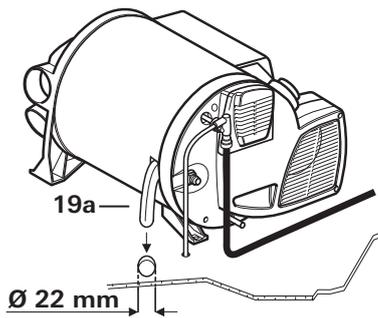


Fig. 24

Mounting the drain valve

Mount the drain valve (24) at an easily accessible point close to the device.

The draining is to be directly to the outside at a position protected against splash water (apply splash guard, if necessary).

Drill hole with 18 mm diameter and pass through discharge socket with hose (24a). Fasten drain valve with 2 screws.

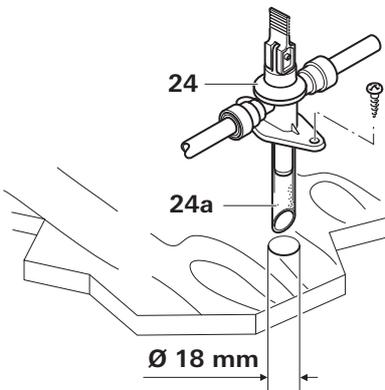


Fig. 25

Installation of the pressure reducer

Depending on the scope of supply – pressure reducer A or B has to be installed.

i For characteristics of the pressure reducer – see „Water pressure reducer“ page 9.

Pressure reducer A

The pressure reducer (18) must be fitted between the drain valve and water pump in accordance with the **direction of flow** (indicated by arrow).

Fasten the pressure reducer to the floor.

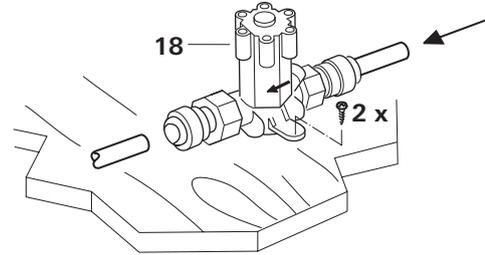


Fig. 26

Pressure reducer B

The pressure reducer (18) must be fitted between the drain valve and water pump in accordance with the **direction of flow** (indicated by arrow).

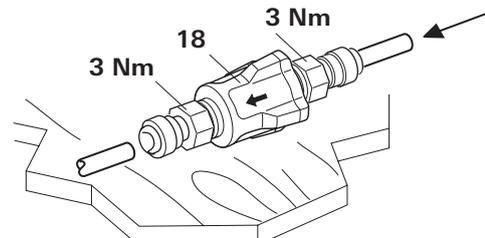


Fig. 27

Water pipe routing

Water pipes (hoses) need to be installed as short as possible without kinks. All hose connections must be secured with hose clips or John Guest connections with safety rings (even cold water)! When the water is heated, the resulting expansion may create pressure levels up to 450 kPa until the P&T relief valve or drain valve triggers (also possible for submersible pumps).

When installing a water supply into the vehicle, ensure that there is an adequate distance between the water pipes (hoses) and the heat source (e.g. heater, warm air duct).

Hose clips SC (part no. 40712-01) are suitable for fastening the pipes (hoses) to walls or the floor. These hose clips also make it possible to route water pipes (hoses) on the heater's warm-air distribution pipes as a way to avoid the danger of frosting.

A water pipe (hose) may only be fitted at a clearance of 1.5 m to the heater on the warm air duct. The Truma hose clip SC can be used if this distance is observed. In the case of parallel installations, e.g. openings through a wall, a spacer element should also be attached (e.g. insulation) to prevent contact.

Connect cold water supply (23) to drain valve (24). To guarantee the correct function of the drain valve, the water pipes/hoses need to be installed without tension!

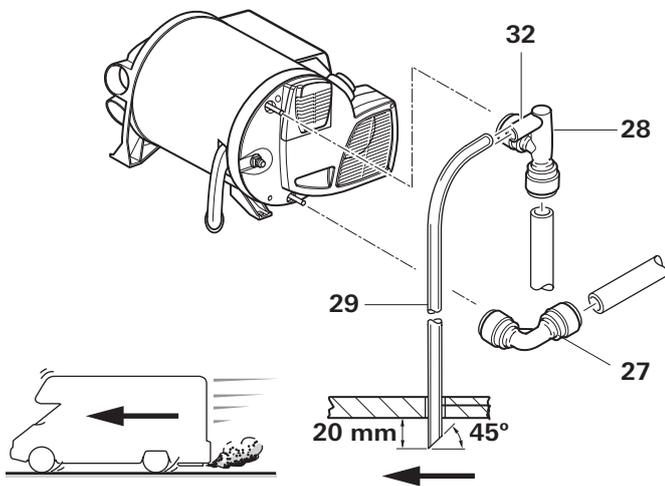


Fig. 28

The elbow fitting (28 – with aeration valve) is inserted into the upper warm water connection and the second elbow fitting (27) is inserted in the lower cold water connection of the heater up to the stop. Pull in opposite direction in order to make sure the elbow fittings are securely attached.

Create a pipe/hose connection (25) for the cold water supply between the drain valve (24) and the hot water system intake.

i Ensure that the cold water supply does not come into contact with cold bridges (e.g. the outer wall) in order to prevent freezing.

Route the hot water supply (26) from the elbow connection with integrated vent valve (28) to the hot water appliances.

Push the venting hose, external diameter 11 mm (29), onto the hose grommet of the venting valve (28a), and lay it to the outside without any kinks. Ensure that the bend radius is not smaller than 40 mm.

Cut off the aeration hose about 20 mm below the vehicle floor at a 45° angle to the direction of travel (see figure 25).

Check all connections for water leaks:

- Repair leaks as needed.
- Repeat check for water leaks and take any necessary steps to repair the leaks at all water connections.

Installing the room temperature sensor

When selecting the location, bear in mind that the room temperature sensor must not be subjected to any direct radiant heat. For optimum room temperature regulation, we recommend that the room temperature sensor be fitted above the entrance door.

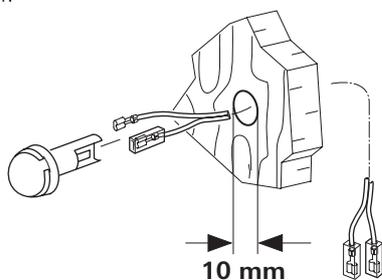


Fig. 29

i Please ensure that the room temperature sensor is always attached to a **vertical** wall. There must be no obstructions preventing the room air from flowing around it.

Drill a hole 10 mm in diameter. Guide the connection cable through the drill hole from behind and connect the cable end to the sensor by means of an insulated connector plug (there is no need to be concerned about polarity). Slide in the room temperature sensor and lay the cable end with the two insulated connector plugs to the electronic control unit (extend to

a maximum overall length of 10 m using 2 x 0.5 mm² cable if necessary).

! The provided room temperature sensor must always be connected, otherwise the heater will switch to fault.

Installing the control panel

The installation of the control panel is described in the instructions included with the control panel.

Electrical connections

Route connecting cables in such a way that they cannot chafe. Please also use leadthrough bushings or edge protection profiles where there are sharp edges such as metal panel leadthroughs. The connecting cables must not be attached to or come into contact with metal surfaces, the exhaust duct or warm air ducts.

The electrical connections are located under the connection cover (39). The cover can be removed by pressing and simultaneously sliding it in the direction of the arrow. When removing or installing the connection cover on the connection cables, make sure that the cables are not pulled out or become pinched.

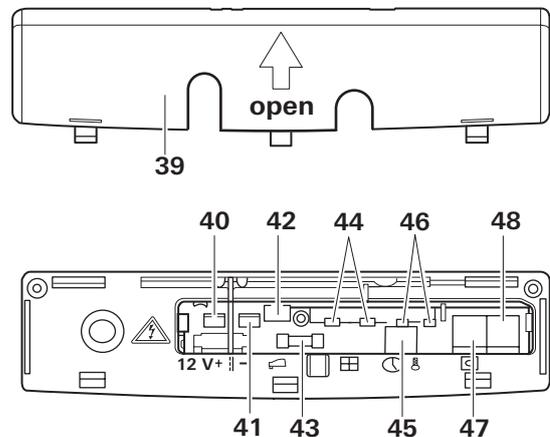


Fig. 30

- 40 = Input voltage +12 V (spade connector 6.3 mm)
- 41 = Input voltage ground (spade connector 6.3 mm)
- 42 = not used
- 43 = Device fuse: 10 A – slow – (T 10 A)
- 44 = Wire bridge (or window switch – accessory)
- 45 = not used
- 46 = Room temperature sensor
- 47 = Control panel / Diagnostic connector*
- 48 = Control panel / Diagnostic connector*

* Alternative connections.

All connections to the unit should be made with sagging connection cables. This will prevent condensation water from running down the connection cables and into the unit.

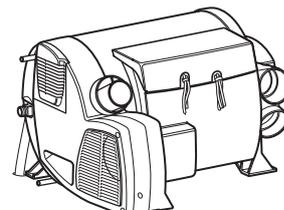


Fig. 31

The connecting cables and plugs must not be subjected to strain. Bundle connecting cables (see figure 29) and secure each one to housing using a cable binder in order to provide strain relief.

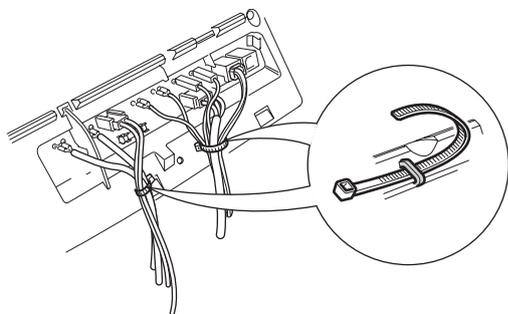


Fig. 32

All cables must be securely attached and must not become loose or disconnected due to vibration – risk of fire!

12 V voltage supply

Electric cables, switching units and control units for heaters must be arranged in the vehicle in such a way that their correct operation cannot be adversely affected under normal operating conditions. All cables leading to the outside must be splash proof at the leadthrough opening.

Prior to working on electric components the appliance must be disconnected from the power supply. Switching off at the control panel is not sufficient!

When carrying out electric welding work on the body, the appliance connection must be disconnected from the vehicle electrical system.

 The unit is equipped with reverse polarity protection. If the unit is connected with incorrect polarity, there will be no display on the LED. The unit can be used after establishing proper polarity.

To guarantee optimum power supply, the heating system **must** be connected to the fused on-board network (central electronics unit 10 A) **with a 2 x 2.5 mm² cable** (for lengths over 6 m with 2 x 4 mm² cable). If relevant, voltage drops in the supply cable must be taken into account. Connect the negative lead to the central earth. If connected directly to the battery, the positive and negative leads must be fused. For the connections (40, 41), we recommend 6.3 mm fully insulated flat connectors.

Do not connect any other appliances to the supply line!

 When power packs or power supply units are being used, note that the output voltage is between 11 V and 15 V and the alternating current ripple is < 1.2 Vpp. We recommend the automatic chargers from Truma for the different applications. Please ask your dealer. Other chargers may be used only with a 12 V battery as a buffer.

Room temperature sensor

Attach plug of connecting cable to connection (46 – no need to observe polarity).

Control panel / air conditioning system

The following connecting combinations are possible.

| | | |
|---|-----------------------|---|
| 1 | CP plus control panel | Combi 2 E / 4 E (Australia) (heater with electrical heating elements) |
|---|-----------------------|---|

and

| | | |
|---|-------------------------|---|
| 1 | Air conditioning system | Suitable systems – see CP plus control panel operating instructions |
|---|-------------------------|---|

Insert the plug of the connecting cable into one of the connections (47 or 48) and engage.

Electrical connection 230 ~ / 240 V ~ – option –

 All electrical work and permanent wiring must be carried out by a qualified person in accordance with the standards AS/NZS 3000, AS/NZS 3001 and all local codes and regulatory authority requirements.

 According to Standard AS/NZS 3001.2008 “Electrical installations – Transportable structures and vehicles” all electric circuits must be protected with an RCD (residual current device).

It is imperative for the connection to be made with care using the correct colours!

An insulating device for providing all-pole insulation from the mains with contact clearance of at least 3.5 mm must be provided by the customer for carrying out maintenance and repair work.

Make connection to power supply by attaching 150 cm long silicon cable to a line that is protected with as least 10 A (16 A would be better).

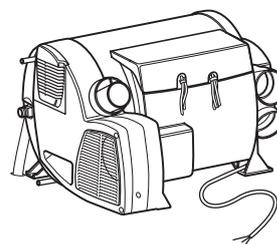


Fig. 33

All cables must be secured with cable clips.

Function test

After installation, the gas feed line must be tested for tightness by the pressure-drop method.

Then test all functions of the unit as described in the operating instructions, especially water drainage. **No warranty claims for frost damage will be accepted.**

The operating instructions must be handed over to the vehicle owner.

Warnings

The installer or vehicle owner must apply the yellow sticker with the warning information, which is enclosed with the appliance, to a place in the vehicle where it is clearly visible to all users (e.g. on the wardrobe door)! Ask Leisure-Tec to send you stickers, if necessary.

AUS

In Australia, always notify the Leisure-Tec Service Centre if problems are encountered; in other countries the relevant service partners should be contacted (www.truma.com).

Having the equipment model and the serial number ready (see type plate) will speed up processing.