

Boiler

L. P. Gas and 230/240 V Electric Storage Water Heater Model B 10 / B 14 from 11/2003





Operating instructions Installation instructions To be kept in the vehicle!	Page 3 Page 6

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Boiler B 10 / B 14

Liquid gas storage water heater (Special version BN 10 / BN 14 with additional electric heating 230 V, 850 W)



General safety notes

In event of leaks in the gas system or if there is a smell of gas:

- extinguish all naked flames
- do not smoke
- switch off all appliances
- shut off the gas cylinder
- open the windows and doors
- do not actuate any electrical switches
- have the entire system checked by an expert!

A Repairs may only be carried out by an expert.

Danger: Failure to operate the relief valve easing gear at least once every six months may result in the water heater splitting. Continuous leakage of water from the valve may indicate a problem with the water heater!

- Water may drip from the discharge pipe of the pressure relief device and this pipe must be left open to the atmosphere.
- The pressure relief device is to be operated regularly to remove lime deposits and to verify that it is not blocked.
- Any discharge pipe connected to the safety (pressure relief) valve is to be installed in a continuously downward direction and in a frost free ambient.
- This unit is not to be used by children or infirm persons without proper supervision at all times. Not to be used as a toy.
- Before gaining access to any and all terminals, please ensure all supply circuits are disconnected (i.e. 230 – 240 V and 12 V) and gas supply is securely turned off.
- Any work involving connection or interconnecting wiring must be conducted by a licensed electrician.

- Any alteration to the appliance (including cowl) or the use of spare parts and accessories which are important for the functioning of the heater and which are not original Truma parts, as well as the non-observance of the installation and operating instructions, shall lead to the cancelling of the guarantee and exclusion of liability claims. It also becomes illegal to use the appliance, and in some countries this even makes it illegal to use the vehicle.
- The operating pressure for the gas supply is 2.75 kPa (propane) and must correspond to the operating pressure of the appliance (see data plate).
- LPG Systems and pressure regulators must comply with the technical and administrative regulations of the country in which the appliance is used. 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.
- Do not operate when travelling.
- Do not operate the water heater when refuelling the vehicle and when in the garage.
- Items sensitive to heat (e.g. spray cans) must not be stored in the installation area, since excess temperatures may under circumstances be incurred there.
- During the initial operation of a brand new appliance (or after it has not been used for some time), a slight amount of fumes and a slight smell may be noticed for a short while. Remedial action here is to immediately run the heater and to ensure adequate room ventilation.
- If the burner makes an unusual noise or if the flame lifts off, it is likely that the gas pressure regulator is faulty and it is essential to have it checked.

Operating instructions

Always observe the operating instructions prior to

starting! The vehicle owner is responsible for the 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 Truma to send you stickers, if necessary.

Before using the first time, it is essential to flush the entire water supply through with clean warm water. Always mount the cowl cap when the water heater is not being operated! Drain the water heater if there is a risk of frost! There shall be no claims under guarantee for damage caused by frost!

Always remove the cowl cover prior to operating the water heater!

If connecting to a central water supply (rural or city connection) or when using more powerful pumps, a pressure reducer must be used which prevents pressures of greater than 400 kPa occurring in the Boiler.

Filling the Truma-Boiler with water

1. Check that the drain valve in the cold water intake is closed: Lever should be in horizontal position, position (e).



2. Open hot tap in bathroom or kitchen, with pre-selecting mixing taps or single-lever fittings set to "hot".

 $\ensuremath{\mathsf{3}}.$ Switch on power for water pump (main switch or pump switch).

Leave the tap open to let air escape while the water heater is filling. The heater is filled when water flows out of the tap.

Residues of frozen water can prevent filling if there is a frost. The water heater can be defrosted by switching on the heater for a short period (max. 2 minutes). Frozen pipes can be defrosted by heating the room.

If just the cold water system is being used, without water heater, the heater tank is also filled up with water. In order to avoid damage through frost, the water contents must be drained by actuating the drain valve, also when the heater has not been used. As an alternative, two shut-off valves, resistant to hot water, can be fitted in front of the cold and hot water connection.

Draining the water heater

If the mobile home is not used during periods of frost, it is essential that the Boiler be emptied.

1. Disconnect power for water pump (main switch or pump switch).

2. Open hot water taps in bathroom and kitchen.

3. Open safety/drain valve: Lever in vertical position, position (f).

4. The water heater is now drained directly to the outside via the drain valve. Check that the water contents have been completely drained (10 litres or 14 litres).

Switching on gas operation



 \frown Never operate the water heater without water in it!

If the wall cowl is positioned close to an opening window (or hatch) – in particular directly under it – it must remain closed when the water heater is in use (see warning plate).

1. Remove cowl cover.

2. Open gas cylinder and open stop cock valve in the gas supply line.

3. Switch on water heater at the switch on the control panel (b).

When using the vehicle switches: Refer to operating instructions of the vehicle manufacturer or see switch labels.

4. If there is air in the gas supply line, it may take up to a minute before the gas is available for combustion. If the appliance switches to "Failure" during this period, switch off the appliance – wait 5 minutes – and switch on again!

Switching off (gas operation)

Switch off the water heater to position (c).

If the water heater is not to be used for a longer period, mount cowl cover (non-observance of this point can lead to the function of the appliance being impaired through water, dirt or insects), close stop cock valve in the gas supply line and close the gas cylinder.

Drain the water heater if there is a risk of frost! There shall be no claim under guarantee if this point is not observed.

Red indicator lamp "failure"

The red indictor lamp (a) lights up if there is a failure. For possible causes please refer to page 4. To unlock, switch off the appliance, wait 5 minutes, and switch on again.

Electrical operation – option – 230/240 V, 850 W (3,7 A)



g = Water heater "Off" h = Water heater "On" "Electrical operation"

When using the vehicle switches: Refer to operating instructions of the vehicle manufacturer or see switch labels.



Switch on at the control panel (h). The indicator lamp indicates that the electrical water heating is switched on.

The water temperature cannot be selected, automatic temperature limitation at approx. 70°C! For a faster heating up period the appliance can be simultaneously operated with gas **and** electrical power.

Maintenance

The water tank in the Truma-Boiler is of high quality food-proof stainless steel VA.

Use wine vinegar for de-scaling the water heater, this being introduced into the appliance via the water supply. Allow the product to react and then thoroughly flush out the appliance with plenty of fresh water. To sterilise the water we recommend "Certisil-Argento". Other products, particularly those containing chlorine are unsuitable.

In order to avoid the colonization of micro-organisms, heat up the Boiler to 70°C at regular intervals.

Do not use the water as drinking water.

Fuses

The water heater 12 V fuse is on the electronic control unit on the water heater.



Important note: Only replace the miniature Fuse on the p.c.b. with a fuse of the same type: 1.6 A (slow action).

If there is a defect in the electronics, return the control p.c.b. well padded. If you fail to pack it correctly the guarantee shall no longer be valid.

Only use original Truma-Boiler control p.c.b.'s as spare parts!

Technical data

Manufacturer:

Truma Gerätetechnik GmbH & Co. KG P.O. Box 1252 85637 Putzbrunn/Munich Germany Water contents: 10 or 14 litres Water pressure: up to max. 400 kPa Type of gas: Liquid gas (propane) Test point pressure: 2.75 kPa Nominal input: 5.0 MJ/h Heat output: 1.5 kW Gas consumption: 120 g/h Injector size: 0.70 mm Heating up time from approx. 15°C up to approx. 70°C (10 litres / 14 litres) Gas operation: approx. 34 min. / approx. 50 min. Electrical operation: approx. 45 min. / approx. 72 min. Gas and electrical operation: approx. 25 min. / approx. 38 min. Power consumption 12 V Ignition: 0.17 A Heating up: 0.08 A Standby: 0.04 A Power consumption 230/240 V Heating up: (3.7 Å) 850 W Weight (empty) 10 litres / 14 litres: approx. 6.4 kg / 6.7 kg

Declaration of conformity:

The Truma-Boiler model has been tested and approved through the DVGW and fulfils the EC gas appliance guidelines (90/396/EEC) as well as the associated EC guidelines. The **CE product number** is available for EU countries: CE-0085AP0038.

AGA Approval-No:
5801
Electrical Approval-No:
Q00083
C-tick Mark:
ACN 004947488

The right to effect technical modifications is reserved!

Dimensions:



Fault finding

Gas operation

Symptom Cause

When switching on, the	 No 12 V supply voltage
heater does not operate	

Check the power supply (operation voltage min. 10.5 V). Check the Boiler fuse (refer to maintenance "Fuses").

When switching on, the	 Cowl cover fitted
heater does not operate	 Air in the gas supply
and the red lamp lights up	 No gas supply
after approx. 30 secs.	 Incorrect gas pressure

Remove cowl cover and/or clear any obstruction. Check gas valves and gas bottle. To unlock (and purge air), switch off the appliance, wait 5 minutes, and switch on again.

Heater operates for a – Over temperature thermostat prolonged time and then the red lamp lights up

Check water content, refill if required (close drain valve). To unlock, switch off the appliance, wait 5 minutes, and switch on again.

Electrical operation

SymptomCauseWhen switching on, the
heater does not operate- No 240 V supply voltage
- Over temperature thermostat

operated Connect the caravan to the site supply and/or check residual

current circuit breaker. Check water content, refill if required (close drain valve).

The electrical heating element is fitted with an excess temperature cut-out. In event of a fault, switch off at the control panel, wait 5 minutes, then switch on again.

Water supply

Symptom	Cause
Water drips from the safety valve	– Water pressure to high
Check water pressure (max 40	0 kPa), use a pressure redu

Check water pressure (max. 400 kPa), use a pressure reducer when connected to central water supply.

When opening the cold
water tap, hot water tap
comes out- Hot water flows back
through the cold water
supply

Fit a no-return valve in the cold water supply (refer to installation instructions point 4 "Water connection").

If fault persists please contact the nearest Truma-Service.

Manufacturer's terms of warranty

The manufacturer grants a warranty for malfunctions in the appliance which are based on material or production faults. In addition to this, the statutory warranty claims against the seller remain valid.

The warranty claim is not valid for damage to the appliance

- as a result of not original Truma parts being used in the appliance and as a result of unsuitable gas pressure regulators being used,
- as a result of non-compliance with the installation instructions and instructions for use,
- as a result of incorrect handling,
- as a result of incorrect packaging for transportation.

The warranty is valid for malfunctions as stated above, which occur within 12 months after conclusion of the purchase agreement between the seller and the final consumer. The manufacturer shall rectify such malfunctions by way of repair, however, the manufacturer also reserves the right to supply a replacement instead of repairing said malfunctions. Claims for indirect damage or consequential damage shall be rejected. This does not affect the rules of the product liability law.

The manufacturer shall bear the cost of employing the Truma customer service for the removal of a malfunction under warranty – in particular transportation costs, travelling expenses, job and material costs, as long as the service is carried out in Germany. Customer service carried out abroad is not covered by the warranty.

Additional costs based on complicated removal and installation conditions of the appliance (e.g. removal of furniture or parts of the vehicle body) do not come under warranty.

In Germany, the Truma Service Center in Putzbrunn/Munich must always be contacted in event of a malfunction; Abroad, respective service partners are available (refer to address list). Complaints must be specified. In addition, the correctly completed warranty certificate must be presented or the Serial number of the appliance and the date of purchase specified. Proof of purchase must be supplied.

Installation instructions

This appliance must be installed by an authorised person.

This appliance shall be installed in accordance with the manufacturer's installation instructions, local gas fitting regulations, municipal building codes, electrical wiring regulations, AS5601 "Gas Installations", any other statutory regulations and water supply regulations.

Data label

The data label is located on the top of the water heater.

This appliance is suitable for propane gas only, ensure that the available gas supply is suitable.

Intended use

This appliance has been designed for the installation in caravans, mobile homes and other vehicles. It is not approved for installation in boats. Other forms of use are also possible following consultation with Truma.

Regulations

Any alteration to the appliance (including cowl) or the use of spare parts and accessories which are important for the functioning of the heater and which are not original Truma parts, as well as the non-observance of the installation and operating instructions, shall lead to the cancelling of the guarantee and exclusion of liability claims. It also becomes illegal to use the appliance, and in some countries this even makes it illegal to use the vehicle.

The operating pressure for the gas supply is 2.75 kPa (propane) and must correspond to the operating pressure of the appliance (see data plate).

When installing the appliance always observe the technical and administrative rules and regulations of the country in which the vehicle is to be registered, for the first time!

Water heater kit

The water heater kit contains:

- 1 Assembled water heater
- 1 Cowl assembly with screws
- 1 Hot water connector (12 mm rigid piping)
- 1 Cold water connector (12 mm rigid piping)
- 1 Safety (pressure relief) drain valve (12 mm rigid piping)
- 1 Pressure reducer (12 mm rigid piping)
- 1 Wall switch (gas operation) with 2.5 m cable
- 1 Wall switch (230/240 V operation) with 3 m cable option -
- 1 Gas inlet connection, 14 mm / 1/4" BSP
- 1 Installation template
- 1 Set literature
- 1 Label with warning information

In order to guarantee complete emptying of the water content, ongoing sealing tightness of the water connections and safety function **all enclosed parts must be used!**

Choice of location

1. Always install the appliance in such a way that it is easily accessible for service work at all times and can be easily removed and installed.

2. Locate the heater in such a way that the cowl can be mounted on the outside on a surface which is as straight and smooth as possible.

This outside surface must be exposed to wind from all directions and, if possible, there should be no trim strips or covers in this area, mount heater on an appropriate base, if necessary.

The cowl must be placed in such a way that the exhaust gas cannot find its way into the vehicle interior. For this reason, choose a location where there are no opening windows, skylights or ventilation openings directly above the cowl or for 30 cm on either side. If this is not possible, a warning plate must be placed on the inside of the window (or skylight) stating that it must be kept closed while the heater is operating. In this case refrigerator ventilations must be tight-sealed from the interior of the vehicle.

Installation of the water heater

1. Position template for cowl opening on the inside of the wall.

- A = Bottom edge of heater
- B = Lateral edge of heater

Drill 4 holes (C) with 10 mm dia. through the wall. Drill hole (E) with 15 mm dia. for condensation tube (also possible from the outside = F).

2. Position template on the outside of the wall. The markings (C) must be above the through-holes. Saw cut-out section for cowl (D) 92 \times 168 mm.

If the distance between outside wall and heater is more than 35 mm you must use the cowl extension VBO 2 (please refer to the last page) with an additional length of 50 mm. Saw out 100 x 176 mm along the dashed line.



If there are any cavities in the area of the cowl, pack these with pieces of wood so as to be able to tighten the screws. The finished hole should be 168 mm high and 92 mm wide

Cut out trim strips or such on the vehicle or place supports beneath them so as to make the cowl lie flat.

Place a support beneath the heater if the walls are sloping. An angle of inclination of 10 degrees is not to be exceeded.

3. Insert heater with cowl body (1) through the wall cut-out (2), allow approx. 5 mm to project out of the wall. Mount sealing frame (3 – the anti-twisting device ensures correct fitting!). Pre-drill holes for the 6 fastening bolts (4).



4. Remove sealing frame (3) and coat with non hardening mastic on the side facing the vehicle – do not use silicone!

The sealing frame must be well sealed with respect to the front sides and the cross bars of the cowl body (1) as well as towards the outside wall! 5. Fasten sealing frame (3) to the cowl body using 4 self-cutting screws (4).



Screw the sealing frame (3) in contact together with the cowl body (1) so the anti-twist device projects out!

6. Seal the gap between the hole (6) and the condensation tube (7) with non hardening mastic – do not use silicone!



7. Mount the grille (8). Press the entire cowl assembly onto the vehicle wall and fasten with 6 screws (5).

8. Screw the boiler securely to the floor of the vehicle with at least two shackle plates (9) with the screws provided, B 5.5×25 , on suitable base (plywood panel, laminated wood strips or metal base).

Water connection

All pressure and submergible waterpumps can be used for operating the water heater.

In order to guarantee complete emptying of the water content and to prevent pressures of greater than 400 kPa occurring in the boiler, the enclosed pressure reducer (10), the enclosed water connectors (12 + 13) and the enclosed safety (pressure relief) drain valve (14) must be used!



The supplied water connectors (12 + 13) and safety/drain valve (14) 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.

As special accessories Truma supplies the water connectors (12 + 13) and safety/drain valve (14) with a 10 mm / 3/8" diameter hose nipple (please refer to the last page).

Route water pipes so that they are as short and free of kinks as possible (hose connections must be secured using hose clamps – also for cold water! – pressures of up to 400 kPa can occur in the safety/drain valve – also with submergible pumps – because of the heat of the water and the resulting expansion).



Installation of the elbow water connectors

Direction of travel

Screw elbow with integrated breather valve (12) to hot water connection pipe (upper pipe) and elbow without breather valve (13) to cold water connecting pipe (lower pipe).

Slide on nut (17), tension ring (18) and O-ring (19). Assemble screw connector and connecting pipe and fasten together using nut (17).

Slide ventilation hose with 11 mm outer diameter (20) onto the breather valve hose nozzle (21) and route towards the outside. Do not allow the radius of the arc to be less than 40 mm.

Cut off the ventilation hose approx. 20 mm below the floor of the vehicle at an angle of 45° to the direction of travel.

Installation of the safety (pressure relief) drain valve



Install the safety/drain valve (14) at a place which is easily accessible, near the water heater. Drill a hole with 18 mm diameter and pass through the discharge tube. Fasten safety/drain valve with two screws. The draining is to be directly to the outside at a position protected against splash water (apply splash guard, if necessary).

Installation of the pressure reducer



The pressure reducer (10) must be fitted between the safety/drain valve and water pump in accordance to the **direction of flow.** Fasten the pressure reducer to the floor.

Water pipe routing

1. Connect the cold water supply (15) via the pressure reducer (10) to the safety/drain valve (14).



2. Produce connection (16) for cold water supply between safety/drain valve (14) and elbow (13 – lower pipe) on water heater.

3. Route the hot water pipe (22) from the elbow with integrated breather valve (12 – upper pipe) to the hot water consumers.



The gas inlet connection on the Boiler is a 14 mm metric connection.

To connect, the 1/4" BSP male gas inlet connection provided with the appliance must be used.

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

Propane gas: 2.75 kPa

Before connecting to the water heater make sure that the gas lines are free from dirt, chips and such!

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

The gas system must comply with the technical and administrative regulations of the country in which the appliance is used.

Installation of the control panels

When using control panels which are specific to the vehicle or the manufacturer, the electrical connection must be established in accordance with the Truma interface descriptions (refer to Electrical connection 230 V). Any modification made to the Truma components pertaining to this will lead to the invalidation of the guarantee, as well as to the exclusion of any claims for liability. The installer (manufacturer) is responsible for providing instructions for use for the user as well as for identification printing on the control panels.

When selecting the location, bear in mind that the control panels must not be subjected to direct radiant heat. Length of connection cable 2.5 m. If required, a cable extension of 5 m can be supplied (refer to last page).



1. The control panel for gas operation (26) and (if provided) the control panel for electrical operation (27) should be fitted next to one another if at all possible (distance between centres of holes 66 mm).

2. In each case, drill a hole with diameter 55 mm (distance between centres of holes 66 mm).

3. Plug the control panel cable (28) to the control panel for gas operation (26) and then fit on the rear cover cap (29) as a stress-relieving device.

4. Push the cable through to the rear and lay the connection cable (28 + 30) to the boiler.

5. Lay the connection cable with the orange multipole connector (28) to the 12 V control electronics unit (for connection refer to Electrical connection 12 V).

6. Secure both control panels with 4 screws (31) each and fit the cover frame (32) on them.



Electrical connection 12 V

Always disconnect the appliance from the power supply prior to working on electrical components. It is not sufficient to just switch off at the control panel!

The appliance must be disconnected from the vehicle main power supply when carrying out any electric welding work on the vehicle body.

If the connections are transposed there is a risk of cable burning. This also rules out any guarantee or liability claims.

Unscrew cover (34) from the electronic control unit. Slide cable connector of control panel (28) onto the p.c.b.. The electrical connection is made at terminal (35).



Orange = Positive 12 V Blue = Negative

To connect press with a small screwdriver from above and push in cable from the front.

Connect to fused vehicle mains (central electrical equipment 5 - 10 A) using a 2 x 1.5 mm² cable.

Negative cable to central earth. With lengths of over 6 m use a cable 2×2.5 mm². If connecting directly to the battery, the positive and negative cable must be fused. Screw cover (34) back on.

There are to be no other 12 V consuming appliances connected to the supply line!

The water heater fuse (36), 1.6 A, (slow-acting) is on the p.c.b..

When power supplies are being used, it must be noted that the output voltage is between 11 V and 15 V and the alternating current ripple is < 1.2 Vss.

Electrical connection 230/240 V - option -

The electrical connection is only to be carried out by a licensed electrician. The information given here is not intended as information for the layman, rather it is to for assisting the assigned electrician, as additional information, when connecting the appliance!

The connection to the power supply is by means of a cable $3 \times 1.5 \text{ mm}^2$ (e.g. flexible sheathed cable H05VV-F) to a splitting box (not included in scope of delivery).

Always pay attention to connect carefully with the correct colours!

For maintenance and repair work a disconnecting device must be provided on the vehicle for all-pole disconnection from the power supply, with at least 3,5 mm contact clearance.

Connection with Truma control panel supplied

1. Connect control panel cable, supply line 230/240 V and heating element cable as shown in the drawing.



2. Assemble the splitting box on the vehicle floor or on the wall, in the vicinity of the appliance (observe cable length 110 cm!).



Conection 230/240 V with specific vehicle or manufacturer control panels

Connect control panel cable, 230 - 240 V cable and heating element cable as shown in the drawing.



Cables must be in accordance with the technical rules and regulations of the country in which the vehicle is to be registered, for the first time.

Function check

After installation, check gas supply line for leaks in accordance with the pressure drop method. Following this, check the function of the appliance as specified in the operating instructions, check the function of the draining of the water contents, in particular. **There shall be no claims under guarantee for damage caused by frost!**

Never operate the water heater without water contents.

It is, however, possible to briefly check the electrical function without water contents. Always observe the operating instructions prior to operation!

The operating instructions and completed guarantee card are to be given to the owner of the vehicle.

Warning information

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 Truma to send you stickers, if necessary.



Boiler L. P. Gas and 230/240 V Electric Storage Water Heater Model B 10 / B 14 from 11/2003





Accessories



Safety/drain valve and water connectors for flexible water hoses

34150-01	Hot water connector, 10 mm / 3/8"
70150-01	Cold water connector, 10 mm / 3/8"
70141-02	Safety/drain valve (400 kPa), 10 mm / 3/8'



Cowl extension for wall thicknesses over 35 mm70131-00Cowl extension VBO 2



Control panel extension cable

70000-53500 Control panel extension cable 5 m







Quality with tradition



Truma was founded in 1949 and has since become the leading European manufacturer of vehicle and boat liquid gas heaters.

The entire programme of Truma products is designed to run on clean liquid gas fuel.

Using the knowledge gained from practical experience, over the years Truma has developed warm air systems, storage water heaters, air conditionings, lamps, pressure regulators and accessories for Caravans and mobile homes and therefore decisively influenced the development of the camping scene as a whole.

Today Truma is the internationally acknowledged brand leader, operating on the basis of the certified quality management system according to ISO 9001.

To be filled in by the dealer.

Q			
Guarantee Card	Boiler Model B 10 Model B 14	Date of sale	B .
	water content: 10 14	Dealer's address	Box 1252, 85637 Putzbrunn / Gerr 70010-28700 · 06 · 02/2006 · 1'
	Serial number		02/2006 · Truma, P.O.