

Proteus Equipment Towable Hot Box

Dependable products for demanding environments



Model HB2T/HB2TT

Doc. 230 | Issue 11/25

**OPERATING
INSTRUCTIONS**



- **Health & Safety**
 - Pages 1-2 - General Safety Precautions
 - Page 3 - Emergency Procedure
- **Hot Box Maintenance**
 - Pages 4-5 - Maintenance Procedures
- **Trailer Maintenance**
 - Page 6 - Maintenance Procedures
- **Towing Requirements**
 - Page 7 - Towing Information
 - Page 8 - Legal & Safety Notes
- **Heating**
 - Pages 9-11 - Turning the Heating On
 - Page 12 - Turning the Heating Off
- **Electrical Supply**
 - Page 13
- **Tipping** (Model HB2TT only)
 - Page 14
- **Temperature Optimisation**
 - Page 15 - Asphalt Thermometers
 - Page 16 - Temperature Guidelines
- **Cleaning the Hot Box**
 - Page 17
- **Spare Parts**
 - Pages 18-21
- **Fault Finding**
 - Page 22 - Checklist
 - Page 23 - Warranty Information

GENERAL SAFETY PRECAUTIONS



Please ensure that the following important safety notes have been read and understood by anyone tasked with utilising the Hot Box.



Always wear **appropriate PPE** (as a minimum, eye protection, safety boots, and heat-resistant gloves and clothing), with no **loose jewellery or clothing** that could snag in the equipment.



Do not modify or tamper with the equipment, or fit non-original parts.



Always **follow safety signs** and manufacturer warnings.



Ensure all **gas connections** are tight and leak-free before operating.



Do not operate in enclosed spaces; only use outdoors.

GENERAL SAFETY PRECAUTIONS (cont.)



Only **close the hatches** using the **horizontal bar** at the bottom. Never close them holding the vertical bars at the side.



Do not lean over the edges of the equipment.



Always **turn off** the heating before entering **fuel stations** (or any other area with elevated risk of fire or explosion).



Never light the burner while on site at an **asphalt plant**. Always light and pre-heat the Hot Box beforehand.



Always complete the **safety and maintenance checks** on pages 4-6 at the required intervals.



Do not inhale any fumes released when the lids are opened.

EMERGENCY PROCEDURE



IN THE EVENT OF AN UNCONTROLLED INCIDENT, FOLLOW THESE GUIDELINES IMMEDIATELY:

TURN OFF ALL FUEL SUPPLIES CONNECTED TO THE HOT BOX.

CALL THE EMERGENCY SERVICES IF HELP IS NEEDED.

The following essential maintenance and safety checks are for the **Hot Box** itself. In addition to the below processes, we recommend a full **annual service** by Proteus. See **page 6** for checks relating to the **trailer** chassis.

DAILY

1

Check all gas lines for **leaks**, including the **bottle connections**.



WEEKLY

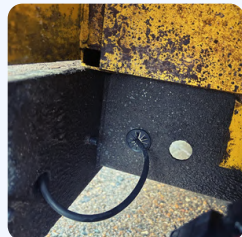
1

Check the **fasteners** where the Hot Box is fitted to its **base frame** for proper attachment.



2

Check the base frame itself for **corrosion** or any other compromise to its structural integrity.



WEEKLY (cont.)

3

Check all **fasteners** for structural integrity, including the spring bolts.



4

Grease the **lid hinges** and check structural integrity.



5

[HB2TT only] Grease all **tipper hinge** points.



6

[HB2TT only] See **page 15** for tipper safety guidance before working under the Hot Box. Grease both **tipper ram** points.





Scan the QR code below with a phone camera to access the **Knott-Avonride trailer handbook** for detailed guidance on maintenance procedures for the trailer chassis.



Ensure all **safety guidelines** and **maintenance checks** in the trailer handbook are adhered to.



[Knott Trailer Maintenance Handbook](#)



TOWING REQUIREMENTS

TRAILER COUPLING



Use the links on page 6 to access the **Knott-Avonride trailer handbook** for detailed guidance on coupling and uncoupling the trailer.

TRAILER WEIGHT LIMITS

- **MAM (Maximum Authorised Mass):** 3,500kg (This is the maximum legal weight of the Hot Box trailer when fully loaded, including asphalt, gas bottles, and equipment).

TOWING VEHICLE REQUIREMENTS

- Must not exceed **Gross Train Weight (GTW)** (Combined actual weight of vehicle + trailer + all loads must be within the vehicle's GTW rating — check manufacturer plate or manual).

DRIVING LICENCE REQUIREMENTS

- Most UK drivers can tow **up to 3,500kg trailers** (Category B+E automatically added to licences as of Dec 2021).
- If unsure, check your **licence categories**.

LEGAL & SAFETY NOTES

- Check for working **lights, indicators, brakes, and reflectors** before driving, as well as **tyre condition, pressure, and tread**.
- Load should be as **evenly distributed** as possible.
- **Do not** exceed **3,500kg MAM** under any circumstances, even if the towing vehicle can pull more.
- Use a **weighbridge** if you're unsure about your total load.



Potential **consequences** if the legal towing requirements are not adhered to:

- Roadside **fin**es or prohibition notice
- Increased risk of vehicle **damage** and braking issues
- **Insurance** may be void in the event of an incident

TURNING THE HEATING ON

You will need to connect **19kg propane cylinders** to the Hot Box prior to use. **Two** need to be connected, but the Hot Box only draws from one at a time. The Hot Box features **thermostatic** technology, so once the heating is up to temperature, the burner will **cycle on and off** to maintain the set point. Note that the burner **flame size** is always consistent, and cannot be altered.

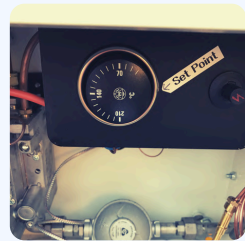
1

Turn **one** gas cylinder on, then turn on the butterfly gas tap next to the control box cabinet.



2

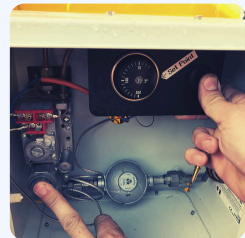
The heating controls are in the cabinet next to the butterfly tap, at the rear of the Hot Box. See **page 21** for a parts diagram. Turn the **thermostat dial** fully anti-clockwise.



3

On the gas control valve there is a grey **pilot control button** - press and hold this button, then - still holding it down - press the **piezo igniter button** 5-6 times.

If you have just changed a gas bottle: when holding the pilot control button, wait around **45 seconds** to allow air to purge first, before pressing the piezo button.



TURNING THE HEATING ON (cont.)

4

Continue holding the grey pilot control button for a further **10 seconds**, then release. It should remain partially latched, so that you now cannot see past the grooved sections on the side. This indicates that the **pilot** is lit. If it does not work, repeat step 3, pressing the piezo button a few more times.



5

Ideally, pre-heat the empty Hot Box for approximately **30 minutes** at a maximum temperature of **100°C** before putting material inside. Rotate the **thermostat** dial to the required temperature. This should ignite the **burner**.



6

You should be able to feel warm air from the **exhaust vents**. If not, turn the heating off (page 12) and refer to the Fault Finding section (page 22). ⚠️ If the Hot Box heating has been on for some time, **do not** put your hands near these vents as the air may be very hot.



7

Once the Hot Box has material in, you can increase the set point, ideally to match a reading taken on an **asphalt thermometer** (see page 15), or if not then using the guidelines on page 16.





TURNING THE HEATING ON (cont.)

8

When a **gas bottle runs out**, the heating will turn off automatically, and the grey pilot control button will pop back out. It will be necessary to **periodically check the button**; if it has unlatched, the gas bottle will need changing.



OVERNIGHT HEATING



Ensure gas cylinders are **full** before leaving the Hot Box on overnight.



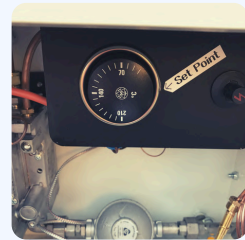
Do not leave the Hot Box **inside a building** or enclosed space overnight with the heating on.



TURNING THE HEATING OFF

1

Rotate the **thermostat dial** fully anti-clockwise.



2

Rotate the **grey pilot control button** until it pops out and you can see past the grooved section.



3

Turn the **gas tap** off by the control box, then turn the **gas cylinder** off.





The **heating system** does not require any external power supply.



The tipping HB2TT uses a rechargeable 075 **car battery** to power its tipping gear.



Two of these batteries are usually supplied with the Hot Box. Always carry a **charged spare** in the battery enclosure.



To charge the spare battery, a plug-in **mains charger** is required. This is an ongoing requirement in order to use the tipping function.



Batteries will only be included for HB2TTs delivered to **mainland UK**.



There is an **isolator switch** on the enclosure so that the battery can be turned off when not in use.

TIPPING

The following section is only applicable if you have a tipping **HB2TT** model. Before starting, ensure there is power to the tipping gear (see page 13).



Do not tip the Hot Box if the trailer is **uncoupled**. Always **fully lower** the Hot Box before uncoupling the trailer from the towing vehicle.



Ensure everyone in **the vicinity is clear** before operating the tipping gear.



Do not drive with the Hot Box **elevated**, even at very low speed.



Use the **up and down buttons** on the side of the control panel cabinet to tip and lower the Hot Box. The powered tipping gear is double-action.



If working under the Hot Box, for example to grease the ram, or if there is any chance of someone moving into the vicinity of the Hot Box while elevated, always engage the **body prop**. **NEVER** work under an unpropped Hot Box.



ASPHALT THERMOMETERS



The best way to ensure **maximum lifespan** for asphalt inside the Hot Box.



After taking a reading, set the **thermostat** to match that temperature.

MINI RAYTEMP	THERMA 3	THERMA WATERPROOF
<ul style="list-style-type: none"> • Infrared surface temperature measurement • Backlit LCD display • Laser alignment • Auto power-off • Runs off 1 x 9v battery 	<ul style="list-style-type: none"> • Complete with T-shape heavy duty 30cm asphalt probe • Certificate of Calibration • Up to 5 years' battery life from 3 x AA batteries • Backlit LCD display 	<ul style="list-style-type: none"> • Complete with T-shape heavy duty 30cm asphalt probe • IP66/67 water protection • Meets European Standard EN 13485 • Backlit LCD display
£42*	£120*	£140*

*Prices accurate at time of print, but are subject to change. All prices exclude delivery and VAT



TEMPERATURE GUIDELINES

MATERIAL	BINDER GRADE	MAX TEMP AT ANY TIME	MIN TEMP ON ARRIVAL	MIN TEMP ROLLING
CGSC	125	160	120	95
DSC	190	150	110	85
DBC	50	180	130	100
DBC	125	170	120	90
DBC	190	150	110	80
HRA SC	50	180	130	100
HRA SC	100	175	120	85
HRA BC	50	170	130	100
HRA BC	100	165	120	90
SMA SC	50	180	n/a	150
SMA BC	100	180	n/a	140
POROUS	125	135	110	85
POROUS	190	145	110	85

BITUKLEEN®



Bitukleen is an environmentally friendly **bitumen dissolver and cleaner** made from refined **rapeseed oil**.



Apply to the **inside** of the Hot Box **when cold**, with a Proteus mini sprayer or wire brush. Leave to take effect.



Do not leave Bitukleen on the **painted exterior** of the Hot Box, or on any plastic or rubber components. Ensure it is promptly **rinsed off**. This is particularly important if your Hot Box is brand new, as the paint can take a few days to fully cure.

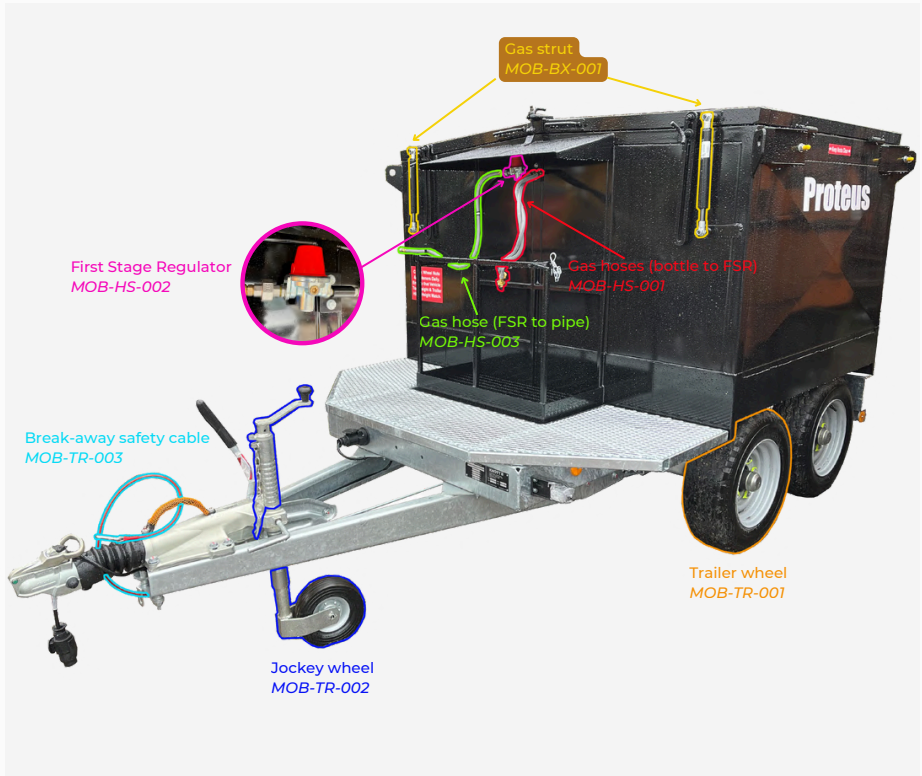


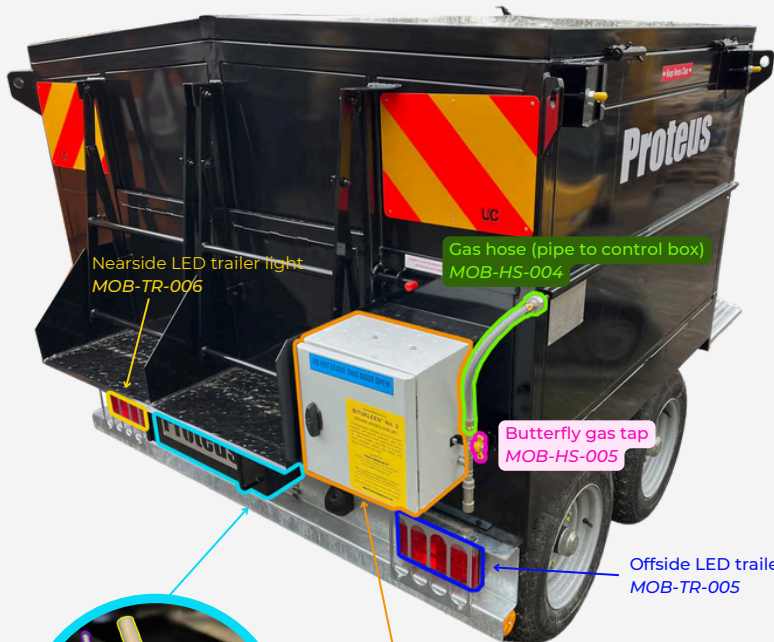
Use of a **pressure washer** is not recommended, and should not be necessary.



<https://proteusequipment.com/product/bitukleen/>

The following pages list some of the more commonly-required **spare parts** that are available. This is by no means a full list though, so please contact Proteus if you need any parts that are not listed here.



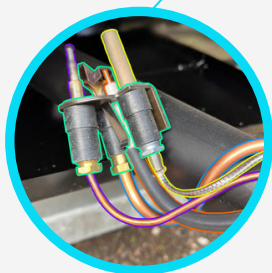


Nearside LED trailer light
MOB-TR-006

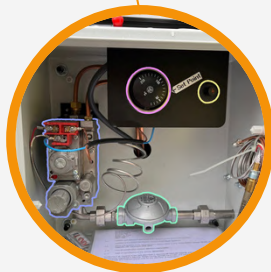
Gas hose (pipe to control box)
MOB-HS-004

Butterfly gas tap
MOB-HS-005

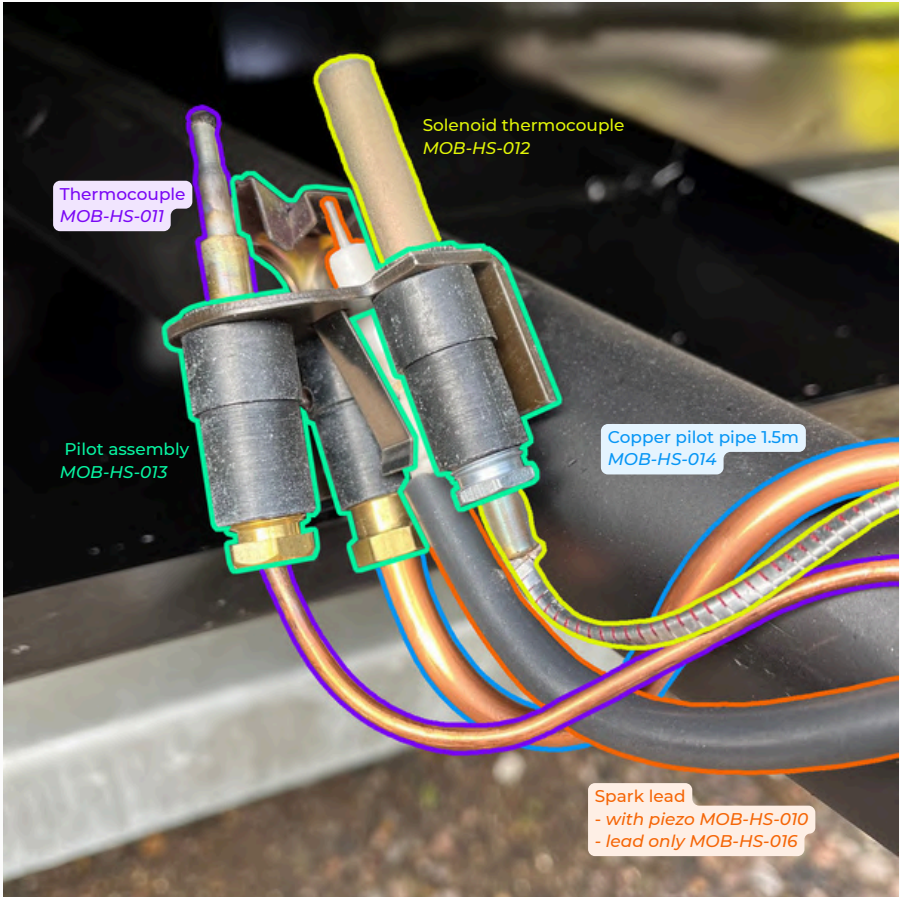
Offside LED trailer light
MOB-TR-005



See page 20



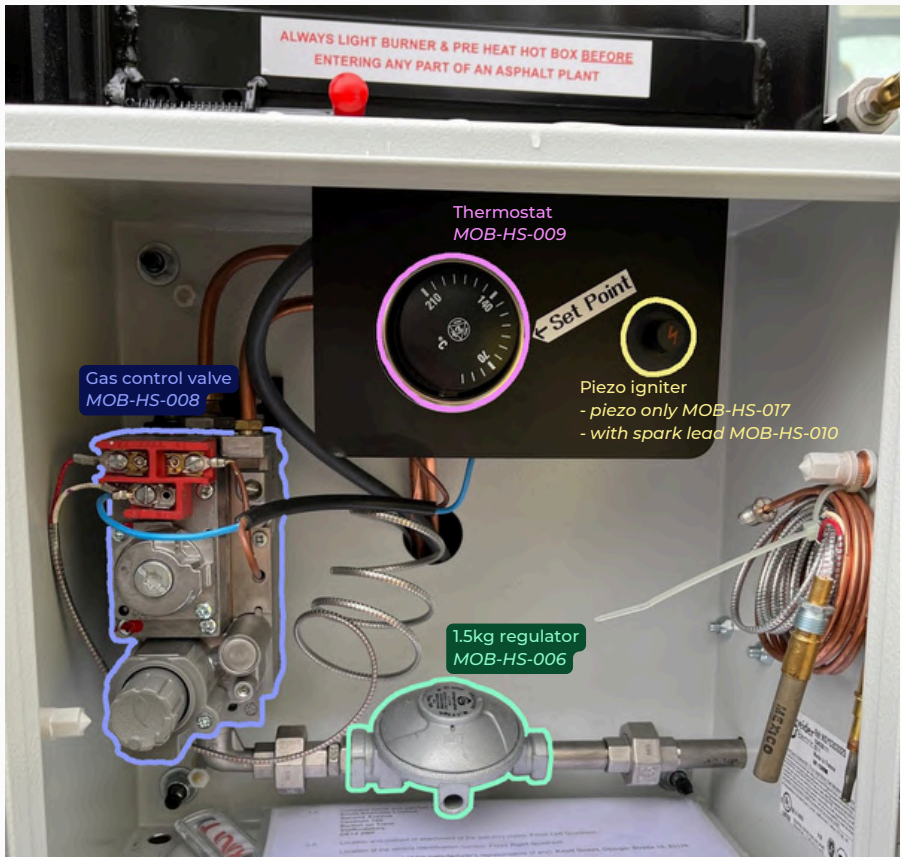
See page 21



These parts all run from inside the control box cabinet, into the burner area. Most of these parts are consumables that will need replacing periodically. Your Hot Box should come with a spare **thermocouple** and **solenoid thermocouple**, and you should aim to have a spare available **at all times**.

When unscrewing the copper pipe from the **pilot assembly**, take care as the burner jet can fall out of the pilot assembly.

The **spark lead** can be purchased on its own, or as a complete assembly with the **piezo igniter** button at the other end, which terminates in the control box cabinet by the thermostat (see page 21).



On the right of the photo you can see this cabinet is stocked with a spare **thermocouple** and **solenoid thermocouple**. It is good practice to ensure that you have spares of these at all times, as they are usually the parts that will need to be replaced most frequently.

For all spare parts queries and orders, contact the Proteus service department on **01284 753954 - Option 1**.

If your Hot Box develops a fault at any time, you will need to follow the fault finding checklist. Some of these checks may require two people.

If the following steps do not help, call the Proteus service line on **01284 753954**, **Option 1**.

Symptom: Grey pilot control button will not latch, as described on page 10.

Problem: Unable to light pilot.

Things to check:

- Ensure **gas bottles** are turned on and sufficiently full.
- Ensure the **thermostat** is fully anticlockwise during ignition (page 9).
- Ensure the **piezo igniter** is audibly clicking when button is pressed.

Potential fixes:

- Change **gas bottles** if necessary
- Replace **piezo igniter** if suspected to be faulty (ie. not clicking)
- Replace **thermocouple**
- Replace **pilot assembly** if above steps do not work

Symptom: Grey pilot control button latches ok, but after turning the thermostat up to the desired temperature, no warm air can be felt coming from the exhaust vents (page 10).

Problem: Pilot remains lit, but main burner is not igniting.

Things to check:

- Ensure **thermostat** is turned up sufficiently after lighting pilot

Potential fixes:

- Replace **solenoid thermocouple**
- Replace **thermostat**

Symptom: Heating completely turns off after initially working fine.

Problem: Pilot and main burner both extinguish after a short time.

Things to check:

- Ensure **gas bottles** are sufficiently full
- Ensure **air intakes** and **exhaust vents** are not blocked

Potential fixes:

- Change **gas bottles** if necessary
- Clean obstructed **air intakes** and **exhaust vents**

WARRANTY INFORMATION

If you have purchased your Hot Box, the warranty covers faulty workmanship and materials for a period of one year from the date of delivery. All consumable items such as thermocouples etc. are not covered by the warranty.

If hiring, your hire rate is inclusive of servicing and maintenance, but this does not include issues with wheels, tyres, the jockey wheel, break-away safety cable, or trailer lights.





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Proteus Equipment
Dependable products for demanding environments