

Chinese Heater FAQs

[Henk Kommers · Tuesday, 21 August 2018](#)

#1 Top FAQ: HELP! I just installed an LCD controller, my heater now says E-01? Invariably brand new LCD controllers are shipped set to 24V. As many heaters are actually 12V, and running from a 12V battery system, this results in the heater quickly faulting out with E-01 - Low voltage fault. The remedy lies within the LCD's protected settings, the entry to which is described later in this document. When you see 24V displayed, change it to show 12V. This will solve the E-01 fault.

Where can I buy a heater? In the UK most buy on Ebay which gives you buyer protection. Most sellers advertising as being in the UK are in China/HK still, but may give quicker deliveries.

If you still feel you need to ask for recommendations on where to buy, please use the search as it gets asked plenty.

Spare parts are generally available on ebay, or Aliexpress. As of now, there are no more upgraded glow plugs available from Owen Cox, will update if/when this changed

Which size/model should I buy? Depends on the van / boat etc you want to heat. A small van (VW Transporter / Vivaro etc) should have no more than a 2kw unless it's really badly insulated. Larger vans, standing height mwb/lwb etc a 5kw will do. These are guidelines, it depends on your insulation and the conditions you'll be out in. Until I see proof to the contrary, there is no such thing as an 8kw heater, and the 3 or 4kw models are just a 5kw with lower fuelling settings. The 2kw is overall smaller.

2Kw Versus 5Kw Comparison Information.

Diesel Night	Heater	Comparison						
Gasoline/Diesel	Voltage (V)	Heating Level	Heating Power	Air Flow	Power (W) Consumption	Fuel (1/h) Consumption	Dimension (mm)	Weight (Kg)
FJH-2/2(1)	12/24	Low	850	40	8	0.10		
		Middle	1200	60	12	0.15	310x115x122	2.7
		Advanced	1800	90	22	0.23		
		Super	2200	105	34	0.28		
Gasoline/Diesel	Voltage (V)	Heating Level	Heating Power	Air Flow	Power (W) Consumption	Fuel (1/h) Consumption	Dimension (mm)	Weight (Kg)
FJH-5/2(1)	12/24	Low	900	60	7	0.11		
		Middle	2000	120	13	0.25	376x140x150	4.5
		Advanced	3000	150	24	0.38		
		Super	4000	185	40	0.51		

Controllers / Body Types The aluminium body is nicer, but not at all necessary and should make no/negligible difference to performance. Controllers is up to personal preference: - Black LCD - day timer with 2 startups per day, should connect to a remote, allows messing with air / fuel ratios. Always illuminated - Blue (and gold?) LCD - possibly no timer but is the only controller to have altitude air/fuel adjustment, dims when not in use, usually comes with a 'new type' remote, maybe more functions? - Rotary Digital - as pictured above, simple to use, power setting or temperature (thermostat) setting with good modulation. No illumination when heater is powered off - Rotary On/Off - Again simple to use, some work as a basic thermostat controller, constantly illuminated There is also the square LCD (as no real benefits as far as I can tell), the very primitive rotary, and the flat grey one with the blue dial. I wouldn't personally recommend any of them, but they do the job.

Black LCD controller/ Pump Priming

1. Whilst pressing and holding the down arrow ↓ button, briefly press the CONFIRM/OK key. 2. Now release the down arrow ↓ button. The display will show H-OFF. 3. To start priming, briefly press the up arrow button ↑. The display will change to HF-ON. 4. The pump will start ticking, slowly at first, increasing in speed towards the end of the priming cycle. 5. The priming cycle can be stopped at any time by pressing the down arrow ↓ button, or the SETTINGS button. 6. When priming, check that all air is purged from the fuel filter and pipework.

Please note that it will take several priming cycles for fuel to reach the heater, this is because each click of the fuel pump only delivers about 0.2ml of fuel.

Note! Best bet is pull the pipe off and prime it into a bottle saves flooding the heater

Blue LCD Controller (New Type) / Pump Priming/ Pairing/ /Clock/ Timer Etc:



This Youtube video is good for showing you how to use the new blue controller as well as how to pair it to the new red remote:

<https://youtu.be/hOtYUd-8fck>

Prime the pump with the rotary dial controller:

It is better to remove the fuel line from the heater (if it is attached already) and put the fuel pipe into a container, this is to stop you from flooding the heater. Then refit the fuel pipe to the heater once the fuel line is primed.

On the rotary dial version you hold the off button in for around 5 seconds the pump should start, (someone mentioned that on some controllers you have to rotate the dial fully clockwise, although i never had to) once it has started you can let go of the off button, the pump runs for a certain amount of time before it stops itself, if it hasn't primed all the pipework, repeat until it does, you can also hit the stop button to stop the pump when you like, then once primed hit the on button and the heater should start its startup sequence.

Where Can I Mount One In My T4/5? PLEASE use the search, it gets asked almost every day!

Can They Be Mounted Under The Van? Sure, pro installers fit Ebers and such like that I believe, but the Chinese heaters' electronics are not IP rated for waterproof or even water resistance, so should be mounted in a box as sealed as you can probably.

Can They be Mounted On Their Side? Yes, but it must be the right way around. Remove the casing the check, the glow plug should be in the top side when mounted (Photo please)

How Much Power Does it Consume? 1. On startup the heater takes 10 amps for approx 2 mins 39 secs whilst the glow plug has power (6whr (watt-hour)) 2. On low power 1 amp (13whr) 3. On medium power 1.8 amp (24whr) 4. On high power 3.7 amp (50whr) 5. On shutdown the heater takes 10 amps for approx 55 secs whilst the glow plug has power (to ensure all fuel is burnt off before cooling down and shutting off) 6. On cooldown the heater takes 1 to 1.3 amps, the time period varies depending on what setting the heater power was prior to hitting the stop button. but approximately 1.5 to 3 mins

In a nutshell, run overnight, expect about 150w over 8 hours (calculated, not measured, yet) which on a 12v system is about 12 amp-hours.

How Much Fuel Does It Consume? About 0.1L per hour per KW of heat. (5kw heater on max, 0.4-0.5L, on low about 0.1L)

Which Settings on the LCD Controller? LCD screen, pump and fan settings people have set: I think there are "slight" variations to what works best for different folk. Pump low P1.4 Pump high P5.0 Fan low 1680rpm Fan high 4500rpm 5kw heater 4 hole. Pump low P1.5 Pump high P4.0 Fan low 1680rpm Fan high 4500rpm Pump low p1.5 Pump high p5.5 Turned Pump high down to p4.8 5.5 was too high, it was over fueling my first unit, and overheating my second unit.

A Users Original settings shown in black controller on mine that I made a note of when I first turned it on 1.6Hz - 1680 rpm 5.5 - 4500 rpm

Password To Gain Access To Settings On The LCD Controller

Black type controller, press top 2 buttons together. To access settings menu Blue type controller, press Ok and left arrow together. To access settings menu The known passwords to access the settings are 1688 and 9009 or 9977(with 9009 or 9977 being the latest one's that were discovered)

Thermostatic Operation The LCD Controller can be switched to/from thermostatic mode by holding down the “Settings” and “Up” arrow buttons. The LCD shows x°C for thermostat mode, “x.x Hz” for pump frequency mode. The LED seven segment controller likewise can be switched to/from thermostatic mode by holding down the “Setting” and “Up” arrow buttons.

The Rotary Controller may be switched to/from thermostatic mode by holding down the ON key for around 8 seconds, it does not matter if the heater is running or not. When running, the knob lights red for thermostatic mode, blue for fixed pump frequency “Hz mode”.

Note that the Rotary Controller only sets the target temperature in 3°C increments

NOTE! Thermostatic mode apparently does not work on all rotary dial type controllers (especially the early ones)

Remote battery type is: Alkaline 12v Battery A27 (7.7 mm Diameter)

Fuel Pump tips An excellent article on all things pump related here: https://www.letonkinoisvarnish.co.uk/eberspacher_fuel_1.html

Install Notes

To prevent disappointment/frustration, if you need to put the heater further from the battery than the loom allows, its recommended to extend the whole loom up to the heater with bigger gauge wire. For most, 12AWG (2mm diameter, 3.5mm²) should do fine.

Even if you don't need to extend the wires it isn't a bad idea, the stock wire appears to be under-specified which causes excess resistance (your heater needs about 9a at 12v to start, if the supply is weak/borderline you'll probably get some sort of error) which as well as not being helpful for your heater, causes the wire to warm up (probably not dangerously but it's not great either!)

It's a good idea to install the pump on a 45* angle (give or take) pushing uphill, and the filter I found should be vertical with the feed in to the top and out of the bottom, that way it collects any air. This goes between tank and pump.

How do I fit the fitting into the tank?

The best method would be to use a stand-pipe from the top, however there have been no reports of the standard fitting leaking if installed correctly. Drill your hole (ideally deburr it too, and blow any swarf out of the tank) on a flat surface (some are specially made on the tank) then run a wire up through the hole and out the lid.

Feed the fitting over the wire with one O-ring installed, and tease it out through the drilled hole.

Run the second o-ring and nut onto the fitting, and remove the guide wire.

Note: it's recommended to change the supplied jubilee clamps for either higher quality ones or better style clamps (spring hose clips or double ear clips I'd suggest. Personally though my chinese ones were fine, just don't over-tighten them)

On First Start:

Ideally pull the fuel through to the pump before starting.

Some controllers may have a 'prime mode' to run the pump until fuel reaches the heater. (Can somebody add notes on how to do it?)

To prime with the black square controller press 'OK' & 'DOWN' together and the screen says off, press UP button to yes and the pump starts to prime. Hit the DOWN button to stop priming. I have also tried this on the new blue controller which works the same.

If you remove the fuel pipe from below the pump and prime it manually, the fuel will flood as the pump forms a vacuum, this will result in some mighty white clouds of smoke when you fire your heater up, but will soon burn off. If you have a long run of hose I found the best way was to gently clamp the fitted pipe at the bottom close to the heater, manually fill connect to the fuel pump and release the clamp.

I simply started mine up several times (it will error-out if it doesn't receive fuel after a few minutes) until it fired up.

Either way be patient, the heater takes about 3 minutes to get fully fired up.

My heater is showing an error code / flashing lights:

E01: Low power, make sure you have the correct gauge of supply cables, and you are using a good battery / power supply: Can also be that the LCD Controller is set to 24v and needs to be changed in settings to 12v (on a 12v heater)








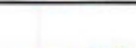

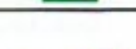
E03: Glow plugs fail (£20 for chinese, £60+ for an Eber D2 / D4 one). I believe the eber plugs need the electrical plug changing to fit. To test, you could remove the plug and test on a battery to see if it glows, if it does then it's probably in the electrics before the plug itself.

E06: Fans can get damaged in transit and pushed down the shaft, can be gently pulled back out until it spins freely. Don't go too far as the fan has magnets for the speed sensor, which will also cause E06! Note, I was getting E06 when my heater ran out of fuel (wild goose chase that was!) so check that too.

E08: Flame out - probably means you've run out of fuel or got a leak.

NEW 2018 Error Codes:

2018 Main Board Fault Code Description

Machine stoppage	LCD panel display	Digital panel display	Knob panel display	processing method
Undervoltage of power supply		display E-01	The 1 lights flicker	Increase the power supply voltage
Overvoltage of power supply		display E-02	The 2 lights flicker	Reducing power supply voltage
Ignition plug failure		display E-03	The 3 lights flicker	Check whether the ignition plug is open, or short circuited
Oil pump failure		display E-04	The 4 lights flicker	Check whether the oil pump is broken or not
Machine overheating		display E-05	The 5 lights flicker	Check whether the temperature sensor on the housing or the fan speed is abnormal.
Motor failure		display E-06	The 6 lights flicker	Check magnet polarity, position of Holzer sensor, or loose terminal.
Broken line fault		display E-07	The 7 lights flicker	Check the panel connector plug, the blue wiring harness is loose or short.
Flame extinguishment		display E-08	The 8 lights flicker	Check whether there is air or clogging on the oil path, check whether the temperature sensor on the chassis is faulty, or the terminal of the connector is loose.
Sensor failure		display E-09	The 9 lights flicker	Check whether the sensor plug is loose, or broken, short circuit
Ignition failure		display E-10	The 10 lights flicker	Check whether the oil way is blocked, or the oil is not smooth, the oil pump is stuck, the oil problem causes the volatile network to be blocked, and so on, so that the 2 ignition fails to burn normally.

LCD panel failure display is graphic and digital display at the same time, the number

White smoke / Soot / Poor Performance There are way too many variables to cover as everyone's installation is different. To reduce the chance of this happening it's best to run on heating oil (kerosene) and make sure all your air pathways are clear and with minimal restriction! This is, the blown air pipework, the burner intake and exhaust. These don't have accurate air fuel ratio monitoring, so any overfuelling, or lack of air supply (either due to restriction, or altitude) will cause it to run rich, causing carbon deposits (soot)

Which Fuel: These will run on standard road diesel and red (which I believe is legal as it's not for powering the vehicle)

Kerosene / Paraffin / Heating oil / 28 second oil etc are however better suited as they are better refined and contain less additives.

There Are Two Types Of Red Diesel:

SFGO: (Sulphur Free Gas Oil): 10ppm sulphur used in tractor and plant. EXACTLY the same as white diesel just dyed red.

Then there is: MGO: (Marine Gas Oil): 1000ppm sulphur boat fuel and far worse for the environment it is also red.

Kerosene is definitely the clean option it is designed to be burnt it doesn't have any lubricant additives like all diesels have. NOTE! this may wear your dosing pump out prematurely.

Other Notes:

The rubber hose is 4mm internal diameter fuel rated reinforced hose.

Exhaust size is 24mm. Chinese silencers have been known to fall apart, some motorbike or more expensive stainless ones have been shown to work well.

The equivilant Eber is the D2/D4 model which many spares/exhaust etc are advertised for.

There are several spare parts available on AliExpress (fan assemblies, burner assembly etc) however I know of no source for the main board. [edit: this appears to be the main board: https://www.aliexpress.com/item/2KW-12V-Air-Diesel-Parking-Heater-Control-Board/32963405220.html?spm=2114.search0104.3.40.2a395fa7XwHYDX&ws_ab_test=searchweb0_0.searchweb201602_5_10065_10068_10130_10547_319_317_10548_10696_10192_10190_453_10084_454_10083_433_10618_431_10307_10820_10301_10821_10303_537_536_10902_10059_10884_10887_100031_321_322_10103.searchweb201603_52.ppcSwitch_0&algo_expid=8cb38d9c-ff49-40ec-8210-0d734960a8fb-6&algo_pvid=8cb38d9c-ff49-40ec-8210-0d734960a8fb]

Please take care when installing and using your heater.

The exhaust is hot and can ignite dry grass. Exhaust-wrapping the exhaust isn't a bad idea, and take care where you direct it (should face backwards though)

If you're not confident with the installation please ask somebody competent / qualified, however it seems few professional installers will fit them due to the following:

These heaters are not CE marked, have no manufacturer backing and any information given here is given only as a guide from others' experiences.

As such it is especially recommended to fit a fire/NOx alarm, they're cheap and may save your life!

DIESEL NIGHT HEATER INLET'S AND OUTLET'S

• Exhaust system

– The exhaust outlet must be arranged so as to prevent any penetration of exhaust fumes into the vehicle interior through the ventilation system, warm air intakes or open windows.

• Combustion air intake

– The air for the heater's combustion chamber must not be sucked in from the vehicle's passenger compartment.

– The air intake must be arranged or protected in such a way that it cannot be blocked by other objects.

• Hot air intake

– The heater's air supply must consist of fresh air or circulated air and must be sucked in from a clean area, which cannot be contaminated by exhaust fumes from the engine, the combustion heater or any other source in the vehicle.

– The intake pipe must be protected by a grid or other suitable means.

• Hot air outlet

– The hot air pipes within the vehicle must be

arranged or protected in such a way that there is no risk of injury or damage if they are touched.
– The air outlet must be arranged or protected in such a way that it cannot be blocked by any objects.

How to check your glow plug/pin

(Please note the glow pin working Dc supply voltage is 8 volt NOT 12 volt)

Ensure your heater is isolated from you power supply before undertaking any of the following tests.

Ensure you test your multi-meter for correct function before proceeding with any checks.

- Check glow pin resistance at 20 deg C
- 12 volt heater glow plug: 0.42ohms - 0.7ohms \pm 0.04 Ω

Option 1.

To check the glow plug resistance unplug the glow plug lead from the heater pcb and measure across the two leads with your multi-meter set to resistance,

if you find a high resistance check the glow plug at the actual glow plug body connections

(this should eliminate any possible poor connections between the glow plug lead /electrical plug and the glow plug connection)

if you still get a high resistance reading or an open circuit reading your glow plug will be defective.

Option 2.

Disconnect your glow plug from the heater pcb,

use a removal tool to remove the glow plug from the heater body

(you can fabricate a removal tool by using a long reach 12mm socket and grinding a slot in the socket body for the cables to pass through)

>> see attached image <<



now reconnect your glow plug to the heater pcb (ensure it is clear of any obstruction as it will glow red hot if working ok)

reconnect your supply to the heater and hit the start button

The glow plug should start to warm up and glow if it is working correctly.

if all is well with the glow plug isolate the power supply and put everything back as it should be.

Option 3.

Some people have removed the glow plug from the heater and connected the glow plug leads to a 12 volt power source to test it

i am not overly keen on this method as i believe it puts undue stress on the glow plug by supplying it with 12 volt dc as opposed to 8 volts dc that the glow plug is normally supplied with from the heater control.

Chinese-Diesel-Air-Heater-Videos.

https://www.youtube.com/channel/UCLxP_AwzCecuiPKsLK1uAvQ

Chinese Diesel Air Heaters - Part 1 - Overview

https://www.youtube.com/watch?v=tvwmU_CcmGI

Chinese Diesel Air Heaters - Part 2 - 5KW Bench Test

https://www.youtube.com/watch?v=BN0UPzN_Mw8

Chinese Diesel Air Heaters Part 3 - Fuel Consumption

<https://www.youtube.com/watch?v=nRF-B74sDmQ>

Chinese Diesel Air Heaters Part 4 - 8 KW Heater Test

<https://www.youtube.com/watch?v=Dw4BjcTnvzE>

Chinese Diesel Air Heaters Part 5 - Kerosene Use

<https://www.youtube.com/watch?v=6Ej8UMschYI>

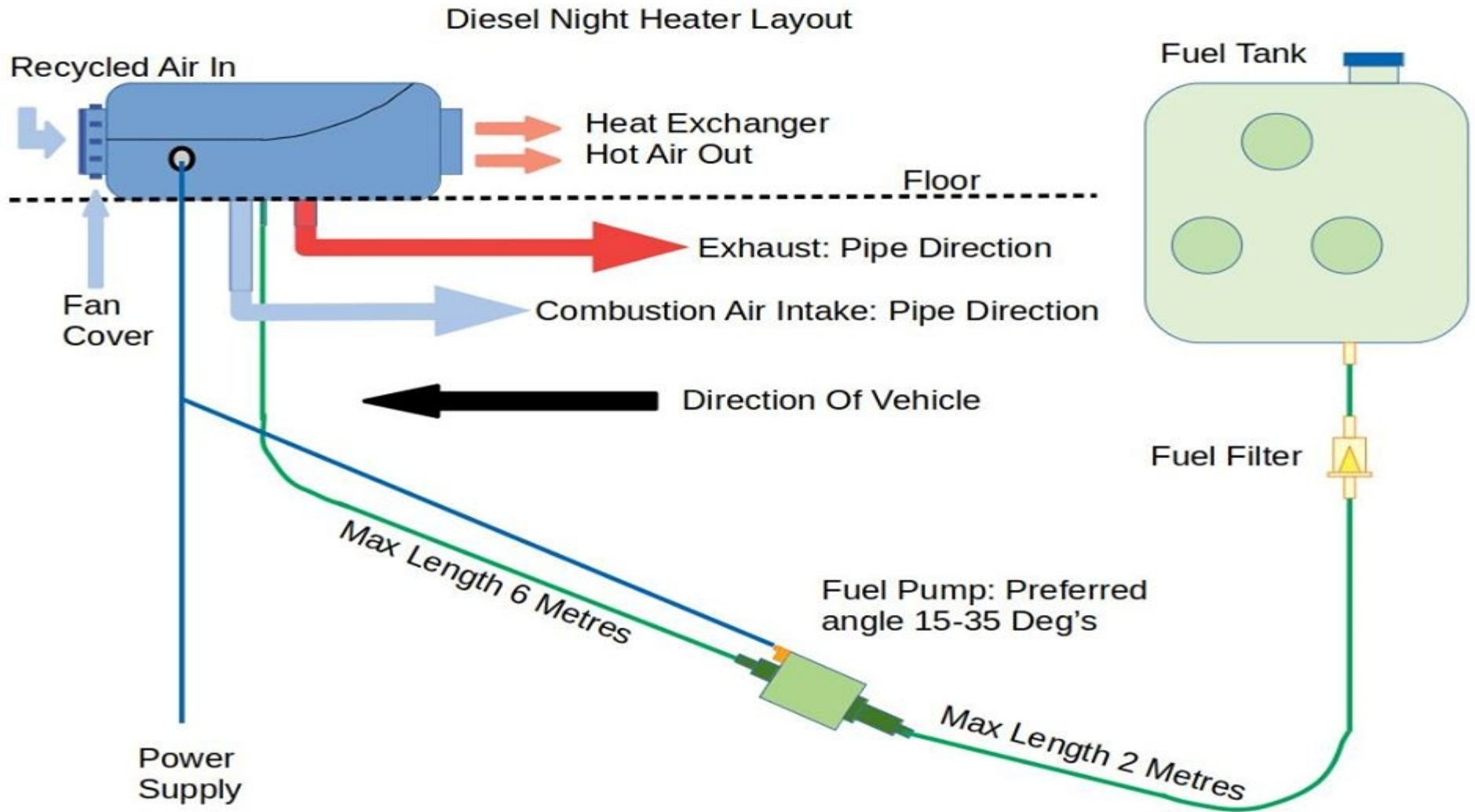
Chinese Diesel Heaters - Part 6 - Combustion Air Inlet

<https://www.youtube.com/watch?v=NCAzEDWwU8c>

Chinese Diesel Air Heaters Part 7 Metering/Dosing pump

<https://www.youtube.com/watch?v=TGFDFZ6r1dI>

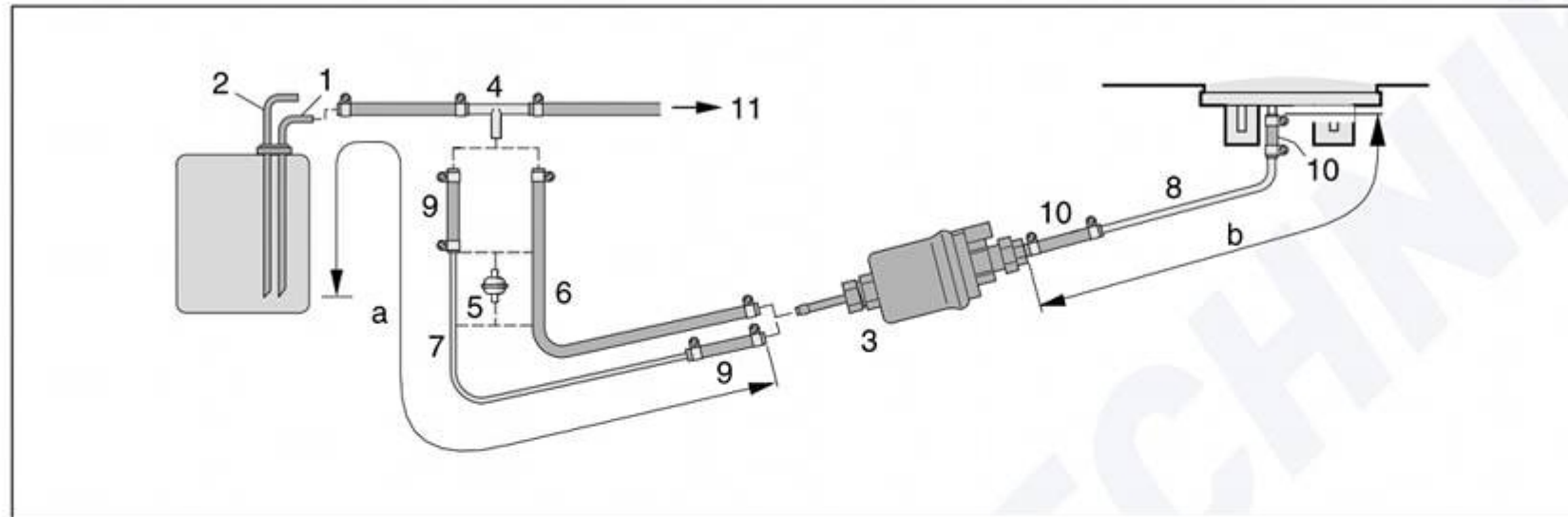
Diesel Night Heater Layout



Fuel tank, pump, heater, fuel line lengths

Fuel supply

Fuel extraction using a T-piece from the fuel flow line, from the tank fitting to the vehicle engine



- 1 Fuel flow line from the tank connection
- 2 Fuel return line from the tank connection
- 3 Dosing pump
- 4 T-piece
- 5 Fuel filter – only needed for contaminated fuel.
- 6 Fuel hose, 5 x 3 (di = Ø 5 mm)
- 7 Fuel pipe, 6 x 2 (di = Ø 2 mm)
- 8 Fuel pipe, 4 x 1.25 (di = Ø 1.5 mm)
- 9 Fuel hose, 5 x 3 (di = Ø 5 mm), ca. 50 mm long
- 10 Fuel hose, 3.5 x 3 (di = Ø 3.5 mm), ca. 50 mm long
- 11 To the engine, mechanical fuel or injection pump.

Permissible pipe lengths

Intake side
a = max. 2 m

Pressure side
b = max. 4 m for petrol
b = max. 6 m for diesel

Please note!

- Insert the T-piece (4) in the fuel flow line upstream of the feed pump.
- Item (5) is not included in the scope of supply "installation kit". The order no. is given in the additional parts catalogue.

