

Diesel Heater Installation Manual



BORN TO ROAM DIESEL HEATER



BORN TO ROAM SERVICES is 100% Australian owned and a business providing:

- Manufacturing high quality Diesel Heaters for the Australian market
- Providing Installation services or helping to make your DIY Diesel Heater installation project easy
- Diesel Heater servicing and spare parts availability

Our Diesel Heaters are our signature product, and we'll provide you with a warm and comfortable solution during colder weather. Our Diesel Heaters are safe, simple to use, and effective for use in caravans, RVs, boats, garages, and motor homes.

Introduction to the Born To Roam Diesel Heaters: BTR-2KW

1. Low fuel consumption and high efficiency.
2. Can be used in a wide range of environments.
3. Applicable for arctic weather, which can work normally at -41 °C.
4. Compact design and low noise.

Key Notes:

1. Where possible keep the exhaust pipe as short as possible. This helps to avoid carbon build-up.
2. Avoid running out of fuel. Keep an eye on the fuel level gauge from time to time and top up when it's starting to get low. Running out of Diesel will mean that you'll need to prime it again. This can be a lengthy and inconvenient process.
3. When starting your heater, it will run through a cycle to prepare the chamber for ignition. This takes around 3 minutes and then you'll see a flame appear on the screen which indicates combustion, and you'll start to feel heat coming from the duct.
4. When turning the heater off, it runs through a shutdown and cool down cycle. This can take between 3 to 5 minutes. This process allows the unit chamber to cool down and burns any excess fuel out in preparation for its next use. **Allow this cycle to complete otherwise it will cause excess smoke from the exhaust and fresh air filter, and cause carbon build up in the chamber eventually decreasing heating efficiency.**

Warnings:

1. Do not place any combustible or flammable dangerous goods near the exhaust pipe.
2. There should be no obstructions within 75mm from the heater's exhaust. The exhaust temperature is extremely high, any materials that cannot withstand high temperature may be damaged or may even potentially cause a fire.
3. Do not use fuel other than diesel.
4. **If the heater is installed indoors, it is necessary to direct the exhaust fumes to the outside and ensure that there is no leakage. Failure to do so may result in the risk of carbon monoxide poisoning.**
5. When turning the heater off, ensure that the heater is allowed to run through a cool down cycle. Otherwise, the remaining diesel will not burn out of the combustion chamber which can lead to carbon build up and excessive smoke from the exhaust.
6. Do not modify the heater, use, repair or replace any components with non-Born To Roam original parts.

Born To Roam Services is not liable for any accidents or damages caused by the reasons above.

Installation Guidance

Before beginning your installation plan the location of the following items and take note of the points below:

- Where you plan to install the diesel heater main unit. Consider the following when looking for the best place:
 - Is there any obstruction under the vehicle? i.e., gas lines, water lines, water tanks, electrical cables etc. (You may need to slightly reposition the gas line or water lines for an ideal installation.)
 - Can you run the exhaust muffler out from under the vehicle? i.e. On a caravan you will want the muffler pointing out from the chassis so that exhaust fumes do not get trapped and build up under the caravan and potentially find a way inside.
 - You will need to have the cold air intake filter away as far as possible from the exhaust muffler so plan where you'll be mounting this under your vehicle.
 - Where will the vent outlet be inside? Where possible the vent should be positioned where the warm air will circulate best and most evenly through the vehicle.
- Where do you plan to install the control panel:
 - The control panel has a built-in thermostat so do not install it directly opposite the warm air duct.
 - Where possible install the control panel as far from the warm air duct as possible. You have around 2.5 meters of wire from the main unit to the control panel to do this.
- Where do you plan to install the fuel tank?
 - Where possible install the fuel tank between 2 meters and 3.5 meters from the main unit. You may install it up to 6 meters away, but it will just take longer to prime the fuel. (Note there is 6 meters of fuel line in the diesel heater kit)
- Where do you plan to install the fuel pump?
 - Where possible install the fuel pump in a clear position between the main unit and the fuel tank. Map a path where possible. (Note that the pump power can be run 2.5m from the main unit.)
- Where is the power source?

BORN TO ROAM DIESEL HEATER



- We recommend connecting directly to the power source. There is 5 meters of power cable with Anderson plugs for your use. If possible, map out where you'll run the power cables to get to the power source or batteries.

Make sure you have the tools required for your installation: We recommend that you purchase an Installation accessories & tool kit from Born To Roam. This will include:

- 105mm hole saw
- 100mm flange ring for use under the mounting plate. (Already included in most Born To Roam diesel heater kits)
- 65mm hole saw for the 2kw Installation kit or a 80mm hole saw for the 5kw kit (Depending on which kit you purchase)
- Tube of flame-retardant silicone
- Heat resistant exhaust wrap
- Cutter - used to cut fuel line and conduit.
- Electric cable joiners - used to rejoin power cables when shortened.
- Electric tape. Used to neaten your job up and cover any electrical cables if required.
- 7mm socket for mini clamps for the fuel line joiners, fresh air intake clamps and for the ducting clamps.
- 8mm socket for the self-tapping screws, heavy duty exhaust clamps.
- 10mm socket for bolts that mount the mounting plate to the main unit.

Okay, now that you've planned everything out it's time to start the installation!

Step 1.

Main Unit Placement: Make a pilot hole using a small drill bit where you plan to mount your unit.

TIPS:

1. Usually best to do this from the bottom of the van to ensure that you do not damage any water or gas pipes.)

Use the mounting plate as a template on the inside and then again on the outside of the vehicle to check and understand where it will be mounted and ensure the mounting screws that you'll be using on each corner of the mounting plate will not cause any damage to anything before you mount it. Take note of this.

BORN TO ROAM DIESEL HEATER



Step 2.

Making the mounting hole for the main unit:

1. Make a 102mm - 105mm hole through the floor.
2. Use flame resistant silicone to seal the edges of the hole.
3. Place silicone around the inner lip of the metal flange.
4. Place the metal flange into the hole.



Step 3.

Feed the fuel pump power from the wiring harness through the mounting plate cold air hole and into the small adjoining void on the mounting plate. **(Not all the way through. Leave around 100 mm from the wiring harness junction.)**

TIPS:

Before feeding the pump power through, the main unit and mounting plate to simulate how it will attach and which way to put the pump power through.



Step 4.

Mount the mounting plate to the main unit securely using the bolts provided.

Once secured it should look like this image.



BORN TO ROAM DIESEL HEATER



Step 5.

- Mount the **long black rubber fuel line joiner** to the base of the unit using a mini clamp to secure it
- On the opposite side, Insert the fuel line into the black joiner on the unit side at least 20mm in and use a minicamp to secure it.



TIP:

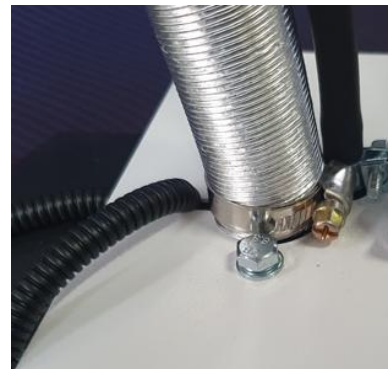
To ensure you have pushed the fuel line in far enough use a texter and mark the 20mm from the end of the fuel line, use some lubricant to force it in up to the marked line so you know it's gone in far enough.)

Step 6.

Mount the cold air intake pipe to the base of the main unit (Next to the black fuel line joiner) and secure with the supplied clamp. (Don't mount the air filter yet!)

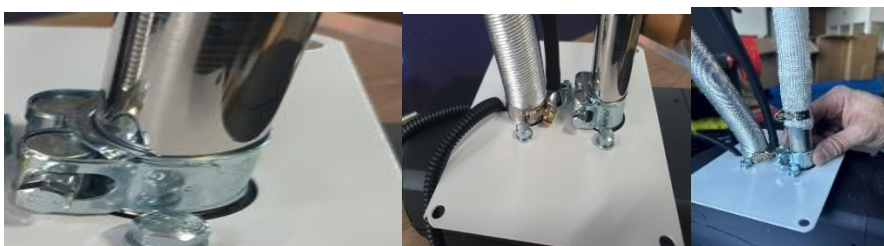
TIP:

Ensure that the clamp screw is on the inside of the unit as per the image.



Step 7.

- Mount the exhaust pipe to the base of the main unit using the supplied heavy-duty clamp. (Don't mount the muffler yet!)
- Slide the flame-resistant exhaust sleeve onto the exhaust pipe and secure it with the clamps provided. **Note: Once the unit is running for the first time the exhaust sleeve will smoke a little for around 10 minutes as it burns off any impurities for the first time. After the first use it will no longer create smoke.**



BORN TO ROAM DIESEL HEATER



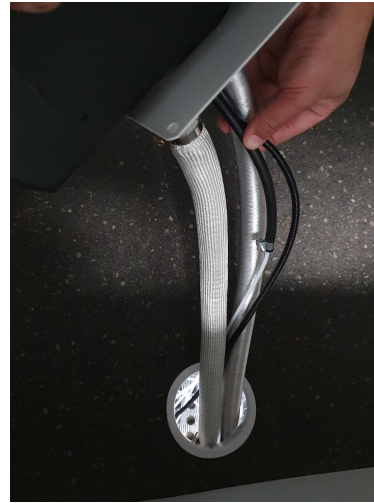
TIP: Ensure that the heavy-duty clamp bolt is on the inside of the unit as per the image above.

Step 8.

Feed all of the main unit attached components through the mounting hole with the main unit mounting plate until it is sitting flush with the mounting plate flat on the floor.

TIP:

Lift the mounting plate slightly again and put a small amount of flame-retardant silicone on the top edge of the ring.



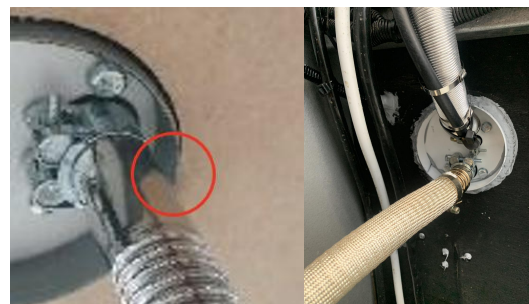
Step 9.

Check the position of the main unit and secure the mounting plate carefully on the floor.

TIPS: Ensure that it is centred and that there is as much clearance as possible from the exhaust outlet and floor or mounting ring.

Secure the plate firmly to the floor using the self-tapping screws for steel floors or wood screws for wooden floors.

Once secured firmly, seal the outer edge of the mounting ring from underneath the van with flame retardant silicone.



BORN TO ROAM DIESEL HEATER



Step 10.

Preparing the fuel tank: for some models with a fuel tap you may need to mount the **long** black fuel line joiner to the fuel tank using the mini clamps provided and then mount the Fuel Filter to the other side of the black rubber joiner.

TIP:

The fuel filter can also be mounted anywhere inline between the fuel tank and the fuel pump.



Step 11.

Mount the fuel tank into position firmly.

Note the pictures below to give you some suggestions on where you may like to install your tank.

Note: Checker plate tank covers and checker plate mounting plates can be purchased separately if required.



Step 12.

Preparing and mounting the fuel pump - mount the **short** black rubber joiners to each end of the fuel pump and secure the joiners with mini clamps in preparation to mount it. **(Note: some models may already have the black joiners attached.)**

Attach the rubber fuel pump mount over the fuel pump.

Go ahead and use a long self-tapping screw to mount the pump.



TIP:

Map out which way you plan to run the fuel line using the pump power before securing the pump. **Note:** The pump can be mounted up to 2.5 meters from the main unit as that is the length

Note that there is a direction arrow on the pump body which indicates which way the fuel will travel.

Step 13.

Feed the fuel line from the main unit to the fuel pump, cut the required length and use the provided conduit to cover the fuel line.

Now proceed to join the fuel line to the fuel pump joiner. Do the same from the other side of the fuel pump to the fuel tank!

TIP:

Use the provided cable ties to make sure the fuel line and conduit is secured neatly to the undercarriage.

BORN TO ROAM DIESEL HEATER



Step 14.

Find a place for the cold air intake filter opposite where you'll be securing the muffler. Attach the cold air intake filter using the provided clamp. Use cable ties to secure the cold air pipe and filter to the undercarriage neatly.



Step 15.

Bend the exhaust pipe into position so that it's opposite the cold air intake and pointing out from the vehicle. Use the angle bracket supplied and attach the muffler to the chassis. Next use the heavy-duty clamp provided to attach the muffler to the exhaust pipe. **Note: Make sure that the exhaust pipe is clear of any obstructions as it gets very hot and can cause damage or even a fire if touching anything.**



Step 16.

Determine where you are placing the warm air vent on the inside and cut the provided duct at the correct length.

Step 17.

Using the correct size hole saw for the warm air vent (65mm for 2kw unit or 80mm for 5kw unit) Attach and secure the duct from the unit to the warm air vent using the provided clamps. Then attach the vent using the provided small screws Note: The face of the vent can be removed to do this.



BORN TO ROAM DIESEL HEATER



Step 18.

Make sure that the rear intake of the main unit can receive air from the main cabin. If required place the other provided vent to the rear of the unit away from the warm air vent repeating the process in step 18. **Note:** To do this, you will need to unscrew the lid on the rear of the unit.

Alternatively use a hole saw and simply create a vent to the main cabin area close to the rear of the unit as per the image below.



Step 19.

Attach the LCD panel to the wiring harness and then mount the LCD panel securely. Note there is 2.5m of cable for the LCD panel. Note: The LCD screen has a temperature sensor so ensure that it is not positioned in front or directly opposite the warm air vent.



Step 20.

Connect the power cable from the main unit to the main power source.



TIPS:

If the power is in another location or under the van, it may be necessary to remove the Anderson plug and run the power cable through the floor just behind the mounting plate as per the image above. (a 14mm hole is the best fit for the power cable to run through.)

BORN TO ROAM DIESEL HEATER



Step 21.

Press the power on the LCD to make sure it turns on and then press it again to turn it off.

Note: This is just to make sure you have power.

Step 22.

Go ahead and put Diesel into the fuel tank.

Note the fuel tap has 2 keys and we suggest you keep these separately just in case you lose one!



Step 23.

Prime the fuel using instructions from the “User Manual” provided.

TIPS:

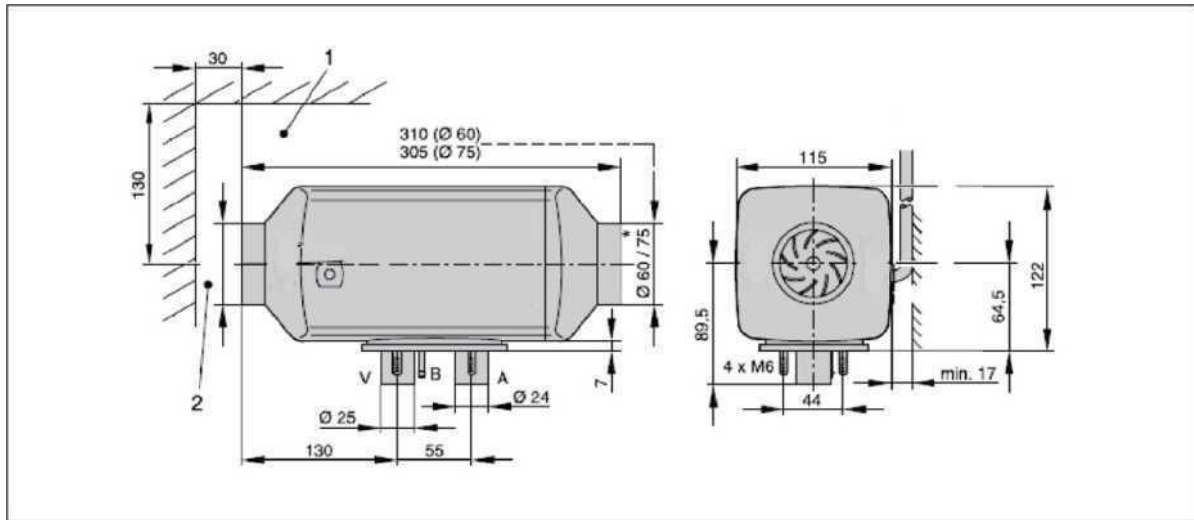
Do not over prime the unit as this will cause excess smoke when the heater runs.

Whilst priming the unit for the first time turn the pump so that the plug is in a 90-degree angle whilst it fills up with fuel. This makes the pump even quieter.

The exhaust sleeve is made from a fibreglass material and will smoke for the first 10 minutes of use to burn out any impurities but only on its first run.



BTR-2KW Outline Dimensional Drawing



Product Parameters

Model	Main Unit Weigh (Kg)	Dimensi ons (mm)	Heat Value (Kw)	Hot air Volume (Kw)	Rated Power Consumption (W)	Power Consumption for Ignition (W)	Ave Oil Consumption (L/h)
BTR-2KW	2.7	310*115*122	2	90	36	W100	0.36

Conditions

- Storage Temperature: -55°C to +70°C
- Operating Temperature: -41°C to +50°C
- Only use Diesel Fuel to operate this unit.
- Applicable Altitude: Civil<5,000m

Maintenance

The Born to Roam Diesel heater should require very little maintenance.

Monthly Checks and Maintenance:

- Simply start and run your heater on high for at least 15 minutes each month. This ensures everything keeps circulating and doesn't give the diesel a chance to go off.
- Check that all ducts are attached securely at least once monthly and ensure that there is no obstruction at the ducts Inlet and outlet.
- After each road trip you should inspect the undercarriage of your vehicle to ensure that there is no damage and that nothing has moved. **Note:** Pay special attention to the exhaust and muffler as this gets extremely hot and there should be some clearance from the start of the exhaust all the way to the muffler. (Its shouldn't be too close or touching anything that is not steel.