

# VX220 Heater Manual for RHD & LHD vehicles.

Thank you for purchasing our VX220/S2 Elise Heater kit, this manual should help you install the heater and get you up and running in no time! Please follow the installation instructions carefully as some assembly is required prior to installing the heater into the vehicle. If you do get stuck with anything, please refer to the end of this manual for our contact information. Please note that the images show installation into a RHD vehicle.

## Wiring Information:

Use	VX220 Fan Harness	SPAL Fan Harness
Low	Green/Blue	Yellow
Medium	Green/Yellow	Orange
High	Green/White	Red
Earth/Ground	Black	Black

## Kit Contents:

Everything included in the kit is outlined below including their part numbers.

Mechanical BOM		
Qty	Item	Our Part Number
1	VX220 / S2 Elise Heater Unit 12v	927-A34-B46
1	4 Port Bypass Heater Valve	149-CDB-560
1	Mounting Bracket - Large	7D3-B69-3F0
1	Mounting Bracket - Small	947-579-300
1	76mm (3") Hot Air Ducting 1m	9BD-04F-74C
1	16mm (5/8") 90° Heater Hose Elbow (RHD only)	0BC-B9C-8DD
2	16mm (5/8") 90° Heater Hose Elbow (LHD only)	0BC-B9C-8DD
1	Replacement Heater Control Bowden Cable (RHD only)	C41-359-C47
9	20-25mm A4 SS Jubilee Clips (inc 1 spare)	-
2	65-80mm 316 SS Jubilee Clips	-
8	M4 x 12mm BZP Cap Head (inc 1 spare)	-
10	M4 Washer BZP (inc 1 spare)	-
2	M4 Nyloc Nut BZP (inc 1 spare)	-
6	M6 x 20mm BZP Cap Head (inc 1 spare)	-

Electrical BOM		
Qty	Item	Our Part Number
5	Cable Ties 4.8mm	-
5	Inline Butt Connectors $\varnothing$ 1.8mm	-
5	Heatshrink x 40mm (inc 1 spare)	-

<b>1</b>	Heatshrink x 0.5m	-
<b>1</b>	Male Block Connector	-
<b>1</b>	2.5mm <sup>2</sup> Female Spade Terminals	-

## Heater Installation:

The heater can be installed with the front clam in place however it is a little tricky, you may feel more comfortable removing the clam to prevent any accidental damage to the body and this may be a good opportunity to complete any other front-end jobs you had planned at the same time.

### Removing the original Heater:

1. Begin by removing the washer bottle.
2. Disconnect the positive and negative terminals on the battery.
3. Remove the OEM hot air ducting.
4. Remove the battery bracket and then the battery.
5. Remove the wiper arm plastic cover – this will make it easier to fit the heater later.
6. Disconnect the heater air flap Bowden cable.
7. Drain your coolant and disconnect the heater hoses leading to the original heater – do not cut or damage these hoses as they will be re-used with the new heater.
8. Unplug the fan connector and remove the OEM heater from the vehicle.
9. Now would be a good opportunity to clean and Hoover out the heater/battery compartment to get rid of any bits of broken heater or other unwanted material.
10. Test fit the M4 bolts in the top of the brackets to ensure they go in with minimal effort, on the odd occasion we have had to tap out the threads.
11. Install the new mounting brackets. The thin bracket bolts to the front of the chassis and the tall bracket to the rear. The larger mounting bracket has 4 holes but only 3 are used for mounting, this bracket is symmetrical so that it is compatible with both RHD & LHD vehicles. Do not fully tighten all the bolts just yet as you will want to put the heater in place to make sure the brackets are fully aligned horizontally before tightening them up.

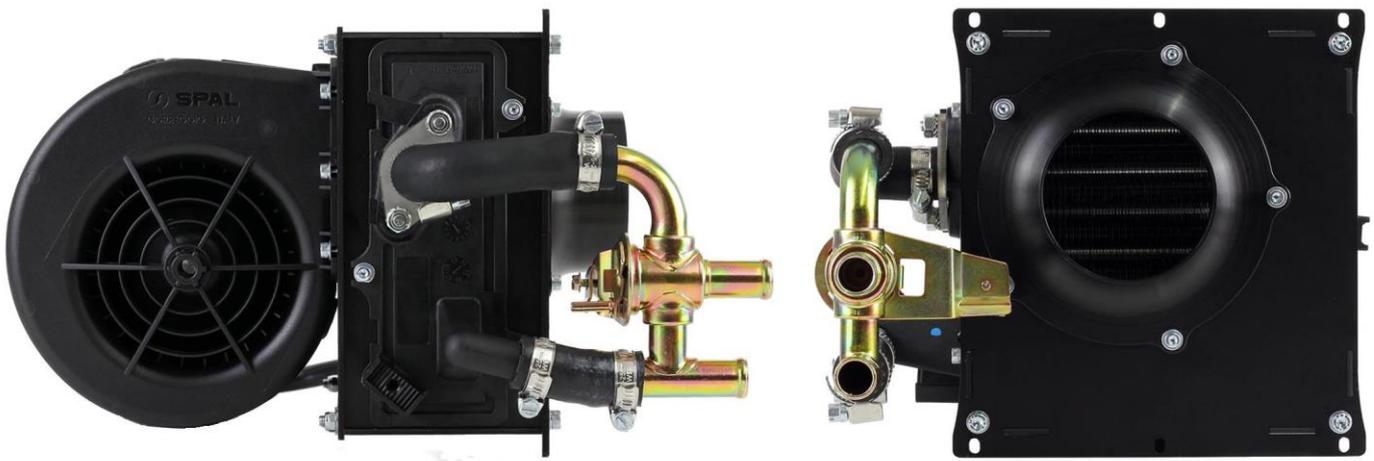


## Preparing the new heater for installation:

12. Take the 4 Port Heater Valve and drill out the threaded cable clip hole to a diameter of 4mm, it is recommended to use the included M4 Nut & Bolt than risk stripping the threads on the body of the valve after it has been installed!
13. Before the new heater can be installed you will need to fit the 4 Port bypass valve to the heater as shown in the picture below. You will need to mount the heater valve so that the two narrow ports are facing upwards and the two wide spaced ports are facing down towards the heater connections, the Bowden cable bracket needs to face in towards the heater enclosure.

The EPDM rubber elbow will need to be trimmed to the correct size to fit but don't throw away the offcuts as these will be needed to create the small 60mm long section of joiner hose.

Before fitting the heater hose, I would recommend soaking them in hot water to soften them, this will make them a lot easier to push over the hose barbs and get everything aligned as in the example image below.



14. RHD ONLY. Now would also be a good time to fit the new Bowden heater cable - as it's very fiddly to do in the car! Do not tighten the cable clip bolt too much as we will need to set the exact location once the other end is fitted to the rotary control knob inside the cockpit. Ensure the Cap Head bolt is installed so that it is facing up and away from the enclosure.
15. LHD ONLY. You will utilise the vehicles original Bowden cable as it is long enough to reach. You will not need to remove the dash panel top.

## Installing the heater into the car:

16. Lower the heater assembly in, it's a tight fit but it will go in, and slide it across until it slots into place on top of the brackets. At this point check that the heater is sitting flat on the mounting brackets and is not rocking, adjust the height of the brackets until there is minimal movement, then tighten up the M6 bolts. You will need to take the heater out again to get to the bolts at the back. Once tight place the heater back in but do not bolt the heater to the brackets just yet.
17. With the heater in the car consider how you will wire the unit up. Unfortunately the other end of the fan connector is no longer available to buy so you have two options, either chop off the original connector on the chassis loom and install the white plug supplied, or chop off the connector on your original fan and connect

this to the fan harness with the supplied butt connectors. The cable tie piggy backs on the back of the heater allow you to route the wiring up and to the top of the heater. Please refer to the wiring information table at the beginning of the guide for the cable colours and their use.

18. Lift the heater off the brackets just enough to slide it all the way across underneath the servo to give you enough room to drop the battery down in place. Please see image on next page.



19. Drop the battery in and double check it is the right way around – both terminals facing to the front of the car.
20. Install the battery clamp.
21. Now slide the heater back across and let it slot down into the recess on the brackets. See image on next page.



22. Use 6x M4 Cap Head bolts and washers and secure the heater to the brackets – most of these are easy to get to apart from the holes furthest away under the servo, don't worry if you cannot get to a couple of them, the heater isn't going anywhere with 4 or 5 bolts in place.
23. Wrap the Bowden cable around the outlet and run it in place where the original cable was routed. You will need to remove the dash top to get access to the back of the original heater control.
24. RHD ONLY. Install Bowden cable to the rotary control on the dashboard, ensure the valve is fully open and that the rotary control is set to fully hot, then tighten the clamps on the cable and rotate the dial to ensure that it opens the and closes valve fully. You may need to adjust the outer sheath clamping position of the Bowden cable to ensure that the rotary knobs sweep is aligned centrally to the dials indicator and that it starts and finishes in the right places. Once done, refit the dash panel. If unsure how to take off the dash panel there are some goods guides that can be found on [VX220.org.uk](http://VX220.org.uk) or searching via Google.
25. The original formed heater hoses can now be installed.
26. The 76mm (3") heater ducting can now be fitted, this is supplied in a 1m length but will need to be trimmed down to fit.
27. The battery connectors can now be connected.
28. Install the washer bottle and any further parts removed at the beginning.

## Contact Details:

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If you have any questions, please don't hesitate to contact us via the following:

Email:           www.t7design.co.uk

Web:             info@t7design.co.uk

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## With thanks:

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I would like to offer a huge thanks to 'Buchos' from [www.VX220.org.uk](http://www.VX220.org.uk) for his help with prototyping and supplying the images for this manual!

Further information on installation and user feedback can be found here:

<http://www.vx220.org.uk/forums/topic/145414-new-t7design-heater-for-the-vx220/page-12>