

VX 220 TURBO CHARGE COOLER KIT

COMPONENTS:

1off Charge Cooler Unit
1off Pre-Rad
1off Water Tank (Supplied Plastic Cap with Vent Removed)
1off Bosch Circulation Pump
1off Bosch Pump Connecting Socket (PAD12V-CON)
2off Spal 9" Blowing Fans Fitted To Pre-Rad

HOSES – What Goes Where:

1off ¾"Ø x 3000mm Water Hose (Forward Charge Cooler Inlet to Pre-Rad)
1off ¾"Ø x 3500mm Water Hose (Pre-Rad to Circulation Pump)
1off ¾"Ø x 1400mm Water Hose (Rear Charge Cooler Outlet to Top Water Tank Return Fitting)
1off ¾"Ø x 1000mm Water Hose (Lower Water Tank Outlet Fitting to Circulation Pump)
2off 28mm ID x 43mm OD x 9mm Thick Rubber Grommets (Use 34mm Hole Saw)

FIXINGS:

Hose Clips:

8off No 1A (22mm-30mm)

Attaching Pre-Rad to Main Rad:

4off M6 x 16mm Hex Head Bolts
4off M6 Nylock Nuts
8off M6 x 20mm Penny Washers
4off 19mm OD x 6mm ID x 7mm Thick Alloy Spacers *(Only required if fitting pre-rad to original Vauxhall radiator, these are not required when pre-rad is fitted with Pro Alloy main water radiator)*

Charge Cooler Mounting:

Top

2off M6 x 16mm Hex Head Bolts
2off M6 Nylock Nuts
4off M6 x 20mm Penny Washers

Bottom

1off M6 x 16mm Hex Head Bolt
1off M6 x 20mm Penny Washer
1off M8 x 16mm Hex Head Bolt
1off M8 x 25mm Penny Washer
1off Steel Mounting Bracket

Water Tank Fixings:

1off M6 x 30mm Hex Head Bolt
1off M6 x 16mm Hex Head Bolt
1off M6 x 16mm Button Head Bolt
3off M6 Nylock Nuts
6off M6 x 20mm Penny Washers

PUMP WIRING INFORMATION

The switching supply for the relay is taken from the fuelling circuit. The reason for this is that this circuit remains live for 45 seconds after the ignition has been switched off. This is convenient as it allows the CC pump/system to continue to run/circulate for that length of time after engine switches off. The switched relay supply can be taken from the blue connection block that's fixed on to and behind the coolant expansion tank bracket.

There are two blocks, the top is black and the blue one you're looking for is below it. It's fairly difficult to access with the coolant header tank in place, so removing the header tank and bracket helps with access. You need to make this connection before the CC header tank goes in, because after this access is even more difficult to access.

Identify the red/grey wire in the blue block connector. Below the red/grey wire can be clearly seen.



The lead you are looking for is on the top (top being where the push release catch is) left hand side of the wires entering the block from the rear of the car. This is the only part of the job that definitely requires two people, one to test the wire and the other to switch the ignition. The wire is Red with a Grey stripe and is thicker than most other leads in the connection. Test the wire with a meter to check it stays live for 45 seconds after ignition turn off. If you just turn the ignition on and off the wire will only remain live for five/six seconds. You have actually start the engine and then switch off for the forty five second delay.

Once you've made the wire ID you will need to make a connection from it to terminal 86 on the relay. Rather than completely cut a wire in the loom, it should be possible to strip a small length of the red/grey wire and make a connection by binding the relay feed wire in place and then making a solder connection to secure it before insulating the whole thing with tape.

The relay needs to be mounted where it's protected from the weather. This can be located on the rear boot bulkhead, near the top, beneath the lip to the right (bulkhead centre) of the header tank as shown. Once the wire is connected you can run it around the corner by the ECU and on to the boot bulkhead to secure it to the boot release catch cable sheath which will run behind the CC header tank.

Relay Ready:



Relay Fitted:



You now need the positive feed from the battery to run up and around the top of the rear wheel arch, and along the boot bulkhead from the offside to terminal 30 of the relay. Somewhere on this run (approx wheel arch centre?) the negative wire from the battery needs to be prepared for connection to the negative terminal of the CC pump.

You need a length of wire (+ blue) from terminal 87 of the relay to the CC pump +, and finally a length of wire (- black) from terminal 85 on the relay to earth. A convenient location for this is the earth connection on the left hand side (from the rear) of the inlet manifold which is only about a foot from the relay. If the relay being used has an integral 30 amp fuse, this should be changed for a lower value (15 amp). Make all relay the connections put the relay in chosen place and tie all cables.

Return to installing the header tank and pump and hoses before the final connections below are made.

Finally all that's left is connecting the (+) from the relay and the (-) from the battery to the pins that insert into the CC pump plug. This should wait (to determine the final +/- wire lengths) until the pump has been placed in situ. Ensure you connect the plug in the pump and note its orientation in relation to the clearly marked +/- on the pump before removing it to insert the pins in the correct holes.

Tape everything up. Because of the location of the pump plug immediately behind the wheel arch liner in a place that may get a lot of indirect moisture, once the plug was in place I also taped over the connection itself to keep out any moisture. Secure wires with ties as required.

Make battery connections.

FAN WIRING:

The two Spal fans have 2 pin connectors which are not compatible with the OE wiring plug. The best option is to remove the 2 connectors supplied with the Spal fans, cut the OE plug off the OE fan (ensuring you still have enough wire to solder to) and solder the Spal fan wiring to the OE plug, noting correct polarity, otherwise the fans will run the wrong way when they cut in.

On the Spal fans BLUE is +ve and BLACK is -ve.

At the car side of the OE 2 pin plug (female) the +ve is BLACK with a GREEN trace and the -ve is BLACK.

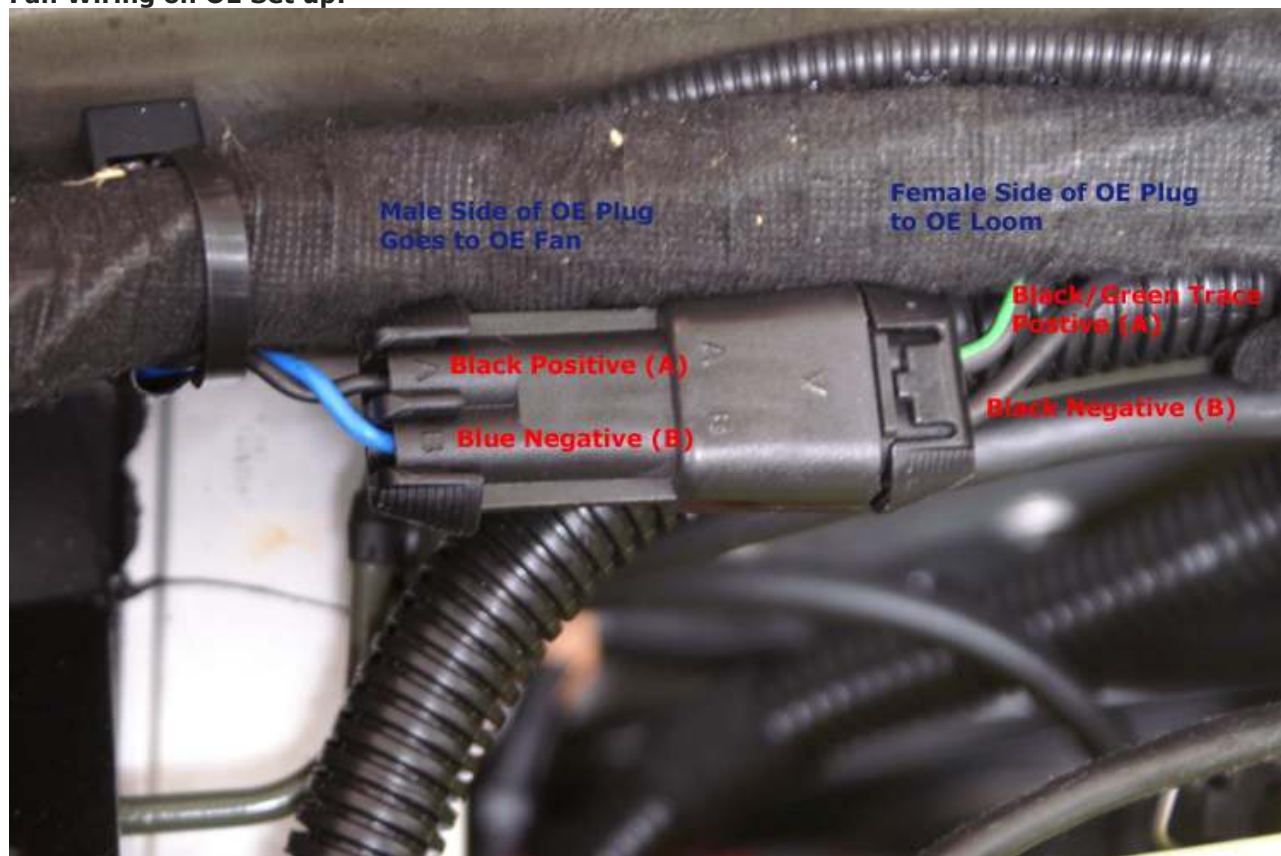
At the fan side of the OE 2 pin plug (male), it has a blue and a black wire, labelled A BLACK which is +ve and B Blue which is -ve. (The opposite way round to the Spal fans!!)

Connect +ve to +ve and -ve to -ve. Providing the BLACK/GREEN goes to the BLUE of the **Spal** fans, and the BLACK goes to BLACK on the **Spal** fans this is fine. **DO NOT** just connect the blue and the black from the OE plug to the Spal fans without checking +ve and -ve first otherwise this will be incorrect polarity!!

We suggest swapping the position of the BLUE and the BLACK wires in the fan side of the 2 pin OE plug by carefully removing the pins from the socket with a small screwdriver and then swapping them round, so that BLUE is then the +ve and BLACK is -ve to match up with the spal fans. The choice is yours.

Ensure all connections are soldered and insulated with heatshrink and that the wiring does not rub or catch on anything when the radiator assembly is installed.

Fan Wiring on OE Set up:



Drill Holes For Pipe run along sills. Be Careful as a water pipe runs behind the inside hole.



From Another Angle:



Pipe Run Here:



Charge Cooler Bottom Bracket:



Chargecooler Fitted:



Pump Location – O/S/R behind wheel arch liner mounted on chassis:



Header Tank Location:

