



COMPUTER LIQUID COOLING KIT INSTALLATION GUIDE

Check-marked for applicable model and content

Intel P3 Socket 370, AMD Athlon/Duron socket 462	
AMD Athlon/Duron socket 462, Intel P4 socket 423, 478, 603/604	

This kit includes (Check-marked for applicable model and content) :

Qty	Item	
1	Radiator model RAD 676, gasket, mounting screws, 5' of 3/8" OD tubing	✓
2	120mm fans, 55 CFM	
1	Fill & bleed kit, 2' of 1/4" tubing	✓
1	MCP300™ Inline Pump with 3/8" reducer quick-connect adapters, and Velcro harness	✓
1	Pump switching relay kit, including A/C socket, Switch CB, mounting plate, mounting screws, A/C cord	
	Water block model ->	
	None	
	MCW372	
	MCW462-U	
	MCW462-UT	

Preamble

This kit is meant for advanced users, and designed for heavy thermal loads such as, but not limited to:

- Extreme overclocking, Dual processors, Thermoelectric cooling, High ambient temperatures

Due to considerable variations in case sizes and designs, Swiftech cannot guarantee that some of the peripherals, in particular the radiator, will fit inside your case.

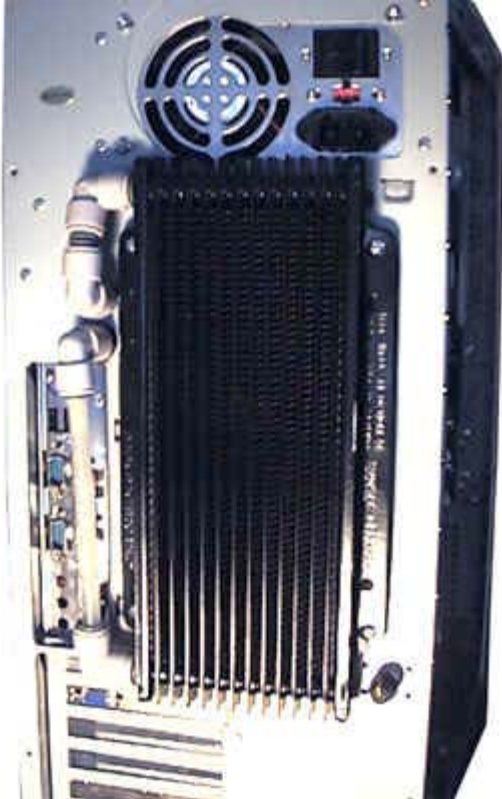


Tools needed to complete the installation:

- Power drill
- 4/6 Bi-Metal Hole Saws
Milwaukee 49-56-0230
4-1/2" (115 mm) to open up two holes for the 120mm fans
- 1 1/4" (32mm) Bi-Metal hole saw for Pump switch mounting
- .5" drill bit (12.7mm) to route the two tubes inside the case (protected by two grommets, included in kit)
- 3/16 (4.75mm) Drill bit for fan mounting holes
- 1/8" (3.17mm) Drill bit for radiator mounting holes

1/ Find a suitable placement for the radiator and fans

Radiator placement example



The radiator installed to the back of this LiteOn's FS020 server case. It sits on our custom 3/8" thick gasket for perfect sealing.

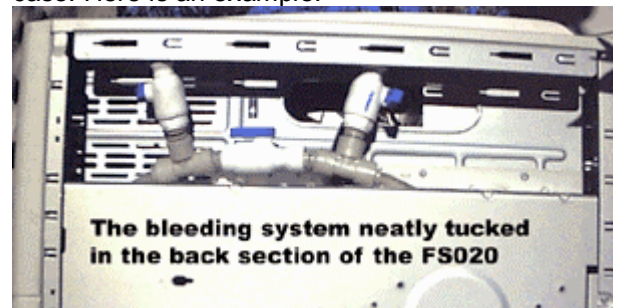
Radiator & fans placement recommendations

The radiator can be installed wherever you find suitable room for it, including: top, backside- panel, front or to the side of the case. However, you should avoid installing it on a removable panel, such as the side-access panel. This could cause the tubes to exert uncontrolled pressure on the water-block assembly when the panel is fastened and removed from the case.

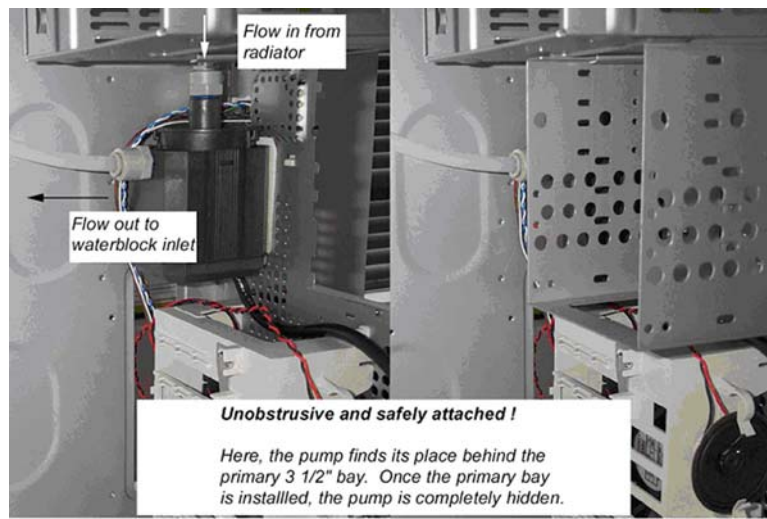
Once you have located a suitable placement, use the enclosed schematic (appendix A) as a template to drill the radiator, and fan mounting holes.

2/ Find a suitable placement for the Fill&Bleed kit

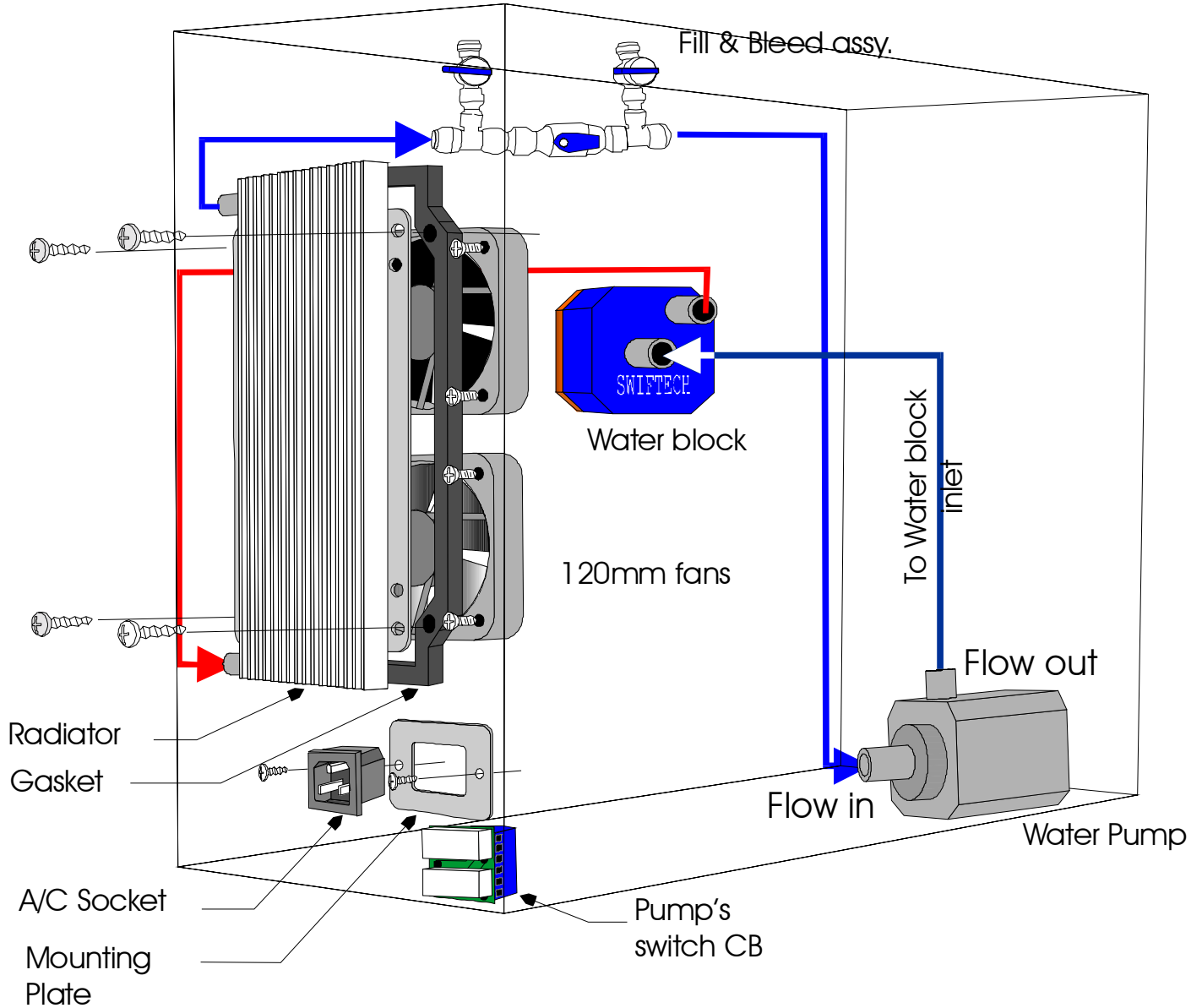
To facilitate bleeding, the **fill-and-bleed kit should always be installed at the highest point** of the circuit, typically at the top of the computer case. Here is an example:



3/ Find a suitable placement for the water pump : The pump can be installed anywhere. It can be mounted vertically or horizontally, using the heavy duty Velcro harness provided with your kit



Swiftech Liquid cooling Kit Typical installation



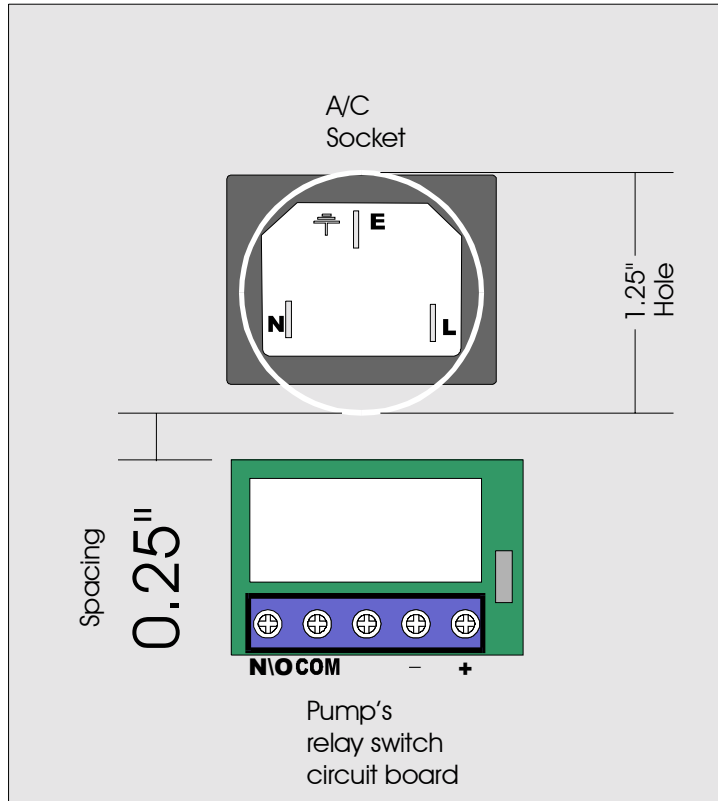
5/ Electrical Installation

Find a suitable placement for the pump's A/C socket. Leave sufficient room under or above the hole to install the pump relay switch circuit board. A 1/4" minimum clearance will be required between the circuit board and the edge of the hole.

Make a 1.25" (32mm) diameter hole in the case, using a 1 1/4" Bi-Metal hole saw. Deburr the edges of the hole with sand paper.

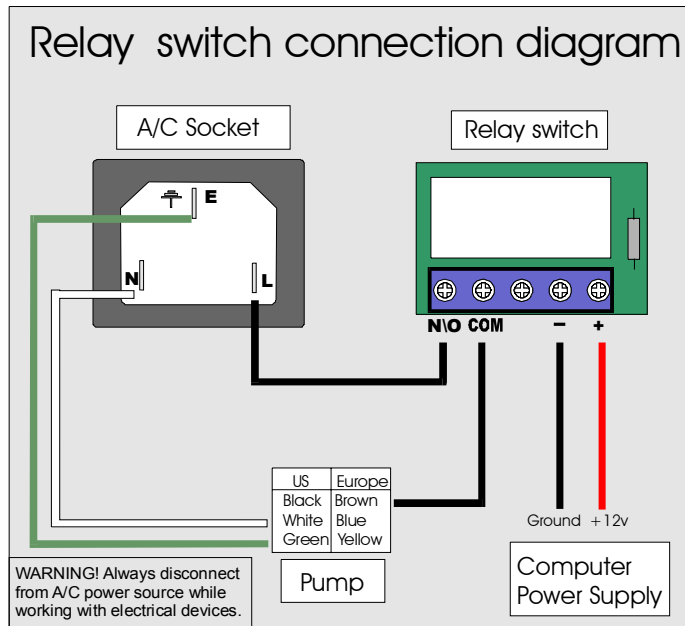
Position and center the mounting plate over the hole as a template to mark the locations of the plate's mounting screws. Drill 2 holes of .125" diameter for the mounting screws. Install the mounting plate using the screws provided with your kit.

Insert the A/C socket inside the mounting plate



Proceed with electrical connections as described in the diagram to the right.

For normal operations, the L wire from the A/C socket must be connected to the N/O (normally opened) position of the switch. Normally Opened means that when the computer is off, and there is no current from the power supply going to the switch, the relay is opened, disallowing A/C to the pump. Conversely, as soon as you turn the computer on, the switch becomes energized by the power supply, and the relay closes, allowing A/C current to pass to the pump.

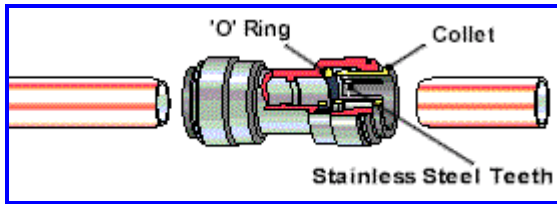




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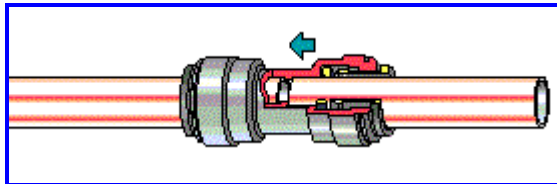
5/ Connecting the pieces altogether: how to use quick connect fittings

1 Cut tube square



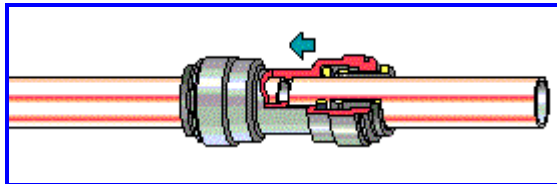
Cut the tube square. It is essential that the outside diameter be free of score marks and that burrs and sharp edges be removed before inserting into fitting. **For soft or thin walled plastic tubing we recommend the use of a tube insert.**

2 Insert tube



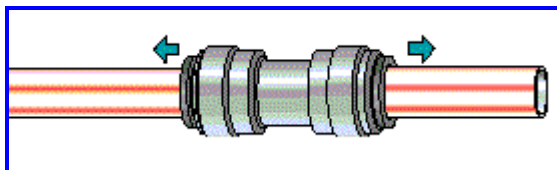
Fitting grips before it seals. Ensure tube is pushed in to the tube stop.

3 Push up to tube stop



Push the tube into the fitting, to the tube stop. The collet (gripper) has stainless steel teeth which hold the tube firmly in position while the 'O' ring provides a permanent leak proof seal.

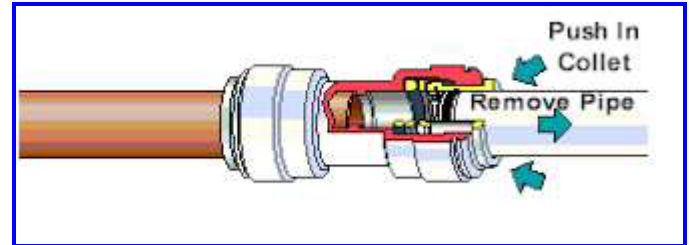
4 Pull to check secure



Pull on the tube to check it is secure. It is good practice to test the system prior to leaving site and/or before use.

Disconnecting a fitting

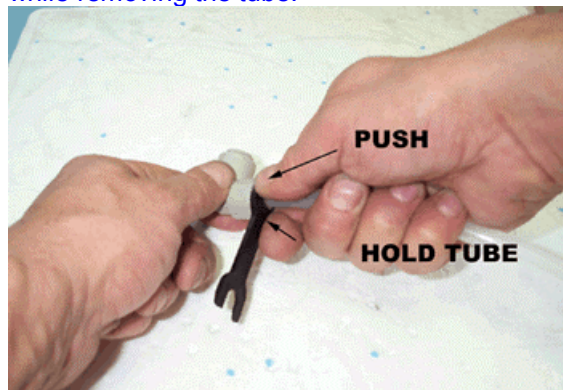
Ensure system is depressurised before removing fitting.



Push in collet squarely against face of fitting.

With the collet held in this position, the pipe can be removed. The

Your kit also contains a release aid tool which you can place over the collet, and helps pushing the collet squarely while removing the tube:



General guidelines with regards to tube bending:

In general, you should avoid sharp bends. A sharp bend may result in kinking the tube, and restrict or completely prevent the flow.

Once all the elements are in place, you can install your motherboard inside the case and proceed, with the water block installation.

7/ Water block installation:



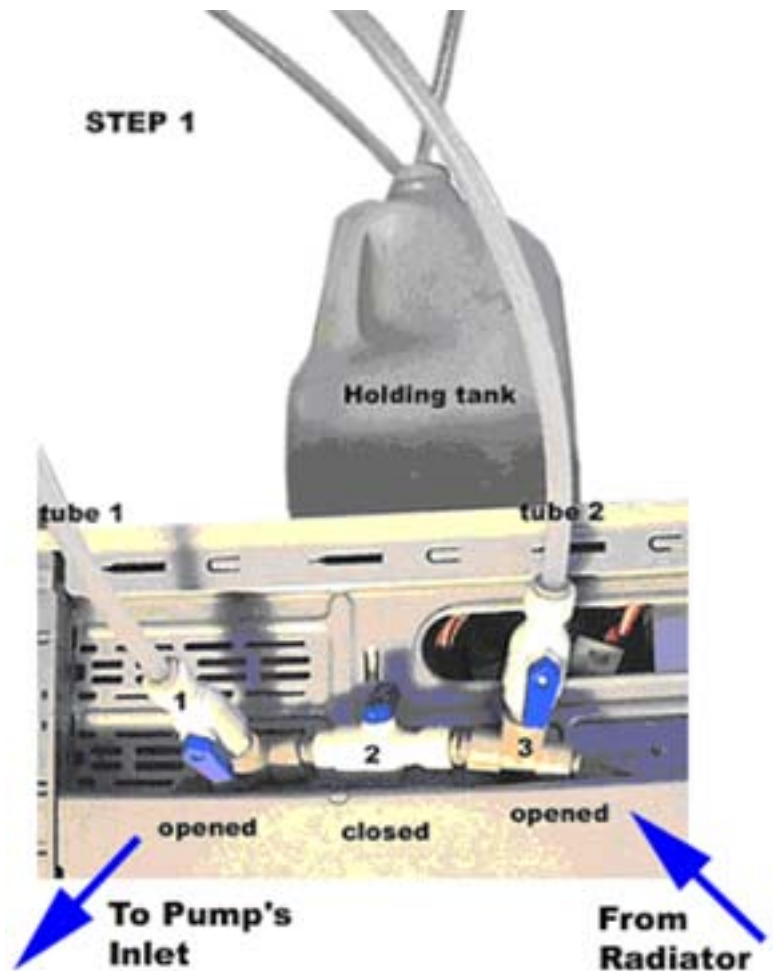
Please refer to the separate installation guide included with your Swiftech water block, or visit our web site at <http://www.swiftnets.com> Section "Service and support, sub-chapter: "Installation Guides"

8/ Final step: filling & bleeding the circuit

We recommend using the following mix:
90% purified water + 10% RedLine water
wetter (available at auto parts stores).

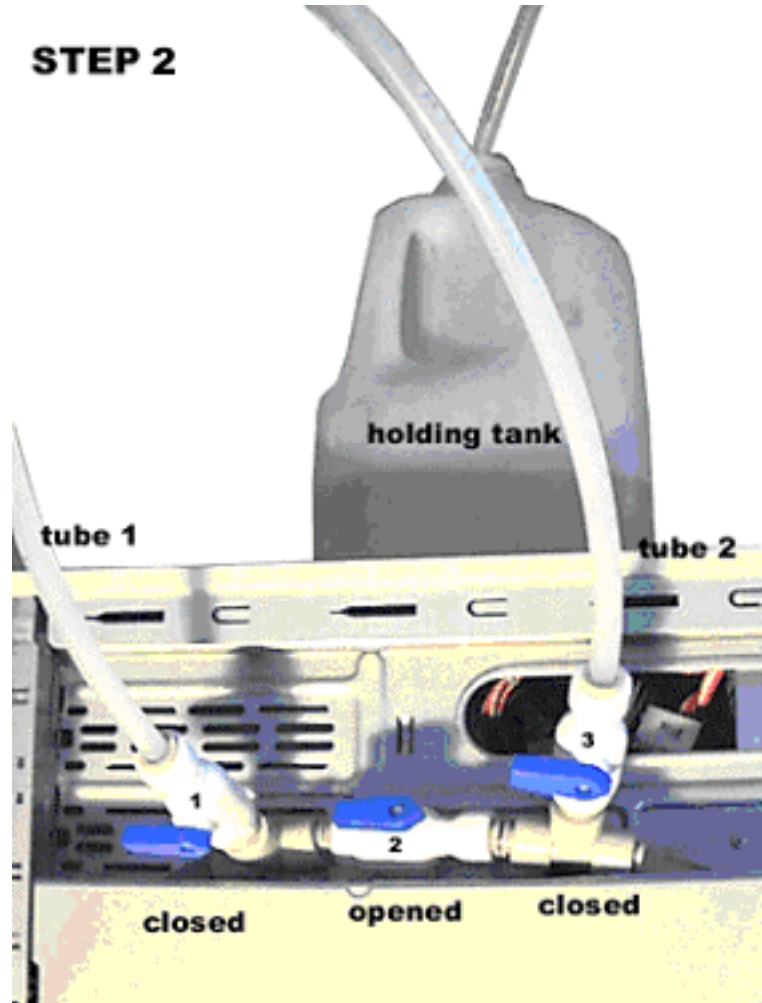
In order to fill and bleed the circuit, you will need to activate the pump. Since you do not want to run the computer until the cooling circuit is completely operational, you should temporarily connect the L wire to the N\C position of the switch. **WARNING: do not forget to reconnect to N\O once you are ready to run the computer: if you leave the L wire connected to N\C, the pump will shut off as soon as the relay is energized by the power supply, and there would be no flow in the cooling circuit, causing your CPU to overheat.**

1. Place a holding tank containing your cooling fluid above the computer.
2. Connect the ¼" tube provided with your kit. Tube 1 goes to valve 1 and tube 2 goes to valve 3
3. Plunge tube 1 only into the holding tank, making sure it is entirely submerged
4. **Open valve 1, close valve 2, open valve 3**
5. Prime the circuit by gently sucking in air from **tube 2**, just enough that you see the liquid starting to flow down in tube 1
6. Now, you can plunge tube 2 back into the holding tank
7. Start the pump
8. Let the pump run for 1 minute as shown in the picture to the right. The liquid should be flowing freely from tube 2 into the holding tank.
9. **Important step: after a minute, and while the pump is still running:**
 - Take the holding tank and tubes into one hand –making sure that the tubes remain plunged into the liquid,
 - Then lay the computer down for just a few seconds once flat on it's back, and once flat on its belly. This will bleed any air still trapped into the circuit.



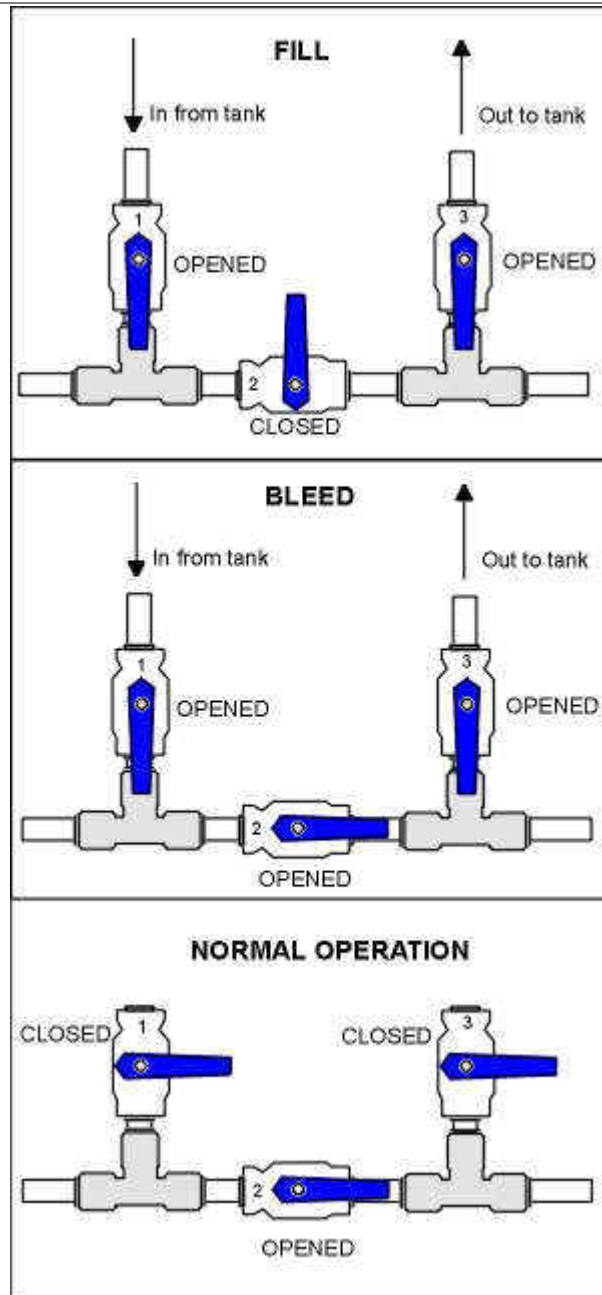
STEP 2

1. Open valve 2 for a couple of seconds, allow any air trapped into the valve to escape. Close valve 2 again.
2. Now, close valves 3 and 1, and open valve 2. The system is now full, bled, and ready to use, as shown in the picture to the right.
3. Turn off the pump by disconnecting it from A/C.
4. With both tubes still inside valves 1 and 3, carefully place the holding tank below the computer (on the floor for example)
5. Disconnect the tubes from valves 1 and 3. Whatever little liquid was still trapped in the tubes will flow back into the holding tank without making a mess :-)
6. FINALLY, REMEMBER to reconnect the L wire from the socket to the N/O position on the switch !



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In summary



For service, support, or questions, please contact:

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0.125"
Diameter
4 places

FAN MOUNTING HOLES 4.125"

WARNING: if you are downloading this page from the Internet, make sure your printer is setup properly and does not scale the image down! Measure the dimensions before you drill holes in your case !

4.500"

4.125"

0.180"
Diameter
8 places

7.500"

RADIATOR MOUNTING HOLES

0.635"

10

4.750"

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1:1 scale

