How to Install the XSPC Razor GTX Titan Full Cover Water Block and Back Plate

Warning! The XSPC Full Cover Water Block designed to increase the cooling performance of all GTX Titan and GTX 780 series graphics cards that use reference PCB layouts ONLY. If your video card is not a reference card, or if you are unsure as to whether your video card uses an alternative PCB layout, you should STOP HERE and contact XSPC for further options.

Warning! The XSPC Full Cover Water Block and associated components are designed for use in conjunction with a pre-existing water cooling system. The presence of water near electrical components presents the inherent risk of damage. Improper installation or use of the XSPC Full Cover Water Block could lead to damage of not only your video card, but other components inside your PC. If you are not competent to perform the installation, you should seek the service of a professional.

I, David Young, will not be held liable for any damaged components that may result from the installation of the XSPC Full Cover Water Block.

This guide will lead you through the following:

1. The unboxing of the XSPC water block and back plate.
2. The dismantling of the video card's reference cooler.
3. The installation of the XSPC water block.
4. The installation of the XSPC back plate.

Recommended Allotted Time and Skillset:

1. 1-2 Hours
2. Experience Dismantling Reference Coolers
3. Experience Installing GPU Water Blocks
4. Patience

Required Tools:

1. Anti-Static Mat
2. Anti-Static Wristband
3. Screw Driver
4. Rubbing Alcohol
5. Anti-Lint Cleaning Wipe
6. Small Phillips Head Screw Driver
7. Torx T6 Screw Driver

Recommended Tools:

1. Alternative Thermal Compound (I recommend Noctua NTH-1)
2. A Second Pair of Hands
3. Anti-Static Work Place (Do not work over carpet)
4. Compressed Air

Step 1: Ground Yourself and Establish Workplace

The first step before beginning anything is to ensure you will not accidently damage any components with electrostatic discharge.

To do this, ground yourself using an electrostatic wrist or ankle band. I like to grab a nearby power supply and ground myself to that, but whatever method is readily accessible will be fine.

Then provide a safe workplace by laying an anti-static mat down on a level work surface. This will serve as your work place and any electrical components should remain on the anti-static mat.

Step 2: Un-Box Components

The next step is to unbox all the components from their shipping boxes and lay all the parts out neatly on the antistatic mat. Before moving forward, verify that you are not missing any parts and that all pieces appear unblemished.

Water Block Box Contents:

- 1x GTX 780/Titan Water block
- 5x G1/4 Plugs
- 6x Thermal Pads 1mm
- 3x Thermal Pads 0.5mm
- 1x Thermal Paste
- 12x M3x6 Screws
- 12x Red Washer
- 1x M3 Nut
- 1x Twin 3mm Blue LED

Back Plate Box Contents:

- 1x Foam Pad
- 11x M3 10mm Screws
- 11x Red Washers
- 3x Thermal Pads
- 1 x Allen Key

Figures 1&2: Box Contents for both the water block and back plate.

If you are missing any components you should contact XSPC or the retailer from which you purchased the block before proceeding.

Step 3: Plug Unused Ports

a. Determine Port Configuration:

Before installing the water block onto the graphics card, you should determine what entry and exit port configuration your loop and tube routing will necessitate. The XSPC Water Block works regardless of the direction of water flow.

b. Install Port Plugs and Fittings

It is now that you should take advantage of having the water block free to handle, without worry of damaging the PCB[1], to install the G1/4" plugs to block any unused ports in the XSPC Water Block. The loop will only require 1 entry and 1 exit port be left open. At this point you should also install any tube fittings you have chosen to use in connecting the inlet and output tubes to the water block.

Figures 3&4: G1/4 plugs and inlet/outlet fittings.

At this point the water block should be unpackaged, and all unused ports should be plugged. Fittings should be inserted into 2 of the ports on the water block (1 for entry, 1 for exit).

You can set the water block down now, while you work on removing the reference cooler.

Step 4: Remove the Stock Cooler from the Graphics Card

Before handling the graphics card, verify again that you are properly grounded.

a. Remove the Holding Screws

Place the Graphics card cooler side down on the anti-static mat, with the PCB facing upward. Using the torx driver, remove the 20 holding screws that fix the cooler to the PCB. The screws required for removal are highlighted in red in the following picture.

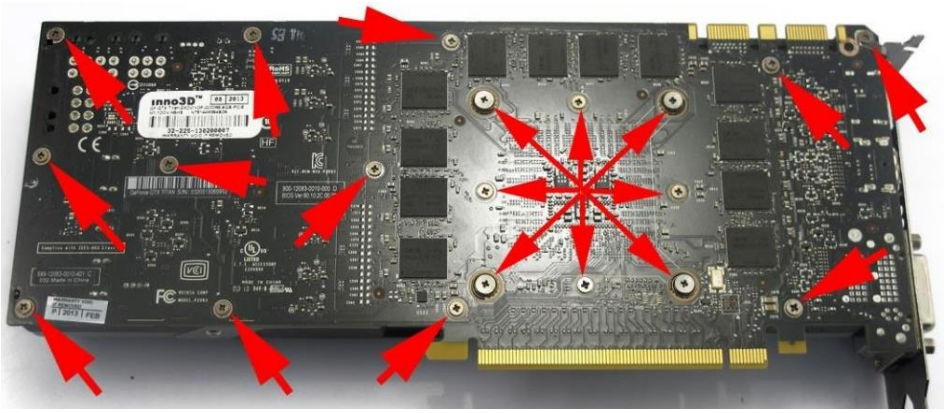


Figure 5: Back of PCB showing locations of cooler support screws

1: PCB Printed Circuit Board that supports and electrically connects components of the graphics card

b. Remove the Stock Cooler

Turn the card over once more and carefully lift the stock cooler off the PCB. Beware that the fan on the stock cooler is connected to the PCB by a power cable. Do not forget to unplug the cable before separating the PCB and the cooler more than an inch or so. Separating the two may require a bit of wiggling, as they are nested together fairly tight. Do not use excessive force.

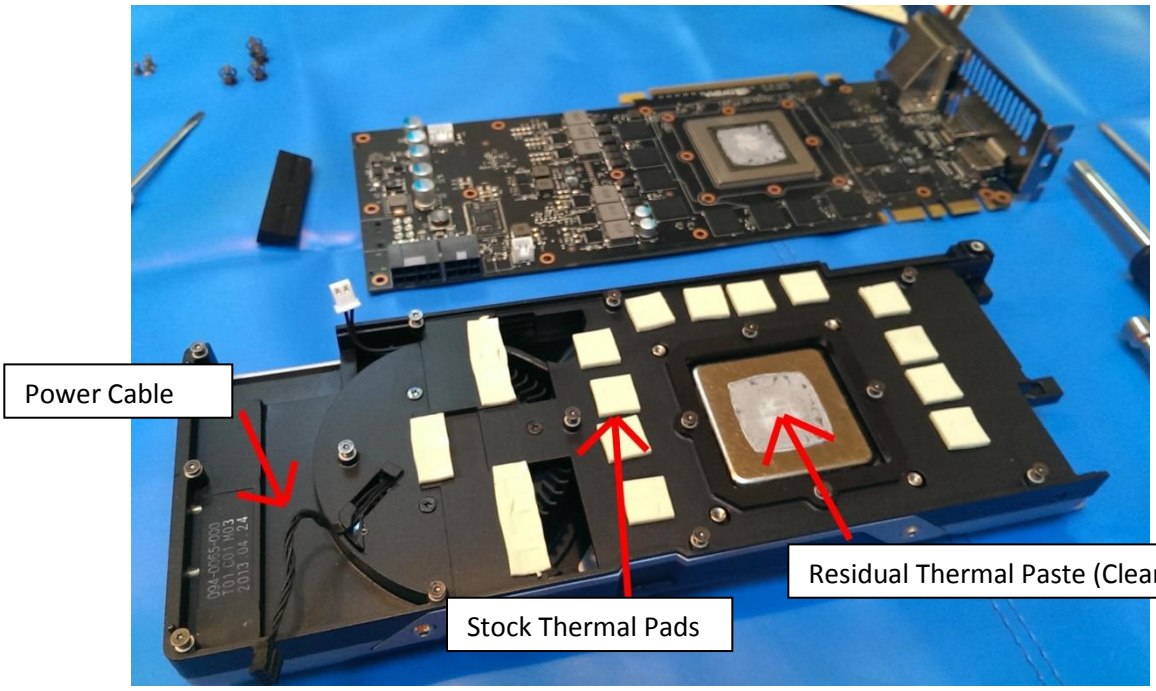


Figure 6: Removal of the stock cooler. Separation of cooler and PCB.

c. **Ensure all stock thermal pads remain on the stock cooler**

Make sure to remove any thermal pads sticking to the Vram on the PCB and place them in their corresponding location on the stock cooler.

d. Neatly Pack and Store the Stock Cooler

Clean the stock cooler of all residual thermal paste by rubbing it with an anti-lint wipe and rubbing alcohol. Make sure to place all the holding screws you removed in step a. back into their holes in the stock cooler. They will not be needed in installing the water block and this will ensure they do not get lost in the meantime. Set aside the cooler (I like to ensure that the thermal pads on the Vram extensions of the stock cooler do not fall off when storing the cooler. To do so, I wrap the cooler in plastic Saran wrap before storing it).

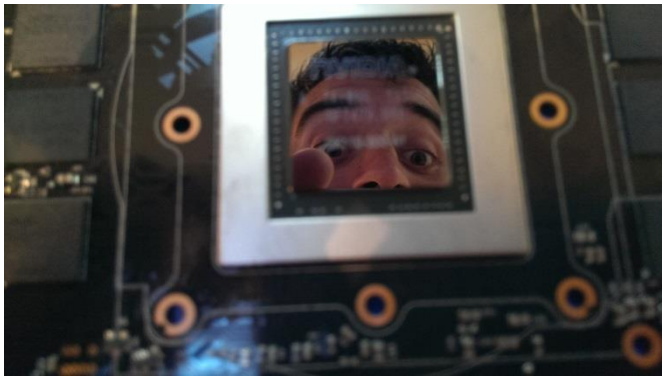
At this point you should have the PCB isolated with the reference card placed aside.

Step 5: Clean the GPU + Vram & Apply Thermal Compound

a. Clean the GPU + Vram

In order to ensure optimal contact between the water block and the GPU, you must remove the residual thermal paste left over from the stock cooler and ensure the GPU is spotless. To do this, dampen an anti-lint wipe with rubbing alcohol and gently clean the surface until it reflects

like a mirror. Similarly, clean the tops of all the Vram modules where residue from the previous thermal pads may remain.



Figures 7&8: Cleaning of the GPU face.

b. Apply Thermal Compound

To apply thermal compound, squeeze a very thin line (about the size of a grain of rice) onto the center of the GPU. If you cleaned the GPU surface properly, the compressive force between the water block and the GPU will squeeze the thermal compound evenly over the surface of the GPU. The included thermal compound from XSPC will work fine, however I prefer to use Noctua NT-H1.

Step 6: Prepare the PCB for the Water Block (Install Thermal Pads)

a. Install the Blue Thermal Pads

For each of the 6 blue thermal pads, remove the tape backing from both sides and carefully (without getting much oil from your fingers on the pads themselves) place the pads on in the locations marked 1 in the following picture.

b. Install the Grey Thermal Pads

Similarly install both grey thermal pads in the locations marked 2 in the picture below.

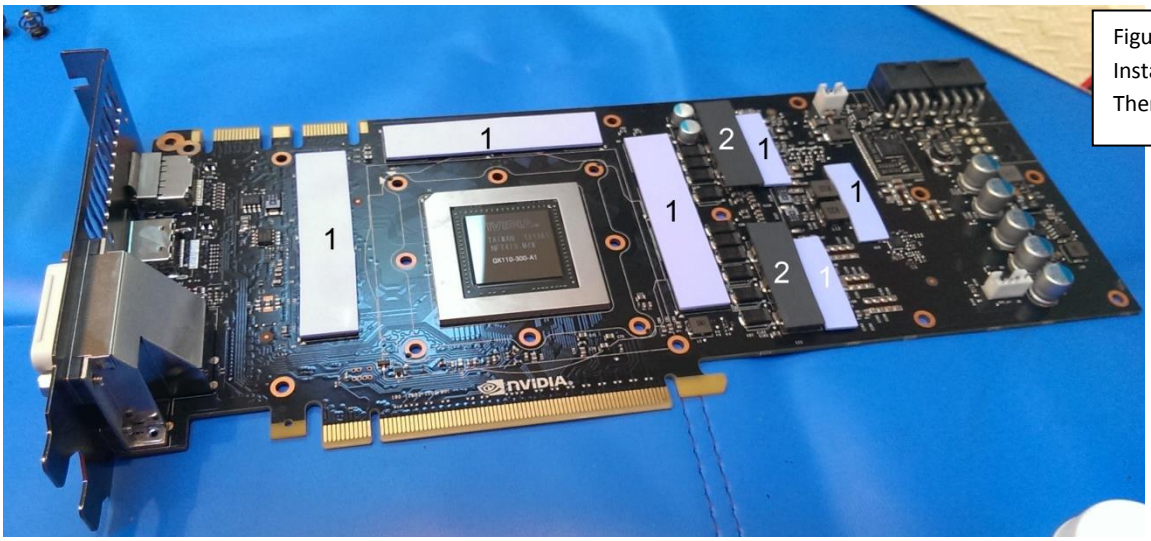


Figure 9: Installation of Thermal Pads.

Step 7: Prepare the Back Plate

a. **Remove the Protective Foam from the Back Plate**
   To remove the protective yellow foam backing from the back plate, simply peel it back and discard.
b. **Install Thermal Pad**
   Similar to the installation of the thermal pads on the PCB, place the included large thermal pad in the location indicated in the picture below by the 4 red arrows. And place the 3 blue thermal pads in the locations indicated in blue.

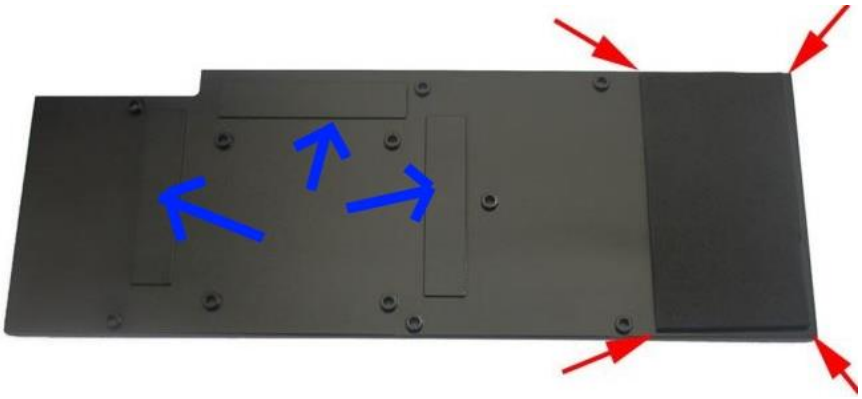


Figure 10: Installation of Thermal Pads to the Back Plate

Step 8: Install the Water Block & Back Plate

a. **Line Up the PCB with the Water Block**
   The first step in putting the 3 pieces together is to line up the PCB with the water block. The easiest way to accomplish this is to place the water block face down on the anti-static mat, and slowly place the PCB (GPU side down) onto the water block. As you lower the PCB onto the water block, be careful to line up the GPU with its corresponding location on the water block so as to evenly press and squeeze the thermal compound you applied earlier. I find it helpful to look at the screw holes and attempt to line them up evenly to the corresponding holes in the water block. This will help you gauge how tilted the PCB may be as you lower it down.
b. **Place The Washers**
   Take the included red washers (from either the back plate or the water block box) and place them in the locations shown in the picture below, around each of the screw holes.

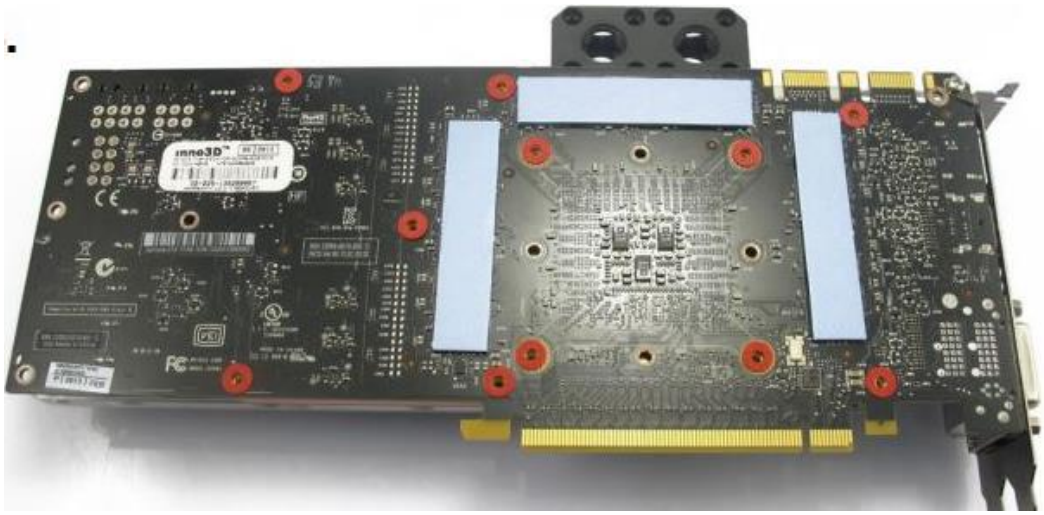


Figure 11: Placement of Washers

c. Align the Back Plate

Carefully lower the back plate (thermal pad side down, XSPC logo side up) down onto the PCB's backside above the washers you just laid out. This can be a frustrating process and any wiggle while placing the back plate down can cause a washer to shift underneath, requiring you to lift the back plate back up and reseat any washers that may have shifted. If all goes well, you should be able to see the screw holes in the PCB and water block through the screw holes in the back plate.

d. Install the Screws

Once the back plate is aligned, you can fix the water block, PCP and back plate together using the black M3 screws provided in the back plate box. The screw locations are highlighted in the photo below. Tighten the screws with the included Allen key, being careful not to over tighten.

Figure 12: Alignment of back plate and location of screws

The card is now ready for use. You may un-ground yourself and step back to enjoy the fruits of your work.

Figure 13: Result of finished installation (minus fittings and plugs)