

# FIX FOR THE 3RLOD

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As with most tutorials that I've seen written, this is not at all "my" invention or information. This is a collaboration of many peoples' ideas and theories that have been tested by many others, but as a whole – seem to benefit the entire Xbox Scene community. Do this at your own risk, only if you're like me – "Out of Warranty". I take no responsibility if you destroy your Xbox further. With that said, let's get to the fix:

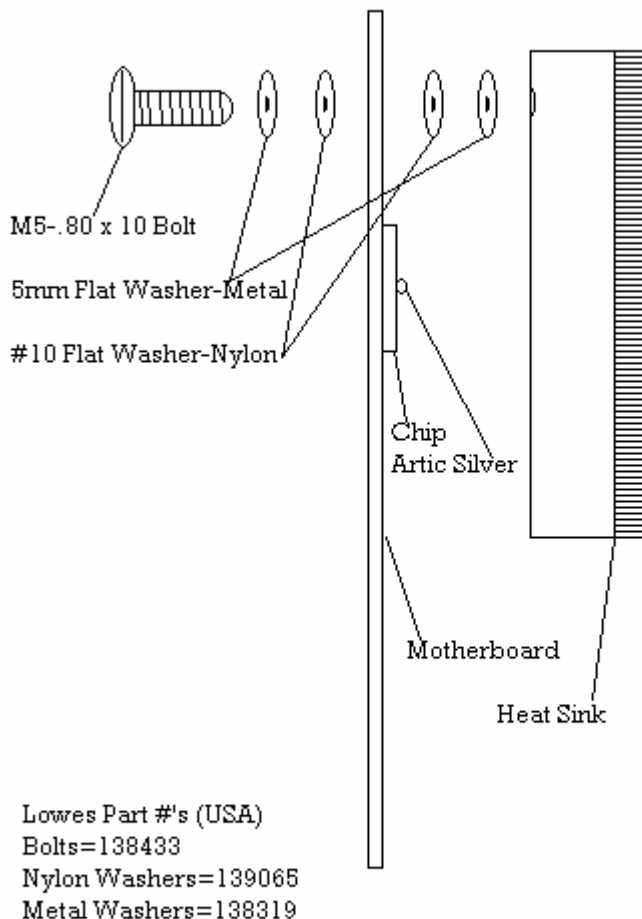
1. First off, we are reading this because we have a problem with the Xbox 360. Either it is caused by a solder problem, where points on the GPU/CPU have worked loose – or a temperature problem causing the same result: The 3 Red Lights of Death. First thing we need to do is open the 360 & remove all the internal parts. Several tutorials for this – here is 1 of them: [http://www.xboxchopshop.com/catalog/man\\_360\\_open.php](http://www.xboxchopshop.com/catalog/man_360_open.php)
2. Once you have all the parts removed, DVD drive out, fans off, motherboard removed....then remove the "X" clamps holding the heat sinks to the motherboard. Again, several tutorials – here is 1 of them: <http://www.anandtech.com/systems/showdoc.aspx?i=2610&p=6>
3. At this point, you need to clean the old thermal compound off of the chips. Be very careful in how you do this, not to damage the chips themselves. I used alcohol & Q-tips, and patience. Don't rush this part, as it is crucial for the surfaces to be perfectly smooth for optimal conduction of heat. Someone stated the chips will reveal a mirror finish when clean, and they will...so clean until you see that finish.
4. Dokworm from Xbox Scene forums started the original post that brought this to my attention...see post here: <http://forums.xbox-scene.com/index.php?showtopic=588032&st=0>. I am just trying to put together a tutorial with some insight & illustrations that could help others. Basically what dokworm found out was that the "X" clamps are a serious design flaw. They force the motherboard to flex up at the anchor points, causing solder points to become compromised over time/heat. So, we will throw away these "X" clamps, and replace them with other hardware that distributes the 'clamping' of the heat sink uniformly.
5. Lowes and Home Depot are large hardware supply stores in the U.S., so many of you can use these part #'s – others will have to adapt, but the

ideas are the same. The part #'s that I use come from Lowes, and the necessary parts for this mod are very inexpensive. You will need the following parts:

- a) 8 M5-.80 x 10 Machine Screws #138433
- b) 16 #10 Flat Washers – Nylon #139065
- c) 16 5mm Flat Washers – Metal #138319
- d) Artic Silver thermal compound

I know that some people have used Fiber washers instead of Nylon. It probably doesn't matter. If you can find Fiber, I would suggest that instead. I could only find Nylon, so there you go.

6. Ok, now we have clean chips & all necessary equipment for the fix. Here is an illustration with the hardware replacing of the "X" clamps.



Note that the Nylon washers are up against the motherboard on both sides – not metal. With two washers (1- nylon, 1- metal) on each side of the board, this matches the original spacing provided by the “X” clamp posts we have removed. In my situation with these parts listed, I could tighten down the #5 bolts completely because the spacing was identical to what it was before.

7. Here is probably the most important portion of this tutorial. **PLEASE PAY CLOSE ATTENTION!** Once you have replaced the heat sinks like the illustration above (don’t tighten the bolts down – just snug for now), set the motherboard back into the bottom case. Don’t screw it down yet. Replace the Power button board with the lights, so we can see when the 360 overheats. I plugged in the DVD & set it aside on the edge of the case (not sure if this is necessary). Leave the fans off for this part. The video plug must be inserted or the 360 will auto-shut off, and the power brick must be plugged in. Turn on the Xbox & most likely you will see the 3RLOD – Red Lights Of Death. Without the fans, it’s a matter of time until the box overheats. When this happens, it will change to only 2 lights (both left side lights). I waited 2 minutes exactly, then shut it off. This allows the solder problems to fix themselves by getting hot enough to re-solder themselves in place. As this is cooling off, take the board out to where you can tighten the M5 bolts down snug. Don’t over-tighten them, but in my case – I got them very snug.
8. Let it cool down completely, then put everything back together. Any cooling mods that you could add to this fix will only help the situation. There are several out there: 12V mod to the existing fans, aftermarket fans, or even the cut-out of the case itself. All will help the temperature overall. Now cross your fingers & hope you’ve joined the others who’ve been blessed by this fix.