

Kerbal Space Program - Bug #28414

Mk 1 Inline Cockpit Thermal Issues

08/08/2021 06:58 AM - QuasarGoshawk

Status:	New	Start date:	08/08/2021
Severity:	Low	% Done:	0%
Assignee:			
Category:	Parts		
Target version:			
Version:	Not Applicable	Language:	English (US)
Platform:	Linux, OSX, Windows	Mod Related:	No
Expansion:	Core Game		

Description

The Mk 1 Inline Cockpit either can't radiate heat or is one of the worst parts at it. If it gets hot it stays hot for far longer than any other part in the game. This has persisted for years.

History

#1 - 08/12/2021 07:55 PM - Deepspeed

Look at the part specs. That cabin has two temp ratings. One is external, one internal. The outside heats and cools normally like other parts, but the inside of the cabin absorbs tons of heat more slowly and holds it longer (cuz it has more mass inside than on the skin) because it has to prevent the cabin from boiling the kerbals.

The mk1 cockpits were made to be hard to sustain hypersonic flight or reentry on purpose, I think. Remember they are in the early bits of the tech tree. The temp ratings are lower than mk2 cockpits and even those can overheat internally with sustained heating.

Also, notice that the internal heating does not become a factor until near the end of the re-entry after sustained heat, and same goes for hypersonic flight. It takes several minutes of building up that heat to cause a problem, and it then takes several minutes of slowly shedding it to prevent problems. You can tell this by how hard your radiators are working at any given time.

Your radiators will stay cold until after you reach space with the mk1 cockpits, and then start cooling for a long while once there. The internal heating effects feel delayed a bit because it takes the heat time to sink into that mass where the imaginary sensors are.

Think of real life. Stick a torch to a big block of metal for 5 minutes until it glows and then try touching it two minutes later. It's gonna be hot even if there is no flame on it for a few minutes. It takes heat time to dissipate from large masses once it soaks in.

Most parts are less like blocks of metal and more like empty aluminum cans. They can absorb and shed heat very quickly and it's more about the immediate surface heating being applied to them than anything else.

I find it easy to make space planes with mk1 cockpits when I put a shock cone intake on the nose for heat protection and a small radiator panel just behind the cockpit bubble.

You will notice it often takes a full orbit after launch or more for the cockpit internals to shed all their heat through that lil radiator. Waiting one extra orbit before re-entry makes it much easier to survive than making reentry after only 3/4 of an orbit.

It also helps to keep them flying high while slowing down during re-entry before dipping into the lower atmosphere for final approach. And bring some airbrakes.