

5/10/97

**Arthur Heald
Fax: 313-368-0016**

**John Holliman
CNN
Fax: 404-827-1593**

Dear Mr. Holliman:

I recall your concern about flames burning the bottom of the fuel tank on a recent shuttle mission as well you should be. You asked NASA about it and they said it did not concern them as the tank was well insulated. THE ANOMALOUS FLAMES ARE A DESIGN OVERSIGHT THAT DID NOT BECOME KNOWN UNTIL THE SHUTTLE FLEW AND IT CANNOT BE CORRECTED UNLESS THE SHUTTLE IS GROUNDED. SINCE THEY WON'T GROUND THE SHUTTLE THEY ARE FLYING WITH THE PROBLEM. I was horrified to see the first few minutes of ascent of STS-83 (check the file tape) where flames were completely engulfing the bottom of the 27 foot diameter hydrogen tank for over 35 seconds and charring it completely black. These large and dangerous flames are caused by the very fast exhaust plumes of the three main engines hitting the slower exhaust plumes of the solid rocket boosters and being deflected upward to the bottom of the fuel tank. At liftoff the three main engines are directed away from the SRB exhaust but as fuel is used the thrust vectors and the main engines are steered more and more in line with the shuttle to follow the changing center of gravity and when the exhaust plumes of all engines merge the dangerous flames engulf the bottom of the fuel tank.

Now there are explosives outside the SRB casings and in the fuel tank to destroy the shuttle if it goes off course and these flames may detonate them.

The external fuel tank should have been ground tested and certified to withstand these anomalous flames by the manufacturer, Martin Marietta Aerospace in New Orleans, LA. Has this been done?

The SRB makers Morton Thiokol should test and certify that the rockets will not be damaged or the explosives detonated by these anomalous flames. Has this been done?

The shuttle manufacturer Rockwell should test and certify as safe the effects of these anomalous flames on the shuttle. Has this been done?

If not I will be watching a game of Russian Roulette when future shuttles go up starting with Atlantis on 5-15-97. I think the astronauts deserve better. Could you please check out these safety concerns before the shuttle flies again? SRB flames burned through the fuel tank of the ill fated Challenger and some woodpeckers delayed the flight of STS-70 on 6-2-95. Enough said.

**Yours truly,
Arthur Heald**

**Copy to: Senator Ernest Hollings, Fax: 202-224-4293
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