



**HAVOC 12, 120 Knots ABORT!**

By Capt Dan Hoadley, Minot AFB, N.D.

Photo by S/A Brian Ferguson

It promised to be an exciting day to fly the BUFF. It was my first sortie out of Andersen AFB, Guam, as the copilot in the number two bomber for a live drop exercise and a low level over the ocean. We had 27, 750-pound M117 bombs in the bomb bay, 270,000 pounds of fuel, and the keys to a B-52 for 6 hours.

The high fuel load and full load of internal weapons put the aircraft at 470,000 pounds, close to the tech order maximum of 488,000 pounds. I had control of the aircraft for the takeoff, and computed and briefed the S1 time as 15.9 seconds. "S1 speed and time" a performance check speed and a decision speed, as the takeoff will

timing. Before the navigator could say, "Coming up on 15.9 seconds," the Master Caution light illuminated. The forward throttle position blocked my view of the central caution panel, so I couldn't determine why the Master Caution light was lit. The Aircraft Commander, who had a clear view of the caution panel, called "Abort! Abort! Abort!" over interphone.

"Abort" was the last word I was hoping to hear that day, but I executed the boldface immediately. I pulled the throttles to idle and jerked the drag chute handle back while the aircraft commander raised the airbrakes. As

I applied the wheelbrakes, I looked down at the airspeed indicator and noted that we were traveling at 120 knots. My pucker factor shot up momentarily as the end of the runway filled my windscreen. Then the familiar tug of the drag chute as-

form and still function properly because this work will be dissipated in the form of heat." At 120 knots our brakes were already 5 knots into the "Danger Zone." The tech order warning under "Danger Zone" states, "Tire explosion and hydraulic fire are imminent." The fact we were carrying 27, 750-pound bombs on the aircraft made a hydraulic fire a particularly "bad thing," and we knew an emergency ground egress loomed in our future.

I slowed the jet to a comfortable taxi pace as we approached the departure end hammerhead. With my view unobstructed, I noted that the generator light on the central caution panel was illuminated. I looked at the generator panel, which is on my side of the jet, to note that one out of our four generators had fallen off-line. After exiting the runway, I brought the jet to a complete stop and set the brakes. While the aircraft commander and I shut down all eight engines the rest of the crew egressed the aircraft. The normal egress distance for a

B-52 without weapons onboard is 2,000 feet, but with a full load of weapons we would have to double that. The pilot and I scrambled out of the jet and joined the rest of the crew in our 4,000 foot dash away from

the aircraft and weapons. Upon reaching safety we turned around to watch for the 'imminent' tire explosion and hydraulic fire.

Thankfully, it never happened, but because of the amount of brake energy absorbed, the tires, wheels, and brakes had to be replaced. The cost of all of this

new equipment came to a grand total of \$260,000, qualifying our takeoff abort as a Class B mishap. The aircraft was damaged; however, our crew came away safely and more knowledgeable as no story is complete without taking away some lessons learned.

First, I gained confidence in the Takeoff Data and tech order procedures. We were low grade test pilots that day. We took a jet at the very edge of the performance envelope and stopped it within the distance specified in the tech order. Secondly, crew coordination was very smooth; everyone performed as briefed and in accordance with the standards, making it the highlight of the entire event, as the abort was executed as smoothly as possible. The crisp execution was due to the abort procedures we brief every time before we fly and the hours spent in Emergency Procedures Simulators. Some may consider the pre-takeoff brief as mundane and routine, but I can tell you it helped to have a mental rehearsal of exactly what would happen that day. A thorough brief leaves no question in the minds of the entire crew on how to deal with a situation that can progress from boring to life threatening, if not handled properly.

This incident also taught me a lot about the complex nature of pilot judgment. In this case the aircraft commander was forced to make a decision with imperfect knowledge of the situation at hand. He could see a generator warning light on the caution panel, but the warning light only indicates that at least one of four generators is off-line; it doesn't specify how many generators are off-line. He could not see the generator panel, so he assumed the worst case – that three of four generators were off-line. He made a judgment call that it was better to stop the jet than risk getting airborne and losing, what could have been, the final generator.



Courtesy Photo

These events illustrate that there are countless factors that go into making an abort decision. The pilot must measure the ability to get the aircraft airborne and deal with a given emergency against the consequences of stopping the aircraft at a certain point in the takeoff roll. The ability to weigh all of this information comes from in-depth systems knowledge, an understanding of Takeoff Data, and a respect for the severity of the emergency. Forethought and experience is required in order to make a sound decision, because the 3 seconds allowed by the tech order for making the decision to abort provides little time to weigh all of this information.

We stuck with the basic maxim of "Aviate, Navigate, and Communicate," during the duration of our abort and egress, with only one snag: communication with the tower was a problem. After the boldface procedures were complete and the aircraft was under control, the AC announced our abort and asked the tower to "roll the trucks" three times over the radio before we exited the runway. We never received an affirmative response

from the tower to confirm our abort. The tower kept inquiring if we needed assistance, and having a handful of jet, we gave up after the third attempt. As a result of the miscommunication with tower, the fire trucks didn't arrive on scene until 15 minutes after we shut down the jet and were well clear of it. The time delay is significant because the tech order states that the brakes will reach their hottest point 15 minutes after first brake application, increasing the danger to the fire personnel and those around the airfield. The fix to this problem lies in familiarizing tower and fire personnel about aircraft specifics (in this case brake heating), and using standardized radio procedures and terminology when deployed and operating out of an unfamiliar airfield.

In short this incident reiterates an age old adage which happens to be printed in the 1B-52H-1 Technical Order: "When dealing with an emergency or abnormal condition, determination of the most correct action to be taken must be derived using *sound judgment, common sense, and a full understanding of the applicable systems.*"



Photo by SSgt Jocelyn Rich



Photo by SrA Amanda Cervetti

be aborted if the jet hasn't met the S1 speed within the computed time. Additionally, if the aircraft aborts the takeoff before reaching the expiration of S1 timing, the crew has the ability to abort and stop the aircraft within the runway remaining. On this day, our heavy gross weight combined with the balmy conditions at Andersen put our jet near its performance limits.

I lined up for takeoff and pushed all eight throttles up to the takeoff power setting 30 seconds after the lead bomber applied power and accelerated down the runway. Everything went smoothly until just before the expiration of S1

sured me that we would be able to stop on the prepared surface. I applied steady brake pressure until I felt confident in our ability to exit the runway at the last taxiway.

According to the B-52 tech order, "The brakes are limited in the amount of work they can per-