

## F.O.D



Having flown a fighter in my Air Force career, one question people often ask is whether I ever had to eject. Short answer: no. Longer answer: almost. I'll give you the story below, and then tie it in with how what happened has relevancy at CCSC.

I was in the backseat of an AT-38 getting an orientation ride on how to fight another aircraft one-on-one, i.e., dog fighting. We were defensive on our last set when our adversary closed for a gun shot. To spoil the shot, the pilot unexpectedly (for me) jammed the stick full forward, banging my head on the top of the canopy in the process. Being new to all of this, I am thinking what the #%%@!%. Things quickly got more interesting though when the pilot yelled at me and said "Hey, do you have your hand on the throttles?" I quickly answered no, and he asked again...louder. Answer was still no. What was up?

He was asking because both throttles were solidly stuck at 93% RPM. At that power setting, the jet would cruise along at about 400 knots, so landing was obviously going to be a problem. Good news though was that 93% kept us flying. If they had been stuck at idle, then within a minute or two we'd have had to bail out. Long story short, he shut one engine down, used G's and the speed brake to slow the aircraft down, and lowered the landing gear. Conveniently, 93% was a reasonable power setting for

a single engine approach in the T-38. He flew a very nice visual approach and on landing roll shut down the remaining engine. We coasted to a stop.

So...what happened? It turned out the cause was an errant wrench that a maintainer had not accounted for when work had been done in the engine bay. The negative-G push caused the wrench to migrate and ultimately get caught in the throttle cables. We were quite fortunate since if the throttles had gotten stuck anywhere else than at 93%, we would have had to eject and the Air Force would have lost an aircraft.

Foreign Object Debris (FOD) such as that errant wrench is a very big deal in fighter aircraft due to dynamic maneuvering that can cause objects to wind up in very sensitive places such as the throttle quadrant or cables(as in this example), flight controls, ejection seat mechanisms, etc. Bad things have happened due to FOD...lives and aircraft have been lost.

FOD though is not just a fighter aircraft concern. General aviation aircraft are susceptible to the ill effects of FOD, even for non-aerobatic aircraft. A pen, loose change, etc., can migrate throughout the aircraft and cause really serious problems. FOD can also be something that comes off the airplane and winds up somewhere it shouldn't be. Recently I read about a glider pilot who approached a stall while thermaling. She pushed the stick forward to recover only to find that the stick could not subsequently be moved aft. As she entered essentially an outside loop she bailed out and got an inflated canopy about 1 second before she landed in a river. She narrowly survived with moderate injuries. The cause was later found to be a handle on the end of a jury rigged release cable that had fallen into an inconvenient hole in the control stick boot during the stall recovery. The complete story can be found at: <http://www.soaridaho.com/Schreder/Stories/Bailout.htm>

At CCSC my two biggest safety concerns are : 1) a midair; and 2) stuck flight controls due to FOD that has migrated into a critical area. More than once I have found FOD in CCSC glider cockpits. A pen here, a coin there, and even a kid's magnifying glass (see below). Our 2-33's are especially susceptible to dropped items potentially migrating to bad places.

Closely look for FOD before entering the cockpit. Do an inventory before entering the cockpit and after existing. If you lose something in the cockpit, please locate and remove it before the aircraft flies again. If you cannot find or recover something you have lost in the cockpit, fess up and have the Crew Chief Red Tag the aircraft for FOD. If some component is loose in the cockpit -- a screw, knob, etc., let the Crew Chief know so it can be fixed. Lastly, during annuals of the aircraft account for all tools...and scour areas that will be sealed or visually inaccessible for any foreign objects.

Fly safe...and fly smart!



Found on the floor of a 2-33