# Allowable Tolerances

By Ltjg. Jacob M. Rose

Photo by MCS3 Ron Reeves. Modified.

I was at 27,000 feet, flying in close formation with our Ops O, as we flew through deteriorating weather over southern Iraq, en route to the central region. Six-hour missions were becoming routine for us at this point in the cruise, and this afternoon's flight was no different. However, that routine was broken when I heard, "Engine right. Engine right."

Following the engine warning, I brought back my right engine throttle to idle and checked my engine indications. Fortunately, it is for problems like this that we have two engines in the Hornet, and we're taught from day one the jet will continue to fly on one engine. As advertised, the jet flew just fine. My oil pressure indicated zero, and I had an oil-pressure caution on my left digital display. I told flight lead I was experiencing engine issues with my right motor. He immediately broke out the pocket checklist (PCL) and began to read through the emergency procedures with me.

We were no more than 100 miles into Iraq. Our primary divert in Southern Iraq was Ali Al Salem, Kuwait. We put that airfield on the nose and started to descend. My flight lead and I discussed shutting down the engine. Given my location, fuel state, and the fact the left motor still was operating properly, we decided to secure the engine. My flight lead passed me the lead as we descended into Kuwait. At this point, we needed to determine if it was worth trying to bring the jet back to the ship, USS *Ronald Reagan* (CVN-76), or to continue to Kuwait for an arrested landing.

After some discussion with the ship, we agreed I would take the jet into Kuwait, so a maintenance crew could be dispatched to fix it. I was relieved to hear I wouldn't have to try and land the plane single-engine on the ship. It wasn't the approach or the landing at the boat that concerned me; it was that I would have to dump down to below my bingo-fuel state to be light enough to recover on the ship. If I didn't make it aboard on the first pass, I then would be extremely low on fuel and would need to tank dirty with only one operating engine. That particular configuration would have made it very difficult to tank. In comparison, a single-engine landing on the beach would be a piece of cake, or so I thought.

About 30 miles from the field, my flight lead detached and headed back to the ship. Because of operational requirements, we needed to get his jet back so it could be turned around and sent back in-country later that day. Before detaching, he briefed me on the single-engine-landing procedures. We discussed aircraft-fuel weights and configurations,

and he made sure the field-arresting gear was set up for my arrival. I now was on my own.

The weather was not great over Kuwait. However, the visibility was good enough to make out the field from around three to four miles. Of course, a few rain clouds and wind shear made things a little more interesting. I flew over the field and set up for an extended downwind, so I could configure the aircraft and adjust my fuel weight. I was on short final with everything suitcased, or so I thought.

At 600 feet AGL and two miles remaining on short final, I heard, "Engine left. Engine left."

All I can remember saying was, "This sucks."

I immediately looked down and saw I had an L FLAMEOUT caution, accompanied with a zero-oil-pressure reading on my left engine, but it still was operating. Considering the distance from the field, I continued my approach. My only operating engine continued to run, and I landed the plane on deck. I applied back-stick pressure as I approached the short-field arresting gear and shortly felt the comforting tug, indicating this flight finally was over.

So, what saved me here? First was good aircrew coordination with my flight lead. Next was sound decision-making. By most indications, my aircraft no longer had any operating engines. However, I reverted to the basics: Aviate, navigate and communicate. All I could think about was landing the plane on the runway two miles in front of me. Had I tried to troubleshoot the second engine problem or discuss this emergency with the tower, there is a good chance I would have flown a poor approach, possibly forcing a second approach—something I was unsure the jet could do.

A happy ending, right? The story is not quite finished.

Ali Al Salem is not equipped with Hornet maintenance support. The base there is shared by U.S. Air Force and Army personnel. Therefore, it proved to be a challenge to find qualified personnel to de-arm the aircraft.

My ordnance loadout that day consisted of a GBU-38 (500 pound JDAM), AGM-65 (Laser Maverick), and 500 rounds of 20-mm bullets: a standard OIF loadout.

The aircraft rested safely on the runway as the Air Force EOD personnel "attempted" to de-arm the Laser Maverick. Their lack of confidence with de-arming this particular missile should have been my first indication things were not going to be "standard" from that point on. I'm sure they had nothing but the best intentions in mind. However, I should have spoken up and asked the EOD personnel not to touch the aircraft if they had any doubt about how to de-arm the missile. The bottom line was I had signed for the aircraft, and, ultimately, I was responsible for its safe return.

It turns out during their attempt to de-arm the missile, they actually removed the restraining pin, which is used to lock the missile onto the launcher rail, preventing it from coming off during carrier arrestments. Over the course of the next two days, several maintenance personnel were helo'd into Ali Al Salem with parts in hand, ready to fix the jet and get me safely back to the ship.

While the maintainers worked on the aircraft, I tried to troubleshoot the Maverick to get it ready to fly back to the ship. I quickly realized the restraining pin was not relocking back into its initial position. I enlisted the help of the maintainers, and, together, we torqued on the bell-crank shaft in an effort to get the pin to seat correctly. I even called back to the ship and spoke with one of the ordnance personnel to make sure I had done everything correctly. This effort, however, led to one of my major mistakes. The initial doubt about whether the missile correctly was resecured to the launcher should have raised more red flags. "If there is doubt, then there is no doubt"—we brief this all the time in the Hornet community, especially when it comes to dealing with live ordnance.

Unfortunately, in trying to troubleshoot, I misinterpreted the allowable tolerances associated with reseating the restraining pin. How did I figure this out? As soon as I trapped the following day, the plane stopped, but the missile continued traveling forward until it skipped off the landing area and fell into the ocean directly in front of the ship.

No one was hurt. However, the big lesson learned here was, do not be the senior man with a secret. Although I was safe on deck after my engine issues, the flight was not over. I put my squadron and my skipper in a tight position without giving him the opportunity to ask questions. As soon as I noticed some irregularity with regard to the live ordnance on my aircraft, I immediately should have involved the maintenance officer (MO) or the skipper. I am confident they would have dispatched ordnance personnel to verify my troubleshooting. This breakdown in communication resulted in the loss of a valuable weapon—one that belongs on the wing of an FA-18C, not at the bottom of the Gulf.

Lt. Rose flies with VFA-25.