

# The Broken Seal

By Lt. P. R. Rowell

I was stationed aboard the USS *Abraham Lincoln* (CVN 72) in the North Arabian Sea, supporting Operation Enduring Freedom. My RIO and I were scheduled for the pinky launch, 1 v 1 AIC hop, to be followed by a night trap for currency.

We just had finished our preplanned maneuver on the bogey run, when I looked down to see a 2,500-pound fuel split between our left and right systems. “No problem,” I thought; “we’ll balance it out before getting on deck.”

I rechecked our fuel state and saw our right feed tank was at a mere 400 pounds, vice the normal 1,600 pounds. We immediately knocked it off, put the needle on the nose, descended to our medium-holding altitude, and told our wingman we’d see him on deck. We saw a trail of fuel behind us, so we called our wingman to join up overhead for an inspection. By this point, our right system had dropped from 4,500 to 4,000 pounds and was decreasing. The left side was pegged, indicating an overfilled condition. We punched the clock to measure our fuel loss from the right side and called for a CATCC rep. Our wingman reported we were venting at about one-third the normal dump rate. That rate equated to 500 pounds a minute—exactly what we were showing on our timed assessment. Both engines appeared to burn fuel from the right fuel system.

I completed the boldface procedures, but the fuel loss didn’t stop from our right side. I set



the right throttle at idle, which minimized our fuel burn from the rapidly depleting side. Fortunately, this action helped. We were concerned about possible trapped fuel on the left side, and we were relieved to see the left system start to burn down. We had two good motors, with plenty of fuel.

Electing not to dump fuel, we aborted our first approach at 10 miles to burn down to max trap. Approach control was very helpful and gave us what we requested. However, it was difficult to manage the ICS, our rep, and the approach. Flying the jet at night, with one engine at idle, at 1,200 feet, while talking to three people, kept us busy. We burned down to our max-trap fuel weight, brought the right engine to approach power at three miles, and made an uneventful landing.

What felt like five minutes actually took 23 minutes from our first indication of trouble to our rollout in the wires. Many people helped us get our aircraft on deck that night.

Once we got to maintenance control, I engaged in a two-hour discussion with our senior fuel-system maintainer. The fuel system in the Tomcat is by no means simple. With 15 tanks, more than 50 valves, and hundreds of yards of strangely routed plumbing, the system is very confusing at first glance.

I checked on several of the fuel cells two days later. Our problem was a broken seal on a line that carried right-side fuel, pressurized to 385 psi, through a left-side tank. The broken seal resulted in right-side fuel overfilling our left side, which forced the excess to be vented overboard.

Here's a few lessons from this flight.

- In an emergency, approach will give you exactly what you need; just ask.
- Basic system knowledge is critical when flying in adverse conditions, especially during emergencies that aren't standard or by-the-book.
- Inviting someone into your cockpit can be very helpful, but getting CATCC on your schedule is up to you. CATCC will ask for information about your condition at the worst time. If you aren't proactive, radio calls will be missed, and ICS comms will be interrupted.
- Spend time during the contingency portion of your brief to discuss a few sea stories about your systems. Sharing experiences can make the difference between success and failure.
- Don't be spring-loaded to detach your wingman when you have a problem; he is an extra set of eyes. 🦅

Lt. Rowell flies with VF-31.

