

My Decision MATRIX



Photo by Matthew J. Thomas

By Lt. Brad Gilroy

I was scheduled for my first night flight since returning from deployment two months earlier. I was proud to have completed my nugget cruise but still was humbled by the new-guy label I had had for the last year.

With limited flying the past month, we wanted to refresh our perishable intercept skills. The flight was scheduled for a three-plane, night-intercept hop. Our department-head lead would take a fellow JO for some 2 v 1 intercepts against me before swapping roles and dragging me through a few sets. The presentations were basic and designed to get us up to speed.

As I walked to my jet, I grabbed a set of NVGs—they seemed like an old friend I hadn't seen in a while. Ground operations were normal. Like everyone who has gone through the FRS in the last few years, the issue of hypoxia problems in OBOGS-equipped Hornets was well ingrained in my head. I also had joined the growing list of pilots who have witnessed an OBOGS DEGD while flying in the Med a few months earlier. As a result, the OBOGS plunger test already was built into my habit pattern, and tonight was no different. The test passed, and I was on my way.

The three-plane launch and trip to the area went just as briefed. On the climb-out, environmental-control-system (ECS) flow seemed unusually strong, until I realized the defog handle was in the full-aft position. I made a quick adjustment into the mid-range setting, and everything was back to normal. We entered our operating area and headed to our planned CAPs. On the first run, I climbed to the

high-altitude block and came at them with a healthy amount of knots.

My troubles started in the climb. As I passed through 25,000 feet, ECS flow became just as powerful as before; only this time, it fluctuated at an incredible level. I checked the defog handle to see if I again somehow had knocked it back into the aft position, but it hadn't moved. The cabin-pressure-altimeter needle was moving rapidly, and my ears began to ache because they couldn't keep up with the pressure changes.

As I continued to climb, I tried to troubleshoot the ECS problem and head for my CAP point. As far as I was concerned, a minor ECS problem could be dealt with, and I still could continue the mission.

Suddenly, everything started to fall apart. Oxygen flow to my mask was cut off for a second, and then it returned just as quickly. I

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felt like someone suddenly had squeezed and then released the hose between my regulator and mask. This sensation didn't last long enough to impede my breathing, but the sudden sensation of the mask suctioning tighter against my face was enough to trigger alarms. As I reached to see if my hose was caught on something, I began to feel tingling in my hands. I then realized this might be a good time for some of those hypoxia immediate-action items recently incorporated into NATOPS. The combination of ECS and oxygen-flow problems, along with some strange feelings in my body, didn't sit well with my decision matrix.

After fumbling with the emergency-oxygen green ring (conveniently placed under my left leg), I secured OBOGS flow and immediately started a dive below 10,000 feet on the cabin

altimeter. I let my flight lead know what had happened, and he backed up my emergency procedures. Once I got below 10,000 feet, I removed my mask and reset the emergency oxygen as soon as I was comfortably established on the RTB. Within a few minutes, the hypoxia symptoms had subsided, and I landed uneventfully.

In the few days that followed the flight, the jet, my mask, and regulator all disappeared for numerous tests. Our maintenance technicians discovered a loose connection in the ECS duct. On deck, the OBOGS supply air was supplied forward of the leak, allowing the system to pass the BIT checks. However, once airborne, the OBOGS supply shifted aft of the leak and caused the problems I had experienced.

Two indications that would have been helpful are an AV AIR DEGD and/or an OBOGS DEGD. The former is a direct reflection of good ECS flow through the cockpit. Although cockpit pressurization was fluctuating rapidly, there was enough flow to prevent the caution display.

Similarly, an OBOGS DEGD also indicates a degraded system. Unfortunately, the caution is only a measure of air quality, not air quantity. The quality of the oxygen was good enough, but the surging slowly was depleting the plenum until the flow wasn't enough to support me.

I'm not sure how quickly I would have recognized the symptoms without training. While the pressure-chamber ride in aviation physiology might seem benign, my ability to recognize hypoxia saved my life. The FA-18 has numerous warning systems to alert the aircrew of malfunctions. Survival training is designed to help us when those cautions might not be displayed.

I religiously will continue to run the OBOGS BIT checks every flight. We cannot always trust our jet's warning systems to alert us to every aircraft malfunction. 

Lt. Gilroy flies with VFA-37.