

Wind the Clock Before an Emergency



By Lt. Jamie Lynch and Lt. Mike O'Hara

The flight.

We had a normal startup and Case 1 takeoff. Then, 45 minutes into flight, after we completed the mission, we observed high oil pressure on No. 1 engine at military power. The crew retarded the throttle to idle and monitored engine instruments. The aircrew requested a straight-in approach using only the No. 2 engine, leaving the No. 1 engine at idle. As the aircrew prepared for approach (checklists, navigation, adjusting gross weight, etc.), the No. 1 oil pressure increased while the No. 1 engine was at idle. The aircrew secured the No. 1 engine, following NATOPS, and flew a straight-in approach to landing.

The recap.

As we debriefed this flight, I remembered my crusty simulator instructors at the training command. They had preached about winding the clock before executing emergency procedures. They were right! Few emergencies in the S-3B, or in any aircraft, require a mad dash through the procedures. You must calmly and methodically set priorities and apply NATOPS. Certain catastrophic situations may accelerate the necessary responses, but aviating, navigating and com-

municating remain the bread and butter for any aviator. How an aircrew determines its priorities and responds to emergency situations is affected greatly by crew resource management (CRM).

CRM is necessary during all flights, but some flights prove to be exceptional CRM opportunities, usually when something goes wrong. The flight described above is an excellent example. It had promised to be an exciting flight: a 1+15 cycle for some bombing, SSC and mission tanking. It was a beautifully clear (and rare) Arabian Gulf morning.

The aircraft operated normally until we returned overhead for recovery. We had a problem when we accelerated to rendezvous with our playmate for a package check. With the throttles at military, the No.1 engine oil pressure indicated 97 to 98 psi (out of NATOPS limits). When the pilot reduced the throttle to idle, we observed the oil pressure was within limits.

Since the oil pressure was out of limits at military, but within limits at idle, we decided to find out the exact engine speed at which the oil pressure went out of limits. An intermediate power setting kept us below the maximum NATOPS-oil-pressure limit and gave us enough airspeed to complete our recovery-tanking duties. We briefly entertained the idea of tanking but

decided to concentrate on the situation at hand. The pilot had earlier experienced an emergency in the work-up cycle requiring him to secure the No. 2 engine in flight and to recover aboard the CV. With one single-engine experience at the boat under his belt, I felt confident our crew could handle recovering with only one engine. There was no need to panic. I knew what to expect and the pace at which to handle the situation, but I had done it only once. Would the CRM skills in this crew be as good as those in my last crew?

We talked about the pros and cons of using the No. 1 engine for the recovery. Should we leave it at idle and use only the No. 2 engine for the approach and (if necessary) waveoff? Should we use both engines? No. 1 was within limits at all Ng except military. We opted for the former, and called the tower to tell the boss we would need a straight-in approach. We would use only the No. 2 engine and leave No. 1 at idle. As we prepared for the approach and completed the checklists, we noticed the No. 1 engine's oil pressure creeping up beyond limits, so we secured it.

"Here we go again," I thought. My concern besides flying the plane was how we would perform as a crew. I was looking for any sign that CRM might be falling apart. We carefully performed the checklist items. As before, the emergency portion of the flight was like being back in the flight simulator. Based on my experience, I evaluated the sequence of events and the overall level of CRM.

After completing the checklist, we told the boss of our new situation. The fact that we were a single-engine aircraft got his attention. We flew a straight-in approach and made an arrested landing.

Throughout the crew debrief, we recalled the many questions that had run through our heads. We rehashed the decision-making process, our decisions, and other people's reactions to our decisions. Aircrew coordination was alive and well in our cockpit, and we noted several issues that met the CRM criteria.

Decision making and assertiveness: While we were overhead, we thought about several things. Can we continue our recovery tanking?

Leave No. 1 at idle or use it for the approach?
Do we shut down the No. 1 engine?

Mission analysis: There was a false sense of security before we secured the No. 1 engine. As we wasted time overhead and considered tanking, we were denying ourselves valuable time for handling our emergency and setting up for a straight-in. We vetoed the tanking option, saying on ICS, "We are an emergency aircraft, not a tanker; we need to go to the bullpen."

Communication: Relaying the emergency to all three members of the crew was our first priority. Then we called our rep in the tower to tell him our situation. Before we talked to him, we made sure we had considered all contingencies. The more time the crew has to consider the

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situation, to review all the effects, and to communicate this to the rep, the better the rep can help coordinate with the boss, flight deck, and maintenance personnel.

Leadership and situational awareness: As with most emergencies, the person with the most situational awareness provides the best leadership. In some cases, it's the pilot, but it can be the TACCO in the backseat, who might have a better sense of the big picture. Our pilot, although junior, was able to draw from a similar emergency months earlier. This helped him prepare for this approach. Also, we read a MAF in the maintenance book for a changed No. 1 engine-oil sump. High oil pressure is not uncommon after that procedure.

Adaptability and flexibility: With the information provided from our cockpit and recommendations from the rep, the boss can make better, more timely decisions about how to handle our aircraft and the rest of the aircraft on that cycle. 

Lt. Lynch and Lt. O'Hara fly with VS-22.