CRM ORM Corner

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New Programs
That Actually Work

By LCdr. Steve Ray

I somewhat resist change, and I cringe when an old program claims to be new and improved, simply by taking on a new name or acronym. Even worse is when a new policy or leadership style is thrust upon me for my own good. These days in the Navy, inspections are called visits, personnel are called customers, and, in my civilian job, the checkride now is called a validation.

It all sounds inoffensive and sensitive, but, if you've been around awhile and seen some of these new and improved products and policies come and go, you become jaded about how great this new stuff really is.

My photo finally has made its way to the top row of the roster board, and I reluctantly have become one of the old guys in my reserve squadron. I've had the opportunity over the last 14 years to experience most of the positive, as well as negative, changes to the way we do business in naval aviation. There are a couple of new programs I hope don't go the way of our experiments with smart per diem and the ever-popular TQL.

Crew resource management, or CRM, formerly known as aircrew coordination training (ACT), is a dynamic program that probably has paid for itself a million times over. The other program is operational risk management (ORM). I don't want to turn this article into a book report on the seven critical skills (SAD CLAM) of CRM, or the principles and steps of ORM. But, I would like to relate a couple of incidents where ORM and CRM were applied and worked as advertised.

The first incident took place the first day of a recent detachment to the Arabian Gulf. We were scheduled for a quickie, in-and-out, afternoon evolution that turned into a five-leg mission, and terminated at 0500 the following morning. The crew just had arrived in-theater from CONUS, a difference of eight time zones; we were not exactly well rested. Leg four was a planned stop in Fujairah, UAE, at 0200. We would pick up a load that was going to put us above 145,000 pounds takeoff weight: heavy, but not unusually so for a C-130.

If you ever have been into Fuj, you know almost all landings are to the west, and all takeoffs are to the east—to avoid the mountains on the western edge of the field. There are no SIDs or approaches over the mountains, and all missed-approach procedures take the aircraft well to the north or south of the field before crossing the eastern threshold of runway 29. I previously had taken off from Fuj to the west in daytime VMC conditions. This departure requires an immediate 180-degree turn toward the sea, and I had flown it with relative comfort because the mountains were easily visible, but I never had done it at night.

We were about to start our descent when we picked up ATIS for Fuj, and we learned the winds were out of the west at 25 knots, with gusts to 33. I briefed the approach and the possible waveoff procedures in case of windshear. Since we would be taking off to the west, into the mountains, the flight engineer asked what kind of three-engine-climb performance we would need. The truth was I hadn't thought of it at all. We quickly consulted our performance manual and determined that taking off to the west and losing an engine at 145,000 pounds was doable on paper.

However, after a crew discussion on this takeoff issue and employment of ORM, I determined it wasn't worth the risk. In this case, there was no way the benefits outweighed the costs—the risk was unnecessary. Was I good enough to take off at a high gross weight, lose an engine, avoid the unseen mountains within a mile and a half of the field while on instruments? Could I get the engine properly shut down, climb-out over the ocean, and then bring us back to Fuj for an uneventful three-engine landing at night, on minimal sleep after a long day? I don't ever want to find out. Thanks to an AD2 flight engineer who exhibited sound situational awareness, I won't have to.

We skipped the fourth stop of our journey and headed back to base. The pallet of mail, or bug juice, or whatever it was, made it safely to its destination in the bright, southwest Asian sun the next day.

On another detachment, this time in the Med during August, we had the misfortune of breaking a hydraulic line in Palma de Mallorca, Spain. The line was made of aluminum, and it would take four days to order and receive a new one from CONUS. The squadron, or at least the OinC, was not happy. Broken down in Palma? In summer? Something smelled fishy, at least to those on the other end of the phone line.

While discussing our options, my ADC flight engineer had an idea. Maybe we could get the hydraulics section aboard one of the Navy ships in port to make a rubber line we could use to bypass the broken section. Then we could fly our aircraft back to Sigonella, where it would be down, awaiting the proper aluminum part. He showed me the diagrams, and his plan sounded like it would work.

The flight engineer, standing by his creative and mechanical abilities, suggested we immediately go to the ship, get the part made and test it. If it looked good, we would press on and fly the plane back to Sig. Another go-getter crew member agreed, arguing it is better to have a down plane in Sig, "where, at least, it's home," than at an outlying field.

The two other crew members asked if it was a good idea to be flying with homemade hydraulic lines and said they did not feel comfortable doing so. You gotta love the 50-50 split on crew inputs. I called the squadron in CONUS and presented all sides of the story, as well as the options.

The maintenance master chief told me, "Sir, I would put my wife and children on that plane with that rubber hose for a one-time flight to Sigonella."

"Oh yeah, it's definitely a great idea." said the MO.

The Ops O said, "I like it."

"Sounds like a winner to me. You'll be fine. Take it back to Sig," said the OinC.

We spent the next four days in Palma, waiting for the correct part. It was rough, but we managed to make the most of it. The responsibility for decision-making was ultimately mine. I saw no justifiable reason to put an experimental hydraulic line on an aircraft, for which I was responsible, and then fly it home, where it would sit on the deck awaiting the proper part. I received a lot of second-guessing and a few raised eyebrows regarding my mini holiday at one of the top vacation spots in Europe. However, I knew then, as well as now, I never will stand at the wrong end of the long, green table for overspending BA-1 funds on hotel rooms. But, I would have been at that table if I had been a part of an aircraft mishap caused by flying an aircraft without approved parts.

One last story. We went to Lockheed to pick up an aircraft that had been undergoing SDLM work. Since the plane had been down for over 30 days and had been taken apart and put back together again, it required a full phase-A profile, functional-check flight (FCF).

We were flying in a working area, about 80 miles from our field, shutting down the No. 3 engine. When we pulled the condition lever to feather, the engine shut down as advertised, and the prop stopped, but then it began to rotate backward. I've done a hundred FCFs and have had engines not shut down or not restart, but a backward-rotating prop was a new one for me. Again, it was time for crew discussion on what would be the best way to handle this problem, because NATOPS does not cover this condition.

Photo by TSgt. Howard Blair
Modified

Our flight engineer, however, had heard of this happening before. He even had heard of a guy that had heard about a guy, who knew a guy, who knew a great flight engineer, who had been stationed at our wing, who successfully had used the airstart button to bump the prop back to a 90-degree position, so it would not rotate backward. I honestly did not know if a prop rotating backward was pumping oil to its gearbox or not, nor did I know how long it could spin backward without oil before damaging itself. We also did not know what had caused the prop to rotate backward. Was it something as simple as a weak prop brake, or something more serious? You shouldn't experiment with C-130 and P-3 prop systems.

We turned back toward the field, did the usual emergency checklists, and declared an emergency with ATC. Controllability was no problem, and this was going to be my eighth, three-engine landing in the Herc, so I wasn't worried about that either, but still the prop spun. The engineer was champing at the bit to try the bumping maneuver, but I was more concerned with what would happen if we lost control of the prop's blade angle, and it went flat when we tried to bump it. Controllability then would be a serious problem. But, still the prop spun, and I had no idea if it was getting oil as it spun backward. With about 40 miles to go, I told the flight engineer if we had been 1,000 miles over the water, we would do the bump to try stopping the prop. However, since we only had a few minutes to go, we weren't going to mess with it. Saddened, the flight engineer agreed, and everything worked out fine during our three-engine landing.

If the previous events had taken place at different times, under different circumstances, the decisions could have been different. There seldom is only one way to do things. In naval aviation, outside of our memory items, very few things are black and white. It takes a good crew, well-versed in their responsibilities regarding CRM and ORM, to tackle most problems. Every emergency landing I have made was straightforward; every difficult decision I have made on the road wasn't. When employing ORM and using the techniques we learn in CRM training, we can work through these real-world problems and prevent real-world mishaps.

CRM and ORM—one may be a new name for ACT, and one may be just a formal title for good headwork, cockpit presence, and airmanship, but they work. We use them in the Navy, and we use them at the airlines. Let's keep these programs around a while.

LCdr. Ray flies with VR-53.