360° Approach

2017, Vol. 1 No. 1

The Navy and Marine Corps Aviation Safety Magazine

Approach

360 SAFE

The Navy and Marine Corps Aviation Safety Magazine

We have moved!

We have gone digital. While this is bittersweet for those of us in the NAVSAFECEN Media group, we plan to continue bringing you in-depth articles and relevant mishap-prevention information.

By now, most of you have received the final printed copies of Approach, MECH, Decisions, and Sea Compass. We understand the value of a printed format in certain aspects of your job, but we also know you understand our effort to reduce cost. We are increasing our presence on the web so you can still read your favorite stories – whenever and wherever you want.

Our transition from print to digital is a work in progress and we appreciate your patience. We will leverage electronic and social media to give you quicker access to each current issue, printable articles and past issues. Our digital magazines are available on http://safety.navylive.dodlive.mil.

You can also find current and archived issues on our website: www.public.navy.mil/NAVSAFECEN/Pages/media/mag_index.aspx.

Email us your feedback and questions to safe-mediafdbk@navy.mil.

We thank you for understanding.

– The Editorial Staff

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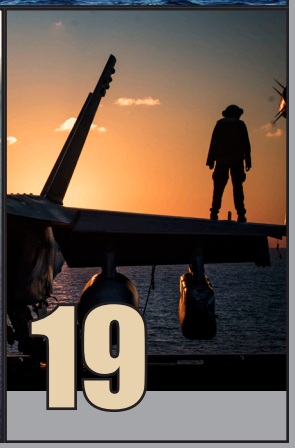
On the cover:
A pilot flies an F-5N Tiger II. The photographer Jose Ramos is also a pilot. His work has been featured in many publications and websites. You can view more of his work at www.ramosaviationphotos.com.



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Mishaps cost time and resources. They take our Sailors, Marines and civilian employees away from their units and workplaces and put them in hospitals, wheelchairs and coffins. Mishaps ruin equipment and weapons. They diminish our readiness. This magazine's goal is to help make sure that personnel can devote their time and energy to the mission. We believe there is only one way to do any task: the way that follows the rules and takes precautions against hazards. Combat is hazardous; the time to learn to do a job right is before combat starts.*Approach* (ISSN 1094-0405) is published bimonthly by Commander, Naval Safety Center, 375 A Street Norfolk, VA 23511-4399, and is an authorized publication for members of the Department of Defense. Contents are not necessarily the official views of, or endorsed by, the U.S. Government, the Department of Defense, or the U.S. Navy. Photos and artwork are representative and do not necessarily show the people or equipment discussed. We reserve the right to edit all manuscripts. Reference to commercial products does not imply Navy endorsement. Unless otherwise stated, material in this magazine may be reprinted without permission; please credit the magazine and author. *Approach* is available for sale by the Superintendent of Documents, P.O. Box 979050, St Louis, MO 63197-9000, or online at: bookstore.gpo.gov. Telephone credit card orders can be made 8 a.m. to 4 p.m. Eastern time at (866) 512-1800.Periodicals postage paid at Norfolk, Va., and additional mailing offices.

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The Risks of Not Communicating Your Limits

BY LT ANDREW GALVIN, HSC-9

It was an early 3 a.m. brief for a five-hour vertical replenishment (VERTREP) flight about seven months into a nine-month deployment. All the members of the crew had been on at least a couple of these flights and were excited to get started on the fastest way to pass time in a helicopter.

Due to operational requirements, the aircraft was configured with a single internal auxiliary fuel tank and external wings. In order to lower the starting gross weight of the aircraft, the fuel load was reduced to 2,800 pounds. In the brief, we discussed ORM aspects of the long flight and early start. Preflight calculations were reviewed by the entire crew and responsibilities for each crew station delineated.

Because of our fuel load and the high DA, the max external cargo load would be approximately 1,500 pounds. After a few minor maintenance issues on deck, we took off and completed the appropriate max power check and HIT check to ensure engine performance matched our calculations.

We achieved a max continuous torque of 120 percent. According to our squadron SOP, a no-go torque of 114 percent was established for our external cargo operations. There was another aircraft in the VERTREP pattern organic to the supply ship that did not have external wings or an internal aux tank installed and therefore could lift heavier loads.

Our aircraft was brought in for the first pick from the aft-port corner of the flight deck on the supply ship. Tower called the winds off the bow of the ship, but the actual winds seemed to be more to the starboard side, about 20 degrees off the bow.

Based on this relative wind direction and the supply ship being to the port of the carrier, we made a port-to-starboard approach with the left-seat pilot flying. The pilot placed the nose of the aircraft just forward of the starboard beam and pointed at the aft section of the carrier.

When the load was hooked up, the crewman calling the pick directed the left-seat pilot to come straight up. When he called, "Load off deck, check power," the pilot glanced down to check the torque, saw 112 to 114 percent, and called, "Good power". The pilot kept the controls for the departure and began to climb straight up to get clearance from the flight deck.

A few seconds later, the flying pilot noticed the flashing low rotor light and saw torque above 120 percent and Nr going below 94 percent. The pilot realized there was no way to use the left pedal (which requires more power than a right pedal application) to get the nose fully into the wind in the power-limited situation. So the flying pilot initiated a gradual right pedal turn and small descent off the back of the ship. This maneuver lowered the power required and swung the helicopter around approximately 270 degrees, getting into the wind with some forward airspeed.

Logistics Specialist 3rd Class Maretta S. Stubbs conducts landing signalman duties during a vertical replenishment, also known as a VERTREP. (U.S. Navy photo by Mass Communication Specialist 3rd Class James Vazquez)

The pilot verbalized the plan to the crew chief, who stood by to release the load if the descent continued past his comfort zone. The pilot monitored the gauges and maintained a level VSI at about 90 feet with 90 percent Nr and slightly over 120 percent torque.

Once the aircraft was into the wind with some forward airspeed, the collective was lowered and Nr regained. The pilot then initiated a climb back to 150 feet, responded to tower and reported the aircraft status as OK.

The drop was executed without incident on the flight deck of the carrier, although it was clear the load was heavier than expected. Once the load was on deck, we debriefed the incident and decided to continue with the mission after asking the supply ship tower to choose lighter loads for our aircraft. The delivery ship directed us to hold-off while the crew re-stacked the loads to conform to our power requirements.

In retrospect, the combination of a loss of wind effect behind the superstructure and HIGE to HOGE transition contributed to a sudden increase in power required. Also, the power check over the deck was non-standard. It was called by the flying pilot instead of the non-flying pilot, who could have seen the full progression of torque increase as well as any torque fluctuations and directed the crew to set the load back down if the 114 percent limit was not the actual max torque pulled.

Before the flight, we should have informed the supply ship of the max loads desired by our helicopter, and the deck could have been stacked appropriately from the start. Good crew coordination, once the aircraft was in extremis, enabled each crew member to positively contribute to keeping the aircraft airborne and ready to jettison the load if it became necessary. This division of tasks allowed the successful execution of a difficult maneuver. We were confident that the mission could still be executed after this incident occurred early in the flight.

Petty Officer 3rd Class Alexis Rey, from Stratford, Conn., conducts pre-flight checks on an EA-18G Growler. (U.S. Navy photo by Petty Officer 2nd Class Ryan Kledzik)

No HYDS, No Problem

BY LCDR ADAM GREEN, VAQ-133

Flying on the first day out of port is typically avoided for a whole host of reasons. However, after many days of transit and upon completion of our first port call of deployment on the lovely island of Guam we were eager to get back into the air. My EWO and I were scheduled for a good-deal, daytime tactical intercept flight. It was a one-hour cycle and the weather was clear except for a thin cloud layer between 2,000 and 5,000 feet MSL.

While executing an abort maneuver during the first intercept, the aircraft was at about 9,000 feet MSL and approximately 450KIAS when we received a master caution with displayed HYD5000, HYD 2A and HYD 2B cautions. My first thought was "this is why we don't fly the first day out of port". However, after processing the cautions we immediately called "knock it off" and brought the right throttle back to idle. I initiated a climb and slowed down while we broke out the pocket checklist (PCL) to start working through the problem.

After realizing that the left engine just became our new best friend, we started formulating a game plan for our recovery. Cyclic operations require a few added levels of coordination depending on the severity of the emergency. In the EA-18G Growler, the HYD 2A and 2B systems powers half of the flight controls and all of the systems needed for a normal landing (i.e. landing gear, nose wheel steering, and normal brakes). Due to the quickness with which we received both cautions (no reservoir level sensing (RLS) system indications) we suspected a blown hydraulic line, which meant we also lost our emergency braking and fuel probe extension system.

Once the dust settled from the initial indications, we had our wing man join on us for a visual inspection. Everything looked normal so we began flying a maximum endurance profile to the carrier to conserve fuel (at the time we had 11k, which was well above ladder) and started talking to the ship via J-Voice A to inform them of our emergency and to get our Pri-fly rep in the tower to start coordinating for recovery. This emergency was going to require us to emergency extend the landing gear with no way to raise it once it was down. The good news was that every aircraft carrier in the Navy comes equipped with arresting gear unlike some airfields, so braking wasn't going to be much of an issue. The bad news was that fuel quickly becomes an issue when the only option is executing a dirty bingo profile. Tanking with the landing gear down was not going to be an option due to the fact that our fuel probe extension and emergency extension relies on hydraulic fluid from the HYD 2B system (now empty). Fortunately for us, we were not operating blue water. The nearest divert (Andersen Air Force Base on Guam) was only about 80 miles away.

The tower representative coordinated with the air boss, informing him of the nature of our emergency, the requirement for a tow out of the wires, and our inability to raise the hook. Meanwhile, we verified all steps were completed from the PCL, informed the ship of our plan to come down last for a straight-in approach, ran the dirty bingo numbers, and passed that we would need to stay mid-range on the power in the wires until we were chocked. Tower informed us that they would manually push us out of marshal and clear us to blow down our landing gear at the appropriate time, which enabled us to conserve as much fuel as possible. We flew a standard day straight-in with no issues.

If I were to choose when to have a HYD 2A/2B failure I couldn't think of a better time. We had lots of fuel, decent weather and a divert airfield close by. The HYD emergency did not require us to shut down the right engine, so we were able to fly a normal approach. The discussion to have in your ready room is two-fold. First, what actions and coordination need to be performed in this situation and with whom? Second, what thought processes, crew resource management, and decision making need to occur in the cockpit with night time, blue water operations, or single engine considerations? Despite all of our coordination there was still confusion on the flight deck about why we were not at idle in the wires and not raising our hook. It only takes one broken link in this long chain of events to turn a well-executed emergency into a SIR.

It was going to happen eventually. All good things come to an end, and my incredibly lucky run of avoiding display issues at the boat came to a screeching halt on a "pinky" cat shot two weeks into our composite training unit exercise (COMPTUEX). The master caution went off as the jet started to fly away and the light in the gear handle accompanied with a continuous beeping tone immediately caught my attention. Worried that my gear had not come up, I tried to double check my airspeed to find that the airspeed box in the heads up Display (HUD) was empty. Not entirely sure what was wrong at the time, I continued to climb until I was sure I was nowhere near the water. Passing five thousand feet, the radar altimeter (RADALT) kicked off and I lost my altitude reference as well. Glad that I still had some horizon left, I called for assistance and started to cycle through my displays. I had an AIR DATA caution and an associated air data computer (ADC) MUX fail on the BIT page. My worst nightmare of a standby recovery at the boat was finally occurring and to make matters worse the marine layer was moving in and the moon was nowhere in sight.

According to NATOPS, the ADC receives inputs from numerous sources and calculates accurate air data and magnetic headings. Information is supplied to the mission computers, the altitude reporting function of the IFF, engine controls, environmental control system, landing gear warning, and the fuel pressurization and vent system. From a piloting standpoint, the loss of airspeed and barometric (BARO) altitude is disconcerting but to make matters worse, the velocity vector may become inaccurate after approximately ten minutes and the procedures call for the ATT switch to be placed in standby (STBY). For all of us who have become velocity vector cripples, this is a major degradation of one's scan within the cockpit. The landing signals officer (LSO) sight picture is affected as well since the outside AOA indexers do not function.

I was directed to use ground speed as an airspeed reference until I could get my gear down and use the "E" bracket for AOA control. The decision was made for me to return with the current recovery, so I had plenty of gas to fly around dirty. As my hopes of being mercifully diverted to North Island dwindled, I requested that a tanker join on me prior to descending through what had become a black abyss. Standby instruments function normally with an ADC failure, but flying steam gauges as my sole altitude reference until five thousand feet was not my idea of a good time.

With the tanker on my wing, I found it easier to retain the lead vice flying form. It gave me a chance to get used to the standby sight picture on the HUD and take things at my own speed. My TACAN was intermittent and my tanker escort did an outstanding job of driving me around and backing me up on my altitude and rate of decent. He told approach that he would set me up on the straight in and that they could start directing us once we were lined up. Thankfully, the ILS was still functioning which significantly enhanced my reference points. The ILS and my wingman dropped me off on a decent start and Paddles was able to talk me into the wires.

Finally on deck, I was very thankful for the crew coordination that helped me get there safely. I was able to get help in quickly sorting out functioning reference points for airspeed and altitude. My wingman assisted in my descent and line up, and paddles put the finishing touches on a flight that I would rather never repeat. Although I had practiced standby approaches at the field, I was not expecting the lack of VSI in the HUD and the inability to use auto throttles that came with a full ADC failure. In addition, this failure reiterated the importance of referencing ten degrees of pitch attitude with the waterline symbol coming off of the cat. If my cat shot had occurred just a couple of minutes later I would have launched without a visible horizon and with a questionable velocity vector. Not a comfortable place to be.

My next set of carrier qualification workups will definitely incorporate ADC failures in the simulator. Up to this point, I have always just selected STBY on the HUD to simulate a standby approach. Unfortunately, as mentioned above, this does not completely imitate the totality of systems lost. Practice, a knowledgeable representative and some help from paddles is essential in turning a bad night into an earned meal at Midrats.

Fighting FOD in a Combat Environment

BY LT JONATHAN LEE, VFA-22

Carrier Air Wing 17 (CVW-17) deployed aboard USS Carl Vinson (CVN 70) on August 22, 2014. After a two-month transit that consisted of unit-level training (ULT) missions and Operation Valiant Shield, CVW-17 began daily combat operations in support of Operation Inherent Resolve. The daily operational tempo consisted of 75 sorties, encompassing combat sorties, ULT and organic tankers. While the operational tempo was consistent with a standard deployment, the rate of engine foreign object damage (FOD) removals was disproportionally high. Leadership suspected that traditional FOD prevention measures were proving insufficient. Unconventional mitigations would be required to minimize the risks associated with FOD.

In roughly six months of the deployment, CVW-17 mechs had to remove 13 engines because of FOD: three from VFA-22, three from VFA-94, one from VFA-81 and six from VFA-113. Our air wing averaged 2.17 FOD removals per month (the average for a deployed air wing is 0.87). These engine removals cost the VFA squadrons and USS Carl Vinson valuable resources. VFA-22, VFA-94, VFA-81 and VFA-113 combined to incur a cost of $13 million to repair or replace these engines. In addition to the monetary loss, these engine removals and repairs imposed 2,728.4 man-hours of work on the squadrons and Aircraft Intermediate Maintenance Department (AIMD). The loss of man-hours was detrimental to operational squadrons. Rather than focusing on the maintenance of fully mission capable (FMC) jets, squadrons were replacing and rebuilding engines to simply get airborne.

Only two of the 13 removals had an identified cause. One engine was removed after ingesting a blown tire during a recovery. Another was removed due to the ingestion of an in-flight-refueling (IFR) probe. The remaining eleven events were caused by unknown sources.

CVW-17 and CVN 70 leadership imposed a proactive plan that resulted in a drastic reduction of engine FOD removals. The

CVW	Ship	FOD Removals	Months Calculated	Average	Dates
One	Enterprise	4	9	0.44	Oct 2012 - Aug 2011
One	Enterprise	5	10	0.50	Feb 2012 - Nov 2012
Two	Lincoln	1	8	0.13	Sep 2010 - Apr 2011
Two	Lincoln	8	10	0.80	Nov 2011 - Aug 2012
Three	Truman	7	9	0.78	Apr 2010 - Dec 2010
Three	Truman	9	10	0.90	Jul 2013 - Apr 2014
Seven	Eisenhower	12	9	1.33	Nov 2009 - Aug 2010
Seven	Eisenhower	9	7	1.29	Jun 2012 - Dec 2012
Seven	Eisenhower	6	5	1.20	Mar 2013 - Jul 2013
Eight	Bush	9	9	1.00	Apr 2011 - Dec 2011
Eight	Bush	6	5	1.20	Feb 2014 - Jun 2014
Nine	Stennis	7	9	0.78	Jul 2011 - Mar 2012
Nine	Stennis	14	10	1.40	Aug 2012 - May 2013
Eleven	Nimitz	3	11	0.27	Jun 2009 - Apr 2010
Eleven	Nimitz	7	10	0.70	Mar 2013 - Dec 2013
Fourteen	Reagan	8	7	1.14	May 2009 - Nov 2009
Fourteen	Reagan	9	9	1.00	Jan 2011 - Sep 2011
Seventeen	Vinson	7	8	0.88	Nov 2010 - Jun 2011
Seventeen	Vinson	5	8	0.63	Nov 2011 - Jun 2012
Seventeen	Vinson	9	3	3.00	Aug 2014 - Nov 2014

Fig. 1 shows FOD removals from October 2012 to November 2014

Sailors conduct a foreign object debris (FOD) walkdown on the flight deck of the aircraft carrier USS George H.W. Bush (CVN 77). (U.S. Navy photo by Mass Communication Specialist 2nd Class Ryan Seelbach)

first step was establishing a quarterly FOD council, comprised of both CVW-17 and CVN 70 leadership and focused on methods to eliminate the challenge of detecting foreign debris. When the first council convened, engines were being removed at a rate of three per month. After innovative control measure were put in place, the removals decreased to a rate of 1.33 engines per month.

The quarterly council initially summarized and revealed photos of the type of FOD discovered during the previous three months. Once the main sources of FOD were localized, the FOD council brainstormed new control measures to eradicate the threat. After the first meeting of the FOD Council, all flight deck personnel were required to sew their pockets closed. In addition, both CVW-17 and CVN 70 personnel were required to inventory all personal protective equipment (PPE), including cranials, float coats and auto-inflator assemblies. Any infraction resulted in the engagement of the chain of command and, most importantly, a forced exit from the flight deck.

The most unconventional proposal was the implementation of a nightly FOD walk-down. It is hard to find small pieces of FOD at night, but larger items were periodically discovered: several wrenches, CO2 cartridges and an entire float coat auto-inflator assembly. Prior to the night FOD walk-down, these items would have threatened the air wing assets until the following morning.

Each of these control measures decreased the amount of FOD present during flight operations. Collectively, they increased FOD awareness for all personnel on board. In order to truly combat FOD, each person must understand the importance of by-the-book maintenance. The efforts made by CVW-17/CVN 70 chains of command instituted a policy that created that climate. FOD prevention became a priority and the diminished amount of engine FOD removals directly illustrates an increase in FOD awareness.

Through unconventional control measures, leadership directly addressed the challenges of FOD and drastically reduced the number of engine removals caused by FOD. While potential methods for improvement remain, these non-traditional ideas provided a solution and allowed our aircraft to successfully support Operation Inherent Resolve.

Single Engine Considerations

BY LT JOHN LYLES, VFA-94

Single engine considerations are discussed in depth in the F/A-18 community. Around the boat we place emphasis on emergency catapult fly-away, emergency gear extensions, and single engine recovery procedures. Ashore, operating in the R-2508 of eastern California, the divert field is often predicated on whether an engine fails east or west of the Sierra Nevada Mountains. I thought I had a good handle on single engine considerations until I had an engine fail while in port observation on a KC-135 over Northern Iraq.

The flight that day began like all the rest. After executing the first vul of close air support, I exited the area as a single for yo-yo tanking and climbed to rendezvous with the KC-135 at 26,000 feet. After a few moments in port observation, I began to hear the thumps and bangs associated with an engine stall, followed shortly by a loss of thrust and the aural "engine right, engine right".

With a quick glance to my left display, I confirmed the engine stall suspicion with an R ENG STALL caution displayed and I executed the immediate action item of placing the right throttle to idle. The engine stall cleared which was verified through normal engine indications and the removal of the R ENG STALL caution. Given my altitude and configuration, I elected to advance the throttle in order to salvage some sort of performance as the jet began to decelerate. Each throttle advance brought further engine stalls and it became clear the engine would not be useable for the remainder of the flight. Once the emergency was under control, I communicated the situation to my flight lead in order to determine the most logical course of action. Our standard conventional load (SCL) produced a drag count of 125, which put me at 500 pounds above the maximum range fuel number to the primary divert in Kuwait, which was roughly 550 nautical miles from our current position. The fuel number that we referenced was based on a medium cruising altitude of 25,000 feet and would get the jet on deck with a conservative 2.0K pounds of gas vice the actual bingo which would end up with 1.5K on deck. That fuel number, however, is calculated with two good engines but unfortunately I only had one and was therefore unable to maintain 25,000 feet. I figured the options were limited to either receiving fuel from our current tanker or diverting to Baghdad International Airport (BIAP). Given the current geopolitical situation, the latest threats to aircraft assessments and the absence of Hornet maintenance support at BIAP, I concluded that the most favorable option was to receive gas from the KC-135 at my right 2 o'clock, provided I could gather the thrust required to stay in the basket.

Once the decision to stay with the tanker was made, I quickly realized that, with my energy decreasing and nearly

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An F/A-18 Hornet assigned to the Mighty Shrikes of Strike Fighter Squadron Ninety Four (VFA-94), flies over the Western Pacific Ocean during flight operations.(U.S. Navy photo by Mass Communication Specialist 3rd Class Elizabeth Thompson)

An SH-60B Sea Hawk helicopter assigned to the Helicopter Anti-Submarine Squadron Light (HSL-49) is flown during a routine mission. (Photo courtesy of the U.S. Navy)

Not Seeing the Forest for the Trees

BY LT NATHAN RICE, HSL-49

Things were smooth during the fourth month of my HSL-49 Helicopter Aircraft Commander (HAC) cruise. It was a 4th Fleet Counter Transnational Organized Crime (CTOC) deployment embarked in USS Gary (FFG 51), and the detachment was running astonishingly well. Our officer in charge (OIC) had recently called everyone together for a few meetings about complacency. We hadn't run into any major problems, but we were in the stretch of cruise where we felt confident. Things were good.

Upon waking for my noon to 8 p.m. alert shift, I was informed that we would be launching to search for what might be a self-propelled semi-submersible (SPSS) in the area. Crown jewel or unicorn, it was a high value target that everyone was getting spooled up (including me, my co-pilot, our aircrewman and Coast Guard observer). We briefed, conducted a preflight check on our trusty SH-60B, spun up and requested green deck.

"Gauges green, cautions clean," I said when a final visual check of the cockpit looked exactly the same as the previous 96 days at sea. After the landing safety officer (LSO) released the beams of the rapid securing device (RSD) and gave us a green deck, I repeated, "Gauges green, cautions clean."

As my copilot picked us up into a hover, I noticed that our turbine gas temperature and gas generator turbine speed (TGT and Ng) both seemed higher than normal. They were still in the green range within the vertical instrument display system (VIDS). Everything else looked good. As we came up and aft, away from the flight deck and out of ground effect, both TGT and Ng momentarily fluctuated into amber and then back to green several times.

I thought, "This is a bit high, but we're in limits. It's been over a week since I've flown Red Stinger 107, maybe she just burns hotter." We pedal turned into the wind and completed our takeoff. Climbing to 500 feet, I took the controls while my helicopter second pilot (H2P) completed the post-takeoff checklist, including crunching the numbers for the engine health indicator test (HIT) checks. A few moments later and heading in the direction that Gary wanted us to search, my H2P said the HIT checks were calculated within limits. "Good," I thought, "she's just burning hotter."

Twenty minutes into the flight and with no luck yet finding the SPSS, I glanced at the gauges to ensure things were going as well as they seemed. Everything was green and clean, but something was out of place. The No.1 and No.2 ENG ANTI-ICE ON advisory lights were both illuminated.

I remember thinking how weird that was. I could not ever remember seeing them during this phase of flight. I looked up to the overhead console and confirmed that both ENG ANTI-ICE switches were off and the DE-ICE MASTER switch was in manual.

I knew what NATOPS said about determining if there was a malfunctioning anti-ice/start bleed valve, so I figured I could simply pull power to above 94 percent Ng to see if the lights extinguished. However, both 94 percent and 95 percent were still on. There was no change to 96 percent. Puzzled, I reduced collective. I asked my copilot if he had noticed anything I was missing, but he was just as puzzled. Then I told him to pull

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Why Must I Sit Through Another CRM Refresher
By LCDR Jim Dundon

For all the qualified aircrew out there, I am certain you have asked yourself the same question several times during your aviation career. You might think these lessons are always the same; the mistakes are the same, so why do I have to do this again? After all, I'm not that guy I read about in all those safety stand-downs and yearly refreshers we've conducted over the years, those lessons are for the other guys that just don't get it……. Right?

To better understand the scope of the situation, let me give you some background. I have been an instructor pilot since my first squadron in 2006. I was fortunate to be selected to instruct at the P-3 FRS in Jacksonville, FL. I departed that tour to a one-year flying IA in Afghanistan and returned to the P-3 community for my Department Head tour. My last year there was spent as the Maintenance then Operations Officer and Senior Pilot. Being generally successful at those endeavors and amassing over 2500 flight hours, I never thought I'd be the author of "another CRM article."

The Flight

So there I was…inverted…ok not really. We were scheduled for a 0300 brief for an Anti-Submarine Warfare event. It was mine and my Commanding Officer's last flight in the squadron and in all likelihood our last flight in a P-3. It was kind of a big deal. The tactical portion of the flight was uneventful and we checked off station for transit back to NAS Jacksonville. During the transit, we obtained ATIS, confirmed NAS was landing Runway 28 and reporting a solid cloud layer from two to four thousand feet. We requested radar vectors for a PAR to runway 28 and began a normal approach to the active runway. When directed, we descended to 2000 feet and the controller informed us we were on a base leg for the PAR. At 2000 feet we were below the cloud layer and saw we were being vectored to runway 10 instead of the expected 28. We queried the approach controller who confirmed his mistake. He asked if we wanted vectors back around for 28 or to enter the downwind for Runway 28 with the tower. We elected to chop and enter the tower pattern for runway 28. Had I elected to remain IFR, as we had briefed during the approach, I would have avoided the worst mistake of my career.

While established in the left downwind for Runway 28 I could see that we were alone at the field. Having radios tuned to both tower and approach confirmed this. We were clearly VFR at NAS Jacksonville, where I have seven years of experience in the pattern and was intimately familiar with the obstacles in the local area.

I asked the CO if his family was on site for his final flight, and he said they were. Wanting to make this memorable for the CO that had given so much to the squadron over the past two years, I elected to ask the tower for a low approach to runway 28 followed by a mid-field downwind. I continued the approach turn at ~25 degrees AOB with maneuver flaps at 190 knots. I confirmed with my copilot that the gear was up and repeated I wanted her to ask for a mid-field down wind. We flew down the runway in this configuration at 200' and asked the tower for the mid-field downwind which they approved. I rolled the aircraft to 30 degrees and started a climb for the downwind. My path over the ground took me directly in front of our hangar where the CO's family was watching. We had just passed the family gathering when my speed was comfortably below 190 knots. I selected approach flaps in the climb to downwind for an uneventful, full stop landing.

That memorable flight for my CO's family resulted in a Field Naval Aviator Evaluation Board (FNAEB) for a flight discipline violation. During the course of the investigation I was dismayed I violated some of the most basic tenants of CRM that I've been taught my entire career; the same ones I worked so hard as Senior Pilot to instill in junior pilots. While I'm sure there are numerous combinations of errors that occurred during this maneuver I will highlight a few here in this article.

First and most obvious, my Decision Making during this flight was flawed. In the P-3 community and I'm sure elsewhere we often say, "don't do anything dumb, dangerous or different." While setting up on the downwind and evaluating the traffic pattern, weather, and landing environment, etc., alarm bells should have been shrieking in my head that this approach was definitely different and non-standard. I might want to think twice about this decision.

The second failure highlighted was the horrible Communication I fostered in the aircraft during that approach. I was again shocked when I learned that my copilot and flight engineer thought I was flying a low approach in reference to a maintenance discussion we had during the transit home. My third pilot, not in the seat, thought we were landing and had just missed noticing the gear coming down. I further complicated the situation by not giving my intentions to the Commanding Officer who was on the aircraft. At any point during this event, if I had properly communicated my intentions to the flight station/crew and ensured I received the requisite feedback from them on my decision this chain of events could have been avoided.

Lastly, I would highlight Assertiveness. Again, during the process of the board's investigation the determination was made that the copilots on my flight were not assertive enough with respect to our interactions in the cockpit and did not challenge my decision to conduct the low approach. The reader might be quick to agree, but I would challenge each of you to think about a time you flew with an instructor at a training command or your Plane Commander or the Commanding Officer and possibly let them conduct a maneuver that wasn't necessarily dangerous but definitely non-standard. Thinking back on my career I know there were other situations like that for me. I think it is important to continually reaffirm that junior pilots be assertive, but it is also imperative that each senior pilot, instructor, etc. understand their role in fostering the right environment to allow that student or junior officer to speak up. My fear in this situation is my relationship as the Senior Pilot and instructor for both of my copilots, compounded by the poor communication fostered during this approach, led them to assume that I had the situation under control, and it was my decision alone.

I have always understood since the day I received my qualification as a Patrol Plane Commander (PPC) and Mission

SINGLE ENGINE CONSIDERATION from on Pg. 8

half of my advertised thrust, I will be unable to tank at the current altitude. As I communicated my emergency to the tanker, the crew altered course, altitude and airspeed to satisfy my need for fuel. We figured 17,000 feet would be a good starting point for a single engine tanking attempt. Once the tanker started their descent, I needed afterburner (AB) on the good motor to gain the airspeed I had lost in the decision making process.t However as the tanker leveled off at 17,000 feet and slowed to 250 knots, I was able to deselect AB and give the Iron Maiden another shot. Using only the good motor to maneuver, I was able to pump up above single engine divert numbers to Kuwait and started my 500 mile trek. During the last final portion of my refuel, my lead was able to join and we coordinated a section divert to the field.

As the hurt bird, I took the administrative lead and my flight lead coordinated with air traffic control (ATC). During the next hour and a half, while we flew south toward Kuwait, I was able to get partial thrust out of the right engine allowing me to fly close to the max range profile. We coordinated with the E-2 controlling the south portion of Iraq, and they were able to get a tanker to meet us in southern Iraq. It's now night and as we joined the compressor stalls returned at almost anything above idle making for a colorful rendezvous. My flight lead received gas since I was now well above my bingo number to the divert field and the ship was expecting her back at the boat after dropping me off.

My flight lead dropped me off and I landed uneventfully in Kuwait where the maintenance detachment discovered a bad inlet temperature probe, which caused the engine to improperly schedule fuel, resulting in multiple compressor stalls. The inlet temperature probe was replaced in a few hours and I was able to make the final recovery of the night on board the ship.

Too often, situations like this end poorly or are made harder than they need to be because of poor communication and headwork. After the initial shock of the emergency subsided and the procedures completed, the coordination and decision making between flight members and outside agencies was crucial to the successful transit and safe recovery. By breaking down this emergency into manageable parts, the flight members were able to make correct and timely decisions that ultimately resulted in the safe recovery of a single engine Hornet back to a friendly airfield.

NOT SEEING FORREST FROM TREES from on Pg. 9

out the big NATOPS. He read aloud the section in Chapter 2 on how the valves operate and how to determine if they were malfunctioning.

As our troubleshooting progressed, we ensured circuit breakers were in and looked for a rise in TGT after manually selecting engine anti-ice ON for both engines. There was no rise in either engine.

The gauges were all green and well within limits. The HIT check numbers were in. All we had were two advisory lights that should not have been illuminated. I decided that it was very unlikely that both engine anti-ice/start bleed valves were malfunctioning simultaneously. Since the HIT checks were in, it was more than likely a wiring issue. "Maybe the harnesses aren't properly seated or a cannon plug is loose," I said.

Since we were not able to fix our dilemma, we did some time-critical ORM and discussed the issue at hand. Whether or not it was a wiring or indication problem, we had to assume the worst by figuring that the valves had somehow failed.

If they had failed in the open position, they would be robbing 18 percent of available torque from each engine. If they had failed in the closed position, we could flame out an engine during low-power settings, such as during practice auto rotations or quick-stops.

Because of the possible power loss, we talked about how we might drop rotor speed while getting into a power-required-exceeds-power-available situation during landing. To alleviate the problem, I said "I'll take the approach and landing." We also discussed that being lighter in fuel would help us. The most dangerous part of the flight with this power-loss malfunction would have been during the takeoff, when our fuel tanks had been full.

Concerned with the possible flame out during low power settings, we agreed that we would be cautious with the collective and not do anything aggressive, such as a quick-stop.

We continued the flight and found no sign of the elusive SPSS. Flight quarters was sounded, numbers passed, and my one approach and one landing happened without incident.

After our maintainers inspected the aircraft, they told us we would be shutting down and not relaunching. While in the maintenance shop to log the flight and write up the discrepancy, my copilot started to log the HIT check in the aircraft discrepancy book (ADB).

A minute later, he sheepishly broke the silence and admitted that he was wrong on his earlier HIT check calculations and that both engines were "way out". In the heat of the alert launch, he subtracted the reference engine temperature from the actual temperature instead of the other way around. I was frustrated with him but more so with me at the sudden realization that engine anti-ice was on for both engines during the entire flight.

Upon further maintenance troubleshooting, we discovered that inexplicably both engine anti-ice valves had failed in the open (or ON) position, regardless of the cockpit switch setting. I had flown nearly three hours as aircraft commander in a degraded aircraft, without ever appreciating what the degradation was.

Even though we broke out the big NATOPS to read through Chapter 2 and used ORM to back ourselves up, I never considered looking in either Chapter 12 or in the pocket checklist. Had I looked in the emergency procedures section of either, we would have been given the answer we needed: land as soon as practical.

The aircraft had been flying fine. I had thought the HIT checks were good and I had never considered it an emergency, but because of the 18 percent power loss we very well could have drooped and lost tail-rotor authority on takeoff.

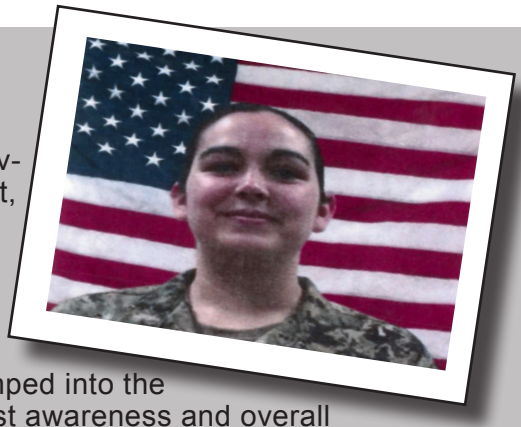
This was a sobering thought, but more sobering was the complacency I had shown. Ignoring what the aircraft was trying to tell me: "No.1 ENG ANTI-ICE ON" and "No. 2 ENG ANTI-ICE ON". I could not see the forest for the trees. Overall, it was a wake up call and a great lesson in complacency.

Bravo Zulu

Sailors and Marines Preventing Mishaps

CUNNINGHAM

On 16 August 2016, Ensign Brian K. Cunningham, USN, a flight student with Helicopter Training Squadron EIGHTEEN at Naval Air Station Whiting Field, Florida, demonstrated exceptional situational awareness and adaptability by assisting a civilian aviator experiencing an in-flight emergency. Ensign Cunningham and his instructor were conducting a TH-57C basic instrument flight when they noticed a low-flying light aircraft with white smoke emanating from the engine. Ensign Cunningham maintained visual contact with the aircraft and notified Pensacola approach of the situation and their position. Concerned the aircraft could flip upon landing, the crew followed it down as it made an emergency landing into a farmer's field. Ensign Cunningham executed the on-scene commander checklist as his instructor set up for a landing into the farmer's field to render assistance. The crew landed abeam the other aircraft to assess the pilot's condition. After determining the pilot was uninjured, the crew updated Pensacola Approach and orbited overhead until a truck pulled up to assist. Ensign Cunningham's strict adherence to procedures, sound headwork, outstanding crew resource management and professionalism ensured the safety of a fellow aviator.



WICK

On 4 October 2016 while deployed to Naval Support Activity Souda Bay, while aircraft 318 was fueling during preflight, you noticed fuel on the ground under the refuel truck and quickly brought it to the attention of the driver. After halting the fueling operation it was found that the truck's fueling pop-off valve had opened, causing it to leak fuel. As a result of your astute observation and quick reaction you prevented 25,000 pounds of fuel from potentially being dumped into the environment. Bravo Zulu on a job well done! Your steadfast awareness and overall vigilance broke a chain of events that may have led to a potential mishap and ensured continued safe squadron operations without injury. Your outstanding performance has