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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.

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Correction: In the fall 2010 *Mech* we listed a July 2010 HMLA-369 AH-1W crash as a Class A mishap. It was a direct enemy action event, not a mishap.
-Editor

"Tacking" Leads to

By ATCS Kevin Hughes

It all began when we had trouble starting the auxiliary power unit (APU) on aircraft 302. Troubleshooters quickly found the problem component: a faulty thermocouple. Trying to speed up the process, Maintenance Control directed a daily/turnaround inspection in preparation for a low-power turn.

Our power-plant maintenance team opened up the access panel to the APU, removed the thermocouple, and placed a new one on order. Within the hour a new thermocouple was installed and the panel was "tacked" back up with two fasteners. A low-power turn was scheduled for the following morning. The same morning, a daily fastener inspection was done. No defects were found, and the MAF was signed off

The next morning, another fastener inspection was done. No discrepancies were identified, despite the fact that the APU panel was "secured" with only two fasteners. The inspection was signed off, and the aircraft awaited a turn to check the thermocouple.

Because of the heavy traffic flow on the flight deck, the aircraft was finally spotted for the low-power turn after a long delay. The APU and thermocouple were operationally checked and everything looked good. But was it?

CDIs are the last set of eyes on a job. They ensure a job is completed correctly. Ours failed when he took the word of the turn operator, who claimed everything checked 4.0. The CDI then signed off the MAF despite the fact he hadn't inspected the work. In this case, his weren't the last set of eyes to inspect the aircraft.

Because of the long delay with the low-power turn, Maintenance Control had the line do a turnaround inspection. The PC doing the inspection noticed the panel was only tacked in place with two fasteners, but he assumed that work was still being done on the jet and did not document the discrepancy, nor did he tell the deck chief about the missing fasteners.

For the third time a daily fastener inspection was completed; this time on the now "up" aircraft. Same results—no discrepancies. That afternoon, Maintenance Control requested aircraft 302 "up-traffic" from the hangar to meet our flight schedule requirements. My Maintenance Chief was at chow, so I screened the books to ensure the aircraft was "safe for flight." All signoffs were complete, and the daily/turnaround inspections were current… well, sort of. I noticed the "daily" was two days old, and had mentioned to my Maintenance Chief that, although

TFOA

acceptable under the NAMP, letting a daily lag like this was not a good business practice. We should have done another daily with the latest turnaround inspection. Regardless, I still released the jet "safe for flight."

The pilot then stepped to the jet, pre-flighted it, and unknowingly went flying with the panel barely secured to the jet. The aircraft recovered 1.5 hours later in an "up" status.

Maintainers completed a turnaround inspection and the aircraft was manned up for yet another event. During final checks for that event, one of the troubleshooters discovered that half of the APU panel was missing.

The mistakes were shocking. Retracing our steps, we found that four maintainers, two plane captains, four CDIs, and two final checkers all missed the APU panel *sans* fasteners. Also, no CDI in-process inspections were documented on the MAF, nor was there any documentation on the status of the panel.

Although Maintenance Control did everything right according to regulation, more vigilance on our (my) part could have prevented this mishap. As controllers, we need to ensure that when we assign daily and turnaround inspections, we are doing so after all major maintenance actions have been completed. COMNAVAIRFORINST 4790.2A states: "In the event maintenance, other than servicing, must be performed after the daily inspection or turnaround inspection, Maintenance Control shall determine if a complete daily, turnaround or portion thereof is required." In this case, when I noticed the daily had been done before the maintenance was done, a little extra effort on my part (i.e. assigning a new daily inspection) would have put a fresh set of eyes on the jet.

As a result of this incident a number of personnel lost their quals, and our squadron held a brief all-CDI maintenance stand-down. As with most maintenance malpractice incidents, we learned the hard way the value of proper procedures and documentation.

Senior Chief Hughes works in Maintenance Control at VFA-151.

The Africa-Hot Assumption

By ADAN Nicholas Pouliot

Navy photo by MC3 Spencer Mickler.

We were operating off the coast of Djibouti, Africa, and as we prepared to man up for the next event, the flight-deck temperature reached 150 degrees. Our flight schedule consisted of several short flights, just enough to keep us busy.

With the yellow shirts working a marathon of re-spotting evolutions, it took a little longer than usual to get our aircraft powered up. The grapes were waiting to fuel our E-2C Hawkeye. The FDC asked the PC trainee if we were going to power up the plane. Mistaking the FDC's question for an order, the trainee immediately applied power. Grapes fueled the plane, and the rest of the turnaround went smoothly.

The man-up crew arrived at the aircraft and started their pre-flight inspections. The PC manning up the aircraft hadn't done the turnaround, nor had he powered up the aircraft for the man-up. He simply accepted that since the aircraft was already powered up, everything was good to go. It didn't take long for him to figure out otherwise.

The PC started his pre-flight with external checks on the port side of the Hawkeye, just forward of the

Wear gloves, even when the outside temp is similar to that of a pre-heated oven.

prop line. He intended to work his way around the aircraft and end up at the main-entrance hatch; from there, he would begin his internal checks. The first component up for grabs was the total-temp-probe. As the PC checked the integrity of the probe, he quickly realized the pitot-heat switch had been left on. The probe was hot enough to deliver a nasty burn to his ungloved hand in less than a second.

The dedicated (now probe-tattooed) PC pressed on after the power check was corrected and launched the aircraft. When he reported back to the line shack, he discovered the extent of the burn. Shortly thereafter he went to medical where he was treated for second-degree burns and received three days of LIMDU.

An investigation revealed that the PC trainee, who had applied power to the aircraft prior to man-up, had not done a pre-power check. His assumption: The qualified PC had already taken care of that.

The PC learned a valuable lesson: wear gloves, even when the outside temp is similar to that of a pre-heated oven.

Airman Pouliot works in the line division at VAW-121.

How'd That Get There?

By AD1(AW) Thomas Austin

Back in August, aircrew in aircraft 111 had a fuel-transfer malfunction. During in-flight refueling, the aircrew noticed the left wing had 500 pounds less than the right wing. Investigating, the aircrew noticed the electronic fuel-display indicated that the left-wing transfer shutoff valve failed to open (MSP 460).

After landing aboard the ship, maintenance initiated a MAF that said, "Left wing would not fill up completely when refueling, about 500 pounds less than full."

The AEs checked the aircraft wiring. After finding no discrepancies, they changed the left-wing motive-flow-transducer. Maintenance did a low-power turn to op-check the new part. The MSP 460 had cleared and the leak-check was good, so the aircraft was returned to flight status.

Several days and several flights later, another in-flight fuel-transfer discrepancy occurred. This time, the resultant MAF went into greater detail:

"Fuel transfer caution after takeoff. Noticed a wing imbalance of greater than 350 pounds. Went 'light' wing (left wing) down to balance it out, but immediately after going wings level, the fuel started going back into the right wing. Towards the end of flight, fuel state was 6.0. Received a 'fuel low' caution while joining on the tanker. Saw that tank No. 3 had 900 pounds, and tank No. 4 had 1500 pounds. Stopped transferring into tank No. 3. Tanker filled up tank No. 3 first and was very slow to fill all tanks past 13,000 pounds. There was a fuel split between the wings of at least 300 pounds for the entire flight."

On this flight, though, there were no associated MSPs. After extensive research and troubleshooting, we narrowed down the discrepancy to the No. 4 fuel-cell transfer-pump. After this pump was replaced, another low-power turn was done. It checked good, and the aircraft was once again returned to a flight status.

A couple days later the aircrew had another transfer malfunction in flight. According to the MAF: "Left wing tank had a 500-pound lower split from the right-wing tank after each refueling with a 'fuel transfer' caution. Had to use left-wing down and right rudder to gravity feed."

After doing more research in the IETM and seeing all the components involved in the system and their functions, we decided to check the tank fuel-level-sensor in the No. 3 fuel cell. After opening that cell, ADAN Joshua King immediately noticed what appeared to be a small piece of a latex glove protruding from the fuel-level-sensor "fuel-in" side.

Based on the IETM's description of the fuel-level-sensor's operation (below), we surmised the FOD had caused the aircraft to get an erroneous indication that the cell was full, when in fact it was not:

"The No. 3 cell tank fuel level sensor is mounted in the motive flow control pressure line upstream of the transfer shutoff valve in the No. 3 fuel tank. The sensor controls the motive flow pressure that causes the transfer shutoff valve to open or close to maintain a near full fuel state in the tank as long as transfer fuel is available. The sensor output pressure is higher, which opens the shutoff valve, when the fuel level is below the sensor than when it is submerged in fuel. The valve siphon tube provides a dead band to prevent rapid cycling of the pressure and opening and closing of the shutoff valve."

After removing the piece of latex glove and checking for other FOD in the fuel cell, we did another operational check on the fuel system—everything was good. The aircraft was then returned to operational status with no further fuel-transfer discrepancies.

We never found out from where this piece of glove came. How it got there also is still a mystery.

Petty Officer Austin is the VFA-32 power plants LPO.

ROAD MAP TO DISCHARGE

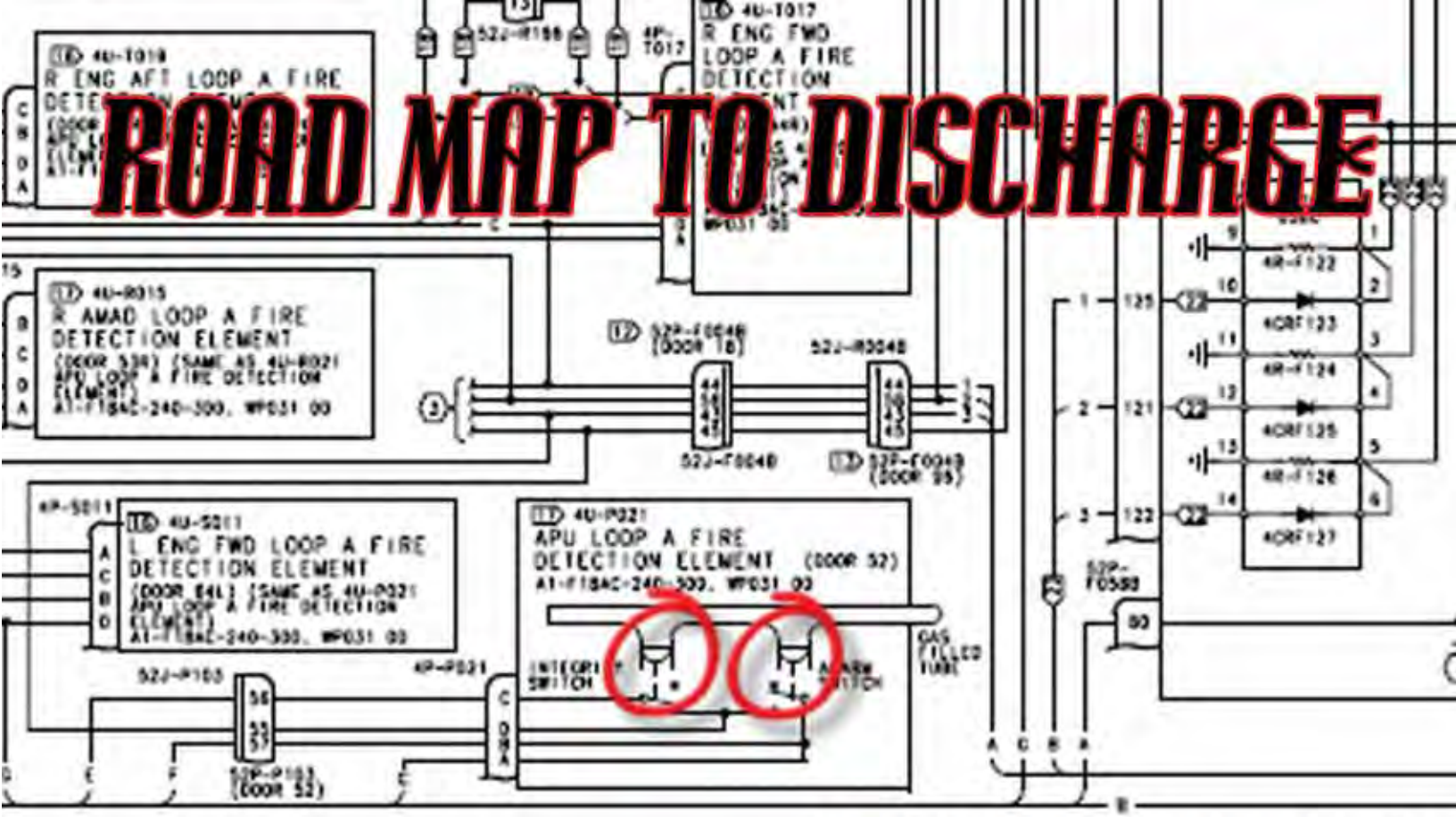


Figure 2. Loop A Fire Detection System Schematic (Sheet 2)

By AE2 Scott Rhine

It was a normal night-check routine during a seven-month deployment. I went to work for another night of flight ops and maintenance aboard USS *Harry S. Truman* (CVN-75). While doing the nightly tool check, my LPO told me aircraft 306 went "down on deck" for failing the APU fire-light test.

Day-check personnel already had changed the fire-detection control-unit with no joy. After removing a panel to gain access to the APU bay, the powerplants work center removed the APU. Our day-check crew then replaced both APU fire-sensing elements. However, the problem remained. At the night-check maintenance meeting, aircraft 306 became my No. 1 priority for the evening.

I returned to the work center and updated the rest of the crew on the night's priorities. My LPO and I then reviewed the schematic to develop a game plan; we knew it would involve running wires, a tedious but necessary step in electrical-system troubleshooting.

We went to the aircraft and began troubleshooting the wires leading to the fire detection system, following the schematics like a road map. After approximately two hours of unsuccessful troubleshooting, I began to fear that we were heading down the "could not duplicate on deck" path. After discussing alternate ways of troubleshooting the discrepancy, we checked the integrity of the alarm circuit by "jumping" two pins on the APU connector (highlighted in the wire diagram). With battery power applied, we actuated the fire-lights check. We immediately heard a loud "Boom!" come from the aft engine-bay.

Stunned, we looked at each other, amazed at what had just happened. After a brief inspection, we realized we had discharged the fire bottle. The technician in the cockpit climbed out and verified our unfortunate discovery. After securing the aircraft, I immediately told Maintenance Control about the discharge. After further review of the schematics, we found our mistake: When we jumped the alarm circuit, we gave the system actual fire indications, which in turn activated the fire bottle.

We could have seriously injured a Sailor or damaged the aircraft. Our AMEs should have disconnected the fire bottle from the circuit, removing an inadvertent discharge from the equation. But as a professional, I should have taken the extra time to familiarize myself with the system.

As it stands, the original discrepancy became much more costly to repair after our mistake. The aircraft didn't fly for two more days while the squadron continued to support combat operations in Afghanistan.

Petty Officer Rhine works in the AV/ARM shop at VFA-37.

LOX LESSONS LEARNED

By AMC Bruce Parmenter

The VAQ-130 Zappers were nearing our last week of combat operations. I'd been working as the hangar-bay chief for two months. Our aircraft had been holding up well until one returned early from an event with an environmental control system (ECS) failure. The fix—an ECS turbine replacement—was an all-AMEs evolution.

I received a call that there would be an upcoming elevator run that would allow us to send a freshly-filled LOX cart to the flight deck. We typically alternate this responsibility with the E-2C squadron, since we are the only two aircraft onboard that still use LOX.

The elevator run would be very soon and would have to be expedited because of the need to maneuver the ship for flight operations. At that time, all Zapper AMEs were fully involved in the ECS turbine replacement on the flight deck. Realizing this, I went over to the E-2C AME shop, only to find all of their personnel were on the flight deck working on one of their aircraft.

Meanwhile, the elevator had been lowered to the hangar bay, our aircraft on the flight deck were manning up, and they still needed LOX for their flights.

As hangar-bay chief, I decided to move the LOX cart to elevator No. 2. I enlisted the help of another squadron technician to assist me. The hangar bay was still very busy with the moving of supplies from the morning's RAS; there was limited space to maneuver the cart. I figured that two sets of eyes and hands made a better ORM decision than just me trying to move a piece of gear that size.

As we moved the cart over and onto the elevator, we noticed some intermittent "venting" of oxygen. I didn't have lot of experience with LOX carts, but in my 15 years, I had come to accept this as normal. I was pretty certain that I had seen LOX carts do this before.

The cart was positioned on the elevator facing fore-and-aft with the aft side chained down to the elevator. After the elevator made it up to the flight deck, I noti-

Navy photo by MC3 Michael McNabb.

Navy photo by MCSN Richard Waite.

fied my FDC that it was on the roof and got a "roger that" on the radio. From then on, I did not witness the events on the flight deck.

Since our AMEs were still working on the ECS turbine, the squadron sent two line personnel to move the LOX cart off the elevator. They unchained the cart and tried to release the brake, but it was jammed. Trying to release the strain on the brake lever (in order to maneuver the cart around deck obstacles), the line personnel lifted up the cart's tongue. As soon as they did, a small quantity of LOX poured out onto the elevator.

If there had been any spilled petroleum products near or under the cart, a fire could have ignited and the LOX could have exploded. With the cart on the aft side of elevator No. 2, near the "bomb farm," an explosion could have been catastrophic (at the time of the spill, the bomb farm was full of live ordnance).

Following this incident, I looked into every manual I could to locate information on LOX carts, specifically regarding their handling and transportation. I couldn't find any information that stated a license is required to relocate the cart. Obviously, you cannot operate the cart without training, but there were no restrictions (that I could find) on moving it. The only precaution in the NA-80T-96 regarding LOX-cart movement states:

> LOX carts remain stationary in the LOX handling area, but they must be moved to plant for filling, to AIMD SE division for repair, and occasionally to an aircraft to service the LOX system on board. Whether you're moving it manually or with a tow vehicle, there are certain precautions you should take.

WARNING!

Close the vent valve before towing liquid oxygen storage vessels to prevent injury.

I wasn't towing the cart, but shouldn't this warning be applied to all types of cart movement?

Since this incident, I have familiarized myself with LOX-cart safety. One of my mistakes, I now realize, was moving the cart with the vent valve open. Normally, the vent valve must remain open to allow the cart to vent during LOX boil-off. However, when moving the cart, it must be closed, to prevent LOX from spilling. Also, I learned that sometimes a perceived sense of urgency and a commitment to making things happen led me to do more than I was qualified for. This seems like an insignificant mistake, but it could easily have become one that none of us would have forgotten.

Chief Parmenter is a hangar-bay chief at VAQ-130.

"Get Down from the Jet, Now!"

By Lt. Clifton Lennon

At 0930 on 2 August, two months into deployment and one month into OEF flight operations aboard USS *Harry S. Truman* (CVN-75), VFA-105 maintainers were preparing for the first launch of the day. The night prior, the ATs had spent several hours troubleshooting a "GPS inoperative" discrepancy on aircraft 404, which was scheduled to fly the event. However, as aircrew started to walk, it became apparent that 404 would not be an "up" jet in time to make the launch.

The previous night, around 0200, night-check ATs had begun troubleshooting a GPS gripe on aircraft 404, which had been spotted on elevator four, aft of catapults three and four. At 0430, they believed the problem was a bad GPS receiver—replacing it would be a quick fix. The ATs told Maintenance Control the aircraft would be available for the first launch. They replaced the receiver. After shift change, a trio of day-check ATs did a run-up of the system at 0730.

They found that the GPS RF cable (which runs from the receiver to the antenna) was the faulty component. At 0745, they submitted a work order and started replacing the cable. First they removed panel 18, located on top of the jet, aft of the cockpit. At 0830, they notified Maintenance Control that aircraft 404 wouldn't be available for the 0930 launch; they continued to work on the gripe. Two other squadron aircraft (412 and 410) were now starting up for the event, and another aircraft (411) was preparing to start a low-power turn (LPT).

At 0900, the VFA-105 FDC told the three maintainers on top of aircraft 404 to "Get that panel secured and get down." Then the FDC left to monitor the LPT on aircraft 411. The only other supervisory leadership on the flight deck was a QAR and the line-division LPO; they were both monitoring the start-up

and launch of aircraft 410, which was located near the bow.

Shortly after 0900, the ATs working on aircraft 404 found that the problem wasn't a faulty GPS RF cable; it was a GPS cable-connector. They continued work on aircraft 404 until approximately 0925 (five minutes prior to the launch).

Around 0925, a call came over the ship's 5MC: "The maintainers on aircraft 404 need to get down." Likewise, an aircraft director also approached the two maintainers on top of aircraft 404 and told them to get off the jet. One of the maintainers inventoried his tools and secured the toolbox while the other maintainer began to secure the panel. Panel No. 18 has 44 fasteners, but the maintainer was only able to secure three fasteners (all on the forward portion of the panel). Meanwhile, the aircraft director yelled at him again: "Get down from the jet, now!"

At this point, both maintainers stopped what they were doing and climbed off the aircraft. Just as the last maintainer came off the aircraft, an EA-6B Prowler went into tension (full power) on catapult No. 3. The resulting jet blast ripped panel No. 18 off aircraft 404. The panel landed on the flight deck. The three fasteners and anchor baskets stayed attached to panel—the attach points had broken off the aircraft.

The airframe (rib/former structure) was damaged to a degree that was beyond the scope of organizational-level maintenance. It took more than three months to complete the repair process (a permanent patch).

What mistakes resulted in major structural damage and the loss of an aircraft for more than three months during a combat deployment?

The maintainers had an unnecessary sense of urgency to complete the work order. This sense of urgency degraded their situational awareness, especially considering the number of flight-deck events unfolding around them. Aircraft 404 had been removed from the event No. 1 launch at 0830, 60 minutes prior to the incident and had been rescheduled to fly later that day. Why rush? With two aircraft preparing to launch and another undergoing an LPT, 404 was the lowest priority; maintenance should have been secured as soon as it was removed from the lineup.

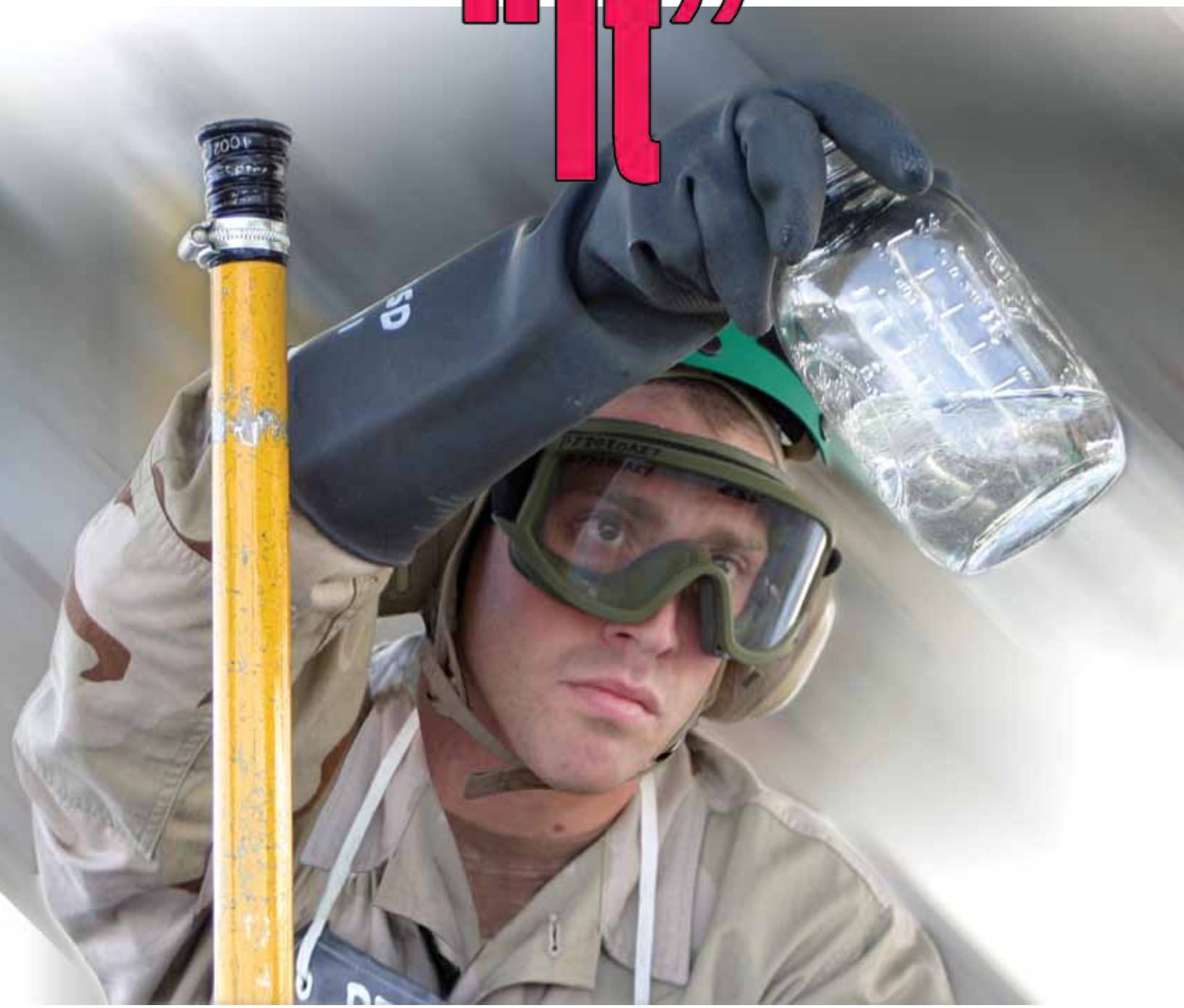
This incident brought to the surface a squadron practice of "tacking" a panel: attaching some (not all) fasteners to secure a panel temporarily. After the incident, a squadron policy was clearly communicated: Any aircraft assigned to VFA-105 will not, under any circumstances, have panels "tacked" in place.

The incident also made us question the practice of doing maintenance on the flight deck, especially during flight operations. Squadron policy now states that major aircraft-maintenance on the flight deck and flight line should be avoided at all cost. If maintenance, such as a panel removal, is absolutely necessary to meet operational commitments, then said panels should be removed and stored in their respective work center(s) or in appropriate containers until ready for installation.

Lastly, a lack of supervision and leadership on the flight deck added to an already problematic situation. There just was not enough leadership on the flight deck to supervise every evolution. Leaders who were present failed to step in and prevent the incident. The FDC was monitoring a LPT in the "six pack." Both the QAR and line LPO were monitoring aircraft 410 on the bow. The line CPO was giving "safe for flight" training in Maintenance Control, and the safety petty officer—who was dual-hatted as a QAR—was manning the QA work center. Also, the CDI for this maintenance action had left the flight deck temporarily (the AT who remained on-scene was, however, CDI-qualified).

Lt. Lennon flies with VFA-105.

Why We Wear "It"



Navy photo by MC2 Jennifer Bailey.

By AWFC(NAC/AW) Stanton Culbertson

In the business of aviation, we're surrounded by risks. Some are more visible than others. We airedales have a vast arsenal of tools to combat the hazards we face on a daily basis.

ORM, CRM, and PPE are some of the familiar acronyms that come to mind when we discuss safety in the world of naval aviation, but just like a cranial or double hearing protection, these acronyms remain just that unless people use them properly. How many injuries could be prevented simply by wearing gloves, strapping down a cranial, or sliding safety glasses off the forehead and over the eyes?

It seems that most of our training in the field of safety entails lessons learned from the misfortune, death, or dismemberment of our shipmates. Well, it doesn't always have to be doom and gloom. A lot can be learned from our shipmates who get it and are doing things the right way.

Not long ago, my squadron was operating out of Al Udeid Air Base in Qatar. One evening, Maintenance Control sent Airman Philip Hestbeck and a co-worker out to the flight line to take fuel samples. Both Hestbeck and his partner were well-qualified for this job and fully understood the importance of doing it correctly.

As he made his way out to the fuel-sample locker, Hestbeck inspected his sample jars and pogo stick for contamination (the pogo stick is the tool used for draining fuel samples from the low-point drains). His supervisor had stressed the importance of good communication while working on the line, so he grabbed a radio and stuck it in his back pocket. Also, he grabbed his cranial, chemical resistant-gloves, apron and, of course, splash-proof goggles.

Hestbeck arrived at his first aircraft and set his things down to prepare for the routine task at hand. With gloves on hands, goggles over the eyes, apron on, and cranial on the head, he was prepared. He reached into his tray of neatly organized mason jars, selected one, and carefully screwed it onto the base of the pogo stick. Raising the stick up to the first low-point drain and pressing firmly, he began to fill the bottle with clean JP-8 fuel.

As the jar neared half-full, he removed the pogo stick, tightly screwed on the the jar's lid, and swirled the fluid to create a vortex in the center of the jar. Shining a flashlight under the jar, he inspected the fuel for the presence of any contaminants. Satisfied with the results of this sample, he placed the jar of fuel in the tray and repeated the same steps for the next tank, which yielded the same results.

Now, the P-3 is a very complicated and old machine. All of its parts and systems don't necessarily work as advertised, all the time. Take a low-point drain. As Hestbeck soon discovered, this design (a plunger, a seal, and a spring that re-seats itself when the pogo stick is removed) isn't foolproof. As he pulled the pogo stick from the next drain valve, he found himself drenched with an unrestrained shower of fuel. Standing under the relentless cascading flow of fuel, he knew what was at stake. There were 900 gallons of this stuff in that tank and he had the one tool in his hands that could prevent it from spilling.

Hestbeck stood in the JP-8 fury and jammed the pogo stick back into the drain valve, successfully resetting it. The fuel shower stopped. Relieved that the crisis was over, he soon realized he had another very serious issue at hand. Although his splash-proof goggles had worked brilliantly and had saved his bacon for now, they were covered in fuel, which had started to seep in around the edges. Instinctively, he closed his eyes tightly. He remembered the importance of good communication and reached for the radio in his back pocket.

"We have a fuel spill from low-point drain No. 4. Spill is secured. I am heading in. My partner needs assistance with our gear and clean up." said the young airman.

Back in the shop, Hestbeck's supervisor, Petty Officer Gamboa, snatched up the radio and queried the nature of the urgent message.

"I just took a shower in fuel and am headed in to clean up," replied Hestbeck.

Gamboa radioed Maintenance Control with the situation and rushed out the door to render aid. He walked Hestbeck to the nearest eye wash station and rinsed his face off with the goggles still on to ensure no fuel would drip into his eyes when the goggles were removed. After the goggles were removed, Gamboa continued to rinse Hestbeck's face until both of them were sure there was no trace of fuel left around his eyes.

Thanks to the use of PPE and a quick-thinking supervisor, Hestbeck's retinas will live to see another day. After a good shower and a change of clothes he was back on the job with a great first-deployment sea story. If you are still questioning whether to wear or not to wear PPE, I'm sure you could look into Hestbeck's undamaged eyes and find your answer.

At the time of this writing, Chief Culbertson worked for VP-1.

Maintainers in

A UH-N1 assigned to HMM-262 lands aboard USS *Essex* (LHD-2). Navy photo by MC3 Andrew Smith.

An FA-18C assigned to VFA-195 launches from USS *George Washington* (CVN-73). Navy photo by MC3 David Cox.

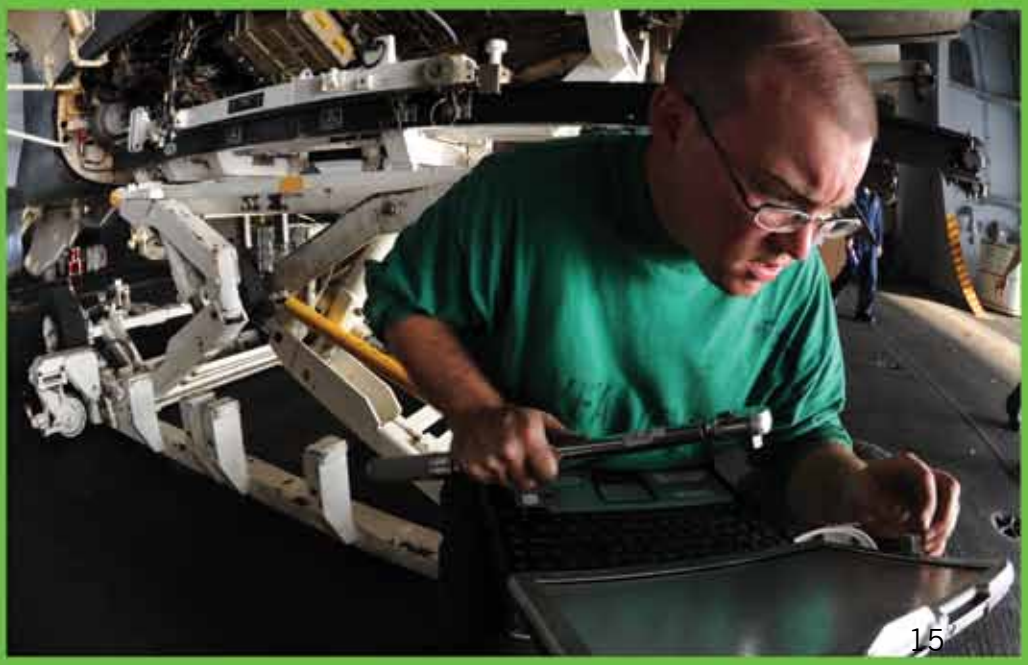
A plane director guides a C-2A assigned to VRC-40 during flight operations aboard USS *George H. W. Bush* (CVN-77). Navy photo by MCSN Michael Smevog.

the Trenches

AM2 Kyle Perry, assigned to VFA-154, installs a panel on an FA-18F in the hangar bay of USS *Ronald Reagan* (CVN-76). Navy photo by MC3 Oliver Cole.

AM3 Katie Heninger, left, and AM2 Christopher Helmkamp, both assigned to HSC-9, install landing gear on an MH-60S. Navy photo by MCSN Kevin Steinberg.

AD3 Brian Minock of VFA-105 reviews torque wrench settings while working on an FA-18E. Navy photo by MC3 Marie Brindovas.



Safety
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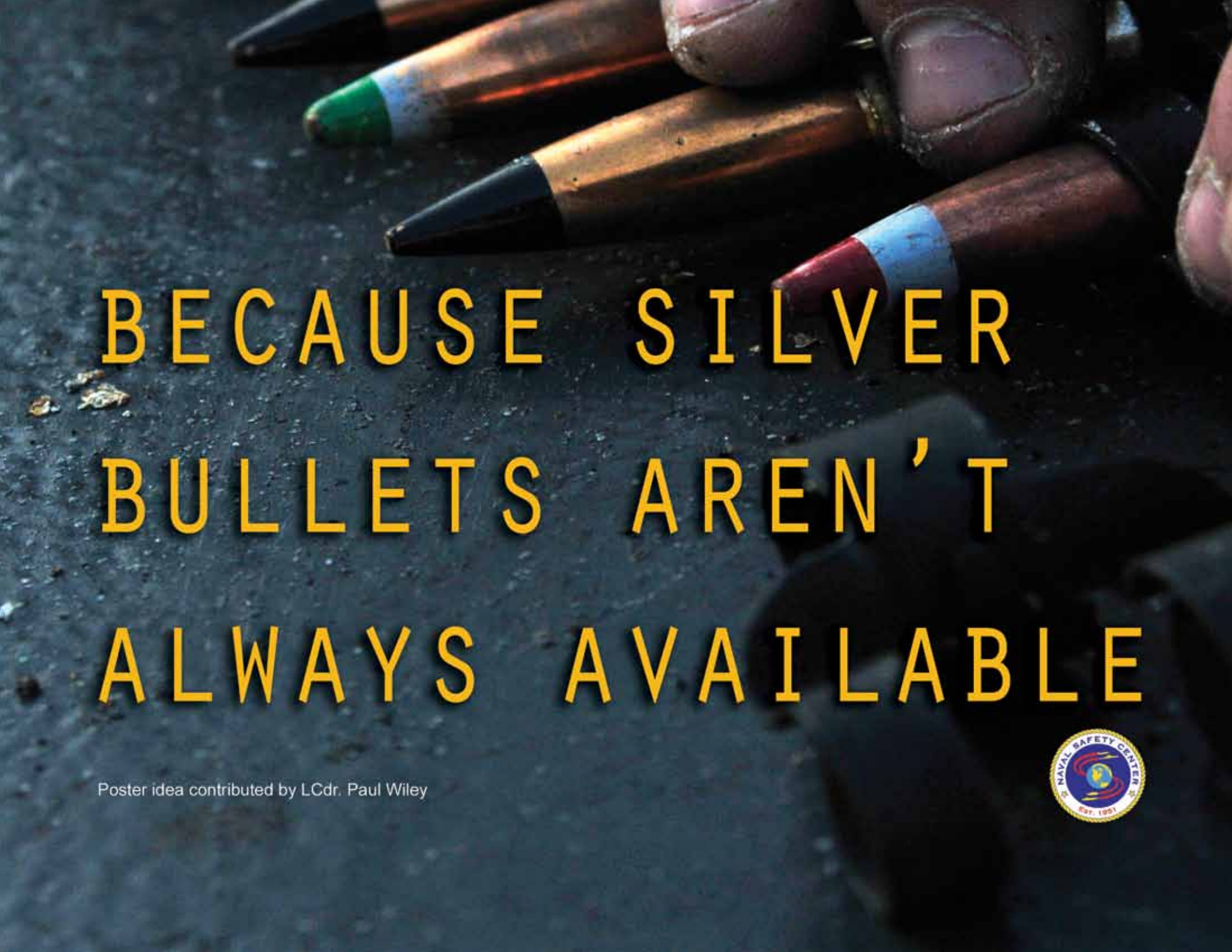

BECAUSE SILVER
BULLETS AREN'T
ALWAYS AVAILABLE
Poster idea contributed by LCdr. Paul Wiley
NAVAL SAFETY CENTER
EST. 1951

The Venus Flytrap Fuel Gripe

By AE2 Juan Poteet

It was a maintenance-as-usual Friday night for my work center, the AE shop. We had an aircraft returning to home base that would need a little work. Also, we had our fair share of discrepancies on our workload report. One particular discrepancy was an air-refueling gripe in which the toggle-engagement-locks would not retract inside the air-refueling receptacle (this receptacle is located above the cockpit, on top of the aircraft).

Fixing this gripe is always a complex evolution. Heck, just getting the aircraft prepped for the AE shop to begin its troubleshooting is an evolution in and of itself. Having to start this work on a Friday really made it that much worse. For our community, Fridays down in the maintenance department can be some of the busiest days of the week; this day was no exception.

In order to begin troubleshooting the air-refueling gripe, we had to coordinate with two other work centers, the mech and airframes shops. The plan was for the airframers to jack up the front end of the aircraft to allow the residual fuel to drain from the top of the air-refueling receptacle to the manifold. Afterwards, the mechs would inert the aircraft by draining the fuel from the air-refueling manifold.

As Friday turned into Saturday, maintenance was halted for the weekend—we'd already worked four and a half hours past our normal shift. Maintenance Control decided we'd done as much as we could and told us to wrap it up and begin again on Monday.

The weekend came and went, and by the start of Monday's shift, we were back on it. We started off by talking about what we were going to do and what role each person was going to play to accomplish this evolution. Once we had done our pre-brief it was full speed ahead.

A safety observer posted himself on the ground; other personnel positioned themselves on top of the aircraft. As the maintainer responsible for engaging/disengaging the hydraulics, I sat in the pilot seat.

All personnel on the aircraft were forewarned that hydraulics were going to be applied. The safety observer then cleared me to apply hydraulics. One of the maintainers on top of the aircraft tried to engage the air-refueling coupling with the test equipment.

No joy. The air-refueling engagement-locks would not disengage. Because we couldn't insert the air-refueling test-set, I turned off the hydraulics.

After about half a dozen "back to the drawing board" moments (a.k.a. "troubleshooting"), we finally came up with another plan of attack. Thinking we were all on the same page, we started to work on the aircraft yet again. Problem was, having gone to and from the aircraft so many times, I had become complacent. Instead of telling everyone around the aircraft that I was turning on the hydraulics and getting confirmation from all hands, I made a cursory look outside the pilot's window and then applied them.

Turns out, while I was applying hydraulics, the maintainer operating the air-refueling test-set on the top of the jet was in the process of inspecting the test equipment. In order to do so he had to remove the safety strut from the air-refueling doors. The air-refueling doors started to close on him, like a Venus flytrap. Fortunately, he was quick enough to move out of the way before he was caught in a death grip.

Maintenance on the jet was halted for more than an hour and a half as everyone involved had to write statements regarding the sequence of events. The next day, I had to see the "man," the Maintenance Master Chief. He was just happy no one was hurt and told me to let this be a learning experience.

Sure enough, at the next maintenance meeting, I had to let everyone know what had happened on my shift. What amazed me and helped me put things into perspective was when the question was asked of everyone in the meeting: "Who has screwed up before?" Everyone raised a hand. We're all fallible.

Petty Officer Poteet works in the AE shop at VQ-3.

Instead of telling everyone around the aircraft that I was turning on the hydraulics and getting confirmation from all hands, I made a cursory look outside the pilot's window and then applied them.

Hot Topic

By AWF2 Jeremy Ball

As a recent addition to a VRC-40 detachment, I should have prepared myself more and planned ahead for the heat in Bahrain. This shortcoming in my "sandbox" preparation became apparent when I stepped off my flight on the 26th of August and was hit by 120-degree heat and thick humidity.

On my second day in Bahrain, I flew as an aircrewman to the USS *Harry S. Truman* (CVN-75). We had started the morning with an air-conditioning cart on the plane while loading cargo onto the aircraft in Bahrain. When we flew out to the boat, heat wasn't much of an issue. We debriefed as a crew, found no issues, and headed back to our berthing. I was tired from the day's mission and had a show time of 0330 the next morning. I got some chow and went to sleep around 1930.

Two days later (back on the beach) was another early morning for our det. I was acting as a PC for the first launch of the day. I began to sweat profusely—the heat of Bahrain had started to get to me. After the COD launched, I began working with the maintenance crew as they were moving our second aircraft into the hangar bay. Then I had to write up seat gripes and vacuum the floor tracks, which I did for the next hour or so. Afterwards, I started feeling weak and nauseated. I knew it was time for a break, but I decided to just push through it.

Shortly thereafter, I exited the aircraft in a hurry and vomited numerous times in the hangar bay. I ended up on the ground, dry-heaving until my stomach began cramping. An officer from HSC-26 saw me and helped me into the flight surgeon's office. They began blasting the air conditioning on me while I hydrated. Later, an ambulance took me to one of the local hospitals.

I was wheeled into the hospital on a stretcher, as the staff scrambled to find an English-speaking doctor. The docs came and went. As they hooked me up to five consecutive IVs and injected me with medications to help with the nausea, I began feeling a little better. After running tests to make sure I didn't have anything other than heat exhaustion, they discharged me. I then returned to my berthing to rest for the remainder of the day.

The following morning I went to see the flight surgeon. He put me on seven days of light LIMDU—not my idea of a good time after being on deployment for only four days.

Petty Officer Ball flies with VRC-40.

Dehydration, Heat Stress on the Flight Line?

Not Me!

By Cdr. Don Delorey

The main component of the human body is water: about two-thirds of your body weight is water, which means an individual who weighs 170 pounds will have more than 10 gallons of water in their cells, around the cells and in the bloodstream. Clearly, water has an important role in the body. While many maintainers are aware of the term "dehydration," very few take appropriate actions to make sure they are well hydrated before, during and after maintenance evolutions. Why is this? It appears that many maintainers are unaware of the symptoms and devastating effects associated with dehydration, which can increase the risk of a mishap, even during a mildly warm day.

What causes dehydration? It can be caused by many factors, such as inadequate fluid intake, a dry environment in the aircraft, excess caffeine and antihistamines. Hot cockpits and flight lines also can cause dehydration. A blistering hot 130-degree ramp at Yuma, Ariz., is an obvious cause of dehydration. However, what about the less obvious cause: the 72-degree cockpit? The average humidity in the cockpit is quite low, which can result in a substantial amount of lost fluid.

Dehydration and performance

Dehydration can result in decrements in physical and cognitive performance. Each of these can occur when two percent or more of body weight is lost because of unreplaced water or water restriction, heat, and/or physical exertion. Long-term effects of dehydration can include wrinkled skin, impaired memory function, dry hair, brittle nails, constipation, and susceptibility to colds and sinus infections (because of extremely dry nasal passages).

Common signs of dehydration are headache, fatigue, cramps, sleepiness, and dizziness. You must be aware that unreplaced water losses of two percent of your body weight will degrade your ability to regulate heat. At three percent loss, there is a decrease in muscle cell contraction times. When fluid losses equal four percent of body weight, you'll have a five-to-10 percent drop in overall performance, which can last up to four hours. Another physiological factor that can be associated with dehydration is heat exhaustion, which consists of the following three stages. The transition from one stage to the next can be very evident, hardly noticeable, or not evident at all.

Heat stress (body temperature, 99.5 to 100 F) reduces:

- Performance, dexterity, and coordination
- Ability to make quick decisions
- Alertness
- Visual capabilities
- Caution and caring

Heat exhaustion (101 to 105 F) symptoms are:

- Fatigue
- Nausea/vomiting
- Giddiness
- Cramps
- Rapid breathing
- Fainting

Heat stroke (>105 F) symptoms are:

- Body's heat control mechanism stops working
- Mental confusion
- Disorientation
- Bizarre behavior
- Coma

Preventing dehydration

You should drink two to four quarts of water every 24 hours. However, as each person is physiologically unique, this should be used only as a guide. You also can apply the eight-cups-a-day rule, with each cup of water being about eight ounces. By drinking eight cups of water a day, you'll consume 64 ounces (two quarts). It also is important to monitor your hydration status. Most people will become thirsty when they have a one-and-a-half-quart deficit (about a loss of about two percent of total body weight), which will trigger the thirst

mechanism. You might believe the thirst mechanism is the proper cue to drink more water; however, the thirst mechanism arrives too late and too easily is turned off. A small amount of fluid in the mouth can turn off the thirst mechanism, which will further delay the replacement of body fluids.

Remember that the environmental temperature and humidity, as well as personal lifestyle and individual physiology, will influence the amount of water you need to prevent dehydration. If you do not maintain good situational awareness (SA) of your water requirements by knowing your flight environment and personal physiological status, you can progress to heat exhaustion.

To help prevent heat exhaustion.

•Drink cool water.

Don't rely on the thirst sensation as an alarm; stay hydrated throughout the day. Limit excessive intake of caffeine and alcohol beverages. Hydrate before, during, and after exercise, as exercise can result in large amounts of body fluid loss. Note that acclimation to a major change in weather takes about one to two weeks.

Monitor personal effects of aging, recent illness, diarrhea, or vomiting. Monitor your work and recreational activity; if you feel lightheaded or dizzy, call it a day. For the average person with a moderate exercise program, the loss of salt and electrolytes in extreme heat and exercise conditions is usually not a factor, as the typical American diet takes care of the loss. Bottom line, remember to hydrate—your body will thank you.

Cdr. Delorey was an aerospace physiologist at the Naval Safety Center.

Even the Simplest Tasks

By ATC(AW/SW) Roscoe Korn

It was another night of cyclic flight operations after an enjoyable, extended in-port period in Hawaii. Things seemed to be going our way. Night check was coming on shift as the sun was disappearing into the big "pond" out west. Our mission was simple: a standard "two-turn-two." How could a flight-deck coordinator (FDC) with 17 years of service and five deployments under his belt mess up such an easy schedule? Here's how.

Our two aircraft recovered and taxied to the fighter line just short of the starboard foul line. I radioed Flight Deck Control and let them know the planes were secure and ready for shutdown. The controller gave us the all clear, and I relayed the information to the PC, who began his shutdown procedures. The pilot climbed out of the cockpit and began debriefing the troubleshooters. I joined the conversation with the pilot to find out if there were any issues before I rolled the aircraft into the next event.

I noticed the canopy was open—a huge no-no when aircraft are recovering nearby. So I did what any seasoned FDC who doesn't want an Air Boss "shout out" would do: I reached up and actuated the switch to close the canopy. Had I simply followed my routine to clear the canopy prior to hitting the switch, I surely would have noticed the PC scrambling up the ladder towards the cockpit.

My eyes and my focus were on the pilot. The canopy meanwhile lowered on the PC's hand. After a few screams of pain, he managed to get my attention. I opened the canopy immediately and helped him down the ladder. His LCPO escorted victim to ship's medical for x-rays.

After the launch I made the gut-wrenching trip down to the line shack to see the outcome of my little "oops." Fortunately, he did not have a broken hand and would be on LIMDU for just three days.

This incident reminded me I'm not immune to the dangers of inattentiveness. Even the simplest tasks offer a chance to injure.

For all who deal with externally-activated canopies, here are two good rules to live by:

1. When aircrew are in the cockpit, never lower the canopy on your own without aircrew consent. That switch is not yours to touch.
2. When you're between events, always inspect the cockpit/canopy area prior to and while actuating the canopy switch.

There are times in this profession when yellow shirts or the Air Boss pressure you to close canopies before you are prepared to do so. Just remember, apply these two rules first, even if it means someone gets waved off or the Boss gets mad.

Chief Korn is an FDC at VFA-146.

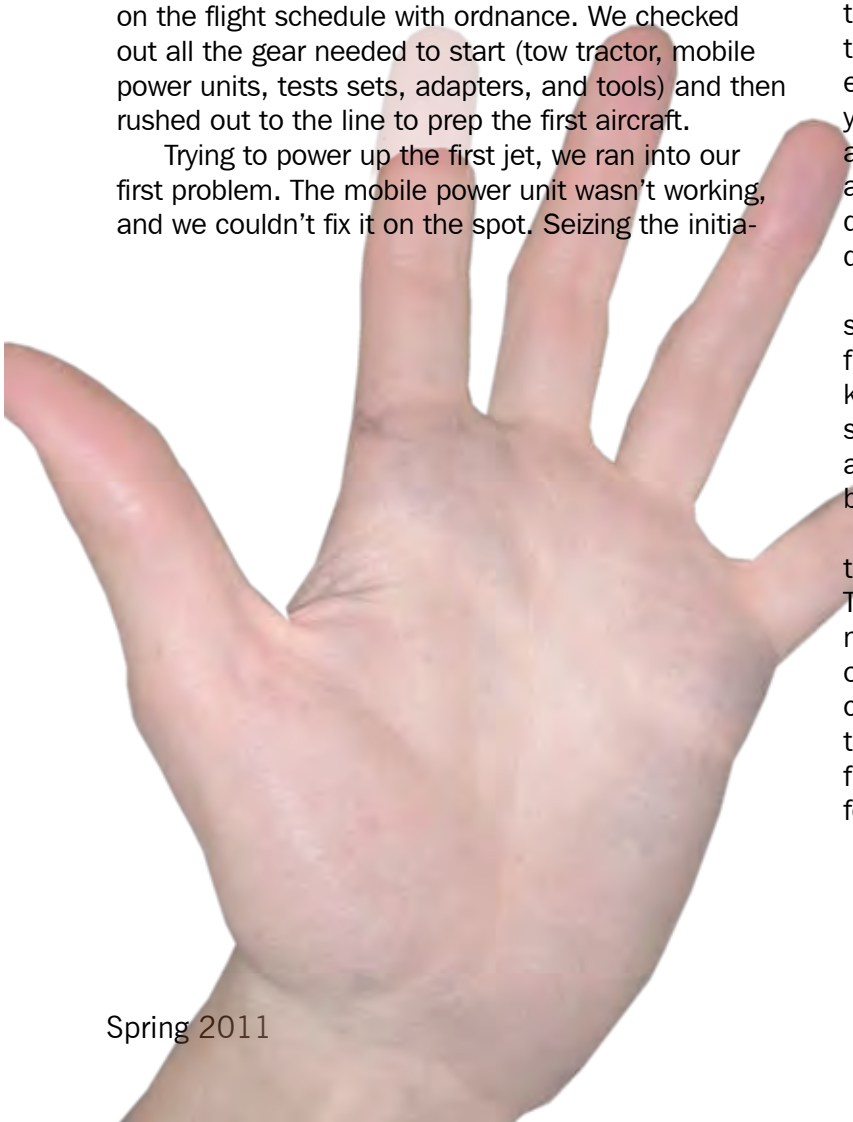
Pulling My Finger

By LCpl Charles Thompson

It seemed like it was going to be just another day of loading bombs in Alpena, Michigan. Although we weren't at our usual place of business, MCAS Cherry Point, we were still loading ordnance—reason enough to remain vigilant and motivated. Night check hadn't done electrical checks on the aircraft bomb-release systems prior to the day crew arriving, so this meant the morning was going to be busy.

After the morning maintenance meeting, the ordnance line chief gave us lance corporals the tasking for the day. First, we had to do the electrical system checks. Then we had to prepare and load all the jets on the flight schedule with ordnance. We checked out all the gear needed to start (tow tractor, mobile power units, tests sets, adapters, and tools) and then rushed out to the line to prep the first aircraft.

Trying to power up the first jet, we ran into our first problem. The mobile power unit wasn't working, and we couldn't fix it on the spot. Seizing the initiative, we disconnected the power unit from the aircraft and hurried to find a replacement.



As one Marine jumped in the tow truck and towed the bad power unit off the flight line, I ran to the SE area on the other side of the line to prepare the other power unit for pick up. When the tow tractor arrived at the SE area, I was responsible for disconnecting the bad unit and connecting the tow truck to the good one.

This was a simple job that we aircraft maintainers do all the time, but as I was trying to disconnect the tow truck hitch from the power unit's tow bar, the tow bar got lodged against the front hook of the tow truck hitch. I needed the tow truck to go forward just enough to pull the tow bar up and out of the hitch. I yelled to the Marine driving, "Go forward a little!" He accelerated much more quickly than I had expected, and it took off with me holding the hitch. I was dragged a couple feet before I was able to yell to the driver to stop.

The driver slammed on the brakes with my hand still on the hitch. Before I could let go, my index finger was caught between hook and the hitch. I knew I had injured my finger, but I couldn't tell how serious because I was wearing gloves. The driver asked if I was alright as I pulled my hand from between the gear.

By this time, my hand was throbbing. I ran down the line and yelled toward my sergeants for help. They pulled off my glove and there it was, one third of my index finger hanging by a nerve. They escorted me off the flight line where I received immediate medical attention. A few minutes later I was transferred to the local emergency room where I was told that my fingertip was too damaged to save. I now have a nub for life.

Lance Corporal Thompson works in the ordie shop at VMA-223.

Navy photo by MC1 Richard Doolin.

A Step Too Far

By AD3 Devon Ritchey

It was a normal day for HS-14 aboard USS *George Washington* (CVN-73); we had just finished work on one of our squadron's helicopters. After the pilots started engines and engaged the rotors, another trainee and I asked for permission to enter the rotor arc. The LSE got the pilot's attention and waved us in toward the helicopter.

While we waited for the hand signal to pull chocks and chains, I noticed someone outside the rotor arc pointing at the tail section of the aircraft. I looked back to see what they were pointing at—the lower footstep had not been stowed in the correct position. I pointed back toward the tail, and the LSE gave me a nod. I carefully walked back along the frame of the helicopter, keeping my body low to the ground, and secured the footstep.

After the helicopter departed, a QAR approached me and told me I had violated a major safety rule. With the rotors engaged, personnel inside the rotor arc are not permitted to go aft of the transition section because of the potential hazards associated with the spinning tail rotor and engine-exhaust fumes.

In retrospect, I should have alerted the FDC and had him relay the concern to the pilots so they could disengage the rotors. This only would have added another five minutes to preflight. Delaying an event by five minutes or being cut in half by the tail rotor, which is worse? After asking the LSE why he gave me permission to stow the step with rotors engaged, we both came to the conclusion that it was a case of miscommunication. Go figure.

Petty Officer Ritchey works in the line shack at HS-14.

Sailors and Marines Preventing Mishaps

BRAVO Zulu

AZ3 Steven Dohrn
HS-14 Det. A

On the morning of 27 September, aboard USS *Cowpens* (CG-63), Det Alpha requested a main-rotor-head damper from ship's supply to replace a bad one on Lightning 612. While inspecting the newly-received component with a fellow maintainer, Petty Officer Dohrn noticed that the damper had been turned into ship's supply during the previous year's cruise. The MAF was still attached to it, and the component itself was scratched and dirty. It didn't appear to have been re-worked. However, the container the damper was in had depot-level repairable stickers and was neatly wrapped, making the part appear as though it had been overhauled at the repair facility.

After reading the assembly-service-record (ASR) card, Dohrn discovered the latest removal date was more recent than the last repair/re-work date annotated on the ASR card. He notified Maintenance Control and returned the damper to supply. Had the component been installed, it could have catastrophically failed.

AM2 Patrick Maw
HS-14 Det. A

Petty Officer Maw was servicing Lightning 612's hydraulic system through the hydraulic service-reservoir (aka "coffee can") when he noticed a petroleum-like smell coming from the hydraulic fluid. He stopped the process immediately and inspected the hydraulic-servicing-unit; it was fitted with a can of hydraulic fluid that is no longer used on aircraft because of its low flash point. Maw notified Maintenance Control and then acted to prevent any further contamination of Lightning 612's hydraulic system.

AD1 Christian Mesina
VFA-137

While doing a recurring 200-hour inspection of the port engine on Falcon 201, Petty Officer Mesina discovered an engine oil-temperature-sensor, which had been installed for operational checks during a recent overhaul, had failed. He promptly notified Maintenance Control and suspended further use of the aircraft.

AWF1 Brian Khaler
VQ-4

While airborne as an E-6B reel operator, Petty Officer Khaler observed “oil hot” and “low pressure” faults on the trailing-wire assembly. Khaler, with limited in-flight resources on hand, lowered the system temperature to within limits. Also, he determined the source of the hydraulic leak; he then removed and replaced a leaking pressure-sensor switch. Khaler’s ingenuity and system’s expertise saved VQ-4 more than $45,000 and 30 maintenance man-hours.

AD1 Joseph Aromin
VAW-117

While doing his daily CDI walk-around in preparation for the launch of Banger 601, Petty Officer Aromin knocked on the oil-cooler access panel on the starboard engine. Much to his surprise, he heard a strange rattle. On a hunch, Aromin had the oil-cooler access panel removed in order to inspect for possible FOD in the nacelle. Once the panel was removed, a thin, two-inch metal pin dropped onto the deck beneath the aircraft. Aromin notified Maintenance Control, which in turn initiated a FOD search. Several additional pieces of FOD were found in the engine nacelle. The investigation revealed the FOD came from a broken QEC upper cowl panel assembly (aka the "butterfly" panel) atop the starboard engine.

PR3 Ciera Blair
VAW-126

Petty Officer Blair and her new airman trainee were walking to the LOX farm to service oxygen bottles when they noticed the deck was wet and smelled like fuel. After confirming that the liquid on deck was in fact fuel, Blair had her trainee move some adjacent LOX bottles away from the fuel spill while she alerted the FDC. Crash-fire-rescue and aircraft handlers arrived on scene and began cleaning up the spilled fuel and moving oxygen storage tanks out of the area.

AM1(AW) Jared White
VP-45

Petty Officer White was doing a QA inspection on a P-3C elevator-boost package when he discovered a loose rudder-actuator end-linkage. Two additional turns of the hardware, he reckoned, would have caused a complete loss of rudder control. A small piece of safety wire was the only thing holding the entire linkage together.

PR1(AW) Marcus Fields
VFA-22

Petty Officer Fields was coordinating line maintenance during TSTA flight operations on the flight deck of the USS *Carl Vinson* (CVN-70). He saw a Sailor from the ship's engineering department walking in the landing area (LA) during the aircraft recovery cycle. Without getting clearance from the arresting gear officer, this Sailor was trying to cross the LA while an FA-18 was on final approach. Fields ran into the LA and pulled the Sailor from the flight path of the oncoming aircraft.

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Battery Safety

When Is a Battery Just a Battery?

By ATCS(AW/SW) Thomas Crook

Problem: Storing lithium batteries alongside other types of batteries is hazardous.

During numerous surveys, I've found lithium batteries stored with standard, alkaline (flashlight) batteries, a clear violation of lithium-battery safety guidelines. Often, when questioned, maintenance personnel weren't even aware that the batteries in question were lithium batteries.

Lithium batteries are popular because of their longer lifespan—one reason which also make the batteries more hazardous to store. Lately, commercial battery manufacturers have marketed lithium versions of their products in various sizes. For example, you can buy AA, C, D, and other sizes in the battery section at most exchanges and supermarkets. The packaging also is very similar to that of the alkaline versions.

Did you know that many of the automatic emergency defibrillators (AEDs) now found in most naval facilities use a rechargeable lithium battery pack?

Solutions: Given the ubiquity of lithium batteries in our line of work, read the packaging and labeling of any batteries brought to you for storage and disposal. Consult NAVSEA S9310-AQ-SAF-010 for official guidance on lithium battery storage and disposal.

Senior Chief Crook is an aviation-maintenance analyst at the Naval Safety Center.

Confined Space

Show Me Your Quals

By ADCS(AW/SW) Charles Clay

Problem: In the squadrons I've surveyed recently, I've noted several instances of incomplete qualifications for confined-space rescue teams.

Solutions: Many commands are unaware of the qualification requirements for rescue-team safety observers. According to COMNAVAIRINST 01-1A-35, WP 0400 (page 6, para. d), each safety observer must be trained in basic first aid and hold a current first-aid qual. The primary source of training is the local naval medical facility. First aid training offered by the American Red Cross is a good substitute.

Best Practices: Contact your local medical center training department and arrange annual training. Also, add the first-aid training requirement to the command's confined-space SOP syllabus and make sure the training is recorded.

Senior Chief Clay is an aviation-maintenance analyst at the Naval Safety Center.

Analyst's Attaboy

By AMCS(AW/SW) Raymond Nichols

It's not often that a model program comes along, but when one does, it bears mention. Bravo Zulu to the men and women of VMFAT-101 QA division. QA is the nerve center of a squadron's maintenance programs. If QA is on track, as was evident at VMAT-101, then all other work centers should be, too. Below are several examples of why VMAT-101 QA is doing so well.

Prior to taking any exams in VMAT-101 QA, maintainer's training jackets are checked on ASM. If personnel are deficient in any periodic training (e.g., NAMP or OSH), they are sent back to the work center and cannot take an exam until all training is completed. As a result of these efforts, VMAT-101 had an extremely high percentage of personnel who've met all required periodic training requirements.

Program binders also are done well at VMAT-101. Ideally, these binders should be one-stop shopping for anyone wanting to know anything about a program. In a program binder, more is better. The key is to keep enough information in the binder so that if anyone from outside your activity had to come in and run the program, they would be able to do so from that binder. VMFAT-101's binders are outstanding and maintain enough information without having too much. Anyone could walk into their QA and take over a program.

Audits are clearly taken seriously at VMAT-101. As an analyst, I've surveyed more than a few units where QA appears to be on track while the work centers are not. Where that's the case, I've gone back to QA and dug a bit deeper into QA audits. Lo and behold, the audits don't show what was really going on in the unit.

That was not the case at VMFAT-101, where many "adverse" audits and plenty of follow-on audits documented. In one case, a work center was re-audited every month for 4 months until the program was back on track. As was pointed out to me, there should never be a "perfect" audit—you can always find something.

So what makes a model program? Basically, it's ownership of your program and doing more than just the minimums, such as using the CSEC to evaluate yourself periodically. To learn more about VMFAT-101's programs, contact:

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Gunnery Sergeant David Aldrich (QAC), david.aldrich@usmc.mil
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"Wire" We Still Having These Problems?

By ATCS(AW/SW) Thomas Crook

Problem: Wiring gripes are common in naval aircraft.

Solutions: The "Installation Practices, Aircraft Electric and Electronic Wiring" (NAVAIR 01-1A-505) pub from 1988 has recently been updated. Commonly referred to as the "wire-repair manual," it is organized into four volumes: 505-1 covers wiring; 505-2 deals with circular connectors and accessories; 505-3 concerns rectangular connectors and accessories; and 505-4, which covers fiber-optic cabling and was completed this year. Maintenance personnel who repair of electrical and avionics systems should review all four volumes thoroughly.

Best Practices: The volumes are a result of the collaborative efforts of Navy, Marine, Air Force, Army, Coast Guard, and other agencies comprising the Joint Services Wiring Action Group (JSWAG). If you haven't familiarized yourself with JSWAG and what it does, I suggest you do. Their website (www.navair.navy.mil/jswag/) contains a wealth of information about wire safety, including links to training, online newsletters, wire-awareness posters, and fiber optics information.

Senior Chief Crook is an aviation-maintenance analyst at the Naval Safety Center.

Helping Sailors and Marines Help Themselves

Sierra Hotel

Commander, Naval Safety Center would like to recognize the following aviation commands for their recent participation in safety surveys, culture workshops, and maintenance-malpractice resource-management (MRM) presentations for the months of September-March.

MRM

VR-54	AMO/ASO SCHOOL	HSC-9	VRC-30
MAG-49	VAQ-209	VAW-121	

Safety Surveys

HSC-28	HSC-2	HMLA-773	HSC-8	FRCSE Key West
VFA-106	VFA-11	VMFA-115	VMM-166	VFC-111
VFA-211	HSC-26	VMFA-312	HS-10	NAS Key West SAR
VAQ-209	HM-14	MALS-31	NAS North Island	HSL-48
VR-48	VMU-3	H&HS MCAS Beaufort	HMLAT-303	VP-26
VX-20	VMU-1	HS-6	HMM-268	HSM-40
HX-21	HMM-764	HMLA-267	VAW-126	VP-16
VFA-136	HS-5	VMFAT-101	VFA-37	VRC-40

Culture Workshops

NASA Langley Research	HS-7	VAW-126	ETD Pacific	NBC Coronado	HSC-85
HMLA-773 Det. A	HSC-2	VFA-103	HS-6	VAW-115	VFC-13
H&HS MCAS New River	HSC-26	VFA-106	HSC-25	VAW-117	VP-69
HMH-363	HSL-46	VFA-136	HSC-3	VFA-115	VR-53
HMH-465	HSM-40	VFA-143	HSL-37	VFA-147	HT-8
HMM-364	VAQ-133	VFA-32	HSM-41	VFA-97	VT-9
VMFAT-101	VAW-120	VP-10	HSM-71	VP-1	USNTPS
	VAW-121	VP-45	NAS Whidbey Island SAR	VRC-30 Det. 5	VXS-1

Flight, Flight-Related, and Ground Class A and B Mishaps

09/07/2010 to 03/06/2011

Class A Mishaps

Date	Type Aircraft	Command	
12/02/2010	FA-18C	VFA-106	Aircrew ejected on landing rollout at NAF El Centro.
12/05/2010	FA-18C	VFA-34	Fratricide during a day air-to-ground strafe delivery in Afghanistan.
12/29/2010	T-45C	VT-86	Aircraft crashed in isolated swamp area. Two crew members ejected safely.

Class B Mishaps

Date	Type Aircraft	Command	
09/10/2010	FA-18C	VFA-15	Bird strike on takeoff with suspected damage to starboard engine.
09/13/2010	MH-60R	HSM-41	Aircraft impacted water in lake inadvertently. Aircraft recovered and subsequently landed at nearby airport.
09/15/2010	FA-18F	VFA-122	Engine FOD'd during in-flight refueling. No injuries.

Class B Mishaps (cont'd)

Date	Type Aircraft	Command	
10/06/2010	E-2C	VAW-125	Aircraft flew through non-forecasted hailstorm and sustained severe hail damage.
12/13/2010	AV-8B	VMA-211	Aircraft experienced a hard landing during FCF hover checks.
01/12/2011	FA-18A	VFA-204	Left main-landing-gear collapsed on brake check while taxiing out of parking spot (see photo).
01/28/2011	FA-18C	VFA-25	Aircraft under tow ran over Sailor's feet.
01/29/2011	FA-18E	VFA-81	Forward section of ATFLIR pod departed while airborne.
02/19/2011			Flight-scrubber impacted UH-1N tail boom.
02/28/2011	FA-18F	VFA-103	Maintainer's cranial ingested into starboard engine.
02/28/2011	FA-18C	VFA-146	Left wing spread and pushed down past normal position following maintenance action.

Do you know where

your lithium batteries are?

www.public.navy.mil/navsafecen/

Always use a safety observer when operating equipment in the vicinity of aircraft, and make sure the observer is never distracted.

Poster idea by VP-30