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"Demon Bird"

World Famous Fly-Off

One Bad Apple Doesn't Spoil the Whole Bunch— But 99 Might

The Navy & Marine Corps
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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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FEAT

URES

DEPARTMENTS

Front cover: Flight-deck personnel participate in a mass-casualty drill aboard the *Nimitz*-class aircraft carrier USS *Theodore Roosevelt* (CVN-71). Navy photo by MC3 John Hamilton

Navy photo by MC3 Geoffrey Lewis

READER FEEDBACK

We recently received a letter from the commanding officer of VP-8 who wanted to clarify some facts concerning our article *"It's Not Running Right"* in the Fall 2008, Volume 47, Edition No. 4 of *Mech* magazine. In the article, the photo caption and the analyst's comments suggest that VP-8 maintenance personnel conducted an unauthorized modification to the A/M32C-17. The commanding officer points out that, as a patrol squadron deployed to an expeditionary airfield, all support equipment is provided to the squadron. Accordingly, VP-8 maintainers were not aurhorized and had not performed maintenance on the support equipment.

Mech wants to set the record straight regarding any misunderstandings conveyed from this article. We greatly appreciate and applaud VP-8's willingness to share stories to improve aviation-maintenance safety.—Ed.

ETU-110 Hydraulic Failure Takes the "Routine" Out of the Night

By AD2(AW) Jose Martinez

Just when you think everything is routine, something happens to remind you that nothing is routine about this business. It happened to me when our squadron was five months into a seven-month combat deployment onboard USS *Abraham Lincoln* (CVN-72).

Our task for the night was to remove the starboard engine on aircraft 301. "No big deal," I thought. "After all, we've done this job no less than a hundred times."

At the beginning of the shift, I went to AIMD to check out the engine stand and guiderails. Everything was textbook throughout the pre-operational inspection. A supervisor from AIMD witnessed and signed for the pre-op on the ETU-110, then I took the equipment to the aircraft.

Once we were ready to drop the engine, we called a QAR to supervise our work. We aligned the stand, raised it to meet the engine, connected it to the engine, and disconnected the engine from the aircraft. While lowering it, we kept checking all sides for clearance. I noticed a problem spot on the main-fuel manifold for the after burner and quickly stopped the process.

We pumped the aft section back up, simultaneously lowering the front enough to clear the manifold. Suddenly, one of the hydraulic lines on the stand ruptured.

Engine stuck after failure.

Aft hydraulic line on ETU-110 failure (above).

Engine shift inboard area between tailhook and engine is where the author had been standing (below).

All the pressure in the aft section of the stand immediately was released, causing the stand and the 3,000-pound engine to free-fall to the deck. I had been holding a flashlight between the engine and the wall of the engine cavity in order to have a clear view of the fuel manifold. The engine hit my shoulder on its way down.

Everything happened so quickly, I didn't even realize I had been injured. All I could think about was the rest of my crew. I was terrified that someone may have had their arm or leg under the stand when it fell. We immediately started calling out to one another to make sure everyone was OK. Everyone still had all their limbs, and there didn't seem to be any serious injuries.

The gravity of the incident hit me while I was at medical having my shoulder examined. It turned out to be a partial dislocation, which was very minor, considering the circumstances. The thought of what could have happened still scares me.

We train on safety procedures so often that they start seeming like meaningless words. Little did I know that all those procedures being drilled into our heads over the years probably had saved someone's life that day. Too often, we assume that mishaps only happen to people who are complacent—never to us.

We had done everything right that day; we followed all the procedures to the letter. We respect the equipment that we work with and understand that the possibility, no matter how remote, always exists for human or mechanical error. It was that innate tendency toward caution that allowed my crew and me to walk away from this incident with barely a scratch.

The military lifestyle is jam-packed with routines. We get up every day and do the same job many times. Watching a 3,000-pound jet engine fall to the ground, though, opened my eyes to the fact that nothing ever is routine when you're talking about aviation maintenance. I've always been taught that safety procedures are "written in blood," but I don't think I really understood that phrase until now. You can bet I'll never forget this lesson!

Petty Officer Martinez works in the power plants shop at VFA-151.

Between a Rock (45,000-Pound Jet) and a Hard Place (90,000-Ton Carrier)

Navy photo by PH3 Jeremy Starr

By AEAN Thomas Keeney

It was just another day aboard USS *Nimitz* (CVN-68), supporting Operation Iraqi Freedom in the northern Arabian Gulf. The fast-paced flight deck was just what you'd expect during launches and recoveries.

When troops are topside during flight operations, conditions change by the minute. Plans are fluid at best. You have to concentrate on lots of hazards for a long time. Nevertheless, things become routine, and complacency causes problems.

We were servicing the jets and doing pre-flight inspections. The first two flights of the day had been completed, and we had just one more recovery before shift change. Everyone was waiting in the catwalks, ready to get a turn-around inspection done as quickly as possible, so the jet would be ready for the next shift. As soon as our jet came back, we would pounce.

When the Prowler landed, the flight-deck directors taxied it and made final preparations to park it. The director gave the final brake signal as the jet sat at idle alongside another EA-6B on the point, where the crew would shut down the aircraft and let us service it for the next go. When the signal was given to chock and chain the aircraft, it was time for us to act.

I ran in and began chaining the right mainmount, disregarding the fact the chocks hadn't yet been installed. I didn't see the director give the pilot the signal to straighten the nose wheel, which was cocked 90 degrees from center position. To straighten a Prowler's nose, the pilot has to increase power on the engines. This action normally causes the jet to lurch forward, and this time was no exception.

I didn't realize that my left foot was in front of the massive, main landing-gear tire when it inched forward and wedged my boot between the tire and the non-skid. The tire steadily progressed forward across my left foot, trapping it between the jet and the deck.

By the time others around me realized what was happening and had given the flight-deck director the signal to stop the jet, the tire sat squarely on my foot. Fellow maintainers and aircrew futilely tried to push back the jet. They finally decided to taxi the jet forward several more inches to clear my foot.

Once my foot was clear of the tire, shipmates helped me to a safer area. Flight-deck medical personnel arrived and moved me from the flight deck to a medical station inside the island. There, they removed my boot and determined that I needed a stretcher ride down to main medical. Fuel operators carried me below.

The medical staff immediately began taking vitals, prepping IVs, and generally checking me over. X-rays showed I had broken a toe. They stitched me up and surgically removed two toenails.

Since this incident, I've had time to reflect on how lucky I am to still have all my toes—or, for that matter, my foot. I owe everything to those steel-toed boots.

Airman Keeney works in the line division at VAQ-135.

New Aircraft, New Problems

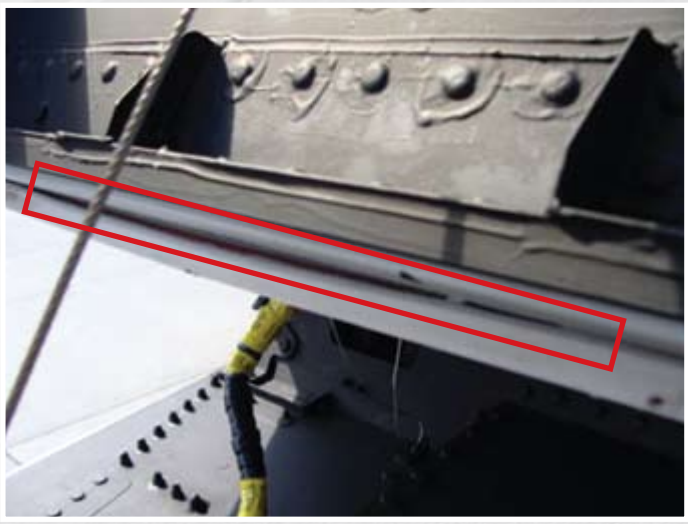
By CWO2 Paul Hofstad

As with any new technology, new aircraft come with new problems. VFA-136 aircrew and maintenance personnel had to deal with numerous such issues during our initial months of operating new Lot 30 Super Hornets.

On five occasions, aircrew heard a high-pitched whistling noise in the cockpit at altitude. Twice, aircrew declared emergencies and flew straight-in approaches. In one event, a loss of cabin pressurization accompanied the noise. In every case, the aircraft had less than 50 hours total flight time, and one had less than 20.

On two aircraft, bungee cords that secured the CPAL netting for the upper equipment bay, aft of the seat, were sitting on the canopy rail. When the canopy was closed, the pressure seal closed on top of the bungee cords, allowing a large gap to form at altitude and causing a loud whistle in the cockpit. The CPAL bungee cords are long enough that the AMEs easily could shorten them.

In three other incidents, a weather seal on the aft portion of the canopy became worn and eventually tore, exposing an orange inner seal that laid over the canopy rail. This failure was unsettling because the weather seals showed wear at less than 20 hours of flight time. Once these seals split, the AMEs had to replace them.



The seals were tearing along the very aft portion of the canopy. Unless aircrew or maintenance personnel knew to check this location during preflight, they easily could overlook a torn seal.

Another concern was the braking system. Four aircraft, with eight to 40 hours, experienced a similar brake problem. When the pilot first applies the brakes, it seemed like nothing happened until the pedals were pushed in several inches—then the braking action was sudden enough to jolt the aircraft. This condition was more pronounced when the fuel state was low, particularly after completing a flight.

Maintenance personnel properly used IETMs to troubleshoot this discrepancy. It led down several paths, all of which included bleeding the brakes in both normal and emergency modes. However, each time a component was changed (including brake assemblies, anti-skid valves, and bleeding), aircrew had to ground-test the aircraft to ensure the problem was resolved. Despite using all the IETMs recommended troubleshooting, the brake problem persisted.

Boeing tech reps led us in a promising direction. They recommended that we check the tension on the brake cables. Once we verified that the tension was within parameters, we isolated the brake-control valves as the culprits. We replaced these valves and immediately saw results. Aircrew verified the aircraft were free of brake problems.

When a pilot comes into maintenance and describes problems with an aircraft, both the pilot and senior enlisted maintenance personnel depend on a workcenter to understand the gripe and be able to act on it. A subject-matter expert is an invaluable asset, but lack of one certainly doesn't stop the maintenance effort.

Learning the FA-18E through continued use of IETMs, pubs, and tech reps will develop the SMEs who enable the squadron to rapidly diagnose and resolve any discrepancy. Following the pubs on new aircraft can lead you down unfamiliar roads, but perseverance and patience pay off.

CWO2 Paul Hofstad is an MMCO at VFA-136.

Background Navy photo by MCSN Dennis Irwin

"Demon Bird"

By AD3 Ryan Yamada

In four years of active service and duty in two Hornet commands, I've seen Hornets hit deer on a runway and pressurized drop tanks spinning out of control on a flight line. The following story tops all my other experiences. Here's how a simple engine drop became an epic battle.

"How did we end up with so many gripes on one jet in less than a month?" I asked myself, looking at a long list that included multiple main fuel-control (MFC) changes, variable exhaust gripes, fuel-inlet tubes (FITs) rubbing on bell cranks, and an engine that shifted in flight.

It all started during night check when we had to drop the port-side engine on Dragon 304—a simple TFOM job. The night crew easily had dropped the engine and inspected the engine cavity. Having the engine out also gave us a chance to replace the FITs. One of the mechs found a FIT rubbing against a bell crank, which eventually could have made a hole in the FIT and started a horrendous fuel spill.

After a couple days and a move to the flight deck, it was time to return the engine, do the leak checks, and return 304 to flight status. While turning 304, I saw the nozzle-position indication on the starboard engine had a reading of 67 percent, which was below limitations for the ground-idle throttle position. Meanwhile, our CDI noticed the MFC on the port engine was leaking. We decided to shut down the aircraft so we could remove the fuel control and change the packings.

We replaced them, reinstalled the MFC, and I did another leak-check turn, only to find the MFC still was leaking. To make matters worse, the starboard engine now had a nozzle reading of 57 percent (16 percent under the ground-idle limit). Our next step was to remove and replace the MFC and redo the throttle rigging for the starboard engine.

Then the day got even worse. After replacing the MFC, we opened the starboard engine bay to check the throttle rigging and saw an unusual amount of residual fuel coming out the door. My LPO traced the leak to an after-burner (AB) fuel control. We installed a new one and did the op-leak check.

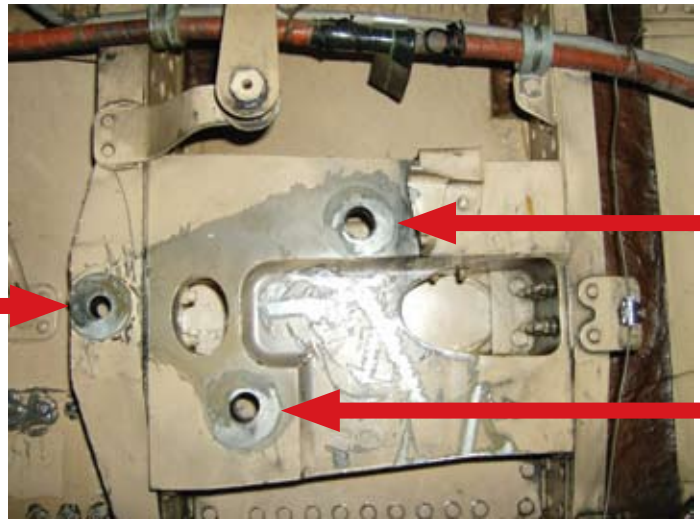
The night crew started dealing with the nozzle-position issue on the starboard engine. First, they removed and replaced the variable-exhaust-nozzle (VEN) power transmitter and rigging for the throttles. During the next op-leak-check turn, the position of the VEN matched with the port engine, but the nozzle position read 86 percent, with the throttle at the AB position.

The night crew then decided to jump the ECA, which again resulted in the nozzle position reading 67 percent at the ground-idle position. We then tried a variety of troubleshooting steps. We rigged the VPT, swapped one of the engine ECA cables, changed the signal-data computer (SDC), swapped the port VPT to starboard, and even removed and replaced the VEN power unit. All these efforts failed to give us the desired results. In fact, Dragon 304 ended up spitting the new VPU in our faces when it failed the op-leak check.

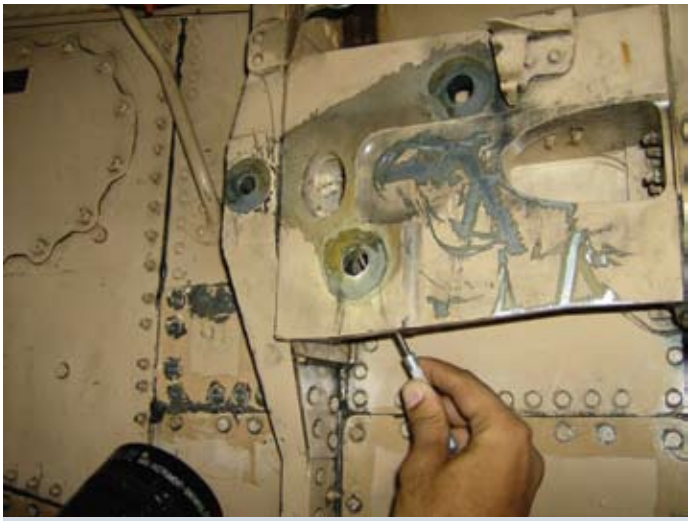
With frustrations mounting, we removed and replaced the VPU. It passed the op-leak check, but the nozzle still was reading below limitations. Thanks to the excellent troubleshooting abilities of my shop, we then decided to rob the VEN manifold line and another MFC from Dragon 307 and install them on 304. When we did a low-power turn, both checked good, and we thought it was time to place 304 on a pro turn.

When the aircraft returned from its flight, the plane captain (PC) found the port engine wasn't sitting right in the weather seal. We ended up removing the engine again and reseating it inside the seal. We also noticed that the FIT we had replaced a week ago once again was

Background Navy photo by PH3 Bo Flannigan



The scribe points out how worn the lower bolt hole was, as opposed to the upper hole.



Another close-up of these bolt holes. Those worn bolt holes are the reason that the engine was shifting mid-flight.

rubbing the bell crank that sits on the inboard side of the FIT. We ended up removing and replacing the FIT and the bell crank to see if that fixed the problem.

With all that work done, we thought we finally could concentrate on other aircraft and programs. Five days after we had fixed the weather seal, though, Dragon 304 returned from a sortie, at which time the PC noticed that the port engine had shifted during flight.

Once again, we had to drop the port engine. We also had to get another FIT because of the same problem we'd had the last two times. We originally had suspected that the engine's shifting was a result of worn bushings from the outboard engine mount, but further examination by the CDI revealed that the engine was creating a groove on the inboard engine mount.

All of our attention now turned to the inboard mount. More examination by the CDI showed that one of the nuts connecting the mount to the airframe didn't have a torque seal and was sitting loosely on the bolt. When we had removed the mount, we found that two of the three mount bolts were warped and cracked. This discovery explained the shifting of the engine, as well as the issue we had been having with the FIT rubbing on the bell crank.

Finding the warped bolt holes turned the heads of our Maintenance Master Chief, MMCO, QA, and even depot-level civilians because the mounts are in solid steel.

The problems with 304 taught me how valuable thorough troubleshooting, attention to detail, and patience are to getting jets into the air and back on deck safely. Thanks to these habits, we eventually found the "demon" that was manifesting itself within Dragon 304.

Petty Officer Yamada works in the power plants shop at VFA-192.

How Poor Tool Control *Launched* the Ready

By AT2 Michael Koval

Our squadron was in the fifth month of deployment, flying combat operations in support of Operation Iraqi Freedom. Maintenance was running smoothly, and the jets were holding up well under the increased operational tempo.

One jet, though, had a MIDS discrepancy that was about a week old. We had replaced the control panel, but that action hadn't solved the problem. An AT3 was convinced that a wire running to the control panel was broken; however, we didn't have the extraction tool we needed to repair the wire.

We borrowed the tool from the AT shop of another squadron in the air wing. Instead of requiring us to provide a tool bag *[per SOP]*, that shop simply signed out the extraction tool to our AT3. Before the AT3 returned to the flight deck, I examined the tool—it seemed intact. When the AT3 finished his repairs, I completed the CDI maintenance inspection.

Before leaving the aircraft, I again checked all the tools to ensure they were accounted for. The borrowed tool was returned promptly, and the original squadron accepted it without any issues.

About four hours later, while our aircrew were manning up the jet, the AT shop that had loaned us the tool called our Maintenance Control, claiming the tool was broken. Unfortunately, we couldn't locate the missing part in time to make the scheduled launch, so the jet had to be downed for possible FOD, and the flight was cancelled.

That jet had been scheduled for an important combat mission in Iraq. Our spare aircraft was ready to go and completed the mission.

I went to our Maintenance Control, and the MMCPO asked me how closely I had inspected the tool before it went to the aircraft. I told him I hadn't looked at it closely but felt sure my technician would have told me if it were broken. I looked at the tool a second time and saw the tip was broken off.

While QA was investigating, they found several failures in tool-control procedures that could have prevented this problem. First, the tool should have been inspected more closely when we initially borrowed it. Second, we should have used a tool tag to check out the tool. Also, QA discovered that we had removed a box we weren't qualified to remove and reinstall.

This story dramatized why a CDI must account for all tools, including the small pieces, before and after maintenance, and why everyone must carefully follow tool-control procedures. Worst case, if that broken piece of tool had been left in the aircraft and gone flying, it could have cost the lives of our aircrew, as well as the lives of troops on the ground depending on our protection.

Petty Officer Koval works in the AT shop at VAQ-137.

Navy photo by PH3 Lance Mayhew Jr.

A Timely "Hands Off!"

By AD1(AW) Theresa Bouchard, AD3(AW) Michele Jones and AD3(AW) Karol Polido

It was a normal day in VFA-37 Power Plants until aircraft 304 returned early from its flight. After debriefing with the pilot on the flight line about his oil-pressure-low caution, I walked to the back of the jet and found oil sprayed everywhere from door 64 left, all the way to the left variable-exhaust nozzle.

We dropped doors 64 and 68 left to inspect the engine for any loose or cracked oil lines, but with the excessive amount of oil on everything, we couldn't tell where the leak was. We wiped down the engine and kept searching for the leak.

After checking the jet's servicing, we realized the port engine had no oil at all. We serviced the jet, then checked all the oil lines, variable-exhaust power-unit lines, and anything else we could see. We inspected the lines for 10 to 15 minutes and found only a loose C-sump scavenge line. We tightened it and reinstalled doors 64 and 68 left. We followed with a low-power ground turn to make sure we had fixed the oil leak and low-oil-caution discrepancy.

The stabilizer was damaged when it caught on the 166 panel. It was delaminated halfway up and had to be replaced.

The qualified turn person read the aircraft discrepancy book, began her walk-around inspection, climbed in, and started the jet. After getting both engines on line, we asked for "hands off," while we dropped doors 64 and 68 left to inspect the engine while it was turning.

With all safeties in place, we asked for 80-percent engine power. We kept looking for leaks but found none; everything was operating as advertised. The jet was throttled back to idle power, and we awaited shutdown, so we could put up the doors and sign off the discrepancy.

Another mechanic and I had started installing doors 64 and 68 left. While I was installing the variable-exhaust-nozzle strap through panel 166, my fellow mechanic, who had been holding up the horizontal stabilizer for about five minutes, began yelling frantically for me to move my hands. I didn't understand why she was yelling at me, but I quickly moved my hands out of the way.

The horizontal stabilizer still had hydraulic pressure in the system. It had jumped and rapidly was coming down on top of my hands. Thanks to the careful eye of my fellow mechanic, I was able to move my hands before losing a finger, but the stabilizer was damaged when it caught on the 166 panel. It was delaminated halfway up and had to be replaced.

Our haste to finish the job ended up damaging a jet for no reason. It also created extra work for the airframes workcenter. We should have taken our time and let the hydraulic pressure bleed down in the system before reinstalling the engine doors.

The authors are assigned to the power plants shop in VFA-37.

World Famous Fly-Off

By AE1 Dowdy

Troubleshooters work in a fast-paced, highly demanding, and unforgiving environment. They have to ensure every aircraft on the flightdeck is ready to launch at a moment's notice. Even the final fly-off at the end of a deployment is stressful. No one wants a jet to break, forcing personnel to stay on board.

Anything that goes wrong usually does so in the short period of time you have to get all the aircraft safely off the ship and headed home. Preparation is the key to ensuring fly-off goes as safely and efficiently as possible.

Our air wing fly-off was moved up four hours because a typhoon was closing in our ship, USS *Kitty Hawk* (CV-63). The pilots of our 10 FA-18C aircraft would be manning their jets at approximately 0600. The planned flight schedule called for a staggered launch of three waves of aircraft, taking off 15 minutes apart. This timing meant it was going to be one big wave, and every jet had to head to the catapults at the same time.

I was scheduled to come to work an hour and a half before the pilots were supposed to man up, which didn't leave me much time to check the jets before the pilots arrived. As the troubleshooter LPO, I rely on my night shift to do a good job preparing the jets for early morning launches.

Once in the shop, I checked out my tools and did a pre-op on my float coat. I headed to the flight-deck when it was time to double-check the aircraft and greet all the pilots. I made my rounds of our aircraft until I arrived at one jet and found the plane captain (PC) leaning against a ladder, talking to one of the PC trainees.

I started looking over the jet before the pilot arrived. As part of my normal routine, I check the emergency

Navy photo by MC3 Jared Benner

brake's accumulator pressure in the nose-landing-gear wheelwell. When I poked my head in, I noticed the accumulator was reading 800 psi low. I asked the PC if he had pumped up the APU since he had been there, but he replied he, too, just had arrived. He added, however, that the night-shift PC had told him everything was ready to go.

I told the PC to go pump up the APU right away, so we could determine if everything was ready for the launch. As he pumped, I watched the pressure on the accumulator climb to 2,400 psi and stop. He called out from the starboard main-landing-gear wheelwell that he had 3,000 psi on the APU gage. I now knew the nitrogen pre-charge for the emergency brake's accumulator was low and needed servicing before launch.

As I started to look around for a NAN-4B nitrogen-servicing cart, I saw five pilots climbing up the stairs from the catwalk. I was running out of time to get the aircraft ready for launch, so I hustled toward flight-deck control, where the NAN-4B was usually kept. It wasn't there. I looked around but didn't see it, so I assumed the Prowler squadron had turned it into AIMD for the in-port period. I had only one option left: Our 3,000-psi, portable nitrogen bottle was in our line shack on the bow. I changed course and headed there.

The portable bottle was empty. I had to take the time to charge the bottle and get back to the jet as soon as possible. Normally, all of our tools and IMRL are packed away in tri-walls the night before to be offloaded later in the day after the fly-off, leaving few tools with which to deal with the unexpected. Fortunately, we

Our air wing fly-off was moved up four hours because a typhoon was closing in our ship, USS* Kitty Hawk *(CV-63).

only were going back to Atsugi for a week, so we had packed up only enough tools for a small detachment. I was happy to see that we still had a servicing hose and adapter to charge the portable nitrogen bottle. I called the nitrogen plant and had them transfer 3,000 psi to the flight deck. Then I gathered everything I needed and headed toward the island, where the servicing port was located.

After servicing the portable bottle, I went back to the aircraft. I could see the other jets were up and ready, and the jet needing maintenance definitely was running behind. After 20 minutes of scrambling, we finally had the accumulator serviced to the appropriate pre-charge, and got the jet started and headed to the catapults in time to launch.

Even though I was able to fix this problem and make the launch on time, I learned some valuable lessons. More proactive supervision, planning, preparation, and clear communication of expectations between day and night shifts could have prevented this painful evolution. I should have come in earlier to verify the jets indeed were ready to go flying. I should have verified the night before that my night shift thoroughly understood what I expected from them. That way, they would have done a better job and screened them more closely for readiness. Finally, as a troubleshooter, you always need to have a charged and ready nitrogen-servicing bottle ready on the flight deck.

Petty Officer Dowdy is a troubleshooter at VFA-192.

"Probably"
Isn't Good Enough for Float-Coats

By PR2 Dalton Brown

It's a normal day on the flight deck. You're standing on the LSO platform when a blast of jet exhaust hits you. As you're tumbling over the side toward the water, the last thing you want to worry about is whether you did a good job on your float-coat pre-op.

I had been doing a 28-day inspection on all the float coats in my shop. While removing the coats' bladders, I had noticed several were twisted at the shoulder—a serious problem. This condition will prevent a float coat from inflating and can cause the bladder to burst.

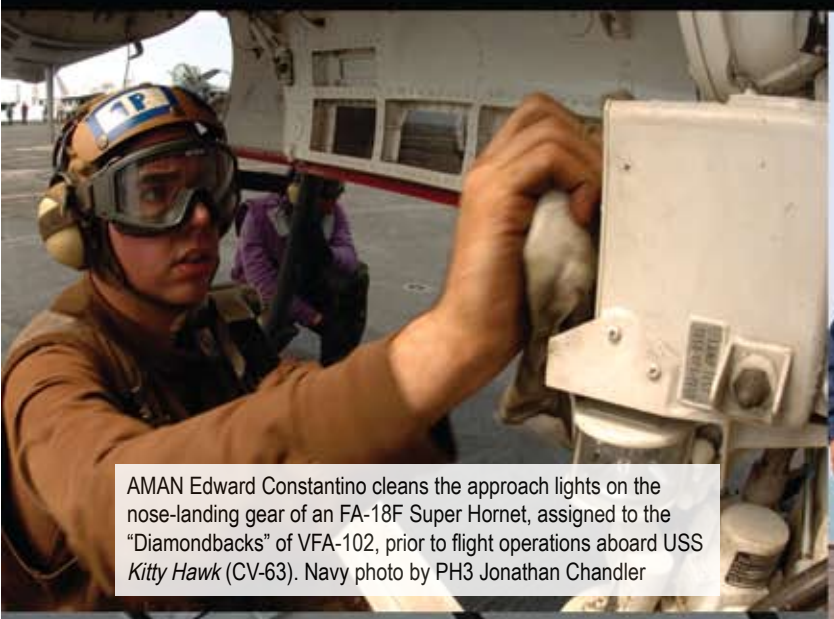
Float coat pre-ops are the first line of defense in saving your life if you go overboard. If the bladder is twisted and can't inflate, your head likely will be forced below the waves. In the worst-case scenario—a burst bladder—you'll find yourself with no flotation. That's not an ideal situation, especially on a dark night, in heavy seas.

When you pre-op your float coat, make sure you follow the procedures: Inspect all survival items, perform a leak test, and inspect the Mk-1 life preserver. Inspect it correctly every time, because you never know when something will happen topside, sending you into the deep blue sea.

Petty Officer Brown works in the paraloft shop at VFA-192.

Maintainers *in the* Trenches

Aviation ordnancemen stand by to de-arm weapons systems during air-wing recovery operations aboard the *Nimitz*-class aircraft carrier USS *Abraham Lincoln* (CVN-72). Navy photo by MC2 James Evans



AMAN Edward Constantino cleans the approach lights on the nose-landing gear of an FA-18F Super Hornet, assigned to the "Diamondbacks" of VFA-102, prior to flight operations aboard USS *Kitty Hawk* (CV-63). Navy photo by PH3 Jonathan Chandler

AE3 Corinna Benz of HS-3 installs a blade-fold harness on a blade of an SH-60F aboard USS *Theodore Roosevelt* (CVN-71). Navy photo by MC3 John Suits

Sailors stow a fuel hose after fueling an aircraft aboard the amphibious dock landing ship USS *Carter Hall* (LSD-50). Navy photo by MC2 Flordeliz Valerio

The Finish Line

By AMAN(AW) Bilal Awad

"Plane captain to 211 for the alert turn... on the run!" blared the shop radio.

"Where's the PC we already sent over?" I asked a fellow PC.

"Must not be up there," he replied.

I grabbed my float coat and tools and raced up to the roof. I was thinking about how my chief and LPO probably were going to grill me for someone else's mistake. While running through the six pack, I saw 211 parked in the double heat. I was mad at the other PC for not being where he should have been.

I decided to run to the jet since I had only moments before my pilot walked. Just before I took my first step, I felt my shoulders fly back, as my float coat suddenly pulled me backward. I angrily swung around and realized someone had pulled me.

"What are you doing?" I screamed.

By then, he had released me, and I looked around to see everyone on the flight deck staring at me. I had crossed the foul line. When? How? Weren't we at starts? I had no idea how far I had gone into the landing area or how long I had been there. Then came the dreaded call I never thought would be directed toward me. "Bring him to flight-deck control," bellowed the handler in an angry voice over the 5MC.

I made the long, shameful walk to flight-deck control to have my talk with the handler and the air boss. It turned out I had run into the center of the landing area, 20 feet from the angle. I had failed to realize an E-2C Hawkeye was on final approach, and the pilot had to wave off at the last second.

The consequences for my actions were seven days' restriction from the flight deck, and I had to requalify to go back to work up there. I felt my punishment was fair, given the severity of my mistake. When the E-2C caught the arresting wire, both the Sailor who saved me and I could have been killed or seriously injured by the aircraft or the arresting-gear cable. The ABE standing by the foul line that day went above and beyond the call of duty to save my life.

I made many mistakes. First, when I left my shop and hurried to the flight deck, I wasn't prepared mentally and wasn't aware of my surroundings. Second, I was in a rush to get the job done and was focused more on staying out of trouble than staying safe. Third, I hadn't been on the flight deck for about six hours and had no idea what was happening up there. I didn't ask anyone or look at the plat screen to find out. I had no idea if we were at starts or if we were recovering aircraft. I didn't take a minute as I was rushing to my aircraft to see what was going on around me. I could have been hurt before I even got to the landing area.

Airman Awad is a plane captain at VFA-27.

Communication Not Only Is Vital, It Saves Lives

By AM1(AW) Michael Tucker

It was another near 100-degree summer day in the Persian Gulf onboard USS *Enterprise* (CVN-65). Everything seemed to be going smoothly. The aircrew had completed their walk around and were in the cockpit ready to start ahead of schedule when the air boss called away starts for the first event. Both engines came on line with no problems, and the troubleshooters started doing their final checking. As the checks were completed, the QAR checked all tools and gave the plane captain the "thumbs-up." The only remaining task was to op-check the tail hook as the tail was over the side of the carrier.

Before handing the aircraft over to the taxi director to remove chocks and chains, the flight deck coordinator (FDC) spoke with the director, and briefed him on op-checking the tail hook. The yellowshirt gave the FDC a "thumbs-up," signaling no problem. After the plane captain handed the aircraft over to the yellowshirt, the latter signaled to remove chocks and chains. Once tie-down chains were removed and chocks were out, the yellowshirt proceeded to taxi the aircraft from the "point" to catapult 2. With the tail no longer over water, the troubleshooter gave the signal to the yellowshirt to lower the tail hook, so he could check the tail hook and the hydraulic equipment in the "hell" hole. To enter the "hell" hole, one must duck under the tail hook and stand in between the tail-hook supports.

The yellowshirt gave the signal to the pilot to lower the tail hook, but before the troubleshooter was able to open the "hell" hole hatch to complete his checks, the yellowshirt took it upon himself to raise the tail hook without the troubleshooter's permission. With a mix of surprise and more than mild irritation, the troubleshooter expressed his concern about the inappropriate raising of the tail hook. Had he been inside the "hell" hole or had any part of his body been around the tail hook, he would have been hurt seriously.

Despite the earlier hiccup, the airframe troubleshooter once again signaled to the yellowshirt to lower the tail hook when the aircraft reached Cat 2. The yellowshirt relayed the signal to the cockpit. Down came the tail hook. The troubleshooter opened the "hell" hole door and crawled in to op-check the elevator actuator. Being the first event of the day, he wanted to ensure that the elevator actuator got its five required cycles to ensure there were no leaks. Good on him! This time the yellowshirt waited for the signal from the troubleshooter that all was good, and the hook was

raised again. All of this confusion, poor communication, and lack of situational awareness could have been prevented with proper coordination between flight-deck personnel and troubleshooters.

To prevent further dangerous situations such as this, proper communication must be in place. Our squadron now requires the troubleshooters to brief with the yellow-shirts on the exact tail-hook-check procedures prior to engine starts. Since implementing this method, no other incidents have occurred. Although no one was injured in this situation, and the aircraft made the launch on time with no other issues, this event could have been a very bad situation for the troubleshooter. A simple act of communication not only makes sense, it can save lives.

Petty Officer Tucker is a member of the QAR department at VAW-123.

The Difference Between Secure and Soaking Wet

By AVCM Matthew Richards

We were working on a Friday night, and because night check closes shop on Fridays, everyone was moving a little faster than normal.

The taxiway our aircraft normally use when leaving and returning to home base was being repaired, which reduced taxiway width by half. We couldn't launch and recover aircraft from the ramp adjacent (TANGO ramp) to the hangar. Its use was restricted to towing. For the previous six to eight weeks, we had been launching and recovering aircraft about a half-mile away on ROMEO ramp. Repairs nearly were complete, though.

Life seemed good, and we were using ORM to guide our decisions for all tasks. When we got the call from Maintenance Control to verify the ramps and aircraft were secure, we just picked up our pace. We had to do all of the normal end-of-the-day and end-of-the-work-week securing, which meant all the aircraft windows and hatches were closed up, and battery power was secured. It also meant (when the weather was cold enough) all support equipment with freezable liquids had to be brought into the hangar for the weekend. All other support equipment was secured and power cords stowed. We did the in-shop stuff: ATAF, cleanliness, and clear, concise passdowns. Finally, we called and told maintenance, who gave us the nod to beat feet.

Sunday night mid-check opened our maintenance week. We got busy knocking out special inspections, daily and turnaround inspections, and the likes. Day check came Monday morning with mids relief and the MMCPO brief. That brief advised all shops to go through the cockpit of aircraft 408 to dry out and inspect for water damage. Why? Because the aircraft had sat in the hangar over the weekend with a window open and had taken on some water from the 6 to 9

Here are three dedicated Sailors from our awesome line division. From left to right: AM3 Clay Murphy, AM3 Brittney Young, and AME3 Rory May

inches of rain that fell. You can imagine how much the MMCPO enjoyed this news—aircraft 408 was supposed to deploy in four hours.

My community's fish bowl is very small. If a piece of bad news surfaces, you'll probably hear about it before you leave your shop. A short while later, everyone will know about it, and the calls will flood maintenance, asking, "What's going on?"

The MMCPO appeared to be cool about the news, but what no one else knew was that the MMCPO had been into work on Saturday to clean out his in-box. While there, he saw support equipment with freezables in them sitting outside, instead of being in the hangar as they should have been this time of year.

The MMCPO briefed the MMCO, MO and Ops O, and explained straightaway what had happened with aircraft 408. He told them we were drying and inspecting the plane and that it likely would be available in 24 hours to deploy. He said the maintenance department would do whatever it took to get a different aircraft deployed if necessary, but that such action still would take about six to eight hours. The Ops O talked to his fellow ops types and determined that nothing would be lost if the crew and aircraft couldn't deploy till the next day.

At the following morning's maintenance meeting, the MMCPO went through the workload and explained where everything was at and where it was supposed to be going. He also reminded the supervisors about some of the upcoming mandatory requirements, which seem to grow each year. He then discussed how important communication, attention to detail, and the "flawless execution of the basics" is to achieving optimum readiness in a safe manner.

Part of that discussion was how our lack of attention to detail had caused a problem. "Whether it was our failure to take a flashlight in the aircraft when verifying all was secure, whether the junior guy may not have been completely up to speed with our securing routine, or whether we were in too much of a hurry to leave, it doesn't matter," the MMCPO said. "What matters is that we made a mistake, and it's our own fault. To continue our growth as maintenance professionals, we must learn to listen to one another and work to improve processes. Our goal is to be stronger tomorrow than we were today."

AVCM Richards is the MMCPO for VQ-3.

One Bad Apple Doesn't Spoil the Whole Bunch—
But 99 Might

By PRCS(AW/SW/EXW/FPJ) Richard Young

Sometimes when equipment mishaps happen, there is a fine line between human error and poor system design. As you read this article, VAW squadrons are begging for a solution to a recurring, time-consuming, and possibly life-threatening problem. The system design in question is "the green apple!" To be more specific, the parachute-survival ensemble (PSE) used in E-2C aircraft, has an emergency-oxygen system (EOS) that is activated by pulling a manual release ball. This release ball is commonly referred to as "the green apple." So what's the problem?

Imagine you're a pilot and you find yourself in an emergency situation that requires you to bail out. Since you've been cruising at 25,000 feet, you're connected to the emergency-oxygen supply. You hear one long ring on the emergency bell and prepare to exit the aircraft. You pull the green apple and disconnect from the main oxygen supply, but now you have no air. Why is this happening? You did what you were trained to do.

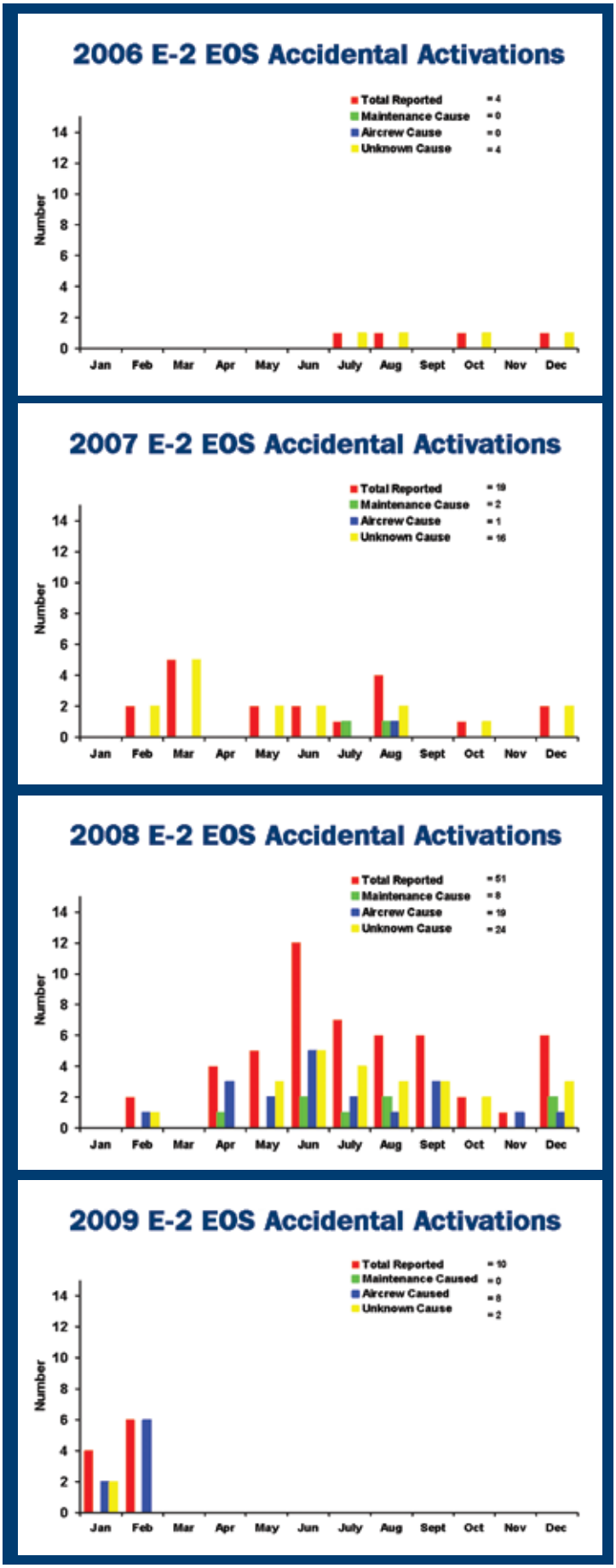
I'll tell you why. That green apple inadvertently was stepped on, bumped into, or pulled earlier in the day, and nobody noticed it.

Sounds like a total freak accident. What are the odds of that happening? Well, pretty good it seems. What if I told you that within the E-2 community there have been almost 100 reported incidents of this little green apple being pulled accidentally in less than three years? You probably would say that this is a big problem, and something must be done immediately to stop this from happening again. What's the solution? If you read most of the closing remarks in the numerous HAZREPs and NAMDRP reports, you would be compelled to think that faulty design, not human error, is the sole source of the problem. But, is this a case of seeking the path of least resistance, or has the fleet really been operating with a faulty piece of survival equipment for more than four years?

Here is one way to look at it: Nobody can deny that this release ball is located in a very vulnerable position, subject to inadvertent activation. It's an accident waiting to happen. That's the only explanation for such frequent occurrences.

Here is another way to view it: Nobody can deny that, with a slight amount of concentration and awareness, a person could easily avoid causing any pulling action on that "green apple." Over 50 percent of the incidents were reported by the same two squadrons, and there were three squadrons with zero reports of inadvertent activation. All it takes is for aircrew and maintainers to exercise caution.

Navywide, the majority of these incidents were caused by aircrew during flights, while conducting crew-position changes. Honorable mention goes to the



one report that stated accidental activation occurred when a co-pilot simply was reaching for his helmet. All of the other incidents reported were caused either by maintenance personnel working in the area or was discovered during pre-flight/post-flight inspections without any visible evidence of the cause. These in-flight incidents and the on-ground incidents that went undiscovered would cause the greatest amount of risk to aircrew. The other incidents simply cause extra maintenance hours. Organizational and intermediate-level maintenance combined; approximately 10 to 14 man-hours are spent per incident.

The Aircrew Oxygen System Fleet Support Team at COMNAVAIRSYSCOM is highly aware of this problem and is working with East West Industries (CAGE 30941) to find a viable solution that won't affect aircrew accessibility. The only acceptable design is one that eliminates the chance of accidental activation without impairing intentional activation. Such a design will take extensive time to develop, approve and integrate with the fleet.

In the meantime, the importance of an effective egress/explosive-system-checkout program cannot be emphasized enough. The human factor is the only thing we can control right now, and controlling human factors is the very thing that a good egress/explosive-system-checkout program can accomplish. If we can successfully train people to work on and operate multi-million dollar aircraft, we certainly can train them to refrain from accidentally pulling "the green apple." A little situational awareness goes a long way.

The E-2C Comprehensive Guide/Check Sheets, currently in use by VAW squadrons, sufficiently address the requirement for personnel to exercise caution around "the green apple" and the inherent danger of inadvertently activating the EOS. But, it's only effective if egress/explosive-system-checkout program instructors and NATOPS instructors provide solid training and practices.

Bravo Zulu to those squadrons who are having success in avoiding this hazard. You set a good example for others to follow. A Bravo Zulu also goes out to those squadrons who have been diligent in reporting this mishap in WESS and NAMDRP. You also set a good example for others to follow by bringing fleet-wide awareness to an unsafe situation. Instead of being written off as isolated cases of human error, this hazard now has extensive attention, and the wheels are turning to find a solution.

Senior Chief Young is a maintenance analyst at the Naval Safety Center.

It's All in the Details

By AM3 Todd Backhaus

One hot, mid-summer morning, I was feeling lucky. The prior shift had finished a plane wash by the time I got to work. Things were going my way.

The morning maintenance meeting covered everything from the plan of the day. Work began without a hiccup. After the shop passdown, I was told to check out tools and report to bay 1, which was buzzing with active Sailors when I arrived. My job was to help the shop tech reps change out an electrical contactor. We went to work around 0730.

Problems arose when I missed a step in procedures. To swap the electrical contactors, power had to be brought up on the aircraft. Should have been a simple task, but it turned into a fiasco.

As an E-6B maintainer and qualified plane captain, I've applied external electrical power thousands of times. I got external power up and running on the aircraft, using our bay power source. I then started helping the tech reps.

Shortly after we began removing the old contactor, a PO2 confronted me in the aft section of the aircraft. He asked if I was going to pull the plugs out of the draw-through cooling fan. I didn't know the plugs still were installed. The fan cools electrical equipment inside the aircraft. It can't move air if the plugs are installed. Equipment will heat up, and components will start to fail.

As I quickly removed the plugs from the aircraft, I felt warm air come out the ducts of the draw-through cooling fan. I didn't think the air was too warm, though.

I thought I had dodged a bullet, but maintenance control later told me my mistake had caused some of the AE's equipment to fail.

Attention to detail is paramount. Procedures exist for a reason. They were put there because some engineer somewhere had figured out how to do it. Then he had written it down, so everyone could do it right every time. So if you think you know how to do it without the procedures staring back at you, think again. I learned the hard way that it is easy to miss something.

Petty Officer Backhaus is a plane captain at VQ-3.

Background photo courtesy of the National War College

Good

MSDS station central location—it's all about simplicity and awareness.

Bad

A/C power cord for FA-18 still in RFI status—shock hazard insulation removed.

Ugly

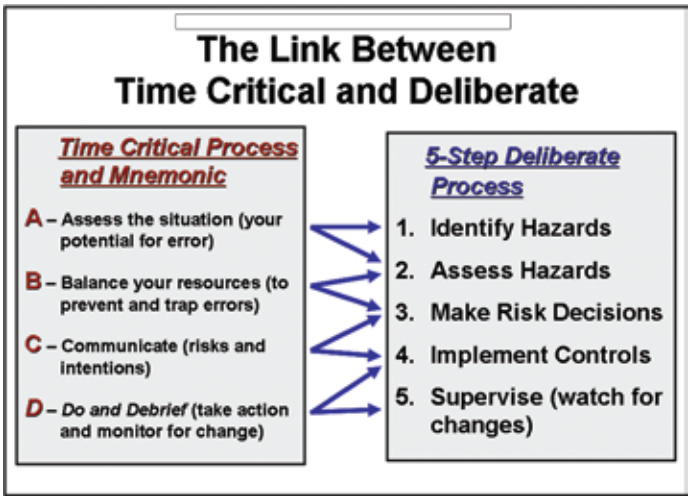
Rag was not accounted for during a fuel-maintenance procedure and ended up clogging up the fuel system—could have caused a mishap.

ORM for the Maintainer

By Denis Komornik

Hello again from the ORM division. Now where did we leave off? Oh yeah, if you recall, we discussed the 5-step process of ORM, and we were going to discuss a new tool for your implementation and use during execution of the mission (maintenance action, off-duty activities). We do a good job with ORM when we have time to plan and search for answers—in other words, at the in-depth and deliberate levels. But new risks arise after we start a job. To help fill this time-critical gap, a new tool was developed—one that is easy to remember and use when we are doing our job—the mnemonic, A B C *D*.

A – Assess the situation
B – Balance your resources
C – Communicate your intentions
D – *Do and Debrief*



This is not a new ORM process but a simple tool to help us manage the resources at our disposal in order to mitigate risks. This figure illustrates the relationship between the 5-step ORM process and ABC*D*.

Time-Critical Risk Management (TCRM)

Let's take a closer look at the ABC*D*s and how they apply to our time in the shop, flight line or hangar deck.

As maintainers, we use risk management but maybe not all the time. Maybe we need to develop our skill-sets to improve how we use risk management. What do we need to do our job better? How can TCRM help us and our team do the job at hand?

You're headed out to perform routine maintenance on your squadron's aircraft or perform maintenance at the FRC.

ASSESS the situation

What's different today?
What is going on?
Where are you?
What will impact your ability to complete the task?
Where on the flight/hangar deck will you come out?
What is going on in the shop? (How many kinds of work are being done in the space?)
Are launch and recovery operations in progress?
What are the current weather conditions (sea state, rain, sun, day, night, fog, ice)? Are you prepared?
Are you fatigued? (If you've been working for 12 hours, how attentive are you? How is your reaction time?)

Background Navy photo by PHAN Ryan O'Connor

BALANCE your resources

What resources do you need to get the job done? What resources do you need to work in today's environment?

What resources are actually available?

What are your options?

How do you use them?

Do you have PPE (cranial, hearing protection, flight-deck boots)?

Do you have the tools required to perform the task at hand?

Do you have the publications and checklists?

Are you following procedures?

Do you have the necessary personnel to perform the task?

COMMUNICATE your intentions and risks

Who needs to know?

Who can help?

Who can provide back-up?

Revise if necessary.

To whom did you communicate your intentions regarding getting the maintenance completed?

Does your supervisor/team know what you are doing?

If the job requires more personnel, do you press on or call for assistance?

Is it a new job? Are experienced personnel back at the workcenter? Do you ask for assistance or simply press on … in a hurry?

Think about the job and your skill-set. If it feels wrong, it is wrong—Stop! Communicate your concerns up the chain. Reassess the situation. Don't take risks for which you're not prepared.

DO and DEBRIEF

Carry out the plan.

Was mission successful?

Did actions produce mission success and reduce the risk?

The maintenance was performed as required, and you met the launch or exrep.

Had you properly assessed the situation?

Why did the job take longer than expected?

Did you balance your resources?

Did you have the required tools and personnel?

Did you communicate what you were planning to do?

What could be done to achieve success in the future with fewer problems?

As a leader, do you foster open communication to identify hazards?

Scenario

Aboard USS *Iwo Jima* (LHD-7), a gunnery sergeant was supervising the ordnance-division pack-up. They were finishing the last work-up prior to a six-month cruise. They would be offloading the gear the following morning and wanted to ensure everything was taken care of. The sergeant had confidence in his Marines, but as the day went on, he became increasingly agitated with the speed at which they were moving. After 16 hours of nonstop flight operations, packing, and a lot of yelling, he was fed up. Coming across two Marines standing around doing nothing, he began to yell at them as they tried to explain why they were waiting for two other people to help them move a large electronic pod into its container. He said some harsh words about them being lazy and weak.

He told them to get on one end of the pod, and he took the other. As they lowered the pod, it shifted, catching the sergeant's left hand between the pod and the container. The sharp edge of the pod sheared off the tip of his finger.

TCRM procedures that could have prevented this mishap.

A – Assess the situation. You are under stress, and your situational awareness is poor.

B – Balance your resources. The two Marines knew the resources required but felt pressured by a senior Marine to complete the job.

C – Communicate risks and intentions. Communication is a two-way street. Senior/junior leadership must understand when and how to communicate (understanding rank structure) to effectively complete the mission.

D – Do and Debrief to improve. Execute mission and document lessons learned. When completing operations, debrief as a team. What needs to change to prevent further occurrences?

Our goal is to give you a better understanding of ORM, its applicability, and use in our daily lives—both on and off duty.

Mr. Komornik is the ORM training and education specialist at the Naval Safety Center.

Ouija Board Bids Farewell

Engineers at Naval Air Engineering Station, Lakehurst, N.J., have designed a new way for carrier Sailors to track aircraft, gather unique data, and put the old "Ouija Board" back on a shelf.

"Ouija Board" is the informal term Sailors have given the tabletop scale model of an aircraft carrier's flight and hangar decks. Launch and recovery officers use this scale model to track and monitor all aircraft on the carrier. Information on deck aircraft, such as the type of weapons loaded and their fuel-tank levels, are documented on deck. The information then is hand-carried to board operators, who write and display it on see-through grease boards.

The aviation data management and control system, or ADMACS, is a tactical, real-time data-management system. It gathers and shares information between the shipboard teams who manage the aircraft-launch-and-recovery operations on all multi-purpose naval carrier

vessels and nuclear carrier vessels.

Although the Ouija Board has served the Navy since World War II, ADMACS will replace this labor-intensive method. Sailors will have time to focus on other duties, while providing a paperless, electronic repository of aircraft data.

"ADMACS delivers cutting-edge technology to today's tech-savvy Sailor," said Capt. Randy Mahr, NAVAIR's aircraft-launch-and-recovery-equipment program manager at NAS Patuxent River. "ADMACS puts the information in the hands of those who have an instant and critical need for it."

The system communicates aviation and command-related data across networks, allowing ADMACS to display an aircraft's position on the flight deck, status, fuel readings, weapon types, and their quantity on the carrier.

Due to the technical complexity of modern air operations onboard aircraft carriers, an information-distribution system must continually provide accurate data to all workcenters. Therefore, it is imperative the system maintains power as long as the carrier is deployed.

"Because ADMACS runs off of uninterruptable power supplies, if the power is lost on a flight-deck-control workcenter, the data will be collected and the system will continue to be fully operational," said Bruce Chiodi, ADMACS program lead.

"When ADMACS went aboard CVN 73 in 1995, air operations kept the grease boards because they felt ADMACS' large-screen displays were going to fail. That never happened," he said. "When we returned for additional integration, the grease boards were taken down."

The next system installation is scheduled for CVN 72 in 2009. By 2012, ADMACS will have replaced the tabletop model on all active carriers.

This article was submitted by the program executive office for tactical aircraft public affairs, Naval Air Systems Command, Patuxent River, Md.

The new version of ADMACS incorporates the electronic "Ouija Board" onto Navy vessels. ADMACs will electronically track all aircraft once they land on a carrier. The upgrade also will enable Sailors to track the location and quantity of the aircraft's weapons on the carrier. The Block 2 upgrade will be released this year.

Flight, Flight-Related, and Ground Class A and B Mishaps 12/9/2008 to 4/08/2009

Class A Mishaps

Date	Type Aircraft	Command
12/29/2008	AV-8B	VMAT-203

Aircraft crashed while executing a par missed approach to base.

Date	Type Aircraft	Command
02/02/2009	FA-18A	VFA-87

Aircraft midair collision during ops. Both aircraft recovered safely aboard ship.

Date	Type Aircraft	Command
02/10/2009	MH-60S	NAVSTKAIRWARCEN

Aircraft had wire strike resulting in loss of tail rotor. Two minor injuries.

Date	Type Aircraft	Command
03/19/2009	E-2C	VAW-120

Aircraft blew tire and departed runway during full-stop landing. No injuries.

Class B Mishaps

Date	Type Aircraft	Command
12/16/2008	F-16A	NAVSTKAIRWARCEN

Bird strike leads to FODed engine. No injuries.

Date	Type Aircraft	Command
01/23/2009	MH-60S	NAS Whidbey Island

Helo transmission over-torqued during simulated single-engine failure.

Date	Type Aircraft	Command
01/23/2009	EA-6B	VAQ-135

Engine damage caused by suspected bird strike during takeoff.

Date	Type Aircraft	Command
01/29/2009	FA-18C	VFA-192

Dual bleed air warning lights in flight. Aircraft landed safely at base.

Date	Type Aircraft	Command
02/12/2009	TAV-8B	VMAT-203

Aircraft had bird strike while in landing pattern. No injuries.

Date	Type Aircraft	Command
03/03/2009	AV-8B	HMM-163

Engine FOD during sortie.

Date	Type Aircraft	Command
03/18/2009	FA-18D	VMFA(AW)-224

Aircraft struck a bird on takeoff. Bird FOD to the left engine. No injuries.

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(757) 444-3520 Ext. 7220 (DSN 564)

BRAVO Zulu

Sailors and Marines Preventing Mishaps

Send BZs to: SAFE-Mech@navy.mil

AM2 Jessica Hayes
VFA-87

During final checks on an FA-18A+ Hornet, Petty Officer Hayes noticed a cracked up-lock bracket on the main landing gear. She immediately downed the aircraft for this discrepancy. Had this aircraft been allowed to launch, there is a significant probability it would have developed further complications airborne. Although the daily and turnaround inspections, and the pilot's preflight found no discrepancies, Petty Officer Hayes found this hazard and prevented a potential mishap.

ADAN Pedro and AD3 Norris
VFA-192

During a preflight walk-around inspection on Dragon 304, onboard USS *George Washington* (CVN-73), ADAN Pedro dove the port intake duct and found the rubber seal on the outboard side of the fan frame was not seated correctly. ADAN Pedro immediately notified a QA representative of the situation, and the aircraft was downed. Upon further inspection, it was determined the port engine needed to be removed and the rubber seal reseated.

After a subsequent flight, Petty Officer Norris dove the port intake duct as part of a turnaround inspection. It again was discovered the rubber seal on the outboard side of the fan frame was not seated correctly. Petty Officer Norris notified the proper QA representative, and a more stringent inspection of the port engine assembly was performed. During that inspection, it was discovered that the port engine-mounting brackets had become misaligned. This misalignment allowed for engine movement during aircraft flight. The aircraft again was placed in a down status until maintenance could be performed to realign the port engine.

ADAN Pedro and Petty Officer Norris' keen eyes and attention to detail helped to ensure that a very serious aircraft malfunction came to light. Their performance kept a dangerous situation from developing and putting the aircraft and pilot in peril. Their commitment to safety inspired all who observed them and contributed significantly to the successful accomplishment of VFA-192's mission.

AM3 Joshua Carter
HSC-25

Petty Officer Carter was the plane captain of Knight Rider 53 during a routine hot pit and crew-swap evolution. After Knight Rider 53 was parked and chocked for the crew-swap, he noticed that the tail wheel of the MH-60S was not aligned with the aircraft. The misaligned tail wheel, weak brake application, and strong winds caused the aircraft to experience an un-commanded weathervane after the starboard-side chocks were removed in preparation for taxi. Petty Officer Carter maintained his position in front of the aircraft to maintain visual communication with the pilots, while simultaneously ensuring the three other ground-crew personnel were clear of the swinging tail. Once the aircraft motion had ceased, he directed the aircrew to apply brakes and insert chocks to secure the aircraft. His quick response interrupted a dangerous chain of events by preventing the collision of Knight Rider 53 with another aircraft and nearby fire bottle.

AT3(AW) Davin Haapapuro
VAW-136

While doing a final-check walk on an FA-18E Super Hornet, Petty Officer Haapapuro noticed that the aircraft main-landing-gear brake-lock-mechanism pin was popped and disengaged. This pin is very difficult to see—especially from a standing position—and was discovered only due to Petty Officer Haapapuro's diligence and attention to detail. Upon finding the discrepancy, he notified the flight-line coordinator. Had the discrepancy not been discovered, the aircraft's braking system could have failed. Petty Officer Haapapuro's attention to detail and actions prevented a probable aircraft mishap.

AME1(AW/NAC) Michah Caston
VP-4

Petty Officer Caston was conducting a preflight on aircraft 163006 for a mission in support of the USS *Ronald Reagan* Strike Group when he discovered a discrepancy in the starboard wheelwell. Specifically, a support bracket that joins the starboard main-mount assembly to the firewall had broken due to fatigue. Recognizing this unsafe condition, he immediately reported it to his instructor and patrol-plane commander. Upon further inspection by maintenance personnel, the assembly needed significant action to return the aircraft to a flying status. After 20 maintenance man-hours, the discrepancy was fixed, and the aircraft returned to service.

Petty Officer Caston's keen attention to material condition during preflight and professional performance of duties ensured action was taken to correct the discrepancy and prevented a possible catastrophic landing-gear failure and injury or death to the aircrew.

AM2 Joseph Wolf
HSL-45

Petty Officer Wolf used his extraordinary maintenance skills to avert catastrophic aircraft damage and a potential life-threatening injury to aircrew personnel. During installation of the stationary forward and aft swash-plate links for a sister squadron's aircraft, he noticed that the cotter pin on the nearby lateral, stationary, swash-plate link was sheared, and the bolt had been installed incorrectly, causing the bolt to chafe against the forward flight-control-bridge port tie-rod assembly. Petty Officer Wolf quickly informed the maintenance-control supervisor, and immediate actions were taken to correct the discrepancy. Through his keen observation, this outstanding HSL-45 airframes CDQAR was able to identify the source of 4 per vibration and thus prevented a potential aircraft mishap and possible loss of life, while assisting a sister squadron's maintenance department.

AWF1(AW) Joel Davidson
VP-4

While conducting a preflight of aircraft 160770, Petty Officer Davidson discovered foreign object debris (FOD) in the intakes of the No. 1, 2 and 3 engines. Understanding the gravity of the situation, he quickly notified the aircraft commander and maintenance control. Maintenance personnel found grass in each of the intakes, as well as evidence of possible bird's nesting materials.

His keen attention to detail and quick action prevented possible damage to aircraft engines and the potential loss of an aircraft and crew.

AE3 Ryan Apel
VAQ-130

During a hot pump and crew switch evolution with Zapper 501, Petty Officer Apel discovered engine insulation coming out of the port tailpipe. He immediately suspended the re-start sequence and notified the appropriate maintenance personnel to investigate. A significant loss of insulation had occurred, and his attention to detail and quick action prevented further heat damage and a possible engine fire.

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Quality Assurance

NAMDRP and WESS Reporting

By MSgt. Michael Austin

Problem: Most squadrons we reviewed in 2008/2009 showed deficiencies in the Web Enabled Safety System (WESS) reporting. Specific issues arise when the Quality Assurance (QA) submits the Naval Aviation Maintenance Discrepancy Reporting (NAMDRP) reports on Joint Deficiency Reporting System (JDRS), and no other reports are submitted to the safety officer for submission to the WESS.

These problems usually arise when the safety office and the maintenance quality assurance offices are not co-located within the same floor, and lack of communication becomes the norm. We also find that most QAs assume that, if the NAMDRP report is submitted, it alleviates them from submitting any additional safety reports. Not the case!

Some reports submitted to JDRS also would require a report into WESS.

Solutions: COMNAVAIRFORINST 4790.2A 7.1.4.1 Specific QA responsibilities are:

- Review and investigate hazard reports, as defined in OPNAVINST 3750.6, received from other activities, which may apply to the unit. Assist in preparing NAMDRP reports. Review all report entries for adequacy and correctness before distribution.
- Review all EI requests, BTRs PQDRs, TPDRs, ADRs, HMRs, EMRs, and CODRs to ensure they are accurate, clear and concise, before submission via the NAMDRP website (https://.navair.navy.milnamdrp). The NAMDRP website is a business-process reengineering program and shall supersede existing reporting methods. Units may only use their existing reporting methods if business-process reengineering for report type is not completed or website connectivity is unavailable. IMA/FRCs shall receive copies of all the reports and requests listed above that concern AWSE and are originated by the weapons department. The ASO shall receive copies of all HMRs.

OPNAVINST 3750.6 Section 404. GENERAL AND SPECIFIC SUBMISSION CRITERIA

General Submission Criteria. A hazard is a potential cause of damage or injury under human control. Submit hazard reports whenever less than mishap-reportable loss occurred, or a hazard is detected or observed, or whenever an event occurs that should have been a mishap but for luck, quick reaction, or procedure. Keep in mind that the reports submitted under this instruction are the only consistent source of data for the aviation portion of the Navy's Safety Information Management System (SIMS, now (WESS). Unreported hazards do not get into the safety database. The same thing is true of reports submitted under other directives, such as the Naval Aviation Maintenance Program, COMNAVAIRFORINST 4790.2A. Sending a Hazardous Material Report (HMR), instead of an aviation Hazard Report, deprives the safety community of long-term trend information, data and documentation useful in mishap prevention. HMRs are a maintenance report and do not require chain of command endorsement; they lack the visibility of a hazard report. It is never inappropriate to issue both a hazard report and an HMR concerning the same event. Additionally, submit a hazard report for specific occurrences of electromagnetic interference, unintentional out-of-control flight, a bird-animal strike, a near-midair collision, a physiological episode, an embarked landing hazard, air-traffic-control hazards, and other circumstances as outlined in the OPNAV 3750.6 series.

Best Practice: A recommended practice would be to add a block in your NAMDRP tracking that asks the investigator or submitter of the NAMDRP report, "Is this a WESS reportable event?" This would allow the QA initiator/reporter the opportunity to add the safety officer into the process of WESS reporting and allow the end user, aircraft safety analyst, to identify trends and to implement control measures to help mitigate future related events.

Master Sergeant Austin is a maintenance analyst at the Naval Safety Center.

Power Plants

Checking Out Rags: Why It Should Be Done

By GySgt. John Hess

Problem: Many squadrons surveyed in 2008 did not have a policy or procedure for proper rag control. This is a problem that exists throughout the Navy and Marine Corps. Numerous mishaps have occurred over the years caused by improper rag accountability. Several Class B and C mishaps have occurred when engines ingested an unaccounted-for rag. More recently, a squadron at Marine Corps Air Station Miramar found a rag jammed into a motive-flow-system line while troubleshooting a turbine-boost-pump-fail gripe. Although most units have transitioned to using the red-rag program, we still see units using bales of rags. Both are authorized; however, many of the old style bale rags are not being controlled.

Solution: As a recommendation, commands should establish an operating procedure to properly inventory and account for rags. A good practice is to have the rags checked out at a central location, such as the tool room or hazmat. Rags are controlled items that should be treated in the same manner as a tool. Rags need to be accounted for on BOS and EOS inventories, checked out using a tool tag, and utilize a tool-control log or inventory sheet. Remember: Rag control is vital to saving lives, reducing mishaps, and reducing many hours of unscheduled maintenance.

Gunnery Sergeant Hess is a maintenance analyst at the Naval Safety Center.

Avionics

Looking Out For You: Laser Safety

By CWO5 Ron Stebbins

As we travel around the fleet doing safety surveys, we encounter a variety of laser systems that appear in virtually every aircraft platform, ship and ground unit. Specific regulations govern the fielding and use of laser systems, and if you are working around these systems, you need to know that many of the systems are inherently dangerous to your eyesight. The Department of the Navy (DoN) Laser Safety Review Board (LSRB) examines every Navy and Marine Corps laser system during development, operational testing, and before initial deployment. The LSRB ensures that all regulatory requirements have been met and that appropriate safety devices, training, publications, and personal protective equipment meet required safety standards.

The requirements for laser safety are established in numerous instructions and manuals, but the ones that are most important to the fleet are:

DoD Inst 6055.15, DoD Laser Protection Program

DoD Inst 6055.05-M, Occupational Medical Examinations and Surveillance Manual

SECNAVINST 5100.14D, Military Exempt Lasers

OPNAVINST 5100.27B/MCO 5104.1C, Navy Laser Hazards Control Program

BUMEDINST 6470.23 Medical Management of Non-Ionizing Radiation Casualties

MIL-HDBK-828A, Laser Range Safety

American National Standards Institute (ANSI) Standard Z136.1

If you are a command-designated laser systems

Back row: CWO2 Larry Duke (MARCORSYSCOM), CWO5 Ron Stebbins (NSC), MSgt. Michael Austin (NSC), Patrick Hargis (MARCORSYSCOM), LCdr. Vincent Hill (BUMED)
Front row: Mary Zimmerman (NAVSEA), Sheldon Zimmerman (NAVSEA), Tom Fraser (NAVSEA)

Other members not shown: LCdr. Thad Sharp (MARCORSYSCOM), Robert Aldrich (NAVSEA), David Farrand (NAVSEA), John Hassinger (NAVAIR), James Shealy (NAVAIR), ATC Danny Williams (NSC)

safety officer (LSSO); qualified through administrative laser safety officer (ALSO), technical laser safety officer (TLSO), range laser safety specialist (RLSS), or laser safety specialist (LSS) training, you need to ensure that you remain current by recertifying every four years as required. For more information on training requirements or for technical laser issues, contact the technical lead agent (TLA) designated in the OPNAVINST 5100.27B/MCO5104.1C. The lead navy technical laboratory for Navy and Marine Corps laser safety (LNTL) is:
NSWCDD, G73
6078 Norc Avenue, Suite 309
Building 278
Dahlgren, Va. 22448-5131
(540) 653-2442
lasersafety@navy.mil
http://www.nswc.navy.mil/TIE/LASER/

If you need more information on a laser-system review or need to send in a laser-inventory report, you can contact the administrative lead agent (ALA) for the DoN:
Bureau of Medicine and Surgery
M3/5OM2
2300 E. Street, NW
Washington, D.C. 20372-5300
or contact LCdr. Hill at: (202) 762-3448, DSN 762-3448, vincent.hill@med.navy.mil

One of the most important things to know is where to report a laser injury, hazard or mishap. The first thing you should do with an injury is report it to the tri-service laser-injury hotline (1-800-473-3549) (DSN 240-4784). After making the hotline phone call, ensure all appropriate reports are made in accordance with OPNAVINST 5100.27B/MCO5104.1C, including submission of an OPNAVINST 3750.6R (Aviation) or OPNAVINST 5102.1D (Afloat/Ashore) Hazard or Mishap Report, depending on the severity of the injury. A hazard report also would be appropriate for any laser hazard that posed a threat to personnel, safe operation of equipment, or safety-of-flight.

When working around laser systems, you should perform an operational risk management (ORM) assessment, wear appropriate laser eye protection (LEP) with the correct optical density (OD) for the wavelength(s) your laser emits, as identified in your technical manuals, ensure all safety interlocks are engaged, and all safety procedures are being adhered to for safe lasing.

CWO5 Ron Stebbins is the avionics, aviation life-support systems, and maintenance analyst branch head at the Naval Safety Center and has been a DoN laser safety review board member for 2.5 years.

Multiple Piece Tools

By GySgt. Edward Rivera

Problem: Most units surveyed recently have shown a negative trend in tool control by not accounting for each of these multiple-piece tools correctly. For example: In figures 1 and 2, a hacksaw is a six-piece tool. Also, the rivet cutter is an 11-piece tool. See figures 3 and 4.

Solutions: COMNAVAIRFORINST 4790.2A, ch.10, par.10.12.4.1.5 inventory lists shall identify each tool by item number, nomenclature, specific quantity, and NSN. Tools that are multiples shall be identified in detail, for example, "stamping dye set: 10 pieces plus two-piece case total 12," or "feeler/depth gauge 14 blades," or "hacksaw with blade."

Bottom line, if the specific tool can be disassembled by hand, then each item that comes off that tool must be accounted for.

Best Practices: The best practice is to use your tool-control binder to instruct and provide training to the shop or division. Have them disassemble all the tools, so they can label and mark per the Ref: COMNAVAIRFORINST 4790.2A, ch.10, par.10.12.6.4. If this is done correctly, it will prevent FOD and missing-tool reports, or even a mishap.

Gunnery Sergeant Rivera is a maintenance analyst at the Naval Safety Center.

Figure 1

Figure 2

Figure 4

Figure 3

Class C Mishap Summary

Navy photo by MC3 Paul Perkins

By MSgt. Michael Austin

From Dec. 10, 2008, to March 1, 2009, the Navy and Marine Corps had 23 Class-C mishaps involving aircraft.

After review of several Class-C mishaps and initial investigations, 30 percent of the incidents reported this quarter involved towing or taxiing of aircraft that resulted in damage to slates, flaps, ailerons, and wing surfaces. Of these, 42 percent were due to improper placement of ground-support equipment in relation to aircraft structure. If proper supervision and ORM practices had been applied, 52 percent of the total maintenance-related mishaps reported this quarter could have been avoided. Below are some examples of recent mishaps:

P-3C aft radome-lighting strip required replacing. The avionics shop was tasked to complete the maintenance procedure. The W15-1 stand normally used was not available to perform the maintenance, so an alternate diesel-powered manlift was used. Unfortunately, the personnel were not accustomed to the controls of the manlift, and the appropriate pre-operational checks and operational procedures were not followed. This action resulted in the manlift hitting and damaging the aircraft's radome.

FA-18D was taxing during daylight into a hardened revetment to park. The taxi director and the pilot failed to apply real time ORM and allowed the F-18D's right horizontal stabilizer to hit the wall of the revetment.

FA-18C required port rudder servo-cylinder removal and replacement that required operational checks of the control surface. The B-1 stand that was used to replace the servo was left positioned between the port trailing-edge flap and port horizontal stabilator. During the control checks, the horizontal stabilator hit the B-1 stand multiple times, which tore a hole in it.

The bottom line is we had 23 Class-C mishaps; 19 of them were avoidable. They are broken down into three basic areas: aircrew, material events, and maintenance-related. The total maintenance-related mishaps reported was 12. Aircrew-related had 7 events reported, while four material events were reported, which reflected no-fault or causal factors other than weather or component failure. In conclusion, 82 percent of this quarter's reported Class-C mishaps could have been avoided by quality supervision and operational risk management practices.

Helping Sailors and Marines Help Themselves

Sierra Hotel

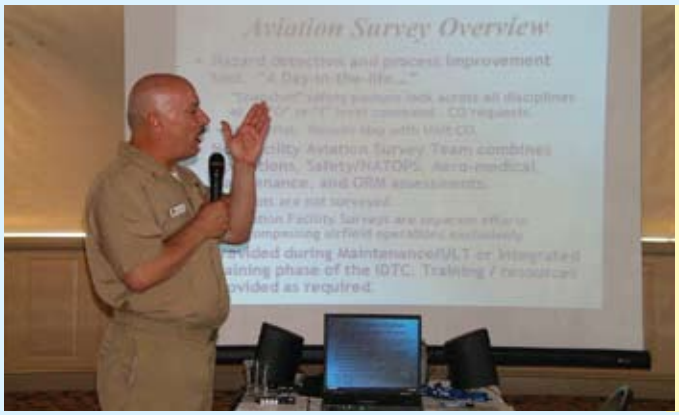
Commander, Naval Safety Center would like to recognize the following aviation commands for their recent participation in safety surveys, culture workshops, and maintenance-malpractice resource-management (MRM) presentations for the months of January-March.

Safety Surveys

January:
VAW-126
VMFA-251
MALS-31
H&HS Beaufort
VFA-86
HSL-46
FRC Mayport
FRC Jacksonville
VP-16
HSL-48
HSL-40
VFA-11
HSL-45
VMFA-232
VMGR-352
VR-57
VMR Miramar
HS-2
HMH-465
HSL-47

February:
VP-30
HS-7

March:
FRC Norfolk
FRC Oceana



MRMs

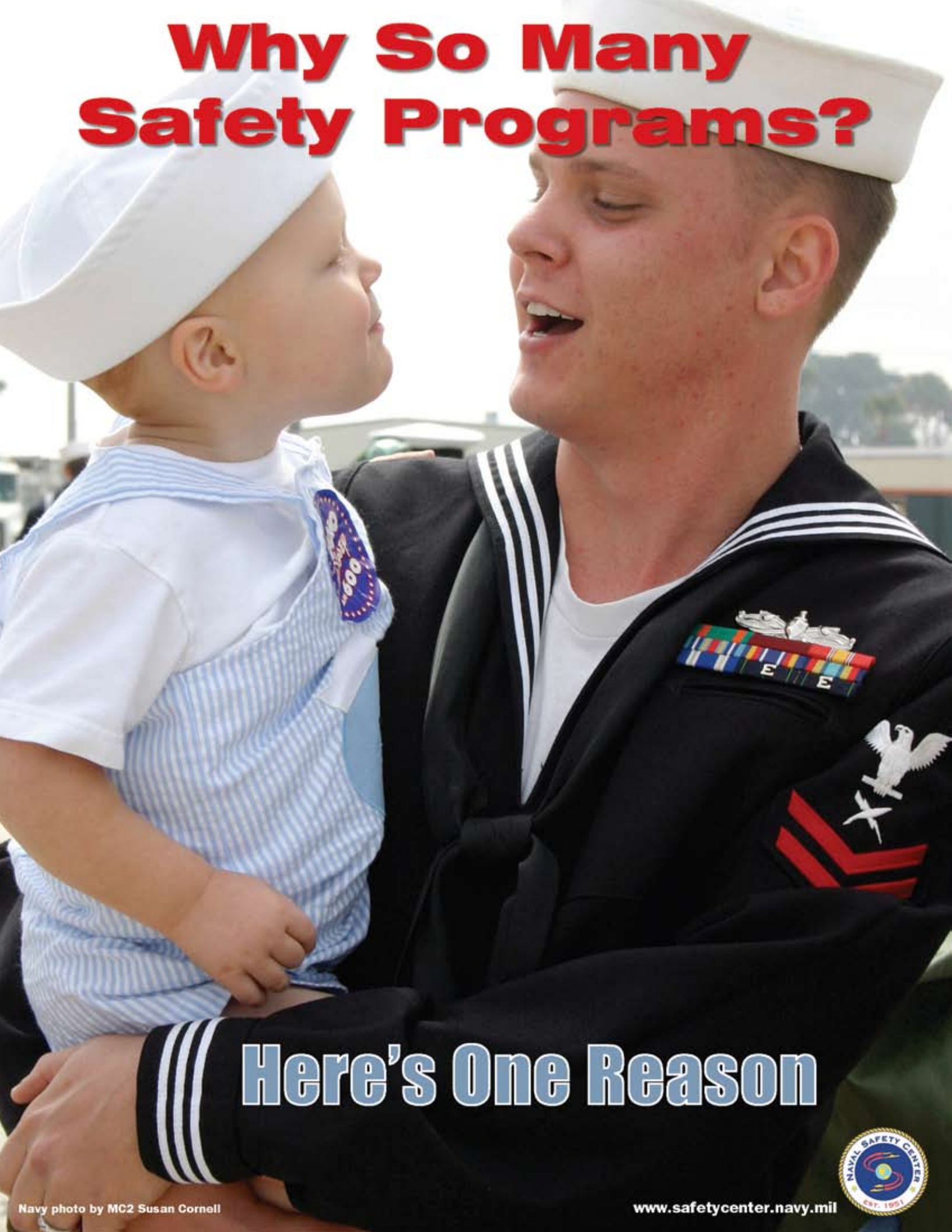
VFA-34: NAS Oceana
HMH-465: MCAS Miramar
VR-52: Willow Grove
HMM-774 MAG 49 Det D (Reserves): NS Norfolk
FRC MIDATLANTIC SITE NORFOLK: NS Norfolk
AMO Course: Whiting Field
VAW-123: NS Norfolk
HSC-26: NS Norfolk
VX-23: PAX River
USS *Truman*-AIMD: NS Norfolk
VP-40: NAS Whidbey Island

Culture Workshops

VMGR-452
MALS-29
VMAQ-4
VMM-162
HMH-463
HMLA-367
HMM-166
MALS-13
MALS-24
VMA-214
HSC-2
HSC-26
VAW-120
VAW-121
VAW-126
VFA-136
VFA-143
VFA-211
VFA-81
VRC-40
VXS-1
FASFAC (HI)
HSM-41
NBC-Coronado
VAQ-131
VAW-117
VQ-1
HSL-60
VR-61
VT-9
U.S. Naval Test Pilot School
VX-20
VX-23
VX-30

For more information or to get on the schedule, please contact: Safety Surveys: Maj. Anthony Frost, USMC at 757-444-3520 Ext. 7223, MRM: AMCS(AW) Robert Chenard at 757-444-3520 Ext. 7221, Culture Workshop: Cdr. Duke Dietz at 757-444-3520 Ext. 7212.

Why So Many Safety Programs?



Here's One Reason

Navy photo by MC2 Susan Cornell

www.safetycenter.navy.mil