July – September 1999

Mech

The Naval Safety Center's Aviation Maintenance Magazine

Tire, Tire, Olé!

Marine Down!

How Well Do You Float?

THE NAVAL SAFETY CENTER'S AVIATION MAINTENANCE MAGAZINE

Mech

Vol. 2, No. 7, Jul – Sep '99

On the cover:

An ordie prepares to remove unused ordnance from a Hornet after a flight over the former Yugoslovia. In the background, a Viking gets ready to trap aboard USS *Enterprise* (CVN 65). *Photo by PH3 Timothy S. Smith*

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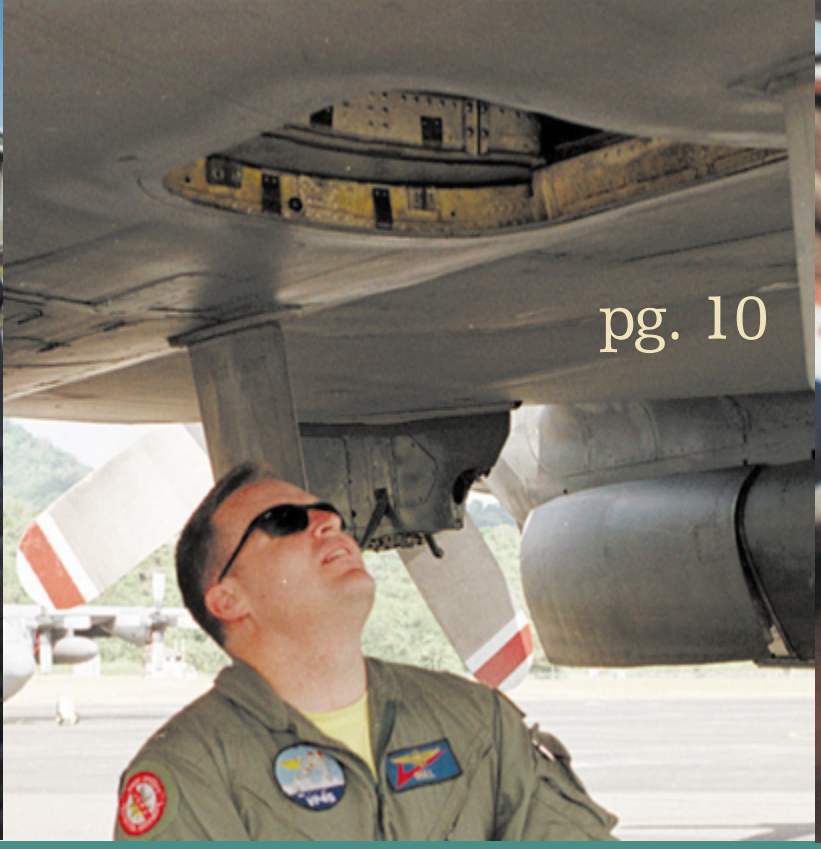
pg. 5

FEATURES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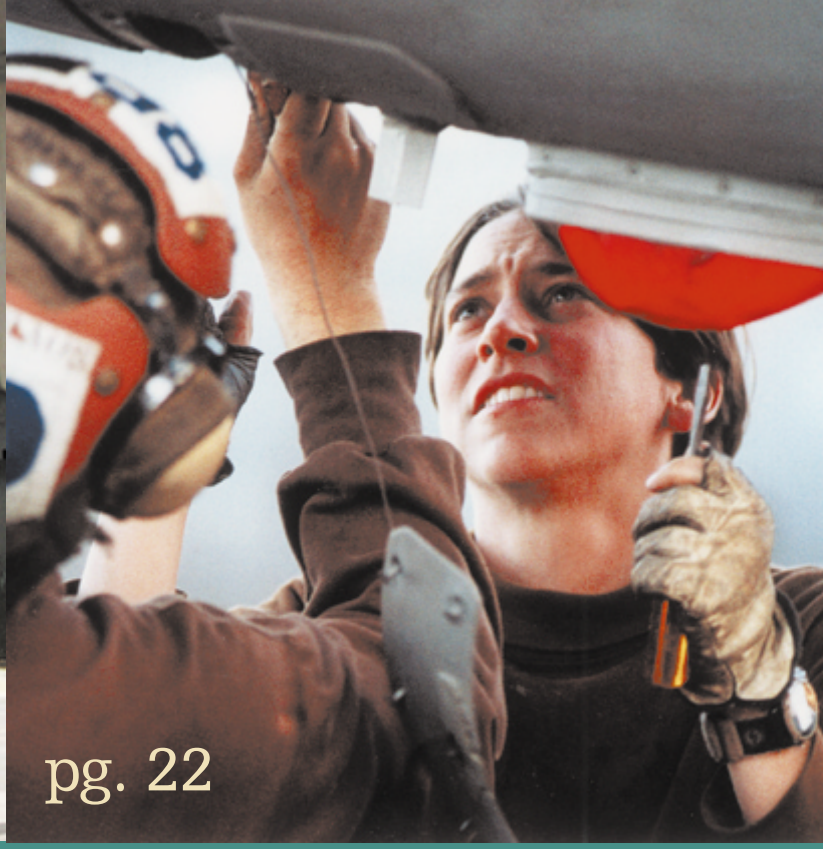

pg. 22

DEPARTMENTS

A Day in the Life of

As the primary surveyor for support equipment (SE) and the line division, I often have more fun than I deserve. I have a duty to educate, but I love the tap dancing that occurs during a simple pre-op check. Here is a typical scenario.

After a kick-off meeting, I join up with the line CPO and LPO. We walk up to a self-propelled unit in use, and I ask the driver to show me an SE license. The operators almost always produce a license, and usually ask, "Was I speeding?" I counter with a question: "Were you driving faster than you can walk?" As they mumble their reason for driving too fast, I check the license. If the license checks OK—and it almost always does—I ask, "Did you do the pre-op checks?" They answer, "Yes, sure; I did them this morning." The deer-in-the-headlights look on their faces reminds me of a certain long-ago airman apprentice(me), who used to gun-deck everything possible . With 16 years as an AS and early-on experience as a brown-shirt, I know all the shortcuts. Airdales are very creative when it comes to SE.

With 16 years as an AS and early-on experience as a brown-shirt, I know all the shortcuts.

I know how it is. You start the unit, release the emergency brake, and put the pedal to the metal. As long as you can go full speed, and stop by laying a strip of black rubber down the ramp, you and the unit are good to go. Some of my skid marks still decorate the back roads of NAS Oceana.

After asking about the pre-op checks, I usually follow up with "Please, show me the daily card." That usually checks good, so I add, "Show me the pre-op card you used." After searching the shop, under papers, soda cans, and candy wrappers (not limited to the line division), the operator finally produces a pre-op card. I courteously ask him to per-

NAVAIR 19-600-28-6-1

WARNING: Jet Fuel (JP-5), MIL-T5624 is toxic and flammable. May cause skin or eye irritation. Keep away from sparks or open flame. Eye and skin protection required.

11. Water Separator (fuel).....Presence of water, drain into container.
(Water separator is located behind the front wheelwell on the passenger side)

WARNING: Ethylene glycol is toxic and harmful to eyes, skin, and digestive system. Avoid liquid splash. Eye and skin protection required.

12. Cooling system.....Serviced; 50/50 mixture of ethlyene glycol (A-A-870) and water.

WARNING: Brake fluid, VV-B-680, is combustible and moderately irritating to eyes and skin. Keep away from open flame. Eye and skin protection recommended.

13. Brake master cylinder.....Serviced; Brake fluid (VV-B-680, DOT 3)

14. Battery.....Security

The author usually asks about two of his favorite items during a survey: Item 11 (water/fuel separator) and item 13 (brake master cylinder) on the pre-op card for aircraft mid-range tow vehicles.

f a Safety Surveyor

by ASCS(AW) Edwin Guerra

Doing it the Navy way, the middle Sailor responded to the question by looking for the fuel-water drain that's on the separator.

form the pre-op checks on the equipment itself. I say, "I may be a shade-tree mechanic, but we'll do it the Navy way. I read the check, you do the task."

They always start smoothly, checking lights, oil, and coolant, but things deteriorate as we go along, especially when I say, "Please check for water in the fuel-water separator bowl." The operator usually can't find this component. Faces turn pale, remorse and regret settle in, and the operator starts looking worried. Then the LPO or a bystander gives a few hints, winks, and the operator finds the component.

Everyone utters sighs of relief and smiles confidently. The day is saved! Then, the final blow: "Please check the fluid level in the master-brake reservoir." Normally, this one takes all my anger-management skills, not to mention lip biting while having to hush the LCPO and bystanders, and heading

Even though location of the fuel-water separator is painted on the tractor and identified on the pre-op card, most operators don't know where the item is. (It's located on the engine side of the right-front wheelwell.)

off the LPO. Not an easy task, but if I'm successful, a mechanically inclined operator eventually will trace the brake lines. If he's really smart, he gives up altogether.

A typical comment is, "No one ever showed me."

"OK, no problem," I say, "maybe we just failed to train you properly. Let's check your training jacket."

While validating the licensing paperwork, I point out that an AS formally trained him or her. "Didn't this AS show you these components?"

"Ummmm...," comes the average response, "I don't recall."

I reply, "OK, are those your initials?" After an affirmative response, I ask, "You did verify that you read and understood the pre-op card?"

Again the response, "Mmmm."

"Let's see now, who is this instructor who signed you off three times as having done OJT with you?" (We could spend all day on this one.) "Did he show you the master-brake reservoir?"

The author drains fluid from the fuel-water separator that most people can't find.

The brake master-cylinder reservoir is the second item most operators can't locate. It's to the right and forward of the driver's seat, under the brake fluid sign.

Wide-eyed, the operator usually replies "No."

"OK, so it isn't your fault. You weren't properly trained, that's all." I turn to the LCPO and LPO and request to see the Phase II instructor.

Nine out of 10 times, the instructor is still around, usually in another shop. When he shows up with the requested training jacket, the pre-op check starts all over again. By now, I have traced up to five licensed, qualified (on paper) instructors who usually do not have a clue where the two components are located.

A final question: What failed in this scenario? Training? Work center supervisors? Quality assurance? Phase II Instructors? The operator?

The answer: All of the above.

Senior Chief Guerra is a maintenance analyst for the Naval Safety Center.

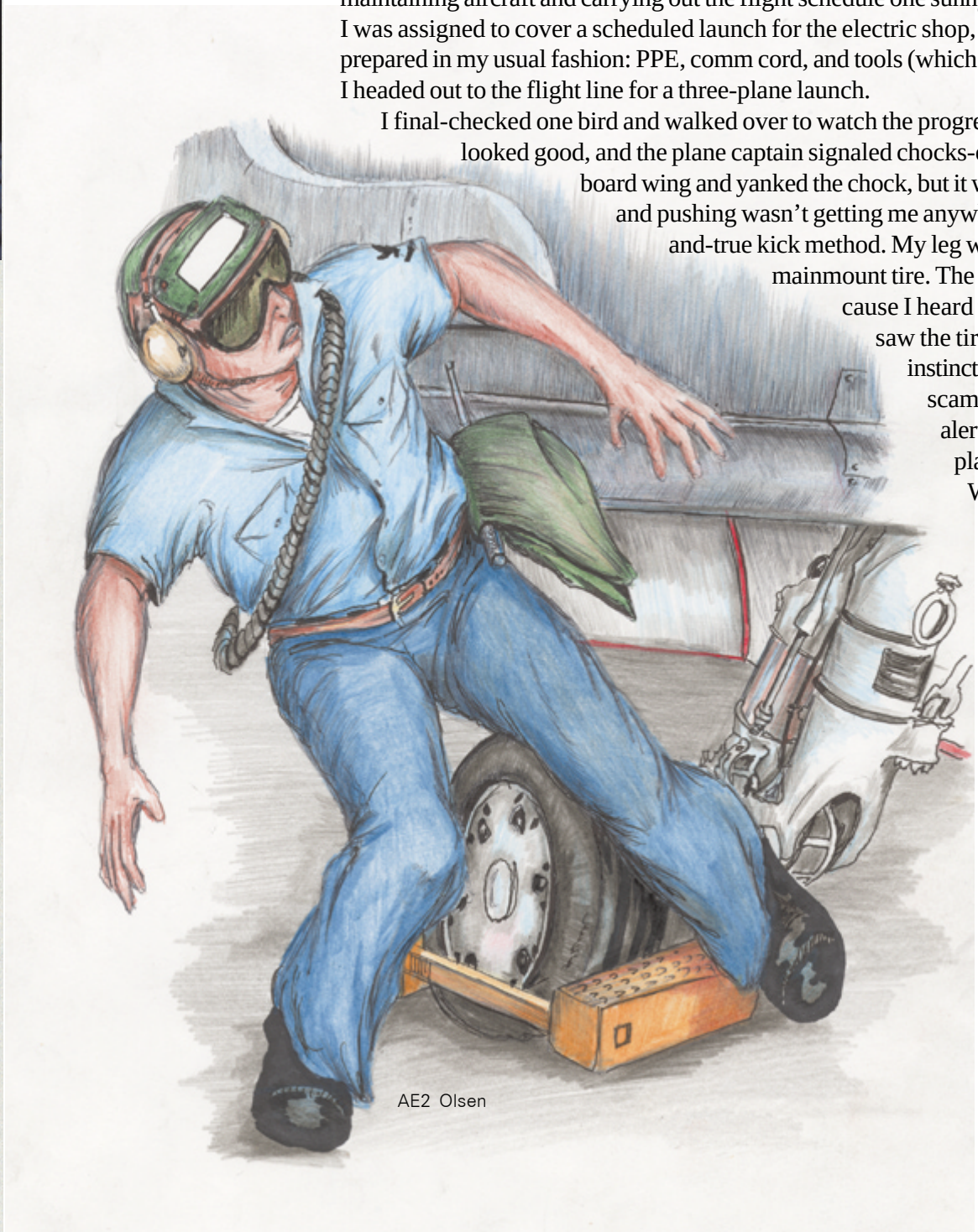
Tire, Tire, Olé!

by AE2 Shane Olsen

The author got this wake-up call in the fall of 1995, while he was in a strike-fighter squadron.

We'd just returned from a successful deployment and were looking forward to spending the holiday season with our families. The squadron was getting into the routine of maintaining aircraft and carrying out the flight schedule one sunny, clear day in North Florida. I was assigned to cover a scheduled launch for the electric shop, a job I'd done many times. I prepared in my usual fashion: PPE, comm cord, and tools (which I'd inventoried). Ready to go, I headed out to the flight line for a three-plane launch.

I final-checked one bird and walked over to watch the progress on a second. Everything looked good, and the plane captain signaled chocks-out. I went under the starboard wing and yanked the chock, but it wouldn't budge. Since pulling and pushing wasn't getting me anywhere, I decided on the tried-and-true kick method. My leg wound up directly in front of a mainmount tire. The pilot was ready to go, because I heard the engines throttle up and saw the tire start climbing the chock! I instinctively jumped back and scampered out to the wingtip. An alert troubleshooter signaled the plane captain and pilot to stop. With help, I removed the chock and the bird was on its way.



AE2 Olsen

Re-examining this experience in the safety of my shop, I was reminded of the previous work-up cycle. A plane captain's leg was crushed because he got too close to a moving mainmount. He's permanently disabled and out of the Navy. The same thing could have happened to me! What seems routine around aircraft can turn deadly in a New-York second.

AE2(AW) Olsen is in VFA-105.

Don't Cut the Branch You Stand On

Submitted by VP-30

Analyzing the risks and possible consequences of high-work can keep you from busting your butt.

A hydraulics mechanic fell off the wing he was working on when he trusted his experience to protect him.

An AMH3 was getting ready to drop the leading edge of an Orion's wing to work between the aircraft's fuselage and the No. 2 engine nacelle. The mech donned a cranial and climbed onto the wing to remove 28 leading-edge screws. In the course of taking out the screws, he stood on the leading edge he was removing, forward of the screw line. When he had removed the final screw, the leading edge released and the mech fell to the deck, hitting a maintenance stand on the way down.

The maintenance officer took the mech to medical where doctors diagnosed a bruised heel and put him on 10 days of light duty. He also had back spasms. After 10 days he returned to full duty.

Experience had taught this AMH3 that even with all of the wing's leading-edge screws removed, the leading-edge was a stable platform. He knew that it pivoted on a hinge, located on the underside of the wing but believed that his weight would keep the leading edge from falling.

This mech could have been badly hurt when he fell 8 feet from the wing. When you're working high above the ground without handrails or other means of support, you have to know exactly what you're doing. Unfortunately, this gentleman made a poor decision and learned a tough lesson. Perhaps the fleet can learn from his experience.

It's impossible to accompany all junior people on every task, but supervisors have a responsibility to train them. Groundcrew Coordination Training and Operational Risk Management are tools that can prevent such injuries.

A Long Way Down

by AD3 Bodie Brown

The engine cowling on an SH-60B, like those of most helicopters, is also a platform when it is open. Maintainers and pilots stand on it to do maintenance, preflight and other inspections. Engineered to hold two persons with a combined weight of 400 pounds, this platform should have accommodated my 150 pounds without a problem, but it let me down—a long way down.

Being a plane captain and third-class mech, I've spent a lot of time perched atop the work platform inspecting and servicing engines and giving them the TLC they need to keep our aircraft flying. One fateful day, the work platform collapsed under me. Unlike when the cliff gives way and Wile E. Coyote is suspended in midair until he realizes his predicament, I dropped like a rock. It happened fast, but you'd be amazed how many thoughts can go through your mind in such a short time: *Cranial on?* Check. *Strapped?* Check. Being young and spry with catlike reflexes, I figured I'd certainly land on my feet and saunter away. *Brace for shock?* Check.

Lying as I landed, on my back, I looked up at the broken work platform 8 feet above, then went through my post-flight checklist: Note to self—work on catlike reflexes.

Lying as I landed, on my back, I looked up at the broken work platform 8 feet above . . .

I didn't seem to be badly hurt. I felt no pain except for a dull ache in the back of my head from smacking the hangar deck with it, but I knew I should stay where I was until medical personnel arrived. I thought about how glad I was to have been wearing my cranial, and most importantly, wearing it properly. I was able to walk away from that sudden 8-foot drop, shaken and with a slight headache. After a short trip to medical and a handful of Motrin, I was back to work the next day.

Division Officer's note: *Without his cranial, the sudden fall could have crippled or even killed this Sailor. Wear your cranial and make sure it fits. Learn from this Sailor's experience; you won't live long enough to make all the mistakes yourself.*

Petty Officer Brown is assigned to HSL-42.

PLUGS, PLACARDS AN

THE day seemed routine—nothing exciting, except we were busy.

It looked like we would secure on time until maintenance control called us. They wanted us to op-check the flap system of aircraft 566.

We followed the procedure but couldn't reset the flap asymmetry system. After troubleshooting the problem down to the flap-asymmetry shutoff-valve, I ran into airframes to tell my supervisor and start writing a MAF. Since it was so close to shift change, and we didn't want to pass the job to night check, I wrote up the gripe and grabbed two experienced PO3s and a tool-box. We checked out the tools in our tool log book and CDI-inventoried them, but we didn't note it on the MAF. The MAF hadn't

Ltjg. Chris Reaghard inspects the hydraulic service center of an Orion at Howard AFB, Panama.

...D BREAKERS, OH MY

by AMH2 Troy Thomas, AMS3 Mark Bricker and AMH3 John Kory

been approved by maintenance control yet—our first mistake.

At the aircraft, I told one PO3 to remove the valve while the other observed, which brings me to our second and third mistakes. We never went to maintenance control to get a no-flaps placard and notify them that no hydraulic power should be applied to the aircraft. That's the first step in the MIMs for removing a flap-asymmetry shut-off valve. The second is to open and tag the SOV circuit breaker, the flap-brakes breaker, and all three pump-control breakers. If we had brought the book , we'd have known about those breakers.

After we removed the valve, we did the only thing that was by the book: We tried to cap off the open hydraulic lines. Unfortunately, the caps we'd brought with us were too small for the lines. We checked our tools, cleaned up, and headed back to the shop to get the right caps and prepare the valve for turn in. When we got to the shop, night check was inventorying tools and getting a passdown. As you may have figured, during the rush to swap shifts and check tools, we neglected to return to the aircraft and secure the open lines.

Later, I got what everyone hates—a late-night call from the shop. Unknown to us, aircraft 566 had several turns scheduled for that night. When the mechs and the duty engineer went out to turn up, they applied electrical power (energizing the cannon plug connected to the SOV) and did their pre-turn checks. When they turned on the 1A hydraulic pump, the No. 1 system did its very best to void itself of hydraulic fluid. An AME1 noticed a drop of fluid on the gauge in the flight station and secured hydraulic power. The hydraulic pump didn't cavitate, no other components in the system were damaged, and no one was injured.

If we had brought the book, we'd have known about those breakers.

Suppose someone had grabbed the SOV cannon plug while the electrical power was on? What if someone's head had been in the path of the open hydraulic lines when hydraulic power was applied? At best, they would have been seriously injured—and they could have been killed. As for the aircraft, we could have ruined every component in the No. 1 hydraulic system and made a huge mess (the #1 system holds about 22 gallons of fluid).

"Do it by the book" is trite, I know, but we gear up for similar jobs at least a couple times a day without ever thinking about taking the MIMs along. We didn't that day, and someone could have died.

Petty Officers Thomas, Bricker and Kory are assigned to VP-45.

FIRE, FIRE, FIRE!

by Lt. Ron Dennis as told by AN Neptime Dieujuste

PH2 Matthew J. Thomas

Covers, such as the ones being installed by this Hornet plane captain, keep bugs and dirt out of pitot tubes when the aircraft isn't flying. Pitot tubes get very hot when energized.

THE day after Christmas—deployed. Many have shared this experience, but this was my first Christmas away from home. Tomorrow we'd be in port; I was looking forward to calling my family as I strolled through the hangar bay thinking about tomorrow.

Port visit or not, I had to watch where I was going. It wouldn't do to run smack-dab into the horizontal stabilizer of a Hornet and spend my liberty in medical with a cracked skull. I kept my eyes moving as I picked my way between aircraft packed like sardines in the hangar bay.

As I made my way through, like a shopper searching for after-Christmas bargains, I spotted a wisp of smoke coming from an F/A-18 about 20-feet away. A technician was busily making repairs atop the aircraft. A number of other passersby seemed not to notice—they where focused on other things. Have you ever seen something and had a nagging feeling it wasn't quite right?

I approached the Hornet from the port side, curiosity gnawing at me. As I moved to the starboard side of the nose, I was shocked to see the aircraft's starboard pitot-tube cover burning. "Fire! Fire! Fire!" OK, that *is* a bit melodramatic, but there *was* a fire! I grasped an unburned part of the cover, pulled it free from the pitot tube, and threw it to the deck. I stamped out the fire, and got the attention of the maintenance technician atop the aircraft. He came down and quickly extinguished the fire, which was still smoldering on the pitot tube.

It turned out that the pitot-heat switch had been left on, and the technician had bypassed the ground-safety interlock for the pitot-heat system. The energized circuit heated the pitot tube until the cover burst into flames.

It disturbed me that no one else saw the fire. A number of people walked by that airplane as if rushing to avoid holiday traffic on Christmas Eve. It's true that we have to stay focused on deployment, but we have to step back occasionally to make sure details get attended to. A situation that doesn't look right, probably isn't; smoke and aircraft do not go together in hangar bays.

Everyone aboard ship shares a responsibility to look out for one another. We're, ah, all in the same boat, trying to do the best job we can.

Lt. Dennis (safety officer) and AN Dieujuste (a plane captain) are assigned to VAW-112.

I CAN FLY WITHOUT A WHEEL

by Lt. Chuck Stoffa

Sure, I can fly without a wheel, but the landing would be a little tricky. I found myself in that odd situation because of a maintenance error. While on final approach, during a daytime landing to a frigate in the Arabian Gulf, the LSO indicated that the port tailwheel of my SH-60B was dangling a foot to the left of its strut and threatening to fall off. There are no emergency procedures for dealing with a wheel that is falling off, but at least the sea was calm. Our crew discussed the situation, then made an uneventful, albeit softer-than-normal, landing.

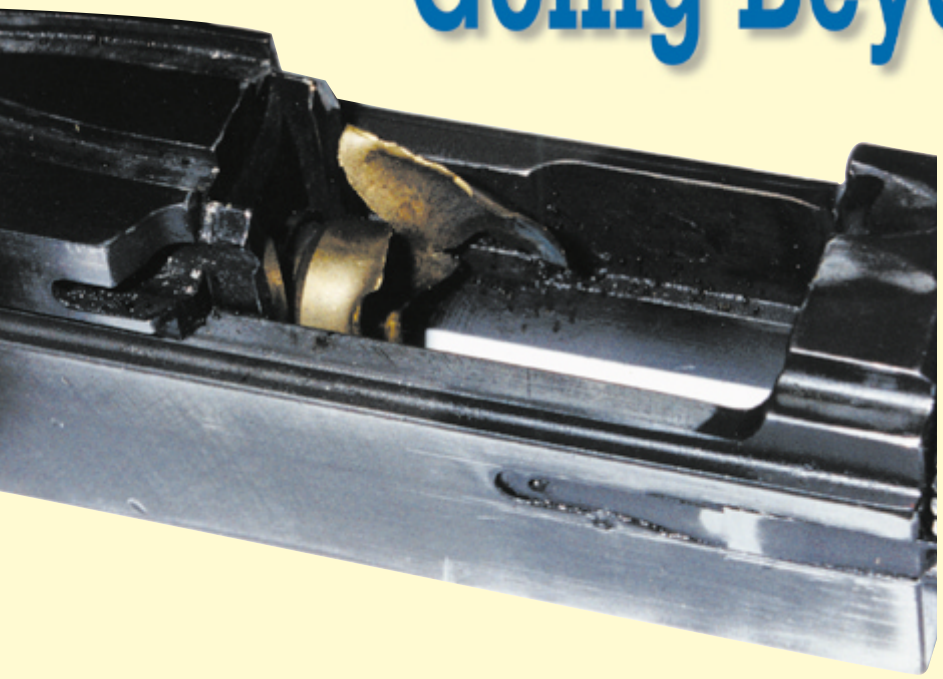
No doubt you've heard the term *maintenance malpractice*. It means someone didn't do the job correctly. In the case of my wheel that was almost falling off, a retaining ring hadn't been installed when the wheel was changed three months earlier at our home port, 7,000 miles away. It's probable that the mechanic who did the job and the QAR who inspected it didn't follow the book. They probably didn't consider that their negligence could cause a problem so far away.

You must keep in mind that your work as a maintenance expert directly affects the lives of people who fly in your aircraft. Had the environment been less benign when my tailwheel gave out, the result could have been a serious mishap. Even though we recovered, our helo was down for two weeks because of a deep gouge in the axle housing.

Follow the MIMs whether you're doing or inspecting maintenance. Accept nothing less from yourself or your squadronmates, and remember that the aircrew and passengers who fly in your birds rely on your professionalism. One day, you might be a passenger on an aircraft you maintain. Will you trust it?

Lt. Stoffa was the maintenance officer for HSL-42 Det 4 aboard USS *Samuel B. Roberts* (FFG 58) when he wrote this article.

Going Beyond the Check



The firing pin struck the primer, and the jammed round exploded in the crew chief's face.

A crew chief's .50 caliber machine gun suddenly stopped firing during a shoot from one of our UH-1N aircraft. After several attempts to clear the weapon by charging the bolt to the rear, the crew chief decided to wait 10 minutes for the barrel to cool. He didn't want a round cooking off as he lifted the feed cover to investigate the malfunction. He eventually found a jammed round with about 2.75-inches still showing at the base of the barrel.

After following the immediate-action procedures in the gun-jam clearing checklist (NAVAIROI-11OHCE-75-17), he still couldn't remove the round. That's when the crew chief should have stopped, treated the weapon as unexpended ordnance, and made sure it was turned over to EOD personnel to remove the round.

That didn't happen. He was determined to clear the round from the chamber. After the helo landed, he removed the bolt-carrier group and barrel from the weapon. This action is not in the checklist and created two dangerous conditions. First, the jammed round was no longer shielded by the receiver assembly, which would have protected nearby personnel if the jammed round had fired. Second, the bolt's cocking lever could no longer act as a safety device. It prevents the cartridge from firing before the bolt has gone forward a sixteenth-of-an-inch from battery. Because the round was jammed in the chamber, the bolt was never in the battery position. Therefore, the cocking lever couldn't cause the firing pin to fire the round —until the crew chief began taking the weapon apart.

As he lifted the bolt-carrier group and barrel from the weapon, he inadvertently pressed the cocking lever. This caused the firing pin to strike the primer, which exploded the round in the crew chief's face. The blast embedded black powder in his right side and neck. Although the projectile moved only 3 inches down the barrel, pieces of metal-casing fragments struck the crew chief's right arm. Another fragment missed his head and tore a 1-inch hole in the Huey's cabin door.

The crew chief wasn't wearing his helmet at the time, increasing the possibility of permanent hearing loss. Although he sustained only minor abrasions and injuries, things could have been much worse.

In order to keep someone else from going beyond the immediate-action procedures and getting hurt, our maintenance department submitted a technical publication deficiency report (TPDR) recommending the following warning be added to the checklist:

klist Can Be Painful

by Maj. Stephen M. Breen

"WARNING – If round remains jammed and cannot be removed, ensure trigger safety is in **Safe** position and close feed cover. Notify proper authority."

We almost learned the hard way that strict SOP and respect for ordnance is mandatory in our profession.

Maj. Breen is a regular contributor to *Mech*. He is the maintenance officer in MAG-42 Det C at New Orleans.

A fragment missed the crew chief's head and tore holes in the cabin door.

Batteries Don't Need Belt Buckles

by AMH1(NAC) James Greenwell

"Never face the posts toward you while carrying a battery."

I'm sure this wasn't the first time a battery terminal burned up a belt buckle and it probably won't be the last, despite the fact that preventing it from happening is so easy. All you have to do is make sure covers are installed on your batteries before carrying them. Anyone who has ever changed aircraft or support-equipment batteries will tell you, "Never face the posts toward you while carrying a battery to or from an aircraft or cart."

On this occasion, a young airman, eager to impress his supervisor, was going to change a battery for a 56-day inspection. The hard-charging airman didn't realize the significance of an uncovered battery. It wasn't until he smelled something strange and saw smoke coming from his midsection that he realized something was wrong.

A 75-lb. battery, a new man on the job, no PPE, and no covers on the battery terminals are a dangerous combination. Makes you wonder if the airman read the book for this task. If he did, would he have installed battery covers or gotten help to lift the battery? Did the supervisor even know what the airman was trying to do? Probably not. The supervisor would have made sure the airman had worn PPE, looked for an extra cover in the shop, or had the battery locker people take the battery back.

What else should you do? Check out tools and PPE, grab the manual, get a CDI, check "in work" on the MAF, and make sure the maintenance-control chief knows it's in work. OK, now you're ready! Double-check with the CDI to make sure you're not forgetting anything.

Sounds like an easy task. Then why did the belt buckle make a good connection on the battery? I'm sure you can come up with at least a half-dozen reasons. The fact is that we do simple tasks every day, then get so wrapped up in the job we don't think at all. Supervisors, know what your charges are doing. Newbees, we know you're eager to do your work and earn your place among your shipmates – we just don't want you to get hurt trying too hard. Be certain your supervisor always knows what you're doing.

Petty Officer Greenwell is the command safety PO for VQ-3.

Batteries and belt buckles can light you up. The victim in this story didn't use PPE.

Teamwork Minimizes Damage by Brake Fire

Left to right front:
AE3 Michael Sever
AE3 Jeremy Jacobson
AE2 Tim Prentice
AN Omar Farfan
Left to right rear:
AMS3 Johnnie Adkinson
AD3 Daniel Lamm
AMS3 David Meyers
AMH2 Richard Aillett
VF-102

During a routine recovery at NAS Oceana, Diamond 116 pulled into the throat for a hot-brake check. There was no unusual heat coming from the brakes. AE3 Jacobson then taxied the Tomcat into a spot. The pilot kept the engines running while the flight crew completed postflight checks.

When the pilot shut down about 10 minutes later, AE3 Sever saw light smoke coming from the port brake. AMS3 Meyer and AMS3 Adkinson inspected the brake and found hydraulic fluid leaking from the brake housing. AMS3 Adkinson directed AN Farfan to bring a fire extinguisher to the aircraft, just in case; the brake caught fire before he returned.

AE3 Jacobson saw the fire, reported it to maintenance control, then ran for a second fire extinguisher. AMS3 Meyer, AE3 Sever and AE2 Prentice ran to help AN Farfan fight the fire from in front of the aircraft. AMH2 Aillett fought the fire with AE3 Jacobson from aft of the aircraft. After several re-flashes and the use of a third fire extinguisher brought by AD3 Lamm, the fire went out.

Teamwork, training and immediate response saved the aircraft from serious damage. Inspectors found a crack in the brake housing.

Mechanics Are Only As

The best time to learn about your unit's tool control problem is

a. while pushing the flight schedule

b. during a Naval Safety Center survey

c. during major maintenance, such as an engine change or a phase inspection.

Let me tell you what our squadron learned before you answer.

Our command staff was aware of an upcoming survey by a team from the Naval Safety Center. Instead of telling the maintenance troops so they could prepare for the requested visit, the staff wanted an accurate snapshot of how we operate. That snapshot was a real eye-opener.

The team reviewed our tool-control program and identified some serious discrepancies. For example, airframes division was using a file with a missing tip. A missing-tool investigation should have been done the instant shop personnel knew about the broken tool, and they should have surveyed it. Neither occurred. When our power-line division surveyed a tool, they indicated it in the toolbox with a white outline of the tool, but they didn't place a document number on the toolbox's shortage list. They didn't file it with QA, either.

Incorrect documentation and a paper trail of broken or worn-out tools that people surveyed but never replaced were the root of our problem. For our new people and anyone not indoctrinated or trained on tool control, seeing a white outline in a toolbox where a tool should be implies (and here is where problems always start) it is SOP and that corrective action has been taken.

This tool-control picture was worth 10,000 words, some of which I cannot print. It told us we needed to review our directives and get going with corrective action.

After setting up a special monitor for overseeing tool control and reviewing directives, we briefed tool-control procedures to the maintenance troops. We also established two policies to help evaluate the effectiveness of our program:

If one of our maintainers finds a discrepancy in a toolbox, such as a missing tool or incomplete documentation, our tool-control program is effective.

If a CDI or work-center supervisor finds the problem, the tool control program isn't working and training is needed.

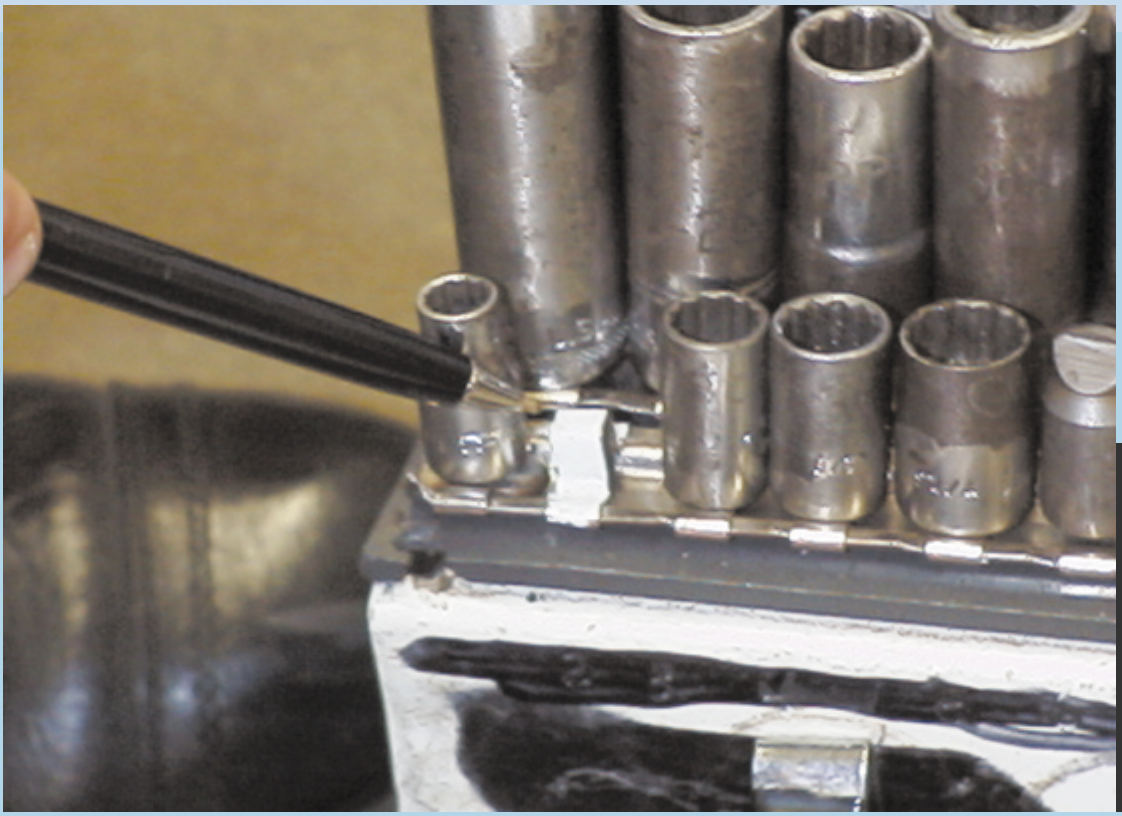
These two statements will help you identify and correct problems at the source as they occur. Use them to close the gap between directives and practical application.

GySgt. Phillips is the QA chief for VMA-513.

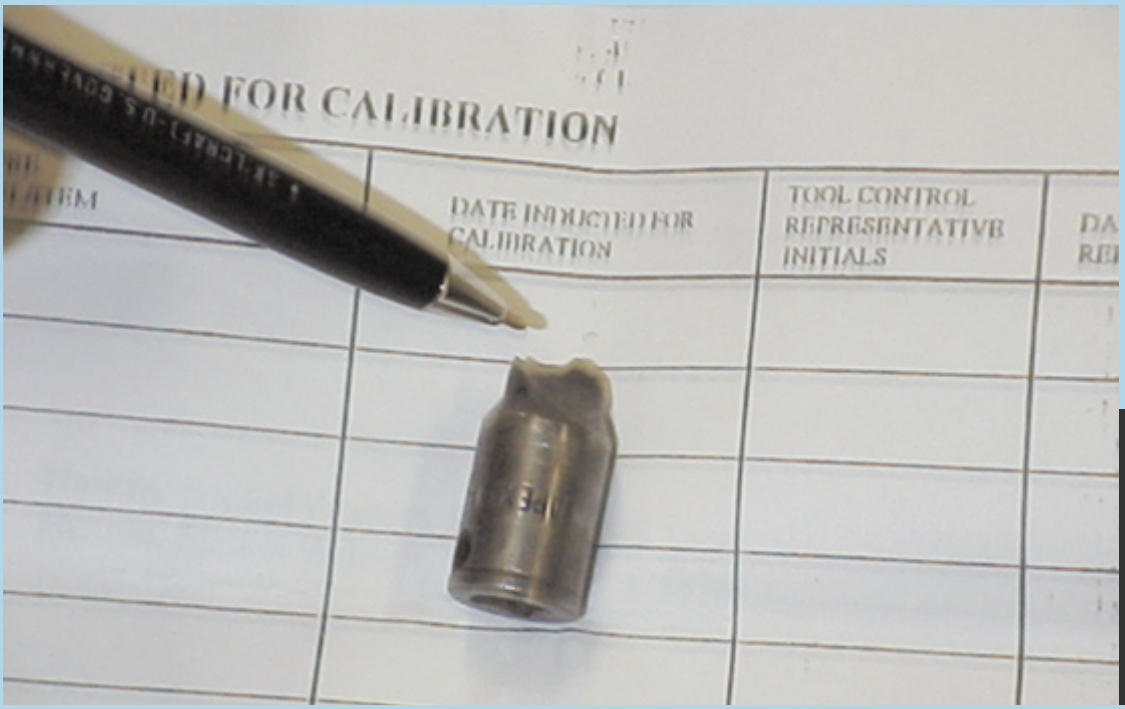
A missing-tool investigation must be done the instant shop personnel know about a broken tool ...

s Good As Their Tools

by GySgt. Chuck Phillips



The white paint means the corresponding tool has been surveyed. The document number must be entered on the toolbox's shortage list and filed with QA.



This broken socket is the tool that came from the white area in the first photo. Notice the tool control document under it.

Santa Ana and the Flying Doghouse

by AMH1(AW) Steven Bancroft

It was sunny and warm in San Diego, with Christmas only a week away. We expected Santa Claus and his reindeer; instead, we got Santa Ana and a flying doghouse.

Santa *who*? Not who, what. A Santa Ana is a powerful wind that blows down out of the mountains, kicking up sand and ruining perfect Southern California days. It isn't really strong enough to pick up a doghouse, beagle and all – "doghouse" is the nickname for the hydraulics-bay fairing atop the SH-60 Seahawk.

One of our PCs was on top inspecting the hydraulic reservoirs for servicing. That requires the doghouse to be unlatched and slid forward on a track. When the fairing is in this position, a strong gust can get under it and cause it to swing back and strike an unsuspecting PC. So, just as you might think, if it can happen, it will happen—and it did. Fortunately, our PC wasn't thrown from the aircraft and seriously injured. He did, however, get a nasty bruise from falling into the hydraulics bay.

There are two truths to learn from this incident. First, we shouldn't have two mindsets, one for sea and one for shore. Although using two people when opening the doghouse in windy weather isn't mentioned in the plane captain manual, the practice is common at sea where high winds are the norm. Second, experience teaches us to give new people a thorough work-center indoctrination, because there are no new injuries, just new people getting injured.

AMH1 Bancroft is safety PO at HSL-41.

Marine Down!

by Maj. Stephen M. Breen

Five people have been killed by towed aircraft since 1988. Twenty-five more were hurt badly enough to be Class B or C mishaps.

Our maintenance people were looking forward to securing for the weekend after a long, hard day, but first we had to tow all our aircraft into the hangar because thunderstorms had been forecast for that night.

As our five-man team began moving a 9,000-pound UH-1N from the flight line toward the hangar at 2 mph, something unexpected happened. An avionicsman, returning from the flight line, decided that rather than carry his toolbox back to the hangar, he would have the Huey carry it for him. The starboard wing-walker watched as the avionicsman approached the Huey's cabin door, which is forward of a ground-handling wheel. As he placed his toolbox inside the helo, the wheel rolled over his foot. The towing stopped when the avionicsman fell to the deck writhing in pain; we called for an ambulance.

The avionicsman's safety boot absorbed most of the damage. X-rays revealed no broken bones; the Marine sustained only a severe sprain when he could easily have been permanently disabled.

We re-learned a harsh lesson that night. People assigned to move-crews must understand their responsibilities, one of which is not let anyone near the aircraft while it is under tow. Although the avionicsman showed poor judgment and a disregard for SOP, the wing-walker was equally at fault. His complacency allowed the avionicsman to approach the aircraft while it was moving.

The mundane nature of towing aircraft makes it one of the most dangerous jobs we do in aircraft maintenance. When something becomes mundane, inattentiveness is not far behind.

Maj. Breen is the maintenance officer for MAG-42 Det C, NAS JRB New Orleans, and a regular contributor to *Mech*.

Some people just don't believe mainmounts or ground-handling wheels can catch them–they're betting their lives on their speed and agility. Don't walk or stand forward or aft of a tire when the airplane is moving.

Coming Unscrewed

by John P. Deffes

"I saw one of these bolts at the hardware store just last week."

In my 10 years as a mechanic at the Naval Aviation Depot at Jacksonville, Fl., I've worked on A-7 Corsairs, EA-6B Prowlers and FA-18 Hornets. Every aircraft has the same problems with hardware: incorrect, missing or unauthorized fasteners that are supposed to keep components attached to the airframe.

I can't tell you how many times I've removed a panel for maintenance only to find that the fasteners holding the panel on the airplane are the wrong grip length. Sometimes, only a thread or two holds the fastener in place. Conversely, I have also found fasteners so long they've damaged the nut-plate or channel that holds the nut. What do you suppose happens next? We have to fix it. This takes time and time is money. Your squadron gets charged for these fixes–money your skipper can't afford to spend.

Not long ago, we began disassembling a Hornet, and I noticed that there were five fasteners missing from a rudder-actuator access-panel. Where'd they go? No one at the depot knew. Apparently, the Hornet flew in like that. When I see problems like this one, I wonder if the missing fasteners are lying on a runway somewhere. I also have visions of some nice lady working in her garden getting bonked on the head by a missing fastener or the panel itself. Once again, we at the depot have to order the fasteners and install them. Time is money. "Ka-ching" ... your money.

Just the other day, we were taking an ECS component out of an aircraft when my partner held up a bolt and declared in his best Billy-Bob voice, "I saw one of these bolts at the hardware store just last week." Sure enough, it was a generic bolt (no marking). It looked exactly like the bolts you can buy anywhere in town. The bolt was one of two holding a component to the airframe. We were unable to identify its origin or its suitability to go flying, so we round-filed it. We didn't have a replacement bolt in stock, so we had to order it. "Ka-ching"

Recently, I noticed the flap shrouds on a bird were unusually loose. Checking closer, I saw bushings were missing. When one of the squadron airframe mechs came over for a look-see, his response was, "They're like that all the time; it's no big deal." I've got news: Bushings serve a definite purpose–without them, the pins holding the shrouds wallow-out the attachment holes. Given enough time, had we not fixed the problem, the flap shrouds could have decorated a North Florida pine forest or somebody's house.

What can you do? First, check your attitude. Remember that when engineers design a panel, a component, or an aircraft, they have sound reasons for wanting a certain grip-length fastener installed in a specific place. If you install a component or panel, use only the correct hardware. If you don't have it, and it can't wait, install only an acceptable substitute. Between your supply personnel, shop supervisor, and the IPB, you can sort out which fastener is suitable.

Second, work-center supervisors and division officers must get involved. Do your people have the fasteners they need to do the job right? The biggest reason the wrong fastener gets installed is because the maintainer doesn't have access to anything else. If work-center supervisors and division officers don't foster an atmosphere that allows the maintainer to say no to unacceptable fasteners, they're contributing to damaged components. It takes a professional, well-trained, caring individual to say no to improper fasteners or procedures.

John Deffes is a depot-level mechanic at NAS Jacksonville.

Navy photo by PHAN Jose Cordero

Navy photo by PH1 Nicholas D. Sherrouse

Navy photo by PHAN Lance Pofahl

Too many aircraft go into depot-level maintenance with missing, unidentifiable or wrong bolts, and broken anchor strips. When people such as AN Tracy Pipes (top photo), doing a daily inspection on a VAQ-135 Prowler aboard USS *Carl Vinson* (CVN 70) in the Arabian Gulf; AMSAN Gregory Wendel (bottom left) repairing an aircraft panel in AIMD aboard USS *Enterprise* (CVN 65) en route to the Persian Gulf, and AE3 Joey Jose (front) and AE2 Rick Edwards reinstalling panels on a Tomcat aboard USS *Nimitz* (CV 65), find these problems, their difficult jobs become even harder.

BRAVO ZULU

From left to right:
AMS1(AW) George Gabri
AE1(AW) Darrell Allen
AE2 Johnny McCree
VAQ-142

Checking movement of the upper control stick on Gray Wolf 522, AE2 McCree thought the movement didn't feel quite right. He secured the portable diesel generator to reduce ambient noise, then called his supervisor, AE1 Allen. The two began looking for the cause of the unusual feeling and detected a slight grinding noise that could only be heard when the stick was moved through a complete fore-and-aft cycle.

Petty Officers McCree and Allen decided they needed help; they asked the airframes QAR, AMS1 Gabri for assistance. Working together, the team isolated the source of the noise: A stabilizer-control-linkage bearing, located in a sealed panel under ECMO 3's seat, had failed internally. The bearing's seal had cracked, and failure was imminent. Petty officers McCree, Allen and Gabri prevented the EA-6B's flight controls from failing in flight.

AME2 Todd Kissinger
VAQ-139

by AMEC(AW) Mike Fleshman

Too often we read about improper technique. It's refreshing when mechs pay attention to detail, take pride in their work, and inspect what they're responsible for and the surrounding area as well.

During a 224-day special inspection of an aircrew-escape system, AME2 Kissinger had trouble removing the inner and intermediate tubes from the outer barrel of an ejection seat's catapult assembly. He extended and removed the tubes from the outer barrel and found a sheared rivet at the bottom of the assembly. The rivet had come from the intermediate section that allows the tubes to telescope during an ejection and the seat to separate from the tube assembly.

AMS2 Kissinger discovered this life-threatening and unusual discrepancy by thoroughly cleaning the entire assembly before he inspected it. If someone had tried to eject before this find, the sheared rivet could have prevented ejection.

Chief Fleshman has been commissioned an LDO Ensign. He was a maintenance analyst at the Naval Safety Center. He has transferred to HC-6 via two schools.

Sgt. Joshua McCann
VMA-211

A CDI for the powerline division, Sgt. McCann was troubleshooting a fuel leak on an AV-8B. He found that the leak was not the usual loose connection or break, but the result of a Teflon-coated conduit chafing against a hard line to a boost pump's pressure-switch. The leak was beneath the hot section of the engine.

Realizing such a fuel leak is a fire hazard that could destroy an aircraft and pilot, Sgt. McCann immediately coordinated with maintenance control to inspect all the squadron's Harriers. He found nine birds with the same chafing and four that needed repair. He told his supervisor and helped write a hazard report that quickly led to the grounding of the entire Harrier community.

Acting on his own initiative, Sgt. McCann then developed a fix using off-the-shelf parts from the supply system. He wrote a RAMEC proposal outlining his fix that was accepted up the chain-of-command and resulted in a formal technical directive to inspect and fix all AV-8B aircraft. He is credited with many saves during a time of dwindling assets and has been nominated to receive the Navy and Marine Corps Commendation Medal.

AN Melissa Mitchler and AE2 Steven Lewis
VAW-120

Airman Mitchler, a plane captain, was directing Greyhawk 634 for a launch; she used an APU to start the C-2A's port engine. During the start, she saw flames and blue smoke coming from the tailpipe of the APU. She gave the fire signal to the pilot, who promptly began shutting down. AN Mitchler then got the attention of the flight-line coordinator, AE2 Lewis.

Because of heavy smoke around the aircraft, AE2 Lewis and AN Mitchler could not verify that the aircrew had left the aircraft. The C-2A's main entrance hatch is closed during engine start, so AE2 Lewis and AN Mitchler expected the flight crew to leave the aircraft from the aft cargo ramp.

Acting quickly, they opened the main entrance hatch, providing an alternate route of escape for the aircrew. Dense smoke billowed out of the now-open hatch, but AE2 Lewis and AN Mitchler stayed until they were sure the aircrew had gotten out of the aircraft. Then they turned their attention to clearing the area around the aircraft to make it easier for firefighters to arrive.

VAW-120 designated AE2 Lewis and AN Mitchler safety pros of the week.

AMSAN William Harnish
VR-54

While washing a C-130T for a 28-day inspection, AMSAN Harnish noticed a crack in the paint. Although he continued washing the Herc, he strongly suspected that the crack wasn't just a defect in the paint layer.

After finishing the wash job, AMSAN Harnish checked more closely and identified an 8-inch crack on the top-aft side of the starboard wing. A more in-depth inspection revealed that the hat section was also delaminating.

Had this discrepancy gone undetected, the upper wing surface could have failed. AMSAN Harnish's willingness to go the extra mile may have prevented a disaster.

AO1 J. C. Williams
VS-31

Deployed aboard USS *John C. Stennis* (CVN 74), AO1 Williams checked the area around the squadron's alert S-3B, then continued checking in and around an adjacent EA-6B. After searching the deck for FOD, the safety PO looked into the Prowler's starboard engine intake and saw several large pieces of the engine's fan blades missing. He immediately told the VAQ squadron's maintenance control who sent a QAR to inspect the aircraft. The Prowler had recently completed an engine turn and was awaiting the next launch cycle. Inspectors verified engine damage.

AO1 Williams identified a serious hazard and broke a chain of events that could have led to a failed engine on the cat.

AT3 Eric Cole
VS-22

A COD taxied to cat 1 while a Viking prepared for launch just 30 feet behind it on elevator 1, just aft of JBD 1. The flight deck crew had finished the Viking's final checks. AT3 Cole, awaiting break-down, was guarding No. 2 intake. JBD 1 went up, and as the COD went into tension, a stream of air rushed around the edge of the JBD directly into No. 2 intake of the S-3B.

A troubleshooter left the catwalk ladder and walked between the JBD and the S-3B. Despite warnings from people to stop, she walked into the vortex of air. The prop wash lifted her off the deck and sent her flying. There were only two landing zones — the intake of No. 2 or over the side.

AT3 Cole tackled the troubleshooter just before she could fly into the intake. Rolling, they came to rest under No. 2 engine, just inches behind the Viking's intake. AT3 Cole suffered an injured knee and a few days light duty – a minor price considering the alternative.

AMS3 Russell Law and
AMSAN Jeffrey Herbst, VAW-117

During a routine preflight inspection on Wallbanger 603 aboard USS *Carl Vinson* (CV 70), AMS3 Law and AMSAN Herbst (both airframes troubleshooters) heard a popping noise when the E-2C's rudder surfaces moved. The pair reported the strange sounds to their FDC and a QAR.

Inspection and disassembly of the upper and lower rudder surfaces established that three bearings in the port rudder and both of the bolts that hold the starboard vertical fin to the horizontal stabilizer were worn beyond limits. The bearings and bolts were replaced and the aircraft resumed full-mission capable status.

AMS3 Law and AMSAN Herbst identified an elusive discrepancy that could have resulted in jammed flight controls or the vertical stabilizer departing the aircraft in flight.

Cpl. Matthew Stevenson
MAG 42 Det C

AT2(AW) James Geiselbrecht
VP-8

PO2 Geiselbrecht and a combat aircrew climbed into the night sky in a P-3C on their first counter-drug mission of a Caribbean deployment. Shortly after takeoff, the PPC delayed condition-four checks (aircraft inspection) until the aircraft was clear of a squall. Petty Officer Geiselbrecht, the starboard aft observer and in-flight technician, remained at his station and continued his outside scan.

With only minimal light outside, PO2 Geiselbrecht saw a leak flowing from the outboard side of No. 3 engine and immediately warned the flight station. The crew decided it was a fuel leak. They shut down the leaking engine, consulted the NATOPS, dumped fuel, aborted the mission and landed overweight on three engines at Roosevelt Roads.

Petty Officer Geiselbrecht's find on a rainy night saved the Orion from an in-flight engine fire.

While doing a daily inspection on an AH-1W, Cpl. Stevenson found a small scratch on the tailboom skin adjacent to the 42-degree gearbox. There are no specific inspection criteria for scratches or cracks in this area in the daily deck.

Further investigation and subsequent NDI testing revealed a substantial crack in the tailboom skin. The entire tailboom had to be replaced. This assembly is critical to flight safety.

Had Cpl. Stevenson not gone beyond the daily's inspection requirements, and this discrepancy remained undetected, the weakened tailboom might have broken off the aircraft in flight.

CROSSFEED

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ALSS

Where Is Good Housekeeping?

by AMCS(AW) Mike Callahan

When I do a survey, a quick walk-through of a hangar and its spaces tells me a lot about how the activity works. I'm convinced that one of the simplest ways we can help our Navy and Marine Corps team is to clean up after ourselves.

Recently, I walked into an AME/PR work center and several items immediately caught my eye: cartridges, aircrew gear, oxygen parts, and greasy aircraft parts, all items you normally would find in a similar work center. The problem was the aircrew gear. Uncapped oxygen parts and greasy aircraft parts have no business being piled together. The cartridges had been left in the work center the night before and were just inviting a mishap; they should have been stored in a ready-service locker.

There are NAVAIR instructions, OPNAV instructions and SOP that tell supervisors not to store things like that. How often do we follow them?

Senior Chief Callahan is a maintenance analyst at the Naval Safety Center; he recently reported from VF-103.

Fighting FOD in the Flight-Equipment Shop

by PRC(AW) William Yeager

Riggers, look in your aircrew-gear storage lockers. What do you see behind the maps, helmets, torso-harness G-suits and dry-suit liners? FOD. Open a helmet bag and take out the helmet. What will you find? FOD. Open the gun-holster pocket behind the knife and flare pocket on any SV-2 survival vest. What do you find? FOD. Check out the bottom of the parachute bag that gear is stored in. What do you see? FOD.

We pay a lot of attention to personal FOD control, yet we allow aircrews to leave the shop with containers full of potential FOD. Yellow foamies, pens, pencils, spare helmet-to-mask communication cords, spare batteries and gum wrappers are leaving your shop for the flight line or flight deck virtually unaccounted for.

Throughout the fleet, parachute riggers take pride in keeping their spaces FOD free, but tend to overlook the areas that house the aircrews' parachute bags and helmet bags that contain the flight gear. It only takes a few minutes to clean out your aircrew lockers, but then you must educate your aircrews not to leave FOD in their lockers, helmet bags, and SV-2s.

Now, open up the little storage drawer beneath your sewing machine. What do you find? FOD. Set up accountability procedures for spare parts, such as bobbins and needles in those sewing machine storage drawers. Clean them up.

Chief Yeager is a maintenance analyst at the Naval Safety Center.

Navy photo by PH2 Anthony Briggs, Jr.

SUPERVISION

Under Direct Supervision

by AMCS(AW) Joe Huerd

Peer pressure is a powerful influence. If a young mechanic takes an MRC deck to do a daily inspection, his peers might call him a "boot." Some supervisors think only inexperienced mechanics use technical publications to train subordinates to do maintenance. If a supervisor trains his people with the book, he's a "boot supervisor." How do you train your people—by the book or the old-fashioned "salty" way?

Read the following quotes extracted from recent hazard reports. What key word stands out?

"Human error and supervisory error: Worker failed to have MIMs present while testing a fire warning light. Work center supervisor failed to provide adequate training in publications and maintenance practices."

"Insufficient supervisory attention to procedures during the inspection. Personnel failed to ensure the multimeter was correctly prepared for the test. The supervisor was involved in the inspection and failed to make sure his trainee was following correct procedures."

"Performing unauthorized maintenance on aircraft with ordnance systems armed. Failed to use caution while performing system checks when other maintenance personnel had access to and could apply power."

The word that stands out is "failed." How many failures does it take to fix the problem of not using the book? Why does ego win out over common sense?

AMCS(AW) Huerd is a maintenance analyst at the Naval Safety Center.

AIRFRAMES

Hornet Hydraulics 101

By Sgt. M.J. Malone

If I told you I'm in a Hornet squadron that changed only 12 flight-control servo-cylinders in the last 12 months, you'd probably call me a liar. If I told you we only cannibalized one flight-control servo-cylinder in 1998, you'd probably say I'm living in a dream world. You might even say we've been flying with flight-control system (FCS) leaks and using blin codes. That's not the case. I'm neither lying nor exaggerating, and you, too, can live this reality. Our key to top-quality maintenance of Hornet hydraulic systems has been that we're using our support equipment correctly.

Hydraulic-system contamination causes excessive heat. That heat deteriorates O-rings and the electro-hydraulic valves that control servo-cylinders. In turn, these problems produce an FCS "x" or blin code on the flight control page. The only effective way to remove that contamination is with hydraulic test stands (jennies). Some airframe mechs who've been around for a while say it's easier to just turn up an aircraft after a hydraulic component has been replaced; those mechanics are increasing their own workloads. The manuals direct us to apply external hydraulic power to leak- and op-check every hydraulic system component, except the pumps.

I can prove my claim by recounting our squadron's history. We received brand new FA-18s in the early '90s. Within the next 18 months, our sister squadrons received the next two batches of FA-18s. After three years with the same aircraft, we transferred them and received Hornets that were two years newer. Before the trade, we spent very little maintenance time changing flight-control servo-cylinders. After the swap, we had to change a servo-cylinder every night. Six or seven weeks later, by using jennies, we were down to two to three changes a week. Six months later, we were changing a servo-cylinder every two weeks. I thought this odd, so I started watching how other squadrons conducted their business. They were, and still are, using the incorrect but common practice of turning up an aircraft to op-, leak- and rig-check replaced hydraulic components.

Our airframes division insists on using jennies every time they open a hydraulic system. Maybe it was a coincidence, but within a year, the aircraft we transferred were getting new servos installed every night.

A year later, we traded aircraft with another squadron in preparation for another six-month deployment. This time, we traded for aircraft that were one year older. I watched as this other unit's maintainers prepared a down aircraft for transfer. They had both stabilator servos, both aileron servos, and one trailing-edge flap-servo out of the aircraft awaiting replacement. The next day, after all the parts were installed, they turned the Hornet to leak-, rig-, and op-check it. After observing this, I noted that we had to change a servo every night for the first month we owned these newly accepted birds. Three months later, we were changing one or two a week. After using the correct procedures a while longer, we didn't change any servos in the final month (January 1997) of our deployment. In 1998, our squadron changed 12 flight control servos and cannibalized one.

A large portion of a Hornet squadron's maintenance effort goes into scheduled maintenance and technical directives. This is unavoidable; however, we can reduce the effort we spend on unscheduled maintenance. Using two jennies every time we remove a flight-control servo is one of those ways, and using two jennies for phase inspections helps keep our hydraulic systems healthy.

The flight schedule is our number one priority, but taking shortcuts in maintenance will only hurt that effort in the long run. Therefore:

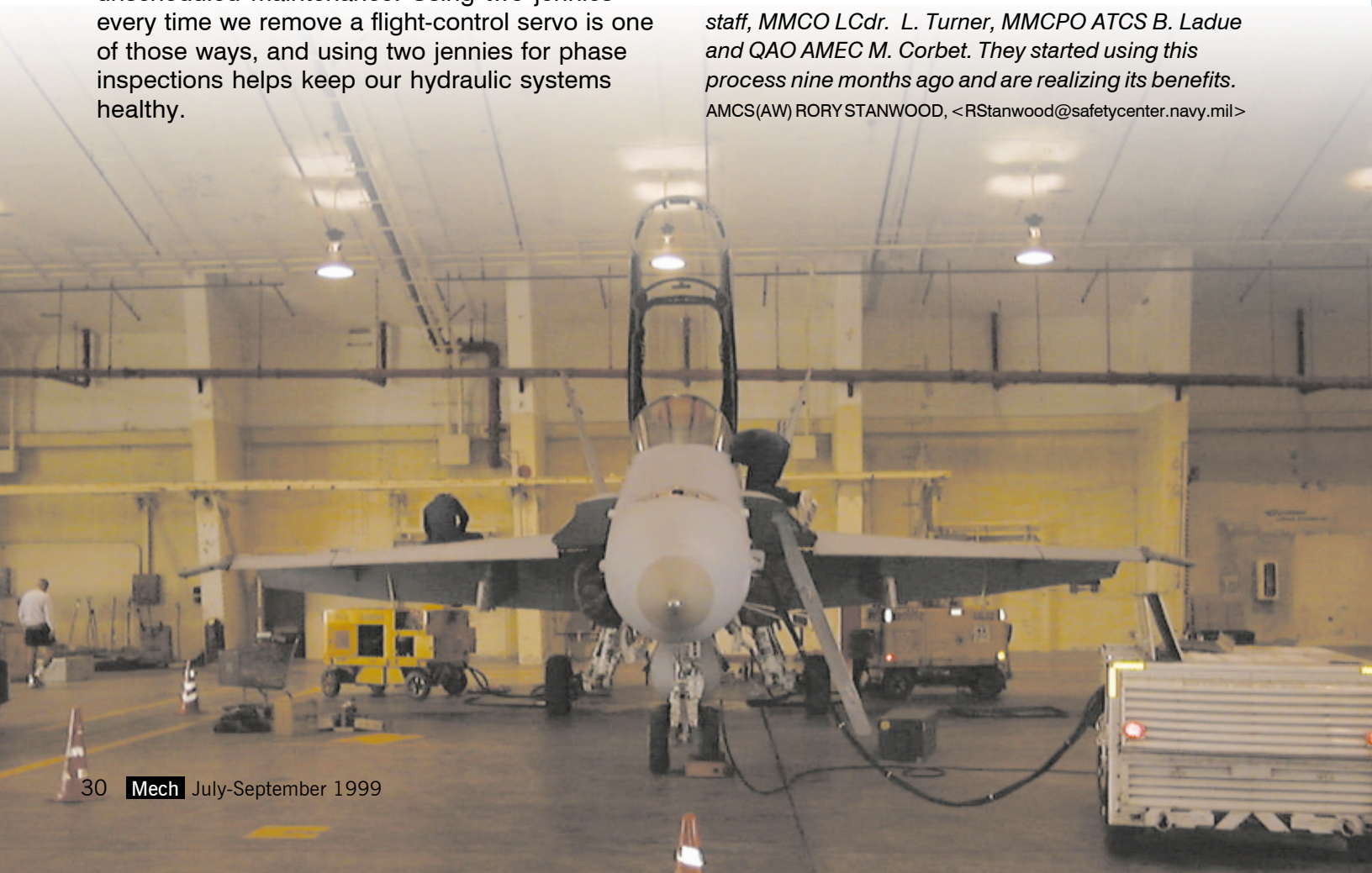
- use jennies every time you open a hydraulic system and you will reduce flight-control discrepancies;
- reducing the number of servos changed for discrepancies increases the availability of repairable materials (servos);
- increasing the availability of repairable materials will reduce cannibalization.

All of this translates to more "up" aircraft and more time for your airframers to train to do their jobs correctly. If you want to fly more, have healthier aircraft, and increase readiness, force your people to follow the book for six months.

Sgt. Malone is stationed with VMFA(AW)-533.

Maintenance Analyst Note: *A great example of working smarter, not harder. This method is worthy of a Maintenance Engineering Advisory (MEA) or an Interim Rapid Action Change (IRAC), followed by a Technical Publications Deficiency Report (TPDR) because the MIM doesn't point out the need for using two hydraulic test stands. This procedure is known in the community, but some people see it as an inconvenience and complain it takes too long. The advantages far outweigh the excuses. Only a few squadrons are using the two-jenny method . I talked with some members of the VFC-12 maintenance staff, MMCO LCdr. L. Turner, MMCPO ATCS B. Ladue and QAO AMEC M. Corbet. They started using this process nine months ago and are realizing its benefits.*

AMCS(AW) RORY STANWOOD, <RStanwood@safetycenter.navy.mil>



Squawks

"Squawks" or "gripes" are problems identified by pilots for maintenance crews to repair. Here are some gems turned in by airmen and the humorous replies from their maintenance crews.

Problem: "Left, inside-main tire almost needs replacement."
Signed off: "Almost replaced left, inside-main tire."

Problem: "Test flight OK, except auto-land very rough."
Signed off: "Auto-land not installed in this aircraft."

Problem: No. 1: "No. 2 propeller seeping prop fluid."
Signed off: No. 1: "No. 2 propeller seepage normal."
Problem: No. 2: "Nos. 1, 3 and 4 propellers lack normal seepage."

Problem: "The autopilot doesn't."
Signed off: "It does now."

Problem: "Something loose in cockpit."
Signed off: "Something tightened in cockpit."

Problem: "Evidence of hydraulic leak on right, main-landing gear."
Signed off: "Evidence removed."

Problem: "DME volume unbelievably loud."
Signed off: "Volume set to more believable level."

Problem: "Dead bugs on windshield."
Signed off: "Live bugs on order."

Problem: "Autopilot in altitude-hold mode produces a 200-fpm descent."
Signed off: "Cannot reproduce problem on ground."

Problem: "IFF inoperative."
Signed off: "IFF inoperative in OFF mode."

Problem: "Friction locks cause throttle levers to stick."
Signed off: "That's what they're there for."

Problem: "No. 3 engine missing."
Signed off: "Engine found on right wing after brief search."

What's on Our Web Site?

- *Operational risk management tools*
- *Survey schedules*
- *Staff directory*
- *Text for Ashore, Approach, Mech, Fathom, Ground Warrior,* and *Aviation Weekly Summary*

www.safetycenter.navy.mil

How Well Do You Float?

by Joe Casto

Photos by PRC(AW) Bill Yeager

There were 1,015 man-overboard incidents from 1980 through 1998; 854 of them were unintentional. There were also 133 deaths and many serious injuries.

COMNAVSEASYSCOM has a newly designed Mk-1 life preserver in the supply system. The new Mk-1 has a nylon zipper instead of snaps, expanded pockets for the dye marker and strobe light, and a redesigned opening to fit both existing and proposed inflators. You order the new Mk-1 with the same stock number you used to order the old life preserver. You even use the same PMS for the new design.

In addition to the new Mk-1, NAVSEA also evaluated a chemical-pill auto-inflator aboard surface ships. The new inflator is an approved alternative to the existing auto-inflator, costs considerably less at $15 per copy as opposed to $112, can be used more than once, and doesn't use an explosive charge to actuate the CO_2 cylinder. NAVSEA will announce how to procure and service the chemical-pill auto-inflator shortly.

Auto-equipped Mk-1s are the only authorized configuration of that preserver permitted by NAVSEA aboard naval vessels. Fleet surveys by the Naval Safety Center have identified several organizational-level commands still using manual inflators. Life preservers fitted with manual inflators are not authorized.

Passengers on helicopters and other aircraft wear NAVAIR's version of the Mk-1, the LPU-30/P. It will remain the only configuration with the manual inflator installed. Brake riders in non-

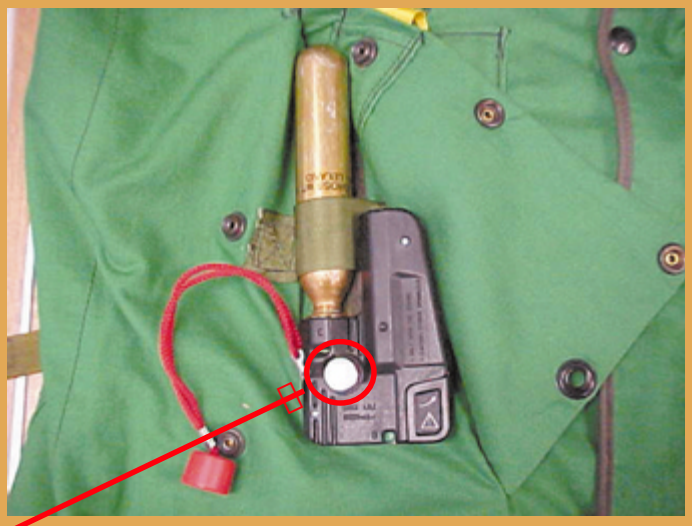
PR1(AW) David Albert of HC-6 models the newly designed Mk-1 Floatcoat.

ejection-seat aircraft wear manual inflators, but automatic inflators have been authorized.

Mk-1 inflator maintenance and installation is still a problem. A random inspection by INSURVLANT of 519 vests in 1998 yielded 78 failures, broken down as follows:

- improper gasket installation, 56 percent
- discharged CO_2 cylinders installed, 12 percent
- twisted bladders, 10 percent
- holes in the bladder, 6 percent
- incorrect torque on manifold cap nut, 6 percent

NAVSEA plans to identify and evaluate commercially available life preservers in 1999 to replace the current Navy versions.



Note the pill used in the new auto-inflator. Order chemical pills in packages of 10: 1701SP1-00-NAV, chemical-pill inflators and gaskets: 1701KIT-00-NAV.

Flight, Flight-Related and Ground Mishaps

Class A Mishaps

Aircraft	Date	Command	Fatalities
EA-6B	04/01/99	VAQ-130	0

A Prowler's external stores jettisoned after a day cat shot.

CH-53E	04/19/99	HMH-361	4

A Super Stallion struck the water during NVG low-light-level ops.

EA-6B	04/19/99	VAQ-129	0

An ALQ-99 pod jettisoned from wing-station 1 of a Prowler, uncommanded.

FA-18C	04/19/99	VMFA-251	1

A Hornet dropped two Mk-82 bombs on a bombing range's observation post. One observer was killed.

QF-4N	04/22/99	NWTS Pt. Mugu	0

A Phantom rolled off the end of a runway during a high-power turn, injuring one civilian.

AV-8B	05/01/99	HMM-365	0

A Harrier crashed into the water during a day CCA.

AV-8B	06/04/99	HMM-265	0

A Harrier caught fire during a takeoff roll; the pilot successfully ejected.

AV-8B	06/14/99	VMA-214	0

A Harrier's engine failed during an air-to-ground mission.

F-14A	06/16/99	VF-154	0

A Tomcat flying single-engine lost the remaining engine during IFR flight. Crew successfully ejected.

FA-18D	06/16/99	VMFAT-101	1

A Hornet crashed into the ground during an ACM flight.

Class B Mishaps

E-2C	03/23/99	VAW-123

Someone left a pair of safety-wire pliers in an engine; FODed engine.

CH-46E	03/23/99	HMM-268

A Marine had a finger severed when a jack collapsed during jacking.

CH-46E	04/03/99	HMM-163

A helo had a tunnel-strike during rotor engagement.

AV-8B	06/01/99	VMA-211

A pylon and a fuel tank fell off a Harrier during a vertical landing.

P-3C	06/18/99	NAVFORAIRTESTRON

No. 2 prop decoupled, damaging No. 1 and No. 2 nacelles and fuselage.

Remove this insert! Post it until it's old news, then display poster on reverse side.

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Data: Dr. Michael S. Borowsky

For questions or comments, call Joe Casto
(757) 444-3520 Ext. 7247 (DSN 564)

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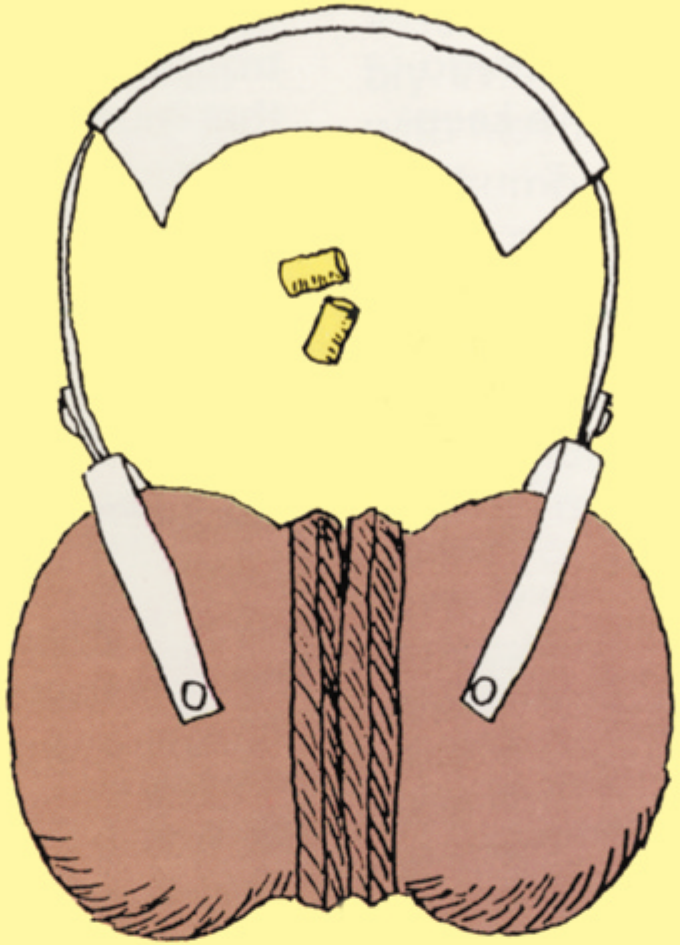
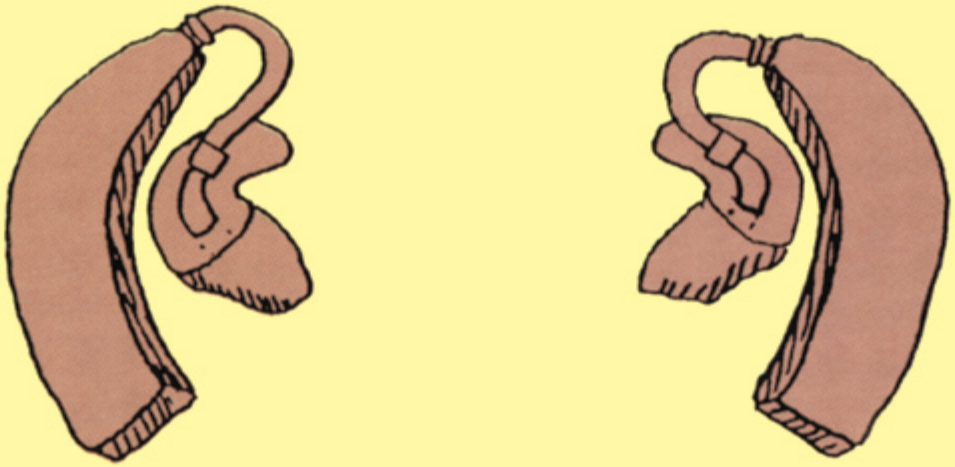


NOW



OR LATER

Poster idea contributed by AT2 R. Marks

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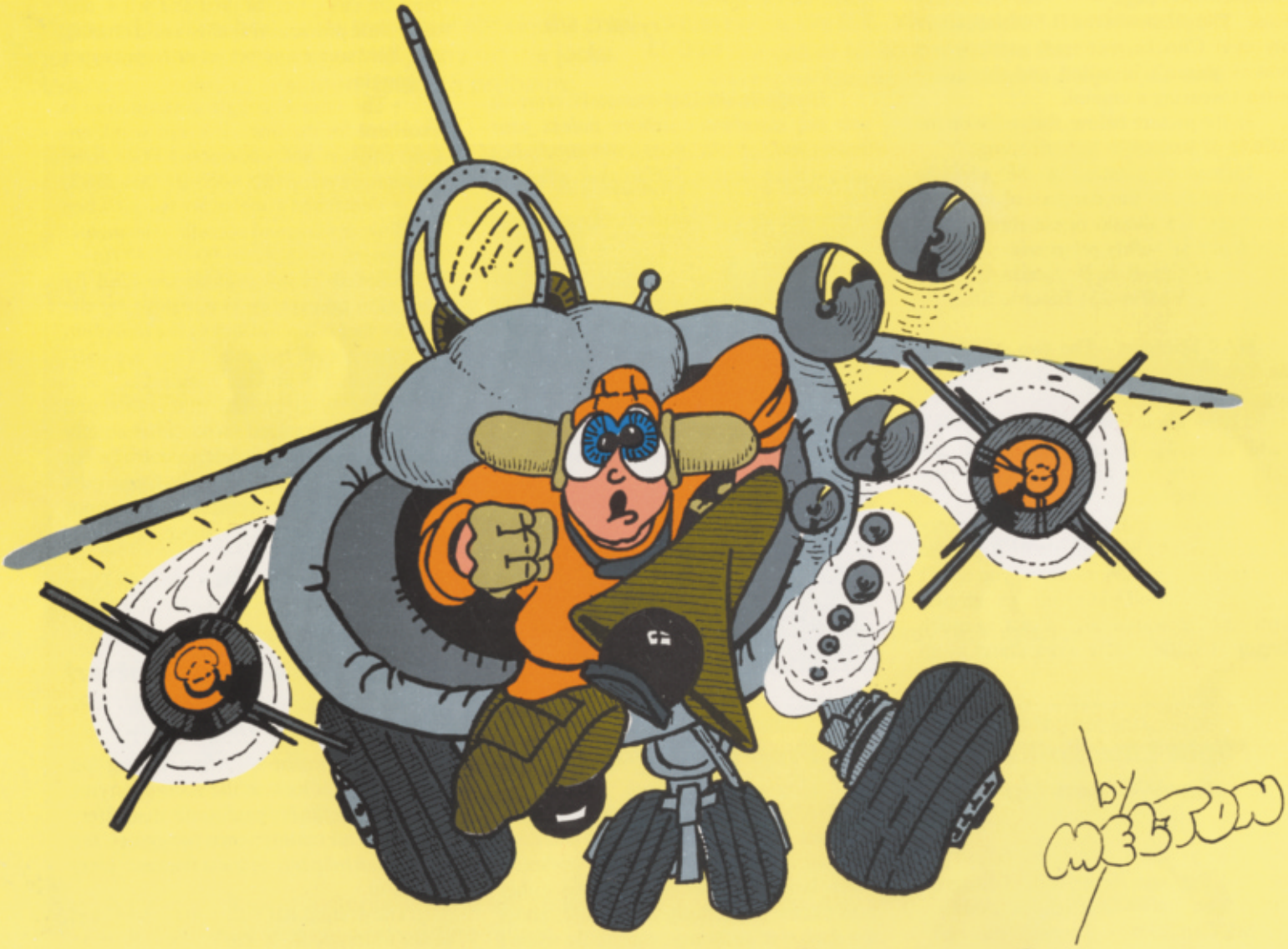
Unless you can run reeeal fast,



don't stand in front of forward-firing ordnance!