CROSSFEED

Cdr. Al Stephens
Head, Aviation Maintenance and Material Division
astephens@safetycenter.navy.mil

AMCS(AW) Steven Novak
Editorial Coordinator
snovak@safetycenter.navy.mil

AME/SEAT SHOP

Trouble With LOX Pressure-Relief Tools

By AMEC(AW) Mike Cant

I am concerned with the lack of consistency in tool-control procedures for liquid-oxygen (LOX) converter, emergency-pressure-relief tools. The NAMP provides specific guidelines to manage these items and directs each division to maintain accountability. That reference also requires tools used on oxygen components to be held in a separate box marked "Oxygen Use Only."

I've looked at a lot of squadrons that use LOX, and these special tools often are not part of the tool-control plan. Four pressure-relief items are required: the pressure gauge and relief-valve test fixture (or lollipop), the LOX-converter drain line, the vent-port drain line, and the adapter knurl knob. The procedures for emergency-pressure-relief and tool usage are found in NavAir 13-1-6.4-4.

I occasionally do find these emergency tools listed in the tool-control program, but it usually is a partial set. A shop will have the pressure gauge and lollipop, but only one of the two types of vent lines, and, if lucky, they'll have an adapter knurl knob. These tools usually are not stored in the same toolbox or in the box marked "Oxygen Use Only," which would offer easy identification and quick access in an emergency. Many of these tools are not inventoried or accounted for.

During surveys, I have found these tools in different places: a cabinet at the LOX storage area, in a desk drawer, and in an IMRL box. A few times I could not find them at all. They were lost or not ordered, and nobody knew they were missing.

I once looked inside an IMRL box and found an oil-saturated toothbrush next to, and touching, a LOX-converter drain line, creating an explosive hazard.

If you are not in compliance, submit a tool-deviation request to add the four LOX-converter, emergency-pressure-relief tools to your "Oxygen Use Only" toolbox. I also suggest getting two sets, in case you have a detachment.

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

For more info…

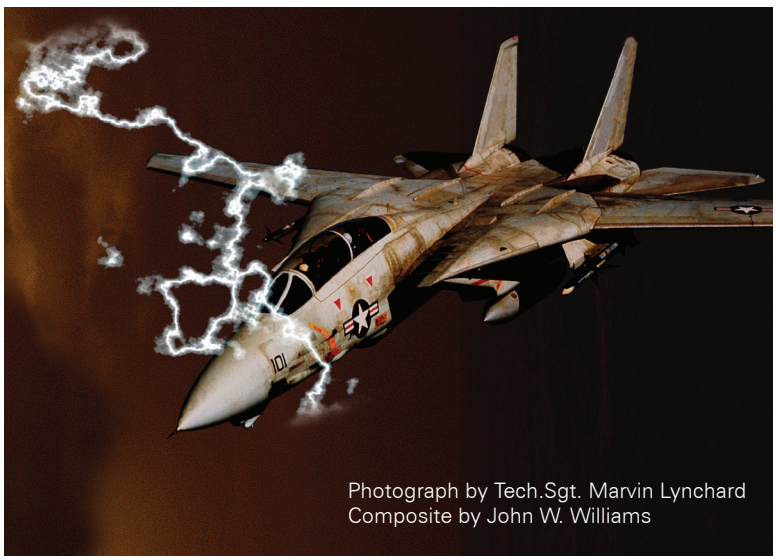
OpNavInst 4790.2H, chapter 13, paragraph k(2), provides specific tool-control procedures and states, "Ensure proper security and control is maintained over all tools and equipment assigned to the division." Paragraph 13.4.1(2) states, "All tools used on oxygen components shall be segregated with the container marked 'Oxygen Use Only.'"

NavAir 13-1-6.4-4, paragraph 4-28 (including figures 4-6 through 4-8), gives the specific procedures to follow when dealing with an emergency-pressure-relief problem.

Improving EMI Hazard Reporting

By CWO3 Keith Koerper

Electromagnetic interference (EMI) has been a part of aviation since electrical equipment was first installed. EMI exists when "undesirable voltages or currents adversely influence the performance of an electronic device." Many potential sources for such interference exist: onboard equipment, external emitters, and even atmospheric conditions such as lightning, precipitation static, and St. Elmo's fire. These disturbances range from an annoyance, such as faint radio whine, to catastrophic.



Photograph by Tech.Sgt. Marvin Lynchard
Composite by John W. Williams

In the past, most EMI incidents went unreported, and, as a result, the topic largely was ignored. Most people still view EMI with skepticism, which has led to little real progress in collecting information on EMI events. Measurable data about this real problem is lacking and makes it much more difficult to fund the required engineering fixes. After all, no data equals no problem, and no problem means no funding—an important economics lesson with widespread applicability in naval aviation. Most naval aircraft enter fleet service already quite EMI-resistant. With today's increasingly complex electronic environment and the mandates for inter-service and multi-national operations (spelled "Network-Centric Warfare"), the need to recognize and report EMI events is even more critical. Unfortunately, no work-unit code is available to document this malfunction. So how does a suspected EMI event get documented?

The answer is found in the OpNavInst 3750.6R; the latest revision specifically addresses EMI and provides guidelines for reporting such incidents. Many maintainers view this as an Ops instruction, but it is applicable to all in naval aviation. A tougher problem is most instances go unreported because they are not recognized as an EMI event. Because most incidents occur during flight, closer coordination between aircrew and maintenance control is required to gather necessary information and document such events.

Section 404 of OpNavInst 3750.6R states, "Whenever electromagnetic interference is encountered, a hazard report will be submitted." It's worth noting there is no distinction made concerning where the EMI occurs. Whether on the ground or in flight, it still requires a hazrep.

The first chance to report EMI to maintenance control comes after the mission and before important details surrounding the event are lost. Without such details in official reports, NavAir cannot address these important mission degraders. This means maintainers must be familiar with and use EMI-reporting procedures.

CWO3 Koerper is the avionics branch officer of the aviation maintenance and material division at the Naval Safety Center.

For more info…

These two points-of-contact can provide more details on EMI reporting:

ATCS Wally Williams
Naval Safety Center, Avionics Analyst
wwilliams@safetycenter.navy.mil
(757) 444-3520,ext. 7280

Mr. Robert Tate
ASEMICAP Fleet Support Team Member
rtate@sentel.com
(757) 456-0786

I Can't Feel My Fingers, and My Feet Are Numb

By AVCM (AW/SW) Monique DiGiorgio

Ever had that sensation: You're so cold all you can think about is how to keep from dropping what you're carrying because you can't feel what you're holding? Hell, you're afraid to move because you can't feel your feet, either. You become so focused on your fingers and toes that you don't realize your nose feels like it will fall off. And when you return to your workcenter, someone asks, "How much longer?" You would like to respond but have difficulty speaking because your mouth is frozen, and you only can drool.

I remember those days. I'm sure several readers have faced the same or similar situations. Many maintainers experienced cold-weather maintenance for the first time this winter. I learned the hard way but hope leaders will teach their people how to deal with the environment. Many supervisors will wait for a Sailor to ask for help. But how many maintainers will?

My ears perk up when I hear, "How can I get the job done faster?" Many Sailors don't say anything about the cold because they have a can-do attitude and accept shortcuts as the cost of doing business. Consider the following maintenance scenario and maintainer's injury, and think about three questions that, if asked, might have prevented the problem: What can go wrong? What can I do about it? If I can't do anything about it, whom do I tell?"

A technician is cleaning a propeller slip-ring assembly on an aircraft parked on the line. The weather is cold, with gusty winds, drizzle, and an overcast sky. Accompanied by a co-worker, a technician removes a brushblock while standing on a ladder and holding a cloth with dry-cleaning solvent against the slip-ring assembly. The co-worker slowly rotates the propeller through two complete revolutions. Determining one more cycle is needed, the technician again tells her helper to rotate the prop. But before the assistant can start, the wind blows and rotates the prop, pulling the cloth and the technician's right hand into the center propeller section. The assistant tries to stop the spinning propeller, but it is too late. The technician fractures two fingers and lacerates a third. She needs surgery to re-attach the fingertip.

When I read the first sentence of this mishap, I expected to read about another Sailor falling off a ladder because of the weather and from a loss of situational awareness. It never occurred to me that a maintainer would tell a shipmate to spin a prop with a hand in a dangerous area. But neither maintainer considered this unsafe.

As leaders, we must look up from our never-ending to-do list and check on our people to make sure they are keeping pace with our demands. We need to be aware of the hazards to which we expose our Sailors and decide whether those hazards are worth what we're trying to achieve. We hardly ever take time to stop and to think about a specific job because we've done that task so many times before. How many times did that technician clean a prop slip-ring assembly?

Do you remember how your intense work ethic enabled you to stick with a job until it was done? Did you stop and take a moment to think about the possible hazards or take precautions to prevent those hazards before beginning the task?

Take time to talk to your people before the job, and use ORM to identify and assess potential hazards, to make risk decisions, and to implement controls to reduce the degree of risk. You then must supervise the work to monitor the effectiveness of your risk assessment. Sometimes, it takes only an objective ear and a fresh look to avoid mishaps.

Master Chief DiGiorgio was a maintenance analyst at the Naval Safety Center when she wrote this article. She transfered to HC-8 in January 2002.

Photograph by PH2 (SW) John Collins

Pick It Up...Ahead of Time!

By Capt. Mark Stiffler, USMC

The fleet assumes doing a FOD walkdown means a command's FOD program is effective. During numerous safety surveys, I have noticed a specific problem with the variety and volume of FOD being found and bagged.

I always make it a point to look at a squadron's FOD board to see what they find on their daily walkdowns. I usually find many consumable parts and materials. When I explain to the maintenance officer that his FOD program needs attention, I get a blank stare or comment like, "We do our walkdowns." The emphasis of the program is not finding the screws, washers, rivets, safety wire, and other debris—in one case a small panel with a part number on it. A successful program keeps those items from becoming FOD in the first place.

Teach your people the importance of accountability of all parts and tools. Pre-Ex bins should be tightly monitored. When conducting tool inventories (ATAFs), maintainers must make sure all consumable material brought to the work area is accounted for. Supervisors should emphasize the importance of general housekeeping.

The NAMP is quite clear about the responsibility of the maintenance department—from the maintenance officer to the workcenter supervisor—to control all types of FOD. One paragraph gives the workcenter supervisor guidelines to ensure maintainers perform a thorough pre- and post-maintenance inspection of tool containers, ducts, plenum chambers, crevices, engine cavities, and work areas. If everyone would adhere to this general rule, the amount of non-organic FOD found during walkdowns would be reduced dramatically.

Photograph by John W. Williams

Capt. Stiffler is the assistant aircraft maintenance and material division officer at the Naval Safety Center.

For more info…

OpNavInst 4790.2H, Volume V, chapter 12.3 gives specific details about FOD responsibilities. Paragraph K, subparagraph (3), gives specific requirements for the workcenter supervisor and outlines the need for pre- and post-maintenance tool and FOD inspections.

Technical-Directive Documentation Made Easier

By SSgt. Van Jones

During fleet safety surveys, I have found problems with the Technical Directive (TD) program and want to offer solutions. Several Class A mishaps were caused by TDs not being incorporated in a timely manner or not at all.

My specific concern is that the NALCOMIS TD report does not agree with the aircraft logbook. When a TD is received, logs and records personnel (or the TD coordinator) must update the NALCO-

MIS TD program with required information and they must note whether the TD has been incorporated. A good way to make sure TDs get incorporated is to bounce the NALCOMIS TD outstanding list with Lists 02 and 04, NA 00-500C, TD pages, ALSS records, or other relevant reports and records. Use all available products to verify this important program.

The NAMP gives detailed information about aircraft TDs, NALCOMIS interfaces, and the need to constantly update and scrutinize documentation. This step is critical to make sure the various programs agree and are documented consistently.

In commands where aircraft constantly are transferred and accepted, this requirement becomes more essential. It is important to balance the NALCOMIS TD report with the actual TD to verify aircraft logbook entries. This provides safe, and more capable, aircraft by ensuring the required configuration is achieved and maintained.

SSgt Jones is a maintenance analyst at the Naval Safety Center.

For more info…

OpNavInst 4790.2H, Volume 1, Paragraph 13.2(a) and Volume 5, Paragraph 11.3J(a) gives detailed information about aircraft TDs, NALCOMIS interface, and requirements for logbook maintainers, TD coordinators, and maintenance managers.

Class C Mishaps: They Happen Everywhere…Don't Be Next

By AMCS(AW) Steve Novak

In this summary of incidents from May 1 to Oct. 31, 2001, no one died and no airplanes were stricken from the inventory. These incidents never made it to CNN, Navy Times, or even your local news. The dollar amount wasn't huge, but the damage did cost $5,195,831. The mishap causes were varied: a lack of attention to detail, poor headwork, and a failure to follow SOP. They all were preventable.

During an aircraft move, all four S3-B canopies were inadvertently jettisoned. A designated and qualified brake rider noticed the safety pin to the T-handle for the main canopy had been removed. The PC grabbed the T-handle and unwittingly squeezed and pulled it while trying to replace the safety pin. This caused the canopy-jettison system to fire, injuring several people—all needed minor first aid. The incident damaged the egress system and canopies. The PC used poor judgment, had limited system knowledge, was not qualified in S-3B egress systems, and disregarded standardized procedures. This mishap cost $91,544.

During a P-3 preflight, maintainers found significant damage to the rudder and to the left and right force-link tabs. Another P-3 was parked tail-to-tail 140 feet away. A turn crew in the other P-3 started the aircraft's engines and set power so high that prop wash lifted the unmanned Orion's elevator and made the rudder move back and forth. This motion damaged the force-link tabs and rudder. The result was $22,460 in damage.

To repair a pylon on an F-18C aircraft, maintainers had to remove an external-fuel drop-tank. A four-man team lowered it from the pylon. As team members grabbed the tank to cradle it, a CDI—who was a qualified team leader—released the tank. It was much heavier than anticipated. They dropped it, and the tank rolled onto a team member's left leg, severely dislocating his knee and lacerating his left hand. The Sailor needed multiple surgeries and required a lengthy rehabilitation. The tank damage cost $41,785.

During an SH-60B aircraft move, the tail-rotor blade struck a hangar-bay door. The move supervisor still was completing his safety walk-around when the director—a qualified PC—gave the signal to pull chocks. The supervisor was shocked because the PC started the move without an OK signal from him. The tail rotor hit the hangar door after a mere five feet of movement. This mishap cost $50,064.

Mishaps like these could happen to your sister squadron, to a different aircraft type, or, if you're not careful, to your squadron.

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

The Class C summary will be a regular Crossfeed feature. Maintainers can do a lot to prevent these types of mishaps, and Senior Chief Novak's summary will share these stories, hoping the mistakes of the past won't be repeated.—Ed.