NAVAL SAFETY COMMAND
SAFETY AWARENESS DISPATCH SA 26-01

Aviation Ground Mishaps (AGMs)

Preventing and mitigating Aviation Ground Mishaps (AGMs) remains an enduring priority for the fleet with the air boss and leaders across the Naval Aviation Enterprise, actively engaged in leading efforts to reduce these incidents. We've averaged one or two Class A-E reported mishaps every single day over the past six years, costing over $630,000,000. That doesn't even touch on the impact to readiness from taking a Sailor or Marine off the playing field for injury and in some cases death. AGMs encompass a wide range of activities, and we need to effectively manage the risk in every activity. These efforts rely heavily upon deckplate leadership, procedural compliance and our greatest asset – our people. Read the examples and apply the lessons learned to your own work—today.


File photo, not associated with a mishap

Focus Good, Fixate Bad

A move crew was tasked to reposition a helicopter in the hangar. The plane captain (PC) filled out the required brief sheet to ensure a properly manned and qualified crew. The crew conducted their Risk Management (RM) brief with the maintenance control supervisor *(Excellent!… we thought)*. As the tow-evolution began, all crew members were focused on maintaining lateral clearance from aircraft parked on either side of the towed aircraft. When the tail approached the partially open hangar door, a wing walker noticed it was about to make contact, activated their electronic wand whistle (EW) and signaled to get the attention of the PC. The brake rider heard the EW and applied the brakes, but no one else heard it over the noise of the nearby power cart, including the tractor driver, who continued pulling the aircraft, overpowering the brake rider, causing the tail rotor of the aircraft to impact the hangar door. Damages exceeded $32,000, not including the manpower required to fix, test and return the aircraft to a mission-capable status. *—This mishap boils down to procedural noncompliance stemming from an inadequate RM brief. The brief lacked key points such as the tow path requiring tail clearance through the hangar door threshold, (the door was opened for tow tractor clearance, not aircraft clearance). The noise of the power cart impeded clear communication but wasn't identified as a hazard, nor mitigated. The crew focused (or fixated) on the lateral aircraft clearance, but not the vertical clearance. A culture of compliance ensures maintenance and processes (like an aircraft move) are done properly. Checklists exist as a guide, so key points are not missed.*

Layers of Safety Effectively Bypassed

After starting the starboard engine with the pneumatic start cart (huffer), the plane captain (PC) signaled the maintainer (M1) to remove the huffer hose from the engine. M1 didn't see the signal because he was busy connecting the huffer to the tow tractor and removing the chocks from the huffer. When M1 turned around, he confirmed with the PC via hand signal to remove the huffer hose and received an affirmative response. M1 then walked along the forward side of the hose toward the nacelle, positioning himself between the hose and the spinning prop. At this point, the tractor driver (TD) began driving away to reposition the huffer in the staging area, but the huffer hose was still connected to the starboard engine. Multiple personnel tried—but failed—to signal the TD to stop. As the tractor moved forward, the hose became taut and swept M1's legs from under him, carrying his body toward the prop arc, where his leg contacted the spinning prop blades. The crew shutdown the engine and called for emergency services who transported M1 for medical care. *—M1 violated an active maintenance directive,* ***from a previous mishap,*** *instructing all support equipment (i.e. the huffer) remain disconnected from the tow tractor until all cords and connections have been removed and stowed. He also inadvertently gave the TD implicit clearance to drive away from the aircraft by removing the chocks from the huffer. The TD violated procedural guidance by operating without a designated safety observer present and didn't visually confirm cords and hoses were secured before driving away. A compliance culture demands a proactive approach to compliance by every member, reducing risk both individually and as a team where anyone is empowered to correct a misstep so it doesn't progress into a mishap.*

The Warning Said: 'Don't Do That!'

Servicemembers 1 & 2 (SM1 & SM2) prepped an aircraft for its next mission by removing special equipment from a previous mission. An assistant opened the ramp and door using external power and then secured the power so the Air Delivery System (ADS) ramp support arms could be removed. SM1 and SM2 placed themselves on opposite sides of the ramp and removed the support arms without incident. They discovered the arms were extended too far to store inside the aircraft. To fix the problem, they decided to re-install the arms, raise the ramp to shorten them and then remove them for aircraft stowage. Again, they took their places and simultaneously worked to align the arms with the attachment fittings on the aircraft...each using a finger as an alignment tool (*never do this!*). No longer pressurized, the ramp slowly settled downward, crushing and trapping both crewmen's fingers. SM2 called out to raise the ramp. The assistant turned on the auxiliary pump and raised the ramp, allowing SM1 and SM2 to free their hands. By this time, the metal had severed a portion of both fingers. Emergency services were called, their severed fingers were retrieved, and they were transported to a medical facility. The amputated digits were unable to be reattached. *—The procedure contains a warning for the operator to "not insert finger into holes for alignment or to remove attaching pin" due to the acknowledged danger in doing so. It's likely not the first time this incident has happened, since it's specifically addressed in the manual. Follow procedures – don't skip over Warnings and Cautions, they are there to keep you safe.*

The $700,000+ Piece of Safety Wire

During final checks of an aircraft before the launch, the plane captain (PC) noticed a broken piece of safety wire on the nose gear that needed to be replaced. Quality Assurance (QA1), who was overseeing the launch, proceeded to the nearby tow tractor and retrieved an aircraft FOD screen (*to protect the running engine from Foreign Object Damage-FOD*), which he raised to hold over the left engine inlet. Shortly after, a tool pouch resting inside the FOD screen was sucked into the intake. The pilot heard grinding noise and shut the aircraft down. Cloth remains of the tool pouch were found lodged in the intake at the engine face. Metal, plastic, cloth and paper fragments were strewn across the flight line behind the aircraft. While no serious injuries were reported, there was over $700k in damage. *—QA1 broke from his oversight role to go 'hands-on' and assist with an aircraft launch issue but neglected to conduct the failsafe step of checking the FOD screen for objects before use. Non-standardized procedures led to each PC having their own habit for how and where they placed the tool pouch and FOD screens for launches. A standardized method of positive tool management on the flight line likely would've prevented the incident.*

Stop Re-Learning the Hard Way

The move crew briefed the aircraft move and completed a Risk Management (RM) sheet. They took their assigned positions and the move was going as planned. Nearing completion, as the aircraft slowed, the wing walker anticipated the next step. Before being signaled by the director and while the aircraft was still in motion, he reached into the cabin attempting to retrieve a set of chocks. The director saw the wing walker's actions and blew his whistle to stop the aircraft, but it was too late—the aircraft rolled over the wing walker's foot. The move was stopped; the wing walker was taken to a nearby hospital and scheduled for surgery. *—This mishap was a direct result of a wing walker violating aircraft move procedures by attempting to retrieve an object from an aircraft under tow. He was fortunate, ending up with only a fracture; similar past incidents have had much worse outcomes. Safeguards, explicit warnings and clear procedures are meaningless unless our people are fully engaged and follow the procedures.*

Key Takeaways

Continue to raise risk awareness with every evolution. Tire changes and tows, walking the flight deck or hangar bay and fill in your activity here—no task is too routine. Increasing risk awareness begins with everyday actions.

1. Go through the steps, not just the motions. Completing a pre-evolution brief or risk management worksheet is ineffective if risk mitigation isn't the true focus. When crews treat these tools as mere checkboxes, they lose value, become hollow and create a false sense of security while the hazards go unaddressed.

2. Speak up when something's not right. Whether it's a procedure that seems 'off' or a teammate is distracted, a culture of compliance empowers people to speak up without fear; their input is valued.

3. Know the procedures and follow them. If you see others not following procedures, refer to #2.

And remember, "Let's be careful out there"