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The Dirty Dozen: Common human error factors in aircraft maintenance mishaps

(Source: Published July 12, 2023, By Air Education and Training Command Safety Directorate)

Aircraft maintenance saddles the worlds of occupational and aviation safety, which makes for a challenging combination of hazards. In the span of one shift, maintainers may encounter the risks of running a turbine engine at thousands of RPMs, falling from the potentially fatal height of wing, or losing a finger to a hydraulically actuated control surface. In the first half of 2023 alone, Air Education and Training Command experienced more than $23 million in aircraft damage costs associated with maintenance, according to Master Sgt. Clinton Gessler, AETC Safety Directorate flight safety NCO. In the mishaps that occurred, a common theme developed: shortfalls in “back-to-basics maintenance,” or as some would say, “Maintenance 101.”

“In my 16-year career as a tactical aircraft maintenance technician, I can tell you aircraft maintenance isn’t a job that is going to get any less demanding,” Gessler stressed. “We will always have to deal with operational and fiscal constraints leading to aircraft availability challenges resulting in the all too familiar feeling of ‘do more with less.’ Additionally, dealing with an emerging near-peer threat and finding innovative ways to employ airpower will create challenges in both mishap prevention and aircraft maintenance’s mission success.”

To better equip maintainers to combat the risks they encounter daily, AETC Safety is leveraging what one safety expert termed “The Dirty Dozen.” This list identifies 12 of the most common human error factors that lead to aircraft maintenance mishaps. This list is by no means all-inclusive, but it includes some of the most frequent elements that influence people in the maintenance community to make mistakes, and understanding these hazards will enable maintenance personnel to avoid costly and dangerous errors.

Whether maintaining a legacy airframe with decades of “lessons learned” or a 5th generation aircraft with advanced automated aircraft health management and troubleshooting systems, The Dirty Dozen affects everyone.

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"When we choose to let these 12 human factors catalyze unnoticed, the probability and severity of mishaps will increase," Gessler said. "However, when we deliberately allocate time and energy towards accomplishing the basics of maintenance — tool accountability, FOD (foreign object damage) walks, cleaning up spills, following tech data, and paying attention to details — we reduce the likelihood of a mishap occurring."

Drawing from SKYbrary (https://www.skybrary.aero/), an electronic repository of aviation safety knowledge, this article will identify and define The Dirty Dozen, and provide suggested countermeasures to reduce the risks posed by each of these hazards.

The List

1. Lack of communication	*2. Complacency*	*3. Lack of knowledge*
4. Distraction	*5. Lack of teamwork*	*6. Fatigue*
7. Lack of resources	*8. Pressure*	*9. Lack of assertiveness*
10. Stress	*11. Lack of awareness*	*12. Norms*

Lack of Communication

Poor communication often appears at the top of contributing and causal factors in accident reports and is, therefore, one of the most critical human factor elements. Communication refers to the transmitter and the receiver, as well as the method of transmission. Transmitted instructions may be unclear or inaccessible. The receiver may make assumptions about the meaning of these instructions, and the transmitter may assume that the message has been received and understood. With verbal communication it is estimated that only 30 percent of a message is received and understood.

Detailed information must be passed before, during and after any task, and especially across the handover of shifts. Therefore, when messages are complex, they should be written down, and organizations should encourage full use of logbooks, worksheets, checklists, etc. Verbal messages can be kept short, with the most critical elements emphasized at the beginning and repeated at the end. Assumptions should be avoided and opportunities for asking questions both given and taken. Furthermore, for critical operations such as towing or jacking an aircraft, or conducting an engine run, ensure all members of the team understand their roles, expectations and what to do if things go wrong. This extra communication may add time to tasks, but even one mishap will cost much more time to sort out, and it may cost someone his or her life.

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Complacency

Complacency can be described as a feeling of familiarity with a task accompanied by a loss of awareness of potential dangers. Such a feeling often arises when conducting routine activities that have become habitual and which may be considered by an individual (sometimes by the whole organization) as easy and safe. With less vigilance, important warning signs can be missed, with the individual only seeing what he, or she, expects to see. Complacency can also occur following a highly intense activity such as recovering from a possible disaster. The relief felt at the time can result in physical relaxation and reduced mental vigilance and awareness.

While too much pressure and demand cause over-stress and reduced human performance, too little results in under-stress, boredom, complacency and reduced human performance. It is therefore important when conducting simple, routine and habitual tasks, and when fatigued, to maintain an adequate, or optimum, level of stress through different stimulation. Always assume you can make a mistake if not careful. Following written instructions and adhering to procedures that increase vigilance, such as inspection routines, can provide suitable stimulus. It is important to avoid working from memory, assuming that something is okay when you haven't checked it, and signing off work that you are unsure has been completed. Teamwork and mutual cross-checking will provide adequate stimulus when fatigued. If supervising, be actively involved in the activities of your subordinates in a positive, motivating way. Effective leadership is helping our Airmen stay actively engaged with their task by ensuring they perform with excellence, while also teaching them how to do so.

Lack of Knowledge

The regulatory requirements for training and qualification can be comprehensive, and organizations must enforce these requirements. Otherwise, lack of on-the-job experience and specific knowledge can lead workers into misjudging situations and making unsafe decisions. Aircraft systems are so complex and integrated that it is nearly impossible to perform many tasks without substantial technical training, current relevant experience and adequate reference documents. Furthermore, systems and procedures can change substantially, and employees' knowledge can quickly become out-of-date.

It is important for employees to undertake continuing professional development and for the most experienced workers to share their knowledge with colleagues. Part of this learning process should include the latest knowledge on human error and performance. It should not be taken as a sign of weakness to ask someone for help or for information; in fact, this should be encouraged. Checklists and publications should always be referred to and followed, and never make assumptions or work from memory.

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Finally, good leaders will help their subordinates see the value in investing in their own expertise. Encourage intellectual curiosity and independent study of the more technical subjects associated with aircraft maintenance. After all, wise investments in your knowledge of these subjects will better posture you for life after the Air Force as well, and there are many courses available for free such as those found here: https://www.faasafety.gov/gslac/ALC/course_catalog.aspx?view=AMT

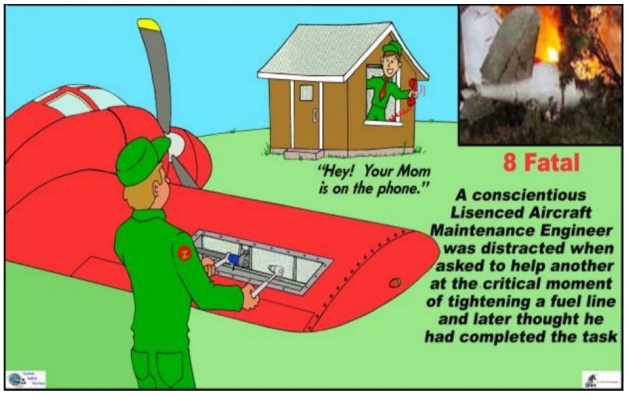
Distraction

Distraction could be anything that draws a person's attention away from the task on which they are employed. Some distractions in the workplace are unavoidable, such as loud noises, requests for assistance or advice, and day-to-day safety problems that require immediate solving. Other distractions can be avoided or delayed until more appropriate times, such as messages from home, management decisions concerning non-immediate work (i.e., shift patterns, leave entitlement, meeting dates, administrative tasks, etc.), and social conversations.

Psychologists say that distraction is the number one cause of forgetting things, hence the need to avoid becoming distracted and to avoid distracting others. Humans tend to think ahead. Thus, when returning to a task following a distraction, we have a tendency to think we are further ahead than we actually are.

To reduce errors from distraction, it is best to complete a task before responding. If the task cannot be completed without hurrying, then we can prominently mark (or "lock off") the incomplete work as a reminder to ourselves and anyone else who may complete the work. When returning to work after being distracted, it is a good idea to commence at least three steps back, so that we retrace some steps before picking up the task again. If necessary, having someone else double-check our work using a checklist may be appropriate and useful.

Management has a role to play in reducing the distractions placed on its employees. This may involve good workspace design, management of the environment, and procedures that create "safety zones," "circles of safety" or "do not disturb areas" around workers engaged in critical tasks.



Finally, when approached by a co-worker during a critical task, Airmen of all ranks are encouraged to respectfully communicate their need to complete the task before responding. If you need a minute to get to a logical pause in what you're doing, say so. "Can I get back to you in 3 minutes? I'm on step 2 of 4 on this checklist, and I don't want to miss anything." "Sure! I didn't realize you were in the middle of that. Just come see me when you're done."

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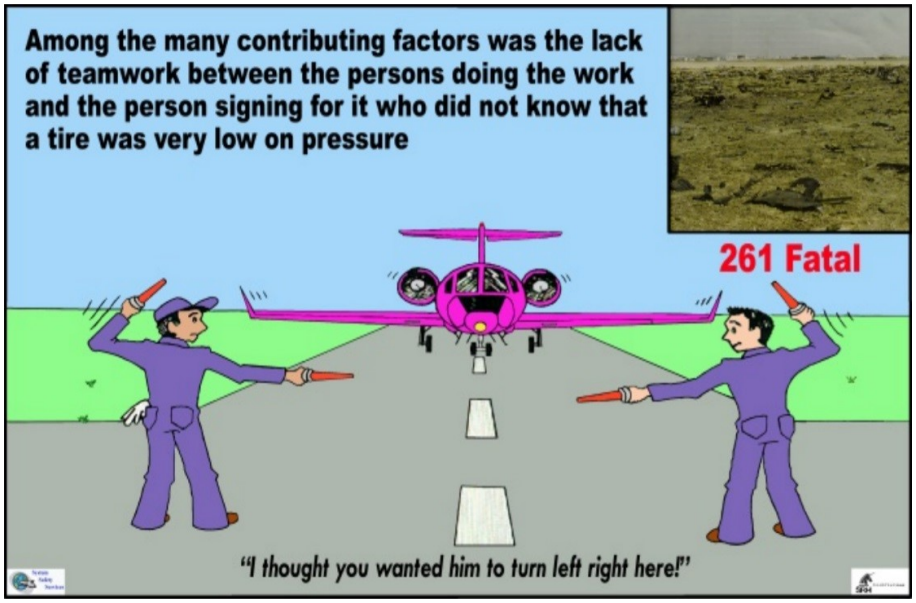
Lack of Teamwork

In aviation many tasks and operations are team affairs. No single person (or organization) can be responsible for the safe outcomes of all tasks. However, if someone is not contributing to the team effort, this can lead to unsafe outcomes. This means that workers must rely on colleagues and other outside agencies, as well as give others their support. Teamwork consists of many skills that each team member will need to prove their competence.

Some of the key teamwork skills include leadership, followership, effective communication, trust building, motivation of self and others, and praise giving.

To create an effective team, it is necessary that the following issues, as appropriate, are discussed, clarified, agreed and understood by all team members:

- *A clearly defined and maintained aim, or goal(s)*
- *Each team member's roles and responsibilities*
- *Communication messages and methods*
- *Limitations and boundaries*
- *Emergency procedures*
- *Individual expectations and concerns*
- *What defines a successful outcome*
- *Debriefing arrangements*
- *Team dismissal arrangements*
- *Opportunities for questions and clarification*



A team's effectiveness also can be improved through the selection of team members to reflect a broad range of experience and skill sets, as well as through practice and rehearsal.

If you don't understand how you fit into the team, or any of the key issues outlined above, speak up! Be that person who asks the obvious question everyone is thinking, and no one else is willing to ask. Good team players will ensure the team is all on the same page before any critical task.

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Fatigue

Fatigue is a natural physiological reaction to prolonged physical and/or mental stress. We can become fatigued following long periods of work and following periods of hard work. When fatigue becomes a chronic condition, it may require medical attention; but workers should never self-medicate! As we become more fatigued, our ability to concentrate, remember and make decisions reduces. Therefore, we are more easily distracted, and we lose situational awareness. Fatigue will also affect a person's mood, often making them more withdrawn and sometimes more irrational and angrier.

It is a human problem that we tend to underestimate our level of fatigue and overestimate our ability to cope with it. Therefore, it is important that workers are aware of the signs and symptoms of fatigue – in themselves and others. Fatigue self-management involves a three-sided program of regular sleep, healthy diet (including reduced use of alcohol and other drugs), and exercise. Work of a critical and complex nature should not be programmed during the low point on the body's circadian rhythm (usually 3 to 5 a.m.). Additionally, when fatigued, always get someone else to check your work.

Moreover, it is estimated that 80 percent of the body's calories are burned by the brain as it processes the complex problems we encounter on a daily basis. Some maintenance tasks are physically challenging, but just long hours of problem-solving and intense mental engagement can create fatigue as well.

Finally, if you feel tired, the mission may demand you continue, but it doesn't mean you don't communicate it to your team and your supervisor. If your decision-making is suffering, or your fatigue is otherwise making your situation hazardous for you or your teammates, your supervisor needs to know. Unfortunately, manpower and resources are always challenging, so fatigue alone may not result in dismissal from your duties, but it may result in additional help to ensure you don't hurt yourself or others while you complete a shift. Furthermore, it will enable your supervisor to begin working a plan to adjust your schedule if warranted. If they don't know, it may not be apparent to them the risks they are asking you to assume by operating in a sleep-deprived state.

Lack of Resources

If all the parts are not available to complete a maintenance task, then there may be pressure on a technician to complete the task using old or inappropriate parts. Regardless of the task, resources also include personnel, time, data, tools, skill, experience, knowledge, etc. A lack of any of these resources can interfere with one's ability to complete a task. It may also be the case that the resources available, including support, are of a low quality or inadequate for the task.

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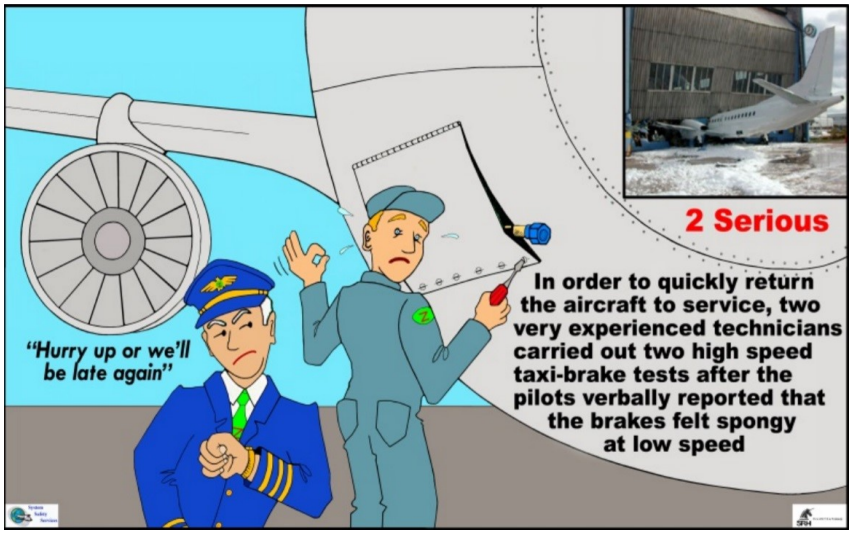
When the proper resources are available and at hand, there is a greater chance that we will complete a task more effectively, correctly and efficiently. Therefore, forward planning to acquire, store and locate resources is essential. It also will be necessary to properly maintain the available resources. This includes the humans in the organization as well.

Ensure that resource shortfalls are communicated to your supervisor, and if you are a supervisor, ensure they are passed up the chain of command. Commanders may have to assume risk to complete mission tasks without sufficient resources, but they are relying on you to ensure they're aware of where those gaps are. Don't assume that someone else has informed leadership about the problem, and guard against cutting corners to "make it happen" without the required resources to complete the mission without unnecessary risk.

Pressure

Pressure is to be expected when working in a dynamic environment, especially in combat. However, when the pressure to meet a deadline interferes with our ability to complete tasks correctly, then it has become too much. It is the old argument of quantity versus quality; and in aviation, we should never knowingly reduce the quality of our work. Pressure can be created by lack of resources, especially time, and from our own inability to cope with a situation. We may come under direct or indirect pressure from the organization/company, from clients and even our colleagues. However, one of the most common sources of pressure is within us. We put pressure on ourselves by taking on more work than we can handle, especially other people's problems, by trying to save face and by positively promoting superpowers that we do not possess. These poor judgments are often the result of making assumptions about what is expected of us.

Learning assertiveness skills will allow a worker to say "No! Stop!" and communicate concerns with colleagues, customers and the organization. These skills are essential. When deadlines are critical, then extra resources and help should always be obtained to ensure the task is completed to the required level of quality.



The bottom line is that we need to generate airpower at the right time and place to achieve the desired effects in combat. However, a task done poorly may cause mission failure, and an on-time failure is still just that … failure.

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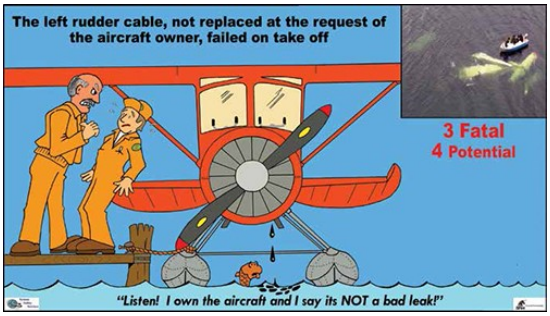
Lack of Assertiveness



Being both unable to express our concerns and not allowing others to express their concerns creates ineffective communications and damages teamwork. Unassertive team members can be forced to go with a majority decision, even when they believe it is wrong and dangerous to do so.

Assertiveness is a communication and behavioral style that allows us to express feelings, opinions, concerns, beliefs and needs in a positive and productive manner. When we are assertive, we also invite and allow others to assert themselves without feeling threatened, undermined or that we've lost face. Speaking one's mind assertively is not to be confused with aggression. It is about communicating directly, honestly and appropriately, giving respect to the opinions and needs of others without compromising our own standards.

Assertiveness techniques can be learned. They focus on keeping calm, being rational, using specific examples rather than generalizations, and inviting feedback. Most importantly, any criticisms should be directed at actions and their consequences rather than people and their personalities. This allows others to maintain their dignity and a productive conclusion to be reached.

Any Airman is empowered to call "Knock it off!" before a mishap occurs. Better to stop, take a breath and ensure critical steps haven't been overlooked before metal gets bent or people get hurt.

Stress

There are many types of stress. Typically, in the aviation environment, there are two distinct types — acute and chronic. Acute stress arises from real-time demands placed on our senses, mental processing and physical body, such as dealing with an emergency or working under time pressure with inadequate resources. Chronic stress is accumulated and results from long-term demands placed on the physiology by life's demands, such as family relations, finances, illness, bereavement, divorce or even winning the lottery. When we suffer stress from these persistent and long-term life events, it can mean our threshold of reaction to demands and pressure at work can be lowered. Thus, at work, we may overreact inappropriately, too often and too easily.

Some early visible signs of stress include changes in personality and moods, errors of judgment, lack of concentration and poor memory. Individuals may notice difficulty in sleeping and an increase in fatigue, as well as digestive problems. Longer-term signs of stress include susceptibility to infections, increased use of stimulants and self-medication, absence from work, illness, and depression.

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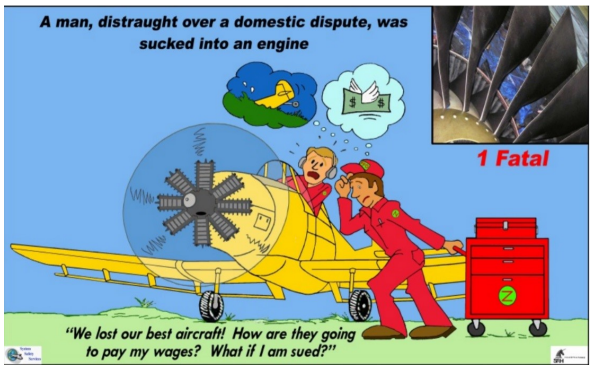

It is important to recognize the early signs of stress and to determine whether it is acute or chronic. Coping with daily demands at work can be achieved with simple breathing and relaxation techniques. However, perhaps more effective is having channels of communication readily available through which to discuss the issue and help to rationalize perceptions. It is entirely appropriate that some of these channels involve social interaction with peers. As with fatigue, sleep, diet and exercise are all important factors in helping to reduce stress and build resilience to stressors. If the stress is chronic, then definite lifestyle changes will be required. This must be achieved with support from the organization. Organizations should, therefore, have employee assistance (or wellbeing) policies that include stress reduction programs.

As with many of these factors, communication is key. Let your supervisor know if your personal stressors are affecting you at work. They may not be aware of how factors external to what they see when you're at work may be adding to your total stress. It may be that certain levels of stress on the job are unavoidable, but if it's starting to increase the risk of a mishap, you need to let someone know so adjustments can be made wherever possible.

Lack of Awareness

Working in isolation and only considering one's own responsibilities can lead to tunnel vision, a partial view, and a lack of awareness of how our actions can affect others and the wider task. Such lack of awareness may also result from other human factors, such as stress, fatigue, pressure and distraction.

One problem with "channelized" attention is that it will prevent you from noticing key events happening around you that may affect your task. If you're so focused on prepping for an engine run that you fail to notice someone else "borrowed" your fire bottle before the start, you may wish you had been aware what was happening so you could intervene at the time, rather than having to delay for 30 minutes to go find the required fire suppression.

Additionally, you may lack awareness how the task you're doing relates to everything that comes after it. Understanding the "why" will help you remember the "how" to do it correctly and "what" can result if you don't. It is important to build experience throughout our careers, especially concerning the roles and responsibilities of those we work with and our own place in the wider team. Developing our foresight is essential in pre-empting the effects our actions may have on others. Furthermore, asking others to check our work and challenge our decisions is useful in gaining the relevant experience and expanding our awareness as well as theirs.

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Combat lack of awareness through good communication and asking questions. If you don't know "why" you're doing something, ask! If your supervisor doesn't have time to explain it, then hold on to your question and follow up with them once the task at hand is complete. If you are the supervisor, anticipate "why" questions and answer them as thoroughly as time/opportunity will allow. At a minimum, commend your subordinates for their curiosity, and always take advantage of an opportunity to teach. If you don't know the answer, admit that, ask your supervisor, and follow back up with your Airmen when you do.

Norms

Workplace practices develop over time, through experience, and often under the influence of a specific workplace culture. These practices can be both, good and bad, safe and unsafe. They are referred to as "the way we do things round here," which become norms. Unfortunately, such practices follow unwritten rules or behaviors, which deviate from the required rules, procedures and instructions. These norms can then be enforced through peer pressure and force of habit. It is important to understand that most norms have not been designed to meet all circumstances and, therefore, are not adequately tested against potential threats. They also lack flexibility when the broader situation changes. Norms that were good enough on fourth generation fighters may not work for fifth generation aircraft, especially when every mistake costs much more to repair.

Compliance with regulatory guidance should be the first norm in any maintenance organization. Rules and procedures have been designed and tested and, therefore, ought to be enforced and followed rigorously. Where workers feel pressure to deviate from a procedure, or work around it, then this information should be fed back so the procedure can be reviewed and amended, if necessary. Norms can be tough to challenge because they are often deeply entrenched in the culture of the organization. However, if a norm is creating a hazardous environment, don't accept it. Study the written guidance and respectfully challenge the norm, using factual data wherever possible. This will require assertiveness and good communication, but if you're new to the unit, you may be the only one who is still outside the culture enough to see the real risk the norm creates. This may mean you stay on the outside a little longer, which can be tough, but you may save a life. Change has to start somewhere with someone bold enough to ask tough questions.

Ultimately, if you have alerted your chain of command to unsafe norms without success, changing norms may require you to go outside of your unit. Consider talking to wing safety or the wing IG if needed rather than accept a hazardous situation.

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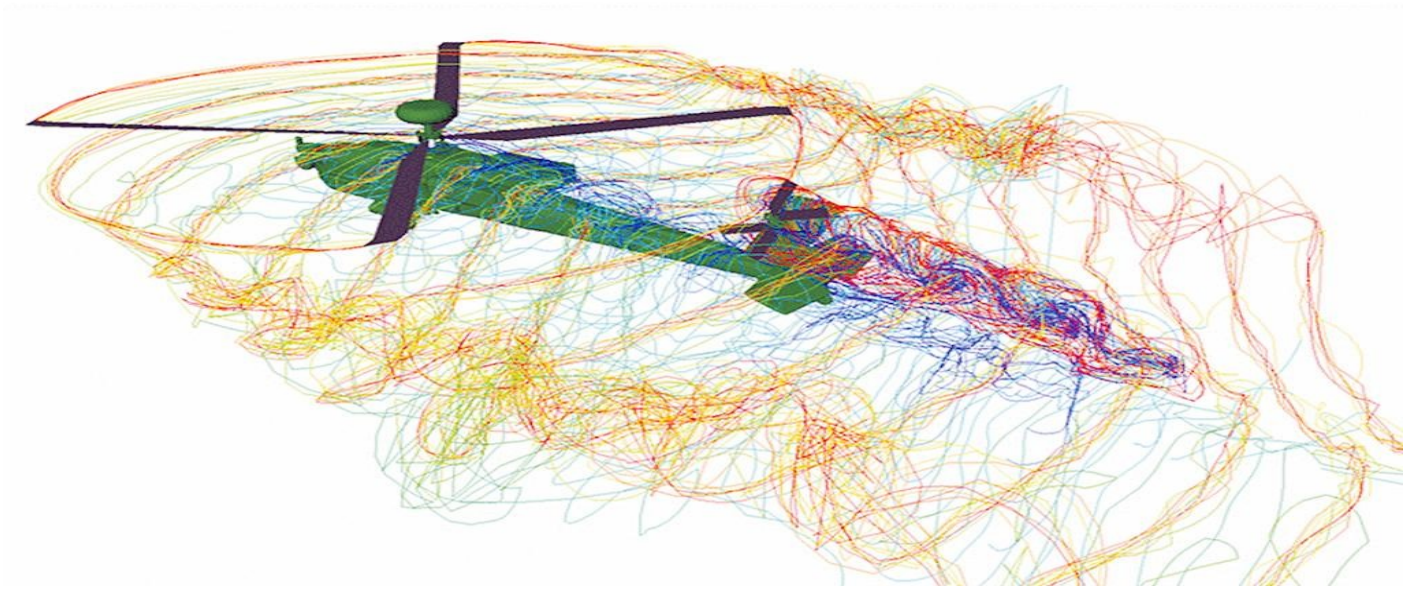
Helicopter Wakes Deserve A Wide Berth, Part 2

(Source: Aviation Week Network, Patrick Veillette, Ph.D. June 07, 2023)



(Computational fluid dynamics performed by NASA Ames Research Center illustrates the variation in vortices caused by advancing and retreating rotor blades.) - Credit: NASA

The FAA in the past conducted a comprehensive flight-test program to better understand the risk to a fixed-wing aircraft that inadvertently flies into the wake of a helicopter.

A range of helicopter sizes was used in the testing. Researchers flew an Army National Guard UH-1H, an S-76A belonging to the FAA itself, an Army UH-60 Black Hawk, a Marine Corps Sikorsky CH-53E Super Stallion and an Army Boeing CH-47D Chinook. For fixed-wing aircraft, the agency used a Beechcraft T-34C and a Bellanca 8KCAB Super Decathlon to probe the helicopter wakes. (See: Tymczyszyn, Biehl and Teager, "Flight Test Investigation of the Wake Vortices Generated by Rotorcraft," in Proceedings of the Aircraft Wake Vortices Conference, Washington, D.C., Oct. 29-31,1991.)

There are several ways to encounter a vortex, and the FAA test program divided those into parallel and cross-track encounters. A parallel encounter is the most obvious and occurs when the trailing aircraft is flying in roughly the same direction (behind and below) the generating aircraft. A cross-track encounter occurs when you fly through the wake vortex at a large angle. Helicopters tend to fly directly to the ramp, not needing to fly a traffic pattern as fixed-wing aircraft do. Therefore, we're quite likely to fly cross-track to a helicopter's path on many occasions, especially nearing the traffic pattern.

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The FAA's test pilots entered the helicopter's wake vortices during parallel encounters by flying above, below, left and right of the vortex. In general, at small separation distances, the fixed-wing aircraft experienced strong pitch and/or yaw excursions when the helicopter was flying at slower speeds. Close distance encounters resulted in temporary loss of control. Notice that this is a different reaction from wake encounters from airplanes, which predominantly induce a rolling motion.

At larger separation distances, upsets tended to be more pronounced when the helicopter was flying at higher airspeeds. The vortex created by the advancing blade generally generates more abrupt roll and yaw excursions than the retreating blade vortex. During parallel encounters, the trailing aircraft experienced abrupt roll, yaw or pitch excursions.

Weights And Wakes

The UH-60 has a maximum takeoff weight (MTOW) of 20,250 lb. and four rotor blades, with a rotor diameter of just over 53 ft. The T-34C experienced bank angles equal to 45 deg. at distances of a mile behind a UH-60 flying at 70-80 kts. The turbulence was characterized as "hard chops." The upset bank angles increased to nearly 75- 90 deg. as the separation distance was reduced to a half mile.

The severity of the excursions in the T-34C increased as the UH-60 was slowed to approach speeds. The T-34C was rolled beyond 90 deg. when it flew a mile behind the UH-60. When the T-34C flew a half mile behind the UH-60, it was rolled beyond 180 deg. of bank.

The UH-1 Huey series introduced in the 1960s is still very common as a firefighting and heli-logging aircraft. The UH-1H used for the FAA test had an MTOW of 9,500 lb. and two rotor blades with a 44-ft. diameter. At distances from 0.3 to 0.5 nm, the T-34C experienced rolls between 30 to 75 deg. Several of the test points caused much more pronounced roll excursions and led to loss of control and spins, however.

Readily recognized by its tandem rotor configuration, the Army's CH-47D Chinook is a heavy-lift helicopter. Its MTOW is 50,000 lb., with a 60-ft. rotor diameter. Predictably, the vortex behind the twin-rotor CH-47D is strong. At distances of less than 0.8 mi., the roll excursions varied from 90 to 210 deg. of bank and many resulted in loss of control and spins.

The Sikorsky CH-53E is even larger than the Chinook. It has an MTOW of 69,750 lb. and a seven-blade main rotor with a 79-ft. diameter. The CH-53E also produced strong roll excursions. At roughly a mile separation, the trailing aircraft was rolled beyond 90 deg. At a half mile, the trailing aircraft was rolled to nearly 180 deg. and also experienced spins.

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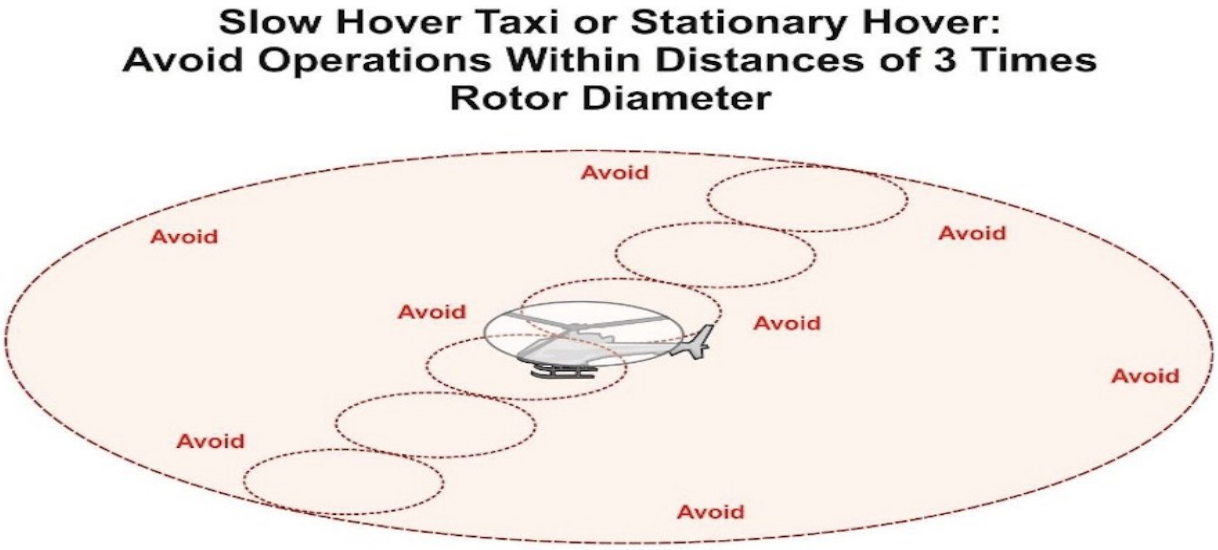
Several of the flight test runs in the Super Decathlon were abandoned behind the CH-53E when the Decathlon experienced an unexpected shudder in the wings. The vortices of the individual rotor blades created potentially destructive vibrations that led to an immediate cessation of the test point because of concerns about exciting a catastrophic wing flutter mode.

Night-Flying Helicopters



FAA Advisory Circular 90-23G advises pilots to avoid operations within distances of three times the diameter of a helicopter in a slow hover taxi or stationary hover. Credit: FAA

An interesting subset of wake turbulence events in the NASA Aviation Safety Reporting System (ASRS) database involved light aircraft that inadvertently flew into the wake turbulence generated by military helicopters during night operations at joint-use airports.

Night vision goggles allow helicopter pilots to conduct their missions at night. It's a very unique and highly demanding form of flying that requires specialized equipment, training and proficiency. This necessitates operating without any external lights on the helicopter. ASRS narratives indicated that fixed-wing pilots were not aware of unlit helicopters conducting operations in the dark environment at the airport.

Remember that wake vortices drift with the wind, and helicopters prefer to land and take off facing into the wind. It's common for a helicopter to land and take off upwind of the landing zone for the runway. A slight crosswind component to the wind can easily blow the helicopter's vortex toward the runway.

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Since the wake vortices from a slow helicopter are strong and create a larger hazard volume, it would behoove us to avoid flying close to slow-flying helicopters. Unfortunately, we will most likely encounter slow flying helicopters when we are flying slow and in the traffic pattern of the airport.

It is wise to avoid the unique risk of helicopter wake vortices. Helicopter wakes deserve caution and a wide berth.

Helicopter Wakes Deserve A Wide Berth, Part 1:
https://aviationweek.com/business-aviation/safety-ops-regulation/helicopter-wakes-deserve-wide-berth-part-1

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Safety Analyst Note: This is part two of a series of articles published in Aviation Week. The link above will take you to Part One. Or, conversely PRISM ran Part One in last month's SafetyWire which is available in the SafetyWire Archive on PRISM ARMOR.

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SAFETY MANAGER'S CORNER

OSHA FactSheet

Improve Tracking of Workplace Injuries and Illnesses

Electronic Submission of OSHA Form 300 and 301 Data

The New Requirements

- Establishments with 100 or more employees in designated high-hazard industries (listed in Appendix B to Subpart E of 29 CFR Part 1904) must electronically submit to OSHA detailed information about each recordable injury and illness entered on their previous calendar year's OSHA Form 300 Log and Form 301 Incident Report (29 CFR 1904.41). This includes the date, physical location, and severity of the injury or illness; details about the worker who was injured; and details about how the injury or illness occurred.
- All the establishments required to submit information from their OSHA Form 300 Log and OSHA Form 301 Incident Report to OSHA under this rule are already required to collect and retain this information, and are currently required to electronically submit to OSHA information from their OSHA Form 300A Annual Summary.
- Retains the requirement for all establishments with 250+ employees in industries that must routinely keep records to submit the OSHA Form 300A Annual Summary.
- Each establishment must provide their legal company name when submitting their data.
- Which establishments have to submit?
  - Establishments that had a peak employment of 100 or more employees during the previous calendar year meet the size criteria.
  - The designated industries are listed in Appendix B to Subpart E of 29 CFR Part 1904.
  - OSHA will provide an ITA Coverage Application to help establishments determine whether they have to comply with these new requirements.
  - The requirements apply to establishments covered by Federal OSHA, as well as establishments covered by states with their own occupational safety and health programs (i.e., State Plans).
- OSHA estimates approximately 50,000 establishments will be required to submit their case-specific injury and illness data. OSHA estimates they will submit information on approximately 750,000 injury and illness cases annually. Focusing the requirements on establishments with 100 or more employees in higher hazard industries means that fewer than one percent of establishments in the country will submit additional data, but the injury and illness data submitted by those establishments will comprise nearly 30% of all reportable occupational injuries and illnesses.
- OSHA estimates it will cost affected establishments with 100 or more employees an average of $136 per year to comply.
- The data must be electronically submitted through OSHA's Injury Tracking Application (ITA). There are 3 ways to submit the data:
  - webform on the ITA;
  - submission of a csv file to the ITA;
  - use of an application programming interface (API) feed.

The ITA will begin accepting 2023 injury and illness data on January 2, 2024. The due date to complete this submission is March 2, 2024. The submission requirement is annual, and the deadline for timely submission of the previous year's injury and illness data will be on March 2 of each year.

Benefits of the New Requirements

- Benefits to OSHA: Access to establishment-specific, case-specific injury and illness data will help the agency identify establishments with specific hazards. This will enable the agency to interact directly with these establishments, through enforcement and/or outreach activities, to address and abate the hazards and improve worker safety and health. These same data will also allow OSHA to better analyze injury trends

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related to specific industries, processes or hazards. The collection and publication of data from Forms 300 and 301 will not only increase the amount of information available for analysis but will also result in more accurate statistics regarding work-related injuries and illnesses, including more detailed statistics on injuries and illnesses for specific occupations and industries.

- Benefits to interested parties: Public access to establishment-specific, case-specific injury and illness data will allow employers, employees, potential employees, employee representatives, customers, potential customers, and the general public to make more informed decisions about workplace safety and health at a given establishment. In addition, researchers will be better able to identify patterns of injuries, illnesses, and hazardous conditions in workplaces. OSHA believes this access will ultimately result in the reduction of occupational injuries and illnesses.
- OSHA will make most of the data submitted under these new requirements available to the public. OSHA will take multiple steps to protect the identity of injured or ill workers, including:
  - OSHA will not collect worker names and addresses;
  - OSHA will convert birth dates to age and discard birth dates;
  - OSHA will remind employers not to submit information that could directly identify workers, such as names, addresses, telephone numbers, etc.;
  - OSHA will withhold from publication the information on age, gender, date hired, and whether the worker was treated in an emergency room and/or hospitalized overnight as an in-patient;
  - OSHA will use automated information technology to detect and remove any remaining information that could directly identify workers.

Additional Information

For more information visit the Injury Tracking Application page.

Workers' Rights

Workers have the right to:

- Working conditions that do not pose a risk of serious harm.
- Receive information and training (in a language and vocabulary the worker understands) about workplace hazards, methods to prevent them, and the OSHA standards that apply to their workplace.
- Review records of work-related injuries and illnesses.
- File a complaint asking OSHA to inspect their workplace if they believe there is a serious hazard or that their employer is not following OSHA's rules. OSHA will keep all identities confidential.
- Exercise their rights under the law without retaliation, including reporting an injury or raising health and safety concerns with their employer or OSHA. If a worker has been retaliated against for using their rights, they must file a complaint with OSHA as soon as possible, but no later than 30 days.

For additional information, see OSHA's Workers page (www.osha.gov/workers).

How to Contact OSHA

Under the Occupational Safety and Health Act of 1970, employers are responsible for providing safe and healthful workplaces for their employees. OSHA's role is to ensure these conditions for America's workers by setting and enforcing standards, and providing training, education and assistance. For more information, visit www.osha.gov or call OSHA at 1-800-321-OSHA (6742), TTY 1-877-889-5627.

This is one in a series of informational fact sheets highlighting OSHA programs, policies or standards. It does not impose any new compliance requirements. For a comprehensive list of compliance requirements of OSHA standards or regulations, refer to Title 29 of the Code of Federal Regulations. This information will be made available to sensory-impaired individuals upon request. The voice phone is (202) 693-1999; teletypewriter (TTY) number: (877) 889-5627.

OSHA® Occupational Safety and Health Administration

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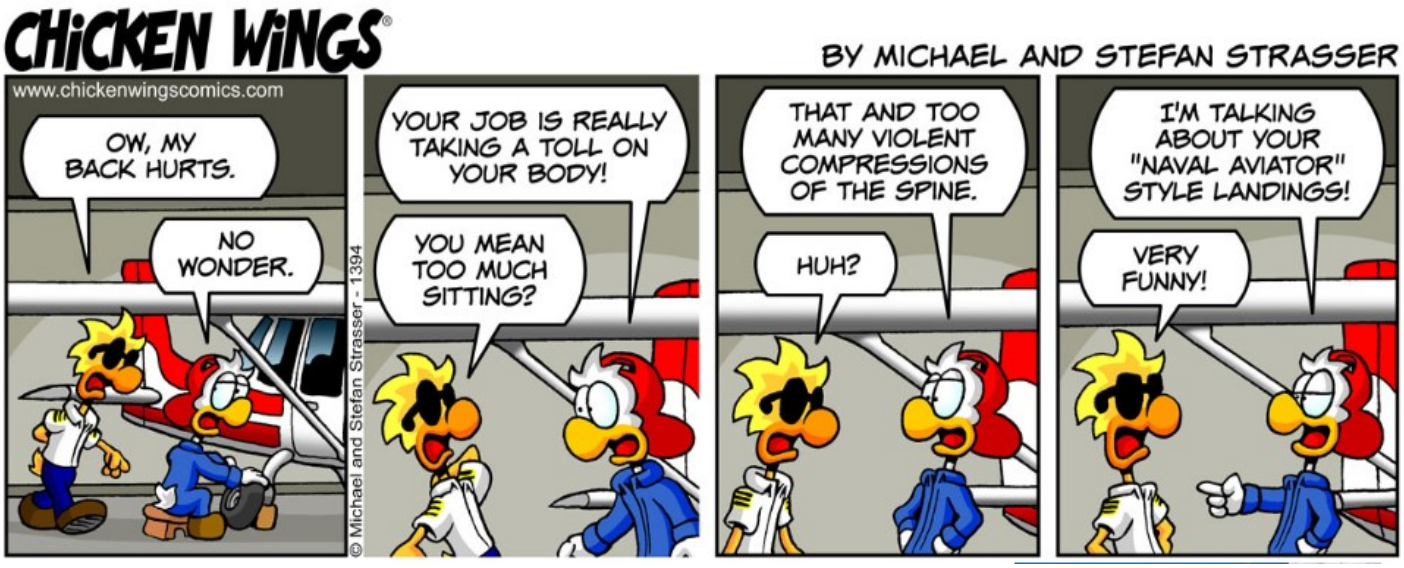
Quote of the Month

“Dad, I left my heart up there.”

— Francis Gary Powers, (CIA U-2 pilot shot down over the Soviet Union) describing his first flight at age 14.

Gary, you took risks we can’t even imagine every time you went up in the U-2. Although we don’t face the same magnitude of risk, it’s critical that we practice effective risk management in order to adequately evaluate what we’re up against, what’s on the horizon. There’s an old saying, “You don’t know what you don’t know.” Well, it’s our job to know. Our job to look in every nook and cranny and understand all of the possible outcomes each time we fly. Only by doing this can we attain the appropriate awareness risk management demands.

On Short Final...



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UPCOMING COURSES

Aug 21 to Aug 25, 2023—PROS Course
Aviation Lead Auditor Training (ALAT)
Denver, CO

Sept 26 to Sept 28, 2023—PRISM Course
Safety Management System (SMS)
Denver, CO

Oct 30 to Nov 3, 2023—PROS Course
Aviation Lead Auditor Training (ALAT)
Denver, CO

Nov 28 to Dec 2, 2022—PROS Course
V-ICAT Training
Virtual

Go to Upcoming Training Classes to register.