Survival, Evasion, Resistance and Escape (SERE) Training: Reducing the Risk to Soldier and Country

Introduction

Imagine flying a mission over enemy-controlled territory when your aircraft malfunctions and you determine the only viable course of action is to land immediately. While the processes you use to make that determination — analyzing aircraft limitations and executing the necessary emergency procedures — are nearly automatic at this point, they are only designed to get you, your crew and the aircraft to the ground safely. Are you equipped with the skills and knowledge necessary to deal with what faces you once your aircraft and crew are “safely” on the ground? What are the “5s and 9s” that will help you survive this isolating event and return you to friendly control with honor?

With few exceptions, as personnel performing duties that place them at high risk of isolation (personnel who haven't attended SERE training) it is likely your understanding of policy regarding what to do during an isolating event and ability to apply the tactics, techniques and procedures (TTP) to act in accordance with that policy is not to the level set forth in current joint policy and Army regulations.

To provide the appropriate level of training for aviation personnel, the Army integrated Survival, Evasion, Resistance and Escape (SERE) Level C training, is a 21-day, once-in-a-career opportunity to learn the limits and emergency procedures (EP) associated with an isolating event and returning to friendly control. The Level C training is the designation the Joint Personnel Recovery Agency gives experiential SERE training for populations whose duties place them at a high risk of isolation. Most graduates refer to it as, “The best training I never want to do again!”

SERE Training as Risk Mitigation

The value of training is often measured by the likelihood the skill or knowledge will be required, which is usually based on historical precedent. This is where proponents of SERE training bristle a bit. Not unlike aircraft EPs — or even the overarching mission of the Army, if you get right down to it — the SERE skillset is one we hope our graduates never have to validate through real-world use. Collecting data that correlates SERE training to real-world application is also difficult, as the lines blur between what qualifies as an isolating event and what was simply “a bad day at the office” for a service member whose mission was compromised in some way.
We need to ask the same questions regarding SERE that we use to determine and mitigate any other risks for aircrews:

1. What is the likelihood that this aircrew will encounter conditions that could result in an isolating event?

2. How catastrophic will the impact be on the aircrew and U.S. mission if the isolated personnel are unable to apply SERE skillsets either on evasion movement or in captivity?

Lacking the ability to predict with any certainty the answer to the first question, the most responsible approach is to ensure all aircrews who are assigned missions that place them at high risk of isolation are provided the training necessary to survive that isolating event, successfully evade detection/recognition by hostile forces, and — barring successful evasion — understand how to conduct themselves in captivity so as not to compromise the U.S. mission, their fellow captives and their own honor.

In 20 publicized incidents since 2001, a total of 74 NATO personnel have been held captive by a combination of state and non-state forces. While these captivity events begin at the tactical level — with service members being captured largely while executing their missions — the implications and potential consequences reach far beyond that to the strategic and diplomatic levels, where individuals unwittingly serve as leverage to affect policy between the captor group/nation and U.S.

The Evolution of the SERE Requirement for Army Aviators

With Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) both ongoing and instances of non-Army Special Operations Forces (ARSOF) being isolated and held captive, Army leaders determined replacing the existing SERE Level B with SERE-C was the most responsible approach to training and deploying all combat aviators. In 2007, when the U.S. Army SERE school graduated its first SERE-C class, combat aircrews were required by Army Regulation (AR) 350-1 to successfully complete SERE-C before assuming duties that placed them at high risk of isolation. Ostensibly, this would mean all aircrews would attend SERE school before deploying. While that sounds good in theory, it’s not the most practical plan due to all the training requirements unit commanders have to accomplish every year, let alone in preparation for deployment. The most feasible solution was to stem the flow of non-SERE qualified personnel into the units in the first place. To accomplish this, U.S. Army Aviation Center of Excellence (USAACE) personnel created
and integrated SERE-C training at Fort Rucker as part of the pipeline for future aviators. An update to AR 350-1 was made in August 2014, requiring aviation-branched officers to complete SERE-C prior to beginning flight school. This change reduced the non-rated crewmember requirement to “highly encourage to attend.”

**So What?**

Mention SERE school to anyone who has heard of it, and the context of the conversation will likely lean heavily toward the captivity-based scenarios we run with our students. While understandable for many reasons, none of which will be discussed here, captivity and resistance training only accounts for half of the SERE school’s training time.

SERE-C graduates spend about 10 training days focusing on survival skills and how to adapt those skills to support successful evasion and recovery efforts, evasion movement techniques, as well as how to break contact from enemy forces using personal weapons, and how to negotiate barriers to evasion. Fundamentals such as evasion planning, land navigation, and communication and reporting are also reinforced. The primary goal of SERE training is to prepare personnel for extended evasion and successful recovery, with resistance to enemy exploitation being necessary only if evasion and recovery are not possible or fail. Essentially (and ideally), if our graduates are able to successfully apply their Survival and Evasion training, they will never need the Resistance and Evasion training we also provide.

With a nod again to EP training, the Army is clearly doing what is necessary to properly prepare high-risk personnel for the possibility of captivity. While all personnel are required to complete Level A SERE (usually computer based training (CBT)) and at-risk briefings (high risk of isolation (HRI) or moderate risk for isolation (MRI)) as theater entry requirements, briefings and lectures cannot achieve the proficiency levels practical application does. Through experiential training exercises, resistance training provides SERE-C graduates with the ability to identify their captor group; understand their rights and responsibilities within the context of that environment; identify the captor’s goals and limitations; and to choose a resistance strategy — including escape planning and execution — that thwarts the captor’s exploitation efforts while minimizing poor treatment and encouraging good treatment. Students are allowed to test their application of resistance TTP in a controlled environment to gain confidence and reduce the likelihood they will be unwittingly used as leverage to force a concession by the U.S. to the captor nation/group.

In total, 21 days of training once in an aircrew member’s career is arguably the best investment leaders can make in the highly trained warfighters we send up against increasingly complex and capable enemies. This is going to become increasingly true as the Army transitions into large-scale combat operations against a peer or near-peer adversary, likely resulting in much longer evasion scenarios as well as captivity in the hands of a sophisticated, motivated and well-trained governmental force.

**Stefanie Harris**

**SERE Course Manager**
Forward Operating Base (FOB) Shank proved Army airfield management services inability to effectively manage airfields in 2012 when a C-17 ran 700 feet off the runway during icy conditions. A significant contributing factor was the lack of continuous runway assessments by Army airfield management personnel, resulting in more than $69 million worth of damages and months of operations being slowed or halted to conduct repairs on the airfield. For our sister services, most notably the Air Force, airfield management is a critical component to safe and efficient logistic operations. After the incident at Shank, the Army realized there was a large need for organic airfield managers. Airfield managers take care of the day-to-day operations of an airfield. They also serve as the single point of contact for all activities occurring on the airfield to keep runways safe for incoming and outgoing aircraft, perform airfield inspections, and manage flight scheduling and aircraft logistical support.

Who is responsible for airfield management and why wasn’t it brought up before? In the past, the airfield management role was fulfilled by requests to the Air Force. As operations spread across multiple locations in different theaters, the Air Force had to pull back on meeting all of the Army’s needs for airfield management. Currently, in a reactive measure, the Army utilizes what is known as the Senior Airfield Authority (SAA). This loosely defined position can be anyone designated by the joint force commander to be responsible for the control, operation and maintenance of an airfield — to include runways, taxiways, parking ramps, land and facilities whose proximity affects airfield operations. Essentially, with no guiding criteria or training, the Army could designate anyone to be the SAA, and this generates serious concerns when trying to mitigate risk. This is because there is no set schooling or qualifications organic to the Army that would make an individual directly qualified to serve as an SAA/airfield manager.

As a combat aviation brigade (CAB) commander, who should I select to manage my airfields? Do I have any subject matter experts (SMEs)? The easiest answer to these questions is your organic air traffic and airspace management technicians (ATASM/150A). As former tactical air traffic controllers (ATC), they are trained by Army doctrine on site selection and employment of tactical air traffic services facilities, which include RADAR and control towers at austere airfields. This base knowledge makes them suitable candidates to serve in the airfield management role when employed in the combat environment. The Army will need to realize that the responsibility to manage theater-level expeditionary airfields is going to increase, and their effective management will continue to become a top priority to the ground maneuver elements to support their forward movement. Efficient airfield management enhances combat operations by providing unimpeded supplies to the forward line of troops (FLOT). Army leadership will need to re-educate themselves to incorporate airfield management into their military decision-making process (MDMP) to avoid it becoming an afterthought.

How would airfield management reduce risk? As the Army continues to focus on mobility to enhance lethality, safety serves as a force multiplier by ensuring...
all available Soldiers and equipment are focused on the fight. In a combat environment, the airfield manager is the go-to for the dissemination of information. If operations become unsafe or landing surfaces unusable, the airfield manager is responsible for ensuring the proper agencies are notified immediately to ensure appropriate actions are being taken in the most effective manner. Army aviation lacks the long-range capability to utilize the Air Force’s “hub-and-spoke” methodology and will need organic airfield managers to support “leap-frog” operations. Having the capability to safely and efficiently move airfields will keep maneuver elements well sustained and at maximum combat efficiency.

With no doctrinal change, the Army cannot build organic airfield managers and free up Air Force personnel, which will overtask their airfield management staff and constrict freedom of movement for the Army. Since the Army has no organic airfield management personnel tied directly to a single military occupational specialty (MOS), it believes it has satisfied this requirement by growing the ATASM technician’s manning by one additional authorization and the incorporation of an airfield management element (AME) on the CAB-level staff. There is also an AME element organic within airfield operations battalions (AOB). The AME currently consists of one aviation captain, one ATASM technician and four aviation operations specialists. The development of the AME to be incorporated into Army manning is a great and giant step in the right direction; but there is a lack of understanding what it does since there is not a single conduit to define day-to-day functions in both garrison and contingent operations. To support ATASMs as the primary choice to fill this role, a more robust change to their career path and leadership views in their utilization must occur.

A CAB commander decides to use their ATASM for airfield management, so now what? If the ATASM is to be utilized to fulfill this role, they would arguably need a change to doctrinal support so as to send them to Air Force-based training on airfield management. This training benefits the commander when the Army commits to building airfields/heliports, as it will provide the SME the necessary training and standardization for priorities of work. This reduces risk to the operation by preventing any delays due to non-standardized task execution, assist with required airfield hand-offs to Air Force operators as the base develops, minimizing conflicts for the host nation during rebuilding efforts. The role of airfield management and senior airfield authority can then be merged into a unified definition since they will serve as the same function across both services and uniformly be met with the same expectations and standards.

Airfield management is a key task in the successful employment of any aviation assets. Although airfield management is relatively new for the Army, it is not new in the aviation community and plays a crucial role in reducing risk to Army and other service aviation supporting operations. The Army has the opportunity to develop a robust training program that allows for the growth of organic airfield managers at very little cost. With these small adjustments, Army aviation will be able to gain an edge for its maneuver support role while conducting peer and near-peer combat operations.

The ATASM is a multifaceted MOS that can bring lethality across all spectrums of the aviation enterprise. Once airspace management is assigned as their primary skillset, growing them to support the Army’s expanding need for airfield managers will only enhance the mission and reduce the risk to aviation and ground maneuver operations during decisive actions.

CW2 Anthony Caravella
Airfield Management/S3 FUOPS
1ID CAVN BDE
Mission Rehearsals

Mission rehearsals are a key component to successful aviation combat operations whether it be supporting a platoon- or company-size element or a brigade air assault to an objective. The ability of the combined arms team, down to the lowest level leader, to understand and rehearse the operation is fundamental to working out any misconceptions or de-synched concept of the operation.

Field Manual (FM) 6-0, Commander and Staff Organization and Operations, states: “Units conduct rehearsals at the lowest possible level, using the most thorough technique possible, given the time available. Under time-constrained conditions, leaders conduct abbreviated rehearsals, focusing on critical events determined by reverse planning. Each unit will have different critical events based on the mission, unit readiness, and the commander’s assessment.”

While Army aviation has the ability to use onboard systems to gain, share and utilize situational awareness information across the force, these systems don’t replace a rehearsal. LTC Davis, the Joint Readiness Training Center senior aviation trainer, finds, through his observations of rotational units, that, “The technology in the aircraft surely helps improve situational awareness, but in reality it can never replace rehearsals.”

Why Rehearse?
The benefits of rehearsing missions from the complex, large, multi-ship air assaults to the single-ship establishment of a cargo aircraft fat cow operation cannot be underestimated. As aviation personnel know, flight and operational conditions can change during the conduct of a mission that not understanding the commander’s intent and the interrelationship between each of the executing units can create dangerous conditions for the aviation units, the supported unit and the success of the mission.

“Rehearsals are one of, if not the most important, events a unit can do prior to mission execution. From combat aviation brigade level down to company/platoon, we coach a thorough operations process and rehearsals to get after common visualization, understanding and synchronization. Unfortunately, many times we see rehearsals becoming more of a war game than an actual synchronization exercise. The units that rehearse focused events (routes into an OBJ, actions on OBJ, contingencies, etc.) with all pertinent parties present (to include all staff warfighting functions (WfF), RTOs, battle CPTs/NCOs, company reps, SOF, UAS, and LNOs) are the most successful. There is no substitute for quality rehearsals to gain shared understanding.” — LTC Daryl VonHagel, Joint Multinational Readiness Center (JMRC) senior aviation trainer.

To maximize the potential for successful execution of a unit’s task in conducting the mission requires preparation. The rehearsal is a part of that
preparation whether it is a map recon and quick rehearsal on the nose of an aircraft or an in-depth rehearsal of concept (ROC) drill with multiple units and staff walking through the execution of a large mission. The benefits of leaders conducting rehearsals are:

1. Practice essential tasks.
2. Identify weaknesses or problems in the plan.
3. Coordinate subordinate element actions.
4. Improve Soldier understanding of the concept of operations.
5. Foster confidence among Soldiers.

For most unit operations, smaller rehearsals are conducted. These are no less important than the big air assault rehearsal. Company and smaller-sized units use four types of rehearsals, which include:

1. Back brief
2. Combined arms rehearsal
3. Support rehearsal
4. Battle drill or SOP rehearsal

Is Your Unit Trained?

To fully develop and utilize rehearsals effectively, your unit personnel must be trained. The training should follow the normal Army crawl-walk-run methodology. Aviation units already have regulatory requirements that meet some rehearsal actions based on each aviation aircraft mission requiring a back brief. While this is intended to provide the commander or designated briefing officer the opportunity to ensure the crew(s) understand their mission and can execute it, it does not fulfill the training necessary to give the unit a “T” in mission rehearsals.

To gain the “T” on mission rehearsals, commanders should have a program developed with classroom instruction and associated situational training exercises. It becomes very easy for personnel to become nearsighted and focus on only their portion of the mission and task (air and ground). Affording the unit personnel the requisite training in classroom and situational exercises can help the commander develop their Soldiers to understand rehearsals, why they are conducted, and correlate their role in mission execution to the higher organizational mission objectives (synchronization). The ability to synchronize operations and understand your mission task, as well as the mission task of other units within the operation, results in smooth mission execution (Observations from LTC Clint Cody, National Training Center senior aviation trainer).

Conclusion

Mission rehearsals are key to successful mission execution. Whether a forward arming and refuel point (FARP) operation, platoon replenishment by two UH-60s, an attack mission supporting by station time at battle positions, or a unit convoy to an assembly area, they all require a rehearsal. Some rehearsals will be time constrained and maybe conducted on the hood of a vehicle, while others will be detailed and encompass a ROC drill due to the numerous units involved in the action.

As the Army trains for operations against a peer and near-peer threat, training your Soldiers now on rehearsals is critical. Your unit leaders and Soldiers require training so they understand the importance of rehearsals and how to conduct them and recognize their task execution is inherently interconnected to the success of the overall mission. The rehearsals will be even more critical during decisive-action operations.

For more detailed information on rehearsals, see FM 6-0.

Aviation Division
DAP
Mishap Review: AH-64D Ground Spin

The crew was conducting engine run-up when the aircraft’s main rotor blades reportedly made contact with the MRS of a non-operating AH-64D in close proximity. The operating aircraft sustained extensive damage to the tail boom and two main rotor blades were destroyed, in addition to other damage to both aircraft. Two Soldiers who were close by suffered injuries from flying debris that required treatment.

History

The accident aircrew started their duty day at 0330L when they arrived at the airfield. Originally, the accident aircrew members were both scheduled to fly as part of a team of AH-64Ds from 0700-1100L in support of a training exercise. The team mission was canceled at 0900L.

The next team of AH-64Ds designated to support the operation was scheduled to take off at 1000L. One of the AH-64Ds was run-up and the health indicator test (HIT) checks were completed, but the mishap aircraft had not. The accident aircrew was vocally approved to preflight, run up, and HIT check the mishap aircraft. The vocal authorization came from the commander of the attack reconnaissance battalion. Pre-flight of the mishap aircraft was accomplished by the accident aircrew with assistance from a company maintenance test pilot (MTP) and the launching crew chief (CE).

The accident aircrew occupied the aircraft and started the auxiliary power unit (APU) at 0950L. The accident aircrew conducted a normal run up. The accident PC advanced the power levers to FLY and the CE then announced the tail wheel was unlocked and off axis. The accident PC stated he intended to back-up the aircraft and then pull forward to lock the tail wheel. Upon initiation of control inputs to move the aircraft backward, the aircraft began a left yaw. Subsequent collisions with obstacles caused damage to the aircraft and 9 additional aircraft. Two Soldiers were injured from flying debris.

Crew Experience

The pilot in command (PC) had 537 hours in mission, type, design, series (MTDS) and 628 hours total time. The pilot (PI) had 202 hours in MTDS and 287 hours total time.

Commentary

While attempting to lock the tail wheel of an AH-64 Longbow Apache by executing a short taxi backwards and then forward, the PC over controlled the aircraft. The PC applied excessive control inputs out of sequence for the intended maneuver and failed to maintain the aircraft heading in contravention to TC 3-04.42, Task 1034, “Perform Ground Taxi.” As a result, the aircraft entered into an uncontrolled 135 degree left yaw and subsequently struck a wash rack curb as well as another aircraft. Leading up to the mishap, the aircraft pre-flight involved personnel not slated to operate as one of the crew (the MTP). Due to interruptions, the MTP failed to complete a full pre-flight followed by the PC not ensuring that all areas had been checked including a final walk-around as per the checklist.

In fast paced Army aviation operations, team work is a daily attribute, but on certain task it can be counterproductive. Inattention to standard procedures and checklist items can line up the holes in the mishap sequence. Aviation personnel must be vigilant in noticing the precursors for a mishap. These precursors can be as simple as not using the proper procedures to move aircraft using a tow bar. A simple oversight of not straightening the tail wheel and engaging the lock pin seems minor, but add high OPTEMPO and a mixed pre-flight, followed with PC inattention to detailed operator procedures, and the results can be catastrophic to the crew, ground crew, and aircraft.

As a PC, you must remain focused and ensure you and your aircraft are by the book right. You are the last barrier to preventing the next mishap. Use sound judgment, follow your checklist, and don’t settle for “that’s the way we have always done it.” Protect your crew, aircraft, and the mission by setting the example and making on the spot corrections with supporting staff.
### Manned Aircraft Class A – C Mishap Table
as of 12 Apr 19

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Thoughts for a Safe Winter

Ole Man Winter has reared his ugly cold head and lowered temperatures in the aviation world. To cope with the lower temperatures many crewmembers have donned their winter long johns. A word of caution to all - be sure you wear undergarments that are compatible with your Nomex flight suits and gloves. Wool cotton winter underwear is the only type that should be worn under the Nomex flight suit. The wearing of nylon insulated undergarments can be a matter of life and death if you’re involved in a post-crash fire. Nylon melts below the Nomex flight suit melting point which will result in burns. The wearing of nylon glove inserts with Nomex gloves can result in severe burns. Nylon inserts are not recommended for wear with the Nomex flight gloves. Wool/cotton socks are a must for the well-dressed aviator, plus they do not burn as rapidly as the nylon type. The wearing of improper apparel to augment the aircraft heating system is a no-no and one of the fastest ways to enter the Pearly Gates before your time.

U.S. Army Agency For Aviation Safety
Fort Rucker, AL 36360

Forum

Fire Resistant Clothing - Know Why Your Options are Limited

Army aviation and aviation ancillary service supporting personnel should understand why they have limited options for what they wear as their uniform and undergarments while conducting aviation or aviation-related duties.

Prior to the advent of Nomex material, burn injuries during aviation accidents and fuel fires were just part of the risk associated with the hazards of aviation. Fortunately, Nomex was invented and made a major difference in reducing the severity of burns and danger to military flight crews and supporting personnel involved in aviation-related fires. Figure 1 on page 11 shows protected and unprotected skin results after a fire.
The Thermal Protective Performance (TPP) Test determines how much thermal insulation is provided by either a textile or a textile assembly. It may also be used to evaluate the constancy of fabric samples during heating. Two gas burners and six radiant quartz tubes are used to impose a 50/50 convective/radiant heat flux of 2 cal/cm²·sec (84 kW/m²) on a 4-square-inch sample. A calorimeter measures the backside temperature rise. An associated data acquisition system determines how long it takes for the calorimeter to reach 44°C, the second-degree burn threshold temperature for human skin. The longer the time for the

Table 1 below shows Nomex and cotton fiber characteristics:

The Thermal Protective Performance (TPP) Test determines how much thermal insulation is provided by either a textile or a textile assembly. It may also be used to evaluate the constancy of fabric samples during heating. Two gas burners and six radiant quartz tubes are used to impose a 50/50 convective/radiant heat flux of 2 cal/cm²·sec (84 kW/m²) on a 4-square-inch sample. A calorimeter measures the backside temperature rise. An associated data acquisition system determines how long it takes for the calorimeter to reach 44°C, the second-degree burn threshold temperature for human skin. The longer the time for the

Table 1, Test Procedures for Table 1 are based on the following*: Thermal Protective Performance (TPP) Test Standards: NFPA 1971, ISO 17492, ASTM D 4108

<table>
<thead>
<tr>
<th>CHARACTERISTICS OF NOMEX AND COTTON FABRICS</th>
<th>Nomex III and IIIA</th>
<th>Cotton</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tested Parameter</td>
<td>4.5 oz/syd (0.153 kg/m²)</td>
<td>6 oz/syd (0.203 kg/m²)</td>
</tr>
<tr>
<td>Water Absorption (%)</td>
<td>8.3</td>
<td>8.3</td>
</tr>
<tr>
<td>Ultimate Tensile Strength [ksi (Mpa)]</td>
<td>45 (310)</td>
<td>45 (310)</td>
</tr>
<tr>
<td>Elongation at Break (%)</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>Air Permeability (cfm/ft²)</td>
<td>239</td>
<td>83</td>
</tr>
<tr>
<td>Vertical Flame Char Length (in.)</td>
<td>3.3</td>
<td>3.1</td>
</tr>
<tr>
<td>ASTM F 1930 Instrumented Manikin (Predicted % body burn)</td>
<td>38</td>
<td>29</td>
</tr>
<tr>
<td>3s at 2 cal/cm²·s</td>
<td>51.7</td>
<td>44.3</td>
</tr>
<tr>
<td>4s at 2 cal/cm²·s</td>
<td>N/A</td>
<td>58</td>
</tr>
<tr>
<td>5s at 2 cal/cm²·s</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATSM D 4108 TPP Rating</td>
<td>11.8</td>
<td>13.3</td>
</tr>
<tr>
<td>Ignition Temperature C (F)</td>
<td>&gt;500 (932)</td>
<td>&gt;500 (932)</td>
</tr>
<tr>
<td>Limiting Oxygen Index %</td>
<td>29-30</td>
<td>29-30</td>
</tr>
</tbody>
</table>

Figure 1. Burns resulting from rolled-up sleeves.
Figure 2. Burns to neck due to collar not being raised

Figure 2 shows aviation personnel burnt due to the collar not being up during a fire sequence.

Nomex Garment Procedures to Maintain Your Safety

Having your Nomex garment provide the maximum potential for minimizing burns in an aviation or aviation-related fire scenario requires you to know the following five elements*:

1. Wear natural fiber undergarments such as cotton or wool. Fire resistant (FR) undergarments provide better protection. Common synthetic fabric undergarments containing a blend of nylon, polyester or polypropylene will melt at relatively low temperatures and severely burn individuals who are escaping fire emergencies. This conclusion was clearly demonstrated in the report “Reduction and Mitigation of Thermal Injuries: What Can be Done?” by Voisine and Albano.

2. Wear layers. Air is an excellent insulator. Air between layers of clothing greatly delays the transmission of heat and plays a major role in insulating the wearer’s skin from the heat of any impinging flames.

3. Use only garments that meet MILSPECS. Some inexpensive garments sold as FR-rated have been found to be constructed with flammable dyes and threads, which melt in the presence of elevated temperatures. Fasteners such as zippers and buttons must withstand temperatures on par with the garment’s fabric to prevent premature thermal failure.

4. Be wary of contaminants. Most insect repellants, petroleum products and even body oils degrade the ability of FR garments to withstand flames and high temperatures. Wash garments in accordance with label instructions.

5. Limit exposure times to extremely high temperatures when possible. Nomex uniforms are flame resistant, not flameproof. All military FR garments are designed to provide a few seconds (normally 3 to 10 seconds) of escape time during fire emergencies before thermal injuries occur. All garments of all types will eventually fail during a large and intense fire.

*For additional information see the references:
Tests of Undergarments Exposed to Fire, Images and Figure 9 table: Tony Petrilli, MTDC Project Leader, Mark Ackerman, Engineer, University of Alberta, United States Department of Agriculture Forest Service

Warren
Army Retired
Mishap Briefs #74

**Fixed Wing**

OE-5

**C Model** – The aircraft sustained extensive damage pursuant to a hard landing during emergency landing drills. (Class A)

**Unmanned Aircraft**

MQ-1

**C Model** - Engine power and airspeed increased normally during mission takeoff, but the aircraft was unable to sustain a climb to clear terrain off the departure end of the runway. (Class A)

**C Model** – The air vehicle (AV) clipped its right wing on a concertina wire pole while performing taxiing procedures during an attempt to turn. (Class C)

**RQ-7**

**B Model** - The aircraft sustained damage upon landing following reported loss of engine RPM. The aircraft reportedly “bounced” off the safety net following arresting cable anomalies. A maintainer suffered an injury while attempting to recover the aircraft. (Class C)

**MQ-1**

**B Model** – The unmanned aircraft system (UAS) sustained damage during ground maintenance operation checks with no intent for flight. The aircraft reportedly separated from the launcher during a maintenance operation check. (Class C)

**BV2 Model** - The aircraft reported having an engine failure in flight. The crew executed an engine failure in flight emergency procedure and deployed the flight termination system (FTS). (Class C)

**RQ-20**

**B Model** – The aircraft reported lost link during flight and was not recovered. (Class C)

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AR 95-1

2-14. Mission approval process

Commanders in the grade of O–5 and above will develop and publish policies and procedures for the mission approval process for those units under their command. When the chain of command lacks a commander in the grade of O–5, the ACOM, ASCC, DRU, or ARNG may adjust this requirement. Adjustment authorities granted throughout this paragraph will not be delegated below the general officer level. Approval authorities and procedures established for tactical and combat operations may differ from those utilized for garrison operations. Commanders will establish a training and certification program to ensure standardization and understanding of the mission approval and risk management process for personnel defined in paragraph 2–14a.

a. Definitions.

(1) Initial mission approval authority. Unit commanders or their designated representatives (for example, operations officer) determine the mission feasibility and accept or reject the mission.

(2) Mission briefing officer. Commander or their designated representative that interacts with the mission crew or air mission commander to identify, assess, and mitigate risk for the specific mission. Commanders will select briefing officers based on their experience, maturity, judgment, and ability to effectively mitigate risk to the aircrew and designate them by name and in writing. Mission briefers are authorized to brief regardless of risk level. (Manned) Briefing officers must be a qualified and current PC in the mission profile as determined and designated by the commander. (Unmanned) Briefing offices are leaders designated by the commander. If the designated individual is a UAS operator they will be a qualified and current AC.

(3) Final mission approval authority. Members of the chain of command who are responsible for accepting the risk and approving all aviation operations (ground and air) within their unit. They approve missions for a specific risk level. Final mission approval authorities may only approve those missions whose assessed risk level is commensurate with their command level. Commanders in the grade of O–5 and above will select final mission approval authorities from the chain of command and designate them in writing along with the level of risk (low, moderate, high, extremely high) they are authorized to approve. At a minimum, company level commanders and below are the final mission approval authority for low-risk missions, battalion level commanders and above for moderate-risk missions, brigade level commanders and above for high-risk missions, and the first general officer in the chain of command for extremely high-risk missions. Approval authorities are based upon levels of command authority and not rank.

(a) For units lacking these positions, the ACOM, ASCC, DRU commander, or the DARNG may adjust them within these guidelines.

(b) For Urgent and Urgent Surgical aeromedical evacuation missions, brigade commanders are authorized to delegate high-risk final mission approval authority to battalion commanders in the grade of O–5 and moderate-risk final mission approval authority to air ambulance company commanders in the grade of O–4. Additionally, brigade commanders will implement the policies outlined in AR 40–3 when developing their Urgent and Urgent Surgical aeromedical evacuation mission approval procedures. This authority may not be further delegated.

5 Questions

1. Do commanders have to develop and publish policies and procedures for the mission approval process?
2. Do commanders have to establish a training and certification program to ensure standardization and understanding of the mission approval and risk management process?
3. How will commanders select mission briefing officers?
4. At a minimum, brigade-level commanders and above are the final mission approval authority for what level of risk?
5. Can a battalion or brigade commander ever authorize a field grade deputy commander, executive officer, S-3 or air ambulance company commander (O–4) to accept the risk and approve an operation on their behalf?