

**FM 3-04.508** (FM 1-508)

# AVIATION LIFE SUPPORT SYSTEM MAINTENANCE MANAGEMENT AND TRAINING PROGRAMS

**APRIL 2004**

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# Aviation Life Support System Maintenance Management and Training Programs

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## Preface

This manual provides doctrinal guidance concerning Aviation Life Support System (ALSS) maintenance management and training programs for aviation organizations and functions. It is designed for commanders and their staffs, small-unit leaders, and technicians who have management responsibility for ALSS.

ALSS equipment sustains aircrews and passengers throughout the flight environment. It increases their mission effectiveness and provides a means of safe and reliable escape, descent, survival, and recovery in emergency or combat situations.

FM 3-04.508(FM 1-508) is written for peacetime and all dimensions of battlespace environments. It applies to commanders of all aviation units, aviation unit maintenance and aviation intermediate maintenance companies, depots, and operations personnel of the Army's Active and Reserve Components.

This manual establishes standardized ALSS maintenance management and training programs and supports the requirement for an adequate ALSS shop. Appendixes A through M provide supplemental material:

- A Sample SOP for the ALSS Maintenance Management and Training Programs.
- Interservice Publication Account Sample Forms and Documents.
- Suggested ALSS Shop Layout and Storage Illustrations; Safety.
- Safety, Risk Management/Risk Assessment; Environmental Issues.
- Fit, Adjust, Inspect, Repair, Store, and Training Process.
- Basic Land, Hot and Cold Climate, Desert, Jungle – Consolidated Survival Training Material.
- Water Survival Program – Overwater Survival Training Material.
- Destruction of Equipment to Prevent Enemy Use Training Material.
- Combat Escape and Evasion Techniques Training Material.
- Prisoner of War Resistance Training Material.
- Unit Aircrew Recovery Procedures Training Material.

The proponent for this publication is HQ TRADOC. Send comments and recommendations on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to Commander, U.S. Army Aviation Center, ATTN: ATZQ-TDS-D, Fort Rucker, Alabama 36362-5263.

Unless this publication states otherwise, masculine nouns and pronouns do not refer exclusively to men.

This manual has been reviewed for operations security considerations.

## **Chapter 1**

# **AVIATION LIFE SUPPORT SYSTEM ON THE BATTLEFIELD**

This chapter covers the doctrine fundamentals of the Aviation Life Support System (ALSS) within aviation units on the battlefield. It discusses the combat service support (CSS) needed by aviation units and aircrew members to function effectively and sustain combat capability. It also discusses the combat mission for aviation units and threat forces that they are most likely to encounter or threat forces used against them. For a more detailed CSS information see FM 4-0(FM 100-10) and FM 3-04.500(FM 1-500).

## **SECTION I – DOCTRINE FUNDAMENTALS**

### **POWER PROJECTION**

1-1. The dramatically changing world environment during the past several years has led to a revision of the national military strategy. This strategy calls for fewer forward-deployed forces and greater reliance on CONUS-based contingency forces. Therefore, the centerpiece for this new strategy is rapid force projection to meet growing regional threats and crises. The credibility of our new strategy depends on our ability to deploy an appropriate military force that is versatile, lethal, and sustainable.

1-2. FM 3-0(100-5) is the Army's keystone doctrinal manual. It outlines how the Army will fight with CONUS-based contingency forces.

### **SUSTAINMENT IMPERATIVES**

1-3. Sustaining the battle will require aviation commanders and staffs to adhere to the CSS characteristics: responsiveness, simplicity, flexibility, attainability, sustainability, survivability, economy, and integration. These characteristics apply to war, military operations other than war, and stability operations/support operations. FM 3-0(FM 100-5) and FM 4-0(FM 100-10) cover these in detail.

### **RESPONSIVENESS**

1-4. Responsiveness is the essential characteristic of CSS. It means providing the right support in the right place at the right time and being able to meet changing requirements on short notice. Responsiveness includes the ability to anticipate operational requirements. Aviation logisticians must anticipate future events and requirements by understanding the aviation commander's plan and by foreseeing events as operations develop. While continuing to support current operations, they must plan for future

operations and attempt to foresee unexpected changes in the course of the battle. This involves identifying, accumulating, and maintaining the minimum assets, capabilities, and information necessary to meet support requirements. On the other hand, the force that accumulates enough material and personnel reserves to address every possible contingency usually cedes the initiative to the enemy. In addition, corps aviation logisticians must focus on a period of at least 48 to 72 hours in the future. They must also anticipate events by ensuring that the aviation logistics structure retains the flexibility to respond quickly to change.

## **SIMPLICITY**

1-5. Simplicity means avoiding complexity in both planning and executing aviation maintenance and logistics operations in support of CSS operations. Mission orders, drills, rehearsals, and SOPs contribute to simplicity.

## **FLEXIBILITY**

1-6. The key to flexibility lies in the expertise for adapting logistics structures and procedures of CSS to changing situations, missions, and concepts of operations. Logistics plans and operations must be flexible enough to achieve both responsiveness and economy.

## **ATTAINABILITY**

1-7. Attainability is generating the minimum essential supplies and services necessary to begin operations. Commanders determine that minimum levels of support are acceptable to initiate operations.

## **SUSTAINABILITY**

1-8. Sustainability is the ability to maintain continuous support during all phases of campaigns and major operations. Aviation logistics planners anticipate logistics requirements over time and synchronize the delivery of minimum sustainment stocks throughout the operation.

## **SURVIVABILITY**

1-9. Being able to protect support functions from destruction or degradation equates to survivability. Robust and redundant support contributes to survivability but may run counter to economy.

## **ECONOMY**

1-10. Resources are always limited. Economy means providing the most efficient support to accomplish the mission. Commanders consider economy in prioritizing and allocating sources. Economy reflects the reality of resource shortfalls while recognizing the inevitable friction and uncertainty of military operations.

## **INTEGRATION**

1-11. Integration consists of synchronizing CSS operations with all aspects of Army, joint, interagency, and multinational operations. The concept of operations achieves integration through a thorough understanding of the

commander's intent and synchronization of the CSS plan. Aviation logistics is an integral part of aviation operations at all echelons. Proper integration of sustainment operations with the operations of the aviation force is critical.

## **SECTION II – COMBAT SERVICE SUPPORT OF AVIATION OPERATIONS**

### **PLANNING**

1-12. The battlefields of all potential theaters of operation pose great and varied challenges, not only to the combat force that may fight on them but also to the CSS units that will sustain the combat force.

### **FLEXIBILITY**

1-13. The fluid conditions of future battlefields will require that logistics supporters are responsive and flexible—to take the initiative and anticipate needs.

### **COORDINATION**

1-14. Effective communications must be maintained between aviation units, the supporting staffs, and AVIM units to determine CSS requirements and to coordinate support activities. Priorities for CSS must be established based on the tactical plan

### **DOCTRINE MANUALS**

1-15. Military operations doctrine requires that all leaders understand the concepts and requirements of any operation. FM 3-0(FM 100-5) is the Army's manual that fully explains military operations doctrine. FM 3-50(FM 100-7) is the Army's manual on how the Army supports the CINC. FM 4-0(FM 100-10) is the Army's manual for CSS. FM 3-4.100(FM 1-100) is the principal manual for combat aviation operations. Aviation logisticians must understand the doctrine layout in these manuals as thoroughly as they understand the technical aspects of their jobs. FM 3-04.500(FM 1-500) is the Army aviation keystone maintenance doctrinal manual. This manual provides doctrinal guidance concerning aviation maintenance organizations and functions. It is for commanders and their staffs, small-unit leaders, and technicians who have an aviation maintenance responsibility.

### **COMBAT MISSION**

1-16. The combat mission of aviation units must remain the foremost consideration in the functions of aviation unit maintenance (AVUM) and aviation intermediate maintenance (AVIM) units. Resources and priorities must adapt to changing combat situations.

### **OFFENSIVE OPERATIONS**

1-17. The primary purpose of maintenance support of offensive operations is to maintain the momentum of the attack. Maintenance managers must prepare and organize for offensive operations based on the particular type of



tactical operations to be supported, the nature of the battlefield, and the need for flexibility.

### **DEFENSIVE OPERATIONS**

1-18. Defensive operations create opportunities to go to the offense. The defense can be static or dynamic. The objective is to cause the enemy attack to fail or to break the momentum of the attack and to provide opportunities to initiate an offensive operation. Maintenance managers work with tactical commanders to ensure that they can effectively support the range of operations available to the tactical commander.

### **RETROGRADE OPERATIONS**

1-19. Retrograde operations serve to gain time, avoid combat under adverse conditions, or draw the enemy into unfavorable positions. Support may be provided to units involved in defending, delaying, attacking, or withdrawing.

### **STABILITY OPERATIONS/SUPPORT OPERATIONS**

1-20. Stability operations/support operations will be the most challenging operation for aviation maintenance managers to support. Stability operations/support operations include support to federal, state, and local governments; disaster relief; nation assistance; drug interdiction to peacekeeping; support for insurgencies and counterinsurgencies; noncombatant evacuation; and peace enforcement. Maintenance managers may support two or more of these operations simultaneously. This will require maintenance managers to be more flexible and innovative in their means of support.

### **MODULARIZATION**

1-21. The Army must be prepared to fight a general war yet have the “flexibility” in force structure and organizational design to support limited war and stability operations/support operations. The aviation brigade is the aviation “general war” force configuration that the aviation force structure and organizational designs must be tailored to support.

### **PLANNING**

1-22. In any scenario, there are two primary purposes of predeployment logistics planning. One is to define the concept for maintenance support. The other is to identify the maintenance capability necessary to support the designated aviation force. These determinations will be based on the composition of the aviation task force (aviation units and numbers/types of aircraft) and how the aviation units are to be operationally employed.

### **RECONSTITUTION**

1-23. During protracted conflicts, units will need to be reconstituted from remaining assets in the field as well as with replacement personnel and equipment. In the same way, aviation units will need to be reconstituted from existing assets.

## SECTION III – THE THREAT TO AVIATION MAINTENANCE FUNCTIONS

### AVIATION ORGANIZATION VULNERABILITY

1-24. Aviation units and facilities in the field have distinct signatures. Reconnaissance units or observers can easily recognize the characteristic shape and configuration of vehicles and equipment under normal conditions. Thermal emissions, energy output, electronic signals, and noises associated with maintenance work contribute to the identification of aviation maintenance locations. The sites are vulnerable not only to weapons but also to electronic countermeasures, disruption of lines of communications, and even to environmental conditions such as humidity, temperature extremes, and weather. Environmental conditions may impede mission completion and increase the effect of chemical, biological, and radiological (CBR) or incendiary weapons. Directed-energy weapons can destroy electronic equipment with no visible damage. Aircraft at the facility, both on the ground and in flight, increase the facility's signature and priority for threat targeting.

### CHARACTERISTICS OF THREAT FORCES

1-25. Aviation maintenance activities are susceptible to disruptions and are vulnerable to military actions in all levels of conflict. During major conventional wars, aviation maintenance units are likely to be located but may not be high-priority targets. During stability/support operations, the enemy is more likely to strike softer logistics targets such as aviation maintenance units. The following are some characteristics of possible threat forces.

1-26. Regional threat military forces will initially outnumber allied and U.S. forces. Soviet-trained forces will continue to follow older Soviet tactical doctrine. This stresses combined arms operations, artillery, careful planning, surprise, shock action, and adherence to the plan.

1-27. Threat forces worldwide will seek to narrow technology gaps with regional and global powers. American, European, and former Soviet weapons may be reverse-engineered copied, license-built, or purchased. Advanced weapon technology may be incorporated in locally designed and built arms. Older weapons may be modified with advanced-technology fire-control systems, protection packages, and warheads.

1-28. Threat forces may seek to prevent deployment of U.S. forces through interdiction of lines of communication. Several regional powers have submarine forces, capable air forces, and short-range ballistic missiles (SRBM). U.S. Army aviation maintenance units may encounter hostile fire on debarkation.

1-29. Regional powers may seek to gain regional air superiority. This presents problems for deploying Army aviation and maintenance units. Operations under hostile air superiority or parity will increase the maintenance workload while self-protection becomes an increased priority.

1-30. Ground operations will emphasize mobility and depth of attack to disrupt assembly areas (AAs) and destroy U.S. forces before they can be committed. Threat forces may be able to carry out rapid combined-arms maneuvers in offensive operations.

1-31. Terrorist or guerrilla forces will seek out targets of opportunity with low risk of return fire. Rear-area units—such as aviation maintenance—present high-value, low-risk targets.

1-32. Threat forces may use CBR warfare agents against U.S. forces specifically or against allied positions and support areas indiscriminately. Proliferation of CBR production capability in developing countries increases the likelihood of CBR use.

1-33. Army aviation systems may be deployed worldwide to counter forces with various mixes of weaponry, ranging from outdated and obsolete to modern and increasingly sophisticated. The modern-day battlefield, regardless of location, will be characterized by unprecedented lethality.

1-34. Many of the major military powers are moving towards smaller, better-equipped, and better-trained forces. Less-developed nations also can improve military capabilities through greater access to military-system technologies and increased availability of advanced military equipment on the international market. A larger force-capability perspective tempers the proliferation of complete new weapons systems. Countries will modernize the portion of the force that provides the greatest leverage against opponents.

1-35. Many countries do not acquire corresponding maintenance and resupply capabilities with new weapons and sustainment. What may result is a belligerent power with a predominantly low-technology force with high-technology “niches” that increase the overall lethality of its force. This is accomplished in many cases to establish regional dominance over another regional power. This low-technology, limited high-technology environment does not translate into a low-threat environment for Army aviation.

1-36. Many possible hostile forces—especially paramilitary, militias, rogue militaries, bandits, terrorists, narcocriminals, and other nonstate threats—usually will maintain low-technology weapons systems; however, in some cases, they may possess limited high-technology weapons equaling or surpassing U.S. capabilities. This may create the most challenging threat. Army aviation forces must be prepared to face a variety of threat forces, many with credible military capabilities.

## TYPES OF THREAT

### ENEMY

1-37. Hostile forces will attack aviation maintenance through attempts to—

- Disrupt or negate command, control, and communication (C<sup>3</sup>).
- Disrupt or destroy the maintenance facility and its personnel and equipment.
- Destroy or damage aircraft in the air and on the ground.

- Disrupt or destroy logistic supplies, fuels, and parts.
- Curtail or sever transportation links.
- Contaminate or render useless water, foods, fuels, oils, and soils.
- Neutralize or disturb electronic devices that measure, communicate, navigate, and control.

## **FRIENDLY OR NEUTRAL**

1-38. The growing complexity of modern warfare and the sophistication and lethality of weapons increase the problem of friendly fire. The requirement for camouflage, concealment, and deception for survival also increases the possibility of poor recognition by friendly forces. Joint and coalition operations increase the likelihood of electromagnetic interference from radars, communications, and navigation equipment, not to mention friendly electronic-warfare operations.

## **THREAT CAPABILITIES**

1-39. Aircraft maintenance units may create large signatures for hostile intelligence, reconnaissance, surveillance, and target-acquisition systems. Hostile forces may use missiles, artillery, fighter-bombers, armed helicopters, mobile armor forces, DEWs, radio electronic combat (REC), or special-operations units to attack aviation maintenance units. While the range of weapons decreases in stability operations/support operations, the lethality to our units remains high.

## **AIR THREAT**

1-40. Aircraft and missile forces operating from land bases or seaborne platforms can deliver weapons ranging from nuclear, biological, and chemical (NBC) to high-explosive, fragmentation, and incendiary warheads. Delivery means are free-fall (dumb) bombs, ballistic rockets, precision-guided munitions (smart to brilliant), and cannon-gun-fired projectiles.

## **GROUND FORCES**

1-41. Air- and sea-delivered ground forces can attack rear-area facilities with howitzers, mortars, and direct-fire weapons. They can lay mines, set ambushes, conduct REC, or provide targeting information to other forces.

## **ARTILLERY**

1-42. Conventional artillery (howitzers, guns, and mortars) can reach up to 50 kilometers with extended-range ammunition. Multiple-rocket launchers achieve similar ranges with standard rockets and fewer launchers for area saturation. Artillery projectiles include high-explosive, fragmentation, incendiary, smoke, and improved conventional munitions. Larger-caliber warheads add nuclear, chemical, and submunition capability to conventional forces. Submunitions include antitank and antipersonnel mines, chemical bomblets, and fuel-air explosives. Limited-use munitions are used for marking, electronic jamming, reconnaissance, psychological warfare, and nonnuclear electromagnetic pulse rounds.

## **THREAT TO AIRCRAFT**

1-43. Missiles, guns, directed-energy weapons, and electronic countermeasures represent threats against fixed- and rotary-wing aircraft used for logistics as well as combat aircraft. Aircraft entering the maintenance facility may contain unexploded ordnance or CBR contamination.

## **MISSILES**

1-44. Tactical missiles can reach targets throughout the theater army area. Free rocket over ground (FROG), SRBMs, and cruise missiles are becoming more common among regional military powers. Missiles can deliver the full variety of conventional and CBR munitions from land, surface ships, and submarines. Missiles and rockets of diverse origin are available in quantity and lend themselves to single or mass launches.

## **DIRECTED-ENERGY WEAPONS**

1-45. DEWs use amplified, pulsed-light, microwave, or millimeter wave frequencies. These weapons disrupt or destroy controls, sensors, structures, or personnel. Current nonweapon lasers can damage night vision devices and optics and can cause eye damage. Future applications of DEW and radio frequency and particle-beam weapons are expected to inflict structural damage. DEW presents severe problems for unshielded electronic components such as fly-by wire systems and computers.

## **ARMOR**

1-46. Threat force armor units may operate in our support areas when exploiting success in battle. Combat operations doctrine expects this situation on the fluid battlefield of tomorrow. Tanks (100-millimeter to 125-millimeter guns), infantry fighting vehicles (20-millimeter to 73-millimeter automatic cannon/gun), self-propelled artillery, and armored personnel carriers mounting heavy machine guns or grenade launchers may attack aviation maintenance units.

## **INFANTRY**

1-47. Infantry-type units (special forces, rangers, naval infantry, and guerrillas) and saboteurs or terrorists pose a threat to facilities, aircraft, supplies, and lines of communication. Large groups of infantry are likely to target high-priority targets that are lightly defended or easy to destroy. Stealthy forces can operate relatively freely in rear areas and attack with little warning. Though man-portable, their weapons will be lethal. Rocket-propelled grenades, antitank guided missiles, light antitank weapons, and recoilless rifles provide heavy punch to light forces. Terrorists, saboteurs, and snipers may be a persistent and deadly threat to aviation maintenance units.

## THREATS SPECIFIC TO AVIATION UNITS

1-48. Threats to aviation units include—

- Conventional and improved conventional munitions (blast, fragmentation, and incendiary) delivered by air, artillery, missile, or special forces.
- Nuclear munitions and side effects (electromagnetic pulse).
- Chemical and biological agents delivered by the enemy or brought in on contaminated equipment.
- Radio-electronic weapons that include lasers, microwave direction finders, and other high-technology systems.
- Indirect threats that affect operations of aviation maintenance to include—
  - Disruption of command, control, and communications, including destroying them.
  - Disruption or destruction of lines of communication and halting the flow of supplies, fuel, and parts.
  - Contamination of supplies, food, and water by chemical, biological, nuclear, or radio-electronic means.

## THREATS SPECIFIC TO AVIATION LIFE SUPPORT SYSTEM

1-49. Threats specific to the ALSS shop include ground and air threat and, in addition, the threat carried to the site on ALSE. The latter threat is primarily from nuclear, chemical, or biological residue. This could include unexploded munitions and sabotaged equipment.

1-50. Residue from nuclear, chemical, or biological munitions arriving at the ALSS shop by nature may be a persistent agent. Detection of this residue may not be possible with equipment available. Debriefing of pilots or other maintenance personnel will assist in determining whether the equipment is contaminated. Persistent agents are primarily blister or nerve agents. Personnel absorb these agents through the skin. Blister agents will cause temporary injury or disability. Nerve agents are extremely toxic; a small drop could kill within 20 minutes. Awareness of this threat is essential to maintenance survival.

1-51. Equipment recovered from downed aircraft could conceal live ammunition or booby traps. Shop personnel could become casualties from this type of combat residue. Awareness of the possible dangers that could enter the ALSS shop is half the battle in preventing maintenance casualties. Proper protective gear and detectors or inspection of damaged equipment should keep Army maintenance components functioning and contributing to all decisive operations.

## **Chapter 2**

# **Aviation Life Support System Maintenance Management Program**

This chapter discusses how the Army conducts the operation of the Aviation Life Support System (ALSS) Maintenance Management Program. The operational environment has six dimensions—threat, political, unified action, land combat operations, information, and technology. Each affects how Army forces combine, sequence, and conduct military operations. Commanders tailor forces, employ diverse capabilities, and support different missions to succeed in this complex environment. Operating within these dimensions may require the unit to readjust its ALSS maintenance functions. The concepts and practices discussed in the following chapters are guidelines for managing the unit's ALSS maintenance program. Some areas may require modification to meet the unit's mission. Army aviation doctrine affects AVUM and AVIM ALSS maintenance operations. This field manual and FM 3-04.500 (FM 1-500) provide information on tactics, techniques, and procedures for aviation maintenance. These manuals are also the doctrinal foundation for commanders, the aviation life support equipment officer (ALSO), noncommissioned officer (ALSNCO), and technician (ALSET). Chapters 2 and 3 in FM 3-04.500 (FM 1-500) provide additional information on Army aviation's structure, relationships, and command, control, and communications concepts.

## **SECTION I – MAINTENANCE MANAGEMENT CONCEPT**

### **GENERAL**

2-1. Aviation life support equipment is critical for the survivability of Army aviation crew members. Unit commanders must ensure that all mission-required ALSE be on hand in sufficient quantities to support the unit's specific mission and that the equipment be in serviceable condition. To meet the Army's demanding transformation requirements, newer, integrated systems are being fielded that increase the complexity of ALSE. These systems will demand better maintenance planning and higher maintenance skills. ALSE maintenance is an integral function for accomplishing the Army aviation mission. The definitions of ALSS and ALSE follow.

## **ALSS**

2-2. The Aviation Life Support System consists of components, techniques, and training required ensuring that aircrews have the best possible flight environment. ALSS provides that maximum functional capability of flying personnel throughout all environments experienced during normal missions. ALSS also affords the means to enhance safe and reliable escape, survival, and recovery in combat and emergency situations. Additionally, ALSS operators and training equipment provide units the ability to train and sustain aircrew members' proficiency in the use of ALSE and supporting ALSS equipment.

## **ALSE**

2-3. Aviation life support equipment comforts, sustains, and protects aircrew members throughout the flight environment. ALSE also provides the aircrew member with additional protection from impact and postcrash fire. It enhances the means to escape, evade, and survive for recovery in combat or any hostile environment.

## **AVIATION LIFE SUPPORT SYSTEM EQUIPMENT MAINTENANCE: A CRITICAL FACTOR**

2-4. ALSS assets are critical factors in the aircrew member's ability to maintain battlefield communications, mobility, and survivability. Especially important are the maintenance and repair of ALSS equipment and its components.

2-5. Working in any type of aviation environment is challenging. However, the unit ALSS program must remain functional in all operational environments where maneuver and fires are linked. In addition, attaining the maintenance objective becomes more challenging as the unit copes with personnel resource limitations.

2-6. The unit's primary maintenance objective is to maintain available aircraft to accomplish its mission. ALSS maintenance should not become a secondary objective. It is an integral maintenance function for accomplishing the mission along with other unit maintenance requirements. Commanders must provide personnel and financial resourcing to effectively and efficiently maintain and sustain their ALSS maintenance, training, and operational programs. Often the unit faces critical decisions on how to obtain required ALSE, who should perform ALSE maintenance, and how personnel should use and train with ALSE. Although ALSS maintenance is viewed as a secondary objective, it must not be forgotten or disregarded. Once commanders understand that ALSS maintenance is critical for the survivability of their crew members—and possibly their aircraft—this decision will become clearer: ALSS maintenance is an integral function for accomplishing the mission along with other unit maintenance requirements as in all other programs that support both aircraft maintenance and operational requirements.



## MAINTENANCE CONCEPTS AND POLICIES

2-7. The following maintenance concepts and policies will be observed:

- Each commander is responsible for maintaining ALSS equipment issued to his unit.
- Commanders are responsible for maintaining ALSS operational and training equipment.
- Inspection, maintenance, and repair of ALSE will be accomplished according to the applicable technical manual, technical order, or Naval Air publication for the equipment involved; these functions will be performed consistent with the tactical situation, skill, time available, and repair parts special tools, and test equipment authorized.
- Unserviceable ALSE beyond the maintenance authority or capability will be reported or delivered to the next-higher maintenance level promptly.
- Quality maintenance depends on preventive maintenance services and inspections.
- Operator (crewmember) maintenance will be the priority; it will be emphasized constantly throughout the chain of command because it is the key factor in the operational readiness of ALSS equipment.
- AR 95-1 and DA Pamphlet 738-751 contain specific ALSE policies on use, maintenance, and responsibilities; commanders at all levels should know and understand these policies.
- All ALSE Class-V items will be reviewed for stockpile reliability (surveillance) according to AR 740-1, SB 742-1, and TB 9-1300-385 and will be recorded on a DA Form 3022-R, (Army Depot Surveillance Record [DSR]).

## ALSS EQUIPMENT MAINTENANCE TASKS

2-8. The ALSE technicians and shop elements of AVUM and AVIM units are responsible for ALSE maintenance that is beyond the capability or responsibility of the crewmember. To effectively perform their mission, ALSS personnel must perform the following maintenance tasks:

- Make scheduled periodic maintenance inspections and repair of ALSE.
- Make unscheduled maintenance inspections of ALSE that has failed a preflight inspection or problems identified during operator (crew member) maintenance of ALSE.
- Make scheduled periodic maintenance inspections and repair of ALSS operational and training equipment.

## ALSE SHOP

2-9. The organization of the ALSS shop depends on many factors; the size of the unit and the density and types of equipment. The basic shop must provide ALSS personnel with enough space to perform all required procedures for maintenance, inspections, and storage of equipment, spare

parts, and materials. This area will be protected from pilferage, dampness, fire, dust, insects, rodents, and direct sunlight for the preservation of equipment, components, supplies, and materials. Preservation of medical supplies is crucial because they are vulnerable to hot and cold extremes.

2-10. The unit must provide mobility for the ALSS shop and its related support equipment, common and special tools, repair parts, supplies, and materials. Because of the amount of ALSE, support equipment, common and special tools, repair parts, supplies, and materials to support the ALSS unit maintenance management and training programs, adequate transportability, storage, environmental control, and shop operation requirements must have resources. Appendix C contains additional information and instructions on suggested ALSS shop layout and storage.

2-11. The location of the ALSS shop must be based on unit assets. The ALSE shop could be located in a general-purpose small tent or maintenance CONEX/van. It could be collocated with another maintenance activity's CONEX/van. The location will depend on the size of the ALSS operation and available assets.

2-12. The work area should contain a workbench that is free from rough or abrasive materials and splinters. In addition, it should have lighting available and a power source for lights and small electrical appliances.

2-13. All storage cabinets containing Class-V items must be stored in approved containers or vaults according to physical-security requirements found in AR 190-11 (Appendix G), AR 190-51, and AR 385-64.

2-14. The ALSS shop requires resources; for example, microcomputer, printer, hardware, and software to operate electronic publication programs and to access Internet technical publication websites. These resources are essential to manage the ALSS maintenance management and training programs.

2-15. Because most ALSE is issued to crew members or located in the aircraft, the requirement for a storage area should be limited to ALSE support equipment, common and special tools, supplies, repair parts, and materials. The shop location should have shelves, cabinets, or storage areas to accommodate the specific equipment involved. Storage cabinets with locks should be provided for securing the test equipment, tools, and supplies that are required based on the type of equipment in the unit. A desk or workbench area must be available for administrative requirements. Charts, records, publications, and administrative supplies should be located in the ALSS shop area for easy record keeping and equipment maintenance.

2-16. The ALSS shop personnel must be able to perform the following maintenance tasks as outlined in AR 95-1:

- Remove, replace, service, prepare, preserve, clean, and store ALSS assemblies and components.

- Disassemble, repair, functionally test, and diagnostically test, adjust, and reassemble ALSS systems, subsystems, and components according to directives, technical manuals, and procedures.
- Use, prepare, submit, and maintain ALSS forms and records identified in DA Pamphlet 738-751.
- Maintain an up-to-date ALSS publication library consistent with equipment, training, and mission requirements.

2-17. Submit requests and maintain supplies and repair parts according to supply regulations and local procedures. According to unit procedures, requests are submitted to the aviation technical supply, unit supply, or the supply support activity.

## **USING PROPER FUNCTIONING AND INTEGRATION OF ALSE**

2-18. ALSE must be maintained in a serviceable condition. This will ensure proper integration between the aircrews and their weapon systems and proper functioning in the environment. The equipment must sustain aircrews and passengers in an emergency or survival situation. Commanders must ensure that only trained, qualified personnel, either military or civilian, maintain ALSE. Minor faults must be found and corrected before they become major problems. Damage to ALSE can be prevented through prompt, detailed inspections.

## **MAINTENANCE RESPONSIBILITIES**

### **COMMANDERS**

2-19. Commanders at all levels are responsible for ALSS maintenance. Besides performing those duties in AR 95-1, they will—

- Appoint an ALSO on orders to assist, advise, and represent the commander in all matters pertaining to ALSS according to AR 95-1.
- Obtain authorized maintenance resources; for example, technically qualified personnel, facilities, technical publications, repair parts, tools, test equipment, and maintenance supplies.
- Determine required budgets and obtain funding for ALSS equipment, supplies, and repair parts to ensure a well-maintained and continuous ALSS program.
- Ensure that only trained and qualified personnel maintain ALSS assets.
- Ensure that ALSE is maintained in a serviceable, mission-ready condition, in sufficient quantities to support unit mission requirements.
- Ensure that inspection, maintenance, and repair of ALSE are performed consistent with the tactical situation, skill, time available, and repair parts special tools, and test equipment authorized.

- Coordinate AVIM for those items of ALSE that are beyond the capabilities of the ALSE shop because of lack of skills, tools, or test equipment.
- Maintain material in a serviceable, mission-ready condition.
- Comply with prescribed procedures for obtaining authorized maintenance resources; for example, technically qualified personnel, facilities, technical publications, repair parts, tools, test equipment, and maintenance supplies.
- Replace unserviceable end-item equipment components.
- Prevent abuse of equipment under their control, and investigate and act on evidence of abuse.
- Record the receipt, operation, maintenance, calibration, modification, and transfer of equipment.
- Conduct periodic inspections to determine that maintenance operations are adequate and take necessary follow-up actions to ensure that faults are corrected.
- Ensure that all Class-V items are physically secured and inventoried and that explosive safety requirements are maintained according to applicable regulations.

#### **AVIATION LIFE SUPPORT OFFICERS (ALSO)**

2-20. In addition to the responsibilities in AR 95-1, ALSOs will—

- Assist, advise, and represent the commander in all matters pertaining to ALSS as defined in AR 95-1.
- Possess additional skill identifier (ASI) H2.
- Keep an up-to-date ALSS maintenance management and training programs SOP (Appendix A) and ensure conformance to DA aviation maintenance and training doctrine.
- Schedule ALSS maintenance and plan, supervise, and manage the unit ALSS maintenance program.
- Develop and execute a training program that tracks the proficiency of aircrew members training requirements.
- Develop and execute a training program that maintains and tracks the proficiency of the ALSS technicians.
- Develop and execute a training program that indoctrinates aircrew members in wear and use of assigned ALSS equipment.
- Coordinate with the operations officer to determine and provide the amount and type of ALSE needed to meet the mission requirements.
- Maintain inventory control records to identify the location of all ALSS shop-assigned property such as vests, radios, life preservers, and test equipment.
- Ensure that authorized repair parts and maintenance supplies are on hand or on valid requisition.
- Ensure that outstanding supply requests are followed up promptly.

- Ensure that all Class-V items are physically secured and inventoried and that explosive safety requirements are maintained according to applicable regulations.

### ALSE TECHNICIANS (ALSET)

2-21. ALSE technicians will be appointed to assist, advise, and represent the ALSO in matters pertaining to ALSE according to AR 95-1. ALSE technicians—

- Are grades of Specialist/Corporal-4—or above—and possess ASI Q2.
- Are graduates of the U.S. Air Force C3AABR92230-000, U.S. Navy LSE C-602-2010, or U.S. Army 2CF51/4D-ASIH2/600-ASIQ2 ALSE schools.
- Perform scheduled and unscheduled maintenance on assigned ALSS equipment.
- Process ALSS test equipment for calibration and shipment of ALSS equipment requiring repair at a higher maintenance level.
- Maintain a skill efficiency level sufficient to perform unassisted maintenance on and fitting of ALSS equipment.

2-22. In addition to the responsibilities outlined in AR 95-1, the ALSET will maintain a publication library that ensures compliance with administration, maintenance, physical security, supply, and explosive safety regulations and procedures.

### AIRCREWS

2-23. Aircrew members will—

- Use equipment properly.
- Keep equipment clean, presentable, safe, and operable.
- Report any malfunction that is beyond their capability or authorization to correct.
- Perform before-, during-, and after-operation maintenance/inspections according to the applicable equipment TM and the unit SOP.
- Be accountable for assigned equipment.

## SECTION II – ALSS MAINTENANCE OPERATIONS

### GENERAL

2-24. Aviation Life Support System maintenance is performed, along with aviation maintenance, on a 24-hour-a-day basis. The governing concept is to *replace forward, repair rear* so that aviation units can return aircraft and crews to meet immediate operational needs.

## **SUPPORT SYSTEM STRUCTURE**

2-25. The support system is a three-level structure: AVUM, AVIM, and depot maintenance. AVUM and AVIM organizations reside on the battlefield.

### **AVIATION UNIT MAINTENANCE**

2-26. AVUM platoons or companies handle aviation operational maintenance. Operational maintenance provides quick turnaround through repair by replacement, minor repairs, adjustments, cleaning, lubricating, and servicing. These platoons or companies are organic to aviation organizations at all levels.

### **AVIATION INTERMEDIATE MAINTENANCE**

2-27. The AVIM unit provides intermediate maintenance and limited backup AVUM support to supported units. AVIM units are either divisional or nondivisional. An AVIM company/battalion from the DISCOM provides AVIM for division-level aviation assets. These divisional AVIMs are structured to support the division's specific aircraft. Nondivisional AVIMs provide support to corps and echelons-above-corps nondivisional aviation units and backup support for the divisional AVIM units.

### **DEPOT**

2-28. Depot-level maintenance allows the unit to overhaul, repair, modify, retrofit, and modernize aircraft systems. Although depot maintenance is normally performed at fixed facilities within CONUS, support teams may be deployed for on-site repairs as necessary.

## **ALSS MAINTENANCE PROGRAM CONSIDERATIONS**

2-29. Some major considerations for the ALSS Maintenance Program at the AVUM location follow:

- Maintaining the highest degree of mobility includes preparing load plans and practicing deployment procedures.
- Completing all scheduled maintenance before deployment or entry into surge operations; this avoids the potential of unserviceable ALSE for crew members and failing to meet mission requirements.
- Setting priorities (unit commander/Production Control) for repairs based on the mission requirements for the battlefield.

2-30. Aviation combat operations can result in shortages of personnel, repair parts, and aircraft; intensive maintenance management is mandatory. The ALSS maintenance program must be predesignated and trained so that minimal time and resources are expended during critical periods.

## AVIATION LIFE SUPPORT SYSTEM FACILITY

2-31. The ALSS facility is established to accommodate the required number of maintenance personnel, maintenance areas for scheduled and unscheduled maintenance, and storage of ALSE, support equipment, common and special tools, repair parts, supplies, and materials. The minimum requirements are specified in AR 95-1, Chapter 8, and Section 4.

2-32. Test equipment, tools, and pilferable ALSE components and supplies are stored in securable storage cabinets. Administrative areas are established for charts, records, publications, and administrative supplies in the ALSS facility. The ALSS facility requires augmentation with a mobility capability that will support unit deployment requirements.

### SECTION III – ALSS BUDGET PROGRAM

#### GENERAL

2-33. Commanders must include ALSS maintenance and training program requirements in their budget. They must manage funding for equipment, supplies, and repair parts to ensure a well-maintained and continuous ALSS maintenance and training program. When preparing the budget, they should review AR 95-1; CTAs 8-100, 50-900, 50-909, and 50-970; and applicable MTOEs and TDAs.

#### COMMANDER'S RESPONSIBILITIES

2-34. Commanders at all levels are required to establish an ALSS maintenance and training program budget to meet resourcing requirements. Establishment of an ALSS budget is imperative for ALSS overall maintenance and training sustainment.

#### PROGRAM MANAGEMENT

2-35. As an aid to commanders, ALSOs, and ALSE technicians, completion of steps 1 through 7 (see Section VI) will provide the initial ALSE cost or identify equipment shortages for determining an annual budget and to forecast future requirements. To obtain repair parts and maintenance supplies costs, use the proper maintenance shop stock or PLL procedures in Chapter 3 and DA Pamphlet 710-2-1 and DA Pamphlet 710-2-2. Other factors to consider when determining their maintenance budget include the unit mission, training requirements, and unscheduled maintenance possibilities.

2-36. An annual ALSS maintenance and training program budget can be obtained by adding the initial or "get-well" budgets with the maintenance budget. The annual budget can further be broken down into quarterly dollar figures. ALSS personnel will maintain records regarding the steps and equipment authorizations that they used for obtaining their budget request.

## **SECTION IV – ALSS LOGISTICS/MAINTENANCE ASSISTANCE**

### **GENERAL**

2-37. The U.S. Army Aviation and Missile Command, U.S. Army Safety Center, U.S. Army Aviation Center, and U.S. Army Aviation Logistics School are source agencies from which general and specific ALSE materials can be obtained.

### **LOGISTICS ASSISTANCE PROGRAM (LAP)**

2-38. The LAP—which is detailed in ARs 700-4, 700-138, and 750-1—helps commanders develop their units' capabilities to resolve materiel-readiness problems. Logistics assistance covers many kinds of assistance activities, including field training in maintenance and supply and in administrative and technical procedures. The program emphasizes the word "assistance." Whatever the reason for the need, technical assistance personnel may be called on for help.

### **RESPONSIBILITY**

2-39. The LAP does not relieve commanders of logistics-readiness responsibilities or functions. Commanders are responsible for developing a self-sustaining capability. The LAP is not intended to be a permanent augmentation to the commander's staff; instead, it is limited to the amount of time necessary to solve specific problems and train assigned personnel.

2-40. Commanders may be confronted with real or potential logistics problems that are beyond their resource capability to identify or resolve or are clearly not their responsibility. In these cases, the program helps commanders analyze readiness, identify problems, and determine responsibility for resolving problems. When appropriate, it also assists with the resolution (normally on new equipment).

### **FUNCTIONS**

2-41. Logistics assistance is the advice, assistance, and training provided by qualified logisticians. They may be military or civilian employees of the Army or employees of industrial or commercial companies serving the Army under contract. New and complex equipment must be introduced into the Army system as rapidly as possible; military personnel are constantly rotating. Therefore, maintenance activities often need assistance to keep current. The LAP provides solutions to problems of supply and equipment installation, operation, and maintenance. The program provides a pool of knowledge and skill from which all levels may draw aid. Logistics assistance personnel will coordinate actions with the commander and keep him fully informed of their findings and recommendations. Some functions of logistics assistance personnel are to—



- Perform the work to show units how it is done.
- Advise both technical and nontechnical personnel.
- Help users evaluate and replace unserviceable equipment that cannot be repaired.
- Visit AVUM and AVIM activities to help improve supply, repair parts, and maintenance support for using organizations.
- Help units locate deficiencies in supply and maintenance capabilities.
- Collect, evaluate, and exchange technical information.
- Instruct units in record management and in preparing units' supply records, PLLs, and authorized stockage lists.
- Instruct units in preparing equipment for field exercises and overseas deployment.
- Provide assistance on the care and preservation of stored material.

## **PERSONNEL AND SERVICES**

2-42. LAP personnel are primarily Army military and civilians. They are highly trained, experienced, physically qualified, and well versed in the missions, equipment, and procedures of the providing and supported commands. These personnel are mobile and available for worldwide assignments. They will be assigned or attached to the appropriate geographical logistics assistance office (AR 700-4) when deployed to the field command areas. AMC employs or contracts logistics assistance personnel.

### **Contract Plant Services**

2-43. Trained and qualified engineers or technicians employed by the manufacturer provide these services in the plants and facilities of the manufacturer. Through contract plant services, Army personnel are taught to install, operate, and maintain the manufacturer's equipment.

### **Contract Field Services**

2-44. Qualified contractor personnel provide these services on site. Normally, they provide DA personnel with information on the installation, operation, and maintenance of new DA weapons, equipment, and systems.

### **Field Service Representative Services**

2-45. Field service representatives are employees of manufacturers of military equipment or components. They provide liaison or advisory service between their company and military users of their products. They are known in the field as "tech reps." They transmit information from the manufacturer needed to update the Army's equipment capabilities. In addition, they solve technical problems. Field service representatives are important as technical communication channels between manufacturers and military users.

## UNITED STATES ARMY AVIATION AND MISSILE COMMAND (AMCOM)

2-46. The AMCOM is one of the major subordinate commands of the AMC. It is responsible for commodity management of aeronautical equipment including—

- Design, research, and development.
- Maintenance engineering.
- Supply and stock control.
- Logistics assistance for all Army aviation and aerial delivery equipment.

### PRODUCT MANAGER – AIR WARRIOR (PM-AW)

2-47. **PM-AW vision statement:** “Is to design, develop and produce aircrew products that provide exceptional warfighting effectiveness, unparalleled mission versatility, increased aircraft lethality and unmatched survivability while both sustainable and affordable. To have these products available becomes the choice of combat aircrews DOD-wide.”

2-48. **PM-AW mission statement:** “To lead and build responsible, caring and accountable government and contractor integrated product and process teams who safely design, develop and produce the next generation of aircrew-related warfighting systems and life support equipment for Army and DOD warfighters that save lives, enhance crew performance and are combat effective, affordable and sustainable worldwide.”

#### 2-49. Contact information:

- Office Symbol: SFAE-SDR-AW  
Address: AMCOM, Product Manager’s Office (PM-AW), ATTN: SFAE-SDR-AW, Redstone Arsenal, Alabama 35898  
Telephone Numbers:  
DSN 897-4262  
Commercial 256-313-4262  
FAX 256-313-4946
- Website: <https://www.airwarrior.redstone.army.mil>

**Note:** User identification and a password are required to access the website. Contact PM-AW for additional information.

### THE LOGISTICS ASSISTANCE AND NEW EQUIPMENT TRAINING (NET)

2-50. The Logistics Assistance and NET Division is one of the subordinate divisions of the Directorate for Readiness. Its mission is staff supervision and operational control of worldwide LAPs for Army aircraft and related support equipment. The division also provides representatives to make command staff visits and to manage all aspects of the new equipment training and support services. An Army aircraft mobile training team is made up of either specialists or contract technical services personnel trained in the support of a

particular aircraft. AMCOM controls and designs these teams to assist the commander in improving the proficiency of maintenance personnel at AVUM and AVIM levels. When the team completes a job, it prepares and forwards a detailed report to AMCOM.

## **MAINTENANCE ASSISTANCE AND INSTRUCTION TEAM (MAIT)**

2-51. The maintenance assistance and instruction team (MAIT) is a program developed under Deputy Chief of Staff for Logistics (DCSLOG) that complements the LAP. It provides technical assistance to help unit commanders identify and solve continuing problems that contribute to less-than-acceptable materiel readiness. The MAIT does not negate the commander's right to conduct formal or informal evaluations; it simply provides the unit commander with a list of problem areas and recommended actions. The MAIT will not score the unit or provide a rating. Emphasis is on assistance and instruction. MAITs have replaced the former command maintenance management inspection (CENI) team. AR 750-1 contains specific guidance on the MAIT program. It complements ARs 350-35, 700-4, and 700-138. Anyone at any time may need MAIT assistance, but normally AVIM assistance should be sought first.

## **AVIATION RESOURCE MANAGEMENT SURVEY (ARMS)**

2-52. The ARMS program is a FORSCOM program designed to provide aviation personnel with expert technical assistance and on-site evaluations as mandated by AR 95-1. Key proponent areas of the ARMS include, but are not limited to, the following:

- Maintenance.
- Supply.
- Safety.
- Petroleum, oil, and lubricants.
- Aviation life support equipment.
- Operations.
- Aviation medicine.
- Standardization.
- Training management.

**Note:** Additional information, assistance, and ARMS Commander's Guide may be obtained at [www.forscom.army.mil/avn/](http://www.forscom.army.mil/avn/) or <https://freddie.forscom.army.mil/avn>.

## **AVIATION INTERMEDIATE MAINTENANCE LOGISTICS ASSISTANCE**

2-53. AVIM units can furnish informal technical and training assistance using mobile maintenance/supply contact teams. Supporting maintenance activities must maintain a liaison to assist using activities. These teams—

- Assist in resolving problems identified by liaison visits.
- Instruct and advise on maintenance and repair parts procedures.

- Perform on-site maintenance when requested.
- Assist the MAIT when requested.

## REQUESTS FOR LOGISTICS ASSISTANCE

2-54. DA has provided commanders with the organic capability to accomplish their logistics mission. Commanders at each level will use that capability to achieve and sustain their authorized level of organization. However, DA will furnish commanders with assistance to identify and resolve logistics problems that are beyond their responsibilities or authority. Before requesting logistics assistance, commanders must use their own capabilities and the AVIM support available to them.

2-55. A unit commander obtains logistics assistance for supply or maintenance by submitting a request through proper channels to the servicing MAIT or LAO. The chief, MAIT or Logistics Assistance Office (LAO), determines whether the need can be met from resources within his geographical area of responsibility. If resources are not available, the request is forwarded through channels to the commanding general of the commodity command responsible for that particular field of logistics assistance.

2-56. A request may be submitted by the most expeditious means, in any form (normally on a memorandum), at any time. It must identify the nature of the problem in enough detail so that the source can provide quick, effective response. AR 700-4 lists the information to address in a request.

## SECTION V – MAINTENANCE INSPECTIONS

### GENERAL

2-57. Working in any type of aviation environment is challenging. The challenge for the commander and the ALSS maintenance program manager is to ensure that the maintenance program provides the assets that commanders and aircrews need, without compromising established safe maintenance standards. The ALSS maintenance personnel and crew members must perform different types of inspections to maintain assigned ALSE.

### TYPES OF INSPECTIONS

2-58. Types of inspections conducted and maintenance procedures performed are as follows:

- **Preflight inspections.** These inspections are conducted by individual crew members before actual flight; no special technical skills are required. Crew members look for broken seals, missing components, and obvious damage.
- **Postflight inspections.** These inspections are conducted by individual crew members after each flight to alert ALSE personnel of any discrepancies.

- **Operator maintenance.** This inspection is performed by individual crew members; this maintenance procedure covers operator PMCS and proper care and cleaning of equipment such as flight clothing and helmets. ALSS personnel perform preventive maintenance checks and services; the particular component technical manual establishes inspections at prescribed intervals.
- **Special inspections.** ALSS personnel perform these inspections whenever conditions warrant. The inspector or the directive will determine the extent of these inspections.
- **Initial acceptance inspections.** Newly acquired equipment—such as helmets, rafts, and survival kits; will be inspected by ALSE personnel. Inspections are conducted to ensure equipment is serviceable, all components are received, and serial numbered items are validated.
- **Turn-in inspections.** Equipment and clothing that is to be turned-in to the CIF or supply must be inspected by ALSS personnel. ALSE personnel will properly identify equipment serviceability and tag the equipment with the appropriate material condition tags.
- **Serviceable parts inspections.** ALSS personnel conduct these inspections; they determine whether parts removed from unserviceable equipment—such as helmets, life preservers, and oxygen parts—are serviceable.
- **Commander's inspections.** A commander or his staff personnel determine equipment reliability and performance and maintenance program effectiveness conducting these inspections; these are both formal and informal inspections. Commanders and ALSS personnel may use the MACOM or FORSCOM Commander's Guide or local inspection checklist.
- **Ammunition surveillance and quality assurance (QASA-AMMO) inspections.** Each installation, activity, and command concerned will establish and maintain an ammunition surveillance and quality assurance program according to AR 702-6, AR 740-1, DA Pamphlet 385-64, and Supply Bulletin (SB) 742-1.

## SECTION VI – MAINTENANCE SCHEDULING

### GENERAL

2-59. Scheduled ALSS maintenance is necessary to maintain high maintenance standards. Constant coordination between the operations officer and the ALSO is necessary to provide the amount of ALSE needed to meet the mission requirements and to simultaneously permit adequate time for maintenance.

### COORDINATION

2-60. To properly schedule ALSS maintenance, the ALSO or ALSE technician must know and have documentation on vital information relating

to the unit mission and aircraft, personnel, and equipment authorizations. Completing several steps and actions, listed below, will help ALSS personnel provide this needed information. Once completed, it can be used for budgeting purposes as well as for maintenance scheduling. Figure 2-1 is a sample of these completed steps.

2-61. Ensure that all Class-V items have been scheduled for the required annual inspection by the supporting quality assurance specialist (ammunition surveillance) (QASAs). Ensure that daily checks for surveillance of Class-V items have been completed according to SB 742-1.

## SCHEDULING PROCESS

2-62. The following steps outline the maintenance scheduling process.

2-63. **Step 1—Determine personnel authorizations.** Some unit ALSE authorizations (such as helmets, vests, survival radios, survival kits, and oxygen masks) are based on the authorized number of crew members and noncrew members. CTA 50-900, AR 95-1, TDAs, and MTOEs define equipment authorizations. Refer to unit TDA/MTOE to determine crew-member authorizations and to unit orders for noncrew member authorizations.

2-64. **Step 2—Determine aircraft authorizations.** Some ALSE (such as life rafts, first-aid kits, and survival kits) are based on type of aircraft, seat availability, and unit mission. CTA 8-100, CTA 50-900, AR 95-1, and the aircraft operator's manual define equipment authorizations. Refer to the unit TDA/MTOE to determine unit mission statement, number and type of aircraft authorizations, and proper operator's manual for seat availability.

2-65. **Step 3—Determine equipment authorizations.** Various ARs, CTAs, SBs, MTOEs, and TDAs authorize unit ALSE. List (Figure 2-1) all of the equipment that the unit is required and authorized to have based on the proper publications and unit mission.

2-66. **Step 4—Determine on-hand quantities.** To complete this step, conduct a 100-percent inventory of your unit ALSE; list it beside your authorized column. If the numbers are equal, you have all of your authorized equipment. If your on-hand quantity is greater than that authorized, note the overage in the remarks column. If the on-hand quantity is less than that authorized, subtract the on-hand figures from the authorized and note your shortages in the remarks column. Then use this shortage list to determine an annual budget by using the proper supply publications for obtaining cost and equipment data.

2-67. **Step 5—Determine daily inspection requirements.** After completing steps 3 and 4, total your equipment authorizations and your on-hand quantities. Use these figures to determine your daily inspection requirements. There are three 120-day inspection cycles per year, and on average, there are an estimated 84 working days in a 120-day cycle. With

this information, you can use the following formulas to determine your daily inspection requirements:

- Total equipment authorized divided by 84 equals daily inspection requirement (authorization).
- Total equipment on hand divided by 84 equals daily inspection requirement (real world).

2-68. **Step 6—Establish realistic inspection-item criteria.** How long does it take to perform a periodic inspection on ALSS assets? This important question must be addressed to establish a maintenance-scheduling program. The maintenance allocation chart listed in the equipment maintenance manual will provide a guide for the appropriate inspection times. However, these times are only for the conduct of the inspection itself and do not include the time for performing any repairs or maintenance, completing forms and records, or ordering parts. For scheduling, ALSS personnel and supervisors must consider and compensate for these tasks. Other factors include working hours/conditions, physical training programs, formations, duty rosters, maintenance of shop equipment, and unscheduled ALSE maintenance.

2-69. **Step 7—Schedule/Manage equipment inspections.** ALSS personnel must first appraise their work load before they can schedule and manage their unit equipment inspections. By working through steps 1 through 6, you have completed this task, but now you must regulate the inspection intervals to prevent crisis management. Your goal is to have a smooth flow of ALSS maintenance by spreading your ALSS inspections throughout the cycle and not bunching equipment into one or two months. Coordination with operations is necessary to ensure that ALSE is available to meet all mission requirements, including temporary duties or field exercises.

## AUTOMATION

2-70. Automation greatly increases the ability of maintenance managers to manage the flow of maintenance data. Maintenance management includes forecasting, distributing, scheduling, and controlling the production of maintenance workloads. Automation systems and programs will help the ALSS personnel to control maintenance operations and work flow. It also requires the managerial tools to direct and control work flow through a maintenance shop so that maximum production of quality work results.

2-71. The ALSS Maintenance and Training Programs require resources (such as microcomputer, printer, hardware, and software) placed in the ALSS shop to operate electronic publication programs and to access Internet technical publication and logistical support websites. These resources are essential to manage these programs and day-to-day operations.

## ALSE TRACKER

### ALSE TRACKER 2.0

2-72. This paragraph is a brief synopsis of how ALSE Tracker works. It is not intended to be a complete guide but should get you started in understanding how the program is set up and where to enter information for each purpose that the program handles.

### MASTER LIST

2-73. The basics are a master list of items that you can add to or delete from when filling out hand receipts. The master list contains all of the information about a piece of that type of gear such as the NSN, unit of issue, and inspection type. This information determines whether an item will show up in the inspection area of the maintenance tab. When an item is added in the maintenance area, select the NSN and the rest of the information is shown for your convenience—but it cannot be changed. Any changes that you make in the master list will be reflected in *all* items of that type (NSN) in all of the hand receipts; for example, if an inspection interval changes from 90 to 60 days, you only have to update it once in the master list (the assigned due dates will not change until the next inspection). In the master list, you can also specify a couple of “lists” that you want to have to make creating a “standard” hand receipt easier. Go down the master list tab, press the ALSE gear button, depress the *all* button at the top, scroll off to the right, and check which items you want in your lists as standard issue. Then, if you go back to the maintenance tab to hand receipt, you can use the button in the upper right to add all of the items from one (or both) of the lists you just specified.

2-74. You can also maintain a list of bench-stock items that you can assign drawer and bin numbers in the office tab. In addition, you can specify the program setup options like your name, your company name, and aircraft tail numbers.

### MAINTENANCE

2-75. The maintenance tab is where you look at all of your information. All of the buttons on the left (except aircraft equipment) show you the same information you enter in a hand receipt; it is just organized in a different way.

2-76. The hand receipt area allows you to add and delete items and people. When you click on a person on the left, the grid on the right shows you everything you have assigned to him or her. You can print a hand receipt with the print button in the upper right above the grid, but only the items you have entered—an on-hand quantity of one or more—will be shown on the printed hand receipt. This allows you to have personal helmets entered in the program so that the inspections can be tracked, but the items will not show up on the hand receipt.



2-77. The inspection button takes all of the items that you have entered in hand receipts (that are inspectable items); for example, have “Day” or “Year” and not “None” assigned as an inspection type and displays them according to due date. Actually, anywhere you see the “Sorted By...” at the top of the screen, you can click on any one of the column headings and the grid will sort by that column. In the Inspections area, you also get a couple of different reports. You can list all items due up to a certain date (the drop-down list) or all of the Inspectable items you have assigned to people (the printed lists will be according to how you have the grid sorted). Changing the inspection date can be done two ways. First, you can enter in an inspection due date—either type it or use the drop-down calendar; or you can enter a completed date and let the program figure out the due date based on the inspection interval.

2-78. View by Type is just a way to categorize all of your gear and print lists of certain things like radios. You can check and uncheck the boxes to the right in the grid to add and remove items from the different categories. This will have no affect on hand receipts or inspections. Aircraft equipment is its own little area that some people use to track the flyaway gear. You can add your aircraft tail numbers and the types of gear you want in the program setup area of the Master List tab. Then, just add new items to the list in the aircraft equipment area.

## OFFICE

2-79. The office tab holds the Bench Stock and Technical Manuals areas. The Bench Stock is similar to assigning hand receipts except that you put items in drawers and bins that you define in the Program Setup of the Master List tab. Then you can print an inventory form to use for reordering and keeping track of your items. There is also a set of buttons across the top so that you can categorize your different supplies. You should always add new items while the *all* button is depressed. This will prevent you from adding something and having it disappear because it does not belong to the category that you currently have selected.

2-80. The Technical Manuals area is a list of all of the manuals, changes, and locations that provides a database for maintaining the ALSE library. It is a valuable tool in preparing for and during an inspection.

## ALSE TRACKER 2.0 AVAILABILITY

2-81. The ALSE Tracker program is an approved DOD-shareware program and can be downloaded from the following website:  
<http://creativesoftware.gordon-zone.com>.

1. PERSONNEL AUTHORIZATIONS (TDAs AND MTOE):			
		CUMULATIVE	
	OFFICERS	ENLISTED	TOTAL
CREW MEMBERS	30	15	45
NONCREW MEMBERS	0	3	3
TOTAL	30	18	48
2. AIRCRAFT AUTHORIZATIONS (TDAs AND MTOE):			
TOTAL NUMBER: 15			
TYPE AIRCRAFT: UH-60			
SEAT AVAILABILITY: 14 PER AIRCRAFT x 15 AIRCRAFT = 210			
3. DETERMINE EQUIPMENT AUTHORIZATIONS:			
4. EQUIPMENT AUTHORIZATIONS (ARs, CTAs, SCs, TDAs, MTOE) AND ON-HAND QUANTITIES (INVENTORY):			
	AUTHORIZED	ON-HAND	REMARKS
HELMET, SPH-4	48	58	OVERAGE 10
LIFE PRESERVER, LRU/10P	258	210	SHORT 48
LIFE RAFT, 7-MAN	30	24	SHORT 6
MASK, OXYGEN	45	45	
RADIO SURVIVAL, PRC-90	45	35	SHORT 10
SURVIVAL KIT, INDIVIDUAL			
COLD CLIMATE	45	42	SHORT 3
HOT CLIMATE	45	42	SHORT 3
OVERWATER	45	42	SHORT 3
VEST, BODY ARMOR	48	48	
VEST, SURVIVAL, SRU-21/P	48	48	
TOTAL	657	594	SHORTAGE 73 (GET-WELL BUDGET)
5. DAILY INSPECTION REQUIREMENTS:			
AUTHORIZED: 657 DIVIDED BY 84 = 7.8 OR 8			
ON-HAND: 584 DIVIDED BY 84 = 6.9 OR 7			
6. ESTABLISH REALISTIC INSPECTION TEAM CRITERIA:			
7. SCHEDULE/MANAGE EQUIPMENT INSPECTION:			

**Figure 2-1. Sample Equipment Scheduling Reference Guide**

**Note:** These are sample figures only; do not use these numbers for your unit. Refer to the appropriate publications for obtaining your unit authorization figures.

## **SECTION VII – ALSE STATUS BOARD AND INSPECTION CALENDAR**

### **GENERAL**

2-82. One method of controlling or managing an ALSS maintenance-inspection program is the ALSE status board (Figure 2-2). A status board is only as good as the information it contains; it must be current and accurate. The status board and inspection calendar is a graphical tool that displays data concerning ALSE status or shop operations. Information recorded on the board is used to control current operations, plan work, and measure work performed. Although maintenance managers may have quick access to information using automation, a well-planned and informative status board and inspection calendar is a highly visible source of information for the commander and other essential personnel.

### **STATUS BOARD**

2-83. There are several methods of marking or identifying ALSE; for example, color coding, numbering, and using tags or labels. However, what suits one unit may not be useful for another.

ALSE STATUS BOARD													
NAME	#	HELMET	VEST SRU-21	O2 MASK	#	PRC-90	COLD KIT	HOT KIT	OVER WATER KIT	ANTI- EXP. SUITS	FIRST AID KITS	7 MAN LIFE RAFT	LIFE PRES. LPU-10P
MAJ Frank	1	FEB	FEB	FEB	1	MAR	STOR AGE	JUN	MAR	FEB	FEB	STORAGE	MAR
CPT Jack	2	JAN	JAN	JAN	2	APR	JAN	JUL	APR	JAN	JAN	APR	APR
CPT Baker	3	APR	APR	APR	3	MAY	MAR	FEB	MAY	MAR	APR	MAY	MAY
CPT Gillespie	4	MAR	MAR	MAR	4	AUG	MAR	JAN	AUG	MAR	MAR	AUG	AUG
CW4 Shaffer	5	FEB	FEB	FEB	5	SEP	APR	APR	SEP	APR	FEB	SEP	SEP
CW4 Thomas	6	OCT	OCT	OCT	6	NOV	FEB	APR	NOV	FEB	OCT	NOV	NOV
CW3 Ashcom	7	APR	APR	APR	7	JAN	MAR	JUL	JAN	MAR	APR	JAN	JAN
CW3 Barnes	8	JUN	JUN	JUN	8	OCT	FEB	AUG	OCT	FEB	JUN	OCT	OCT
CW2 Thomas	9	AUG	AUG	AUG	9	MAY	FEB	DEC	MAY	FEB	AUG	MAY	MAY
CW2 Sanders	10	OCT	OCT	OCT	10	JUL	OCT	STORA GE	JUL	OCT	OCT	JUL	JUL
SFC Kurtiak	11	DEC	DEC	DEC	11	FEB	NOV	DEC	FEB	NOV	DEC	FEB	FEB
SGT Smith	12	APR	APR	APR	12	NOV	NOV	OCT	NOV	NOV	APR	STORAGE	NOV

Figure 2-2. Sample of an Equipment Status Board

## INSPECTION CALENDAR

2-84. Figure 2-3 is an inspection calendar. It provides a quick reference for inspections and inspection due dates. A copy of this calendar should be located near the ALSE status board for easy access. The calendar has a 120-day inspection interval. To use this calendar, locate the month that the last inspection was performed, read across for the month that the next inspection is due, then add or subtract. This will determine the due date of the inspection. For instance, if a 120-day inspection was performed on 4 January, it would be due again on 4 May, with no days lost. If performed on 4 May, an inspection would be due again on 1 September, three days lost/subtracted

from 4 September. The inspection cycle for this sample is January, May, and September. However, if the inspection was completed on 1 September, it would be due again on 30 December (1 January with two days lost or subtracted). Note that this would automatically change the inspection cycle from January, May, and September to December, April, and August. ALSS personnel may want to perform periodic inspections early or late to spread equipment inspections throughout the three cycles or to meet mission requirements. However, ALSE that is overdue for inspections must be properly tagged and identified as inspection due. Use the appropriate materiel condition tags.

LIFE SUPPORT EQUIPMENT INSPECTION CALENDAR											
90 DAY						120 DAY					
INSP		DUE		DAYS	LOST	INSP		DUE		DAYS	LOST
JAN	▶	APR		0		JAN	▶	MAY		0	
FEB	▶	MAY	+	1		FEB	▶	JUN		0	
MAR	▶	JUN	-	2		MAR	▶	JUL	-	2	
APR	▶	JUL	-	1		APR	▶	AUG	-	2	
MAY	▶	AUG	-	2		MAY	▶	SEP	-	3	
JUN	▶	SEP	-	2		JUN	▶	OCT	-	2	
JUL	▶	OCT	-	2		JUL	▶	NOV	-	3	
AUG	▶	NOV	-	2		AUG	▶	DEC	-	2	
SEP	▶	DEC	-	1		SEP	▶	JAN	-	2	
OCT	▶	JAN	-	2		OCT	▶	FEB	-	3	
NOV	▶	FEB	-	2		NOV	▶	MAR		0	
DEC	▶	MAR		0		DEC	▶	APR	-	1	

Figure 2-3. Life Support Equipment Inspection Calendar

## AUTOMATION

2-85. Automation greatly increases the ability of maintenance managers to manage the flow of maintenance data. Maintenance management includes forecasting, distributing, scheduling, and controlling the production of maintenance workloads. The use of automation systems and programs will help ALSS personnel control maintenance operations and work flow. These also require the managerial tools to direct and control work flow through a maintenance shop to produce the best of quality work.

2-86. The ALSS maintenance management and training programs require resources—such as microcomputer, printer, hardware, and software placed in the ALSS shop—to operate electronic publication programs and to access Internet technical publication and logistical support websites. These resources are essential to manage these programs and day-to-day operations.

## SECTION VIII – REFERENCE MATERIALS AND ADMINISTRATIVE MANAGEMENT

### GENERAL

#### ALSS SHOP

2-87. The library will consist of required publications used to manage the unit ALSS maintenance management and training programs, include the following:

- Army Regulations.
- Technical Manuals.
- Field Manuals.
- Common Tables of Allowances.
- Supply Bulletins.
- Technical Orders.
- Naval Air Publications
- Technical Bulletins.
- Supply Catalogs.

2-88. Related publications that should be included in the ALSS library include the following:

- Available ALSE/safety publications from other services.
- PB-1 series, *The United States Army Aviation Digest* (1955-1995).
- TB 43-PS-557, *The Preventive Maintenance Monthly*.
- *Flightfax*.
- ALSE pamphlets and bulletins.

#### ELECTRONIC PUBLICATIONS AND ELECTRONIC PERFORMANCE SUPPORT

2-89. The DOD objective is to automate all reference and administrative publications and documents into an electronic format. This task is not yet complete; therefore, the ALSS maintenance management and training programs references and administrative materials (hard copy) will still be used, instead of electronic files. ALSS personnel should use electronic publications in the format of electronic technical manuals (ETMs), interactive electronic technical manuals, and other electronic publications and documents.

## TYPES OF PUBLICATIONS

2-90. Army publications describe policies and procedures used in maintenance management. QC and ALSS personnel ensure that publication libraries are current with the latest changes. QC maintains the master reference library consisting of many types of publications.

### Army Regulations

2-91. ARs provide policies and responsibilities that govern administrative procedures and ensure compliance at all levels. Section 4 of DA Pamphlet 25-30 contains an index of ARs. A basic number identifies subject matter; for example, all ARs in the 95-series are about aviation. A subnumber preceded by a dash indicates additional information about the basic subject.

### Department of the Army Pamphlets

2-92. DA pamphlets contain permanent information or reference material. Section 4 of DA Pamphlet 25-30 contains an index of DA pamphlets. DA pamphlets are numbered in the same manner as ARs. A subnumber preceded by a dash distinguishes between DA pamphlets with the same basic number. For example, all DA pamphlets in the 25-series are about general Army publications, such as the following:

- DA Pamphlet 25-30 is an index of publications and blank forms.
- DA Pamphlet 25-33 is the standard Army publication's system revision of the DA 12-series forms, usage, and procedures.

### Field Manuals

2-93. FMs outline military doctrine, tactics, and techniques. They include instructions and reference material on training, operations, and maintenance management. Section 5 of DA Pamphlet 25-30 contains an index of FMs. FMs are also numbered in the same manner as ARs. A basic number identifies the primary subject, and a subnumber indicates additional information; for example, all FMs in the 3-04 series—such as FM 3-04.111 (FM 1-111) and FM 3-04.500 (FM 1-500) (one series)—are about aviation operations.

### Technical Manuals

2-94. TMs provide training information on a variety of subjects and on specific items of equipment. Section 8 of DA Pamphlet 25-30 contains an index of TMs. TMs for specific equipment provide instruction on operation, maintenance, and overhaul. They also provide parts lists and breakdowns. The first two digits of these manuals identify the preparing technical service.

2-95. A dash and a four-digit number indicate the Federal Supply Classification (FSC) code, including the equipment within the FSC; for example, -1510 represents fixed-wing aircraft and -1520 represents rotary-wing aircraft.

2-96. A dash and a three-digit number indicate the mission design series (MDS) of a particular aircraft; for example, -238 represents AH-64A helicopters and -248 represents OH-58D helicopters. A dash and a two-digit number represent the category of maintenance; for example, -10 is for operators and -23 is combined for AVUM and AVIM personnel.

2-97. A serial number preceded by a dash or a slash is added when a TM is published in more than one volume; such as, -1 or -2 or /1 or /2. The letter "P" is used as a suffix when the repair parts and special tools lists are published in a volume separate from the maintenance instructions. This volume will have the same basic number as the corresponding TM. Examples of these TMs are as follows:

- TM 1-1520-238-10, operator's manual for the AH-64A helicopter.
- TM 1-1520-238-23-1, AVUM and AVIM maintenance instructions for AH-64A helicopters.
- TM 1-1520-238-23P-1, first volume of repair parts and special tools list for AH-64A helicopters.

## Technical Bulletins

2-98. TBs contain technical information on equipment or professional management techniques. The most common TBs encountered by QC personnel direct one-time inspections of aircraft or components. Section 7 of DA Pamphlet 25-30 contains an index of TBs. Urgent inspection requirements are initially sent to the units by teletypewriter exchange (TWX) message. The subsequent TB then supersedes the TWX. TBs directing one-time inspections are classified by priority as urgent, limited urgent, and normal.

2-99. **Urgent.** TBs contain aircraft conditions that affect SOF. These conditions may cause damage or destruction to aircraft and death or injury to personnel. An urgent TB may direct that a specific aircraft be grounded. Normally, grounding takes place within a certain flying-hour or calendar period. When grounding aircraft, follow procedures listed in the TB.

2-100. **Limited Urgent.** TBs allow the aircraft to be operated only under specific conditions or limitations. The TBs list the conditions.

2-101. **Normal.** TBs are issued when problems occur that reduce equipment efficiency or life expectancy or use of the aircraft. These TBs do not impose any operating limitations; however, maintenance must be accomplished within a specified time.

2-102. **Specific Items of Equipment.** TBs are numbered in the same manner as TMs for that item. An added number preceded by a slash differentiates between TBs on the same item. The two-digit group indicates which category performs the TB maintenance. TBs pertaining to two or more different items of equipment within the same FSC have a zero for the third digit. An example of these TBs is the following:



- TB 55-1500-337-24—.
  - -1500 refers to all aircraft.
  - The zero as the third digit indicates that this TB pertains to two or more different items of equipment within this FSC.
  - -24 indicates that this TB applies to AVUM through depot levels of maintenance.

### **Modification Work Orders**

2-103. MWOs are the only publications that authorize modification or alteration of Army equipment. MWOs are issued to—

- Provide compatibility with newer equipment.
- Prevent serious damage to equipment.
- Increase operational effectiveness.
- Reduce support requirements.

2-104. Each MWO contains specific instructions concerning the following:

- Time limit for compliance.
- Maintenance category to which the MWO applies.
- Parts required.
- Man-hours required.
- Form entries required.
- Method of performing the modification.
- Weight and balance data.

2-105. As with TBs, MWOs are assigned priorities. The priority classifications and numbering system are the same as for TBs. Section 6 of DA Pamphlet 25-30 contains an index of MWOs.

### **Safety-of-Flight/Aviation Safety Action Messages**

2-106. SOF and aviation safety action messages provide information concerning safe operation of an entire model or series of Army aircraft. TWXs transmit these messages to all organizations concerned. The message number indicates general or specific information. General messages apply to all aircraft, while specific messages apply only to a specific series of aircraft. Examples of these messages are the following:

- GEN-03-ASAM-1.
  - This general message applies to all aircraft or maintenance facilities.
  - It was written in FY 03.
  - It was the fourth general message sent in FY 03.

- UH-60-03-04.
  - This specific message applies to the UH-60-series aircraft.
  - It was written in FY 03.
  - It was the 4th UH-60 message sent in FY 03.

2-107. The three types of SOF messages are emergency, operational, and technical.

2-108. **Emergency.** These messages contain serious information. They usually denote hazardous aircraft conditions that cause aircraft damage or personal injury. Emergency SOF messages are later published as urgent TBs or MWOs.

2-109. **Operational.** These messages, issued by the USASC, impose operating limitations on aircraft.

2-110. **Technical.** These messages ground or require modification of the aircraft. They usually require removal and replacement or modification of the parts or components. AMCOM issues messages that are later published as urgent-action TBs or MWOs. The three types of aviation safety action messages are maintenance mandatory, informational, and operational.

- **Maintenance mandatory.** These messages direct maintenance actions/update TMs.
- **Informational.** These messages provide information of a maintenance technical or general nature.
- **Operational.** These messages pertain to aircraft operations, flight procedures, limitations, or operational policies.

2-111. Every three months, AMCOM publishes an index of all messages transmitted during that period. Check the message file when the index arrives to ensure that all required messages are on hand. AR 95-1 and DA Pamphlet 738-751 contain a detailed discussion of SOF aviation safety action messages.

## Supply Bulletins

2-112. SBs provide important supply information to maintenance personnel. This information includes—

- Stock-number changes.
- Direct-exchange list changes.
- Reports on new materiel.
- Information on aviation intensively managed items (AIMI).

2-113. SBs are numbered in sequence by calendar year. They usually have an expiration date. Section 6 of DA Pamphlet 25-30 contains an index of SBs.

## Federal Aviation Administration Publications

2-114. The FAA publishes books on aviation and aircraft maintenance. Only authorized, Army-approved publications are used for aircraft maintenance. Do not use FAA or any other federal agency publications for maintenance unless authorized in writing or as part of a logistic support plan.

### Publication Agencies

2-115. Listed below are the four official Army publication agencies (with website addresses) to obtain on-line Army publications and forms:

- U.S. Army Publishing Agency, <http://www.usapa.army.mil>
- General Dennis Reimer Training and Doctrine Digital Library (RDL), <http://www.adtdl.army.mil>
- U.S. Army Logistics Support Activity, <http://www.logsa.army.mil>
- U.S. Army Medical Department, <http://www.armymedicine.army.mil>
- Joint Electronic Library, <http://www.dtic.mil/doctrine/index.htm>

### Changed/Revised/Rescinded Publications

2-116. Effective ALSS maintenance requires that the latest technical information be on hand at all times. Army publications are continually being updated; QC personnel ensure that the ALSS shop has adequate quantities of current publications. Therefore, it is necessary to understand how the publications distribution system operates. DA Pamphlet 25-33 explains the following:

- How initial distribution and resupply are made.
- Which DA forms are required to order publications.
- Where to order publications.
- How a publications account is set up.

**Note:** DA Pamphlet 25-40 provides information on posting and filing publications.

### Changes

2-117. Rather than reprint an entire manual, changes are published to update existing manuals. Minor changes accumulate before being printed. Serious errors result in the immediate printing of a change, which may be issued as an immediate action interim change (IAIC). The IAIC is printed once and is not stocked for reorder.

2-118. **Posting.** When posting changes, personnel will ensure that the following procedures are followed:

- Be accurate and neat; a publication posted incorrectly or illegibly is worthless.
- Use a sharp, black pencil so that posting can be erased easily if future changes or corrections are necessary.

- Print or write the authority for changing a basic publication in the outside margin of the page by the changed portion; this authority is usually a numbered change (for example, C1). If the changed portion affects more than one page, make the same notation on all pages
- Draw a line through the first and last lines of the text when three or more lines of text are affected; then connect these lines from top right to bottom left, forming a Z-shaped figure.
- Ensure that change numbers are posted in proper sequence; an urgent change may be posted out of sequence (ahead of previous numbered changes) if authority to do so is stated on its front page.
- Ensure that manuals are not superseded or rescinded.

2-119. **Interim Changes.** When there is no time to issue a printed change, a TWX is used to amend a publication. The message is identified as an interim change. Prepared in the format of a published change, the message provides the exact language of the changed material. When posting the change, personnel will follow the procedures directed by the message. The message number and date are posted in the margin of the publication opposite the changed portions; for example, DA message 0614202 Mar 96.

2-120. A copy of the message is filed in front of the basic publication or the last printed change. If a copy is not available, a cross-reference sheet is inserted showing where a copy of the message can be found. When the next printed change or revision of the publication is received, the supersession notice is checked. If the notice states that the message is rescinded or superseded, the message or cross-reference sheet is removed and destroyed.

## Revisions

2-121. A revision is a complete new edition of an existing publication. It supersedes the preceding publication, with all changes, supplements, and appendixes.

## Safety-of-Flight Supplements

2-122. SOF supplements provide safety information when a hazardous condition exists. These supplements contain important operational, precautionary, and restrictive instructions that cause flight limitations. The first page is printed with a bold red border, and the words SAFETY-OF-FLIGHT appear at the top and bottom of the page. Supplements have the same title as the basic publication that they supplement. When safety-of-flight information applies to more than one type of aircraft, an individual supplement is issued for each type of aircraft. These supplements are issued in one of two forms:

- Interim supplements are publication changes issued by TWX when loss of life or serious personal injury is involved.
- Formal supplements are issued and distributed through normal channels when serious damage to the aircraft is involved or to replace previously issued interim supplements.

## **Rescissions**

2-123. A publication is rescinded when its material becomes obsolete. Destroy obsolete publications. DA Pam 25-30 contains a list of rescinded publications.

## **Disposal**

2-124. Publications will be discarded after they have been rescinded or superseded. Classified publications are discarded according to AR 380-5; unclassified publications will be discarded according to instructions from the local disposal officer. However, do not discard old publications until new ones are reviewed. To order publications and forms, use DA Form 12-series, Requirements for Distribution of Publications and Blank Forms. If more publications are received than needed, the DA Form-12 series will be updated according to DA Pamphlet 25-33. You will determine if other aviation units need the publications; if not, contact the post adjutant general publications officer for disposal instructions.

## **Technical Libraries**

2-125. The ALSS shop technical files and libraries are required on all equipment. Local policies differ according to the size of the unit concerning the location of publications. In a small unit, they may be filed in the ALSS shop or QC office. In field maintenance depot operations or AVUM/AVIM may be filed in a technical library. In either case, the area should be convenient to the ALSO/ALSNCO/ALSET personnel. DA Pamphlet 25-40 is required reading for TIs. ALSS personnel explain setting up, maintaining, and posting changes to technical libraries.

## **Maintenance Library Update**

2-126. Periodically, but not less than quarterly, the publication files will be inspected to ensure that complete, current publications are in use. To ensure that your publications are current, including any changes, you must know how to use DA Pamphlet 25-30. This publication lists the following information:

- Blank forms.
- New forms and publications.
- Revised forms and publications.
- Changed forms and publications.
- Superseded forms and publications.
- Rescinded forms and publications.
- Obsolete forms and publications.
- Administrative publications.
- Doctrinal manuals.
- Training manuals.
- Technical manuals.

- Alphabetic cross-references.
- National stock number cross-references.
- Line item number cross-references.
- Publication control officers.
- Installation PCOs.
- Forms management officers for major commands.

2-127. TIs are responsible for two types of libraries: master and shop. The master library is located in the QC office. All personnel use it. It contains publications required to maintain all series of aircraft supported by the shop. The shop library contains manuals on the specific duties of the shop. Inspectors ensure that these manuals are up-to-date. TIs also check the master and shop libraries quarterly to ensure the following:

- Libraries are located conveniently to users.
- All required manuals are on hand or on order.
- Necessary publications are on hand.
- Changes are properly posted and indexes reflect the status of publications on hand.
- No superseded or rescinded manuals are used.
- The AR 380-series controls policy for classified manuals.

## **Filing System**

2-128. AR 25-400-2 and DA Pamphlet 25-40 will be used as master guides for maintaining the technical publication files. DA Pamphlet 25-30 contains an index of DA publications and forms. The latest index verifies the status of publications. A star by the number indicates a new publication or a revised edition. A star following the entry indicates a change in the title or a new change.

2-129. If publications are received before they appear in the index, you will prepare and keep a list with the index. When these publications appear in the index, they are deleted from the list. In addition, rescinded publications will be lined out as rescission notices are received. Check the current supersessions and rescissions section of the index. If all supersessions and rescissions are posted correctly, files are accurate and agree with the index. The following types of publications will be filed as described below:

- TMs—numerically, when letters are added to the publication number—numerically and alphabetically; for example—
  - TM 1-1500-204-23-1 through 23-10.
  - TM 1-1520-238-10.
  - TM 1-1520-238-23-1.
  - TM 1-1520-238-23P-1.
  - TM 1-1520-238-23P-2.
  - TM 1-1520-238-PMS.

- TBs—numerically, preceding or inside the front cover of the TM (if related to a specific TM); TBs that do not pertain to a specific TM are numbered consecutively and filed alphanumerically, separately from TMs.
- MWOs—numerically, separately from TMs.
- Supply manuals—alphanumerically.
- Lubrication orders—with manuals that they apply to (a lubrication order has the same number as the TM or TB that best covers preventive maintenance for the equipment).
- SBs—numerically.
- FMs—numerically.
- Supply catalogs—numerically by FSC, then alphabetically.
- DOD manuals—numerically by federal classification, then alphabetically.
- Supply letters—numerically, separated by CY.
- SOF supplements—alphanumerically, immediately following the basic publication.

### **Automation**

2-130. Automation greatly increases the ability of maintenance managers to manage the flow of maintenance data. Maintenance management includes forecasting, distributing, scheduling, and controlling the production of maintenance workloads. Automation systems and programs enhance the ALSS personnel in controlling maintenance operations and work flow. Automation also requires the managerial tools to direct and control work flow through a maintenance shop to produce the best quality work.

2-131. The ALSS maintenance management and training programs require resources; for example, microcomputer, printer, hardware, and software placed in the ALSS shop to operate electronic publication programs and to access Internet technical publication and logistical support websites. These resources are essential to manage these programs and day-to-day operations.

### **Army Publication and Blank Forms Accounts**

2-132. Procedures differ throughout the Army on how personnel request publications and blank forms for their shops. DA Pamphlet 25-33 explains the correct procedures for obtaining publications and blank forms. ALSE personnel must work with their unit publication representatives or post Directorate of Information Management publication section.

2-133. ALSE personnel who are required to complete the following forms or order publications through the World Wide Web should obtain assistance from publications personnel:

- DA Form 12-R (Request for Establishment of a Publications Account).
- DA Form 17 (Requisition for Publications and Blank Forms).

- DA Form 4569 (USAPC Requisition Code Sheet).

### Interservice Publications Accounts

2-134. **Air Force publications.** Some of the equipment used by the Army is procured through the Air Force. However, publications to support these interservice items are not always obtained with the equipment. To establish an Air Force publications account, use the following procedures:

- Complete two copies of AFTO Form 43 (Air Force Technical Order).
- Complete one copy of AFTO Form 187 (Resupply and Initial Distribution Form.)
- Mail copies to Commander, Oklahoma City Air Logistics Center, ATTN: OC-ALC/M-MDUB, Tinker AFB, OK 73145.

2-135. **Navy publications.** NPFC 2002 will be used to order Navy publications. This index is available only on microfiche. There is no charge for Navy publications, but there is a charge for blank forms. To obtain permanent distribution of the index, write to Naval Publications and Forms Center, 5801 Tabor Avenue, ATTN: CODE 1011, Philadelphia, PA 19120.

2-136. Once an account is established, Navy publications are ordered using DD Form 1348M (DOD Single Line Item Requisition System Document [Mechanical]). Requisitioning instructions are in AR 725-50. An authorized DODAAC number, which can be obtained from the unit supply document register, must be assigned to DD Form 1348M when ordering Navy publications. After a proper UIC is established, publications are mailed to the address on the DODAAC. Permanent distribution of publications is obtained by writing to Commanding Officer, Naval Air Technical Services Facilities, 700 Robins Avenue, ATTN: CODE 321, Philadelphia, PA 19111. Binders used to store publications are available through the same procedures.

2-137. Military specifications and standards are also available through the Naval Publications and Forms Center. DD Form 1425 (Specifications and Standards Requisition) is used to request a copy of the index. Once the initial index is received, all further orders are requested using DD Form 1425.

2-138. **Interservice Publication Account—Forms and Documents.** See Appendix B for examples required to establish these accounts.

### Maintenance Management Files

2-139. As with any maintenance function, certain files must be maintained according to AR 25-400-2 and local command policies. Files should consist of, but are not limited to, the following:

- Equipment improvement recommendations (EIRs).
- Product quality deficiency reports (PQDRs).
- Report of discrepancy (ROD) reports.
- Command directives.



- Inspections/surveys.
- Correspondence.
- Council meetings.
- Orders.
- Bulletins.
- Suspense files.
- Facsimile files.
- Maintenance records (according to DA Pamphlet 738-751).
- DA Forms 2028 (Recommended Changes to Publications and Blank Forms).

## **SECTION IX – EQUIPMENT, COMPONENTS, SUPPLIES, AND MATERIALS STORAGE**

### **GENERAL**

2-140. ALSE, support equipment, components, supplies, and materials will be stored according to the appropriate technical publication for the item as outlined in AR 95-1, AR 190-11, AR 710-2, DA Pamphlet 385-64, and DA Pamphlet 710-2-1. Storage and inventory of pyrotechnics will follow guidance in ammunition and explosive standards and local policies. Flammables will be stored according to existing DOD, command, and local policies and regulations. All cabinets, bins, and storage facilities will be marked to identify the equipment, components, supplies, and materials that are stored in them. In addition, the ALSE system maintenance program manager ensures, initiates, and keeps appropriate inventory documentation up-to-date. Section X provides additional guidance on storage and security.

### **EQUIPMENT STORAGE**

2-141. Suitable storage racks, cabinets, and shelves should be fabricated or purchased to accommodate the specific equipment involved. Storage shelves should be free from rough or abrasive materials and splinters. Wood or metal shelves may be covered with rubber matting or tile. Hangers should be wood or heavy plastic material. The area where equipment will be stored should be well ventilated, out of direct sunlight, and well lighted. In addition, the storage area should be climatically controlled from 60° to 75°F and less than 60 percent relative humidity to reduce mildew and corrosion. Storage cabinets with locks will be provided for securing ALSE and support equipment. Section X provides additional guidance on storage and security. AR 190-11 provides guidance on physical-security requirements.

### **COMPONENT STORAGE**

2-142. The area where components are stored will be well ventilated, out of direct sunlight, and well lighted. Storage cabinets with locks will be provided

for securing ALSS components. In addition, the storage area should be climatically controlled from 60° to 75°F and less than 60-percent relative humidity to reduce mildew and corrosion. Section X provides additional guidance on storage and security. AR 190-11 provides guidance on physical security requirements.

## **SUPPLIES AND MATERIALS STORAGE**

2-143. The area where supplies and materials are stored will be well ventilated, out of direct sunlight, and well lighted. Storage cabinets with locks will be provided for securing ALSE and support equipment. In addition, the storage area should be climatically controlled from 60° to 75°F and less than 60-percent relative humidity to reduce mildew and corrosion. Section X provides additional guidance on storage and security. AR 190-11 and AR 190-51 provide guidance on physical-security requirements.

## **SECTION X – EQUIPMENT ACCOUNTABILITY, RESPONSIBILITY, AND CONTROL**

### **ACCOUNTABILITY AND RESPONSIBILITY**

2-144. Property accountability is one of the greatest challenges that the company commander, ALSO, and ALSE technician will face during their tours of duty. The commander is responsible for keeping the unit's property in serviceable condition. The commander must stress that each person is responsible for all property in his charge and not just for property that is listed on the unit property books. He must also ensure that his soldiers account for unit property. AR 710-2 and AR 735-5 contain Army policy for property accountability and responsibility. DA Pamphlet 710-2-1 contains the manual procedures for property accountability. DA Pamphlet 735-5 contains procedures for officers conducting a report of survey.

### **PROPERTY ACCOUNTABILITY**

2-145. Property accountability is the obligation of a person to keep an accurate formal record of property issued to him. The record should show item identification data, quantities, balances, and transactions. This obligation may not be delegated. The accountable officer does not have to make all detailed entries on property records. However, he must–

- Make sure that the property issued to him is correctly noted on the property records.
- Know what is on hand as determined by the property records.
- Act to resolve shortages or overages.

## PROPERTY RESPONSIBILITY

2-146. Property responsibility is the obligation of a person to ensure that government property entrusted to his possession, command, or supervision is properly used and cared for and that proper custody and safekeeping are provided. AR 710-2 requires someone to be assigned direct responsibility for each nonexpendable and durable item on hand in the unit. When the property is issued on a hand receipt, direct responsibility for it is established. This direct responsibility is in addition to the command responsibility and the personal responsibility of the person who has possession of the property. The three types of responsibility are shown below.

2-147. **Command.** The commander has command responsibility of all property in his unit. Command responsibility is the obligation of a commander to ensure the proper care, custody, and safekeeping of all government property within the command. He has this command responsibility for unit property whether he has signed for it or not. He must personally ensure the security of all unit property, whether it is in storage or in use. For example, he must provide a secure place for mechanics to store tool kits issued to them. If he has not done so and an item is lost, the commander could be liable for the loss. The commander must supervise use of the tool kit.

2-148. **Supervisory.** Supervisory responsibility is the obligation to ensure the proper use, care, and safekeeping of government property issued to or used by subordinates. Supervisors can be held liable for losses incurred by their subordinates.

2-149. **Personal.** Unit personnel are responsible for all arms, hand tools, and organizational clothing and individual equipment (OCIE) issued to them. They are responsible whether they signed for the property or not. For example, when the tool kit is issued, the mechanic assumes personal responsibility for it and all items in it. The mechanic must take proper care of the kit and secure it in the assigned storage area when not in use. If the mechanic forgets to secure the kit and it is lost, he is responsible.

## FINANCIAL RESPONSIBILITY

2-150. Financial liability is the statutory obligation of a person to pay the U.S. Government for government property that was lost, damaged, or destroyed because of negligence or willful misconduct. A person may be held liable by his admission or as the result of an investigation. Soldiers can be charged the full amount of the loss when personal arms or equipment is lost. Accountable officers are liable for the full amount of the loss unless they can prove that they were not at fault. Commanders who maintain separate property books at company level are accountable officers. Financial responsibility is for reparations for the loss to be made by the person responsible for the loss rather than for this to be used as a punitive action.

## **TYPES OF PROPERTY**

2-151. All Army property, except real property, is classified for property accountability purposes as nonexpendable, durable, or expendable. Whether property is considered nonexpendable, durable, or expendable is determined by the accounting requirement code. The ARC is found in the Army master data file (AMDF). When an officer assumes command of a unit, he also assumes responsibility for these three types of property.

### **NONEXPENDABLE**

2-152. Nonexpendable property is personal property that is not consumed in use, keeps its original identity, and has an accounting requirements code (ARC) of N. Nonexpendable items require property-book accountability after issue from the stock-record account. They include all property described in AR 710-2, Chapter 2.

### **DURABLE**

2-153. Durable property is personal property that is not consumed in use, keeps its original identity, and has an ARC of D in the AMDF. Durable items do not require property book accountability after issue from the stock-record account. However, they do require hand-receipt control when issued to the user. They include hand tools with a unit price higher than \$5 but less than \$100.

### **EXPENDABLE**

2-154. Expendable property is personal property that is consumed in use or loses its identity in use or property with a unit price less than \$100 neither consumed in use nor otherwise classified as durable or expendable. These items have an ARC of X in the AMDF. Expendable items require no formal accountability after issue from a stock-record account. They include paint, office supplies, nuts and bolts, some repair parts, and components.

## **SUPPLY DISCIPLINE**

2-155. One of a commander's goals should be to instill supply discipline in his soldiers. Implementation of a strong command supply discipline program starts with the supply room and ALSS personnel. By setting clear responsibilities and requirements from the beginning, the commander sets the proper command climate about supply discipline for the entire unit. All soldiers in the unit need to be aware of the importance of preserving Army property. Any practices that waste supplies or damage or destroy property must be corrected. When people waste, damage, or lose government property, several actions can be taken. They can be given oral or written reprimands. Efficiency reports can be annotated. For a serious incident, an Article 15 or a court-martial may be appropriate. Some ways to implement sound accountability practices and security measures include the following:

- Conduct a complete joint physical inventory with the commander when assuming command.
- Check for needed publications when he assumes command; order the ones not on hand.
- Set up procedures for safeguarding government property; check the ALSS and unit's supplies SOP, and add or adjust procedures as needed.
- Set up procedures for controlling durable items. These items are not on the property book; use hand receipts, hand-receipt annexes, or component hand receipts.
- Set up procedures for controlling expendable items. These items are not on a hand receipt or the property book; make sure that supply discipline is followed.
- Cover the methods for turning in excess property in the ALSS and unit's supply SOP; see that property is turned in as soon as it is no longer authorized or required.
- Conduct property accountability quarterly.
- Make sure that property records are kept up-to-date.
- Spot check the PLL for inventory accuracy and item-demand history; make sure that all repair parts are on hand or on request.
- Periodically spot check items on property records to ensure on-hand balances are correct.
- Follow DA guidelines for the Command Supply Discipline Program (CSDP); the CSDP was developed as a means for commanders, at battalion level and above, to ensure that their commands at the next-lower level have complied with DA regulatory guidance. Company, troop, and battery-level commanders are required to report to their next-higher headquarters any requirements that cannot be completed. AR 710-2 includes specifics and contains—
  - General requirements, including clarification of requirements, deviations from policy, supply constraints reporting, and Hazardous Materials Program.
  - Property authorization documents (MTOE, TDA, and CTA) and reconciliation with property-book allowances.
  - Requesting and receiving supplies, authorized property on hand or on request, commander review of appropriate documents, review of receipt procedures, hazardous materials-handling training, and reconciliation of supply requests.
  - Property transfers in and out, component shortages found on installation property, and disposition of ammunition residue and hazardous materials.
- Property responsibilities consist of—
  - Command and supervisory responsibility for property.
  - Hand receipt holder responsibility.
  - Temporary compared to permanent hand receipt.

- Assignment of personal responsibility.
- Components of set kits and outfits.
- Keeping hand receipts current.
- Ammunition responsibility.
- Tool-room responsibilities.
- Reports on hazardous materials.
- Organizational clothing and individual equipment (OCIE) and personal clothing responsibilities are to—
  - Maintain OCIE records.
  - Maintain soldiers' clearance of central issue facility (CIF).
  - Authorize cash purchases from CIF.
  - Collect OCIE damage statements.
  - Maintain soldiers' clothing records.
  - Conduct clothing inspections and shakedown (for quantity, cleanliness, and proper fit) inspections.
- Management of basic loads compared to operational loads responsibilities are to—
  - Manage stockage of loads.
  - Establish responsibility for loads.
  - Maintain demands data pertaining to loads.
- PLL responsibilities are to—
  - Review records.
  - Annotate increases/decreases to PLL.
  - Maintain mandatory stockage.
  - Request for repair.
  - Count number of lines.
- Inventory responsibilities are to—
  - Appoint hand receipt holders as necessary.
  - Perform periodic inventory.
  - Inventory command-directed weapons and ammunition.
  - Maintain basic and operational loads, PLL, and OCIE.
- Record adjustments for lost, damaged, or destroyed items.
- Maintain internal control checklists.
- Perform inspections of stored items.
- Petroleum management responsibilities are to—
  - Maintain a Government credit card.
  - Audit bulk storage, spills, and contamination.
  - Recover contaminated/used POL products.

- Class-V items—include items that are expendable, but when it is an operational load item—such as pyrotechnics used in an ALSS vest or a survival kit—must be accounted for and inventoried according to procedures in AR 710-2.

2-156. Exception to this is Class-V items that are used as operational loads. They must be accounted for using property book procedures, as applied in AR 710-2 and AR 735-5.

## PROPERTY CONTROL

2-157. The commander must be alert to the need for security of property. The ALSO/ALSNCO/ALSE technician will take the following actions to help accomplish this:

- Safeguard government property by controlling access to storage areas and by maintaining essential control.
- Count all items when doing an inventory. Do not just review hand receipts and sub-hand receipts. See the item. Touch it. Feel it. Do not let someone else do the inventory for you; it is your responsibility to conduct the inventory.
- Emphasize control of hand tools, OCIE, and components of sets, kits, and outfits.
- Mark equipment and supplies to show that they belong to your unit.
- Use control sheets for expendable supplies so that you can determine requirements and can act when excessive demands are made.
- Make sure that supply personnel are trained in property accountability procedures.

## PROPERTY RECORDS

2-158. The two categories of Army property are real property and personal property. Real property includes land and structures. Personal property includes capital equipment and other nonexpendable supplies. The commander accepts responsibility for all types of property. The instruments used for this purpose are property books, hand receipts, inventory lists, transfer documents, and operational, prescribed, and basic load lists.

## PROPERTY BOOKS

2-159. Property books are formal records of nonexpendable property assigned to divisional and nondivisional units, TDA units, and separate companies. DA Pamphlet 710-2-1 lists the property that must be accounted for on property books. Divisional property books are automated. Divisional property book teams maintain the property books according to AR 710-2 and the end users' manual for the automated system used. Property books are either automated or manual.

2-160. The commander may be the property book officer (PBO), or he may appoint one. If you are the PBO, you must sign a statement at the front of the property book acknowledging responsibility. The PBO and unit supply specialists must maintain the property book according to the guidance in DA Pamphlet 710-2-1.

### **Automated**

2-161. The property books are automated and maintained at the division. Property book teams maintain property records for the division PBO. The PBO teams follow the procedures in the end-users' manual for their automated system. The divisional company commander is not responsible for the record keeping, but he retains command responsibility for the property in your unit. You receive a monthly printout of your unit property that you must reconcile against your previous records and turn-ins, transfers, and receipts accomplished during the month.

### **TYPES OF PROPERTY BOOKS**

2-162. All nonexpendable property must be maintained on a property book, with a few exceptions. Those exceptions are certain types of furnishings as outlined in DA Pamphlet 710-2-1. The company commander may be a primary hand-receipt holder from more than one property book office, including division PBO (MTOE type of property), installation PBO (office type of property), and furnishings management office PBO (barracks and dayroom types of property). As the primary hand-receipt holder, the commander accepts responsibility for all these types of property. The property should be marked to be easy to distinguish the PBO it came from. When the unit deploys, it deploys only with its organizational (MTOE and certain TDA) property.

### **MANAGING EXCESS PROPERTY**

2-163. The quantity and type of property on the property book are based on that authorized by MTOE, TDA, and CTA. Inevitably, units acquire excess items, which may or may not be accounted for on the property book. It is the commander's responsibility to make proper disposition of the excess property items, which can include the following.

### **TAADS Change**

2-164. The Army Authorization Documentation System (TAADS) includes TOE, MTOE, TDA, MOB TDA, and CTA. When commands determine that an item is excess but they need it to accomplish their mission, they submit a change to the appropriate authorization document. If it is a piece of equipment needed to accomplish the wartime mission, the TOE, MTOE or MOB TDA should be changed. For peacetime missions, a change to the TDA should be submitted.

### **Request For Disposition**



2-165. For property no longer needed, commands should submit a request for disposition to the next-higher echelon S4. The S4/G4 provides transfer instructions to the unit or instructs the unit to turn in the item. Both units must keep a copy of the transfers to update the property books.

### Unserviceable Items

2-166. **Unserviceable/nonreparable** items must be turned in. Copies of turn-in documents will be maintained to update the property book.

2-167. **Hand receipts.** A hand receipt is a listing of nonexpendable and durable items (other than components) that have been issued to an individual, section, or unit. The signature on a hand receipt establishes direct responsibility for that item. Hand receipts are also accountable records of all nonexpendable and durable property. Manual systems use DA Forms 2062 (Hand Receipt/Annex Number) as hand-receipt documents to account for property at company, unit, or activity level. This form is used to assign responsibility down to the supervisor and user levels. It contains instructions for preparing the DA Pamphlet 710-2-1 and DA Form 2062. Automated systems use machine listings as hand-receipt documents. These are prepared and maintained according to DA Pamphlet 710-2-1 and the system end-users' manual.

2-168. **Copies.** A company commander acting as the PBO issues property to the platoons and other elements of your unit on hand receipts. If you are the primary hand receipt holder, you issue the property on sub-hand receipts. You keep the original and provide a copy to the sub-hand receipt holder. The receiver must keep the copy until the hand receipt or sub-hand receipt is adjusted and updated.

2-169. **Maintenance.** Hand receipts and sub-hand receipts must be kept current. The information about property on the property book and hand receipts must agree at all times. DA Pamphlet 710-2-1 shows how to keep hand receipts current. Hand receipts may be kept current by posting changes to the hand receipt as changes occur or by using change documents—such as DA Form 3161, DD Form 1348-1, or DD Form 1348-1A (Issue Release/Receipt Document)—to show issue and turn-in transactions. The issuer keeps the original, the receiver keeps a copy, and they file the change documents with their hand receipts until the next time that the hand receipt is updated.

2-170. **Adjustments.** When using change documents to keep hand receipts current, the changes must be posted to the hand receipt—

- At least every six months.
- Before change of primary or sub-hand receipt holders.
- Before a change of PBO.
- Before an annual PBO inventory.

2-171. **Temporary hand receipts.** A PBO or unit commander may need to lend property to another unit. This may be accomplished using a DA Form 3161 as a temporary hand receipt. However, a temporary hand receipt is good only for 30 days. After 30 days, the property must be returned or transferred to the other unit permanently.

## INVENTORY LISTS

2-172. The PBO or responsible officer may encounter a situation in which it is impractical to assign further responsibility for property. For example, this could happen in the case of multiple-use classrooms or dayrooms used by more than one unit. In this case, the responsible officer or PBO may manage the property using an automated list or DA Form 2062 as an inventory list. When using the inventory list method, the PBO or responsible officer must inventory the property semiannually. The list will be prepared and managed according to the provisions of DA Pamphlet 710-2-1.

## ISSUE, TURN-IN, AND TRANSFER DOCUMENTS

2-173. A PBO or responsible officer may use DA Form 3161 in many different situations. DA Pamphlet 710-2-1 provides specifics for preparing the form. DA Form 3161 can be used as an issue, a turn-in, or a transfer document.

### Request for Issue and Turn-in Document

2-174. Units not under an automated system may use the DA Form 3161 and 3161-1 (continuation sheet) to request supplies. These forms may also be used to document turn in of items to the PBO or other activity.

### Transfer Document

2-175. Units can transfer items laterally to other units when authorized or directed by the appropriate level of command, depending on the type of property involved. These transfers can be documented using DA Form 3161. Procedures for lateral transfer actions are contained in DA Pamphlet 710-2-1.

## HAND-RECEIPT ANNEXES

2-176. Hand-receipt annexes are used between the PBO and primary hand-receipt holders and between primary hand-receipt holders and sub-hand receipt holders. When an item with components is issued on a hand receipt or sub-hand receipt, any shortage of nonexpendable or durable components must be recorded on a hand-receipt annex. The hand-receipt annex, also known as a shortage annex, is prepared in two copies. The shortage of any component of a major end item, set, kit, or outfit will be shown on a hand-receipt annex for that item of property. The PBO and primary hand-receipt holders' record shortages of nonexpendable components. The person (PBO or company commander) who maintains the document register for durable items will be the level at which durable items

are recorded on the hand-receipt annex. Commanders ensure that the responsible soldiers—

- Maintain hand-receipt annexes in the same manner as hand or sub-hand receipts.
- Take prompt action to requisition items to fill shortages.
- Control hand tools, which are easily lost or stolen; assign tool sets to specific individuals, and keep track of small tools not kept in toolboxes.
- Have each soldier who is issued a tool sign for it; hold soldiers and supervisors accountable for lost, damaged, or destroyed tools.

## **AMMUNITION AND EXPLOSIVES CONTROL**

2-177. Ammunition and explosives are sensitive items. Commanders are responsible for controlling sensitive items within their units. AR 710-2 requires a quarterly inventory for sensitive items other than weapons and ammunition. Weapons are inventoried monthly by serial number and operational load Class V. ALSE items are inventoried by quantity, lot number, and serial number (if applicable). After the inventory, the commander signs a statement showing the inventory results. For units without their own property book, a copy of the inventory will be maintained in the unit, and the original will be forwarded to the PBO. If the inventory shows a loss, the commander appoints someone to find out why. That person audits the supply actions that occurred since the previous inventory. If he finds an accounting error, the records can be corrected. If not, then further action will be taken. As soon as the loss is verified, the law enforcement activity will be notified. The Central Intelligence Division (CID) will determine criminal intent before administrative actions are taken according to AR 710-2 and AR 735-5. If the item is listed in AR 190-11, Appendix B or E, an investigation under AR 15-6 will be initiated. This investigation must include findings, recommendations, and disposition of unserviceable property. The results may be used for a report of survey to adjust the property record.

## **ORGANIZATIONAL CLOTHING AND EQUIPMENT RECORD**

2-178. Organizational clothing and individual equipment items are issued from CIFs. Issues and turnins of OCIE are recorded on DA Form 2645-1 and DA Form 3645-1 according to AR 710-2 and DA Pamphlet 710-2-1, when not under an automated system. AR 735-5 allows soldiers to pay for OCIE losses that are not depreciated. Each soldier's OCIE should be inventoried quarterly by the organization's unit supply section. Unit supply personnel are required to perform a semiannual reconciliation with the CIF of personnel in their unit. Unit funds are used to replace OCIE in the CIF for soldiers who have departed the unit without clearing the CIF.

## **PERSONAL CLOTHING PROCEDURES**

2-179. Certain situations require soldiers to be issued clothing at no cost. These situations include, but are not limited to—

- **Initial issues.** Occasionally soldiers are not issued their entire initial issue during their initial entry training; these missing items are requested using DA Form 3078, (Personal Clothing Request). The DA Form 3078 will be completed according to the instructions in AR 700-84.
- **Alterations or exchanges.** Any alterations or exchanges required by enlisted soldiers within the first six months of active duty will be paid for at government expense; these actions are also accomplished using the DA Form 3078.
- **Extra clothing allowances.** Additional uniform items, such as an additional polyester wool coat for a female on recruiting duty will be paid for at government expense; these additional items are listed in CTA 50-900. Certain special-duty assignments (such as when an enlisted soldier is assigned duties requiring him to wear civilian clothing) require supplemental clothing issues; there are three types of these allowances: initial, special, and temporary duty.

## LOCK AND KEY CONTROL

2-180. AR 190-11 and AR 190-13 explain measures for lock and key control. Local physical-security officers can assist in ensuring that standards are met. A lock and key custodian will be appointed for the unit. He ensures that all unit keys and locks are handled properly. Table 2-1 lists procedures for lock and key control. This important box will be either bolted to the wall or chained to the floor so that it cannot be removed. The lock and key custodian keeps a record of locks and keys. He must keep track of the number and type of locks and keys used by ALSS personnel. DA Form 5513-R (Key Control Register and Inventory) should be used for keeping these records. The regulatory guidance for DA Form 5513-R is AR 190-11.

## INVENTORIES

2-181. An inventory is the physical count of all supplies and equipment on hand. Property records must be kept up-to-date so that they show the quantities on hand. Inventories must be taken to verify that the quantities on hand agree with the property records. At unit level, items on hand receipts and balances on prescribed load lists must be inventoried. Then the records are reconciled and action taken when items are missing, damaged, or destroyed. When assuming command, the incoming commander must complete a 100-percent physical count of all property, including components of end items, sets, kits, and outfits.

### Types of Inventories

2-182. Several types of inventories are required at unit level. Some are event oriented such as a change of the primary hand-receipt holder. Other inventories are type of property oriented such as arms, ammunition, and OCIE. Table 2-2 shows types of inventories and when they are required to be conducted.

### Inventory Procedures

2-183. Each type of inventory should have an SOP. When conducting an inventory the following steps should be taken:

- **Determine what is to be inventoried.** The automated systems will generate an inventory listing that will show the items to be inventoried.
- **Set the dates.** A schedule should be produced and provided to all hand-receipt holders and sub-hand receipt holders involved.
- **Use correct publications.** Make sure that the required publications (such as TMs) are available and up-to-date.
- **Notify the hand or sub-hand receipt holder.** Make sure that the person responsible for the items to be inventoried knows when the inventory will occur. That person should also prepare the inventory in advance; for example, if the inventory is for toolboxes, they should be laid out before the person conducting the inventory arrives.
- **Conduct the inventory.** Supply personnel should accompany the person taking the inventory; they should have copies of the hand receipts, component shortages, and other records with them.
- **Record results and adjust records.** Compare the inventory count with the property record, and post the results; verify shortages and overages, and adjust the records. Under an automated system, the required certification will be prepared and returned to the PBO; for discrepancies, prepare the adjustment documentation according to AR 735-5 and DA Pamphlet 710-2-1.

**Table 2-1. Lock and Key Control Guidelines**

PROCEDURES	
Inventory keys and locks twice a year.	
Make sure that keys to the box are counted and that missing keys are accounted for when there is a change of duty officers or duty NCOs. Record this count as part of the duty log.	
Make sure that only authorized persons have access to the key box and to the keys inside. Keep the list of authorized persons near the box but away from public view.	
Store keys to rooms and containers away from other keys.	
Do not leave keys in an unsecured area.	
Do not take keys for secure areas or rooms, racks, or containers outside the unit's operating area.	
Change locks at once whenever keys are lost, misplaced, or stolen.	
Make sure key-control registers and inventory logs are updated.	
Change combinations to locks on secured areas twice a year.	

**Table 2-2. Types of Inventories**

<b>INVENTORY</b>	<b>DESCRIPTION</b>
Receipt and Issue of Property	When property is received from a hand-receipt holder or PBO, an SSA, the next higher source of supply, or a lateral transfer.
Change of Primary Hand-Receipt Holder	When there is a change in the officer responsible for property issued to the unit.
Annual Primary Hand-Receipt Holder	Within one year since the last annual inventory or within one year since the change of responsible officer, whichever is later.
Cyclic	Monthly, quarterly, or semiannually.
Change of PBO	Within 30 days before replacement of the PBO.
Change of Custody of Arms Storage Facility	When responsibility for the custody of the keys to the arms storage facility is transferred.
Command Directed	When directed by the installation commander.
Sensitive Items, Other Than Weapons or Ammunition	Quarterly, controlled cryptographic items semiannually.
Weapons and Ammunition	Monthly—weapons by quantity, lot number, and serial number (if applicable).
Basic Loads	Monthly for Class III bulk and Class V; semiannually for Classes I, II, III Packaged, and IV.
OCIE	Within five work days after arrival or departure.

## PROPERTY RECORD ADJUSTMENTS

2-184. The commander must decide the appropriate action to take to adjust the property records and account for the differences when the records do not match the quantities on hand or equipment or supplies are damaged or destroyed. The commander makes his or her decision based on the guidance found in AR 190-72, AR 710-2, AR 735-5, and DA Pamphlet 710-2-1. Overages may be adjusted by adding the item to the property record, transferring it to another unit, or turning the item in as found on the installation.

## DETERMINING RESPONSIBILITY FOR A LOSS

2-185. A loss must be investigated and the facts determined. If the person holding the hand receipt for the item admits liability, the item can be accounted for using a report of survey or a statement of charges. AR 735-5 contains details on preparing these forms. When no liability is admitted, causative research must be conducted before beginning investigative procedures. This is done to determine whether there was an actual loss or if the discrepancy is simply an accounting error. When gross negligence is suspected, an investigation under AR 15-6 may be warranted. AR 735-5 gives guidance on when to use the report of survey process and when an investigation under AR 15-6 should be initiated.

## **APPOINTING AN OFFICER OR BOARD OF OFFICERS**

2-186. A commander at any level or a primary staff officer of a general court marshal convening authority can appoint an officer or a board of officers to make an informal investigation. The appointment may be oral or written. It should specify the purpose and scope of the investigation, the nature of the findings, and the recommendations needed.

## **USING A REPORT OF SURVEY**

2-187. A report of survey is used as a means of compensating the Government for lost, damaged, or destroyed supplies and equipment. A report of survey is initiated when there is no admission of liability for a loss or when a person admits liability for the loss but the loss is greater than one month's basic pay. The report of survey is not intended as a means of punishment. The commander retains the option of administering nonjudicial punishment under Article 15 of the UCMJ or convening a court marshal. The commander will appoint a survey officer or NCO, normally of equal or higher rank than the individual who signed for the item on the hand receipt. This appointing authority commander is at or above battalion level. The investigating officer or NCO uses DA Form 4697 for recording report-of-survey information. DA Form 4697, along with specific guidelines and timelines, is shown in AR 735-5. The timelines shown in AR 735-5 are important because the sooner the matter is resolved, the more likely it is that the Government will be able to recoup some or all of the cost of the loss.

## **MAKING ADJUSTMENTS WITH STATEMENT OF CHARGES/CASH COLLECTION VOUCHER**

2-188. When a person admits liability, the option of reimbursing the government by using a DD Form 362 or a DD Form 1131 may be offered. These forms may not be used for reimbursement to the government if the costs exceed one month's basic pay for that individual. AR 735-5 contains the procedures for preparing these two forms.

## **MAKING MINOR ADMINISTRATIVE ADJUSTMENTS**

2-189. Property records may be adjusted in case of administrative changes or minor errors. Although they are called minor, they correct inaccuracies in the records. However, minor adjustments do not affect or correct the on-hand balance on property books. These adjustments are made under the manual system by using DA Form 4949 (Administrative Adjustment Report). The procedures for preparing this form are in DA Pamphlet 710-2-1. The following are examples of when an AAR might be used:

- NSN changes for similar makes and models.
- Number of corrections.
- Unit of issue changes.
- Items changing from accountable to nonaccountable.

## ACCOUNTABILITY AND CONTROL SPECIFIC TO ALSE

2-190. ALSS personnel should have and use the following publications to complete property accountability and control forms and records and to become familiar with property accountability and security policies and procedures.

2-191. **DA Pamphlet 710-2-1 and DA Pamphlet 710-2-2.** ALSS personnel should become familiar with these publications. They provide detailed information on conducting inspection and inventory procedures. Receipt and issue of property inventory, changes of responsible officer inventory, and annual responsible officer or cyclic inventory methods are also included. They have samples and tell how to complete the following:

- **DA Form 2062** (Hand Receipt/Annex Number) for hand-receipt and subhand-receipt procedures.
- **DA Form 3161** (Request for Issue or Turn-In) and **DD Form 1150** (Request for Issue or Turn-In) as temporary hand receipts or change documents (issue or turn-in transactions).
- **DA Form 3749** (Equipment Receipt) for equipment receipt procedures.

2-192. **AR 735-5.** This publication provides ALSS personnel with vital information on accountability and responsibility. Accountability is the obligation of a person to keep accurate records and is concerned primarily with maintaining formal records. Responsibility involves the basic obligation for proper custody, care, use, and safekeeping of government property. The four types of interrelated responsibility are command, supervisory, direct, and personal. It also defines the three types of property (nonexpendable, expendable, and durable) and covers accounting procedures for each. If ALSS personnel experience losses or property damage, AR 735-5 has information on methods of obtaining relief from responsibility for property through several systems. These are DA Form 4697 (Report of Survey), DD Form 362 (Statement of Charges), DA Form 444 (Inventory Adjustment Report), and DD Form 1131 (Cash Collection Voucher). Samples, guidelines, and limitations for each of these methods are provided. As a last resort, legal advice is available along with appeal methods. While this information is not mandatory to know, well-prepared ALSS personnel will be familiar with this information and know where to locate it:

- **AR 190-11.** This publication provides information on physical security of arms, ammunition, and explosives.
- **AR 190-51.** This publication provides information on marking Army property and securing storage structures, including the use of keys, locks, and chains.
- **AR 710-2.** This publication prescribes policy for supply operations below the wholesale level; it applies in peace or war.

2-193. No matter what methods he uses, the ALSO/ALSNCO/ALSET should always have positive control of all ALSE for inspection purposes. Local CIFs



or supply facilities may issue, exchange, or control certain ALSE items. However, there should always be a closed-loop system between these facilities and the ALSS shop. This will ensure that equipment remains fully functional and its condition is accurately identified. The ALSS supervisor may need to discuss policies and procedures with these facilities to make sure that condemned equipment is not reissued as serviceable. These facilities should not accept ALSE for turn-in or exchange unless it is tagged and signed by the ALSO/ALSNCO/ALSET according to DA Pamphlet 738-751. In addition, exchanged or issued ALSE must be taken to the ALSS shop for proper inspection before the crew member uses it. The unit ALSS SOP should contain specific policies and procedures.

## AUTOMATION

2-194. Automation increases the ability of maintenance managers to manage the flow of maintenance data. Maintenance management includes forecasting, distributing, scheduling, and controlling the production of maintenance workloads. The use of automation systems and programs will enhance the ALSS personnel in controlling maintenance operations and work flow. It also requires the managerial tools to direct and control work flow through a maintenance shop to produce the best quality work.

2-195. The ALSS maintenance management and training programs require resources—such as microcomputer, printer, hardware, and software placed in the ALSS shop operate to—electronic publication programs and to access Internet technical publication and logistical support web sites. These resources are essential to manage these programs and day-to-day operations.

## SECTION XI – DEPLOYMENT PLAN

### GENERAL

2-196. Deployment of any unit depends heavily on the unit's ability to maintain the fighting force. This section aids the ALSS shop personnel in preparing for and supporting a unit deployment by land, sea, or air. In most cases, a unit deployment can be divided into four distinct phases: preparation, movement to the port of embarkation (POE), actions at the POE, and actions at the port of debarkation (POD). The following references should be on hand in the unit:

- AR 220-10.
- FM 55-9.
- FM 55-12.
- FM 55-30.
- FM 55-65.
- FORSCOM Regulation 55-1.

- FORSCOM Regulation 55-2.
- TB 55-46-1.
- TM 1-1500-344-23.
- TM 38-250.
- TM 55-1520-400-14.

## PREPARATION

2-197. During the preparation phase, the commander and ALSS personnel should take the following steps:

- Review ALSS maintenance/historical records for upcoming services, inspections, component replacement, or deferred maintenance that could affect the destination mission.
- Identify shortages of all classes of supply, order replenishment, and sustainment needs.
- Coordinate for priority assistance from test, measurement, and diagnostic equipment (TMDE) support facility for calibration requirements.
- Ensure that vehicle load plans have space for mission-essential equipment; use standardized load cards as illustrated in FM 3-04.500(1-500), Figure H-1.
- Prepare the checklist to ensure that vehicles are properly prepared; use cards as illustrated in FM 3-04.500(1-500), Figure H-2.
- Determine transportation requirements beyond organic capability.

## SELF DEPLOYMENT

2-198. Self-deployment of aviation assets requires extended maintenance efforts in both preparation and execution. To better support self-deployment, maintenance operations should consider and plan for the following:

- Not all of the unit's aircraft and aircrew may be deployed. The aircraft and aircrew that remain may continue to perform required missions at home station and will require normal maintenance; in this case, support may be required to meet both the deploying and the home-station unit's missions.
- Maintenance personnel may be required to perform primary duties as mechanics, component repairers, supply technicians, and inspectors as well as additional duties as door gunners.
- Support services may not be established in the theater of operations for several weeks; sufficient amounts of required classes of supplies, adequate TMDE, aviation ground support equipment (AGSE), special tools, and repair parts may not be immediately available.

## SECTION XII – ALSE RETRIEVAL PROGRAM (ALSERP)

### GENERAL

2-199. DA Pamphlet 385-40 covers the Aviation Life Support Equipment Retrieval Program (ALSERP).

### RETRIEVAL PROGRAM

2-200. The investigator is responsible for analyzing how well the logistics support element (LSE) or other protective clothing and equipment (PCE) did the job for which it was intended. If the investigator determines that the equipment did not operate as designed, the investigator must further determine if the item of equipment contributed to or caused injury.

2-201. All LSE/PCE that in any way indicates the cause or prevents injury will be recorded in the accident report. Items that caused injury, failed to function as designed, or were significant in preventing injury should be shipped to the United States Army Aeromedical Research Laboratory (USAARL), ATTN: Crew Injury/Life Support Equipment Branch, Building 6901, P.O. Box 620577, Fort Rucker, Alabama 36362-0577 for further analysis.

2-202. This equipment includes—but is not limited to, helmets, survival vests and components, body armor, crashworthy seat system, restraint harnesses, inertial reels, seat belts, and air bags.

2-203. Equipment items sent to USAARL for laboratory analysis will be noted in the technical report of accident investigation. For personal LSE/PCE sent, identify the wearer/user of each item. For items sent, such as a survival vest, count vest and components as one item—unless a component is torn free or separated during the accident sequence. Upon completion of the laboratory analysis, USAARL will dispose of unserviceable items and return serviceable items to the unit of origin or the supply system.

2-204. Upon request by the United States Army Safety Center (USASC), a copy of the completed laboratory analysis performed under the provisions of this paragraph will be furnished for inclusion in the final report of the accident.

## CONTACTS

2-205. Contact USAARL concerning which items of LSE/PCE should be shipped and the supporting documentation required at DSN 558-6893/6943/6892 or Commercial (334) 255-6893/6943/6892.

2-206. Before completion of the field investigation, the president of the investigation board will arrange for shipment of the equipment for laboratory analysis to—

Commander, USAARL  
ATTN: Crew Injury/Life Support Equipment Branch  
Building 6901, P.O. Box 620577  
Fort Rucker, Alabama 36362-0577

## Chapter 3

# Supply and Materiel Operations

This chapter covers supply and materiel operations required for the sustainment of the unit's ALSS maintenance management and training programs. The Army's present ALSS inventory includes items from the Army, Air Force, and Navy. ALSS personnel must understand basic supply procedures to assist supply personnel in obtaining equipment and maintain required supplies to support the ALSS day-to-day functions. Commanders must ensure that ALSS supply procedures are outlined in the unit SOP. Most of the information needed for procuring ALSE is on CD-ROM. ALSS personnel must have on hand, or have direct access to, a computer with CD-ROM to verify information. AR 710-2, DA Pam 710-2-1, and DA Pamphlet 710-2-2 address supply procedures and policies.

### SECTION I – SUPPLY PUBLICATIONS AND FORMS

#### PUBLICATIONS

3-1. The following publications must be on hand to make sure that ALSS personnel provide supply personnel with correct and updated information.

- The Federal Logistics (FEDLOG)—
  - Lists national stock numbers (NSNs), reference numbers, part numbers, and commercial and government entity codes cross-referenced to each other.
  - Lists reference numbers in alphanumeric sequence.
  - Lists NSNs in national item identification number sequence.
  - Lists commercial and government entity (CAGE) codes in alphanumeric sequence.
  - Contains the Army master data file (AMDF) —the official source of current supply management data for items managed or used by the Department of the Army which is published monthly.
  - Is published quarterly on CD-ROM.
- The Universal Data Repository (UDR)—
  - Identifies those medical and dental items that are essential for wartime medical issues of the military services.
  - Aids the medical and dental industry in satisfying war surge and sustainment of medical material requirements.
  - List Website address: <http://dlis.dla.mil/govord.htm>

**Note:** ALSS personnel must contact the UDR, via e-mail, to request subscription. There are two points of contacts (POCs) when requesting a subscription to the UDR medical category (MEDCAT).

3-2. POCs are—

- Active component (AC) and Reserve.  
DLIS Customer Service Office  
Battle Creek, Michigan  
Telephone: DSN: 932-466, Commercial: 616-961-466  
E-mail: dlis-cso@dlis.dla.mil
- Army National Guard (ARNG):  
Army National Guard Readiness Center  
ATTN: NGB-ARS (Health Services Officer)  
111 South George Mason Drive  
Arlington, Virginia 22204-1382  
Telephone: DSN: 327-7146, Commercial: 703-607-7146  
E-mail: UDRsubscriptions@ngb.army.mil  
E-mail: MEDCATsubscriptions@ngb.army.mil

3-3. These other publications provide data and guidance needed. Request them through normal channels.

- **AR 30-18**—Provides procedures to manage Class-I supplies.
- **AR 40-61**—Provides policy and procedures for medical supplies (Class-8).
- **AR 190-11**—Provides physical-security guidance for ammunitions and explosives.
- **AR 190-51**—Prescribes policies, procedures, and responsibilities for safeguarding unclassified U.S. Army property, both sensitive and nonsensitive.
- **AR 702-6**—Establishes policy, responsibilities—to include demilitarization—for monitoring the performance, reliability, and safety characteristics of ammunition items and Class-V components. These programs apply to conventional and chemical ammunition, small and large rockets, and guided-missile ammunition and material.
- **AR 710-18**—Prescribes uniform policies and procedures, guidance, and responsibilities for the development, preparation, publication, and maintenance of storage standards for Department of Defense, government service agencies, and Coast-Guard-managed materials.
- **AR 710-2**—Provides supply policy below the wholesale level throughout the Army. In addition, provides specific policy for establishing bench stock, shop stock, prescribed load list, and operational loads.
- **AR 735-5**—Provides policy and procedures for property accountability.
- **AR 740-1**—Prescribes policy and procedures to be followed in the formation and management of material storage and supply operations.

- **Common tables of allowances**—Prescribes allowances for clothing and equipment (CTA 50-900), field and garrison furnishings and equipment (CTA 50-909), and medical items (CTA 8-100).
- **DA Pamphlet 710-2-1**—Provides manual procedures for requesting, receiving, accounting for, issuing, and turning in supplies. In addition, provides guidance on establishing and maintaining a PLL.
- **DA Pamphlet 710-2-2**—Provides manual procedures for establishing and maintaining shop stock and bench stock at the support maintenance level. In addition, provides guidance on establishing and maintaining shop stock procedures.
- **SB 708-48**—Contains two sections used for cross-referencing CAGE codes and manufacturers' names and addresses. Section A is name to code and Section B is code to name. SB 708-48 is published every two months on microfiche.
- **SB 742-1**—Provides the procedures that implement the DA ammunition surveillance policy established by AR 702-6. In addition, describes the functions that constitute the DA Ammunition Surveillance Program as defined in AR 740-1, Chapter 4.
- **Supply catalogs**—Provides data needed to identify and manage items used by the Army.
- **TB 9-1300-385**—Applies to all DA activities with a mission responsibility for storage, issue, use, test, maintenance, and transportation of Class-V materiel that is managed by the U.S. Army Operations Support Command and by the U.S. Army Aviation and Missile Command (AMCOM). Lists restricted and suspended munitions that will assist personnel responsible for storage, issue, use, testing, inspection, maintenance, and transportation of Class-V materiel.

## FORMS

3-4. ALSS personnel must coordinate with supply if required to complete the following forms. (See DA Pamphlet 710-2-1 for their use, preparation, and disposition.)

- **DA Form 581** (Request for Issue or Turn-In of Ammunition) and **DA Form 581-1** (Request for Issue and Turn-In of Ammunition [Continuation Sheet]). These forms are also available on the electronic forms page of [www.usapa.army.mil](http://www.usapa.army.mil). Use this form to—
  - Request ammunition and explosives.
  - Issue ammunition and explosives.
  - Turn in unserviceable and serviceable ammunition, used ammunition, and used ammunition packing material.
- **DA Form 2062** (Hand Receipt)—Record the issue of nonexpendable and durable items (ARCN and D) on this form.
- **DA Form 2064** (Document Register for Supply Actions) is used to record supply transactions. Quantities requested, received, adjusted,

and turned in, or due in are entered on one of three types of document registers—nonexpendable, durable, and expendable.

- **DA Form 2765-1** (Request for Issue or Turn-In)—Use this form to—
  - Request expendable, durable, or nonexpendable single-line items with NSN listed in the AMDF.
  - Turn in all other property not covered by DA Form 581 or DD Form 1348-1 (DOD Single Line Item Release/Receipt Document), excess serviceable self-service supply center items, and property found on the installation.
- **DA Form 3161** (Request for Issue or Turn-In)—This form is used for issue and turn-in transactions between the PBO, the hand-receipt holder, and the subhand receipt holder. DD Form 1150 and DD Form 1348-1A may be used instead of DA Form 3161 as a change document. Check local procedures.
- **DD Form 1348-6** (DOD's Single Line Item Requisition System Document [Manual Long Form])—This form is used to request non-NSN single-Line item, an NSN single-line item when the NSN is not listed in the AMDF (FEDLOG), MWO and modification kits, classified items, and all exceptional data requests. Most Air Force and Navy items require DD Form 1348-6 for items not on the AMDF and those requiring exceptional data.
- **DD Form 448** (Military Interdepartmental Purchase Request [MIPR])—Installation/command supply uses this form in support of DA Form 2765-1 or DD Form 1348-6. Some items (such as life rafts and oxygen testers obtained from the Air Force and Navy) may require this form.
- **Standard Form (SF) 364** (Report of Discrepancy [ROD])—This form is used when supplies are defective or damaged because of shipping or packing. ALSE personnel will ensure that an SF 364 is completed and submitted when supplies are defective or damaged based on shipping or packing. AR 735-11-2 covers the preparation, use, and disposition of SF 364.
- **Standard Form (SF) 368** (Product Quality Deficiency Report [PQDR])—This form is used when the item, part, or component received is defective because of manufacturing errors. ALSE personnel will ensure that SF 368 is completed and submitted when received items, parts, or components present a manufacturer deficiency. DA Pamphlet 738-751 covers the preparation, use, and disposition of the SF 368. Equipment improvement reports (EIR) are used to improve the performance and maintenance of the equipment, as outlined in DA Pamphlet 738-750. EIRs will be submitted using SF 368.



## SECTION II – SUPPLY TERMS AND DEFINITIONS

### CLASSES OF SUPPLY

3-5. There are 10 established classes of supply. The following are definitions and examples of each class of supply:

- **CLASS I**—Subsistence items and gratuitous health and welfare items (B-rations, MREs, and fresh fruits and vegetables).
- **CLASS II**—Equipment, other than principal items, prescribed in authorization and allowance tables (individual equipment, clothing, tentage, tool sets, and administrative supplies).
- **CLASS III POL**—further defined as packaged and bulk POL. Class III (packaged) includes hydraulic and insulating oils, chemical products, antifreeze compounds, and compressed gases. Class III (bulk) includes multifuels and gasoline.
- **CLASS IV**—Construction and barrier materials (lumber, sandbags, and barbed wire).
- **CLASS V**—Ammunition such as small arms, artillery projectiles, antitank missiles, explosives, mines, bombs, and special ammunition including chemical and nuclear munitions.
- **CLASS VI**—Personal-demand items normally purchased through the exchange system such as candy and cigarettes. Class-VI items are normally requisitioned and distributed with Class-I items.
- **CLASS VII**—Major end items (vehicles, self-propelled artillery pieces, missile launchers, aircraft, and major weapon systems).
- **CLASS VIII**—Medical material (medicine, stretchers, surgical instruments, and medical equipment repair parts).
- **CLASS IX**—Repair parts and components, including kits and assemblies, and items required for support of all equipment (batteries, spark plugs, and fuel lines).
- **CLASS X**—Materiel required to support civil-affairs operations such as a commercial-design tractor for use by local civilians.

### CATEGORIES OF SUPPLY

3-6. Supplies are requested and issued using three categories of supply—scheduled, demanded, and regulated.

#### SCHEDULED

3-7. Scheduled supplies may be reasonably predicted. Requisitions usually are not required for replenishment. Requirements are based mainly on troop strength, equipment density, forecasts, or daily usage or a combination of these factors. Scheduled supplies normally are shipped to users based on preplanned distribution schemes. Classes I, III (bulk), V, and VI are typically scheduled supplies. Classes I and VI are based on troop strength. Class III

(bulk) is based on long-range forecasts, equipment densities, and historic usage factors. Class V is based on densities of weapons and the mission.

## **DEMANDED**

3-8. A requisition must be submitted for demanded supplies. Items in Classes II, III (packaged), IV, VII, and IX are considered demanded supplies. Aviation repair parts are in this category and must be requisitioned.

## **REGULATED**

3-9. Regulated supplies may be scheduled or demanded. However, the commander and his staff must closely control these supplies because of scarcity, high cost, or mission needs. Any item or group of items may be designated as regulated; normally, some items in Classes II, III (bulk), IV, V, and VII are regulated. If an item is regulated, the commander who so designated it must approve its release before it is issued. Items designated as command regulated are identified in operation plans and orders.

## **TYPES OF SUPPLY**

3-10. For accountability purposes, all Army property (except real property) is classified as expendable, nonexpendable, or durable.

## **EXPENDABLE**

3-11. An “X” in the ARC column of the FEDLOG identifies these items. This category includes all Class-IX repair parts and all items that are consumed in use, regardless of price.

## **NONEXPENDABLE**

3-12. An “N” in the ARC column of the FEDLOG identifies these items. Nonexpendable supplies include all Class-VII items, all items assigned a line-item number in EM 0007, FEDLOG and selected Classes II, IV, and X end items.

## **DURABLE**

3-13. A “D” in the ARC column of the FEDLOG identifies these items. The PBO at the appropriate level of command will designate the level of responsibility that will maintain the durable document register.

## **METHODS OF DISTRIBUTION**

3-14. DMCs—under the support operations sections of the TSC, COSCOM, and DISCOM—manage distribution of all resources in their areas of responsibilities. They provide staff supervision of MMCs and movement-control elements. Supplying units distribute supplies to using units by different types of distribution methods—supply-point distribution, unit distribution, and throughput. Aviation units use all methods.

## **SUPPLY-POINT DISTRIBUTION**

3-15. In supply-point distribution, the supplying unit issues supplies from a supply point to a receiving unit. The receiving unit must go to the supply point and use its own transportation to move the supplies to its area.

## **UNIT DISTRIBUTION**

3-16. In unit distribution, the supplying unit issues supplies and delivers them to the receiving unit's area in transportation assets arranged by the supplying unit.

## **THROUGHPUT**

3-17. Throughput is a method of distribution in which shipments bypass intermediate supply points or installations. Throughput eliminates the need for double handling. Thus, throughput reduces exposure to pilferage and damage. It results in more efficient use of transportation assets; it is also more responsive to the needs of users.

# **SECTION III – SUPPLY PROCEDURES**

## **TYPES OF AUTHORIZED AVIATION REPAIR-PARTS STOCKAGE**

### **BENCH STOCK**

3-18. Bench stocks are authorized at both AVUM- and AVIM-level units. Bench stocks are composed of low-cost, high-use, consumable Classes II, III (packaged), IV, and IX (fewer components) items. Examples of these items are common hardware, resistors, transistors, capacitors, wire, tubing, hose, ropes, webbing, thread, welding rods, sandpaper, gasket materiel, sheet metal, seals, oils, grease, and repair kits. AR 710-2 lists the criteria for an item to qualify for bench stock. The ALSO or maintenance officer must approve the bench stock list semiannually.

3-19. Bench stocks are not demand supported—units do not need a certain number of demands for an item to keep it on bench stock. Maintenance activities with a collocated supply support activity (SSA) stock 15-days supply of bench stock. Those without a collocated SSA or direct support unit (DSU) system stock a 30-day supply.

### **PRESCRIBED LOAD LIST**

3-20. AVUM-level units are required to stock a prescribed load list. A PLL consists of unit maintenance repair parts that are demand supported or nondemand supported (must be approved by the first general officer staff level in chain of command) and initial stockage repair parts for new end items. These PLLs allow the units to have on-hand high-usage, high-demand items; thus, quick repairs can be made. Most of the items stocked in PLL are demand supported—they must have a set number of demands

within a certain control period. AR 710-2 covers the rules for maintaining a PLL.

## **SHOP STOCK**

3-21. Shop stocks are demand-supported repair parts and consumables stocked within a support-level maintenance activity (AVIM for aviation parts), with a support-level maintenance mission authorized by a modification table of organizations and equipment (MTOE), table of distribution and allowances (TDA), or joint table of authorizations/allowances (JTAs). These repair parts are used internally by the AVIM to accomplish maintenance requests or programmed repair. AR 710-2 covers the criteria for the number of demands required and the items authorized for stockage on shop stocks.

## **AUTHORIZED STOCKAGE LIST**

3-22. An authorized stockage list (ASL) of repair parts is maintained at the direct support (DS) or AVIM level. The ASL is a list of all items authorized to be stocked at a specific level of supply. This ASL becomes the supply point from which the units can maintain their stockage of PLL items at authorized levels. These supply units also provide a direct-exchange service for repairable components.

## **AUTHORIZED STOCKAGE LIST STOCKAGE SELECTION**

3-23. Stockage selection at the supply activities is the decision to place an item in stock. Demand-history files will be maintained to reflect the most recent 12-month period; as an objective for automation, a 24-month period will be maintained and stratified to the end-item code (EIC). At the supply activity, demand-frequency files will be maintained for each item issued to user customers for Classes II, III (packaged), IV, and IX. Items selected for stockage will make up the ASL.

3-24. Essentiality is a primary consideration when determining the range of items for the ASL. The FEDLOG contains the essentiality code (EC) for each national stock number (NSN). Repair parts selected for stockage will be restricted to essentiality codes C, D, E, and J. Where a quick supply store (QSS) is established, E, C, and G items are authorized for stockage.

## **ADMINISTRATION**

### **STANDING OPERATING PROCEDURES**

3-25. The Classes II, III, VII, VIII, IX, and X repair parts SOP must be written and kept updated to incorporate the latest changes. Normally, the PLL/ASL section of a command will be under one supply system. The SOP will reflect the system that the command uses. The procedures specified in the SOP must conform to all applicable guidance in governing regulations, directives, and policies. The SOP should be a day-to-day management tool used by all personnel affiliated with the maintenance operation. AR 710-2 is helpful when writing an SOP.

## **PUBLICATIONS**

3-26. Supply publications are a must when editing requests for repair parts. Section II—Supply Publications and Forms, of this chapter—lists required publications and forms used in supply management.

## **IDENTIFICATION LIST**

3-27. The identification list (IL) for a particular item has a narrative, illustrative description of that item. The IL for an item can be found by locating its Federal Supply Classification (FSC) in SB 708-21 or SB 708-22. The FSC is the first four digits of the NSN. All ILs are listed in numerical order by FSC in DA Pamphlet 25-30 and are ordered by FSC.

## **FEDERAL LOGISTICS INFORMATION**

3-28. Cataloging for all services has been consolidated under the Defense Logistics Information Service (DLIS). DLIS is responsible for the FEDLOG. FEDLOG is a database of supply system information for the Federal government. FEDLOG includes supplier names, addresses, and phone numbers, as well as manufacturers, part numbers, NSNs, and ordering and pricing information for more than 12 million supply items on four CDs. Data from the monthly FEDLOG are used to process and edit requests, update stock records, receive inventory, ship supplies, and process reconciliation. To request a subscription of the FEDLOG, send the following information to the address below:

- Your old AMDF account number (a six-digit number beginning with an “0” on the upper-right corner of your AMDF mailing label) or request that an account be established.
- Your complete military mailing address.
- Make, model, and serial number of the computer and the CD drive for each copy that you request.
- POC including name and phone number.
- Mail your request to Commander, USAMC Logistics Support Activity, ATTN: AMXLS-MLA, Building 3623, Redstone Arsenal, AL 35898-7466.

## **LOGISTICS AND ACQUISITION OF AVIATION ORGANIZATIONAL CLOTHING AND INDIVIDUAL EQUIPMENT (OCIE)**

3-29. The Defense Supply Center Philadelphia (DSCP) is an inventory control point within the Defense Logistics Agency. DSCP annually provides more than \$5.46 billion worth of food, clothing, textiles, medicines, medical equipment, general and industrial supplies and services to America's warfighters, their eligible family members, and other non-Defense Department customers worldwide.

3-30. DSCP's role is for supporting logistics and acquisition of aviation OCIE flight equipment. DSCP has an Internet site (DSCP Warfighter Search page) that is valuable to the ALSO, S4, and CIF managers. This site has a

[Search Engine] to locate any aviation OCIE flight item by entering an NSN or item description (Nomenclature). The information provided as a result of your search on an item and website addresses—

- NSN.
- Sizes.
- Acquisition advise code (AAC).
- DSCP item manager POC.
- The DSCP website address is <http://ct.dscp.dla.mil/Ascot>.
- The OCIE resource information may be found at the following website address: <http://www.forscom.army.mil/ocie/aviation.htm>.

3-31. This website provides all soldiers—Active, Reserve, and National Guard—with current information pertaining to both personal military clothing and organization clothing and individual equipment (OCIE).

3-32. You can reach most information directly from the home page. In a few instances, there are second- and third-level menus. If you find any broken links, notify us (at the E-Mail address below or by clicking on the envelop icon on the home page) so that they can correct them. In addition, they welcome your comments and suggestions on information to add or how to better display the information.

3-33. They use several methods to convey immediate information. First, each will have, near the page title, the date that the page was last updated or changed. Next, below each link in the home page navigation grid, there will be a word and a date indicating what was last done and when it was done, with the exception of any minor editorial fixes. By doing this, you will be able to see immediately where changes have been made since your last visit.

3-34. Once you get to the changed page, the Red Arrow icon indicates the specific information that was added or changed, again except for minor editorial changes. Only the information marked with the Red Arrow icon will have been changed on the indicated date. All other information on the specific pages would have been added or changed at an earlier date.

3-35. The Blue Arrow icon indicates that the link will take you to a URL that is outside the OCIE site. You can return to the OCIE site by using the "Back" button on your browser.

3-36. Some information, such as the Active Army Clothing Bag, changes once a year; unless they reformat the information for a better presentation, old dates are at the top of the pages.

3-37. Questions, comments, or suggestions about any entries on these pages must be sent to: The FORSCOM POC@forscom.army.mil

## DOCUMENTATION

3-38. All requests for equipment will be documented. ALSS personnel should use DA Form 2064 (Document Register for Supply Actions) as an

unofficial record of request. Supply can provide document numbers, due-in status, and supply status.

3-39. All turn-ins from the ALSS shop will be documented. When supply forms are used, retain a file copy. If supply forms are not used, maintain a turn-in log with appropriate information.

## **DOCUMENT REGISTER**

3-40. DA Form 2064 is used to record supply transactions. Quantities requested, received, adjusted, and turned in, or due in are entered on one of three types of document registers—nonexpendable, durable, and expendable. Only units authorized to submit supply requests to a DSU use the expendable register. The PBO designates, by a memorandum, those elements within a unit authorized to request expendable supplies. The memorandum will specify the class of supply, the DOD activity address code, and the block of document serial numbers that the element will use. Chapter 2 of DA Pamphlet 710-2-1 contains policies and procedures for maintaining the document register

## **AUTHORIZATION TO REQUEST AND SIGN FOR SUPPLIES**

3-41. The office management files must have a copy of the assumption of command orders or the appointing memorandum. Copies must be sent to each DSU from which supplies are drawn with an accompanying DA Form 1687 (Notice of Delegation of Authority-Receipt for Supplies) for requesting and signing for supplies. A minimum of three copies is needed. The office retains one copy and sends two to the DSU (one each for the editing and issuing/receiving sections). If possible, different people should be designated to perform these actions. DA Pamphlet 710-2-1 and AR 725-50 outline procedures that reduce the potential for fraud, waste, and abuse.

## **REQUISITION**

3-42. Local procedures differ throughout the Army regarding how unit personnel request equipment and repair parts from the supply sections. Commanders may require requests to be made on memorandums, locally produced "want slips" (see Figure 6-1), or official supply forms. Regardless of the procedures, ALSS personnel must be able to provide the following information to supply personnel, if requested:

- National stock number.
- Part number.
- Nomenclature.
- Source of supply.
- Acquisition advice code.
- Material category structure code.
- Sources of information (ARMYLOG, FEDLOG, or MEDCAT).
- Publication, page, paragraph, figure, and/or item number.

- Unit of issue.
- Quantity.
- Department of Defense Identification Code (DODIC); Class-V items.

## **PRIORITY**

3-43. Before repair parts are requested, the Uniform Materiel Movement and Issue Priority System (UMNIPS) must be determined. The unit's force activity designator (FAD), found in the permanent orders activating the unit, and the urgency of need designator (UND) then determine the importance of the request. Commanders are responsible for assigning priority designators. The commander will review or delegate in writing specific personnel the authority to review all requests with UNDs of A or B. Use the tables in Chapter 2 of DA Pamphlet 710-2-1.

## **SCREENING AUTHORITY**

3-44. The unit commander must delegate the authority in writing to screen repair-part requests in the section. The individual on orders for processing requests for accuracy and authorization should first check the request for correct priority designators. The authorized individual, who initials the DA Form 2064 and the request (DA Forms 2765 or 2765-1), must approve all high-priority (01-08) requests. During the screening, commanders must first ensure that the correct UND is used to meet the maintenance requirement; that is, nonmission-capable (NMC), supply, anticipated NMCS (ANMCS), or routine. They must also ensure that the PLL clerks have reviewed the I&S file of the FEDLOG for interchangeable or substitute repair parts. This can often prevent needless aircraft downtime because interchangeable or substitute repair parts may be on hand in the command. Next, commanders must closely monitor the records section of the PLL section to ensure that all demands are posted on DA Form 3318 (Records of Demands-Title Insert) (not used with an automated supply system). This will ensure that the correct repair parts are on hand to support the maintenance mission. Demand will determine the authorization for initial stockage of PLL and the increase or decrease of PLL already on hand. DA Pamphlet 710-2-1 explains the criteria for increase, decrease, and initial stockage of PLL. Last, commanders must ensure that all requests for repair parts are posted on the document register (DA Form 2064).

## **SUPPLY STATUS**

3-45. Supply status informs the requester of the supplier's decision on a specific supply request. Supply status is received from the DSU on status cards, listings, or diskettes. Supply status is given in the form of status codes. These codes are in Appendix C of DA Pamphlet 710-2-1.

3-46. Keep a due-in status file for each document register. When status is received for open part requests, file the cards in document-number sequence. Destroy the status cards when the total quantity due in is received, canceled, or rejected. DA Pamphlet 710-2-1 contains information concerning policies and procedures.



## **SUPPLY MANAGEMENT**

3-47. Supply and maintenance activities consume 10 percent of the Army's annual budget. A reduction in these areas increases available resources to support force structure, training, and other high-priority needs. Accomplishing training and mission objectives within available resources will depend upon reducing dollars spent on replacement of reparable parts. This requires that unserviceable, economically reparable parts be repaired at the lowest possible level, if not precluded by policy or capability. Local repair should be the primary source of repair. All diagnostics equipment available should be used to determine the reasons for malfunctions before parts are replaced. This will minimize the use of component replacement for troubleshooting purposes.

## **SYSTEM COORDINATION, REVIEW, AND INPUT**

3-48. The effectiveness of system operations depends on timely, accurate processing of transactions and issuing of repair parts.

### **Customer**

3-49. Customers originate requests for issue, document modifiers, follow-ups, cancellations, and turnins. Customers review and respond to system generated listings and reports to improve accuracy and compatibility of unit and system files.

### **Direct Support Unit**

3-50. To increase supply responsiveness, DSU personnel review customer input transactions for clarity and completeness while the customer's representative is present.

### **Storage Activity**

3-51. Personnel at the warehouse storage activity ensure that transactions are correct and agree with the actual quantity of materiel received, issued, or recorded at storage locations. Adjustments are made using Standard Army Retail Supply System (SARSS) file maintenance procedures.

### **Material Management Center**

3-52. The manager controls SARSS processes by scheduling, selecting parameters, and inputting transactions. Input transactions must be controlled to ensure that they are processed correctly. The manager must also review SARSS stockage recommendations and automatic stockage adjustments.

## **PRESCRIBED LOAD LIST, SHOP STOCK LIST, BENCH STOCK, AND OPERATIONAL LOAD MANAGEMENT**

3-53. Although the automated supply system supports prescribed load list (PLL)/shop stock list (SSL) management, it does not replace all forms and records that are used in PLL/SSL management. Therefore, each unit must

manage its own PLL/SSL. Based on accumulation of demand history, SARSS generates a PLL change list for each customer. This list shows proposed additions, changes, and deletions to a unit's PLL.

3-54. PLL add-and-retain criteria are controlled by manager parameters. Each proposed addition, deletion, and stockage level change requires subsequent action by the customer and the SARSS manager. The customer annotates the list to show desired action on proposed changes. He then sends the annotated list to the manager. Using the annotated lists, the manager sends change cards for processing in the PLL update process. An updated PLL is provided to each customer. Preprinted requests are also provided to nonautomated customers.

### **Automated Records**

3-55. Although the automated supply system supports PLL maintenance, it does not eliminate the need for unit management (accountability), as stated below.

- DA Form 2063-R (Prescribed Load List) has been replaced by the PLL, PCN AGL-C34. This list has space for entering on-hand balances, storage locations, reviews, and inventories. This list also contains much of the catalog data found on one DA Form 3318.
- DA Form 2064 must be maintained manually if your unit's document register is not automated when using ULLS or Standard Army Maintenance System (SAMS). DA Form 3318 has been replaced by the unit demand summary list, PCN AGL-C39.
- Standard Army Retail Supply System-Level 1 (SARSS-1) provides the Unit Demand Summary List, PCN AGL-C39, monthly to each unit. The list shows a unit's demands for PLL and non-PLL items. It also provides detailed demand data for review of the unit's demand history when considering changes to the PLL/SSL.
- Each quarter, the PLL computation subprocess of the demand analysis process generates a PLL change list, PCN AGL-C35, for each unit. This list identifies all items recommended for addition or deletion or change in authorized stockage levels. Two copies of the list are furnished to each unit. NSNs and management control number (MCN) are in national item identification number (NIIN) sequence. MCNs are in full stock-number sequence.

### **Command Decisions**

3-56. For recommended additions, deletions, and changes to PLL stockage levels, unit commanders have three choices—approve, disapprove, or modify the recommendations.

### **AUTHORIZED STOCKAGE LIST MANAGEMENT**

3-57. The ASL identifies authorized items to be stocked in the DSU to support customer demands. Parameters allow the manager control over ASL add-retain criteria by supply class for main and forward DSUs. Although an

item may qualify as an ASL item, the manager may or may not add the item to the ASL because of stockage and funding constraints of the DSU. SARSS considers an item qualified for stockage when it is demand-supported, an operational readiness float (ORF) item specifically authorized for incorporation, an initial provisioning item, and a mission-essential or mandatory stockage item.

3-58. SARSS considers ASL items not receiving sufficient demand during a 180-day period for a stockage list code (SLC) change or for deletion from the ASL. The manager is responsible for managing the ASL. Demand-supported stockage levels are automatically adjusted based on the quantity demanded. Stockage levels for other than demand-supported lines are recommended. To control stockage levels for selected items, the manager—

- Sets minimum requesting objective (RO) and reorder point (ROP) quantities; stockage levels do not adjust below the set minimums.
- Establishes ROs at specific levels.
- Establishes days of supply values to compute stockage levels.
- Determines the method for computation of order to ship time (OST) and controls system OST deviations.

## REPARABLE ITEMS MANAGEMENT

3-59. Commanders assign responsibility for managing reparable items to an accountable officer. The items required at the DS maintenance facility are called DSU-reparable items. Items selected for repair above the DS level are called non-DSU-reparable items.

3-60. DSU-reparable items are selected for stockage by a coordinated effort between maintenance and supply personnel. For automated processing and accounting visibility, these items are identified with an SLC of Q and a distribution of stockage code (DSC) of 3. Items selected for addition or retention as DSU-reparable items must—

- Be repairable by the DSU maintenance shop.
- Use days of supply (DOS) procedures to compute stockage levels (procedures contained in DA Pamphlet 710-2-2, paragraph 4-9).

## QUICK SUPPLY STORE MANAGEMENT

3-61. A QSS may be operated in each Class-IX main DSU. The manager establishes a QSS by converting availability balance file (ABF) lines that meet QSS criteria. The ASL change list from the demand analysis process is reviewed by the manager to identify those items that are recommended for addition to or deletion from QSS stockage. DSUs are then notified of the changes, and an effective date of change is established. The manager then submits the change cards for processing to update relevant files.

3-62. A QSS catalog is prepared quarterly. This catalog is sequenced by stock number and lists the preferred stock number, unit of issue, nomenclature, unit price, and the DSU that stocks the item. The manager adds the QSS location and hours of operation on the first page of the catalog

printout and reproduces the catalog in sufficient copies for distribution to customers supported by the DSU operating the QSS facility.

## RECONCILIATION

3-63. Reconciliation enables the manager to verify due-ins from the higher source of supply and due outs to supported customers. Twice a month, the SCA provides a list of all open requests to its customers. This list also identifies requests that were satisfied or canceled during the report period. Customers review the list, identify discrepancies, request cancellation for those requests that are no longer required, validate the continued need for requested items, and modify requests as required. A copy of the annotated list is returned to the supply control activity (SCA) to update DSU files.

3-64. Due-out reconciliation lists ensure that the request is valid. DA Forms 2406 (Materiel Condition Status Report [MCSR]) and 2715-R (Unit Status Report [LRA]) should be checked to ensure that accurate data are provided so that proper attention can be drawn to critically required items for intensive management.

## PRESCRIBED LOAD LIST

3-65. The prescribed load list (PLL) is a list of repair parts required to be on hand or on a valid requisition for the performance of unit maintenance on assigned equipment. These parts must have an essentiality code of "C" and maintenance of use code (MUC) of "0." The commander keeping PLL is its approving authority. Commanders should incorporate PLL for ALSE repair parts in Unit-Level Logistic System-Aviation (ULLS-A). Management of these repair parts is according to AR 710-2 and DA Pamphlet 710-2-1.

- AR 710-2 and DA Pamphlet 710-2-1 contain the proper procedures for determining and maintaining PLL, stock levels, control periods, required records, reviews, and inventories. ALSE personnel must coordinate with technical supply personnel in establishing and managing ALSS PLL.
- ALSS PLL should be maintained in the ALSS shop because of storage requirements. The ALSO/ALSNCO/ALSET must provide the daily usage of PLL so that supply records will be updated, demands captured, and replenishment requisitions can be submitted.

### Authorized Prescribed Load List Stock

3-66. DA Pamphlet 710-2-1 lists in detail items that may be placed on a unit PLL and provides stock-qualification guidance.

### Prescribed Load List Storage

3-67. The ALSS prescribed load list (PLL) should be maintained in the ALSS shop because of storage requirements. AR 190-51 contains requirements to secure these parts.

## DA Form 2063-R (Prescribed Load List)

3-68. An ALSS shop establishing a PLL must prepare a separate DA Form 2063-R for each type of life-support equipment on hand in the unit for which repair parts are to be stocked. The repair parts from these lists are then combined on another DA Form 2063-R. DA Pamphlet 710-2-1 outlines the preparation, processing, and updating procedures for DA Form 2063-R.

## REPAIR PARTS AND SUPPLIES

3-69. Commanders may authorize an ALSS shop a limited amount of expendable supplies and repair parts required for efficient shop operations. Such supplies should be used only for internal shop support. Two types of maintenance-related supplies are authorized for shop stock: bench stock and shop stock (demand-supported stock). Bench stock and shop stock procedures may be used by unit support-level ALSS maintenance activities or consolidated ALSS shops. To determine other unit authorizations refer to AR 710-2.

**Note:** Army National Guard and Reserve aviation support facility personnel should coordinate with supported units to ensure that ALSS requirements are identified for deployment based on crew member strength.

## SHOP STOCK

3-70. Shop stock is demand-supported repair parts and consumables stocked within a support-level maintenance activity for internal use to accomplish programmed repair. To qualify as shop stock, an item must have at least three demands in a control period to add and one demand to retain. Shop stock must have an essentially code of "C" or higher and a MUC of "F" or "D."

- AR 710-2 and DA Pamphlet 710-2-2 contain the policies and procedures for determining and maintaining shop stock, stock levels, control periods, required records, reviews, and inventories.
- ALSE personnel must coordinate with technical supply personnel in establishing and managing ALSS PLL.

## BENCH STOCK

3-71. Bench stocks are low-cost consumable items that the ALSET uses at an unpredictable rate for ALSS maintenance. This stock includes items such as visors, microphone booms, common hardware, thread, webbing, adhesives, and patching material. Commanders should incorporate bench stock for ALSS assets in ULLS-A with a shop code identifying ALSS. The ALSET must inform technical supply personnel of bench-stock usage so that supply records are updated and replenishment requisitions are submitted. Placement of these items in the ALSS shop will aid technicians with direct access to the supplies.

- DA Pamphlet 710-2 contains the policy procedures for establishing and maintaining bench stock. The ALSO/ALSNCO/ALSET will select this stockage based on mission needs. The bench stock list will be

initialed by the ALSET and approved by the ALSO or maintenance officer.

- DA Pamphlet 710-2-2 contains the procedures for establishing and maintaining bench stock at the support maintenance level.

## OPERATIONAL LOAD

3-72. Operational loads are quantities of expendable Class-I, Class-II, Class-III, Class-V, and Class-VIII supplies maintained by the unit or organization to sustain its peacetime operation. These supplies are combat deployable after essential lift requirements are met. No records of demands are required. Stockage quantity is developed and justified based on local experience. Operational load list registers, by class of supply, are all items authorized for stockage in a load. These lists will be on file in the using unit.

3-73. The unit commander drafts the operational load list based upon CTA-, TM-, SC-, and SB-authorized amounts, which may be further changed and updated by a TB. The major command (MACOM) installation commander for AC units and the state adjutant general for the ARNG direct which units are required to have operational loads. The unit commander will then approve the operational load list based on requirements stated above.

## Operational Load Lists

- **Class I.** Operational load of Class-I supplies (such as food packets and canned water) may be stocked within the ALSS shop.
- **Class II.** Operational load of Class-II supplies (such as OCIE and vest) is quantities of supplies used by ALSS shop for the unit or organization to sustain its peacetime operation.
  - Stockage quantity is developed and justified based on authorized strength and CTA.
  - Class-II durable items require property book accountability.
- **Class III.** Operational load of Class-III supplies (such as matches and trioxane) is quantities of supplies used by ALSS personnel.
- **Class V.** Operational load of Class-V supplies (such as signal flares and smoke) authorized by CTA 50-909 may be stocked within the ALSS shop.
  - Items that are expected to or not expected to be expended (signal flares, and smoke) will be maintained on the property book and controlled through hand-receipt procedures.
  - In the ARNG, the state adjutant general designates those units authorized to maintain a Class-V operational load.
  - Because Class-V items are sensitive, keep stockage to a minimum.
  - No records of demands are required; develop stockage quantity on local experience.

- AR 710-2 and DA Pamphlet 710-2-1 contain policies and procedures for establishing and maintaining operational load of Class-V supplies.
- AR 190-11 and AR 190-51 contain physical security requirements for ammunition and explosives.
- All Class-V items must be reviewed for surveillance and stockpile reliability (surveillance) according to AR 740-1, SB 742-1, and TB 9-1300-385.
- **Class VIII.** Operational load of Class-VIII is a quantity of medical supplies used by ALSS assets for the unit or organization to sustain its peacetime operation.
  - This list of supplies should be reviewed by the flight surgeon (ARNG requires a formulary).
  - Commanders and flight surgeons, as cited in AR 40-2, are delegated approval authority to use local-purchase acquisition for pharmaceuticals.

## SECTION IV – AUTOMATED SUPPLY MANAGEMENT SYSTEMS

### UNIT-LEVEL LOGISTICS SYSTEM

3-74. There are three versions of the Unit-Level Logistics System (ULLS) that appear in different types of units. Each performs slightly different functions. The three versions are Unit-Level Logistics System-Ground (ULLS-G), Unit-Level Logistics System-Aviation (ULLS-A), and Unit-Level Logistics System Supply Officer (ULLS-S4).

#### UNIT-LEVEL LOGISTICS SYSTEM-GROUND (ULLS-G)

3-75. ULLS-G is located at any unit that has an organizational maintenance facility. It automates vehicle dispatching, PLL management, and the Total Army Maintenance Management System (TAMMS). ULLS-G interfaces with SARSS-1, SAMS-1, IVIS, vehicle sensors, and ULLS-S4. The automated identification technology (AIT) interrogator is connected directly to the ULLS-G. ULLS-G is linked to the wholesale supply system through objective supply capability (OSC).

#### UNIT-LEVEL LOGISTICS SYSTEM-AVIATION (ULLS-A)

3-76. ULLS-A is located in all aviation units. It performs those functions for aviation that ULLS-G performs for ground units. It automates procedures for managing unit-level repair parts, equipment dispatching and return, equipment management and reporting, and aviation-unique TAMMS functions. Appendix A contains more information on ULLS-A.

#### UNIT-LEVEL LOGISTICS SYSTEM-SUPPLY OFFICER (ULLS-S4)

3-77. ULLS-S4 is located at unit-level supply rooms, as well as battalion- and brigade-level S4 staff sections. ULLS-S4 automates the supply property

requisitioning/document register process, hand/subhand receipts, and component, budget, and logistics planning activities at the unit supply, battalion, and brigade S4 levels. It also receives and produces AMSS reports generated by ULLS-G/A systems or by another ULLS-S4 system. The AIT interrogator is connected directly to ULLS-S4. ULLS-S4 interfaces with—

- The SPBS-R, ULLS-G, and ULLS-A (for budget and Army Materiel Status System (AMSS) data transferring.
- SAAS, Standard Army Retail Supply System-Objective (SARSS-O) at the direct-support level.
- The Standard Army Intermediate-Level Supply System (SAILS).
- The OSC SARSS Gateway.
- The Combat Service Support Control System (CSSCS).

## **STANDARD ARMY MAINTENANCE SYSTEM (SAMS)**

3-78. The SAMS increases the productivity of maintenance shops. It also provides commanders with accurate and timely maintenance management information. It provides visibility of inoperative equipment and required repair parts, selected maintenance, equipment readiness, and equipment performance reports. It also provides completed work-order data to the logistics support activity (LOGSA) for equipment performance and other analyses. SAMS is divided into two levels— Standard Army Maintenance System-Level 1 (SAMS-1) and Standard Army Maintenance System-2 (SAMS-2).

### **STANDARD ARMY MAINTENANCE SYSTEM-LEVEL 1 (SAMS-1)**

3-79. SAMS-1 operates at the AVIM level. It tracks all work orders and repair parts and processes information received from supported units. SAMS-1 interfaces with ULLS-G/A, SAMS-2, and SARSS-1. It operates on the SAMS-1 rehost program hardware. It processes maintenance data to improve control of work load, manpower, and supply. The ADSM 25-L21-ZZZ-EM SAMS-1 user manual contains more detail.

### **STANDARD ARMY MAINTENANCE SYSTEM-LEVEL 2 (SAMS-2)**

3-80. SAMS-2 operates at the command levels above AVIM such as the MMC, division support command, corps support command, and echelons above corps (EAC) management levels. It collects, stores, and retrieves maintenance information from SAMS-1 sites. It also allows managers to coordinate maintenance work load.

## **STANDARD ARMY RETAIL SUPPLY SYSTEM-OBJECTIVE (SARSS-O)**

3-81. The SARSS-O is a multiechelon supply management and stock control system that operates in tactical and garrison environments. SARSS-O comprises four integrated systems: Standard Army Retail Supply System-Level 1 (SARSS-1) at the SSA level; Standard Army Retail Supply System-Level 2AD (SARSS-2AD) at the MMC of the division, separate brigade, or Armored Cavalry Regiment (ACR); Standard Army Retail Supply System-



Level 2AC/B (SARSS-2AC/B) at the MMC of corps and theaters; and SARSS-Gateway, formerly known as the OSC. SARSS-O also provides supply-related data to the Integrated Logistics Analysis Program (ILAP) at various functional levels. SARSS-O supports ULLS-G, ULLS-A, ULLS-S4, SAMS-1, Standard Property Book System-Revised (SPBS-R), Standard Army Management Information System (STAMIS), nonautomated customers, and the split operations concept. The SARSS-O application software operates on phase maintenance (PM), standard computer (STACOMP) centrally procured nondevelopmental item (NDI) computer platforms, and AIT peripheral devices. SARSS-O is fully integrated from the user through theater-Army level. It can support worldwide deployment of combat forces in various scenarios and areas of operations (AOs), ranging from low-intensity to mid-intensity to high-intensity conflict including support operations/stability operations.

#### **STANDARD ARMY RETAIL SUPPLY SYSTEM-LEVEL 1 (SARSS-1)**

3-82. SARSS-1 is found at most SSAs. This includes nondivisional SSAs and main-support and forward-support SSAs in divisions, separate brigades, and armored cavalry regiments. It is the primary automation for the support company, supply and service company, and the AVIM company operating in the brigade and division areas. SARSS-1 processes customer requests for supplies from ULLS, SAMS, and SPBS-R sites. It also processes follow-ups, cancellations, and modifications for Classes II, III(P), IV, VII, and IX requests and releases these items to customers on its support list. It maintains accountable stock-record balances and reports them to either SARSS-2AD or SARSS-2AC/B, as applicable, to allow them to maintain visibility of stockages for their SARSS-1 sites. SARSS-1 interfaces with SARSS-2AD, SARSS-2AC/B, SPBS-R, ULLS-S4, SAMS-1, and SAMS-I/TDA.

#### **STANDARD ARMY RETAIL SUPPLY SYSTEM-LEVEL 2AD (SARSS-2AD)**

3-83. SARSS-2AD is found in MMCs of divisions, separate brigades, and armored cavalry regiments. It performs the time-sensitive functions involved with Classes II, III(P), IV, VII, and IX to supply the force. It routes requisitions, releases controlled items (such as critical Class-IV and -IX items), and generates disposition instructions for all classes of supply. It provides the MMC with asset visibility, allowing SARSS-1 sites to obtain items from other SARSS-1 locations. SARSS-2AD also checks balances on hand before forwarding the request for action. SARSS-2AD performs time-sensitive management. Major functions executed in SARSS-2AD include management support, financial adjustment, Department of Defense Activity Address Code and parameter maintenance, and housekeeping.

#### **STANDARD ARMY RETAIL SUPPLY SYSTEM-LEVEL 2AC/B (SARSS-2AC/B)**

3-84. SARSS-2AC/B is found at the TSC MMC, corps MMC, and National Guard United States Property and Fiscal Officer (USP&FO). This system supports the corps through fill of subordinate SARSS-1 requisitions from the corps area and fill of SARSS-2AD requisitions from the division areas. It also provides supply support throughout corps in Classes II, III(P), IV, VII, and IX

in the functional area of supplying the force. The SARSS-2A/B function of SARSS-2AC/B operates the nontime-sensitive portions of stock management. The SARSS-2AC function of SARSS-2AC/B, at the corps MMC, has asset visibility of all the SARSS-1 activities in the corps, through a custodial availability balance file (ABF). This includes those nondivision SARSS-1 activities as well as the SARSS-1 activities in the subordinate divisions. Its processes include all of the SARSS-2AD functions, plus SARSS-2A/B nontime sensitive actions such as catalog, document history, demand history, and interface with the financial systems. Corps-controlled supply storage locations are managed through the automation of this level of SARSS. Managers use the SARSS-2AC/B to access the demand history of all levels of supply.

### **STANDARD ARMY RETAIL SUPPLY SYSTEM-GATEWAY (SARSS-GATEWAY)**

3-85. SARSS-Gateway is the computer and communication network interaction that allows total asset visibility for repair parts within a geographic area. It consists of a relational database using specific processing logic (formerly known as OSC) that interfaces with existing Army STAMIS to provide a near-real-time supply system to unit-level supply and maintenance activities. The requests/requisitions are electronically transmitted from customers to the Gateway computer where lateral search/issue decisions are based on a resident ABF, which is uploaded by the STAMIS and maintained at the Gateway. This central computer, known as the OSC SARSS-Gateway, maintains constantly updated files of the on-hand assets available to all support activities in a geographic area. SARSS-Gateway shortens the time that units wait for parts by directly transmitting part requests from unit or support maintenance shops to a central computer. If insufficient assets are available, the Gateway determines whether to send replenishment or dedicated requisitions to the wholesale SOS and provides the status to customers on the action taken.

### **RADIO FREQUENCY (RF) AUTOMATIC IDENTIFICATION TECHNOLOGY**

3-86. This system uses electronic devices to track materiel in the pipeline (in-transit visibility) and does away with the requirement to manually enter most receipt and selected inventory transactions into automated systems.

3-87. This device exists at direct-support supply activities, direct-support maintenance activities with a supply mission, and central receiving points (CRP) and at selected points within transportation networks. The AIT data interrogator transmits queries to and receives data from all RF tags in its area. It is connected directly to SARSS-1, SAMS-1, ULLS-S4, and ULLS-G. It also passes data to transportation systems such as TC ACCIS and TC AIMS II.

### **GLOBAL COMBAT SUPPORT SYSTEM-ARMY**

3-88. The GCSS-Army, previously named the Integrated Combat Service Support System (ICS3), will be the principal and comprehensive business-automation enabler for the Total Army for interfacing and integrating

information and enterprise systems across the CSS mission area. The GCSS-A supports the CSS functions of manning, arming, fixing, fueling, moving, funding, and sustaining soldiers and their systems at all echelons. The program will follow a three-tier development strategy with all three tiers working in parallel. Tier I will provide an initial operational capability using those functions currently employed by legacy systems such as SARSS, ULLS, and SPBS-R. Tier II will produce a seamless, integrated wholesale and retail community. Tier III will be completed by implementing all required interfaces with AIS of the joint community, national sustaining base systems, and applicable allied systems.

3-89. GCSS-Army will streamline CSS information management by eliminating duplicative systems, consolidating baseline logistics functionality, and implementing more data sharing. The system will be a modular design in which users will have only the system applications and software tools needed to perform mission tasks at their location. Some of the major design features are "common look and feel" based on GUI "point-and-click" methodology, interactive/real-time processing, catalog availability, one-time data entry, and near-transparent communications.

## **SECTION V – MATERIEL MANAGEMENT CENTERS**

### **DIVISION MATERIEL MANAGEMENT CENTER (DMMC)**

3-90. The DMMC provides materiel management for the division. DMMC is the division's logistics coordinating and control element. It provides materiel management for weapon systems and controls maintenance priorities. It also coordinates and controls supply functions to meet the operational needs of the division.

3-91. The DMMC is an element of the division support command (DISCOM) HHC/MMC. The DMMC chief is directly subordinate to, and receives policy and operational guidance from, the DISCOM commander. The DMMC chief serves as the division materiel management officer. He implements the division and DISCOM commanders' policies.

3-92. The DMMC manages division supply and maintenance. A technical supply officer assigned to the main support battalion (MSB) is the interface between the MSB and the Class-IX supply section of the DMMC. He has frequent contact with the Class-IX warehouses and the DMMC. The DMMC also coordinates maintenance and supply of division aircraft resources through its aviation branch. The DISCOM aviation maintenance company/battalion (AMCO/AMB) also has Class-IX support responsibilities similar to the MSBs. FM 4-93.2(63-2) contains more information on the DMMC.

### **AVIATION BRANCH**

3-93. The aviation branch performs materiel management for aeronautical and air-droppable equipment and test equipment that are used with assigned

materiel. This branch is typically staffed with an aviation materiel officer and an aircraft maintenance manager.

### **Aviation Materiel Officer**

3-94. The aviation materiel officer (AMO) exercises staff supervision over aviation maintenance activities. These include classification and diagnosis of malfunctions, repair and replacement of parts, overhaul of components, and testing and final inspection of equipment. In case of an AVIM work overload, this officer coordinates with the corps MMC for assistance.

### **Aviation Maintenance Manager**

3-95. The aviation maintenance manager supervises all unit maintenance. He also applies production control principles and procedures to AVIM operations, using reports generated from SARSS and SAMS.

## **SUPPLY PROCEDURES**

3-96. The job of Class-IX supply in the division is shared by the DSU/AMCO and the DMMC. The DSU/AMCO receives, stores, issues, and turns in the parts. Supply personnel in the materiel section of the DMMC manage and account for the Class-IX inventory. They use demand history and command-directed actions to help them do this. To prevent overstockage in the DSU/AMCO, forward stockage points for Class IX are restricted to 10 days of supply. The DMMC decides the type of items that are physically located in the forward area. Selection is coordinated with the ASL platoon leader and the AMCO commander. It is based on the PLLs of the units to be supported from the forward locations and on the immediate mobility needs of forward-support maintenance units.

3-97. For most Class-IX supplies, using units submit their requests to their designated DS activity. Repairable exchange for selected repairable items (including components and subassemblies) is handled on the basis of simple exchange of the unserviceable item for a serviceable item. If the unit does not have an unserviceable item to exchange, it must submit a request (DA Form 2765-1) for the item. In some cases, controlled exchange and cannibalization may be required to obtain Class-IX supplies.

3-98. AVUM customers in the BSA submit their Class-IX air requisitions through their ULLS-A system to the supporting AVIM DSU Class-IX SARSS-O system. For ground Class IX, all customers in the BSA submit their Class-IX ground requisitions through their ULLS-G system to the supporting DSU Class-IX SARSS-O system. All Class-IX, air or ground, requisitions are either filled at the supporting DSU or passed to DMMC and referred to another divisional DSU (Class-IX ground only). If a Class-IX requisition (air or ground) cannot be filled within the division, it is passed to the corps materiel management center (CMMC) and referred among the corps DSUs (includes corps AVIMs). This permits the DMMC to update required records, cross-level stocks, and process requests to the corps MMC. Once a requisition hits the CMMC, the MMC SARSS-2A/B systems search across all corps Class-IX DSUs before referring a requisition to the TSC or back to a National Inventory Control Point (NICP).

3-99. Because of SARSS-O, all Class-IX items arriving in the division are shipped directly to the ordering DSU. Once the DSU receipts all arriving Class IX into its SARSS-O system, it is reported to the DMMC or CMMC during the daily closeout and data transfer. DSUs operating in the brigade/division/corps support area (BSA, DSA, or CSA) store Class-IX items and issue them to their customers via supply-point distribution. All issues are reported to the DMMC and CMMC for updating of records. Turn ins are handled in the same manner as receipts; they are also reported to the DMMC and CMMC. Class-IX Air items are stocked by the AVIM DSU located in the DSA or CSA and are distributed to—

- AVUM customers by supply-point distribution.
- Forward AVUMs located in the BSA by division or nondivision aircraft in emergencies (air lines of communications [ALOC] must be established for NMCS or AOG repair parts).

## **CORPS SUPPORT COMMAND (COSCOM) MATERIEL MANAGEMENT CENTER**

3-100. The COSCOM MMC (CMMC) is the heart of the corps-level supply and maintenance management system. It performs integrated supply and AVIM maintenance management for all classes of supply (except maps, medical, and COMSEC) for which the COSCOM has jurisdiction and responsibility. The MMC acts on the requirements of supported forces.

3-101. The MMC consists of materiel management divisions that are aligned with those of the TSC MMC and the AMC NICPs. The center functions under the operational control of the COSCOM ACofS, materiel, and is commanded by the center commander, who also serves as the COSCOM deputy ACofS, materiel. Each division exercises total day-to-day integrated materiel management of assigned commodities. The aviation division handles aviation materiel management. FM 4-93.22(54-23) contains additional information on the corps MMC.

### **AVIATION DIVISION**

3-102. This division performs integrated materiel management for aeronautical and airdrop equipment and test equipment that are part of or used with assigned materiel. The division manages MATCAT H items and provides guidance and monitors corps stockage of AIMI. Materiel managers of this division are responsible for managing a variety of supplies and materiel. Equipment includes materiel for aircraft and airdrop, avionics, aircraft armament, and related test equipment.

3-103. The aviation division is organized and functions as discussed in the following paragraphs. A functional branch breakdown within the division permits special management of assigned commodities. This type of management provides centralized control of decentralized operations.

### **Aviation Division Office**

3-104. Personnel assigned to the aviation division office include an aviation materiel officer, a chief aviation materiel NCO, and a clerk typist. The aviation materiel officer (with the advice and assistance of the branch chiefs) plans, directs, and supervises the division's operations. Together, they manage the day-to-day aviation assets of the corps and aviation equipment, including repair parts and specialized equipment. The aviation materiel officer refers materiel problems that deviate from the routine to the COSCOM ACoS, materiel, as directed by the MMC commander. The ACoS, materiel, coordinates materiel management problems that require top-level decisions with the corps G4.

### **Aviation Equipment Supply Branch**

3-105. The aviation equipment supply branch manages aviation equipment supply for the corps. This branch manages day-to-day aviation equipment supply support for aircraft and airdrop, avionics, aircraft armament, and related test equipment. Personnel resources are subject to change. Check the latest TOE or MTOE for current staffing. Commodity managers of the aviation equipment supply branch implement policies and plans of the COSCOM ACoS, materiel, MMC commanders, and the chief, aviation division. They perform the following duties:

- Establish realistic requisitioning objectives and initiate their timely review through supply-control studies.
- Maintain stock-record accountability for Class-VII supplies within the corps.
- Ensure that timely supply support is provided to the customer.
- Monitor requisition objectives created by the automated supply system in use (SARSS), and establish mandatory stockage levels for items that are not automatically stocked, stored, and issued through the SARSS software program.
- Monitor the functions of the automated supply system.
- Develop operating procedures, and prepare distribution plans.
- Implement policies outlined in AR 710-1, AR 710-2, and TM 38-L03-series for operation of the stock-record account.

3-106. The aviation equipment supply branch manages Class-VII requisitions for TOE. It performs the following duties:

- Processes requisitions on a daily basis and follow up on them as required.
- Assists the equipment authorization branch, service support division, by cross-leveling aviation equipment already in the corps.
- Recognizes TOE or MTOE shortages and fill requisitions.
- Coordinates with TSC MMC and NICPs to fill requisitions.
- Handles distribution problems throughout the corps.

### **Aviation Parts Supply Branch**

3-107. The aviation parts supply branch manages day-to-day supply actions for aviation equipment. Personnel resources are subject to change. Check the latest TOE or MTOE for current staffing.

3-108. Branch personnel implement policies and plans of the COSCOM ACofS, materiel; the MMC commander; and the chief, aviation division. They perform the following duties:

- Recommend cross-leveling of repair parts.
- Review output from the MCS module of the MRM system to monitor all aspects of supply and determine trends in operational readiness.
- Maintain Class-IX ASLs.

3-109. The aviation parts supply branch is responsible for the following:

- Manages all aviation repair parts (Class IX).
- Processes requisitions daily and follows up on them as required.
- Handles throughout corps distribution problems.
- Follows up day-to-day SARSS transactions.

3-110. Corps AVIM units and DISCOM MMCs initiate requisitions for repair parts. These requirements are placed directly on the COSCOM MMC. If the repair parts companies within the COSCOM do not have required items or quantities on hand, the COSCOM MMC transmits the requirement to CONUS NICPs. (Requirements for selected items controlled by the TSC MMC flow to the TSC MMC.)

### **Aviation Maintenance Branch**

3-111. The aviation maintenance branch manages the maintenance system for aviation equipment managed by the aviation division. These managers are the single points of contact for maintenance management of aviation equipment in the corps. Personnel resources are subject to change. Check the latest TOE or MTOE for current staffing.

3-112. Branch personnel implement policies and plans of the COSCOM ACofS, materiel; the MMC commander; and the chief, aviation division. Aviation maintenance branch personnel are responsible for the following:

- Develop, in coordination with the aviation equipment supply and repair parts branches, instruction for AVIM units on evacuation of unserviceable aircraft requiring higher-level maintenance. Similarly, the branch develops instructions for AMBs in the COSCOM on the evacuation of unserviceable aviation materiel and scrap. Instructions are developed under automated procedures and provided to the automatic data processing center (ADPC), which provides shipping instructions to the AVIM units.
- Provide guidance to C<sup>2</sup> elements on processing aviation materiel.
- Provide repair priorities to the aviation maintenance battalion.



- Provide data to COSCOM staff and higher headquarters on production, deadlines, and problem areas.
- Inform COSCOM and corps aviation units of maintenance management data and report requirements from the corps G4.
- Coordinate with the supply branch on repair-parts requirements for maintenance of specific items that may be in short supply and requirements for cannibalization, controlled exchange, or parts fabrication.
- Make recommendations on tailoring units and forming like sections from several units to perform high-priority maintenance.
- Review reports and data submitted by subordinate AVIM units and division support commands. Branch personnel provide copies or extracts of these reports for the maintenance staff. They evaluate reports and listings processed by the ADPC and provide them with appropriate recommendations to the ACofS, materiel.
- Act as expeditors when the estimated delivery date is unsatisfactory.

### **THEATER SUPPORT COMMAND MATERIEL MANAGEMENT CENTER (TSCMMC)**

3-113. The MMC is assigned to the TSC under the staff supervision of the DMC. It serves as the control center for materiel activities in the TSC through daily monitoring of supply and maintenance actions. The MMC performs integrated supply and maintenance management in the TSC for all classes of supply except medical supplies. It also manages maintenance activities for which the TSC is responsible. The aviation division manages aviation materiel.

3-114. The MMC coordinates materiel activities with movement-control elements and the functional directorates of the TSC support operations section. It maintains links to the CONUS base as well as tactical-level MMCs. FM 4-93.4(63-4) has additional details on the TSC and its MMC.

## Chapter 4

# Aviation Life Support System Shop

Organizing an ALSS shop is based on many factors. These factors include the size of the unit and the density and type of equipment. Therefore, it is not possible to standardize an ALSS shop layout. This chapter covers the basic layout of an ALSS shop that will allow ALSS personnel enough space to perform all required procedures for inspections, maintenance, and storage of assigned unit ALSE. Appendix C provides a suggested ALSS shop layout and storage illustrations. The layout includes suggested design and layout of workbenches and storage areas. Information in the following paragraphs and TM 1-1500-204-23-1, Chapter 11, should be considered during ALSS shop layout planning.

## SECTION I – ALSS SHOP ESTABLISHMENT

### DESIGN

4-1. The design of the ALSS shop is based on the size of the unit, equipment density, and equipment type. Therefore, the square footage of usable space for an ALSS shop will need to be determined from the considerations noted above. The ALSS shop layout should allow the best possible use of personnel and equipment to be supported. The area will be protected from pilferage, dampness, fire, dust, insects, rodents, and direct sunlight. Shops without oxygen may have floors constructed of organic or nonorganic materials, such as concrete, which may be painted or covered with floor tile. To reduce the amount of combustible materials, shops with oxygen should have floors constructed of nonorganic materials (concrete or ceramic tile) and should not be painted. These measures reduce the possibility of a fire in case of an oxygen leak.

4-2. Commanders must evaluate building space and select an area that will support their ALSS shop maintenance program. Selection is a critical factor that allows the ALSET suitable space to perform his daily duties. The duties include—

- Equipment inspection.
- Maintenance of equipment.
- Space for use and storage of support equipment.
- Storage of repair parts and components.
- Storage of medical supplies.
- Storage of expendable and consumable materials (including hazardous materials).

4-3. Computer and supporting automation equipment improves the ability of maintenance managers to manage the flow of maintenance data. Maintenance management includes forecasting, distributing, scheduling, and controlling the production of maintenance workloads. Automation systems and programs will enhance the effectiveness of ALSS personnel in controlling maintenance operations and work flow. They also require the managerial tools to direct and control work flow through a maintenance shop so that the best quality work is produced.

4-4. The ALSS Maintenance Management and Training Programs require the resources; for example, microcomputer, printer, hardware, and software placed in the ALSS shop to operate electronic publication programs and to access Internet technical publication and logistical support websites. These resources are essential to manage these programs and day-to-day operations.

## **LOCATION**

4-5. The ALSS shop should be located in an area that is not subject to excessive vibrations, noise, and dust. Entrance to the shop should be limited to prevent its use as a thoroughfare or an entry from other shops. Controlling access to the shop will prevent pilferage and unsafe shop operations.

## **WORK AREA**

4-6. Workbenches will be free from rough or abrasive materials and splinters. Tops should be made of nonporous material that will not chip or peel. Benches should contain drawers for storing tools and small parts. Areas should be well lighted with accessible electrical outlets. Benches in oxygen-equipped ALSS shops should be equipped with individual (explosion-proof) lighting besides the normal lighting.

4-7. Areas should have access to hot and cold running water for cleaning equipment. A stainless steel basin should be located in ALSS shops equipped with oxygen. The basin should have hot and cold water to clean breathing equipment.

## **STORAGE AREA**

4-8. Storage racks, cabinets, and shelves should be fabricated to accommodate specific equipment. Storage shelves should be free of rough or abrasive materials and splinters. Wood or metal shelves may be covered with rubber matting or tile. Hangers should be wood or heavy plastic material. The area should be well ventilated, out of direct sunlight, and well lighted. Storage cabinets with locks should be provided for securing test equipment, tools, equipment, and supplies.

## **FITTING AREA**

4-9. The fitting area will be well lighted and have enough space so that personnel can be fitted with equipment such as vests, helmets, and harnesses. A 60-square-foot (4-foot by 15-foot) area will allow for fitting one person at a time. The fitting area should be located in the work area.

## OFFICE SPACE

4-10. A desk and other administrative equipment and supplies should be provided and located near the shop entrance. Charts, status boards, graphs, records, and administrative supplies should be placed within reach of the desk for ease of maintenance management and record keeping.

## SHOP EQUIPMENT

4-11. Support equipment needed to maintain ALSE varies throughout the Army because of differing geographical areas and mission requirements. Basic equipment—such as tools, test sets, and refrigerators—is common among all units. Specialized equipment for maintaining flotation and oxygen equipment will be identified in the appropriate TM. Chapter 5 contains consolidated lists of ALSE, support equipment, common and special tools, and materiel. The equipment manuals will also list necessary common tools required to perform maintenance in the maintenance allocation chart (MAC).

**Note:** At present, there are no standard or authorized ALSE tool kits in the Army inventory. Chapter 5 contains a list of recommended tools.

## SECTION II – OCCUPATIONAL AND HEALTH REQUIREMENTS

### ENVIRONMENTAL CONTROL STANDARDS

4-12. An adequate heating and air-conditioning system will be required in the ALSS shop to prevent damage to the equipment and supplies (especially medical supplies) from mildew, hot and cold extremes, and contamination caused by dust, dirt, and foreign material. The temperature range in the ALSS shop will be between 60°F and 75°F, 60 percent relative humidity and with the provision of filtered air. When the ALSS shop is deployed, shop establishment is crucial. The shop must meet requirements noted above, if possible, based on location and available work shelters and storage areas.

### PERSONAL HYGIENE

4-13. ALSS personnel should present a neat and clean appearance at all times. Smoking, eating, or drinking is not being permitted on or around workbenches. Personnel with skin diseases or contagious viral infections will not be allowed to work in the ALSS shop. Cleanliness is of the utmost importance when working with equipment. Unit safety personnel, along with a representatives from the flight surgeon's office, will periodically inspect the shop.

### SHOP SAFETY

4-14. Safety practices and procedures will be followed as specified in the U.S. Army Safety Program and unit SOPs. Specific safety precautions pertaining to flotation, survival, and medical and oxygen equipment are discussed in the reference publications for that piece of equipment. Appendix D covers shop safety while Appendix E covers risk management/risk assessment.

## Chapter 5

# ALSE, Air-Warrior Program Equipment, Support Equipment, and Common/Special Tools and Materials

Currently, the U.S. Army does not have a standardized tool kit for the ALSS personnel. This shortfall has been addressed, and an operational requirements document (ORD) is under development for designing, developing, obtaining, and fielding an ALSE tool kit. In the interim, this chapter recommends consolidated lists of ALSE end items, Air-Warrior Program equipment, support equipment, common and special tools, and materials. These lists will provide the unit ALSS maintenance program manager with the recommended ALSE, support equipment, common and special tools, and materials to have on hand, based on unit density, MTOE authorizations, and mission requirements.

## SECTION I – CONSOLIDATED LIST OF ALSS END ITEMS

### AVIATION LIFE SUPPORT EQUIPMENT END ITEMS

5-1. Table 5-1 provides a consolidated list of ALSE end items that your unit may require (according to CTA 50-900). The following ALSE end items are categorized by end item. They are listed by either their line item number (LIN) or the FSCN/NIIN (national stock number-NSN) and nomenclature.

**Note:** The LIN is provided in lieu of the NIIN for those end items having a LIN; thus, NSNs for specific end items must be researched using the LIN; for example, correct sizes. End items not having a LIN will be listed by their assigned NSN.

**Table 5-1. Consolidated List of ALSE End Items**

ENVIRONMENTAL LIFE SUPPORT AND PROTECTIVE SUBSYSTEM		
FLIGHT CLOTHING		
GLOVES, GS/FRP-2		
8415	01-482-8417	GLOVES, GS/FRP-2, SZ 4
8415	01-040-2012	GLOVES, GS/FRP-2, SZ 5
8415	01-040-1453	GLOVES, GS/FRP-2, SZ 6
LIN	J67052	GLOVES, GS/FRP-2, SZ 7 - SZ 11
8415	01-482-8420	GLOVES, GS/FRP-2, SZ 12
GLOVES, SHELL, FLIERS LEATHER BROWN, H6U/P,		
LIN	J67927	GLOVES, SHELLS, FLIER LEATHER BROWN
HELMETS		
HELMET, FLIERS, SPH-4B		
LIN	K34252	HELMET FLIERS, SPH-4B REG and XL

Table 5-1. Consolidated List of ALSE End Items (Continued)

<b>HELMET, FLIERS, HGU-56/P</b>		
LIN	H53107	HELMET FLIERS, HGU-56/P XXS - XL
TBD		ELECTRO-OPTICAL HELMET SIGHT SYSTEM (EOHSS) (HGU-56/P)
TBD		ELECTRO-MAGNETIC HELMET SIGHT SYSTEM (EMHSS) (HGU-56/P)
TBD		VIRTUAL RETINA DISPLAY (VRD) (HGU-56/P)
<b>HELMET UNIT INTEGRATED (IHADDs)</b>		
LIN	Z33570	HELMET UNIT, INTEGRATED, MED, LG, & XL
<b>NIGHT IMAGE DEVICES</b>		
5855	01-138-4748	AVIATOR/S NIGHT VISION IMAGING SYSTEM (ANVIS) AN/AVS-6(V)2
5855	01-138-4749	AVIATOR/S NIGHT VISION IMAGING SYSTEM (ANVIS) AN/AVS-6(V)1
<b>FLIGHT SUITS</b>		
<b>ABDU COAT</b>		
LIN	C68790	ABDU COAT, WOODLAND
LIN	C68722	ABDU COAT, TAN
<b>ABDU TROUSERS</b>		
LIN	T57006	ABDU TROUSERS, WOODLAND
LIN	T57074	ABDU TROUSERS, TAN
<b>COVERALL, CWU-27/P</b>		
LIN	F32055	COVERALL, CWU-27/P
<b>ENVIRONMENTAL CLOTHING</b>		
<b>DRAWERS, FLIERS' CWU-43/P</b>		
8415	00-467-4075	DRAWERS, FLIERS' CWU-43/P SML
8415	00-467-4076	DRAWERS, FLIERS' CWU-43/P MED
8415	00-467-7078	DRAWERS, FLIERS' CWU-43/P LGE
8415	00-467-4100	DRAWERS, FLIERS' CWU-43/P XLG
8415	01-043-4036	DRAWERS, FLIERS' CWU-43/P XSM
<b>DRAWERS, COLD WX, COTTON-WOOL</b>		
LIN	G49350	DRAWERS, COLD WX, COTTON-WOOL
<b>UNDERSHIRT, CW</b>		
LIN	X86839	UNDERSHIRT, COLD WEATHER, COTTON-WOOL
8415	00-197-2887	UNDERSHIRT, COLD WEATHER, COTTON-WOOL XLG
8415	00-197-2885	UNDERSHIRT, COLD WEATHER, COTTON-WOOL MED
8415	00-197-2886	UNDERSHIRT, COLD WEATHER, COTTON-WOOL LGE
8415	00-197-2888	UNDERSHIRT, COLD WEATHER, COTTON-WOOL XXL
<b>UNDERSHIRT, FLIERS', CWU-44/P</b>		
8415	00-485-6547	UNDERSHIRT, FLIERS' CWU-44/P XLG
8415	00-485-6548	UNDERSHIRT, FLIERS' CWU-44/P LGE
8415	00-485-6680	UNDERSHIRT, FLIERS' CWU-44/P MED
8415	00-485-6681	UNDERSHIRT, FLIERS' CWU-44/P SML
8415	01-043-8375	UNDERSHIRT, FLIERS' CWU-44/P XSM
<b>HOOD, FLIER'S</b>		
LIN	H68266	HOOD, FLIER'S
<b>JACKET, FLIER'S</b>		
LIN	L14520	JACKET, FLIER'S MEDIUM WT
	L14475	JACKET, FLIER'S LIGHT WT
LIN	J23732	JACKET, FLIER'S

Table 5-1. Consolidated List of ALSE End Items (Continued)

<b>LINER, FLIER'S JACKET</b>		
8415	01-010-1910	JACKET, CWU-36/P, LG
<b>JACKET, CWU-36/P</b>		
8415	01-010-1910	JACKET, CWU-36/P, LG
8415	01-010-1911	JACKET, CWU-36/P, MED
8415	01-010-1912	JACKET, CWU-36/P, SM
8415	01-010-1913	JACKET, CWU-36/P, XLG
<b>JACKET, CWU-45/P</b>		
LIN	14978	JACKET, CWU-45/P
<b>PARKA, EXT, COLD WEATHER</b>		
LIN	N70040	PARKA, EXT, COLD WEATHER TYPE N-3B
8415	00-118-7569	PARKA, EXT COLD WEATHER, SM
8415	00-118-7587	PARKA, EXT COLD WEATHER, XLG
8415	00-118-7574	PARKA, EXT COLD WEATHER, LGE
8415	00-118-7573	PARKA, EXT COLD WEATHER, MED
<b>PONCHO</b>		
8405	01-100-0976	PONCHO, WET WEATHER, CAMOUFLAGE
<b>AIRCREW COLD WEATHER CLOTHING SYSTEM (ACWCS)</b>		
<b>LINER, CAMOUFLAGE PATTERN COAT</b>		
8415	01-448-4250	LINER, CAMOUFLAGE PATTERN COAT XSM SHORT
8415	01-448-4309	LINER, CAMOUFLAGE PATTERN COAT XSM REG
8415	01-448-4580	LINER, CAMOUFLAGE PATTERN COAT XSM LONG
8415	01-448-4584	LINER, CAMOUFLAGE PATTERN COAT SML SHORT
8415	01-448-4597	LINER, CAMOUFLAGE PATTERN COAT SML REG
8415	01-448-4602	LINER, CAMOUFLAGE PATTERN COAT SML LONG
8415	01-448-4606	LINER, CAMOUFLAGE PATTERN COAT MED SHORT
8415	01-448-4613	LINER, CAMOUFLAGE PATTERN COAT MED REG
8415	01-448-4616	LINER, CAMOUFLAGE PATTERN COAT MED LONG
8415	01-448-4619	LINER, CAMOUFLAGE PATTERN COAT LGE SHORT
8415	01-448-4626	LINER, CAMOUFLAGE PATTERN COAT LGE REG
8415	01-448-4631	LINER, CAMOUFLAGE PATTERN COAT LGE LONG
8415	01-448-4636	LINER, CAMOUFLAGE PATTERN COAT XLG SHORT
8415	01-448-4642	LINER, CAMOUFLAGE PATTERN COAT XLG REG
8415	01-448-4649	LINER, CAMOUFLAGE PATTERN COAT XLG LONG
<b>LINER, CAMOUFLAGE PATTERN TROUSER</b>		
8415	01-448-4657	LINER, CAMOUFLAGE PATTERN TROUSER XSM SHORT
8415	01-448-4659	LINER, CAMOUFLAGE PATTERN TROUSER XSM REG
8415	01-448-4661	LINER, CAMOUFLAGE PATTERN TROUSER XSM LONG
8415	01-448-4717	LINER, CAMOUFLAGE PATTERN TROUSER SML SHORT
8415	01-448-4719	LINER, CAMOUFLAGE PATTERN TROUSER SML REG
8415	01-448-4723	LINER, CAMOUFLAGE PATTERN TROUSER SML LONG
8415	01-448-5129	LINER, CAMOUFLAGE PATTERN TROUSER MED SHORT
8415	01-448-5135	LINER, CAMOUFLAGE PATTERN TROUSER MED REG
8415	01-448-5138	LINER, CAMOUFLAGE PATTERN TROUSER MED LONG
8415	01-448-5140	LINER, CAMOUFLAGE PATTERN TROUSER LGE SHORT
8415	01-448-5144	LINER, CAMOUFLAGE PATTERN TROUSER LGE REG
8415	01-448-5236	LINER, CAMOUFLAGE PATTERN TROUSER LGE LONG
8415	01-448-5244	LINER, CAMOUFLAGE PATTERN TROUSER XLG SHORT
8415	01-448-5248	LINER, CAMOUFLAGE PATTERN TROUSER XLG REG
8415	01-448-5251	LINER, CAMOUFLAGE PATTERN TROUSER XLG LONG
<b>BALACLAVA, MOUNTED CREWMAN, ACWCS</b>		
LIN	H46881	BALACLAVA, MOUNTED CREWMAN, ACWCS
<b>HOOD, FLIER'S</b>		
LIN	H46812	HOOD, FLIER'S
<b>OVERALLS, COMBAT VEHICLE CREWMAN</b>		
LIN	P37820	OVERALLS, COMBAT VEHICLE CREWMAN

Table 5-1. Consolidated List of ALSE End Items (Continued)

<b>UNDERSHIRT, EXTREME COLD WEATHER</b>		
8415	00-270-2015	UNDERSHIRT, EXTREME COLD WEATHER XLG
8415	00-270-2014	UNDERSHIRT, EXTREME COLD WEATHER LGE
8415	00-270-2013	UNDERSHIRT, EXTREME COLD WEATHER MED
8415	00-270-2012	UNDERSHIRT, EXTREME COLD WEATHER SML
8415	01-051-1174	UNDERSHIRT, EXTREME COLD WEATHER XSM
<b>SOCKS, EXTREME COLD WEATHER</b>		
8415	01-057-3503	SOCKS, EXTREME COLD WEATHER XSM
8415	00-177-7994	SOCKS, EXTREME COLD WEATHER LGE
8415	00-177-7993	SOCKS, EXTREME COLD WEATHER MED
8415	00-177-7992	SOCKS, EXTREME COLD WEATHER SML
<b>GLOVES, ACWCS</b>		
8415	01-446-9247	GLOVES, FLIERS SZ 5
8415	01-446-9248	GLOVES, FLIERS SZ 6
8415	01-446-9252	GLOVES, FLIERS SZ 7
8415	01-446-9253	GLOVES, FLIERS SZ 8
8415	01-446-9254	GLOVES, FLIERS SZ 9
8415	01-446-9256	GLOVES, FLIERS SZ 10
8415	01-446-9259	GLOVES, FLIERS SZ 11
<b>KIT, BAG, FLIERS</b>		
LIN	L27088	KIT, BAG, FLIERS, COTTON DUCK, SAGE GREEN
<b>CHEM SUITS</b>		
<b>BATTLE DRESS OVERGARMENT (BDO)</b>		
TBD		AIRCREW UNIFORM, INTEGRATED BATTLEFIELD (AUIB)
TBD		CHEMICAL PROTECTIVE UNDERGARMENT (CPU)
TBD		GLOVES, CHEMICAL
TBD		JOINT PROTECTIVE AIRCREW CLOTHING ENSEMBLE (JPACE)
<b>HOODS, ANTIFLASH, FLAME RESISTANT</b>		
LIN	H35250	HOOD, ANTIFLASH, FLAME RESISTANT
<b>BOOTS</b>		
LIN	C06749	BOOTS, COMBAT, LEATHER, BLACK, MILDEW RESISTANT
LIN	07743	BOOTS, FLIERS, MEN'S LEATHER BLACK INSULATED
<b>AIRCREW BODY ARMOR</b>		
<b>INSERT, SMALL ARMS, UPPER BACK TORSO</b>		
8470	00-935-3168	INSERT, SMALL ARMS, SHORT, UPPER BACK TORSO
8470	00-935-3169	INSERT, SMALL ARMS, REG, UPPER BACK TORSO
8470	00-935-3174	INSERT, SMALL ARMS, SHORT, UPPER BACK TORSO
8470	00-935-3175	INSERT, SMALL ARMS, REG, UPPER BACK TORSO
8470	00-935-3176	INSERT, SMALL ARMS, LONG, UPPER BACK TORSO
<b>INSERT, SMALL ARMS, UPPER FRONT TORSO</b>		
8470	00-935-3177	INSERT, SMALL ARMS, SHORT, UPPER FRONT TORSO
8470	00-935-3178	INSERT, SMALL ARMS, REG, UPPER FRONT TORSO
8470	00-935-3179	INSERT, SMALL ARMS, LONG, UPPER FRONT TORSO
<b>BODY ARMOR, SMALL ARMS, UPPER TORSO, FRONT</b>		
8470	00-935-3180	BODY ARMOR, SMALL ARMS, SHORT, UPPER TORSO, FRONT
8470	00-935-3181	BODY ARMOR, SMALL ARMS, REG, UPPER TORSO, FRONT
8470	00-935-3182	BODY ARMOR, SMALL ARMS, LONG, UPPER TORSO, FRONT
8470	00-935-3183	BODY ARMOR, SMALL ARMS, SHORT, UPPER TORSO, FRONT
8470	00-935-3184	BODY ARMOR, SMALL ARMS, REG, UPPER TORSO, FRONT
8470	00-935-3185	BODY ARMOR, SMALL ARMS, LONG, UPPER TORSO, FRONT
<b>BODY ARMOR, SMALL ARMS, FRONT AND BACK TORSO</b>		
8470	00-935-3192	BODY ARMOR, SMALL ARMS, SHORT, FRONT AND BACK TORSO
8470	00-935-3193	BODY ARMOR, SMALL ARMS, REG, FRONT AND BACK TORSO



Table 5-1. Consolidated List of ALSE End Items (Continued)

8470	00-935-3194	BODY ARMOR, SMALL ARMS, LONG, FRONT AND BACK TORSO
8470	00-935-3195	BODY ARMOR, SMALL ARMS, SHORT, FRONT AND BACK TORSO
8470	00-935-3196	BODY ARMOR, SMALL ARMS, REG, FRONT AND BACK TORSO
8470	00-935-3197	BODY ARMOR, SMALL ARMS, LONG, FRONT AND BACK TORSO
<b>BODY ARMOR (SARVIP)</b>		
8470	01-359-0436	BODY ARMOR (SARVIP)
<b>BODY ARMOR, SMALL ARMS, FRONT ASSY, HARD INSERT</b>		
LIN	B28055	BODY ARMOR, SMALL ARMS, LGE, FRONT ASSY, HARD INSERT
8470	01-442-1984	BODY ARMOR, SMALL ARMS, LGE, FRONT ASSY, HARD INSERT
LIN	B28055	BODY ARMOR, SMALL ARMS, MED, FRONT ASSY, HARD INSERT MD
<b>SOFT BODY ARMOR (AIRSAVE)</b>		
LIN	B28055	SOFT BODY ARMOR (AIRSAVE), MED
LIN	B28055	SOFT BODY ARMOR (AIRSAVE), LGE
<b>INSERT, SMALL ARMS, FRONT AND BACK W/OUT SPALL COVER</b>		
8470	01-441-2995	INSERT, SMALL ARMS, MED, FRONT AND BACK W/OUT SPALL COVER
8470	01-441-2997	INSERT, SMALL ARMS, LGE, FRONT AND BACK W/OUT SPALL COVER
<b>BODY ARMOR, SMALL ARMS, BACK ASSY, HARD INSERT</b>		
LIN	B27987	BODY ARMOR, SMALL ARMS, MED, BACK ASSY, HARD INSERT
LIN	B27987	BODY ARMOR, SMALL ARMS, LGE, BACK ASSY, HARD INSERT
<b>ENVIRONMENTAL CONTROL ITEMS</b>		
<b>ENVIRONMENTAL CONTROL SYSTEMS</b>		
TBD		MICROCLIMATIC COOLING UNIT (MCU)
TBD		MICROCLIMATIC COOLING GARMENT (MCG)
<b>OXYGEN SYSTEMS</b>		
<b>ONBOARD EQUIPMENT</b>		
<i>HELICOPTER OXYGEN SYSTEM</i>		
1660	01-224-6945	HELICOPTER OXYGEN SYSTEM, UH-1
1660	01-224-6947	HELICOPTER OXYGEN SYSTEM, UH-60
1660	01-224-6943	HELICOPTER OXYGEN SYSTEM, CH-47, FWD
1660	01-224-6944	HELICOPTER OXYGEN SYSTEM, CH-47, AFT
<b>OXYGEN BOTTLES</b>		
1730	00-435-7817	OXYGEN SERVICE UNIT, AIRMOBILE, 8-BOTTLE
6830	00-808-9531	OXYGEN, AVIATOR'S BREATHING
6830	01-258-7020	OXYGEN, AVIATOR'S BREATHING
6830	01-169-4836	OXYGEN, AVIATOR'S BREATHING
6830	01-169-3977	OXYGEN, AVIATOR'S BREATHING
6830	00-290-4290	OXYGEN, AVIATOR'S BREATHING
6830	00-782-2639	OXYGEN, AVIATOR'S BREATHING
6830	00-015-8906	OXYGEN, AVIATOR'S BREATHING
<b>OXYGEN HOSES</b>		
4720	01-141-2928	SUPPLY HOSE, 98 INCH
1660	01-140-4396	VALVE ASSY, PORTABLE OXYGEN SYS (AIROX IIX)
1660	01-349-7603	ADAPTER, OXYGEN CHARGING ASSY
1660	01-368-7799	VALVE, SHUTOFF, OXYGEN
<b>OXYGEN MASKS</b>		
<b>MASK, OXYGEN, AVIATOR'S MBU-12/P</b>		
LIN	M13241	PRESSURE DEMAND OXYGEN MASK, MBU-12/P

Table 5-1. Consolidated List of ALSE End Items (Continued)

<b>PROTECTIVE MASKS</b>		
<b>CB PROTECTIVE MASKS</b>		
<b>PROTECTIVE MASK, M43 TYPE I</b>		
LIN	M12350	PROTECTIVE MASK, M43 TYPE I
<b>PROTECTIVE MASK, M43 TYPE II</b>		
LIN	M12350	PROTECTIVE MASK, M43 TYPE II
<b>PROTECTIVE MASK, M45</b>		
LIN	M12736	PROTECTIVE MASK, M45
<b>THERMOPLASTIC LINER, M45-HGU56/P</b>		
4240	01-456-4510	THERMOPLASTIC LINER XSM
4240	01-456-4509	THERMOPLASTIC LINER SM
4240	01-455-4512	THERMOPLASTIC LINER MED
4240	01-415-4511	THERMOPLASTIC LINER LGE
4240	01-415-4516	THERMOPLASTIC LINER XLG
<b>PROTECTIVE MASK, M48</b>		
LIN	M13515	PROTECTIVE MASK, M48
<b>PROTECTIVE MASK, M49</b>		
LIN	M13583	PROTECTIVE MASK, M49
<b>JOINT SERVICE AIRCREW MASK (JSAM), M45/HU56</b>		
TBD		JOINT SERVICE AIRCREW MASK (JSAM), M45/HU56
<b>EYE PROTECTION</b>		
<b>VISORS AND GLASSES</b>		
<b>HGU-56/P</b>		
8415	01-394-8026	HGU-56/P 2-NOTCH VISOR (NIGHT) GREEN
8415	01-394-8024	HGU-56/P 3-NOTCH VISOR (DAY) AMBER
8415	01-394-8031	HGU-56/P INNER CLEAR VISOR
8415	01-394-8022	HGU-56/P OUTER GRAY VISOR
<b>INTEGRATED HELMET DISPLAY SIGHT SYSTEM (IHADSS)</b>		
1270	00-119-1093	IHADSS CLEAR
1270	01-193-4986	IHADSS TINTED
TBD		IHADSS 2-NOTCH
TBD		IHADSS 3-NOTCH
TBD		JOINT SERVICE AIRCREW ADVANCED LASER EYE-PROTECTION VISOR (JALEPV)
<b>CLEAR AND TINTED VISORS AND SUNGLASSES</b>		
LIN	J611447	SUNGLASSES, SPECTACLE, OVAL GLASS DOUBLE APERTURE
LIN	J611447	SUNGLASSES, MAN'S CHROME
<b>HEARING PROTECTION</b>		
6515	00-137-6345	PLUGS, EAR, HEARING PROTECTION (BX 400 EA)
<b>SUPPORT EQUIPMENT</b>		
<b>FLASHLIGHTS</b>		
6240	01-362-4902	MIC LIGHT
6230	01-369-1658	FLASHLIGHT FILTER, 1.715 INCH
6230	01-369-1659	FLASHLIGHT FILTER, 1 INCH
6230	01-369-1657	FLASHLIGHT FILTER, .895 INCH
6230	01-259-4495	AA FLASHLIGHT
6230	01-393-2365	ANVIS COMPATIBLE FLASHLIGHT FILTER W/BOOT
6230	01-397-6341	FLASHLIGHT, PHANTOM LIGHT, BASIC
<b>HEADSETS</b>		
5965	01-488-4332	COMMUNICATION EAR PLUG MODIFICATION KIT
TBD		ACTIVE NOISE REDUCTION (ANR)
<b>FIRST AID KITS</b>		
6545	00-853-6309	FIRST AID KIT, EYE DRESSING
6545	01-094-8412	FIRST AID KIT, INDIVIDUAL
6545	00-919-6650	FIRST AID KIT, GENERAL PURPOSE

Table 5-1. Consolidated List of ALSE End Items (Continued)

<b>RESTRAINT DEVICES</b>		
<b>SAFETY RESTRAINT HARNESS</b>		
1680	00-169-0656	HARNESS, AIRCRAFT SAFETY, PERSONNEL
1680	00-982-9973	SAFETY VEST ASSEMBLY, HOIST OPERATOR
8415	01-442-1991	AIRCREW VEST, AIRSAVE
<b>INFLATABLE BODY AND HEAD RESTRAINTS</b>		
TBD		INFLATABLE BODY AND HEAD RESTRAINT SYSTEM (IBAHRS)
<b>ESCAPE AND DESCENT LIFE SUPPORT SUBSYSTEM</b>		
<b>MANUAL ESCAPE DEVICES</b>		
<b>CRASH RESCUE AXES</b>		
4240	01-225-7910	AX, EMERGENCY ESCAPE AND RESCUE
4240	00-357-5247	AX, EMERGENCY ESCAPE AND RESCUE
<b>SURVIVAL RECOVERY LIFE SUPPORT SUBSYSTEM</b>		
<b>SURVIVAL CLOTHING</b>		
<b>ANTIEXPOSURE SUITS</b>		
<b>ANTIEXPOSURE SUIT, CWU-16/P</b>		
LIN	C32648	ANTIEXPOSURE SUIT, CWU-16/P
<b>ANTIEXPOSURE SUIT, CWU-21/P</b>		
8475	00-123-9090	CWU-21/P SIZE 1
8475	00-123-9091	CWU-21/P SIZE 2
8475	00-123-9094	CWU-21/P SIZE 3
8475	00-123-9095	CWU-21/P SIZE 4
8475	00-123-9096	CWU-21/P SIZE 5
8475	00-123-9097	CWU-21/P SIZE 6
8475	00-123-9098	CWU-21/P SIZE 7
8475	00-123-9099	CWU-21/P SIZE 8
8475	00-123-9100	CWU-21/P SIZE 9
8475	00-123-9101	CWU-21/P SIZE 10
8475	00-123-9102	CWU-21/P SIZE 11
8475	00-123-9103	CWU-21/P SIZE 12
<b>SOCKS, ANTIEXPOSURE USED WITH CWU-21/P</b>		
8475	01-086-0206	SOCK, ANTIEXPOSURE LGE
8475	01-087-3456	SOCK, ANTIEXPOSURE MED
<b>ANTIEXPOSURE SUIT, CWU-21A/P</b>		
8475	01-094-8919	CWU-21A/P SZ 1
8475	01-094-8921	CWU-21A/P SZ 2
8475	01-094-8926	CWU-21A/P SZ 3
8475	01-094-8927	CWU-21A/P SZ 4
8475	01-094-8923	CWU-21A/P SZ 5
8475	01-094-8924	CWU-21A/P SZ 6
8475	01-094-8925	CWU-21A/P SZ 7
8475	01-099-6892	CWU-21A/P SZ 8
8475	01-094-8920	CWU-21A/P SZ 9
8475	01-095-2394	CWU-21A/P SZ 10
8475	01-094-8922	CWU-21A/P SZ 11 (RPL BY 8475-00-123-9102)
8475	01-095-1823	CWU-21A/P SZ 12
<b>UNDERWEAR BATTED, CWU-22/P (End Item: CWU-21A or CWU-21A/P)</b>		
LIN	U87500	CWU-22/P
<b>ANTIEXPOSURE COVERALL, CWU-62/</b>		
8475	01-388-0920	CWU-62B/P SZ 3
8475	01-388-0922	CWU-62B/P SZ 12
8475	01-388-0924	CWU-62B/P SZ 11
8475	01-388-0928	CWU-62B/P SZ 1
8475	01-388-0934	CWU-62B/P SZ 4
8475	01-388-0937	CWU-62B/P SZ 9
8475	01-388-0962	CWU-62B/P SZ 6

Table 5-1. Consolidated List of ALSE End Items (Continued)

8475	01-388-0963	CWU-62B/P SZ 7
8475	01-388-0966	CWU-62B/P SZ 10
8475	01-388-0969	CWU-62B/P SZ 8
8475	01-388-0971	CWU-62B/P SZ 5
8475	01-388-0976	CWU-62B/P SZ 2
<b>UNDERWEAR BATTED, CWU-75/P P (End Item: CWU-62/P)</b>		
8475	01-412-0949	SOCKS, ANTIEXPOSURE SZ 3
8475	01-316-6041	SOCKS, ANTIEXPOSURE SZ 4
8475	01-317-7802	SOCKS, ANTIEXPOSURE SZ 5
8475	01-315-9400	SOCKS, ANTIEXPOSURE SZ 6
8475	01-316-1887	SOCKS, ANTIEXPOSURE SZ 7
8475	01-316-1888	SOCKS, ANTIEXPOSURE SZ 8
8475	01-316-1889	SOCKS, ANTIEXPOSURE SZ 9
8475	01-315-9401	SOCKS, ANTIEXPOSURE SZ 10
8475	01-315-9402	SOCKS, ANTIEXPOSURE SZ 11
8475	01-315-9403	SOCKS, ANTIEXPOSURE SZ 12
8475	01-311-0315	SOCKS, ANTIEXPOSURE SZ 13
8475	01-412-0948	SOCKS, ANTIEXPOSURE SZ 14
8475	01-412-0951	SOCKS, ANTIEXPOSURE SZ 15
<b>LINER, ANTIEXPOSURE, CWU-72/P P (End Item: CWU-62/P)</b>		
8475	01-204-9145	LINER, ANTIEXPOSURE, SR
8475	01-204-2640	LINER, ANTIEXPOSURE, XLR
8475	01-237-7846	LINER, ANTIEXPOSURE, SL
8475	01-237-7847	LINER, ANTIEXPOSURE, ML
8475	01-237-7848	LINER, ANTIEXPOSURE, LL
<b>ANTIEXPOSURE WRIST SEALS P (End Item: CWU-62/P)</b>		
8475	01-315-9428	SEAL, WRIST, FLIERS' ANTIEXPOSURE SZ1
8475	01-312-3144	SEAL, WRIST, FLIERS' ANTIEXPOSURE SZ1
8475	01-312-3145	SEAL, WRIST, FLIERS' ANTIEXPOSURE SZ1
8475	01-311-2831	SEAL, WRIST, FLIERS' ANTIEXPOSURE SZ1
<b>SOCKS, MEN: RUBBER (End Item: CWU-62/P)</b>		
8475	00-435-9658	SOCKS MEN'S: RUBBER, SRU-25, SZ 10
8475	00-435-9655	SOCKS MEN'S: RUBBER, SRU-25, SZ 11-1/2
8475	00-435-9659	SOCKS MEN'S: RUBBER, SRU-25, SZ 12
8475	00-435-9652	SOCKS MEN'S: RUBBER, SRU-25, SZ 5-1/2
8475	00-435-9656	SOCKS MEN'S: RUBBER, SRU-25, SZ 6
8475	00-435-9653	SOCKS MEN'S: RUBBER, SRU-25, SZ 7-1/2
8475	00-435-9657	SOCKS MEN'S: RUBBER, SRU-25, SZ 8
8475	00-435-9654	SOCKS MEN'S: RUBBER, SRU-25, SZ 9-1/2
<b>MUSTANG SURVIVAL (Commercially Available)</b>		
	MAC-10	ANTIEXPOSURE SUIT, MAC 10 (17 SIZES)
	MAC-100	ANTIEXPOSURE SUIT, MAC 100 (17 SIZES)
	MAC-200	ANTIEXPOSURE SUIT, MAC 200 (XS, S, M, L, XL)
	MA7105	CARRYING CASE FOR MAC SUITS
	MA7145	NOMEX™ OUTER SHELL FOR MAC-200 (XS, S, M, L, XL)
	MA7146	THERMAL LINER FOR THE MAC-200 (XS, S, M, L, XL)
	MA7147	IMMERSION MODULE FOR THE MAC-200 (XS, S, M, L, XL)
	MA7148	NEOPRENE HOOD FOR MAC-200
	MA7149	INFLATABLE SURVIVAL MITTS FOR MAC-100 & MAC-200
<b>UNDERWATER BREATHING APPARATUS</b>		
TBD		HELICOPTER AIRCREW BREATHING DEVICE (HABD), SRU-40B/P
TBD		HELICOPTER EMERGENCY EGRESS DEVICE (HEED) SRU-36/P
4220	01-482-7389	SURVIVAL EGRESS AIR (SEA MK 2)

Table 5-1. Consolidated List of ALSE End Items (Continued)

<b>DISTRESS INCIDENT LOCATORS</b>		
<b>VISUAL SIGNAL DEVICES</b>		
6350	00-105-1252	MIRROR, EMERGENCY SIGNALING, ACRYLIC 2X3
6350	00-261-9772	MIRROR, EMERGENCY SIGNALING, ACRYLIC 3X5
6350	01-455-6671	MIRROR, EMERGENCY SIGNALING, GLASS 2X3
6350	01-455-6695	MIRROR, EMERGENCY SIGNALING, GLASS 3X5
4240	01-451-8752	SEA RESCUE SAR 6/25 (STREAMER)
4240	01-451-8756	SEA RESCUE SAR 6/40 (STREAMER)
4240	01-451-8760	SEA RESCUE SAR 11/40 (STREAMER)
4240	01-451-8761	SEA RESCUE SAR 11/18 (STREAMER)
1370	00-490-7362	SIGNAL KIT, PERSONNEL DISTRESS (LIN S51530)
1370	00-319-7560	SIGNAL KIT (L116) TYPE 185 (LIN T51271)
1370	00-921-6172	SIGNAL KIT (L116) TYPE 185 (LIN T51271)
<b>FLARES</b>		
1370	01-030-8330	SMOKE & ILLUMINATION, MK-24
1370	00-309-5028	SMOKE & ILLUMINATION, MK-13
6850	00-270-9986	SEA DYE MARKER (BX 12 EA)
<b>STROBE LIGHTS</b>		
6230	00-067-5209	STROBE LIGHT SDU-5/E
6135	00-073-8939	BATTERY NONRECHARGEABLE, MERCURY
6230	01-378-4077	LIGHT MARKER DISTRESS ACR/MS-2000 (FIREFLY)
6230	01-411-8535	LIGHT MARKER DISTRESS ACR/MS-2000M (FIREFLY)
6230	01-448-8340	LIGHT MARKER DISTRESS ACR/MS-2000M W/POUCH (FIREFLY)
6135	00-985-7845	BATTERY NONRECHARGEABLE, ALKALINE AA (PG 24 EA)
<b>GROUND SIGNALING PANELS</b>		
8340	00-485-3012	TARPAULIN, NYLON, GREY/YELLOW
<b>AUDIBLE SIGNAL DEVICES</b>		
8465	00-254-8803	WHISTLE, BALL, PLASTIC
<b>SEARCH AND RESCUE RADIOS</b>		
<b>RADIO, AN/PRC-90</b>		
LIN	Q38335	RADIO, AN/PRC-90
5820	01-158-6082	RADIO, AN/PRC-90-1
LIN	Q38335	RADIO, AN/PRC-90-2
<b>RADIO, AN/PRC-112</b>		
LIN	R82903	RADIO, AN/PRC-112
5820	01-280-2117	RADIO, AN/PRC-112-A
LIN	R82903	RADIO, AN/PRC-112C
6135	01-235-4168	BATTERY, BA-5112
6135	01-439-6229	BATTERY, BA-5112A (PG 4 EA)
LIN	P04582	PROGRAM LOADER KY-913/PRC-112
TBD		SOLAR PANEL (PRC-112)
TBD		THERMO-PHOTOVOLTAIC (PRC-112)
<b>COMBAT SURVIVOR/EVADER LOCATOR (CSEL)</b>		
TBD		RADIO, AN/PRQ-7 (CSEL)
TBD		RADIO SET ADAPTER, J-6431/PRQ-7 (CSEL)
TBD		GPS ANTENNA (CSEL)
TBD		ANTENNA COUPLER (CSEL)
TBD		CSEL PLANNING COMPUTER
<b>RESCUE EQUIPMENT</b>		
<b>RESCUE HARNESS</b>		
TBD		SAFETY RESTRAINT TETHER (SRT)
4240	01-134-9993	HARNESS, MOUNTAIN CLIMBING-RESCUE

Table 5-1. Consolidated List of ALSE End Items (Continued)

<b>RESCUE SEAT FOREST PENETRATOR</b>		
4240	01-453-0241	SEAT ASSEMBLY, RESCUE, PENETRATOR
<b>SURVIVAL KITS AND VESTS</b>		
<b>SURVIVAL KITS</b>		
LIN	U72412	SURVIVAL KIT, COLD
LIN	U72549	SURVIVAL KIT, HOT
LIN	U72686	SURVIVAL KIT, OVERWATER
1680	01-362-6323	TWO CREW MEMBER MODULE (AMSS)
1680	01-362-6324	FOUR CREW MEMBER MODULE (AMSS)
1680	01-362-6325	TOW TUBE SURVIVAL KIT (AMSS)
<b>AIRCREW MODULAR SURVIVAL SYSTEM</b>		
LIN	S72943	AIRCRAFT MODULAR SURVIVAL SYSTEM 2 CREW MEMBER MODULE
LIN	S72693	AIRCRAFT MODULAR SURVIVAL SYSTEM 4 CREW MEMBER MODULE
4220	01-181-3154	FISHING KIT, EMERGENCY
4220	00-125-8751	FISHING KIT, EMERGENCY
4220	00-244-0764	FISHING KIT, EMERGENCY
4220	00-594-0027	SURVIVAL KIT, AIR-SEA RESCUE
<b>AIRCREW VEST, AIRSAVE</b>		
LIN	V02209	AIRCREW VEST, AIRSAVE
8415	01-441-1693	POCKET, RADIO, SURVIVAL VEST
8415	01-441-3298	POCKET, KNIFE, SURVIVAL VEST (AIRSAVE)
8415	01-441-3299	POCKET, PISTOL, SURVIVAL VEST (AIRSAVE)
8415	01-442-1988	POCKET, GENERAL, SURVIVAL VEST (AIRSAVE) (RQD 5 EA)
8415	01-441-3293	POCKET, HEED
8415	01-441-3294	POCKET, HEED
1680	01-382-7707	HEED BOTTLE POCKET AND COVER ASSY
<b>AIRCREW VEST, SARVIP</b>		
LIN	S73072	AIRCREW VEST, SARVIP, KIT
<b>AIRCREW VEST, SRU-21/P</b>		
LIN	U72733	SURVIVAL KIT, INDIVIDUAL VEST TYPE SRU-21/P
<b>SURVIVAL WEAPONS</b>		
5110	00-162-2205	MC-1 POCKET KNIFE
5110	01-346-5341	MULTIPLIERS, GERBER (BLACK)
5110	01-346-5339	MULTIPLIERS, GERBER (STEEL)
5110	01-279-9332	MULTIPLIERS, LEATHERMAN
7340	00-098-4327	SURVIVAL KNIFE
<b>FOOD PACKETS</b>		
8970	00-082-5665	FOOD PACKET, SURVIVAL
8970	01-028-9406	FOOD PACKET, SURVIVAL
8970	01-434-3192	FOOD PACKET, SURVIVAL
<b>WATER PACKS</b>		
<b>DESALTER KIT</b>		
4610	00-372-0592	DESALTER KIT, SEA WATER
<b>WATER, DRINKING</b>		
8960	00-916-4201	WATER, DRINKING, CANNED
8960	01-124-4543	WATER, DRINKING, EMERGENCY
8960	01-341-6076	WATER, DRINKING, EMERGENCY
8960	01-319-4703	WATER, DRINKING, EMERGENCY

**Table 5-1. Consolidated List of ALSE End Items (Concluded)**

<b>SLEEPING BAGS</b>		
8465	01-131-7921	BAG, SLEEPING
7210	01-463-5431	EMERGENCY BLANKET
7210	00-935-6666	BLANKET, THERMAL, SILVER/OLIVE DRAB
7210	00-935-6667	BLANKET, THERMAL, SILVER/ORANGE
<b>FLOATATION EQUIPMENT</b>		
<b>LIFE PRESERVERS</b>		
4240	00-850-8655	LIFE PRESERVER LPU-10/P
1680	01-468-7741	LIFE PRESERVER LPFC 34/P
<b>RAFTS</b>		
4220	00-118-6122	LIFE RAFT, LR-1
4220	01-003-6763	LIFE RAFT, LRU-16/P
4220	01-056-8667	LIFE RAFT, LRU-17/P
LIN	L58497	LIFE RAFT, LRU 13/A
4220	01-272-8004	LIFE RAFT, LRU-18/U
4220	01-364-4480	SURVIVAL KIT, LIFE RAFT (LRU-18U)

## SECTION II – AIR WARRIOR PROGRAM

### AIR WARRIOR EQUIPMENT

#### SYSTEM OVERVIEW

5-2. The Air Warrior (AW) consists of components effectively integrated to maximize human performance. The goal is to ensure that aviators and crew members are able to safely operate the aircraft unencumbered by the equipment worn.

#### SYSTEM DESCRIPTION

5-3. The AW is the first integrated soldier system for all Army helicopter crewmembers and provides modular life-support equipment that can be tailored for all operational and climactic environments to include over-water and chemical/biological areas. The AW system provides increased personal protection while decreasing weight and bulk. In hot chemical/biological environments, AW aircrews have improved flight time in MOPP-4 clothing from 1.6 hours to 5.3 hours (330 percent). AW systems /components include a Microclimate Cooling System (MCS), a Survival Equipment Subsystem, a Modular Integrated Helmet Display System (MIHDS), an Over-Water Survival Subsystem, NBC protection, and aviation clothing items. The MCS includes a microclimate cooling garment (MCG) that is worn against the soldier's torso and a microclimate cooling unit (MCU) on the aircraft that chills water and pumps it through small tubes embedded in the MCG. The Survival Equipment Subsystem includes a survival gear carrier with integrated extraction harness, .30 caliber API ballistic protection, M9 (9 millimeter) defensive weapon with thigh holster, PRC90/PRC112 radios, and survival knife in ankle sheath. The MIHDS includes laser eye protection and a night-vision device mount. The Over-Water Survival Subsystem includes a low-profile personal flotation device, an inflatable raft (LRU-18U), and an emergency underwater breathing device. NBC protection includes a modified

chemical protective undergarment, M45 or M48 protective mask, gloves, and overboots. Aviation clothing items include the modified aviation battle dress uniform (ABDU) and the Aircrew Cold Weather System (ACWS). The AW is a new generation of integrated, mission-tailorable, combat-effective life support equipment that improves aircrew endurance, mobility, and performance.

## OPERATIONAL REQUIREMENTS

5-4. AW facilitates full-spectrum dominance by providing the capability to use the full performance of the aviation platform. AW counters the use of asymmetrical strategies that could prevent or disrupt aviation operations. AW addresses the seven measures of effectiveness of the objective force: responsiveness, deployability, agility, versatility, lethality, survivability, and sustainability.

## FUNCTIONS

5-5. Table 5-2 contains information about Air Warrior equipment functions, system interfaces, system supportability, and environmental characteristics.

**Table 5-2. Air Warrior Equipment Functions**

<b>Equipment Functions</b>	
<b>Lethality</b>	<ul style="list-style-type: none"> <li>Improves mission duration by 330% from 1.6 hours duration to 5.3 hours in MOPP-4.</li> <li>Extends range of attack and air assault missions from 50 NM to 300 NM in MOPP-4.</li> </ul>
<b>Survivability</b>	<ul style="list-style-type: none"> <li>Ballistic protection from small-arms fire and fragmentation hits.</li> <li>Laser eye protection.</li> <li>Chemical and biological protective equipment compatibility.</li> </ul>
<b>Mobility</b>	<ul style="list-style-type: none"> <li>Day and night vision enhancement.</li> <li>Display of required travel direction to include waypoints and number of routes.</li> <li>Map-oriented selection of routes and waypoints.</li> <li>Integrated navigation consisting of Global Positioning System (GPS) and dead reckoning module.</li> </ul>
<b>Command, Control, and Communications</b>	<ul style="list-style-type: none"> <li>Voice, menu, and alphanumeric inputs.</li> <li>Audio, video, maps, and graphics outputs.</li> <li>Digital audio and digital messaging.</li> <li>Purge sensitive operational data.</li> <li>Active power management.</li> </ul>
<b>Situational Awareness</b>	<ul style="list-style-type: none"> <li>SA database containing information about adjacent soldiers, friendly units, enemy forces, obstacles, and targets.</li> <li>Manual updates of SA data on mission.</li> <li>Display SA data in map and graphics formats.</li> <li>Automatically generate position reports.</li> <li>Map-oriented creation of overlays.</li> <li>Automatic calculation of route time and leg time, with time remaining.</li> </ul>



	<ul style="list-style-type: none"> <li>• Mission data transfer.</li> </ul>
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**Table 5-2. Air Warrior Equipment Functions (Concluded)**

<b>AW System Interfaces</b>	
<b>Hardware and Subsystem Interfaces</b>	<ul style="list-style-type: none"> <li>• Aircraft interfaces (compatible with cockpits of CH-47 Chinook, UH-60 Black Hawk; AH-64 Apache, and OH-58 Kiowa Warrior)</li> <li>• Primary survival gear carrier.</li> <li>• Microclimate Cooling System.</li> <li>• Overwater gear carrier with integrated raft.</li> <li>• Flexible body armor with ballistic upgrade plates.</li> </ul>
<b>System Software and Data Interfaces</b>	<ul style="list-style-type: none"> <li>• Interfaces with Aviation Mission Planning System.</li> </ul>
<b>AW System Supportability</b>	
<b>Weight:</b>	<ul style="list-style-type: none"> <li>• Does not increase the weight of the current equipment.</li> </ul>
<b>Power Sources:</b>	<ul style="list-style-type: none"> <li>• Utilizes aircraft power or disposable batteries.</li> </ul>
<b>Maintenance:</b>	<ul style="list-style-type: none"> <li>• Two-level Army maintenance and support structure.</li> </ul>
<b>MANPRINT</b>	<ul style="list-style-type: none"> <li>• Does not require new MOSs.</li> </ul>
<b>Safety</b>	<ul style="list-style-type: none"> <li>• Certified for U.S. Army helicopter operations.</li> </ul>
<b>Training</b>	<ul style="list-style-type: none"> <li>• New equipment training for all operators &amp; maintainers.</li> </ul>
<b>AW Environmental Characteristics</b>	
<b>Temperature</b>	<ul style="list-style-type: none"> <li>• -32°C to +52°C (-25°F to +125°F).</li> </ul>
<b>Altitude</b>	<ul style="list-style-type: none"> <li>• Sea level to 25,000 feet</li> </ul>

5-6. Table 5-3 will provide a list of Air Warrior Program equipment that your unit may require. This list will be implemented with a change. Table 5-4 provides additional information on the major components of Air Warrior.

**Table 5-3. Air Warrior Equipment List**

<b>FSCN</b>	<b>NIIN</b>	<b>Component</b>

Table 5-4. Air Warrior

Air Warrior	
<b>Survival Equipment Subsystem</b>	<ul style="list-style-type: none"> <li>• Primary survival gear carrier.</li> <li>• Survival gear.</li> <li>• Soft body armor with .30-cal hard insert.</li> <li>• Current M9 (9mm)—defense weapon.</li> <li>• Thigh holster.</li> <li>• PRC 90/PRC 112 radios.</li> </ul>
<b>NBC Protection</b>	<ul style="list-style-type: none"> <li>• M45 protective mask with blower.</li> <li>• M48 protective mask.</li> <li>• Modified chemical protective undergarment, gloves and overboots.</li> </ul>
<b>Microclimate Cooling System (MCS)</b>	<ul style="list-style-type: none"> <li>• Microclimate cooling garment (MCG).</li> <li>• Microclimate cooling unit (MCU).</li> </ul>
<b>Modular Integrated Helmet Display System (MIHDS)</b>	<ul style="list-style-type: none"> <li>• HGU-56/P/IHADSS.</li> <li>• Communications earplug (HGU-56/P).</li> <li>• Laser eye protection.</li> <li>• Night vision goggles.</li> </ul>
<b>Over Water Missions</b>	<ul style="list-style-type: none"> <li>• Antiexposure suit</li> <li>• Overwater gear carrier with integrated raft (LRU-18U).</li> <li>• Survival egress air (SEA).</li> <li>• Floatation collar.</li> </ul>
<b>Clothing Items</b>	<ul style="list-style-type: none"> <li>• Modified ABDU.</li> <li>• Aircrew Cold Weather System.</li> </ul>
<b>Quick-Disconnect Wiring Assembly</b>	<ul style="list-style-type: none"> <li>• OH-58D only.</li> </ul>

## PRIMARY SURVIVAL GEAR CARRIER

5-7. The primary survival gear carrier (PSGC) is a survival vest with an integrated extraction harness. The vest is made of Rachel knit fire-retardant treated nylon. It has 12 pockets (8 outside and 4 inside). These pockets accommodate all essential survival, signaling, and communications equipment. Mission-essential items include, but are not limited to, compass, mirror, radio, smoke and illumination devices, signal kit, operation manual, and survival packets (medical and basic). Pouches are attached for other ancillary equipment. For emergency rescue-lift operations, a nylon webbing harness can be attached to the inside of the vest. The cradle-fashion design of the harness consists of leg and chest straps for optimum fit and security.

## MICROCLIMATE COOLING SYSTEM (MCS)

5-8. The MCS is composed of the MCU and the MCG. There is one MCU and MCG per person. The MCU weighs 13 pounds and is aircraft-mounted and powered (12 volts DC). The MCU circulates chilled water (65°F) to the MCG

(water-cooled vest) to alleviate heat stress/exhaustion. Use of the MCS enables crews to perform extended duration missions, while operating in desert or tropical environments and while wearing chemical or other protective equipment or gear.

#### **AIR CREW PROTECTIVE MASK (ACPM) M-45**

5-9. The current M45 ACPM provides the required chemical/biological (CB) protection and compatibility with rotary-wing aircraft sighting system and night vision devices. The M45 was recently type classified-standard and will replace the M234 and M49 protective mask.

#### **BLOWER, M-45 PROTECTIVE MASK**

5-10. The motor blower is designed for integration with the M-45 ACPM. The motor blower is a commercial-off-the-shelf (COTS), 2-cubic feet per-minute blower, manufactured by 3M Corporation. It attaches directly over the M-45 inlet filter and provides added CB protection as well as circulating air to enhance comfort and reduce crew member fatigue. The blower has a pouch to secure it to the crew member's body.

#### **MODIFIED CHEMICAL PROTECTIVE UNDERGARMENT (MCPU)**

5-11. The modified CPU is designed to be worn under an aircrew member's flame-resistant flight clothing instead of the current nonflammable-retardant overgarment. The base absorption technology is activated carbon encapsulated in polymer, a new and unique technology that provides uniform carbon distribution and chemical protection. The CPU is designed to be absorbent, durable, air permeable, comfortable, and fire resistant. Testing has shown the CPU to provide twice the chemical protection as the current battle dress over-garment. The modification to the CPU consists of an opening in the right side of the CPU shirt; about 1.5 inches in length, used for the umbilical pass through for the MCS. The opening is held closed by Velcro™ when not in use.

#### **LIQUID CHEMICAL PROTECTIVE GLOVE, SEVEN MILLIMETERS BUTYL RUBBER**

5-12. The impermeable seven-millimeter butyl rubber gloves with cotton knit liners are designed to protect the hands in a chemical threat environment. For minimum durability/environmental protection, standard-issue hand wear can be worn over the gloves. The outer impermeable butyl gloves are manufactured in right and left hand five-fingered configurations and shaped to follow the natural curvature of the hand in a relaxed position while the inner permeable cotton five-finger gloves are ambidextrous. The seven-millimeter butyl gloves provide six hours of protection against a 10 gram/millimeter two liquid chemical challenge after 14 days of wear and resistance to incidental splashing of petroleum, oils, and lubricants (POL).

#### **GREEN/BLACK VINYL OVERBOOT**

5-13. The overboot is a multipurpose overboot that protects from chemical, biological, and environmental hazards. Made by injection molding of an elastomer blend, it provides protection from petroleum, oils, and lubricants and is flame resistant. The boot incorporates two quick-release side buckles

and can be worn over the standard-issue combat boot, jungle boot, or intermediate cold/wet boot.

5-14. Table 5-5 contains information concerning the components of how worn, protection measures, and composition of the antiexposure suit.

**Table 5-5. Antiexposure Suit**

<b>Antiexposure Suits</b>	
<b>Three components worn (in place of the ABDU)</b>	<ul style="list-style-type: none"> <li>• CWU-62/P Coverall (Aramid dry suit)</li> <li>• CWU-72/P liner</li> <li>• CWU-75/P socks</li> </ul>
<b>Worn with Aramid long underwear set</b>	<ul style="list-style-type: none"> <li>• AW 1401</li> </ul>
<b>Inflatable survival over-mittens and hood</b>	<ul style="list-style-type: none"> <li>• Stored in SGC</li> </ul>
<b>Provides cold-water immersion protection</b>	<ul style="list-style-type: none"> <li>• With raft—2 hr in 32°F water with waves</li> <li>• Without Raft—2 hr in 45°F water with waves</li> </ul>
<b>Composition of suit</b>	<ul style="list-style-type: none"> <li>• Coverall – AW 1305</li> <li>• Socks – AW 1305</li> <li>• Liner – AW 1305</li> <li>• Mittens – AW 1306</li> <li>• Hood – AW 1307</li> <li>• Long underwear – AW 1401</li> </ul>

5-15. Table 5-6 contains information concerning the components of and protection measures of the aircrew cold-weather climatic system.

**Table 5-6. Aircrew Cold-Weather Climatic System (ACWCS)**

<b>Aircrew Cold Weather Climatic System (ACWCS)</b>	
<b>ACWCS jacket (with removable liner and fur ruff hood)</b>	<ul style="list-style-type: none"> <li>• AW 1409, 1410, 1412</li> </ul>
<b>ACWCS bib overalls</b>	<ul style="list-style-type: none"> <li>• AW 1411</li> </ul>
<b>ACWCS liner (coat and trousers)</b>	<ul style="list-style-type: none"> <li>• AW 1402</li> </ul>
<b>Combat vehicle crew man balaclava</b>	<ul style="list-style-type: none"> <li>• AW 1403</li> </ul>
<b>Mounted crewman glove</b>	<ul style="list-style-type: none"> <li>• AW 1405</li> </ul>
<b>Operational comfort</b>	<ul style="list-style-type: none"> <li>• -60 to +50°F</li> <li>• Fire retardant, antistatic</li> <li>• Jacket, overalls, and liner designed to be worn over ABDU for increased levels of thermal protection</li> </ul>

## **SURVIVAL KNIFE AND CARRIER**

5-16. The survival knife is the standard issue knife that is worn in a carrier attached to the lower right leg.

## **LOW-PROFILE FLotation COLLAR (LPFC)**

5-17. The flotation collar consists of a modified LPU-9 life preserver and container. The preserver has been flattened in the shoulder area to reduce interference with the helmet and helmet-mounted displays. The LPFC has two bladders that are filled by compressed air bottles. The bladders also have oral inflators.

## **OVERWATER GEAR CARRIER (OWGC)**

5-18. . The OWGC provides a means of attaching the life raft and underwater breathing device (Sea Mark II) on the back of the crew members. Larger crew members may use the OWGC in place of the aircraft seat-back cushion to reduce cyclic movement restriction.

5-19. Quick-Disconnect Wiring Assembly (QDWA) for OH-58D Only. Aircraft-retained and aviator-retained umbilical: The aircraft-retained portion of the QDWA is about 20 inches long and will have one-half of the electrical quick-disconnect assembly (E-QDC) on one end and mating connectors for interface to aircraft systems [optical display assembly (ODA), NVG power, communications, and mask blower] on the other end. The aviator-retained portion of the QDWA is about 18 inches long (longest umbilical) and will have one-half of the E-QDC on one end and mating connectors for aviator-retained umbilical on the other end. The aviator-retained segment at the QDA will be routed on the crew's survival vest with connection umbilical for communication, ODA, mask blower power, and NVG.

## **HGU-56/P FLIER'S HELMET**

5-20. The AW flight helmet is the HGU-56/P Aircrew Integrated Helmet System (AIHS). The AIHS is a modular helmet system for rotary-wing aircrews. It consists of a basic helmet shell assembly on which devices can be mounted to configure it for a particular type of aircraft and mission. It is developed to provide—

- Improved impact protection.
- A 15 to 20 percent weight reduction.
- Improved acoustic attenuation to protect the wearer's hearing from high background noise level.
- Head and eye protection against debris or fragmentation splatter; intense sunlight or laser threats.
- Impact protections.
- Compatibility with newer generation aircraft.

The AIHS incorporates a new injection-molded ear-cup design that has superior energy absorption to protect against side impacts. The ear cup provides improved sound attenuation to protect against hearing loss and improves communications in noisy helicopter environments. The helmet shell

is fabricated from an advanced graphic composite for improved weight, tear and impact characteristics with improved fitting capability (available in six sizes), designed to accommodate the smallest female aviator to the largest male aviator. The improved chinstrap and retention system is designed to withstand a 400-pound chinstrap pull. A dual-visor module mounts to the outside of the basic helmet and provides clear, sun-shade, or laser protective visors. The helmet provides several functional capabilities through modular adaptability such as an integral night-vision-goggle mounting platform for night operations and is compatible with an Army chemical warfare protective masks and hoods.

### SECTION III – ALSS SHOP: SUPPORT EQUIPMENT, COMMON/SPECIAL TOOLS, AND MATERIALS

#### SUPPORT EQUIPMENT AND COMMON AND SPECIAL TOOLS LIST

5-21. Table 5-7 provides a consolidated list of support equipment and common and special tools that a unit may require.

**Table 5-7. Support Equipment and Common and Special Tools List**

FSCN	NIIN	Component
5133	00-189-9289	#43 TAP DRILL
5136	00-729-5689	#4-40 TAP
5995	01-318-0677	6-INCH ADAPTER CABLE
5985	00-454-6925	6P5 ATTENUATOR CN-1285/U
5965	01-236-9988	ADAPTER COMMUNICATIONS
5120	00-240-8703	ADAPTER, ½-IN SQ DRIVE
5120	00-542-9219	ADAPTER, 3/8-IN SQ DRIVE
4730	00-240-5905	ADAPTER, PIPE TO TUBE
5120	01-231-1012	ANTENNA WRENCH P6-06-0920
5985	01-065-9720	ATTENUATOR, 20 DB, 10W
5120	00-223-8991	AWL, SADDLERS
5940	01-183-9113	BATTERY TERMINAL ADAPTER A3-06-0920
6625	00-480-6315	BATTERY TEST ADAPTER MX-8801/PRC-90
6625	00-933-6112	BATTERY TESTER TS-2530/UR
6625	00-238-0223	BATTERY TESTER TS-2530A/UR
TBD		BAUER AIR COMPRESSOR, JUNIOR-E1
6640	00-264-8323	BEAKER, LABORATORY (50ML)
5120	00-678-5057	BIT SET SCREWDRIVER
7920	00-240-6358	BRUSH, DUSTING
8020	00-297-6657	BRUSH, PAINT
7520	00-248-9285	BRUSH, STENCIL
1660	01-249-3990	CASE, PROTECTIVE
5975	01-183-2075	CHASSIS BASE A3-06-0916
	00-288-0309	CO <sup>2</sup> RECHARGE SYSTEM
6625	01-061-8928	COUNTER, ELECTRONIC DIGITAL AN/USM-451
5120	00-189-8403	CROWFOOT, ATTACHMENT
TBD		CSEL PLANNING COMPUTER
4220	01-446-2132	CYLINDER, AIR, DIVING EQUIPMENT

**Table 5-7. Support Equipment, and Common and Special Tools List (Continued)**

6625	01-368-3429	DIGITAL VOLTMETER AN/USM-486A
5130	00-880-8994	DRILL ELECTRIC, PORTABLE ¼ INCH
5133	00-293-0983	DRILL SET, TWIST
133	01-056-2873	DRILL, TWIST
5120	01-124-0649	ELASTRATOR
4240	00-965-1268	FACE SHIELD
5110	00-234-6551	FILE, HAND
6625	01-120-3501	GENERATOR, SIGNAL, SG-1170/U
4940	01-028-7493	HEATER, GUN TYPE, ELEC
4540	00-469-6593	HEATER, IMMERSION, LIQUID FUEL FIRED
4933	01-249-4537	HELMET ALIGNMENT KIT
4933	01-249-4540	HELMET FITTING KIT
5120	00-198-5400	HEX KEY .035
5110	00-029-9089	HOT KNIFE, SEARING
5120	01-094-4500	INSERTION TOOL
5975	00-781-7891	INSTALLATION TOOL, STRAP FASTENER
5210	01-220-8577	KIT, IPD SIZING TOOL
5110	00-018-0952	KNIFE SET, 3 HOLDER W/BLADES
5110	00-595-8400	KNIFE, CRAFTSMAN
5110	00-240-5943	KNIFE, POCKET
8415	00-889-3654	MAINTENANCE KIT, TOXICOLOGICAL AGENT, PROTECTIVE CLOTHING
5120	00-293-3397	MALLET RAWHIDE
6685	00-526-5323	MANOMETER
5210	01-103-1946	MASK SIZING CALIPER, COMBINATION
6625	01-319-2829	MODIFIED INVERTED CRADLE
5120	00-293-0798	MROD-06, SPANNER WRENCH
6625	00-999-7465	MULTIMETER AN/USM-223
6625	01-060-6804	MULTIMETER AN/USM-451
6625	00-646-9409	MULTIMETER ME-268/U
6625	01-139-2512	MULTIMETER, DIGITAL
7310	01-364-4043	OVEN, BAKING AND ROASTING
1660	01-349-4603	OXYGEN CHARGING ASSEMBLY
6695	01-097-0441	OXYGEN MASK TESTER, MQ-1A
6130	00-985-8137	POWER SUPPLY PP-3939/G
6130	00-752-2215	POWER SUPPLY, REGULATED PP-2309C/U
5120	00-221-1668	PRESS, SEAL
1680	01-418-4701	PRODUCT BARB INSERTION TOOL
7025	01-279-5308	PROGRAM LOADER, KY-913/PRC-112
4240	01-432-1516	PROTECTION ASSESSMENT TEST SYSTEM, M41
5110	00-596-9604	PUNCH LEATHER
5120	00-243-3509	PUNCH, CENTER, SOLID
5120	00-242-3435	PUNCH, DRIVE PIN, 3/32 IN
5821	01-324-5906	RADIO SET, PERSONNEL LOCATOR, AN/ARS-6(V)5
6625	00-803-3399	RADIO TEST SET, AN/PRM-32
8530	00-162-5629	RAZOR BLADE
4240	00-022-2524	RESPIRATOR, AIR FILTRATION
TBD		RSA J-6431/PRQ-7, ADAPTER, RADIO SET (CSEL)
5120	00-182-9656	RULE, STEEL, MACHINIST'S
7510	00-161-6217	RULER, WOOD

**Table 5-7. Support Equipment, and Common and Special Tools List (Concluded)**

4240	00-052-3776	SAFETY GOGGLES
5130	00-596-9727	SANDER, OSCILLATING
5110	01-327-5171	SAW, HAND, METAL CUTTING
6670	00-514-4117	SCALE, DIAL AND BEAM
6670	00-255-0239	SCALE, DIAL INDICATING
5110	00-293-9399	SCISSORS
5120	00-288-8739	SCREWDRIVER, JEWELER'S
3540	00-956-4511	SEALING IRON ELECTRIC
4920	00-022-4262	SEPARATOR, OIL AND WATER
3530	00-892-4629	SEWING MACHINE, CONSEW, MODEL 206
5110	00-203-9642	SHEARS, BENT TRIMMER'S
5110	00-221-1085	SHEARS, METAL CUTTING, HAND
5110	00-161-6912	SHEARS, STRAIGHT
5110	00-293-3444	SHEARS, STRAIGHT TRIMMERS
3439	00-618-6623	SOLDERING GUN
7330	00-254-4791	SPATULA, 8 IN BLADE
5210	00-241-3599	SQUARE, COMBINATION
1660	01-238-3831	STRAP ASSEMBLY, TIE-DOWN
4720	01-141-2928	SUPPLY HOSE, 98 IN
5120	00-277-4069	TAP HANDLE
6625	01-085-9669	TEST SET, TS-23A
6625	01-013-9900	TEST SET, AN/PRM-32A
6625	01-128-8588	TEST SET, ANR/TS-24B
6625	01-144-4481	TEST SET, RADIO, AN/GRM-114A
6625	01-342-3966	TEST SET, TS-4360/AYD-1
6625	00-238-0223	TESTER, TS-2530A/UR
Local Purchase		THERMOMETER, OVEN
5180	01-375-6925	TOOL KIT, AIRCRAFT GENERAL MECHANIC
5180	00-341-4137	TOOL KIT, CHUCK AND DIE SET
5120	00-233-6958	TWEEZERS, CRAFTSMAN
5120	00-073-4187	UPPER AND LOWER HOSE CLAMP PLIERS
7910	00-550-9123	VACUUM CLEANER, CANISTER
3540	01-386-2478	VACUUM HEAT SEALING MACHINE
5120	01-094-4502	VALVE WRENCH
6625	01-119-7271	VOLTMETER, ELECTRONIC AN/UMR-145D/U
5120	00-821-3441	WRENCH , TORQUE, 3/8 IN. SQ. DRIVE
5120	00-568-4742	WRENCH TORQUE (SCREWDRIVER)
5120	00-542-4489	WRENCH TORQUE, 30-150 IN/LBS
5120	00-277-2696	WRENCH, 1 1/4 IN, OPEN END
5120	00-020-2947	WRENCH, STRAP
5120	00-221-7971	WRENCH, TORQUE
5120	00-943-0941	WRENCH, TORQUE

## CONSUMABLE AND EXPENDABLE ITEMS

5-22. Table 5-8 provides consolidated lists of consumable and expendable items.

5-23. Provided is a consumable and expendable database and material listing for maintaining ALSE. In addition, governing regulations and technical manuals containing equipment lists are referenced for each end item below:

- First Aid—AR 40-61, AR 702-18 (Appendix M), and TM 1-1500-204-23-1.



- NBC—TM 3-4240-312-12 and -P, TM 3-4240-334-20 and -P, TM 3-4240-342-20 and -P, TM 3-4240-344-20 and -P, and TM 3-4240-349-12 and P.
- Clothing—TM 10-8400-201-23 and TM 10-8400-202-13.
- Antiexposure Suits—NAVAIR 13-1-6.7-2.
- Body Armor—TM 10-8470-202-13, TM 1-1500-335-23, TM 1-1680-359-10, TM 11-5895-1629-14, and TM 11-6625-203-13.
- Flotation—NAVAIR 13-1-7.1, TM 1-4220-250-12&P, and TM 5-4220-202-14.
- Helmet—TM 11-5965-279-13 and P, TM 1-8415-215-12 and P, TM 1-8415-216-12 and P, and TM 9-1270-233-23 and P.
- Radios—TM 11-5820-1037-13 and P, TM 11-5820-1049-12, TM 11-5820-800-13 and -P, TM 11-6625-203-13 and TM 1-6625-2632-14.
- Oxygen—TM 55-1730-266-13 and TM 55-6695-217-13.
- Survival Vests and Vest Items—TM 1-1680-317-23 and -P, TM 1-1680-354-23 and -P and ALSE messages.
- Materials—See Table 5-8 below.

**Table 5-8. Consumable and Expendable Materials**

FSCN	NIIN	NOMENCLATURE
8040	00-832-6173	ADHESIVE
8040	00-833-9563	ADHESIVE
8040	01-023-4173	ADHESIVE, RUBBER, SYNTHETIC
4933	01-248-4537	ALIGNMENT VERIFICATION KIT
6515	00-303-8250	APPLICATOR, DISPOSABLE
6520	00-926-9041	BAG, DENTAL PROSTHESIS
4220	00-138-7118	BAG, DIVING EQUIPMENT
7920	00-514-2417	BRUSH, ACID
7920	00-061-0037	BRUSH, SCRUB
6665	00-978-5516	BULB, ASPIRATOR
6810	00-238-8115	CALCIUM HYPOCHLORITE
6810	00-255-0471	CALCIUM HYPOCHLORITE
4240	01-119-2315	CANISTER, CHEM-BIO, MASK (C2)
4240	01-361-1319	CANISTER, CHEM-BIO, MASK (C2A1)
8465	00-930-2077	CAP, CANTEEN
4220	00-543-6693	CARTRIDGE, CO <sup>2</sup> (25369C)
4220	00-837-3322	CARTRIDGE, CO <sup>2</sup> (52053)
4220	00-372-0585	CARTRIDGE, CO <sup>2</sup> TYPE 1
6545	00-912-9860	CASE, MEDICAL INSTRUMENT
6545	01-094-6142	CASE, MEDICAL INSTRUMENT
6850	00-270-6225	CHLORINATION KIT
8305	00-222-2423	CLOTH, CHEESECLOTH
6850	00-033-8851	COMPOUND, CLEANING
6850	00-681-5688	COMPOUND, CLEANING
6850	00-621-1819	COMPOUND, LEAK DETECT
7310	01-364-4043	CONVECTION OVEN
4020	00-246-0688	CORD, FIBROUS 32/36
4020	00-113-3896	CORD, FIBROUS
4020	00-240-2154	CORD, FIBROUS
4020	00-262-2147	CORD, FIBROUS

8120	00-285-4723	CYLINDER, COMPRESSED GAS, CO2
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**Table 5-8. Consumable and Expendable Materials (Continued)**

LOCAL PURCHASE		DETERGENT, DISHWASHING
1270	01-217-3792	FASTENER KIT
8315	00-448-9837	FASTENER TAPE, HOOK
8315	01-445-8812	FASTENER TAPE, HOOK AND PILE
8315	00-498-6631	FASTENER TAPE, PILE
9535	01-201-7014	FOIL, ALUMINUM
8415	01-033-3519	GLOVE SET, CHEM LGE
8415	01-033-3518	GLOVE SET, CHEM MED
8415	01-033-3517	GLOVE SET, CHEM SM
8415	01-033-3520	GLOVE SET, CHEM XLG
6515	00-462-0832	GLOVES, PATIENT EXAM, LGE
8415	00-634-4657	GLOVES, LEATHER
8415	00-001-3298	GLOVES, CHEMICAL
8415	00-926-6696	GLOVES, CHEMICAL
6515	01-364-8553	GLOVES, PATIENT EXAM
4240	00-052-3776	GOGGLES, INDUSTRIAL
4933	01-249-4540	HELMET FITTING KIT
7510	00-224-6734	INK, MARKING STENCIL
6505	00-299-8095	ISOPROPYL ALCOHOL
6505	00-655-8366	ISOPROPYL ALCOHOL
6505	00-983-8551	ISOPROPYL ALCOHOL
5110	00-162-2205	KNIFE, POCKET
5110	01-346-5341	KNIFE, POCKET (GERBER BLACK)
7340	00-098-4327	KNIFE, SURVIVAL
9150	00-961-8995	KRYTOX™, LUBE
7530	00-082-2661	LABEL
6260	01-086-8077	LIGHT, CHEMILUMINESCENT
6230	00-938-1778	LIGHT, MARKER, DISTRESS
6230	01-411-8535	LIGHT, MARKER, DISTRESS (ACR/MS-200M)
8030	00-181-8372	LOCTITE™ PRIMER GRADE T
8415	00-889-3654	MAINTENANCE KIT: TOXI
7690	00-657-0621	MARKER, IDENTIFICATION
8315	00-162-6204	MATTRESS NEEDLE
6810	00-123-7047	N-AMYL ACETATE, REAGENT
6830	00-656-1596	NITROGEN GAS, DRY, OIL
4220	00-753-6555	NYLON, LACING SIZE 3
6830	01-277-0596	OXYGEN, AVIATOR'S BREATHING
6510	00-786-3736	PAD, ISOPROPYL ALCOHOL IMPREG
6510	01-010-0307	PAD, POVIDONE-IODINE IMPREG
6510	01-203-6285	PAD, POVIDONE-IODINE IMPREG
7240	01-094-4305	PAIL, UTILITY
8010	00-527-2493	PAINT, GLOSS WHITE
8010	00-082-2479	PAINT, OLIVE DRAB
8010	00-551-7934	PAINT, RED
6665	00-050-8529	PAPER, CHEMICAL AGENT
5350	00-224-7201	PAPER, ABRASIVE
5350	00-224-7207	PAPER, ABRASIVE
5350	00-224-7209	PAPER, ABRASIVE
5350	00-598-5537	PAPER, ABRASIVE
6640	00-663-0832	PAPER, LENS 24 IN – 36 IN
4220	00-693-1470	PARTS KIT, LIFE RAFT
5342	00-720-8864	PATCH, MECHANICAL, FLEXIBLE SURFACE
7510	00-174-3205	PENCIL

5315	00-989-7631	PIN, FLATHEAD
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**Table 5-8. Consumable and Expendable Materials (Concluded)**

8315	00-787-8000	PIN, SAFETY
5315	00-825-1207	PIN, STRAIGHT, HEADLESS
5315	00-841-5416	PIN, STRAIGHT, HEADLESS
8135	00-579-6489	PLASTIC WRAP
6515	00-137-6345	PLUG, EAR
4320	00-097-4580	PUMP, INFLATING, MANUAL
6515	00-926-2089	RAZOR, SURGICAL PREPARATION
4220	00-763-3766	REPAIR KIT, LIFE RAFT
4220	00-761-8185	RETAINER, LIFE RAFT
5130	01-014-6856	ROTARY TOOL KIT, ELECTRIC
7510	00-205-0842	RUBBER BANDS A-A-131
5330	01-334-9804	RUBBER STRIP
9505	00-221-2650	SAFETY WIRE MS20995C20
6515	00-296-2529	SAW
5110	00-570-6896	SAW, HAND, FINGER GRIP
5110	00-290-3766	SCISSORS, POCKET
5120	01-053-2636	SCREWDRIVER, CROSS TIP
5120	00-278-1269	SCREWDRIVER, FLAT TIP
5340	00-391-4240	SEAL, ANTIPIILFERAGE
4240	01-220-8574	SET, IPD STAPLE
3530	00-892-4629	SEWING MACHINE, CONSEW MODEL 206
8465	01-131-7921	SLEEPING BAG
8520	00-551-0375	SOAP, TOILET
8520	00-228-0598	SOAP, TOILET, NON-MED
7290	00-240-2555	SPONGE, NATURAL
7290	00-240-2559	SPONGE, NATURAL
6510	00-782-2698	SPONGE, SURGICAL
7340	00-170-8374	SPOON, PICNIC
5210	00-241-3599	SQUARE, COMBINATION
5975	00-984-6582	STRAP, TIEDOWN, ELECTRICAL
5975	00-074-2072	STRAP, TIEDOWN, ELECTRICAL COMP
6505	01-121-2335	SUNSCREEN PREPARATION
6545	01-120-2632	SURVIVAL KIT, INDIVIDUAL
6515	00-303-8250	SWABS, COTTON
8030	00-889-3535	TAPE, ANTISEIZING
7510	01-224-2082	TAPE, MASKING
8315	00-792-9000	TAPE, MEASURING
8030	00-889-3535	TAPE, TEFLON, 1/2"
8310	00-262-2772	THREAD
8310	01-174-9604	THREAD
8310	00-492-8397	THREAD, NON-MELTING
8310	01-063-5934	THREAD, TACKING
7210	01-286-0983	TOWEL, BATH
7920	00-543-6492	TOWEL, PAPER
7920	00-682-6710	TOWEL, PAPER
6810	00-664-0387	TRICHLOROETHANE TECH
6810	00-107-1510	WATER, DISTILLED
LOCAL PURCHASE		WOOD BLOCK 2"X4"X8"

## Chapter 6

# Aviation Life Support System and Survival Training Programs

*Training is the cornerstone of readiness—it is the top priority for the Total Army.*

General Carl E. Vuono, former U.S. Army Chief of Staff

The Army exists to deter war or, if deterrence fails, to win in combat. For deterrence to be effective, the enemies of the United States must know that the Army can mobilize, deploy, fight, and sustain combat operations. Effective training molds human and material resources into cohesive, combat-ready units. The Army must train continually to develop and maintain combat-ready soldiers, leaders, and units that can perform assigned tasks to specific standards. The requirement for training continues even during wartime (especially within the combat zone). Training builds self-confidence, promotes teamwork and esprit de corps, and increases professionalism in soldiers, leaders, and units. This chapter establishes the basic doctrine fundamentals of unit/crew-member survival and Aviation Life Support System (ALSS) training requirements within aviation units on the battlefield. It discusses the training overview, mission-essential task list (METL), and planning, execution, and assessment of the ALSS Training Program, based on mission requirements, that aviation units and aircrew members will function effectively, sustain combat capability, and survive on the battlefield.

## SECTION I – TRAINING OVERVIEW

### DEFINITIONS

6-1. The commander is responsible for ALSS training for crew members. The following list of acronyms is provided to aid commanders, ALSOs, ALSNCOs, and ALSETs. Table 6-1 defines acronyms and verbiage used in the ALSS Unit/Crew Member Training Program.

**Table 6-1. Training Definitions**

After-Action Review (AAR)	A method of providing feedback to units by involving participants in the training diagnostic process to increase and reinforce learning. The AAR leader guides participants in identifying deficiencies and seeking solutions.
Annual Training (AT)	The minimal period of annual active duty training that a member performs to satisfy the annual training requirements associated with a Reserve Component assignment. It may be performed during one consecutive period or in increments of one or more days depending on mission requirements.
Combat Training Center (CTC) Program	An Army program that provides realistic joint service and combined arms training according to Army doctrine. It provides training units with opportunities to increase collective proficiency on the most realistic battlefield available during peacetime. The four components of the CTC Program are (1) the National Training Center (NTC), (2) the Combat Maneuver Training Center (CMTTC), (3) the Joint Readiness Training Center (JRTC), and (4) the Battle Command Training Program (BCTP).
Combined Arms Live Fire Exercises (CALFEX)	High-cost, resource-intensive exercises in which player units move or maneuver and employ organic and supporting weapon systems using full-service ammunition with attendant integration of all CA, CS, and CSS functions.
Combined Training Exercise (CTX)	A training exercise that is jointly conducted by military forces of more than one nation.
Command Field Exercise (CFX)	A field training exercise with reduced troop and vehicle density but with full command and control and CSS units.
Command Post Exercise (CPX)	A medium-cost, medium-overhead exercise in which the forces are simulated and may be conducted from garrison locations or in between participating headquarters.
Command Training Guidance (CTG)	The long-range planning document published by division and brigades (or equivalents) in the Active and Reserve Components to prescribe future training and related activities.
Deployment Exercise (DEPEX)	An exercise that provides training for individual soldiers, units, and support agencies in the tasks and procedures for deploying from home stations or installations to potential areas of hostilities.
Doctrine	Fundamental principles by which military forces guide their actions in support of objectives. It is authoritative but requires judgment in application.
Field Training Exercise (FTX)	A high-cost, high-overhead exercise conducted under simulated combat conditions in the field. It exercises command and control of all echelons battle functions against actual or simulated opposing forces.
Mission	The primary task assigned to an individual, unit, or force. It usually contains the elements of whom, what, when, and where and the reasons therefore but seldom specifies how.
Mission-Essential Task	A collective task in which an organization must be proficient to accomplish an appropriate portion of its wartime mission(s).
Mission-Essential Task List (METL)	A compilation of collective mission-essential tasks that must be successfully performed if an organization is to accomplish its wartime mission(s).

**Table 6-1. Training Definitions (Continued)**

Mission, Enemy, Terrain and Weather, Troops – Time Available, Civilian Considerations (METT-TC)	Mission, enemy, terrain and weather, troops and support available, time available, civilian considerations (the major factors considered during mission analysis).
Mission Training Plan (MTP)	Descriptive training document that provides units with a clear description of "what" and "how" to train to achieve wartime mission proficiency. MTPs elaborate on wartime missions in terms of comprehensive training and evaluation outlines and provide exercise concepts and related training management aids to assist field commanders in the planning and execution of effective unit training.
Observer-Controller (OC)	An individual tasked to evaluate training and provide administrative control and constructive feedback to participants during a training exercise.
Operating Tempo (OPTEMPO)	The annual operating miles or hours for the major equipment system in a battalion-level or equivalent organization. Commanders forecast and allocate funds for fuel and repair parts for training events and programs based on OPTEMPO.
Opposing Force (OPFOR)	An organized force created from U.S. Army units trained, organized, and equipped to portray the doctrine, tactics, and configuration of a potential adversary armed force during U.S. armed forces training.
Quarterly Training Briefing (QTB)	A conference conducted by AC division commanders to approve the short-range plans of battalion commanders.
Quarterly Training Guidance (QTG)	An Active Component training management document published at each level from battalion to division that addresses a three-month planning period. The QTG adjusts, as required, and further develops the training guidance contained in long-range plans, to include specific training objectives for each major training event.
Reserve Component (RC)	Individuals and units assigned to the Army National Guard or the U.S. Army Reserve who are not in active service but who are subject to call to active duty.
Situational Training Exercise (STX)	A mission-related, limited exercise designed to train one collective task or a group of related tasks or drills through practice.
Slice	A term used to describe a grouping of combat, combat support, and combat service support units that are task-organized for wartime missions or are habitually associated for peacetime training.
Task	A clearly defined and measurable activity accomplished by individuals and organizations. Tasks are specific activities that contribute to the accomplishment of encompassing missions or other requirements.
Training	The instruction of personnel to individually and collectively increase their capacity to perform specific military functions and tasks.
Training Assessment	An analytical process used by Army leaders to determine an organization's current levels of training proficiency on mission-essential tasks.
Training Evaluation	The process used to measure the demonstrated ability of individuals and units to accomplish specified training objectives.
Training and Evaluation Outline (T&EO)	A summary document prepared for each training activity that provides information on collective training objectives, related individual training objectives, resource requirements, and applicable evaluation procedures.

**Table 6-1. Training Definitions (Concluded)**

Training Management	The process used by Army leaders to identify training requirements and plan, provide resources for, execute, and evaluate training.
Training Meeting	A periodic meeting conducted by platoon, company, and battalion key leaders to review past training, plan and prepare future training, and exchange timely training information among participants.
Training Objectives	A statement that described the desired outcome of a training activity. A training objective consists of the following three parts: 1. Task. A clearly defined and measurable activity accomplished by individuals or organizations. 2. Condition(s). The circumstances and environment in which a task is to be performed. 3. Standard. The minimum acceptable proficiency required in the performance of a particular training task.
Training Requirements	The difference between demonstrated and desired levels of proficiency for mission-essential or battle tasks.
Training Resources	Those resources (human, physical, financial, and time) used to support training. They may be internally controlled by an organization or externally controlled by a headquarters that allocates their use to units as required.
Training Schedule	A document prepared at company level that specifies the “who,” “what,” “when,” and “where” of training to be conducted by the unit.
Training Strategy	The method(s) used to attain desired levels of training proficiency on mission-essential tasks.
Yearly Training Briefing (YTB)	A conference conducted by RC division commanders to approve the short-range plans of battalion commanders.
Yearly Training Guidance (YTG)	A Reserve Component training management document published at each level from battalion to division that addresses a one-year planning period. The YTG adjusts, as required, and further develops the training guidance contained in long-range plans, to include specific training objectives for each major training event.

## LEADERS AND TRAINING

### COMMANDER’S ROLE

6-2. Effective training requires the personal time, energy, and guidance of commanders. Commanders must observe and assess training at all echelons. Their specific emphasis is on training one level down and evaluating two levels down. Company commanders train to—

- Develop and communicate a clear vision or intent.
- Train the trainer.
- Establish a safe, realistic training program that is based on and endorses the Army’s standard of performance.
- Foster a command climate.
- Be personally involved in planning, executing, and assessing training.
- State their expectations of what the unit should achieve by the end of the training period.

- Protect units from training distracters by ruthlessly enforcing the lock in of major events agreed upon during training briefings and contained in the signed training schedules.
- Ensure that subordinate commanders understand the importance of training meetings (weekly for AC, monthly for RC), rigidly enforce their conduct, and (periodically) attend them.
- Protect resources for training.

## **LEADER RESPONSIBILITIES**

6-3. In addition to the commanders' responsibilities listed previously, all leaders must require their subordinates to understand and perform their roles in training.

## **PRINCIPLES OF TRAINING:**

6-4. Leaders must know and understand the principles of training to train their units. The principles provide direction but are flexible enough to accommodate local conditions and the judgment of commanders and other leaders. The nine principles of training are—

- Train as a combined arms and services team.
- Train as you fight.
- Use appropriate doctrine.
- Use performance-oriented training.
- Train to challenge.
- Train to sustain proficiency.
- Train using multiechelon techniques.
- Train to maintain.
- Make the commanders (leaders) the primary trainers.

## **BATTLE FOCUS**

6-5. Battle focus is a concept used to derive peacetime training requirements from the wartime mission. Units cannot achieve and sustain proficiency on all possible soldier, leader, and collective tasks.

6-6. Commanders must selectively identify and train on those tasks that accomplish the unit's critical wartime mission. The METL serves as the focal point on which commanders plan, execute, and assess training.

## **TRAINING MANAGEMENT**

6-7. The training-management approach to implement the battle focus is shown in Figure 1-5, FM 25-101. It is a continuous process. It centers on feedback that enables leaders to focus peacetime training on their wartime mission. Assessment is conducted throughout the training-management cycle.



## RISK MANAGEMENT AND RISK ASSESSMENT

6-8. FM 100-14 applies across the range of Army operations. It explains the principles, procedures, and responsibilities for applying the risk-management process to conserve combat power and resources.

6-9. The manual applies to both Army and civilian personnel during all Army activities, including joint, multinational, and interagency environments. The manual helps commanders and their staffs, leaders, and managers develop a framework to make risk management a routine part of planning, preparing, and executing operational missions and everyday tasks. This framework allows soldiers to operate with maximum initiative, flexibility, and adaptability. Although the manual's prime focus is the operational Army, the principles of risk management apply to all Army activities.

6-10. Army operations—especially combat operations—are demanding and complex. They are inherently dangerous, including tough, realistic training. Managing risks related to such operations requires educated judgment and professional competence. The risk-management process allows individuals to make informed, conscious decisions to accept risks at acceptable levels.

6-11. When commanders and their staff plan, prepare, and execute ALSS training, they will include the risk-management process in each phase. Appendix E contains additional information on risk management and risk assessment. FM 100-14 further defines these terms.

## SECTION II – MISSION-ESSENTIAL TASK LIST (METL)

### KEY POINTS

6-12. Resources availability does not affect METL development. The METL is an unconstrained statement of tasks required to accomplish wartime missions. Wartime commanders must recognize the peacetime training limitations faced by subordinates and tailor wartime missions within these practical constraints. If a commander determines that his unit cannot execute all of the tasks on the unit's METL to standard, he must request an adjustment of the unit's mission. The commander determines which tasks he can train and execute. He then negotiates with his wartime commander to ensure that the mission and METL are consistent. RC commanders coordinate with their first wartime commander to ensure that assigned missions are as specific as possible; they coordinate with the peacetime chain of command for training resources.

6-13. The METL is not prioritized. It may be changed or adjusted if wartime missions change. Commanders reexamine the METL periodically to ensure that it still supports the wartime mission.

6-14. The METL must support and complement the METL of the next higher headquarters and the supported wartime unit to CS and CSS units. This is especially important for battalion and lower units assigned to echelons above division.

## SOURCES

6-15. Commanders determine their units' METLs based on war plans and external directives. War plans consist of the unit's anticipated wartime missions, operation plans, and contingency plans. External directives may include—

- Capstone mission guidance letters.
- Mobilization plans.
- Installation wartime transition and deployment plans.
- Force integration.

6-16. The primary source for tasks is doctrinal manuals. At battalion and company levels, the applicable Mission Training Plan (MTP) is a good start point for selecting collective tasks to support the mission. When no MTP exists, leaders may develop task lists using the following sources:

- Tables of organization and equipment (TO&Es).
- General defense plan (GDP).
- Tactical standing operating procedures (TSOPs).
- Technical manuals (TMs).
- Readiness standing operating procedures (RSOPs).
- State wartime contingency plan for ARNG.

## SEQUENCE

6-17. The battalion commander follows this sequence in METL development:

- Receives the brigade mission and METL and analyzes the mission to identify specified and implied tasks; he also reviews war plans and other external directives to help identify those tasks.
- Restates the unit's wartime mission.
- Determines and selects the tasks critical for wartime mission accomplishment, which become the unit's METL.
- Gets approval of the unit's METL from the brigade commander.
- Provides the approved METL to his staff and company commanders.

6-18. Using the same procedures, the battalion staff and company commanders select METL tasks, which are approved by the battalion commander.

## INTEGRATION OF SOLDIER, LEADER, AND COLLECTIVE TRAINING

6-19. Company is the lowest level to have a METL. From the company mission and METL, the platoon leader and PSG determine their collective tasks. They use the following process:

- Use the mission-to-collective task matrix in the appropriate MTP to determine platoon collective tasks that support each company mission-essential task.
- Determine which collective tasks support more than one company mission-essential task to identify high-payoff tasks.

- Present selected platoon collective tasks to their commander to obtain his guidance and approval; the commander uses his mission, enemy, terrain, troops, time available, and civilian considerations (METT-TC) analysis, resource availability, and unit status analysis to select the most important platoon tasks.

6-20. Selection of leader and soldier tasks must be identified at the appropriate level to support the accomplishment of unit mission-essential tasks. Leader tasks can be found in the appropriate soldier training publication (STP), military qualification skill (MQS), mission training plan (MTP), or soldiers' manual (SM).

6-21. Leaders must determine which subordinate leader tasks will be incorporated into collective training. Unit leaders select soldier tasks to support squad and platoon collective tasks using the appropriate Army Training and Evaluation Program (ARTEP) MTP.

## TRAINING OBJECTIVES

6-22. After identifying battalion and company METLs, supporting platoon and squad collective tasks, and supporting soldier and leader tasks, leaders establish supporting conditions and standards for each task. The resulting training objective describes the desired outcome of a training activity.

6-23. Local conditions vary. Commanders must, therefore, modify condition statements for their training environments and assessments of their units' level of proficiency. The goal is to create a realistic and demanding training environment with the resources available.

## SECTION III – PLANNING

### ASSESSMENT

6-24. The assessment begins the training planning process. Commanders use their subordinates, key staff members, and NCO leaders to assess the training level on mission-essential tasks. Commanders rely on subordinate leaders' feedback to determine their units training proficiency level. They analyze all available training evaluations such as ARTEP external evaluations, combat training center (CTC) take-home packages, and annual training reports. Commanders use these evaluations, personal observation, and other feedback to identify the subtasks for each mission-essential task that requires further training.

### LONG-RANGE PLANNING

6-25. At battalion level, long-range planning starts with unit assessment. This assessment is the basis for the long-range training calendar. Resources and shortfalls are identified. The long-range plan synchronizes supporting units and agencies so that training events can be properly executed.

## SHORT-RANGE PLANNING

6-26. Short-range planning refines the long-range calendar. It defines, in greater detail, the broad guidance on training events and other activities in the long-range planning calendar and CTG. It begins with the commander's training assessment and results in—

- Quarterly training guidance (QTG) for ACs and yearly training guidance (YTG) for RCs.
- Quarterly training calendar (QTC) for ACs and yearly training calendar (YTC) for RCs.
- Quarterly training briefing (QTB) for ACs and yearly training briefing (YTB) for RCs.

## NEAR-TERM PLANNING

6-27. Near-term planning defines specific actions required to execute the short-range plan. It is the final phase of planning before the execution of training. In near-term planning, commanders—

- Conduct training meetings to coordinate and finalize all training events, activities, and resources.
- Provide specific guidance to trainers and OCs.
- Prepare OPFOR plan and training objectives.
- Prepare T&EOs.
- Ensure that slice units have been integrated into the unit's training.
- Determine time for pre-execution checks.
- Prepare detailed training schedules.

6-28. Near-term planning covers a six- to eight-week period before the execution of training for AC units and a four-month period before execution of training for RC units.

## PREPARATION FOR TRAINING

6-29. Formal planning for training culminates with the publication of the training schedule. Informal planning and detailed coordination (pre-execution checks) continue until the training is performed.

6-30. To conduct effective, meaningful training for soldiers, leaders, and units, thorough preparation is essential. Well-prepared trainers, soldiers, and support personnel are ready to participate, and their facilities, equipment, and materials are ready to use.

6-31. Preparation gives trainers confidence in their ability to train. They must rehearse their preparations and review the tasks and subtasks to be covered during their training. To prepare trainers to conduct performance-oriented training, commanders and leaders must—

- Provide training guidance, resources, and references.
- Provide preparation time so that the trainer can—

- Review references—such as the appropriate ARTEP MTP, soldier’s manuals, FMs, and TMs—to understand tasks, conditions, and standards.
- Prepare a T&EO.
- Gather and prepare training support items, equipment, and supplies.
- Conduct a reconnaissance of the training site.
- Prepare the soldiers for training.
- Schedule rehearsals for the training.
- Conduct rehearsals to—
  - Identify weak points in the training plan.
  - Teach effective training techniques.
  - Coach the trainer until he feels comfortable.
  - Ensure that all safety and environmental considerations are met.
  - Ask pertinent questions to determine if the leader is technically and tactically proficient.
  - Determine how the training will evaluate the soldiers or unit’s performance at the end of training for compliance with the training objective; have the trainer demonstrate the evaluation procedure, if appropriate.
  - Assess subordinate trainer competencies and provide developmental feedback to them throughout the training preparation and execution process.
  - Give them confidence in their ability to train.
- Prepare T&EOs to—
  - Guide soldier, leader, and collective training.
  - Provide summary information on training objectives (soldier, leader, and unit) that support mission-essential tasks.
  - Provide information on resource requirements.
  - Provide generic conditions; leaders must adjust to METT-TC.

6-32. Leaders use MTPs, MQS manuals, soldier’s manuals, drill books, and similar publications to develop the T&EOs. Whenever possible, they use the published T&EOs in applicable ARTEP MTPs.

## SECTION IV – EXECUTION

### EXECUTION CONSIDERATIONS

6-33. Executing training to standard is a difficult but rewarding process. It burdens the trainer in terms of preparation and assessment of performance. The payoff for properly executed training is a unit trained to standard on its wartime mission.

## PRESENTATION OF TRAINING

6-34. Presentation of training provides soldiers with the specific training objectives (tasks, conditions, and standards) to be trained and the evaluation methods to be used. The exact type and amount of information presented before performing the task depend on the task and the state of training of the soldiers being trained.

6-35. Whenever possible, training is presented by the chain of command. The unit leader is responsible for training his unit even if a technical trainer provides the information. Trainers primarily use three methods to present training to soldiers:

- Lecture.
- Conference.
- Demonstration (preferred method).

## PERFORMANCE OF TRAINING

6-36. Performance begins immediately following presentation. It is the hands-on execution of a training task or event. Early performance reinforces newly acquired skills and converts them into usable soldier, leader, and unit skills.

6-37. Performance of soldiers, leaders, and units is evaluated against ARTEP, MTP, MQS, or SM standards for all training. AARs must be planned and conducted after each major event or at logical breaks in training.

6-38. Further, leaders tailor conditions to the appropriate level of training. They add progressively difficult conditions to increase the challenge as proficiency increases. They add realism and complexity as rapidly as possible to achieve actual wartime conditions.

6-39. There are three stages of training. Each stage can occur separately or in combination. Leaders must ensure that soldiers and units move through the first two stages as soon as standards are met. These stages are—

- Initial training (little or no familiarity with a given task).
- Refresher training (requires training on certain subtasks).
- Sustainment training (meets the training objective; but soldiers will lose proficiency without practice).

## KEYS TO SUCCESS

6-40. Using the principles of training, commanders ensure that training is well structured, realistic, safe, and effective. Other important considerations that help ensure success in training and in combat are—

- Focus on the fundamentals.
- Live-fire exercises.
- Night and adverse weather training.
- Drills.
- Lane training.
- Competition.

- Post operations checks.

## SECTION V – ASSESSMENT

### ASSESSMENT

6-41. Leaders use evaluations and other feedback to assess soldier, leader, and unit proficiency. The analysis of the information provided through evaluations is the key mechanism that commanders use for their assessment. In addition, commanders can adjust priorities and resources, as necessary, to synchronize all unit functions. To assess training proficiency and selected tasks, commanders—

- Select the type of evaluation.
- Develop an evaluation plan.
- Conduct an evaluation.
- Conduct after-action reviews.
- Provide feedback to the chain of command.

### EVALUATION

6-42. The evaluation process is continuous. Therefore, evaluations must be planned for all training and considered as a way of life in the unit. Training evaluation is integral to training management. Leaders at every level conduct it.

6-43. Evaluation of training measures the demonstrated ability of soldiers, leaders, and units to perform a task against Army standards. It is a snapshot of whether the task was conducted to standard under prescribed conditions. Evaluations—

- Provide feedback on training proficiency to those participating in the training event (using AARs).
- Assess METL task proficiency.
- Develop lessons learned for distribution throughout the command and the Army, when applicable.
- Shape future training plans.
- Enhance leader development.

### AFTER-ACTION REVIEW (AAR)

6-44. The AAR is a structured review process that allows training participants to discover for themselves what happened, why it happened, and how it can be done better. AARs—

- Focus on the training objectives (was the mission accomplished?).
- Emphasize meeting Army standards (AARs do not determine winners or losers).
- Encourage soldiers to discover important lessons from the training event (they are not a critique).

6-45. The AAR consists of four parts:

- Review what was supposed to happen (training plan).



- Establish what happened (to include OPFOR point of view).
- Determine what was right or wrong with what happened.
- Determine how the task should be done differently next time.

## TRAINING ASSESSMENT

6-46. After the final AAR, the commander reviews the evaluation and AAR results to assess his unit's training proficiency. The commander's assessment of training proficiency on mission-essential task list tasks is rated as either "T" (trained), "P" (needs practice), or "U" (untrained).

## SECTION VI – ALSS AND SURVIVAL TRAINING PROGRAMS

### TRAINING PROGRAM RESPONSIBILITIES

#### GENERAL

6-47. Commanders will ensure that all aircrew (crew member and noncrew member) personnel are adequately trained in ALSS and survival training according to AR 95-1 and this manual to include—operation, use, and operator maintenance. This task depends on the unit commander's support and policy on the ALSS and survival training. Involvement from the unit's safety officer; standardization personnel; the ALSO, ALSNCO, and ALSET; and all aircrew members is required for an efficient and effective ALSS Maintenance Management and Training Program.

6-48. ALSS and survival training will be conducted according to AR 95-1, AR 310-50, AR 350-30, and this field manual. The following additional reference materials and Internet sites should be considered when planning, developing, and administering ALSS and survival training:

- AF Regulation 64-4.
- FM 21-76.
- FM 21-76-1.
- FM 25-100.
- FM 25-101.
- GTA 21-7-1.
- NAVAIR 00-80T-101.
- TC 21-3.
- TC 21-21.
- The Joint Services Air Land Sea Applications Center:  
<http://www.dtic.mil/alsa/>
- The Army Institute For Professional Development–Correspondence:  
<http://www.atsc.army.mil/accp/aipd.htm>
- USAF Rescue Coordination Center (RCC):  
<http://www2.acc.af.mil/afrcc/>
- Defense Prisoner of War/Missing Personnel Office:  
<http://www.dtic.mil/dpmo/>
- Defense Supply Center–Maps Facility:  
<http://www.dscr.dla.mil/PC9/>
- Joint Services Electronic Library:

- <http://www.dtic.mil/doctrine/jel/>
- U.S. Navy SERE School:  
<http://www.faso.navy.mil/sere.htm>
- Defense Visual Information:  
<http://dodimagery.afis.osd.mil/dodimagery/davis/>

## RESPONSIBILITIES

6-49. ALSS and survival training are planned, developed, administered and documented by a school-qualified ALSO (with assistance from the ALSNCO/ALSET).

6-50. All new crew members will receive a briefing and orientation on the equipment. This orientation will occur during the initial inspection and fitting of his or her ALSE.

## ALSS TRAINING PROGRAM

6-51. The ALSS training program will include the following subject areas and be conducted annually:

- Aircrew Body Armor.
- Flight Helmets.
- Flight Clothing.
- Aviation Survival Kits and Components.
- First-Aid Kits.
- Antiexposure Suits.
- Survival Vests and Components.
- The ALSS Maintenance Program.
- The ALSS Training Program.
- Aircrew Restraint Harness.
- Oxygen Systems.
- Survival Transmitters and Receivers.
- Flotation Equipment.
- Protective Equipment.
- Survival Training.
- Carried and Worn Subcomponents.

6-52. The ALSO/ALSNCO/ALSET will document the attendance of these classes with locally produced sign-in attendance rosters.

6-53. At a minimum, the ALSO will ensure, on an annual basis, that all crew members are properly trained on the following subject areas:

- Operator care and use of flight helmet, survival vest, survival radio, protective flight clothing, aircraft survival kits, first-aid kits, emergency locator beacons, and aircrew NBC protective equipment.
- Unit central issuing facility procedures (issue, direct exchange, and turn in).
- Aircraft emergency egress devices and methods.

## **SURVIVAL TRAINING PROGRAM**

### **GENERAL**

6-54. Survival training should begin with basic equipment training for the climatic area of the world in which your unit is located and where deployment may take the organization. Training will include the use of the survival components and medical kits contained within his or her personal ALSE. Training can be accomplished in a classroom environment with various equipment and the applicable maintenance and operator manuals.

6-55. Once the basics are understood, your unit can advance to actual survival training. The publications listed in this chapter will help you accomplish this task. You can begin survival training in the classroom and then progress to more interesting, realistic training. Flotation training can be accomplished in a pool, lake, or bay; overnight survival training programs can be arranged or conducted with field exercises. Equipment used for training purposes must be marked "For Training Only"; it cannot be used as mission equipment.

### **RESPONSIBILITIES**

6-56. An ALSS and a Search, Escape, Resistance, Evasion (SERE) Training Program will be developed by each unit ALSO. The unit will be responsible for implementing its ALSS and SERE training program and adding this training into the unit's annual training calendar. Unit ALSS and SERE trainers will be responsible for maintaining all training documentation.

### **REQUIREMENTS**

6-57. A basic survival training program should progress throughout the unit training program. Aviators should be trained using the assigned equipment of the unit beginning with familiarization and leading into sustainment training. The following areas should be considered:

- Basic land survival.
- Hot climate survival.
- Cold climate survival.
- Overwater survival.
- Prisoner-of-war resistance.
- Combat escape and evasion techniques and recovery.
- Unit aircrew recovery procedures and policies.
- Destruction of equipment to prevent enemy use.

### **SURVIVAL TRAINING TOPICS AND OUTLINES**

6-58. The following survival training topics and suggested training outlines aid the ALSO/ALSNCO/ALSET in developing unit Survival Training Program requirements.

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## Basic Land, Hot and Cold Climate, Desert, and Jungle—Consolidated Survival Training

6-59. Appendix H contains consolidated survival training material. The appendix contains information on basic land, hot and cold climate, desert, and jungle survival training.

6-60. **Basic Land Survival.** This training should prepare aircrews, soldiers, and other personnel for survival and evasion operations on land. The mental and physical stresses of survival in all environments are considered. Focus should be on identifying the critical areas for survival and optimizing soldier performance. All elements of the course should provide performance-oriented training in ground evasion, survival, and recovery. ALSE and approved tools for survival will be used in the training exercise. Portions of the training should focus on hide/camouflage, defeat of electronic surveillance, and tracking and countertracking, culminating in an evasion FTX.

6-61. **Hot-Climate Survival.** This training should prepare aircrews for survival in the hot/desert environment. Hot-climate survival training should consist of classroom and field training in psychological and physiological aspects of hot-weather survival, effective and safe use of the vest and onboard aviation life-support equipment, signaling for rescue, travel, and recovery. Emphasis should be on the prevention of heat injuries and the conservation of the human body's resources while affecting a recovery.

6-62. **Cold-Climate Survival.** This training should provide aircrews and others with the knowledge and skills to survive and function in a cold-weather environment. The training will reduce the apprehension associated with surviving in the extreme cold and optimize soldier functioning in this environment.

6-63. Cold-climate survival training should consist of classroom and field training in psychological and physiological aspects of hot-weather survival, effective and safe use of the vest and onboard aviation life-support equipment, signaling for rescue, travel, and recovery. Emphasis should be on the prevention of cold injuries and the profound influence of cold weather on the human body. This training addresses special problems of maintaining body heat, obtaining food and water, protective shelters, escape/evasion, and equipment limitations.

6-64. All personnel receiving this training should have completed or be enrolled in the Army Survival Correspondence Courses:

- AV 0662.
- AV 0663.
- AV 0664.

## Water Survival Program – Overwater Survival Training

6-65. This training should focus on the emergency water landing and egress from the ditched aircraft. This training should include—

- Aircraft ditching procedures using the shallow-water egress trainer (SWET).
- Underwater breathing with an Emergency Breathing System (EBS).
- Floatation equipment use.
- Survival swimming.
- Signaling.
- Water evasion and survival.
- Rescue.

6-66. Appendix I contains water survival program training material. The appendix also has information on overwater survival training.

### **Destruction of Equipment to Prevent Enemy Use**

6-67. Appendix J contains training material on destruction of ALSE and other equipment to prevent enemy use.

### **Combat Escape and Evasion Techniques and Recovery Training**

6-68. This training should prepare aircrews, soldiers, and other personnel for survival and evasion operations on land. The mental and physical stresses of survival in all environments are considered. Focus should be on identifying the critical areas for survival and optimizing soldier performance. All elements of the course should provide performance-oriented training in ground evasion, survival, and recovery. ALSE and approved tools for survival will be used in the training exercise. Portions of the training should focus on hide/camouflage, defeat of electronic surveillance, and tracking and countertracking, culminating in an evasion FTX.

6-69. Appendix K contains information and training material on combat escape, evasion, and recovery techniques.

### **Prisoner-of War-Resistance**

6-70. This training should prepare aircrews, soldiers, and other personnel for survival and evasion operations in case he or she becomes a prisoner of war (PW). Every soldier and DOD employee may become a prisoner of a hostile force, by either armed combat or terrorist activity; therefore, the mental and physical stresses of survival in all environments must be considered. Personnel must understand their responsibilities to resist during captivity. They also must understand the provisions that protect them under the rules of the Geneva Convention of 1949, relative to the treatment of prisoners of war (PW). The unit-training objective should focus on the responsibilities and treatment of PWs. The following references contain additional information: AR 350-30, AR 350-216, and FM 21-77.

6-71. Appendix L contains prisoner-of-war resistance training material and information.

### **Unit Aircrew Recovery Procedures and Policies**

6-72. This training should prepare aircrews, soldiers, and other personnel for aircrew recovery operations. The focus should be on identifying the critical areas for aircrew recovery and optimizing soldier performance. All elements of the course should provide performance-oriented training in recovery. ALSE and approved tools for recovery will be used in the training exercise. Training should focus on aircrew recovery procedures and policies, culminating in an evasion FTX. Appendix M contains unit aircrew recovery procedures training material.

## **SURVIVAL, EVASION, RESISTANCE, AND ESCAPE (SERE) TRAINING**

6-73. SERE training will be conducted according to AR 95-1, AR 350-30, AR 525-90, Joint Publication 3-50.2, Joint Publication 3-50.3, Joint Publication 3-50.21, and this manual.

6-74. Graduates of a formal SERE III-school, using training planning guides approved by the AR 350-30 proponent will only administer SERE-II and -III-level training. SERE training will include the following subject areas:

- SERE I. Code of conduct.
- SERE II. Basic land survival, food and water procurement, shelter building, fire craft, emergency signaling, basic land navigation, and combat search and rescue procedures.
- SERE III. Combat evasion, extraction and recovery, theater special instructions (SPINS), special operations personnel and partisan linkups, exfiltration methods, prisoner-of-war resistance, escape, ISOPREP procedures, and Joint Services Personal Recovery Agency (JPRA) procedures and publications.

6-75. Prisoner-of-war resistance labs will not be conducted unless under the direction of the John F. Kennedy Special Warfare Center according to AR 350-30. Qualified SERE-III school graduates only will administer prisoner-of-war resistance training.

6-76. All unit crew members will have a DD Form 1833 (Isolated Personnel Report—ISOPREP) prepared according to AR 525-90, Joint Publication 3-50.2, Joint Publication 3-50.3, and Joint Publication 3-50.21. The battalion S2 and S3 are responsible for preparing and maintaining each crew member's ISPOREP.

### **Purpose**

6-77. SERE training provides soldiers and leaders with the knowledge and skill to protect themselves and their fellow soldiers.

### **Importance**

6-78. Historically, except during times of protracted war, SERE training has been a neglected topic throughout most of the Army. But today's rapid-deployment conflicts do not allow for such preparation. Today's soldiers will fight as they are equipped and trained today, not after a month or two of

preparation. Every U.S. conflict, to include recent operations other than war, has incurred an isolated soldier, sailor, or airman in a survival/evasion or captivity episode. Therefore, the relevance and importance of SERE training to the military professional is as important as the skills of shooting, moving, and communicating.

## **Methodology**

6-79. Initially, beginning students must be taught what to think. Rote memorization of checklists and physiological fundamentals are a necessary foundation to understand the science of survival. However, the ultimate goal and benefit of quality SERE training is teaching them how to think—how to become proactive, resourceful, adaptive, and innovative problem solvers. The latter requires much more complex, sustained, and individualized training, using highly qualified instructors. However, the results benefit commanders far outside the realm of SERE contingencies by creating more competent and confident warriors. Regardless of training level, hands-on experiential training is always the most beneficial and instills the greatest retention of skills and overall confidence. In the case of SERE field craft skills, every effort should be made to use hands-on training events with qualified instructors instead of lecture.

## **Scope**

6-80. The Training Requirements Outline, Figure 6-1, demonstrates some of the major subject capabilities under each of the survival, evasion, resistance, escape, and recovery topic areas. Also included are some of the specific tasks, skills, or knowledge goals required to support a student's understanding/capability to succeed in a SERE scenario. The examples below are not provided as a minimum standard or as an all-inclusive checklist. They should be used as a guide to assist commanders and SERE trainers in developing an appropriate and sustainable SERE/ALSS training program that is relevant to such areas as the unit's mission, operational area environment, and risk of capture. With the proper instructors, many of the TTP and classes can be performed as opportunity training during other field exercises or training events throughout the year.

**SERE Introduction****Code of Conduct**

- ☐ Purpose of the Code of Conduct
- ☐ Duties and Responsibilities of the Soldier in a SERE Situation
- ☐ Understanding Each of the Articles
- ☐ Historical Examples Relating to Applying the Code of Conduct and Its Implications

**Survival Topics****Introduction to Wilderness Survival**

- ☐ Common Characteristics/Traits of Survivors
- ☐ Personalizing Your Will to Survive
- ☐ Most Common Causes of Survival/Isolation Episodes
- ☐ Accepting the Possibility of an Eventual Episode
- ☐ Physiological Requirements to Sustain Life (Rule of Threes)
- ☐ Overcoming Psychological Stresses
- ☐ Situational Awareness and Decision-Making Cycle
- ☐ Benefits of Wilderness Emergency Survival Training and Skills for the Soldier

**Individual Survival Contingency Planning**

- ☐ Personal Vulnerability Assessment
- ☐ Climate and Terrain Considerations
- ☐ Immunizations and Health Risks
- ☐ Political Stability and Infrastructure
- ☐ Expected Duration Considerations
- ☐ Importance of Flight/Float/Trip Plans to Reduce Duration

**Survival Kits and Equipment**

- ☐ General Guidelines and Characteristics of Survival Kits/Equipment
- ☐ Skills versus Equipment Effect on Size and Utility
- ☐ Survival Kit Component Categories and Purpose (Basic Kits)
- ☐ Methods of Carry/Container Attributes
- ☐ Commercial Production Survival Kits Evaluation
- ☐ Military Specification Survival Kits/Individual Components (Proper Use, Improvised Uses)
- ☐ Advantages to Personally Constructed Survival Kits
- ☐ Off-the-Home-Shelf Improvisational Items to Augment and Improve Kits

**Figure 6-1. Training Requirements Outline**



<b>Emergency Survival Immediate Actions</b>
<input type="checkbox"/> Keyword “S.U.R.V.I.V.A.L.”
<input type="checkbox"/> Situational Awareness and Identification
<input type="checkbox"/> Priorities of Work (Individual versus Group)
<input type="checkbox"/> Decision Making During High-Stress Episodes
<input type="checkbox"/> Personal Inventory of Supplies, Conditions, and Needs
<b>Signaling for Rescue/Recovery</b>
<input type="checkbox"/> Electronic Communication Devices Such as Beacons and Transceivers
<input type="checkbox"/> Emergency Frequencies, Monitoring, and Use
<input type="checkbox"/> Importance of Flight/Float/Contingency Plans as Initial Signal
<input type="checkbox"/> Characteristics of Effective Visual Signals
<input type="checkbox"/> Active and Passive Reflective Devices (Mirrors, Mylar™/Radar, and Others)
<input type="checkbox"/> Use and Limits of Pyrotechnics (Flares, Smoke)
<input type="checkbox"/> Other Night Active Visual Devices and Use Such as Lights and Strobes
<input type="checkbox"/> Short-Range Audio Signaling Devices and Use
<input type="checkbox"/> Field-Expedient Signaling Techniques (Visual and Audio)
<input type="checkbox"/> Ground-to-Air Communication Signals (ICAO Standards/After Initial Contact)
<input type="checkbox"/> Environment-Specific Signaling Considerations (Arctic, Desert, Tropic, Mountain, and Ocean)
<b>Shelters</b>
<input type="checkbox"/> Proper Clothing and Outerwear – Your First Line of Defense
<input type="checkbox"/> Finding Natural Cover
<input type="checkbox"/> Site Selection for Shelters
<input type="checkbox"/> Shelter Types and Uses
<input type="checkbox"/> Man-made and Natural-Shelter Materials
<input type="checkbox"/> Construction Considerations (Complexity, Effort, and Efficiency)
<input type="checkbox"/> Insulation and Resilience Properties of Building Materials
<input type="checkbox"/> Improvised Lashing and Binding Techniques
<input type="checkbox"/> Environment-Specific Shelter Considerations (Arctic, Desert, Tropic, Mountain, and Ocean)
<b>Firemaking</b>
<input type="checkbox"/> Fire Materials (Initiators, Tinders, Kindling, Fuels)
<input type="checkbox"/> Fire Building/Preparation Considerations
<input type="checkbox"/> Various Fire Lays and Their Uses
<input type="checkbox"/> Manufactured Fire-Starters Demonstrations
<input type="checkbox"/> Improvised Fire-Starting Demonstrations
<input type="checkbox"/> Primitive Fire-Starting Myths and Considerations

Figure 6-1. Training Requirements Outline (Continued)

<b>Water</b>
<input type="checkbox"/> Symptoms, Effects, and Treatment of Dehydration
<input type="checkbox"/> Finding Natural-Water Sources
<input type="checkbox"/> Water Procurement Techniques
<input type="checkbox"/> Dispelling Myths of Water Substitutes
<input type="checkbox"/> Field-Expedient Water Production
<input type="checkbox"/> Water-Filtration Techniques
<input type="checkbox"/> Water-Purification Techniques
<input type="checkbox"/> Field-Expedient Water Storage and Containers
<input type="checkbox"/> Environment-Specific Water Considerations (Arctic, Desert, Tropic, Mountain, and Ocean)
<b>Survival Uses for Ropes, Cordage, and Knots</b>
<input type="checkbox"/> Types of Rope and Cordage (Advantages/Disadvantages)
<input type="checkbox"/> Basic and Specialty Knots
<input type="checkbox"/> Lashing and Binding Techniques
<input type="checkbox"/> Field-Expedient Horizontal Systems (Bridges and Safety Lines)
<input type="checkbox"/> Field-Expedient Vertical Systems (Ladders and Hoists)
<input type="checkbox"/> Field-Expedient Rope Making
<b>Field-Expedient Tools for Protection and Sustainment</b>
<input type="checkbox"/> Benefits and Survival Uses for Tools and Weapons
<input type="checkbox"/> Hammering, Pounding Clubs—Simple, Weighted, and Sling
<input type="checkbox"/> Cutting, Puncturing Edged Tools and Weapons
<input type="checkbox"/> Throwing Weapons—Bolo, Rabbit Stick, and Atlatl
<input type="checkbox"/> Projectile Weapons—Bows and Slingshots
<input type="checkbox"/> Carrying Tools—Rucksacks, Sleds
<input type="checkbox"/> Advanced Tools—Drills and Specialty Construction Devices
<b>Survival Medicine</b>
<input type="checkbox"/> Differences Between First Aid and Survival Medicine Techniques
<input type="checkbox"/> Preventive Medicine Prior to Episode
<input type="checkbox"/> Maintenance of Health and Personal Hygiene During Episode
<input type="checkbox"/> Immediate Emergency Medical Techniques When “911” is Unavailable
<input type="checkbox"/> Treatment of Shock (Wilderness First Responder and SOLO Techniques)
<input type="checkbox"/> Bone and Joint Injuries and Treatments
<input type="checkbox"/> Head, Eyes, Ears, Nose, and Throat Injuries/Problems
<input type="checkbox"/> Hot/Cold/Wet Overexposure Injuries and Treatments
<input type="checkbox"/> Insect, Reptile, and Animal Bites and Treatments
<input type="checkbox"/> External and Internal Parasites Prevention and Treatments
<input type="checkbox"/> Mountain/High-Altitude Sickness and Treatment
<input type="checkbox"/> Field-Expedient Bandages, Splinting, and Braces
<input type="checkbox"/> Medicinal Use of Plants and Herbal Medicine Treatment Considerations
<input type="checkbox"/> Environment-Specific Medical Considerations (Arctic, Desert, Tropic, Mountain, and Ocean)

Figure 6-1. Training Requirements Outline (Continued)

<b>Survival Uses of Plants</b>
<input type="checkbox"/> Plant Identification Terminology
<input type="checkbox"/> General Guidelines
<input type="checkbox"/> Harvesting and Preparation
<input type="checkbox"/> Universal Edibility Test
<input type="checkbox"/> Common Plants and Their Uses (Provided by Specific Geographic or Climatic Region)
<b>Survival Food Procurement</b>
<input type="checkbox"/> Types of Nonplant Foods
<input type="checkbox"/> Overcoming Cultural Food Prejudices
<input type="checkbox"/> Insects as a Food Source
<input type="checkbox"/> Reptiles as a Food Source
<input type="checkbox"/> Nonfish Marine Life as a Food Source
<input type="checkbox"/> Survival Fishing Improvised Techniques (Passive versus Active)
<input type="checkbox"/> Trapping and Snaring Birds and Mammals for Food (Principles, General Guidelines, and Types):
➤ Baited versus Nonbaited and Placement
➤ Types of Snares: Strangle, Mangle, and Hold
➤ Power Sources for Hanging Type of Snares
➤ Examples Appropriate for the Region and Food Source Targeted
<input type="checkbox"/> Preparation of Fish and Game for Consumption
<input type="checkbox"/> Cooking Methods for Fish and Game
<input type="checkbox"/> Preparation and Storage of Meats for Extended Storage/Use
<b>Arctic/Cold-Weather Survival</b>
<input type="checkbox"/> Special Environmental Considerations in Planning for Extreme Latitudes
<input type="checkbox"/> Immediate Actions and Priorities
<input type="checkbox"/> Unique Hazards and Challenges
<input type="checkbox"/> Recommended Special Tools and Equipment
<input type="checkbox"/> Signaling Techniques
<input type="checkbox"/> Clothing and Shelter Considerations
<input type="checkbox"/> Firemaking Techniques
<input type="checkbox"/> Water and Food Sources
<input type="checkbox"/> Environmentally Induced Medical Hazards
<b>Desert/Hot- and Arid-Weather Survival</b>
<input type="checkbox"/> Special Environmental Considerations in Planning for Extreme High Temperatures
<input type="checkbox"/> Immediate Actions and Priorities
<input type="checkbox"/> Unique Hazards and Challenges
<input type="checkbox"/> Recommended Special Tools and Equipment
<input type="checkbox"/> Signaling Techniques
<input type="checkbox"/> Clothing and Shelter Considerations
<input type="checkbox"/> Firemaking Techniques
<input type="checkbox"/> Water and Food Sources
<input type="checkbox"/> Environmentally Induced Medical Hazards

Figure 6-1. Training Requirements Outline (Continued)

<b>Tropic-/Hot- and Wet-Weather Survival</b>
<input type="checkbox"/> Special Environmental Considerations in Planning for Jungles and Tropic Swamps
<input type="checkbox"/> Immediate Actions and Priorities
<input type="checkbox"/> Unique Hazards and Challenges
<input type="checkbox"/> Recommended Special Tools and Equipment
<input type="checkbox"/> Signaling Techniques
<input type="checkbox"/> Clothing and Shelter Considerations
<input type="checkbox"/> Firemaking Techniques
<input type="checkbox"/> Water and Food Sources
<input type="checkbox"/> Environmentally Induced Medical Hazards
<b>Mountain/High Altitude Survival</b>
<input type="checkbox"/> Special Environmental and Terrain Considerations in Planning for Mountainous Regions
<input type="checkbox"/> Immediate Actions and Priorities
<input type="checkbox"/> Unique Hazards and Challenges
<input type="checkbox"/> Recommended Special Tools and Equipment
<input type="checkbox"/> Signaling Techniques
<input type="checkbox"/> Clothing and Shelter Considerations
<input type="checkbox"/> Firemaking Techniques
<input type="checkbox"/> Water and Food Sources
<input type="checkbox"/> Environmental/Altitude-Induced Medical Hazards
<b>Overwater/Sea and Coastal Survival</b>
<input type="checkbox"/> Special Environmental Considerations in Planning for Ocean/Sea Regions
<input type="checkbox"/> Immediate Actions and Priorities (Aircraft Ditching and Ship Abandonment)
<input type="checkbox"/> Unique Hazards and Challenges
<input type="checkbox"/> Recommended Special Tools and Equipment
<input type="checkbox"/> Signaling Techniques
<input type="checkbox"/> Clothing and Shelter Considerations
<input type="checkbox"/> Firemaking Techniques
<input type="checkbox"/> Water and Food Sources
<input type="checkbox"/> Environmentally-Induced Medical Hazards
<b><u>Evasion Topics</u></b>
<b>Legal Aspects of Evasion</b>
<input type="checkbox"/> Legal Differences Between an Evader and an Escapee
<input type="checkbox"/> Legal Duties, Obligations, and Rights of an Evader

Figure 6-1. Training Requirements Outline (Continued)

<b>Evasion Types</b>
<input type="checkbox"/> Evasion Distance
➤ Short-Range Evasion
➤ Long-Range Evasion
<input type="checkbox"/> Evasion Methods
➤ Evasion by Exfiltration
➤ Evasion by Deception
➤ Evasion by Deep Penetration
<input type="checkbox"/> Use of Assistance
➤ Unassisted Evasion (Most Common- YOYO: You're On Your Own)
➤ Assisted Evasion (Planned versus Unplanned)
<b>Evasion Planning</b>
<input type="checkbox"/> Information Sources for Evasion Planning (ATO SPINS, Country Studies, and SERE Guides)
<input type="checkbox"/> Preparing an Evasion Plan of Action (E.P.A.)
<input type="checkbox"/> How to put an E.P.A. to Work for You
<b>Evasion Equipment/Aids/Kits</b>
<input type="checkbox"/> Evasion Maps with Supplemental Local Survival Information
<input type="checkbox"/> Use of Blood Chits
<input type="checkbox"/> Use of Pointee-Talkees and Cross-Cultural Communication Guides
<input type="checkbox"/> Specialized MILSPEC Navigation/Movement/Recovery Equipment
<input type="checkbox"/> Improvisational Items to Augment and Improve Evasion Capabilities
<b>Land Navigation/Field-Expedient Direction Finding</b>
<input type="checkbox"/> Map Reading
➤ Types of Maps
➤ Reference Systems (MGRS, UTM, GEOREF, and Others)
➤ Measuring Scale and Distances
➤ Measuring Elevation and Relief (Terrain Features)
➤ Determining Directions (Azimuths and Declination)
<input type="checkbox"/> Use of the Compass (Types, Handling, and Effects on Accuracy)
<input type="checkbox"/> Use of the GPS (Types, Handling, Effects on Accuracy, and Reference Datum)
<input type="checkbox"/> Construction and Use of Improvised Compasses
<input type="checkbox"/> Daytime Navigation Expedients
➤ Using the Sun and Shadows (Shadow Tip and Watch Methods)
➤ Other Methods and Their Reliability
<input type="checkbox"/> Nighttime Navigation Expedients
➤ Celestial Navigation (Northern and Southern Hemisphere)
➤ Using the Moon
➤ Using Single Unidentified Stars With Improvised Sextant

Figure 6-1. Training Requirements Outline (Continued)

<b>Evasion Movement Techniques (Individual)</b>
<input type="checkbox"/> Initiating Evasion (Causes and Immediate Actions)
<input type="checkbox"/> Proper Techniques for Evading Enemy Forces in Hostile/Denied Areas
<input type="checkbox"/> Improvised Camouflage/Concealment Techniques
<input type="checkbox"/> Selection and Use of Hide Sites (B.L.I.S.)
<input type="checkbox"/> Selection and Use of Hold-Up Sites
<input type="checkbox"/> Techniques for Crossing Danger Areas
<input type="checkbox"/> Individual versus Group Movement Techniques
<input type="checkbox"/> Dog and Visual Tracker Evasion Techniques
<input type="checkbox"/> Field-Expedient Water Crossings
<input type="checkbox"/> Border Crossings and Barrier Infiltration/Exfiltration
<input type="checkbox"/> Link-Up Operations
➤ Friendly Forces (Patrols/FLOT)
➤ Assisted Evasion Teams/Mechanisms
<b>Survival Challenges During Evasion</b>
<input type="checkbox"/> Signaling/Communications
<input type="checkbox"/> Shelter/Protection
<input type="checkbox"/> Water Procurement
<input type="checkbox"/> Food Procurement
<b>Regional/Environmental Aspects of Evasion</b>
<input type="checkbox"/> Low-Intensity/Midintensity/High-Intensity Conflict
<input type="checkbox"/> Mountainous/Rugged Topography Considerations
<input type="checkbox"/> Arctic/Cold-Weather Considerations
<input type="checkbox"/> Desert Considerations
<input type="checkbox"/> Jungle Considerations
<input type="checkbox"/> Urban/Built-Up Area Considerations
<input type="checkbox"/> Waterborne Evasion Considerations
<b><u>Resistance Topics</u></b>
<b>Challenges of Captivity</b>
<input type="checkbox"/> Stages of Captivity (Wartime Scenario: From Enemy FLOT to Rear Detention Facility)
<input type="checkbox"/> Physiological Aspects of Captivity
<input type="checkbox"/> Psychological Aspects of Captivity
<input type="checkbox"/> Methods of Overcoming Stresses Imposed by Captivity
<input type="checkbox"/> Modifying Survival Techniques Use During Captivity
<input type="checkbox"/> Preventive Medicine and Common Illnesses During Captivity
<input type="checkbox"/> Maintaining the Will to Survive

Figure 6-1. Training Requirements Outline (Continued)

**Note:** Other DOD resistance publications contain additional how-to-escape subjects not appropriate for inclusion in this public-release manual.

<b>Legal Aspects of Captivity</b>
<input type="checkbox"/> Types of Captivity/Detention (Wartime/Peacetime Governmental Detention/Hostage)
<input type="checkbox"/> Legal Obligations Imposed as a Result of Captivity (Not Hostage)
<input type="checkbox"/> Geneva Conventions, UCMJ, and Code of Conduct as a Legal/Moral Guide to Behavior

**Note:** Other DOD resistance publications contain additional how-to-resist subjects not appropriate for inclusion in this public-release manual.

### **Escape Topics**

<b>Legal Aspects of Escape</b>
<input type="checkbox"/> Legal Duties, Obligations, and Rights of an Escapee
<input type="checkbox"/> Effects of Escape

### **Personnel Recovery Operations**

<b>DOD Personnel Recovery Program/System</b>
<input type="checkbox"/> Overview of DOD Personnel Recovery Spectrum (Conventional and Nonconventional)
<input type="checkbox"/> DOD Governing Regulations and Emerging Doctrine
<input type="checkbox"/> Five Phases of P.R. Operations (Report, Locate, Support, Recover, and Return)
<input type="checkbox"/> Factors Affecting Personnel-Recovery Operations
<input type="checkbox"/> Non-DOD Governmental Support to Personnel—Recovery Operations
<input type="checkbox"/> Authentication (Use of ISOPREP DD1833, PLS Codes, and Improvised Techniques)
<input type="checkbox"/> Personnel Recovery Terms, Acronyms, and Their Definitions

<b>Combat Search and Rescue Operations</b>
<input type="checkbox"/> CSAR Governing Regulations and Doctrine
<input type="checkbox"/> Historical Perspectives in CSAR Operations (Factors and Statistics)
<input type="checkbox"/> CSAR Mission Planning Considerations
<input type="checkbox"/> C3I Architecture and Connectivity for CSAR Operations (RCC/JSRC)
<input type="checkbox"/> CSAR Orders, Appendices, Message Formats, and Reports
<input type="checkbox"/> CSAR Operation Decision Matrix (PERT Diagram/Incident Logs and Checklists)
<input type="checkbox"/> CSAR Capable Assets (Includes Interoperability Matrix for Joint Operations)
<input type="checkbox"/> Organization of the CSAR Task Force (Minimalist to Robust Options)
<input type="checkbox"/> Alert/Reaction Postures and Their Effect on Complexity
<input type="checkbox"/> Organization and Tasks of Ground-Party Rescue Personnel
<input type="checkbox"/> Recommended Special Rescue Tools and Equipment

**Figure 6-1. Training Requirements Outline (Continued)**

<b>Helicopter Recovery Devices and Safety</b>
<input type="checkbox"/> General Helicopter Operations Safety (Landing versus Hoist, on Land/Water)
<input type="checkbox"/> Emergency Egress/Equipment/Postcrash Procedures
<input type="checkbox"/> Vertical Recovery Devices and Their Use
➤ Horse Collar/Rescue Strop
➤ Jungle/Forest Penetrator
➤ Basket/Stokes Litter
➤ Ladders (Caving/Jacobs)
➤ FRIES/SPIES/STABO
➤ Improvised Devices (MacGuire, Hanson, Palmer, and Apache Self-Recovery Techniques)

**Figure 6-1. Training Requirements Outline (Concluded)**

## **SURVIVAL TRAINING CENTERS AND SCHOOLS**

### **UNITED STATES AIR FORCE**

6-81. The address for Air Force SERE training is U.S. Air Force, 336th TRG, Survival, Evasion, Resistance, and Escape (SERE) Fairchild AFB, WA 99011 <https://www.fairchild.af.mil/336TRG/main/index.htm>.

### **Level-C Wartime SERE**

6-82. **Course S-V80-A, Combat Survival Training.** The 22d Training Squadron conducts the combat survival course at Fairchild Air Force Base, Washington, and in the mountains of the Colville and Kaniksu National Forests, 70 miles north of Spokane. The course lasts 17 days and includes instruction in—

- Parachute-landing falls.
- Life-support equipment procedures.
- Shelter construction.
- Food procurement and preparation.
- Day and night land navigation.
- Ground-to-air signaling.
- Vectoring rescue aircraft.
- Helicopter hoist training.
- Evasion travel.
- Camouflage.
- Resistance in captivity.

6-83. Combat survival training begins on a Monday with five days of academic, parachute, and laboratory training. On Saturday morning, students travel two hours to the Colville National Forest where they spend six days in the field practicing what they were taught in academics. Students



return on Thursday after capture and field interrogations. A two-day resistance-training laboratory follows captivity familiarization and three days of resistance-training academics. Students graduate on the following Wednesday.

**6-84. Course S-V81-A, Survival, Evasion, Resistance and Escape Specialist Course.** The 66th Training Squadron conducts the SERE training instructor course in select areas of Washington and Oregon. This physically demanding six-month program teaches future SERE instructors how to teach aircrew members to survive in any environment. The course includes instruction in—

- Basic survival.
- Medical.
- Land navigation.
- Evasion.
- Arctic survival.
- Teaching techniques.
- Rough-land evacuation.
- Coastal survival.
- Tropics/river survival.
- Desert survival.

6-85. Basic survival, land navigation, evasion, and teaching techniques are taught in the Colville National Forest; Arctic training is conducted on Kalispell Peak near Cusick, Washington; desert training is conducted in an arid sand dune area near George, Washington; rough-land evacuation is conducted near Tum-Tum, Washington; tropics/river survival is taught in the Olympic National Park, Washington; and coastal/open-sea survival is conducted on Tillamook Bay off the Oregon coast.

6-86. The course comprises 11 phases. Familiarization is the first phase. Twelve days are spent learning the basics of survival and adjusting to the harsh reality of surviving with only ingenuity, instinct, and a small amount of equipment.

6-87. Learning to rely on a map and compass is the focus of the land-navigation training phase. Students travel 30 kilometers in eight days over rough terrain and through dense underbrush using nothing more than a map and compass to find their way. Five days in subzero temperatures—living in snow shelters and melting snow and ice for water—combine to give the Arctic phase its character. Students travel to one of the highest peaks in eastern Washington, Kalispell Peak, at an elevation of 6,855 feet. There they construct igloos, snow caves, and fighter trenches for protection from the cold.

6-88. In the next phase, students learn to convey their new knowledge to others. Teaching techniques give the students the skills and confidence that they need to be effective instructors upon graduation.

6-89. The objective of the next eight-day phase of evasion is to avoid capture by enemy troops. This phase gives the students a healthy respect for the persistence of enemy patrols and patience of captors. Emergency medical treatment instruction is during this phase of training. Future instructors practice life-saving first aid using simulated injuries that they might have to treat someday. The physical demands of lowering injured, litter-bound students down a sheer rock cliff provide the challenge for the three days of rough-land evacuation training. This phase comprises climbing, rappelling, and evacuation techniques.

6-90. Two weeks of living on the coast and shooting rapids are an exercise in survival. First, a camp is set up on the Oregon coast. Food is plentiful, and students usually feast on seaweed, raw oysters, crab, and other seafood. With full bellies and full of apprehension, students enter the open-water phase and have to deal with seasickness, simulated injuries, and problems with their 20-man rafts.

6-91. The tropics/river phase comprises five days on Washington's Hoh River. Nights are spent in shelters built from materials on hand to withstand the wet climate and insects. The time spent on the river demands every student's concentration as they plot routes of travel and navigate the river in one- and seven-man rafts.

6-92. **Course S-V84-A, Underwater Egress Training.** This training uses the modular egress training simulator, shown in Figure 6-2.



**Figure 6-2. The Modular Egress Training Simulator (METS™)**

**Note:** Medical records (with current AF Form 1042) and orders are required for S-V84-A, Underwater Egress Training. Hand carry the form to Student Administration, Building 1252 (Survival Billeting) for in-processing. In-processing show time is 0645 the day of scheduled training.

6-93. Underwater Egress Training is a unique course on ditching a helicopter in open seas and being able to respond to possible aircraft rollover. The latest in egress technologies provides realistic training situations.

6-94. The instructors are hand picked. Everyone is highly skilled and knowledgeable in all facets of water survival, as well as other facets of SERE. The sole mission of the instructors is to provide the best training possible. The school maintains the only SERE instructor dive program to ensure your safety.

6-95. Training here is viewed as more than just a job. You can feel confident that you are attending the best water-survival school in DOD. Should you encounter difficulty concerning any matter, feel free to discuss it with the staff in person (DSN: 657-5918), or use the existing avenues for feedback in the form of critiques/assessments. Only with your cooperation are we able to provide an acceptable training environment and implement improvements.

6-96. **Course S-V86-A, Water Survival Training, Parachuting.** The USAF Water Survival School, (Detachment 2, 66th Training Squadron) is assigned to the 336th Training Group with headquarters at Fairchild Air Force Base, Washington. The group—a component of the Air Education and Training Command—is responsible for training USAF aircrew members to survive in any environment in the world.

6-97. The USAF Water Survival School became fully operational in July 1971, replacing schools in Japan, Okinawa, and northwest Florida. Since then, the school has graduated more than 100,000 students.

6-98. The school's mission is to ensure that each student is prepared to survive an ejection or a bailout at sea. Subjects taught include parachuting into water, survival equipment, search-and-rescue techniques, medical and psychological aspects of sea survival, sustenance, and hazardous marine life. Hands-on training is emphasized, and a stepping stone approach is used to gradually bring the students up to proficiency in using their equipment.

6-99. The USAF Water Survival School trains in Pensacola Bay. Under controlled conditions, students are placed in situations similar to those that they might encounter in an actual emergency.

6-100. Students receive one day of academic training, one day of hands-on equipment training, and two days of open-water training. This training includes life-raft survival and psychological and physiological stress training, as well as large vessel and helicopter pickups. Each student parachutes into an open saltwater environment three times, using standardized water-entry and recovery procedures.

6-101. The school graduates about 2,640 crew members a year from its four-day course. This includes active duty Air Force, Air National Guard, and Reserve members. Select Army, Navy, NASA, and personnel from allied countries have also completed Air Force water-survival training.

**6-102. Course S-V87-A, Arctic Survival Training.** Detachment 1, 66th Training Squadron, conducts Arctic survival training at Eielson Air Force Base, Alaska. The course is five days with instruction in familiarization with the Arctic environment, medical, personal protection (clothing, shelter construction, and fire craft), sustenance (food and water procurement), and signaling.

6-103. There are 20 classes a year, starting in October and finishing in March. Classes begin on Monday morning with two days of academic and laboratory training. On Wednesday morning, the students are transported to the field training area where they practice the various survival techniques taught during the academic phase of training. Friday, after completion of all field requirements, they are transported back to the detachment for graduation.

**6-104. Course S-V90-A, Water Survival Training, Nonparachuting.** The 66th Training Squadron conducts water-survival training for aircrew members of nonejection seat aircraft at Fairchild Air Force Base, Washington, in a swimming pool. The course lasts two days and includes instruction in signaling rescue aircraft, hazardous marine life, food and water procurement, medical aspects of water survival, personal protection, and life raft immediate-action procedures.

6-105. Day one begins with an introduction to the open-water environment. This lesson covers the effect of climate, open water, and political attitudes on a survivor. Next comes personal protection; students are introduced to the equipment that they will have to help protect them. This instruction is followed by sustenance; students are instructed on the principles and techniques allowing them to meet food and water needs during a survival episode. The afternoon starts with an egress and recovery laboratory. Students have the opportunity to don and adjust commonly used life-preserver units and the quick-donning antiexposure suit. They are then presented with a narration/demonstration of the different egress methods and how to board and perform the immediate-action steps associated with various life rafts in the Air Force inventory. Instructors demonstrate how to prepare the rafts for both surface vessel and helicopter recoveries and show students how to safely mount a variety of recovery devices. Students begin a round robin of practices with the 1-, 7-, and 20-man rafts and mount two recovery devices. The final activity of day one is the survival living laboratory, in which students work with the survival accessory kit of the 20-man raft, practicing care and use and personal-protection skills.

6-106. Day two starts with the signaling and communications for the recovery laboratory. Students build their confidence in the rescue system by learning the procedures to attract rescue and guiding an aircraft to the survivor's position. Students may also operate electronic signaling devices.

6-107. Conducting medical training finishes academics. Medical training allows the students to familiarize themselves with the signs, symptoms, treatment, and prevention of illnesses and injuries common to the open water. This phase also includes a block of instruction on recognizing and

protecting against hazardous marine life, which can bite, sting, and cause puncture wounds. The academic test follows.

6-108. Students are then given a performance evaluation in a dual scenario. The scenario allows students to put together the information that they have learned and affords them the opportunity to practice their skills in a realistic simulation with instructor guidance. After a thorough debrief, students are given another opportunity to practice. This time, the instructor serves only as a safety monitor. Upon completion of a second debrief, the students graduate.

## UNITED STATES ARMY

6-109. The address for the United States Army SERE training is United States Army John F. Kennedy Special Warfare Center and School, Fort Bragg, NC 28310 <https://asociweb/swcs/tng/default.htm>.

## Level-C Wartime SERE

6-110. The course description and prerequisites are the following:

- Course # 3A-F38/012-F27.
- School code 331.
- Course Title Survival, Evasion, Resistance, and Escape Course (SERE).
- Course Length (19 Days).

6-111. Because some students will be coming from distant stations (TDY students) and other students are already stationed at Fort Bragg (local students), some of the following information will not apply equally.

6-112. Students must have all their affairs in order before in-processing. No time will be available to return leased vehicles or perform other noncourse activities after reporting for in-processing.

6-113. TDY students arriving at Fort Bragg should register at Moon Hall NLT Sunday evening, the day before the course start date. Moon Hall is located in Building D-3601; telephone DSN 236-7700 or commercial (910) 396-7700. Moon Hall is for billeting only. Course cadre will *not* be present at check-in.

6-114. Students must provide a copy of orders to the Moon Hall receptionist at check-in. To expedite checkout, management suggests paying all expenses the night before checkout to avoid checkout lines. Those students who settle their accounts the night before checkout should inquire, at that time, about express checkout for course students.

6-115. TDY students staying overnight at Moon Hall should be checked out of Moon Hall before 0645 Monday. Schedule a reservation for the eighteenth and nineteenth day of class. The first day of class is Monday. If you do not schedule a reservation, SERE Operations will try to schedule a two-day reservation at Moon Hall for all TDY personnel at the completion of the course. If no rooms are available at Moon Hall at the end of the course, a statement of nonavailability will be issued.

6-116. Transportation is scheduled to arrive at Moon Hall at 0700 Monday. Transportation will depart Moon Hall at 0715 and arrive at the Special Operations Academic Facility, Building D-3915, at about 0720. Students will bring all bags on transportation to in-processing. There is no time to return to Moon Hall after 0730.

6-117. All students report before 0730 at the USAJFKSWCS Special Operations Academic Facility (SOAF), Building D-3915. Zabitosky Road, Ardennes Street, Merrill Street, and Bastogne Drive border Building D-3915. (Flyers will be posted at the SOAF entrance SDO desk informing students about which classroom to report to.)

6-118. All students will report with the following items. Failure to report with the prerequisite items will result in failure to attend the SERE course.

- Identification card and identification tags.
- Orders (five copies). TDY students will have DD Form 1610 or Format 400 TDY orders. Local students will have Format 440 attachment orders. Government quarters are provided, and field conditions apply. Students will have access to a dining facility.
- Medical records with an appropriate surgeon-approved examination identified for the purpose of attending SERE school; the physical must be an original with the SWC surgeon or a USASOC surgeon stamp. Soldiers assigned to USASOC units may obtain the SERE physical stamp through their unit medical officer.
- Soldiers assigned to non-USASOC units must submit their physicals to the SWTG(A) S3 MED Training for approval NLT 45 days before the start date.
- Original medical records.

**Note:** When SERE is done in immediate succession with SFQC, the physical that was acceptable for SFAS/SFQC will suffice, if the physical is within a two-year period. In addition, the student must possess a normal EKG and a satisfactory urinalysis test within two years of the course completion date and must report with medical records on the day of in-processing. Any abnormalities will have accompanying evaluation by an appropriate medical specialist.

- Organization/unit surgeons will base their determinations of a soldier's medical qualification/disqualification on AR 40-501.
- Soldiers requesting waivers for disqualifying medical conditions will submit their physical examinations along with a memorandum signed by their unit commander requesting the medical waiver (NLT 30 days before class start date) through the First Special Warfare Training Group S3 (where waivers are considered). The 1<sup>st</sup> Special Warfare Training Group S3 address is—

Commander  
1ST SWTG(A) S3  
ATTN: MED Training  
Fort Bragg, NC 28310

- DA Form 705 (PT test) or equivalent evaluation. All students must attain a score of 180 points on the APRT, with at least 60 points per event, passed within 30 days of reporting date to the SERE High-Risk Level "C" Course and given according to FM 21-20.
- Annual combat water-survival swim test certification (CWSST) or memorandum signed by student's command; CWSST is not needed for Marines, Special Forces-qualified soldiers, or Ranger-qualified soldiers.
- All required clothing and equipment according to the packing list below.
- Original security verification form from the unit S2 for minimum secret clearance.
- Minimum of \$80.00 for meals or a meal card; must have \$11.35 exact change at the time of in-processing.

6-119. The U.S. Army SERE (Level C) students are required to report to the SERE course for in-processing with the items listed in Figure 6-3 through Figure 6-5.

Quantity	
COAT, BDU.....	1 EA
TROUSERS, BDU.....	1 EA
CAP, BDU .....	1 EA
BELT, WEB, BLACK WITH BUCKLE (SUBDUED NONSTRETCH) .....	1 EA
UNDERSHIRT, BROWN.....	1 EA
UNDERSHORTS, BROWN (OPTIONAL).....	1 EA
SOCKS, WOOL, CUSHIONED SOLE .....	1 PR
BOOTS, JUNGLE (SUMMER MONTHS) .....	1 PR
*BOOTS, CBT, BLACK LEATHER, NONINSULATED (WINTER MONTHS) .....	1 PR
ID CARD.....	1 EA
ID TAGS .....	1 SET
WATCH, WRIST .....	1 EA
FIRE STARTING DEVICE (LIGHTER, MAG BAR) .....	1 EA
NOTEBOOK W/PEN OR PENCIL .....	1 EA

**NOTE:** Cash \$80.00 for meals if not on a meal card (small bills). Must have \$11.35 exact change for in-processing.

**Figure 6-3. Packing List Items Worn for In-Processing**

BAG, DUFFEL (OR AVIATOR'S KIT BAG) W/LOCK .....	1 EA
BAG, BARRACKS .....	1 EA
BAG, WATERPROOF .....	2 EA
CAP, BDU (IN ADDITION TO THE ONE WORN) .....	1 EA
SUSPENDERS, LCE OR Lbv (ARMY ISSUE) .....	1 EA
BELT, PISTOL .....	1 EA
CANTEEN, 1 QT .....	2 EA
COVER, CANTEEN, 1 QT .....	2 EA
CUP, CANTEEN .....	1 EA
COMPASS, LENSATIC W/CASE .....	1 EA
DRESSING, FIRST AID W/CASE .....	1 EA
POUCH, AMMO .....	2 EA
FIELD PACK, ALICE, LARGE W/FRAME (NONMODIFIED) .....	1 EA
FLASHLIGHT W/ BATTERIES .....	1 EA
TROUSERS, BDU .....	3 EA
COAT, BDU .....	3 EA
PONCHO, WET WEATHER .....	2 EA
LINER, PONCHO .....	1 EA
SOCKS, WOOL, CUSHIONED SOLE .....	6 PR
UNDERSHIRT, BROWN .....	4 EA
SPORTS BRA (FEMALES ONLY) .....	4 EA
UNDERSHORTS, BROWN (OPTIONAL FOR MALES) .....	4 EA
TOWELS .....	2 EA
PT UNIFORM (SERVICE ISSUE) .....	1 EA
GLOVES, BLACK LEATHER W/WOOL INSERTS .....	1 PR
PARKA, WET WEATHER (GORETEX®) .....	1 EA
TROUSERS, WET WEATHER (GORETEX®) .....	1 EA
UNDERGARMENT, INSULATING, UPPER EXTREMITY CW (THE WOOL SWEATER, POLYPRO™ TOP, FIELD JACKET LINER) .....	1 EA
GLASSES, PRESCRIPTION, MILITARY ISSUE (AS REQ) .....	2 PR

**NOTE:** Contact lenses may be worn until the FTX portion of the SERE course.

BOOTS, JUNGLE (SUMMER MONTHS) .....	1 PR
*BOOTS, CBT, BLACK LEATHER, NONINSULATED (WINTER MONTHS) .....	1 EA
KNIFE, POCKET/SHEATH (NOT LONGER THAN 7 INCHES) .....	1 EA
PERSONAL HYGIENE ITEMS FOR 19 DAYS .....	AS REQ
RUNNING SHOES .....	1 PR
20 FEET OF 550 CORD OR BUNGEE CORDS .....	5 EA
RAIN SUIT, GORETEX®, and TOP AND BOTTOM .....	1 PR
*BOOTS, CBT, BLACK LEATHER NONINSULATED (WINTER MONTHS) .....	MINIMUM 1 PR
*PT SWEATSHIRT AND PT SWEATPANTS .....	1 SET
*CAP, WATCH (BLACK) .....	1 EA
*SCARF, WOOL (OD) OR NECK GATOR .....	1 EA
*UNDERGARMENT, INSULATING UPPER EXTREMITY CW (POLYPRO™, WOOL SWEATER, FIELD JACKET LINER, SPEARS GEAR) .....	2 EA
*UNDERGARMENT, INSULATING LOWER EXTREMITY CW (THAT IS, POLYPRO™, SPEARS GEAR) .....	1 EA
*BAG, SLEEPING .....	1 EA

**NOTE:** \*Denotes winter items. These items are required from 1 October through 30 April.

**Figure 6-4. Packing List Items Carried to In-Processing**



EARPLUGS .....	1 PR
ELBOW AND KNEE PADS.....	AS REQ
PROTECTIVE EYEWEAR.....	1 PR
SEWING KIT.....	1 EA
SHOWER SHOES.....	1 PR

**Figure 6-5. Optional Items**

6-120. Optional items that are prohibited for all students attending the SERE course are the following:

- Reading material (Ranger handbook, SF manuals, or survival manuals; exceptions are religious materials such as a Bible, the Koran, reading materials directly related to SERE such as *Five Years to Freedom*, *Bravo Two Zero*, or *Black Hawk Down*).
- Audio/visual (radio, camera, CD player, Walkman®, camcorder, pager, cell phone).
- Camp stoves or heat tablets.
- Additional food, spices, or aluminum foil.
- Contact lenses (not to be worn during the FTX and RTL portion of the SERE course).
- Sunglasses.
- Camel backs.
- Butt packs.
- Alice packs (rucksack) that have been modified (extra pouches sewn on); the Alice pack must be in the condition in which it was issued.
- Medications (the only medications authorized to be taken during the course are those prescription medicines annotated in the student's medical records or medicines issued during the course by SERE medics or TMC/WAMC personnel). No medications will be authorized during the FTX or RTL portion of the SERE course.
- This clothing and equipment list dated 6 Dec 01 supersedes all previous packing lists for SERE high-risk Level "C" clothing and equipment lists.
- POC is the operations sergeant, DSN 239-4407/6539 or commercial (910) 432-4407/6539; call the operations sergeant to exchange updated information.

**Note:** A small Post Exchange annex may be available during portions of the SERE course. Normal operating hours are 1200 to 1600 on Mondays, Wednesdays, and Fridays. The facility can cash checks up to \$20.00.

**Note:** No machetes or other knives with a blade of more than 7 inches are allowed. KBARs, survival knives, Swiss Army knives, and Gerber-type tools are allowed.

**Note:** Belt, web, black, nonstretch, will be used for specific tasks during survival training.

**Note:** All pipeline personnel attending SERE as their final phase of SFQC will be required to have a uniform prepared for graduation. Personnel must have their special forces tab, airborne tab, and SWCS unit patch sewn onto their uniform.

**Note:** SERE does not have access to a central issue facility.

## UNITED STATES NAVY

6-121. The address for the United States Navy SERE facility is FASOTRAGRULANT, 1801 Burbank Ave. Brunswick NAS, Brunswick ME 04011, web site—[www.FASOLANT.navy.mil](http://www.FASOLANT.navy.mil).

## Level-C Wartime

6-122. The addresses for Level-C wartime are—

- FASOTRAGRUPAC, Survival Building 618, North Island, San Diego, CA 92135-7068, website—[www.Faso.navy.mil](http://www.Faso.navy.mil).
- Level-C wartime and Level-C peacetime detention and hostage survival (PDAHS), Survival Building 618, North Island, San Diego, CA 92135-7068, website—[www.Faso.navy.mil](http://www.Faso.navy.mil).

## UNITED STATES MARINE CORPS

6-123. The Marine Corps does not have a SERE school. Marine Corps students attend the Navy program.

## Joint Agencies

6-124. **Joint Personal Recovery Agency (JPRA), Personnel Recovery Training Center – East.** The JPRC offers two academic courses to facilitate the understanding of DOD personnel recovery (PR). While each course is targeted to a specific audience, personnel serving in intelligence, operations, plans, communications, SERE, life support (or joint service equivalent) are highly encouraged to apply.

6-125. **Course Description and Prerequisites.** Specific information on each course follows:

- **PR 101**, Introduction to Personnel Recovery, is an overview of the DOD PR system intended to target all personnel (Specialist through Lieutenant Colonel or civilian equivalent) involved with PR. PR 101 is a three-day course offered both in residence and, in limited numbers, via mobile training team (MTT). A secret security clearance is required for PR 101.
- **PR 301**, the Personnel Recovery Plans and Operations (PR P&O) course, prepares students to support commander in chief (CINC), joint task force (JTF), component, service, and MACOM-level PR planning, development, review, and execution. PR 301 is for personnel (Sergeant First Class through Colonel or civilian equivalent) assigned to, or being assigned to, duties to oversee PR activities for their command or to work in a joint search and rescue center (JSRC) or equivalent or rescue coordination center (RCC) or

equivalent. PR 301 is a two-week resident course only offered at the academics facility in Fredericksburg, VA. Prerequisites for PR 301 are a secret security clearance and completion of PR 101.

**6-126. Applying for Course Slots.** Requests for PR 101 and PR 301 slots may be made via DMS, unclassified e-mail, or fax. All requests for slots must include course identification and dates and candidate's name, rank, unit, social security number, security clearance level and date granted unclassified e-mail address for receiving reporting instructions, and voice contact number (DSN and commercial). All requests must also reference the DTG of this message to acknowledge receipt of the most recent policies and schedule.

- DMS message procedures (PR 101/301): Messages must be addressed to JPRA FT BELVOIR VA//J7/PRTC-E// info USCINCJFCOM NORFOLK VA//J35A//. Because of reliability issues with DMS, the requesting unit should send unclassified e-mail referencing the DTG of its message, as well.
- NIPRNET (unclassified) e-mail procedures: E-mail requests must be addressed to the registrar with a copy to the applicable course director. E-mail requests must include the unit commander's certification.
- Deadlines: Because of the high demand for JPRA courses, the following deadlines for submitting requests have been established:
  - PR 101 requests received later than 14 days before the course start date will not be accepted.
  - PR 301 requests received later than 30 days before the course start date will not be accepted.
- Reporting instructions. Receipt of reporting instructions from the JPRA registrar serves as the only official confirmation of a reserved slot.
  - PR 101 reporting instructions will be sent about 14 days before the course start date.
  - PR 301 reporting instructions will be sent about 28 days before the course start date.

**6-127. Cancellation of Confirmed Slots.** Students requesting slots to be cancelled must take the following actions:

- PR 101: Any individual canceling a PR 101 confirmed reservation must ensure that the registrar receives notification NLT seven days before the class start date.
- PR 301: PR 301 can only facilitate 17 slots per course. Any individual canceling a PR 301 confirmed reservation must ensure that the registrar receives notification NLT 14 days before the class start date. Cancellation within 14 days of the class start date requires written justification from the unit commander via e-mail to JPRA J7.

**6-128. PR 101 MTT Procedures.** JPRA offers two months during each FY for PR 101 MTTs. Requests for PR 101 MTT support must be submitted via DMS message traffic to JPRA FT BELVOIR VA//J7/PRTC-E// INFO USCINCJFCOM NORFOLK VA//J35A//. Because of reliability issues with DMS, the requesting unit should send unclassified e-mail referencing the

DTG, as well. E-mail requests will only be considered under extenuating circumstances. The requesting organization must provide a secure facility for secret-level presentations and verify clearances of all attendees.

**6-129. Funding.** All travel and per diem costs associated with PR 101 and PR 301 in-residence courses are unit funded. There is no charge for the course or issued materials. For any PR 101 MTT, the requesting organization is responsible for funding all associated costs, to include transportation and per diem costs for two instructors, as well as material shipping charges.

**6-130. Course Materials.** JPRA PRTC-E course materials are only distributed to personnel attending PR 101 or PR 301. Use of JPRA academic materials outside of their intended design to support JPRA-conducted academic curriculum and to support graduates in the accomplishment of their PR-related duties must be coordinated with the JPRA commander.

**6-131. Schedule.** JPRA will provide quarterly message updates to advise ALCON regarding the PR academic schedule.

**6-132. POCs.** The unclassified e-mail address is (lower case) firstname.lastname@jp.ra.jfcom.mil.

- JPRA PRTC-E Registrar, Ms. Erica Sato commercial (540) 361-7363 (no DSN).
- PR 101 Course Director, Mr. Robert Falise, commercial (540) 361-7368 (no DSN).
- PR 301 Course Director, Mr. Rick Barnes, commercial (540) 361-7369 (no DSN).
- Instructor, Mr. Timothy Wilkinson, commercial (540) 361-7370 (no DSN).
- Instructor, Mr. Aaron Zaccagnino, commercial (540) 361-7352 (no DSN).
- JPRA J7, DSN 654-2485, commercial (703) 704-2485.

## Appendix A

# Standing Operating Procedures (SOP) – ALSS Maintenance Management and Training Programs

The following information is provided to develop a SOP for your unit's ALSS Maintenance Management and Training Programs. This SOP serves as a reference for developing the SOP that meets your unit's specific mission requirements.

Figure A-1 shows an example of an ALSS SOP.

### 1. SUBJECT

The subject of this SOP is (your unit) Aviation Life Support Equipment (ALSE) System Maintenance Management and Training Programs.

### 2. GOAL

The goal is to inform all soldiers in the (your unit) of the compliance requirements with aviation life support equipment regulations and policies.

### 3. STANDARDS

a. The ALSS Maintenance Management and Training Programs within the (your unit) will comply with the following references:

- AR 50-900. AR 25-400-2, AR 40-90, AR 95-1, AR 190-11, AR 190-13, AR 190-51, AR 385-64, AR 385-95, AR 600-106, AR 611-12, AR 702-6, and AR 710-2.
- CTA 50-900.
- DA Pamphlet 25-30, DA Pamphlet 385-40, DA Pamphlet 385-64, DA Pamphlet 385-95, DA Pamphlet 710-2-1, DA Pamphlet 710-2-2, DA Pamphlet 738-750, and DA Pamphlet 738-751.
- FM 3-04.500(FM 1-500), and FM 3-04.508(FM 1-508).
- SB 742-1.
- SC 8465-90-CL-P02.
- TB 9-1300-385.
- TM 1-1500-204-23, TM 1-1500-328, TM 5-4220-202-14, TM 11-5820-13&P, TM 43-0001-37, TM 55-1680-317-23 & P, and TM 55-1680-322-12.
- TO 14S-1-102.

b. Other higher headquarters' guidance includes the following:

- ALSS advisory messages.
- Aviation Resource Management Survey Commander's Guide.
- Additional references are in the bibliography.

**Figure A-1. Example of an ALSS SOP****4. PURPOSE**

- a. The purpose is to establish responsibilities, policies, and general procedures applicable to the ALSS program and to ensure maximum reliability and safety from all ALSE used by aircrew members assigned to your unit.
- b. Describe the ALSS Maintenance Management and Training Programs for all aircrew members engaging in aerial flights according to AR 95-1, FM 3-04.508(FM 1-508), and all other applicable TMs and operators' manual
- c. Provide additional local (your unit) operational procedures according to AR 95-1, FM 3-04.508(FM 1-508), and all other applicable TMs and operators' manuals regarding the storage, inspection, maintenance, cleaning, repair, and the replacement of ALSE.

**5. SCOPE**

All personnel participating in aerial flight—as crew members, noncrew members, or passengers—using aircraft assigned to the (your unit) will adhere to the requirements established in this SOP. Applicable portions of Army, Air Force, and Navy technical manuals, technical orders, and regulations will be used to devise policies, procedures, and directives for aircrew members and aviation life-support personnel to follow.

**6. MISSION**

The unit commander's mission for his ALSS Maintenance Management and Training Programs is to provide safe, operationally ready ALSE and training, to both crew members and passengers—and to inspect, maintain, and repair ALSE assigned to the (your unit).

**7. OBJECTIVES**

The ALSS Maintenance Management and Training Programs objectives are to—

- Provide support for all aircrew members assigned to (your unit).
- Ensure that all aircrew members are properly equipped to perform their mission.
- Provide training in the care and use of all assigned ALSE.

**8. DEFINITIONS**

The following are definitions of ALSS and ALSE:

- **ALSS:** The Aviation Life Support System consists of components, techniques, and training required ensuring that aircrews have the best possible flight environment. ALSS provides that maximum functional capability of flying personnel throughout all environments experienced during normal missions. ALSS also affords the means to enhance safe and reliable escape, survival, and recovery in combat and emergency situations. Additionally, ALSS operators and training equipment provide units the ability to train and sustain aircrew members' proficiency in the use of ALSE and supporting ALSS equipment.

- **ALSE:** Aviation life support equipment comforts, sustains, and protects aircrew members throughout the flight environment. ALSE also provides the aircrew member with additional protection from impact and postcrash fire. It enhances the means to escape, evade, and survive for recovery in combat or any hostile environment.

Figure A-1. Example of an ALSS SOP (Continued)

## 9. RESPONSIBILITIES

- a. **COMMANDER.** The commander establishes the importance and tailors the functions of the ALSS section to support the mission. The commander provides the logistical support and manpower that enable the ALSS shop to operate according to both its mission and applicable regulations. The commander—
  - Implements ALSS policies and procedures.
  - Ensures proper training, budgeting, and availability of ALSE.
  - Provides trained personnel for ALSE maintenance and inspection.
  - Monitors the ALSS program by—
    - Conducting quarterly visits of the ALSS shop.
    - Reviewing results from semiannual safety surveys.
    - Reviewing results from formal FORSCOM ARMS and DES inspections.
    - Discussing ALSS issues during quarterly safety council meetings/ALSS steering council.
  - Integrates ALSS into his unit's operations.
  - Assigns qualified ALSS personnel and assets according to AR 95-1 to accomplish the ALSS and SERE training program.
  - Ensures that the program is enforced, to include separate unit participation.
- b. **FLIGHT SURGEONS.** Flight surgeons designated for (your unit) are responsible for the training of both the physiological aspects of flying as well as the medical considerations in survival situations. The flight surgeon will also monitor the fitting and use of ALSE by crew members. The flight surgeon will—
  - Conduct physiological training of aircrew personnel.
  - Monitor medical aspects of survival training of aircrew personnel.
  - Monitor the fitting and use of ALSE by aircrew personnel.
- c. **THEATER, CORPS, AND REGIMENTAL, DIVISIONAL, AND BATTALION-LEVEL AVIATION SAFETY OFFICER (ASO).** The ASO will monitor all aviation activities for the commander to ensure the proper use of protective clothing and ALSE. The ASO periodically conducts aviation resource management survey checks on the ALSS shop.
- d. **REGIMENTAL AVIATION LIFE SUPPORT OFFICER (RALSO), IF APPLICABLE THE RALSO—**
  - Reviews this SOP annually (at a minimum) and implements changes to comply with applicable regulations and procedures.
  - Inspects battalion ALSS shops periodically using the aviation resource management survey guide.

Figure A-1. Example of an ALSS SOP (Continued)

**e. BATTALION AVIATION LIFE SUPPORT OFFICER (BNALSO)**

The BNALSO—

- Is appointed on orders to assist, advise, and represent the battalion commander in all matters pertaining to the ALSS.
- Reviews, analyzes, and develops procedures to ensure the planning, budgeting, and maintenance of ALSS.
- Conducts a quarterly review of the ALSS shop using the Aviation Resources Management Survey Commander's Guide; the results will be documented in the ALSS quarterly file.
- Ensures training of aircrew personnel in the proper use and operator maintenance of survival equipment and the techniques of survival.
- Supervises the ALSS section and ensures that qualified personnel are available for conducting life-support and survival training and maintenance of ALSE.
- Keeps a current file of regulations, procedures, and technical manuals pertaining to inspection, maintenance, and use of ALSE.
- Ensures that units encourage life-support suggestions and OHRs.
- Ensures that materiel deficiency reports are submitted on ALSE failing to operate as designed.
- Participates as a member of the unit aviation safety council.
- Assists higher headquarters in standardizing the ALSS program.

**f. BATTALION AVIATION LIFE SUPPORT NCO (ALSNCO)**

The ALSNCO—

- Is appointed on orders to assist, advise, and represent the BNALSO or his company ALSO in all matters pertaining to ALSE.
- Establishes a library of regulations, procedures, and technical manuals pertaining to inspection, maintenance, accountability, and stockpile reliability (surveillance) and use of assigned ALSE.
- Reviews and updates the ALSS library quarterly.
- Maintains files and a status board recording the inspection-due dates of ALSE.
- Ensures that flight operations and line-company ALSOs receive monthly updates of crew member ALSE inspection status and inspection-due dates.
- Ensures that all ALSE is maintained in a high state of mission readiness through inspecting, cleaning, fitting, testing, and repair.
- Participates in local ALSS steering council meetings.
- Inspects all controlled drugs, if used, according to AR 40-61.
- Participates as an enlisted ALSS representative at aviation safety meetings.
- Establishes shop stock, and keep current records of inventory.

**Figure A-1. Example of an ALSS SOP (Continued)**



**g. COMPANY/FACILITY AVIATION LIFE SUPPORT EQUIPMENT OFFICER (ALSO)**

(1) The aviation life support officer will be school trained and appointed on orders to assist, and represent the commander in all matters pertaining to the ALSS shop.

(2) Company/facility ALSO is responsible for—

- Reviewing, analyzing, and developing procedures for planning, budgeting, and maintaining an ALSS Maintenance Management and Training Program.
- Ensuring that aircrew members are trained in the proper operation, use, and user-level maintenance of survival equipment and the techniques of survival.
- Supervising the life-support section and ensuring that qualified personnel are available for organizational-level ALSS maintenance and survival training.
- Keeping a current file of regulations, procedures, and a library of technical manuals pertaining to the maintenance, accountability and stockpile reliability (surveillance), care, use, and training of assigned life-support and survival equipment.
- Ensuring that unit personnel have adequate information and training before using new equipment/system changes.
- Ensuring that unit personnel encourage life-support suggestions and OHRs.
- Ensuring that material deficiency reports are submitted on life-support equipment that fails to operate as designed.
- Participating as a member on the unit's aviation safety council representing ALSS.
- Assisting higher headquarters in standardizing the ALSS Maintenance Management and Training Programs.

**h. AVIATION LIFE SUPPORT EQUIPMENT TECHNICIANS**

(1) ALSE technicians will be school trained and appointed on unit orders to assist, advise, and represent the ALSO in all matters pertaining to ALSS.

(2) ALSE technicians will—

- Establish a library of technical manuals pertaining to the care, use, maintenance, accountability and stockpile reliability (surveillance), and training of assigned aviation life-support and survival equipment.
- Maintain ALSE in a high state of serviceability through inspecting, cleaning, testing, fitting, adjusting, replacing, and repairing.
- Maintain files on inspection, maintenance, lot numbers, expiration dates, work orders, and supply pertaining to ALSS operations.
- Participate, as a member, on unit-level or higher (as necessary) enlisted aviation safety councils
- Complete and submit parts/equipment requisitions to the appropriate requisitioning office/agency (within/outside unit).
- Assist the unit ALSO or commander's designated representative with ALSS and

**Figure A-1. Example of an ALSS SOP (Continued)**

**i. PILOTS-IN-COMMAND**

The pilots in command will—

- Ensure that ALSE commensurate with the mission and the operational environment is available on the aircraft.
- Ensure that aircrew members and passengers are briefed on its location and use; PCs will give ALSS personnel as much notice as possible to prepare commensurate ALSE for all modes of flight and all geographical environments that are expected and to ensure that the ALSE concerned will be serviceable for the duration of the flight/mission

**j. AIRCREW MEMBERS**

The aircrew members—

- Ensure that ALSE commensurate with the mission and the operational environment is available on the aircraft and that the aircrew members are briefed on its location and use.
- Ensure that aircrew member ALSE preflight is conducted according to appropriate operator's manuals before every flight.
- Ensure that all ALSE accessible for use by aircrew members—including survival vests, first-aid kits, over-water survival kits, and aviation modular survival system (AMSS) kits—is not overdue for inspection and is serviceable for that flight
- Ensure that all aircrew members participating in their flight do not fly with any ALSE that is overdue an inspection or is found unserviceable by the aircrew member during the preflight inspection.
  - Will maintain possession of his or her survival equipment unless it has been turned in for repair or inspection.
  - Will conduct a preflight inspection of their personal ALSE to ensure that it is current and serviceable before flight.
  - Are responsible for keeping up with the inspection-due dates of their ALSE and for ensuring that it is turned into the ALSS shop before its expiration.
  - Will use storage lockers provided by their command for storage of their individual ALSE; all ALSE will be properly secured in their individual ALSE lockers.
  - Ensure that their individual ALSE preflight is conducted according to appropriate operators' manuals before every flight.
  - Ensure that they do not fly with any ALSE that is overdue an inspection or is found unserviceable during their preflight inspection.
  - Immediately report lost, damaged, or destroyed ALSE to their company ALSO, company ALSNCO, or the ALSS shop.

**Figure A-1. Example of an ALSS SOP (Continued)**

**10. AIRCRAFT EQUIPMENT REQUIREMENTS**

- PCs will ensure that all crew members and passengers are briefed before each flight on the location and use of the life-support equipment on board the aircraft. As a minimum, the following ALSE is required for all flights: Survival vest worn by each aircrew member.
- At least one survival radio.
- One survival kit for each aircraft.
- Panel Mounted First Aid Kits - One for each crew compartment and one kit for every five passenger seats installed or fraction thereof according to TM 1-1500-204-23-1, pages 10 and 11.

**11. PREFLIGHT PROCEDURES****a. Radio set—PRC-90/PRC-90-2**

- Exposed metal surfaces (casing)—Inspect all metal surfaces for signs of rust and corrosion.
- Wrist straps—Inspect for mildew, fungus, dry rot, or insect damage.
- Battery cap and retainer—Check for proper installation, assembly, broken retainer, and internal corrosion. Check battery life: battery has a three-year service life from the manufacture date.
- Antenna—Check for corrosion, cross-threading, or bent connector parts; check for deterioration of antenna rubber cover. Note: The antenna on the PRC-90-2 must not exceed a 20-degree bend angle when extended.
- Battery—Remove battery, and check both contacts for corrosion and mercury leakage.
- Headset, Electrical—Remove earphone from its case, and check for signs of corrosion or insulation breakdown; clean ear piece.
- Case, Headset—Check case for loose snap or material breakdown.
- Controls—Turn the radio on, and ensure that audible noise can be heard on both VOICE channels (243.0 and 282.8) from the LISTEN speaker; ensure that detent action operates without binding.
- Hermetic switch seals—Check for cracks and deterioration in the Hi PWR BCN, MCW, and the PUSH-TO-TALK switch covers.
- Replacement—If the radio appears unsatisfactory, return it to the ALSS shop.

**b. Radio Set—PRC -112**

- Antenna—Ensure that the antenna can rotate 90 degrees from the vertical.
- Front Panel—Inspect for cracks, breaks, and loose or cracked earphone connector.
- Rear Panel and Case—Inspect for cracks, breaks, and loose or missing screws.
- Battery Connector—Inspect for worn or cracked contact.

**Figure A-1. Example of an ALSS SOP (Continued)**

- Controls—Check tightness of controls; rotate and check free operation and proper detent.
- PTT Switch—Check Push-To-Talk operation.
- Antenna—Check for cracks and breaks.
- Earphone—Check for cracks or loose connectors.
- Battery Latch—Check for damage.
- Battery—Check expiration/manufacture date; battery service life is three years from date of manufacture.
- Screws—Check missing or loose.
- Replacement—If the radio appears unsatisfactory, return it to the ALSS shop.

#### c. Survival Vest

(1) The following are the components of the survival vest:

- Vest Fabric—Inspect, to include pockets, for tears, seam separation, loose stitching, and snaps.
- Slide Fasteners—Inspect for proper operation.
- Inspect components for proper function and serviceability; ensure that the mirror, strobe light, and compass are attached by a lanyard to the vest.

(2) All emergency flares and signals are maintained according to applicable TMs, TBs, and SBs, concerning stockpile reliability (surveillance) requirements.

#### d. HGU-56 Helmet

The components for the HGU-56 Helmet are—

- Outer Shell—Check for cracks or gouges; gently flex the helmet at the ear cups to detect cracks.
- Screws, Fasteners, and Buckles—Adjust to fit tightly and operate easily.
- Visor—Check for cracks, scratches, or blemishes, and clean with a soft cloth.

Visor Housing—Visor should slide and adjust easily; housing should be tight against the helmet without any cracks or gouges.

- Microphone Assembly—Check plugs for separation and wires for cuts or frays; ensure that the microphone boom adjusts and stays in place and the microphone adjustment knob is tight.
- Ear cups—Check for cracks in pads and separation from cups; check free rotation of cups in retention assembly; donning - ensure that there is a complete seal around the ears (if the seal is broken as you turn your head 90 degrees left or right, tighten the chin strap).
- Adjustable Retention Assembly, Suspension Assembly, and Chin-Strap—Check for fraying, dry rot, excessive oil and dirt, and loose attachment points.

**Figure A-1. Example of an ALSS SOP (Continued)**

- TPL Assembly—Check foam liner for gouges, chips, or cracks and looseness within the helmet shell; ensure that you have all four layers in the HGU-56; check the black liner covering for excessive oil and dirt.

#### e. IHADSS HELMET

The components for the IHADSS helmet are—

- Outer Shell—Check for cracks or gouges; gently flex the helmet at the ear cups to detect cracks.
  - Screws, Fasteners, and Buckles—Adjust to fit tightly and operate easily.
  - Visor—Check for cracks, scratches, or blemishes, and clean with a soft cloth.
  - Visor Housing—Visor should slide and adjust easily; housing should be tight against the helmet, without any cracks or gouges.
  - Microphone Assembly—Check plugs for separation and wires for cuts or frays; ensure that the microphone boom adjusts and stays in place and that the microphone adjustment knob is tight.
  - Ear cups—Check for cracks in pads and separation from cups; check free rotation of cups in retention assembly; donning - ensure there is a complete seal around the ears (if the seal is broken as you turn your head 90 degrees left or right, tighten the chin strap).
  - Adjustable Retention Assembly, Suspension Assembly, and Chin-Strap—Check for fraying, dry rot, excessive oil and dirt and loose attachment points.

#### f. LPU-34/P Low Profile Floatation Collar

PCs must ensure that their entire crew knows how to wear and deploy the LPUs before use.

**Note:** Do not pull lanyards; this will cause the LPU to inflate.

- Inspection Record—(Located in the survival vest's inner-left, bottom pocket)—Ensure that the LPU has not exceeded next inspection due date.
- Straps and Cell Coverings—Inspect for frays, tears, and holes and security of stitching.
- Deployment Handles—Check for frays, and cuts, and ensure that the pull knobs are exposed no more than a half inch to prevent them from snagging on something in the aircraft and inadvertently deploying the LPU.

#### g. Survival Kits

(1) Do not open survival kits for preflight inspection. The components are—

- Seal—Ensure that the seal is intact; if not, return the survival kit to the ALSS shop to be inspected and resealed.
- Condition Tag—Ensure that it is a Yellow DD Form 1574 (Serviceable Tag—Materiel); ensure that the kit is not past the next inspection due date.
- Case—Inspect for wear, holes, cracks, or separating straps.

**Figure A-1. Example of an ALSS SOP (Continued)**

## 12. TRAINING

### a. General

(1) ALSS and SERE training will be conducted according to AR 95-1, AR 350-30, and FM 3-04.508(FM 1-508). A school-qualified ALSET administers ALSS training. The ALSO/NCO will document the attendance of these classes with locally produced sign-in rosters. At a minimum, the ALSO will ensure training on an annual basis in survival vest and proper care and use of emergency flares and signals. The training includes the following subject areas:

- Survival radios.
- Flight helmet.
- Floatation equipment.
- Survival kits.
- Protective clothing.
- Survival training.

(2) Additional training should include—

- Operator care and use of flight helmet, survival vest, survival radio, protective flight clothing, aircraft survival kits, first aid kits, emergency locator beacons, and aircrew NBC protective equipment.
- Unit central issuing facility procedures (issue, direct exchange and turn in).
- Aircraft emergency egress devices and methods.

### b. Individual

(1) All new crew members will receive a briefing and orientation on the equipment. This orientation will occur during the initial inspection and fitting of his or her ALSE.

(2) Each unit ALSO will develop an ALSS and search, escape, resistance, and evasion (SERE) training program.

(3) The unit will have the full responsibility for implementing its ALSS and SERE program and adding training into its annual training calendar.

(4) Unit ALSS and SERE trainers will be responsible for maintaining all training documentation.

(5) SERE training will be conducted according to AR 95-1, AR 350-30, AR 525-90, FM 3-04.508(FM 1-508), Joint Publication 3-50.2, Joint Publication 3-50.3, and Joint Publication 3-50.21.

(6) SERE II- and III-level training will only be administered by graduates of a formal SERE III school, using training planning guides approved by the AR 350-30 proponent. SERE training will include the following subject areas:

- SERE I. Code of Conduct.
- SERE II. Basic land survival, food and water procurement, shelter building, fire craft, emergency signaling, basic land navigation, and combat search and rescue procedures.
- SERE III. Combat evasion, extraction and recovery, theater special instructions (SPINS), special operations personnel and partisan linkups, exfiltration methods, prisoner-of-war resistance, escape, ISOPREP procedures, and Joint Services Personal Recovery Agency (JPRA) procedures and publications.

(7) Prisoner-of-war resistance labs will not be conducted unless under the direction of the John F. Kennedy Special Warfare Center according to AR 350-30. Qualified SERE III school graduates only will administer prisoner-of-war resistance training.

**Figure A-1. Example of an ALSS SOP (Continued)**

(8) All unit crew members will have a DD Form 1833 (Isolated Personnel Report – ISOPREP) according to AR 525-90, Joint Publication 3-50.2, Joint Publication 3-50.3, and Joint Publication 3-50.21. The Battalion S2 and S3 are responsible for preparing and maintaining each crew member's ISPOREP.

### **13. SHOP OPERATIONS**

#### **a. MAINTENANCE, INSPECTIONS, REPAIRS, AND PROCEDURES**

(1) The ALSE technicians maintain and operate the aviation life support system shop. Non-ALSS school-trained technicians, designated on orders signed by the commander, are authorized to inspect and service first-aid kits as specified by TM 1-1500-204-23-1, Chapter 11. Equipment inspections will be accomplished within the interval specified and according to the appropriate Army technical manuals, technical bulletins, and supply bulletins; Air Force technical orders; and NAVAIRs.

(2) Serviceability of aviation life support equipment will be identified with the appropriate material condition code tag—DD Form 1574, 1577-2 (Unserviceable {Repairable} Tag-Materiel), or 1577 (Unserviceable {Condemned} Tag-Materiel)—according to DA Pamphlet 738-751. Any items of ALSE failing to pass required inspections or tests will be tagged with the appropriate DD Forms 1577, or 1577-2. Those items that can not be repaired locally will be referred to higher-level maintenance or turned in through supply for replacement.

(3) The following are HGU-56/P maintenance procedures:

- The HGU-56/P will be inspected according to TM 1-8415-215-12/P&P every 120 days.
- After the HGU-56/P inspection is complete, the appropriate entry to that helmet's DA Form 2408-22 (Helmet and Oxygen Mask/Connector Inspection Record) will be made indicating the type of inspection (initial or 120 Day), the date that the inspection was completed, and the date that the next inspection is due; the ALSE status board will then be updated.
- All HGU-56/P helmets will be marked with the aviator's name and the next inspection due date on the right rear of the helmet.
- Repairs for helmets will remain at the unit level; inspection/repair data will be recorded on DA Form 2408-22.

(4) The following are IHADSS maintenance procedures:

- The IHADSS will be inspected according to TM 9-1270-233-23&P every 120 days.
- After the IHADSS inspection is complete, the appropriate entry to that helmet's DA Form 2408-22 (will be made, indicating the type of inspection (initial or 120 day), the date that the inspection was completed, and the date that the next inspection is due; the ALSE status board will then be updated.

• All IHADSS helmets will be marked with the aviator's name and the next

**Figure A-1. Example of an ALSS SOP (Continued)**

(5) The following are AMSS maintenance procedures:

The Aviation Modular Survival System will be inspected according to TM 1-1680-354-23&P every 360 days, plus or minus six days.

- After the aircraft AMSS inspection is complete, an entry into that aircraft's DA Form 2408-18 (Equipment Inspection List) will be made, documenting the date that the inspection was completed and when the next inspection is due.
- The inspection records will also be maintained in the company AMSS logbooks, located in the battalion ALSS shops.

(6) The following are aircraft first-aid kit maintenance procedures:

- Aircraft first-aid kits will be inspected according to TM 1-1500-204-23-1 every 12 months or before the expiration of the first item due or one-year after the inspection, whichever comes first; aircraft will be equipped with at least one first-aid kit for each crew compartment and for every five seats filled. The condition and lot numbers of the medical items within the kit will be recorded on a locally produced lot-tracking form.
- Only school-trained ALSS personnel who are on specific orders to inspect aircraft first-aid kits will complete these inspections.
- After the aircraft first-aid kit inspection is complete, an entry into that aircraft's DA Form 2408-18 will be made, documenting the date that the inspection was completed and when the next inspection is due.

(7) All SDU-5 batteries will be tested using the battery test set (AN/TS-23) before use with (your unit) ALSS.

(8) The following are survival vest maintenance procedures:

- The survival vest will be inspected before issue and every 120 days afterward according to TM 55-1680-360-12; inspection/repair data will be recorded on DA Form 2408-25 (Mesh Net Survival Vest Inspection Record).
- Critical and easily lost items must be attached to the vest.
- After the survival-vest inspection is complete, the appropriate entry to that vest's DA Form 2408-25 will be made, indicating the type of inspection (initial or 120 day), the date that the inspection was completed, and the date that the next inspection is due; the vest will then be tagged serviceable, and the ALSE status board will be updated.
- Batteries will be removed and properly stored from SDU-5 markers and PRC-90-2 or PRC-112 survival radios, when not in use.
- The survival vest will be inspected annually by supporting QASAs or trained ammunition inspectors (MOS 55B) according to SB 742-1 and TB 9-1300-385.

(9) The following are PRC-90-2 maintenance procedures:

- The PRC-90-2 will be inspected before issue and every 180 days afterward according to TM 11-5820-1049-12 (PRC-90-2) and the data recorded on DA Form 2408-24 (Survival Kit Inspection and Maintenance Record).
- This radio will be inspected every 120 days according to TM 11-5820-1049-12 (PRC-90-2) using the TS-24/B radio test set.
- Repairs other than replacing either the antenna or battery will be work ordered to

the AV/AM

**Figure A-1. Example of an ALSS SOP (Continued)**



- (10) The following are PRC-112 maintenance procedures:  
This radio will be given a functional check before issue and every 120 days afterward.
- Every 12 months, the radios will be inspected according to TM 11-5820-1037-13&P at (your unit) AVIM.
  - The inspection/repair data will be recorded on DA Form 2408-23 (Survival Radio/Emergency Location Transmitter Inspection Record).
  - Battery shelf life is three years from the date of manufacture.
  - In the (name of installation) area, the programmable frequencies will be A-battalion internal (frequency) and B- FAA flight service station (frequency) and will be written on the front of the DD Form 1574.
  - The individual survival code will be programmed with 000000.
  - Inspections will be accomplished according to AVUM/AVIM SOP.
  - All PRC-112 radios and batteries will be properly tested and stored; battery shelf life will be limited according to FM 1-302, FM 1-508, ALSS messages, and appropriate publications.
  - Batteries will be removed from PRC-112 survival radios and properly stored when not in use.
- (11) The following are LPU-10 life-vest maintenance procedures:
- LPU-10 life preservers will be inspected according to applicable technical manuals/PM-ACIS messages before issue and every 180 days thereafter.
  - (Your unit) training LPU-10s will be marked "FOR TRAINING ONLY" in one-inch letters.
- (12) The following are life-raft maintenance procedures:
- One-man life rafts will be inspected according to applicable technical manuals/PM-ACIS messages before issue and every 180 days thereafter.
  - (Your unit) training one-man life rafts will be marked "FOR TRAINING ONLY" in one-inch letters.
- (13) The following are LPU-34/P low-profile floatation collar maintenance procedures:
- LPU-34/P low-profile floatation collars will be inspected every 360 days according to NAVAIR 13-1-6.1-2.
  - Inspection/repair information will be recorded on DA Form 2408-26 (Life Preserver Inspection Record). The DA Form 2408-27 (Life Preserver Data) will be stored in the inner lower left survival vest pocket with the vest operator's manual and condition tag.
- (14) Equipment "FOR TRAINING ONLY" Marking procedures—(your unit) training flotation equipment will be marked "FOR TRAINING ONLY" in one-inch letters.

**Figure A-1. Example of an ALSS SOP (Continued)**

**b. ALSS FILE MAINTENANCE**

(1) All forms, records, and files used by (your unit) ALSS shops that are maintained for the conduct of the ALSS program will be maintained according to AR 25-400-2 and AR 738-751 or as listed in the appropriate TM or other source material.

- (2) (Your unit) ALSS shops will maintain the following publications/forms/files: The ALSS quarterly file will be used by ALSS personnel to document the following:

- The commander's quarterly review.
- ASO quarterly review.
- BNALSO quarterly review.
- Quarterly reading file, which contains important information regarding changes to policies or procedures that must be reviewed quarterly by all ALSS personnel. The ALSS quarterly reading file will contain the most current (your unit) ALSS SOP. All ALSS personnel will read and initial the quarterly ALSS reading file before performing any maintenance on (your unit) ALSE:

- An ALSS library—containing appropriate manuals, regulations, publications, and messages—will be available for use during inspections, maintenance, and repair of ALSE; this library will be maintained by the battalion ALSNCO and reviewed for currency and accuracy every quarter; the reviewing soldier will document in the ALSS quarterly file the quarterly review; the ALSS library contains documents and regulations that authorize ALSE:

- The ALSS publication accounts are established and maintained by (your unit).
- The ALSNCO will review and update the ALSS library quarterly

**c. ALSS SCHEDULED MAINTENANCE.**

If scheduled maintenance requirements for ALSE are not completed within the time limits specified by FM 3-04.508(FM 1-508), AR 95-1, DA Pamphlet 738-751, and appropriate TMs, ALSE will not be used for flights in (your unit) aircraft. The ALSS tracking program is in place to prevent the use out-of-date ALSE by (your unit) aircrews.

**d. ALSS TRACKING PROGRAM.**

(1) Each (your unit) ALSS shop will maintain an "ALSE STATUS" board in the ALSS shop. This board will be updated continuously and will contain the following information:

- Aviators' name and rank.
- Assigned company (or supporting company).
- Next inspection-due date for the IHADSS.
- Next inspection-due date for the SRU-21P vest.
- Next inspection-due date for the PRC-112 (if applicable).

**Figure A-1. Example of an ALSS SOP (Continued)**

- (2) To prevent an aircrew member from inadvertently flying with ALSE that is overdue an inspection, the following control measures are in effect:
  - A computer printout of inspection-due dates for each aircrew member will be supplied monthly to battalion flight operations.
  - When a flight plan is filed, flight operations personnel will check to ensure that the aircrew members listed on the flight plan are within their ALSE inspection dates; an additional ALSE “GO or NO GO” block has been added to all (your unit) flight plans and must be initialed by flight operation personnel before accepting flight plans.
    - (Your unit) personnel will perform an initial inspection on all equipment before use.
    - All unserviceable equipment will be turned into supply for replacement.
    - Fitted ALSS gear will only be used by the person for whom it was intended.
    - Only school-trained ALSS technicians appointed on orders by commanders, are authorized to perform maintenance on or fit ALSS equipment.

e. **ACCOUNTABILITY**

(1) Authorized Personnel. Only ALSS personnel are authorized to issue and receive ALSE. The door to the aviation life support equipment shop will remain locked when ALSE technicians are not present. Regular operating hours for the ALSS shop will be posted on the door.

(2) Proper Distribution Measures. Survival equipment that is only available in limited quantities (such as PRC-112s, and LPU) will be issued to crew members according to the highest probability of use (line pilots—PICs and then IPs—and crew chiefs). Other crew members will be issued the equipment, as it becomes available

(3) Inventories. The following equipment will be inventoried at periodic and random intervals, not to exceed semiannually:

- Radios.
- Tool boxes.

(4) Hand Receipts. Crew members will sign a DA Form 2062 for all of their ALSE. This H/R will delineate the items included in the survival vest for which the individual crew member is responsible. The DA Form 2062 will be re-signed at the beginning of each inspection period, not to exceed six months.

(5) Missing or Broken Equipment. As specified in AR 710-2-1, the DA Form 2062 is good for six months for any equipment issued from the shop. Any crew member missing an ALSE item will notify the ALSS officer/NCO immediately so that a resupply of this item or a report of survey (if necessary) may be initiated with minimum delay.

(6) Files and Records. The ALSS shop maintains all files and records pertaining to ALSE, and the ALSS library will be maintained in the ALSS shop according to AR 340-2 and AR 340-18.

(7) Work Orders. All ALSE requiring AVIM or other supporting maintenance will be processed (work order using DA Form 2407) at the appropriate maintenance site. The supporting element will then be responsible for that equipment for the period of its servicing until received by an authorized battalion ALSS representative. The ALSE technician will retain a

**Figure A-1. Example of an ALSS SOP (Continued)**

**f. SUPPLY**

(1) General. The hand receipts for all nonexpendable and durable ALSE are maintained in the unit supply office. The hand receipt will be updated for any ALSE that is force issued or turned in to the unit.

(2) Orders and Resupply. Class II items will be ordered through company supply; Class VIII will be ordered through the warehouse; Class IX items will be ordered through tech supply. The ALSS shop will receive a list of document numbers from the supply source to show that the equipment is on order. If the needed items cannot be acquired through normal supply channels, a memorandum signed by the supply officer/NCO stating such must be filed in the ALSS shop. ALSE technicians must remain consistently aware of potential shortages through continuous inventory of bench-stock items.

(3) Storage. ALSE will be stored in a manner prescribed by the appropriate TM. The ALSS shop will maintain a bench stock of necessary repair parts. All serviceable equipment stored in the shop will be identified with the appropriate material condition tag. Excessive, unserviceable, and obsolete ALSE not required by the battalion mission will be turned in.

**g. PYROTECHNICS AND BATTERIES**

(1) Pyrotechnics will be stored and handled according to AR 190-11, DA Pamphlet 385-64, SB 742-1, and TRADOC Regulation 385-2 as well as current post policies.

- They will be maintained in an appropriate container that bears the required placards; a record of lot numbers will be maintained on this container. This record will include the lot numbers and quantity of stored pyrotechnics.

- Pyrotechnics will be inventoried semiannually.

- Pyrotechnics will be removed from survival kits and vests before boarding any civilian aircraft.

- The storage container must be certified for use according to AR 190-11 and AR 190-51.

- The room/vault storing the container must be issued a DA Form 4604-R (Security Construction Statement) and have an "Explosive Storage Limits and License" according to DA Pamphlet 385-64.

- All ALSE items will be checked according to SB 742-1 and TB 9-1300-385 standards and criteria.

- All ALSE items will be stored according to AR 190-11, AR 190-51, AR 710-2, and AR 385-64 requirements for physical security, accountability, inventory, and explosive safety.

(2) Batteries will be stored and disposed of in a safe manner according to the HAZMAT officer/NCO and SB 11-6.

**Figure A-1. Example of an ALSS SOP (Continued)**

**h. ALSS CORROSION PREVENTATIVE CONTROL (CPC)**

(1) CPC inspections for ALSE will be accomplished, in association with inspections and maintenance, according to the item's technical publications.

(2) When the ALSET documents and inspection or maintenance on an ALSE item is completed, CPC will be considered accomplished during the action. A separate CPC inspection is not required or documented according to PM-ACIS.

(3) The ALSET will use only approved materials, solvents, and POL that are specified in applicable technical publications.

(4) ALSS equipment storage and climate control will be used according to FM 3-04.508(FM 1-508).

**i. PERSONAL EQUIPMENT CARE**

(1) Crew members will periodically clean their ALSE. Before turn-in of their ALSE for inspection, all ALSE will be cleaned according to this SOP.

(2) The flight vest can be cleaned by hand washing it with a mild laundry detergent and hang dried. Conventional washer and dryer should not be used for the survival vest because the mesh can be damaged

(3) The flight helmet should be periodically wiped off with a soft nonabrasive cloth. In some cases, a bristle brush can be used for hard-to-reach areas. The TPL's black cover can be removed and washed. Hand wash with a mild detergent, and hang dry. Do not place the TPL in a conventional dryer.

(4) Use a soft nonabrasive cloth or soft bristle brush to clean the survival radios. Only the operator can clean the exterior surface of the radio. At no time will the radio be disassembled for cleaning or troubleshooting by the operator.

**j. TERMINATION OF CREW DUTIES**

Once crew members have been relieved of the duties as crew members, they are required to immediately return their ALSE to the ALSS shop for reissue. There is a shortage of ALSE within the unit, and personnel are encouraged to turn in equipment not being used. Platoon sergeants are encouraged to assist the ALSS Program in this matter, to ensure that their soldiers are equipped properly.

**k. . INPROCESSING and OUTPROCESSING****(1) Inprocessing**

All soldiers on flight status arriving to (your unit) will inprocess through the (company/battalion) ALSS shop, located in unit Hangar. Aviators will turn in their flight helmet to the ALSS shop as soon as possible after arrival to expedite the inspection/maintenance required. Individuals can inprocess or outprocess at any time during business hours.

**Figure A-1. Example of an ALSS SOP (Continued)**

(2) Outprocessing

Crew members will turn in their ALSE at least five working days before their clearing date so that the equipment can be inspected and tagged for turn in. If the soldier is to fly up to the day of clearing, coordinate in advance with the ALSS shop.

(3) Turn in for Scheduled Inspections

Crew members will turn in their flight gear at least five working days before its inspection-due date. The ALSS shop will complete the inspections within two working days.

**I. STORAGE OF CREW MEMBERS' ALSE**

(1) All crew members will use the crew lockers to store their ALSE. All items will be readily available to the ALSE technician for inspection/repair.

(2) As a minimum, crew members are required to keep the following items of equipment in their assigned locker at all times, except when flying:

- Flight helmet and helmet bag.
- Survival vest.
- Life-preserver

**m. ALSE RETRIEVAL PROGRAM**

(1) If ALSE is used during a real accident/incident, the ALSS shop will submit the used equipment for inspection and analysis, according to the ALSE Retrieval Program, AR 385-95, and DA Pamphlet 385-40.

(2) All ALSS personnel will be familiar with the ALSE Retrieval Program according to AR 385-95 and DA Pamphlet 385-40.

(3) Selected ALSS personnel will be appointed on written duty orders to participate on the State Accident Investigation Team. If ALSS personnel are used as team members during aviation accident investigations, they will work under the supervision of the on-site commander.

(4) ALSS personnel will assist USAARL representatives with collecting ALSS/SERE equipment and documentation involved in aviation accidents. Equipment items will be collected, marked as accident exhibits, and shipped according to USAARL instructions. ALSS/SERE equipment involved in aviation accidents will be removed from service and not reissued until final written disposition of serviceability has been determined by USAARL.

(5) The investigating ALSET will inventory any ALSS/SERE equipment item collected from accident sites. Accountability of the items will be provided to the battalion S4. USAARL representatives will provide the battalion S4 with property receipts on items taken for laboratory investigation.

**Figure A-1. Example of an ALSS SOP (Continued)**

**n. FLIGHTS ON COMMERCIAL AIR CARRIERS**

(1) Crew members flying on a commercial airliner will follow FAA and airliner regulations and procedures. The survival vest contains a pocketknife, surgical razor, pyrotechnics, and CO<sup>2</sup> cylinders. Pyrotechnics will not be carried onboard commercial airline flights.

(2) The PIC will check with the air carrier regarding its procedures for carrying knives and CO<sup>2</sup> cylinders.

**o. ALSE MOBILITY AND DEPLOYMENT PROCEDURES**

(1) ALSS shop organization for deployment and mobility operations will be conducted according to FM 3-04.508(FM 1-508). ALSS equipment will be deployable by the means of properly maintained equipment with applicable modifications, adjustments, additions, and upgrades. Any ALSE that is not up to its full operational potential and standard must be corrected before deployment or at the deployment site.

(2) The (your unit) will maintain all ALSS shop bench stock and shop stock/PLL that is on hand:

- Upon mobilization, all of the ALSS parts will be transferred to each unit's AVUM ALSS section for deployment stock:
  - Battalion AVIM/AVUM—30 percent.
  - Company—70 percent.
- Each unit will have a bench stock/PLL written for its specific needs, with the aid of a packing load list that will be on file in the ALSS shop.

(3) The ALSS shop will maintain mobility, according to the following procedures, upon notification of a deployment:

- The ALSE technician will report the status of all ALSS equipment and parts to the ALSS officer.
- Each unit will be provided with a percentage amount of ALSS stock according to the unit's prearranged bench stock/PLL.
- Each unit will be provided with the ALSE inspection records of all assigned crew members, aircraft, and ALSS equipment.
- The unit's AVUM ALSS personnel are responsible for packing and shipping their own ALSS stock and support items.
- The unit's ALSS personnel will inventory tools, ALSS stock, and equipment upon arrival at the deployment site.
- The unit ALSS section will maintain the ALSS programs according to FM 3-04.508(FM 1-508), the battalion/company tactical SOP, and the following procedures during the deployment:

**Figure A-1. Example of an ALSS SOP (Continued)**

- Consolidate ALSS resources when possible.
- Locate all ALSS-qualified individuals at the site.
- Locate and inventory ALSS stock.
- Set up an inspection and maintenance schedule according to the unit's mission schedule.
- Set up ALSS operations according to FM 3-04.508(FM 1-508).
- Establish a contact with unit supply and the unit publications NCO.
- Coordinate with the battalion S4 to get adequate shelter, power, light, and water.
- Requisition ALSS stock/PLL items and flight equipment to upgrade the unit's needs and tactical requirements.
- Establish the ALSS Training Program, specifically the combat-survival portions, throughout the unit.
  - Additional ALSS support and points of contact should be attempted from better equipped units, such as the U.S. Air Force or the U.S. Navy aviation life support/parachute shops that are located in or near the deployment area.
  - Unit ALSS personnel must be prepared to conduct ALSE inspections, maintenance, and training with the immediate resources that they deployed with.
- All ALSS tools and test equipment that is maintained at the (your unit), will be transferred to the battalion's AVUM element to support mobility shortages; the battalion S4 will be responsible for obtaining additional support equipment needed to support ALSE maintenance during mobility. ALSS equipment classified as hazardous material will be packaged, certified, and shipped according to TM 38-250.
- Procedures for HAZMAT shipment may be obtained by contacting any USAF traffic management office (TMO).
- ALSS HAZMAT shipments will be packaged and certified by qualified personnel listed in TM 38-250.

**Figure A-1. Example of an ALSS SOP (Concluded)**



## **Appendix B**

# **Interservice Publication Account Sample Forms and Documents**

### **AIR FORCE AND NAVY PUBLICATIONS**

#### **INTERSERVICE PUBLICATION ACCOUNTS**

B-1. Equipment and many components of survival kits obtained through Air Force and Navy supply systems are integrated in the Army ALSE system maintenance program. The ALSE technician needs the publications associated with interservice items while performing his duties. The USAPA Distribution Operations Facility should establish interservice publication accounts for the command/installation according to AR 25-36. The following paragraphs outline procedures for submitting one-time requirements and continuing/follow-on requirements according to this regulation.

#### **SUBMITTING ONE-TIME REQUIREMENTS**

##### **Air Force Technical Orders or Naval Publications**

B-2. To establish a one-time requirement for up to 10 copies of Air Force TOs or Naval publications, use the procedures below. AR 25-50 has instructions for preparing and managing correspondence.

##### **Ordering Air Force Publications**

B-3. Submit your requests for Air Force publications (Figure B-1), preferably on letterhead stationery, with full justification, technical order numbers, quantity, POC, and DSN/commercial phone numbers to Commander, Oklahoma City Air Logistics Center, ATTN: OC-ALC/TILUB, 7851 Arnold Street, Suite 201, Tinker AFB, OK. 73145-9147.

##### **Follow-on Changes**

B-4. Periodically, after receipt of the requested Air Force publication(s), follow-on changes may be verified and requested either by writing or calling Tinker AFB Logistics Center, DSN 336-3604/3868 or commercial (405) 736-3604/3868.

##### **Ordering Naval Air Publications**

B-5. Submit your requests for NAVAIR publications (Figure B-2), preferably on letterhead stationery, with full justification, publication numbers, quantity, POC, and DSN/commercial telephone numbers. Submit your requests to Commander, Naval Air Technical Data and Engineering Service Command, Naval Air Station, North Island (Distribution: Building 90), P.O. Box 357031, San Diego, CA 92135-7031.

### Follow-on Changes

B-6. Periodically, after receipt of the requested Naval publications, follow-on changes may be verified and requested by writing to the address above.

HEADING											
OFFICE SYMBOL (MARKS NUMBER)	DATE										
<p>MEMORANDUM FOR: Commander, Oklahoma City Air Logistics Center, ATTN:  OC-ALC/TILUB, 7851 Arnold Street, Suite 201, Tinker AFB,  OK 73145-9147</p> <p>SUBJECT: Request for Publications</p> <p>1. This unit's Aviation Life Support Systems Program requires technical publications from the Air Force to ensure proper equipment maintenance.</p> <p>2. Request the following publications:</p> <table style="margin-left: 40px; border: none;"> <thead> <tr> <th style="text-align: left;">TO</th> <th style="text-align: left;">QTY</th> </tr> </thead> <tbody> <tr> <td>14P3-1-131</td> <td>3</td> </tr> <tr> <td>14S1-4-2-4</td> <td>3</td> </tr> <tr> <td>15X-1-1</td> <td>3</td> </tr> <tr> <td>15X3-3-4-3</td> <td>3</td> </tr> </tbody> </table> <p>3. POC for this request is CW3 Doe or SFC Jones, DSN 327-1566 or commercial (527) 397-1566.</p> <p>AUTHORITY LINE: (if applicable)</p> <div style="text-align: right; margin-top: 20px;"> <p>JOHN E. DOE  CW3, U.S. Army  Publications Control Officer</p> </div>		TO	QTY	14P3-1-131	3	14S1-4-2-4	3	15X-1-1	3	15X3-3-4-3	3
TO	QTY										
14P3-1-131	3										
14S1-4-2-4	3										
15X-1-1	3										
15X3-3-4-3	3										

**Figure B-1. Example of a Request for Air Force Publications (One-Time Requirement)**

HEADING									
OFFICE SYMBOL (MARKS NUMBER)	DATE								
MEMORANDUM FOR:									
<p>Commander, Naval Air Technical Data and Engineering Service Command, Naval Air            Station, North Island (Bldg 90, Code 3.3), P.O. Box 357031, San Diego, CA 92135-7031</p>									
SUBJECT: Request for Publications									
<p>1. This unit's Aviation Life Support Systems Program requires technical publications from the Navy to ensure proper equipment maintenance.</p> <p>2. Request the following publications:</p> <table> <thead> <tr> <th>NAVAIR</th> <th>QTY</th> </tr> </thead> <tbody> <tr> <td>13-1-6.1</td> <td>3</td> </tr> <tr> <td>13-1-6.4</td> <td>3</td> </tr> <tr> <td>13-1-6.7</td> <td>3</td> </tr> </tbody> </table> <p>3. POC for this request is CW3 Doe or SFC Jones, DSN 327-1566 or commercial, (527) 397-1566.</p>		NAVAIR	QTY	13-1-6.1	3	13-1-6.4	3	13-1-6.7	3
NAVAIR	QTY								
13-1-6.1	3								
13-1-6.4	3								
13-1-6.7	3								
AUTHORITY LINE: (if applicable)									
<p>JOHN E. DOE            CW3, U.S. Army            Publications Control Officer</p>									

**Figure B-2. Example of a Request for Naval Publications (One-Time Requirement)**

## **SUBMITTING CONTINUING/FOLLOW-ON REQUIREMENTS**

### **Air Force or Navy Publications Account/Follow-on Changes**

B-7. To establish an Air Force or Navy publications account (Figure B-3) and to ensure follow-on changes, submit a request for an account to HQDA, USAPA, ATTN: JDHQSVPAL, 2461 Eisenhower Ave, Alexandria, VA 22331-0302.

### **Ordering Publications**

B-8. Include full justification, and identify the publication number, quantity, and POC with DSN and commercial telephone numbers. Route the letter through and check the format with the PCO.


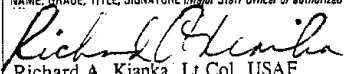
HEADING					
OFFICE SYMBOL (MARKS NUMBER)	DATE				
MEMORANDUM THRU: Installation PCO					
MEMORANDUM FOR: HQDA, USAPA, ATTN: JDHQSV-PAL, 2461 Eisenhower Avenue, Alexandria, VA 22331-0302					
SUBJECT: Request for Publications Account					
<p>1. This unit's Aviation Life Support Systems Program requires technical publications from the Air Force to ensure proper equipment maintenance. Request a publication's account be established for this unit.</p> <p>2. Publication requirements:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; text-align: center; padding: 5px;"><u>TO/NAVAIR</u></td> <td style="width: 50%; text-align: center; padding: 5px;"><u>QTY</u></td> </tr> <tr> <td style="text-align: center; padding: 5px;">(List all TOs/NAVAIRs required)</td> <td style="text-align: center; padding: 5px;">(List quantity required)</td> </tr> </table> <p>3. Request all necessary forms and information to order publications. Account must be established for initial and follow-on changes.</p> <p>4. The POC for this request is CW3 Doe or SFC Jones, DSN 327-1566 or commercial (527) 397-1566.</p>		<u>TO/NAVAIR</u>	<u>QTY</u>	(List all TOs/NAVAIRs required)	(List quantity required)
<u>TO/NAVAIR</u>	<u>QTY</u>				
(List all TOs/NAVAIRs required)	(List quantity required)				
AUTHORITY LINE: (if applicable)					
JOHN E. DOE CW3, U.S. Army Publications Control Officer					

**Figure B-3. Example of a Request for Air Force/Navy Publications Account**

## AIR FORCE ACCOUNTS

**B-9. Requests for Air Force Forms.** Request copies of AFTO Form 43 (Request for USAF Technical Order Distribution Office Code Assignment or Change) (Figure B-4) and TO 00-5-2. The ATOMS replaced some AFTO forms required earlier. AFTO Form 187 (Technical Order Publications Request), not automated, is still used.

**B-10. Ordering Publications.** Upon receipt of forms, identify required publications, and complete two copies of AFTO Form 43. Mail the copies to Commander, Oklahoma City Air Logistics Center.

<b>REQUEST FOR USAF TECHNICAL ORDER DISTRIBUTION OFFICE CODE ASSIGNMENT OR CHANGE</b> <i>(See T.O. 00-5-2 FOR USE OF THIS FORM)</i>		TYPE OF REQUEST <input checked="" type="checkbox"/> INITIAL <input type="checkbox"/> REVISED <input type="checkbox"/> CANCELLATION	T.O. DISTRIBUTION OFFICE CODE DATE 1 Oct 1998
1. FROM 23 FTF/DOL Bldg 6620 Andrews Ave. Ft. Rucker AIN, AL 36362-5358		2. TO (Place in envelope and mail to) OC-ALC/TILUB 7851 Arnold St, Ste 201 Tinker AFB OK 73145-9147	
3. T.O. MAILING ADDRESS AND 9 DIGIT-ZIP CODE 23 FTF/DOL Bldg 6620 Andrews Ave. Ft. Rucker AIN, AL 36362-5358 ATTN: SRA Alarie			
4. TODO TYPE			
a. BASE TODO (T.O. 00-5-2, Para 1-4.1.)		e. ORGANIZATION IS A CONTRACTOR WITH A UNITED STATES GOVERNMENT CONTRACT (Indicate Contract Number and Issuing U.S. Government Agency) (Use reverse side if necessary)	
<input checked="" type="checkbox"/> b. UNITACTIVITY TODO (T.O. 00-5-2, Para 1-4.3.)			
<input checked="" type="checkbox"/> c. ORGANIZATION IS AN ELEMENT OF THE UNITED STATES AIR FORCE (Indicate Major Command) AETC			
d. ORGANIZATION IS AN ELEMENT OF THE UNITED STATES GOVERNMENT BUT NOT AIR FORCE (Indicate Department or Agency)		f. CANCELLATION DATE (Date on which code and all requirements are to be cancelled unless otherwise advised by revised AFTO Form 43).	
g. OTHER (Describe organization in detail. Use reverse side if necessary)			
5. SECURITY LEVEL AUTHORIZED (The organization listed above has adequate facilities, equipment, and properly cleared personnel to receive and safeguard classified Technical Orders up to and including (reflect Security Clearance). <b>SECRET</b>			
6. TODO PERSONNEL (The following personnel are authorized to sign and approve T.O. requirements as TODO IAW T.O. 00-5-2. Personnel listed below are conversant with the provisions of T.O. 00-5-2 and will assure compliance therewith.)			
NAME, GRADE, TITLE AND SIGNATURE (Include phone and E-Mail address)  Michael R. Alarie, SRA, USAF NCOIC, 23d Life Support DSN: 558-1108 AlarieM@Rucker.AF.Mil		NAME, GRADE, TITLE AND SIGNATURE (Include phone and E-Mail address)	
7. GOVERNMENT APPROVING AGENCY (The following United States Government Personnel are authorized to sign and approve technical order requirements as USAF approving agent IAW T.O. 00-5-2).			
NAME, GRADE, TITLE AND SIGNATURE (Include phone)		NAME, GRADE, TITLE AND SIGNATURE (Include phone)	
NAME, GRADE, TITLE AND SIGNATURE (Include phone)		NAME, GRADE, TITLE AND SIGNATURE (Include phone)	
8. COMMAND/CONTRACTING OFFICER APPROVAL (The above request is verified and approved by this office. Approval of this request is considered in the best interests of the United States Government.)			
APPROVING OFFICE (Address, Phone, USAF Major Command/U.S. Government Office Approval) 23 FTF/CC, DSN:558-0290, MAJCOM: AETC Bldg 6620 Andrews Ave. Ft. Rucker AIN, AL 36362-5358		NAME, GRADE, TITLE, SIGNATURE (Major Staff Officer or authorized Contracting Officer)  Richard A. Kianka, Lt Col, USAF Commander, 23 FTF	
9. FOR AFMC TODO CODE MANAGEMENT ACTIVITY USE ONLY			
<input type="checkbox"/> APPROVED <input type="checkbox"/> DISAPPROVED		REMARKS OR SPECIAL INSTRUCTIONS (Continue on reverse)	

AFTO FORM 43, JUN 98 (EF-V3)

PREVIOUS EDITION IS OBSOLETE

## NAVY ACCOUNTS

B-11. **Requests for Naval Supply Information.** Request the following supply material:

- NAVSUP 2002.
- NAVAIR 00-25-100 (Web Site: [www.nll.navsup.navy.mil](http://www.nll.navsup.navy.mil)).

B-12. **Identifying and Ordering Publications/Forms.** Upon receipt of the above material, identify required publications and forms:

- Submit DD Form 1348/1348m (Single Line Item Requisition System Document [Manual]/Single Line Item Requisition System Document [Mechanical]) (Figures B-5a and B-5b) to initiate a one-time issue of basic publications and forms; forward the form to Publications and Forms Branch, Naval Inventory Control Point, ATTN: Customer Service, Building 1, Room 3401, 700 Robbins Avenue, Philadelphia, PA 19111-5098.
- Submit the automatic-distribution ordering blank (Figure B-6) to initiate the follow-on changes; complete and mail two copies to Naval Air Technical Data and Engineering Services Command, Naval Air Station, North Island, P.O. Box 357031, San Diego, CA 92135-7031, or use the Streamline Automatic Logistics Transmission System (SALTS) and send changes to [adrl@natec.navy.mil](mailto:adrl@natec.navy.mil).

★ U.S. GOVERNMENT PRINTING OFFICE 1962-344-888

**USE TYPEWRITER OR BALL POINT PEN. PRESS HARD TO ASSURE LEGIBILITY ON ALL COPIES.**

DOC IDENT		ROUT IDENT	FISC	STOCK NUMBER	QUANTITY	REQUISITION DATE	SERIAL	REQUISITION IS FROM	
A		B		C		D		E	
F		G		H		I		J	
K		L		M		N		O	
P		Q		R		S		T	
U		V		W		X		Y	
Z		AA		AB		AC		AD	
AE		AF		AG		AH		AI	
AJ		AK		AL		AM		AN	
AO		AP		AQ		AR		AS	
AT		AU		AV		AW		AX	
AY		AZ		BA		BB		BC	
BD		BE		BF		BG		BH	
BI		BJ		BK		BL		BM	
BN		BO		BP		BQ		BR	
BS		BT		BU		BV		BW	
BX		BY		BZ		CA		CB	
CC		CD		CE		CF		CG	
CH		CI		CJ		CK		CL	
CM		CN		CO		CP		CQ	
CR		CS		CT		CU		CV	
CW		CX		CY		CZ		DA	
DB		DC		DD		DE		DF	
DG		DH		DI		DJ		DK	
DL		DM		DN		DO		DP	
DQ		DR		DS		DT		DU	
DV		DW		DX		DY		EZ	
FA		FB		FC		FD		FE	
FF		FG		FH		FI		FJ	
FK		FL		FM		FN		FO	
FP		FQ		FR		FS		FT	
FU		FV		FW		FX		FY	
FZ		GA		GB		GC		GD	
GE		GF		GG		GH		GI	
GJ		GK		GL		GM		GN	
GO		GP		GQ		GR		GS	
GT		GU		GV		GW		GX	
GY		GZ		HA		HB		HC	
HD		HE		HF		HG		HH	
HI		HJ		HK		HL		HM	
HN		HO		HP		HQ		HR	
HS		HT		HU		HV		HW	
HX		HY		HZ		IA		IB	
IC		ID		IE		IF		IG	
IH		II		IJ		IK		IL	
IM		IN		IO		IP		IQ	
IR		IS		IT		IU		IV	
IW		IX		IY		IZ		JA	
JB		JC		JD		JE		JF	
JG		JH		JI		JJ		JK	
JL		JM		JN		JO		JP	
JQ		JR		JS		JT		JU	
JV		JW		JX		JY		JZ	
KA		KB		KC		KD		KE	
KF		KG		KH		KI		KL	
KM		KN		KO		KP		KQ	
KR		KS		KT		KU		KV	
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LB		LC		LD		LE		LF	
LG		LH		LI		LJ		LK	
LL		LM		LN		LO		LP	
LQ		LR		LS		LT		LU	
LV		LW		LX		LY		LZ	
MA		MB		MC		MD		ME	
MF		MG		MH		MI		MJ	
MK		ML		MN		MO		MP	
MQ		MR		MS		MT		MU	
MV		MW		MX		MY		MZ	
NA		NB		NC		ND		NE	
NF		NG		NH		NI		NJ	
NK		NL		NM		NO		NP	
NQ		NR		NS		NT		NU	
NV		NW		NX		NY		NZ	
OA		OB		OC		OD		OE	
OF		OG		OH		OI		OJ	
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PE		PF		PG		PH		PI	
PJ		PK		PL		PM		PN	
PO		PP		PQ		PR		PS	
PT		PU		PV		PW		PX	
PY		PZ		QA		QB		QC	
QD		QE		QF		QG		QH	
QI		QJ		QK		QL		QM	
QN		QO		QP		QQ		QR	
QS		QT		QU		QV		QW	
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RR		RS		RT		RU		RV	
RW		RX		RY		RZ		SA	
SB		SC		SD		SE		SF	
SG		SH		SI		SJ		SK	
SL		SM		SN		SO		SP	
SQ		SR		SS		ST		SU	
SV		SW		SX		SY		SZ	
TA		TB		TC		TD		TE	
TF		TG		TH		TI		TJ	
TK		TL		TM		TN		TO	
TP		TQ		TR		TS		TT	
TU		TV		TW		TX		TY	
TZ		UA		UB		UC		UD	
UE		UF		UG		UH		UI	
UJ		UK		UL		UM		UN	
UO		UP		UQ		UR		US	
UT		UV		UW		UX		UY	
UZ		VA		VB		VC		VD	
VE		VF		VG		VH		VI	
VJ		VK		VL		VM		VN	
VO		VP		VQ		VR		VS	
VT		VW		VX		VY		VZ	
WA		WB		WC		WD		WE	
WF		WG		WH		WI		WJ	
WK		WL		WM		WN		WO	
WP		WQ		WR		WS		WT	
WU		WV		WW		WX		WY	
WZ		XA		XB		XC		XD	
XE		XF		XG		XH		XI	
XJ		XK		XL		XM		XN	
XO		XP		XQ		XR		XS	
XT		XU		XV		XW		XY	
XZ		YA		YB		YC		YD	
YE		YF		YG		YH		YI	
YJ		YK		YL		YM		YN	
YO		YP		YQ		YR		YS	
YT		YU		YV		YW		YX	
YZ		ZA		ZB		ZC		ZD	
ZE		ZF		ZG		ZH		ZI	
ZJ		ZK		ZL		ZM		ZN	
ZO		ZP		ZQ		ZR		ZS	
ZT		ZU		ZV		ZW		ZX	
ZY		ZZ		AA		AB		AC	
AD		AE		AF		AG		AH	
AI		AJ		AK		AL		AM	
AN		AO		AP		AQ		AR	
AS		AT		AU		AV		AW	
AX		AY		AZ		BA		BB	
BC		BD		BE		BF		BG	
BH		BI		BJ		BK		BL	
BM		BN		BO		BP		BQ	
BR		BS		BT		BU		BV	
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CB		CC		CD		CE		CF	
CG		CH		CI		CJ		CK	
CL		CM		CN		CO		CP	
CQ		CR		CS		CT		CU	
CV		CW		CX		CY		CZ	
DA		DB		DC		DD		DE	
DF		DG		DH		DI		DJ	
DK		DL		DM		DN		DO	
DP		DQ		DR		DS		DT	
DU		DV		DW		DX		DY	
DZ		EA		EB		EC		ED	
EE		EF		EG		EH		EI	
EJ		EK		EL		EM		EN	
EO		EP		EQ		ER		ES	
ET		EU		EV		EW		EX	
EY		EZ		FA		FB		FC	
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GX		GY		GZ		HA		HB	
HC		HD		HE		HF		HG	
HI		HJ		HK		HL		HM	
HN		HO		HP		HQ		HR	
HS		HT		HU		HV		HW	
HX		HY		HZ		IA		IB	
IC		ID		IE		IF		IG	
IH		II		IJ		IK		IL	
IM		IN		IO		IP		IQ	
IR		IS		IT		IU		IV	
IW		IX		IY		IZ		JA	
JB		JC		JD		JE		JF	
JG		JH		JI		JJ		JK	
JL		JM		JN		JO		JP	
JQ		JR		JS		JT		JU	
JV		JW		JX		JY		JZ	
KA		KB		KC		KD		KE	
KF		KG		KH		KI		KL	
KM		KN		KO		KP		KQ	
KR		KS		KT		KU		KV	
KW		KX		KY		KZ		LA	
LB		LC		LD		LE		LF	
LG		LH		LI		LJ		LK	
LM		LN		LO		LP		LQ	
LR		LS		LT		LU		LV	
LW		LX		LY		LZ		MA	
MB		MC		MD		ME		MF	
MG		MH		MI		MJ		MK	
ML		MN		MO		MP		MQ	
MR		MS		MT		MU		MV	
MW		MX		MY		MZ		NB	
NC		ND		NE		NF		NG	
NH		NI		NJ		NK		NL	
NM		NO		NP		NQ		NR	
NS		NT		NU		NV		NW	
NX		NY		NZ		OA		OB	
OC		OD		OE		OF		OG	
OH		OI		OJ		OK		OL	
OM		ON		OO		OP		OQ	
OR		OS		OT		OU		OV	
OW		OX		OY		OZ		PA	
PB		PC		PD		PE			

ACTIVITY NAME		DATE	ACTIVITY	ADDRESS	CODE	QTY
2797 Avn. Co		1 SEP 89	WK A 26			
TECHNICAL MANUALS (Cont)		TECHNICAL MANUALS (Cont)				
11-85-8 ACFT ROCKET OPERATION	GP200					
11-100-1 ACFT/ EQT CRTG ACTUATED DEVICES	GP205					
13-1-6.1 INFLATABLE SURVIVAL EQT	GP210	/				
13-1-6.2 PERSONNEL PARACHUTES	GP212					
13-1-6.3 SURVIVAL KITS/ITEMS	GP214	/				
13-1-6.4 OXYGEN EQT	GP218	/				
13-1-6.5 HLCPR RESCUE/SURVIVAL	GP218	/				
13-1-6.7 PERSONNEL PROTECTING EQT	GP219	/				
15-01-500 AIRCRAFT PRESERVATION	GP240					
15-02-1 ENGINE PRESERVATION, DESERT STORAGE	GP250					
15-02-500 ENGINE PRESERVATION	GP260					
16-1-520 STO FLT INSPECTION	GP267					
16-1-540 AVIONIC CORROSION CONTROL	GP270					
17-1-108 PORTABLE LATHE GRINDERS	GP274					
17-1-108 TORQUE TOOLS USE	GP276					
17-1-114 LIFTING SLINGS	GP278					
17-1-118 EXT PWR PLUGS REPAIR	GP280					
17-1-119 RAY CHEM ELECTRONIC EQUIP MAINT	GP283					
17-1-123 TIRE INFLATOR KIT	GP286					
17-1-124 MINIATURE COMPONENT REPAIR	GP287					
17-1-126 CLEANING/CORROSION	GP288					
17-1-128 STO CONFIG ELEC CABLES	GP289					
17-1-524 WIRE CABLE SPLICING	GP292					
17-1-528 TORQUE PROBLEM	GP294					
17-1-537 AIRCRAFT SECURING	GP296					
17-5AB-35 ULTRASONIC CLEANING	GP297					
17-5AB-40 FILTER CLEANER, ULTRASONIC	GP299					
17-15-50 OIL ANALYSIS LAB MANUAL	GP300					
17-15B-1 BATTERIES CARE/USE	GP320					
17-15E-52 HYD FLUID ANALYSIS KIT	GP328					
17-40AR-163-1 PORT MICROFILM VWR OPER MAINT	GP350					
17-40MIARS-1 AR-150A INTMD MAINT W/IPB	GP353					
17-40MIARS-2 AR 151A OPER MAINT W/IPB	GP354					
17-40MIARS-3 AR-150A OPER/ORG MAINT W/IPB	GP355					
19-1-127 GSE PREFERRED LIST	GP365					
19-200-1 JET ENGINE CORROSION CONTROL CART	GP375					
19-70-46 ACFT JACKS INDEX/APPL	GP398					
19-100-1 WPNS/EXPLOSIVES HNDLG EQT	GP400					
19-100-1-2 WPNS/EXPLOSIVE EQT CATALOG	GP405					
19-100-2 SHPBD WPNS HNDLG EQT	GP410					
28-SSQ-500 SONOBUOY REF GUIDE O/I/D MAINT	GP500					
28-SSQ-500-1 SONOBUOY INST O/I MAINT	GP505					

Figure B-6. Example of Automatic Distribution



## Appendix C

### Suggested ALSS Shop Layout and Storage Illustrations

C-1. This appendix contains ALSE shop layout and storage illustrations (Figures C-1 through C-22).

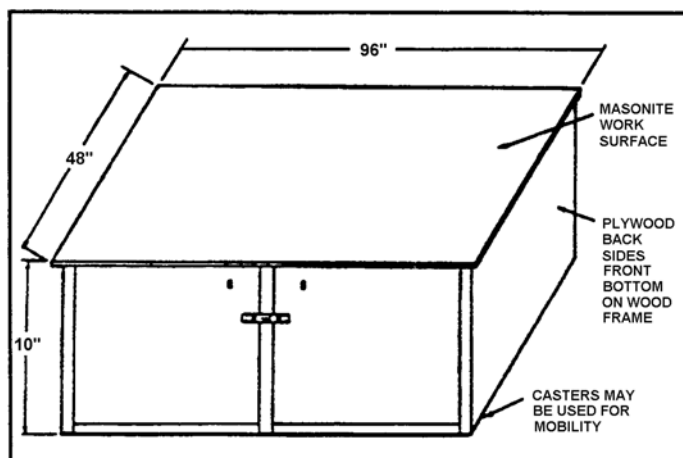
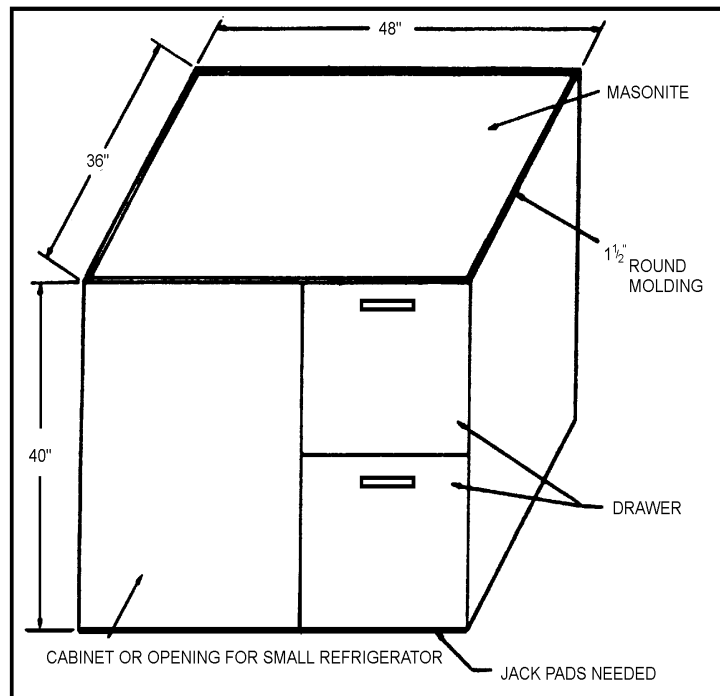


Figure C-2. Large Workbench with Storage

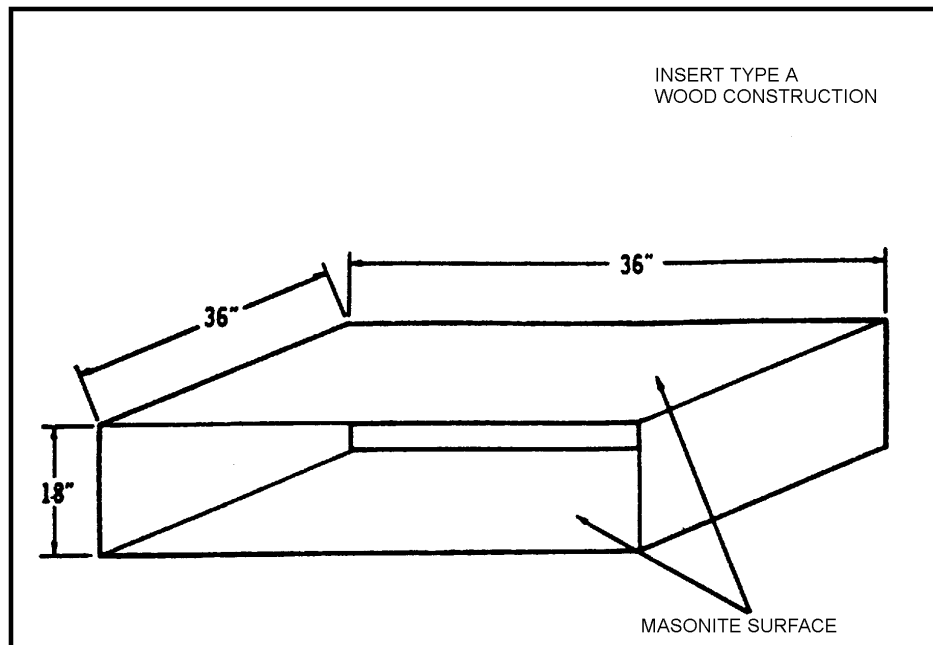


Figure C-3. Shelf Insert for Workbench

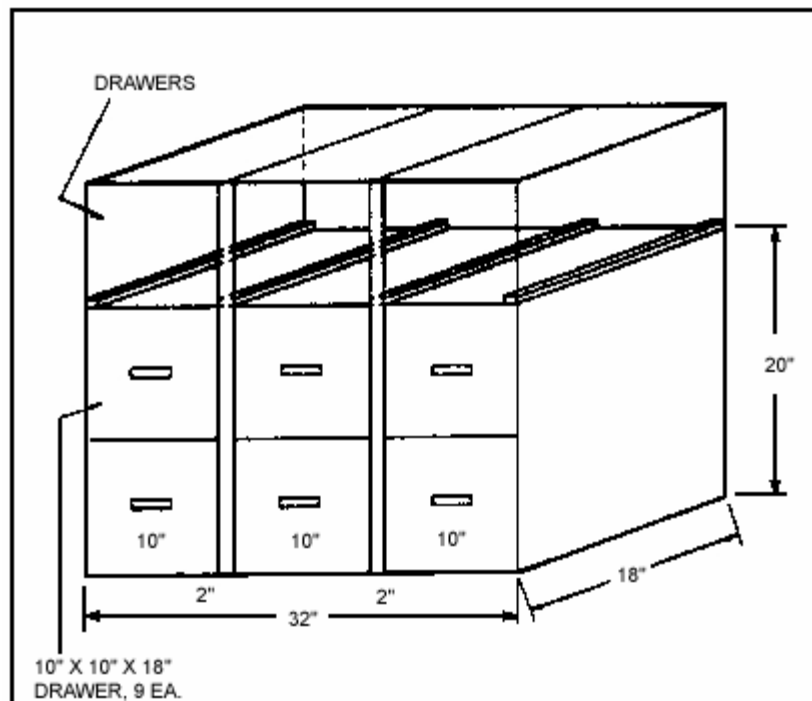


Figure C-4. Drawer Insert for Workbench

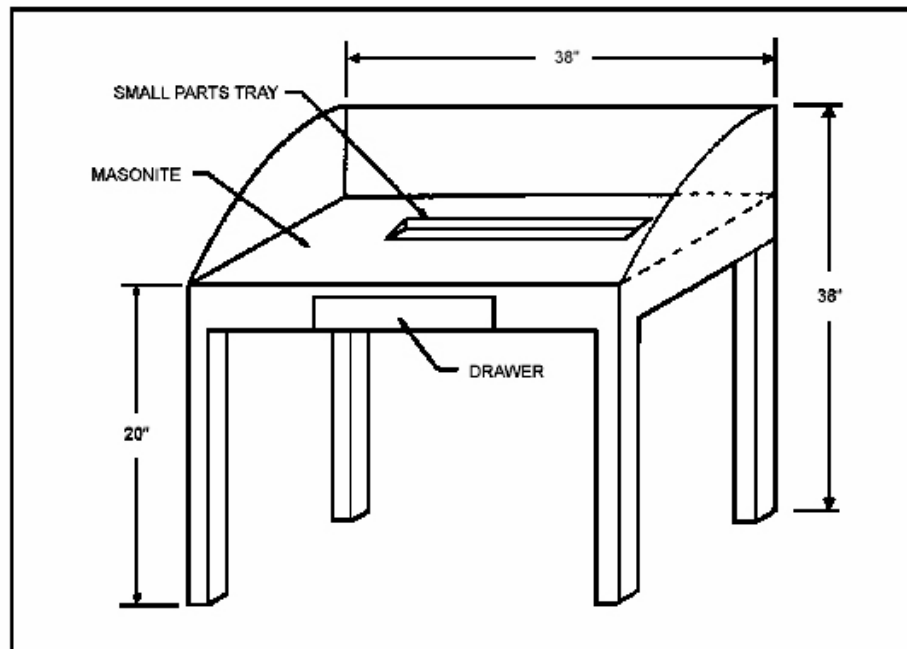


Figure C-5. One-Person Workstation

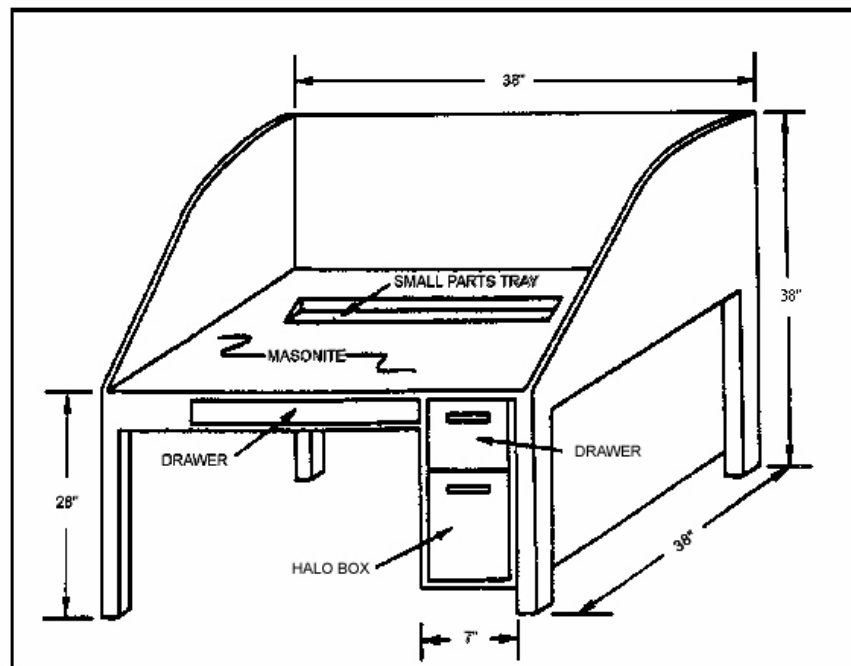


Figure C-6. One-Person Workstation with Storage Drawers

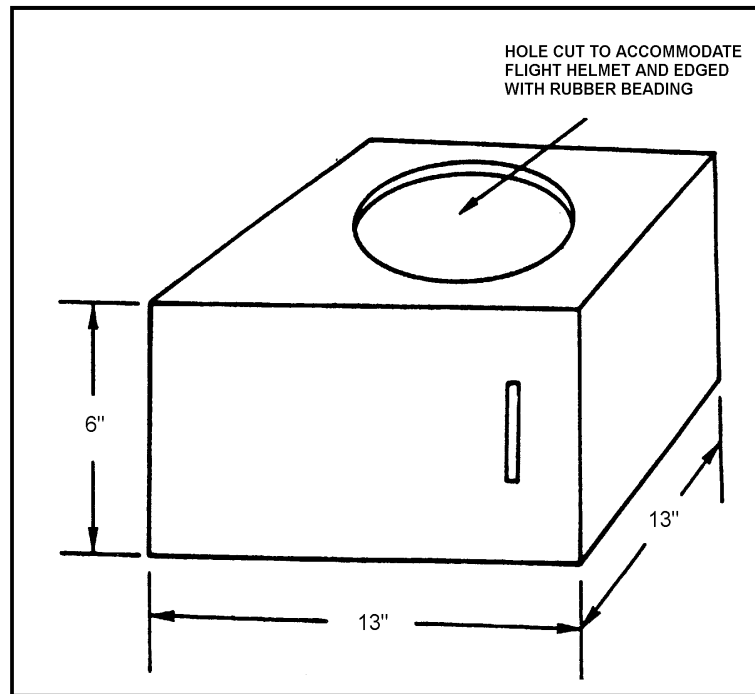


Figure C-7. Halo Box (Helmet Rebuild Station)

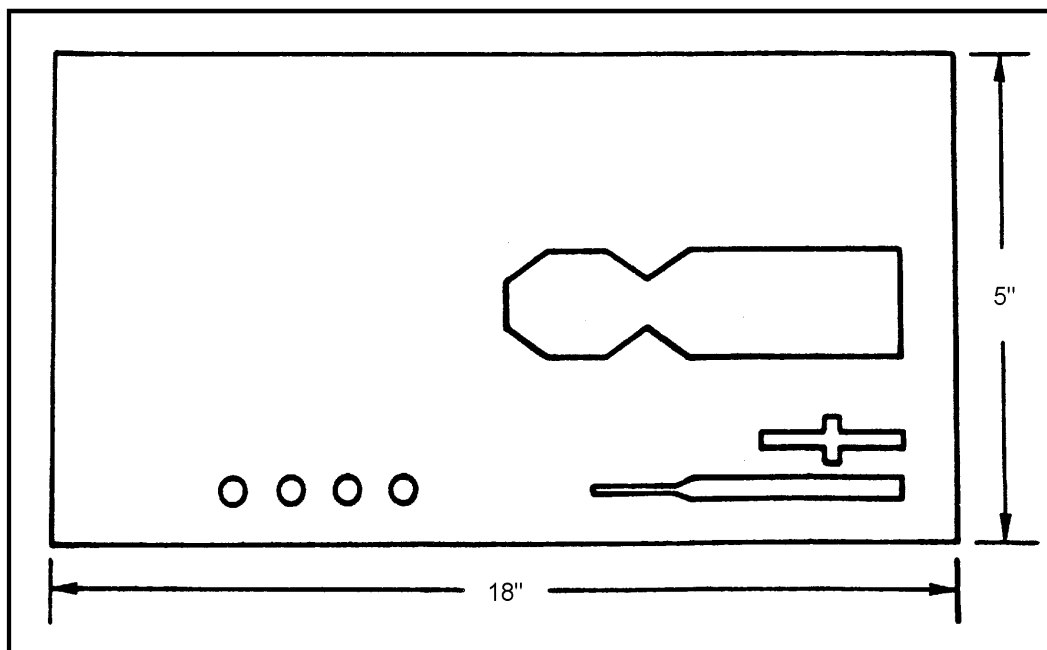


Figure C-8. Insert for Drawer (Oxygen Mask Tools)

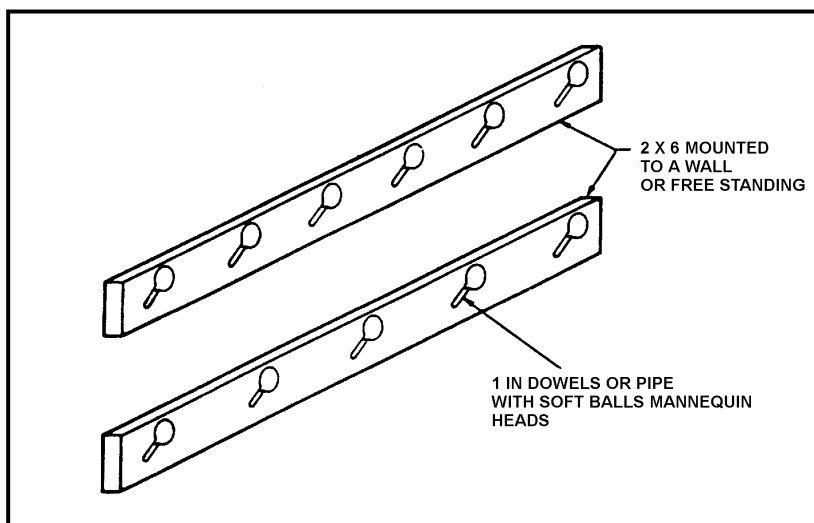


Figure C-9. Helmet Rack (with Dowels)

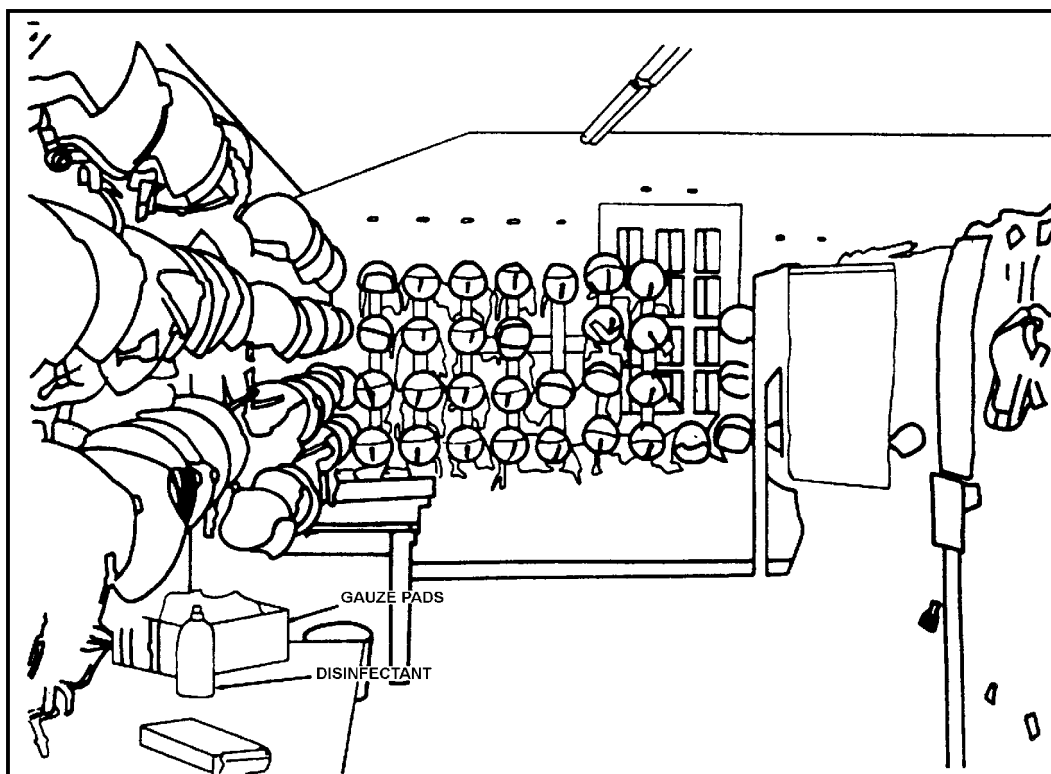


Figure C-10. Helmet Storage (Rack-Type)



Figure C-11. Helmet Rack (With Mannequins)

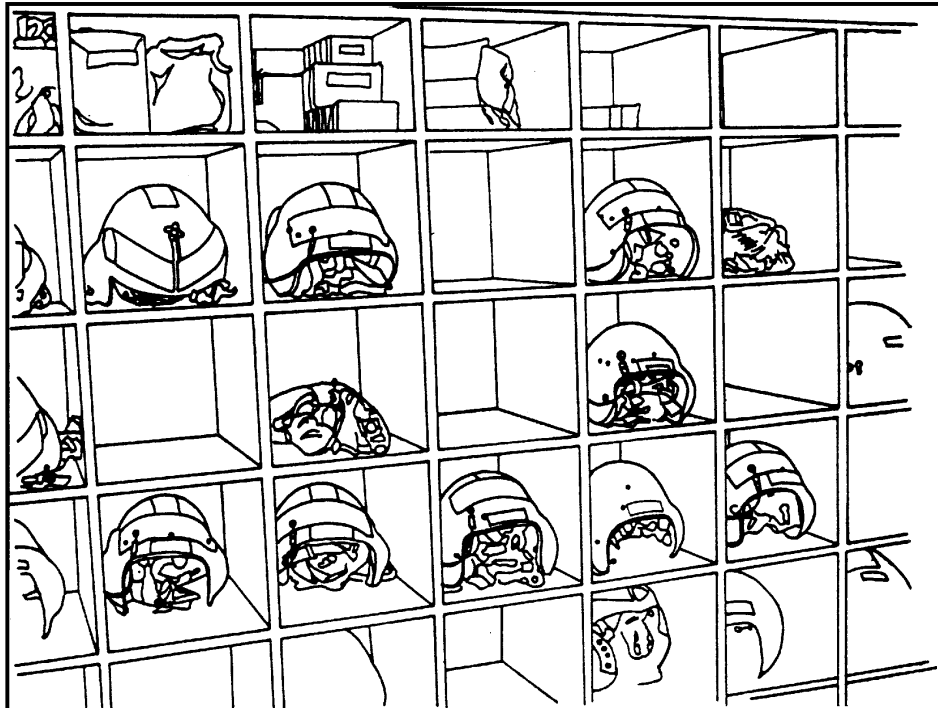
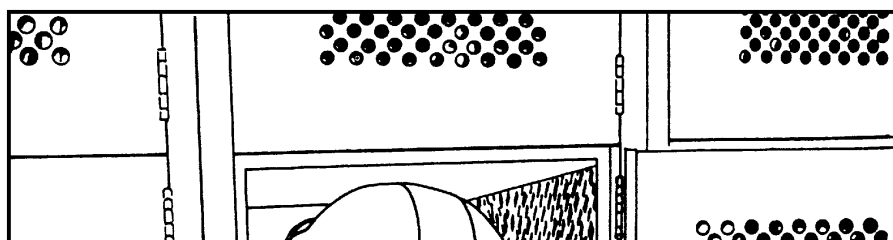
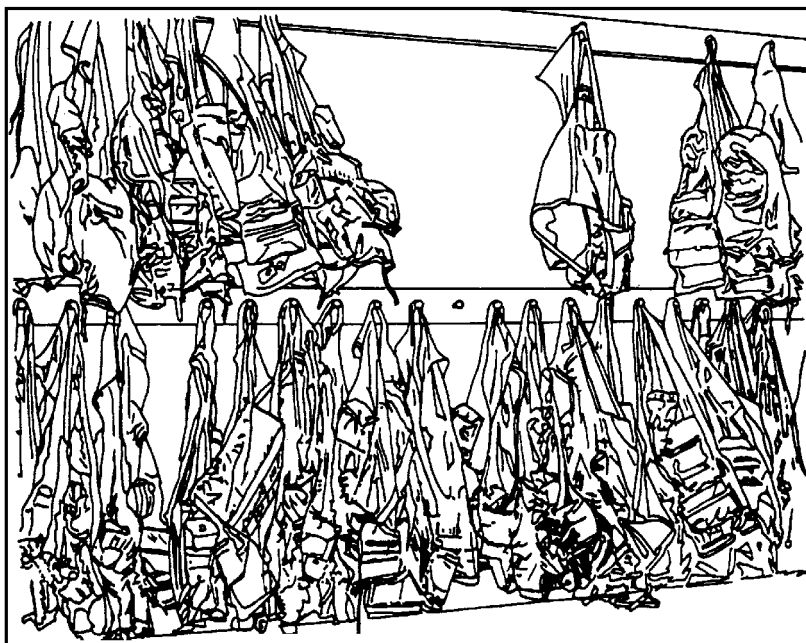


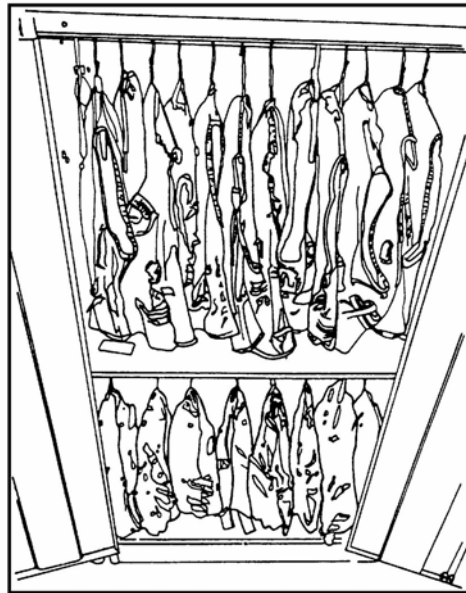
Figure C-12. Helmet Storage (Cabinet-Type)



**Figure C-13. ALSE Locker (Vest and Helmet)**



**Figure C-14. vest Storage (Use wood Dowels, Double, if Possible)**



**Figure C-15. Vest Storage, Wall Locker (Use Wood or Plastic Hangers, if Possible)**

**Note:** Wall lockers should have ventilation capability/openings on the doors, if locked.



**Figure C-16. Vest Storage, Hangers (Use Wood or Plastic, if Possible)**



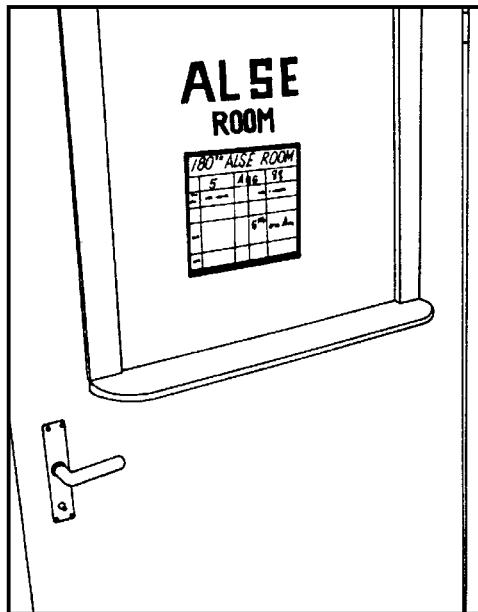


Figure C-17. Controlled Entry (Window in Door)

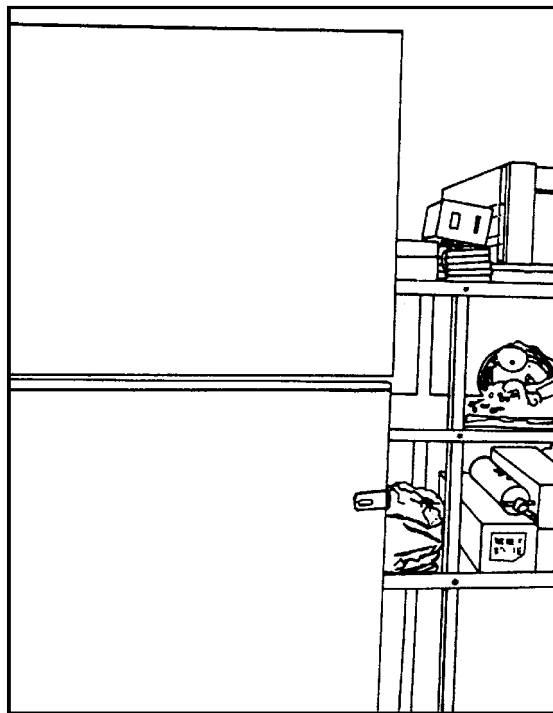
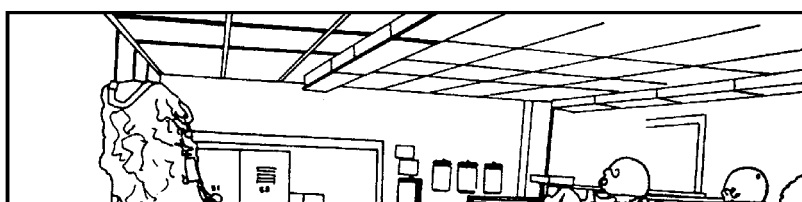
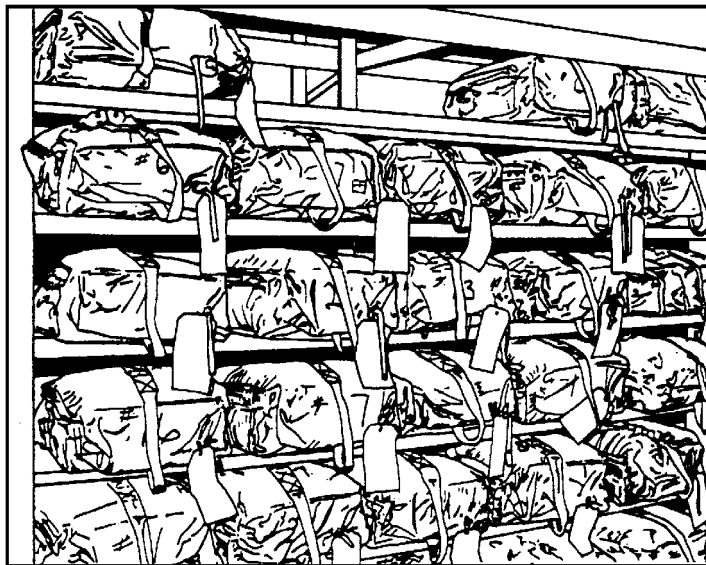


Figure C-18. Controlled Entry (Dutch Door)



**Figure C-19. Controlled Entry (Counter and Desk at Front)**



**Figure C-20. Survival Kit Storage (Wood Shelves)**

**Note:** Rubber matting or tile should be placed on wood surfaces to prevent splinters and on metal surfaces to prevent metal-to-metal contact.

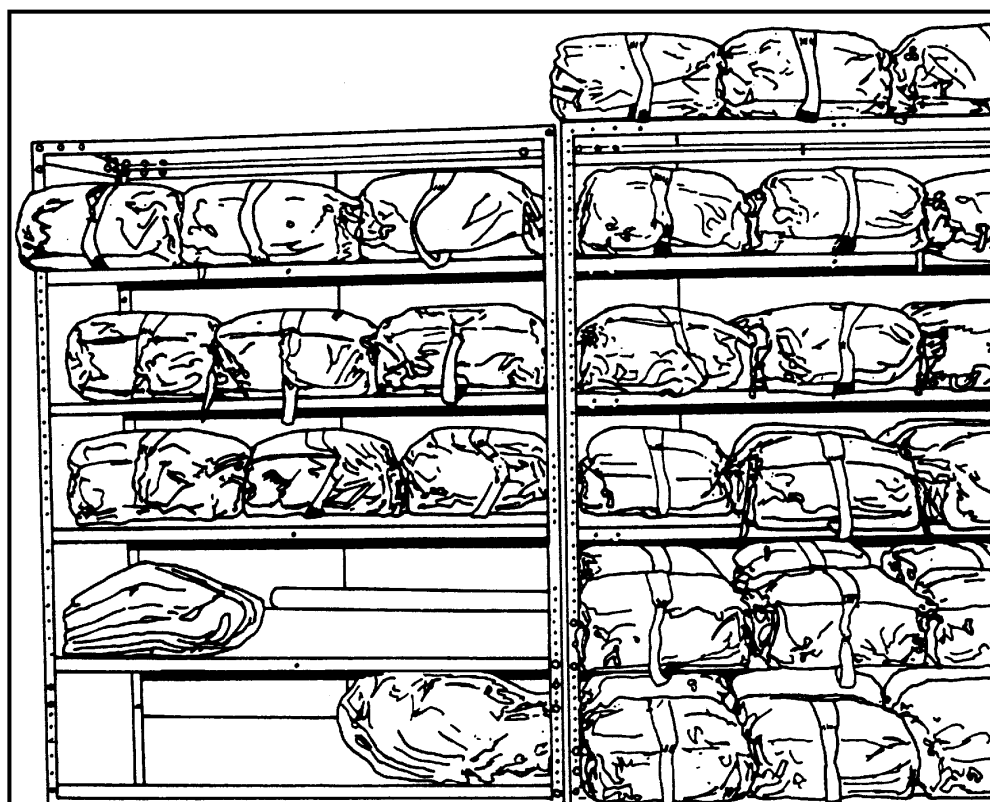
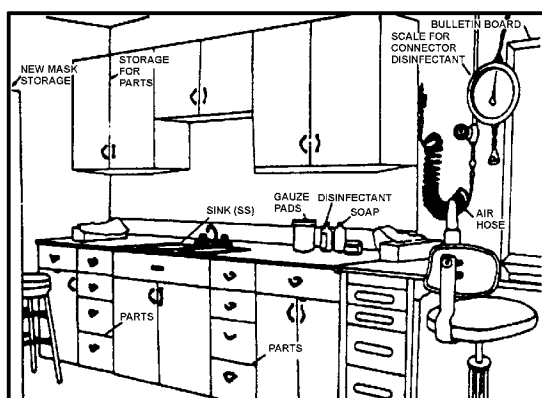


Figure C-21. Survival Kit Storage (Lockers)

SUGGESTION A



SUGGESTION B

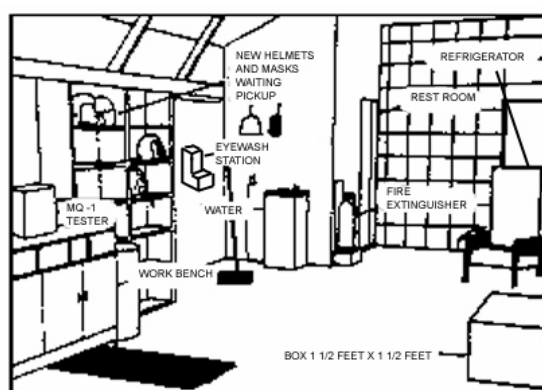


Figure C-22. Aircrew Life Support Shop

## RECOMMENDED BUILDING MATERIALS FOR FIGURES C-1 THROUGH C-10

C-2. Materials may be substituted as deemed necessary by the local unit as long as the strength of the completed project has not been compromised. No information is available at this time for the building materials needed for those items to be constructed in Figures C-11 through C-22.

C-3. Construction of storage furniture and aids will enable establishment of an ALSS workshop in a most cost-effective method. The recommended building materials for Figures C-1 through C-10 are provided for construction of storage furniture and aids:

- The following materials are required for the construction of a scale table (Figure C-1):
  - Plywood  $\frac{3}{4}$ -inch.
  - Masonite (top of worktable)  $\frac{1}{4}$ -inch.
  - Molding 1-inch, half-round.
  - Drawer glides.
  - Drawer pulls (handles).
  - Stock (framing) 2- by 2-inch.
  - Jack pads (for feet).
  - Glue.
  - Nails.
  - Screws.
  - Paint.
- The following materials are required for the construction of a workbench with storage (flotation gear) (Figure C-2).
  - Plywood  $\frac{3}{4}$ -inch.
  - Masonite (top of workbench  $\frac{1}{4}$ -inch).
  - Hinges.
  - Drawer pulls (handles).
  - Hasps with padlocks.
  - Stock (framing) 2- by 4-inch.
  - Casters (optional).
  - Glue.
  - Nails.
  - Screws.
  - Paint.

- The following materials are required for the construction of a shelf insert (workbench-flotation gear) (Figure C-3).
  - Plywood  $\frac{3}{4}$ -inch.
  - Masonite  $\frac{1}{4}$ -inch.
  - Glue.
  - Nails.
- The following materials are required for the construction of a drawer insert (flotation gear) (Figure C-4). This drawer insert can also be used in the standard wall locker for additional storage space:
  - Plywood  $\frac{3}{4}$ -inch.
  - Stock 1 inch.
  - Drawer pulls (handles).
  - Glue.
  - Nails.
- The following materials are required for the construction of a one-person workstation (Figure C-5):
  - Stock (framing) 2-by 4-inch.
  - Plywood  $\frac{3}{4}$ -inch.
  - Masonite  $\frac{1}{4}$ -inch.
  - Drawer glides.
  - Drawer pulls (handles).
  - Nails.
  - Glue.
  - Screws.
  - Paint.
- The following materials are required for the construction of a one-person workstation with storage drawers (Figure C-6):
  - Stock (framing) 2-by 4-inch.
  - Plywood  $\frac{3}{4}$ -inch.
  - Masonite  $\frac{1}{4}$ -inch.
  - Drawer glides.
  - Drawer pulls (handles).
  - Nails.
  - Glue.
  - Screws.
  - Paint.

- The following materials are required for the construction of a halo box (helmet rebuild station) (Figure C-7):
  - Stock 2-by 4-inch.
  - Glue.
  - Nails.
  - Rubber beading.
  - Black paint (optional).
- The following materials are required for the construction of an insert for drawer (oxygen mask tools) (Figure C-8).
  - Plywood  $\frac{3}{4}$ -inch.
  - Black paint (optional).
- The following materials are required for the construction of a helmet rack (Figure C-9):
  - Planking 2-by 6-inch.
  - Dowel 1-inch or 1-inch pipe.
  - Mannequin heads or softballs.
  - Screws or nails.
  - Glue.
  - Paint.
- The following materials are required for the construction of aircrew helmet storage (Figure C-10).
  - Planking 2- by 6-inch.
  - Dowels 1-inch.
  - Softballs.

## **Appendix D**

### **Safety**

An effective safety program for the ALSS Maintenance Management and Training Programs and operations is a basic requirement in all Army aviation units. Everyone in the unit must constantly be alert to recognize and correct potentially dangerous safety hazards immediately. All personnel must understand the hazards of working around aircraft, general support equipment, and mission equipment. Therefore, all should know other safety principles that may apply, which are discussed here.

#### **ACCIDENT CAUSES**

D-1. An aviation accident is seldom caused by a single factor such as human error or materiel failure. Accidents are more likely to result from a series of incidents. This fact must be recognized in developing an aviation accident-prevention program. The following areas require constant command attention to prevent aviation accidents:

- Human factors.
- Training, education, and promotion.
- Equipment design, adequacy, and supply.
- Normal and emergency procedures.
- Maintenance.
- Facilities and services.
- Environment.

D-2. The USASC has found that human error accounts for about 80 percent of total mishaps. Maintenance-related mishaps do account for a percentage of total mishaps. As expected, aircraft that are more complex have higher maintenance mishap rates. At unit level, commanders and maintenance supervisors must ensure that their personnel know of maintenance errors generated in their own units. They can be made aware of those in other units by examples found in *Flightfax* and other publications. All maintenance activities and personnel must strictly adhere to published maintenance procedures and apply risk management/risk assessment at all levels of operations.

#### **SAFETY REGULATIONS**

D-3. AR 385-10 regulates overall safety. One important aspect of this regulation is that it integrates Occupational Safety and Health Act requirements into the Army Safety Program. AR 385-95 regulates the Army Aviation Accident Prevention Program. DA Pamphlet 385-40 covers accident investigation and reporting. Personnel who have essential responsibilities in

the unit's aviation accident prevention program are the commander, the safety officer, all aviators, the flight surgeon, and the unit safety NCO. A complete knowledge of aviation personnel, materiel, and operations is necessary to establish and maintain an effective aviation accident-prevention plan. The plan must be tailored to the mission and requirements of the command. All activities that affect aviation operations must be considered.

## RESPONSIBILITIES

D-4. Accidents and injuries can seriously reduce the unit's ability to complete its required mission. The unit commander must ensure that all personnel know proper operation and safety-associated procedures for all aircraft, vehicles, equipment, tools, and machinery. Soldiers are responsible for protecting equipment and the lives of fellow soldiers. Therefore, they must actively participate in safety programs. The primary responsibility for safety for all maintenance work performed on the aircraft or on its components rests with the QC section.

## UNIT COMMANDER

D-5. Unit commanders are responsible for ensuring that all activities of their units are conducted according to established safety rules and regulations. These regulations include ARs 385-40 and 385-95, DA Pamphlet 385-40, and other required local directives. Unit commanders are also responsible for determining the cause of accidents and for making certain that corrections are made to prevent their recurrence. They must be aware of, and enforce, all safety regulations established by higher headquarters. Unit commanders are responsible for requesting permission to deviate from an established safety rule. This request, including full particulars and detailed plans and specifications, is submitted to the appropriate headquarters. However, unit commanders cannot rely on the safety programs of higher headquarters to ensure the safety of their people. They must also establish their own programs and become personally involved in implementing them.

## SUPERVISOR

D-6. Effective supervision is the key to accident prevention. In their daily contact with soldiers, supervisors are in a position to observe working conditions and hazards. Supervisors must apply all established accident-prevention measures in daily operations. They should conduct meetings with their subordinates frequently at regular intervals to brief them on safety procedures, to get their suggestions on improving safety practices, and to announce any new safety procedures. Such meetings should be held in the work area. The agenda should include the following:

- The overall job and the results expected.
- The how, why, and when of the job and any ideas from the group on ways to improve methods and procedures.
- The part that each person will play; supervisors must ensure that all personnel understand the significance of individual roles.
- Existing and anticipated hazards and the action needed to resolve these problems.



- The need for prompt, accurate reporting of all injuries, accidents, or near accidents and the importance of first aid when required.
- The need to search constantly for, detect, and correct unsafe practices and conditions to prevent accidents and injuries.

## INDIVIDUAL

D-7. All personnel must be aware of the safety rules established for their individual and collective protection. Each person is responsible for reading and following all unit SOPs, instructions, operating procedures, checklists, and other safety-related data. Personnel must then apply all cautions and safeguards in their everyday work areas. Soldiers are responsible for bringing to their supervisor's attention safety voids, hazards, and unsafe or incomplete procedures. Each soldier must follow through until the problem is corrected, then cooperate in developing and practicing safe working habits. The unit commander should make certain that this spirit of cooperation prevails throughout the unit.

## SHOP SAFETY

D-8. A shop that is below standard cannot put out quality work. Therefore, the TI conducts an informal inspection of the various shops periodically and brings any deficiencies or safety hazards to the attention of the shop supervisor. Files of all safety inspections are kept in the QC section, and a file copy is kept in the subject area inspected.

D-9. The Aviation Branch Safety Office (ABSO) publication, *Guide to Aviation Resources Management (ARM) for Aircraft Mishap Prevention*, outlines safety procedures. The ABSO is the proponent for the ARMs for aircraft mishap prevention, which can be accessed by the following web address: <http://www-rucker.army.mil/abso/index/htm>. The ARM Commander's Guide is also available at the following worldwide web address: <http://www.forscom.army.mil/avn/>. It has guidance on inspection requirements of the TI. Copies of the guide may be obtained from the unit safety officer. Minor changes to the guide appear in the USASC publication, *Flightfax*, which is distributed monthly to all aviation units. Other publications outlining specific safety precautions are FM 4-20.12(10-67-1) and TM 1-1500-204-23-1 through TM 1-1500-204-23-11. The TI during inspection, should consider the following safety questions provided; these are not all-inclusive:

- Are petroleum products, such as petroleum, oil, and lubricants stored according to existing command policies?
- The following questions are for the maintenance shop:
  - Does the shop foreman emphasize accident-prevention measures and check for marking and width of personnel safety aisles, safety and warning posters, and smoking and nonsmoking areas? (Refer to TM 1-1500-204-23-1, FM 3-04.500[FM 1-500], and DA Pamphlet 385-1.)

- Is all stationary and portable shop electrical equipment properly grounded? (Refer to TM 1-1500-204-23-1 and National Electrical Codes.)
- Is there a program in effect to encourage reporting of hazards, near accidents, and unsafe shop practices? (Refer to ARs 95-1, 385-95, and 385-40.)
- Are equipment and vehicle operators thoroughly familiar with the equipment's operation, handling, care, and preventive maintenance? (For example, do operators have permits? (Refer to AR 600-55.) Is the maintenance manual near the equipment? (Refer to FM 3-04.500[FM 1-500]). Is equipment or the vehicle maintained according to organizational and operator's manuals?)
- Is adequate lighting provided for maintenance shops and hangars?
- Are required numbers and types of fire extinguishers available? Are aircraft and ground fire extinguishers checked as required? Are shop personnel trained to use fire-fighting equipment? (Refer to TM 1-1500-204-23-1 through TM 1-1500-204-23-11 and FM 3-04.500[FM 1-500].)
- Are trained specialists available to maintain special equipment such as the ejection seat and armaments when installed in unit aircraft? (Refer to AR 95-1 and FM 3-04.500[FM 1-500].)
- Are shops clean and floors grease-free? (Refer to FM 3-04.500[FM 1-500].)
- Do personnel using power tools (for example, drills, grinders, lathes, and torches) wear safety goggles and noise-attenuating devices as required? Do repairers remove jewelry while performing maintenance? (Refer to TM 1-1500-204-23-1 through TM 1-1500-204-23-11 and ARs 40-5 and 385-10.)
- Are oily rags stored in closed metal containers? Are containers properly labeled? (Refer to TM 1-1500-204-23-1 through TM 1-1500-204-23-11 and FM 3-04.500[1-500].)
- Are oxygen gaseous storage areas properly marked? Are oxygen gaseous cylinders stored in a separate building (area) from aircraft servicing and maintenance areas? Are empty and full cylinders stored separately? (Refer to TM 1-1500-204-23-1 through TM 1-1500-204-23-11 and National Fire Codes, Standard 410B.)
- Are tops of booths, shelves, and other surfaces in the paint shop clean to prevent lint accumulation? Are dope or paint deposits removed from the floor? Are there no more paint and dope stored in the paint shop than will be used during the work shift? Are there fire blankets at strategic points and the required number (and correct type) of fire extinguishers provided throughout the paint shop? Is electrical equipment in the paint shop explosion proof? Are smoking restrictions enforced? (Refer to TM 1-1500-204-23-1 through TM 1-1500-204-23-11.)

- Are necessary accident-prevention signs posted in the shop area? (Refer to TM 1-1500-204-23-1 through TM 1-1500-204-23-11.)
- The following questions are for shop supply:
  - Are all items issued on a first-in, first-out basis?
  - Are assigned shelf lives exceeded?
  - Are unserviceable and repairable parts turned in on time?
  - Is the required paperwork turned in with parts?
  - Are unserviceable and repairable parts inspected by the TI before turn-in?
  - Is the materiel condition tag signed?
  - Are excess reusable containers turned in?
- The following questions are for the use of ground support equipment:
  - Is a deficiency report submitted if deficiencies are noted during a reinspection of new or repaired equipment that was inspected and classified serviceable? (Refer to TM 1-1500-204-23-1 through TM 1-1500-204-23-11.)
  - Besides special inspections, are regular periodic inspections performed? (Refer to TM 1-1500-204-23-1 through TM 1-1500-204-23-11.)
  - Is equipment free of mud and other debris? Is equipment receiving proper lubrication? Are seals that show definite leakage replaced? (Refer to TM 1-1500-204-23-1 through TM 1-1500-204-23-11.)
  - For equipment with batteries, are battery terminals and posts tight, clean, and corrosion-free? (Refer to TM 1-1500-204-23-1 through TM 1-1500-204-23-11.)
  - Are ignition systems clean, is wiring correct, and are coils and condensers operating properly? (Refer to TM 1-1500-204-23-1 through TM 1-1500-204-23-11.)
  - Does ground support equipment meet performance and safety requirements? (Refer to TM 1-1500-204-23-1 through TM 1-1500-204-23-11.)
  - If the ground support equipment is in storage, is there a prescribed interval of inspection? (Refer to TM 1-1500-204-23-1 through TM 1-1500-204-23-11.)
  - Is the ground support equipment used on landing strips, taxiways, and other tight areas painted and reflectorized? (Refer to AR 58-1, FM 3-04.500[FM 1-500], and TM 1-1500-204-23-1 through TM 1-1500-204-23-11.)
  - Are markings maintained on the ground support equipment? (Refer to TM 1-1500-204-23-1 through TM 1-1500-204-23-11.)
  - Are precautions taken to protect electrically and gasoline-driven air compressors from severe weather and extreme temperatures? (Refer to TM 1-1500-204-23-1 through TM 1-1500-204-23-11.)

- Do compressors have belt and flywheel guards installed? (Refer to TM 1-1500-204-23-1 through TM 1-1500-204-23-11.)
- Are air compressors inspected daily? Are they drained at least twice daily if they are operated in extreme moist conditions? (Refer to TM 1-1500-204-23-1 through TM 1-1500-204-23-11.)
- Is a hydrostatic test completed annually on air compressors? Is the tank stenciled with the date that the test was completed? (Refer to TB 43-0151.)
- Are periodic inspections of 10- and 100-hour intervals accomplished on compressor and carrying-case assemblies? (Refer to TM 1-1500-204-23-1 through TM 1-1500-204-23-11.)
- Is the high-pressure air pump in proper operating condition? (Refer to TM 1-1500-204-23-1 through TM 1-1500-204-23-11.)
- Is the electrical wiring insulation on the portable lighting equipment defective or frayed? (Refer to TM 1-1500-204-23-1 through TM 1-1500-204-23-11.)
- The following questions are for the use of hand tools and equipment:
  - Are racks, shelves, or toolboxes provided for tools not in use?
  - Are precautions taken to prevent tools from dropping or falling from ladders, scaffolds, platforms, or other elevations?
  - Are tools frequently inspected by responsible personnel? Are defective tools turned in for repair or salvage?
  - Are tools with sharp cutting edges carried in protective covers?
  - Are power tools equipped with guards? Are electrical contacts enclosed? Is wiring well insulated and grounded?
  - Are exposed sharp edges smoothed down when work is completed?
  - Are ladders used rather than improvised ladders such as packing cases or barrels?
  - Are tools stored so that sharp edges do not protrude?
  - Are electrical tools used inside the aircraft?
  - Are nuts and bolts torqued as specified in the appropriate TM?
  - Are items stored in the tool crib cleaned and lubricated to prevent rust? Are they within the calibration-due date if calibration is required? (Refer to TB 43-180.)
- The following are questions for general housekeeping:
  - Are covered, fire-resistant rubbish cans used in work areas?
  - Are self-closing covered metal waste cans conveniently located to dispose of oil rags and waste?
  - Are volatile flammable liquids used for washing or cleaning parts? Are they stored in open containers? Are working quantities of such liquids confined to approved containers?
  - Is dripping or spilling of oil prevented? Are drip pans or other suitable means provided to collect excess oil?

- Are conspicuously marked fire extinguishers of the appropriate type provided in armament, maintenance, and training areas?
- Are all fire extinguishers properly charged, periodically tested, and ready for instant use?
- Are all unit personnel trained to use fire extinguishers?

## Appendix E

### Risk Management

Risk management is the process of identifying and controlling hazards to protect the force. It is the Army's principal risk-reduction process. The intuitive management of risk in conducting military training and operations is old, but its systematic application, as part of Army doctrine, is relatively new.

**Note:** Key risk management terms are defined at the end of this appendix.

#### APPLICATION

E-1. Risk management is applied to reduce the risk of the full range of METT-TC hazards, including enemy action. It is integrated into the MDMP as indicated in Figure E-1.

Military Decision Making Process *	Risk Management Steps				
	Identify Hazards	Assess Hazards	Develop Controls & Make Risk Decisions	Implement Controls	Supervise & Evaluate
1. Receipt of mission	X				
2. Mission analysis	X	X			
3. COA development	X	X	X		
4. COA analysis (war game)	X	X	X		
5. COA comparison			X		
6. COA approval			X		
7. Orders production				X	
8. Rehearsal	X	X	X	X	X
9. Execution and assessment	X	X	X	X	X
* FM 101-5 31 May 1997					

Figure E-1. Risk Management Integrated Into the MDMP

#### RESPONSIBILITIES

E-2. Leaders at every echelon are responsible for risk management.

## RESPONSIBILITIES AT TASK FORCE AND HIGHER HEADQUARTERS

E-3. Every commander, leader, and staff officer must integrate risk management into the planning and execution of training and operational missions. Staff officers assist the commander in minimizing unnecessary risk by increasing certainty in all operations. They use the risk management process to assess their functional areas and make control-measure recommendations to reduce or eliminate risk to support the combat power dynamic of force protection. Examples include the following:

- Applying risk management during the MDMP to identify force-protection shortcomings in the BOS functions.
- Developing and implementing controls for the commanders that support the mission by avoiding unnecessary risk and loss of combat power.
- Providing support to operational requirements and establishing procedures and standards that are clear and practical for each specified and implied task.

### Commander

E-4. The commander has overall responsibility. The commander—

- Provides risk guidance.
- Selects hazard-control options.
- Makes the risk decision for COA.
- Enforces and evaluates controls.

### Executive Officer (XO)

E-5. The XO has staff coordination responsibility. The XO—

- Supervises risk management integration across the entire staff.
- Ensures that hazard identification and controls are integrated into plans and orders.
- Ensures that the staff monitors and enforces controls during execution.

### Staff Officers

E-6. Staff officers have responsibility in their own functional areas. Staff officers—

- Identify hazards most likely to result in loss of combat power (that is, hazards that are not adequately controlled).
- Develop control options that address reasons for hazards.
- Integrate hazard identification and selected controls into functional area paragraphs, graphics, and annexes of the OPORD.

**Safety Officer/Noncommissioned Officer (NCO)**

E-7. The safety officer/NCO has coordination responsibility. The safety officer/NCO—

- Assists the commander and staff with risk management integration during mission planning, execution, and assessment.
- Collects hazard information and controls identified by the staff and uses this information to prepare risk assessment and control measures for all operations.
- Coordinates staff risk management and makes recommendations to the S3.

**RESPONSIBILITIES AT COMPANY AND LOWER HEADQUARTERS**

E-8. The commander or leader performs or delegates execution of the risk management process for each step in troop-leading procedures (Figure E-2).

<b>Troop Leading Steps</b>	<b>Identify Hazards</b>	<b>Assess Hazards</b>	<b>Develop Controls &amp; Make Risk Decisions</b>	<b>Implement Controls</b>	<b>Supervise &amp; Evaluate</b>
1. Receive Mission	X				
-Perform initial METT-T-C analysis	X				
2. Issue a warning order	X				
3. Make a tentative plan	X	X			
a. Make an estimate of the situation	X	X			
b. Conduct a detailed mission analysis	X	X			
c. Develop situation and courses of action:	X	X			
-Enemy situation (enemy COA)	X	X			
-Terrain and weather (OCOKA)	X	X			
-Friendly situation (troops and time available)	X	X			
-Course of action (friendly)	X	X			
d. Analyze courses of action - war game	X	X			
e. Compare courses of action			X		
f. Make decisions			X		
g. Expand selected COAs into a tentative plan			X		
4. Initiate movement				X	
5. Reconnoiter				X	
6. Complete the plan				X	
7. Issue the order				X	
8. Supervise and refine the plan					X

**Figure E-2. Risk Management Integrated Into Troop-Leading Procedures**



## RISK MANAGEMENT PROCEDURES

E-9. The commander and staff perform the actions listed below. The safety officer collects the information generated during these actions and enters it on the risk management worksheet (Figure E-3).

1. MSN/TASK: Conduct Air Assault		2. DTG BEGIN: 042100 SEP END: 042200 SEP		3. DATE PREPARED:	
4. PREPARED BY: Rank/Last Name/Position					
5. HAZARDS:	6. INITIAL RISK LEVEL	7. CONTROLS:	8. RESIDUAL RISK LEVEL	11. HOW TO IMPLEMENT	12. HOW TO SUPERVISE
Mission (night air assault) - Air assault close formations - Night mission-low visibility, blackout operations - Multiple units integrated into mission using different NVDs (UH-60/CH-47/AH-64)  Enemy - Status of enemy ADA vicinity LZ not known  Terrain - Dusty LZ - brown-out hazard - Unfamiliar LZ - Poor visibility - fog, blowing sand  Troops - Continuous operations - fatigue					
9. OVERALL RISK LEVEL AFTER CONTROLS ARE IMPLEMENTED (CIRCLE ONE) LOW    MODERATE    HIGH    EXTREMELY HIGH			10. RISK DECISION AUTHORITY RANK/LAST NAME/DUTY POSITION		

**IDENTIFY HAZARDS**

Figure E-3. Example of a Risk Management Worksheet—Identify Hazards

## IDENTIFY HAZARDS

E-10. Collect METT-TC factors for each COA for the mission or task (see Figure E-4).

### Sources

E-11. Sources include the following:

- Mission order/task instructions.
- CCIR.
- Mission planning systems.
- Tactical SOP.
- Unit accident history.

- Reconnaissance.
- Experience.

<p>• <b>MISSION:</b></p> <ul style="list-style-type: none"> <li>- AIR ASSAULT INFANTRY PERSONNEL</li> <li>- INSERT NLT 042100 SEP, ROVER BEACH LZ</li> <li>- PREPARE TO EXTRACT NLT 042200 SEP, SAME LZ</li> </ul> <p>• <b>CONDITIONS</b></p> <ul style="list-style-type: none"> <li>- ONE COMPANY UH-60, 2 CH-47s, 2 AH-64s</li> <li>- LOAD: 14 FULLY EQUIPPED SOLDIERS, 540 POUNDS SPECIAL EQUIPMENT</li> <li>- BLACKOUT CONDITIONS</li> <li>- LZ: 114 MILES FROM DEPARTURE POINT, 100 YARDS WIDE, SAND/ DIRT/GRASS</li> <li>- WX: RESTRICTED VISIBILITY EN ROUTE AND AT LZ (ILLUMINATION, RAIN, FOG, LOOSE SAND)</li> </ul> <p>• <b>SITUATION:</b></p> <ul style="list-style-type: none"> <li>- CREW: FULLY QUALIFIED, EXPERIENCED, SUPERB TEAMWORK</li> <li>- MISSION BRIEF AT 041530 SEP (CREW AND PERSONNEL)</li> </ul>
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Figure E-4. Example of Mission Factors

### Review Factors

E-12. Review METT-TC factors to identify hazards most likely to cause loss of combat power. That is, identify those hazards that are not adequately controlled at this or the next lower echelon of command. To do this, answer the questions in the matrix below (Figure E-5) to determine if the hazard needs to be risk managed.

		Adequate	
		NO	YES
Support	- Is the type amount/capability/condition of support adequate to control hazards? - Personnel                      - Equipment and materials - Supplies                        - Services/facilities		
Standards	- Is guidance/procedure adequately clear practical/specific to control hazard?		
Training	- Is training adequately thorough and recent to control hazard?		
Leader	- Is leadership ready, willing, and able to enforce standards required to control hazards?		
Unit Self Discipline	- Is the unit performance and conduct self-disciplined to control hazard?		
If all are "Yes," no further action is required. If one or more are "No," risk manage the hazard. (Enter it on the risk management worksheet)			

Figure E-5. Example—Does the Hazard Require Risk Management?

**Record**

E-13. Hazards determined to require risk management are identified to the safety officer/NCO, who enters them in Block 5 on the worksheet.

**ASSESS HAZARDS**

E-14. Once a hazard has been identified, it must be evaluated for control.

**Risk Level**

Determine the risk level of each hazard that is not adequately controlled. Use Figure E-6 and your best judgment to select the risk level.

<b>Risk Level:</b> <b>E - Extremely High</b> <b>H - High</b> <b>M - Moderate</b> <b>L - Low</b>		<b><i>HAZARD PROBABILITY</i></b>				
		<b>Frequent</b>	<b>Likely</b>	<b>Occasional</b>	<b>Seldom</b>	<b>Unlikely</b>
<b>S e v e r i t y</b>	<b>Catastrophic</b>	<b>E</b>	<b>E</b>	<b>H</b>	<b>H</b>	<b>M</b>
	<b>Critical</b>	<b>E</b>	<b>H</b>	<b>H</b>	<b>M</b>	<b>L</b>
	<b>Marginal</b>	<b>H</b>	<b>M</b>	<b>M</b>	<b>L</b>	<b>L</b>
	<b>Negligible</b>	<b>M</b>	<b>L</b>	<b>L</b>	<b>L</b>	<b>L</b>

**Figure E-6. Risk Assessment—Assess Hazards**

**Record**

E-15. Provide the risk level for each hazard to the safety officer/NCO. The safety officer/NCO enters this information in Block 6 of the risk management worksheet as the initial risk level for each hazard (Figure E-7).

1. MSN/TASK: Conduct Air Assault		2. DTG BEGIN: 042100 SEP END: 042200 SEP		3. DATE PREPARED:	
4. PREPARED BY: Rank/Last Name/Position					
5. HAZARDS:		6. INITIAL RISK LEVEL		7. CONTROLS:	
Mission (night air assault) - Air assault close formations - Night mission-low visibility, blackout operations - Multiple units integrated into mission using different NVDs (UH-60/CH-47/AH-64)  Enemy - Status of enemy ADA vicinity LZ not known  Terrain - Dusty LZ - brown-out hazard - Unfamiliar LZ - Poor visibility - fog, blowing sand  Troops - Continuous operations - fatigue		EH EH H H		8. RESIDUAL RISK LEVEL    11. HOW TO IMPLEMENT    12. HOW TO SUPERVISE    13. Was Control Effective	
9. OVERALL RISK LEVEL AFTER CONTROLS ARE IMPLEMENTED (CIRCLE ONE) LOW    MODERATE    HIGH    EXTREMELY HIGH				10. RISK DECISION AUTHORITY RANK/LAST NAME/DUTY POSITION	

Figure E-7. Example of a Risk Management Worksheet—Assess Hazards

## DEVELOP CONTROLS

Develop one or more controls to eliminate each hazard or to reduce its level of risk. Controls should address the reasons that the hazard needs to be risk managed. Provide controls to the safety officer/NCO, who enters them in Block 7 of the risk management worksheet (Figure E-8).

## DEVELOP CONTROLS

**Figure E-8. Example of a Risk Management Worksheet—Develop Controls**

## DETERMINE RESIDUAL RISK

E-16. After controls are developed, a level of risk may remain.

### Risk Assessment Matrix

E-17. For each hazard, use the risk assessment matrix (Figure E-9) and best judgment to determine the level of risk remaining, assuming that the controls are implemented.

### Figure E-9. Risk Assessment Matrix—Determine Residual Risk

E-18. Provide the residual risk level for each hazard to the safety officer/NCO, who enters it in Block 8 of the risk management worksheet (Figure E-10).

**Figure E-10. Example of a Risk Management Worksheet—Residual Risk**

## **DETERMINE COA RISK LEVEL**

E-19. Safety officers/NCOs determine the overall risk level for each COA, assuming that the commander selects the controls and they are implemented.

### **Unit SOP**

E-20. Safety officers/NCOs use procedures in the unit's SOP when determining overall risk. If the unit has no such procedures, the COA's overall risk level is the same as the hazard with the highest residual risk. They circle the COA's risk level in Block 9 (See Figure E-10).

### **Residual Risk Criterion**

E-21. Safety officers/NCOs analyze the feasibility and acceptability of each COA in terms of residual risk. They score the residual risk criterion for each COA using weights determined by the XO and provide these scores for entry on the decision matrix.

### **Report**

E-22. Safety officers/NCOs present hazards, controls, and risks during commanders' decision briefings. Risk management worksheets may be used for this purpose.

## **MAKE RISK DECISION**

E-23. Commanders make the decisions.

### **Decision Process**

E-24. Commanders select the COA and decide whether to accept the COA's risk level. They decide what level of residual risk they will accept and approve control measures that will result in that level or a lower level of risk. They obtain the higher commander's approval to accept any level of residual risk that might imperil the higher commander's intent or is not consistent with risk guidance. In Block 10, safety officers/NCOs enter the name, rank, and duty position of the commander accepting the COA's risk level (Figure E-11).

### **Issue Refined Risk Guidance**

E-25. The S3 develops and issues a warning order that contains the commander's refined risk guidance.

## **IMPLEMENT CONTROLS**

E-26. Based on the commander's decision and risk guidance, the staff determines how each control will be put into effect or communicated to the personnel who will make it happen; for example, FRAGO, OPORD, SOP, mission briefing, or rehearsals. Safety officers/NCOs enter this information

in Block 11 of the risk management worksheet (Figure E-11). The staff coordinates controls, integrates them into the FRAGO and/or appropriate paragraphs and graphics of the OPORD, and confirms understanding by subordinate units during the rehearsal.

1. MSN/TASK: Conduct Air Assault		2. DTG BEGIN: 042100 SEP END: 042200 SEP		3. DATE PREPARED:	
4. PREPARED BY: Rank/Last Name/Position					
5. HAZARDS:	6. INITIAL Risk Level	7. CONTROLS:	8. RESIDUAL Risk Level	11. HOW TO IMPLEMENT	12. HOW TO SUPERVISE
Mission (night air assault) - Air assault close formations - Night mission - low visibility, blackout operations - Multiple units integrated into mission using different NVDs (UH-60/CH-47/AH-64)	EH	- Brief all participating crew on formation en route and at PZs and LZs. Conduct full rehearsal. - All crew members will have NVDs to include all CEs. - Ensure AH-64 crews have NVGs for CPGs. All participating PCs will attend mission briefing.	M	Mission briefings Rehearsal - Mission - Crew	<b>IMPLEMENT</b>
Enemy - Status of enemy ADA vicinity LZ not known	EH	- Request UAV surveillance of LZ from Division.	M	Coordinate w/ div G3 for UAV support	
Terrain - Dusty LZ - brown-out hazard - Unfamiliar LZ - Poor visibility - fog, blowing sand	H	- All PCs will brief brown-out hazards to crews and rehearse procedure. - Provide photos/video of LZ for mission briefing. Ensure all have current hazard maps of PZ/LZ and route. - Support mission IFR - capable aircraft. Altitude no lower than 200 feet AGL en route. Ensure IMC breakup plan includes attached aircraft.	L	Mission briefings Rehearsal - Mission - Crew	
Troops - Continuous operations - fatigue	H	- Monitor and enforce crew-rest plan.	L	Mission brief TACSOP	
9. OVERALL RISK LEVEL AFTER CONTROLS ARE IMPLEMENTED (CIRCLE ONE)			10. RISK DECISION AUTHORITY		
LOW <u>MODERATE</u> HIGH EXTREMELY HIGH			RANK/LAST NAME/DUTY POSITION		

Figure E-11. Example of a Risk Management Worksheet—Implement

## SUPERVISE

The staff determines how each control will be monitored or enforced to ensure that it is effectively implemented; for example, command presence, direct supervision, precombat inspection, precombat checks, SITREP, spot check, radio net monitoring, cross talk, and back brief. The staff provides control supervision methods to the safety officer/NCO, who enters them in Block 12 (Figure E-12).



1. MSN/TASK: Conduct Air Assault		2. DTG BEGIN: 042100 SEP END: 042200 SEP		3. DATE PREPARED:	
4. PREPARED BY: Rank/Last Name/Position					
5. HAZARDS:		6. INITIAL RISK LEVEL	7. CONTROLS:	8. RESIDUAL RISK LEVEL	11. HOW TO IMPLEMENT
Mission (night air assault) - Air assault close formations - Night mission - low visibility, blackout operations - Multiple units integrated into mission using different NVDs (UH-60/CH-47/AH-64)		EH	- Brief all participating crew on formation en route and at PZs and LZs. Conduct full rehearsal. - All crew members will have NVDs to include all CEs. - Ensure that AH-64 crews have NVGs for CPGs. All participating PCs will attend mission briefing.	M	Mission briefings Rehearsal - Mission - Crew
Enemy - Status of enemy ADA vicinity LZ not known		EH	- Request UAV surveillance of LZ from Division.	M	Coordinate w/ div G3 for UAV support
Terrain - Dusty LZ - brown-out hazard - Unfamiliar LZ - Poor visibility - fog, blowing sand		H	- All PCs will brief brown-out hazards to crews and rehearse procedure. - Provide photos/video of LZ for mission briefing. Ensure all have current hazard maps of PZ/LZ and route. - Support mission IFR - capable aircraft. Altitude no lower than 200 feet AGL en route. Ensure IMC breakup plan includes attached aircraft.	L	Mission briefings Rehearsal - Mission - Crew
Troops - Continuous operations - fatigue		H	- Monitor and enforce crew-rest plan.	L	Mission brief TACSOP
					12. HOW TO SUPERVISE
					Direct supervision brief backs Brief back from Bde S3 Direct supervision Direct supervision Brief backs
					<b>SUPERVISE</b>
9. OVERALL RISK LEVEL AFTER CONTROLS ARE IMPLEMENTED (CIRCLE ONE)				10. RISK DECISION AUTHORITY	
LOW <u>MODERATE</u> HIGH EXTREMELY HIGH				RANK/LAST NAME/DUTY POSITION	

Figure E-12. Example of a Risk Management Worksheet—Supervise

## RISK MANAGEMENT ASSESSMENT

E-27. Evaluation of risks and controls is an ongoing process.

### Evaluate Controls

E-28. Staff members evaluate the effectiveness of each control in reducing the risk of the targeted hazard. They provide a “yes,” if effective, or “no,” if not, to the safety officer/NCO, who enters this information in Block 13.

### Ineffective Controls

E-29. For each control judged not effective, staff members determine why it was not effective and what to do the next time the hazard is identified; for example, change the control, develop a different control, or change the method of implementation or supervision. They provide this information to safety personnel, who report it during the AAR.

## Report

E-30. The safety officer, with the safety NCO, evaluates the unit's risk management performance and reports during the AAR. The matrix below (Figure E-13) may be used for this report.

	GO	NO-GO
<b>Identified the most important hazards.</b>		
* Available facts for each METT-TC factor gathered and considered.		
* Hazard (enemy and accident) most likely to result in loss of combat power identified?		
<b>Assessed risk level of each hazard.</b>		
* Valid method/tool used to assess initial risk levels?		
<b>Developed appropriate control options and determined residual risk.</b>		
* Each control addressed hazard reason(s)?		
* Residual risk level realistic for each hazard?		
* Valid method/tool used to determine the residual risk level for each COA?		
* Residual risk level for each COA entered on decision matrix?		
<b>Made risk decision for selected COA.</b>		
* Valid procedure/guidance used for determining risk decision authority?		
<b>Hazards and controls clearly communicated to responsible unit/leadership.</b>		
* Controls integrated into appropriate paragraphs and graphics of the OPORD/FRAGO and rehearsals?		
<b>Implemented and enforced controls.</b>		
* Effective methods used to supervise/enforce controls?		

Figure A-13. Example of a Risk Management Task Standards and Performance Assessment

## DEFINITIONS

E-31. The following terms are defined as they are used in the risk management process.

## CONDITIONS

E-32. Conditions are the readiness status of personnel and equipment with respect to the operational environment during mission planning, preparation, and execution. Readiness that is below standard leads to human error, material failure, and inadequate precautions for environmental factors, which may cause accidents, fratricide, and mission degradation.

## **CONTROLS**

E-33. Controls are actions taken to eliminate hazards or reduce their risk.

## **HAZARD**

E-34. A hazard is an actual or potential condition that can cause injury, illness, or death of personnel; damage to or loss of equipment or property; or mission degradation.

## **PROBABILITY**

E-35. The levels of probability that an event will occur are the following:

- Frequent: Occurs often, continuously experienced.
- Likely: Occurs several times.
- Occasional: Occurs sporadically.
- Seldom: Unlikely, but could occur at some time.
- Unlikely: Can assume it will not occur.

## **RESIDUAL RISK**

E-36. Residual risk is the level of risk remaining after controls have been selected for hazards. (Controls are identified and selected until residual risk is at an acceptable level or until it is impractical to reduce further.)

## **RISK**

E-37. Risk level is the probability of exposure to injury or loss from a hazard expressed in terms of hazard probability and severity.

## **RISK ASSESSMENT**

E-38. Risk assessment is the identification and assessment of hazards (the first two steps of the risk management process).

## **SEVERITY**

E-39. The level of severity is the expected consequence of an event in terms of degree of injury, property damage, or other mission-impairing factors. These levels are the following:

- Catastrophic: Death or permanent total disability, system loss, major damage, significant property damage, or mission failure.
- Critical: Permanent partial disability, temporary total disability exceeding three months, major system damage, significant property damage, or significant mission degradation.
- Marginal: Minor injury, lost workday accident, minor system damage, minor property damage, or some mission degradation.
- Negligible: First aid or minor medical treatment, minor system impairment, or little or no impact on mission accomplishment.

## **Appendix F**

### **Environmental Issues**

This appendix discusses the Army's environmental programs. It provides references for environmental issues, regulations, and publications governing environmental protection. Compliance with environmental regulations is a command responsibility. Education and planning are essential to the successful completion of environmental missions.

#### **AWARENESS AND COMPLIANCE**

##### **ENVIRONMENTAL PROGRAM REFERENCES**

F-1. FM 3-100.4, AR 200-1, AR 200-2, AR 200-3, and AR 385-63 explain the Army's environmental programs. These regulations reference additional documents that should be reviewed. TC-5-400 provides a comprehensive listing of all items of interest in the preparation for operating near and avoiding environmentally sensitive areas. Other good references (graphic training aids) for environmental issues are—

- GTA 5-8-2, Environmental Risk Assessment.
- GTA 5-8-3, Hazardous-Material-Spill Procedures.
- GTA 5-8-4, The Soldier and the Environment.

##### **ARMY ENVIRONMENTAL COMPLIANCE ASSESSMENT SYSTEM**

F-2. Compliance with environmental regulations is a command responsibility. All maintenance units must be aware of the regulations and publications governing environmental protection. All aviation maintenance units handle hazardous waste (HW) and hazardous materials (HM). Each maintenance unit, company and above, must designate, in writing, a hazardous waste coordinator.

F-3. The units must comply with the Environmental Compliance Achievement Program (ECAP) protocol and will be periodically inspected. The units can attain the ECAP protocols from Department of Public Works, Education Division (DPW, ED) or by calling the Army Environmental Hotline at 1-800-USA-3845.

F-4. Environmental awareness training should ensure that all personnel know to report any notice of tax, penalty, fee, fine, sanction, or other compliance order arising from local, state, or federal environmental requirements or enforcement activities or alleged violation of any local, state, or federal environmental law or regulation, either to—

- Commander.
- DPW, ED.
- Environmental Law Attorney, Office of the Staff Judge Advocate (OSJA).

## ENVIRONMENTAL COMPLIANCE OFFICER/NCO

F-5. The hazardous waste coordinator also may serve as the environmental compliance officer/NCO within the unit or organization. This person is the unit point of contact (POC) and is responsible for environmental education, SOP updates, preparation of environmental risk assessments, incident reporting. Commanders, along with the hazardous waste coordinator and the environmental compliance officer/NCO, must—

- Ensure that all unit personnel have had, or are scheduled to receive, environmental awareness training.
- Designate, in writing, an environmental compliance officer/HW coordinator and ensure that he or she is properly trained and qualified.
- Ensure that the unit environmental compliance officer interfaces with appropriate environmental personnel and that unit complies with environmental laws and regulations.
- Meet with battalion S3, S4, and installation personnel who deal with environmental issues.
- Identify requirements concerning ECAP inspections that may affect the unit and how to avoid or protect environmentally sensitive areas.
- Ensure that the unit SOP addresses environmental issues/procedures and coordinate environmental requirements with appropriate installation/chain-of-command personnel.

## PLANNING

F-6. Advanced preparation is key to successful missions and for environmental awareness and protection. Environmental awareness can be incorporated into the unit training program with minimal additional planning.

F-7. Hazardous waste topics can be reviewed by contacting DPW, ED, and Natural Resources Branch (NRB); Staff Judge Advocate (SJA); and/or Directorate of Plans, Training, Mobilization, and Security (DPTMSEC), Range Control. In most cases, ED and NRB are located under DPW.

F-8. Hazardous materials topics fall under the purview of the Directorate of Logistics (DOL), Hazardous Material (HAZMAT) Control Center. Noise-pollution and range-control topics can be reviewed by contacting DPTMSEC, Range Division.

F-9. A general POC matrix to assist personnel with environmental concerns follows in Table F-1.

**Table F-1. POC Matrix**

<u>TOPIC</u>	<u>POC</u>
Air pollution	Directorate of Public Works (DPW), Environmental Division (ED)
Archeological and historic sites	ED and Natural Resources Branch (NRB)
Clean and safe water	ED
Legal considerations	Environmental Law Attorney, OSJA
Hazardous materials	Directorate of Logistics (DOL), Hazardous Material (HAZMAT) Control Center; Defense Reutilization and Marketing Office (DRMO)
Hazardous waste	ED
Noise pollution	ED, Range Control (Directorate of Plans, Training, Mobilization and Security (DPTMSEC)
Range clearances and Restrictions	Range Control (DPTMSEC)
Standing operating procedures	ED
Spill reporting	ED
Threatened/endangered species	NRB
Water pollution	ED
Wetland protection	NRB, Range Control
Wildlife management	NRB, Range Control

F-10. When overseas, refer to the U.S. agencies providing liaison with the equivalent of the above listed POCs. If there is no-host-nation equivalent, all training and maintenance will be conducted under U.S. policies and requirements. Units should coordinate with these organizations to provide a briefing before deployments.

## **UNIT-LEVEL ENVIRONMENTAL PROGRAMS**

F-11. There may be several types of environmental programs at the unit level. TC 5-400 contains more information.

- HM Programs.
- HW Programs.
- Hazardous Communications (HAZCOM) Programs.
- Spill Prevention and Response Plan Programs.

## **Appendix G**

# **Fit and Adjustment, Inspection, Repair, Storage, and Training Process Flow Charts**

This appendix provides process flow charts as an aid to the aviation life support equipment technician when fitting and adjusting, inspecting, storing, and training ALSE.

## **PROCESS FLOW CHARTS**

### **FIT AND ADJUSTMENT PROCESS**

Figure G-1 illustrates the fitting and adjustment process that will be followed if an individual's ALSE is newly issued, the individual requests, or it is a scheduled fitting.

### **INSPECTION PROCESS**

Figure G-2 illustrates the process of inspection of ALSE. The process is designed for both scheduled and unscheduled ALSE inspections.

### **REPAIR PROCESS**

Figure G-3 illustrates the repair process that will be followed when maintenance and operational checks are performed on ALSE.

### **STORAGE PROCESS**

Figure G-4 illustrates the storage process that will be followed when storing ALSE.

### **TRAINING PROCESS**

Figure G-5 illustrates the training process for the ALSET to the aviator/crew member when ALSE training is either requested by the user, is new equipment, or is a unit METL requirement.



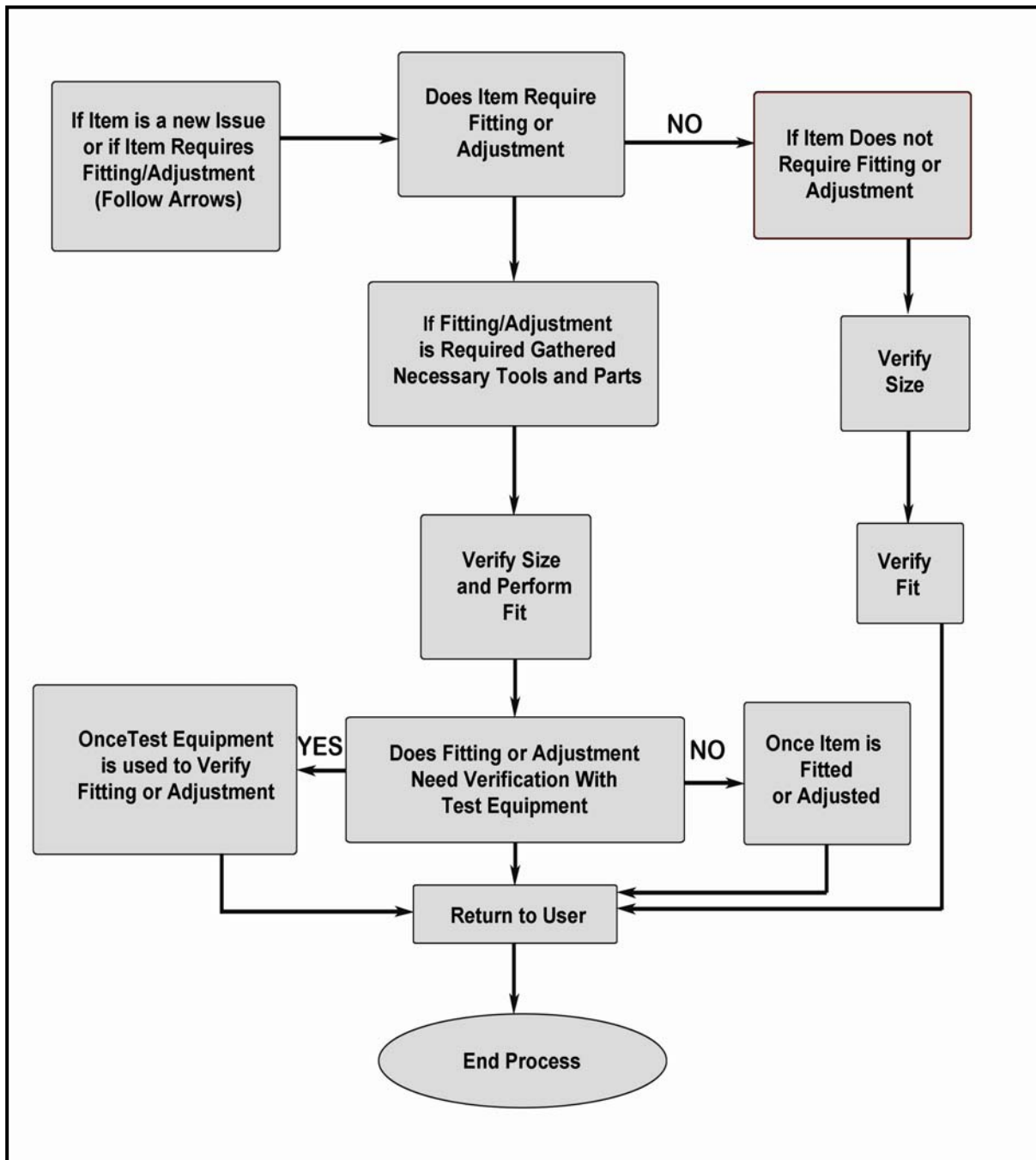


Figure G-1. Fit and Adjustment Process Flow-Chart

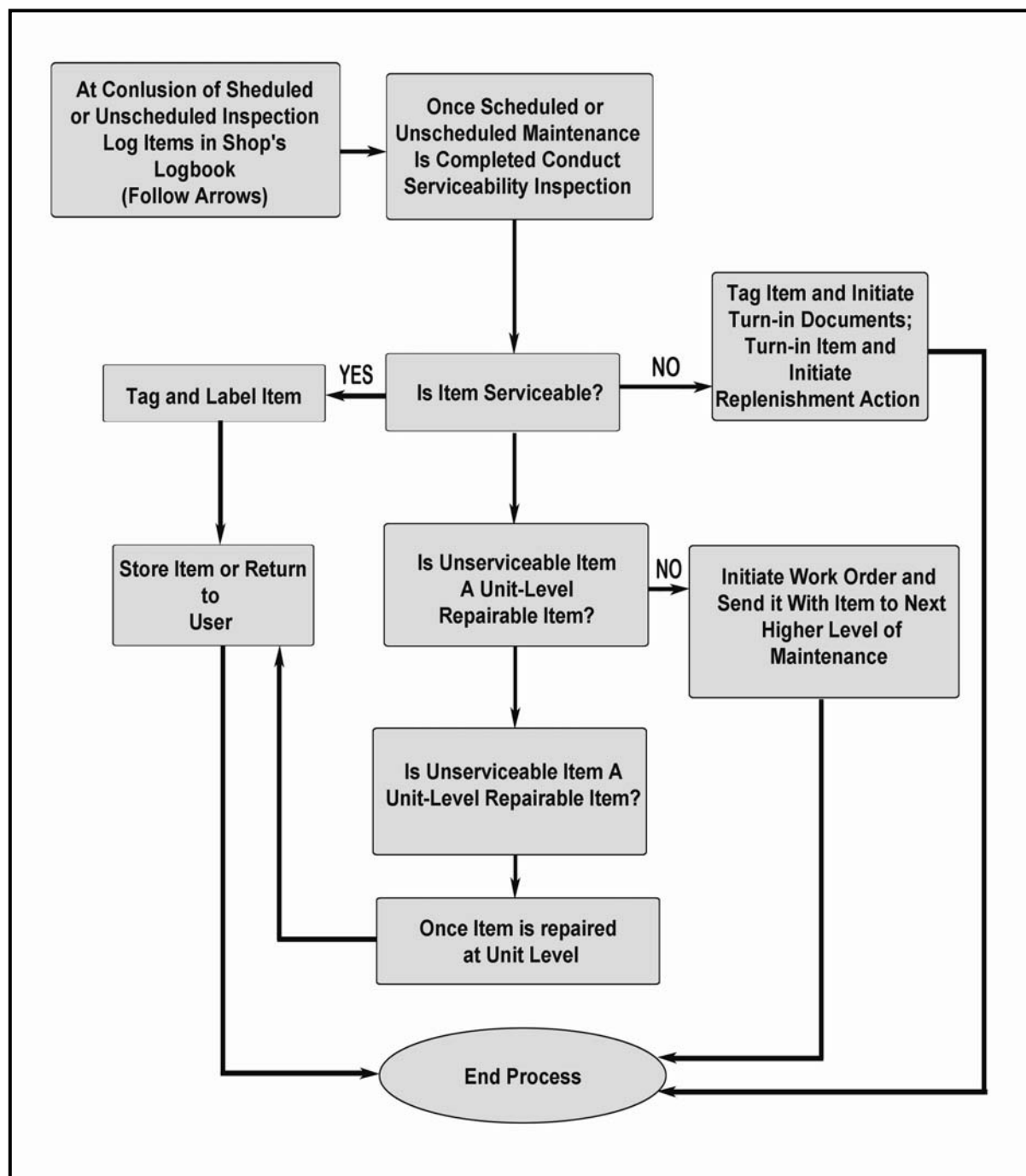


Figure G-2. Inspection Process Flow-Chart

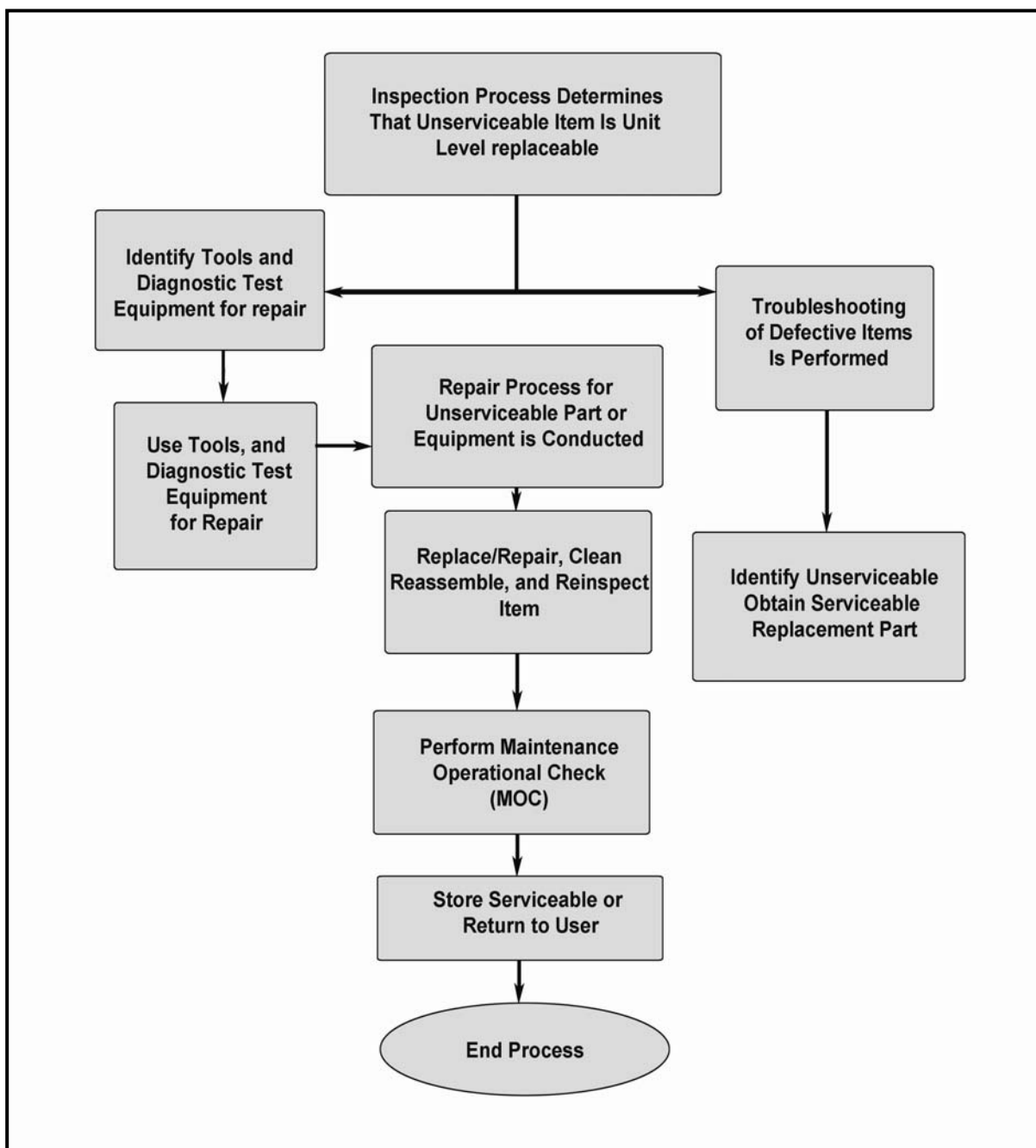


Figure G-3. Repair Process Flow-Chart

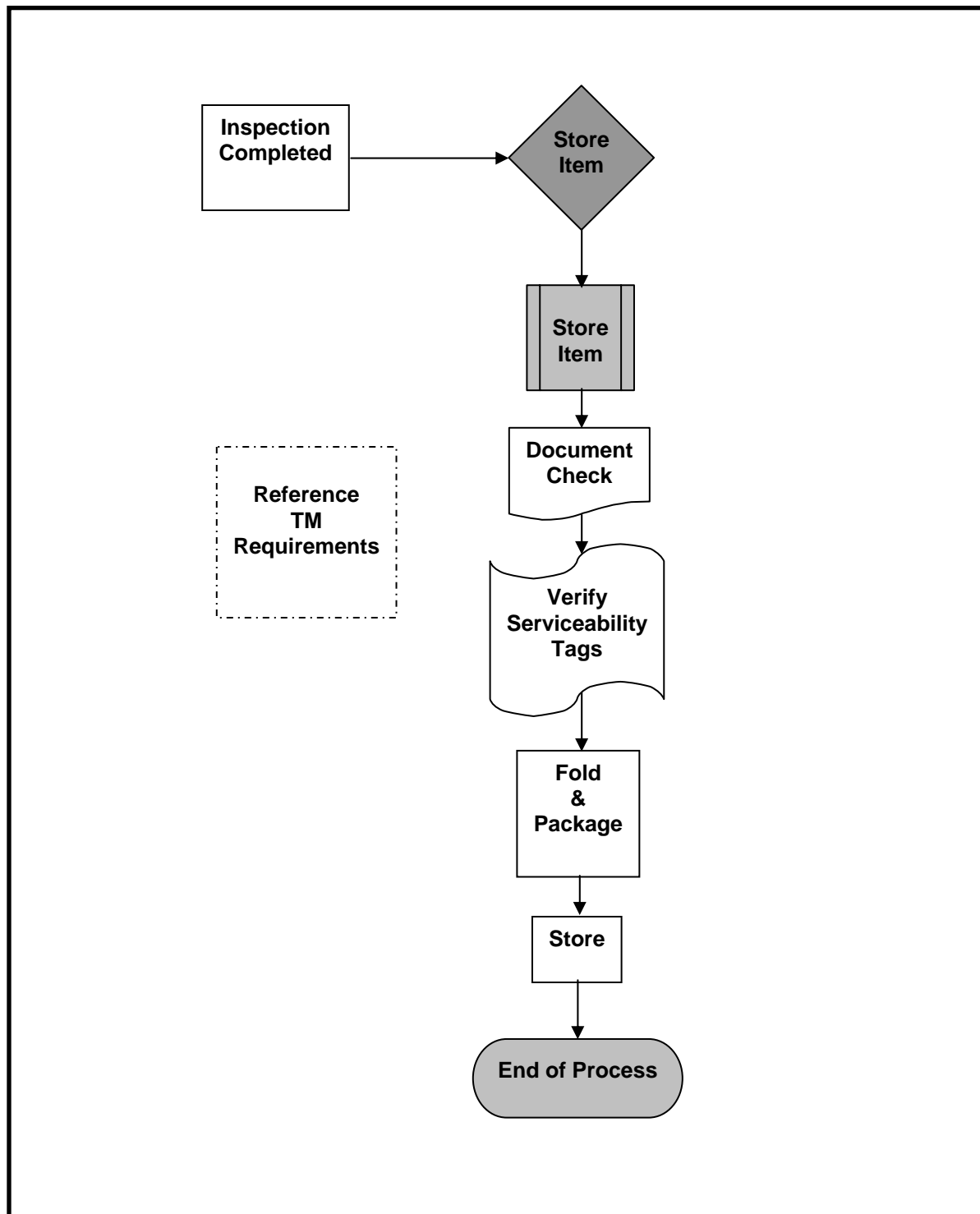


Figure G-4. Store Process Flow-Chart

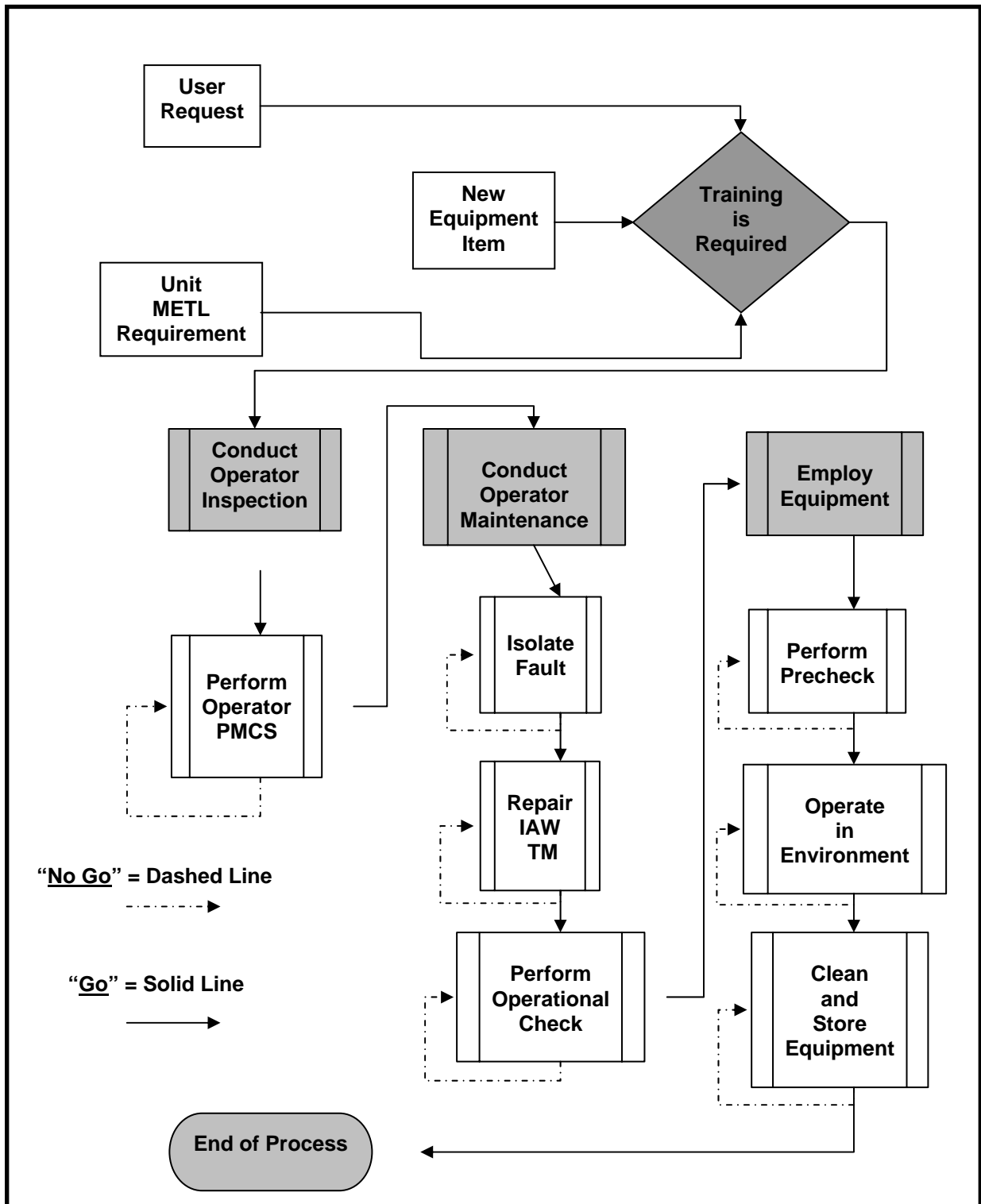


Figure G-5. Training Process Flow-Chart

## Appendix H

# Basic Land, Hot and Cold Climate, Desert, and Jungle— Consolidated Survival Training Material

This appendix provides basic land, cold and hot climate, desert, and jungle survival training material and information as an aid to commanders, aviation life support officers, NCOs, and technicians, aviators, aircrew members, and staff members. By supplementing this appendix with survival publications and resources listed in the bibliography, units can tailor their training outline based on mission requirements and location.

## INTRODUCTION

H-1. This appendix is based entirely on the keyword survival. The letters in this word can help guide you in your actions in any survival situation. Whenever faced with a survival situation, remember the word survival.

## SURVIVAL ACTIONS

H-2. Provided is the meaning of each letter of the word SURVIVAL. Study and remember what each letter signifies because you may some day have to make it work for you:

- **S**-Size up the situation.
- **U**-Use all your senses; undue haste makes waste.
- **R**-Remember where you are:
  - The location of enemy units and controlled areas.
  - The location of friendly units and controlled areas.
  - The location of local water sources (especially important in the desert).
  - Areas that will provide good cover and concealment.
- **V**-Vanquish fear and panic.
- **I**-Improvise.
- **V**-Value living.
- **A**-Act like the natives.
- **L**-Live by your wits, but for now, learn basic skills.

## PATTERN FOR SURVIVAL

H-3. Develop a survival pattern that lets you beat the enemies of survival. This survival pattern must include food, water, shelter, fire, first aid, and signals in order of importance.

H-4. Change your survival pattern to meet your immediate physical needs as the environment changes.

H-5. As you read the rest of this appendix, keep in mind the keyword SURVIVAL and the need for a survival pattern.

## A SURVIVAL PRIMER

H-6. With a final jarring impact, the aircraft comes to an abrupt stop. For a split second, all is eerily quiet. You remember to breathe. Your head clears. Wiping your hand across your eyes clears your vision, but the blood on your hands brings everything into focus, and you recall what has happened; got to get out and get out *now*!

H-7. Whether you make an emergency landing on dry land or in the water, your first priority is nearly always to get clear of the aircraft, taking your emergency supplies and equipment if possible. *Do not panic!* Move deliberately and think about what you are doing.

H-8. Once clear of the aircraft, gather your passengers together (if you have any) and make sure that everyone is accounted for. However, be very cautious about going back into the aircraft immediately to retrieve anything, even passengers. Spilled fuel and hot engines or electrical sparks can ignite into a deadly conflagration in seconds. Stay clear of the aircraft until you determine that it is safe.

## SKILL AND LUCK

H-9. You have managed to survive this far by dint of skill and a bit of luck. How well things go from here on can be influenced by how well prepared you are. Good training, proper clothing, and adequate equipment can turn this into little more than an unexpected camping trip. On the other hand, if you are ill prepared, survival will become a test of your will to live, your resourcefulness, and your luck.

## MEDICAL PRIORITY

H-10. The first priority is to treat any injuries as best you can. Stop any bleeding, immobilize any broken bones, treat shock, and generally stabilize things so that you can proceed to deal with your situation. Do the best that you can with what is at hand.

H-11. In any but the most temperate of climates, the next issue will be shelter. However, before getting to that, you may do well to first STOP.

## STOP

- **"S" is for STOP.** Take a deep breath, sit down if possible, calm yourself, and recognize that whatever has happened to get you here is past and cannot be undone. You are now in a survival situation and that means—
- **"T" for THINK.** Your most important survival asset is your brain. Use it! Do not panic! Move with deliberate care. Think first, so you have no regrets. Take no action, even a footstep, until you have thought it through. Unrecoverable mistakes and injuries, potentially deadly in a survival situation, occur when we act before we engage our brain.
- **"O" is for OBSERVE.** Take a look around you. Assess your situation and options. Take stock of your supplies, equipment, surroundings, your personal capabilities, and if there are any, the capabilities of your fellow survivors. Are you the best equipped to lead in this new survival situation?
- **"P" is for PLAN.** Prioritize your immediate needs, and develop a plan to systematically deal with the emergency and contingencies. Then, follow your plan. Adjust your plan only as necessary to deal with changing circumstances. ***You can survive!***

## IMPROVISE TO SURVIVE

H-12. Improvisation is a survivor's most important tool. The five rules of improvisation are to—

- Determine what you really need.
- Inventory your available materials, man-made and natural.
- Consider all alternatives.
- Select the best one that takes the least amount of time, energy, and materials.
- Do it, making sure that it is safe and durable.

## SHELTER

H-13. Shelter is a necessity and second only to immediate medical care on the immediate action list. Set up, make, or find temporary shelter. Heat and cold can sap the lifeblood from you very quickly. Wind, rain, snow, or other inclement weather hastens the process. Pick the best convenient location for your immediate action shelter, as dry as possible, away from natural hazards.

## ATTRACTING ATTENTION

H-14. After the basics of medical care and shelter are out of the way, it is time to make sure that you get found. Prepare to radio or otherwise signal any search and rescue (SAR) or other overflights.

H-15. The more that you can do to attract attention to yourself, the more likely that someone will notice and come to your rescue. This may be an advantage or a disadvantage, based on METT-TC conditions:



- A signal mirror is the best all-around signaling device; it can be seen for up to 50 miles.
- Flares are of limited use—one-shot affairs that you hope get noticed during their brief moment of glory; save them until you are certain someone is looking or likely to notice.
- Strobe lights can be effective at night and are visible for up to 5 miles; set all of these signals on high ground or in a clearing for maximum visibility.
- A police whistle or, better yet, a survival whistle can be heard from 2 to 7 miles, depending upon terrain and ambient noise levels.
- Contrast is the key to ground signals; size, angularity, and motion all help attract attention. For ground signals, forget complicated symbology, just make a large “V” for immediate assistance or “X” if medical assistance is needed; “SOS” will work, but it is more effort.
- When signaling by hand, a flag is far more visible than your arms and hands alone.
- A smoky signal fire is an excellent means of attracting attention; black smoke is best and not likely to be confused with a campfire.

## BASIC FIRE CRAFT

H-16. Building a fire is one of the most important tasks to accomplish in a survival situation. Whether for warmth, signaling, or other needs, a fire is critical and a great morale builder. The worse the weather, the more important that the fire is and, conversely, the more difficult that it can be to get going:

- The foundation of any fire is tinder.
- If you have fuel from the aircraft, you can use it to start a fire but *be extremely careful!*
- Kindling can range in size from no larger than pencil sized to pinky or thumb size.

## FUEL, OXYGEN, HEAT, AND PATIENCE

H-17. To create a fire, you need fuel, oxygen, heat, and a measure of patience. Do not rush it. Get it started the first time. There are many ways to construct a fire if you have the experience; one method that is nearly foolproof is the following:

- Find a flat piece of dry wood to use as a platform; lay a piece of wood next to it as a brace, creating a right angle that also serves as a windbreak and gives a path for air flow. Place commercial or prepared tinder or a handful of natural tinder in the crook of the brace and platform and fluff it up to allow air (oxygen) to pass easily through it; now you are ready.
- Use a spark, lens, match, lighter, or other source of heat to light the tinder; conserve your fire-starting resources. Do not waste matches if you can use a spark, for example; on the other hand, if you are freezing

or it is raining, use the lighter or matches. If all else fails, a signal flare (*not an aerial flare*) will nearly always light even wet materials on fire.

- As soon as the tinder catches, blow gently on it. As soon as it flames up, carefully place a handful of the smallest kindling over it, leaning it against the brace to keep from smothering the tinder. Leave plenty of air space, or you will extinguish the flame. Blow gently, if needed, to coax it along. As the small kindling catches, carefully add larger kindling, a little at a time. Add successively larger kindling until you have a steady blaze large enough to ignite your fuel-sized wood. Keep your fire small, and stay close to it for warmth. A large blazing inferno wastes resources and energy, requiring much more effort and energy to gather and prepare fuel without any added benefits worth the extra effort.

## **NO SUBSTITUTE FOR WATER**

H-18. You can survive a long time without food but only days or even less without water. Water is vital to your survival. There is no substitute for water. Never drink blood or urine. They will only hasten dehydration. Alcohol not only is not a substitute for water, but it can also lower body temperature, causing other problems for survivors. Smoking will also hasten dehydration and should be avoided unless water is plentiful.

## **FOOD, A LOWER PRIORITY**

H-19. Generally, food is not a survival priority. It is nowhere near as important as is water. You can survive without food for weeks without permanent side effects. After the first day or two, which can be difficult psychologically and physically as your mind tries to “encourage” you to eat, your body and mind adjust and lack of food is more easily tolerated. Food can be an asset, particularly in cold climates, and is good for morale; but be cautious and careful about obtaining it in the wild if you do not know how.

## **EDIBILITY TEST**

H-20. Cautiously test any plant that you are unsure of. Be sure that there is enough around to be worth the effort. Test only a single specimen at a time for each person.

## **GO FISH**

H-21. Catching and preparing wild game is possible but generally impractical for the inexperienced. With the proper training, it is a more viable alternative. Fish, on the other hand, are much more easily caught and prepared by even those lacking experience. Use your survival fishing equipment, or improvise hooks out of safety pins. For line, you can use wire or cord. Worms dug from along the bank or bugs will generally work as bait.

## **STAY WITH THE AIRCRAFT**

H-22. In almost all circumstances, your best bet for being found is to stay by your aircraft. Travel in wilderness areas, unless you are experienced, is

fraught with hazards and danger. Do not travel unless you are positive about where you are going. Generally, the only reason to travel is if rescue is virtually inconceivable and unlikely and you have no other alternatives.

## **NEVER GIVE UP**

H-23. A positive mental attitude is your most important survival resource. This is easier to maintain when you are prepared with training, equipment, and supplies. Nevertheless, no matter how bad your situation, you can be sure that others have survived far worse with much less. The will to live burns bright in most people. You must never give up hope. All you have to do is hold out until help arrives. You can do that. Do not panic. Use your brain. Improvise. You will survive to fly again.

## **PSYCHOLOGY OF SURVIVAL**

H-24. It takes much more than the knowledge and skills to build shelters, get food, make fires, and travel without the aid of standard navigational devices to live through a survival situation. Some people with little or no survival training have survived life-threatening circumstances. Some people with survival training have not used their skills and died. An essential ingredient in any survival situation is the mental attitude of the individuals involved. Having survival skills is important; having the will to survive is essential. Without a will to survive, acquired skills serve little purpose and invaluable knowledge goes to waste.

H-25. There is a psychology to survival. The soldier in a survival environment faces many stresses that ultimately affect his mind. These stresses can produce thoughts and emotions that, if poorly understood, can transform a confident, well-trained soldier into an indecisive, ineffective individual with questionable ability to survive. Thus, every soldier must be aware of and be able to recognize those stresses commonly associated with survival. In addition, soldiers must be aware of their reactions to the variety of stresses associated with survival.

## **A LOOK AT STRESS**

H-26. Stress is not a disease that you cure and eliminate. Instead, it is a condition that we all experience. Stress can be described as our reaction to pressure. It is the name given to the experience that we have as we physically, mentally, emotionally, and spiritually respond to life's tensions.

H-27. We need stress because it has many positive benefits. Stress provides us with challenges; it gives us chances to learn about our values and strengths. Stress can show our ability to handle pressure without breaking; it tests our adaptability and flexibility; it can stimulate us to do our best. Because we usually do not consider unimportant events stressful, stress can also be an excellent indicator of the significance that we attach to an event—in other words, it highlights what is important to us.

H-28. Listed below are a few of the common signs of distress that you may find in your fellow soldiers or yourself when faced with too much stress:

- Difficulty making decisions.
- Angry outbursts.
- Forgetfulness.
- Low energy level.
- Constant worrying.
- Propensity for mistakes.
- Thoughts about death or suicide.
- Trouble getting along with others.
- Withdrawing from others.
- Hiding from responsibilities.
- Carelessness.

## **SURVIVAL STRESSORS**

H-29. Any event can lead to stress, and as everyone has experienced, events do not always come one at a time. Often, stressful events occur simultaneously. These events are not stress, but they produce it and are called stressors. Stressors are the obvious cause while stress is the response. Once the body recognizes the presence of a stressor, it then begins to act to protect itself.

H-30. Soldiers in a survival setting must be aware of the types of stressors that they will encounter. Listed are a few of these stressors;

- Injury, illness, or death.
- Uncertainty and lack of control.
- Environment.
- Hunger and thirst.
- Fatigue.
- Isolation.

H-31. The survival stressors mentioned in this appendix are by no means the only ones that you may face. Remember, what is stressful to one person may not be stressful to another. Your experiences, training, personal outlook on life, physical and mental conditioning, and level of self-confidence contribute to what you will find stressful in a survival environment. The object is not to avoid stress but rather to manage the stressors of survival and make them work for you.

## **NATURAL REACTIONS**

H-32. Some of the major internal reactions that you, and anyone with you, might experience with the survival stressors addressed in the earlier paragraphs are the following:

- Fear.
- Anxiety.
- Depression.
- Loneliness and boredom.
- Guilt.

### **Anger and Frustration**

H-33. Frustration arises when a person is continually thwarted in his attempts to reach a goal. One outgrowth of this frustration is anger. Frustration and anger encourage impulsive reactions, irrational behavior, poorly thought-out decisions, and in some instances, an “I-quit” attitude (people sometimes avoid doing something that they cannot master). If the soldier can harness and properly channel the emotional intensity associated with anger and frustration, he can productively act as he answers the challenges of survival.

### **Depression**

H-34. It would be a rare person indeed who would not get sad, at least momentarily, when faced with the privations of survival. As this sadness deepens, we label the feeling depression. Depression is closely linked with frustration and anger.

### **Loneliness and Boredom**

H-35. Loneliness and boredom can bring to the surface qualities that you thought that only others had. The extent of your imagination and creativity may surprise you. When required to do so, you may discover some hidden talents and abilities. Most of all, you may tap into a reservoir of inner strength and fortitude that you never knew that you had. Conversely, loneliness and boredom can be another source of depression. As a soldier surviving alone, or with others, you must find ways to keep your mind productively occupied. In addition, you must develop a degree of self-sufficiency. You must have faith in your capability to “go it alone.”

### **Guilt**

H-36. The circumstances leading to your being in a survival setting are sometimes dramatic and tragic. It may be the result of an accident or military mission in which there was a loss of life. Perhaps you were the only survival, or one of a few survivors. While naturally relieved to be alive, you simultaneously may be mourning the deaths of others who were less fortunate. It is not uncommon for survivors to feel guilty about being spared from death while others were not. This feeling, when used in a positive way, has encouraged people to try harder to survive is the belief that they were allowed to live for some greater purpose in life. Whatever reasons you give yourself, do not let guilt feelings prevent you from living.

## **PREPARING YOURSELF**

H-37. Your mission as a soldier in a survival situation is to stay alive. As you can see, you are going to experience an assortment of thoughts and emotions. These can work for you, or they can condition to your downfall. Fear, anxiety, anger, frustration, guilt, depression, and loneliness are all possible reactions to the many stresses common to survival. These reactions, when controlled in a healthy way, help to increase a soldier's likelihood of surviving. Prepare yourself to rule over these reactions so that they serve your ultimate interest—staying alive with the honor and dignity associated with being an American soldier.

### **Know Yourself**

H-38. Through training, families, and friends, take the time to discover who you are on the inside. Strengthen your stronger qualities, and develop the areas that you know are necessary to survive.

### **Anticipate Fears**

H-39. Do not pretend that you will have no fears. Begin thinking about what would frighten you the most if forced to survive alone. Train in those areas of concern to you. The goal is not to eliminate the fear but to build confidence in your ability to function despite your fears.

### **Be Realistic**

H-40. Do not be afraid to make an honest appraisal of situations. See circumstances as they are, not as you want them to be. Keep your hopes and expectations within the estimate of the situation. When you go into a survival setting with unrealistic expectations, you may be laying the groundwork for bitter disappointment. Follow the adage, "Hope for the best, prepare for the worst."

### **Adopt a Positive Attitude**

H-41. Learn to see the potential good in everything. Looking for the good not only boosts morale, but it also is excellent for exercising your imagination and creativity.

### **Remind Yourself What Is at Stake**

H-42. Failure to prepare you psychologically to cope with survival leads to reactions such as depression, carelessness, inattention, loss of confidence, poor decision making, and giving up before the body gives in. At stake are your life and the lives of others who are depending on you to do your share.

### **Train**

H-43. Through military training and life experiences, begin today to prepare for coping with the rigors of survival. Demonstrating your skills in training

will give you the confidence to call upon them, should the need arise. Remember, the more realistic the training, the less overwhelming that an actual survival setting will be.

### **Learn Stress Management Techniques**

H-44. People under stress have a potential to panic if they are not well trained and not prepared psychologically to face whatever the circumstances may be. Learning stress management techniques can enhance your capability to remain calm and focused as you work to keep yourself and others alive. A few good techniques to develop include skills in relaxation, time management, assertiveness, and cognitive restructuring (the ability to control how you view a situation).

## **SURVIVAL PLANNING AND SURVIVAL KITS**

H-45. Survival planning is nothing more than realizing something could happen that would put you in a survival situation and, with that in mind, taking steps to increase your chances of survival. Thus, survival planning means preparation.

H-46. Preparation means having survival items and knowing how to use them. People who live in snow regions prepare their vehicles for poor road conditions. They put snow tires on their vehicles, add extra weight in the back for traction, and carry a shovel, salt, and a blanket. Another example of preparation is finding the emergency exits on an aircraft when you board it for a flight. Preparation could also mean knowing your intended route of travel and familiarizing yourself with the area. Finally, emergency planning is essential.

### **IMPORTANCE OF PLANNING**

H-47. Detailed planning is essential in potential survival situations. Including survival considerations in mission planning will enhance your chances of survival if an emergency occurs.

H-48. One important aspect of prior planning is preventive medicine. Ensuring that you have no dental problems and that your immunizations are current will help you avoid potential dental or health problems.

H-49. Preparing and carrying a survival kit is as important as the considerations mentioned above. All Army aircraft normally have survival kits on board for the type of areas over which they will fly. There are kits for over-water survival, and for hot-climate survival and an aviator survival vest (the appropriate technical manual describes these kits and their contents). If you are not an aviator, you will probably not have access to the survival vests or survival kits. However, if you know what these kits contain, it will help you to plan and to prepare your own survival kit.

H-50. Even the smallest survival kit, if properly prepared, is invaluable when faced with a survival problem. When making your survival kit, however,

consider your unit's mission, the operational environment, and the equipment and vehicles assigned to your unit.

## SURVIVAL KITS

H-51. The environment determines the types of items that you will need in your survival kit. How much equipment you put in your kit depends on how you will carry the kit. A kit carried on your body will have to be smaller than one carried in a vehicle. Always layer your survival kit, keeping the most important items on your body.

H-52. Your survival kit need not be elaborate. You need only functional items that will meet your needs and a case to hold the items. For the case, you might want to use a Band-Aid™ box, a first-aid case, an ammunition pouch, or another suitable case. This case should be —

- Water repellent or waterproof.
- Easy to carry or attach to your body.
- Suitable to accept versified components.
- Durable.

H-53. In your survival kit, you should have —

- First-aid items.
- Water-purification tablets or drops.
- Fire-starting equipment.
- Signaling items.
- Food-procurement items.
- Shelter items.

H-54. Some examples of these items are —

- Lighter, metal match, and waterproof matches.
- Snare wire.
- Signaling mirror.
- Wrist compass.
- Fish and snare line.
- Fishhooks.
- Candle.
- Small hand lens.
- Oxtetracycline tablets (for diarrhea or infection).
- Water-purification tablets.
- Solar blanket.
- Surgical blades.
- Butterfly sutures.
- Condoms for water storage.



- Chap Stick™.
- Needle and thread.
- Knife.

## BASIC SURVIVAL MEDICINE

H-55. Foremost among the many problems that can compromise a survivor's ability to return to safety are medical problems resulting from forced landing, extreme climates, ground combat, evasion, and illnesses contracted in captivity.

H-56. Many evaders and survivors have reported difficulty in treating injuries and illness because of the lack of training and medical supplies. For some, this led to capture or surrender.

H-57. Survivors have related feelings of apathy and helplessness because they could not treat themselves in this environment. The ability to treat them increased their morale and cohesion and aided in their survival and eventual return to friendly forces.

H-58. One man with a fair amount of basic medical knowledge can make a difference in the lives of many. Without qualified medical personnel available, you must know what to do to stay alive.

## REQUIREMENTS FOR MAINTENANCE OF HEALTH

H-59. To survive, you need water and food. You must also have and apply high personal-hygiene standards.

### Water

H-60. Your body loses water through normal body processes (sweating, urinating, and defecating). During average daily exertion when the atmospheric temperature is 20°C (68°F), the average adult loses and therefore requires 2 to 3 liters of water daily. Other factors such as heat exposure, cold exposure, intense activity, high altitude, burns, or illness--can cause your body to lose more water.

H-61. Dehydration results from inadequate replacement of lost body fluids. It decreases your efficiency and, if injured, increases your susceptibility to severe shock. Consider the following results of body fluid loss:

- A 5 percent loss of body fluids results in thirst, irritability, nausea, and weakness.
- A 10 percent loss results in dizziness, headache, inability to walk, and a tingling sensation in the limbs.
- A 15 percent loss results in dim vision, painful urination, swollen tongue, deafness, and a numb feeling in the skin.
- A loss of greater than 15 percent of body fluids may result in death.

H-62. The most common signs and symptoms of dehydration are —

- Dark urine with a very strong odor.
- Low urine output.
- Dark, sunken eyes.
- Fatigue.
- Emotional instability.
- Loss of skin elasticity.
- Delayed capillary refill in fingernail beds.
- Trench line down center of tongue.
- Thirst (last on the list because you are already 2 percent dehydrated by the time you crave fluids).

H-63. You replace the water as you lose it. Trying to make up a deficit is difficult in a survival situation, and thirst is not a sign of how much water that you need.

H-64. Most people cannot comfortably drink more than 1 liter of water at a time. So, even when not thirsty, drink small amounts of water at regular intervals each hour to prevent dehydration.

H-65. If you are under physical and mental stress or subject to severe conditions, increase your water intake. Drink enough liquids to maintain a urine output of at least 0.5 liter every 24 hours.

H-66. In any situation where food intake is low, drink 6 to 8 liters of water per day. In an extreme climate, especially an arid one, the average person can lose 2.5 to 3.5 liters of water per hour. In this type of climate, you should drink 14 to 30 liters of water per day.

H-67. With the loss of water, there is also a loss of electrolytes (body salts). The average diet can usually keep up with these losses, but in an extreme situation or illness, additional sources need to be provided. A mixture of 0.25 teaspoon of salt to 1 liter of water will provide a concentration that the body tissues can readily absorb.

H-68. Of all the physical problems encountered in a survival situation, the loss of water is the most preventable. The following are basic guidelines for the prevention of dehydration:

- Always drink water when eating; dehydration can result from water being used and consumed as a part of the digestion process.
- Acclimatize; the body performs more efficiently in extreme conditions when acclimatized.
- Conserve sweat, not water; limit sweat-producing activities, but drink water.
- Ration water. Until you find a suitable source, ration your water sensibly. A daily intake of 500 cubic centimeters (0.5 liter) of a sugar-

water mixture (2 teaspoons per liter) will prevent severe dehydration for at least a week, if you keep water losses to a minimum by limiting activity and heat gain or loss.

H-69. You can estimate fluid loss by several means. A standard field dressing holds about 0.25 liter (one-fourth canteen) of blood. A soaked T-shirt holds 0.5 to 0.75 liter.

H-70. You can also use the pulse and breathing rate to estimate fluid loss. Use the following as a guide:

- With a 0.75-liter loss, the wrist pulse rate will be under 100 beats per minute and the breathing rate 12 to 20 breaths per minute.
- With a 0.75 to 1.5-liter loss, the pulse rate will be 100 to 120 beats per minute and the breathing rate 20 to 30 breaths per minute.
- With a 1.5 to 2 liter loss, the pulse rate will be 120 to 140 beats per minute and the breathing rate 30 to 40 breaths per minute; vital signs above these rates require care that is more advanced.

## Food

H-71. Although you can live several weeks without food, you need an adequate amount to stay healthy. Without food, your mental and physical capabilities will deteriorate and you will become weak. Food replenishes the substances that your body burns and provides energy. It provides vitamins, minerals, salts, and other elements essential to good health. Possibly more important, it helps morale.

H-72. The two basic sources of food are plants and animals (including fish). In varying degrees, both provide the calories, carbohydrates, fats, and proteins needed for normal, daily body functions.

H-73. Calories are a measure of heat and potential energy. The average person needs 2,000 calories per day to function at a minimum level. An adequate amount of carbohydrates, fats, and proteins without an adequate caloric intake will lead to starvation and cannibalism of the body's own tissue for energy.

H-74. Plant foods provide carbohydrates—the main source of energy. Many plants provide enough protein to keep the body at normal efficiency. Although plants may not provide a balanced diet, they will sustain you even in the Arctic, where heat-producing qualities of meat are normally essential. Many plant foods, such as nuts and seeds, will give you enough protein and oils for normal efficiency. Roots, green vegetables, and plant food containing natural sugar will provide calories and carbohydrates that give the body natural energy.

H-75. The food value of plants becomes increasingly important if you are eluding the enemy or if you are in an area where wildlife is scarce. For instance —

- You can dry plants by wind, air, sun, or fire; this retards spoilage so that you can store or carry the plant food with you to use when needed.

- You can obtain plants more easily and more quietly than meat; this is extremely important when the enemy is near.

H-76. Animal foods are more nourishing than plant food. In fact, it may even be more readily available in some places. However, to get meat, you need to know the habits of and how to capture the wildlife.

H-77. To satisfy your immediate food needs, first seek the more abundant and more easily obtained wildlife such as insects, crustaceans, mollusks, fish, and reptiles. These can satisfy your immediate hunger while you are preparing traps and snares for larger game.

## Personal Hygiene

H-78. In any situation, cleanliness is an important factor in preventing infection and disease. It becomes even more important in a survival situation. Poor hygiene can reduce your chances of survival.

H-79. A daily shower with hot water and soap is ideal, but you can stay clean without this luxury. Use a cloth and soapy water to wash yourself. Pay special attention to the feet, armpits, crotch, hands, and hair, as these are prime areas for infestation and infection. If water is scarce, take an “air” bath. Remove as much of your clothing as practical and expose your body to the sun and air for at least one hour. Be careful not to sunburn.

H-80. If you do not have soap, use ashes or sand, or make soap from animal fat and wood ashes, if your situation allows. To make soap —

- Extract grease from animal fat by cutting the fat into small pieces and cooking them in a pot.
- Add enough water to the pot to keep the fat from sticking as it cooks.
- Cook the fat slowly, stirring frequently.
- After the fat is rendered, pour the grease into a container to harden.
- Place ashes in a container with a spout near the bottom.
- Pour water over the ashes and collect the liquid that drips out of the spout in a separate container. This liquid is the potash or lye. Another way to get the lye is to pour the slurry (the mixture of ashes and water) through a straining cloth.
- In a cooking pot, mix two parts grease to one part potash.
- Place this mixture over a fire and boil it until it thickens.

H-81. After the mixture—the soap—cools, you can use it in the semiliquid state directly from the pot. You can also pour it into a pan, allow it to harden, and cut it into bars for later use.

H-82. **Keep Your Hands Clean.** Germs on your hands can infect food and wounds. Wash your hands after handling any material that is likely to carry germs, after visiting the latrine, after caring for the sick, and before handling any food, food utensils, or drinking water. Keep your fingernails closely trimmed and clean, and keep your fingers out of your mouth.

**H-83. Keep Your Hair Clean.** Your hair can become a haven for bacteria or fleas, lice, and other parasites. Keeping your hair clean, combed, and trimmed helps you avoid this problem.

**H-84. Keep Your Clothing Clean.** Keep your clothing and bedding as clean as possible to reduce the chance of skin infection as well as to decrease the danger of parasitic infestation. Clean your outer clothing whenever it becomes soiled. Wear clean underclothing and socks each day. If water is scarce, “air” clean your clothing by shaking, airing, and sunning it for two hours. If you are using a sleeping bag, turn it inside out after each use, fluff it, and air it.

**H-85. Keep Your Teeth Clean.** Thoroughly clean your mouth and teeth with a toothbrush at least once each day. If you do not have a toothbrush, make a chewing stick. Find a twig about 20 centimeters long and 1 centimeter wide. Chew one end of the stick to separate the fibers. Now, brush your teeth thoroughly. Another way is to wrap a clean strip of cloth around your fingers and rub your teeth with it to wipe away food particles. You can also brush your teeth with small amounts of sand, baking soda, salt, or soap. Then rinse your mouth with water, salt water, or willow bark tea. In addition, flossing your teeth with string or fiber helps oral hygiene.

**H-86.** If you have cavities, you can make temporary fillings by placing candle wax, tobacco, aspirin, hot pepper, toothpaste, powder, or portions of a ginger root into the cavity. Make sure that you clean the cavity by rinsing or picking the particles out of the cavity before placing a filling in the cavity.

**H-87. Take Care of Your Feet.** To prevent serious foot problems, break in your shoes before wearing them on any mission. Wash and massage your feet daily. Trim your toenails straight across. Wear an insole and the proper size of dry socks. Powder and check your feet daily for blisters.

**H-88.** If you get a small blister, do not open it. An intact blister is safe from infection. Apply a padding material around the blister to relieve pressure and reduce friction. If the blister bursts, treat it as an open wound. Clean and dress it daily, and pad around it. Leave large blisters intact. To avoid having the blister burst or tear under pressure and cause a painful and open sore, do the following:

- Obtain a sewing-type needle and a clean or sterilized thread.
- Run the needle and thread through the blister after cleaning the blister.
- Detach the needle, and leave both ends of the thread hanging out of the blister; the thread will absorb the liquid inside. This reduces the size of the hole and ensures that the hole does not close up.
- Pad around the blister.

**H-89. Get Sufficient Rest.** You need a certain amount of rest to keep going. Plan regular rest periods of at least 10 minutes per hour during your daily activities. Learn to make yourself comfortable under less-than-ideal conditions. A change from mental to physical activity or vice versa can be refreshing when time or the situation does not permit total relaxation.

H-90. **Keep Campsite Clean.** Do not soil the ground in the campsite area with urine or feces. Use latrines, if available. When latrines are not available, dig “cat holes” and cover the waste. Collect drinking water upstream from the campsite. Purify all water.

## MEDICAL EMERGENCIES

H-91. Medical problems and emergencies you may be faced with include breathing problems, severe bleeding, and shock.

### Breathing Problems

H-92. Any one of the following can cause airway obstruction, resulting in stopped breathing:

- Foreign matter in mouth of the throat that obstructs the opening to the trachea.
- Face or neck injuries.
- Inflammation and swelling of the mouth and throat caused by inhaling smoke, flames, and irritating vapors or by an allergic reaction.
- “Kink” in the throat (caused by the neck bent forward so that the chin rests upon the chest) blocking the passage of air.
- Tongue blocking passage of air to the lungs upon unconsciousness. When an individual is unconscious, the muscles of the lower jaw and tongue relax as the neck drops forward, causing the lower jaw to sag and the tongue to drop back and block the passage of air.

### Severe Bleeding

H-93. Severe bleeding from any major blood vessel in the body is dangerous. The loss of 1 liter of blood will produce moderate symptoms of shock. The loss of 2 liters will produce a severe state of shock that places the body in extreme danger. The loss of 3 liters is usually fatal.

### Shock

H-94. Shock (acute stress reaction) is not a disease in itself. Shock is a clinical condition characterized by symptoms that arise when cardiac output is insufficient to fill the arteries with enough blood to provide an adequate supply to the organs and tissues.

## LIFESAVING STEPS

H-95. Control panic, both yours and the victim. Reassure him, and try to keep him quiet.

H-96. Perform a rapid physical exam. Look for the cause of the injury, follow the ABCs of first aid—starting with the airway, and breathing—but be discerning. A person may die from arterial bleeding more quickly than from an airway obstruction in some cases.

## Open Airway and Maintain

H-97. You can open an airway and maintain it by using the following steps:

- Step 1. Check if the victim has a partial or complete airway obstruction. If he can cough or speak, allow him to clear the obstruction naturally. Stand by, reassure the victim, and be ready to clear his airway and perform mouth-to-mouth resuscitation should he become unconscious. If his airway is completely obstructed, administer abdominal thrusts until the obstruction is cleared.
- Step 2. Using a finger, quickly sweep the victim's mouth clear of any foreign objects, broken teeth, dentures, and sand.
- Step 3. Using the jaw-thrust method, grasp the angles of the victim's lower jaw and lift with both hands, one on each side, moving the jaw forward. For stability, rest your elbows on the surface on which the victim is lying. If his lips are closed, gently open the lower lip with your thumb.
- Step 4. With the victim's airway open, pinch his nose closed with your thumb and forefinger and blow two complete breaths into his lungs. Allow the lungs to deflate after the second inflation and perform the following action:
  - Look for his chest to rise and fall.
  - Listen for escaping air during exhalation.
  - Feel for flow of air on your cheek.
- Step 5. If the forced breaths do not stimulate spontaneous breathing, maintain the victim's breathing by performing mouth-to-mouth resuscitation.
- Step 6. There is danger of the victim vomiting during mouth-to-mouth resuscitation. Check the victim's mouth periodically for vomit, and clear as needed.

**Note:** Cardiopulmonary resuscitation (CPR) may be necessary after cleaning the airway, but only after major bleeding is under control. See FM 21-20, the American Heart Association manual, the Red Cross manual, or most other first-aid books for detailed instructions on CPR.

## SHELTERS

H-98. A shelter can protect you from the sun, insects, wind, rain, snow, hot or cold temperatures, and enemy observation. It can give you a feeling of well being. It can help you maintain your will to survive.

H-99. In some areas, your need for shelter may take precedence over your need for food and possibly your need for water.

H-100. The most common error in making a shelter is to make it too large. A shelter must be large enough to protect you. It must also be small enough to contain your body heat, especially in cold climates.

## SHELTER SITE SELECTION

H-101. When you are in a survival situation and realize that shelter is a high priority, start looking for shelter as soon as possible. As you do so, remember what you will need at the site. Two requisites are the following:

- It must contain material to make the type of shelter that you need.
- It must be large enough and level enough for you to lie down comfortably.

H-102. When you consider these requisites, however, you cannot ignore your tactical situation or your safety. You must also consider whether the site —

- Provides concealment from enemy observation.
- Has camouflaged escape routes.
- Is suitable for signaling, if necessary.
- Provides protection against wild animals and rocks and dead trees that might fall.
- Is free from insects, reptiles, and poisonous plants.

H-103. You must also remember the problems that could arise in your environment. For instance —

- Avoid flash-flood areas in foothills.
- Avoid avalanche or rockslide areas in mountainous terrain.
- Avoid sites near bodies of water that are below the high-water mark.

H-104. In some areas, the season of the year has a strong bearing on the site that you select. Ideal sites for a shelter differ in winter and summer. During cold winter months, you will want a site that will protect you from the cold and wind but will have a source of fuel and water. During summer months in the same area, you will want a source of water but you will want the site to be free of insects.

H-105. When considering shelter site selection, use the word BLISS as a guide:

- B—Blend in with the surroundings.
- L—Low silhouette.
- I—Irregular shape.
- S—Small.
- S—Secluded location.

## **TYPES OF SHELTERS**

H-106. When looking for a shelter site, keep in mind the type of shelter (protection) you need. However, you must also consider —

- How much time and effort will you need to build the shelter?
- Will the shelter adequately protect you from the elements (sun, wind, rain, and snow)?



- Will you have the tools to build it? If not, can you make improvised tools?
- Will you have the type and amount of materials needed to build it?

H-107. To answer these questions, you need to know how to make various types of shelters and what materials that you will need to make them.

### Poncho Lean-To

H-108. It takes only a short time and minimal equipment to build this lean-to. You need a poncho, 2 to 3 meters of rope or parachute suspension line; three stakes about 30 centimeters long, and two trees or two poles 2 to 3 meters apart. Before selecting the trees that you will use or the location of your poles, check the wind direction. Ensure that the back of your lean-to will be into the wind.

### To Make the Lean-To

- Tie off the hood of the poncho. Pull the drawstring tight, roll the hood longwise, fold it into thirds, and tie it off with the drawstring.
- Cut the rope in half. On one long side of the poncho, tie half of the rope to the corner grommet. Tie the other half to the other corner grommet.
- Attach a drip stick (about a 10-centimeter stick) to each rope about 2.5 centimeters from the grommet. These drip sticks will keep rainwater from running down the ropes into the lean-to. Tying strings (about 10 centimeters long) to each grommet along the top edge of the poncho will allow the water to run to and down the line without dripping into the shelter.
- Tie the ropes about waist high on the trees (uprights); use a round turn and two half hitches with a quick-release knot.
- Spread the poncho, and anchor it to the ground by putting sharpened sticks through the grommets and into the ground.

H-109. If you plan to use the lean-to for more than one night or you expect rain, make a center support for the lean-to. Make this support with a line. Attach one end of the line to the poncho hood and the other end to an overhanging branch. Make sure that there is no slack in the line.

H-110. Another method is to place a stick upright under the center of the lean-to. This method, however, will restrict your space and movements in the shelter.

H-111. For additional protection from wind and rain, place some brush, your rucksack, or other equipment at the sides of the lean-to.

H-112. To reduce heat loss to the ground, place some type of insulating material, such as leaves or pine needles, inside your lean-to.

**Note:** When at rest, you lose as much as 80 percent of your body heat to the ground.

H-113. To increase your security from enemy observation, lower the silhouette of the lean-to by making two changes. First, secure the support lines to the trees at knee height (not at waist height) using two knee-high sticks in the two center grommets (sides of lean-to). Second, angle the poncho to the ground, securing it with sharpened sticks, as above.

## WATER PROCUREMENT

H-114. Water is one of your most urgent needs in a survival situation. You cannot live long without it, especially in hot areas where you lose water rapidly through perspiration. Even in cold areas, you need a minimum of 2 liters of water each day to maintain efficiency.

H-115. More than three-fourths of your body is composed of fluids. Your body loses fluid because of heat, cold, stress, and exertion. To function effectively, you must replace the fluid your body loses. So, one of your first goals is to obtain an adequate supply of water.

## WATER SOURCES

H-116. Almost any environment has some water present. Table H-1 lists possible sources of water in various environments. It also provides information on how to make the water potable.

**Table H-1. Sources of Water in Various Environments**

Environment	Source of Water	Means of Obtaining and/or Making Potable	Remarks
Frigid areas	Snow and ice	Melt and purify	Do not eat without melting. Eating snow and ice can reduce body temperature and will lead to more dehydration. Snow and ice are no purer than the water from which they come. Sea ice that is gray in color or opaque is salty. Do not use it without desalting it. Sea ice that is crystalline with a bluish cast has little salt in it.

Table H-1. Sources of Water in Various Environments (Continued)

Environment	Source of Water	Means of Obtaining and/or Making Potable	Remarks
At sea	Sea	Use desalted kit.	Do not drink seawater without desalting.
	Rain	Catch rain in tarps or in other water-holding material or containers.	If tarp or water-holding material has become encrusted with salt, wash it in the sea before using (very little salt will remain on it).
Beach	Ground	Dig a hole deep enough to allow water to seep in; obtain rocks, build a fire and heat the rocks; drop hot rocks in water; hold the cloth over the hole to absorb steam; wring water from the cloth.	Alternate method if a container or bark pot is available—fill container or pot with seawater; build fire, and boil water to produce steam; hold cloth over container to absorb steam; wring water from cloth.
Desert	Ground <ul style="list-style-type: none"> <li>In valleys and low areas</li> <li>At foot of concave banks of dry river beds</li> <li>At foot of cliffs or rock outcrops</li> <li>At first depression behind first sand dune of dry desert lakes</li> <li>Wherever you find damp surface sand</li> <li>Wherever you find green vegetation</li> </ul>	Dig holes deep enough to allow water to seep in.	In a sand-dune belt, any available water will be found beneath the original valley floor at the edge of dunes.
Desert	Cacti	Cut off the top of a barrel cactus and mash or squeeze the pulp. Caution: Do not eat pulp. Place pulp in mouth, suck out juice, and discard pulp.	Without a machete, cutting into a cactus is difficult and takes time because you must get past the long, strong spines and cut through the tough rind.
	Fissures in rocks	Insert flexible tubing, and siphon water. If fissure is large enough, you can lower a container into it.	
	Porous rock	Insert flexible tubing, and siphon water.	



Table H-1. Sources of Water in Various Environments (Concluded)

Environment	Source of Water	Means of Obtaining and/or Making Potable	Remarks
	Condensation on metal	Use cloth to absorb water, and then wring water from cloth.	Extreme temperature variations between night and day may cause condensation on metal surfaces. Following are signs to watch for in the desert to help you find water. All trails lead to water. You should follow in the direction in which the trails converge. Signs of camps, campfire ashes, animal droppings, and trampled terrain may mark trails. Flocks of birds will circle over water holes. Some birds fly to water holes at dawn and sunset. Their flight at these times is generally fast and close to the ground. Bird tracks or chirping sounds in the evening or early morning sometimes indicate that water is nearby.
<b>Note:</b> If you do not have a canteen, a cup, a can, or other type of container, improvise one from plastic or water-resistant cloth. Shape the plastic or cloth into a bowl by pleating it. Use pins or other suitable items—even your hands—to hold the pleats.			

H-117. If you do not have a reliable source to replenish your water supply, stay alert for ways in which your environment can help you (see Table H-2).

### CAUTION

Do not substitute the fluids listed in Table H-2 for water.

**Table H-2. Fluids**

<b>Fluids</b>	<b>Remarks</b>
Alcoholic beverages	Dehydrates the body and cloud judgment.
Urine	Contains harmful body wastes. Is about 2 percent salt.
Blood	Is salty and considered a food; therefore, requires additional body fluids to digest. May transmit disease.
Seawater	Is about 4 percent salt. It takes about 2 liters of body fluids to rid the body of waste from 1 liter of saltwater. Therefore, by drinking seawater you deplete your body's water supply, which can cause death.

**FIRECRAFT**

H-118. In many survival situations, the ability to start a fire can make the difference between living and dying. Fire can fulfill many needs. It can provide warmth and comfort. It not only cooks and preserves food; it also provides warmth in the form of heated food that saves calories that our body normally uses to produce body heat. You can use fire to purify water, sterilize bandages, signal for rescue, and provide protection from animals. It can be a psychological boost by providing peace of mind and companionship. You can also use fire to produce tools and weapons.

H-119. Fire can cause problems, as well. The enemy can detect the smoke and light that it produces. It can cause forest fires or destroy essential equipment. Fire can also cause carbon monoxide poisoning when used in shelters.

H-120. Weigh your need for fire against your need to avoid enemy detection.

**BASIC FIRE PRINCIPLES**

H-121. To build a fire, it helps to understand the basic principles of a fire. Fuel (in a nongaseous state) does not burn directly. When you apply heat to a fuel, it produces a gas. This gas, combined with oxygen in the air, burns.

H-122. Understanding the concept of the fire triangle is very important in correctly constructing and maintaining a fire. The three sides of the triangle represent air, heat, and fuel. If you remove any of these, the fire will go out. The correct ratio of these components is important for a fire to burn at its greatest capability. The only way to learn this ratio is to practice.

**SITE SELECTION AND PREPARATION**

H-123. You will have to decide what site and arrangement to use. Before building a fire consider —

- The area (terrain and climate) in which you are operating.
- The materials and tools available.
- Time: how much time you have.

- Need: why you need a fire.
- Security: how close the enemy is?

H-124. Look for a dry spot that —

- Is protected from the wind.
- Is suitably placed in relation to your shelter (if any).
- Will concentrate the heat in the direction that you desire.
- Has a supply of wood or other fuel available (see Table H-3 for types of material that you can use).

**Table H-3. Types of Fire-Building Material**

<b>Tinder</b>	<b>Kindling</b>	<b>Fuel</b>
<ul style="list-style-type: none"> <li>• Birch bark</li> <li>• Shredded inner bark from cedar, chestnut, red elm trees</li> <li>• Fine wood shavings</li> <li>• Dead grass, ferns, moss, fungi</li> <li>• Straw</li> <li>• Sawdust</li> <li>• Very fine pitch wood scrapings</li> <li>• Dead evergreen needles</li> <li>• Punk (the completely rotted portions of dead logs or trees)</li> <li>• Evergreen tree knots</li> <li>• Bird down (fine feathers)</li> <li>• Down seed heads (milkweed, dry cattails, bulrush, or thistle)</li> <li>• Fine, dried vegetable fibers</li> <li>• Spongy threads of dead puffball</li> <li>• Dead palm leaves</li> <li>• Skin like membrane lining bamboo</li> <li>• Lint from pocket and seams</li> <li>• Charred cloth</li> <li>• Waxed paper</li> <li>• Outer bamboo shavings</li> <li>• Gunpowder</li> <li>• Cotton</li> <li>• Lint</li> </ul>	<ul style="list-style-type: none"> <li>• Small twigs</li> <li>• Small strips of wood</li> <li>• Split wood</li> <li>• Heavy cardboard</li> <li>• Pieces of wood removed from the inside of larger pieces</li> <li>• Wood that has been doused with highly flammable materials such as gasoline, oil, or wax</li> </ul>	<ul style="list-style-type: none"> <li>• Dry, standing wood and dry, dead branches</li> <li>• Dry inside (heart) of fallen tree trunks and large branches</li> <li>• Green wood that is finely split</li> <li>• Dry grasses twisted into bunches</li> <li>• Peat dry enough to burn (this may be found at the top of undercut banks)</li> <li>• Dried animal dung</li> <li>• Animal fats</li> <li>• Coal, oil shale, or oil lying on the surface</li> </ul>

## FOOD PROCUREMENT

H-125. After water, a human being's most urgent requirement is food. The survivor must remember that the three essentials of survival—water, food,

and shelter—are prioritized according to the estimate of the actual situation. Some situations may well dictate that shelter precede both food and water.

## **ANIMALS FOR FOOD**

H-126. Unless you have the chance to take large game, concentrate your efforts on the smaller animals, because of their abundance. The smaller animal species are also easier to prepare. You must not know all of the animal species that are suitable as food. Relatively few are poisonous, and they make a smaller list to remember. What is important is to learn the habits and behavioral patterns of classes of animals. In addition, you must understand the food choices of a particular species.

H-127. You can, with relatively few exceptions, eat anything that crawls, swims, walks, or flies. The first obstacle is overcoming your natural aversion to a particular food source. Although it may prove difficult at first, a survivor must eat what is available to maintain his health.

### **Insects**

H-128. The most abundant life form on earth, insects are easily caught. Insects provide 65 to 80 percent proteins compared to 20 percent for beef. This fact makes insects an important, if not overly appetizing, food source. Insects to avoid include all adults that sting or bite, hairy or brightly colored insects, and caterpillars and insects that have a pungent odor. Also avoid spiders and common disease carriers such as ticks, flies, and mosquitoes.

### **Worms**

H-129. Worms (Annelidea) are an excellent protein source. Dig for them in damp humus soil, or watch for them on the ground after a rain. After capturing them, drop them into clean, potable water for a few minutes. The worms will naturally purge or wash themselves out, after which you can eat them, raw.

### **Crustaceans**

H-130. Freshwater shrimp range in size from 0.25 centimeter up to 2.5 centimeters. They can form rather large colonies in mats of floating algae or in the mud bottoms of ponds and lakes.

H-131. Crayfish are akin to marine lobsters and crabs. You can distinguish them by their hard exoskeleton and five pairs of legs, the front pair having oversized pincers. Crayfish are active at night, but you can locate them in the daytime by looking under and around stones in streams. You can also find them by looking in the soft mud near the chimney-like breathing holes of their nests.

H-132. You find saltwater lobsters, crabs, and shrimp from the surf's edge out to water 10 meters deep. Shrimp may come to a light at night where you can scoop them up with a net. You can catch lobsters and crabs with a baited trap



or a baited hook. Crabs will come to bait placed at the edge of the surf, where you can trap or net them. Lobsters and crabs are nocturnal and caught best at night.

## Mollusks

H-133. This class includes octopi and freshwater and saltwater shellfish such as snails, clams, mussels, bivalves, barnacles, periwinkles, chitons, and sea urchins. Bivalves similar to our freshwater mussel and terrestrial and aquatic snails are found worldwide under all water conditions.

H-134. River snails or freshwater periwinkles are plentiful in rivers, streams, and lakes of northern coniferous forests. These snails may be pencil point or globular in shape.

H-135. In fresh water, look for mollusks in the shallows, especially in water with a sandy or muddy bottom. Look for the narrow trails that they leave in the mud or for the dark elliptical slit of their open valves. Steam, boil, or bake mollusks in the shell. They make excellent stews in combination with greens and tubers.

H-136. Near the sea, look in the tidal pools and the wet sand. Rocks along beaches or extending as reefs into deeper water often bear clinging shellfish. Snails and limpets cling to rocks and seaweed from the low-water mark upward. Large snails, called chitons, adhere tightly to rocks above the surf line. Mussels usually form dense colonies in rock pools, on logs, or at the base of boulders.

### CAUTION

**Mussels may be poisonous in tropical zones during the summer!**

### CAUTION

**Do not eat shellfish that are not covered by water at high tide!**

## SURVIVAL USE OF PLANTS

H-137. After having solved the problems of finding water, shelter, and animal food, you will have to consider the use of plants that you can eat.

H-138. Nature can provide you with food that will let you survive any ordeal, if you do not eat the wrong plant. You must learn as much as possible beforehand about the flora of the region where you will be operating. Plants can provide you with medicines in a survival situation. Plants can supply you with weapons and raw materials to construct shelters and build fires. Plants

can even provide you with chemicals for poisoning fish, preserving animal hides, and for camouflaging yourself and your equipment.

## EDIBILITY OF PLANTS

H-139. Plants are valuable sources of food because they are widely available, are easily obtained, and in the proper combinations, can meet all of your nutritional needs.

### **WARNING**

**The critical factor in using plants for food is to avoid accidental poisoning. Eat only those plants that you can positively identify and you know are safe to eat.**

H-140. Absolutely identify plants before using them as food. Poison hemlock has killed people who mistook it for its relatives, wild carrots and wild parsnips.

H-141. You may find yourself in a situation for which you could not plan. In this instance, you may not have had the chance to learn the plant life of the region in which you must survive. In this case, you can use the Universal Edibility Test to determine which plants you can eat and those to avoid.

H-142. Remember the following when collecting wild plants for food:

- Plants growing near homes and occupied buildings or along roadsides may have been sprayed with pesticides; wash them thoroughly. In more highly developed countries with many automobiles, avoid roadside plants, if possible, because of contamination from exhaust emissions.
- Plants growing in contaminated water or in water containing *Giardia lamblia* and other parasites are contaminated themselves; boil or disinfect them.
- Some plants develop extremely dangerous fungal toxins; to lessen the chance of accidental poisoning, do not eat any fruit that is starting to spoil or showing signs of mildew or fungus.
- Plants of the same species may differ in their toxic or subtoxic compounds content because of genetic or environmental factors; one example of this is the foliage of the common chokecherry. Some chokecherry plants have high concentrations of deadly cyanide compounds while others have low concentrations or none; horses have died from eating wilted wild cherry leaves. Avoid any weed, leaves, or seeds with an almond-like scent, a characteristic of the cyanide compounds.
- Some people are more susceptible to gastric distress (from plants) than others. If you are sensitive in this way, avoid unknown wild plants. If you are extremely sensitive to poison ivy, avoid products from this family, including any parts from sumacs, mangoes, and cashews.

- Some edible wild plants, such as acorns and water-lily rhizomes, are bitter; these bitter substances, usually tannin compounds, make them unpalatable. Boiling them in several changes of water will usually remove these bitter properties.
- Many valuable wild plants have high concentrations of oxalate compounds, also known as oxalic acid; oxalates produce a sharp burning sensation in your mouth and throat and damage the kidneys. Baking, roasting, or drying usually destroys these oxalate crystals. The corm (bulb) of the jack-in-the-pulpit is known as the “Indian turnip,” but you can eat it only after removing these crystals by slow baking or by drying.

### **WARNING**

**Do not eat mushrooms in a survival situation! The only way to tell if a mushroom is edible is by positive identification. There is no room for experimentation. Symptoms of the most dangerous mushrooms affecting the central nervous system may show up after several days have passed when it is too late to reverse their effects.**

## **POISONOUS PLANTS**

H-143. Successful use of plants in a survival situation depends on positive identification. Knowing poisonous plants is as important to a survivor as knowing edible plants. Knowing the poisonous plants will help you avoid sustaining injuries from them.

## **HOW PLANTS POISON**

H-144. Plants generally poison by —

- Ingestion—when a person eats a part of a poisonous plant.
- Contact—when a person makes contact with a poisonous plant that causes any type of skin irritation or dermatitis.
- Absorption or inhalation—when a person either absorbs the poison through the skin or inhales it into the respiratory system.

H-145. Plant poisoning ranges from minor irritation to death. A common question asked is, “How poisonous is this plant?” It is difficult to say how poisonous plants are because —

- Some plants require contact with a large amount of the plant before causing any adverse reaction while others will cause death with only a small amount.
- Every plant will vary for toxins it contains because of different growing conditions and slight variations in subspecies.
- Every person has a different level of resistance to toxic substances.
- Some persons may be more sensitive to a particular plant.

H-146. Some common misconceptions about poisonous plants are—

- Watch the animals and eat what they eat; most of the time this statement is true, but some animals can eat plants that are poisonous to humans.
- Boil the plant in water, and any poisons will be removed; boiling removes many poisons, but not all.
- Plants with a red color are poisonous; some plants that are red are poisonous, but not all.

H-147. The point is there is no one rule to aid in identifying poisonous plants. You must make an effort to learn as much about them as possible.

## ALL ABOUT PLANTS

H-148. It is to your benefit to learn as much about plants as possible. Many poisonous plants look like their edible relatives or like other edible plants. For example, poison hemlock appears very similar to wild carrot. Certain plants are safe to eat in certain seasons or stages of growth and poisonous in other stages. For example, the leaves of the pokeweed are edible when it first starts to grow, but it soon becomes poisonous. You can eat some plants and their fruits only when they are ripe. For example, the ripe fruit of mayapple is edible, but all other parts and the green fruit are poisonous. Some plants contain both edible and poisonous parts; potatoes and tomatoes are common plant foods, but their green parts are poisonous.

H-149. Some plants become toxic after wilting. For example, when the black cherry starts to wilt, hydrocyanic acid develops. Specific preparation methods make some plants edible that are poisonous raw. You can eat the thinly sliced and thoroughly dried corms (drying may take a year) of the jack-in-the-pulpit, but they are poisonous if not thoroughly dried.

H-150. Learn to identify and use plants before encountering a survival situation. Some sources of information about plants are pamphlets, books, films, nature trails, botanical gardens, local markets, and local natives. Gather and cross-reference information from as many sources as possible, because many sources will not contain all of the information needed.

## RULES FOR AVOIDING POISONOUS PLANTS

H-151. Your best policy is to be able to look at a plant and identify it with absolute certainty and to know its uses or dangers. Many times this is not possible. If you have little or no knowledge of the local vegetation, use the rules to select plants for the Universal Edibility Test. Avoid—

- All mushrooms. Mushroom identification is very difficult and must be precise, even more so than with other plants. Some mushrooms cause death quickly; some mushrooms have no known antidote. Two general types of mushroom poisoning are gastrointestinal and central nervous system.
- Contact with or touching plants unnecessarily.

## CONTACT DERMATITIS

H-152. Contact dermatitis from plants will usually cause the most trouble in the field. The effects may be persistent, spread by scratching, and are particularly dangerous if there is contact in or around the eyes.

H-153. The principal toxin of these plants is usually oil that gets on the skin upon contact with the plant. The oil can also get on equipment and then infect whoever touches the equipment. Never burn a contact poisonous plant because the smoke may be as harmful as the plant. There is a greater danger of being affected when overheated and sweating. The infection may be local, or it may spread over the body.

H-154. Symptoms may take from a few hours to several days to appear. Signs and symptoms can include burning, reddening, itching, swelling, and blisters.

H-155. When you first contact the poisonous plants or the first symptoms appear, try to remove the oil by washing with soap and cold water. If water is not available, wipe your skin repeatedly with dirt or sand. Do not use dirt if blisters have developed. The dirt may break open the blisters and leave the body open to infection. After you have removed the oil, dry the area. You can wash with a tannic acid solution and crush and rub jewelweed on the affected area to treat plant-caused rashes. You can make tannic acid from oak bark.

H-156. Poisonous plants that cause contact dermatitis are—

- Cowhage.
- Poison ivy.
- Poison oak.
- Poison sumac.
- Rengas tree.
- Trumpet vine.

## INGESTION POISONING

H-157. Ingestion poisoning can be very serious and could lead to death quickly. Do not eat any plant unless you have positively identified it first. Keep a log of all plants eaten.

H-158. Signs and symptoms of ingestion poisoning can include nausea, vomiting, diarrhea, abdominal cramps, depressed heartbeat and respiration, headaches, hallucinations, dry mouth, unconsciousness, coma, and death.

H-159. If you suspect plant poisoning, try to remove the poisonous material from the victim's mouth and stomach as soon as possible. Induce vomiting by tickling the back of his throat or by giving him warm saltwater, if he is conscious. Dilute the poison by administering large quantities of water or milk, if he is conscious.

H-160. The following plants can cause ingestion poisoning if eaten:

- Castor bean.
- Chinaberry.
- Death camas.
- Lantana.
- Manchineel.
- Oleander.
- Pangi.
- Physic nut.
- Poison and water hemlocks.
- Rosary pea.
- Strychnine tree.

## DANGEROUS ANIMALS

H-161. Animals rarely are as threatening to the survivor as the rest of the environment. Common sense tells the survivor to avoid encounters with lions, bears, and other large or dangerous animals. You should also avoid large grazing animals with horns, hooves, and great weight. Your actions may prevent unexpected meetings:

- Move carefully through their environment.
- Do not attract large predators by leaving food lying around your camp.
- Carefully survey the scene before entering water or forests.

H-162. Smaller animals actually present more of a threat to the survivor than large animals. To compensate for their size, nature has given many small animals weapons, such as fangs and stingers, to defend themselves. Each year, a few people are bitten by sharks, mauled by alligators, and attacked by bears.

H-163. Keeping a level head and an awareness of your surroundings will keep you alive if you use a few simple safety procedures. Do not let curiosity and carelessness kill or injure you.

## INSECTS AND ARACHNIDS

H-164. You recognize and identify insects, except centipedes and millipedes, by their six legs while arachnids have eight. All of these small creatures become pests when they bite, sting, or irritate you.

H-165. Although their venom can be quite painful, bee, wasp, and hornet stings rarely kill a survivor unless he is allergic to that particular toxin. Even the most dangerous spiders rarely kill, and the effects of tick-borne diseases are very slow acting. However, in all cases, avoidance is the best defense. In environments known to have spiders and scorpions, check your footgear and

clothing every morning. Also, check your bedding and shelter for them. Use care when turning over rocks and logs.

## **Scorpions**

H-166. Scorpions are found in deserts, jungles, and forests of tropical, subtropical, and warm temperate areas of the world. They are mostly nocturnal. Fatalities from scorpion stings are rare, but they can occur in children, the elderly and ill persons.

## **Spiders**

H-167. The brown recluse or fiddleback spider of North America has a prominent violin-shaped light spot on the back of its body. As its name suggests, this spider likes to hide in dark places. Though rarely fatal, its bite causes excessive tissue degeneration around the wound and can even lead to amputation of the digits if left untreated.

H-168. You find members of the widow family worldwide, although the black widow of North America is perhaps the best known. Found in warmer areas of the world, the widows are small, dark spiders often with hourglass-shaped white, red, or orange spots on their abdomens.

H-169. Funnel webs are large, gray or brown Australian spiders. Chunky, with short legs, they are able to move easily up and down the cone-shaped webs from which they get their name. The local populace considers them deadly. Avoid them as they move about, usually at night, in search of prey. Symptoms of their bite are similar to those of the widow's severe pain accompanied by sweating and shivering, weakness, and disabling episodes that can last a week.

H-170. Tarantulas are large, hairy spiders best known because they are often sold in pet stores. There is one species in Europe, but most come from tropical America. Some South American species do inject a dangerous toxin, but most simply produce a painful bite. Some tarantulas can be as large as a dinner plate. They all have large fangs for capturing food such as birds, mice, and lizards. If you are bitten by a tarantula, pain and bleeding are certain, and infection is likely.

## **Centipedes and Millipedes**

H-171. Centipedes and millipedes are mostly small and harmless, although some tropical and desert species may reach 25 centimeters. A few varieties of centipedes have a poisonous bite, but infection is the greatest danger, as their sharp claws dig in and puncture the skin. To prevent skin punctures, brush them off in the direction that they are traveling, if you find them crawling on your skin.

## **Bees, Wasps, and Hornets**

H-172. Bees, wasps, and hornets come in many varieties and have diverse habits and habitats. You recognize bees by their hairy and usually thick

body, while the wasps, hornets, and yellow jackets have more slender, nearly hairless, bodies. Some bees, such as honeybees, live in colonies. They may be either domesticated or living wild in caves or hollow trees. You may find other bees, such as carpenter bees, in individual nest holes in wood or in the ground, like bumblebees. The main danger from bees is their barbed stinger located on their abdomens. When the bee stings you, it rips its stinger out of its abdomen along with the venom sac and the bee dies. Except for killer bees, most bees tend to be more docile than wasps, hornets, and yellow jackets that have smooth stingers and are capable of repeated attacks.

H-173. Avoidance is the best tactic for self-protection. Those who are allergic to bee venom have severe reactions including anaphylactic shock, coma, and death. If antihistamine medicine is not available and you cannot find a substitute, an allergy sufferer in a survival situation is in grave danger.

## Ticks

H-174. Ticks are common in the tropics and temperate regions. Ticks are small, round arachnids with eight legs and can have either a soft or a hard body. Ticks require a blood host to survive and reproduce. This makes them dangerous because they spread diseases like Lyme disease, Rocky Mountain spotted fever, encephalitis, and others that can ultimately be disabling or fatal. Once contracted there is little that you can do to treat these diseases. Beware of ticks when passing through the thick vegetation that they cling to, when cleaning host animals for food, and when gathering natural materials to construct a shelter. Always use insect repellents, if possible.

# SURVIVAL FOOD – TRAINING OUTLINE

## FOOD PROCUREMENT

### Locating Animals or Meat Sources

H-175. **Mammals.** The following are tips to locate mammals:

- Trails leading to watering, feeding, and bedding areas.
- Fresh droppings or tracks.

H-176. **Birds.** The following are tips to observe birds:

- The direction of flight in the early morning and late afternoon may lead to feeding, watering, and roosting areas.
- The noise of birds may indicate nesting areas.

H-177. **Fish and Other Marine Life.** Fish can be found in the following areas:

- In streams and rivers (see Figure H-1).
- In lakes, ponds, and oceans.
- Along shores.



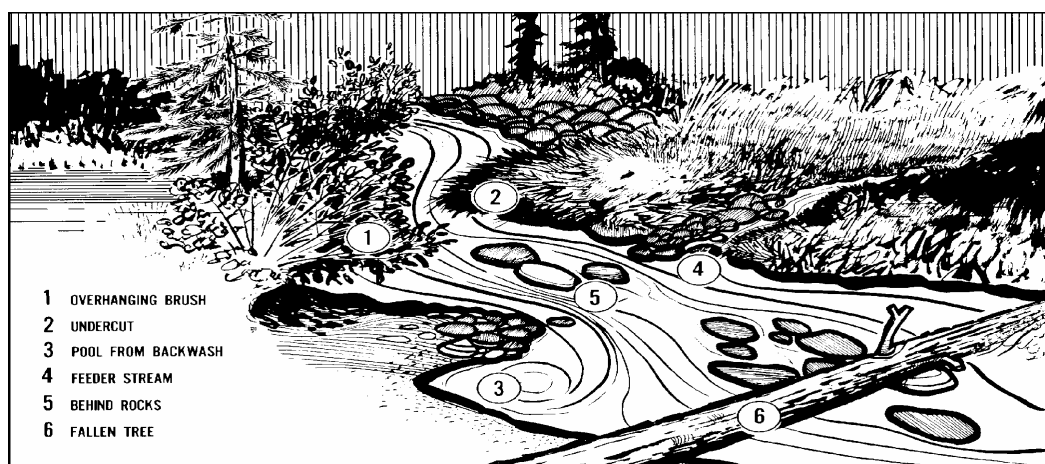


Figure H-1. Fishing Locations

H-178. **Reptiles and Amphibians.** Reptiles and amphibians are found almost worldwide.

H-179. **Insects.** Insects may be found—

- In dead logs and stumps.
- In ant and termite mounds.
- On ponds, lakes, and slow moving streams.

### Procurement Techniques

H-180. **Snares.** Snares can work while unattended and should be located—

- On trails leading to water, feeding, and bedding areas.
- At the mouth of dens (see Figure H-2).

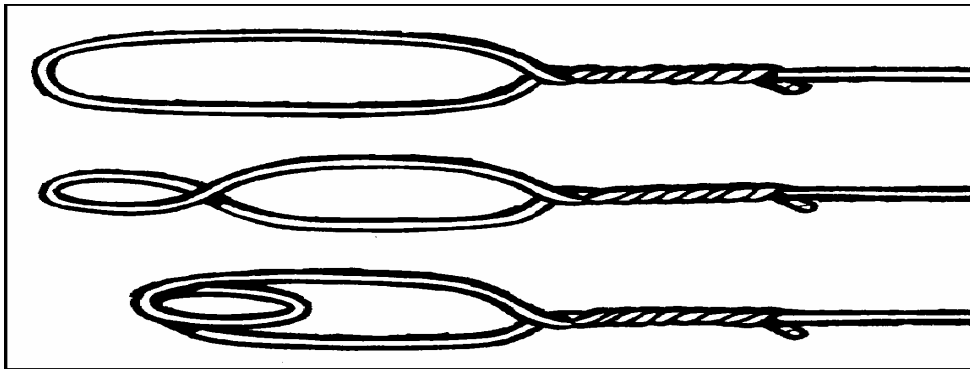


Figure H-2. Snare Placement

## Simple Loop Snare

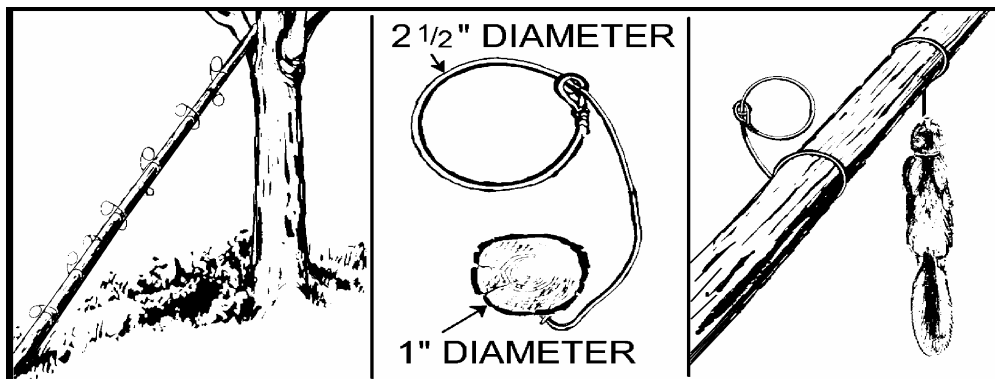
H-181. The following are the steps in constructing a simple loop snare:

- Use materials that will not break under the strain of holding an animal.
- Use a figure eight (locking loop) if wire is used (see Figure H-3); once tightened, the wire locks in place, preventing reopening—and the animal's escape.



**Figure H-3. Locking Loop**

- Use simple loop snares to construct a squirrel pole (see Figure H-4).



**Figure H-4. Squirrel Pole**

- Make a noose opening slightly larger than the animal's head, three-finger width for squirrels, fist-sized for rabbits.

## Placement of Snares

H-182. The following are the techniques for placing snares:

- Avoid disturbing the area.

- Use funneling, natural or improvised (see Figure H-5).
- Set as many snares as possible.



Figure H-5. Funneling

#### Noose Stick

H-183. A noose stick (Figure H-6) is easier and safer to use than the hands.

#### Twist Stick

H-184. The following are the techniques for using a twist stick (see Figure H-6).

- Insert forked stick into a den until something soft is met.
- Twist the stick, binding the animal's hide in the fork.
- Remove the animal from the den.
- Be ready to kill the animal; it may be dangerous.

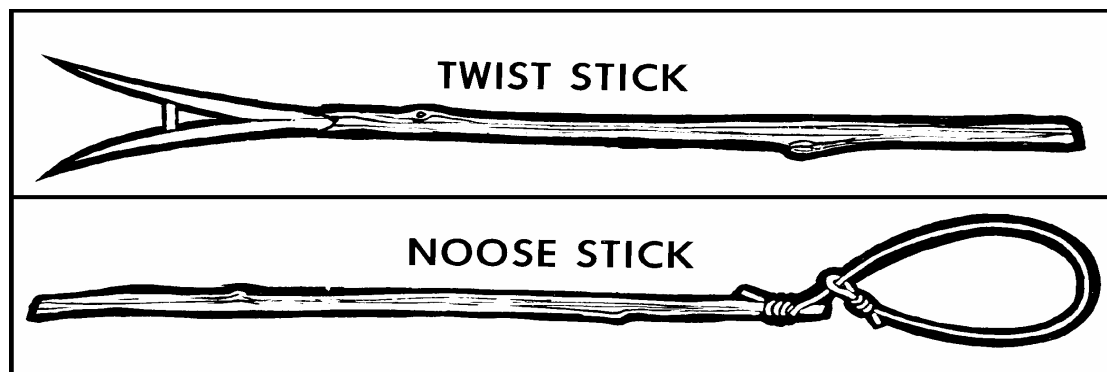
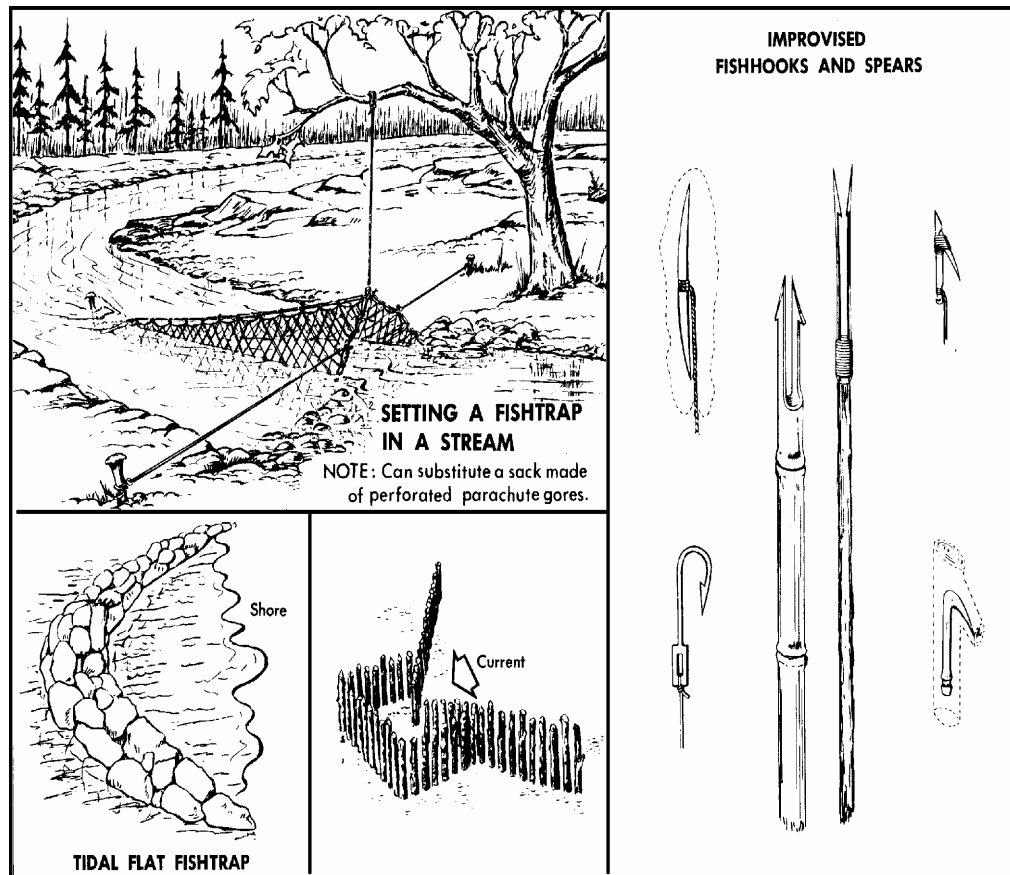


Figure H-6. Procurement Devices

**H-185. Hunting and Fishing Devices.** The following are types of hunting and fishing devices:

- Club or rock.
- Spear.
- Slingshot.
- Pole, line, and hook.
- Net.
- Trap.

**H-186. Fishing Traps and Devices.** Figure H-7 shows the types of fishing traps and devices.

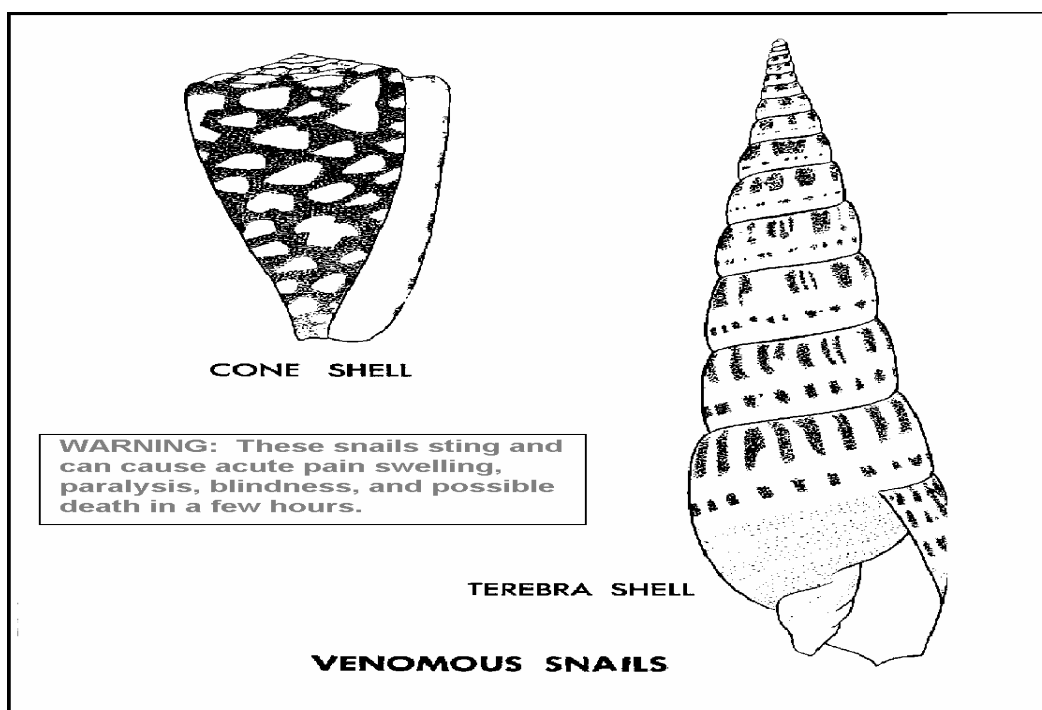


**Figure H-7. Procurement Methods**

**H-187. Precautions.** The following are precautions to take in procuring food:

- Wear shoes to protect the feet when wading in water.
- Avoid reaching into dark holes.
- Beware that animals in distress may attract the enemy.

- Kill animals before handling.
- Do not secure fishing lines to yourself or the raft.
- Kill fish before bringing them into the raft.
- Do not eat fish with—
  - Spines.
  - An unpleasant odor.
  - Pale, slimy gills.
  - Sunken eyes.
  - Flabby skin.
  - Flesh that remains dented when pressed.
- Do not eat fish eggs or liver (entrails).
- Avoid all crustaceans above the high-tide mark.
- Avoid cone-shaped shells. (See Figure H-8).



**Figure H-8. Cone-Shaped Shells**

- Avoid hairy insects; the hairs could cause irritation or infection.
- Avoid poisonous insects; for example—
  - Centipedes.
  - Scorpions.
  - Poisonous spiders.

- Avoid disease-carrying insects, such as—
  - Flies.
  - Mosquitoes.
  - Ticks.

## Plant Foods

H-188. Before using the following guide, use your evasion chart to identify edible plants.

**Note:** This is a guide, not a law or rule. If you cannot positively identify an edible plant, you can choose to try an unknown plant. Here are some guidelines that may help you determine edibility.

H-189. The selection criteria for plants are as follows:

- Before testing for edibility, ensure that there are enough plants to make testing worth your time and effort. Each part of a plant (roots, leaves, stems, and bark.) requires more than 24 hours, testing; do not waste time testing a plant that is not abundant.
- Test only one part of one plant at a time.
- Eating large portions of plant food on an empty stomach may cause diarrhea, nausea, or cramps; two good examples of this are such familiar foods as green apples and wild onions. Even after testing food and finding it safe, eat in moderation.

H-190. Avoid plants with the following characteristics:

**Note:** Using these criteria as eliminators when choosing plants causes you to avoid some edible plants. More important, these criteria often help you to avoid plants that are potentially toxic:

- Milky sap (dandelion has milky sap, but is safe to eat and easily recognizable).
- Spines, fine hairs, and thorns (skin irritants/contact dermatitis) (prickly pear and thistles are exceptions; bracken fern fiddleheads also violate this guideline).
- Mushrooms and fungus.
- Umbrella-shaped flowers (hemlock is eliminated).
- Bulbs (onions are the only thing that smell like onions).
- Grain heads with pink, purplish, or black spurs.
- Beans, bulbs, or seeds inside pods.
- Old or wilted leaves.
- Plants with shiny leaves.
- White and yellow berries (aggregate berries, such as blackberries and dewberries are always edible; test all others before eating).
- Almond scent in woody parts and leaves.

## Test Procedures

**Note:** Test all parts of the plant for edibility; some plants have both edible and inedible parts. Never assume that a part that proved edible when cooked is edible raw. Test the part raw before eating. The same part or plant may produce varying reactions in different individuals.

H-191. The following are the techniques for testing plants for edibility:

- Test only one part of a plant at a time.
- Separate the plant into its basic components (stems, roots, buds, and flowers).
- Smell the food for strong acid odors; smell alone does not indicate whether a plant is edible or inedible.
- Do not eat eight hours before the test, and drink only purified water.
- During the eight hours that you abstain from eating, test for contact poisoning by placing a piece of the plant on the inside of your elbow or wrist. The sap or juice should contact the skin; usually 15 minutes is enough time to allow for a reaction.
- During testing, take nothing by mouth except purified water and the plant that you are testing.
- Select a small portion of a single part, and prepare it the way that you plan to eat it.
- Before placing the prepared plant in your mouth, touch a small portion (a pinch) to the outer surface of your lip to test for burning or itching.
- If after 3 minutes there is no reaction on your lip, place the plant on your tongue, and hold it for 15 minutes.
- If there is no reaction, thoroughly chew a pinch and hold it in your mouth for 15 minutes. *Do not swallow.* If any ill effects occur, rinse out your mouth with water.
- If nothing abnormal occurs, swallow the food and wait eight hours. If any ill effects occur during this period, induce vomiting and drink a water and charcoal mixture.
- If no ill effects occur, eat one-fourth cup of the same plant prepared the same way. Wait another eight hours; if no ill effects occur, the plant part as prepared is safe for eating.

**Note:** Tropical fruits should be peeled and eaten raw if ripe, if the fruit is soft; color does not always indicate ripeness. Cook unripe fruits, and discard seeds and skin.

**Note:** Cook underground portions, if possible, to reduce possible bacterial contamination and ease digestion of their generally high starch content.

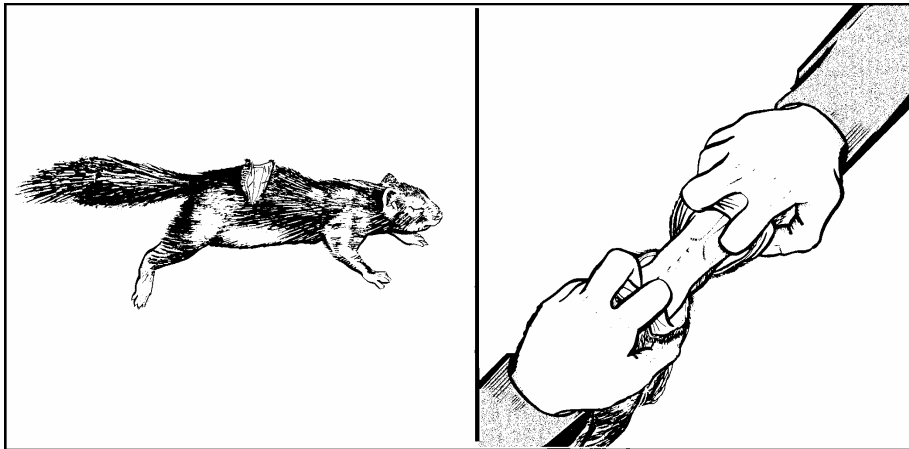
**Note:** During evasion, you may not be able to cook. Concentrate your efforts on leafy green plants, ripe fruits, and above-ground ripe vegetables not requiring significant preparation.

## FOOD PREPARATION

### Butchering and Skinning

H-192. **Mammals.** Skin smells the same using the following techniques:

- Remove the skin and use for improvising.
- Glove skinning.
- One cut skinning of small game (see Figure H-9):



**Figure H-9. Small Game Skinning**

- Open the abdominal cavity.
- Avoid rupturing the intestines.
- Remove the intestines.
- Save inner organs (heart, liver, and kidneys) and all meaty parts of the skull, brains, tongue, and eyes.
- Wash when ready to use.
- If preserving the meat, remove it from the bones.

H-193. **Frogs and Snakes.** The following are the techniques for preparing frogs and snakes:

- Skin.
- Discard skin, head with two inches of body, and internal organs.

H-194. **Fish.** The following are the techniques for preparing fish:

- Scale (if necessary) and gut fish soon after procurement.
- Insert knife point into anus of fish, and cut open the belly.
- Remove entrails.
- Remove gills to prevent spoilage.



H-195. **Birds.** The following are the techniques for preparing birds:

- Gut soon after killing.
- Protect from flies.
- Skin or pluck birds.
- Skin scavengers and sea birds.

H-196. **Insects.** The following are the techniques for preparing insects:

- Remove all hard portions such as the legs of grasshoppers or crickets.
- Recommend cooking grasshopper-size insects.

**Note:** Do not save dead insects; they spoil rapidly.

## Cooking

H-197. Thoroughly cook all wild game, freshwater fish, clams, mussels, snails, crawfish, and scavenger birds to kill internal parasites:

- Saltwater fish may be eaten raw.
- Boiling is the most nutritious method of cooking; consume the broth:
  - Make metal cooking containers from ration cans.
  - Drop heated rocks into containers to boil water or cook food.
  - Baking.
  - Wrap in leaves or pack in mud.
  - Bury food in dirt under coals of fire.

## Leaching

H-198. Some nuts (acorns) must be leached to remove the bitter taste of tannin. The following are the leaching methods.

H-199. **First Method.** Precautions for the first method are—

- Soaking and pouring the water off.
- Crushing and pouring water through. Cold water should be tried first; however, boiling water is sometimes best.
- Discarding the water.

H-200. **Second Method.** Techniques for the second method of leaching are—

- Boiling, pouring off water, and tasting the plant.
- Repeating the process if bitter, until palatable.

## Roasting

H-201. The following are the roasting techniques:

- Roast shelled nuts by shaking them with hot coals in a container.
- Roast thinly sliced meat and insects over a candle.

## FOOD PRESERVATION

### Refrigerating

H-202. **Long Term.** The following are long-term refrigeration tips:

- Food buried in snow maintains a temperature of about 32°F.
- Frozen food will not decompose.
- Freeze in meal-size portions.

H-203. **Short Term.** The following are short-term tips:

- Food wrapped in waterproof material and placed in a stream remains cool in summer months.
- Earth below the surface, particularly in shady areas or along streams, is cooler than the surface.
- Wrap food in absorbent material, such as cotton, and rewet as the water evaporates.

### Drying and Smoking

H-204. Drying and smoking remove moisture and preserve food:

- Use salt to improve flavor and promote drying.
- Cut or pound meat into thin strips.
- Remove fat.
- Do not use pitch woods such as fir or pine; they produce soot, giving the meat an undesirable taste.

### Protecting Meat from Animals and Insects

H-205. **Wrapping Food.** The following are the techniques for wrapping food:

- Use clean material.
- Wrap pieces individually.
- Assure that all corners of the wrapping are insect proof.

H-206. **Hanging Meat.** The following are hanging meat procedures:

- Cover hanging meat during daylight hours to protect from insects.
- Hang meat in the shade.

H-207. **Packing Meat.** The following are techniques for packing meat on the trail:

- Wrap before flies appear in the morning.
- Place meat in fabric or clothing for insulation.
- Place meat inside the pack for carrying; soft material acts as insulation helping keep the meat cool.
- Carry shellfish, crabs, and shrimp in wet seaweed.

## FIELD-EXPEDIENT WEAPONS, TOOLS, AND EQUIPMENT

H-208. As a soldier, you know the importance of proper care and use of your weapons, tools, and equipment. This is especially true of your knife. You must always keep it sharp and ready to use. A knife is your most valuable tool in a survival situation.

H-209. In survival situations, you may have to fashion any number and type of field-expedient tools and equipment to survive. Examples of tools and equipment that could make your life much easier are ropes, rucksacks, clothes, and nets.

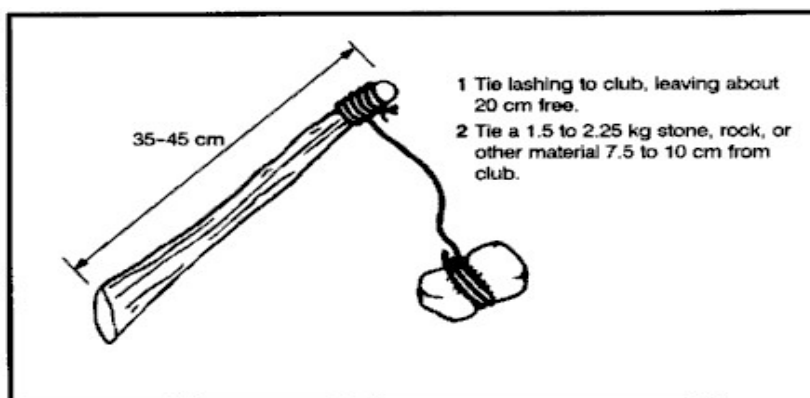
H-210. Weapons serve a dual purpose. You use them to obtain and prepare food and to provide self-defense. A weapon can also give you a feeling of security and provide you with the ability to hunt on the move.

### CLUBS

H-211. You hold clubs; you do not throw them. As a field-expedient weapon, the club does not protect you from enemy soldiers. It can extend your area of defense beyond your fingertips. There are three basic types of clubs. They are the sling, simple, and weighted club.

#### Sling Club

H-212. A sling club is another type of weighted club. The weight hangs 8 to 10 centimeters from the handle by a strong, flexible lashing (Figure H-10). This type of club extends the user's reach and multiplies the force of the blow.



Appendix H-10. Sling Club

#### Simple Club

H-213. A simple club is a staff or branch. It must be short enough for you to swing easily, but long enough and strong enough for you to damage whatever you hit. Its diameter should fit comfortably in your palm, but it should not be so thin as to allow the club to break easily upon impact. A straight-grained hardwood is best if you can find it.

## Weighted Club

H-214. A weighted club is any simple club with a weight on one end. The weight may be a natural weight—such as a knot on the wood or something added—such as a stone lashed to the club.

H-215. To make a weighted club, first find a stone that has a shape that will allow you to lash it securely to the club. A stone with a slight hourglass shape works well. If you cannot find a suitably shaped stone, you must fashion a groove or channel into the stone by a technique known as pecking. By repeatedly rapping the club stone with a smaller hard stone, you can get the desired shape.

H-216. Next, find a piece of wood that is the right length for you. A straight grained hardwood is best. The length of the wood should feel comfortable in relation to the weight of the stone. Finally, lash the stone to the handle.

H-217. There are three techniques for lashing the stone to the handle: split handle, forked branch, and wrapped handle. The technique that you use will depend on the type of handle you choose. See Figure H-11.

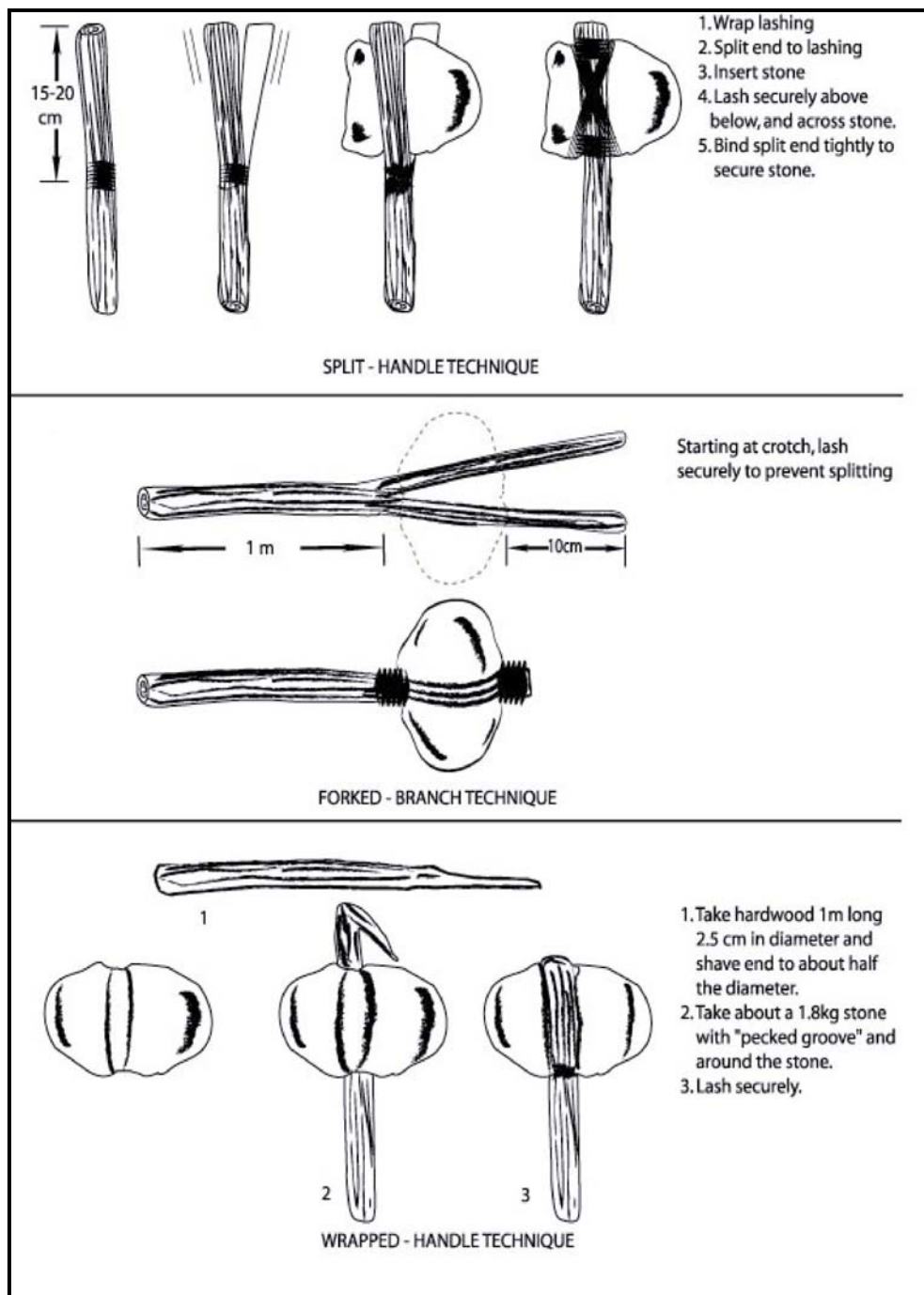


Figure H-11. Lashing Clubs

## DESERT SURVIVAL

H-218. To survive and evade in arid or desert areas, you must understand and prepare for the environment that you will face. You must determine your equipment needs, the tactics that you will use, and how the environment will affect you and your tactics. Your survival will depend upon your knowledge of the terrain, basic climatic elements, your ability to cope with these elements, and your will to survive.

## TERRAIN

H-219. Most arid areas have several types of terrain. The five basic desert terrain types are —

- Mountainous (high altitude).
- Rocky plateau.
- Sand dunes.
- Salt marshes.
- Broken, dissected terrain (“gebel” or “wadi”).

H-220. Desert terrain makes movement difficult and demanding. Land navigation will be extremely difficult, because there may be very few landmarks. Cover and concealment may be very limited; therefore, the threat of exposure to the enemy remains constant.

### Mountain Deserts

H-221. Scattered ranges or areas of barren hills or mountains—separated by dry, flat basins—characterize mountain deserts. High ground may rise gradually or abruptly from flat areas to several thousand meters above sea level. Most of the infrequent rainfall occurs on high ground and runs off rapidly in the form of flash floods. These floodwaters erode deep gullies and ravines and deposit sand and gravel around the edges of the basins. Water rapidly evaporates, leaving the land as barren as before, although there may be short-lived vegetation. If enough water enters the basin to compensate for the rate of evaporation, shallow lakes may develop, such as the Great Salt Lake in Utah or the Dead Sea. Most of these lakes have a high salt content.

### Rocky Plateau Deserts

H-222. Rocky plateau deserts have relatively slight relief interspersed with extensive flat areas with quantities of solid or broken rock at or near the surface. There may be steep-walled, eroded valleys, known as wadis in the Middle East and arroyos or canyons in the United States and Mexico. Although their flat bottoms may be superficially attractive as assembly areas, the narrower valleys can be extremely dangerous to men and material because of flash flooding after rains. The Golan Heights is an example of a rocky plateau desert.

### Sandy or Dune Deserts

H-223. Sandy or dune deserts are extensive flat areas covered with sand or gravel. “Flat” is a relative term; some areas may contain sand dunes that are

more than 300 meters high and 16 to 24 kilometers long. Traffic ability in such terrain will depend on the windward or leeward slope of the dunes and the texture of the sand. Other areas, however, may be flat for 3,000 meters and more. Plant life may vary from none to scrub more than 2 meters high. Examples of this type of desert include the edges of the Sahara, the empty quarter of the Arabian Desert, areas of California and New Mexico, and the Kalahari in South Africa.

### **Salt Marshes**

H-224. Salt marshes are flat, desolate areas, sometimes studded with clumps of grass but devoid of other vegetation. They occur in arid areas where rainwater has collected, evaporated, and left large deposits of alkali salts and water with a high salt concentration. The water is so salty that it is undrinkable. A crust that may be from 2.5 to 30 centimeters thick forms over the saltwater.

H-225. In arid areas, there are salt marshes hundreds of kilometers square. These areas usually support many insects, most of which bite. Avoid salt marshes. This type of terrain is highly corrosive to boots, clothing, and skin. A good example is the Shat-el-Arab waterway along the Iran-Iraq border.

### **Broken Terrain**

H-226. All arid areas contain broken or highly dissected terrain. Rainstorms that erode soft sand and carve out canyons form this terrain. A wadi may range from 3 meters wide and 2 meters deep to several hundred meters wide and deep. The direction that it takes varies as much as its width and depth. It twists and turns and forms a mazelike pattern. A wadi will give you good cover and concealment, but do not try to move through it because it is very difficult terrain to negotiate.

## **ENVIRONMENTAL FACTORS**

H-227. Surviving and evading the enemy in an arid area depends on what you know and how prepared you are for the environmental conditions that you will face. Determine what equipment that you will need, the tactics that you will use, and the effect of the environment.

H-228. In a desert area, there are seven environmental factors that you must consider:

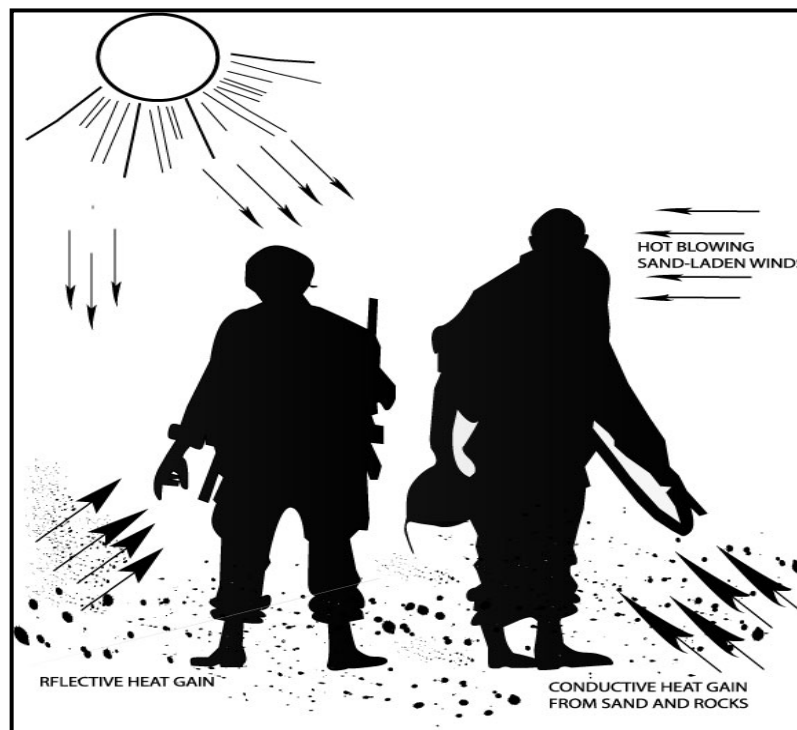
- Low rainfall.
- Intense sunlight and heat.
- Wide temperature range.
- Sparse vegetation.
- High mineral content near the ground surface.
- Sandstorms.
- Mirages.

### **Low Rainfall**

H-229. Low rainfall is the most obvious environmental factor in an arid area. Some desert areas receive less than 10 centimeters of rain annually, and this rain comes in brief torrents that quickly run off the surface of the ground. You cannot survive long without water in high desert temperatures. In a desert survival situation, you must first consider “How much water do I have?” and “Where are other water sources?”

### Intense Sunlight and Heat

H-230. Intense sunlight and heat are present in all arid areas. Air temperature can rise as high as 60°C (140°F) during the day. Heat gain results from direct sunlight, hot blowing winds, reflective heat (the sun’s rays bouncing off the sand), and conductive heat from direct contact with the desert sand and rock (Figure H-12).



**Figure H-12. Types of Heat**

H-231. The temperature of desert sand and rock averages 16° to 22°C (30° to 40°F) more than that of the air. For instance, when the air temperature is 43°C (110°F), the sand temperature may be 60°C (140°F).

H-232. Intense sunlight and heat increase the need of the body for water. To conserve your body fluids and energy, you will need a shelter to reduce your exposure to the heat of the day. Travel at night to lessen your use of water.

H-233. Radios and sensitive items of equipment exposed to direct intense sunlight will malfunction.



## Wide Temperature Range

H-234. Temperatures in arid areas may get as high as 55°C during the day and as low as 10°C during the night. The drop in temperature at night occurs rapidly and will chill a person who lacks warm clothing and is unable to move about. The cool evenings and nights are the best times to work or travel. If your plan is to rest at night, you will find a wool sweater, long underwear, and a wool stocking cap extremely helpful.

## Sparse Vegetation

H-235. Vegetation is sparse in arid areas. You will, therefore, have trouble finding shelter and camouflaging your movements. During daylight hours, large areas of terrain are visible and easily controlled by a small opposing force.

H-236. If traveling in hostile territory, follow the principles of desert camouflage:

- Hide or seek shelter in dry washes (wadis) with thicker growths of vegetation and cover from oblique observation.
- Use the shadows cast from brush, rocks, or outcroppings. The temperature in shaded areas will be 11° to 17°C cooler than the air temperature.
- Cover objects that will reflect the light from the sun.

H-237. Before moving, survey the area for sites that provide cover and concealment. You will have trouble estimating distance. The emptiness of desert terrain causes most people to underestimate distance by a factor of three; for example what appears to be 1 kilometer away is really 3 kilometers away.

## High Mineral Content

H-238. All arid regions have areas where the surface soil has a high mineral content (borax, salt, alkali, and lime). Material in contact with this soil wears out quickly, and water in these areas is extremely hard and undrinkable. Wetting your uniform in such water to cool off may cause a skin rash.

## SANDSTORMS

H-239. Sandstorms (sand-laden winds) occur frequently in most deserts. The “Seistan” desert wind in Iran and Afghanistan blows constantly for up to 120 days. Within Saudi Arabia, winds average 3.2 to 4.8 kilometers per hour and can reach 112 to 128 kilometers per hour in early afternoon. Expect major sandstorms and dust storms at least once a week.

H-240. The greatest danger is getting lost in a swirling wall of sand. Wear goggles, and cover your mouth and nose with cloth. If natural shelter is unavailable, mark your direction of travel, lie down, and sit out the storm.

H-241. Dust and wind-blown sand interfere with radio transmissions. Therefore, be ready to use other means for signaling—such as pyrotechnics, signal mirrors, or marker panels—if available.

## MIRAGES

H-242. Mirages are optical phenomena caused by the refraction of light through heated air rising from a sandy or stony surface. They occur in the interior of the desert about 10 kilometers from the coast. They make objects that are 1.5 kilometers or more away appear to move.

H-243. This mirage effect makes it difficult for you to identify an object from a distance. It also blurs distant range contours so much that you feel surrounded by a sheet of water from which elevations stand out as “islands.”

H-244. The mirage effect makes it hard for a person to identify targets, estimate range, and see objects clearly. However, if you can get to high ground (3 meters or more above the desert floor), you can get above the superheated air close to the ground and overcome the mirage effect. Mirages make land navigation difficult because they obscure natural features. You can survey the area at dawn or dusk or by moonlight when there is little likelihood of mirage.

H-245. Light levels in desert areas are more intense than in other geographic areas. Moonlit nights are usually crystal clear, winds die down, haze and glare disappear, and visibility is excellent. You can see lights, red flashlights, and blackout lights at great distances. Sound carries.

H-246. Conversely, during nights with little moonlight, visibility is extremely poor. Traveling is extremely hazardous. You must avoid getting lost, falling into ravines, or stumbling into enemy positions. Movement during such a night is practical only if you have a compass and have spent the day in a shelter—resting, observing, and memorizing the terrain and selecting your route.

## TROPICAL SURVIVAL

H-247. Most people think of the tropics as a huge and forbidding tropical rain forest through which every step taken must be hacked out, and where every inch of the way is crawling with danger. Actually, more than half of the land in the tropics is cultivated.

H-248. Knowledge of field skills, the ability to improvise, and the application of the principles of survival will increase the prospects of survival. Do not be afraid of being alone in the jungle; fear will lead to panic. Panic will lead to exhaustion and decrease your chances of survival.

H-249. Everything in the jungle thrives—including disease germs and parasites that breed at an alarming rate. Nature will provide water, food, and plenty of materials to build shelters.

H-250. Indigenous peoples have lived for millennia by hunting and gathering. However, it will take an outsider some time to get used to the conditions and the nonstop activity of tropical survival.

## TROPICAL WEATHER

H-251. High temperatures, heavy rainfall, and oppressive humidity characterize equatorial and subtropical regions, except at high altitudes. At low altitudes, temperature variation is seldom less than 10°C and is often more than 35°C. At altitudes higher than 1,500 meters, ice often forms at night. The rain has a cooling effect, but when it stops, the temperature soars.

H-252. Rainfall is heavy, often with thunder and lightning. Sudden rain beats on the tree canopy, turning trickles into raging torrents and causing rivers to rise. Just as suddenly, the rain stops. Violent storms may occur, usually toward the end of the summer months.

H-253. Hurricanes, cyclones, and typhoons develop over the sea and rush inland, causing tidal waves and devastation ashore. In choosing campsites, make sure that you are above any potential flooding. Prevailing winds vary between winter and summer. The dry season has rain once a day and the monsoon has continuous rain. In Southeast Asia, winds from the Indian Ocean bring the monsoon, but it is dry when the wind blows from the landmass of China.

H-254. Tropical day and night are of equal length. Darkness falls quickly, and daybreak is just as sudden.

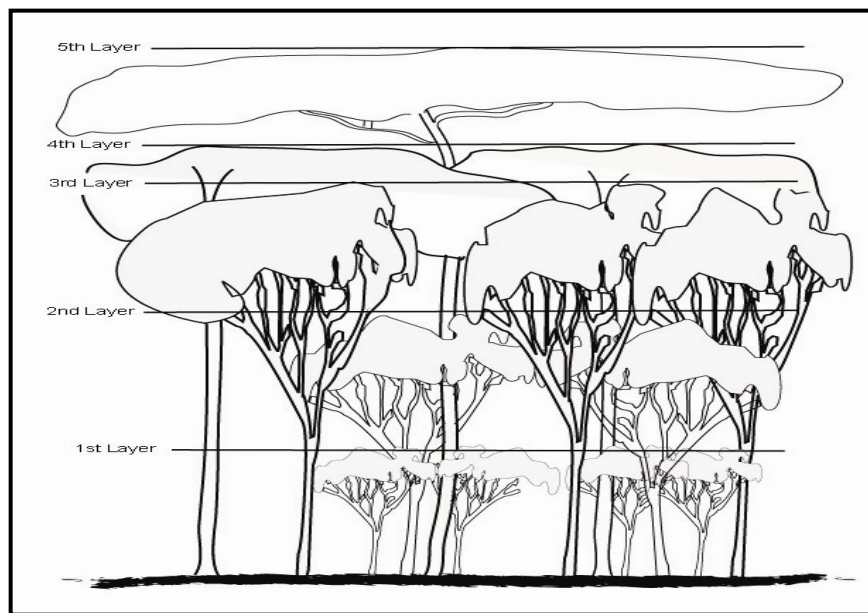
## JUNGLE TYPES

H-255. There is no standard jungle. The tropical area may be any of the following:

- Rain forests.
- Secondary jungles.
- Semievergreen seasonal and monsoon forests.
- Scrub and thorn forests.
- Savannas.
- Saltwater swamps.
- Freshwater swamps.

H-256. The climate varies little in rain forests. You find these forests across the equator in the Amazon and Congo basins, parts of Indonesia, and several Pacific islands. Up to 3.5 meters of rain fall evenly throughout the year. Temperatures range from about 32°C in the day to 21°C at night.

H-257. There are five layers of vegetation in this jungle (Figure H-13). Where untouched by man, jungle trees rise from buttress roots to heights of 60 meters. Below them, smaller trees produce a canopy so thick that little light reaches the jungle floor. Seedlings struggle beneath them to reach light, and masses of vines and lianas twine up to the sun. Ferns, mosses, and herbaceous plants push through a thick carpet of leaves, and a great variety of fungi grows on leaves and fallen tree trunks.



**Figure H-13. Five Layers of Tropical Rain Forest**

H-258. Because of the lack of light on the jungle floor, there is little undergrowth to hamper movement. Dense growth limits visibility to about 50 meters. You can easily lose your sense of direction in this jungle, and it is extremely hard for aircraft to see you.

### **Secondary Jungles**

H-259. Secondary jungle is similar to rain forest. Prolific growth, where sunlight penetrates to the jungle floor, typifies this type of forest. Such growth happens mainly along river banks, on jungle fringes, and where man has cleared rain forests. When abandoned, tangled masses of vegetation quickly reclaim these cultivated areas. You can often find cultivated food plants among this vegetation.

### **Semievergreen Seasonal and Monsoon Forests**

H-260. The characteristics of the American and African semievergreen seasonal forests correspond with those of the Asian monsoon forests. These characteristics are the following:

- Their trees fall into two stories of tree strata. Those in the upper story average 18 to 24 meters; those in the lower story average 7 to 13 meters.
- The diameter of the trees averages 0.5 meter.
- Their leaves fall during a seasonal drought.

H-261. Except for the sago, nipa, and coconut palms, the same edible plants grow in these areas as in the tropical rain forests.

H-262. You find these forests in portions of Columbia and Venezuela and the Amazon basin in South America; in portions of southeastern coastal Kenya, Tanzania, and Mozambique in Africa; and in Northeastern India, much of Burma, Thailand, Indochina, and Java and parts of other Indonesian islands in Asia.

### **Tropical Scrub and Thorn Forests**

H-263. The chief characteristics of tropical scrub and thorn forests are —

- There is a definite dry season.
- Trees are leafless during the dry season.
- The ground is bare except for a few tufted plants in bunches; grasses are uncommon.
- Plants with thorns predominate.
- Fires occur frequently.

H-264. You find tropical scrub and thorn forests on the west coast of Mexico, Yucatan peninsula, Venezuela, and Brazil; on the northwest coast and central parts of Africa; and in Asia, in Turkistan and India.

H-265. Within the tropical scrub and thorn forest areas, you will find it hard to obtain food plants during the dry season. During the rainy season, plants are considerably more abundant.

### **Tropical Savannas**

H-266. General characteristics of the savanna are the following:

- It is found within the tropical zones in South America and Africa.
- It looks like a broad, grassy meadow, with trees spaced at wide intervals.
- It frequently has red soil.
- It grows scattered trees that usually appear stunted and gnarled like apple trees; palms also occur on savannas.

H-267. You find savannas in parts of Venezuela, Brazil, and the Guianas in South America. In Africa, you find them in the southern Sahara (north-central Cameroon and Gabon and southern Sudan), Benin, Togo, most of Nigeria, northeastern Zaire, northern Uganda, western Kenya, and part of Malawi, part of Tanzania, southern Zimbabwe, Mozambique, and western Madagascar.

## **Saltwater Swamps**

H-268. Saltwater swamps are common in coastal areas subject to tidal flooding. Mangrove trees thrive in these swamps. Mangrove trees can reach heights of 12 meters, and their tangled roots are an obstacle to movement. Visibility in this type of swamp is poor, and movement is extremely difficult. Sometimes, streams that you can raft form channels, but you usually must travel on foot through this swamp.

H-269. You find saltwater swamps in West Africa, Madagascar, Malaysia, the Pacific islands, Central and South America, and at the mouth of the Ganges River in India. The swamps at the mouths of the Orinoco and Amazon rivers and rivers of Guyana consist of mud and trees that offer little shade. Tides in saltwater swamps can vary as much as 12 meters.

H-270. Everything in a saltwater swamp may appear hostile to you, from leeches and insects to crocodiles and caimans. Avoid the dangerous animals in this swamp.

H-271. Avoid this swamp altogether if you can. If there are water channels through it, you may be able to use a raft to escape.

## **Freshwater Swamps**

H-272. You find freshwater swamps in low-lying inland areas. Their characteristics are masses of thorny undergrowth, reeds, grasses, and occasional short palms that reduce visibility and make travel difficult. Often islands dot these swamps, allowing you to get out of the water. Wildlife is abundant in these swamps.

## **COLD-WEATHER SURVIVAL**

H-273. One of the most difficult survival situations is a cold-weather scenario. Cold weather is an adversary that can be as dangerous as an enemy soldier. Every time that you venture into the cold, you are pitting yourself against the elements. With a little knowledge of the environment, proper plans, and appropriate equipment, you can overcome the elements. As you remove one or more of these factors, survival becomes increasingly difficult. Winter weather is highly variable; prepare yourself to adapt to blizzard conditions even during sunny and clear weather.

H-274. Cold is a far greater threat to survival than it appears. It decreases your ability to think and weakens your will to do anything except to get warm. Cold is an insidious enemy; as it numbs the mind and body, it subdues the will to survive.

H-275. Cold makes it easy to forget your ultimate goal—to survive.

## **COLD REGIONS AND LOCATIONS**

H-276. Cold regions include Arctic and subarctic areas and areas immediately adjoining them. About 48 percent of the northern hemisphere's total

landmass is a cold region because of the influence and extent of air temperatures. Ocean currents affect cold weather and cause large areas normally included in the temperate zone to fall within the cold regions during winter periods. Elevation also has a marked effect on defining cold regions.

H-277. Within the cold-weather regions, you may face two types of cold-weather environments—wet or dry. Knowing in which environment your area of operations falls will affect planning and execution of a cold-weather operation.

### **Wet Cold-Weather Environments**

H-278. Wet cold-weather conditions exist when the average temperature in a 24-hour period is  $-10^{\circ}\text{C}$  or above. Characteristics of this condition are freezing during the colder night hours and thawing during the day. Even though the temperatures are warmer during this condition, the terrain is usually very sloppy because of slush and mud. You must concentrate on protecting yourself from the wet ground and from freezing rain or wet snow.

### **Dry Cold-Weather Environments**

H-279. Dry cold-weather conditions exist when the average temperature in a 24-hour period remains below  $-10^{\circ}\text{C}$ . Even though the temperatures in this condition are much lower than normal, you do not have to contend with the freezing and thawing. In these conditions, you need more layers of inner clothing to protect you from temperatures as low as  $-60^{\circ}\text{C}$ . Extremely hazardous conditions exist when wind and low temperature combine.

### **WINDCHILL**

H-280. Windchill increases the hazards in cold regions. Windchill is the effect of moving air on exposed flesh. For instance, with 27.8-kilometers-per-hour (15-knot) wind and a temperature of  $-10^{\circ}\text{C}$ , the equivalent windchill temperature is  $-23^{\circ}\text{C}$ . Figure H-14 gives the windchill factors for various temperatures and wind speeds.

Wind Chill Chart - F, Wind in mph													
Wind (mph)	Temperature (° F)												
	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25
5	32	27	22	16	11	6	0	-5	-10	-15	-21	-26	-31
10	22	16	10	3	-3	-9	-15	-22	-27	-34	-40	-46	-52
15	16	9	2	-5	-11	-18	-25	-31	-38	-45	-51	-58	-65
20	12	4	-3	-10	-17	-24	-31	-39	-46	-53	-60	-67	-74
25	8	1	-7	-15	-22	-29	-36	-44	-51	-59	-66	-74	-81
30	6	-2	-10	-18	-25	-33	-41	-49	-56	-64	-71	-79	-86
35	4	-4	-12	-20	-27	-35	-43	-52	-58	-67	-74	-82	-92
40	3	-5	-13	-21	-29	-37	-45	-53	-60	-69	-76	-84	-92
Wind speeds above 40 mph have little additional chilling affect.													

Figure H-14. Windchill Chart.

H-281. Even when there is no wind, you will create the equivalent wind by skiing, running, being towed on skis behind a vehicle, and working around aircraft that produce wind blasts.

## SEA SURVIVAL

H-282. Perhaps the most difficult survival situation to be in is sea survival. Short or long-term survival depends upon rations and equipment available and your ingenuity. You must be resourceful to survive.

H-283. Water covers about 75 percent of the earth's surface, with about 70 percent being oceans and seas. You can assume that you will sometimes cross vast expanses of water. There is always the chance that the plane or ship that you are on will become crippled by such hazards as storms, collision, fire, or war.

## THE OPEN SEA

H-284. As a survivor on the open sea, you will face waves and wind. You may also face extreme heat or cold. To keep these environmental hazards from becoming serious problems, take precautionary measures as soon as possible. Use the available resources to protect yourself from the elements and from heat or extreme cold and humidity.



H-285. Protecting yourself from the elements meets only one of your basic needs. You must also be able to obtain water and food. Satisfying these three basic needs will help prevent serious physical and psychological problems. However, you must know how to treat health problems that may result from your situation.

### **Precautionary Measures**

H-286. Your survival at sea depends upon —

- Your knowledge of and ability to use the available survival equipment.
- Your special skills and ability to apply them to cope with the hazards that you face.
- Your will to live.

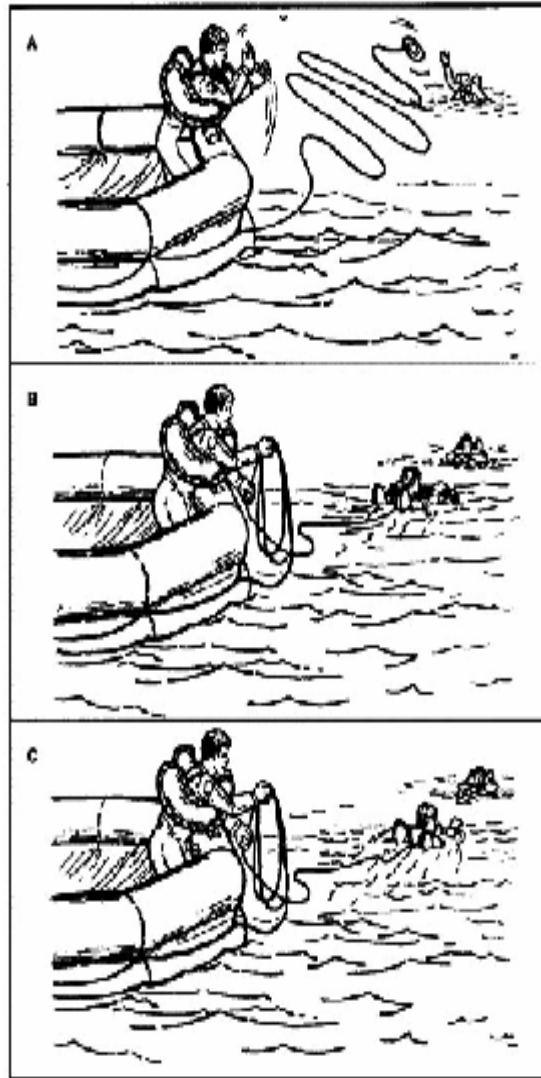
H-287. When you board a ship or aircraft, find out what survival equipment is on board, where it is stowed, and what it contains. For instance, how many life preservers and lifeboats or rafts are on board? Where are they located? What type of survival equipment is on board? How much food, water, and medicine are on board? How many people is it designed to support? If you are responsible for other personnel on board, make sure that you know where they are and that they know where you are.

### **Down at Sea**

H-288. If you are in an aircraft that goes down at sea, take the following actions once you clear the aircraft, whether you are in the water or in a raft:

- Get clear and upwind of the aircraft as soon as possible, but stay in the vicinity until the aircraft sinks.
- Get clear of fuel-covered water in case the fuel ignites.
- Try to find other survivors.

H-289. A search for survivors usually takes place around the entire area of and near the crash site. Missing personnel may be unconscious and floating low in the water. Figure H-15 illustrates rescue procedures.



**Figure H-15. Rescue from the Sea**

H-290. The best technique for rescuing personnel from the water is to throw them a life preserver attached to a line. Another is to send a swimmer (rescuer) from the raft with a line attached to a flotation device that will support the rescuer's weight. This device will help conserve a rescuer's energy while recovering the survivor. The least acceptable technique is to send an attached swimmer without flotation devices to retrieve a survivor. In all cases, the rescuer wears a life preserver. A rescuer should not underestimate the strength of a panic-stricken person in the water. A careful approach can prevent injury to the rescuer.

H-291. When the rescuer approaches a survivor in trouble from behind, there is little danger that the survivor will kick, scratch, or grab him. The rescuer swims to a point directly behind the survivor and grasps the back strap of the life preserver. The rescuer uses the sidestroke to drag the survivor to the raft.

H-292. If you are in the water, make your way to a raft. If no rafts are available, try to find a large piece of floating debris to cling to. Relax; a person who knows how to relax in ocean water is in very little danger of drowning. The body's natural buoyancy will keep at least the top of the head above water, but some movement is needed to keep the face above water.

## EXPEDIENT WATER CROSSINGS

H-293. In a survival situation, you may have to cross a water obstacle. It may be in the form of a river, a stream, a lake, a bog, quicksand, a quagmire, or a muskeg. Even in the desert, flash floods occur, making streams an obstacle. Whatever it is, you need to know how to cross it safely.

## RIVERS AND STREAMS

H-294. You can apply almost every description to rivers and streams. They may be shallow or deep, slow or fast moving, narrow or wide. Before you try to cross a river or stream, develop a good plan.

H-295. Your first step is to look for a high place from which you can get a good view of the river or stream. From this place, you can look for a place to cross. If there is no high place, climb a tree. Good crossing locations include —

- A level stretch where it breaks into several channels. Two or three narrow channels are usually easier to cross than a wide river.
- A shallow bank or sandbar. If possible, select a point upstream from the bank or sandbar so that the current will carry you to it if you lose your footing.
- A course across the river that leads downstream so that you will cross the current at about a 45-degree angle.

H-296. The following areas possess potential hazards; avoid them, if possible:

- Obstacles on the opposite side of the river that might hinder your travel. Try to select the spot from which travel will be the safest and easiest.
- A ledge of rocks that crosses the river. This often indicates dangerous rapids or canyons.
- A deep or rapid waterfall or a deep channel. Never try to ford a stream directly above or even close to such hazards.
- Rocky places. You may sustain serious injuries from slipping or falling on rocks. Usually, submerged rocks are very slick, making balance

extremely difficult; an occasional rock that breaks the current, however, may help you.

- An estuary of a river. An estuary is normally wide, has strong currents, and is subject to tides; these tides can influence some rivers many kilometers from their mouths. Go back upstream to an easier crossing site.
- Eddies. An eddy can produce a powerful backward pull downstream of the obstruction causing the eddy and pull you under the surface.

H-297. The depth of a fordable river or stream is no deterrent if you can keep your footing. In fact, deep water sometimes runs more slowly and is therefore safer than fast-moving shallow water. You can always dry your clothes later, or if necessary, you can make a raft to carry your clothing and equipment across the river.

H-298. You must not try to swim or wade across a stream or river when the water is at very low temperatures. This swim could be fatal. Try to make a raft of some type. Wade across if you can get only your feet wet. Dry them vigorously as soon as you reach the other bank.

## RAPIDS

H-299. If necessary, you can safely cross a deep, swift river or rapids. To swim across a deep, swift river, swim with the current, never fight it. Try to keep your body horizontal to the water. This will reduce the danger of being pulled under.

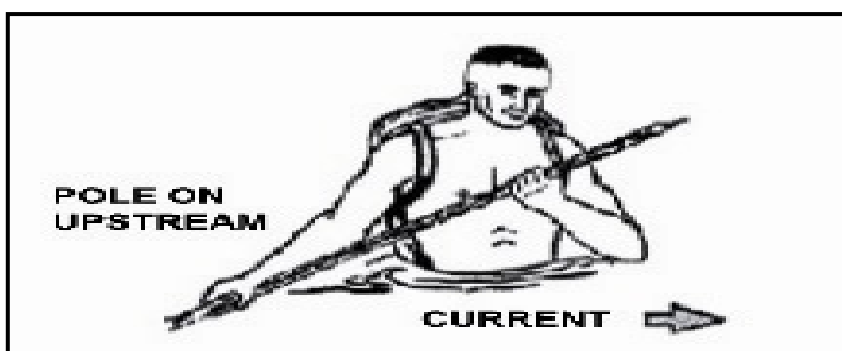
H-300. In fast, shallow rapids, lie on your back, feet pointing downstream, fanning your hands alongside your hips. This action will increase buoyancy and help you steer away from obstacles. Keep your feet up to avoid getting them bruised or caught by rocks.

H-301. In deep rapids, lie on your stomach; head downstream, angling toward the shore whenever you can. Watch for obstacles and be careful of backwater eddies and converging currents; they often contain dangerous swirls. Converging currents occur where new watercourses enter the river or where water has been diverted around large obstacles such as small islands.

H-302. To ford a swift, treacherous stream, apply the following steps:

- Remove your pants and shirt to lessen the water's pull on you; keep your footgear on to protect your feet and ankles from rocks. It will also provide you with firmer footing.
- Tie your pants and other articles to the top of your rucksack or in a bundle, if you have no pack. This way, if you have to release your equipment, all your articles will be together; it is easier to find one large pack than to find several small items.
- Carry your pack well up on your shoulders, and be sure that you can easily remove it, if necessary; not being able to get a pack off quickly enough can drag even the strongest swimmers under.

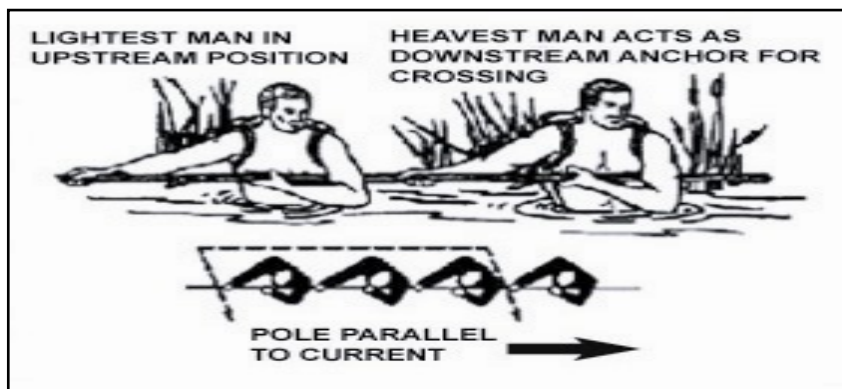
- Find a strong pole about 7.5 centimeters in diameter and 2.1 to 2.4 meters long to help you ford the stream; grasp the pole, and plant it firmly on your upstream side to break the current. Plant your feet firmly with each step, and move the pole forward a little downstream from its previous position but still upstream from you; with your next step, place your foot below the pole. Keep the pole well slanted so that the force of the current keeps the pole against your shoulder (Figure H-16).
- Cross the stream so that you will cross the downstream current at a 45-degree angle.



**Figure H-16. One Man Crossing Swift Stream**

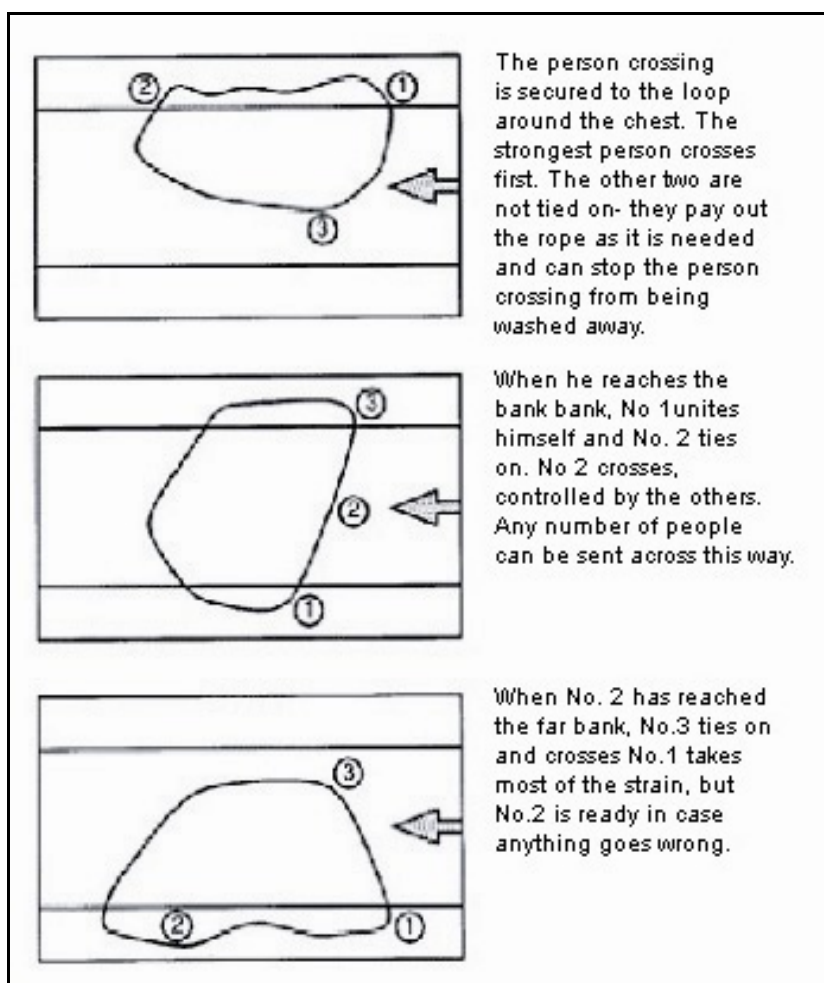
H-303. Using this method, you can safely cross currents usually too strong for one person to stand against. Do not concern yourself about your pack's weight, as the weight will help rather than hinder you in fording the stream.

H-304. If there are other people with you, cross the stream together; ensure that all have prepared their pack and clothing as outlined above. Position the heaviest person on the downstream end of the pole and the lightest on the upstream end. In this method, the upstream person breaks the current and those below can move with relative ease in the eddy formed by the upstream person. If the upstream person gets temporarily swept off his feet, the others can hold steady while he regains his footing (Figure H-17).



**Figure H-17. Several Men Crossing Swift Stream**

H-305. If you have three or more people and a rope available, you can use the technique shown in Figure H-18 to cross the stream. The length of the rope must be three times the width of the stream.

**Figure H-18. Individuals Tied Together to Cross Stream**

## FIELD-EXPEDIENT DIRECTION FINDING

H-306. In a survival situation, you will be extremely fortunate if you happen to have a map and compass. If you do have these two pieces of equipment, you will most likely be able to move toward help. If you are not proficient in using a map and compass, you must take the steps to gain this skill.

H-307. There are several methods by which you can determine direction by using the sun and the stars. These methods, however, will give you only a

general direction. You can come up with a more nearly true direction if you know the terrain of the territory or country.

H-308. You must learn all you can about the terrain of the country or territory to which you or your unit may be sent, especially any prominent features or landmarks. This knowledge of the terrain, together with using the methods explained below, will let you come up with fairly true directions to help you navigate.

## USING THE SUN AND SHADOWS

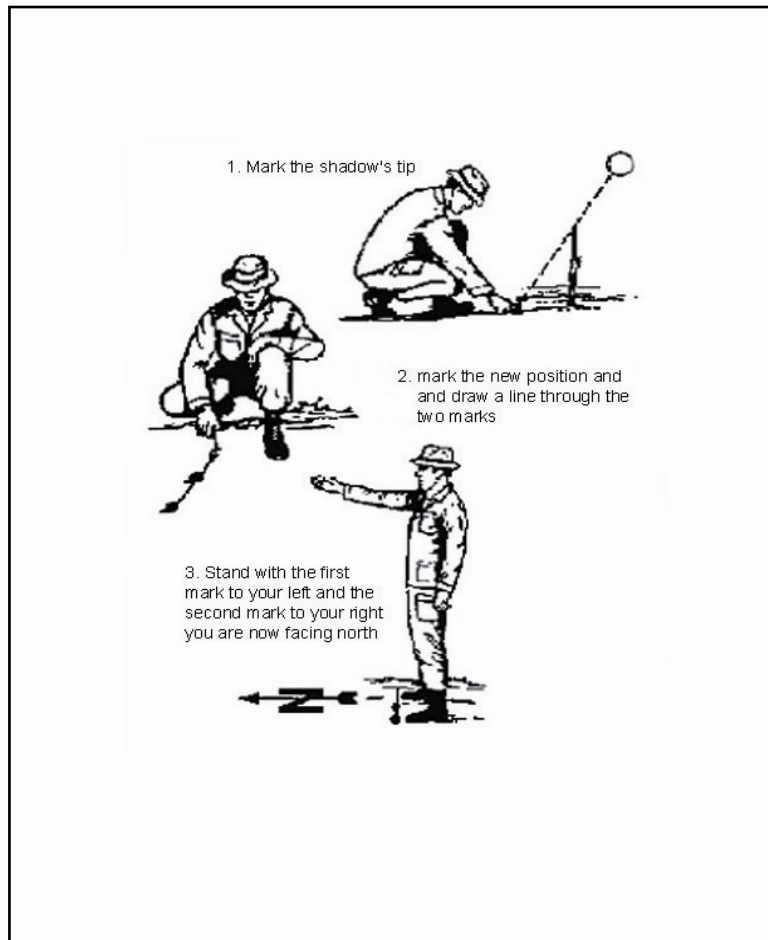
H-309. The relationship of the earth to the sun can help you to determine direction on earth. The sun always rises in the east and sets in the west—but not exactly due east or due west. There is also some seasonal variation. In the northern hemisphere, the sun will be due south when at its highest point in the sky or when an object casts no appreciable shadow. In the southern hemisphere, this same noonday sun will mark due north. In the northern hemisphere, shadows will move clockwise. Shadows will move counterclockwise in the southern hemisphere. With practice, you can use shadows to determine both direction and time of day. The shadow methods used for direction finding are the shadow-tip and watch methods.

## SHADOW-TIP METHODS

H-310. In the first shadow-tip method, find a straight stick 1 meter long and a level spot free of brush on which the stick will cast a definite shadow. This method is simple and accurate and consists of four steps:

- Step 1. Place the stick or branch into the ground at a level spot where it will cast a distinctive shadow; mark the tip of the shadow with a stone, twig, or other means. This first shadow mark is always west—everywhere on earth.
- Step 2. Wait 10 to 15 minutes until the shadow tip moves a few centimeters; mark the shadow tip's new position in the same way as the first.
- Step 3. Draw a straight line through the two marks to obtain an approximate east-west line.
- Step 4. Stand with the first mark (west) to your left and the second mark to your right—you are now facing north; this is true everywhere on earth.

H-311. An alternate method is more accurate but requires more time. Set up your shadow stick and mark the first shadow in the morning. Use a piece of string to draw a clean arc through this mark and around the stick. At midday, the shadow will shrink and disappear. In the afternoon, it will lengthen again; at the point where it touches the arc, make a second mark. Draw a line through the two marks to get an accurate east-west line (see Figure H-19).



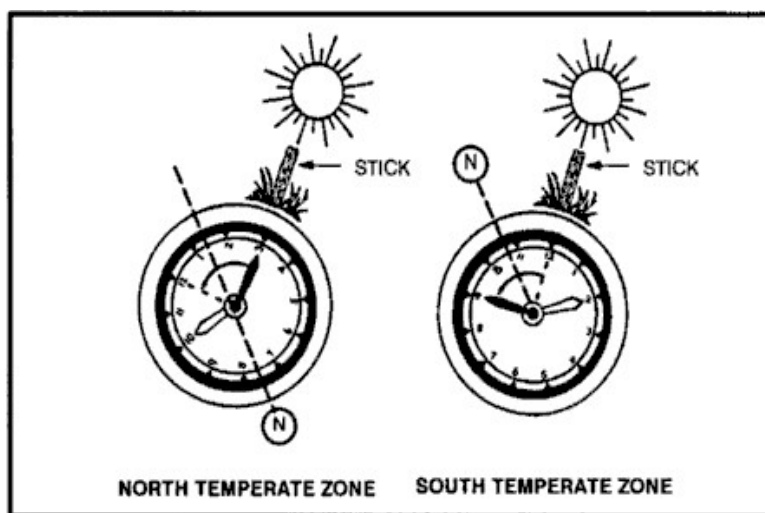
**Figure H-19. Shadow Tip Method**

## **WATCH METHOD**

H-312. You can determine direction using a common or analog watch—one that has hands. The direction will be accurate if you are using true local time, without any changes for daylight savings time. The further you are from the equator, the more accurate this method will be. If you have a digital watch, you can overcome this obstacle. Draw a watch on a circle of paper with the correct time and use the watch to determine your direction at that time.

H-313. In the northern hemisphere, hold the watch horizontal and point the hour hand at the sun. Bisect the angle between the hour hand and the 12 o'clock mark to get the north-south line (Figure H-20). If there is any doubt as to which end of the line is north, remember that the sun rises in the east, sets in the west, and is due south at noon. The sun is in the east before noon and in the west after noon.





**Figure H-20. Watch Method**

**Note:** If your watch is set on daylight savings time, use the midway point between the hour hand and 1 o'clock to determine the north-south line.

## SIGNALING TECHNIQUES

H-314. One of your first concerns when you find yourself in a survival situation is to communicate with your friends or allies. Generally, communication is the giving and receiving of information. As a survivor, you must first get your rescuer's attention and, second, send a message that your rescuer understands. Some attention-getters are man-made geometric patterns—such as straight lines, circles, triangles, or Xs displayed in uninhabited areas; a large fire or flash of light; a large, bright object moving slowly; or contrast, whether from color or shadows. The type of signal used will depend on your environment and the enemy situation.

## APPLICATION

H-315. If in a noncombatant situation, you need to find the largest available clear and flat area on the highest possible terrain. Use as obvious a signal as you can create. On the other hand, you will have to be more discreet in combat situations. You do not want to signal and attract the enemy. Pick an area that is visible from the air, but ensure that there are hiding places nearby. Try to have a hill or other object between the signal site and the enemy to mask your signal from the enemy. Perform a thorough reconnaissance of the area to ensure that there are no enemy forces nearby.

H-316. Whatever signaling technique or device you plan to use, know how to use it and be ready to put it into operation on short notice. If possible, avoid using signals or signaling techniques that can physically endanger you. Signals to your friends may alert the enemy of your presence and location.

Before signaling, carefully weigh your rescue chances by friends against the danger of capture by the enemy.

H-317. A radio is probably the surest and quickest way to let others know where you are and to let you receive their messages. Become familiar with the radios in your unit. Learn how to operate them and how to send and receive messages.

H-318. You will find descriptions of other signaling techniques, devices, and articles that you can use. Learn how to use them. Think of ways in which you can adapt or change them for different environments. Practice using these signaling techniques, devices, and articles before you need them. Planned, prearranged signaling techniques may improve your chance of rescue.

## MEANS FOR SIGNALING

H-319. There are two main ways to get attention or to communicate—visual and audio. The means that you use will depend on your situation and the material you have available. Whatever the means, always have visual and audio signals ready for use.

### Visual Signals

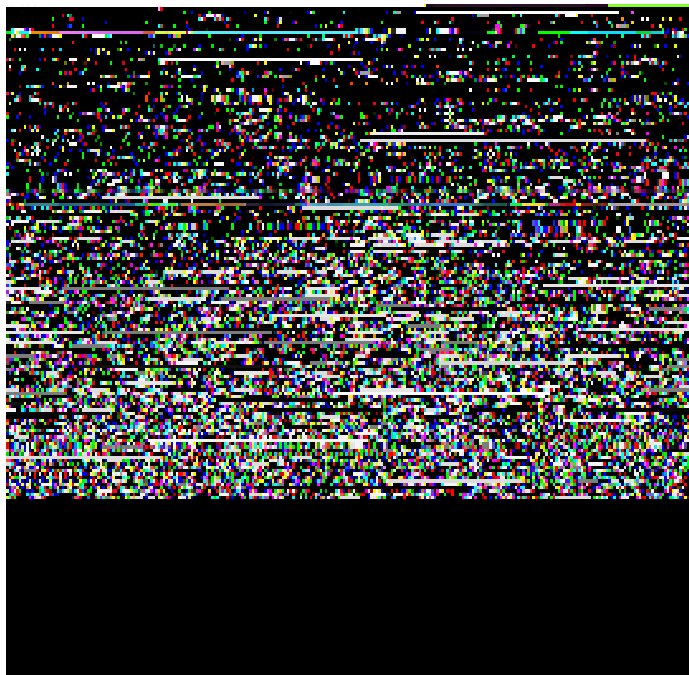
H-320. These signals are materials or equipment that you use to make your presence known to rescuers.

### Fire

H-321. During darkness, fire is the most effective visual means for signaling. Build three fires in a triangle (the international distress signal) or in a straight line with about 25 meters between the fires. Build them as soon as time and the situation permit, and protect them until you need them. If you are alone, maintaining three fires may be difficult. If so, maintain one signal fire.

H-322. When constructing signal fires, consider your geographic location. If in a jungle, find a natural clearing or the edge of a stream where you can build fires that jungle foliage will not hide. You may even have to clear an area. If in a snow-covered area, you may have to clear the ground of snow or make a platform on which to build the fire so that melting snow will not extinguish it.

H-323. A burning tree (tree torch) is another way to attract attention (Figure H-21). You can set pitch-bearing trees afire, even when green. You can get other types of trees to burn by placing dry wood in the lower branches and igniting it so that the flames flare up and ignite the foliage. Before the primary tree is consumed, cut and add more small green trees to the fire to produce more smoke. Always select an isolated tree so that you do not start a forest fire and endanger yourself.



**Figure H-21. Tree Torch**

## **SURVIVAL MOVEMENT IN HOSTILE AREAS**

H-324. The “rescue-at-any-cost” philosophy of previous conflicts is not likely to be possible in future conflicts. Our potential adversaries have made great progress in air-defense measures and radio direction finding (RDF) techniques. We must assume that U.S. military forces trapped behind enemy lines in future conflicts may not experience quick recovery by friendly elements. Soldiers may have to move for extended times and distances to places less threatening to the recovery forces. The soldier will not likely know the type of recovery to expect. Each situation and the available resources determine the type of recovery possible. Because no one can be absolutely sure until the recovery effort begins, soldiers facing a potential cutoff from friendly forces should be familiar with all the possible types of recovery, their related problems, and their responsibilities to the recovery effort. Preparation and training can improve the chances of success.

## **PHASES OF PLANNING**

H-325. Preparation is a requirement for all missions. When planning, you must consider how to avoid capture and return to your unit. Contingency plans must be prepared with unit standing operating procedures (SOPs). Courses of action that you or your unit will take must also be considered.

## Contingency Plan of Action (CPA)

H-326. Intelligence sections can help prepare personnel for contingency actions through information supplied in area studies, SERE (survival, evasion, resistance, and escape) contingency guides, threat briefings, current intelligence reports, and current contact and authentication procedures. Premission preparation includes the completion of a CPA. The study and research needed to develop the CPA will make you aware of the current situation in your mission area. Your CPA will let recovery forces know your probable actions should you have to move to avoid capture.

H-327. Start preparing even before premission planning. Many parts of the CPA are SOP for your unit. Include the CPA in your training. Planning starts in your daily training.

H-328. The CPA is your entire plan for your return to friendly control. It consists of five paragraphs, written in the operation-order format. You can take most of paragraph 1, Situation, with you on the mission.

H-329. A comprehensive CPA is a valuable asset to the soldier trapped behind enemy lines who must try to avoid capture. To complete paragraph 1, know your unit's assigned area or concentrate on potential mission areas of the world. Many open or closed sources contain the information that you need to complete a CPA. Open sources may include newspapers, magazines, country or area handbooks, area studies, television, radio, persons familiar with the area, and libraries. Closed sources may include area studies, area assessments, SERE contingency guides, various classified field manuals, and intelligence reports.

H-330. Prepare your CPA in three phases. During your normal training, prepare paragraph 1, Situation. Prepare paragraphs 2, 3, 4, and 5 during your premission planning. After deployment into an area, continually update your CPA based on mission changes and intelligence updates.

H-331. The CPA is a guide. You may add or delete certain portions based on the mission. The CPA may be a recovery force's only means of determining your location and intentions after you start to move. It is an essential tool for your survival and return to friendly control.

## Standing Operating Procedures

H-332. Unit SOPs are valuable tools that your unit has to help your planning. When faced with a dangerous situation requiring immediate action, it is not the time to discuss options; it is the time to act. Many of the techniques used during small-unit movement can be carried over to fit requirements for moving and returning to friendly control. Items from the SOP should include, but are not limited to —

- Movement team size (three to four persons per team).
- Team communications (technical and nontechnical).
- Essential equipment.

- Actions at danger areas.
- Signaling techniques.
- Immediate-action drills.
- Linkup procedures.
- Helicopter recovery devices and procedures.
- Security procedures during movement and at hiding sites.
- Rally points.

H-333. Rehearsals work effectively for reinforcing these SOP skills. They also provide opportunities for evaluation and improvement.

### **Notification to Move and Avoid Capture**

H-334. An isolated unit has several general courses of action that it can take to avoid capture of the group or individuals. These courses of action are not courses that the commander can choose instead of his original mission. He cannot arbitrarily abandon the assigned mission. Rather, he may adopt these courses of action after completing his mission, when his unit cannot complete its assigned mission (because of combat power losses), or when he receives orders to extract his unit from its current position. If such actions are not possible, the commander may decide to have the unit try to move to avoid capture and return to friendly control. In either case, as long as there is communication with higher headquarters, that headquarters will make the decision.

H-335. If the unit commander loses contact with higher headquarters, he must make the decision to move or wait. He bases his decision on many factors, including the mission, rations and ammunition on hand, casualties, the chance of relief by friendly forces, and the tactical situation. The commander of an isolated unit faces other questions:

- What course of action will inflict maximum damage on the enemy?
- What course of action will assist in completing the higher headquarters' overall mission?

H-336. Movement teams conduct the execution portion of the plan when notified by higher headquarters or, if there is no contact with higher headquarters, when the highest ranking survivor decides that the situation requires the unit to try to escape capture or destruction. Movement team leaders receive their notification through prebriefed signals. Once the signal to try to avoid capture is given, it must be passed rapidly to all personnel. Notify higher headquarters, if possible. If unable to communicate with higher headquarters, leaders must recognize that organized resistance has ended and that organizational control has ceased. Command and control is now at the movement team or individual level and is returned to higher organizational control only after reaching friendly lines.

## CAMOUFLAGE

H-337. In a survival situation, especially in a hostile environment, you may find it necessary to camouflage yourself, your equipment, and your movement. It may mean the difference between survival and capture by the enemy. Camouflage and movement techniques, such as stalking, will also help you get animals or game for food using primitive weapons and skills.

### PERSONAL CAMOUFLAGE

H-338. When camouflaging yourself, consider that certain shapes are particular to humans. The enemy will look for these shapes. The shape of a hat, helmet, or black boots can give you away. Even animals know and run from the shape of a human silhouette. Break up your outline by placing small amounts of vegetation from the surrounding area in your uniform, equipment, and headgear. Try to reduce any shine from skin or equipment. Blend in with the surrounding colors, and simulate the texture of your surroundings.

#### Shape and Outline

H-339. Change the outline of weapons and equipment by tying vegetation or strips of cloth onto them. Make sure that the added camouflage does not hinder the operation of the equipment. When hiding, cover yourself and your equipment with leaves, grass, or other local debris. Conceal any signaling devices that you have prepared, but keep them ready for use.

#### Color and Texture

H-340. Each area of the world and each climatic condition (Arctic/winter, temperate/jungle, or swamp/desert) have color patterns and textures that are natural for that area. While color is self-explanatory, texture defines the surface characteristics of something when looking at it. For example, surface textures may be smooth, rough, rocky, leafy, or many other possible combinations. Use color and texture together to camouflage yourself. It makes little sense to cover yourself with dead, brown vegetation in the middle of a large grassy field. Similarly, it would be useless to camouflage yourself with green grass in the middle of a desert or rocky area.

H-341. To hide and camouflage movement in any specific area of the world, you must take on the color and texture of the immediate surroundings. Use natural or man-made materials to camouflage yourself. Camouflage paint, charcoal from burned paper or wood, mud, grass, leaves, strips of cloth or burlap, pine boughs, and camouflaged uniforms are a few examples.

H-342. Cover all areas of exposed skin, including face, hands, neck, and ears. Use camouflage paint, charcoal, or mud to camouflage yourself. Cover with a darker color the areas that stick out more and catch more light (forehead, nose, cheekbones, chin, and ears). Cover other areas, particularly recessed or shaded areas (around the eyes and under the chin), with lighter colors. Be sure to use an irregular pattern. Attach vegetation from the area or strips of cloth of the proper color to clothing and equipment. If you use vegetation,

replace it as it wilts. As you move through an area, be alert to the color changes and modify your camouflage colors as necessary.

H-343. Table H-4 shows general methods of applying camouflage for various areas and climates. Use appropriate colors for your surroundings. The blotches or slashes will help to simulate texture.

**Table H-4. Methods of Camouflaging**

Area	Method
Temperate deciduous forest	Blotches
Coniferous forest	Broad slash
Jungle	Broad slash
Desert	Slash
Arctic	Blotches
Grassy or open area	Slash

## Shine

H-344. As skin gets oily, it becomes shiny. Equipment with worn-off paint is also shiny. Even painted objects, if smooth, may shine. Glass objects—such as mirrors, glasses, binoculars, and telescopes—shine. You must cover these glass objects when not in use. Anything that shines automatically attracts attention and will give away your location.

H-345. Whenever possible, wash oily skin and reapply camouflage. Skin oil will wash off camouflage; reapply camouflage frequently. If you must wear glasses, camouflage them by applying a thin layer of dust to the outside of the lenses. This layer of dust will reduce the reflection of light. Cover shiny spots on equipment by painting, covering with mud, or wrapping with cloth or tape. Pay particular attention to covering boot eyelets, buckles on equipment, watches and jewelry, zippers, and uniform insignia. Carry a signal mirror in its designed pouch or in a pocket with the mirror portion facing your body.

## Shadow

H-346. When hiding or traveling, stay in the deepest part of the shadows. The outer edges of the shadows are lighter, and the deeper parts are darker. If you are in an area where there is plenty of vegetation, keep as much vegetation between you and a potential enemy as possible. This action will make it hard for the enemy to see you because the vegetation will partially mask you from his view. Forcing an enemy to look through many layers of masking vegetation will fatigue his eyes very quickly.

H-347. When traveling, especially in built-up areas at night, be aware of where you cast your shadow. It may extend out around the corner of a building and give away your position. Also, if you are in a dark shadow and there is a light source to one side, an enemy on the other side can see your silhouette against the light.

## **Movement**

H-348. Movement, especially fast movement, attracts attention. If at all possible, avoid movement in the presence of an enemy. If capture appears imminent in your present location and you must move, move away slowly, making as little noise as possible. By moving slowly in a survival situation, you decrease the chance of detection and conserve energy that you may need for long-term survival or long-distance evasion.

H-349. When moving past obstacles, avoid going over them. If you must climb over an obstacle, keep your body level with its top to avoid silhouetting yourself. Do not silhouette yourself against the skyline when crossing hills or ridges. When you are moving, you will have difficulty detecting the movement of others. Stop frequently, listen, and look around slowly to detect signs of hostile movement.

## **Noise**

H-350. Noise attracts attention, especially if there is a sequence of loud noises such as several snapping twigs. If possible, avoid making any noise at all. Slow down your pace as much as necessary to avoid making noise when moving around or away from possible threats.

H-351. Use background noises to cover the noise of your movement. Sounds of aircraft, trucks, generators, strong winds, and people talking will cover some or all the sounds produced by your movement. Rain will mask a lot of movement noise, but it also reduces your ability to detect potential enemy noise.

## **Scent**

H-352. Whether hunting animals or avoiding the enemy, it is wise to camouflage the scent associated with humans. Start by washing yourself and your clothes without using soap. This washing method removes soap and body odors. Avoiding strong-smelling foods, such as garlic, helps reduce body odors. Do not use tobacco products, candy, gum, or cosmetics.

H-353. You can use aromatic herbs or plants to wash yourself and your clothing, to rub on your body and clothing, or to chew on to camouflage your breath. Pine needles, mint, or any similar aromatic plant will help camouflage your scent from both animals and humans. Standing in smoke from a fire can help mask your scent from animals. While animals are afraid of fresh smoke from a fire, older smoke scents are normal smells after forest fires and do not scare them.

H-354. While traveling, use your sense of smell to help you find or avoid humans. Pay attention to smells associated with humans, such as fire, cigarettes, gasoline, oil, soap, and food. Such smells may alert you to their presence long before you can see or hear them, depending on wind speed and direction. Note the wind's direction, and when possible, approach from or skirt around on the downwind side when nearing humans or animals.



## CONTACT WITH PEOPLE

H-355. Some of the best and most frequently given advice, when dealing with local people, are for the survivor to accept, respect, and adapt to their ways. Thus, “when in Rome, do as the Romans do.” This is excellent advice, but there are several considerations involved in putting this advice into practice.

## CONTACT WITH LOCAL PEOPLE

H-356. You must give serious consideration to dealing with the local people. Do they have a primitive culture? Are they farmers, fishermen, friendly people, or enemy? As a survivor, “cross-cultural communication” can vary radically from area to area and from people to people. It may mean interaction with people of an extremely primitive culture or contact with people who have a relatively modern culture. A culture is identified by standards of behavior that its members consider proper and acceptable but may or may not conform to your idea of what is proper. No matter who these people are, they will have laws, social and economic values, and political and religious beliefs that may be radically different from yours. Before deploying into your area of operations, study these different cultural aspects. Prior study and preparation will help you make or avoid contact if you have to deal with the local population.

H-357. People will be friendly or unfriendly, or they will choose to ignore you. Their attitude may be unknown. If the people are known to be friendly, try to keep them friendly through your courtesy and respect for their religion, politics, social customs, habits, and all other aspects of their culture. If the people are known to be enemies or are unknowns, make every effort to avoid any contact and leave no sign of your presence. A basic knowledge of the daily habits of the local people will be essential in this attempt. If after careful observation you determine that an unknown people are friendly, you may contact them if you need their help.

H-358. Usually, you have little to fear and much to gain from cautious and respectful contact with local people of friendly or neutral countries. If you become familiar with the local customs, display common decency, and most important, show respect for their customs, you should be able to avoid trouble and possibly gain needed help. To make contact, wait until only one person is near and, if possible, let that person make the initial approach. Most people will be willing to help a survivor who appears to be in need. However, local political attitudes, instruction, or propaganda efforts may change the attitudes of otherwise friendly people. Conversely, in unfriendly countries, many people, especially in remote areas, may feel animosity toward their politicians and may be more friendly toward a survivor.

H-359. The key to successful contact with local peoples is to be friendly, courteous, and patient. Displaying fear, showing weapons, and making sudden or threatening movements can cause a local person to fear you. Such actions can prompt a hostile response. When attempting a contact, smile as often as you can. Many local peoples are shy and seem unapproachable, or they may ignore you. Approach them slowly, and do not rush your contact.

## THE SURVIVOR'S BEHAVIOR

H-360. Use salt, tobacco, silver money, and similar items discreetly when trading with local people. Paper money is well-known worldwide. Do not overpay; it may lead to embarrassment and even danger. Always treat people with respect. Do not bully them or laugh at them.

H-361. Using sign language or acting out needs or questions can be very effective. Many people are used to such language and communicate using nonverbal sign language. Try to learn a few words and phrases of the local language in and around your potential area of operations. Trying to speak someone's language is one of the best ways to show respect for his culture. Because English is widely used, some of the local people may understand a few words of English.

H-362. Some areas may be taboo. They range from religious or sacred places to diseased or danger ones. In some areas, certain animals must not be killed. Learn the rules, and follow them. Watch and learn as much as possible. Such actions will help to strengthen relations and provide new knowledge and skills that may be important later. Seek advice on local hazards, and find out from friendly people where the hostile people are. Always remember that people frequently insist that other peoples are hostile, simply because they do not understand different cultures and distant peoples. The people that they can usually trust are their immediate neighbors—much the same as in our own neighborhood.

H-363. Frequently, local people, like us, will suffer from contagious diseases. Build a separate shelter, if possible, and avoid physical contact without giving the impression of doing so. Personally prepare your food and drink, if you can do so without giving offense. Frequently, the local people will accept the use of "personal or religious custom" as an explanation for isolationist behavior.

H-364. Barter, or trading, is common in more primitive societies. Hard coin is usually good, whether for its exchange value or as jewelry or trinkets. In isolated areas, matches, tobacco, salt, razor blades, empty containers, or cloth may be worth more than any form of money.

H-365. Be cautious when touching people. Many people consider touching taboo, and such actions may be dangerous. Avoid sexual contact.

H-366. Hospitality among some people is such a strong cultural trait that they may seriously reduce their own supplies to feed a stranger. Accept what they offer, and share it equally with all present. Eat in the same way that they eat and, most important, try to eat all that they offer.

H-367. If you make any promises, keep them. Respect personal property and local customs and manners, even if they seem odd. Make some kind of payment for food and supplies. Respect privacy. Do not enter a house unless invited.

## **CHANGES TO POLITICAL ALLEGIANCE**

H-368. Political attitudes and commitments within nations are subject to rapid change. The population of many countries, especially politically hostile countries, must not be considered friendly just because they do not demonstrate open hostility. Unless briefed to the contrary, avoid all contact with such people.

## **SURVIVAL IN MAN-MADE HAZARDS**

H-369. Nuclear, chemical, and biological weapons have become potential realities on any modern battlefield. Recent experience in Afghanistan, Cambodia, and other areas of conflict has proved the use of chemical and biological weapons such as mycotoxins. The warfighting doctrine of the NATO and Warsaw Pact nations addresses the use of both nuclear and chemical weapons. The potential use of these weapons intensifies the problems of survival because of the serious dangers posed by either radioactive fallout or contamination produced by persistent biological or chemical agents.

H-370. You must use special precautions if you expect to survive in these man-made hazards. If you are subjected to any of the effects of nuclear, chemical, or biological warfare, the survival procedures recommended in this appendix may save your life. This chapter presents some background information on each type of hazard so that you may better understand the true nature of the hazard. Awareness of the hazards, knowledge of this chapter, and application of common sense should keep you alive.

## **THE NUCLEAR ENVIRONMENT**

H-371. Prepare yourself to survive in a nuclear environment. Know how to react to a nuclear hazard.

## **EFFECTS OF NUCLEAR WEAPONS**

H-372. The effects of nuclear weapons are classified as either initial or residual. Initial effects occur in the immediate area of the explosion and are hazardous in the first minute after the explosion. Residual effects can last for days or years and cause death. The principal initial effects are blast and radiation.

### **Blast**

H-373. Blast is defined as the brief and rapid movement of air away from the explosion's center and the pressure accompanying this movement. Strong winds accompany the blast. Blast hurls debris and personnel, collapses lungs, ruptures eardrums, collapses structures and positions, and causes immediate death or injury with its crushing effect.

## Thermal Radiation

H-374. The fireball of a nuclear explosion emits heat and light thermal radiation. Light radiation consists of both visible light and ultraviolet and infrared light. Thermal radiation produces extensive fires, skin burns, and flash blindness.

## Nuclear Radiation

H-375. **Initial Radiation.** Initial nuclear radiation consists of intense gamma rays and neutrons produced during the first minute after the explosion. This radiation causes extensive damage to cells throughout the body. Radiation damage may cause headaches, nausea, vomiting, diarrhea, and even death, depending on the radiation dose received. The major problem in protecting yourself against initial radiation's effects is that you may have received a lethal or incapacitating dose before taking any protective action. Personnel exposed to lethal amounts of initial radiation may well have been killed or fatally injured by blast or thermal radiation.

H-376. **Residual Radiation.** Residual radiation consists of all of the radiation produced after one minute from the explosion. It has more of an effect on you than initial radiation. Residual radiation is covered later (paragraph H-384).

## TYPES OF NUCLEAR BURSTS

H-377. There are three types of nuclear bursts—airburst, surface burst, and subsurface burst. The type of burst directly affects your chances of survival. A subsurface burst occurs completely underground or underwater. Its effects remain beneath the surface or in the immediate area where the surface collapses into a crater over the burst's location. Subsurface bursts cause you little or no radioactive hazard unless you enter the immediate area of the crater.

H-378. An airburst occurs in the air above its intended target. The airburst provides the maximum radiation effect on the target and is, therefore, most dangerous to you in terms of immediate nuclear effects.

H-379. A surface burst occurs on the ground or the water surface. Large amounts of fallout result, with serious long-term effects for you. This type of burst is your greatest nuclear hazard.

## NUCLEAR INJURIES

H-380. Most injuries in the nuclear environment result from the initial nuclear effects of the detonation. These injuries are classed as blast, thermal, or radiation injuries. Further radiation injuries may occur if you do not take proper precautions against fallout. Individuals in the area near a nuclear explosion will probably suffer a combination of all three types of injuries.

## **Blast Injuries**

H-381. Blast injuries produced by nuclear weapons are similar to those caused by conventional high-explosive weapons. Blast overpressure can produce collapsed lungs and ruptured internal organs. Projectile wounds occur as the force of the explosion hurls debris at you. Large pieces of debris striking you will cause fractured limbs or massive internal injuries. Blast over pressure may throw you long distances, and you will suffer severe injury upon impact with the ground or other objects. Substantial cover and distance from the explosion are the best protection against blast injury. Cover blast injury wounds as soon as possible to prevent the entry of radioactive dust particles.

## **Thermal Injuries**

H-382. The heat and light that the nuclear fireball emits cause thermal injuries. First-, second-, or third-degree burns may result. Flash blindness also occurs. This blindness may be permanent or temporary, depending on the degree of exposure of the eyes. Substantial cover and distance from the explosion can prevent thermal injuries. Clothing will provide significant protection against thermal injuries. Cover as much exposed skin as possible before a nuclear explosion. First aid for thermal injuries is the same as first aid for burns. Cover open burns (second- or third-degree) to prevent the entry of radioactive particles. Wash all burns before covering.

## **Radiation Injuries**

H-383. Neutrons, gamma radiation, alpha radiation, and beta radiation cause radiation injuries. Neutrons are high-speed, extremely penetrating particles that actually smash cells within your body. Gamma radiation is similar to X-rays and is also a highly penetrating radiation. During the initial fireball stage of a nuclear detonation, initial gamma radiation and neutrons are the most serious threat. Beta and alpha radiation are radioactive particles normally associated with radioactive dust from fallout. They are short-range particles, and you can easily protect yourself against them if you take precautions.

## **Residual Radiation**

H-384. Residual radiation is all of the radiation emitted after one minute from the instant of the nuclear explosion. Residual radiation consists of induced radiation and fallout.

## **Induced Radiation**

H-385. Induced radiation describes a relatively small, intensely radioactive area directly underneath the fireball of the nuclear weapon. The irradiated earth in this area will remain highly radioactive for a long time. You should not travel into an area of induced radiation.

## Fallout

H-386. Fallout consists of radioactive soil and water particles, as well as weapon fragments. During a surface detonation or if the nuclear fireball of an airburst touches the ground, large amounts of soil and water are vaporized, along with the bomb's fragments, and forced upward to altitudes of 25,000 meters or more. When these vaporized contents cool, they can form more than 200 different radioactive products. The vaporized bomb contents condense into tiny radioactive particles that the wind carries, and they fall back to earth as radioactive dust. Fallout particles emit alpha, beta, and gamma radiation. Alpha and beta radiation are relatively easy to counteract, and residual gamma radiation is much less intense than the gamma radiation emitted during the first minute after the explosion. Fallout is your most significant radiation hazard; you have not received a lethal radiation dose from the initial radiation.

## **Appendix I**

# **Water Survival Program Training Material**

This appendix provides water survival program training material and information as an aid to commanders, aviation life support officers, and staff members. Units should tailor their training outline based on mission requirements.

### **WATER SURVIVAL PROGRAM—OVERWATER SURVIVAL TRAINING**

I-1. This training outline summarizes the structure, operations, and training requirements of a Water Survival Program (WSP). All aviators pursuing overwater qualification *must* satisfactorily complete the water survival training before performing overwater task progression in the aircraft.

I-2. WSP training, as outlined in this appendix, should satisfy the requirement of both initial and recurrent/refresher training, according to governing regulations and publications for such missions. Commanders must ensure that this training is documented on the aircrew member's DA Form 759 (Individual Flight Record and Certificate-Army).

### **REFERENCES**

I-3. The following references apply, but are not all inclusive, when conducting Emergency Breathing System (EBS) overwater survival training. In addition, local policies, SOPs, and regulatory guidance will be part of the reference library:

- AFM 64-4/5.
- AR 40-8.
- AR 95-1.
- AR 95-2.
- FM 21-26 (FM 3-25.26).
- FM 21-76-1 (FM 3-25.77).
- Instruction guide for Naval Aviation Water Survival Training Program (N7).
- Joint Publication 3-50.1.
- NAVAIR 13-1-6.5.
- TC 1-200 (TC 1-210).

### **TRAINING SUPPORT PRODUCTS**

I-4. Conduct of training involves various methods of instructions. When conducting overwater survival training, the following web-site links will provide ALSS personnel the training information necessary to develop, establish, and conduct such training:

- WWW.JSHIP.JCS.MIL
- WWW.NOMI.MED.NAVY.MIL
- WWW.CNET.NAVY.MIL

## RESPONSIBILITIES

I-5. The battalion commander has overall responsibility for the WSP. The battalion S3 is responsible for the coordination, tasking, and scheduling of the water survival training days. The battalion Water Survival Program OIC (WSPO) must be on orders and is responsible for—

- Standardization of water survival training throughout the battalion.
- Implementation of new standards introduced concerning aircraft egress.
- Administration and overall conduct of all water survival instructors (WSIs).

I-6. The battalion safety officer integrates the Army's five-step risk management process and prepares the written risk assessment.

I-7. Commanders are responsible for supplying personnel to perform as water survival instructors. These instructors will facilitate the program's academic and pool training to sustain their overwater combat readiness. As a minimum, instructional personnel must hold life-guard rating/certification.

I-8. Battalion ALSO will coordinate with WSPO for—

- Usage and availability of the shallow-water egress trainer (SWET).
- Maintenance, care, and storage of all WSP equipment; all equipment will be identified and marked as "*for training only*."

I-9. Unit commanders will ensure the physical readiness of the individuals to pass a WSP swim test. The WSP medic NCOIC will ensure that—

- Those medics will be available for training.
- Those emergency crews will be at a heightened state of readiness for training.
- Any required medical supplies will be made available for the water survival team.

I-10. The WSI is on orders to train students in water-survival specialties. These duties include—

- Ditching/EBS academics.
- Phase I: Swim test administration.
- EBS orientation.
- Phase II: SWET instructor.
- Safety swimmer.

I-11. Specialized duties are further detailed in this appendix.



## ADMINISTRATIVE REQUIREMENTS

I-12. The following administrative requirements will be developed, approved, and implemented before conducting overwater survival training. These administrative requirements are further defined in later sections:

- Risk management/assessment.
- Training time out/drop on request policy.
- Mishap plan.
- Student screening.
- EBS tests.
- Shallow water egress.

## RISK MANAGEMENT/ASSESSMENT

I-13. Tough, realistic training, conducted to standard, is the cornerstone of Army warfighting skills. An intense training environment stresses both soldiers and equipment, creating a high potential for accidents. The potential for an accident increases as training realism increases, just as it does in combat. The end result is the same: the soldier or asset is lost. Commanders must find ways to protect individuals, crews, teams, and equipment from accidents during training and combat. How well they do this could be the decisive factor in winning or losing. Risk management is a commonsense tool that leaders can use to make smart risk decisions in tactical and everyday operations. It is a method of getting the job done by identifying the areas that present the highest risk and taking action to eliminate, reduce, or control the risk. It is not complex, technical, or difficult. It is a comparatively simple decision-making process, a way of thinking through a mission to balance mission demands against risks. FM 100-14(FM 3-100.14) contains more information on risk management/risk assessment.

## RISK MANAGEMENT PROCESS

I-14. The five-step risk management process consists of the following:

- IDENTIFY HAZARDS—identify hazards that may adversely affect mission accomplishment.
- ASSESS HAZARDS—determine the extent of the hazard detriment to the mission.
- MAKE RISK DECISION—reduce risk to that which is mission essential.
- IMPLEMENT CONTROLS—establish measures necessary to control risk.
- SUPERVISE and EVALUATE—ensure that control measures are followed.

I-15. Key risk management/assessment definitions are the following:

- **HAZARDS**—a condition with the potential of causing injury to personnel, damage to equipment or structures, loss of material, or reduction of availability to perform a prescribed function.
- **RISK**—an expression of possible loss over a specific period of time or number of operational cycles.
- **RISK ASSESSMENT**—the process of detecting hazards and systematically assessing their overall risk; it is a part (steps 1 and 2) of the risk management process.

## TOOLS AND PITFALLS

I-16. The risk management/assessment work sheet and code matrix—Table I-1 and Table I-2—provide examples of risk-management tools to help leaders assess identified hazards, develop controls, and make risk decisions. These tools should be tailored to suit particular situations and missions. Units may develop additional tools suitable for their needs.

I-17. Units train and operate to a standard regardless of the degree of real or perceived difficulty. Risk reduction begins with commanders identifying their METLs. Commanders use the risk-management process to assess the degree of risk related to each METL that their unit must perform. From the assessment, risk-reducing standard operating procedures evolve.

I-18. Pitfalls arise when risk-management tools are used without adaptation to the factors of METT-TC. Using a standardized risk assessment card or checklist may be of some value initially in the mission analysis and COA development or in cases in which a routine task is performed in an unchanging environment or static situation. However, such a tool used alone will not likely identify all hazards for every mission in a changing operational environment.

I-19. Completing the risk assessment alone, but failing to identify effective controls, usually results in a GO or NO-GO decision based on the initial risk. If the risk assessment does not accurately identify the hazards and determine the level of residual risk, the leader is likely to make his risk decision based on incomplete or inaccurate information. If the risk assessment places missions in a routine, low-risk category, the commander may not be informed of a risk decision resulting in an accepted risk level that could imperil his or his higher commander's intent or other affected organization. The risk management process provides reasonable controls to support mission accomplishment without exposing the force to unnecessary residual risk.

I-20. Risk management is a two-way street. Those involved in mission preparation and execution must be aware of the amount of command involvement and actions necessary to control or remove hazards. The higher commander's guidance specifies the degree of damage or risk to subordinate units that he is willing to accept during the current operation. Subordinates ensure that they understand and implement their commander's intent and guidance. If, during the planning process, the accident/tactical residual risk exceeds that which the higher commander is willing to accept, the subordinate informs his commander. He requests the resources necessary to mitigate the risk. If, during mission execution, the subordinate determines

that the risk is too great, he directs the development of additional or alternate controls or modifies or changes the COA. He should notify his next-higher commander of his decision. Requiring subordinates to report to the higher commander when a risk decision point is reached during mission execution can result in paralysis.

I-21. The objective of managing risk is not to remove all risk but to eliminate unnecessary risk. Commanders conduct tough, realistic training, knowing that they may put lives and property at risk in the course of military operations. Nothing is worth the cost of a life as the result of taking unnecessary risk. If an action will result in an unacceptable risk, measures should be taken to mitigate it. If the risk cannot be mitigated to an acceptable level, the action should not be executed. Circumstances may occur during mission execution when a decision to stop and defer execution of the operation should be made to avoid taking unwarranted risk. Such a situation will generally occur at the tactical level. For example, circumstances may determine if a trade-off between maintaining the momentum of the attack and risking fratricide or serious accidents is justified. Table I-1 (Risk Assessment Code Matrix) is used by the commanders to manage risk.

**Table I-1. Risk Assessment Code Matrix**

<b>RISK ASSESSMENT CODE MATRIX</b>					
	<b>Frequent</b>	<b>Probable</b>	<b>Occasional</b>	<b>Remote</b>	<b>Improbable</b>
<b>Catastrophic</b>	5	5	4	3	1
<b>Critical</b>	5	4	3	2	1
<b>Marginal</b>	4	3	2	1	1
<b>Negligible</b>	3	2	1	1	1
<b>DECISION FOR RESIDUAL RISK</b> LOW (0-14) – Company/Battalion Commander MEDIUM (15-24) – Brigade/Squadron Commander HIGH (25-36) – Division Commander EXTREMELY HIGH (36+) – MACOM Commander					

**TRAINING TIME OUT (TTO)/DROP ON REQUEST (DOR)**

I-22. All students shall be briefed on the DOR and TTO policy before training begins.

I-23. **TTO.** Students or instructors who are apprehensive concerning their personal safety or that of another shall request a TTO to clarify the situation and receive or provide additional instruction as appropriate. Students who refuse to participate in the training exercise after training time-out instruction has occurred will be removed from training. The water safety officer (OIC) will forward the matter to the individual's command to determine the possibilities of retraining the student at a future date.

I-24. **DOR.** Students are enrolled on a voluntary basis; therefore, students may voluntarily request termination of training. Anytime a student makes a statement, such as "I quit" or "DOR" they will be immediately removed from the training environment (pool or classroom). The water safety officer will inform the individual's command of his decision to DOR. When the student exercises the option to DOR as stated above, the individual's supervisor shall—

- Counsel the student on the importance of the training and ascertain the reasons behind the request.
- Have the student make a written request to terminate or continue training, which shall become a permanent part of his training folder.
- Following a student's DOR request, the water safety officer (OIC) is the only authority who may return the student to training.
- Students who are returned to the training environment will be assisted in the program by the instructors until the student's confidence level is restored or it is determined that the student's participation in the program is no longer warranted.

I-25. **Student Safety.** Anytime a student demonstrates signs of panic, fear, extreme fatigue, or lack of confidence, instructors shall stop the training, identify the problem, and determine whether to continue. Instructors shall be constantly alert for any unusual behavior that may indicate that a student is experiencing difficulty and shall immediately take appropriate action to ensure the student's safety.

**MISHAP PLAN**

I-26. The unit will develop a mishap plan before training that outlines pertinent information provided in the following paragraphs.

I-27. All nondiving related injuries—injuries not associated with breathing compressed air—will be handled poolside and transported (ambulance—emergency contact number) to the local hospital/clinic as necessary.

### **WARNING**

**Although a diving-related injury is unlikely, planning for such an event is necessary. Improper use of the EBS can result in a *life-threatening situation* (pulmonary overinflation syndrome).**

**If a diving related injury occurs, time is of the essence. The victim needs to be transported to a hyperbaric chamber immediately for evaluation/recompression.**

I-28. The symptoms of a diving-related injury are—

- Crepidous [fullness] in the neck/chest.
- Flank or chest pain.
- Partial or full paralysis.
- Numbness/tingling in extremities.
- Dispnea (shortness of breath).
- Any neurological deficit.

I-29. If a diving related injury is suspected—

- Administer oxygen by mask.
- Call the MEDEVAC unit (contact number).
- Call mobile dive and salvage unit one Quarterdeck, if available in the area (contact number); inform it that you are inbound with a potential POIS; give location and symptoms along with ETA.
- Transport victim to PZ; the supervisor will accompany the victim to destination.
- The phone number for landing is (contact number).
- The phone number for the ambulance is (contact number).
- Advise the battalion commander (contact number), battalion safety (contact number), and battalion flight surgeon (contact number).
- Pick-up zone (PZ)
  - Location: \_\_\_\_\_
- Landing zone (LZ).
  - Location: \_\_\_\_\_

#### **DROP ON REQUEST (DOR) AND TRAINING TIME OUT (TTO) POLICY**

I-30. This course is designated as high-risk training and is voluntary. Students must have the option to individually request termination of training. Anytime the student makes a statement such as “I quit,” “DOR,” or

words to that effect, the student shall be immediately removed from the training environment.

I-31. A TTO may be called in any training situation whenever a student or instructor expresses concern for personal safety or a need for clarification of procedures or requirements exists. TTO is also an appropriate means for a student to obtain the relief if he or she is experiencing pain, heat stress, or other physical discomfort.

I-32. Calling “time out,” “training time out,” crossing the hands in a “T,” raising a clenched fist overhead, or any action that removes the student from the training area—such as moving to the side of the pool—will be considered a “training time out.” Figure I-1 is signed by the students after being briefed on the DOR and TTO procedures.

**STATEMENT OF UNDERSTANDING**

I, (print name) John Smith, having been thoroughly briefed on the DOR and TTO policies do fully understand these policies and their implication.

*John Smith* (signature)

**PRIVACY ACT STATEMENT**

Under the authority of Title 10 U.S.C., 1071-87 and 5031, 5, U.S.C. 301 Executive Order 9397, and the manual of the medical department, Article 4-5, information is required to screen you for training. The personal information will be used to determine the presence of any condition that would contraindicate participation in water survival training. The social security number is used only for report filing. Disclosure of requested information is voluntary to prevent illness or injury. Failure to provide the requested information may preclude participation in water survival training and may warrant further medical evaluation.

**Figure I-1. Sample Statement of Understanding**

**EXAMINATIONS—EMERGENCY BREATHING SYSTEM (EBS)**

I-33. The EBS has three tests (Figures I-2 through I-4). Figure I-5 has the answer key for the tests.

**TEST #1**

1. Which of the following is a safety precaution during EBS training?
  - a. Students will fill out all DOR forms after water evolutions.
  - b. Training shall be suspended anytime a student calls for a time-out.
  - c. Medical forms shall be screened once each month for EBS students.
  - d. Only staff personnel may call a training time-out.
2. What should you do when you see an oil-like substance on the mouthpiece of your EBS?
  - a. Make a mental note to write up the discrepancy on the unit once you return from your flight.
  - b. Wipe the substance off using a lint-free cloth and denatured alcohol.
  - c. Disregard the substance because it will have no effect on the function of the unit.
  - d. Immediately return the unit to the ALSE shop for replacement.
3. To clear the EBS regulator underwater, what is the correct position of the exhaust valve?
  - a. Oriented toward the left.
  - b. Blocked off.
  - c. Facing up.
  - d. Facing down.
4. What should you do after making a normal egress from a submerged aircraft while breathing off the EBS?
  - a. Inflate your life preserver, and make a buoyant ascent.
  - b. Reenter the aircraft to assist other survivors.
  - c. Swim to the surface, breathing normally, without inflating your life preserver.
  - d. Hold your breath on ascent.
5. What is the DOR policy?
  - a. Safety swimmers are required for all in-water evolutions.
  - b. All swim instructors must hold first-aid certification.
  - c. Students may ask an instructor to cancel a training exercise.
  - d. Any student may voluntarily request termination of his training.
6. If you run out of air while ascending you should—
  - a. Hold your breath and swim for the surface as quickly as possible.
  - b. Immediately inflate your life preserver.
  - c. Turn on reserve and resume breathing.
  - d. Exhale continuously while swimming to the surface.
7. What should you do if you drop the EBS while egressing?
  - a. Search around on the floor for it.
  - b. Feel for the tether line where it is attached to your holster.
  - c. Forget it, and continue egressing.
  - d. Reach behind you, and retrieve it.
8. Which of the following is a symptom of air embolism?
  - a. Increased blood flow.
  - b. Euphoria.
  - c. Chills.
  - d. Blurred vision.
9. At what time should you insert the EBS in your mouth?
  - a. After the aircraft has sunk.
  - b. Before the aircraft impacts the water.
  - c. If you have time, after the aircraft impacts the water.
  - d. Anytime is a good time.
10. How often are you required to attend EBS currency training?
  - a. Once a quarter.
  - b. Every 60 days.
  - c. Annually.
  - d. As often as possible.

**Figure I-2. Emergency Breathing System—Test Number One**

**TEST #2**

1. What is the minimum pressure required for flight with the EBS?
  - a. 500 pounds per square inch.
  - b. 100 pounds per square inch.
  - c. 1,000 pounds per square inch.
  - d. 2,600 pounds per square inch.
2. Which of the following is a precaution observed during EBS training?
  - a. Training shall be suspended anytime a student calls time-out.
  - b. Students will fill out DOR forms before all in-water evaluations.
  - c. Hyperventilation is recommended before the underwater swim evolution.
  - d. Medical forms must be screened once each month for EBS students.
3. Which of the following statements is true?
  - a. If you place the regulator in your mouth while underwater, you must clear the regulator of water before inhaling.
  - b. You should place the EBS in your mouth only after the aircraft has submerged.
  - c. After water impact, you should immediately begin breathing from the EBS.
  - d. After egress, you should always inflate your life preserver and make a buoyant ascent to the surface.
4. What should you do when making a normal swimming ascent using the EBS?
  - a. Continue to breathe at your normal breathing rate.
  - b. Hold your breath.
  - c. Exhale continuously.
  - d. Conserve as much air as possible.
5. Which statement regarding injury prevention while using the EBS is true?
  - a. There is little you can do to avoid a lung injury.
  - b. If you use the EBS to egress and it fails during ascent, you must immediately begin exhaling and exhale continuously during the remainder of your ascent.
  - c. Holding your breath while ascending will not cause a lung rupture.
  - d. Exhaling only half your breath while continuing to inhale normally can prevent lung rupture.
6. If a crew member has just completed an underwater egress using the EBS and complains of weakness in arms and blurred vision, he may be suffering from—
  - a. Air embolism.
  - b. Hyperthermia.
  - c. Heat stroke.
  - d. Hypothermia.
7. What should you do immediately after impacting the water if you have time?
  - a. Wait to see if your egress will be hindered before placing the EBS in your mouth.
  - b. Immediately place the EBS in your mouth, and breathe through your nose only.
  - c. Look for sharks in the immediate area.
  - d. Exhale before placing the EBS in your mouth.
8. To clear the EBS regulator of water, what must you do with the regulator?
  - a. Orient it toward the surface.
  - b. Clear it before you do anything.
  - c. Take it out of your mouth.
  - d. Orient it with the bottom of the bottle toward the surface.
9. Which of the following is a symptom of air embolism?
  - a. Euphoria.
  - b. Hypothermia.
  - c. Increased blood flow.
  - d. Paralysis.
10. What is normal working pressure for the EBS?
  - a. 500 pounds per square inch.
  - b. 100 pounds per square inch.
  - c. 1,000 pounds per square inch.
  - d. 3,000 pounds per square inch.

**Figure I-3. Emergency Breathing System—Test Number Two**



**TEST #3**

1. How often are you required to attend EBS currency training?
  - a. Once a quarter.
  - b. Every 60 days.
  - c. Annually.
  - d. As often as possible.
2. If a crew member has just completed an underwater egress using the EBS and complains of weakness in arms and blurred vision, he may be suffering from—
  - a. Air embolism.
  - b. Hypothermia.
  - c. Heat stroke.
  - d. Hyperthermia.
3. What should you do after impacting the water?
  - a. Wait to see if your egress will be hindered before placing the EBS in your mouth.
  - b. Immediately place the EBS in your mouth, and breathe through your nose only.
  - c. Look for sharks in the immediate area.
  - d. Exhale before placing the EBS in your mouth.
4. To clear the EBS regulator of water, what must you do with the regulator?
  - a. Orient it toward the surface.
  - b. Clear it before you do anything.
  - c. Take it out of your mouth.
  - d. Orient it with the bottom of the bottle toward the surface.
5. Which of the following is a symptom of air embolism?
  - a. Euphoria.
  - b. Hypothermia.
  - c. Increased blood flow.
  - d. Paralysis.
6. Which of the following is a safety precaution during EBS training?
  - a. Students will fill out all DOR forms after water evolutions.
  - b. Training shall be suspended anytime a student calls for a time-out.
  - c. Medical forms shall be screened once each month for EBS students.
  - d. Only staff personnel may call a training time-out.
7. What should you do when you see an oil-like substance on the mouthpiece of your EBS?
  - a. Make a mental note to write up the discrepancy on the unit once you return from your flight.
  - b. Wipe the substance off using a lint-free cloth and denatured alcohol.
  - c. Disregard the substance because it will have no effect on the function of the unit.
  - d. Immediately return the unit to the ALSE shop for replacement.
8. To clear the EBS regulator underwater, what is the correct position of the exhaust valve?
  - a. Oriented toward the left.
  - b. Blocked off.
  - c. Facing up.
  - d. Facing down.
9. What should you do after making a normal egress from a submerged aircraft while breathing off the EBS?
  - a. Inflate your life preserver, and make a buoyant ascent.
  - b. Reenter the aircraft to assist other survivors.
  - c. Swim to the surface, breathing normally, without inflating your life preserver.
  - d. Hold your breath on ascent.
10. What is the normal working pressure for the EBS?
  - a. 500 pounds per square inch.
  - b. 100 pounds per square inch.
  - c. 1,000 pounds per square inch.
  - d. 3,000 pounds per square inch.

**Figure I-4. Emergency Breathing System—Test Number Three**

**EBS - TEST#1 ANSWER KEY**

1. b
2. d
3. d
4. c
5. d
6. d
7. c
8. d
9. c
10. c

**EBS TEST #2 ANSWER KEY**

1. d
2. a
3. a
4. a
5. b
6. a
7. b
8. a
9. d
10. d

**EBS TEST #3 ANSWER KEY**

1. c
2. a
3. b
4. a
5. d
6. b
7. d
8. d
9. c
10. d

**Figure I-5. Tests One through Three Answer Key**

## TRAINING PROGRAM

### STUDENT TRAINING TASKS

**I-34. Training Requirements:** The training requirements for a Water Survival Program portion of overwater qualification and currency are task related. This training focuses on tasks that will increase the likelihood of survival in case of an overwater ditching for both rated and nonrated aircrew members. The water survival program phases of testing are—

- Phase I: swim testing.
- Phase II: SWET submersion testing.
- Phase III: METS submersion testing.

**I-35. Water Survival Program Qualification:** EBS is an additional qualification added to the SWET qualification. It is not required for SWET qualification. An asterisk (\*) identifies tasks required for the additional EBS qualifications.

**I-36. Qualification Requirements:**

- The Water Survival Program qualification requirements are the following:
  - A rated aircrew member will not be considered Phase-I and -II qualified until he has completed the tasks outlined in Table I-2; a requalification is required annually.
  - A nonrated aircrew member will not be considered Phase-I and -II qualified until he has completed the tasks outlined in Table I-3; a requalification is required annually.
  - A rated/nonrated aircrew member will not be allowed to attend Phase III Modular Egress Training Simulator (METS) training unless he has completed Phase I and II of the Water Survival Program.
- Qualification/currency requirements are—
  - Task 3500: Ditching Academics.
  - Task 3501: EBS Academics.
  - Task 3502: Battalion Swim Test.
  - Task 3502.1: Ten-Minute Stationary Float.
  - Task 3502.2: 100-Meter Swim.
  - Task 3502.3: 25-Meter Underwater Swim.
  - Task 3503: EBS Orientation.
  - Task 3504: Shallow-Water Egress Trainer (SWET) Egress.
  - Task 3504.1: SWET Preditching Procedures.
  - Task 3504.2: Pre-Egress Procedures.
  - Task 3504.3: Egress Procedures.
  - Task 3506: Crew-Member Rescue.

- Water Survival Program currency requirements are that—
  - A rated aircrew member will be required to complete the tasks outlined in Table I-2 semiannually to be considered Phase-I and -II current.
  - A nonrated aircrew member will be required to complete the tasks outlined in Table I-3 semiannually to be considered Phase-I and -II current.

I-37. Reading the qualification/currency Tables I-2 and I-3—

- An “X” in either the Qualification or the Currency column indicates that an iteration of the task is required in the corresponding row.
- A number in either the Qualification or Currency column indicates the minimum amount of iterations required for that task.
- An \* after a number indicates that the task is required for EBS qualification or currency.

**Table I-2. Rated Aircrew Member Qualification/Currency**

TASK	TITLE	QUALIFICATION		CURRENCY	
3500	Ditching Academics	X			
3501	EBS Academics	X			
3502	Swim Test	X			
3503	EBS Orientation	X		X	
		Day	Night	Day	Night
3504	SWET Egress	3	2	2	2
– 3504.1	Preditching	3	2	2	2
– 3504.2	Pre-egress				
	– Open Exit	1	1	1	
	– Closed Exit	2	1		2
	– Non-EBS	2	1	1	
	– EBS	1*	1*	1*	2*
– 3504.3	Egress	3	2	2	2

**Table I-3. Nonrated Aircrew Member Qualification/Currency**

TASK	TITLE	QUALIFICATION		CURRENCY	
3500	Ditching Academics	X			
3501	EBS Academics	X			
3502	Swim Test	X			
3503	EBS Orientation	X		X	
		Day	Night	Day	Night
3504	SWET Egress	3	2	2	2
– 3504.1	Preditching	3	2	2	2
– 3504.2	Pre-egress				
	– Open Exit	1	1	1	
	– Closed Exit	2	1		2
	– Non-EBS	2	1	1	
	– EBS	1*	1*	1*	2*
– 3504.3	Egress	3	2	2	2
3506	Crew-Member Rescue	1		1	

## TRAINING TASKS

I-38. The conditions, standards, and description for training tasks are listed in Figure I-6.

### **Task 3500: Ditching Academics.**

**CONDITIONS:** In a classroom environment.

**STANDARDS:**

Receive ditching academics from a water-survival instructor.

Score 80 percent or higher on the ditching examination.

**DESCRIPTION:**

Students will receive ditching academics according to the ditching POI.

### **Task 3501: EBS Academics.**

**CONDITIONS:** In a classroom environment.

**STANDARDS:**

Receive EBS academics from a Water Survival Program instructor.

Score 80 percent or higher on the EBS examination.

**DESCRIPTION:**

Students will receive EBS academics according to the EBS POI.

### **Task 3502: Swim Test.**

**CONDITIONS:** In a DA-approved pool with required uniform.

**STANDARDS:**

Receive a "Go" on all swim-test subtasks.

**DESCRIPTION:**

**General:** The swim test is designed to test aviators' abilities to survive in a water environment. Based on the Navy Class One and Two swim tests, it measures an aviator's endurance and ability to remain calm in a water-survival situation.

The test consists of—

- 10-minute stationary floating.

- 100-meter swim.

- 25-meter underwater swim.

#### **Task 3502.1: 10-Minute Stationary Float.**

**CONDITIONS:** In a DA-approved pool, wearing full military flight coveralls or BDUs, flight helmet, survival vest, and combat boots.

**STANDARDS:**

- Enter the water feet first.

- Keep head above water unless momentarily adjusting uniform for flotation.

- Remain afloat under one's own power during the first five minutes.

- Remain afloat under one's own power or by using articles of clothing during the last five minutes.

**Figure I-6. Training Tasks**

**DESCRIPTION:**

**General:** This event measures an aircrew's ability to remain afloat for extended periods of time in a stationary position while maintaining visual capabilities above the surface of the water. It is broken down into two five-minute events as described below.

**Water Entry:** Water entry shall be made from 5 feet above the surface of the water. If the depth of the water being entered is not 8 feet or more, then entry from water level is acceptable. Instructors will closely monitor the platform entries. The event time will start once the aviator resurfaces from entry.

**The First Five Minutes: Unassisted Float.** The examinee shall remain afloat with his head continuously above the surface of the water. During this time, the examinee may dip his head below the surface of the water, not exceeding 30 seconds. The examinee will not be allowed to use equipment to stay afloat but will use his own power. Using the side of the pool or another examinee, touching the bottom of the pool, or using any article of equipment to remain afloat will result in event failure.

**The Second Five Minutes: Assisted Float.** The examinee shall remain afloat with his head above the surface of the water. During this time, the student may use articles of equipment or clothing to stay afloat. Using the side of the pool or another examinee or touching the bottom of the pool will result in event failure.

**Task 3502.2: 100 Meter Swim**

**CONDITIONS:** In a DA-approved pool, wearing full military flight coveralls or BDUs, flight helmet, survival vest, and combat boots.

**STANDARDS:**

Enter the water feet first.

Begin the event by using one's own power (no push off).

Remain in forward motion under one's own power at all times.

Swim 100 meters using required strokes.

**DESCRIPTION:**

**General.** The 100-meter swim measures an aviator's ability to remain afloat for extended periods of time while mobile and his ability to travel reasonable distances in a water environment on his own power. The student will have a minimum of three minutes of rest before the swim.

**Water Entry.** The water entry shall be made from a height of five feet above the surface of the water. If the depth of the water being entered is not eight feet or more, then entry from water level is acceptable. Instructors will closely monitor the platform entries. The examinees must swim 100 meters and use the breast stroke, side stroke, and backstroke.

**Distance for 25 Meters.** For a minimum distance of 25 meters, the stroke used for the last 25 meters will be one of the three strokes previously mentioned. This event is not timed; however, the examinee must remain in a perpetual state of forward motion without any stationary rest periods. The examinee will not be allowed to use the sides or bottom of the pool for assistance or support from the time of entry to event termination.

**Figure I-6. Training Tasks (Continued)**

**Task 3502.3: 25-Meter Underwater Swim.**

**CONDITIONS:** In a DA-approved pool, wearing full military flight coveralls or BDUs, survival vest, and boots.

**STANDARDS:**

Enter the water feet first.

Begin the event by using one's own power (no push off).

Remain in forward motion under one's own power at all times.

Swim 25 meters underwater except for allowed surfacing.

Surface no more than two times, for no more than three breaths or five seconds, at each surfacing.

**DESCRIPTION:**

**General.** The 25-meter underwater swim tests the examinee's ability to swim from a submerged aircraft without the aid of an underwater breathing apparatus while avoiding surface hazards, such as oil fires, which may be present on the surface of the water after a forced landing. The student will have a minimum of 10 minutes rest before beginning the 25-meter underwater swim. The examinee will enter the water feet first and immediately swim underwater for 25 meters.

**Prohibited.** Pushing off from the side of the pool is unauthorized. The swimmer may surface twice for breathing. Intervals of 25 feet are recommended for breathing. No more than three breaths are allowed once at the surface for any more than five seconds. This event is not timed; however, the examinee must remain in a perpetual state of forward motion without any stationary rest periods. The examinee will not be allowed to use the sides or bottom of the pool for assistance or support from the time of entry to event termination.

**Task 3503: EBS Orientation.**

**CONDITIONS:** In a DA-approved pool, where water conditions are comfortable enough to allow for information retention.

**STANDARDS:**

Show knowledge of general EBS and preflight procedures.

Perform underwater clearing procedures using the EBS.

Perform underwater breathing with the EBS.

Demonstrate knowledge of precautions to take during ascent from a submerged aircraft to the water's surface.

Demonstrate knowledge of the characteristics, symptoms, and first aid for an air embolism.

Clear the EBS in an inverted position.

Perform EBX confidence training.

**DESCRIPTION:****Warning**

AR 40-8 states that any individual breathing compressed air will be prohibited from flight operations for 24 hours.

Figure I-6. Training Tasks (Continued)

**WARNING**

The EBS contains compressed air. Care should be taken never to hold breath while using the EBS; never make a rapid ascent while breathing with the EBS, and if rapid ascent is unavoidable, breathe out continuously during ascent. Failure to follow this warning can result in a compressed breathing disorder such as a ruptured lung or an air embolism.

**Note:** Training is more effective if done in the pool with every individual in possession of EBS. The instructor will be able to point out the components and demonstrate more effectively this way. Ensure that every trainee is paying attention to the class by periodic querying.

The students, in a group forum, will demonstrate knowledge of general EBS information and preflight procedures. General and preflight information will include the instructor giving EBS academics. A recap of each follows:

**General Information.** The EBS is a compact, lightweight underwater breathing apparatus intended for use during emergency ditching, providing emergency air upon demand to aid in safe egress of a submerged aircraft. The EBS is an air-on-demand and self-clearing emergency air-supply system. The container can hold 1.5 cubic inches of compressed air at 3,000 pounds of pressure per square inch. The bottle is good for about two minutes at a depth of 30 feet.

**Preflight Information.** The EBS must be inspected before each flight. Remove from the holster. Check the pressure indicator for pressure from 2,600 to 3,000 pounds per square inch. Check the rest of the unit for integrity. Check the regulator for the presence of oil, grease, or dirt. Check the mouthpiece for deterioration and security of attachment. Check the -first and second-stage regulator for condition and security. The hose needs to be checked for cracks and dry rot. Check the condition of the LAN meter connecting the EBS to the holster. Replace the EBS into the holster. If any discrepancies are found, return the unit to the ALSE shop.

**Clearing the EBS.** Place the unit in your mouth. Exhale to force the water out of the regulator. Take a careful breath to ensure that the regulator is clear of water. Exhale a second time to force out any remaining water. Once the regulator has been cleared, breathe regularly, inhaling through your mouth only and exhaling through your mouth and nose.

**Clearing and Breathing Training.** Each student, under the instructor's supervision, must breathe with the EBS above water before submerging. The students then must follow the instructor through the following breathing drills:

*Water-level clearing and breathing—empty regulator.* Breathing while the head is halfway submerged (mouth underwater, eyes above water). The EBS is in the mouth. Ensure that no water enters by placing your tongue against the hole in the mouthpiece before descent.

**Figure I-6. Training Tasks (Continued)**



*Water-level clearing and breathing—flooded regulator.* Breathing as above except with a flooded regulator.

*Subsurface clearing and breathing—flooded regulator.* Breathing (as mentioned above) with a flooded regulator.

**Understanding Compressed Air Dynamics.** It is essential to understand compressed air dynamics during EBS training. An aviator must retain the knowledge from the EBS academics about expanding gas disorders and breathing techniques. While using compressed air, the aviator must ascend at the rate of 1 foot per second. That is about the same rate as the ascension of the slowest bubbles. If a buoyant ascent is required for any reason, the aviator must continuously exhale on ascent. An embolism occurs when the gases in the lungs, expanding because of the lessening pressure of an ascending aviator, have no place to escape because the aviator is holding his breath or not exhaling. The expanding gasses cause the air sacs—alveoli—in the lungs to burst, sending air into the bloodstream. This can result in neurological and respiratory damage. The symptoms are bloody froth from the mouth and chest pains. The symptoms may be delayed in the form of a drunken appearance. First aid is the administering of pure oxygen, treatment for shock, and in severe cases, cardiopulmonary resuscitation (CPR). More information can be found in the EBS academics.

**EBS Confidence Training.** Trainees must become comfortable and competent with the EBS before conducting the SWET or SWET training. This is because it will increase the likelihood of survival and because the SWET training is conducted in water at a depth where an expanding gas disorder can occur. Students must be able to demonstrate proper clearing techniques and the ability to breathe with the EBS under water and complete the confidence-building exercises before SWET training.

*Inverted clearing procedures.* During this training, the EBS bottle must be cleared while the student is inverted. The student must learn how to do this now because an actual ditching is not the time to learn this skill. If the student shows proficiency breathing from an inverted EBS at least twice, then he will be allowed to position it however he sees fit for following EBS confidence exercises. Hanging from the side of the pool, the student must clear the EBS twice while inverted.

*Underwater EBS clearing and swim.* From the deep end of the pool, the student enters the water feet first and then dives down to the bottom. The student picks up and clears an EBS bottle and begins normal breathing. The student then swims to the shallow end of the pool, using the EBS.

#### **Task 3504: SWET Egress.**

**CONDITIONS:** In a DA-approved pool, with appropriate uniform and shallow water egress trainer.

##### **STANDARDS:**

- Perform Preditching Procedures.
- Perform Pre-egress Procedures.
- Perform Egress.

##### **DESCRIPTION:**

**Water Egress.** The shallow-water egress trainer is a tool to increase EBS confidence and build basic underwater egress skills.

**SWET Egress.** The task of SWET egress is broken down into the three subtasks below.

**Figure I-6. Training Tasks (Continued)**

**Task 3504.1: SWET Preditching Procedures.**

**CONDITIONS:** In the SWET, wearing MAC-10/P, simulated SARVIP, SRU-37, and LPU-10/P and combat boots.

**STANDARDS:**

- Maintain helicopter control.
- Make appropriate calls.
- Jettison doors/windows.
- Assume proper crash position.

**DESCRIPTION:**

The primary consideration of the pilot on the controls in a ditching scenario is to maintain helicopter control and perform the appropriate EP to make a ditching as survivable as possible.

Crew coordination is imperative to the successful egress of a ditched helicopter. Immediately, upon recognition of an imminent ditching, either crew member transmits a "Mayday, Mayday, Mayday" call. "Door, Door, Door" should follow this call before activating the emergency release handle on the door or release pull tab on the inside forward portion of each cockpit window release. Activation of the door/window jettison will be according to the TM 1-1520-237-10. The third call should be "Ditching, Ditching, Ditching" to all the crew members. The Mayday call is necessary for responsive SAR and should include position data.

The final step in preditching is assuming the proper crash position. Because the SWET lacks simulated flight controls, the student will either assume the brace position or simulate being at a set of flight controls.

**Task 3504.2: Pre-egress Procedures**

**CONDITIONS:** In the SWET, wearing MAC-10/P mustang suit, survival vest, and combat boots.

**STANDARDS:**

- Evaluate the situation.
- Employ EBS if needed/available.
- Clear egress point.
- Place hands on thighs.

**DESCRIPTION:**

Once the aircraft enters the water and control is no longer possible, the aviator must evaluate his situation. Consideration must be given to the exit. The aviator must know if it is cleared and the distance to surface. This knowledge will allow for a safe egress of the aircraft.

If the aviator's exit point is not immediately next to him or if the exit point is blocked, the aviator must employ the EBS. This will give the aviator time to either get to or unblock the exit. Performance of EBS employment must be according to prior training.

**Figure I-6. Training Tasks (Continued)**

The aviator must clear the exit point if it is blocked. In the SWET, a clear acrylic panel is mounted to the device for aviators to push away. The aviator must push this panel away before proceeding with egress. The panel will be mounted according to the layout of the aviator's crew station. For instance, the UH-60 cockpit has its door mounted on either side of the crew station. Therefore, the panel will be mounted on either side, depending on the situation.

For UH-60 crew-chiefs, the panel will be mounted on the front or left or right side where their primary exits are located and depending on their seat position at the time of pre-egress.

The final ditching procedure requires the aviator to place his hands on his thighs. This is always the starting point for egress procedures. It acts as a starting point for finding a handhold that can always be returned to.

**Task 3504.3: Egress Procedures (the three Hs).**

**CONDITIONS:** In the SWET, wearing MAC-10/P mustang suit, survival suit, and combat boots.

**STANDARDS:**

**Handhold.** Establish and maintain fixed *hand-hold*.

**Helmet.** Clear all *helmet* connections.

**Harness.** Unbuckle the restraint *harness*, safely egress the SWET.

**DESCRIPTION:**

**Handhold.** After the aviator places his hands on his thighs, he then slides his hand left or right to gain a fixed handhold. This handhold is crucial because it paints a picture of the cockpit in the aviator's mind and anchors the aviator in case of positive buoyancy after harness release. The handhold should be a fixed reference point that cannot move such as an actual handhold or console. Doors or flight controls make poor handholds because they can move, changing the picture in the aviator's mind. Positive control of a handhold must be maintained throughout egress.

**Helmet.** After gaining a positive handhold, the aviator must clear all helmet connections. UH-60 pilots must take into consideration their ICS connections. This step will be simulated in the SWET because of the lack of helmet connections. The aviator should not become too focused on clearing helmet connections if he runs into problems. It will be possible for those connections to be cleared on exit if the aviator knows they are still connected.

**Harness.** Once the helmet has been cleared, the aviator reconfirms the handhold and then releases his harness. Immediate buoyancy should be expected at shallow depths from the MAC-10/P. This will not become a problem as long as the handhold is maintained. Care should be given not to get tangled in the restraints.

**Egress.** Once the three Hs have been performed, the aviator must egress the SWET. The aviator must pull himself from the SWET. Pushing off with the legs can cause head or neck injury. Once clear of the SWET, the aviator must ascend with one hand above the head to push away debris from the wreckage and avoid chemical pneumonia poisoning. Upon surfacing, the aviator must splash out with his hands to clear any toxins or surface fires caused by the ditching.

**Figure I-6. Training Tasks (Continued)**

**Task 3506: Crew Member Rescue.**

**CONDITIONS:** In the SWET, wearing MAC-10/P mustang suit, simulated SARVIP, SRU-37 life raft and LPU-10/P water wings, and combat boots.

**STANDARDS:**

Rescue crew member from SWET after ditching.

**DESCRIPTION:**

The student will stand on the back of the SWET second station. With EBS in the mouth, crew member rides the SWET in with instructor. The crew member pulls the stranded pilot from the chair, using rotating seat safely to the surface.

**Figure I-6. Training Tasks (Concluded)**

## TRAINING OPERATIONS

I-39. Training operations breaks down into academics and pool training. They are further broken down by task.

I-40. **Academics.** The tasks for the academics training are the following:

- Academics train a student by the book on the basics of ditching, EBS usage, and the overall training program.
- A WSI will perform administration of either the ditching or EBS academics; the most experienced instructor should perform administration.
- The most experienced trainer will administer tests to ensure tighter control.

I-41. **Pool Training.** The water survival program OIC is responsible for pool training tasks. The tasks are the following:

- Ensuring the readiness of instructors and training materials upon notification from the battalion S3.
- Coordinating for medical support.
- Coordinating for the required instructors.
- Coordinating for pool availability.
- Giving the safety briefing before pool operations begin.
- Maintaining of the battalion's training files with copies supplied to the battalion S3.
- Performing overall training for the day.

I-42. **Phase I: Swim Test.** A WSI will administer the swim test. The administrator must—

- Read the briefing found in the trainer guide before all swim test tasks.
- Ensure that there is at least one rescue person per two people being tested in the water.

I-43. **EBS Familiarization.** A qualified WSI will give EBS familiarization. It will be performed under comfortable conditions according to the trainer guide. The EBS familiarization instructor will be responsible for—

- Ensuring that the proper amounts of EBSs are available for training.
- Ensuring that personnel remain in the shallow area of pool except for confidence building.

I-44. **Phase II: SWET Submersion Testing Operations.** Phase II SWET submersion testing/training will be performed by a qualified WSI. It will be performed to standard according to the training tasks and the trainer guide.

- The SWET chair instructor will be responsible for the following:
  - All training being performed on the SWET platform.
  - Safety of the student being trained.
  - Familiarity with all emergency signals.
  - Performing an emergency run on each student before POI.
- The SWET chair assistant instructor will be responsible for the following:
  - Aiding the SWET instructor for SWET operations.
  - Being familiar with all emergency signals.
  - Aiding the student buckled in the SWET chair.
  - Providing EBS or blackout goggles to the student.
- The medic will be responsible for the following:
  - Performing first aid in emergencies once the casualty has been removed from the pool.
  - Wearing the proper military uniform and bringing proper equipment.
  - Being qualified and briefed on SWET/EBS emergencies.
  - Working directly for the OIC.
- The students will be responsible for the following:
  - Taking all commands from the cadre.
  - Learning and passing tests.
  - Ensuring that they have a current DA Form 4186 (Medical Recommendation for Flying Duty) on file.

## INSTRUCTOR TRAINING

I-45. Outlined below are the details for the various designations and training and qualification requirements for the SWET/EBS program. In each section, the type of instructor will be identified along with a brief description of responsibilities. Also in this appendix is information on instructor's orders.

## **Water Survival Training Position Responsibilities and Training and Qualification Requirements**

I-46. All water survival instructors (WSI) are responsible for the training and safety of all students attending water survival training. They will all have the same core training and qualification requirements as follows:

- WSI is an individual that is on orders to train students in an aviation battalion. These training specialties include to—
  - Receive Water Survival Program academics.
  - Receive Water Survival Program poolside training.
  - Receive classes on the specialty that they are to perform from the WSP OIC or the WSP NCOIC.
  - Perform as a SWET instructor.
  - Perform the EBS orientation.
  - Be confident in ditching/EBS academics.
  - Administer the swim test.
  - Conduct SWET maintenance.
- The WSI qualification requirements to train students are to—
  - Be on orders as a WSI qualified on the swim test signed by the battalion commander.
  - Be a student qualified in the Water Survival Program.
  - Receive an oral evaluation from the WSP OIC/NCOIC.
  - Perform a hands-on training session in the presence of the WSP OIC/NCOIC of the specialty to be performed.
  - Be able to describe and assist with lifeguard operations pertinent to the specialty.
- The instructor must be on orders (see Figure I-7); all recommendations for instructor orders will be made by the WSP OIC/NCOIC. Orders must—
  - Be filed in the instructor annex.
  - Be signed by the battalion commander.
  - Include the specialties that the instructor is responsible for performing.

<p style="text-align: center;">DEPARTMENT OF THE ARMY HEADQUARTERS, (ORGANIZATION) AVIATION BATTALION (ORGANIZATION ADDRESS)</p> <p>(OFFICE SYMBOL)</p> <p>MEMORANDUM FOR SEE DISTRIBUTION</p> <p>SUBJECT: Announcement of Duty Appointment</p> <p>Effective DD MM YY, Last name, First name, CW2, 333-33-333, (ORGANIZATION) AVN BN, (ORGANIZATION ADDRESS), is appointed to perform the duties of—</p> <ul style="list-style-type: none"><li>• Water Survival Program OIC.</li><li>• Water Survival Program NCOIC.</li><li>• Water Survival Instructor.</li><li>• EBS orientation.</li><li>• Ditching/EBS academics.</li><li>• Swim test administration.</li><li>• SWET maintenance.</li></ul> <p>Authority: (ORGANIZATION) AVN BN Water Survival Program SOP/POI.</p> <p>Period: This order terminates upon PCS unless sooner terminated under provisions of AR 95-1.</p> <p>Purpose: To perform above-mentioned duties for water survival training.</p> <p>Special Instructions: Aviator is authorized to conduct/perform training and evaluations from any designated SWET crew station.</p> <p style="text-align: right;">(NAME)</p> <p style="text-align: right;">(RANK/BRANCH) Commanding</p> <p>DISTRIBUTION: 1 (ORGANIZATION) Avn Bn S3 1 (ORGANIZATION) Avn Bn STDs 1 (ORGANIZATION) Avn Bn ASO 1 Cdr, (UNIT) Co. (ORGANIZATION) Avn Bn 1 - Individual</p>
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**Figure I-7. Example of an Instructor Order**

## TRAINER GUIDE

I-47. This section details the method of instruction for teaching water survival pool training. Instructors are required to understand this material.

### Water Survival Program Qualification

I-48. EBS is an additional qualification added to the SWET qualification. It is not required for SWET qualification. Therefore, tasks required for the additional EBS qualification will be identified with an asterisk (\*).

I-49. **Qualification Requirements.** The Water Survival Program qualification requirements are the following:

- A rated aircrew member will not be considered Phase-I and -II qualified until he has completed the tasks outlined in Table I-2; a requalification is required annually.
- A nonrated aircrew member will not be considered Phase-I and -II qualified until they have completed the tasks outlined in Table I-3; a requalification is required annually.
- A rated/nonrated aircrew member will not be allowed to attend Phase III METS training (Korea) unless he has completed Phase I and II of the Water Survival Program.

I-50. **Currency Requirements.** The Water Survival Program currency requirements are the following:

- A rated aircrew member will not be required to complete the tasks outlined in Table I-2 semiannually to be considered Phase I and II current.
- A nonrated aircrew member will not be required to complete Table I-3 the tasks outlined semiannually to be considered Phase I and II current.
- A rated/nonrated aircrew member will not be allowed to attend Phase-III METS training unless he has completed Phase I and II of the Water Survival Program.

I-51. Reading the Qualification/Currency Tables I-4 and I-5. Listed are the iterations of the task required:

- An “X” in either the Qualification or the Currency column indicates that an iteration of the task is required in the corresponding row.
- A number in either the Qualification or Currency column indicates the minimum amount of iterations required for that task.
- An \* after a number indicates that the task is required for EBS qualification or currency.



**Table I-4. Rated Aircrew Member Qualification/Currency**

TASK	TITLE	QUALIFICATION		CURRENCY	
3500	Ditching Academics	X			
3501	EBS Academics	X			
3502	Swim Test	X			
3503	EBS Orientation	X		X	
		Day	Night	Day	Night
3504	SWET Egress	3	2	2	2
– 3504.1	Preditching	3	2	2	2
– 3504.2	Pre-egress				
	– Open Exit	1	1	1	
	– Closed Exit	2	1		2
	– Non-EBS	2	1	1	
	– EBS	1*	1*	1*	2*
– 3504.3	Egress	3	2	2	2

**Table I-5. Nonrated Aircrew Member Qualification/Currency**

TASK	TITLE	QUALIFICATION		CURRENCY	
3500	Ditching Academics	X			
3501	EBS Academics	X			
3502	Swim Test	X			
3503	EBS Orientation	X		X	
		Day	Night	Day	Night
3504	SWET Egress	3	2	2	2
– 3504.1	Preditching	3	2	2	2
– 3504.2	Pre-egress				
	– Open Exit	1	1	1	
	– Closed Exit	2	1		2
	– Non-EBS	2	1	1	
	– EBS	1*	1*	1*	2*
– 3504.3	Egress	3	2	2	2
3506	Crew Member Rescue	1		1	

## Training Tasks

I-52. Figure I-8 lists the training tasks—conditions, standards, and descriptions for the trainer’s guide.

### **Task 3502: Swim Test.**

**CONDITIONS:** In a DA-approved pool with required uniform.

**STANDARDS:**

Receive a “Go” on all swim test subtasks.

**DESCRIPTION:**

**General:** The swim test is designed to test aviators’ abilities to survive in a water environment. Based on the Navy Class One and Two swim tests, it measures an aviator’s endurance and ability to remain calm in a water-survival situation.

The test consists of—

10-minute stationary floating.

100-meter swim.

25-meter underwater swim.

### **Task 3502.1: 10-Minute Stationary Float.**

**CONDITIONS:** In a DA-approved pool, wearing full military flight coveralls or BDUs, flight helmet, survival vest, and combat boots.

**STANDARDS:**

Enter the water feet first.

Keep head above water unless momentarily adjusting uniform for flotation.

Remain afloat under one’s own power during the first five minutes.

Remain afloat under one’s own power or by using articles of clothing during the last five minutes.

**DESCRIPTION:**

**General:** This event measures an aircrew’s ability to remain afloat for extended periods of time at a stationary position while maintaining visual capabilities above the surface of the water. It is broken down into two five-minute events as described below.

**Water Entry:** Water entry shall be made from 5 feet above the surface of the water. If the depth of the water being entered is not 8 feet or more, then entry from water level is acceptable. Instructors will closely monitor the platform entries. The event time will start once the aviator resurfaces from entry.

**The First Five Minutes: Unassisted Float.** The examinee shall remain afloat with his head continuously above the surface of the water. During this time, the examinee may dip his head below the surface of the water, not exceeding 30 seconds. The examinee will not be allowed to use equipment to stay afloat but will use one’s own power. Using the side of the pool or another examinee, touching the bottom of the pool, or using any article of equipment to remain afloat will result in event failure.

**The Second Five Minutes: Assisted Float.** The examinee shall remain afloat with his head above the surface of the water. During this time, the student may use articles of equipment or clothing to stay afloat. Using the side of the pool or another examinee or touching the bottom of the pool will result in event failure.

**Figure I-8. Trainer’s Guide Training Tasks**

**Task 3502.2: 100-Meter Swim**

**CONDITIONS:** In a DA-approved pool, wearing full military flight coveralls or BDUs, flight helmet, survival vest, and combat boots.

**STANDARDS:**

Enter the water feet first.

Begin the event by using one's own power (no push off).

Remain in forward motion under one's own power at all times.

Swim 100 meters using required strokes.

**DESCRIPTION:**

**General.** The 100-meter swim measures an aviator's ability to remain afloat for extended periods of time while mobile and his ability to travel reasonable distances in a water environment on his own power. The student will have a minimum of three minutes of rest before the swim.

**Water Entry.** The water entry shall be made from a height of five feet above the surface of the water. If the depth of the water being entered is not eight feet or more, then entry from water level is acceptable. Instructors will closely monitor the platform entries. The examinee must swim 100 meters and use the breast stroke, side stroke, and backstroke.

**Distance for 25 Meters.** For a minimum distance of 25 meters, the stroke used for the last 25 meters will be one of the three strokes previously mentioned. This event is not timed; however, the examinee must remain in a perpetual state of forward motion without any stationary rest periods. The examinee will not be allowed to use the sides or bottom of the pool for assistance or support from the time of entry to event termination.

**Task 3502.3: 25-Meter Underwater Swim.**

**CONDITIONS:** In a DA-approved pool, wearing full military flight coveralls or BDUs, survival vest, and boots.

**STANDARDS:**

Enter the water feet first.

Begin the event by using one's own power (no push off).

Remain in forward motion under one's own power at all times.

Swim 25 meters underwater except for allowed surfacing.

Surface no more than two times, for no more than three breaths or five seconds, at each surfacing.

**DESCRIPTION:**

**General.** The 25-meter underwater swim tests the examinee's ability to swim from a submerged aircraft without the aid of an underwater breathing apparatus while avoiding surface hazards, such as oil fires, which may be present on the surface of the water after a forced landing. The student will have a minimum of 10 minutes rest before beginning the 25-meter underwater swim. The examinee will enter the water feet first and immediately swim underwater for 25 meters.

**Prohibited.** Pushing off from the side of the pool is unauthorized. The swimmer may surface twice for breathing. Intervals of 25 feet are recommended for breathing. No more than three breaths are allowed once at the surface for any more than five seconds. This event is not timed; however, the examinee must remain in a perpetual state of forward motion without any stationary rest periods. The examinee will not be allowed to use the sides or bottom of the pool for assistance or support from the time of entry to event termination.

**Figure I-8. Trainer's Guide Training Tasks (Concluded)**

I-53. **Evaluator Briefing.** Before the test, the evaluator will brief the examinees. The topics in the brief will include—

- Events to be tested.
- An in-depth description of the standards and rules of each event.
- Resting periods.
- Action taken when a swimmer is in distress.

I-54. **Evaluator Actions.** The evaluator actions for Subtask 3502.1 10-Minute Stationary Float consist of the briefing and the evaluation of water entry.

- **Briefing.** The following is a briefing for Subtask 3502.1.
  - “You will now be required to receive all Go’s on Task 3502, the aviation battalion swim test. This task consists of Subtasks 3502.1, the 10-Minute Stationary Float; 3502.2, the 100-Meter Swim; and 3502.3, the 25-Meter Underwater Swim.
  - “Subtask 3502.1 is the 10-minute stationary float. This tests your ability to keep your head above water, looking for the SAR aircraft under your own power. You must enter the water feet first, keep your head above water unless momentarily adjusting your uniform for flotation, remain afloat under one’s own power during the first five minutes, and remain afloat under one’s own power using articles of clothing during the last five minutes of the float. The dead man’s float is not authorized. The event will be considered a failure if, at anytime you use the assistance of another person to stay afloat, touch the side or bottom of the pool, or use any other device besides personal equipment to stay afloat. Bumping into others, buoys, or the sides of the pool do not count as disqualification.
  - “Uniform for this subtask is BDUs or flight suit, flight helmet, survival vest, and combat boots.
  - “If you feel distressed at any time during this event, call to an instructor and he will come to your aid.
  - “The 10 minutes begin when your head returns above the water after entry. I will give you a count down for the first and last five minutes of the event. At the completion of the first countdown, you may use your equipment to remain afloat. At the completion of the second 5-minute countdown, you may exit the pool.”
- **Evaluation of Water Entry.** Water entry shall be made from a height of 5 feet above the surface of the water. If the depth of the water being entered is not 8 feet or more, then entry from water level is acceptable. Instructors will closely monitor the platform entries. The event time will start once the aviator resurfaces from entry:
  - For the first five minutes—unassisted float, the examinee shall remain afloat with his or her head continuously above the surface of the water. During this time, the examinee may dip his head below the surface of the water, not to exceed 10 seconds. The

examinee will use his own power to stay afloat. Using the side of the pool or another examinee, touching the bottom of the pool, or using equipment to remain afloat will result in event failure.

- For the second five minutes—assisted float, the examinee shall remain afloat with his or her head continuously above the surface of the water as described above. During this time, the student may use articles of equipment or clothing to stay afloat. Using the side of the pool or another examinee or touching the bottom of the pool will result in event failure.
- The evaluator will ensure that all examinees follow the rules stated above. The evaluator will call out the time remaining every 2-1/2 minutes, every 10 seconds remaining for each subevent, and the last 5 seconds of each subevent. Additional time-remaining calls can be made but are not required. When the second 5 minutes begin, the evaluator will announce, “You may now use your equipment to stay afloat” to the examinees. When the assisted float time terminates, the evaluator will announce, “The event is finished; you may exit the pool now.”

**I-55. Evaluator Actions.** The evaluator actions for Subtask 3502.2, 100-Meter Swim. This event consists of the briefing and the water entry:

- **Briefing.** The following briefing is for Subtask 3502.2.
  - “Subtask 3502.2 is the 100-meter swim. It tests your ability to travel short distances in the water under your own power. You must enter the water feet first. You must begin forward motion under your own power—no pushing off the side of the pool. You must remain in forward motion under your own power during the entire event. You must complete the entire 100 meters using 25 meters of the breaststroke, sidestroke, and backstroke. The last 25 meters may be any of the tested strokes. No other strokes are authorized. The event will be considered a failure if, at anytime, you use the assistance of another person to stay afloat, touch or push off the side or bottom of the pool, use any other device—besides personal equipment—to stay afloat or stop forward movement. Bumping into others, buoys, or the sides of the pool do not count as disqualification.
  - “Uniform for this subtask is BDUs or flight suit, flight helmet, survival vest, and combat boots.
  - “If you feel distressed at any time during this event, call to an instructor and he will come to your aid.”
- **Water Entry.** The student shall be given at least 3 minutes of rest before beginning the 100-meter swim. Water entry shall be made from a height of 5 feet above the surface of the water. If the depth of the water being entered is not 8 feet or more, then entry from water level is acceptable. Instructors will closely monitor the platform entries.
  - The examinees must swim 100 meters and use the breast stroke, side stroke, and back stroke for a minimum distance of 25 meters each. The stroke used for the last 25 meters will be one of the

three strokes previously mentioned. This event is not timed; however, the examinee must remain in a state of forward motion without any stationary rest periods. The examinee will not be allowed to use the sides or bottom of the pool for assistance or support from the time of entry to event termination.

- Each examinee will have an individually assigned evaluator if possible. The evaluator will watch the examinee enter the water for safety. The evaluator will ensure that the examinee follows the rules stated above while walking abeam the examinee along the side of the pool during the swim. The event is terminated once the examinee reaches a distance of 100 meters or fails. The evaluator will assist the examinee, if required, once the swim is complete.

**I-56. Evaluator Actions.** The evaluator actions for Subtask 3502.3, 25-Meter Underwater Swim. This event consists of the briefing, the water entry, and the completion of the swim test.

- **Briefing.** The following briefing is for Subtask 3502.3:
  - “Sub-task 3502.3 is the 25-meter underwater swim. It tests your ability to avoid surface hazards such as petroleum slicks or surface fires. You must enter the water feet first. You must begin forward motion under your own power—no pushing off the side of the pool. You must remain in forward motion under your own power during the entire event. You must complete the entire 25-meters, underwater, except for two allowable surfacings during the event. During your two allowable surfacings, you are allowed to take no more than three breaths or 5 seconds at the surface. Your entire body must be underwater to receive a “Go”. The event will be considered a failure if, at anytime, you use the assistance of another person to stay afloat, touch or push off the side or bottom of the pool, remain at the surface during forward movement except for surfacings, or stop forward movement. Bumping into others, buoys, or the sides of the pool do not count as disqualification.
  - “Uniform for this subtask is BDUs or flight suit, survival vest, and combat boots.
  - “If you feel distressed at any time during this event, call to an instructor and he will come to your aid.”
- **Water Entry.** This event will be preceded by at least 10 minutes of rest for the student. The 25-meter underwater swim tests the examinee’s ability to swim from a submerged aircraft without the aid of underwater breathing apparatus while avoiding surface hazards, such as oil fires, which may be present on the surface of the water after a forced landing:
  - The examinee will enter the water feet first and immediately swim underwater for 25 meters. Pushing off from the side of the pool is prohibited. The swimmer may surface twice for breathing. Intervals of 25 feet are recommended for breathing. No more than three breaths are allowed once at the surface for any more than

five seconds. This event is not timed; however, the examinee must remain in a perpetual state of forward motion without any stationary rest periods. The examinee will not be allowed to use the sides or bottom of the pool for assistance or support from the time of entry to event termination.

- Each examinee will have an individually assigned evaluator. The evaluator will closely watch the examinee enter the water for safety. The evaluator will ensure that the examinee follows the rules stated above while walking abeam the examinee along the side of the pool during the swim. The event is terminated once the examinee reaches a distance of 25 meters. The evaluator will assist the examinee, if required, once the swim is complete.
- **Completion of Swim Test.** To pass, a student will be swim-test qualified as long as he or she meets the minimum requirements mentioned above. He or she will be instructed to move on to the next portion of the training, which is a hands-on EBS orientation:
  - If a student does not meet the above-mentioned requirements as stated above, the battalion WSP OIC/NCOIC will be notified. Based on the recommendations of the swim test evaluator, the WSP OIC/NCOIC will decide whether to give the troubled student another chance at passing the test.
  - All attempts will be made to train the student, time permitting. Coaching is allowed, but no student will pass without completing the minimums. Troubled students will be identified to follow-on instructors as a possible safety challenge.

I-57. **Task 3503.** The EBS orientation introduces the EBS to the student. Upon completion of this instruction, the student will—

- Show knowledge of general EBS and preflight procedures.
- Perform underwater clearing procedures using the EBS.
- Perform underwater breathing with the EBS.
- Demonstrate knowledge of precautions to take during ascent from a submerged aircraft to the water's surface.
- Demonstrate knowledge of the characteristics, symptoms, and first aid for an air embolism.
- Clear the EBS in an inverted position.
- Perform EBS confidence training.

### **WARNING**

**AR 40-8 states that any individual breathing compressed air will be prohibited from flight operations for 24 hours.**

**WARNING**

The EBS contains compressed air. Care should be taken never to hold breath while using the EBS; never make a rapid ascent while breathing with the EBS, and if rapid ascent is unavoidable, breathe out continuously during ascent. Failure to follow this warning can result in a compressed breathing disorder such as a ruptured lung or and air embolism.

**Note:** Training is more effective if done in the pool with every individual in possession of EBS. The instructor will be able to point out the components and demonstrate more effectively this way. Ensure that every trainee is paying attention to the class by periodic querying:

- **Instructor Actions.** At the beginning of the orientation, the EBS instructor will gather his students in the shallow end of the pool. He will ask questions ensuring that the students retained the EBS information from academics:
  - **General Information.** Approximate airtime available from the EBS, parts of the EBS, and preflight information will be discussed.
  - **Preflight Information.** The EBS must be inspected before each flight. Remove it from holster. Check the pressure indicator for pressure from 2,600 to 3,000 pounds per square inch. Check the rest of the unit for integrity. Check the regulator for the presence of oil, grease, or dirt. Check the mouthpiece for deterioration and security of attachment. Check the first- and second-stage regulator for condition and security. The hose needs to be checked for cracks and dry rot. Check the condition of the LAN meter connecting the EBS to the holster. Replace the EBS into the holster. If any discrepancies are found, return the unit to the ALSE shop.
  - **Clearing the EBS.** Place the unit in your mouth. Exhale to force the water out of the regulator, or push the purge button to push water out of the regulator. Take a careful breath to ensure that the regulator is clear of water. Exhale a second time to force out any remaining water. Once the regulator has been cleared, breathe regularly, inhaling through your mouth only and exhaling through your mouth and nose.
- **Out of Water Clearing and Breathing Training.** This task is performed by the following:
  - **Instructor Task.** Demonstrate clearing and breathing with the EBS to all of the students above the water.
  - **Student Task.** Each student places the EBS in his or her mouth. Students clear and breathe with the EBS above the water's



surface. Every student must be competent in this task before proceeding.

- **Water-Level Clearing and Breathing—Empty Regulator.** This task is performed by the following:
  - **Instructor Task.** Submerge your head halfway (mouth underwater, eyes above water) into the water with the EBS in your mouth; ensure that no water enters by placing your tongue against the hole in the mouthpiece as you descend. Demonstrate clearing and breathing procedures.
  - **Student Task.** Have each student do the same. Make note of and take special precautions with apprehensive students; every student must be competent in this task before proceeding.
- **Water Level Clearing and Breathing—Flooded Regulator.** This task is performed by the following:
  - **Instructor Task.** Submerge your head halfway into the water (mouth underwater, eyes above the water).; submerge your EBS to flood the regulator with water. Place the EBS in your mouth keeping it submerged; demonstrate clearing and breathing procedures.
  - **Student Task.** Have each student do the same. Again make note of those trainees showing signs of discomfort and apprehension when breathing with the EBS; every student must be competent in these procedures before proceeding.
- **Subsurface Clearing and Breathing—Empty Regulator.** This task is performed by the following.
  - **Instructor Task:** Descend completely below the surface of the water with the EBS in your mouth; as you descend below the water line, ensure that your tongue covers the hole to the regulator mouthpiece to prevent water from entering. Demonstrate clearing and breathing procedures.
  - **Student Task:** Have each student do the same; make note of those uncomfortable trainees, and do not proceed until each trainee shows competence.
- **Subsurface Clearing and Breathing—Flooded Regulator.** This task is performed by the following:
  - **Instructor Task.** Descend completely below the surface of the water with your EBS in hand; ensure that the regulator floods with water. Place the EBS in your mouth, and demonstrate clearing and breathing procedures.
  - **Student Task.** Have each student do the same; make note of those uncomfortable trainees, and do not proceed until each trainee shows competence.
- **Student Confidence.** By now, each student should be comfortable with the clearing and breathing procedures with the EBS. If any trainee continues to show signs of apprehension, it is up to the MSI to allow that trainee to continue with the training.

- **EBS Confidence Training.** Trainees must become comfortable and competent with the EBS before conducting the SWET or SWET training. This is because it will increase the likelihood of survival and because the SWET training is conducted in water that is of a depth where an expanding gas disorder can occur. Students must be able to demonstrate proper clearing techniques and the ability to breathe with the EBS underwater and complete the confidence-building exercises before SWET training.
- **Inverted Clearing Procedures.** During this training, the EBS bottle must be cleared while the bottle is inverted. The student must learn how to do this now because an actual ditching is not the time to learn this skill. If the student shows proficiency breathing from an inverted EBS at least twice, then he will be allowed to position it however he sees fit for following EBS confidence exercises. The task will be performed by the following:
  - **Instructor Task.** With the student's head above the water, have him rest his lower legs on the edge of the pool. Use an instructor to hold the student's legs, another to support the student's back to stay above the water, and a third instructor wearing goggles or a mask to confirm that proper clearing and breathing procedures are being performed. Hand the trainee an EBS bottle. Have him hold the EBS. He will place the EBS into his mouth before submerging but will not start breathing until it is fully inverted. Tell the student to slowly submerge himself until he is inverted and then to clear and start breathing with the EBS. Termination of this exercise will occur once the student is breathing comfortably inverted under water.
  - **Student/Instructor Task #2:** Repeat the preceding procedure without the EBS in the student's mouth before submerging. When the trainee is inverted, hand him an EBS with a flooded regulator. Termination of this exercise will occur once the student is breathing comfortably inverted under water.
- **Underwater EBS Clearing and Swim.** Place an EBS bottle (multiple if room allows) on the bottom of the pool at the bottom of the deep end of the pool. Have the student stand at the edge of the pool. Instruct the student to jump in feet first, swim to the bottle, clear it, begin breathing underwater, and then swim back to the shallow end of the pool. Training is more challenging if done at night with lights out and a chemical light attached to the EBS.

I-58. The conditions and standards for Task 3504, Phase II: SWET Egress, and Task 3506, Crew Member Rescue, are listed in Figure I-9.

**Task 3504 Phase II: SWET Egress**

**CONDITIONS:** In a DA-approved pool, with appropriate uniform and shallow-water egress trainer.

**STANDARDS:**

- Perform Preditching Procedures.
- Perform Pre-egress Procedures.
- Perform Egress.

All instructors will know the task description, which is found in this appendix. To avoid duplication, the SWET egress will include only the briefing format for the SWET chair. This format will be adhered to for standardization in instruction.

**Briefing Format.** The briefing will be broken down into—

- SWET Orientation and Safety Procedures.
- Pre-ditching Procedures.
- Pre-egress Procedures.
- Egress.

**SWET Orientation.** The instructor will teach the following:

The SWET chair is the shallow-water egress trainer. It allows an aviator to learn basic egress skills while building EBS usage confidence. The SWET consists of a seat bolted to a stainless steel frame. A Plexiglas™ door simulator can be attached to the front or either side of the SWET. Pressure at any corner of the door will cause it to fall off. A four-point harness restrains the aviator. It can be released manually by the aviator by twisting its face 45 degrees in either direction, or in an emergency, the assistant trainer has an emergency release. Four buoyancy tubes are bolted to the frame. These keep the device afloat and allow it to be flipped easily. If you encounter any problems, place your hands on your helmet to alert us of an emergency.

**Preditching Procedure Brief:** The instructor will teach the following:

**Rated Crew Members (Pilots Brief):** The key to preditching is maintaining helicopter control, making appropriate ditching calls, jettisoning the door/window, and assuming a proper crash position. If ditching is imminent, maintain helicopter control and perform the appropriate emergency procedure. Call out “Mayday, Mayday, Mayday.” A “Mayday” call must be sent to alert SAR. Include position data. Next call out “Door, Door, Door,” and jettison the doors/windows according to the dash 10. Last call out will be “Ditching, Ditching, Ditching” to the other crew members. At this point, the instructor will let the student know if he is on the controls.

If on the controls, you must assume the appropriate crash position for being on the controls. Simulate grabbing the controls. Place your thumbs on the outside of them. This will lessen injury on impact. Obtain an upright sitting position. The closer you are to the seat back, the more travel you have for your harness to lock. If time is available, simulate locking your harness.

**Figure I-9. Task 3504 Phase II SWET Egress and Task 3506 Crew Member Rescue**

If not on the controls, “jettison the door/window. Simulate locking your harness if time is available. Now, assume the brace position. Wrap your arms across your chest while grasping your seatbelt harnesses. Grab the restraint or your vest to anchor your hands for impact. Obtain an upright sitting position. The closer you are to your seat back, the more travel you have for your harness to lock.”

**Nonrated Crew Members (Such as Crew-Chief):** The key to preditching is making appropriate ditching calls, opening the window/door, and assuming a proper crash position. If ditching is imminent, call “ditching, ditching, ditching” to let the other crew members know of your intent.

“Obtain an upright sitting position. The closer you are to the seat back, the more travel you have for your harness to lock. If time is available, manually lock your harness.

“Now assume the brace position. Wrap your arms across your chest while grasping your seatbelt harnesses. Grab the restraint or your vest to anchor your hands for impact. Obtain an upright sitting position. The closer you are to your seat back, the more travel you have for your harness to lock.”

**Regress Procedures Brief:** The instructor will teach the following:

“The aircraft has now impacted the water. You no longer have any control over it, and it is starting to roll. You must now perform ditching procedures. You must evaluate the situation, employ the EBS if needed/available, clear your egress, and place your hands on your thighs. Evaluate the situation. Determine if you are close to your exit or if it is blocked.” There are four variables. Teach each as follows:

If the aviator is far from the exit (UH-60 aviators), “You have determined that the exit is far from you and that you will need more time to egress. Locate your EBS. Place it in your mouth, and clear it. Take a cautious breath. Clear it again. Begin a normal breathing pattern.”

Proceed to either “the exit is clear” or “the exit is blocked.”

If the aviator needs more time to egress, “You have determined that you will need more time to egress. Locate your EBS. Place it in your mouth, and clear it. Take a cautious breath. Clear it again. Begin a normal breathing pattern.”

Proceed to either “the exit is clear” or “the exit is blocked.”

Proceed to the exit, and it is clear. “You have determined that your exits are clear. Place your hands on your thighs.”

Proceed to egress procedures brief.

Proceed to the exit, it is blocked, “The doors did not jettison so your exit is blocked. Place your hand on a corner of the Plexiglas™ plate, and push. This will clear your exit. Once the exit is clear, place your hands on your thighs.”

**Figure I-9. Task 3504 Phase II SWET Egress and Task 3506 Crew-Member Rescue (Continued)**

**Egress Procedures Brief:** The instructor will teach the following: “Your hands are now on your thighs, and you can now find your handhold. If you cannot find a handhold, you can always bring your hand back to your thigh and begin again. It is now time to egress. Slide your right (or left) hand outwards towards the console. Obtain a good handhold. Your perspective may be changed because of seat stroking; do not let this bother you. Your handhold should be something fixed and recognizable. Flight controls or glare shields make bad reference points because they move. Once you have secured a handhold, disconnect your helmet connections with your free hand. Maintain your handhold. If you have trouble disconnecting your helmet, start at the helmet base, slide down the connector, and pull. Do not spend too much time on your connections. Once your helmet is cleared, reconfirm your handhold. Now, release your harness. Be prepared for instantaneous buoyancy in shallow waters. Pull yourself from the SWET chair, and swim to the surface. Exhale continuously during ascent and keep your hands above your head. Assume that there is a surface fire, and splash your hands out before surfacing. Once at the surface, begin water-survival techniques.”

**Instructor Actions:** Once you have briefed the student, ensure that he understands the instructions with a back brief. Advise him to call out “Mayday, Mayday, Mayday” to begin the iteration. The instructor will place his hand on the upper side of the SWET support in the direction of roll. The assistant instructor will follow suit. The instructor will wait for the student to perform preditching exercises. The lead instructor will then begin the dunking process by force of roll.

#### **Task 3506: Crew Member Rescue**

**CONDITIONS:** In the SWET, wearing MAC-10/P mustang suit, simulated SARVIP, SRU-37 life raft and LPU-10/P water wings, and combat boots.

**STANDARDS:**

Rescue crew member from SWET after ditching.

**DESCRIPTION:**

The student will stand on the back of the SWET second station. With EBS in mouth, the crew member rides the SWET in with the instructor. The crew member pulls the stranded pilot from the chair using the rotating seat until the pilot reaches the surface safely.

**Briefing:** “You will now be required to rescue your crew member from a submerged aircraft.” Demonstrate operation of the rotating chair. Have the student do a dry run. “When the SWET stops rolling, pull on the rotating chair, undo the harness, and pull your stranded crew member from the SWET. Do not hit his or her head against the device. Pull him or her to the surface safely. Use the EBS if necessary.”

**To Person in the Chair:** “You will be rescued from the SWET. After the SWET stops rolling, employ the EBS. Breathe normally, and wait for extraction. A diver will be readily available if the other student has complications.”

**Figure I-9. Task 3504 Phase II SWET Egress and Task 3506 Crew-Member Rescue (Concluded)**

## EMERGENCY BREATHING SYSTEM (EBS)

### TERMINAL LEARNING OBJECTIVE

**I-59. Terminal Learning Objective.** As an aircrew member, perform inspection, clearing, breathing, and egress procedures with the EBS while wearing required flight equipment and adhering to applicable safety precautions and procedures outlined in this lesson plan.

**I-60. Safety Considerations.** The following safety issues must be considered:

- **Medications.** Ensure that soldiers scheduled for EBS training understand that they must not take any medications up to 12 hours before training begins.
- **Safety Hazard Awareness Notice.** The potential for a mishap during EBS training is ever present. To ensure staff and student safety, the following considerations need to be addressed. Be alert for students who appear to be experiencing difficulty, and do not hesitate to exercise the training time-out policy. All weak swimmers and nonswimmers will be identified and receive special attention.
- **Conditions and Control Measures.** Inform students of any known hazardous conditions and control measures that exist in the training environment and of their responsibility to report any unsafe/unhealthy condition that they may discover. Identify the location of emergency equipment and fire exits and the local procedures used in case of a fire or other emergency. In case of an in-water emergency (three blasts on the whistle or sounding of applicable alarm), students will exit the pool immediately and proceed to the predesignated location.
- **Environmental Exposure.** Personnel shall not participate in flight duties for 24 hours after completion of EBS training.
- **First-Aid Treatment.** This includes oxygen administration, treatment for shock, CPR when needed, and transport to the nearest hyperbaric facility according to the mishap plan.
- **EBS Training.** The EBS training is conducted in shallow water (3-feet) to ensure your safety. A lung rupture in this depth of water is extremely unlikely. EBS training instructors (dive supervisors) will be military trained Scuba divers will be familiar with the EBS and the use of the shallow-water egress trainer (SWET). Unit commanders will strive to get individuals scuba trained to make this EBS method of instruction (MOI) effective.
- **Phases I and II of Overwater Training.** Before engaging in EBS training, personnel shall be proficient with the wear and operation of standard aviation life support equipment and be familiar with survival, signaling, and rescue techniques appropriate to sea-survival situations. Phases I and II of overwater training meet this requirement.

- **Emergency Techniques.** There will be a minimum of one certified Red-Cross lifeguard for every four students in the water. Emergency medical personnel with appropriate equipment and a suitable vehicle for transport will be readily available during all water training.
- **Personnel Safety.** All personnel must be reminded that personal injury, death, or equipment damage can result from carelessness, failure to comply with the approved procedures, or violations of warnings, cautions, and safety regulations.

## PERSONNEL PHYSICAL REQUIREMENTS

I-61. Prospective and designated aircrews shall report with a current up-slip. Questionable cases of disqualification shall be referred to a dive supervisor, aviation medical officer, or aviation medical examiner for disposition.

## REQUIRED TRAINING AIDS

I-62. The following are required training aids:

- Audiovisual (U.S. Navy training films) training tapes; MF 46-5820 film), E0241 DN, or sound slide presentation, 8U1781 DN (INDOC for the EBS).
- SRU-21/P-2 survival vests (weigh 3 pounds).
- PRC 90-2 and PRC 90-2/112 survival radio.
- Applicable aviation brigade flotation equipment.
- VHS player and television.
- EBS tests and answer sheets.
- SPH-4 flight helmets.
- Standard lifeguard equipment (for example, flotation device, shepherd crook, reaching device, to include dive mask, or shallow--water egress trainer).

## REQUIRED TRAINING EQUIPMENT

I-63. Students will report to training with boots and BDUs/flight suits (for example, uniform that they would normally wear when participating in overwater flight) that they can wear into the water while conducting training.

## TRAINING REQUIREMENTS

I-64. Initial training and annual refresher training are mandatory for aircrew members and selected passengers. Initial training will be given once every four years. It will include tasks outlined in this memorandum under "Academic Phase Learning Objectives" and "Performance Phase Learning Objectives." To maintain currency, personnel will only be required to complete annual refresher training that will consist of "Academic Phase Learning Objectives."

## ACADEMIC PHASE LEARNING OBJECTIVES

I-65. Students will be able to state/describe procedures relating to the following subjects: proper preflight checks for the EBS, clearing water from the EBS, proper breathing techniques, and hazards associated with breathing compressed air underwater, and identifying the symptoms of air embolism and other related injuries. Procedures are the following:

- In a classroom with appropriate training aids available, provide instruction on the inspection, use, and safety features of the EBS; video presentations will be used with instruction.
- Practical exercises are performed in the classroom, with each student demonstrating the inspection and deployment of the EBS; each student will pass a written test on the operation of the EBS and underwater breathing procedures. Students must score 85 percent minimum before attending the performance phase of training.
- Before using any EBS system, aircrew members will be trained according to this lesson guide that outlines training, qualification, and currency; soldiers completing a Navy course of instruction for EBS qualification that meets all the criteria in this MOI may be certified at the commander's discretion.
- The Emergency Breathing System (EBS) II and III and the SRU-40 (the latter will be used with the new ALSE AIRSAVE system) are small bottles of compressed air available through the U.S. Army procurement system. The commercial version is marketed as "spare air." These are the only systems authorized for use in United States Army, Pacific (USARPAC). The EBS provides from two to four minutes of emergency breathing air, allowing escape from a helicopter downed in water.
- Technical information for the remainder of this lesson plan will relate to the EBS III only. Significant differences in the systems include on-off valves, operating pressure, and mounting locations. For EBS II, "spare-air," or SRU-40 versions refer to the appropriate operator manuals for technical specifications.
- The EBS III is stowed on the survival vest for easy access in a holster that has been authorized to help alleviate cockpit space management problems. The EBS II and spare-air versions have a slightly different shape and can be mounted in a different holster that is attached to the survival vest. The SRU-40 will have a standard location on the AIRSAVE vest.
- The EBS is tied in via tether-line quick disconnect. The tether line disconnects from the bottle if entangled during egress. The EBS is secured to the holster to prevent loss. If dropped during egress, locate the tether line where it is attached to the holster and pull to retrieve.



**BASIC LESSON PLAN AND AIRCREW REVIEW MATERIAL**

I-66. The EBS must be inspected before each flight. Remove from holster, and check the pressure indicator (white poppet indicator). Minimum pressure (2,600 pounds per square inch) shows white stem level with green (or shallow) groove. Full charge is 3,000 pounds per square inch top of stem level with top of indicator. Depress purge valve briefly; listen to ensure that the regulator resets (stops airflow). Check the rest of the unit for integrity. Check the regulator for presence of oil, grease, or dirt. Check the mouthpiece for deterioration and security of attachment. Return the unit to the ALSE shop if any discrepancies are found. After completing the inspection, return the unit to the holster and secure the pocket.

I-67. Using basic underwater physics and physiology, a column of air one-inch square extending from sea level to the outer edge of the atmosphere weighs 14.7 pounds and is referred to as one atmosphere of pressure. This force is constantly exerted on our bodies. One atmosphere of pressure is also represented by a one-inch square column of seawater at a depth of 33 feet.

I-68. While submerged, the body is subject to not only the pressure of the water but also the pressure of the air above the water. At a depth of 33 feet of seawater (FSW), pressure equals 2 atmospheres (or 29.4 pounds per square inch). As depth increases, pressure exerted upon the body will increase by one atmosphere for every 33 FSW. Increased depth and pressure markedly affect the air spaces in the body. While descending, the density of the air required for maintaining the normal lung volume would increase. At 33 FSW, the lung will hold twice as much air and have twice as much pressure inside as when at the surface; at 66 FSW, three times as much.

I-69. While ascending, the decreasing pressure of the water outside the lungs will cause the air inside the lungs to expand. If you hold your breath while ascending, your lungs will quickly expand to a point where they will rupture. If the expanding air inside the lungs is not allowed to escape during ascent, the lungs will rupture, causing any one of several overexpansion injuries; the most serious of which is an air embolism. In laboratory tests, lung tissue has ruptured with the addition of as little as 2 per square inch when the tissue was fully stretched. Two-per square inch equals about 4 feet of seawater (FSW). Death from overexpansion injuries has occurred in depths as shallow as three feet.

I-70. Symptoms of air embolism include dizziness, paralysis or weakness in extremities, large areas of abnormal sensation, blurring vision, convulsions, or unconsciousness.

I-71. While using EBS during underwater egress remove the EBS from the holster and place in the mouth, breathing through your nose to conserve your air supply until underwater. If unable to position the unit before the aircraft fills with water, egress through the nearest exit. If egress is impeded for any reason, immediately place the EBS in your mouth with one hand while maintaining your hold on your reference point with the other hand. Clear the regulator, and start breathing.

I-72. Two methods can be used to clear the EBS regulator; for both methods, the regulator must be oriented with the top toward the surface, exhaust valve facing down, or water will not be forced out. Place the unit in your mouth, and get yourself in an upright position, head toward the surface, or invert the unit so that the regulator is pointed toward the surface. Pressing the purge button and inhaling simultaneously may result in overinflation of lungs/aspiration of water:

- **Method One:** With the unit in the mouth, place the tongue against the hole in the mouthpiece. Briefly depress the purge button to force water out of the exhaust valve. Exhale half of your breath into the mouthpiece; take a careful first breath in, and exhale sharply. Once the regulator is cleared, breathe regularly, inhaling through your mouth and out through your mouth and nose.
- **Method Two:** With the unit in your mouth and the regulator oriented with the top toward the surface, exhale forcefully and sharply; then slowly and carefully inhale. This is the preferred method.

I-73. Once clear of the aircraft, continue breathing normally and swim to the surface. The life preserver should not be inflated. In some cases, it may be necessary to inflate the life preserver such as being disoriented following a night egress. If you have inflated your life preserver, you must exhale continuously during ascent. To avoid the possibility of experiencing pulmonary overinflation syndrome following a successful underwater egress, remain calm, breathe normally on a normal swimming ascent, or exhale continuously on a buoyant ascent or when out of air.

I-74. All students will satisfactorily complete the following before moving on to performance training. Complete an EBS written exam, and pass with a grade of 85 percent or better; demonstrate and perform a preflight inspection of the EBS; and practice breathing from and clearing the EBS underwater in the upright then inverted position.

## EBS PERFORMANCE PHASE LEARNING OBJECTIVES

I-75. Perform underwater egress procedures using the EBS and training device 9H21 while wearing the required flight equipment:

- The following are special considerations:
  - During EBS training while using the shallow-water egress trainer, if the student is caught in the device, the SWET operators will retract the device or return the student to the surface. If water inhalation is suspected, one of the certified Red-Cross lifeguards shall supervise the removal of the student from the pool. The lifeguard will then conduct a primary survey and provide treatment as needed.
  - The diving supervisor will ensure that a flight surgeon is available during training. In case of suspected gas embolism, the diving supervisor supervises the removal of the student from the water and conducts a neurological exam. If an embolism is suspected, supplemental oxygen shall be administered and the

student's condition assessed by a dive supervisor to determine the need for hyperbaric chamber treatment. The diving supervisor shall remain with the injured student until the possibility of a gas embolism has been ruled out or the student has been transferred to a hyperbaric chamber.

- Students shall become familiar with and demonstrate proper underwater breathing procedures—clearing the regulator and exhaling to the surface—before training in the shallow-water egress trainer.
- Students shall be strapped into the device using shoulder straps and lap belt and instructed to hold onto the seat with both hands. Great emphasis should be placed on always maintaining a reference point with at least one hand while performing egress training.
- The SWET phase procedures and rides consist of the following:
  - Procedures for the use of the SWET are contained in this appendix. When the student is ready, the device operator will rotate the device and submerge the student. Students will wait three to five seconds, grasp a reference point with one hand, and then release the lap belt with their other hand. Next, they will pull down free of the seat and rotate to a horizontal face-down position while holding onto a reference point with both hands. The students will then proceed with a normal egress or activate the EBS, depending on the ride sequence.
  - When using the EBS, the student will hold onto a reference point with one hand and use the other hand to activate the EBS. After activating and clearing the EBS, the student will use both hands to pull out the device.
  - The rides will be conducted as follows. The first ride is a familiarization ride using normal egress procedures and not using the EBS.
  - For the second ride, the student shall start breathing on the EBS before submerging (breathe through the nose only when above the surface) and proceed with egress using normal procedures while breathing in through the mouth and exhaling through the mouth and nose, exhaling continuously to the surface.
  - On the third ride, the student shall submerge with the EBS in the holster, grasp a reference point with one hand, release the lap belt, pull out the seat, hold onto a reference point with one hand, and remove the EBS from the holster with the other hand. Clear the water from the mouthpiece, and breathe from the EBS. Grasp a reference point with both hands. Start exhaling, pull out, and swim up to the surface, exhaling continuously.
  - On the fourth ride, the student shall submerge without breathing from the EBS, remove the EBS from the holster while strapped in the SWET, invert the EBS, clear it, start breathing, and egress using normal egress procedures while breathing from the EBS, exhaling continuously to the surface.

- Trainers will ensure that the student is free of symptoms of ruptured lungs on reaching the surface. Symptoms of ruptured lungs will occur within 10 minutes following the injury. Therefore, all students shall be required to remain in the immediate training area for at least 10 minutes following underwater breathing of compressed air.
- Commanders will ensure that adequate records of initial training and annual revalidation are maintained and that EBS is restricted for use by qualified personnel only.

### SHALLOW-WATER EGRESS TRAINER (SWET)

I-76. **Function:** The SWET device provides hands-on training in procedures for egress while breathing from the EBS.

I-77. **Description:** The SWET consists of a tubular frame, seat, and shoulder harness/lap belt. The trainee is strapped into the seat and then inverted on the frame via two handles attached to the frame. The student then uses proper egress procedures while using the EBS. The SWET includes the following stations:

- Trainee station is in the seat.
- Device positions/stations for staff personnel should be filled during device operations; the following required device positions/stations are filled:
  - Diving supervisor (not required if the EBS is not being used during training).
  - Two device operators.
  - Safety observer with mask and snorkel; this person will be a certified and current Red-Cross lifeguard.

I-78. **Minimum Personnel Requirements:** At least three people are required to operate the SWET training device and perform training:

- The dive supervisor is not required to be in the water but must directly supervise all in-water EBS training.
- A flight surgeon and emergency response team shall be available for emergencies and consultations.

I-79. **Responsibilities:** The responsibilities for personnel requirements are the following.

- The overwater training officer (water safety officer) is responsible for all phases of daily training.
- The diving supervisor should be a qualified U.S. Army or Navy scuba diver such as an Army or a Navy scuba school graduate.
- Scuba rescue divers (with approved schooling/qualifications) may be used in lieu of Red-Cross lifeguards based on exceeding qualifications. The diver shall—
  - Ensure the availability and status of recompression facilities before beginning compressed air breathing.

- Ensure that personnel are available to refill EBS bottles as necessary.
- Ensure that bottles are properly disinfected before use.
- Be responsible for the overall use of compressed air during training.
- Assist the trainers operating the SWET device as needed.
- Be responsible for management of all injuries or suspected injuries that are related to breathing compressed air.
- Red-Cross lifeguards shall—
  - Be in the water at all times during training.
  - Assist the SWET instructor or dive supervisor as needed.
- When lifeguards are performing safety observer duties with a mask and snorkel, he or she will act as an OIC at that station and will oversee and direct the conduct of SWET rides.
- Device operators shall—
  - Inspect the SWET, ensuring serviceability and that during rotation, the student will not go below 3-1/2 feet measured at midthorax.
  - Ensure that the student is properly strapped into the device and ready before water entry.
  - Slowly rotate the student to the inverted position, maintaining a firm grip on the rotation bar and remaining alert and ready to retract the student if necessary.

**I-80. Operating Procedures:** The SWET shall be operated according to this MOI:

- The student shall be strapped into the seat using lap and shoulder restraints.
- When the student is ready, the device will be slowly inverted, submerging the student.
- The student will then precede with the predetermined egress procedures.
- When the student experiences difficulty or gives a signal for help, the instructor shall either assist the student out of the device or signal for the device operators to retract the device (the signal to retract the device is to point the index finger up and rotate it in a circle).
- If the student has been assisted or retracted, the instructor shall ensure that he or she is not experiencing any physical problems before submerging him or her again.

**I-81. Safety:** The WSIs will ensure that—

- Students will be briefed on emergency signals before training.
- Students will not descend below 3-1/2 feet during training as measured from midthorax.
- Students exhale continuously during ascent.

- Student must not strike poolside or bottom.
- All personnel breathing compressed air are monitored for at least 10 minutes for signs of an air embolism following last descent.

I-82. **Emergency Procedures:** The following actions should be taken if a student is caught in the device:

- SWET OIC retracts the device or returns the student to the surface.
- If water aspiration is suspected, the dive supervisor shall supervise the removal of the student from the pool, conduct a primary survey, and provide treatment as indicated.
- The student with suspected air embolisms will be given supplemental oxygen and transported to the nearest flight surgeon to determine the need for hyperbaric chamber treatment; the dive supervisor shall remain with the injured student until the possibility of a gas embolism has been ruled out or the student has been transferred to the hyperbaric chamber.

## Appendix J

# Destruction of ALSE to Prevent Enemy Use Training Material

This appendix provides destruction of ALSE to prevent enemy use training material and information as an aid to commanders', aviation life support officers, aviators, crew members, ALSNCOs, ALSETs, and staff members for planning and conducting such training. Aircrew members' may be placed in a situation that requires the destruction of ALSE to prevent enemy use. Thus, your unit-training objective should focus on the techniques, tactics, and procedures to conduct the destruction of ALSE to prevent enemy use.

### DESTRUCTION OF ALSE TO PREVENT ENEMY USE

J-1. **CONDITION:** The academics phase of this task will be administered in a classroom environment with an overhead VGT, training video, and Power Point™ presentation. The field-training phase of this task should be conducted in the tactical training environment according to ARTEP Task 01-2-0108.01-ONRC. Students will be evaluated as a team and on an individual basis. Classroom academics for this task may be instructed by Q2-qualified ALSE personnel. A SERE-III-qualified survival instructor will conduct survival training according to AR 350-30.

J-2. **STANDARD:** Students will be administered an oral review of procedures for this task during the classroom phase.

J-3. **REFERENCES:** TM 750-244-1-2, Joint Publication 3-50.2, Joint Publication 3-50.21, Joint Publication 3-50.3, ARTEP Task 01-2-0108.01-ONRC, and this field manual are the references for destruction of ALSE.

### SECURITY CLASSIFICATION STATEMENT

J-4. SERE III training includes some classified levels of information. The instructor will provide a briefing on the disposition and safeguarding of this information. SERE III instruction is limited to United States Department of Defense and joint services military personnel only. Foreign students will require written permission from HQ-JFKSFWC-Fort Bragg, N.C. 28310, before receiving SERE III training.

### ENEMY USE OF CAPTURED ALSE EQUIPMENT

J-5. The decision for downed aircrew to destroy their aviation life support equipment (ALSE) is made as a "final event-driven action" if capture by enemy forces is imminent.

J-6. ALSE is vital to an evader's survival, evasion, radio communications with rescue forces or other evaders, and safe recovery. Downed aircrew faced with the possibility of capture would continue to evade and fight until killed or rescued. If aircrews are captured, it is likely that their ALSE would be captured along with them and falls into enemy hands.

J-7. During armed standoffs, evaders would be hesitant to destroy their ALSE as this is a personal sign of “I give up, I surrender”. The timeline between identifying that capture is imminent and point-blank, hands-on contact with the enemy may not provide evaders with many options and time to destroy equipment.

J-8. Captured ALSE could be used by enemy forces to deceive and ambush rescue aircraft or other evaders. ALSE could also provide enemy intelligence officers with information regarding the aircrew’s origin and unit’s survival equipment ensemble.

### **AUTHORITY TO DESTROY EQUIPMENT**

J-9. Downed aircrews shall be briefed on specific instructions for destroying their aircraft and equipment to prevent enemy use before flying missions in hostile/combat areas.

J-10. Instructions for destroying equipment will be contained in the theater special instructions (SPINS) according to JP 3-50.21. The S2/S3 section is responsible for providing the aircrew with a SPINS briefing before combat missions. Units must incorporate these procedures into their tactical standard operating procedures (TAC SOP).

J-11. The authority to destroy aircraft to prevent enemy capture is delegated to the theater commander. The destruction of ALSE is an equally sensitive decision left to the downed aircrew.

### **PROCEDURES FOR DESTROYING ALSE EQUIPMENT**

J-12. TM 750-244-1-2 contains procedures for destroying ALSE. If ALSE cannot be evacuated to safe areas, or capture by enemy forces is imminent, it should be destroyed to a point beyond repair and use.

J-13. The lack of time may not provide an easy or safe method of destroying equipment. The most common method is by fire, the other by explosives. Both methods are extremely dangerous and should only be done as a last resort to prevent capture.

J-14. At base camps expecting enemy attack and control, equipment could be buried deep in the ground if engineer equipment is available. Deep lakes, rivers, and ponds could also provide a safe deposit for equipment.



## **Appendix K**

# **Combat Escape, Evasion, and Recovery Techniques Training Material**

This appendix provides combat escape, evasion, and recovery techniques, training material and information for commanders, aviation life support officers, aviators, crew members, and staff members. By supplementing this appendix with survival publications and resources listed in the bibliography, units can tailor their training outline based on mission requirements and location.

### **EVASION TRAINING PAYS OFF**

K-1. Data comparing PW and evader/recovery statistics has brought to light some interesting information about the past that could help shape future combat survival/SERE training.

K-2. During World War II, incomplete and fragmental records were kept on successful evasion and recovery episodes. Of the three major theaters (North Africa, Europe, and Asia)—the least amount of information was found on North Africa. It appears that an unknown number of PWs were shipped back to Europe, but members of 382 aircrews were able to reach their own lines. Even though the longest episode took 29 days and covered 350 miles, the average was only 5 days and 50 miles. Out of the 382 aircrews (crew size of from 1 to 10), 142 individuals died from environmental causes after getting safely to the ground.

K-3. Much more information was found on PWs and evaders in Europe, but the figures have not been broken down by service branch. At the end of the war, 93,600 Americans were prisoners of the Germans. Most of these were aircrew personnel who had been shot down during the years of bombing before, as well as after, D-Day.

K-4. The number of successful evasion incidents for Europe totals more than 41,246—6,000 of which were returned by submarine/ clandestine boat or aircraft before D-Day. In the five months after D-Day, more than 1,393 (fliers) evaders/escapees walked back to friendly lines (527 shot down before D-Day, 666 after D-Day, and more than 200 early escapees). Neutral Switzerland turned over 1,503 U.S. personnel (790 fliers) by December 1944. Of these 41,246 successful evasions, about 38,000 were with some form of civilian assistance; nevertheless, nearly all Americans had to evade some length of time to stay free until they linked up with civilians or partisans.

K-5. In Asia, the total number of U.S. PWs taken by Japan was about 25,000, and about 8,500 of these (34 percent) died of neglect and abuse before liberation. Evader statistics are sketchy for this theater, but more than 1,000 U.S. fliers/evaders were assisted in China, more than 574 in Burma, more than 1,000 on New Guinea and the Solomon Islands, and 648 in French Indochina (Vietnam), Cambodia, and Laos (three-month total—April through June 1945) for a total of 3,222. We have not found any totals for successful

evasions in the Philippines, Borneo, or the numerous islands throughout the Pacific, but there are many individual stories.

K-6. At the end of World War II, there were 110,100 live ex-PWs and more than 45,000 successful U.S. evaders. Few, if any, of these people had any formal combat survival training (SERE).

K-7. By the beginning of the Korean War, the U.S. Air Force had begun to prepare (Strategic Air Command forces) with survival training primarily to survive and evade to a recovery site/border or, if necessary, resist enemy exploitation in the event of a conflict with the Soviets. Many, but not all, had evasion training when they were sent to the Korean Theater. Statistics for this war were more complete than for World War II. During the Korean War, 1,690 Air Force personnel were downed in enemy-held territory. Of this number, 248 PWs were returned in 1953. Helicopters and SA-16 amphibian planes were dedicated to aircrew recovery and recovered 175 U.S. and 86 Allied (U.N.) fliers shortly after being downed. Another 95 American fliers were able to evade on foot to friendly lines, and three others escaped and returned to friendly forces for a total of 273 successful returns of U.S. fliers. The longest episode lasted 83 days.

K-8. After analyzing the combat survival experiences of the Korean and previous wars, President Eisenhower signed Executive Order 10631 creating the Code of Conduct as a moral guide to behavior for U.S. military personnel facing evasion or captivity. In 1955, the Secretary of Defense issued training requirements and guidelines to the services to implement this order.

K-9. Specialized training appropriate to service and individual requirements must be given in evasion, escape, resistance, prisoner organization, and survival. These programs should be progressive—from general to specialized training—and continue throughout the career of the service member. This training would be conducted within normal training systems, using special courses of instruction and by realistic field exercises and maneuvers.

K-10. Even though we know the numbers of successful evaders is incomplete, tallying and comparing the percentages produces interesting results. It appears that fliers with no evasion training downed during World War II in an area with basically friendly civilians, who for the most part were similar in appearance, only had a 30-percent success rate for combat survivors. In the Korean War, aircrews having some evasion training and with no sympathetic or similar-looking population, led to more than 52 percent of the combat survivors being successful evaders, while just fewer than 48 percent survived as PWs.

K-11. In Southeast Asia (SEA), where almost all USAF aircrews had evasion training and with a hostile, dissimilar population, more than 78 percent of the combat survivors were successful evaders while fewer than 22 percent survived as PWs.

K-12. Lack of battle lines, air superiority, and all aircrews being equipped with numerous signaling devices caused nearly 100 percent being listed as recovered by air; walking was a last resort.

K-13. The technology of helicopters and radios allowed about 75 percent of the SEA evaders to be recovered within six hours of being downed. Since

then, our potential enemies have also made technological advances in the area of lightweight, cheap antiaircraft missiles and quick, accurate radio direction finding (DF) equipment. With one form of technology decreasing the advantage of the other, future strategies for evasion and recovery for U.S. military personnel should include enhanced evasion training so that evaders might travel away from a high-threat area and use clandestine communications to initiate a recovery effort.

K-14. The confidence and knowledge provided by evasion training may benefit those unfortunate evaders who are not successful. Even when successful evasion appears impossible, a wholehearted attempt may be valuable to a PW's resistance. Every day spent evading can make the PW a poorer target for exploitation. What interrogator is going to work on an American for perishable, tactical information when the prisoner's appearance and aroma obviously indicate that he has been evading for a week or two. Answers of "I do not know," or "cannot remember," may seem more plausible and may be accurate.

- Potential evaders must receive training that will enable them to evade and stay free; find water and food; protect themselves from the environment; and accurately navigate to recovery sites away from the enemy threat and clandestinely communicate for recovery by conventional or unconventional means.
- Research revealed that the percentage of downed aircrews who successfully evaded increased dramatically between World War II and the Vietnam conflict.
- It is time again to learn from the past and prepare to meet the needs of the future by maintaining and improving the evasion training programs that have evolved through our experiences of the past 50 years.
- As shown by past efforts, evasion training pays off—in live American military people, unexploited and free to fight again.

## **WHY TAKE TIME FOR EVASION PLANNING**

K-15. Planning before an evasion episode can make the difference between successful evasion and capture. Knowledge of the natural environment, potential destinations, enemy activity, your capabilities and limitations, available resources, recovery locations, and procedures can all be weighed against one another to suggest the primary plan, and several alternate plans, of action leading to recovery. These plans may be informal personal efforts or formalized into an evasion plan of action (EPA). EPAs may be provided by the intelligence sections of some units or be formulated by the potential evader and kept by unit intelligence until required to aid in recovery.

K-16. The EPA is a course of action that improves a potential evader's chances for evasion and recovery. The effort put into developing an EPA helps the potential evader become familiar with the area of operation, enabling him to adjust or alter the EPA if the situation or enemy activity makes it necessary. The evader's EPA can provide an additional source of information to recovery forces by helping predict the actions of the evader. Developing or reviewing an existing EPA is required for all aircrew members

flying in hostile environments. The following information should be considered when developing an EPA:

- Planned general routes/directions to and from the mission area.
- Planned evasion routes and rally points and bailout, forced landing, or ditching sites for each leg of the mission.
- Immediate actions, which include the following:
  - Ground mission evaders, at the discretion and instruction of the ranking member, should consider forming small evasion teams, holding up, or moving to a rally point.
  - Aircrew members, upon aircraft egress or parachute landing, should consider linkup procedures, equipment disposition, and destruction of classified.
  - The priorities for aircrew members are treatment of wounded, use of weapons, and initial communication procedures.
- The following are extended evasion goals and techniques during the execution of an EPA to be considered:
  - Include general direction of evasion and intended predetermined recovery sites for each leg of the mission; for example, if uninjured, I intend to travel south from the battle/shoot-down area for about two or three days, traveling at night only.
  - I will not attempt to establish radio contact with any friendly forces/aircraft I see en route; once I reach the ridgeline to the south, I will travel in the daytime and attempt radio/visual contact with any friendly aircraft sighted while en route to XYZ.
  - Upon reaching XYZ, I will follow the instructions given to my unit before the mission.

K-17. If time is available, details—such as intermediate goals or stopover points and routes of travel—might be added. Both evaders and recovery assets must realize that enemy activity, injury, and other variables may cause EPAs to be altered or discarded.

K-18. Personal planning should always address initial actions to be taken immediately after isolation. Preplanning these actions can help eliminate or reduce confusion and delay. The last step in preparation before actually entering combat should be a mental checklist:

- Do I have the proper knowledge and equipment for the mission?
- Am I clothed properly for the environment?
- Are my clothing, pockets, and wallet “sanitized” so that if I am captured I will have no information of value to the enemy (for example, unit rosters, assignment locations/orders, or training you have had)?
- Do I have personal survival/evasion aids?
- Do I know what to do if this mission does not go as planned or in case of emergencies?

- Can I remember the authentication information on my ISOPREP (DD Form 1833)?

K-19. If a potential evader can say yes to the previous questions, he should be prepared to deal with most evasion/survival situations, if he has the opportunity and motivation.

## EVASION PLAN OF ACTION (EPA)—PLANNING

K-20. EPAs may be issued by the intelligence sections of some units or formulated by the individual potential evaders. They are then kept by unit intelligence until required to aid in a recovery.

K-21. The following information should be considered when developing an EPA:

- Planned route of flight/travel to and from mission area and emergency plans for each leg of the mission.
- Immediate actions/intentions for the first 48 hours (injured and uninjured) to include the following:
  - Hide near the aircraft/parachute landing site or area of separation from the team (distance and heading).
  - Evade alone or link up with crew or team members.
  - Plan travel (distance, duration or time, and speed).
- Intended actions/length of stay at initial hiding location; for example, equipment disposition, destruction of classified information, treatment of wounds, use of weapons, and initial communication procedures including signals/equipment not standard with the unit issue; for example, personally procured items.

**Note:** For example, “If uninjured, I will find a hide site within 30 minutes travel of my initial location. There, I will attempt radio contact on Alpha frequency every 20 minutes for the first hour, then monitor the radio for 5 minutes at 45 minutes after each hour. If enemy activity permits after dark, I will evade toward rally point (alternate recovery point) ABC and remain there through my first 48 hours. I will monitor the radio according to the special instructions (SPINS).”

- The extended evasion actions/intentions after 48 hours to include the following—
  - Destination (mountain range, coast, border, and FEBA).
  - Travel routes and plans/techniques (either written or sketched).
  - Actions/intentions at potential contact or recovery locations.
  - Recovery/contact point signals and signs/procedures (either written or sketched).
  - Backup plans, if any, for the above.

**Note:** For example, “If uninjured, I intend to travel south from the battle/shoot-down area for about two to three days, traveling only at night. I will display two IR lights and glint tape for five minutes, one hour after dark and at midnight or anytime after dark at the sound of friendly aircraft. I will

not attempt to establish radio contact with any friendly forces/aircraft that I see en route for the first three days. Once I reach the ridgeline to the south, I will travel in the daytime and attempt radio/visual contact with any friendly aircraft sighted while en route to SAFE XYZ. Upon reaching XYZ, I will follow the instructions given to my unit before the mission.”

- The following information should be completed by appropriate intelligence and life-support personnel and attached to the EPA when reporting on an isolated person:
  - Color/letter of the day, month, or quarter; base heading; base altitude; base number; code word; bona fides; and other (as applicable).
  - Available communication and signaling devices—type and quantity of radios, quantity of batteries, and type and quantity of flares, beacons, mirrors, and strobe lights.
  - Primary communication schedule, procedures, and/or frequencies (first 48 hours and after 48 hours).
  - Backup communication schedule, procedures, and/or frequencies.

## **DISGUISE AND UNASSISTED EVASION—HARD**

K-22. Usually, when evasion is taught during SERE courses, refresher training, or exercises, camouflage and concealment are well covered but deception or disguise is glossed over as “too hard to do because most of us do not look like the locals or do not speak the language.” These statements were in especially heavy use in Southeast Asia. History, however, provides examples of individuals who applied common sense in choosing when to disguise and then did so successfully. In two incidents in Southeast Asia, disguises were used successfully for a while but overdependence/overconfidence got the individual escapers recaptured. Skin staining was tried in one situation and local clothing and hats, in both. One had been spotted repeatedly with successful deceptions in a rural area for a nine-day period before he was recaptured by troops who were doing close checks on everyone. The other individuals, in an urban environment, survived several spottings by locals, but when the trained soldiers became involved in a detailed search, they were quickly recaptured.

K-23. In a situation in World War II, an evader stole a farmer’s clothes and a hoe. He worked hard all day long in the fields of Germany—hoeing one long furrow into France. He picked fields that were unoccupied, going around those being worked by the locals and avoiding all close contact. He stayed far enough from the roads and buildings to be able to feign being unable to hear anyone shouting to him. Troop trucks would pass, and he would smile and wave or ignore them. Eventually, he was picked up by the French underground.

K-24. An evader in the Korean War had been evading for a long time and distance and was approaching the FEBA/FLOT in an area that was relatively dormant. The area was open and guarded by two Chinese observation posts on the ends of finger ridges 600 to 800 yards apart, separated by a grassy valley with a trail down the middle. Off the trail may have been mined. The Chinese used illumination and fired at any sounds in the dark. He observed

the area for days, agonizing on how to get by unobserved. He noticed that the local Korean populace would use the trail between the outposts—carrying firewood, bundles of straw, and farm tools during the day without alerting the Chinese. Because it was foggy most mornings and rained occasionally, the evader improvised a conical straw hat and straw rain cape, just like the locals used. He gathered a large bundle of sticks and selected a tall walking stick, just like most of the older civilians he observed. By carrying the bundle on one shoulder, he blocked his face completely from one outpost. His hat, arm, and walking stick blocked the other. He walked stooped over, under a cape and the rest of the accouterments—disguising not only his race but also his tall stature. His height would not give him away to the up-hill observers. The evader mimicked the movements and posture of Korean old people who spent their lives bent over nurturing rice. It worked. He made his way at a slow, stooped, waddle down the trail and back to friendly control.

## **BACKGROUND INFORMATION ON ASSISTED EVASION**

K-25. Assisting evaders was extremely hazardous for the civilian participants and their families and possibly their entire village. Reprisals for anyone caught aiding an evader could range from execution to internment of all suspects in a concentration camp. In France alone, more than 500 civilians were known to have been executed for helping evaders and another 500 died after the war from injuries received from torture during the war. How many died during interrogations and in concentration camps is unknown.

K-26. Unassisted evasion played an important part in the return of most evaders. Most “assisted” evaders experienced evasion on their own for some time until they came under the control of the assistance nets. In some cases, the assistants left enemy-held territory with the American who they were assisting. “Blood chits” were used effectively to reward people who assisted Americans. Ninety five U.S. fliers evaded from enemy territory on foot. The use of “blood chits” resulted in the return of isolated Americans either by individuals or small groups.

K-27. Unconventional warfare (UW) forces comprising U.S. military, Allied military, local national mercenaries, or Central Intelligence Agency (Air America) assets recovered some U.S. personnel in situations when other means were not available. Teams were either diverted from their normal mission or assembled specifically for a short-term recovery.

## **PREDETERMINED RECOVERY LOCATIONS**

K-28. “Rescue at any cost” may not be practical. Safe areas may be too far for practical purposes. Potential adversaries have highly mobile, accurate air defense and fast, accurate radio signal direction finding (DF) capability. These capabilities are liberally distributed. There may be little hope of quick rescue in some areas. Added to this is the threat (in some areas) of the evader’s position being pinpointed by the enemy if the evader attempts to contact rescue with his radio or activates his personnel locator beacon (beeper). Evaders may be required to travel to a location where the recovery asset is not threatened with immediate destruction. Predetermined recovery locations are selected using the following criteria:

- Locations not near troop buildups, roads, railroads, and population centers are likely locations of antiaircraft positions, handheld AA missiles, or large concentrations of small-arms fire; in such areas, reinforcements and equipment might be called up quickly to oppose a recovery.
- Locations that allow the recovery aircraft to land away from potential hazards—such as tall trees, wires, cliffs, and uneven ground—are best; if at all possible, the approach to the LZ should be free of flight obstacles. The recovery site selected needs to be large enough to accommodate the largest recovery platform; a landing site should not have soft sand or broken, rocky terrain.
- Recovery among tall trees or deep ravines or next to cliffs can be too dangerous to attempt; the helicopter's hoists have a maximum of usable cable, depending on aircraft type. A survivor may be required to travel to a better area for pickup. Power lines across narrow valleys are hazardous to recovery aircraft using terrain masking in low light or at night; some narrow valleys magnify and distort the local winds—rough terrains with steep inclines have strong updrafts and downdrafts and can be hazardous to recovery assets. Select a location away from these areas. Two-way radio communications may be inhibited by high terrain and dense vegetation.
- On the other hand, terrain may be used to mask recovery activity; recovery aircraft may use hills and valleys for terrain masking, thus minimizing the enemy threat to the aircraft and evader.
- Any area selected should have adequate water sources and concealment to enable the evader to stay alive and free long enough to be recovered; water (other than quality) should not be a problem in the winter. Severity of terrain is an advantage to an evader; heavy brush, steep slopes, and rocky terrain are the evader's friend. Discovery by search parties and accidental encounters with the population are less likely to occur in these areas unless there is a large refugee problem in the area. Major waterways are places to avoid because of concentrations of population.

## RECOVERY PROBLEMS IN THE WINTER

K-29. In extremely cold temperatures, the survivor should avoid placing bare skin to metal parts of pickup recovery devices because the skin can freeze to the metal on contact. The downward rotor wash also causes a lower temperature because of windchill factors. The evader should wear gloves and proper clothing if available. In cold temperatures, to conserve battery life, electronic communication devices must be used only when necessary. If more than one transceiver is available, alternating their use will extend battery life. Winter conditions create special problems for helicopter recovery:

- Limited daylight hours during winter months will decrease search time and limit visual signals, and recovery will be more difficult because of the increased probability of inclement weather.



- Radio fadeouts might occur as a result of solar explosions and sunspot activity; in general, one should expect communications difficulties.
- During snow conditions, especially in high terrain, recovery aircraft could cause whiteouts from blowing snow; evaders should expect some disorientation. Crew should come out to identify and escort the evader to the aircraft in most situations.

## OTHER CLIMATIC EFFECTS ON RECOVERY

K-30. The effects of climatic conditions on recovery operations can be serious and often determine the success of a rescue attempt. Such phenomenon as rain, fog, and dust in dry times of year can interfere with recovery by causing launch delays or ingress delays. Extreme temperatures can also cause hazardous conditions particularly in areas of high elevation; extreme techniques greatly affect hovering and lifting capabilities of a helicopter.

K-31. Evaders who are unable to use predetermined recovery sites may have to improvise and select one of their own using the criteria mentioned above as a guideline. Potential evaders with targets not near a predetermined recovery site should be urged to create their own and list it in their EPA.

K-32. Using survival principles to sustain the body will usually help maintain psychological health and strengthen the will to survive during combat.

## EVASION LIVING

K-33. The evader's best evasion aid is the brain, as long as the body is 98.6°F, hydrated, nourished, and rested. Satisfying these factors may sometimes be put off for combat necessity, but eventually, evaders will have to deal with them. Instruction should indicate that survival skills are evasion skills that may be essential to successful evasion. An explanation of how the following survival skills may affect evasion to include—

- Maintenance of normal body temperature may be difficult under evasion constraints.
- It must be accomplished before hypothermia, dehydration, or heat injury incapacitates the thought process; hallucinations are possible during extremes.
- The following are methods limiting heat gain/loss:
  - Dry, repair, improvise, or add insulation to clothing.
  - Find or improvise shelter.
  - Maintain fire—small, concealed, and in a remote area.
  - Consume food to increase temperature.
- Effects on evasion that could occur are the following:
  - Divert attention from security.
  - Divert time from travel plans.
  - Cause risky movements or activity.

K-34. The effect of environmental conditions on the use of clothing and equipment. An explanation of clothing purposes for personal protection should consist of the following:

- The insulation—issued or improvised from natural or man-made materials—prevents cold injury.
- Prevention of heat loss or transfer—radiation, conduction, convection, evaporation, and respiration—also prevents cold injury.
- Heat gain/moisture loss—shade or barrier—prevents heat injury.
- Physical protection—against abrasions, stings, bites, burns, thorns—prevents irritants.
- Camouflage—skin color, shine, tone, and texture enables soldiers to blend in with their surroundings.
- Equipment storage—pockets, and personal items/kits.
- The following techniques relate to clothing use/maintenance—acronym COLDER:
  - Keep clothing *Clean*.
  - Avoid Overheating.
  - Wear clothing *Loose* and in *Layers*.
  - Keep clothes *Dry*.
  - *Examine* clothing for defects or wear.
  - Keep clothing *Repaired*.
- The following are considerations for boot care: premission preparation, drying, protection, and repair.
- Equipment care should consist of the following:
  - Prevent loss—tie to vest.
  - Never separate more than arm's reach, and expect to come back.
  - Put away immediately after use.
  - Know location of items to prevent frantic searches through stored gear.
  - Prevent physical or climatic damage—know proper use; do not misuse.
  - Minimize super heating or cold soaking any item; keep batteries near body temperature.
  - Clean/remove dust and grit from moving parts.
  - Keep items dry as possible to prevent mildew, rust, or shorts in electric items; use oil (coconut, animal fat, or petroleum products) to prevent rust on tools and weapons.
- Keep clothing items and equipment free from salt or from sweat or food residue to avoid attracting animals.

K-35. During evasion, use shelter to satisfy needs. Obtaining sufficient rest will be essential to extended evasion. Understand that you will sleep when your mind and body can do no more. Evaders should avoid passing out from

total exhaustion if possible. In this condition, hallucinations are possible with unpredictable results. Controlled sleep can be fairly secure. Evaders must maintain control of those things that they can control to stay alive and free to include—

- Finding a dry, flat place—protected from the elements, if possible, and away from local travel routes.
- Using natural overhead protection and soft, insulating material underneath when possible.
- Checking the area for several alternate escape routes and hiding places.
- Avoiding snoring by propping yourself in a position in which you cannot roll over and snore.
- Drinking a lot of water for a natural alarm clock.

K-36. Some aviator techniques require movement, searching for an appropriate place with escape routes. If construction of a roof is necessary to stay dry, effective camouflage construction is as important as selecting a remote site. Insulation to lie on should be gathered carefully from a distant area without stripping a spot of materials. Scatter these materials securely upon departure; do not leave the appearance of a matted-down bed.

K-37. Shelter principles need to be explained to include—

- Environmental conditions.
- Naturally occurring shelters.
- Immediate action shelters—man-made and natural materials.
- Types of constructed shelter and locations.
- Safety/hazards—animal, insect, steep slopes, water, trees, and people.
- Materials for construction.
- Shelter characteristics—slope, size, and possible improvements.
- Thermalizing and ground insulation.
- Long-term compared to short-term occupation.

K-38. The acronym BLISS is a guide to evasion shelters:

- *Blend* with surroundings.
- *Low* silhouette.
- *Irregular* shape.
- *Small* in size, secluded location.
- *Sanitation* while using shelter.

K-39. The uses/value of fire craft during combat survival include—

- Drying clothing and boots.
- Preparing food and water.
- Restoring body heat.

K-40. The requirements for fire are to have a dry/safe location, fire triangle, preparation, skill, and security. Use fire to satisfy needs. Gather natural fuels to ignite and maintain fires to include—

- Not stripping fuels from one place.
- Selecting fuels for the properties of low odor and little smoke.
- Gathering sufficient fuels for sustained fire without leaving it to find more.
- Selecting fuels that are pencil size or smaller—barkless hardwood for evasion fires.

K-41. Construct fires using fire-craft principles, and use one evasion fire to fulfill a survival function, applying evasion fire-craft principles to include—

- Appropriate location, evasion timing, and safety measures.
- Appropriate fuel selection, ignition sources, and fire-maintenance procedures.
- Small site and security and sanitation of the area to avoid detection.

K-42. Procurement and use of sufficient water is essential before dehydration incapacitates thought and overrides safe, secure, and logical decision making. Without water, hallucinations are probable before death.

K-43. Finding water in the environment is most likely to be critical to an evader within three days. The body must have sufficient water to maintain efficient reasoning. Water can be obtained from—

- Water carried in a canteen or survival kit.
- Natural surface or subsurface water.
- Native wells, cisterns, tanks, and pipes.
- Precipitation caught by the evader.
- Plant sources—transpiration or drained from fibers.

K-44. Effects on evasion include—

- Hold up and route planning should hinge on water availability.
- Having sufficient water requires daily activity at a high-risk location to obtain four to six quarts of water unless a large-volume container is available to carry away enough to last longer and reduce risk, as well as increase travel range.

K-45. The enemy knows that evaders will be forced to find water and may guard known sources. Evaders must observe, approach, and depart water sources carefully to avoid detection. Finding sources not on the map is best. Finding unmapped sources depends on knowing natural water indicators.

K-46. Explain water consumption and preparation requirements including—

- Aversions—taste, appearances, and smell.
- Water requirements.
- Consumption requirements and avoiding dehydration in relationship to—

- Food.
- Conservation, not rationing.

K-47. Explain water sources including—

- Location methods and indicators that are provided naturally and artificially which are—
  - Issued in kits, surface, subsurface, plant, precipitation, and ice.
  - Terrain, vegetation, animal, and human indicators.
- Procurement aids that may be available include—
  - Desert—long lines for deep wells, vessel or absorbent material, surgical hose, or digging tool.
  - Cold environment—vessel, layers of clothing for melting frozen sources using body heat to melt, and fuel and security for the fire.
  - Moist tropic—vessel, knife, and knowledge.
- Security measures that should be considered are—
  - Approaching, Filling containers, and departing sources.
  - Obvious risks vs. secure sources.
  - Procure maximum volume to limit exposure/risk.
- Preparation measures that should be considered are:
  - Hazards of not purifying—may be sick/hazards of not drinking—sure death.
  - Improvement—seepage hole, filtering, ultraviolet/sunning.
  - Purification: chemical, boiling, and filtration devices.

K-48. Explain the methods of storing and preserving water.

- Issue and improvise clean containers.
- Protect containers from plant, animal, or temperature damage.
- Protect water from contamination or evaporation.
- Cache away from water sources to limit risk of repeated presence at sources.

K-49. Explain food-intake requirements to maintain health such as caloric necessity, balanced nutrition, rationing, overcoming aversions, and water intake. Training will include the following:

- Procurement and use of food become more necessary with elapsed time; an evader must find food before lack of nutrition incapacitates through weakness and loss of energy; the thought process may become focused on finding food and override safe, secure, and logical decision making in an attempt to stop hunger.
- Discomfort from hunger may appear in two to three days—food may not be a dire need for two to three weeks.
- Physical need increases with time, stress, and energy expended in physical efforts.

- Food becomes more essential in cold environments to generate body heat.
- Sources such as—
  - Rations and pocket snacks/candy.
  - Plants: nuts, fruit, berries, leaves, roots, seeds, and grasses.
  - Animals: mammals, birds, reptiles, amphibians, fish, insects, and shellfish.
  - Stolen foods: crops, orchards, gardens, storage places, and buildings.

K-50. Effects on evasion include the following:

- Early evasion often starts with a tremendous expenditure of energy.
- Little food is needed at first, but do not pass any “easy” meals found early on; it may not be there later. Gather food and preserve for later; hunger may occur after several days.
- Lack of food will lead to reduced stamina, inability to move long distances, feeling cold easily, preoccupation with food, and reduction in alertness.
- An evader searching for food is easily distracted from security.
- Carrying a rock or stick for targets of opportunity may yield meat. Clean and hide remains, then move on; cooling, sun drying, freezing, or cooking will preserve food for a while.
- A snare, hook/line, and plant or animal remains not concealed are evidence of evader presence—conceal them.
- An evader with raw food may want to cook it to improve taste and digestibility; cooking is a high risk (smoke, light, smell, evidence of old fire, and distracted security).
- Starving people may do foolish things and risk death or capture for food.

K-51. Explain food sources and procurement methods including—

- Rations.
- Stealing food.
- Evasion considerations and hazards of food gathering.
  - Any disruption of gardens may be detected.
  - Food storage sites may be detected.
  - Animal movement or noise may be hazards.
  - Discarded remains are evidence—plant or animal.

K-52. The procurement of plants critical for survival includes the following:

- Edible plant parts and values.
- Identification: usable plants—knowledge, books, cards, and EVCs.
- Edibility tests—berry rules.
- Plant gathering during evasion.

- Poisonous plant identification.
- Twelve essential plants.

K-53. The procurement of animals critical for survival includes the following:

- Types: mammals, birds, fish, reptiles, amphibians, shellfish, and insects.
- Location and signs of presence.
- Methods under evasion conditions, including the following:
  - Snares.
  - Hunting—still hunting, stalking, opportune targets, issued weapons, improvised weapons, and primitive weapons.
  - Fishing—active, still fishing, set lines, chop fishing, spears/gigs, gorges, traps, cast nets, gill nets, tickling, and poisons.
  - Scavenging—battle damaged, robbing predators, fresh road kills, and discards.
- Hazards that an evader may encounter are—
  - Evasion—noise, visibility, and evidence.
  - Illness/injury—bites, disease, spoilage, and parasites.
  - The evader's best options—club/rock in hand for opportune food when moving, hook/gorge for birds during daylight hiding, or a simple loop on a burrow, den, pole, or drag, day or night.

K-54. Explain food preparation and preservation methods including—

- Preparation methods that include—
  - Cleaning—avoiding animal disease/parasites; hiding remains.
  - Soaking, leaching, and parboiling.
  - Raw—aversions, poor digestion, parasites, and bacteria compared to secure.
- Cooking—morale, good digestion, biologically safe compared to risky—methods that include—
  - Boiling—efficient, most nutrition requires vessel.
  - Roasting—use a candle for small bits in daylight—caution smell.
  - Baking—foil-wrapped food—time/fuel consuming.
  - Frying—too much smell, wastes nutrition.
- Preservation methods that include—
  - Sun drying.
  - Freezing.
  - Cooling.
  - Precooking.

K-55. Food storage methods include—

- Protecting from climatic effects.
- Protecting from animals and insects.

- Wrapping, burying, food cache, and hanging, all done elusively.

**Note:** Survival tools or materials are best carried in the form of a kit when a combat emergency is possible.

K-56. Explain factors to consider when building a personal survival kit, to include discussion on—

- Contents for the survival kit that should—
  - Have multiple uses when possible.
  - Augment issued equipment.
  - Be personally necessary—glasses or medicine.
  - Tailor to environment/theater specific.
- Carry discipline—carry on every mission, do not rob kit, maintain as necessary, and use quality items, and one container versus scattered theory.
- Containers—size, shape, hardness, and comfort while carrying.

### CAUTION

Do not carry valuables, cash, homemade or barter kits (obsolete) into combat.

## PRIMITIVE MEDICAL CARE

K-57. This section explains prevention, recognition, and emergency self-treatment of medical problems faced by evaders and PWs using available substances/primitive means.

K-58. Under primitive conditions, the goal is to maintain health to enhance survival, without competent medical care by identifying available substances/items used to treat illness/injury.

K-59. Field-expedient treatment of injuries common to survival includes trauma injuries from combat, egress, environment, or enemy maltreatment. The recognition and emergency self-treatment of problems with the following symptoms:

- Shock symptoms—relieve cause, adjust body position, insulate, and replace fluids.
- Bleeding—three types: direct pressure, elevation, pressure points, tourniquets, tying off bleeding vessels/masses.
- Breathing—causes, treatment: digital removal, Heimlich, cricothyroid space; sealing a punctured lung; binding broken ribs.
- Muscular/skeletal systems—symptoms, treatment: set before swelling, splinting; immobilize in position of function.
- Burns—pain relief, protection, prevent infection, tannin use.
- Head injuries—lay flat and still; use no painkillers.



- Eye injuries—do not remove impaled objects; evader needs one eye.
- Internal injuries—no effective field treatment; make comfortable—lay down, hot/cold compresses keep warm, may be self healing.

K-60. Explain signs, symptoms, treatment, and prevention of illnesses common to (combat survival) survival and captivity:

- Captivity nutritional deficiency diseases—scurvy, beriberi, rickets and night vision—can be improved with diet. Methods of obtaining food are the following:
  - Growing/catching food.
  - Foraging, scavenging, and gleaning.
  - Stealing.
- To help prevent gastrointestinal problems—bacterial plus ameobic dysentery, food poisoning, parasitic worms, and simple diarrhea use the following methods:
  - Prevention—cooking food, purifying water, and eliminating flies from cooking areas.
  - Primitive treatment (Rx)—chalk, charcoal, plantain, tannin, and hydration with clean water.
- To help prevent dermatological problems—fungal and heat rash use the following methods.
  - Prevention—keep skin clean and dry and expose to the sun periodically.
  - Rx—powdered medicines, tannin, sun; dry wet rashes/moisten dry rashes.
- To help prevent respiratory ailments—pneumonia, bronchitis, colds, and flu use the following methods:
  - Prevention—isolates the infected, improve diet.
  - Rx—keep warm and ambulatory; breathe decongestants—steaming hay or blue clover or hay, aspirin for fevers and pain—willow or aspen bark/buds.
- To help prevent waterborne/food-borne illnesses—cholera and typhoid use the following methods.
  - Prevention—cooking food, purifying water, eliminating flies, and cleaning cooking areas; hand washing; locating latrine upwind from kitchen.
  - Rx—hydration; treat fever and diarrhea.
- To help prevent other health-related ailments; infection of untreated wounds from combat frostbite or enemy mistreatment use the following methods.
  - Prevention—safety to avoid additional wounds.
  - Rx—bandaging, washing, antibiotics, hot soaks; poultices—plantain, chickweed, yarrow, banana-plant pulp, sphagnum moss, washed saltwater seaweed, and in extreme cases, maggots.

- To help prevent burns—treatment—wash in cooled tea from tannin, yarrow, banana plant pulp. External parasites—fleas, lice, ticks, and scabies.
  - Prevention—clean quarters, clothing, bedding, and body regularly; pick pests constantly; use insecticides/repellents—yarrow, tannin, and onion/garlic.
  - Rx—same as prevention.
- To help with dental problems—pain, broken teeth, decay, impacted teeth use the following treatment—aspirin, willow, yarrow, pitch, draining, and extraction.

K-61. Explain signs, symptoms, treatment, and prevention of environmental injuries. Identify symptoms, treatment, and means of prevention to include—

- Dehydration in all environments.
- Cold injury—frostbite, hypothermia, and trench/emersion foot.
- Heat injury—heat cramps, heatstroke, and sunstroke.
- Temporary sun blindness from reflected light off ice/snow, sand, and water.
- Insect/animal bites.
- Falls from poor footing or tripping—ice/snow, slick mud, loose or steep slopes, rocks with thick vegetation—vines or thorns.

K-62. Explain sanitation and hygiene practices. Monitor personal health to prevent life-threatening problems:

- Prevention is easier than treatment.
- Clean utensils, food, and hands before eating.
- Clean body, teeth, and clothing by field-expedient methods when possible (air bath, sponge bath, scraping, chew sticks, sunning, washing).
- Dispose of waste and trash for sanitation and security.
- Care for sick or hygiene needs wounded.
- Address cross-gender aspects: potential problems plus shyness/embarrassment versus health/survival.

## ENVIRONMENTAL CONSIDERATIONS DURING EVASION

K-63. Explain the effects of environmental conditions on survival and evasion. Explain overcoming natural barriers to evasion and their possible effect on evaders caused by long distances, mountains, deserts, jungle, rivers/streams, thick vegetation, swamps, and weather to include—

- Temperate environments that the evader may encounter:
  - Potential travel barriers—heavy population, vast prairies with long distances in some areas, and many rivers/streams.
  - Environmental hazards—variable weather, much snow/rain mountains in winter and spring, and venomous snakes when warm in some areas.

- Concealment problems—frequent camouflage changes and noisy leaves and little cover in deciduous areas in late fall, winter, and early spring.
- Evader benefits—tracks and movement can go unnoticed because of other traffic in the area.
- Water—surface water is usually plentiful but often polluted, and people are near water.
- Food—generally available except in winter and clearly spring.
- Shelter—may be necessary because of precipitation and wind anytime and cool to cold one-half of year; shade shelter may be needed to protect from heat/insects in some areas part of the year.
- Cold environments that the evader may encounter:
  - Potential evader travel barriers—long distances, mountains, and forested or muskeg swamps in summer and deep snow in winter.
  - Environmental hazards—severe cold and wind chill; clothing requirements, maintaining body heat, keeping dry; biting insects in summer; finding food sources in winter; signal and radio problems, recovery—darkness, blowing snow; depth perception on snow in darkness; travel in mountains or swamps; and reflected light from snow can be intense.
  - Concealment problems—concealing and avoiding tracks in snow or large barren areas—fire may be needed to survive; any smoke in daylight may be spotted at a great distance.
  - Evader benefits—sparse population, vast areas are hard to search; snow makes good concealed shelters if the evader has proper equipment, and daylight is short in winter.
  - Water—available, but often requires thawing before use; purify all but clean snow.
  - Food—animal sources most of the year, plants and animals during short summer; fuel for cooking may be nonexistent. Large animals may require a weapon.
  - Shelter—protects from rain and insects in summer; provides heat retention and windbreak concealment in winter.
- Hot, dry environments that the evader may encounter:
  - Potential evader travel barriers—vast distances with little resources; old mine fields; large, dry salt lakes or basins; few landmarks—navigation could be difficult.
  - Environmental hazards—intense heat in summer; venomous reptiles and insects; thorny plants; reflected light can be intense, causing sun blindness; heat injuries and dehydration; sandstorms and mirages.
  - Concealment problems—little cover or concealment in many areas; movement seen at great distances in daylight.
  - Evader benefits—sparse population and vast areas are hard to search.

- Water—few sources, polluted water, hidden sources, concentrations of people where there is water, very deep wells; sources may be guarded.
- Food—few sources available away from population centers/water.
- Shelter—natural or improvised concealed shade shelter may be essential in daylight; radical diurnal temperature changes and wind may require shelter.
- Hot, wet environments that the evader may encounter:
  - Potential evader travel barriers—thick vegetation and mountains, steep slopes, slow movement; large rivers, swollen in rainy season; population concentrations on coasts.
  - Environmental hazards—heat and humidity; venomous reptiles and insects; many thorny or sharp plants; slick surfaces to walk on; impeded sight and hearing.
  - Concealment problems—evader reluctance to hide because of overcautious fears of reptiles and insects.
  - Evader benefits—great concealment in most areas, food available all year and little threat from cold or lack of water and concealment.
  - Water—numerous widespread plant water sources and plentiful surface sources but polluted and serving as concentration points for population.
  - Food—wild plants and animals available all year.
  - Shelter—desired for rain and wind protection and shade at times.

## OPERATIONAL TRAINING

K-64. Individual satisfaction of personal combat survival needs to include personal protection, sustenance, and health:

- Use clothing to satisfy needs as dictated by existing environmental conditions.
- Practice care and use of clothing to include the following (apply COLDER):
  - Use layering system when appropriate.
  - Avoid damage to or soaking or soiling of clothing when practical.
  - Dry any damp or wet clothing and boots.
  - Repair any damaged clothing.
- Improve shelters incorporating shelter principles.
- Improve evasion shelters incorporating BLISS principles.
- Locate a natural evasion shelter site, modify a natural site, or construct a concealed shelter that provides—
  - Concealment from a possible enemy.
  - Protection from the elements.
  - A place to sleep or rest for a four-hour period as a minimum.

- Use fire to satisfy needs by gathering natural fuels to ignite and maintain fires that would include—
  - Not stripping from one place.
  - Selecting fuels for the properties of low odor and little smoke.
  - Gathering sufficient fuels for sustained fire without leaving it to find more.
  - Selecting fuels that are pencil size or smaller, selecting barkless hardwood for evasion fires.
- Construct fires using fire-craft principles.
- Construct and use one evasion fire to fulfill a survival function, applying evasion fire-craft principles to include—
  - Appropriate location, evasion timing, and safety measures.
  - Appropriate fuel selection, ignition sources, and fire maintenance procedures.
  - Small site, security and sanitation of the area to avoid detection.
- Procure and prepare water for consumption by locating natural water found in the field training area at least one time, and—
  - Use natural and mapped water indicators to identify potential water sources.
  - Approach/depart a water source evasively.
  - Obtain, filter if necessary, purify, and use water available from the environment.
  - Consume a minimum of four quarts of water per day while in the field—any source.
  - Monitor fellow evader/student's water consumption to prevent dehydration.
  - Discuss or demonstrate, in season, transpiration bag, vegetation bag, and solar still.
  - Use body heat for melting both snow/ice, water machine for melting snow, sediment or seepage hole.
- Use food-procurement methods to satisfy needs to include demonstration of appropriate techniques for procurement of plant and animal food, which would include—
  - Setting two simple loop snares in appropriate locations.
  - Constructing one snare that incorporates an improvised triggering device.
  - Improvising a hook or gorge useful in catching fish or birds.
  - Procuring or identifying five edible or useful plants.
- Prepare food for consumption, to include, as a group—
  - Killing, cleaning, and preparing an animal as food.
  - Demonstrating and discussing initial steps for preparing sun-dried meat.

- Roasting a piece of meat over a candle flame and consume it.
- Boiling and consuming food prepared in a container available to an evader or improvised from foil that might be found in a personal kit.
- Under primitive conditions, maintain health to enhance survival without competent medical care; identify, discuss, and/or practice appropriate field health-maintenance steps to include—
  - Purifying water; avoiding food spoilage/contamination.
  - Cleaning eating utensils and vessels.
  - Practicing personal hygiene—washing: hands, bodies, and clothing as practical.
  - Preventing, removing, or purging internal and external parasites as practical.
  - Locating latrine away from water source; hide site, avoiding detection.
  - Identifying two natural substances available in the training area that might be useful in primitive medical treatment of evaders' or PWs' health ailments.

## RECOVERY COMMUNICATIONS/SIGNALING

K-65. The following information is provided as support material for the development of a personal lesson plan. The intended focus of this information is to enhance lessons taught under field conditions. Demonstrations are encouraged when possible. When a thorough demonstration is not practical, support material should be provided in enough detail to ensure student understanding.

### IDENTIFY PROBLEMS ASSOCIATED WITH SEARCH AND RESCUE (SAR) COMMUNICATIONS

K-66. In areas of dense vegetation, vectoring of aircraft can be difficult because visual contact with aircraft is seldom possible until the aircraft is directly overhead. The acoustics of a dense jungle and mountainous terrain muffle the sound of the aircraft that causes it to echo. The evader, therefore, may have to vector several times until positive location of the aircraft is determined and an exact vector can be given.

K-67. If a survivor can locate a good recovery site, these problems can be reduced. As a last resort when communications cannot be established, the survivor should climb a tree or a natural rise in the terrain to increase his elevation. In most cases, this will enhance communication possibilities.

K-68. Before any type of recovery can take place, friendly forces must be aware that U.S. personnel are isolated. In most cases, this means that some form of communication between the potential recovery force and the evaders will be necessary.

K-69. Communication serves two purposes for combat recovery: location of the evader's position and authentication of identity. This communication may be by voice radio or by visual signals—such as flares, smoke, lights, fires,

signal panels, mirrors, or natural strip signals—performed by the evader. The triservice regulation (AFR 64-3, AR 525-90, and NWP 19-2) and Joint Publication 3-50.3 provide further information on communication.

K-70. Because of the need for security of both the evader and the recovery force, in-theater code words or signals may be devised to meet local needs.

K-71. Questions formulated from the personal data on the DD Form 1833, ISOPREP, can be used by a recovery force to ensure that the communication taking place is with a specific evader, rather than with the enemy.

### CAUTION

ISOPREP information should never be carried on a mission. The personal statements should be simple and factual so that they can be remembered under stress.

K-72. Conversely, the evader will be able to determine that he is communicating with a friendly recovery force by the content of the questions asked. To prevent confusion among evaders from multiplace aircraft or small units, radio call-sign suffixes were used in the past, which allowed the recovery forces to use the correct personal authentication data. This same system can also be used by the evaders to provide a radio-discipline procedure that prevents communication system saturation. For example, a downed multiplaced aircraft may result in 2 to 20 radio-equipped evaders scattered over a 20-mile line of flight. Without call-sign suffixes and communication discipline, sorting of authentication data, locating evader's positions, and effective two-way communication could be very time consuming or impossible under combat conditions. A ground unit with only one or two radios may have the authentication problem only.

K-73. Much of the problem can be alleviated by the aircraft or small-unit commander assigning a rank-order suffix to be annotated on the DD Form 1833 or EPA and used with the mission call sign. For example, if a mission call sign was Derby 24, the commander's personal call sign would be "Derby Two Four—Alpha;" the second in command would be "Derby Two Four—Bravo," and so on.

K-74. To prevent aircrew evaders from attempting simultaneous communication, the mission commander could establish a time and rank order of contact. For example, "Alpha" will attempt to contact friendly forces if "Bravo" does not hear "Alpha" or friendly forces communicating with "Alpha;" "Bravo" will attempt contact with friendly forces and "Charley," and so on, down the chain of command.

K-75. Timing, patience, and discipline are essential to prevent confusion and communication saturation. The first friendly aircraft on the scene will assume command. This on-scene commander (OSC) will determine how many evaders there are and their approximate position.

**Note:** Evaders should not describe their exact position until recovery is about to take place—the enemy may be listening.

K-76. Evaders may not be able to communicate with each other because of the line-of-sight limitations of survival radios. Communication with recovery forces/other evaders might be improved by moving to high ground. However, it would be wise to use extreme caution when moving to high ground; the enemy may be aware of this communication need, especially when it monitors unanswered transmissions.

K-77. Improvised means of temporarily secure communications have been used in the past when it was probable or possible that the enemy was monitoring the radio communications between the recovery force and the evaders. In these situations, information or instructions could be passed by using geographical reference points to indicate directions and distances of desired travel. These references would have to be common knowledge to the evader and someone on the recovery force.

- A Special Forces soldier might be told to “go from Fort Dix to Fort Bragg, about the same distance from the Fort Bragg Package Store to Smoke Bomb Hill.” To most special forces soldiers, this means go south about two miles.
- The same message might be transmitted to a Navy F-18 pilot as follows: “go from Fresno to Lemoore 9-1/2 times the “Big E.” Although the enemy would likely understand the words, calculating their meaning could take a long time.
- During the Vietnam War, an Air Force evader, who was an avid golfer, was directed through minefields and enemy troop concentrations by another golfer talking about golf courses and distances between holes. For the nongolfing North Vietnamese, they might as well have been speaking Navajo as the code talkers of World War II did to neutralize Japanese radio monitoring.

## **EXPLAIN AND DEMONSTRATE THE USE OF VISUAL GROUND-TO-AIR SIGNALS**

K-78. Visual signal devices are best used with voice radio contact so that SAR forces do not mistake signaling for enemy ground fire or a trap. Smoke, flares, penguins, gyrojets, strobe lights, and signal mirrors are most effectively used just before recovery to pinpoint the evader’s exact location. If the visual signal is too early in a SAR effort, the enemy may see the visual signal and attempt to duplicate it to draw the recovery force into a trap or the race may be on to see who grabs the evader first.

K-79. When lack of a radio, bad batteries, or enemy direction finding or jamming denies an evader voice radio communications, visual signals should be used so that they cannot be seen by the enemy.

K-80. Directional signals, such as mirrors or strobe lights with shields, can be aimed at the recovery force, thereby minimizing detection by the enemy. A problem exists because mirror flashes or strobe lights may be mistaken for ground fire by an observer in an aircraft.

K-81. To avoid being attacked by friendly forces, the evader should consider using a ground-to-air signal (signal panel; strips of parachute; overturned soil; lines of logs, rocks, or brush; and stomped-down grass or snow) with the directional signal.



K-82. Theater briefed, classified ground-to-air signals are best displayed at predesignated recovery and contact sites but may (if prebriefed to do so) be used at other locations when injury or unrealistic distances prevent travel. These signals may be the best and only signaling method available to escaped PWs. Either an overt or covert SAR effort may be initiated by use of the code letter/symbol.

K-83. Evaders using this system are normally instructed as follows regarding the use of the E&E code letter/symbol:

- Upon arrival at a predetermined recovery site or evader selected area, the evader will construct the appropriate signal; preferably, the signal should be located in such a position that the enemy would not inadvertently come across the signal or be able to look down upon it from high ground.
- The code letter/symbol should be as large as the area and available materials will permit; the minimum size likely to be observed is 3 feet in bar width and 18 feet in length.
  - Very large letters are hard to detect from the ground when trampled in tall grass; they can easily be mistaken for the activities of a herd of animals. The same activity stands out boldly when viewed from the air.
  - Straight, long, thin letters are most desirable; the ratio of bar width to length should not be less than one to six (if the bar width is 4 feet, the length should not be less than 24 feet).
- Any material may be used to construct a code letter. However, the material selected should have high contrast with its background; for example, white parachute panels, light rocks, sand, dried weeds, logs, planks, or bamboo on a dark background; water on dry, bare ground or hard-packed sand.

K-84. The evader's next action should be to follow instructions briefed for that theater of operations. An example of possible instructions might be, "Remain within sight of the code letter in concealment. Carefully observe and investigate any changes in the signal area. Follow any instructions left there. If a friendly aircraft passes over the area, investigate the signal area immediately; a radio/instructions may have been dropped along with food, water, and equipment."

K-85. Infrared (IR) strobe lights (fire flies) set out in a specific pattern could be another form or variation of this visual pattern signal. Only personnel equipped with night-vision devices at night would be able to detect the signal. Some of our potential enemies have NV capability.

- A high, open area surrounded by trees that cannot be observed from surrounding terrain, an open area within a flat terrain forest, or a shallow gully in a prairie area will provide the most secure site possible.
- The size and configuration of such a signal would be determined before the mission.

K-86. When a signal is spotted or a radio call is heard, the area may or may not be immediately approached by the observer or listener. Further contact or overflights might jeopardize the evader's security before the recovery asset is prepared. The evader should mentally review his authentication data and the operation of all available signaling devices, remain patient, and be prepared for any type of recovery.

K-87. If aircraft are seen or heard in the area, the evader should observe them carefully. One or more may begin to approach the recovery site. At this point, the evader must positively identify the aircraft:

- If it is friendly and voice communication has been established, the evader must authenticate, as directed, and follow the directions of the aircrew.
- If voice communications are not established and the aircraft is friendly, the evader should expose himself in a nonthreatening manner.

#### AIRCREW COMBAT EVASION COMMUNICATIONS AND SIGNALING

**Note:** Inventory and review the operating instructions of all communications and signaling equipment.

K-88. Consider the following communications (voice and data), equipment availability and usage:

- If you have a locator beacon, find it and turn it off—take it with you to supplement radio communications.
- Make initial contact ASAP or according to the theater communications plan (TCP).
- If there is no immediate contact, then follow the TCP.
- Locate the spare radio and batteries—keep them warm and dry.
- For proper transmissions consider the following criteria:
  - Use concealment sites that optimize line of sight.
  - Face the recovery asset.
  - Keep the antenna perpendicular to intended receiver (see Figure K-1).
  - Do not ground the antenna (finger on antenna, space blanket, or vegetation).
  - Keep transmissions short (three to five seconds maximum).
  - Move after each transmission, if possible.
- Use TCP for reception times.

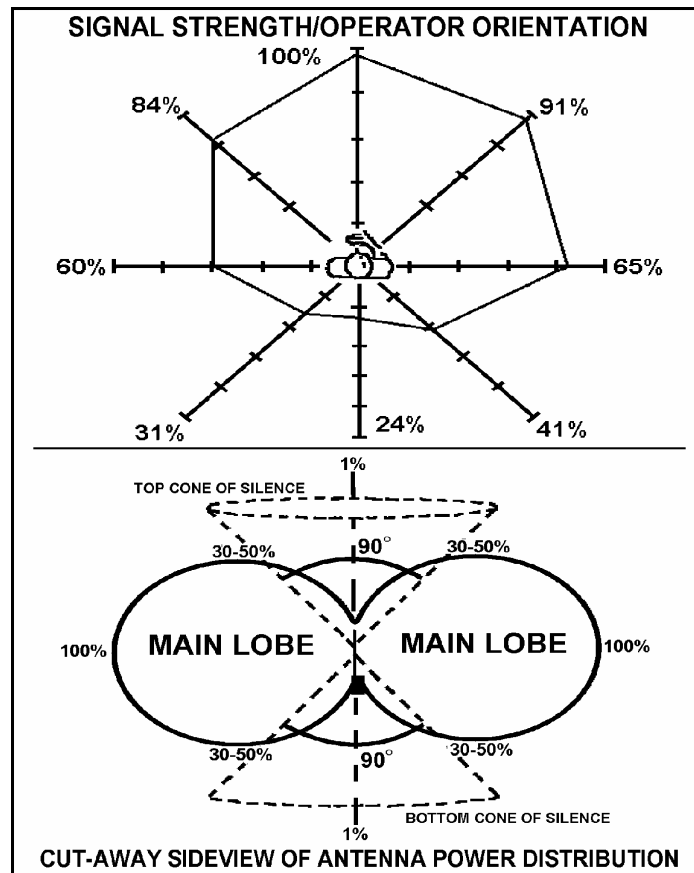
K-89. Consider the following criteria for signaling:

- The procedures for pyrotechnic signals are to—
  - Prepare early (weather permitting).
  - Use according to the TCP or as directed by recovery forces.
  - Extend over the edge of the raft before activating.

- The procedures for mirror signaling (Figure K-2) are to—
  - Use as directed by recovery forces.
  - If no radio, use only with confirmed friendly forces.
  - Cover when not in use.

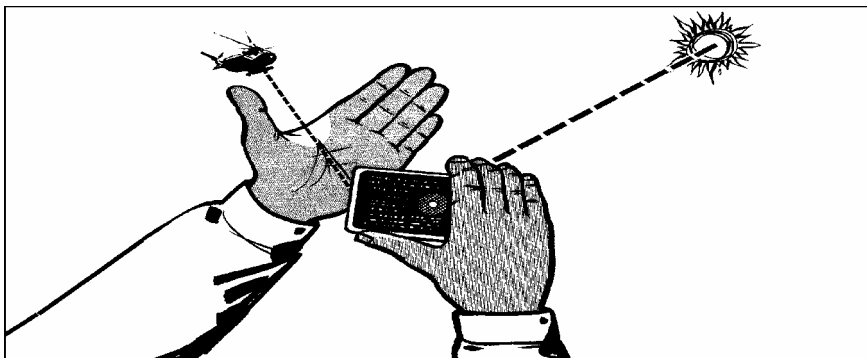
**Note:** Make a mirror from any shiny metal or glass.

**Note:** Produces a residual flash when turned off.



**Figure K-1. Radio Transmission Characteristics**

- The following are suggested strobe light usage procedures:
  - Prepare filters and shield early.
  - Use according to TCP or as directed by recovery forces.
  - Conserve battery life.



**Figure K-2. Sighting Techniques**

- Use TCP signals for pattern signals. Materials to construct such signals are—
  - Man-made (space blanket, signal paulin, or a parachute).
  - Natural (rocks, brush, branches, or stomped grass).
- Location requirements that an evader must consider include the following:
  - Maximize visibility from above.
  - Site should offer concealment from ground observation.
  - Observe size (large as possible) and ratio specifications (see Figure K-4).
  - Maintain straight lines and sharp corners for shape.
  - Use color and shadows for contrast.
  - Signal patterns (Figure K-5).
- Sea dye marker suggested usage procedures include the following:
  - Do not waste in rough seas or fast-moving water.
  - Conserve unused dye by rewinding.
  - May be used to color snow.
- Nontactical considerations that an evader must consider include the following:
  - Smoke for day; use tires or petroleum products for dark smoke and green vegetation for light smoke (Figure K-5).
  - Signal mirror to sweep the horizon.
  - Audio signals (voice, whistle, and weapons fire).

**Note:** Any of the above signals, used in a series of three, evenly spaced, are recognized as an international distress symbol.

NO.	MESSAGE	CODE SYMBOL
1	REQUIRE ASSISTANCE	<b>V</b>
2	REQUIRE MEDICAL ASSISTANCE	<b>X</b>
3	NO or NEGATIVE	<b>N</b>
4	YES or AFFIRMATIVE	<b>Y</b>
5	PROCEEDING IN THIS DIRECTION	<b>↑</b>

Figure K-3. Signal Key

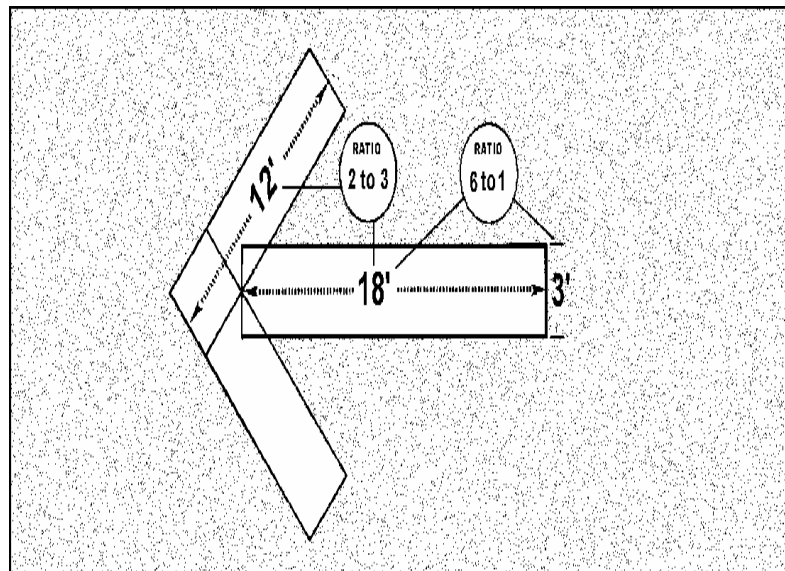
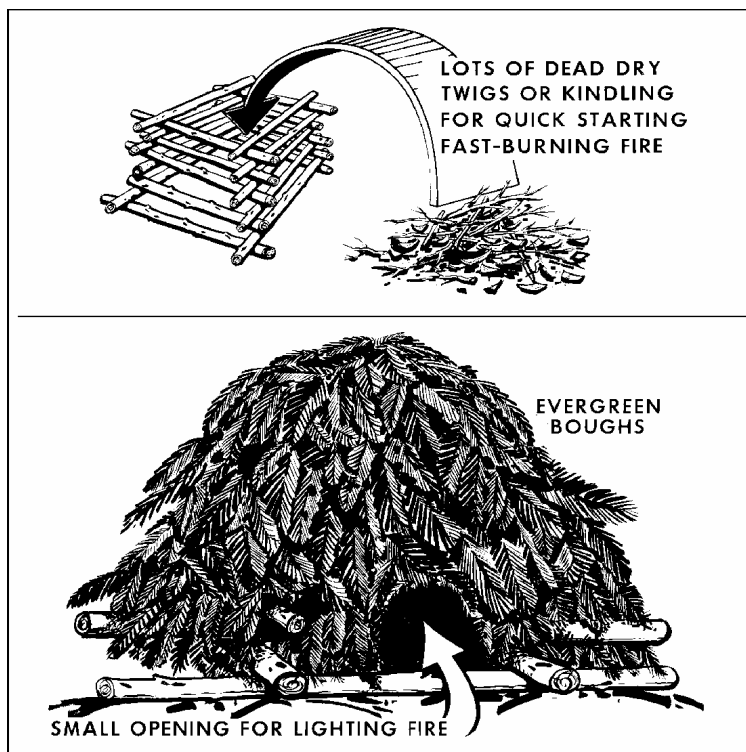


Figure K-4. Size and Ratio



**Figure K-5. Smoke Generator**

### **EXPLAIN THE EVADER'S ROLE DURING A COMBAT RECOVERY**

K-90. The preferred method of recovery is the "landing pick-up." In this technique, the evader walks/runs to the aircraft at the direction of a helicopter crew member (survivors in water should wait for the aircraft to hover directly over them and for the hoist to touch the water; do not try to swim to the aircraft—the hoist will be dragged to the survivor's position).

- Approach the aircraft with both hands visible and free of weapons, only after a crew member motions to do so.
- Whenever possible, approach from the direction indicated by the helicopter crew member and know the correct approach for aircraft used in the theater of operations.

#### **CAUTION**

Beware! Rotor blades of helicopters on uneven ground may be dangerously close to the ground on the uphill side. Avoid approaching the aircraft from that direction.

K-91. Regardless if a landing or hovering pickup is to be accomplished, the evader should prepare for immediate recovery. Any delay in the recovery process exposes the aircraft to enemy fire and pinpoints the evader's position. Delay could be disastrous if the aircraft is driven away and the rescue is not completed. Speed is essential! To help the recovery effort the evader must—

- Be aware that down wash of the rotors may break branches and blow debris that could injure the evader; the evader must be ready to take protective measures.
- Remove strip signals, secure parachutes, or remove any loose brush that might be sucked into the rotors or engine intake.
- Alert the aircraft of enemy activity such as truck noises, ground fire, or visible troops; if two-way communications are available, be prepared to give directions and distances from a prominent landmark to any enemy activity.
- Prepare to authenticate your identity quickly, and pinpoint your location by the methods used in that theater of operations; know the equipment and procedures beforehand.
- Know how to use all recovery devices in the theater of operations to include those of the allies; combat is not the time to learn.
- Inform recovery personnel of any injuries to you or others so that they can prepare to help.

K-92. The following are some important points to remember if a recovery device is lowered on a cable or a rope:

### **WARNING**

**Let the device touch the ground, trees, or water before you touch it. A static electrical charge can arc up to 12 inches and knock you down!**

- Keep fingers clear of hooks and swivels, and never straddle any device before you are attached to it; protect your face from being hit by the cable or hook as slack is taken up, and control excess rope or cable to prevent it from becoming tangled around your body or catching on vegetation, before ascent.
- With the exception of baskets, litters, and rope ladders, most devices can be used as a "horse collar." If the situation is "hot," quickly use the device as a "horse collar" rather than spending time understanding the designed method of use.
- Because a hovering aircraft is such an easy target, be constantly alert for a series of quick tugs on the rope or cable; this indicates that a crew member wants your attention. Look up!

- A hand drawn across the throat (cut sign) means the recovery attempt is canceled; quickly clear the hover site because the aircraft may crash there.
- Another reason for the shake of the cable or rope could be that the crew member wants to communicate about an unsafe condition or tangled line.
- Heavy vegetation, darkness, and blowing snow or dust may prevent the crew from seeing if the evader is attached to the device:
  - The evader should shake the rope or cable vigorously to indicate that he is attached to the device and ready for pick up. Hold tight, keeping the rope or cable in front to prevent entanglement; keep fingers clear of hooks and swivels, and wait to be lifted.
  - If you do not go up in 10 seconds, shake vigorously once more; if there is still no reaction, look up for some indication from the crew member, but have positive control of the device to avoid being hit in the face if slack is taken up.
- The normal signal for the survivor to indicate that he is ready for pickup is to transmit on the radio or a “thumbs up” with exaggerated up and down movement to the side of the body.

## REVIEW PROCEDURES USED TO CONTACT RECOVERY FORCES

K-93. Follow prebriefed instructions to include—

- Contact locations.
- Contact procedures which are—
  - Electronic signals.
  - Visual signals.

K-94. Consider the proper criteria for signaling:

- Aircraft identification may be difficult because of haze, dust, glare, and mirages.
- Signal aircraft or ships from concealment with the following:
  - Survival radio.
  - Signal mirror.
  - Flares (with radio contact only).
- Pattern signals can be issued or improvised with the following:
  - Select placement.
  - Shape (relays a message).
  - Angularity.
  - Contrast.
  - Three feet wide by 18 feet long, minimum size; 6:1 ratio.
- The most important factors about signals are the following:
  - Use them as prebriefed and when requested by recovery force.
  - Have the signals ready to use on short notice.



- Use them in a manner that will not jeopardize the safety of the evader.
- Electronic signals include the following:
  - Personal locator beacon.
  - Strobe light.
  - Transceivers/survival radios.
- Efforts should be made to conserve battery life by limiting transmissions and supplementing tone with the beacon.

## REVIEW PROCEDURES USED TO GUIDE RECOVERY FORCES TO A POSITION

K-95. Personnel should not transmit distress calls “in the blind” unless prebriefed to do so or when known friendly forces are in the immediate vicinity. Initial distress calls are accomplished by initiating a precontact transmission. (In theater, procedures may change the following guidelines):

- Beacon.
- “Mayday, Mayday, Mayday.”
- Tactical call sign.

K-96. Personnel isolated in hostile territory should not divulge their exact location, condition, or number of persons unless certain of the authenticity of friendly forces and, even then, only when requested to do so, after the authentication process.

K-97. After the precontact transmission sequence, remain alert for friendly contact.

K-98. Recovery forces will require evaders to identify themselves, authenticate, and provide other information pertinent to the recovery.

K-99. Authentication may be accomplished in a combination of several methods, depending on the situation:

- Questions from ISOPREP information.
- Visual signals.
- Prebriefed time and place.
- SAR letters and symbols/colors.
- Locally developed codes.

K-100. Vector of recovery aircraft may be required on final approach.

## LAND NAVIGATION

K-101. People are not going to feel confident, relaxed, and utterly at home in wilderness areas until they understand the few simple principles of finding their way anywhere and always knowing for sure where they are. We stay found by always knowing just about where we are. Keeping track of your exact location is not normally essential. With just a few skills and a good map, you can normally find your specific location by identifying prominent landmarks as you travel. These periodic checks will keep you from getting completely lost and give you the comfort of always knowing just about where you are.

K-102. Even the most inexperienced greenhorn can keep track of his position by the use of a map, compass, and pencil. Every 10 minutes, or every time you change direction, just update the map.

K-103. If you do not have a map, use your present location or a road or water source that you have found as the starting point; draw a map as you go. The wisest old woodsman uses the same technique, whether he is aware of it or not. His map is in his head, memorized over years by traveling, hunting, and fishing in what he considers his own backyard. The sun, moon, stars, vegetation, and any number of other natural factors work as his compass, during favorable conditions. Move this wise old woodsman to an unfamiliar area during an overcast day, and watch how fast he pulls out his hidden compass or, in the absence of a compass, listen to him as he convinces you to set up camp rather than walk in the woods.

## NATURAL AIDS TO NAVIGATION

K-104. One of the natural aids to navigation is vegetation. When using vegetation, such as trees, to aid in navigation, do not rely on one specific example, but consider the overall picture of the general area. When using trees as a navigational aid, you must be conscious of the natural shape of the trees in a particular area. The shape of trees will vary according to the following requirements:

- In a cold climate caused by high altitude, the trees will generally be pyramid shaped; a good example is the fir tree.
- The trees at high altitudes will be thinner so that light can penetrate and growth will be present all the way around the tree
- Some trees in the temperate areas also have a pyramid shape to avoid the hot noonday sun; they also gain complete access to the morning and evening sun.

K-105. Once you know the general shape of trees in a particular area, consideration must be given to the modifications that are done by wind/sun to this general shape:

- Knowledge of the prevailing winds in relation to the trees does not help unless you know the direction in relationship to north and south; if you can determine the north and south directions, then you can use the windblown trees to maintain the correct direction of travel.
- Wind damages the young shoots on the windward side of a tree while the ones on the opposite side will grow normally; thus, the side facing the wind will be thinner and stunted while the opposite side will be normal and flourishing.
- The wind, if strong enough, will even bend trees in the direction that the wind is blowing; this will cause the tree to grow in that direction.
- One big exception to the trees in the areas of leaning with the wind is the palm (coconut palm); it will lean into the wind. The leaves/fronds have a greater growth on the sheltered side with the head flattened.

K-106. The sun and its effects can also be an aid to navigation, especially where wind direction is variable:

- In most of the northern hemisphere, the arc of the sun from rising to setting is entirely on the south side, the midpoint of this arc being true south—vice versa for the southern hemisphere.
- Abundant foliage will be detected on the south side; foliage that requires more warmth (exposure to the sun) will also be found on the south slopes in the northern hemisphere (such as poplars, oak, beech, horse chestnut, maple, locust, and some pines).
- In the northern hemisphere, the branches of trees on the south side will be almost horizontal while the north branches will be fewer and growing at a slight vertical angle.

K-107. Anytime trees are used as aids to navigation, they should be in an open area, not damaged by man or in any other way. Another way to tell direction by a tree is to cut it down and examine the growth rings. In the northern hemisphere, the age rings revealed in standing stumps are generally widest on the southern side if, under local conditions, this has been the sunniest side. To make sure of your direction, it is wise to select several stumps situated as to have been in the full warmth of the noonday sun and to average the results.

K-108. The sun and the moon have always risen in the east and set in the west. At midday in the United States and Canada, the sun is in the south; at midnight, so is the full moon:

- The new moon (concavity to the left) is in the west in early morning.
- The old moon is in the east.
- The full moon rises in the east and sets in the west.

K-109. In the northern hemisphere, one star, the North Star, is never more than roughly one degree from the celestial North Pole. In other words, a line from any observer north of the equator will never be but slightly more than one degree from true north. This single night star has saved more lives than any other.

K-110. The easiest way to locate Polaris is by finding the Big Dipper, usually prominent in the northern heavens:

- The two outer stars that form the bowl of the Big Dipper point to the north star, which has the appearance of being about five times as far from them as they are from each other.
- When cloud cover obscures the Big Dipper, find Cassiopeia; the constellation is the big M or W, depending on its position in the northern skies. The North Star is always the same angle from Cassiopeia; it is a sound idea to memorize this relationship.

## THE LITTLE DIPPER

K-111. You can confirm your find as the North Star by the fact that Polaris is the bright star at the end of the handle of the much dimmer Little Dipper. This constellation is not as easily found as the Big Dipper and easily missed

in slight cloud cover, in the brilliance of bright moonlight, or during displays of the northern lights.

## ORION

K-112. The constellation Orion is made up of seven stars. The three stars close together in the middle of this group make up the Belt of Orion. The one star on this belt that is nearer the shorter height of Orion lies directly on the celestial equator. This means that no matter where you are on the earth, this star will rise due east of you and set due west.

## SUN

K-113. The sun rises precisely in the east and sets exactly in the west, over the ocean or flat terrain, only two days every year. These two annual events, known as the equinoxes, fall about 21 March (vernal equinox) and September 23 (autumnal equinox). Then the equator bisects the center of the sun, and day and night are both 12 hours long.

K-114. These primitive ways of reckoning are less reliable during cloudy, stormy, foggy, and otherwise obscure weather. Then everyone in strange country needs a magnetic compass. Moss does not grow on the north side of trees often enough to be a reliable indicator, and a prevailing wind is apt to change direction without being noticed. Even in familiar wilderness, a compass will often save a lot of time that would otherwise be expended on trial and error.

## DETERMINING THE DECLINATION FROM TRUE NORTH

K-115. To determine the declination from true north with fair accuracy, find the North Star. It lies almost exactly over the North Pole, being only slightly more than one degree away from precise north. You can then either note immediately the variation between almost exact north and where your compass needle is pointing or scratch a line pointing to this Pole Star or indicate it by two stakes. In daylight, compare your compass to the established north-south mark.

K-116. The declination must be taken into consideration when you are reading a map. As a matter of fact, it is marked on many maps. If no compass directions are shown on the particular map or chart, north may be assumed to be the top.

K-117. You must always know where you have gone and, by this knowledge, always about where you are. If you cannot rely on your memory, then it is only reasonable to sketch a map showing these two essentials.

K-118. If you are neither using a printed map nor paying particular attention to such natural signs as the sun, it is entirely feasible to travel all day from the direct readings of the compass, not taking declination into account. If you head out by compass north from a river, for example, you will return by compass south, although for practical reasons you should return either slightly west or east of south so that when you reach the river you will know precisely which way to turn.

## AIRCREW COMBAT EVASION NAVIGATION

**Note:** Assess the threat and apply appropriate evasion principles.

### References

K-119. Refer to the following references for additional information: AR 95-1, AR 350-30, AR 525-90, Joint Publication 3-50.2, Joint Publication 3-50.3, Joint Publication 3-50.21, FM 21-76, and FM 21-76-1.

### Navigation

K-120. Stay or move using the following criteria:

- Stay with the vehicle/aircraft in a permissive environment.
- Leave only when—
  - Dictated by the threat.
  - Certain of location, having a known destination, and the ability to get there.
  - Water, food, shelter, and/or help can be reached.
  - Convinced that rescue is not coming.
- If you decide to travel, consider the following:
  - Follow briefed evasion plan.
  - Note direction to travel and why.
  - Note equipment to take, cache, or destroy.
- Leave information at your start point (only in permissive environment):
  - Destination.
  - Route of travel.
  - Personal condition.
  - Supplies available.
- Implement evasion considerations:
  - Do not write on the map.
  - Do not soil the map by touching the destination.
  - Do not fold in a manner providing travel information.

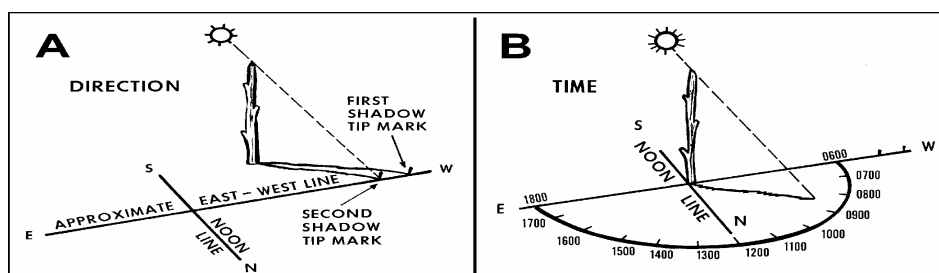
K-121. Navigation and position determination criteria follow:

- Determine your general location:
  - Develop a working knowledge of the operational area by using natural geographic checkpoints, man-made checkpoints, and the “Rate x Time = Distance” formula.
  - Use previous knowledge of the operational area.
  - Use information provided in the map legend.
  - Use prominent landmarks.

- Visualize map to determine position.
- Determine cardinal directions (north, south, east, and west):
  - Use a compass for the direction.

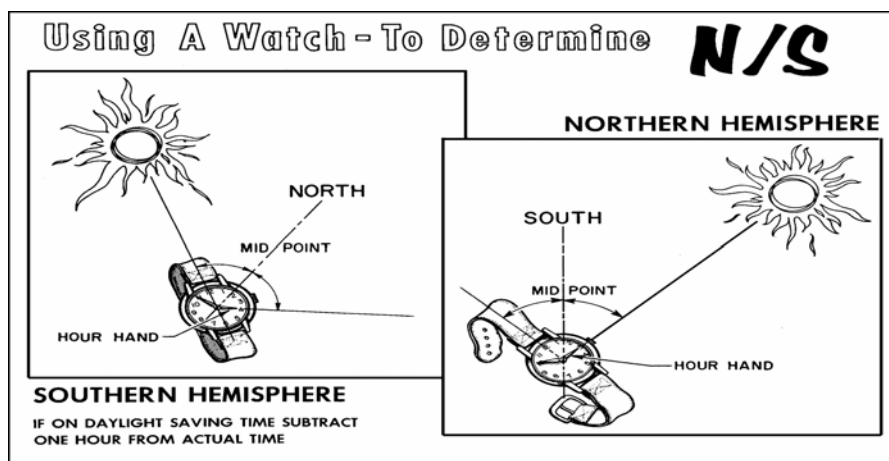
**Note:** Margin of error increases the closer you are to the equator for the following methods.

- Use the stick and shadow method to determine a true north-south line (Figure K-6).



**Figure K-6. Stick and Shadow Method**

- Use the direction of the sun (sunrise/moonrise in the east, sunset/moonset in the west).
- Use a wristwatch to determine cardinal direction (see Figure K-7); use this method for general direction only. Digital watches may be used.
- In the northern hemisphere, point the hour hand at the sun; south is half way between the hour hand and the 12 o'clock position.
- In the southern hemisphere, point the 12-o'clock position on your watch at the sun; north is half way between the 12-o'clock position and the hour hand.
- Pocket navigator (see Figure K-8): use paper or other flat writing material;  $\frac{1}{2}$ " shadow tip device such as twig, nail, and match and pen or pencil.



**Figure K-7. Direction Using a Watch**

- Start construction at sunup; end at sundown:
  - Attach shadow tip device in center of paper.
  - Place and secure navigator on flat surface; do not move during setup period.
  - Mark tip of shadow every 30 minutes and annotate time.
  - Connect marks to form an arcs; that shortest line between the base of the shadow tip device and the curved line is a north-south line.
  - Indicate north with a drawn arrow.
- Use during travel:
  - Hold navigator so that the shadow aligns with the mark of present time.
  - Drawn arrow now points to true north.

**Note:** Navigator is current for about one week.

- Alignment of stars (see Figure K-9):
  - Use North Star to locate true north-south line.
  - Use Southern Cross to locate true north-south line.

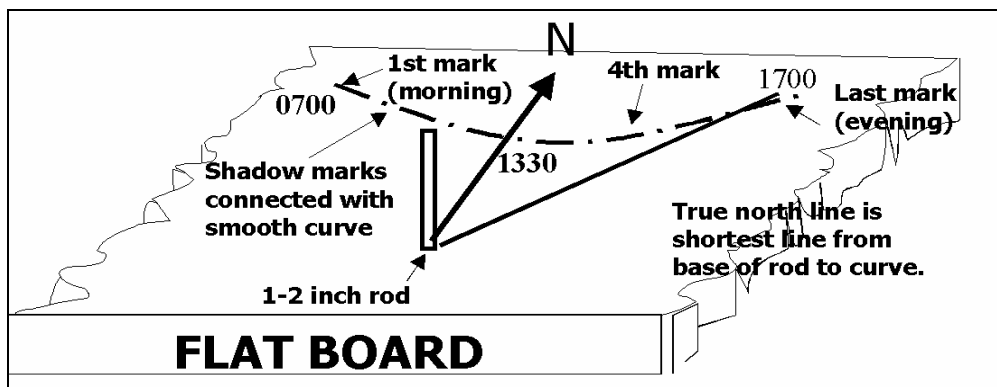


Figure K-8 Pocket Navigator

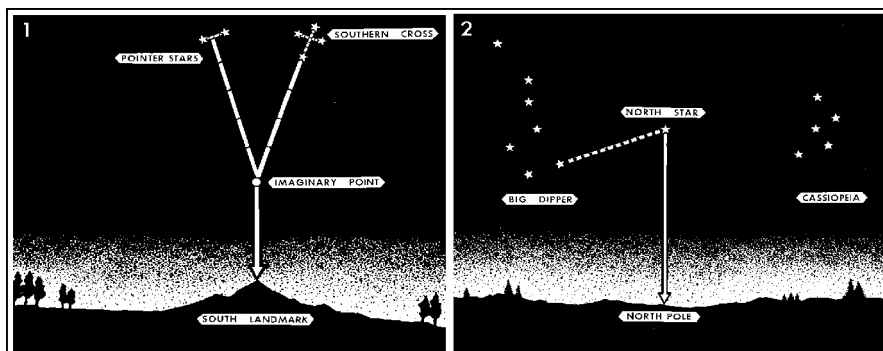
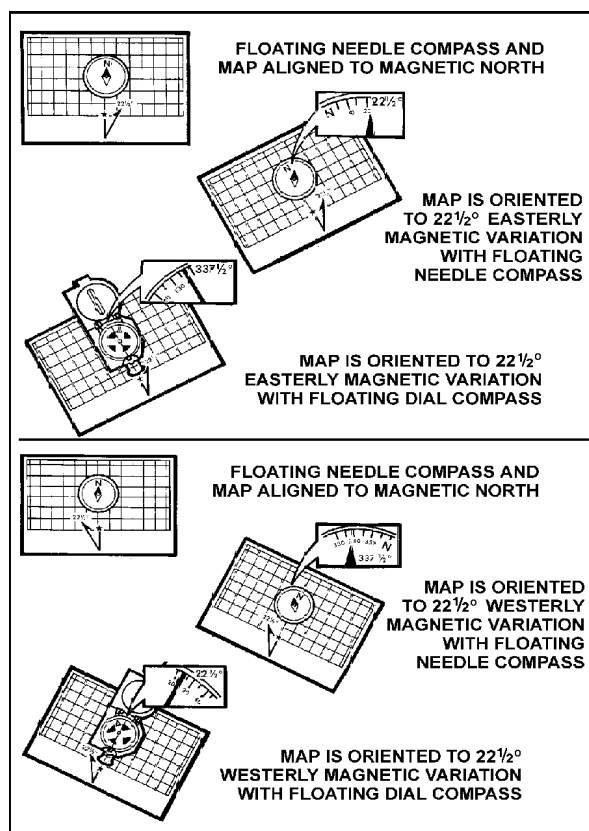


Figure K-9. Stars

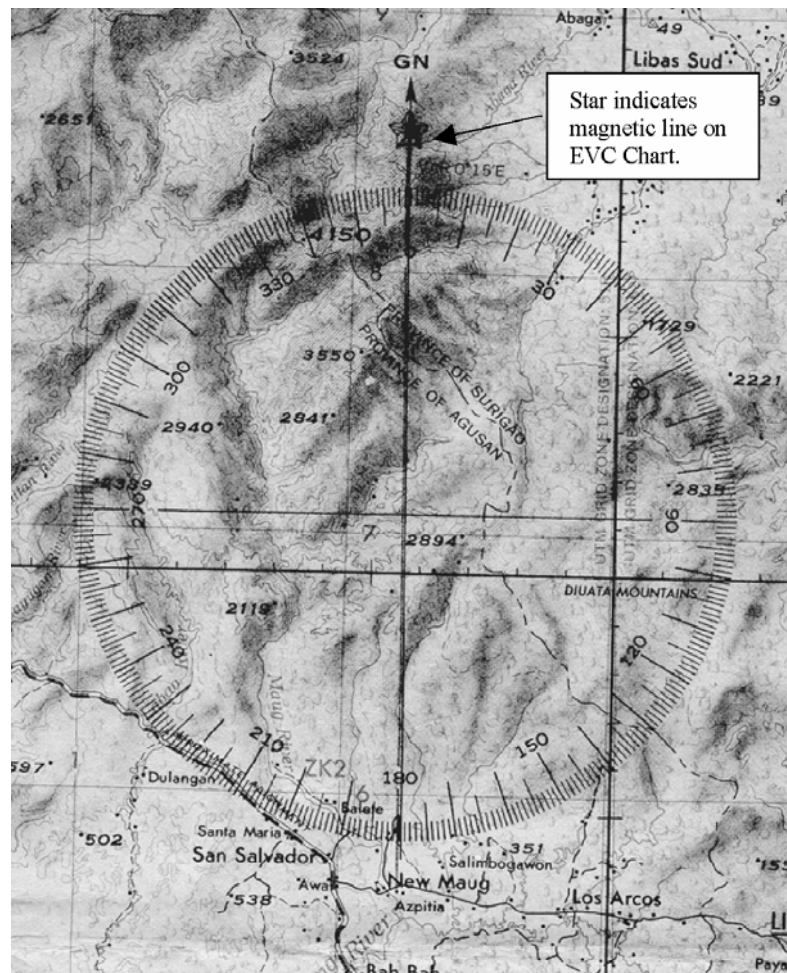
- Orient a map using a true north-south line (Figure K-10):
  - Unfold the map, and place on a firm, flat, and level nonmetallic surface.
  - Align the compass on a true north-south line.
  - Rotate the map and compass until stationary index line aligns with the magnetic variation indicated in marginal information; for example, easterly, subtract variation from 3,600 and westerly, add variation to 3,600.



**Figure K-10. Orienting a Map Using a True North-South Line**

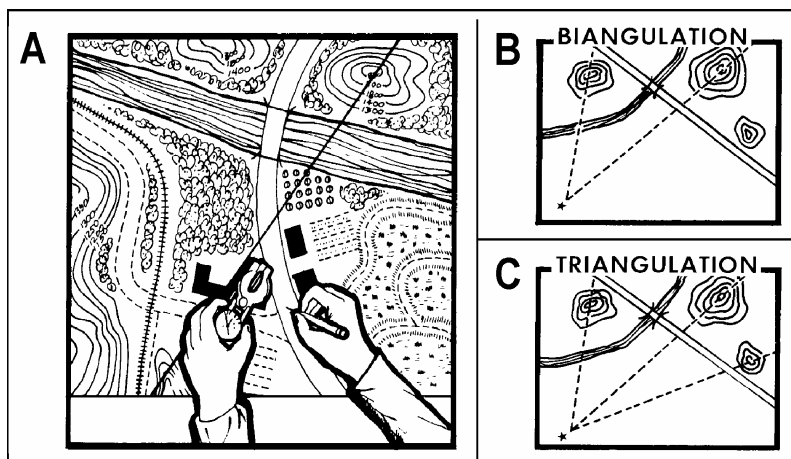
- Orient map with a compass rose (Figure K-11); for example, place edge of the lensatic compass on magnetic north line of the compass rose closest to your location and rotate map and compass until compass reads 360 degrees.





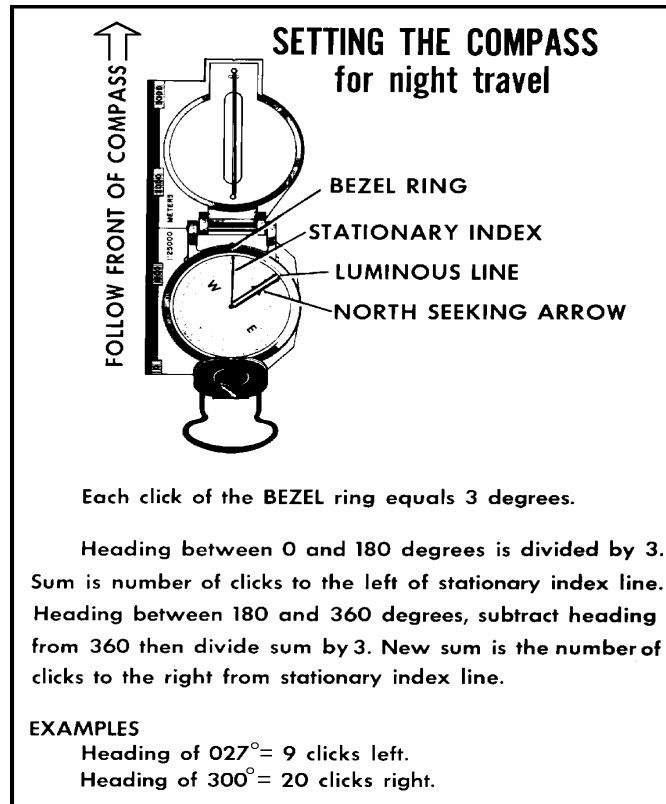
**Figure K-11. Map Orientation with Compass Rose**

- Orient a map using cardinal direction obtained by the stick-and-shadow method or the celestial aids (stars) method.
- Determine a specific location using the Global Positioning System (GPS):
  - Do not use GPS for primary navigation.
  - Use GPS only to confirm your position.
  - Select area providing maximum satellite reception.
  - Conserve GPS battery life.
- Triangulate (resection) with a compass (Figure K-12):



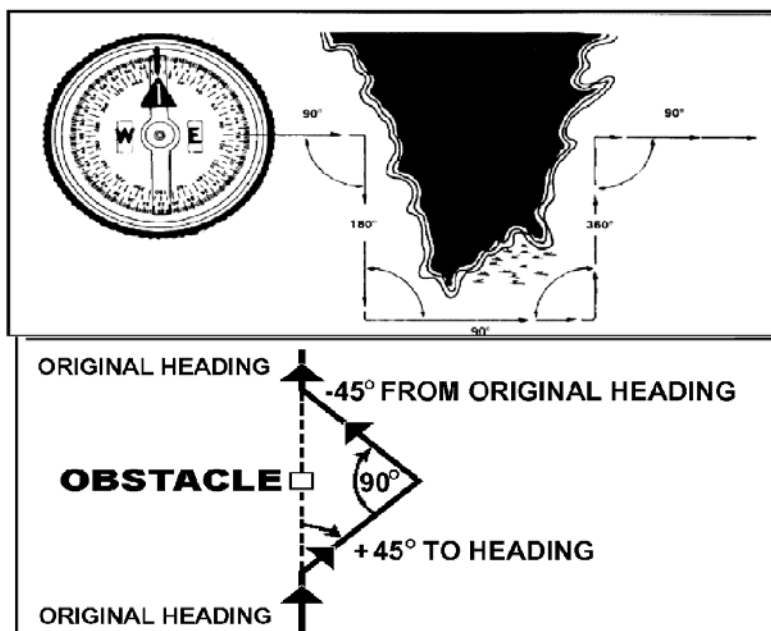
**Figure K-12. Triangulation**

- Try to use three or more azimuths.
- Positively identify a major land feature, and determine a line of position (LOP).
- Each time that a compass is used, check the map orientation.
- Plot the LOP using a thin stick, blade of grass, or pencil (nontactical).
- Use the compass for night navigation:
  - Set up compass for night navigation (Figure K-13).
  - Align north-seeking arrow with luminous line, and follow front of compass.
  - Use point-to-point navigation.
- Use route selection techniques for circumnavigation:
  - Find a prominent landmark on the opposite side of the obstacle.
  - Contour around obstacle to landmark.
  - Resume your route of travel.



**Figure K-13. Compass Night Navigation Setup**

- Use dogleg and 90 degree offset (Figure K-14).
- Use straight-line heading:
  - Maintain heading until reaching destination.
  - Navigate over open terrain, 1,200 paces per mile (average) or 600 per kilometer (60 per 100 meters).
  - Navigate over rough terrain, 1,800 paces per mile (average) or 900 per kilometer (90 per 100 meters).
  - Set pace; one pace is every time the same foot touches the ground.



**Figure K-14. Dogleg and 90-Degree Offset**

- Use deliberate offset:
  - Use when finding a point on a linear feature (road or river).
  - Intentionally navigate to left or right of target so that you know which way to turn at the linear feature.
- Use point-to-point:
  - Same as straight line.
  - Pick out landmarks on the heading, and walk the trail of least resistance to a point.
  - On reaching a point, establish another landmark and continue.

K-122. Travel techniques, tactics, and procedures an evader must consider the following:

- Pick the easiest and safest route (unless evading).
- Maintain a realistic pace; take rest stops when needed.
- Avoid overdressing and overheating.
- Consider food and water requirements.
- Take special care of feet.
- Pack equipment to prevent loss, damage, pack imbalance, and personal safety.
- Go around obstacles, not over or through them.
- Travel on trails whenever possible (nontactical).
- Travel in forested areas if possible.

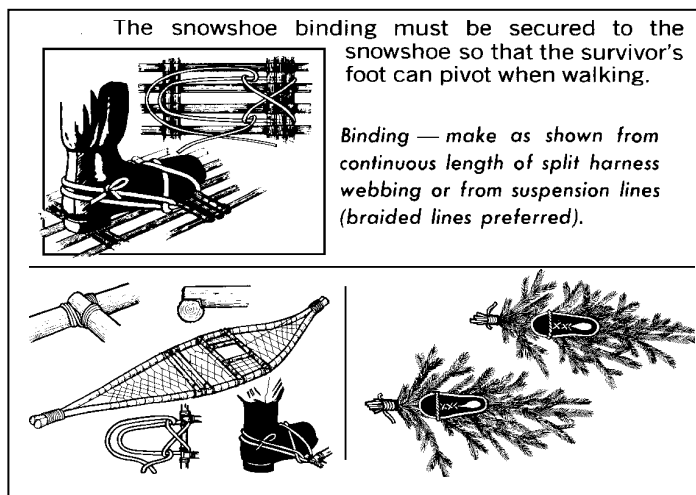
- Avoid creek bottoms and ravines with no escape in case of heavy rains.
- Circumnavigate swamps, lakes and unavoidable rivers by—
  - Traveling downstream to find people and slower water.
  - Traveling upstream to find narrower and shallow water.

K-123. River travel techniques, tactics, and procedures that an evader must consider include the following:

- River travel may be faster and save energy when hypothermia is not a factor; may be a primary mode of travel in a tropical environment.
- In shallow water, use a pole to move the raft.
- In deep water, use an oar.
- Stay near the inside edge of river bends (current speed is less).
- Keep near shore.
- Watch for the following dangers:
  - Snags.
  - Sweepers (overhanging limbs and trees).
  - Rapids.
  - Waterfalls.
- Do not attempt to shoot the rapids.
- When crossing a river or stream, use a raft.
- Without a flotation device, consider water depth before crossing.

K-124. Ice and snow techniques, tactics, and procedures that an evader must consider include the following:

- Travel should be limited to safe areas.
- Do not travel in—
  - Blizzards.
  - Bitterly cold winds.
  - Poor visibility.
- Obstacles to winter travel must be considered:
  - Be aware of reduced daylight hours.
  - If movement is necessary in deep, soft snow, make snowshoes (Figure K-15).



**Figure K-15. Improved Snowshoes**

- Travel is easier in early morning or late afternoon near dusk when snow is frozen or crusted.
- Avoid avalanche prone areas such as slopes 30 to 45 degrees or greater, trees devoid of uphill branches, and heavy snow loading on ridge tops.
- If caught in an avalanche, backstroke to decrease burial depth; as snow slows down, move hands around the face to create air pockets.
- At frozen water crossings, weak ice should be expected snow banks extend over the ice, and objects protrude through the ice.
- When crossing, distribute your weight by laying flat, belly crawling, or using snowshoes.
- Glacier travel is hazardous and should be avoided.

K-125. Tactics, techniques, and procedures that an evader must consider when approaching mountainous hazards include the following:

- Avoid ridge tops during storms (lightning hazard).
- Avoid rock avalanche.
- Avoid low areas (flash-flood hazard).

K-126. Tactics, techniques, and procedures an evader must consider when encountering summer hazards include the following:

- Dense brush can be avoided by—
  - Travel on trails when possible (nontactical).
  - Travel in forested areas if possible.
- Suggested procedures for swamps, lakes, and unavoidable rivers include the following:
  - Go around swamps, lakes, and bogs if possible.

- Travel downstream to find people and slower water.
- Travel upstream to find narrower and shallow water.

K-127. Procedures that an evader may consider when encountering dry climates include the following:

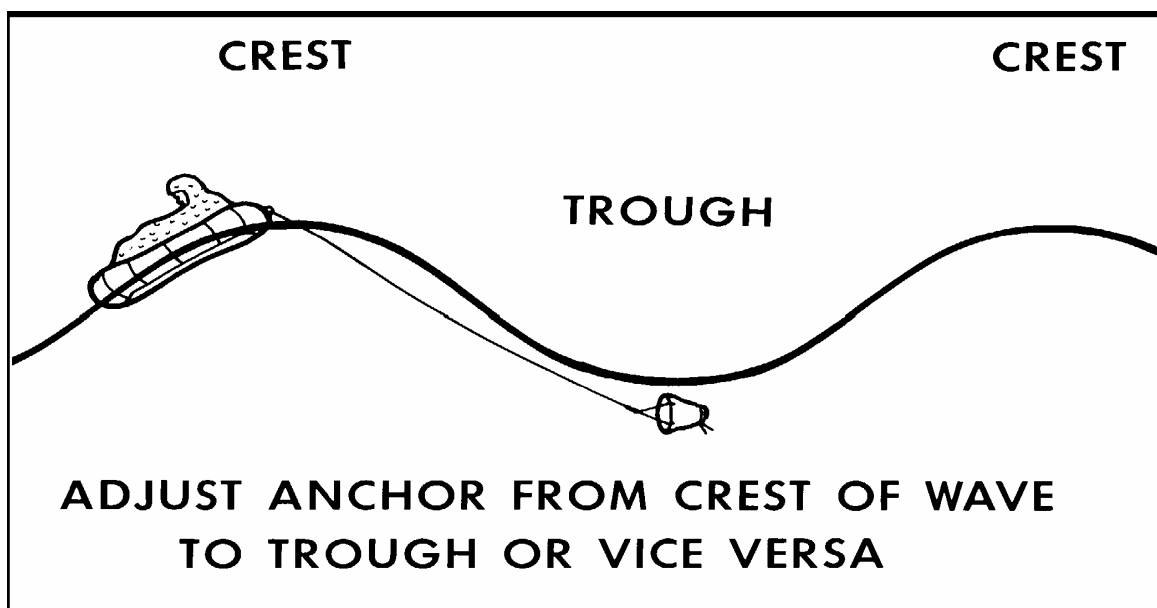
- Do not travel unless certain of reaching the destination using the water supply available.
- When the days are hot, travel at dawn or dusk.
- Follow the easiest trail possible (nontactical), avoiding:
  - Deep, sandy, dune areas.
  - Rough terrain.
  - Sandstorms but, if a sandstorm occurs, mark your direction of travel; sit or lie down in direction of travel, cover the mouth and nose with a piece of cloth, protect the eyes, and remain stationary until the storm is over.
- Procedures to follow for sand dune areas include the following:
  - Follow hard valley floor between dunes.
  - Travel on the windward side of dune ridges.

K-128. Procedures to follow in tropical climates include the following:

- Travel only when it is light.
- Avoid obstacles like thickets and swamps.
- Part the vegetation to pass through.
- Do not climb over logs; go around them.
- Avoid grabbing vegetation; it may have spines or thorns (use gloves if possible).
- Find trails where two streams meet or where a low pass goes over a range of hills.
- While traveling trails, follow these procedures:
  - Avoid closed trails; they may lead to animal traps.
  - Avoid disturbed areas on game trails; they may indicate a pitfall or trap.
  - Do not sleep on a game trail.

K-129. For open seas use the following procedures:

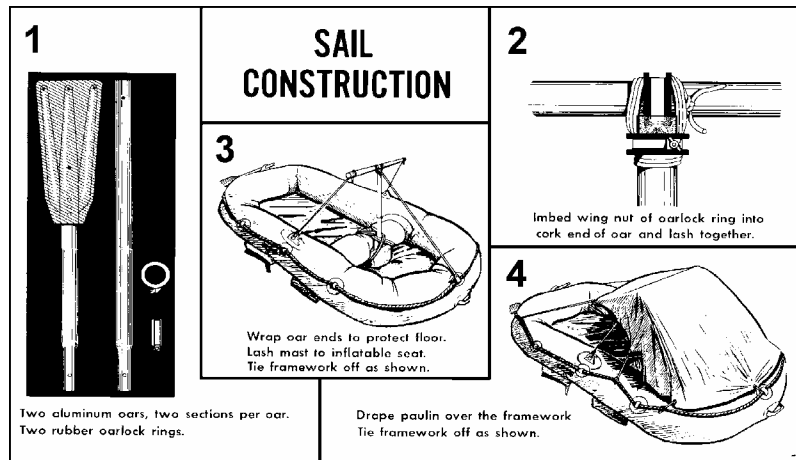
- For currents—
  - Deploy sea anchor (Figure K-16); sea anchor may be adjusted to make use of existing currents.



**Figure K-16. Sea Anchor Deployment**

- Sit low in the raft.
- Deflate the raft slightly so that it rides lower in the water.
- Use of winds include the following:
  - Pull in sea anchor.
  - Inflate raft so that it rides higher.
  - Sit up in raft so that the body catches the wind.
  - Construct a shade cover/sail (Figure K-17).
  - Use the sail to aid in making landfall.
- For making landfall, use the following indications for land:
  - Fixed cumulus clouds in a clear sky or in a cloudy sky where all other clouds are moving.
  - In the tropics, a greenish tint in the sky.
  - In the arctic, a lighter colored reflection on clouds (open water causes dark-gray reflections).
  - Lighter colored water indicating shallow water.
  - Odors and sounds such as swamps and smoke.
  - Roar of surf/bird cries coming from one direction.
  - Directions from which birds fly at dawn and at dusk.





**Figure K-17. Shade/Sail Construction**

- Use the following techniques and procedures when swimming ashore:
  - Consider physical condition.
  - Use a flotation aid.
  - Secure all gear to body before beginning landfall.
  - Remain in raft as long as possible.
  - Try to make landfall during the lull between the sets of waves (waves are generally in sets of seven, from smallest to largest).
  - Wear footgear and at least one layer of clothing.
  - If thrown from raft, use the sidestroke or breaststroke to conserve strength.
  - For moderate surf, swim forward on the back of a wave; make a shallow dive just before the wave breaks to end the ride.
  - For high surf, swim shoreward in the trough between waves; when the seaward wave approaches, face it and submerge; after it passes, work shoreward in the next trough.
  - If caught in the undertow of a large wave, remain calm, and swim to the surface; lie as close to the surface as possible; parallel shoreline and try at a point further down.
- Select a landing point:
  - Avoid places where waves explode upon rocks.
  - If you land on rocky shores, find a place where waves rush up onto the rocks.
- After selecting a landing site—
  - Face shoreward.
  - Assume a sitting position with feet two or three feet lower than the head to absorb the shock of hitting submerged objects.

- Raft ashore:
  - Select landing point carefully.
  - Use caution when landing when the sun is low and straight in front, causing poor visibility.
  - If possible, land on the lee (downwind) side of islands or point of land.
  - Head for gaps in the surf line.
  - When going through surf, take down most shade/sails, use paddles to maintain control, and deploy a sea anchor for stability.

**CAUTION**

Do not deploy a sea anchor if traveling through coral.

- Make sea-ice landings on large stable ice flows.
- Icebergs, small flows, and disintegrating flows are dangerous; ice can cut a raft; use paddles to avoid sharp edges; store raft away from the ice edge; and keep raft inflated and ready for use.

## BACKGROUND PAPER ON BLOOD CHITS

K-130. A device known as a “Blood Chit” originated with the “Flying Tigers” in China and was used extensively in World War II and Korea. It was still in effect in Southeast Asia and employed again during Desert Storm. The original “Blood Chit” consisted of the Chinese flag painted on the back of the flier's jacket and a request for aid in several Chinese dialects. For those civilians who might not be motivated by patriotism, a reward was offered for the airman's safe return to friendly forces. After the United States entered the war, the American flag was placed on the jacket and later a piece of silk. As the war escalated, the visible blood chits became more of a target than a ticket to freedom and quickly moved into pockets or were sewn into the lining of the jackets. However, the concept remained simple and virtually unchanged from the original idea: United States flag and text in both English and other languages that stated the following message:

*I am an American (or citizen of the United States). I do not speak your language. Misfortune forces me to seek your assistance in obtaining food, shelter and protection. Please take me to someone who will help see that I am returned to my people. My government will reward you.*

K-131. “Blood Chits” were successfully used in World War II, Korea, and Southeast Asia. Details of specific recoveries were not disseminated to protect the assistors. There is no time limitation on payment for assisting a “Blood Chit” holder. In 1966, three Koreans brought a “Blood Chit” to a United States Embassy. They were paid for assisting a United States flier in 1951. The last assistor paid under the blood-chit program was also a Korean, who was paid in 1992 for aid given in 1950.

K-132. Specific protocol for use of the blood chits was also established. The chits were printed as controlled items but remained unclassified. Each chit had an identifying serial number, which was recorded when the chit was issued. Then, if and when the owner was declared missing, the specific identification number was activated. Chit users were instructed not to give up possession of their chit to those who assisted them. Rather, have the assistor record the serial number, which could then be presented to a U.S. State Department agency or representatives such as the attaches at U.S. embassies. The State Department would verify the claim with the Defense Department and then paid the reward through the embassy, usually covertly, in any currency or goods. After World War II, all payments for valid claims were made through the State Department.

K-133. During World War II, three blood chits were printed that covered the entire globe; one each for Asia, Eastern Europe, and the Middle East/North Africa, with between 10 and 14 languages displayed on each. In the 1960s, the emergence of turbulence in what we now call the Third World, particularly African nations coming out of colonization, increased the potential for U.S. military involvement. Blood chits for this area presented special problems, because large numbers of the people in these undeveloped areas of the world could neither read nor write. The “pointee-talkee” blood chits with pictograph cartoon characters along with printed languages were developed. This was a valiant effort but just did not work. While the cartoon messages made obvious sense to the western mind, the message “my government will give you a cow for my safe return” was understood to be, “I will trade you a water buffalo for your wife”. This created an obvious sticky situation. The pictograph blood chits were never produced in large quantities.

K-134. Special editions of the blood chit were printed to meet crisis requirements such as a special Bay-of-Pigs edition with English, Spanish, and Portuguese languages displayed. This version was never used, but two other specials, Korea and Vietnam, got more use than the standard issues. In 1982/1983 the “blood chit” program was discontinued with the option of being revived if necessary.

## **CURRENT BLOOD CHIT PROGRAM**

K-135. Blood chits are currently available for use in operational contingencies in Europe, SOUTHCOM, the Persian Gulf, and additional areas covered as *special* or *limited edition* blood chits. The blood chit is a small sheet of Tyvek® material on which is imprinted an American flag, and a statement in English and several languages spoken by the populace in the area of operation, and like numbers in each corner that identify the particular chit. The blood chit identifies the bearer as an American and promises a reward to anyone providing assistance to the bearer/helping the bearer to return to friendly control. When the blood chit number is presented to American authorities and the claim has been properly validated (by the returned American or his or her debrief), it represents an obligation of the U.S. Government to compensate the claimant for services rendered to the evader. The executive agent OPR will establish payment limitations and will provide or appoint an individual in-theater as his representative to

adjudicate all claims, in coordination with JSSA, the JCS executive agent action office for DOD evasion and escape matters, as required.

## INDIVIDUAL RESPONSIBILITIES

K-136. Although use of the blood chit is at the discretion of the individual to whom it is issued, it should be used only after all other measures of independent evasion have failed and assistance is considered vital to survival. Unless the chit is taken by force or threat, individuals should retain it. Individuals who use the blood chit and receive assistance must report the circumstances of the incident upon return to U.S. control. A copy of the individual's debriefing, along with the blood chit, must be forwarded to HQ JSSA, Fort Belvoir, VA, as soon as practical. These operationally used blood chits will not be reissued but will become part of JSSA's permanent case files.

K-137. Upon receiving assistance, the evader needs to provide the assistor with the blood-chit number (either written or cut from the corner of the chit). If the assistor demands, the evader may provide name, SSN, and signature. Additional statements about specific aid given by the assistor or the actual blood chit, in the long run, could pose a serious security problem for the assistor. If the assistor still demands more information than just a number to back up his claim for reward, the evader should tell the assistor (or, if verbal communication is not possible because of a language barrier, point to the last lines of the statement on the blood chit) that reward will be provided after the evader's safe return to friendly lines and when the number is presented to an official representative of the U.S. Government. Evaders must refrain from making specific monetary promises to the individuals assisting them. If the assistor still wants to retain the blood chit as tangible evidence to present to claim the promised reward, the evader should explain that it is his or her only means of communication and may be needed to receive additional assistance. Overcoming this difficulty will depend largely on the salesmanship of the evader and the way he or she argues the case.

K-138. Text on the current blood chits will vary depending on the operational area and what is acceptable/understandable to the people living in that region and their language. Basically it will read as follows:

*I AM AN AMERICAN. I DO NOT SPEAK YOUR LANGUAGE. MISFORTUNE FORCES ME TO SEEK YOUR ASSISTANCE IN OBTAINING FOOD, SHELTER, AND PROTECTION. PLEASE TAKE ME TO SOMEONE WHO WILL PROVIDE FOR MY SAFETY AND SEE THAT I AM RETURNED TO MY PEOPLE. I WILL DO MY BEST TO SEE THAT NO HARM COMES TO YOU. MY GOVERNMENT WILL REWARD YOU.*

**Note:** For additional information on the current blood chit programs, contact JPRA, 102244 Burbeck Road, Fort. Belvoir, VA 22060-5805, (DSN 654-2192).

## **CAMOUFLAGE IN THE DESERT - EVADING NIGHT OPTICAL DEVICES**

K-139. "Cover of darkness" is no longer an absolute. With the technology now available to enemy forces, evaders must be prepared to avoid detection by night vision devices (NVDs) if they are to be successful in avoiding capture. There are three overall types of NVDs:

- An active infrared, which sees by the reflection of infrared (IR) frequency radiation emitted by an active (IR) source such as a searchlight (Iraqis have such systems on at least their T-72 tanks).
- Thermal imaging employed primarily in forward-looking infrared (FLIR) devices, which sense the infrared radiation from objects at different temperatures and do not require ambient light.
- Night vision goggles (NVGs), which use image intensification tubes to amplify existing light; the Iraqis are believed to have at least some equipment of this type. The greatest danger to an evader is likely to come from NVGs, because they can be carried by an individual soldier and do not require the user to reveal his position.

K-140. When FLIR systems are used, they are not dependent on, nor affected by, light sources, regardless of their intensity. FLIR systems are employed by some armored vehicle units and operate by detecting the temperature differences between objects and their background. When enemy armored vehicles are operating near evasion routes or evader hiding sites, evaders must use terrain masking to conceal their location. Because body temperature will be different from background temperatures and concealment from enemy observers will be difficult, if not impossible, evaders should place available terrain between themselves and the motorized vehicles. This evasion technique will also protect the evader from observation by an infrared search light.

K-141. NVGs have some significant limitations. Overcast moonless nights will severely degrade the capability of NVGs. They become nearly useless in fog, smoke, or dust. Another problem is the "blooming" effect, caused by bright flashes of light from exploding ordnance, flares, or other high-intensity light sources. This effect can cause temporary blindness to the individual wearing the goggles.

K-142. Camouflage and concealment methods used by an evader must be selected carefully to avoid using materials that are known to reflect available light. Tests have revealed some excellent camouflage considerations for desert operations. The following information has been derived from these tests with additional inputs when appropriate.

K-143. Boots are highly visible to NVGs at night. They appear as a solid object in contrast to the highly reflective desert background. An extra pair of socks, pulled over boots, may be the most expedient method of reducing night exposure of boots. When extra socks are not available, multiple layers of parachute material tied to boots should be considered. Use the green- or brown-colored panels; the white- and orange-colored panels provide too much

contrast during tests and should not be used as camouflage. Parachute material is not as effective as socks in reducing night exposure, but it may be all that an evader has. Evaders should use available resources (sand, dirt, mud, and camouflage sticks) to further neutralize the tone of parachute material prior to wrapping boots. In addition to reducing night visibility of the boots, these techniques will also help conceal any tracks. Tracks that are left will resemble those left by camels that forage from bush to bush in the same manner that an evader travels from point of concealment to point of concealment.

K-144. Flight suits provide good concealment in desert regions, especially when the evader crawls and rolls in the sand to vary the texture and tone of the suit. Black Velcro™ attached to flight suits should be removed or replaced with olive drab or gray Velcro™. Black Velcro™ stands out (contrasts) against the flight suit material when viewed through night vision devices.

K-145. Cover hair to reduce reflected light. Materials may include an olive drab T-shirt or the flying helmet skull cap (national stock number. 8475-00-164-7108), which has been proven to have excellent light-scattering properties. Additional considerations should include the triangle bandage from the first-aid kit, sections of green or brown parachute material, or a flop hat provided by some life-support shops. The triangle bandage will contrast a darker tone than the flight suit or BDUs but still reveals a silhouette of the head and shoulders in open areas. The parachute material should also be rolled in the dirt or sand to help match the tone of background landscape. The flop hat or other loose-fitting hats will help break up the outline of the head and facial features and should include use of draped parachute/cloth to help eliminate head/hat silhouette. Head covering should cover the back of the neck for sun protection during the day. Place extra material under the hat to create a dead air space that will keep you warm at night and cooler during the day.

K-146. The following additional items of equipment were tested for night visibility. Tests were conducted on a three-fourths moonlit night with scattered cloud cover. Night vision goggles used were the PVS-5 and PVS-7. Background landscape was sand; however, this sand only simulates the background in the AOR. Similar tests should be conducted in Saudi Arabia using the unique background landscape of that region.

K-147. **Parachute Material.** The green- and brown- colored panels of the C-9 canopy provide good concealment in sand. The white and orange panels display too much contrast to be useful as camouflage; however, they could be used to put out a nighttime ground-to-air signal. Evasion applications for the brown and green panels could include covering boots, shelter construction, camouflage of reflective equipment, and head protection. When pulled tightly around the body, this parachute will conceal the silhouette of the body and create an irregular outline that is difficult to distinguish at 50 meters. One major problem with using parachute material is that it will flap in the wind when not secured, attracting attention to the evader.

K-148. **LRU-16/P, One-Man Raft.** This black survival raft displays a dark contrast against both the sand background and flight suit. Evaders who

choose to retain this raft will need to conceal the deflated raft inside an extra olive drab or brown T-shirt, green or brown parachute material, or similar type of material. Rafts can be used as shelters, sleeping platforms, and water containers and for crossing streams and rivers.

K-149. **Survival Kit Containers.** This rubberized rucksack reflects light in the same manner as the raft. During night/low-light travel or concealment, this container should be covered as recommended for the life raft to avoid NVG detection. Cloth-type survival kit containers like the ML-4 were not tested.

K-150. **Space Blanket.** A space blanket is provided in some survival containers. The dark-green side of this blanket was viewed through the NVGs, and it reflected an unacceptable amount of shine for use as concealment.

K-151. **Mosquito Head Nets.** Both the green and black nets were tested with the same results. Through NVGs, the head nets were transparent, revealing shine from the hair and a definite silhouette. This article of clothing will have to be used with a flop hat or similar head gear to be effective camouflage.

K-152. **Wool Gray Scarf.** This USAF clothing item works extremely well as a covering for the hair/boots. This garment can be used as a stocking hat by pulling two feet of the scarf inside-out and stretching it over the head. The remainder of the scarf can be wrapped around the head to cover the face and break up the silhouette of the head.

K-153. **Evasion Chart.** The evasion chart blends well with the sand background. Wrinkling the chart made it more pliable, quieter, and easier to control when used to cover the body. It provides less light reflection than the flight suit and is closer in tone to the sand tested. The chart is large enough to cover small equipment items but too small to effectively cover the whole body. In addition, the chart is hard to control during windy conditions; movement of the chart may attract attention.

K-154. **Survival Vest.** The mesh of the survival vest blends equally with the flight suit and desert BDU. The pockets are not obvious; however, the rectangular patch on the back of the vest and the edges of the vest are easily seen from 20 meters. Application of camouflage stick to these areas helps to reduce the defined lines of this darker material. With constant use, the zippers of this vest will begin to reflect light. Constant awareness and the application of the camouflage stick will prevent this and other zippers from attracting attention.

K-155. Conclusions/recommendations include the following.

K-156. Night travel techniques should employ the same evasion movement techniques as daytime travel. Maintain a low silhouette, move from concealment to concealment, and use the terrain and shadows to mask your movement as much as possible. Change camouflage to blend in with the surrounding terrain features as they change. Improvised clothing/camouflage should not be allowed to flap in the wind. Evasion movement should be planned and deliberate. Areas that will be traveled during low-light

conditions should be observed during daylight. While observing the area to be traveled, evaders should give attention to areas offering possible concealment as well as location of obstacles that they may encounter on their route. Frequently stop and listen because sound carries great distances. Hostile forces will also be traveling at night. Sentries may be in hiding along your route of travel using night vision goggles to provide security for a larger force. Chance contacts are possible.

K-157. Skin, clean clothing, metallic insignia, rings, glasses, watches, zippers, boot eyelets, and similar items reflect light. Such items must be neutralized by staining, covering, removing, or being kept in the shadows to prevent their reflections from revealing an evader's location.

K-158. The goal of camouflage/concealment is to prevent recognition. This is accomplished by deception and induced false recognition. Tests conducted with night vision goggles offer some insight on problems that evaders may encounter. Effective individual camouflage depends primarily on the choice of background and its proper use. The northern gulf region has a variety of landforms to include windblown and stabilized dunes, flat sand or sand plains, gravel plains, rolling gravel hills, high mountains in north east Iraq/Kurdistan, and delta marshes. Evaders will have to adjust their camouflage to approximate the texture and tone of the terrain to blend in with the terrain.

K-159. When selecting camouflage material, you have to consider the reflectivity of the background and match it as closely as possible. Background is that portion of the surroundings against which an evader will be seen from the ground or air. Effective camouflage will mislead the enemy by misrepresenting the true identity of an item of equipment or an evader. Camouflage is not always designed to be a "cloak of invisibility." Properly camouflaged evaders may be seen as a natural feature of the landscape.

## **LOCATING MINES BY VISUAL MEANS**

K-160. Evaders may encounter a variety of obstacles, such as antitank and antipersonnel mines, while traveling in enemy territory. As a general rule, evaders should not attempt to penetrate known minefields. The problem lies in how do you know when and where mines pose a threat? This paper should provide some answers.

K-161. Knowledge of the mine warfare threat is especially critical during evasion planning. Learn as much as possible before your mission. Your intelligence section should be able to give you a pretty good idea of the level of threat in your operational area. However, intelligence will not be able to provide a detailed map of all the minefields that an evader, deep in enemy territory, may have encounter. Evaders must be able to identify situations in which mines may be used and the techniques used by the enemy to conceal mines.

## **MOUNTAINOUS REGIONS**

K-162. A defending force lays antitank mines, mixed with antipersonnel mines, in the comparatively narrow approaches to its position, which are passable to tanks. On slopes not passable to tanks, it employs chiefly



antipersonnel mines, paying particular attention to logical approaches for foot patrols/troops. In mountainous terrain, scattered mining techniques will be used more often than patterned mining techniques. In all cases, mine fields will be sited to channelize enemy efforts.

#### GENERAL GUIDANCE

K-163. During daylight and low-light movement, with the possibility of enemy mines and booby traps in the area, an evader must have some knowledge of how to visually detect the presence of mines and booby traps.

K-164. The following techniques are recommended to detect mines and booby traps:

- Be alert for tripwires in these places:
  - On the shoulders of roads at likely ambush sites.
  - Near known or suspected antitank or antivehicle mines.
  - Across the obvious route through dense plant growth.
  - In villages and on roads or paths into villages/towns.
  - In and around potential helicopter landing sites.
  - In approaches to enemy positions.
  - Across dikes or causeways.
  - Any natural funnel that looks like the easy route of travel.
- Look for mud smears, grass, sticks, dirt, dung, or other materials on roads that may be used to conceal a mine:
  - Look for signs of road repair.
  - Watch for disturbed tire marks, ruts, or skid marks.
  - Be alert for any signs placed on trees, posts, or hay stakes.
  - Watch for marks other than signs such as sticks or stones placed in a line, a broken stick placed on a road or trail, clumps of grass placed at intervals, sticks stuck in the ground, and strings hanging over doorways.
  - Watch for wires leading from the side of road.
  - Be alert for any odd items in trees, branches, or bushes.
  - Watch for odd features on the ground such as plant growth wilting or changing color.
  - Watch the civilians—where they do not go.
  - Look for evidence that the locals have recently used this route.
  - Watch for fresh tracks.
  - Look for the presence of livestock in the area.
  - Observe the route for local use before using a route of travel.
  - Watch for long plowed strips without crops.
  - Be careful of enemy flags, banners, equipment, or supplies left behind.

## LOCATING MINES BY PROBING

K-165. Probing techniques should only be used to evade out of a minefield, not as a means to penetrate known minefields. Probing is a way of detecting mines by piercing the earth with a sharp, nonmetallic object such as a sharp piece of wood. Metal probes should not be used. Probing is the best way to find buried mines, but it is slow, careful work, especially in hard or frozen ground and is not recommended for evaders not trained in this technique.

**Note:** When you know or suspect that the mines have magnetically influenced fuses, make sure that you do not carry any iron or steel gear in the immediate vicinity of the mines. Items—such as helmets, bayonets, weapons, and pistol belts—should be kept outside the field.

- Before probing, roll your sleeves up and remove watches and rings to increase your overall sense of touch.
- When probing—
  - Move on hands and knees or prone position, look and feel upward and forward to find tripwires and pressure prongs.
  - After looking and feeling, probe every two inches across a one-meter front; push the probe gently into the ground at an angle less than 45 degrees from the horizontal, putting just enough pressure on the probe to sink it slowly into the ground.

### CAUTION

If pushed straight down, the tip of the probe may detonate a pressure mine.

- If the probe does not go into the ground freely, the soil must be picked or chipped away with the tip of the probe and the loose dirt removed by hand.
- When a solid object is touched, stop probing and remove the earth to find out what the object is.
- If a mine is found, move around it; do not try to disarm it.

### CAUTION

Sometimes obvious mines are left poorly concealed so that the target is hit by a well-concealed mine on either side of it. The decoy draws your attention and lets you stumble into the intended mine. Some mines are booby trapped with another to kill/injure removal teams.

## **WARNING SIGNS/DECEPTION**

K-166. Warning signs differ among various military factions in former Yugoslavia. Minefields may have warning signs on the friendly side. Minefields in the area of operation are generally red and white.

- Lanes may be marked “PROLAZ” (mine).
- Minefields can be marked with either red or yellow barrier tape.
- Other signs may have a skull and crossbones and the word “mine” written on them.
- Some minefields may have no markings at all.
- Decoy signs may also be encountered.

## **SURVIVAL – EVASION – RECOVERY**

K-167. SERE lessons learned from the Captain Scott O'grady incident confirms the validity of what is taught in SERE courses and life-support training. When possible, follow established training procedures and guidance developed over many years and based on thousands of real experiences:

- Become familiar with and dress for the ground environment being flown over.
- Take time to become familiar with SERE information – SAIDs, SERE contingency guides, CSAR SPINS, ATO, and EVCs. If not provided for premission preparation, ask if they are available.
- Develop simple EPAs that can be remembered and used.
- Know and follow theater communication plan; any deviations/modifications should be annotated in your EPA.
- Consider the use of ground-to-air signals when radios fail or silent communications are required.
- Test radios/batteries before missions.
- Have premission knowledge of all of your life-support equipment operation and location in kits (vest, main survival, and hit-and-run kit).
- Preplan postlanding actions to include what gear will be left behind at the landing site to preclude loss of necessary equipment or loss of time in the decision-making process.
- Take advantage of opportunities to gather intelligence during the descent that will help the evader judge available time to gather equipment and identify direction for evasion and areas of concealment.
- Plan to take all radios with you, or destroy them if not taken (break the antenna, destroy the batteries, and puncture mikes and receivers.)
- Carry extra radio batteries for all available survival radios and any GPS that you may have.
- Carry all water possible.

- Take advantage of natural water sources located during evasion movement, including puddles.
- Carry personal survival items in your pockets or personal survival kits to include food when not provided (such as energy bars, which are high in carbohydrates).
- Know how to “Zero” the GPS in the event of imminent capture.
- Prepare your operational EVC by crumpling it several times to make it quiet before a mission; study it.
- Be patient while evading; all actions will take longer to accomplish – controlling noise created by an evader takes considerable time and patience.
- Travel during low-light conditions.
- Hide sites found in the dark may not be good enough to provide concealment in full light.
- Be aware of the natural environment and man-made sounds; the sounds (and actions) of animals can alert the evader to the approach of people. Hearing the sound of human voices at a distance reinforces the need to stay quiet and use evader noise discipline; the sound of wind, artillery, or passing aircraft can mask both evader and enemy noise.
- Stow kit and vest equipment immediately after use—loose, detached, or dangling items on lanyards might be lost, catch on vegetation, or be unavailable when needed (or found by a searching enemy); exception—detach flares before use.
- Do not approach friendly forces with a weapon drawn.
- Access to survival radio when sealed in two plastic bags is complicated; the radio also does not appear to be up to military standards of sturdiness or function.
- Evaluate equipment colors and type of material for use by evaders; some equipment can be noisy.
- Protect the back of the neck from burns while flying—with the collar of the flight suit up.

## Appendix L

# Prisoner-of-War Resistance Training Material

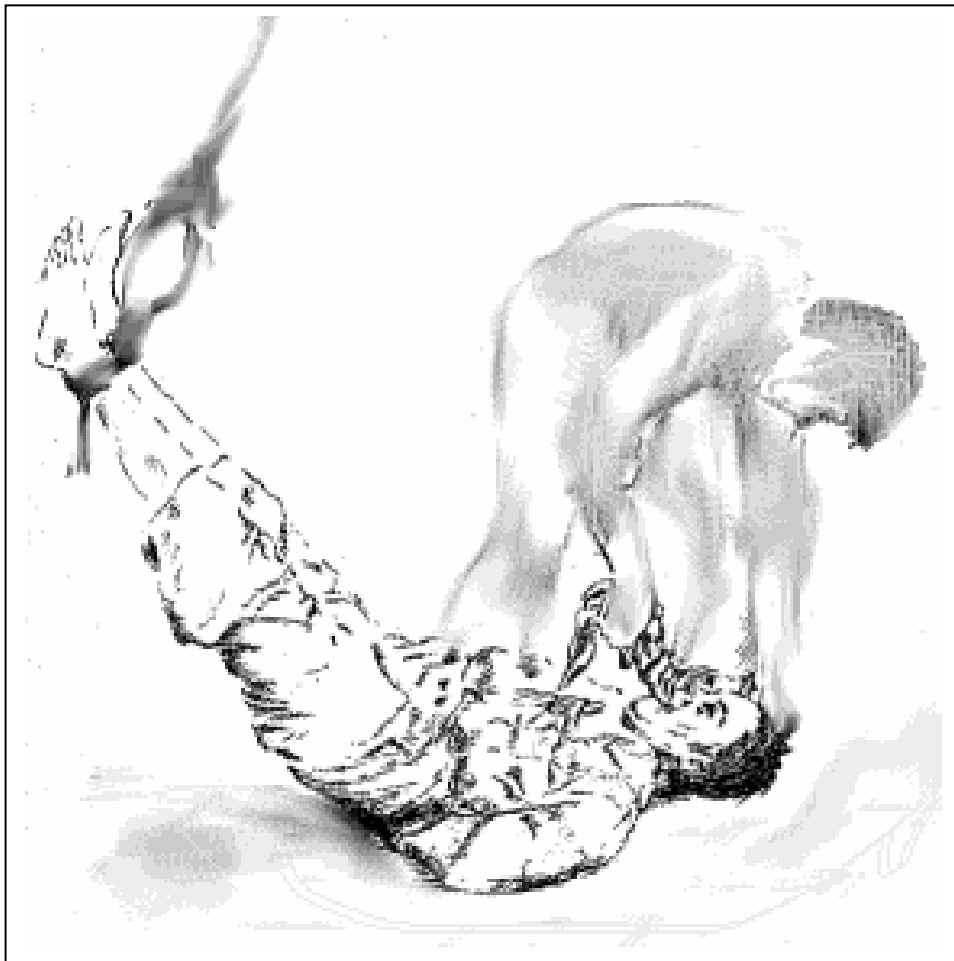
This appendix provides prisoner of war (PW) resistance training material and information as an aid to commanders, aviation life support officers, aviators, crew members and staff members conducting such training. Every soldier and Department of Defense (DOD) Employee may become a prisoner of a hostile force, by either armed combat or terrorist activity. Personnel must understand their responsibilities to resist during captivity and the provisions that protect them under the rules of the Geneva Convention of 1949, relative to the treatment of PWs. Thus, unit-training should focus on the responsibilities and treatment of PWs. The following references contain additional information: AR 350-30, AR 350-216, and FM 21-77. The bibliography of this field manual contains additional supplemental references.

**Note:** Prisoner-of-war resistance-training laboratories outside the supervision of the United States Army Special Warfare Training Center are prohibited according to AR 350-30. Personnel instructing this material must be graduates of a formal SERE III course.

*Every United States Air Force, Navy, and Marine Corps aircrew member shot down and captured during Operation Desert Storm had received SERE III training. None of the United States Army helicopter aircrew members shot down and captured during Operation Desert Storm had received SERE III training.*

## PRISONER OF WAR RESISTANCE TRAINING

L-1. Your life and the lives of your fellow service member depend on your survival and resistance efforts when captured. The success of the campaign and your safe return depend on the resistance training (Figure L-1). The Code of Conduct is a guideline for prisoners and service members no matter what the circumstances may be (Figure L-2).



**Figure L-1. Resistance Training**

<p><b>Article I</b></p> <p>I am an American, fighting in the forces which guard my country and our way of life. I am prepared to give my life in their defense.</p>
<p><b>Article II</b></p> <p>I will never surrender of my own free will. If in command, I will never surrender the members of my command while they still have the means to resist.</p>
<p><b>Article III</b></p> <p>If I am captured, I will continue to resist by all means available. I will make every effort to escape and aid others to escape. I will accept neither parole nor special favors from the enemy.</p>
<p><b>Article IV</b></p> <p>If I become a prisoner of war, I will keep faith with my fellow prisoners. I will give no information or take part in any action which might be harmful to my comrades. If I am senior, I will take command. If not, I will obey the lawful orders of those appointed over me, and will back them up in every way.</p>
<p><b>Article V</b></p> <p>When questioned, should I become a prisoner of war, I am required to give only name, rank, service number, and date of birth. I will evade answering further questions to the utmost of my ability. I will make no oral or written statements disloyal to my country and its allies or harmful to their cause.</p>
<p><b>Article VI</b></p> <p>I will never forget that I am an American, fighting for freedom, responsible for my actions, and dedicated to the principles which made my country free. I will trust in my God and in the United States of America.</p>

**Figure L-2. Code of Conduct**

L-2. “I will never forget that I am an American trusting in God and in the United States of America.” As a service member fighting for freedom be prepared to—

- Know your capabilities and limitations.
- Keep a positive attitude; lift yourself up.
- Develop a realistic plan.
- Anticipate fears.
- Combat psychological stress by identifying the following signals—
  - Recognize and anticipate existing stressors (injury, death, fatigue, illness, environment, hunger, and isolation).
  - Attribute normal reactions to existing stressors (fear, anxiety, guilt, boredom, depression, and anger).
  - Identify signals of distress created by stressors (indecision, withdrawal, forgetfulness, carelessness, and propensity to make mistakes).
- Strengthen your will to survive with—
  - The Code of Conduct.
  - Pledge of Allegiance.
  - Faith in the United States of America.
  - Patriotic songs.
- Follow group dynamics of survival:
  - Take care of your buddy.
  - Work as a team.
  - Reassure and encourage each other.
  - Prevent panic.
  - Create strength and trust in one another.
  - Favor persistency in overcoming failure.
  - Facilitate formulation of group goals to overcome obstacles.
- Influence group survival using the following factors:
  - Enforce the chain of command.
  - Organize according to individual capabilities.
  - Accept suggestions and criticism.
  - Require on-the-spot decision making to succeed.
  - Check equipment.
  - Gain confidence through knowledge and survival skill proficiency.

L-3. “I will keep my faith and obey the lawful orders appointed over me.” I will back them up by—

- Collecting thoughts and emotions.
- Identifying personal beliefs.



- Using self-control.
- Meditating.
- Remembering past inner sources to help overcome adversity.
- Praying for God's help, strength, wisdom, and rescue:
- Talking to God.
- Thanking Him that He is with you.
- Asking for His help.
- Praying for protection and a positive outcome.
- Remembering scripture, verses, or hymns; repeating them to yourself and to God.
- Worshiping without aid of written scripture, clergy, or other people.
- Forgiving yourself for what you have done or said that was wrong.
- Forgiving those who have failed you.
- Praising and thanks:
  - Thank your God; He is bigger than your circumstances.
  - Rejoice, no matter what happens; He will see you through.
  - For heaven there is eternal life.
- Trusting:
  - Faith and trust in your God.
  - Love for family and self.
  - Never lose hope.
  - Never ever give up.
- Helping other survivors:
  - Appoint a chaplain.
  - Discuss what is important to you.
  - Share scriptures and songs.
  - Pray for each other.
  - Try to have worship services.
  - Write down scriptures and songs that are remembered.
  - Encourage each other while waiting for rescue; God loves you; praise your God.

## RESPONSIBILITIES

L-4. **Deputy Chief of Staff for Operations and Plans (DCSOPS), now G3.** The G3 has Army staff responsibility for training in the Code of Conduct and SERE.

L-5. Deputy Chief of Staff for Personnel (DCSPER), now G1. The G1 has Army staff responsibility for—

- All matters pertaining to U.S. prisoners of war and individuals missing in action (MIA).

- Notifying selected soldiers of the date of attendance for Level-C SERE training; soldiers normally are sent to this training while en route to assignment.
- Guidance on the relationship of the Code of Conduct to military ethics.
- Prescribing policy and procedures for maintaining records for Levels B and C SERE training.
- All matters pertaining to soldiers in detention, captivity, or hostage situations.

**L-6. The Judge Advocate General (TJAG).** TJAG has staff responsibility for—

- Guidance on the relationship between the Code of Conduct and the Uniform Code of Military Justice (UCMJ).
- Interpretation of the Geneva Convention of 1949, Relative to the Treatment of Prisoners of War (GPW), as applied to captured or detained soldiers (See AR 350-216).
- Legal aspects of resistance, escape, and evasion.
- Providing TJAG officers with level-A SERE training.
- Other legal aspects of SERE such as negotiations with other countries regarding SERE matters.
- Guidance on the Hague Convention No. IV of 1907.

**L-7. The Surgeon General (TSG).** TSG has staff responsibility for—

- Guidance on the physical and psychological aspects of SERE in support of training.
- Providing medical officers with Level-A SERE training.

**L-8. The Chief of Public Affairs (CPA).** The CPA establishes policy regarding release of information to the media and the public relative to Code of Conduct and SERE training according to the Department of Defense (DOD) resistance training security classification guide and AR 360-5.

**L-9. The Chief of Chaplains (CCH).** The CCH will provide guidance to all chaplains regarding the status of chaplains under the GPW.

**L-10. The Commanding General, U.S. Army Training and Doctrine Command (CG, TRADOC).** The CG, TRADOC will—

- Act as the Department of the Army executive agent for Code of Conduct and SERE training and doctrine. The U.S. Army John F. Kennedy Special Warfare Center (USAJFKSWC) will act as the TRADOC proponent in all matters relating to Code of Conduct and SERE training.
- Incorporate training designed to achieve the objectives and policies outlined in this regulation within appropriate resident and nonresident courses of instruction.
- Assign responsibility for preparing and exercise-approving authority over all doctrinal training materials (such as literature and audiovisual aids) in support of the code. The CG, TRADOC, will take

action to keep supporting material current as new experiences are gained in combat and other situations.

- Coordinate directly with the DOD Executive Agent Action Office for Code-of-Conduct training and the responsible commands and agencies of the U.S. Navy and U.S. Air Force. This will assure that experiences and expertise are shared during development of doctrine and programs of instruction for code and SERE training. The missions, resources, and training situations of the armed services will vary for code and SERE training.
- Provide Level-A SERE training for all enlisted personnel and officers managed by the Officer Personnel Management Directorate.
- Provide training assistance to commanders of major Army commands (MACOMs) as requested.

L-11. **Commanders of MACOMs.** Commanders of MACOMs will—

- Ensure that members of their commands have a thorough knowledge of the Code of Conduct and understand its provisions.
- Conduct training according to standards established by TRADOC.
- Select personnel for SERE training based on levels of training required.

## **DUTIES OF THE INDIVIDUAL SOLDIER**

L-12. Soldiers who receive Code of Conduct and SERE training will ensure that they understand the contents and meaning of the Code of Conduct and SERE. Soldiers will adhere to these guidelines to the utmost of their ability.

L-13. It is the duty of individual soldiers who become isolated from their unit in the course of combat operations to continue to fight, evade capture, and regain contact with friendly forces. Individual soldiers are held accountable for their actions even while isolated from friendly forces or while held by the enemy. If captured, individual soldiers must live, act, and speak in a manner that leaves no doubt that they adhere to—

- Traditions of the United States Army.
- Their mission of resisting enemy attempts at interrogation, indoctrination, and other exploitation.

## **INITIAL TRAINING IN THE CODE OF CONDUCT**

L-14. Training in the code will begin upon entry into the U.S. Army. Code-of-Conduct training will be included in the program of instruction at the entry level (basic training and all courses of instruction designed to produce officers).

## **ROLE AND RESPONSIBILITIES OF THE UNITED STATES TOWARD PRISONERS OF WAR**

### **Training in the Code**

L-15. Training in the code will assure that every soldier understands the following responsibilities of the United States toward PWs:

- Each PW continues to be of special concern to the United States; the rights to which a PW is entitled (promotion status, pay and allowances, and dependent care) continue during captivity.
- Every available means will be used to establish contact with and to gain release of a PW.
- During the PW's captivity, every available means will be used to ensure that the PW is given protection and rights under the provisions of the GPW. (See AR 350-216.)

L-16. **Standardized Training.** To provide standardized training and to reduce the possibility of incorrectly interpreting the meaning of the code, only the instructional materials and instructors approved, provided, or trained by TRADOC for code-related training will be used.

L-17. **Use of Historical Examples.** Defeatist treatises, writings, and materials will not be used in training programs. On the contrary, the many examples of successful resistance will be the focal points of instruction and training. Such examples should be taken mainly from U.S. history and current situations and events.

L-18. **Integration of Training.** The principles of the code will be integrated to the maximum extent possible in all other related subjects.

L-19. **Content of Training Programs.** A positive acceptance of the code and the recognition that observing its guidelines is a military obligation; acceptance, and recognition of the code should include an understanding of the mutually supporting relationship between the Code of Conduct and the UCMJ. All training programs in support of the code must impress the following upon soldiers:

- A clear and uniform understanding of the continuing obligations, responsibilities, and the behavior expected of the soldier in combat or while a PW.
- An unqualified determination and belief in the soldiers' ability to effectively oppose all enemy efforts against them, their fellow soldiers, and their country during peacetime, combat, or captivity.
- A confidence in the soldiers' knowledge of what to expect if captured; an increased ability by individual soldiers to deny information and to resist, to their ability, enemy interrogation, exploitation, and indoctrination.
- An understanding that PW compounds are, in many ways, an extension of the battlefield; in a PW camp, a positive attitude toward personal duty is fundamental in keeping faith with fellow PWs and resisting enemy attempts at exploitation. Training programs will impress on individual soldiers the responsibility to maintain the following while in a PW camp:
  - Rank and leadership.

- Military bearing.
- Order and discipline.
- Teamwork and devotion to fellow soldiers.
- The duty to defeat enemies of the United States of America at all times.

## RELATIONSHIP OF THE CODE OF CONDUCT TO THE GPW

L-20. The Geneva Convention Relative to the Treatment of Prisoners of War (GPW) relating to PWs and to the sick and wounded on the battlefield was drafted to cover the rights and responsibilities of captors and PWs and the unique status of medical personnel and chaplains. The intent of the GPW is to provide for the protection, health, and welfare of PWs and other noncombatants while they await repatriation. Captors are required to treat PWs humanely. Captors are also prohibited from coercing PWs to provide information or to take action supporting the captor's war efforts. PWs are not required by the GPW to give a captor any information beyond name, rank, identification number, and date of birth.

L-21. Unfortunately, in recent experience, captors of American personnel have not treated PWs according to the spirit or the letter of the GPW. Instead, captors have attempted to exploit PWs to obtain information, propaganda statements, or other support for their war effort by using—

- Psychological pressure.
- Physical mistreatment.
- Medical neglect.

L-22. In response to the enemy methods noted above, the code was developed to provide the basis of mental and spiritual defense for PWs to use in resisting illegal enemy PW management practices. The code supports the intent of the GPW in that PWs may not be used or forced to further the enemy war effort.

## RELATIONSHIP OF THE CODE OF CONDUCT TO THE UCMJ

L-23. The code and the Uniformed code of Military Justice (UCMJ) support one another. The code is a positive mission statement, providing guidelines for behavior. The UCMJ is a statement of punitive law, a part of which can be used for serious violations of the code. Nothing in the code conflicts with the UCMJ.

L-24. The UCMJ prescribes minimum standards of conduct for all personnel. The UCMJ authorizes punishment for misbehavior before the enemy, aiding the enemy, and misconduct as a prisoner. Prisoners accused of misconduct, aiding, or misbehavior will be judged in light of all the surrounding circumstances, the code, and the customs of the service.

## SERE TRAINING

L-25. SERE training will be guided by the principles set forth in the Code of Conduct, the Geneva Convention of 1949, Relative to the Treatment of Prisoners of War, and the Hague Convention No. IV of 1907. (See AR 350-216.) The training will be—

- Commensurate with the required training levels.
- Conducted under the guidelines and programs of instruction (POIs) established by TRADOC.
- Integrated to the maximum extent possible into related subjects and field exercises.
- Designed to emphasize the practical application of SERE techniques as influenced by local conditions when appropriate.

L-26. The security of an individual soldier who returns to United States control following capture (a returnee) should remember that the following is classified military information and will be divulged only in a debriefing conducted by designated military officials:

- Information regarding means and methods of evasion and escape.
- Details of capture and imprisonment.
- Release from internment or captivity.
- Details of repatriation.

L-27. SERE training will include instruction emphasizing the requirement for safeguarding the security information. Permission for a returnee to release or discuss evasion, captivity, escape, or repatriation information must be granted by proper authority. (See AR 380-5.)

## EMPHASIS OF SERE TRAINING

L-28. SERE training will emphasize the following:

- Physical and psychological aspects of SERE.
- Characteristics of representative climatic and geographical areas.
- Cross-cultural communications and the role of ethnic groups in SERE.
- Survival situations and individual needs.
- Survival aids and hazards with respect to plants, wildlife, climate, and terrain.
- Identification of sources of food and water.
- Means of obtaining and preparing food.
- Purification of water.
- Preservation of food for future use.
- Recognition of and possible courses of action in dealing with mental or emotional problems.
- Early recognition and self-treatment of injuries and illnesses in survival, evasion, or PW environments.

- Sanitation and personal hygiene.
- Construction of proper shelters.
- Building of suitable fires.
- Improvising clothing, equipment, and weapons.
- Principles and techniques of evasion.
- Techniques for traversing obstacles, both natural and man-made.
- Land navigation and terrain analysis in different climatic and geographical environments during both night and day.
- Use of standard signaling devices and techniques.
- Improvisation of signaling devices.
- The Code of Conduct.
- Legal aspects of a resistance and escape.
- Provisions of the Geneva Convention of 1949, Relative to the Treatment of Prisoners of War, and the Hague Convention No. IV of 1907. (See AR 350-216.)
- Communist prisoner-of-war management techniques to include—
  - Interrogation and indoctrination methods, techniques, and goals.
  - Physical and psychological stresses.
  - Pavlovian and respondent conditioning.
- Methods of resisting enemy interrogation, indoctrination, and exploitation.
- Effective leadership and organizational techniques required within PW camps to facilitate survival, resistance, and escape.
- Clandestine communication techniques.
- Techniques of planning and executing escape.
- Methods of finding and passing friendly lines.
- Survival techniques, capabilities, and equipment available in other services for use in joint service survival and rescue situations.
- Reporting information concerning the enemy and terrain observed during the time spent behind enemy lines.
- The functioning of evasion and escape mechanisms.
- Safeguarding SERE information by returnees.

## GUIDELINES

L-29. The following general guidelines explain the three levels of Code of Conduct training:

L-30. **Level A.** Level-A training is initial entry-level training included in the program of instruction at basic training and at all courses of instruction designed for officers.

L-31. **Level B.** Level-B training is for officer and enlisted personnel or any military occupational specialty (MOS) operating (or anticipated to operate) forward of the division rear boundary and up to the forward line of own troops (FLOT).

L-32. **Level C.** Level-C training is for soldiers who have a high risk of capture wartime position, MOS, or assignment and whose position, rank, or seniority make them vulnerable to greater-than-average exploitation efforts by a captor. Examples include personnel who operate forward of the FLOT such as special forces, pathfinders, selected aviators, flying crew members, and members of ranger battalions.

L-33. **Peacetime Level C.** Peacetime Level-C personnel are those who, because of assignment or mission, have a high risk of being taken hostage by terrorists or being detained by a hostile government in a peacetime environment. Examples include Special Forces, selected military attaches and members of ranger battalions, and anyone in special support missions near conflict areas.

## DETERMINATION OF LEVELS

L-34. Experience has demonstrated that the training required in the code by individual soldiers is based on the following three factors:

- Risk of capture.
- Risk of exploitation for information of intelligence value and propaganda purposes.
- Captors or detaining power's assessment of the captive's usefulness and value.

L-35. It is possible to have Level-B training requirements for soldiers assigned to units anticipating operation forward of the FLOT. It is also possible to have Level-C training requirements for individuals assigned to units that usually qualify for Level-B training. Training-level status can also change with MOS, unit assignment, rank, or clearance level. Training must reflect the changes.

## TOPICS OF INSTRUCTION FOR LEVEL-A TRAINING

L-36. The following topics will be included as part of Level-A training:

- Training in the Code of Conduct.
- Developing knowledge and appreciation of national, Army, and unit history and traditions.
- Receiving education in the strengths and advantages of the nation's democratic institutions so as to develop resistance to enemy political and economic indoctrination.
- Understanding the mutually supporting relationship between the code and the UCMJ.
- Achieving a full understanding of the code and its purpose and meaning.



- Conducting peacetime of United States. Military personnel in detention, captivity, or hostage situations. (See Chapter 5, AR 350-30.)

## TOPICS OF INSTRUCTION FOR LEVEL-B TRAINING

L-37. The following topics will be included as part of Level-B training:

- Code-of-Conduct training. (See Chapter 4, AR 350-30).
- Hostage situation training. (See Chapter 5, AR 350-30).
- How to avoid capture, evade detection, survive when operating in enemy territory, and use methods of recovery employed by combat search and rescue forces.
- Understanding of enemy PW management practices, interrogation, indoctrination techniques, and captor goals; the instruction should include—
  - An explanation of the adverse physical and mental conditions under which these methods and techniques are conducted.
  - Information concerning resistance under the varying interrogation techniques and degrees of coercion used by an enemy.
  - Making soldiers aware that, even under extremes of coercion, they must avoid aiding the enemy to the best of their ability.
  - Ensuring that individual soldiers understand that personal affairs are to be put in order before commitment to a combat theater.

L-38. Level-B training countermeasures that can be used against enemy exploitation attempts include the following:

- Application of leadership principles, discipline, and the chain of command.
- Development of group and individual loyalties.
- Creation of special systems of organization.
- Understanding enemy ethnic traits and how they apply to the captivity situation.
- Employment of skills in sanitation, first aid, personal hygiene, and emergency self-treatment of typical PW camp illnesses using primitive materials.
- Use of religious and personal convictions to combat the stresses of captivity.

## TOPICS OF INSTRUCTION FOR LEVEL-C TRAINING

L-39. Level-C has more detailed information and problem-solving aspects than levels-A and -B. The topics in Level-C will include:

- Code of Conduct training.
- Legal aspects of the code and UCMJ.
- Relationship of the code to international law.
- Specific ruses and stratagems needed to defeat enemy interrogation.

- Organization and operation of a chain of command in a PW camp.
- Covert communications and clandestine organization.
- Responsibilities of a senior ranking officer.
- Persuasive leadership.
- Group dynamics.
- Procedures and techniques of rescue by search and recovery forces.
- Procedures for properly using specified evasion destinations.
- Confidence building through practical experience in using ruses and stratagems designed to thwart interrogation.
- Ways to plan techniques and methods of escape.

### **SERE LEVEL-A TRAINING**

L-40. Level-A training will be conducted during initial entry training and officer basic training with materials provided by TRADOC. The training will follow the guidelines specified in this appendix. The individual's personnel records (DA Form 2, Personnel Qualification Record-Part I, or DA Form 2-1, Personnel Qualification Record-Part II) will be annotated upon completion of this training.

### **SERE LEVEL-B TRAINING**

L-41. Level-B training will be given on a one-time basis to those individuals considered vulnerable to exploitation. It will be conducted at units of assignment by qualified instructors trained by TRADOC and will follow the guidelines in paragraph 3-3, AR 350-30. Individual personnel records (DA Form 2 or DA Form 2-1) will be annotated to indicate completion of the training. Commanders will coordinate with the servicing military personnel office (MILPO) to determine which personnel have not had the training. This will normally occur as part of the Battalion Training Management System (BTMS) planning phase, conducted annually.

### **Level-B Instructors**

L-42. Commanders should attempt to retain a qualified Level-B instructor at the battalion or separate company level to conduct the level-B instruction. Pending formalization of an additional skill identifier for the SERE instructor, the following can be used for instructor support:

- The SERE instructor qualification course conducted at the USAJFKSWC qualifies instructors to teach Level-B training in all environments.
- In addition, the USAJFKSWC can provide the Level-B Instructor Qualification Course to remote sites with mobile training teams (MTTs). TRADOC will certify instructors through resident instruction and MTTs. TRADOC will also support instructors through exported training packages and MTTs. MACOM commanders will request support for MTTs from TRADOC to meet instructor training requirements.

## **SERE LEVEL-C TRAINING**

L-43. Level-C training will be conducted only at the Resistance Training Laboratory operated by the USAJFKSWC. The training will follow the guidelines specified in AR 350-30. The individual's personnel records (DA Form 2 or DA Form 2-1) will be annotated upon completion of this training.

## **UNIT TRAINING**

L-44. The guidance in AR 350-30 applies to the training of individuals located in units. Field commanders should adapt Level-B training to the specific needs of their unit. This can be done in concentrated periods or over a training year. A suggested approach to training would be to give classroom instruction before the field training. The appropriate subjects would then be integrated into field training exercises and Army Training and Evaluation Programs (ARTEPs).

L-45. In addition, unit training programs and field exercises will provide opportunities for integrated practical application of SERE training by rescue forces. Maximum combat realism will be applied to tactical exercises, consistent with good safety practices. The use of PW compounds and resistance training laboratories by other than USAJFKSWC to teach Code-of-Conduct and SERE training is prohibited.

## **ISOLATED UNITS**

L-46. The tactical need for dispersion in warfare requires that units train to operate while isolated. Units must also develop standing operating procedures for such situations. The pessimism associated with the concept of a "cutoff" unit should be eliminated by appropriate training. Units should be able to accept temporary isolation on the battlefield as normal in combat. Units will be taught to rely on their own firepower and fighting ability and to continue their combat mission. As part of individual unit training, troops will be trained to obtain food and water from the local environment. Troops will also be trained to operate with confidence despite being isolated. This training is considered especially important for units—such as airborne, special forces, and rangers—whose mission requires operating with little or no outside support.

## **TREATMENT OF SIMULATED PRISONERS DURING PEACETIME MANEUVERS**

L-47. During training, capturing forces or units will treat simulated prisoners according to the GPW. Under no circumstances does this paragraph authorize use of PW compounds during field exercises for instruction in the Code of Conduct.

## **THE SIX ARTICLES OF THE CODE OF CONDUCT**

L-48. The six articles of the Code of Conduct are explained in this appendix. Training guidance is also provided with each article. The explanation and guidance provide the basis for training in support of the code as well as

guidelines for behavior of soldiers who are captured. The explanations are based on experience with captors who have violated the GPW.

L-49. Recent captors of U.S. personnel have attempted to—

- Eliminate or frustrate the functioning of PW organizations; this was done by interrupting communications between PWs and isolating known PW leaders.
- Divide the loyalties and reduce the team efforts of PWs; this was done by creating and building feelings of helplessness, hopelessness, and guilt among PWs.
- Force PWs to assist the enemy war effort by taking away or giving basic necessities such as food, clothing, shelter, human contact, and medical care.

L-50. The practices in the previous paragraph (L-49) are forbidden by the GPW. However, if soldiers are subjected to the misfortune and shock of capture, they must immediately realize that they may become the object of intense exploitation. The period of captivity may last for several years before successful escape or release. The PW must face this as a reality. The best way for PWs to keep faith with their country, fellow PWs, and themselves is to remember that the enemy's purpose is to exploit the PW. Therefore, the PW should provide the enemy with as little information or assistance as possible.

## ARTICLE I

*I am an American, fighting in the forces which guard my country and our way of life. I am prepared to give my life in their defense.*

L-51. The term “fighting man” in Article I refers to all soldiers. Article I also applies to each soldier, whether in combat or in captivity. Soldiers are, therefore, duty bound to support the interest of the United States and to oppose its enemies.

L-52. Medical personnel and chaplains are given special “retained status” by the 1949 Geneva Convention including the GPW. The GPW requires that medical personnel and chaplains be allowed to perform their professional duties while captured. However, the captors control the degree to which these duties can be performed. But, even while performing limited professional duties, medical personnel and chaplains are held accountable for all of their actions.

L-53. Recent experience has shown that captors have disregarded the GPW. All confined personnel have been subjected to the same coercive PW management practices. Therefore, all soldiers should be aware of the behavior standards of the code and should receive training in its application.

L-54. Familiarity with the wording and basic meaning of training guidance for Article I—Levels A, B, and C—is necessary to understand the following:

- Past experience of captured Americans reveals that honorable survival of captivity requires that a member possess a high degree of dedication and motivation. Maintaining these qualities requires—

- Knowledge of and a strong belief in the advantages of this country's democratic institutions and concepts.
- Love of and faith in this country and a conviction that this country's cause is just.
- Faith in and loyalty to fellow prisoners.
- When prisoners possess the dedication and motivation, as mentioned above, they are better able to survive long, stressful periods of captivity and return to country and family honorably and with their self-esteem intact.

## ARTICLE II

*I will never surrender of my own free will. If in command, I will never surrender the members of my command while they still have the means to resist.*

L-55. Article II means that soldiers may never voluntarily surrender. Even where isolated and no longer able to inflict casualties on the enemy or otherwise defend them, it is the duty of a soldier to avoid capture and rejoin the nearest friendly forces.

L-56. The means to evade is considered exhausted when escape is impossible. The means to resist is considered exhausted when further fighting would lead to the soldier's death with no significant loss to the enemy.

L-57. The responsibility and authority of a commander never includes surrendering the command while isolated, cut off, or surrounded, as long as the unit has the power to resist, break out, or evade rejoining friendly forces.

L-58. The key words of Article II are "of my own free will." In most cases, there will be a means to resist or escape. In extreme situations, the means to resist or evade might be exhausted; for example, a soldier may be isolated, low on ammunition (or without an operable weapon), and surrounded by enemy troops with loaded weapons.

L-59. Medical personnel and chaplains may have an occasion to remain with the sick and wounded. If captured, such actions are not considered voluntary surrender under the terms of Article II.

L-60. Training guidance for Article II—Levels A, B, and C training—should ensure that each individual is familiar with the wording and basic meaning of the Article. Levels B and C training should expand the discussion to include the following:

- Members must understand that when cut off, shot down, or otherwise isolated in enemy-controlled territory; they must make every effort to avoid capture; the courses of action available include concealment until recovered by friendly rescue forces, evasive travel to a friendly or neutral territory, and evasive travel to other prebriefed areas.
- Each member must understand that capture does not constitute a dishonorable act if all reasonable means of avoiding it have been exhausted and the only alternative is certain death.

L-61. Level-C training should ensure that members understand and have confidence in the procedures and techniques of rescue by search and recovery forces and the procedures for properly using specified evasion destinations.

### ARTICLE III

*If I am captured, I will continue to resist by all means available. I will make every effort to escape and aid others to escape. I will accept neither parole nor special favors from the enemy.*

L-62. Article III requires that individual soldiers continue to resist enemy exploitation even if captured. The PW command has been considered by recent captors as an extension of the battlefield, and the enemy has used a variety of tactics to exploit PWs in disregard of the GPW. These efforts have included physical and mental harassment, general mistreatment and torture, medical neglect, and political indoctrination.

L-63. Special favors or privileges have been offered to PWs in return for statements, information, and pledges or agreements not to try to escape. Soldiers must not seek special privileges or accept favors at the expense of fellow PWs. Under the guidance of the senior military person and the PW organization, soldiers must take advantage of escape opportunities whenever they arise.

L-64. Soldiers are prohibited from signing any parole agreements. Parole agreements are promises given the captor by a PW to get special privileges or release from captivity.

L-65. Medical personnel and chaplains who are captured must assert their right as “retained personnel” to perform their medical and religious duties for the benefit of PWs. They must take every opportunity to do so.

L-66. If medical personnel and chaplains are not treated as “retained personnel,” they have a duty to resist and escape. However, if they are treated as “retained personnel” they are not obligated to resist and escape. If medical personnel and chaplains are treated as “retained personnel,” they must not perform any actions that could be detrimental to PWs or other interests of the United States.

L-67. If the enemy fully honors and implements the agreements of the Geneva Conventions and does not attempt to exploit PWs, soldiers must not interfere with the proper, humanitarian administration of the PW camp.

L-68. Individuals who are recaptured after an escape attempt are protected by Articles 91 through 94 of the GPW. The GPW states that punishment will be for the escape attempt only, if—

- PWs have committed offenses for the sole purpose of aiding their escape.
- Offenses committed do not involve violence against life or limb.

L-69. Under the GPW, captured medical personnel and chaplains are to be returned to their own forces when they are no longer needed to perform their

duties. Soldiers will not bargain with the enemy for their own early release ahead of fellow PWs because this would be a failure to keep faith. (See Article IV.)

L-70. The senior military PW should control and supervise release of PWs if the enemy permits. The GPW intends that PWs be released in the following order:

- Seriously sick and wounded as soon as their medical condition permits movement.
- Other PWs on a first-captured, first-released basis.

L-71. Enemy release policies that differ from the GPW should be regarded with suspicion. Training guidance for Article III—Levels A, B, and C—should ensure that members are familiar with the wording and basic meaning of Article III.

L-72. Training guidance for Article III—Levels B and C—should ensure that members understand that captivity is a situation involving continuous control by a captor who may attempt to use the PW as a source of military information, for political purposes and as a potential subject for political indoctrination.

L-73. Members must be familiar with the rights and obligations of both the PW and the captor under the provisions of the GPW and be aware of the increased significance of resistance should the captor refuse to abide by the provisions of the Geneva Conventions. Members must also be aware that the resistance required by the Code of Conduct pertains to PW resistance to captor exploitation efforts and not to PW harassment of the captor. PW harassment of the captor may violate the Geneva Conventions and can subject the PW to possible punishment. This punishment can be as severe as the punishment for serious offenses against order and discipline or criminal offenses against the captor.

L-74. Members must be familiar with, and prepared for, the implications of the Communist Block reservation to Article 85 of the Geneva Conventions. Article 85 mandates that PWs prosecuted and convicted under the laws of the detaining powers for acts committed before capture shall retain the benefits of the GPW. Members must understand that Communist captors often threaten to use their reservations to Article 85 as a basis for adjudging all members of opposing armed forces as “war criminals.” As a result, PWs may find themselves accused of being war criminals simply because they waged war against their Communist captors before capture. The U.S. Government does not recognize the validity of this argument. Soldiers must know that they are to follow the law of land warfare prescribed in this appendix and the code in spite of the captor’s probable lack of compliance with the GPW.

L-75. Members must do the following concerning escape from captivity:

- Understand the advantages of early escape because members of ground forces are usually relatively near friendly forces; an early escape attempt is more likely to succeed because the initial captors are



usually not trained guards, the security system is relatively lax, and the prisoner is not yet in a debilitated physical condition.

- Be familiar with the complications of escape after arrival at an established PW camp. These complications include the following: secure facilities and experienced guard systems, usually located far from friendly forces; debilitated physical condition of prisoners; psychological factors that reduce escape motivation (“barbed-wire syndrome”); and, the often differing ethnic characteristics of escapees and the enemy population.
- Understand the importance of being alert for escape opportunities immediately after capture or when confined alone.
- Understand the command supervisory role of the senior military person and the PW organization in escapes from established PW camps; understand the responsibilities of escapees to their fellow prisoners.
- Understand that acceptance of parole means that a PW has agreed not to engage in a specified act (such as to escape or to bear arms) in exchange for a stated privilege and that U.S. policy forbids a PW to accept a parole.
- Understand the effects on prisoner organization and morale, as well as the possible legal consequences, of accepting a favor from the enemy that results in gaining benefits or privileges not available to all prisoners; such benefits and privileges include acceptance of release before the release of sick or wounded prisoners or those who have been in captivity longer. Special favors include improved food, recreation, and living conditions not available to other PWs.

L-76. Training guidance for Article III, Level-C, should expand on the guidance specified in this appendix including understanding the necessity for and the mechanics of covert organizations in captivity. These organizations serve the captive’s ends, to include effecting escape.

## ARTICLE IV

*If I become a prisoner of war, I will keep faith with my fellow prisoners. I will give no information or take part in any action which might be harmful to my comrades. If I am senior, I will take command. If not, I will obey the lawful orders of those appointed over me, and will back them up in every way.*

L-77. Article IV requires that officers and noncommissioned officers continue to carry out their responsibilities and to exercise their authority in captivity. Strong leadership is essential to discipline. Without discipline, camp organization, resistance, and even survival may be impossible.

L-78. Informing on fellow PWs is forbidden. PWs must especially avoid helping the enemy to identify fellow PWs who have information that is of value to the enemy. These PWs may be made to suffer coercive interrogation because of their knowledge.

L-79. Personal hygiene, camp sanitation, and care of the sick and wounded are imperative.

L-80. The senior person (whether officer or enlisted) within the PW camp or with a group of PWs will assume command according to rank without regard to branch of service. A chain of command will be designated and communicated to all PWs. The chain of command will represent PWs in dealing with enemy authorities. The responsibility of subordinates to obey the lawful orders of ranking American military personnel remains unchanged in captivity.

L-81. The GPW indicates that in PW camps with enlisted personnel only, a prisoner's representative will be elected. However, it is U.S. policy that the prisoner's representative does not have command unless the representative is also the senior military person, regardless of branch of service. The senior military person will assume and retain actual command covertly if necessary.

L-82. Maintaining communication is one of the most important ways that PWs can aid one another. Communication breaks down the barrier of isolation (constructed by the enemy) and helps strengthen the PW's will to resist. Immediately upon capture, each PW will try to make contact with fellow PWs by any means available and will actively continue to communicate and participate as part of the PW organization.

L-83. Medical personnel are generally prohibited from assuming command over nonmedical personnel. Chaplains are generally prohibited from assuming command over military personnel of any branch. Military service regulations that restrict the eligibility of medical personnel and chaplains for command will be explained to personnel of all services so that there will be no confusion in a PW camp.

L-84. If the enemy does not permit a military command structure to be formed or to function, an organization of elected representatives as provided for in the GPW may be established. However, in such a case, the senior person will continue to exercise authority over all PW matters, covertly if necessary.

L-85. Training guidance for Article IV—Levels A, B, and C—should ensure that members are familiar with the wording and basic meaning of Article IV. Members should also understand the following:

- Leadership and obedience to those in command are essential to the discipline required to organize against captor exploitation. In captivity situations involving two or more prisoners, the senior ranking prisoner will assume command; all others will obey the orders and abide by the decisions of the senior military person, regardless of differences in service affiliation. Failure to do so will result in the weakening of organization, a lowering of resistance, and after repatriation, may result in legal proceedings under the UCMJ.
- Faith, trust, and individual group loyalties have great value in establishing and maintaining an effective prisoner-of-war organization.

- A volunteer informer or collaborator is a traitor to fellow prisoners and country and, after repatriation, is subject to punishment under the UCMJ.

L-86. Training guidance for Article IV—Levels B and C should expand on the guidance in the preceding paragraph. Members must do the following regarding the captivity situation:

- Be familiar with the principles of hygiene, sanitation, health maintenance, first aid, physical conditioning, and food utilization. This includes recognition and emergency self-treatment of typical PW camp illnesses by use of primitive materials and available substances (for example, toothpaste, salt, and charcoal). Such knowledge exerts an important influence on prisoner ability to resist and assists in maintaining an effective PW organization.
- Understand the importance of and the basic procedures for establishing secure communications between separated individuals and groups of prisoners attempting to establish and maintain an effective organization.
- Be familiar with the major ethnic, racial, and national characteristics of the enemy that can affect prisoner-captor relationships to the detriment of individual prisoners and prisoner organizations.

L-87. Members must further understand the following concerning collaborators:

- An informer or collaborator should be insulated from sensitive information concerning PW organization, but continuing efforts should be made by members of the PW organization to encourage and persuade the collaborator to cease such activities.
- Welcoming a repentant collaborator “back to the fold” is generally a more effective PW organization resistance technique than continued isolation, which may only encourage the collaborator to continue such treasonous conduct.
- There is a significant difference between the collaborator who must be persuaded to return and the resistant who, having been physically or mentally tortured into complying with a captor’s improper demand (such as information or propaganda statement), should be helped to gather strength and return to resistance.

L-88. Members must further understand that, in situations where military and civilian personnel are imprisoned together, the senior military prisoner should make every effort to persuade civilian prisoners that the military member’s assuming overall command leadership of the entire prisoner group is advantageous to the entire prisoner community.

L-89. Training guidance for Article IV, Level C—in addition to the guidance cited in this appendix—members must understand the need for and the mechanics of establishing an effective covert organization in situations in which the captor attempts to prevent or frustrate a properly constituted organization.

**ARTICLE V**

*When questioned, should I become a prisoner of war, I am required to give only name, rank, service number, and date of birth. I will evade answering further questions to the utmost of my ability. I will make no oral or written statements disloyal to my country and its allies or harmful to their cause.*

L-90. Article V requires that, when questioned, a PW must give name, rank, service number, and date of birth. Under the GPW, the enemy may not force a PW to provide any additional information. However, it is unrealistic to expect a PW to remain confined for years reciting only name, rank, identification number, and date of birth. There are many PW camp situations in which certain types of conversation with the enemy are permitted. For example, a PW is allowed, but not required by the Code of Conduct, UCMJ, or GPW to—

- Write letters home.
- Communicate with captors on matters of health and welfare.

L-91. The senior military prisoner is required to represent the prisoners in matters of camp administration, work details, health, welfare, and grievances. However, it must be constantly borne in mind that the enemy has often viewed PWs as valuable sources of military information and of propaganda that can be used to further the enemy's war effort.

L-92. Each PW must exercise great caution when communicating with the captor and writing letters. A PW must resist, avoid, or evade—even when physically or mentally coerced—all enemy efforts to secure statements or actions that will further the enemy's cause. Such statements or actions constitute giving the enemy unauthorized information. Examples include—

- Oral or written confessions.
- Questionnaires.
- Personal history statements.
- Propaganda recordings and broadcast appeals to other PWs to comply with improper captor demands.
- Appeals for surrender or parole.
- Self-criticisms.
- Oral or written statements or communications helpful to the enemy or harmful to the United States, and its allies, the Armed Forces, or other PWs.

L-93. A PW should recognize that any confession signed or any statement made may be used by the enemy as part of a false accusation that the captive is a war criminal rather than a PW. Moreover, certain countries qualify their acceptance of the GPW, stating that a war crimes conviction has the effect of depriving the convicted individual of PW status. This action may remove the PW from protection under the GPW and lead to a loss of the right to repatriation until a prison sentence is served.

L-94. If a PW finds that, under intense coercion, unauthorized information was unwillingly or accidentally disclosed, the PW should develop a fresh mental defense to recover control and develop a new line of resistance. Experience has shown that although enemy interrogation sessions can be harsh and cruel, it is possible to resist when a will to resist exists. The best way for PWs to keep faith with their country, fellow PWs, and themselves is to provide the enemy with as little information as possible.

L-95. Article V and its explanation apply equally to medical personnel and chaplains (retained personnel). These personnel are required to communicate with a captor in connection with their professional responsibilities but are subject to the restraints discussed in this appendix.

L-96. Training guidance for Article V—Levels B and C—will include the material specified in this appendix. Additional training will be given members who must—

- Be familiar with the various aspects of the interrogation process; its phases; the procedures, methods, and techniques of interrogation; and the interrogator's goals, strengths, and weaknesses.
- Understand that a PW is required by the Geneva Convention and the Code of Conduct to disclose name, rank, service number, and date of birth, when questioned, and that answering further questions must be avoided. A prisoner is encouraged to limit further disclosure by use of such resistance techniques as claiming inability to furnish additional information because of previous orders, poor memory, ignorance of answer, or lack of comprehension. The prisoner may never willingly give the captor additional information but must resist doing so even if it involves withstanding mental and physical duress.
- Understand that, short of death, it is unlikely that a PW can prevent a skilled enemy interrogator, using all available psychological and physical methods of coercion, from obtaining some degree of compliance by the PW with captor demands. However, if taken past the point of maximum endurance by the captor, the PW must recover as quickly as possible and resist each successive captor exploitation effort to the utmost. The PW must understand that a forced answer on one point does not authorize continued compliance. Even the same answer must be resisted again at the next interrogation session.
- Understand that a prisoner is authorized by the Code of Conduct to communicate with the captor on individual health or welfare matters and, when appropriate, on routine matters of camp administration; conversations on these matters are not considered to be giving unauthorized information as defined in this appendix.
- Be familiar with the captor's reasons for and methods of attempting to involve prisoners in both internal and external propaganda activities. Understand that a prisoner must use every means available to avoid participation in such activities and must not make oral or written statements disloyal to country and allies or detrimental to fellow prisoners of war.

- Be familiar with captor's reasons for and methods of attempting to indoctrinate prisoners politically; be familiar with the methods of resisting such indoctrination.

L-97. Training guidance for Article V—Level C—will expand on the training in this appendix. Members should specifically—

- Understand that—even when coerced beyond name, rank, service number, date of birth, and claims of inabilities—it is possible to thwart an interrogator's efforts to obtain useful information by the use of certain additional ruses and stratagems.
- Understand and develop confidence in the ability to use properly the ruses and stratagems designed to thwart interrogation.

## ARTICLE VI

*I will never forget that I am an American, fighting for freedom, responsible for my actions, and dedicated to the principles which made my country free. I will trust in my God and in the United States of America.*

L-98. Article VI is designed to help soldiers fulfill their responsibilities and to survive captivity with honor and dignity. Soldiers remain responsible for their actions at all times. The UCMJ continues to apply to each soldier during captivity or other hostile detention.

L-99. Upon repatriation, PWs can expect their actions to be subject to review, both as to circumstances of capture and to conduct during detention. The purpose of such reviews is to recognize meritorious performance as well as to investigate any allegations of misconduct. Such reviews will be conducted considering the rights of the individual and the conditions of captivity.

L-100. A member of the Armed Forces who is captured has a continuing obligation to resist all attempts at indoctrination and to remain loyal to country service, and unit. The life of a PW can be hard. PWs who stand firm and united against enemy pressures will aid one another immeasurably in surviving this ordeal.

L-101. Training guidance for Article VI—Levels A, B, and C—should ensure that members are familiar with the wording and basic meaning of Article VI as stated in this appendix. In addition the training should teach members to—

- Understand the relationship between the UCMJ and the Code of Conduct and realize that failure to follow the guidance in the Code of Conduct may result in violation of the provisions of the UCMJ. Every member of the Armed Forces of the United States should understand that members can be held legally accountable for personal actions while detained.
- Be knowledgeable of national policy concerning the Code of Conduct according to DOD Directive 1300.7. Specifically, the directive states that “No American prisoner of war will be forgotten by the United States. Every available means will be employed by our Government to

establish contact with, to support, and to obtain the release of all of our prisoners of war. Furthermore, the laws of the United States provide for the support and care of dependents of the Armed Forces including those who become prisoners of war. President Eisenhower assured dependents of such prisoners that these laws will continue to provide for their welfare.”

- Understand that both the PW and dependents will be taken care of by the Armed Forces and that pay and allowances, eligibility and procedures for promotion and benefits for dependents continue while the PW is detained.
- Understand the importance of keeping personal and family matters current and in order before being exposed to risk of capture. This is accomplished through actions such as discussions with family members, counseling from legal personnel, and filing of appropriate documents. Examples of these matters include pay, powers of attorney, wills, car payments, and children’s schooling. Understand that failure to accomplish the actions noted has resulted in an almost overwhelming sense of guilt on the part of PWs and has placed unnecessary hardship on family members.

## GENERAL

L-102. Soldiers captured or detained by hostile foreign governments or terrorists while on active status, temporary duty, or on leave often are held for purposes of exploitation of the detainees or captives, the United States Government, or for both reasons. This exploitation can take many forms, but each form of exploitation is designed to assist the foreign government or the terrorist captors. In the past, detainees have been exploited for information and propaganda efforts, including confessions to crimes never committed, all of which assisted or lent credibility to the detainer. Governments also have been exploited in such situations to make damaging statements about themselves or to force them to appear weak in relation to other governments. In the past, ransoms for captives of terrorists have been paid by governments. Such payments have improved terrorist finances, supplies, status, and operations, often prolonging the terror carried on by such groups.

L-103. Soldiers, whether detainees or captives, can be assured that the U.S. Government will make every effort to obtain their earliest release. Faith in one’s country and its way of life, faith in fellow detainees or captives, and faith in one’s self are critical to surviving with honor and resisting exploitation. Resisting exploitation and having faith in these areas are the responsibility of all Americans. On the other hand, the destruction of such faith must be the assumed goal of all captors determined to maximize their gains from a detention or captive situation.

## OBJECTIVES

L-104. The objective of this policy and guidance is to assist U.S. military personnel who find themselves isolated from U.S. control in peacetime or in a situation not related specifically to the Code of Conduct. The guidance has been developed to help soldiers survive peacetime detention by unfriendly

governments or captivity by terrorist groups with honor. It neither constitutes a means of judgment nor replaces the UCMJ as a vehicle for enforcement of proper conduct.

## **POLICY**

L-105. Every reasonable step must be taken by soldiers to prevent exploitation of themselves and the U.S. Government. If exploitation cannot be prevented completely, every step must be taken to limit exploitation as much as possible. In a sense, detained soldiers often are catalysts for their own release, based on their ability to become unattractive sources of exploitation. That is, one who resists successfully may expect detainers to lose interest in further exploitation attempts. Detainees or captives often must make their own judgments as to which actions will increase their chances of returning home with honor and dignity. Without exception, the soldier who can say honestly that he or she has done his or her utmost in a detention or captive situation to resist exploitation upholds national policy, the founding principles of the United States, and the highest traditions of military service.

L-106. Regardless of the type of detention or captivity or harshness of treatment, soldiers will maintain their military bearing. They should make every effort to remain calm and courteous and project personal dignity. This is particularly important during the process of capture and the early stages of internment when the captor may be uncertain of his or her control over the captives. Discourteous behavior seldom serves the long-term interest of a detainee, captive, or hostage. In addition, it often results in unnecessary punishment, which serves no useful purpose. Such behavior, in some situations, can jeopardize survival and severely complicate efforts to gain release of the detained, captured, or hostage-held soldier.

L-107. A detainee or captive should never voluntarily give classified information or materials to unauthorized persons. To the utmost of their ability, soldiers held as detainees, captives, or hostages will protect all classified information. An unauthorized disclosure of classified information, for whatever reason, does not justify further disclosures. Detainees, captives, and hostages must resist, to the utmost of their ability, every attempt by their captor to obtain such information.

L-108. In group detention, captivity, or hostage situations, military detainees, captives, or hostages will organize, to the fullest extent possible, in a military manner under the senior military member present (regardless of branch of service) who has authority to command. The importance of such organization cannot be overemphasized. Historically, in both peacetime and wartime, establishment of a military chain of command has been a tremendous source of strength for all captives. Every effort will be made to establish and sustain communications with other detainees, captives, or hostages. Military detainees, captives, or hostages will encourage civilians being held with them to participate in the military organization and accept the authority of the senior military member. In some circumstances, such as embassy duty, military members may be under the direction of a senior U.S. civilian official.



Notwithstanding such circumstances, the senior military member still is obligated to establish, as an entity, a military organization and to ensure that the guidelines in support of the DOD policy to survive with honor are not compromised.

## **GUIDANCE FOR PERSONNEL WHEN DETAINED BY GOVERNMENTS**

L-109. Once in the custody of a hostile government, regardless of the circumstances that preceded the detention situation, detainees are subject to the laws of that government. Detainees will, therefore, maintain military bearing and should avoid any aggressive, combative, or illegal behavior. The latter could complicate their situation, their legal status, and any efforts to negotiate a rapid release.

L-110. As American citizens, detainees should be allowed to be placed in contact with U.S. or friendly embassy personnel. Thus, detainees should ask immediately and continually to see U.S. embassy personnel or a representative of an allied or a neutral government.

L-111. Soldiers who become lost or isolated in a hostile foreign country during peacetime will not act as combatants during evasion attempts. Because a state of armed conflict does not exist, there is no protection afforded under the Geneva Conventions. The civil laws of that country apply. Soldiers are therefore encouraged to contact local authorities as soon as possible in these situations. However, delays in contacting local authorities can be caused by—

- Injuries affecting the soldier's mobility.
- Disorientation.
- Fear of captivity.
- A desire to see if a rescue attempt could be made.

L-112. Because the detainer's goals may be maximum political exploitation, soldiers who are detained must be extremely cautious in everything they say and do. In addition to asking for a U.S. representative, detainees should provide name, rank and social security number, date of birth, and the innocent circumstances leading to their detention. Further discussions should be limited to and revolve around health and welfare matters, conditions of their fellow detainees, and going home.

L-113. Historically, detainers have attempted to engage military captives in what may be called a "battle of wits" about seemingly innocent and useless topics as well as provocative issues. To engage any detainer in such useless, if not dangerous, dialogue only enables a captor to spend more time with the detainee. The detainee should consider dealings with his or her captives as a "battle of wills." This would entail the will to restrict discussion to those items that relate to the detainee's treatment and return home against the detainer's will to discuss topics of importance to the detainer.

L-114. There is no reason to sign any form or document in peacetime detention, detainees will avoid signing any document or making any statement, oral or otherwise. If a detainee is forced to make a statement or

sign documents, he or she must provide as little information as possible and then continue to resist to the utmost of his or her ability. If a detainee writes or signs anything, such action should be measured against how it reflects on the United States and the individual as a member of the military or how it could be misused by the detainer to further the detainer's ends.

L-115. Detainees cannot earn their release by cooperation. Release will be gained by the soldier doing his or her best to resist exploitation, thereby reducing his or her value to a detainer and, thus, prompting a hostile government to negotiate seriously with the U.S. Government.

L-116. Soldiers should not refuse to accept release unless doing so requires them to compromise their honor or cause damage to the U.S. Government or its allies. Persons in charge of detained soldiers will authorize release of any personnel under almost all circumstances.

L-117. Escape attempts will be made only after careful consideration of the risk of violence, chance of success, and detrimental effects on detainees remaining behind. Jailbreak in most countries is a crime; thus, escape attempts—

- Would provide the detainer with further justification to prolong detention by charging additional violations of its criminal or civil law.
- May result in bodily harm or even death to the detainees.

## **GUIDANCE FOR SOLDIERS WHEN IN TERRORIST CAPTIVITY**

L-118. Capture by terrorists is generally the least predictable and least structured form of peacetime captivity. The captor qualifies as an international criminal. The possible forms of captivity vary from spontaneous hijacking to a carefully planned kidnapping. In such captivities, hostages play a greater role in determining their own fate because the terrorists, in many instances, expect or receive no rewards for providing good treatment or releasing victims unharmed. If soldiers are uncertain whether captors are actual terrorists or surrogates of a government, they should assume that they are terrorists who do not represent their government.

L-119. If assigned in or traveling through areas of known terrorist activity, soldiers should exercise prudent antiterrorist measures to reduce their vulnerability to capture. During the process of capture and initial internment, they should remain calm and courteous, because most casualties among hostages occur during this phase.

L-120. Surviving in some terrorist detentions may depend on hostages conveying a personal dignity and apparent sincerity to the captors. Hostages, therefore, may discuss nonsubstantive topics—such as sports, family, and clothing—to convey to the terrorists the captive's personal dignity and human qualities. They will make every effort to avoid embarrassing the United States and the host government. The purpose of this dialogue is for the hostage to become a "person" in the captor's eye, rather than a mere symbol of his or her ideological hatred. Such a dialogue also should strengthen the hostage's determination to survive and resist. A hostage also

may listen attentively to the terrorist's feelings about his or her cause to support the hostage's desire to be a "person" to the terrorist; however, he or she should never pander to, praise, participate in, or debate the terrorist's cause with him or her.

L-121. Soldiers held hostage by terrorists should accept release using guidance in this appendix. Soldiers must keep faith with their fellow hostages and conduct themselves according to the guidelines of this manual. Hostages and kidnap victims who consider escape to be their only hope are authorized to make such attempts. Each situation will be different, and the hostage must weigh carefully every aspect of a decision to attempt to escape.

## **APPENDIX B. EXECUTIVE ORDER 10631, CODE OF CONDUCT FOR MEMBERS OF THE ARMED FORCES OF THE UNITED STATES--AS AMENDED BY EXECUTIVE ORDER 12017, NOVEMBER 3, 197**

*By virtue of the authority vested in me as President of the United States, and as Commander in Chief of the Armed Forces of the United States, I hereby prescribe the Code of Conduct for Members of the Armed Forces of the United States which is attached to this order and hereby made a part thereof.*

L-122. Every member of the Armed Forces of the United States is expected to measure up to the standards embodied in this Code of Conduct while he is in combat or in captivity.

*To ensure achievement of these standards, each member of the Armed Forces liable to capture shall be provided with specific training and instruction designed to better equip him to counter and withstand all enemy efforts against him, and shall be fully instructed as to the behavior and obligations expected of him during combat or captivity. The Secretary of Defense (and the Secretary of the Treasury with respect to the Coast Guard except when it is serving as part of the Navy) shall take such actions as deemed necessary to implement this order and to disseminate and make the said code known to all members of the Armed Forces of the United States."*

THE WHITE HOUSE  
DWIGHT D. EISENHOWER  
August 17, 1955

## **Appendix M**

# **Unit Aircrew Recovery Procedures Training Material**

This appendix provides aircrew combat evasion recovery operation training material and information as an aid to commanders, aviation life support officers, aviators, crew members, ALSNCOs, ALSETs, and staff members for planning and conducting such training. Aircrew members may be placed in a situation that requires their recovery in or from a potentially hostile area. Thus, your unit training objective should focus on the techniques, tactics, and procedures to conduct aircrew recovery.

### **AIRCREW COMBAT EVASION RECOVERY OPERATION**

M-1. Aircrew combat evasion recovery operations (SERE Level III)—ALSE/survival operations are time sensitive and may be employed for downed aircrew members. Such operations must meet all requirements of METT-TC. A SERE-III-qualified survival instructor conducts the initial training in a classroom environment and then during a unit FTX. The references used are the following:

- AR 95-1.
- AR 350-30.
- AR 525-90.
- FM 21-76, FM 21-76-1.
- Joint Publication 3-50.2.
- Joint Publication 3-50.3.
- Joint Publication 3-50.21.

### **SECURITY CLASSIFICATION**

M-2. SERE-III training includes classified levels of information. The instructor will brief on the disposition and safeguarding of this information. Instruction is limited to only U.S., DOD, and joint services personnel to receive training. Foreign students require written permission from HQ-JFKSFWC-Ft. Bragg, NC.

### **TRAINING OUTLINE**

M-3. The following training outline gives DOD and joint services personnel techniques that will enable them to cope.

M-4. The following are the responsibilities:

- Establish radio contact with recovery forces.
- Maintain communication with recovery forces until recovered.
- Be prepared to authenticate according to the theater communications plan (TCP).
- Reverse authenticate as required.
- Follow recovery force instructions; be prepared to report—
  - Enemy activity in the recovery area.
  - Recovery site characteristics (slope, obstacles, and size).
  - Number in party/medical situation.
  - Signal devices available.
- If there is no radio available, effect a ground recovery with a ground-to-air signal.

M-5. Make the site selection by—

- Locating an area for landing pickup, if practical (about 150 feet in diameter, free of obstructions, and if possible, flat and level).
- Observing the site for any signs of human activity.
- Locating several concealment sites around the area.
- Planning several tactical entry and exit routes.

M-6. Prepare the site by—

- Packing and securing all equipment.
- Preparing signal devices; use as directed or as briefed.
- Reviewing recovery methods (aircraft, ground force, and boat).

M-7. Conduct recovery procedures by—

- Assisting recovery force in identifying your position.
- Staying concealed until recovery is imminent.
- Landing/ground recovery by—
  - Assuming a nonthreatening posture.
  - Securing weapons and avoiding quick movement.
  - Staying clear until the aircraft is on the ground.
  - Not approaching until instructed.
  - Approaching aircraft, especially on sloping or uneven terrain being careful of rotors/propellers.
- Using hoist recovery devices (see Figures M-1 and M-2) that—
  - Let the device contact the ground before touching it to avoid static discharge.
  - Sit or kneel for stability while donning the device.
  - Put the safety strap under the armpits.

- Ensure that the cable is in front of you.
- Keep hands clear of all hardware and connectors.
- *Do not* become entangled in cable.
- Use thumbs up, vigorous cable shake, or radio call to signal that you are ready.
- Drag feet on the ground to decrease oscillation.
- Do not assist during hoist or when pulled into the rescue vehicle; follow crewmember instructions.
- Using nonhoist recovery (rope or unfamiliar equipment) that—
  - Create a “fixed loop” big enough to place under the armpits (Figure M-3).
  - Follow the procedures noted above—under “Using hoist recovery devices.”

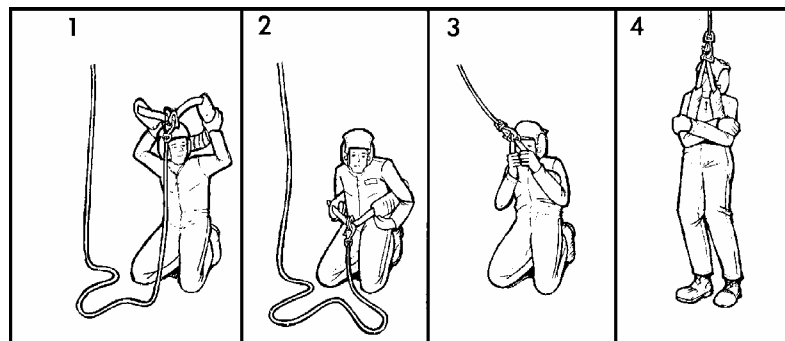


Figure M-1. Rescue Strap

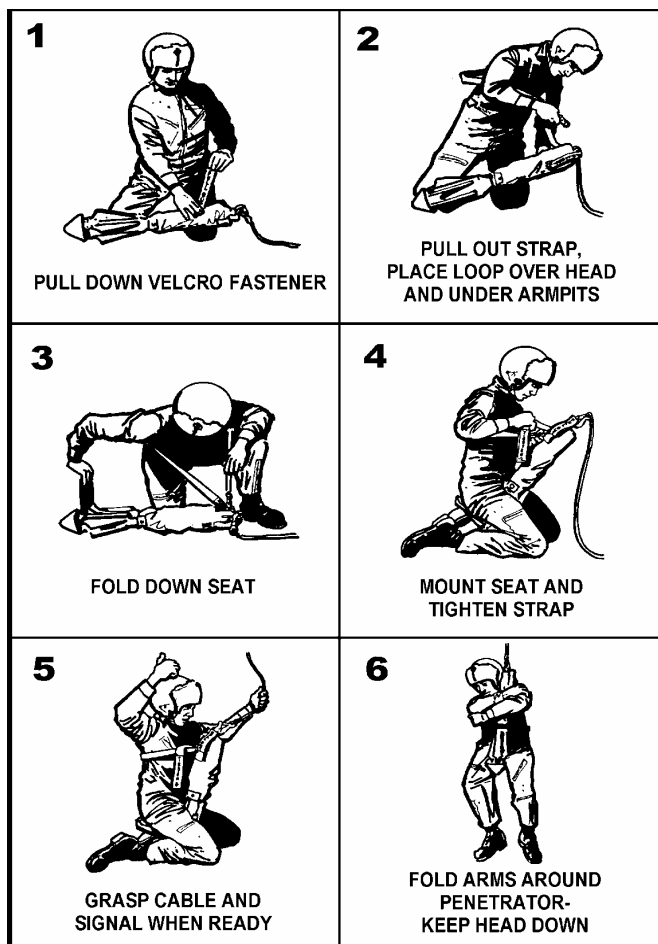


Figure M-2. Forest Penetrator

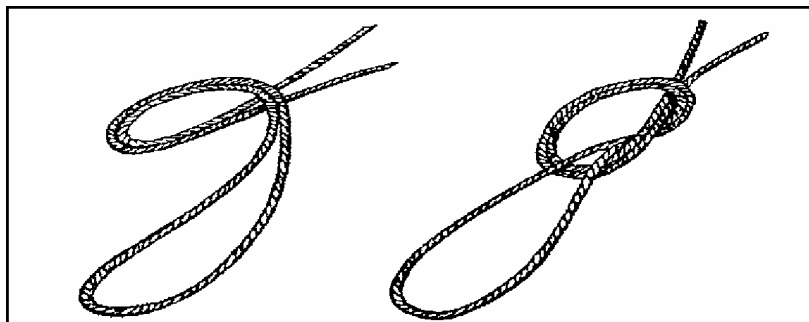


Figure M-3. Fixed Loop

## Glossary

<b>AA</b>	assembly area
<b>AAC</b>	acquisition advice code
<b>AAR</b>	after action review
<b>ABF</b>	availability balance file
<b>ABSO</b>	Aviation Branch Safety Office
<b>AC</b>	Active Component
<b>AC of S</b>	Assistant Chief of Staff
<b>ACR</b>	armored cavalry regiment
<b>ADA</b>	Air Defense Artillery
<b>ADPC</b>	automated data processing center
<b>AF</b>	Air Force
<b>AFB</b>	Air Force Base
<b>AFTO</b>	Air Force technical order
<b>AGSE</b>	Aviation Ground Support Equipment
<b>AIMI</b>	aviation intensively managed items
<b>AIT</b>	automated identification technology
<b>ALCON</b>	all concerned
<b>ALOC</b>	air lines of communications
<b>ALSE</b>	aviation life support equipment
<b>ALSERP</b>	Aviation Life Support Equipment Retrieval Program
<b>ALSET</b>	aviation life support equipment technician
<b>ALSNCO</b>	aviation life support noncommissioned officer
<b>ALSO</b>	aviation life support officer
<b>ALSS</b>	aviation life support system
<b>AMB</b>	aviation maintenance battalion
<b>AMC</b>	Army Materiel Command
<b>AMCO</b>	aviation maintenance company
<b>AMCOM</b>	United States Army Aviation and Missile Command
<b>AMDF</b>	Army Master Data File
<b>AMMO</b>	ammunition materiel officer



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<b>AMO</b>	aviation maintenance officer
<b>AMSS</b>	Army Materiel Status System
<b>ANMCS</b>	anticipated not-mission capable supply
<b>APRT</b>	Army Proficiency Annual Readiness Test
<b>AO</b>	area of operation
<b>AOG</b>	aircraft-on-the-ground
<b>AR</b>	Army Regulation
<b>ARC</b>	accounting requirements code
<b>ARMS</b>	Aviation Resource Management Survey
<b>ARNG</b>	Army National Guard
<b>ARTEP-MTP</b>	Army Training and Evaluation Program-Mission Training Plan
<b>ASAP</b>	as soon as possible
<b>ASI</b>	additional skill identifier
<b>ASL</b>	authorized stockage list
<b>ASO</b>	Aviation Safety Officer
<b>ASRP</b>	Ammunition Stockpile Reliability Program
<b>AT</b>	annual training
<b>ATO</b>	air tasking order
<b>ATOMS</b>	Automated Technical Order Management System
<b>AVIM</b>	aviation intermediate maintenance
<b>AVN</b>	aviation
<b>AVUM</b>	aviation unit maintenance
<b>BCTP</b>	Battle Command Training Program
<b>BDE</b>	brigade
<b>BDU</b>	Battle Dress Uniform
<b>BN</b>	battalion
<b>BNALSO</b>	battalion aviation life support officer
<b>BOS</b>	battlefield operating system
<b>BSA</b>	brigade support area
<b>BTMS</b>	Battalion Training Management System
<b>C&amp;RS</b>	calibration and repair support
<b>C3</b>	command, control and communication
<b>CA</b>	combat arms
<b>CAGE</b>	commercial and government entity (code)

<b>CALFLEX</b>	Combined Arms Live Field Training Exercise
<b>CBR</b>	chemical, biological, and radiological
<b>CCA</b>	civilian clothing allowance
<b>CCH</b>	Chief of Chaplains
<b>CCIR</b>	commander's critical information requirements/reports
<b>CD-ROM</b>	compact disk-read-only memory
<b>CE</b>	crew chief
<b>CENI</b>	command maintenance management inspection
<b>CFX</b>	Combined Field Exercise
<b>CG</b>	Commanding General
<b>CID</b>	Central Intelligence Division
<b>CIF</b>	central issue facility
<b>CINC</b>	Commander in Chief
<b>CMMC</b>	Corps Materiel Management Center
<b>CMTC</b>	Combat Maneuver Training Center
<b>CO</b>	company
<b>COA</b>	course of action
<b>COMSEC</b>	communication security
<b>CONEX</b>	container express
<b>CONUS</b>	Continental United States
<b>COSCOM</b>	Corps Support Command
<b>CPA</b>	Chief of Public Affairs
<b>CPC</b>	corrosion preventive compound
<b>CPR</b>	cardiopulmonary resuscitation
<b>CPX</b>	Command Post Exercise
<b>CRP</b>	central receiving point
<b>CS</b>	combat support
<b>CSA</b>	corps support area
<b>CSAR</b>	combat search and rescue
<b>CSDP</b>	Command Supply Discipline Program
<b>CSS</b>	combat service support
<b>CSSCS</b>	combat service support control system
<b>CTA</b>	common table of allowances
<b>CTC</b>	Combined Training Center

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<b>CTG</b>	command training guidance
<b>CTX</b>	combined training exercise
<b>CWSST</b>	combat water survival swim test
<b>DA</b>	Department of the Army
<b>DCSLOG</b>	Deputy Chief of Staff for Logistics
<b>DCSOPS</b>	Deputy Chief of Staff for Operations and Plans
<b>DCSPER</b>	Deputy Chief of Staff for Personnel
<b>DD</b>	day
<b>DD</b>	Department of Defense (form)
<b>DEPEX</b>	deployment exercise
<b>DES</b>	Directorate of Evaluations and Standards
<b>DEW</b>	directed-energy warfare/weapons
<b>DF</b>	direction finder
<b>DISCOM</b>	division support command
<b>DLA</b>	Defense Logistics Agency
<b>DLAR</b>	Defense Logistics Agency Regulation
<b>DLIS</b>	defense logistics information service
<b>DMMC</b>	division materiel management center
<b>DoD</b>	Department of Defense
<b>DODAAC</b>	Department of Defense activity address code
<b>DODIC</b>	Department of Defense Identification Code
<b>DOIM</b>	Directorate of Information Management
<b>DOL</b>	Directorate of Logistics
<b>DOR</b>	drop on request
<b>DOS</b>	days of supply
<b>DPW, ED</b>	Department of Public Works, Education Division
<b>DRMO</b>	Defense Reutilization and Marketing Office
<b>DS</b>	direct support
<b>DSA</b>	division support area
<b>DSC</b>	distribution of stockage code
<b>DSCP</b>	Defense Supply Center Philadelphia
<b>DSN</b>	Defense Switching Network
<b>DSR</b>	depot surveillance record
<b>DSU</b>	direct support unit

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<b>DTG</b>	date/time/group
<b>EAC</b>	echelons above corps
<b>EBS</b>	emergency breathing system
<b>EC</b>	essentiality code
<b>ECAP</b>	environmental compliance achievement program
<b>EIC</b>	end item code
<b>EIR</b>	equipment improvement reports
<b>ELT</b>	emergency locator transmitter
<b>EPA</b>	evasion plan of action
<b>equip</b>	equipment
<b>ETA</b>	estimated time of arrival
<b>ETM</b>	electronic technical manual
<b>EVC</b>	evacuation center
<b>F</b>	Fahrenheit
<b>FAA</b>	Federal Aviation Administrative
<b>FAD</b>	force activity designator
<b>FAX</b>	facsimile
<b>FEBA</b>	forward edge of battle area
<b>FEDLOG</b>	Federal Logistics
<b>FLOT</b>	forward line of own troops
<b>FM</b>	field manual
<b>FMO</b>	forms management officer
<b>FORSCOM</b>	Forces Command
<b>FRAGO</b>	fragmentation order
<b>FROG</b>	free rocket over ground
<b>FSC</b>	federal supply classification
<b>FSCN</b>	Federal Supply Classification Number
<b>FSW</b>	feet of seawater
<b>FTX</b>	field training exercise
<b>FY</b>	Fiscal Year
<b>G-1</b>	Army Component Personnel Staff
<b>G-3</b>	Army Component Operations Staff
<b>GCSS-A</b>	Global Combat Support System-Army
<b>GDP</b>	general defense plan

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<b>GPW</b>	Geneva Convention of 1949, Relative to the Treatment of Prisoners of War
<b>GUI</b>	graphic user interface
<b>HAZ MAT</b>	hazardous materiel
<b>HHC</b>	headquarters and headquarters company
<b>HM</b>	hazardous materiel
<b>HQ</b>	Headquarters
<b>HW</b>	hazardous waste
<b>I&amp;S</b>	interchangeability and substitutability
<b>IAIC</b>	Immediate Action Interim Change
<b>IAR</b>	inventory adjustment report
<b>IAW</b>	in accordance with
<b>ICS3</b>	integrated combat service support system
<b>ID</b>	identification
<b>IETM</b>	interactive electronic technical manual
<b>IFR</b>	instrument flight rules
<b>IHADSS</b>	integrated helmet and display sight system
<b>IL</b>	identification list
<b>ILAP</b>	integrated logistics analysis program
<b>IP</b>	instructor pilot
<b>IR</b>	infrared
<b>ISOPREP</b>	Isolated Personnel Report
<b>IVIS</b>	intervehicular information system
<b>JPRA</b>	Joint Personnel Recovery Agency
<b>JRTC</b>	Joint Readiness Training Center
<b>JSRC</b>	Joint Search and Rescue Center
<b>JTA</b>	joint table of authorizations/allowances
<b>JTF</b>	joint task force
<b>LAO</b>	logistics assistance office
<b>LAP</b>	logistics assistance program
<b>LES</b>	life support equipment
<b>LIN</b>	line item number
<b>LOGSA</b>	logistics support activity
<b>LPU</b>	life preserver unit
<b>LRA</b>	logistics readiness assessment

<b>LSE</b>	logistics support element
<b>LZ</b>	landing zone
<b>MAC</b>	maintenance allocation chart
<b>MACOM</b>	Major Army Command
<b>MIA</b>	missing in action
<b>MAIT</b>	maintenance assistance and instruction team
<b>MAJCOM</b>	major command
<b>MARC</b>	manpower and resource capability
<b>MARKS</b>	Modern Army Record-keeping System
<b>MATCAT</b>	material category
<b>MCN</b>	management control number
<b>MCS</b>	materiel condition status
<b>MCSR</b>	materiel condition status report
<b>MCW</b>	modulated continuous wave
<b>MDS</b>	mission design series
<b>MDMP</b>	military decision making process
<b>MEDCAT</b>	Medical Category
<b>METL</b>	mission essential task list
<b>METS</b>	Modular Egress Training Simulator
<b>METT-TC</b>	mission, enemy, terrain, troops, time available and civilian considerations
<b>MFR</b>	memorandum for record
<b>MILPO</b>	Military Personnel Office
<b>MIPR</b>	Military Interdepartmental Purchase Request
<b>MM</b>	month
<b>MMC</b>	materiel management center
<b>MOC</b>	maintenance operational check
<b>MOI</b>	method of instruction
<b>MOS</b>	military occupational specialty
<b>MQS</b>	military qualification skill
<b>MRM</b>	maintenance reporting and management
<b>MSB</b>	main support battalion
<b>MTOE</b>	modification table of organization and equipment
<b>MTP</b>	mission training plan
<b>MTT</b>	mobile training team

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<b>MUC</b>	maintenance use code
<b>MWO</b>	modification work order
<b>NAVAIR</b>	Naval Air
<b>NAVSUP</b>	Naval Supply
<b>NBC</b>	nuclear, chemical and biological
<b>NCO</b>	Noncommissioned Officer
<b>NCOIC</b>	Noncommissioned Officer in Charge
<b>NDI</b>	non-destructive inspection
<b>NDI</b>	Non-Developmental Item
<b>NET</b>	new equipment training
<b>NICP</b>	national inventory control point
<b>NIIN</b>	national item identification number
<b>NLT</b>	no later than
<b>NMC</b>	not-mission capable
<b>NMCS</b>	nonmission capable supply
<b>no</b>	number
<b>NPFC</b>	Navy Publications and Forms Center
<b>NSN</b>	national stock number
<b>NTC</b>	National Training Center
<b>NRB</b>	natural resource branch
<b>NVD</b>	night vision devices
<b>OC</b>	observer/controller
<b>OCIE</b>	organizational clothing and individual equipment
<b>OCOKA</b>	observation, cover and concealment, observation and fields of fire, obstacles, key terrain and avenues of approach
<b>OCONUS</b>	Outside Continental United States
<b>OCS</b>	objective supply capability
<b>OHR</b>	operational hazard report
<b>OIC</b>	officer in charge
<b>OPFOR</b>	opposing force
<b>OPORD</b>	operations order
<b>OPS</b>	operations
<b>OPSEC</b>	operations security
<b>OPTEMPO</b>	operational tempo

<b>ORD</b>	Operational Requirements Document
<b>ORF</b>	operational readiness float
<b>OSC</b>	objective supply capability
<b>OSC</b>	on scene commander
<b>OSJA</b>	Office of Staff Judge Advocate
<b>OST</b>	order to ship time
<b>P&amp;O</b>	plans & operations
<b>PA</b>	Philadelphia
<b>PAM</b>	pamphlet
<b>PB</b>	professional bulletin
<b>PBO</b>	property book officer
<b>PC</b>	pilot in command
<b>PC</b>	production control
<b>PCE</b>	protective clothing and equipment
<b>PCO</b>	publication control officer
<b>PDHAS</b>	peacetime, detention, and hostage survival
<b>PIC</b>	pilot(s) in command
<b>PLL</b>	prescribed load list
<b>PM</b>	phase maintenance
<b>PM</b>	Program/Project Manager
<b>PM-ACIS</b>	Product Manager-Aircrew Integrated System
<b>PMCS</b>	preventive maintenance checks and services
<b>PN</b>	part number
<b>POC</b>	point of contact
<b>POD</b>	port of debarkation
<b>POE</b>	port of embarkation
<b>POI</b>	program of instruction
<b>POIS</b>	pulmonary over inflation syndrome
<b>POL</b>	petroleum, oils and lubricants
<b>PQDR</b>	product quality deficiency report
<b>PR P&amp;O</b>	personnel recovery plans and operations
<b>PR</b>	personnel recovery
<b>PRC</b>	portable radio communication
<b>PSG</b>	platoon sergeant



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<b>PSI</b>	pound per square inch
<b>PTT</b>	push-to-talk
<b>PW</b>	prisoner of war
<b>PZ</b>	pick-up zone
<b>Q2</b>	additional skill identifier (ASI) awarded for ALSE school formal training
<b>QASA</b>	Quality Assurance Specialist, Ammunitions
<b>QASAS</b>	Quality Assurance Specialist, Ammunitions Surveillance
<b>QC</b>	quality control
<b>QSS</b>	quick supply store
<b>QTB</b>	quarterly training briefing
<b>QTC</b>	quarterly training calendar
<b>QTG</b>	quarterly training guidance
<b>qty</b>	quantity
<b>RALSO</b>	regimental aviation life support officer
<b>RC</b>	Reserve Component
<b>RCC</b>	rescue coordination center
<b>RDL</b>	Reimer Digital Library
<b>REC</b>	radio electronic combat
<b>RF</b>	radio frequency
<b>RO</b>	requesting objective
<b>ROD</b>	report of discrepancy
<b>ROP</b>	reorder point
<b>RSOP</b>	regimental standing operating procedures
<b>RSSK</b>	rigid seat survival kit
<b>RTL</b>	resistance training level
<b>S-1</b>	adjutant
<b>S-2</b>	Intelligence Staff Officer
<b>S-3</b>	operations and training officer
<b>S-4</b>	Logistics Staff Officer
<b>SAAS-MOD</b>	Standard Army Ammunition System-Model
<b>SAILS</b>	Standard Army Intermediate Level Supply System
<b>SALTS</b>	Streamline Automatic Logistics Transmission System
<b>SAMS</b>	Standard Army Maintenance System

<b>SAMS-1</b>	Standard Army Maintenance System-Level 1
<b>SAMS-2</b>	Standard Army Maintenance System-Level 2
<b>SAR</b>	search and rescue
<b>SARSS</b>	Standard Army Retail Supply System
<b>SARSS-1</b>	Standard Army Retail Supply System-Level 1
<b>SARSS-2AC/B</b>	Standard Army Retail Supply System-Level 2AC/B
<b>SARSS-2AD</b>	Standard Army Retail Supply System-Level 2AD
<b>SARSS-O</b>	Standard Army Retail Supply System-Objective
<b>SB</b>	supply bulletin
<b>SC</b>	supply catalog
<b>SCA</b>	supply control activity
<b>SCUBA</b>	self contained underwater breathing apparatus
<b>SEA</b>	Southeast Asia
<b>SERE</b>	survival, escape, resistance and evasion
<b>SF</b>	standard form
<b>SITREP</b>	situation report
<b>SLC</b>	stockage list code
<b>SM</b>	soldier's manual
<b>SOF</b>	safety of flight
<b>SOP</b>	standing operating procedures
<b>SOS</b>	source of supply
<b>SPBS-R</b>	standard property book system-revised
<b>SPINS</b>	special instructions
<b>SRBM</b>	short range ballistic missile
<b>SSA</b>	supply support activity
<b>SSSC</b>	self-service supply center
<b>STACOMP</b>	standard computer
<b>STAMIS</b>	Standard Army Management Information System
<b>STDS</b>	standardization/standards
<b>STOP</b>	Stop, Think, Observe and Plan
<b>STP</b>	soldier training publication
<b>STX</b>	Situational Training Exercise
<b>SWC</b>	special warfare center
<b>SWET</b>	Shallow Water Egress Trainer

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<b>TAADS</b>	The Army Authorization Document System
<b>T&amp;EO</b>	Training & Evaluation Outline
<b>TAC SOP</b>	Tactical SOP (standing operating procedures)
<b>TAMMS</b>	The Army Maintenance Management System
<b>TAMMS-A</b>	The Army Maintenance Management System-Aviation
<b>TB</b>	technical bulletin
<b>TC ACCIS</b>	Transportation Corps Automated Command & Control Information System
<b>TC AIMS</b>	Transportation Corps Automated Information Management System
<b>TCP</b>	theater communications plan
<b>TDA</b>	table of distribution and allowances
<b>TDY</b>	temporary duty
<b>TI</b>	technical inspector
<b>TJAG</b>	The Judge Advocate General
<b>TM</b>	technical manual
<b>TMDE</b>	test, measurement, and diagnostic equipment
<b>TMMC</b>	Theater Materiel Management Center
<b>TMO</b>	traffic management office
<b>TO</b>	technical order
<b>TO&amp;E</b>	table of organization & equipment
<b>TODO</b>	technical office distribution order
<b>TOE</b>	table of organization and equipment
<b>TPL</b>	thermal plastic liner
<b>TRADOC</b>	U.S. Army Training and Doctrine Command
<b>TSC</b>	theater support command
<b>TSG</b>	The Surgeon General
<b>TSOP</b>	tactical SOP
<b>TTO</b>	training time out
<b>TTP</b>	techniques, tactics and procedures
<b>TWX</b>	teletypewriter exchange
<b>UCMJ</b>	Uniformed Code of Military Justice
<b>UDR</b>	universal data repository
<b>ULLS</b>	Unit Level Logistics System
<b>ULLS-A</b>	Unit Level Logistics System-Aviation

<b>ULLS-G</b>	Unit Level Logistics System-Ground
<b>ULLS-S4</b>	Unit Level Logistics System-Supply Officer
<b>UMNIPS</b>	Uniform Materiel Movement and Issue Priority System
<b>UN</b>	United Nations
<b>UND</b>	urgency of need
<b>U.S.</b>	United States
<b>USAARL</b>	United States Army Aviation Research Laboratory
<b>USAF</b>	United States Airforce
<b>USAJFKSWC</b>	United States Army John F. Kennedy Special Warfare Center
<b>USAMC</b>	United States Army Materiel Command
<b>USAPA</b>	United States Army Publishing Agency
<b>USAPC</b>	United States Army Publishing Center
<b>USARPAC</b>	United States Army, Pacific
<b>USASC</b>	United States Army Safety Center
<b>USASOC</b>	United States Army Special Operations Command
<b>USCINCFJCOM</b>	United States Commander in Chief Joint Forces Command
<b>USP&amp;FO</b>	United States Property & Fiscal Officer
<b>UTS</b>	Universal Training Systems
<b>UW</b>	unconventional warfare
<b>VA</b>	Virginia
<b>VGT</b>	view graph transparency
<b>WAMC</b>	Wright Aero medical Center
<b>WRASS</b>	Western Region Aviation Survival School
<b>WSI</b>	Water Survival Instructor
<b>WSP</b>	Water Survival Program
<b>WSPO</b>	Water Survival Program OIC
<b>XO</b>	Executive Officer
<b>YTB</b>	Yearly Training Briefing
<b>YTC</b>	Yearly Training Calendar
<b>YTG</b>	Yearly Training Guidance
<b>YY</b>	Year

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