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Army Accident Investigations and Reporting

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UNCLASSIFIED
SUMMARY of CHANGE

DA PAM 385-40
Army Accident Investigations and Reporting

This major revision, dated 6 March 2009--

- Incorporates portions of AR 385-40 removed during consolidation to AR 385-10 (paras 1-8, 1-12, chap 5, and app I).

- Updates unmanned aircraft systems reporting requirements (paras 1-9, 3-20, tables 3-1, 3-2, 3-4, app F-1, and glossary).

- Clarifies definitions for accident costs (para 1-10).

- Updates military and civilian Occupational Safety Health Administration recordkeeping requirements (app I).

- Updates civilian accident reporting requirements and incorporates into all air and ground information and forms (throughout).
Safety

Army Accident Investigations and Reporting

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Applicability. This pamphlet applies to the Active Army, the Army National Guard/Army National Guard of the United States, and the U.S. Army Reserve, unless otherwise stated. Also, it applies to Department of Army civilian employees, all Department of Defense personnel and foreign military with and under Army operational control as well as contract personnel as prescribed in AR 385–10.

Proponent and exception authority. The proponent of this pamphlet is the Chief of Staff, Army. The proponent has the authority to approve exceptions or waivers to this pamphlet that are consistent with controlling law and regulations. The proponent may delegate this approval authority, in writing, to a division chief within the proponent agency or its direct reporting unit or field operating agency, in the grade of colonel or the civilian equivalent. Activities may request a waiver to this pamphlet by providing justification that includes a full analysis of the expected benefits and must include formal review by the activity’s senior legal officer. All waiver requests will be endorsed by the commander or senior leader of the requesting activity and forwarded through their higher headquarters to the policy proponent. Refer to AR 25–30 for specific guidance.

Suggested improvements. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Director, Army Safety (DACS–SF), 223 23d Street, room 980, Arlington, VA 22202

Distribution. This publication is available in electronic media only and is intended for command levels C, D, and E for the Active Army, the Army National Guard/Army National Guard of the United States, and the U.S. Army Reserve.

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*This pamphlet supersedes DA Pam 385–40, dated 1 November 1994.
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Glossary
Chapter 1
Introduction

1–1. Purpose
This pamphlet provides implementing instructions for the investigation and reporting of Army accidents, as directed by AR 385–10.

1–2. References
Required and related publications and prescribed and referenced forms are listed in appendix A.

1–3. Explanation of Abbreviations and Terms
Abbreviations and special terms used in this pamphlet are explained in the glossary.

1–4. Methodology
a. Accidents should be investigated to the degree necessary to identify the immediate mistake(s)/error(s)/failure(s), and system inadequacy(ies) which may have caused, or contributed to, the accident being investigated. The techniques and procedures contained in this pamphlet and AR 385–10 will be used in preparation of all accident reports. Appropriate forms (DA Form 2397-series (Technical Report of U.S. Army Aircraft Accident), DA Form 2397–AB (Abbreviated Aviation Accident Report (AAAR)), DA Form 285 (Technical Report of U.S. Army Ground Accident), DA Form 285–AB (Abbreviated Ground Report (AGAR)) will be used for reporting the results of accident investigations.

b. Recommendations will be provided that will remedy the causes and minimize the chances for similar recurrences. If the Army accident investigation reveals unsafe conditions or practices affecting an item of equipment or technical publication, the safety of an entire model or series of an Army item of equipment may be involved. The appropriate commander should be notified immediately; and the U.S. Army Combat Readiness Center (USACRC) contacted telephonically.

1–5. Concept
Accidents are caused by adverse interactions of man, machine, and environment. Investigation and assessment of these elements should reveal human, materiel, and/or environmental factors that caused or contributed to the accident. These factors can be attributed to one or more system inadequacy (or sometimes referred to as “root cause”). The system inadequacies responsible for human error are categorized as leader, standards, training, individual, or support failure. Although an accident investigation occurs “after the fact,” its primary focus must be on identifying what happened and why it happened. Once this has been accomplished, the appropriate activity(ies) responsible for correcting each identified system inadequacy can be notified. This procedure is called the “3W” approach to information collection, analysis, and corrective actions (see fig 1–1). The procedures used throughout this pamphlet are designed to assist the investigator in answering the following three basic questions:

a. What happened (mistake/error/failure). Identify key factors (human, materiel, environmental) which caused or contributed to the accident. In the case of injuries, explain how they happened.

b. Why it happened (system inadequacy(ies)/root cause(s)). Identify the system inadequacy that permitted the accident to occur. Explain how and under what conditions those mistakes/errors/failures occurred.

c. What to do about it (recommendations). Identify the recommended actions and identify the proponent activity or lowest level of command that is most responsible for correcting the deficiency.
1–6. Safeguarding social security numbers and Accident Information

   a. The threat of identity theft has required changing the Army’s policy on how social security numbers (SSN)'s are used. The SSN is considered sensitive information and must be safeguarded at all times. The Army will capture SSN’s for only those individuals who have been injured or have had an occupational illness or those individuals who are identified as having a finding that was present and contributing to the accident or present and contributing to the severity of the injury or equipment damage. The SSN of investigation board members, subject matter experts, or organizational points of contact, witnesses, or other personnel not directly linked to the accident must not be captured on any document in Army accident reports. The SSN for those individuals who have had an occupational illness/injury or who are culpable in the accident must be included on certain forms only. The SSN is captured on the DA Forms 2397–8 (Technical Report U.S. Army Aircraft Accident, Part IX, Personnel Data), DA Form 2397–9 (Technical Report of U.S. Army Aircraft Accident, Part X, Injury/Occupational Illness Data), and Abbreviated Aviation Accident Report (AAAR) for aviation accidents and on the DA Form 285 and Abbreviated Ground Accident Report (AGAR) for ground accidents. Security of the SSN is particularly important as the accident investigation report is being assembled. Be extremely careful not to compromise the SSN on any draft document that is later discarded.

   b. All accident data/information will be safeguarded according to AR 385–10.

1–7. Use of forms and reports
The report of an Army accident investigation, citing findings and recommendations, will be completed using the appropriate forms prescribed in this pamphlet and AR 385–10. Additional attachments, drawings, extracts, or other supportive media are encouraged if the investigation board president determines they are needed to support the findings, recommendations, and analysis. Detailed instructions for preparation and completion of these forms are contained in chapters 3 and 4 of this pamphlet and apply to accidents involving military and Army civilian, contractor, and visiting civilian personnel. Reports can be submitted to USACRC through the automated reporting system, via e-mail, fax or the postal service.
1–8. Occupational Safety and Health Administration recordkeeping requirements

Occupational Safety and Health Administration (OSHA) recordkeeping requirements for military and Army civilian personnel are outlined in AR 385–10 and appendix I of this pamphlet.

1–9. Types of accidents and incidents

The various types and specific exceptions follow: When two or more types of Army vehicles, such as an Army Motor Vehicle (AMV) and an Army Combat Vehicle (ACV) are involved in an accident, the type of equipment operated by the individual deemed most responsible will determine the accident type. This process is also true for other types of accidents (for example, fire, marine, and explosives.)

   a. Army aircraft accident.

      (1) Flight accidents. Those accidents in which intent for flight exists (as defined in the glossary), and there is reportable damage to the aircraft itself. (Explosives, chemical agent, or missile events that cause damage to an Army aircraft with intent for flight are categorized as flight accidents to avoid dual reporting.)

      (2) Flight-related accidents. Those aircraft accidents in which there is intent for flight and no reportable damage to the aircraft itself, but the accident involves a fatality, injury to aircrew, ground crew, passengers, or other injury or property damage. These accidents are not to be used in the calculation of flight accident rates. For example, unintentional cutting of a hoist cable; failure or malfunction of a hoist system to include related equipment; unintentional jettisoning of cargo hook load or external stores.

   b. Aircraft ground accidents. Injury or property damage accidents involving Army aircraft in which no intent for flight exists and the engine(s) is in operation (an installed aircraft auxiliary power unit (APU) is not considered an aircraft engine).

   c. Unmanned aircraft system. Accidents involving drone aircraft, remotely piloted vehicle, or Unmanned Aircraft System (UAS) with a system/engine in operation that results in injury or property damage.

b. Army Motor Vehicle accidents.

   (1) An accident involving a motor vehicle owned by the Army may be classified as an AMV accident if the vehicle meets the following criteria:

      (a) The vehicle is primarily designed for over-the-road operation.

      (b) The vehicle’s general purpose is the transportation of cargo or personnel (for example, passenger cars, trucks family of medium tactical vehicles (FMTVs), high-mobility multipurpose wheeled vehicle (HMMWV), ambulances, buses, motorcycles, fire trucks, and refueling vehicles).

   (2) Army motor vehicle accidents involve the operation of an AMV when one or more of the following occurs:

      (a) Collision with other vehicles, objects, or pedestrians.

      (b) Personnel injuries or property damage due to cargo shifting in or falling from a moving vehicle.

      (c) Personnel injuries occurring in moving vehicles or caused by falling from moving vehicles.

      (d) Accidents occurring when a vehicle is being towed or pushed by an AMV.

      (e) Other injuries and property damage as described in AR 385–10, paragraph 3–5.

   (3) Accidents involving AMVs not reportable as AMV accidents. The following accidents, although reportable, are not considered AMV accidents. They are reportable under other accident types.

      (a) Personnel injuries that occur while loading or unloading or mounting or dismounting a motor vehicle that is not moving.

      (b) Injury/occupational illness or property damage occurring solely from repair or service work (for example, a vehicle falling off a jack or hoist, a tire explosion during inflation, or a finger cut off by a fan belt).

      (c) Damage to a properly parked AMV unless it is damaged by another AMV.

      (d) Cargo directly damaged by environmental factors.

      (e) Damage to an AMV resulting solely from environmental factors (act of nature).

      (f) Damage to an AMV being handled as a commodity and not being operated under its own power (excludes towing or pushing accidents).

      (g) Damage to a moving or parked AMV caused by objects thrown or propelled into it.

      (h) Damage to an AMV by fire when no AMV accident occurred (where the primary cause of the damage is the fire) when the vehicle was not in operation.

      (i) Malfunction or failure of component parts, if that is the only damage.

   (4) Accidents involving a privately owned vehicle (POV) and an AMV in which the AMV driver is not at fault will be reported to the local safety office. However, these accidents will not be recorded in the Army Safety Management Information System (ASMIS) unless recordable injuries are incurred by Army personnel or recordable Army damage occurs. (If recordable injuries or damage to Army equipment occur, report in accordance with AR 385–10, paragraph 3–8.)

   c. Army Combat Vehicle (ACV) accidents. These accidents occur during the operation of an ACV or combat
equipment, such as a tank, self-propelled weapon, armored personnel carrier, Stryker, Mine Resistant Ambush Protected (MRAP), or amphibious vehicle ashore. Additionally, injuries and property damage incurred during operation of installed ACV armament systems also qualify as an ACV accident (even if the vehicle is not in motion).

d. Other Army Vehicle accidents. Other Army Vehicle (OAV) accidents involve the operation of an Army vehicle other than those cited in paragraphs a through c, above; (for example, aircraft tugs, motorized scooters, Gators, bulldozers, forklifts, trains, and similar vehicles). These are included in AMV accident statistics.

Note. For Army train/rail and vessel accidents, additional technical information and assistance is available from the U.S. Army Transportation School (Safety Office), DSN 826–6619, COM (757) 878–6619; vessels: DSN 827–1327, COM (757) 878–1327.

e. Army Operated Vehicle accidents. Accidents that involve vehicles that are leased, such as, General Services Administration (GSA) and government-owned, contractor-operated vehicles that are under full operational control of the Army (for example, hand receipt or like document) or vehicles rented by DA for official business, to include USAR components. These are included in AMV accident statistics.

f. Privately–owned vehicle accidents. These accidents involve the operation of a motor vehicle that is privately owned by an individual that results in any injury/occupational illness to Army military personnel. This category also includes Army personnel operating a privately-owned vehicle (POV) on official business.

g. Marine accidents (see para 5–1).

h. Fire. A fire is the unintentional, destructive, and uncontrolled burning of combustible solids, liquids, or gases. Fire accidents involve—

(1) Equipment fires. Units will ensure that all fires are reported to the Installation Safety Office. AR 420–1 requires all fires that cause damage to Army equipment to be reported through National Fire Incident Reporting System (NFIRS) by the installation fire department. In addition, the unit will submit the appropriate DA Form 285-series form on those equipment fires and explosions listed below if there is fire damage to—

(a) Wheeled vehicles or components thereof.
(b) Tracked vehicles or components thereof.
(c) Aircraft (ground) (excludes those reported on the DA Form 2397-series or DA Form 2397–AB.)
(d) Ammunition/explosive fires (production, use, and storage).
(e) Missiles, to include subsystems.
(f) Tents.
(g) Space heaters.
(h) Generators.
(i) Other equipment (masks, weapons, and so forth).

(2) Facility fires. Army Fire and Emergency Services organizations will report all fire department responses using the NFIRS as required by DODI 6055.6 and AR 420–1. Although all explosion and aircraft impact losses are reported whenever a fire department responds, they are not considered fire losses unless an ensuing fire causes injuries/facilities/materiel losses. Fire accidents involving Army-owned or -leased fixed facilities will be reported through NFIRS except where the fire was willfully and maliciously ignited (arson) (AR 385–10, para 3–7e). A DA Form 285 will not be submitted for fires listed below unless those fire accidents result in medical treatment beyond first aid or greater injury or occupational illness.

(a) Family quarters (rent free, mobile home, leased).
(b) Bachelor enlisted quarters, bachelor officer quarters, barracks.
(c) Industrial buildings.
(d) Public assembly buildings and areas.
(e) Grass, forests, and ranges.
(f) Warehouse and storage buildings.
(g) Administrative offices.
(h) Schools.
(i) Health care and day care facilities.
(j) Vacant structures.
(k) Aircraft hangars.
(l) U.S. Army Reserve centers (leased or government-owned).
(m) Area maintenance support activities (leased or government-owned).

i. Chemical agent events. (see para 5–2).

j. Explosives accidents. (see para 5–3).

k. Ionizing and nonionizing radiation accidents and incidents. (see para 5–4).

l. Nuclear accidents. (see para 5–5).

m. Personnel injury-other. These accidents involve injury/occupational illness to Army personnel, Army direct contractors, contractors and subcontractors contractually required to report accidents, and non-Army personnel as a
result of Army operations not covered by any other accident type and injury to off-duty military personnel not covered by any other accident type.

n. Property damage-other accidents. These accidents involve property damage not covered by any other accident type.

o. Commercial carrier/transportation accidents. These accidents involve the operation of a commercial motor vehicle, plane, helicopter, train, or vessel (including those under contract to the Army) which transport Army personnel and result in—

1. Any injury beyond first aid to Army military personnel, on or off duty.
2. Injury/occupational illness to Army civilian personnel while performing duties in a work-compensable status.

p. Biological mishaps. (see para 5–6).

q. Fratricide or friendly fire. Fratricide and friendly fire accidents are special situations that must be reported promptly and thoroughly investigated.

1. These accidents will be reported and investigated as an accident under the provisions of AR 385–10.
2. These accidents must also be reported and investigated as a legal accident investigation under the provisions of AR 15–6 and AR 385–10.


1–10. Accident costs

a. Army accident costs are based on the severity of injury, occupational illness, or property damage (Army and non-Army) resulting from Army operations. For accident reporting purposes, the logistical disposition of damaged property/equipment (whether or not it is repaired or replaced) will not negate the requirement to report the accident.

1. Injury and illness costs. These costs are used solely to provide total accident cost since cost is generally proportional to severity of injury/occupational illness. They are not used for determining accident classifications (see AR 385–10, para 3–4). Actual time lost may not be known at the time the accident report is submitted. If it is not known, an official estimate of days away from work, made by a competent medical authority, will be used in computing the cost. The cost data in table 1–1 is used to compute the cost of injuries and occupational illnesses to Army personnel for safety/accident reporting purposes only.

(a) The figures include the cost of pay while away from work, medical treatment, hospitalization, dependent survival, unused training costs, gratuities, compensation, disability retirement, and burial.

(b) The figures do not include indirect costs associated with the accident such as wages lost to employees not injured (production loss), cost of hiring and training new employees, cost of investigating the accident, public liability costs, and costs to lease equipment if available.

2. Damage costs. Costs of damage to Army property and equipment will be computed using criteria in the Army Master Data File (AMDF), to include such things as actual cost of new or used parts or materials and labor cost at the standard rate of 41 dollars per hour, unless the actual labor cost rate is available within the reporting time limits. When Army property, other than aircraft, is damaged to the extent it cannot be repaired, or the cost of repair exceeds the cost specified in Federal Logistics (FED LOG) or the property book, the accident cost will be the property cost listed in FED LOG or the property book, plus any additional equipment not included in the original property cost. When damaged equipment or facilities will not be repaired or replaced, the cost reported will be the acquisition cost AMDF, plus the estimated cost to clean up the site. For destroyed equipment, the estimated scrap value or residual value of the parts may not be used to reduce the accident classification.

b. Costs peculiar to aircraft accidents include—

1. Destroyed, missing, or abandoned aircraft cost. The cost of destroyed, missing, or abandoned Army aircraft is to be computed per aircraft replacement cost figures obtained from TB 43–0002–3, tables 3–1 and 3–2. The cost of aircraft repair will be updated if the depot’s estimated cost of damage (ECOD) is significantly different (10 percent or non-repairable) from the initial or reported ECOD. Include the cost of all modifications. UAS cost to replace or repair will be calculated at the current established cost at the time of the accident.

2. Army parts cost. The cost will include—

(a) For destroyed parts or components, the cost of replacement per current AMDF, this can be found in technical supply or direct support units. Unit turn-in credits will not be used to reduce the accident classification.

(b) The cost to repair damaged parts.

3. Direct man-hour costs. Direct man-hours include—

(a) The cumulative (estimated) man-hours required to remove, repair, and replace damaged aircraft assemblies, subassemblies, or components.

(b) Man-hours required to restore the aircraft to serviceable condition if economically repairable.

(c) Man-hours expended in removing and replacing undamaged aircraft components in order to remove, repair, or replace damaged components.

(d) Man-hours required to remove and replace a part that is not economically repairable.

(e) Man-hours expended to determine damage amount.
(4) Man-hours not included in aircraft accident cost.
   (a) Depot and contract overhaul man-hours.
   (b) Time used in setting up equipment preparatory to actual repair of the aircraft.
   (c) Man-hours used in removing, replacing, and inspecting undamaged parts and components solely to satisfy technical manual inspection requirements.
   (d) Indirect man-hours such as investigating, travel, test flights, and maintenance operational checks.
   (e) Maintenance facility overhead cost.

(5) Replacement of damaged components. Removing a damaged component and replacing it with a new component to decrease the number of man-hours and costs for purposes of accident classification is prohibited. If another like component is available, it may be installed so that the aircraft will be available for flight. However, the total best available estimated man-hour costs to remove, replace, and repair the damaged component will be included for accident classification.

(6) Cost computation of aircraft engine. When an aircraft engine is damaged as a result of the accident sequence to the extent that it must be returned to a depot, the cost of such damage or inspection will be computed at 17 percent of the engine cost. Depreciation and/or turn-in credits will not be used when calculating damage costs to determine accident classification.

(7) Cost computation of helicopter main or tail rotor blades and fixed wing propeller blades. Costs will be computed based on the following criteria:
   (a) Destroyed blades are to be calculated at the full unit cost per the AMDF. Depreciation and/or turn-in credits will not be used when calculating damage costs to determine accident classification.
   (b) Blades that are to be repaired locally will be the actual cost of damage (ACOD), if known, or the ECOD, if the ACOD is not known prior to the submission of the report. Early submission to reduce the blade cost is prohibited. 
   (c) Blades sent to depot or contract rebuild facilities for repair or rebuild will be the ACOD, repair facility established cost, or 44 percent of the AMDF cost of the blade with no depreciation allowed. For example, if a repairable blade is returned to depot for repair and the AMDF cost of the blade is 100,000 dollars; the cost of the blade for classification and reporting would be 44,000 dollars. Depreciation and/or turn-in credits will not be used when calculating damage costs to determine accident classification.

Note. 44 percent AMDF cost does not apply when a tip cap is the only damage.

(8) Aircraft structural damage. When available, the actual cost of aircraft structural damage should be cited. When actual cost cannot be determined and the structural damage is repairable, use the following calculations:
   (a) For minor structural damage not requiring realignment (jigging), use 3 percent of the aircraft replacement cost in TB 43–0002–3.
   (b) For major structural damage (for example, extensive damage to fuselage or damage requiring structural realignment), use 6 percent of the aircraft replacement cost cited in TB 43–0002–3.
   (c) For structural damage deemed unrepairable, use the actual cost of the fuselage when available or 40 percent of the replacement cost for the aircraft, as cited in TB 43–0002–3, tables 3–1 or 3–2.
   (d) Percentile calculations include man-hours, transportation, and inspection.

(9) Cost computation of other aircraft components. When a major aircraft component (as defined in the appropriate maintenance technical manual (TM)) is damaged to the extent that it must be returned to depot for overhaul or inspection, the reported cost for repair will be computed at 15 percent of the component’s cost. Depreciation and/or turn-in credits will not be used when calculating damage costs to determine accident classification.

(10) Damage not included in aircraft accident costs.
   (a) Fair wear and tear (FWT).
   (b) When a malfunction or failure of a component part results in damage to another component, the FWT exception does not apply.
   (c) Damage to helicopters incurred solely from flying debris during operations in confined areas and unimproved landing sites is considered FWT.
   (d) Discovery of cracks, breaks, wrinkles, or ruptures during required periodic or scheduled inspections is considered FWT. They will be reported per DA Pam 738–751.
   (e) Damage to an aircraft as a direct result of action by an enemy force or terrorist group (considered “combat loss”).
   (f) Intentional in-flight controlled jettison or release of mission/activity/event essential, aircraft equipment/stores that is not essential to flight. For example, canopies, doors, drag chutes, hatches, life rafts, auxiliary fuel tanks, missiles, drones, rockets, non-nuclear munitions, and externally carried equipment. Intentional emergency jettison of cargo (internal or external) when aircraft control is essential. (There must be no injury or reportable damage to the aircraft or other property. Also, intentional controlled jettison of missiles, drones, or non-nuclear munitions must not have resulted from their malfunction.)
(g) Planned destruction of Army experimental or prototype aircraft during authorized testing or combat training.

(h) Authorized intentional destruction of Army property or equipment.

(i) Aircraft foreign object damage (FOD) (other than engine(s)) discovered during scheduled maintenance.

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<th>Table 1–1 Cost Standards Table</th>
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<td>Civilian&lt;sup&gt;4&lt;/sup&gt; Employees</td>
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<tr>
<td>Program Youth, Student Assistance Program Employees, Foreign Nationals</td>
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**Notes:**

1. Non-flight crew member fatality.
2. Flight crew member fatalities.
3. Total cost, including days involving lost time and days hospitalized.
4. When available, use actual worker’s compensation costs for civilian employees.
5. Includes costs for days involving lost time.
6. No lost time cases include injuries/illnesses that result in no days lost from work (job transfers, restricted duty).

1–11. **Personnel classifications**

The following personnel classifications are used in reporting Army accidents:

a. Active Army personnel.

b. Army civilian personnel.

c. Army contract personnel.

d. Army direct contractor personnel.

e. Nonappropriated funds (NAF) employees.

f. Other U.S. military personnel. This includes members of other DOD components on full-time duty in active military service.

g. Reserve Officer Training Corps (ROTC).

h. Military dependents. Army Family members.

i. Army National Guard personnel.

j. U.S. Army Reserve personnel.

k. Direct hire foreign nationals.

l. Foreign nationals, indirect hire.

m. Foreign nationals, Korean Augmentation to the U.S. Army (KATUSA) (Korean nationals assigned to the U.S. Army in a military status).

n. Foreign military personnel assigned to Army units.

o. Public. This category includes all persons not specifically covered above.

1–12. **Special notification and reporting requirements**

Accident notification, investigation, and reporting requirements for marine, chemical agent, explosives, ionizing and nonionizing radiation, nuclear weapons, reactor accidents, and biological mishaps are contained in chapter 5 of this pamphlet.
Ground (Peacetime) flowchart

- Accident has occurred
  - Is it an Army accident?
    - Yes: Report to Commander/supervisor/MP
    - No: Commander secures the site
      - Involve Commander's ops, equipment, or personnel?
        - Yes: Commander/supervisor notifies responsible safety office immediately
        - No: No further action required

- Notify USACRC immediately

- Was it on-duty?
  - Yes: Class A or B1
    - Yes: Commander/supervisor notifies responsible Cdr/supervisor
    - No: Class C on duty
      - Yes: Commander/supervisor notifies responsible safety office immediately
      - No: Off Duty Army MII?
        - Yes: Submit AGAR to USACRC within 90 days
        - No: Class C on duty
          - Yes: Submit AGAR to USACRC within 90 days
          - No: Submit full report DA Form 285 within 90 days

- Fatal injury to DAC, 3 DAC hospitalized, and or any contractors
  - Yes: Orally report to Department of Labor (DOL) within 8 hrs
  - No: Post OSHA log 300A summary for both MII & Civ NLT 45 days after the CY.

NOTE: In the event a safety of use or ground precautionary issue is suspected or identified, notify USACRC immediately.

Class Property Damage and/or Injury/Occupational Illness
A  $1M or more. Fatality or Permanent Total Disability
B  > $200K but < $1M; Permanent Partial Disability, or 3 or more hospitalized as in-patients.
C  > $20K but < $200K; Days away from work or training day case.
D  > $2K but < $20K; A non fatal injury or illness resulting in restricted work, transferred to another job, medical treatment greater than first aid, needle stick injuries and cuts from sharps that are contaminated from another persons blood or other potentially infectious material, medical removal under medical surveillance requirements of an OSHA standard, occupational hearing loss, or a work-related tuberculosis case.
* Military will maintain separate but equivalent OSHA 300 logs for injuries and occupational illnesses.

Figure 1–2. Ground Accident Reporting (Peacetime)
Figure 1–3. Aviation Accident Reporting (Peacetime)
Figure 1–4. Combat Accident Reporting

Notify by the most immediate means possible thru the Chain of Command to USACRC (preferably via the IN Tool).

If OSHA rules apply and DACs are injured in a work related mishap, in addition to the required Army reporting forms, post to the OSHA log within 7 days and initiate the appropriate forms (OSHA 300, OSHA 300A). Orally report fatalities to DOL within 8 hours.
2–1. Organization and planning

a. Introduction. The successful accomplishment of an accident investigation will depend upon how well it is planned, organized, and conducted. The techniques and procedures described here apply to all accident investigations. The investigating officer/board president is responsible for organizing and directing the efforts toward a thorough and comprehensive investigation. The board will be established according to AR 385–10. Board members will give priority to the accident investigation and reporting duties to ensure prompt completion of the accident report.

b. Investigation plan. The investigation plan is a systematic procedure that will ensure continuity of effort from the preliminary examination of the accident site to the submission of the final report. The plan is divided into four phases: organization and preliminary examination, data collection, analysis of the data, and completing the technical report.

(1) Phase 1–Organization and preliminary examination. During this phase, the board president organizes the board for the investigation in a board meeting before departing for the accident scene. This meeting should ensure that every board member understands the areas of the investigation for which he or she is responsible, the initial tasks to be accomplished, and the data elements to be collected to complete the report. The board should also be briefed by the unit/installation safety director/officer on the status of preliminary actions. Once the board arrives at the accident site, members of the board should make a preliminary examination of the accident site to get a “mental picture” of the physical layout as an early step in their individual tasks. However, caution must be used to ensure the site, to include ground scars/marks, is not disturbed. If the board cannot arrive at the scene with adequate daylight remaining, the preliminary examination should be delayed until the following morning.

(2) Phase 2–Data collection. Human, materiel, and environmental factors are interrelated as each influence the performance of man and machine. Divide data collection into the following areas:

(a) Human factors. Human factors are primarily concerned with gathering data necessary to evaluate the actions of all personnel who influenced the operation which resulted in the accident. Paragraph 2–4 of this chapter is devoted to human factors investigation. The sources of human factors information may include, but are not limited to—

1. Personnel involved witnesses, supervisors, peers, and personnel from operations, training, and maintenance.
2. Individual records, to include training, qualification, personnel, and/or medical records.
3. Data for the evaluation of the command influence, such as unit policy for composite risk management, hazard analysis, accident prevention plans, mission/activity/event briefings, crew rest/sleep (both long and short term), utilization of personnel, and driver selection/training.
4. Data for evaluation of the structure/system/equipment crashworthiness, personnel restraint systems, and personal protective clothing and equipment as related to injury/occupational illness causation or prevention.
5. Data for the evaluation and reporting of problems encountered in egress, survival, and rescue.

(b) Materiel factors. The materiel factors portion is primarily concerned with gathering data necessary to evaluate the performance and design of the vehicle, buildings, ground support equipment, land/or other materiel. Some sources for this information are the equipment historical, modification and inspection records, operator’s manuals, manufacturer’s specifications, fluid analysis, teardown analysis (TDA), wreckage distribution, photographs, and the failed part(s). Also, excellent sources of materiel information include equipment project managers (PM), manufacturers, equipment operators, and maintenance personnel. Data concerning how environmental conditions have affected vehicle/system/equipment performance must be acquired and evaluated. Paragraph 2–5 of this chapter is devoted to materiel factors investigation.

(c) Environmental factors. Collect environmental data to evaluate its impact and influence on the performance of the individuals involved. Collection of environmental evidence is simultaneous and inclusive with the human and materiel factors evidence collection. Paragraph 2–6 of this chapter is devoted to environmental factors investigation.

(3) Phase 3–Analysis of data. The analysis function is an ongoing process throughout the data collection phase. Conclusions derived from the analysis will be the basis for developing findings and recommendations. The analysis should be thorough and focus on determining why the accident occurred. This will drive the analytical effort throughout the investigation so that findings and recommendations can be developed, which have the best potential for preventing similar accidents. Paragraph 2–8 of this chapter addresses accident data analysis in greater detail.

(4) Phase 4–Completing the technical report. In this phase, the board must ensure that all relevant evidence gathered is carefully recorded. It is not unusual for some of the evidence to be contradictory. Contradictory evidence will be discussed and resolved in the analysis to the greatest extent possible.

c. Duties. Accident investigation boards will be established according to AR 385–10. When more than one
individual is appointed to an investigation board, a board president, recorder, and other personnel (as required) will be designated. In some cases, the board will consist of one individual. This individual is responsible for all aspects of the investigation and report processing. As needed, technical advisors, equipment operators, support personnel, and other personnel will be made available to the board, regardless of its composition.

1. **President.** The duties of the president of an accident investigation board include, but are not limited to, the following:
   (a) Managing the investigation according to this pamphlet.
   (b) Convening the board at the earliest possible time after notification that an accident is to be investigated.
   (c) Organizing the board and assigning areas of investigative responsibility to each member.
   (d) Taking control of the accident site upon arrival and after the area is declared safe for entry by rescue, explosive ordnance disposal (EOD), chemical, and firefighting personnel.
   (e) Verifying that adequate guards are on site or other engineering or administrative controls are in place to ensure the preservation and protection of evidence, to include site, equipment, separated parts, impact scars, resulting from the accident.
   (f) Coordinating for all required investigating equipment necessary to conduct the investigation.
   (g) Dispatching members of the board to perform their duties.
   (h) Evaluating the need for and request additional technical assistance as required.
   (i) Ensuring all available pertinent data is gathered before closing the field portion of the investigation.
   (j) After coordination with the legal accident board, authorizing recovery of the wreckage from the accident site when the field examination is complete and releasing wreckage/equipment for disposition to the owning organization when the investigation is completed.
   (k) Conducting frequent meetings of the board to ascertain progress, exchange information, and adjust assignments as necessary.
   (l) Ensuring accident information is released only to appropriate authorities, such as appropriate command, staff safety personnel concerned, and USACRC personnel.
   (m) Advising appropriate safety officer/PAO to contact local legal advisors in cases involving potential claims against the U.S. Government for personal injury/occupational illness or property damage.
   (n) Conducting witness interviews as necessary for inclusion in the technical accident report.
   (o) Ensuring data is correctly analyzed and conclusions are supported by evidence.
   (p) Ensuring suitable recommendations are made and that a thorough and accurate report is completed and submitted according to AR 385–10 and this publication.
   (q) If applicable, coordinating with the local Criminal Investigation Division (CID) handling the case.
   (r) Writing the history of flight/event, findings and recommendations, and analysis for the technical report.

2. **Recorder.** When possible, the recorder will be a safety trained individual. Physicians will not be assigned this duty. The duties of the recorder are listed below.
   (a) Receiving and administratively processing information gathered by the members of the board.
   (b) Monitoring report processing requirements and stages of completion.
   (c) Assigning tasks and monitoring work of supporting clerical personnel.
   (d) Ensuring all necessary substantiating data are collected and posted to the technical report.
   (e) Assembling the final technical report.
   (f) Performing other duties as assigned by the board president.
   (g) Completing/helping with preparation of the human, materiel, and/or environmental narrative of the technical report.
   (h) Conducting and summarizing witness interviews as necessary for inclusion in the technical accident report.

3. **Maintenance officer.** When possible, a maintenance specialist should be assigned to the board. The duties of the maintenance member(s) are as follows:
   (a) Evaluating all maintenance forms/records to determine the pre-accident status of the equipment.
   (b) Determining if equipment failed and could have contributed to or caused the accident.
   (c) Identify design deficiencies.
   (d) Researching equipment records for adequacy of inspections and correction of discrepancies and determining if discrepancies existed that may have caused or contributed to the accident.
   (e) Supervising preparation and shipment of items selected for TDA.
   (f) Monitoring equipment recovery if accomplished before completion of the investigation.
   (g) Reviewing the unit’s maintenance procedures and record discrepancies.
   (h) Completing all maintenance/materiel factor requirements for the technical report.
   (i) Preparing or helping with the preparation of accident scene diagram(s).
   (j) Performing other duties as assigned by the board president.
   (k) Writing the materiel factors narrative for the technical report.
(4) **Medical officer.** The duties of the medical officer board member are listed below.

(a) Helping in the medical, physiological, and psychological aspects of the human factors portion of the investigation. AR 40–21, AR 40–2, and appropriate chapters of this pamphlet govern the investigation and reporting of these factors.

(b) Helping with and conducting the accident survival, emergency egress, and survival/rescue portions of the human factors investigations according to paragraph 2–4 of this chapter.

(c) Ensuring the board is advised of medical/human factors related to the cause(s) of the accident, the reason(s) therefore, and recommendations for corrective action.

(d) In case of off-post accidents or where local coroners/medical examiners are involved, promptly recovering the remains for autopsy (if applicable), specimen collection and records.

(e) Investigating and reporting data concerning personnel injuries.

(f) Collecting and evaluating life support equipment (LSE), and personal protective equipment (PPE).

(g) Helping with or completing human factors narrative for the technical report.

(h) Determining the medical qualification/status of the personnel involved and rescue personnel.

(i) Performing other duties as assigned by the board president.

(5) **Other board members.** Other board members consist of individuals who have considerable knowledge and expertise in the required field. For example, instructor pilot, master/senior/equipment operator, industrial hygienist, environmental health specialist, and others as required. The duties of other board members are as assigned by the board president. Other duties are, but not limited to, the following:

(a) Examining and recording all factors involving operations of the equipment, to include assignment of personnel, mission/activity/event planning, and the history of events from mission/activity/event assignment to the time the accident occurred.

(b) Investigating and recording the status of personnel/individual training, experience, operating regulation, instructions, and unit directives. Recommending and preparing changes to ARs, TMs, and other published guidance, if required.

(c) Investigating the activities of all personnel who were victims, had an influence on the mission/activity/event, or played a role in the accident.

(d) Preparing a sketch of the accident site.

(e) Conducting and summarizing witness interviews as necessary for inclusion in the technical accident report.

(f) Completing/helping with the writing requirements of the technical report.

**d. Support plan.**

(1) **Safety representative.** Commanders assigned responsibility for the conduct or support of accident investigations will ensure that a local safety professional is available from the local safety office to assist the accident investigation board. Duties of the safety representative include—

(a) Providing the local investigation board with an accident investigation kit (see paragraph 2–9 for a recommended listing of accident investigation kit contents) and/or other equipment necessary to conduct the investigation.

(b) Advising the board on technical aspects of the investigation and reporting of the accident.

(c) Helping the board in obtaining other technical assistance as required.

(d) Advising the board of administrative procedures concerning accident reports. For example, command channel review and forwarding correspondence.

(e) Providing regulatory documents and directives pertaining to accident investigation and reporting.

(f) Providing necessary interpretation of local regulations and directives.

(g) Helping the board president in obtaining administrative support. For example, work space, typist, and drafting.

(h) Providing initial classification for the accident, such as Class A and B.

(2) Commanders assigned responsibility for the conduct or support of an accident investigation will ensure that the following assistance is provided to the president of the investigation board, if needed.

(a) **Engineer.** Provide surveying and mapping the debris pattern and preparation of required sketches. The engineer may also provide technical engineering review of the accident.

(b) **Local training and audio support center/public affairs activity.** Provide photo graphic assistance and communication.

(c) **Public affairs officer.** Handle press representatives and public information releases.

(d) **Hospital commander.** Provide treatment and examination of personnel, identification of fatalities, facilities and support for conducting autopsies, lab support, and other medical support as necessary; for example, the preparation and shipment of body fluid samples and specimens to the Armed Forces Institute of Pathology (AFIP) for analysis.

(e) **Provost Marshal Office.** Provide guards, traffic control, and site security for the accident scene. As required, serve as liaison with local law enforcement provide accident information from DA Form 3946 (Military Police Traffic Accident Report), traffic citation history, traffic flow information, and daily blotters.

(f) **Weather officer.** Obtain complete weather information for the time and location of the accident.
(g) Maintenance support facility commander. Provide recovery of wreckage, disassembly and removal of components, and preparation for shipment of items selected for teardown analysis (TDA). The maintenance support facility commander will also, provide preparation of estimated cost of damage (ECOD) to help in classifying the accident. (See paragraph 2–2e.)

(h) Transportation officer. Provide assistance in transportation to and from the accident site and expeditious shipment of components selected for TDA.

e. Additional technical assistance. The board president should ascertain what additional specialized technical assistance may be necessary. Aside from the normal assignments of technical assistance, the more complex accident may require professional skills to help in the data collection and analysis. The board president has the authority to call for technical assistance from all agencies available to the local commander. Experts may include metallurgists, power plant engineers, fuel and oil analysts, and others as the circumstances dictate. If assistance is needed that is outside the local commander’s span of control, assistance, such as manufacturer’s representative(s), should be requested through the USACRC.

f. Legal (collateral) accident investigations interface.

(1) Legal accident investigations are used to make a record of the facts for use in litigation, claims, and other administrative and disciplinary actions, whereas the safety investigation (hereinafter referred to as the accident investigation) is conducted solely for accident prevention purposes. Legal accident investigations are conducted independently and apart from the accident investigation. They are appointed and conducted by local commands as required by DODI 6055.7, AR 385–10, and DA PAM 385–40 and use guidance contained in AR 15–6 and AR 27–20. Personnel serving in designated Safety positions or serving as a member on the safety accident investigation board will not participate in the conduct or formal review of legal accident investigations.

(2) Safety accident and criminal investigations take priority over legal accident investigations for purposes of access to evidence, witnesses, and the accident scene; however, a spirit of cooperation is also required to ensure that the legal accident investigation board will have equal access to the evidence.

(3) The safety accident investigation board—
(a) May only provide the legal accident investigator with copies of common source, factual information; (for example, technical data, maintenance records, photographs (as taken), maps, diagrams, lists of witness names).
(b) Will not provide the content of witness statements, findings and recommendations, and analysis, to the legal accident investigator.
(c) May provide access to transcripts of portions of intra-cockpit voice recordings included in the safety accident report in accordance with AR 385–10, paragraph 3–27.
(d) Will also allow the legal accident board a reasonable amount of time to perform an accident scene investigation before disturbing the evidence by movement and/or disassembly. If this cannot be accomplished due to the urgency of the situation, then the safety accident board must ensure that the scene is documented with photographs and a wreckage distribution (accident site) diagram, which will be made available to the legal accident board.
(e) Advise the legal accident board if the safety accident board removed components for analysis.

(g) Criminal investigation interface.

(1) Contact with the local CID office should be made as soon as practical for the following:
(a) Determine if the CID has assumed criminal investigative authority over the accident scene, initiated an investigation, removed any evidence, or completed/terminated its investigation of the accident site.
(b) The CID should determine as quickly as possible if a crime has been committed.
(c) If evidence indicates that the accident was the result of criminal intent (other than negligence, dereliction of duty, or disobedience of an order), the criminal investigation takes priority over all other investigations and the accident investigation will be discontinued.
(d) Once criminal activity is determined not to be a factor, the CID will release control of the investigation to the accident investigation board.
(2) During the period where criminal intent is being determined, both investigations will proceed.
(a) Both the CID and the accident investigation board will cooperate with one another in order to ensure that each is able to effectively perform its mission/activity/event.
(b) Information gained in the CID investigation can be released to, and used by, the accident investigation board. CID will, for example, provide the accident investigation board with copies of their report, to include witness statements and photographs.
(c) However, the accident investigation board may release only those factual, non-privileged portions of its report to CID.

h. Minority report. The official accident report will be the one signed by the board president. The board will make every effort to resolve differences in opinion. However, if differences cannot be resolved, the disagreeing board member(s) may submit a minority report. In this report, it is not necessary to repeat evidence presented in the accident
report. As a minimum, the minority report will include an analysis paragraph explaining the disagreement and a signature block of the minority member(s).

2–2. Preliminary accident site procedures

a. Overview. This paragraph outlines actions that normally occur according to the unit pre-accident plan. Since several of these actions may have to be accomplished prior to the arrival of the investigation board at the accident site, the unit/installation safety officer must ensure they are accomplished. The safety officer will be the officer in charge of the accident site as soon as EOD, chemical, firefighting, and rescue personnel and military police/CID/civilian police have completed their duties and the fire chief has declared the area safe for entry. When the board president arrives, he will take charge of the accident site for the remainder of the investigation.

b. Actions to be taken.

(1) The first priority at every accident site is the safety of victims/personnel involved. These personnel include, but are not limited to, the occupants of the vehicle, fire and rescue personnel, security personnel, witnesses, bystanders, and the investigators.

(a) All injured personnel must be transported to a medical facility for examination and, if necessary, treatment of injuries. Caution is advisable since some injuries may not be immediately apparent due to the stressful nature of the situation.

(b) Key personnel involved in the accident must have certain medical tests administered to make alcohol, carbon monoxide, and drug determinations according to AR 385–10.

(c) Specimens taken must be sent to AFIP for analyses and evaluation.

(d) When the victims are obviously deceased, the bodies should not be removed before being photographed and examined by the medical officer if he is reasonably available (can be on site within 2 hours), except to protect from further damage.

(e) If the accident occurred off the military reservation, the local coroner/medical examiner has jurisdiction on removal of the bodies. Therefore, his permission is required before the military removes the bodies.

(f) If the coroner performs an autopsy, the board president must request that a military forensic pathologist be present during the autopsy.

(2) Immediate steps must be taken to prevent injury/occupational illness to personnel from fire, ammunition cook-off, hazardous material, burnt carbon fiber exposure (present for fires involving composite materials), and other potential hazards present at the accident site. The most effective means of providing security in these cases is to rope off the area and place guards around the scene at a distance sufficient to ensure protection for personnel.

(a) In cases where the hazard is an explosive device, an EOD unit will be alerted.

(b) Also, since composite materials (burnt or fragmented) are present in most modern aircraft, tactical wheeled and tracked vehicles, and equipment, safety personnel must evaluate all accidents (both aviation and ground) for the presence of composite materials to prevent unnecessary exposure or endangerment of rescue, firefighting, and investigative personnel.

(c) Safety measures and procedures for handling accidents involving composite materials should be included in all pre-accident plans and incorporated in local crash rescue and firefighting training.

(d) Assistance for establishing a composite material standing operating procedure (SOP) can be obtained by contacting USACRC at DSN 558–3410/2660 or COM (334) 255–2660.

(e) Even after the scene has been declared safe for entry by the fire chief, fire and other hazards will usually continue to exist and all personnel entering the area must be so advised.

(3) Preservation of accident site.

(1) As soon as the accident scene is declared safe for entry, the next task is to ensure the wreckage and other physical evidence is safeguarded from bystanders and sightseers. This includes—

(a) Military and civilian personnel who have no official business at the scene, according to AR 385–10, paragraph 3–24.

(b) The local safety representative must ensure that guards remain on duty to keep unauthorized personnel outside the roped-off area and upwind of hazardous composite material.

(c) An entry point will be established where authorized personnel (personnel essential to the preservation of life, property, and evidence) can present their identification for entry clearance.

(d) Authorized personnel entering the immediate accident site area before the arrival of the board will be escorted by the safety officer. Limited access is essential to protect physical evidence, such as ground scars, vegetation, which is easily destroyed.

(2) When the evidence must be removed (clear a highway) before the investigation by the board, the local safety representative must—

(a) Ensure the original accident scene is documented.

(b) This includes preparation of an accurate wreckage distribution diagram along with a photographic record of the accident scene.
Every effort must be made to preserve the evidence when it must be moved or disturbed. A record of any subsequent damage to the equipment during rescue or recovery must be maintained.

**d. Preservation of evidence.**

(1) The local safety representative must identify as many witnesses (by name, address, and telephone number (duty/work) to the accident as possible.

(a) Witnesses must be asked not to discuss the accident with other witnesses and informed that they could be contacted for an interview by the accident investigation board.

(b) If it appears that a witness may not be available for an interview by the board, the safety representative will conduct the interview for the board.

(c) He/she should take as many written statements as possible and deliver them to the board president upon his arrival.

(d) The local safety representative will determine if any of the witnesses has video or photographic evidence that may be useful to the board. If such evidence exists, he/she should acquire a copy of it for the board.

(2) Records pertaining to the accident equipment and its crew/personnel must be gathered and secured. These records include—

(a) The logbook.

(b) Historical records.

(c) The appropriate inspection and maintenance records.

(d) Individual/crew member records, to include personnel, medical, dental, and training records.

(e) Documents pertaining to the mission/activity/event must also be gathered.

(f) A weather observation for the time of the accident from the closest weather reporting facility.

**e. Classification of the accident.** The local safety officer has responsibility for initially classifying the accident according to AR 385–10.

(1) To help the safety representative in accomplishing this task, the supporting maintenance facility will provide the safety officer with an ECOD(s).

(2) The supporting medical activity will provide an assessment of the degree of injuries according to AR 385–10, if applicable.

(3) The accident classification is necessary to determine the required notifications of the accident according to AR 385–10 and local command procedures.

**f. Press relations.** If the Public Affairs Officer (PAO) is not available, the local safety representative may have to handle press relations at the accident scene. The safety officer should be aware of the following:

(1) No attempt should be made to tell a reporter what they should write in a story or to restrict them from interviewing civilian witnesses. Military personnel should be cautioned against making statements, expressing opinions, or giving out information concerning the accident. A few moments of calm conversation with the reporter can usually prevent a great deal of misunderstanding.

(2) In most cases, news reporters will understand the truth of the statement that the accident investigation has just begun and that it is impossible to make statements with incomplete information. Without giving the appearance of trying to conceal anything or pass the reporters’ questions off lightly, the safety officer should advise media that the post or local PAO will have a statement as soon as the exact events leading up to the accident are known. The safety officer and accident investigation boards are not authorized to issue news releases, but it usually will help press relations at an accident scene if they do not quote regulations as the reason why they cannot disclose accident details.

(3) In many instances, the news reporters are able to provide a great deal more information than they receive. Sometimes reporters are among the first persons to arrive at the accident site and they may have talked to several witnesses before the rescue party arrives. This fact may not be apparent from their conversations, which probably will consist primarily of questions. In most cases, the reporters will be happy to pass their information along and give the investigator further assistance if they understand the value of their efforts to the safety program. If the news agency is asked to provide photos or film clips, be advised that a fee will usually be involved, so arrangements for financing should be made before making this kind of request for assistance. The same caution applies to other nonmilitary agencies, such as police and fire departments.

(4) When an accident occurs on nonmilitary property, media personnel should be allowed complete freedom in taking photographs, after being requested not to disturb physical evidence consistent with procedures. If classified material is involved, the photographer should be advised of such. If necessary, the photographer may further be advised that the photographing of classified material may constitute a violation of Federal law. Any such classified material should be either covered or removed before photographs are taken. Although no restriction is placed on the photographer, a tactful request will usually prevent the use of gruesome photos. Media personnel should also be advised that the notification of next of kin may not have been accomplished.
Section II
Techniques and Procedures

2–3. Witness interviews

   a. Introduction.

      (1) Purpose. In all accidents, witnesses will be advised that the sole purpose of the investigation is accident prevention. This means that, within the DOD, their statement may not be used as evidence or to obtain evidence in connection with any legal, disciplinary or adverse administrative action. Their statements cannot be used by the Army against them or anyone else.

      (2) Interview. The witness interview is an extremely important part of the investigation. Witnesses may provide clues that can help identify materiel failures/malfunctions, environmental conditions, and/or human errors. In the case of human error, the interview may provide the only evidence available to identify the error(s) and its cause(s). To obtain this type of information, the interviewer must be skilled in interview techniques.

      (3) Statement. A witness statement will not be a verbatim or edited transcript of all that was stated. Summarizations of the witness’s testimony will be used, but these will not exclude any information that helps in explaining why the accident occurred. These summarizations should be written in the third person (“the witness said,” “They saw,”), not in the first person (“I saw,” “I observed,”). The testimony of a witness will not be made under oath. The accident investigation board must obtain complete and candid information regarding circumstances surrounding the accident to determine the actual cause factors.

      (4) Promise of confidentiality.

         (a) Limited use reports. Witnesses in a Limited Use investigation may be given a promise of confidentiality per AR 385–10. This promises that the Army will not voluntarily release their statement outside the DOD, either to members of the public, the press, state or local governments, or other Federal agencies. Such confidential witness statements are also protected from public release under the Freedom of Information Act (FOIA). The U.S. Army promises to oppose in court any attempt to get a legal order to release their statement and to use the Army’s best efforts to appeal any court order to release their statement.

         (b) General use reports. Witnesses in General Use accident investigations will not be given a promise of confidentiality unless approved by the Commander, USACRC. Typically, these promises are requested in cases where key witnesses choose not to provide information unless they are given the promise of confidentiality or for cases listed in AR 385–10, paragraph 3–10. Upon approval by the Commander, USACRC, that accident report would then be deemed Limited Use.

      (5) Specific procedures governing advice to witnesses and promises of confidentiality. In both Limited Use and General Use investigations, it is important that witnesses understand the restrictions on the use of their interviews within DOD, as well as the release of their interviews to the public (under the FOIA). This is especially true in Limited Use investigations when a promise of confidentiality has been given to a witness. In Limited Use investigations, a promise of confidentiality will routinely be offered to the following categories of witnesses:

         (a) Accident aircraft crew members (pilot, maintenance test pilot, crew chiefs).

         (b) Technical inspectors and maintenance personnel (typically for aircraft accidents).

         (c) When a witness gave the interview under enhanced recall/hypnosis, the interview will automatically be treated as confidential, whether or not the witness falls under one of these particular categories. Other witnesses questioned in Limited Use investigations may be offered confidentiality at the discretion of the investigator. Specific procedures for advising witnesses and promises of confidentiality.

   b. Locating witnesses.

      (1) Since witness information is based on recall and perception, it is advisable to interview all available witnesses. Witness statements may prove to be as valuable as physical evidence. Both types of evidence must be considered together in determining cause factors, as one may complement or clarify the other.

      (2) Witnesses must be located and interviewed as soon as possible. Evaluation of their statements may tell the investigator(s) what particular area of the investigation should be emphasized, thus reducing the time it will take to determine the cause(s) of the accident.

      (3) It is reasonable to assume that spectators and sightseers, who are at the scene when the investigator(s) arrives, heard or saw something that attracted their attention to the accident and brought them to the scene. Talking to these people immediately may give the investigator information regarding the directions, actions, and sounds of the accident. Note. Children should not be discounted as a potential source of information.

      (4) In many cases, especially with aviation accidents, efforts to locate witnesses should not be confined to the actual scene of the accident. It may happen that a person many miles from the accident site has some relevant information to give. Evidence of smoke, fire, unusual maneuvers, erratic engine operation, structural failure, and loss of control may be obtained from observers along the route who were not necessarily witnesses to the actual accident. Other personnel, (for example, crews of other vehicles/aircraft in the vicinity at the time of the accident) may be particularly helpful in
establishing actual weather conditions. The operators of other vehicles may also be helpful in relating transmitted messages of vital importance.

5. Statements taken from witnesses located immediately after the accident, before they have time to compare stories with other witnesses, are the most reliable. Get a statement, regardless of how brief, from all witnesses as soon as they can be located. Witnesses can always be visited again at a later time, if additional information or clarification of their statements is needed. However, the human mind has a tendency to fill gaps in recollection with logic and the longer a witness has to reconsider the events, the more he or she will subconsciously tend to do this.

6. Local police and news media personnel can often be helpful in locating witnesses. These people, particularly reporters, are interested in interviewing witnesses, and it is quite possible that they will have found some witnesses having valuable information before the investigator arrives.

   a. The witness. It is very important that the interviewer(s) establish a good rapport and gain the confidence of witnesses. It is not unusual to have to re-interview key personnel as more information becomes available from other sources or when the board begins analyzing data. Most witnesses can be placed in one of the following categories:

      (1) Individual personally involved. Generally, these are the individuals actually involved in the accident; (for example, pilot, copilot, driver, paratrooper, and diver. However, other individuals having knowledge related to the cause of the accident must also be considered; (for example, the spouse of the pilot involved in an accident could be interviewed for information).

      b. The board personnel. This category includes those personnel whose job performance could have affected the outcome of the mission/activity/event or the performance of personnel. It is also important to gain the confidence of these witnesses since questions relating to their performance will be asked.

      c. Eyewitnesses. This category includes not only persons who actually saw or heard things associated with the accident but also persons who saw or heard anything relevant to the subject matter of the investigation. The important point here is to try to separate what was actually seen or heard from what the witnesses may think they saw or heard.

      d. The interviewer. The number of investigators present during the interview is at the discretion of the board president.

         (1) More than two or three investigators could intimidate some witnesses.

            (a) One investigator should conduct the interview and maintain eye contact with the witness.

            (b) Another investigator can monitor the tape recorder and take notes on areas for further questioning.

         (2) When tape recordings are to be used, the witness must first consent to the electronic recording of the statement.

         (3) When the first investigator has completed his/her questioning, he/she should then allow the other team member(s) to continue with further questions, if necessary.

         (4) Once a summarization of the witness’s interview has been prepared, preservation of the actual recording is not necessary and will be disposed of.

   e. Interviewing techniques.

      (1) Planning the interview. Initial questioning should focus on general areas rather than relying on a prepared list of questions that can be answered by a “yes” or “no.” Subsequent questions should focus on key areas of interest. In addition to eliminating the tendency of the person being interviewed to answer “yes” or “no,” planning has the following advantages:

         (a) It allows the witness to do most of the talking.

         (b) It permits the witness to elaborate on pertinent details that a planned list of questions may fail to elicit.

         (c) The interview is less formal and rigid.

      (2) The interviewer should have the person being interviewed do most of the talking. One method for keeping a witness talking without a direct question from the interviewer is the pause. The pause is best employed following an assertion by the witness.

      (3) The use of a tape recorder is the preferred method of recording witness interviews. It allows interviewer and witness to focus on the content of the interview.

         (a) An alternate method is to take notes during the interview. However, this method should be used only when the witness objects to the use of a tape recorder.

         (b) Although the first few minutes of a taped interview may make the person being interviewed feel “on the spot” or awkward, this is usually a transient condition and the remainder of the interview will be as candid as if unrecorded.

         (c) If a tape recorder is used as the sole means of recording a witness statement, the interviewer should take a few simple precautions to guarantee that the interview will be recorded with sufficient clarity.

         1. Become familiar with, and test the recording equipment before the interview. If the recording unit must be operated on its internal batteries, replace the batteries with fresh ones before the interview.

         2. Environmental noise, such as aircraft operating nearby or windy conditions when a recording is made outdoors, may seriously impair the clarity of what is being said by the interviewer and witness. Therefore, it is preferred that interviews be conducted at locations free of this kind of distraction.
3. When several witness interviews are taken via tape recorder, the interviewer will find it useful to begin each recording by taping the information required by the heading blocks of the summary of witness interview. This not only allows each witness time to relax in the presence of the recorder, but it will ensure the proper identification of each witness and will complement the transcribing process when it becomes necessary to summarize witness interviews in the accident report.

4. If there is no tape recorder available, or if a witness seems hesitant about talking while being recorded, an alternate procedure is to take as few notes as possible during the interview, filling in the planned areas of interest immediately after the interview.

4. Other considerations when conducting witness interviewing are as follows:
   (a) Witnesses should be encouraged to speak of matters that they have personal knowledge of; in this instance, what the witness saw or heard, not what he or she may have heard other witnesses say they saw or heard.
   (b) Witnesses should be encouraged to tell in their own words all they know about the accident. Do not attempt to lead the witness.
   (c) While talking, witnesses should not be interrupted except to prevent them from going too far into irrelevant matters.
   (d) After the witness has finished giving an interview, questions should be asked to clarify doubtful points that may arise during the interview. Questions should not be phrased in such a manner as to suggest the answer. Get name, phone number, and address for follow-up. Ask about eyeglass usage or hearing aid devices. Frequently, if these questions are not asked at this time, the information may not be captured.
   (e) The use of highly technical terms should be avoided when asking questions of a witness who may have no knowledge of the terms.
   (f) A witness should be treated with utmost courtesy at all times and any semblance of coercion avoided.
   (g) A witness may be able to express a statement better by sketches than words. Such sketches are acceptable as clarifications of the evidence. A scale model of the type of equipment involved in the accident is also useful as an aid in obtaining more details from a witness.
   (h) When a witness refers to maps or photographs, these should be identified in the summary of the interview. The points mentioned should also be cross-referenced on the map or photograph.
   (i) A witness may be able to give a clearer statement if interviewed in the same location where he observed the accident.
   (j) The use of enhanced recall (hypnosis) is a valuable tool but should be approached only after consulting with proper medical personnel and obtaining consent from the person involved.

f. Interviewing injured witnesses. The techniques for interviewing witnesses injured and hospitalized because of their involvement in an accident are not unlike those previously discussed for uninjured personnel. There are a few special considerations, however, as follows:

1. The medical facility admitting and treating the injured survivors of an accident is responsible for their well being. Therefore, interviews with injured survivors while they are in an inpatient status will be—

   (a) Coordinated with the medical facility and attending physician(s) so as not to conflict with the injured survivor’s medical needs.

   (b) Utilize the board physician as an interface with the hospital/attending physicians.

2. Timeliness in interviewing hospitalized witnesses, though desired, is not an overriding requirement. There are cases, however, that because of the nature and degree of injuries involved, may require subsequent evacuation of an injured key witness to another medical facility far removed from where the board is conducting its investigation. If this happens before the witness is interviewed, it may be necessary to have a board member conduct the interview(s) at the other medical facility later. If this is not feasible, then it may be possible to solicit the services of a physician stationed at or near the other medical facility to act as a proxy interviewer for the board.

3. The physician member of the board is the logical person to represent the board when it is necessary to interview hospitalized personnel because of their involvement in the accident. In this case, it may be better to prepare questions in advance. They should be tailored to obtain responses essential to the investigation.

   (a) In cases where the person being interviewed is under the influence of medications, it is the physician member’s responsibility to qualify the credibility of information obtained under these circumstances.

   (b) Two or three short interviews with certain injured survivors may be more beneficial and may minimize any negative affect on their emotional state than conducting one lengthy session. Each case should be handled on the basis of its own circumstances. In any case, the well-being of the witness is paramount at all times and will govern the board’s conduct of this type interview.

   (c) It is not unusual for an injured survivor of an accident to initially be unable to recall details of the accident that would be useful to the board. The cause of this condition is usually temporary and medically valid, and the inability of the witness to recall details should never be interpreted as a lack of cooperation. Patience and empathy on the part of the interviewer under these circumstances may eventually result in obtaining the desired information, whereas persistence and impatience may not.


**g. Evaluating witness evidence.** All witness interview results should be subjected to evaluation since a witness may be honestly mistaken about actions they took or observations they made. Also, some witnesses may have a personal interest in the matter and may have a motive to intentionally distort the information they provide. When the interviews are numerous, complex, or contradictory, the board should evaluate each witness interview for credibility. In general, very specific information about speeds or maneuvers provided by an eyewitness should be considered as approximations since even eyewitnesses with experience have difficulty with these estimates.

### 2–4. Human factors investigation

#### a. Introduction.** This section provides procedure and format to perform a systematic and comprehensive investigation of human factors. For discussion purposes, the human factors assessment will be addressed within the context of the following areas: human error, accident survival, emergency egress and rescue/survival, autopsy procedures, PPE, and facilities/services. The objectives of the human factors investigation is to identify system inadequacy(ies) within the interactions of man, machine, and environment (see fig 2–1).

#### b. Human influence.

1. **Recording accident data.** Accident data recorded to date indicate most accidents can be ultimately traced to human errors. When an accident investigation board lists human error(s) as causal, it does not necessarily mean the Soldier/individual did something intentionally to cause the accident (as the use of the term “human error” might imply). For this reason, the human factors investigation must be broad in scope.

   - **Identifying human error(s).**
     - (a) The first step in identifying human error(s) is to develop a chronology of events before, during, and when appropriate, after the accident (see Figure 2–2). The need for placing events in order is to view human performance in the context that it occurred. The logical sources of information are the individuals involved in the planning, preparation, supervision, and execution of the mission/activity/event, task, or activity. All of these individuals should be interviewed using the techniques discussed in paragraph 2–3.

     - (b) During these interviews, the operational expert may detect possible errors or at least suspect errors on the part of the individual being interviewed or the individual who is being discussed. Some errors may not become evident until much later in the investigation when the relevant chronology has been developed. For example, investigation into the causes of materiel failures may ultimately be traced to a human error. An error by an individual may be traced to other errors committed by supervisors and instructors. Regardless of when or how factor(s) are detected, it is important that the investigator get all the available information about those factor(s). Without this information, it will be difficult for the board to “define” the factor(s) and identify its cause(s).

   - (c) Recent improvements in training publications have made the process somewhat easier since most operator and mechanic tasks have been defined in TMs and Soldier manuals. These task definitions include requirements and performance standards that will aid the investigator in identifying how the task was improperly performed. Other individual, supervisory, and support personnel tasks are identified in less specific terms in other publications or SOPs.

2. **Explaining human error(s).** Regardless of the task involved (for example, flight planning, installing a tail rotor, and changing brake pads/shoes), the explanation of how it was improperly performed should identify the directive, standard, and the performance deviated from or not complied with. The fact that an error occurred in itself has little meaning until its consequence(s) and relevance to the accident are also explained. Therefore, the defining and explanation process for human errors is not complete or meaningful until—

   - (a) The duty position of the individual involved is identified.

   - (b) The task the individual performed improperly in the context of the accident sequence is explained.

   - (c) The human error(s) is identified.

   - (d) The proper procedure for performing the task is identified.

   - (e) How the human error(s) caused or contributed to the accident is identified.

#### c. Causes of human errors.

1. **Theory.** The basic belief behind the investigation of human errors is that there is some reason for all human behavior. Once this reason is identified and sufficiently defined, it can be modified/improved, thus reducing the probability of similar human errors and their consequences in the future. Therefore, the causes of human errors should be identified in terms of one or more system inadequacies.

   - **Identifying system inadequacy(ies) (why the mistake/error/failure occurred).**
     - (a) The best way to identify system inadequacy(ies) is to work backward from a mistake/error by asking questions aimed at “illuminating” the error (see Figure 2–1). The most direct source of information is the individual who made the error. It is especially important to follow the procedure of paragraph 2–3 and not lead or intimidate this individual. The interviewer will have to use his judgment on how best to phrase the questions.

     - (b) The most practical approach is to establish the circumstances for the witness and allow him/her to recognize the error. If the witness acknowledges the error, the simplest method will probably be to come straight to the point and ask why. Asking “why” can be extremely helpful in identifying the cause(s) of his/her improper task performance.

     - (c) On the other hand, if the witness does not recognize or acknowledge the error, it may be best for the interviewer
to continue with other questions to avoid making the witness defensive or uncooperative. The interviewer can continue
by asking questions intended to identify possible system inadequacy(ies) which caused or allowed the error.

(d) After this indirect questioning, the interviewer can return to more direct questions about the error. This approach
will usually produce the most reliable information.

e) The human factors investigator will also have information from other sources. These include individual records,
unit records, and other individuals who may have knowledge about the individual or the accident. A post-accident
medical examination may identify physiological factors, (for example, acute fatigue, alcohol, carbon monoxide, drugs,
and impaired vision).

d. Accident survival investigation. The purpose of the accident survival portion of the investigation is to identify
preventable injuries and report them in a format that will help in an injury prevention program. To accomplish this, the
types of injuries must be defined and related to the impact, design, and other conditions to determine underlying
causes. This investigation normally will be performed by the medical officer.

e. Emergency egress investigation. Egress associated with an accident is usually in response to an emergency
situation. Information to be reported will include—

1. Where the individual was located when the initial attempt to exit the equipment occurred.
2. Any delays in attempting the egress; (for example, turn off fuel or battery).
3. Where the individual exited the equipment. Ascertain any difficulties encountered due to obstructions, opening
the exit, or in using the exit after it was open.
4. Any assistance that an occupant required in exiting the equipment that could indicate a deficiency in emergency
exit design or operation.
5. Equipment and materiel used during the egress that failed to function or functioned improperly.
6. Any other difficulties encountered during egress.

f. Survival/rescue investigation. The survival/rescue sequence of an accident includes that period of time from the
onset of the accident to the time rescue personnel reached the individual or the individual reached a facility that
provided medical care. Throughout the investigation, it is important to examine factors that may have contributed to or
inhibited the success of the survival situation.
1. Consider methods used and time taken for actions.
2. The methods survivors used to help in survival should be evaluated to determine if these methods were adequate
or inadequate and why.
3. The methods and equipment rescue parties used in locating, recovering, and rescuing survivors should be
examined to determine their adequacy.

g. Autopsy procedures.
1. Requirement for autopsy. A requirement that an autopsy be performed on the remains of air crew members is
contained in AR 40–21 and AR 385–10. In other cases, to specifically include cases where Soldiers on “active duty” or
“active duty for training” are fatally injured, the Commander, USACRC, in consultation with the commander of the
medical treatment facility (MTF) nearest the scene of the accident or where the body is located, may authorize an
autopsy on the remains.

a) This authority applies to those cases where an autopsy is deemed necessary for safety reasons in order to
determine the true cause of death.

b) The pathologist must obtain permission to perform an autopsy from the appropriate military/civilian authority
having jurisdiction over the body as it is recovered.

c) In the above cases, investigation of a fatal accident is not complete without an autopsy, special body fluid, and
tissue studies. Detailed instructions regarding collection and shipping of material for these studies can be found in
Appendix E.

(d) Every effort will be made by the medical investigator to obtain an autopsy report according to Army regulations.

2. Armed Forces Institute of Pathology. AFIP may provide on-site assistance for fatal accidents. When Army
equipment and personnel are involved, requests for such assistance may be made through the USACRC. The AFIP will
also provide telephonic consultation on any accident. Telephone number - COM (301) 319–0000, DSN 285–0000.
AFIP, Washington, DC 20306–6000, can provide the following types of assistance.

a) Collecting information that may show a correlation between pathological evidence and accident cause factors.

b) Determining causes of unexplained accidents by detailed pathological study.

1. Using pathological correlation to improve personnel and passenger restraint systems, PPE, and equipment
crashworthiness.

2. Accumulating pathological data from a wide variety of cases.

3. Studying psychological and physiological factors that cause stress and may result in pathological changes.

(c) The pathologist/physician should examine the results of the autopsy for evidence that may help to explain the
cause of the accident. This information is needed to determine the exact traumatic changes that occur. Specify the
causes of each and differentiate whether they occurred before or after death. These determinations should not be used
solely to determine the cause of death. They should also be used to—
1. Establish time and cause relationship between preexisting disease and the accident.
2. Correlate injuries with various factors in equipment design.
3. Determine all pathological evidence that might lead to an accurate analysis of the chronology of events surrounding an accident.

(3) Conduct of gross autopsy. Procedures for conducting gross autopsies are contained in appendix E.

h. Life support equipment and PPE.

(1) It is the responsibility of the investigator to analyze how well LSE, or other PPE, did the job for which it was intended. If the investigator determines the equipment did not operate as designed, the investigator must further determine if the item of equipment contributed to, or caused injury/occupational illness.

(2) All LSE and/or PPE that is in any way implicated in the cause or prevention of injury will be recorded in the accident report. Both air and ground items that caused injury, failed to function as designed, or were significant in preventing injury will be shipped to the U. S. Army Aeromedical Research Laboratory (USAARL) for further analysis. 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 bag systems.

(3) Contact USAARL concerning which items of LSE/PPE that should be shipped and the supporting documentation required. Call telephone number - DSN 558–6960/6805/6892, COM (334) 255–6960/6805/6892.

(4) 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 (Crew Injury/Life Support Equipment Branch), Bldg. 6901, Andrews Avenue, Fort Rucker, AL 36362–0577.

(5) Equipment items sent to USAARL for laboratory analysis will be noted in the technical report of accident investigation.

(6) For personal LSE/PPE 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.

(7) 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.

(8) Upon request by the USACRC, 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.

i. Narrative reporting. Paragraphs 3–6 and 4–4 provide instructions for narrative reporting the human factors investigation.
Figure 2–1. Determining System Inadequacy(ies) Responsible for Human Error
2–5. Materiel factors investigation

a. Introduction.

Note. In this paragraph, the term “equipment” is utilized to indicate the piece of equipment involved in an accident investigation, such as aircraft, vehicle, structure, weapon system, component, and part.

(1) This paragraph provides procedures for performing a systematic and comprehensive investigation of materiel factors associated with an accident. The objectives of the materiel factors investigation are as follows:

(a) To establish the equipment’s condition at the time of the accident.
(b) To describe the damage that occurred during the accident sequence.
(c) To identify materiel failures/malfunctions that resulted in an accident (what happened).
(d) To identify the system inadequacy(ies) for the materiel failure(s)/malfunction(s) (why it failed).

(2) The investigation of materiel factors requires, as a minimum, the assistance of a maintenance or technically qualified individual.

b. Materiel failure(s)/malfunction(s).

(1) Equipment, or a part thereof, is considered to have failed or malfunctioned when one of the following occurs:

(a) Becomes completely inoperable.
(b) Is still operable but no longer able to perform its intended function satisfactorily.
(c) Has deteriorated to the point where it is unreliable or unsafe for continued use.

Note. This explanation does not apply if the equipment achieves any of these three states because the required operational situation/condition that it was employed in exceeded its design capability or operating limits.

(2) The success of the materiel factors investigation is dependent upon determining the difference between failures/malfunctions that may have caused the accident and damage caused by the accident. The procedures to be followed are generally the same for all accidents, regardless of damage.

(3) The first step in identifying materiel failure(s)/malfunction(s) is to document the most obvious evidence available at the accident site by taking notes, photographs, and drawing diagrams. By the time these tasks have been
completed, the human factors investigation will usually have some preliminary information from witnesses that may further indicate the most probable failure/malfunction. These possibilities should be carefully examined.

(a) Even though the investigation begins by examining components that probably failed, this examination is not complete until all major components and systems have been examined for evidence of failure/malfunction.

(b) In cases where preliminary evidence (for example, witness statements) indicates no failure/malfunction occurred, the examination is still required. The purpose of the examination in this case would be to describe damage along with substantiating the lack of evidence supporting a failure/malfunction.

(4) The next step is the shipment of the material to a TDA facility of those components that the board identified or suspected of having failed/malfunctioned. The TDA is important since the board may not have the capability to determine how and why a component failed.

(5) The last step for the materiel factors investigation is to determine the cause of the failure/malfunction. Assistance can be obtained from the following facilities by coordinating with USACRC operations at DSN 558–3410.

(a) Aircraft. - Corpus Christi Army Depot, Corpus Christi, TX 78419–6020, telephone DSN 861–2902/2903, COM (361) 961–2902/2903.


(c) Parachutes. - Natick Labs, Natick, MA, telephone DSN 256–5208, COM (508) 233–5208.


(e) Ammunition/Explosives. - U.S. Army Technical Center for Explosives Safety, 1 C Tree Road, McAlester, OK 74501–9053, telephone DSN 956–8756/8919, COM (918) 420–8756/8919.

c. Causes of materiel failure/malfunction.

(1) Overview. As in the case of human error, the causes of materiel failure/malfunction can usually be traced to an inadequate systems element. (See app D for examples of metal fatigue and load stress failures.) Once identified, corrective action can be taken to prevent the probability of similar materiel failure accidents in the future. Thus, the causes of materiel failure/malfunction will be identified in terms of one or more system inadequacy(ies). A materiel system inadequacy is defined as a tangible or intangible element that did not operate as intended or designed and caused, allowed, or contributed to a materiel failure or malfunction.

(2) Identifying system inadequacy(ies) (why did it happen). Once the materiel factors investigation team has identified or suspects a failure/malfunction, it must continue the search for evidence to substantiate the cause of the failure. For example, could unit maintenance have caused a failure of this part, component, or system? To answer questions like this, the investigator must—

(a) Examine records and unit operating procedures.

(b) The materiel factors investigation must interface with the human factors investigation to search for errors/mistakes that may have resulted in the materiel failure.

(c) The investigator should try to gather evidence that will substantiate or eliminate each of the system elements that is within his capability to investigate. Thus, the procedure can be described as a process of elimination.

(d) If the investigation is unable to uncover evidence of a system inadequacy locally, the determination of the cause should be delayed until a thorough teardown and analysis can be completed.

(d) Accident scene. The investigation of the equipment and the components must begin at the scene of the accident. It is here investigators get an overview of the accident pattern, degree of damage, direction traveled, and velocity when the accident occurred. This overview will play an important part in reaching decisions concerning all aspects of the investigation. Therefore, it is necessary to carefully document the scene of the accident as outlined in the following paragraphs.

(1) Reconstruction of the accident sequence. The goals of the investigator(s) include determining how and why damage, separations, and injuries occurred. The best way to initiate this effort is to begin at the point of first contact with objects in the path or with the ground and follow the path to its final resting place. During this survey, the investigator(s) will—

(a) Observe the condition and location of the various parts of the equipment and mentally begin the process of reconstructing the sequence of events that occurred during the accident.

(b) If relevant, the location of human bodies and their disembodied parts should also be located on the diagram. This process will not be completed until near the end of the investigation when sufficient information has been assembled to answer the questions of how and why damages and injuries occurred the way they did.

(c) Once the sequence of events has been established, the investigator(s) should then reconstruct the maneuvers or actions of the individuals or equipment just before the accident. If the accident sequence can be established back to the point where the difficulty began, the causes of the accident will be more clearly defined. The application of knowledge of the performance of the individual, or equipment under various sets of conditions, plus the use of basic controllability, will greatly help in making these determinations.

(2) Accident site/wreckage distribution diagram. An accurate, detailed diagram of the accident site will help the
investigator(s) develop the actual sequence of events. This work may be done by the post engineer. However, in the absence of this expertise, the materiel factors investigator should accomplish this task. A field compass, measuring tape, protractor, rule, inclinometer, and writing materials are necessary to do the job.

(a) A polar diagram is a simple and effective method of diagramming the accident site.
1. The top of the diagram will represent north.
2. The main body of the wreckage (center of mass) can serve as the beginning or pole of the diagram.
3. Choose a scale that will allow plotting of the total scene on the chart.
4. Determine the compass heading of the equipment at its final resting place and place a semblance of the equipment on the diagram in such a position as to be able to plot the other debris from that point.
5. Determine the direction from the equipment to the outlying items and scar marks. Measure the distance from one central point of the wreckage to these items/marks. Plot them on the diagram as to their positions relative to the main wreckage.
6. Letters or numbers may be used on the plot so that a legend can be created to give the identification and the locations of the items in reference to the main wreckage.

(b) Grid method is another technique for detailing an accident site.

e. Techniques of obtaining photographs. Photographs are the best means of preserving physical evidence for study and evaluation.
1. The local safety representative should obtain a photographer from nearest post/installation assets.
2. It is important that photographs be of good quality and composition. Self-developing photos will provide instant results in the event other films fail to develop properly or are lost. Color prints are preferable, if available, but not mandatory. A good technique is to request proof sheets from the photo lab. This service can usually be provided in one day and will help in determining if additional photos are necessary.
3. The proof sheets can also be used to select the most representative prints to be included in the accident report.
4. All photographs used in the report must be numbered and captioned.
   (a) Captions should explain in detail what the picture is supposed to show.
   (b) Captions will include type equipment, date of the accident, and location of the accident.
5. The direction toward which the photograph was taken may be included; (for example, NE or SW). A photograph without a proper caption is confusing and of little value.
6. Photographs taken at the accident scene should include the following:
   (a) An overall view of the accident site (wreckage) taken from a minimum of four directions. Take photographs from the four cardinal directions (N, S, E, W) and four photographs from the midpoints between (NE, SE, SW, NW).
   (b) A view of the ground path of the equipment from point of initial and major impact to the place where it came to rest. Impact marks are vulnerable to rain and traffic; therefore, a photographic record of this type of evidence should be accomplished promptly.
   (c) Aerial views of the accident scene (equipment and weather permitting).
   (d) Photos of objects struck by the equipment.
   (e) Larger portions of the equipment wreckage.
   (f) Detailed photographs of suspected failed parts that contributed to the accident.
   (g) Photos of failed PPE and the agents causing the failure or injuries.
   (h) Photograph and measure skid marks and ground scars.

Note. Put an object of known size along side an object whose size may be distorted by the photograph; (for example, a pen or ruler next to a small piece of equipment or scar).

(i) Any other photographs deemed of interest to the investigation board.
(j) When taking digital photographs, if possible, include digital copies of the photographs as well as hard copy.
(k) Marking and preserving evidence.

f. Protection and identification. Parts or subassemblies suspected of failure/malfunction must be wrapped or boxed to prevent loss or further damage. Suspected metal failure surfaces should be coated with uncontaminated grease to prevent corrosion. Carefully tag and mark all parts so that they can be readily identified with the accident (place, date, and serial number of equipment) and their location at the accident scene. The tag should contain a brief statement regarding the suspected relationship of the parts to the causes of the accident. Examples of parts that may be preserved for more detailed examination are—
1. Parts suspected of failure.
2. Parts that appear to be improperly designed or contain faulty workmanship.
3. Lines, fittings, wiring, or controls not properly supported and subjected to excessive strain or vibration.
4. Ruptured plumbing or fittings.
5. Faulty wiring, electrical, or radio equipment.
6. Defective engines drive shafts, transmission, and accessories such as carburetors, fuel controls, governors, and generators.
g. Disassembly. Extreme discretion must be used in disassembling parts or components in the field. If it is known that parts and components will be submitted for TDA, disassembly should be avoided as it tends to compromise the analysis by destroying or obliterating bits and shreds of evidence the value of which may be known only to the analyst. However, when detailed disassembles are made, all parts must be tagged with complete information to include nomenclature, part number (PN), locations, and any other significant information. Document all disassembly with photographs. Assistance in disassembly and inspection of components, parts, fuel, and oil may be obtained from the next higher echelon of maintenance or U.S. Army depots or other experts identified by the USACRC.

h. Equipment records.

(1) As a minimum, the previous 6-month historical records, such as DA Form 2408 series (Aircraft Operational and Maintenance Forms), the periodic inspection records, and the other relevant records, such as manufacturer recalls, should be reviewed.

(a) Check component times and replacement schedule. Review for compliance or noncompliance with modification work order(s) (MWO).

(b) Check for compliance with safety-of-use messages, safety advisory messages, safety-of-flight messages, ground precautionary messages, maintenance advisory messages, and technical bulletins.

(c) Review current and delayed discrepancies records.

(d) Document all deficiencies and discrepancies noted for correlation against other materiel/maintenance factors uncovered during the investigation.

(2) Any modification or alteration of the equipment should be checked against applicable technical publications to ensure proper authorization.

(a) When alteration or modification of the equipment is suspected, a thorough investigation must be made to determine how these alterations or changes may have contributed to the accident (document with photos).

(b) Inspection should be made of structural repairs for quality of workmanship in fittings, welds, stitching, and cables. This inspection will disclose whether improper materials and workmanship contributed to the accident.

(3) It may be necessary to investigate possible cause factors that were not originally considered. Parts must be carefully preserved and protected.

i. Reassembly of wreckage. It may be necessary to reassemble wreckage to determine accident causes or to support a theory in an accident that is difficult to evaluate. When the entire system has been reconstructed, it may afford positive proof of the accident causes. Wreckage layout should resemble the original equipment as closely as possible. This gives the investigator a better overview of separations, fire damage, and control systems. A detailed and documented inspection of the wreckage layout will often lead the investigator to the areas or systems that played a role in the accident. The layout also helps the investigator in developing the sequence of events that occurred in the accident.

j. Failed parts. Unless there is conclusive evidence that a failure occurred during the operation, it is necessary to make a detailed inspection of each suspected failed part. In many cases, failure of the primary structure was caused by faulty design (improper material, incorrect assembly, previously weakened parts). The maintenance records and operating history of the equipment must be reviewed for conditions that may have initiated or contributed to the failure. Suspect failed parts that may have contributed to the accident should be selected for laboratory analysis to determine the type and mode of failure. The investigation board must then fit that evidence into the total evidence to determine whether the failure contributed to the accident.

k. Special investigations.

(1) Highly technical aspects of the accident investigation will require further study and special analysis. In many cases, this cannot be accomplished in the field, and the work must be continued by technically qualified personnel at a laboratory, depot, or factory. If mechanical failure occurred or is suspected—

(a) Adequate photographic coverage must be provided and the suspected failed parts retained for further evaluation.

(b) Sketches, history, and explanatory material must accompany the parts and should contain enough information to give a clear picture of what happened.

(c) If a control switch, handle, or knob, were used improperly because of its design, or if one control was mistakenly operated when the operator intended to use another, the location, size, shape, method, or operation of the control may prove to be an underlying cause and must be examined in the human factors investigation as well as the materiel factors investigation. Operator’s deficiencies relative to design issues should also be included in the human factors investigation.

(d) Different equipment may have controls or instruments in reversed positions from others operated by the operator and this could contribute to the accident.

(2) For example, night vision devices require a special investigation.

l. Power plants. When power plant failure is the known or suspected accident cause, the investigator(s) should make every effort to obtain samples from the lubricating and fuel systems. These samples should be taken from several sources to ensure capture of any foreign substance that may be in the system. Inspect the power plant to determine if
all debris caused by the failure was contained within the engine case. If not contained, every effort should be made to recover the missing pieces. All locations and impact marks should be marked and photographed. This information is needed to determine at what point in the accident sequence the power plant failed.

1. Field examination. When the power plant is examined in the field, obtain the serial number of the engine, manufacturer, type, model, and all pertinent information from maintenance and inspection records. In addition—
   (a) Locate all engine accessories and components.
   (b) Check the position of primary and secondary controls to determine the position of the various valves controlling the flow of fuel to the engine.
   (c) Obtain pertinent engine operation data prior to the accident.
   (d) Obtain information from witnesses about engine operation such as smoke, fire, explosion, and unusual noises.
   (e) If fire was a factor, determine the origin/location (see para 2–5n for details).
   (f) Check the fuel system for leaks or obstructions from fuel tanks to combustion chamber.
   (g) Check fluid carrying lines for improper installation or signs of malfunction.
   (h) Check for water, corrosion, or sediment in the fuel and oil systems.
   (i) Obtain samples of fuel, oil, and hydraulic fluid for laboratory analysis.
   (j) Check oil filters and pumps for foreign particles.
   (k) Check sources of fuel (including storage tanks, pumps, and fuel service trucks) for contamination, if necessary.
   (l) Check the ignition system to include switches, spark plugs/igniters, and leads.

2. Analyze failures. A review of the maintenance and inspection forms for operating time, malfunction, and TM compliance will often provide a lead to possible engine failures.
   (a) The position of engine controls and readings on engine instruments should be carefully recorded. However, these readings may be affected by the accident forces and are not conclusive indications of the position prior to impact.
   (b) If structural parts of the engine failed, these parts must be identified with a description of the failure.
   (c) Sketches and/or photographs showing the failure are important in evaluating the cause. All accessories should be inspected and bench checked if malfunction is suspected.

m. Transmissions. The same investigation and analysis procedures identified in paragraph 2–5k apply. In addition, check transmission case for cracks, distortion, and corrosion. If severity of impact broke the case open, check condition of gears and bearings for abnormal patterns or discontinuity, such as gears out of mesh.

n. Fires.
   (1) Symptoms.
      (a) Fire frequently destroys or consumes clues that could readily disclose the accident cause. (For example, ruptured or chafed fuel lines may be the origin of the fire and the cause of the accident and then subsequently be consumed by fire).
      (b) Fire that is a result, rather than a cause, of an accident also hampers the investigator by the destruction or damage of evidence.
         1. If a fire occurred, determine when, where, and how the fire originated.
         2. A fire originating during movement will generally leave obvious traces, such as molten metal flow marks that will conform to the airflow pattern of the component concerned.
         3. A fire resulting from impact with the ground will often leave imprints of twigs, grass, or leaves in the soot pattern on the burned parts of the wreckage. Any folded, smoked, or blackened pieces of wreckage that, when unfolded, show shiny metal would indicate that the burning had followed the accident.
         4. Locate parts that separated from the equipment after the accident. If these parts also show signs of burning, then the fire existed before the accident.
   5. A minor fire will frequently burn undetected until a larger source of fuel is supplied. A large fuel-fed fire may result from a smaller fire that was started by hydraulic oil, engine oil, or other flammable material.
   6. Remember that fluid vapors can travel long distances before reaching a point of ignition.

(2) Flammable fluids. All flammable fluid-carrying lines should be traced and inspected for breaks, cracks, chafing, and loose fittings. Identify the tubing by reference to the color code or the schematic drawings in the applicable TM.

(3) Witness information. Witnesses are especially important in establishing certain facts about the fire. A burning piece of equipment immediately attracts attention and can be seen from many miles away. Normally, smoke from burning oil is blue-white in color; smoke from hydraulic fluid is white; and fuel (gasoline, jet fuel) smoke is black. However, the color and density will vary with changes of intensity of the fire.

(4) Warning systems. Determine how personnel were warned that a fire was in progress and how effective extinguishing attempts were. Record a complete step-by-step description of the procedure used for extinguishing the fire and compare it with the technical manual.

 o. Communications/navigation equipment. The requirement to determine the functioning capability and selected frequency of the communication/navigation equipment may vary depending upon the circumstances surrounding the
accident. Normally, it is possible to determine the selected frequency/station regardless of the extent of component
damage.

(1) The control/dash panel normally contains various functional select switches, volume control, digital readout
channels, or frequency.

(a) Determine if equipment or vehicle operators, crew members, crash rescue personnel, or early arrivals at the
scene moved any of the controls or switches.

(b) Index all movable switches and volume control before any changes are made from the position found.

(c) Analyze all toggle and rotary switches to determine if they show evidence of having changed positions as the
result of impact/crash. If the indicators are missing, examine the rotary switch, determine which frequency is selected,
and compare the position with a like serviceable unit.

(2) Obtain the assistance of communications, avionics, or electronics experts for additional assistance if necessary.

p. TDA request. TDA request, processing, shipment, and disposition—

(1) Request. The Analytical Investigation Division (AID), Corpus Christi, TX, is the prime recipient and evaluator
of all Army aircraft components/parts selected for TDA. The Commander, USACRC; Commander, Aviation and
Missile Command (AMCOM); commanders of field organizations/units; aviation safety officers; maintenance officers;
and presidents of accident investigation boards are authorized to select components/parts for TDA. Requests for TDA
will be made in the interest of establishing or discounting materiel deficiencies, regardless of accident/incident
classification. The results of TDA are for use in accident prevention or to establish causes of accidents.

(a) Control numbers. Before shipping any components/parts to AID (Q99745), a Product Quality Deficiency Report/
Equipment Improvement Report (PQDR/EIR) will be submitted on the components/parts according to the instructions
in DA Pam 738–751. Ground EIRs are submitted in accordance with DA Pam 750–8. The Analytical Investigation
Division Q99745 is the DODAC for AID and should be used anytime components are shipped to that organization.
Authorized personnel must coordinate their requests for TDA with Operations, USACRC, DSN 558–3410/2660, COM
(334) 255–3410/2660. Approved requests will receive a USACRC control number which will be placed on the DA
Form 2407. Maintenance Request, block 3a, and must be included in the address to AID.

(b) Data requirement. To obtain USACRC control numbers, the following information will be submitted to the
USACRC:

1. Point of contact (POC), who is knowledgeable of why the request for TDA is being made. Identify the unit to
which the equipment is assigned and the unit’s address.
2. Telephone number(s) (military/commercial) of the POC(s).
3. Materiel identification data for each item, to include noun nomenclature of the component(s)/part(s), serial
number(s), PN(s), national stock number(s) and, when applicable, the time since new, time since overhaul, number of
prior overhauls, overhaul activity, and date of last overhaul.
4. AMCOM PQDR/EIR control number for component(s)/part(s) as appropriate.
5. Accident/Incident data, to include complete aircraft/ground vehicle serial number from which component(s)/
part(s) are removed, Army mishap classification, mishap date, how the defect was found, description of the required
analysis, and whether or not a written, electronic, or telephonic report has been provided to the USACRC, or any other
technical data that may be of assistance to the materiel analysis personnel.

(2) Processing.

(a) The processing of the item(s) to be shipped for TDA will be accomplished by the nearest activity having a
packing, crating, and shipping capability.

(b) The item(s) to be shipped will be cleaned and decontaminated to the degree necessary to preclude the possibility
of generating a health hazard or crop infestation. However, the cleaning process must not distort or remove evidence
such as heat discoloration, abrasion, stress and torsion splinters, and corrosion.

(c) All traces of foreign matter such as vegetation, human/animal tissue, insects, dirt/soil, or contaminated water
must be removed. This is especially required when items are shipped from OCONUS.

(d) When contamination, loose ordnance, tools, or other foreign materiel are suspected as the cause of an accident or
malfunction, photographs must be taken before cleaning and forwarded with the item(s) as evidence for study by the
analyst.

(3) Shipment.

(a) DA Form 2407 will accompany each component/part.

(b) Insert the USACRC control number in the first line of DA Form 2407, block 3a.

(c) The description of the analysis desired will follow the USACRC control number.

(d) DA Form 2410 (Component Removal and Repair/Overhaul Record), when required, and DA Form 2408–16,
Aircraft Component Historical Record, will accompany the aviation item(s) as appropriate.

(e) Also, arrange for the most expeditious delivery/shipment of item(s) for TDA to Analytical Investigation Division
(Q99745), Bldg 1880 Ocean Drive, Naval Air Station, Corpus Christi, TX 78419–5260, telephone DSN 861–2902,
COM (361) 961–2902.

(f) Container(s) will be clearly, permanently, and conspicuously marked in red on a white background and in
sufficient size to allow for ease of visual identification. If container is too small, follow the PQDR/EIR procedures contained in DA Pam 738–751.

4) Disposition of TDA report.
   (a) AID/contractor/manufacturer will provide four copies of the final report to Commander, AMCOM; Commander, USACRC, ATTN: CSSC–O (six copies if USACRC conducts the accident investigation).
   (b) One copy each to the applicable theater/command aviation safety officer.
   (c) Four copies to the commander of the unit/activity that requested the analysis.
   (d) Component(s) or part(s) submitted for TDA on USACRC control numbers will be held until disposition instructions are issued by Commander, USACRC.

2–6. Environmental factors
   a. Environmental factors are those environmental elements or conditions such as noise, illumination, space and weather conditions (For example, precipitation, temperature, humidity, pressure, wind, and lightning) having an adverse effect on the performance of the individual or equipment so that an accident results or could result.
   b. Assessment of environmental elements (For example, contaminants, noise, vibration, artificial illumination, acceleration, deceleration, radiation, adequacy of work surface/pace, and weather conditions) should be accomplished to determine their influence on human and/or materiel performance.
   (1) Contaminants (fumes, chemicals) can lead to respiratory problems; noise (radio static, engine, and transmission noise) can distract attention, interfere with effective communications and lead to fatigue.
   (2) Inadequate illumination can cause reduced visibility.
   (3) Inadequate work space (cluttered, poorly designed driver compartment) can contribute to procedural errors or limit outside visibility.
   (4) Knowledge of environmental elements does not eliminate them as factors influencing errors, injuries, or failures. To determine if an environmental factor should be assessed as a casual factor, the central questions to ask are: did this factor adversely influence human and/or equipment performance and was the environmental element unknown or unavoidable at the time of the accident/injury/occupational illness?
   c. Environmental factors can be divided into those which could not have been avoided, and those which could have been avoided or precautions implemented to reduce or eliminate its adverse effects on personnel and/or equipment. An environmental deficiency should not be assessed as a causal factor if it was known and could have been avoided before the accident.

2–7. Accident investigation techniques for electromagnetic environmental effects
   a. Electromagnetic environmental effects (E3), formerly known as electromagnetic interference (EMI), is a recognized potential accident cause factor and should be thoroughly evaluated during all accident investigations to determine whether it influenced the operation of the equipment involved.
   b. The following E3 list is recommended for use—
      (1) During the initial phase of the investigation—
         (a) Try to determine if there is any evidence of an external energy influence on the equipment or its subsystems.
         (b) Consider cockpit/instrument indications reported by surviving crew members, eyewitness reports, and other physical evidence. This is especially important where the physical evidence indicates that the equipment was out of control or malfunctioning prior to the accident.
         (c) Apply the current AMCOM criteria concerning the reporting of suspected electromagnetic interference encounters, for aviation accidents.
      (2) If E3 can be ruled out as a causal factor during this stage, then note the actions taken to eliminate E3 as a causal factor. For all accidents where E3 could have played a role but was ruled out, document “E3 was considered but ruled out for the following reasons” in the narrative or accident summary.
      (3) If E3 cannot be eliminated early on, or there are positive indications of an external energy influence, advise the USACRC immediately, DSN 558–3410/2660, and request technical assistance. In addition, perform the following:
         (a) Check for high-intensity radio transmission areas (HIRTAs) in the area of the accident.
         (b) Note visual flight rule (VFR) sectional or tactical maps for large towers (transmitters) in proximity to the accident site.
         (c) Identify mobile transmitters operating within the area at the time of the incident.
         (d) For aviation accidents, apply HIRTA standoff criteria contained in current AMCOM messages (HIRTA guidance).
         (e) While taking aerial photographs of the accident site, review the area surrounding the accident for large towers (transmitters) such as radio/television, telephone microwave, and radar.
   1. All towers (transmitters) are considered a potential source and should be plotted on a diagram in relation to the accident site.
2. Contact owners of the towers (transmitters) to determine the hours of operation, nature of transmission(s) (signal power level, antenna gain, and frequency), signal beam width, and azimuth(s) of transmitter signal(s).

c. For aviation accidents, gather any and all available ATC tapes, to include radar and voice, for later review.

(1) If there are surviving crew members, record all cockpit/instrument indications, such as, caution/warning/advisory light illumination, audio warning tones, degradation/loss of flight controls, and stiffness of pedals, experienced during the accident. To compare cockpit/instrument indications with the data base of known type aircraft responses to E3, call Aviation and Missile Research, Development and Engineering Center, Aviation Engineering Division, telephone DSN 879–8403 or COM (256) 313–8403.

(2) If there are no surviving crew members, analysis of the above data plus any additional information gained from flight data recorders (if so equipped) will indicate possible contribution of E3.

(3) If E3 is considered a potential causal factor due to accident circumstances, TDA and review of acceptance test procedures for affected systems/components may be required.

d. Close coordination with the USACRC will be maintained throughout the E3 investigation. E3 can be eliminated as a causal factor only if accident circumstances (physical evidence, equipment maintenance history, witness statements) indicate a suspected materiel failure or human error was the primary cause or if subsequent investigative actions described above have been completed.

e. Contact the USACRC office for additional technical aspects concerning this information at DSN 558–3410/2660, COM (334) 255–3410/2660, or the Army Safety Office (ASO) for policy aspects of this information, DSN 329–2412, COM (703) 601–2412.

2–8. Analysis

a. Documentation. A systematic analysis of the data collected during an accident investigation is required. The accident causes identified in the analysis will become the basis for developing findings and recommendations contained in the technical report of the accident. Findings and recommendations cited in the technical report will have an impact on remedying system inadequacy(ies). The written analysis must fully support each finding. Therefore, the analysis shall be thorough, logical, and conclusive.

b. Concept. The reasons people make errors, materiel fails, environmental conditions contribute, or injuries occur in an accident are the keys to accident prevention. The rationale behind this premise is that if the reasons (system inadequacy(ies)) can be dealt with effectively, then the probability of similar deficiencies causing future accidents or injuries can be reduced.

c. Scope. The accident analysis function inherently requires that the accident data be examined in detail to determine how man, machine, and environment interacted. The scope of the analysis will not necessarily be limited to the field investigation of the accident and may extend beyond the tenure of the investigator/board. The contents of the report will subsequently be reviewed and analyzed by the USACRC and other agencies responsible for the management of resources.

d. Objectives.

(1) Analysis of the data collected during the investigation permits the board to reach a consensus. The objectives are as follows:

(a) Establish a chronology of events as they relate to the accident.

(b) Identify human errors, materiel failures, and/or environmental conditions that caused or contributed to the accident (what happened).

(c) Identify system inadequacy(ies) that caused or permitted errors/failures/injuries to occur or environmental factors to contribute (why did it happen).

(d) Determine adequacy of LSE/PPE in terms of minimizing/preventing injuries (how injuries occurred).

(e) Provide corrective actions (what to do about it) having the best potential for remedying the system inadequacy(ies) (why did it happen). Identify design deficiencies in the materiel/equipment/system. Once design deficiencies in the materiel system are eliminated (designed out) that hazard will no longer exist to Army personnel.

(2) Each objective has related tasks as follows:

(a) The scope of the chronology may include events that occurred before, during, or after the accident. The need for placing events in a chronological order is to view human error, materiel failure, environmental conditions, and injuries in the context that they occurred.

(b) To identify factors (errors/failures/environmental) that caused or contributed to the accident, it will be necessary for the board to evaluate each factor in terms of its relationship with the accident cause. When it is determined an error/materiel failure/environmental factor caused or contributed to the accident, it should be defined as follows:

1. When the error/failure/environmental condition occurred in the context of the accident sequence of events.

2. Who (duty position) erred, what (part component, system) failed, or what environmental factor contributed.

3. The task or function required of the person, part, component, or system when the accident occurred.

4. How performance of the task/function deviated from published orders, SOPs, directives, standards, or common practice, or how the materiel failure deviated from design limits, specifications, and/or performance standards.
5. The effect/results(s) of the error/failure/environmental condition.
   
   (c) To determine adequacy of LSE/PPE, the board must evaluate injuries in terms of whether they could or should have been prevented.

   (d) To identify system inadequacy(ies) that caused or permitted an error/failure/injury or occupational illness to occur.

   (e) To provide corrective actions having the best potential for remedying the system inadequacy(ies), the board must—

   1. Tailor, specifically, the corrective actions to the system inadequacy(ies).

   2. Recommend corrective actions to the activities and/or levels of command most capable of correcting the system inadequacy(ies).

   e. Credibility. The credibility of the findings and recommendations presented in the technical report will depend largely on how completely the board analyzes the accident data. The conclusions resulting from the analysis should be fully supported by evidence whether it be direct, circumstantial, or a combination of both. A lack of evidence will make the analytical task more difficult. In this case, it may become necessary for the board to develop hypothetical explanations of what may have caused the accident. When the hypothetical approach is used, the hypotheses should be developed and discussed in terms of why certain explanations are or are not supported by the evidence. Through deductive reasoning and a process of elimination, the most probable cause(s) can be established.

   f. Coordination.

   (1) All board members will frequently meet as a group to discuss mutual progress, trade information, reduce redundancy, resolve conflicting information, and redirect investigative efforts as appropriate. As these meetings grow in number, it will not be unusual to discover that data initially considered insignificant may prove to be important and vice versa. Also, preliminary data that may appear to be a cause of the accident may prove to be an effect or result. Therefore, board members should keep an open mind and stay flexible, receptive, and discerning throughout the investigation. Board members should not entertain preconceived ideas as to the cause of an accident.

   (2) A point will eventually be reached where the data collection phase is completed and there are no remaining sources of information or expected inputs. What remains are the tasks of finalizing the analysis effort and structuring the results in a format that clearly shows the interrelationships between cause-related factors and the system inadequacy(ies) that caused or permitted them to occur. When these tasks are properly accomplished, the final task of developing/writing findings and recommendations is greatly simplified.

   g. Deliberations/analysis sessions.

   (1) When the investigators responsible for collecting and analyzing accident data have completed their tasks, the entire board should meet at a central location to collectively review the data and finalize the analysis. The facility used for the meetings should be secure and free from distractions and allow for privacy. The board president will chair the meetings and guide the proceedings. The investigator responsible for conducting the human and materiel portions of the investigation should present the factors he/she believes caused the accident, contributed to injuries, or had other significance. In presenting this information, the events directly involving each factor should be identified. This will help to place each factor in its proper perspective and relation to the other events. Factors associated with an event will usually fall into one of five categories—

   (a) Factor(s) that definitely contributed to the accident (Present and Contributing).

   (b) Factor(s) suspected to have contributed to the accident (Suspected Present and Contributing).

   (c) Factor(s) that did not contribute to the accident but contributed to the severity of the injuries (Present and Contributing to the Severity of the Injury/Occupational Illness or Extent of Property Damage).

   (d) Factor(s) that did not contribute to the accident but could adversely affect the safety of continued operations if left uncorrected (Present but Not Contributing).

   (e) Factor(s) that in no way contributed to the accident but identify local conditions or practices that should be corrected are special observations. Although these factors do not have to be addressed in the analysis or listed in the findings and recommendations part of the technical report of the accident, they should be subsequently briefed to the lowest level commander capable of taking corrective action; (for example, minor administrative errors in recordkeeping, inadequate procedures, and/or lack of required SOPs, directives).

   (2) The investigator(s) should next identify each system inadequacy(ies) that caused or permitted the factor to become causal.

   (a) The more specific the description of the system inadequacy is, the easier it is to identify effective corrective actions.

   (b) If a consensus of the board members agrees with the factors presented and their associated system inadequacy(ies), the process continues until the investigators have completed their presentations.

   (c) The board president should not allow unresolved issues to be debated indefinitely during deliberations. If a board consensus on an issue cannot be reached within a reasonable amount of time, the board president will decide the issue and continue with the proceedings. There are provisions for submitting a minority report as explained in paragraph 2–1h.
(3) It may become apparent during the deliberations that evidence is conflicting. In such cases, the board usually has two choices—

(a) The board may further question personnel involved or other witnesses. If this approach is used, it is probably best to come directly to the point, such as inform the personnel being questioned of the conflict and ask for an explanation.

(b) If the first approach does not resolve the conflict, it may be possible to rationalize why the conflict exists and then develop a hypothetical explanation. In any case, the board is responsible for resolving conflicts and must carefully weigh the evidence and decide what is most credible.

(4) When the board has reached a consensus on each significant factor involved in the accident, a concerted effort is necessary to develop corrective actions having the best potential for remedying each system inadequacy.

(a) When a board consensus concerning remedies is achieved, the commands or activities having proponency for correcting the system inadequacy(ies) should be identified. When this is accomplished, the corrective actions proposed in the technical report can then be directed to the activities and levels of command best capable of accomplishing them.

(b) To achieve the goal of accident prevention, recommendations should not focus on specific punitive or administrative actions that might deal with the shortcomings of a particular individual in a specific case. Rather, the recommendations should address the issue on a broader level.

(c) Each recommendation will identify the actions to be taken at the appropriate level of command, such as unit level actions, higher-level actions, or DA-level actions most appropriate to correct the system inadequacy(ies). The recommendations will be written in conjunction with the findings and will be included in the technical report of the accident.

(5) The final results of the total analytical effort will be summarized in the findings and recommendations, and analysis portion of the technical report.

2–9. Accident investigation kit

a. This paragraph contains a list of items recommended for an accident investigation kit. It is neither all inclusive nor mandatory.

(1) Carrying case for kit contents.
(2) Laptop computer.
(3) Digital camera with large memory cards or sticks and 35mm camera (w/film). Spare batteries for the camera.
(4) Microcassette tape recorder w/tapes and batteries.
(5) Cell phone.
(6) Global positioning system.
(7) Flashlight (batteries).
(8) Magnetic compass.
(9) Inclinometer.
(10) Laser rangefinder.
(11) Tape measure, 100 foot (steel recommended).
(12) Small magnifying glass.
(13) Pocket/universal multi-tool with case.
(14) Steel ruler (1 foot) with large index.
(15) Screwdrivers (flat tip and cross tip).
(16) Pliers and crescent wrench (8 inch).
(17) Hearing and eye protection.
(18) Tyvek protective suit and high-efficiency respirator.
(19) Leather gloves.
(20) Telephone extension cord with male-to-male adapter.
(21) Power strip extension cords (2).
(22) Printer cable.
(23) Composite Materials/Bloodborne Pathogen Safety Kit.
(24) AR 385–10 (Chapter 3) and DA PAM 385–40.
(26) Additional references (TMs, FMs, and local regs/SOPs).
(27) Marking/survey flags.
(28) Florescent orange paint.
(29) Tarp.

b. Each organization should assemble its accident investigation kit based on their mission and needs. Items (2), (5),
and (23) listed above, as well as the memory cards/sticks and batteries, should not be stored in kit, but obtained as needed.

Chapter 3
Aviation Accident Reporting

3–1. Introduction
AR 385–10 prescribes the classes of aircraft accidents that will be reported via DA Form 2397-series and DA Form 2397–AB, Abbreviated Aviation Accident Report (AAAR). This chapter provides instruction for completing a full report of investigation and identifies the types of substantiating data that will be appended to each report, including instructions on how to process the data. This chapter also provides information for determining which forms of the DA Form 2397-series are required for each report (see fig 3–1). Detained instructions are included explaining how to complete each form, including the DA Form 2397–AB.

a. Instruction. The DA Form 2397-series consists of 15 technical reporting forms, a command review form, and two index forms. The forms are required for reporting Class A and B Army aircraft flight or flight-related accidents. Not all forms are necessary for every technical report. See figure 3–1 for general information on the requirement for submitting each form of the series. Specific instructions concerning the submission of each form are given in this chapter in the paragraph relating to that form. They can be reproduced locally on 8½ by 11-inch paper.

b. Formats. The forms contained in the DA Form 2397-series are designed to provide three different accident report forms.

(1) The first format is narrative in content and includes DA Form 2397, Part I, Statement of Reviewing Officials, and DA Form 2397–2, Part III, Findings and Recommendations, DA Form 2397–3, Part IV, Narrative, and DA Form 2397–4, Part V, Summary of Witness Interviews.

(2) The second format requires graphic information on DA Form 2397–5, Part VI, Wreckage Distribution.

(3) The third format requires coded data on DA Form 2397–1, Part II, Summary, the bottom page of DA Form 2397–2, Part III, Findings and Recommendations, and DA Forms 2397–6, Part VII, In-Flight or Terrain Impact and Crash Damage Data, through DA Form 2397–12, Part XIII, Fire.

(4) It is essential that the forms contain all information requested in the instructions and that the information provided is accurate.

3–3. DA Form 2397, Part I, Statement of Reviewing Officials
DA Form 2397 (see fig 3–2) will be submitted with the copy of the technical report forwarded through channels to the USACRC. If additional space is required, use letter-size paper for continuation sheets.

3–4. DA Form 2397–1, Part II, Summary
The DA Form 2397-1, Part II, Summary (see fig 3–3) will be completed for each aircraft accident requiring a technical report. (See Tables 3–2 through 3–6 for additional information.) The purpose of the form is to summarize essential elements of information contained in other parts of the technical report.

a. Accidents involving one aircraft require only one DA Form 2397–1. Accidents involving more than one aircraft may require an additional DA Form 2397–1, depending upon the circumstances.

(1) A DA Form 2397–1 is required for each aircraft involved in a flight, or flight-related accident per DA Pam 385–40.

(2) A DA Form 2397–1 will be completed in its entirety for the aircraft and crew deemed most responsible for the accident. This DA Form 2397–1 will be referred to as the “case aircraft.”

(3) Additional DA Forms 2397–1 identifying other aircraft involved in the accident will be completed as necessary to account for all aircraft, except inactive aircraft. These DA Form 2397–1; however, do not require a duplication of the information entered in blocks 1 through 7 and blocks 20, 23, and 24 of the “case aircraft” on DA Form 2397–1.

b. Damaged aircraft that were inactive will be costed as “other damage military.”

3–5. DA Form 2397–2, Part III, Findings and Recommendations
a. DA Form 2397–2 (see fig 3–4) will be completed for all aircraft accidents requiring a technical report. (See tables 3–3 through 3–7 for additional information.) If additional space is required, use letter-size paper for continuation sheets.

(1) This form is designed to provide a narrative and coded summary of accident cause factors, system inadequacies, and corrective actions.
(2) Block 1 is used to explain block 2 in terms of what happened, why it happened, and what should be done to reduce the chances of it happening again (“3W” approach).

b. An abbreviated list of the codes and associated mistakes/errors, materiel malfunctions, environmental conditions, system inadequacy(ies) and corrective actions is provided at table 3-7. Appendix B contains expanded descriptions and examples of the abbreviated codes.

3–6. DA Form 2397–3, Part IV, Narrative

DA Form 2397-3 (see fig 3–5) will be completed for all aircraft accidents requiring a technical report. The narrative includes the history of events, human factors, materiel factors, and analysis of the investigation.

3–7. DA Form 2397–4, Part V, Summary of Witness Interview

a. Instruction. DA Form 2397–4 (see fig 3–6) will be completed for all aircraft accidents requiring a technical report. If a promise of confidentiality is to be offered, the interviewer will read the section, “Promise of confidentiality offered.” This includes the specific categories of witnesses (crew members and maintenance personnel) to whom confidentiality will be routinely offered, any interview under enhanced recall/hypnosis and any other case in which the interviewer feels it is necessary to offer a promise of confidentiality (to include situations where the interviewer feels that the witness is not providing complete or accurate information). This explains to the witness that the interview may be used within DOD only for accident prevention purposes. Beyond that, it explains that nonconfidential interviews are publicly releasable and, to avoid that outcome, the interview must have been given under a promise of confidentiality.

b. Procedural guidelines. The procedural guidelines/instructions are as follows:

(1) All witnesses will be interviewed according to chapter 2, paragraph 2-3. The investigator will emphasize to the witness that the sole purpose of the accident investigation is for accident prevention. The witness should be further informed that the U.S. Army seeks to isolate the cause(s) of the accident so it may take appropriate actions to avoid similar accidents. If the witness is a civilian, the investigator will avoid using Army terms and acronyms.

(2) The board president or recorder will brief all witnesses concerning the interview.

(a) This will be done by reading to the witness the information on the back (page 2) of the DA Form 2397–4, contained in block 15 (see fig 3–6), the “General Witness Information Briefing.” The purpose is to ensure that the witness understands the purpose of the interview, who will have access to the information, DOD restrictions on the use of the interview, and its public releasability. A promise of confidentiality can not be offered unless the criteria are met as outlined in AR 385–10, paragraph 3–10. Limited Use safety accident investigation reports are required for flight and flight-related accidents. Witnesses may be given the option of making their statements under a promise of confidentiality (see AR 385–10, para 3–10).

(b) If a promise of confidentiality is to be offered, the interviewer will read the section, “Promise of confidentiality offered.” This includes the specific categories of witnesses (crew members and maintenance personnel) to whom confidentiality will be routinely offered, any interview under enhanced recall/hypnosis and any other case in which the interviewer feels it is necessary to offer a promise of confidentiality (to include situations where the interviewer feels that the witness is not providing complete or accurate information). This explains to the witness that the interview may be used within DOD only for accident prevention purposes. Beyond that, it explains that nonconfidential interviews are publicly releasable and, to avoid that outcome, the interview must have been given under a promise of confidentiality.

(c) If promise confidentiality is not offered to the witness, the interviewer will read the section, “No promise of confidentiality offered.” It explains that within the military, the interview may only be used for accident prevention purposes. It also explains that rules governing the public releasability of the interview.

(3) When a promise of confidentiality is offered, the witness will complete block 16, “Availability of Promise of Confidentiality for Limited Use Report of Investigation.” The witness will initial section by indicating his/her choice, requesting or declining confidentiality.

Note. The exception for interviews under enhanced recall/hypnosis, which will automatically be deemed confidential and treated as such.

(4) If the witness is willing to be interviewed or make a statement, it will be summarized on DA Form 2397–4 in block 13.

(5) The promise of confidentiality will be entered on DA Form 2397–4, block 12, and will be signed and dated by the interviewer. The promise is as follows: “The witness made this statement under a promise of confidentiality.”

(6) There is no requirement to have an interview signed by the witness, and such should not be done. The interviewer does not have to sign either, except as addressed above. To approach a witness for a signature may give the indication that the statement will be used for purposes other than accident prevention. Neither is it necessary to record explanations discussed in paragraph 3–7b on the DA Form 2397–4.

(7) Witness statements should be summarized for inclusion in the report. The complete, verbatim account of all that was stated should not be included. A summarization is to be used, but it should not exclude any information that assists in explaining the circumstances of the accident.

3–8. DA Form 2397-5, Part VI, Wreckage Distribution

a. Instruction. DA Form 2397–5 (see fig 3–7) will be submitted with each technical report when needed to substantiate information that is not clarified by other data reported in the DA Form 2397-series. A decision to not
include this from should not be construed to mean diagramming of the crash scene will not be used as an investigation technique. The board may be required to furnish a copy upon request.

b. Form terminology.

(1) Wreckage distribution. The location of all aircraft components in their post-crash positions. The locations should be shown relative to the flight path of the aircraft with the azimuth and distance from a given reference point.

(2) Initial impact. The first contact of the aircraft with terrain or obstacles.

(3) Secondary impact. An impact that is less severe than the major impact. Several secondary impacts may occur in an accident.

(4) Major impact. The impact causing the most severe crash forces.

3–9. DA Form 2397–6, Part VII, In-Flight or Terrain Impact and Crash Damage Data

a. Introduction. DA Form 2397-6 (see fig 3–8) will be completed for the following (see table 3–6):

(1) All technical reports involving in-flight collisions (see definitions below), excluding tail rotor strike accidents.

(2) All technical reports involving aircraft damage excluding the following:

(a) Aircraft ground accidents.

(b) Flight-related accidents with no aircraft damage.

(c) Rotor blade strikes (main and tail rotor) with no additional aircraft damage.

b. Flight terminology.

(1) In-flight collision. The aircraft collides with an obstacle while in flight (helicopters at an altitude greater than normal taxi-hover height).

(2) Terrain collision. The aircraft collides with the terrain.

(3) Flight path. The profile motion of the aircraft center of gravity (CG) during flight relative to the horizontal, measured in degrees.

(4) Terrain slope. Slope of terrain measured in degrees.

(5) Aircraft attitude. The orientation of the aircraft with respect to the horizontal at the instant of impact. The attitude is measured in degrees about the pitch, roll, and yaw axes.

(6) Impact angle. The angle between the flight path and the terrain. This angle is identical to the flight path angle for level terrain. For an upslope impact, the terrain slope angle is added to the flight path angle. For a downslope impact, the terrain slope is subtracted. An upslope and downslope impact is shown in figure 3–8.

(7) Flammable fluid. Engine fuel, lubricating oil, and hydraulic fluid.

(8) Major impact. The impact causing the most severe crash forces.

(9) Gravitational force (G-force). A downward force resulting from gravitational deceleration action on a mass (Newton’s second law, F=Ma). This is normally expressed as a 1 G-force.

(10) Impact force. A force in any direction resulting from the deceleration of an aircraft. These forces are usually expressed as multiples of the G-force such as, 1G, 2Gs. Impact forces are resolved into components relative to some reference such as the longitudinal and vertical axes of an aircraft.

(11) Airspeed. Indicated airspeed along the flight path (knots).

(12) Vertical velocity. Rate of ascent or descent in feet per minute (fpm).

(13) Ground speed. Ratio of distance covered to time required relative to ground (knots).

3–10. DA Form 2397–7, Part VIII, Maintenance and Materiel Data

DA Form 2397–7 (see fig 3–9) will be completed for each technical report, as applicable, when any of the following had a role (definite or suspected) as to the cause of the accident.

a. An act of omission or commission at any maintenance level (to include manufacturing defects). State the specifics in block 6, “Remarks.”

b. The failure or malfunction of any system, major component, or part. A separate DA Form 2397–7 will be completed for each major component or part that failed or malfunctioned and contributed to the accident, or anytime an analysis is to be performed or requested on a part.

c. Only DA Form 2397–7 pertaining to components or parts that contributed to the accident, or anytime an analysis is to be performed or requested on a part.

d. When analysis of components/parts shows that there was no contribution to the accident, DA Form 2397–7 pertaining to these items will be retained as work copy documents, but will not be included in the completed Technical Report of U.S. Army Aircraft Accident.

e. If explanatory remarks are required, use block 6 and letter-size paper for continuation sheets.

3–11. DA Form 2397-8, Part IX, Personal Data

DA Form 2397–8 (see fig 3–10) will be completed for all aircraft accidents requiring a technical report (see tables 3–5, 3–6, 3–8, and 3–9). It will be submitted for—

a. Each rated crew member. Fill in block 1 through 4d, and 6 through 17.
b. Each nonrated crew member. Fill in blocks 1a, 2, 3d, 3f, 3g, 3h, 3j, 3n, 3o, 3p, 3q, 4e, and 5 through 17.

c. Support personnel and non-crew members whose contributory role in the accident was attributed to duties such as mechanic, POL handler, air traffic controller, technical inspector, medical officer. For each of these individuals, fill in blocks 1a, 2a through i, 3g, 3n, 3p, 3q, 4e, 5, 6, 7, and 10 through 17.

d. Supervisory personnel who may have contributed to the accident. For these individuals, fill in blocks 1a, 2a through 2i, 5, and 10 through 17.

3–12. DA Form 2397–9, Part X, Injury/Occupational Illness Data
a. DA Form 2397-9 (see fig 3–11) will be completed for each individual who was injured or sustained an occupational illness as a result of the aircraft accident.

b. The accident investigation board shall reference and comply with AR 40-21.

c. It is mandatory that autopsies be performed on all deceased crew members. The protocol will not be included or attached to the accident report when the report is forwarded through the command channels for review, but will be forwarded to the Commander, U.S. Army Combat Readiness Center (CSSC–O), Fort Rucker, AL 36362–5363, for inclusion into the historical copy of the report.

DA Form 2397–10 (see fig 3–12) will be completed for crew members aboard an aircraft involved in an accident requiring a technical report, and for all other personnel aboard the aircraft for which the following applies (see tables 3–5, 3–6, 3–8, 3–9, and 3–11 through 3–24 for additional information):

a. Protective/restraint/survival equipment played a role in the causation/prevention/reduction of an injury(s) resulting from the accident.

b. Protective/restraint/survival equipment failed to function as designed or was required but not available or used.

c. Egress/rescue difficulties were encountered.

3–14. DA Form 2397–11, Part XII, Weather/Environmental
DA Form 2397–11 (see fig 3–13) will be completed for all aircraft accidents requiring a technical report. This form does not negate the requirement for the substantiating weather data addressed in paragraph 3–17. Weather/environmental information submitted on DA Form 2397–11 is the board’s best estimate of the actual environmental conditions existing when and where the accident occurred and its role in the accident, if any. The information will be gathered from available sources, to include witnesses, surviving crew members.

3–15. DA Form 2397–12, Part XIII, Fire
DA Form 2397–12 (see fig 3–14) will be completed for each technical report of aircraft accident in which fire occurs (see table 3–6).

3–16. DA Forms 2397–13, Index A and 2397–14, Index B
DA Form 2397–13 (see fig 3–15) and DA Form 2397–14 (see fig 3–16) will be completed for all aircraft accidents requiring a technical report.

3–17. Substantiating data

a. Instruction. DA Form 2397–13, Index A, lists the information that will be appended to the technical report as substantiating data. See figure 3–16 for an example of DA Form 2397–13. The information attached to the left side of the report folder will aid in completing the remainder of the DA Form 2397-series.

b. Requirements. TAB items 1, 2, 4, 6, 7, and 9 of DA Form 2397–13 will be submitted with all technical reports. Blocks 3, 5, 8, and 10 through 14 are also required, if necessary, to explain or substantiate other parts of the report. Additional instructions pertaining to applicability are contained in paragraph 3–17d.

c. Special considerations.

(1) Social Security Numbers (SSN). None of the substantiating documents require an SSN. If any of the documents on the left side of the report have an SSN listed, black out the number with a black felt tip marker.

(2) Legibility. Original copies of substantiating documentation are not required for this report. Duplicates that are completely legible and suitable for reproduction may be appended to the report.

(3) Extracts. Extracts or concise quotes of regulations, tasks, performance standards, specifications, and other directives are preferred in lieu of whole source documents to minimize bulk. When used, extracts will include information as to where they appear in their source documents, titles, and dates of the documents.

(4) Highlighting key words and phrases. Substantiating data referred to by other parts of the report will have key words, phrases, or passages underlined or annotated to facilitate the review of the accident report. Underline or annotating margins will be used in lieu of felt-tipped markers for this purpose because the fluid dispensed by many of these devices may obliterate the legibility of subsequent copies if they are reproduced from an original marked in this manner.
d. Information items at each TAB on the DA Form 2397–13.

(1) TAB 1-Copy of orders appointing investigating board. A copy of the original signed orders appointing the board and any amendments will also be appended. (See AR 385–10, para 3–12).

(2) TAB 2-Weather data. The relationship of weather or weather services to an accident is addressed in chapter 2 of this pamphlet. If weather or weather services had no bearing on the outcome of the accident, as a minimum append a brief synopsis of the weather existing before, during, and immediately after the accident, authenticated by the closest weather service. Otherwise, if weather or weather services are suspected, the information to be provided should include, but not limited to the following:
   (a) A certified narrative of weather provided by forecaster, briefer, or observer.
   (b) A true copy of the forecast or observation from official files, (for example, DD Form 175–1, (Flight Weather Briefing)).
   (c) Copies of pertinent weather advisories and related forms.
   (3) TAB 3-Certificate of damage/estimated cost of damage (ECOD). If total estimated cost to repair the damage does not exceed the aircraft replacement cost specified in TB 43–0002–3, submit a complete ECOD for aircraft damage. The ECOD will include an itemized list of damaged components, cost to repair or replace each component, number and cost of man-hours, and total cost of repair. Refer to this DA Pam 385–40, chapter 1, paragraph 1–10 and the AMDF for aircraft component/part accident damage cost criteria. If the aircraft is damaged to the extent it is estimated to be a total loss, a certified statement to that effect, signed by a maintenance officer, will suffice in lieu of an ECOD. For other property damage provide a description of the property damage, and an ECOD, to include civilian property damage.
   (4) TAB 4-Diagrams and/or photographs. A map/sketch depicting the aircraft’s flight path leading up to the accident site, preferably plotted on a large scale map, should be appended to the technical report if it will help to clarify the accident sequence of events.
   (a) Arrows should be placed on the face of the map depicting magnetic north and the wind, with numerical values, which existed a the time of the accident.
   (b) Should the section of map being used not include an obvious geographical reference and margin data such as distance scales, this type of information should be added.
   (c) Also, significant events occurring along the depicted flight path should be numbered at the point they occurred and explained by footnotes.
   (d) The number and types of photographs to be appended to the accident report will be determined by the accident circumstances. Additional guidance concerning photographic coverage of an accident is contained in chapter 2.
   (5) TAB 5-Copy of Product Quality Deficiency Report (SF 368). Include a copy of each deficiency report completed as a result of the accident. A Product Quality Deficiency Report (PQDR) is required for all materiel accidents in accordance with AR 385–10, paragraph 3–9b(1) and DA Pam 738–751, paragraph 3–2.
   (6) TAB 6-Special technical reports and laboratory analyses. Append a copy of the results of all fluid sample analyses, teardown analyses, or other analyses of aircraft-related systems.
   (7) TAB 7-Weight and Balance Clearance Form F—Transport/Tactical (DD Form 365–4). A DD Form 365–4 showing the conditions existing at the time of the accident will be computed by the investigation board and also appended to the accident report at TAB 7. If weight and/or balance was a factor or suspected factor in the accident, also include a copy of the DD Form 365–4 used by the aircrew at the time of the accident and explain any significant differences in the analysis portion of the narrative.
   (8) TAB 8-Copy of directives, regulations, and so forth. Pertinent portions of written documents relating to cause factors will be extracted, underlined/annotated, and appended to the accident report.
   (9) TAB 9-Medical data. Toxicological reports, preferably done by the AFIP, autopsy protocols, and/or other medical data pertinent to the accident will be appended to the accident report. Autopsy protocols and pictures of deceased personnel will not accompany the technical report through review channels. This type of information will be handled in accordance with chapter 2, paragraph 2–4g of this pamphlet.
   (10) TAB 10-Flight planning data. Append a copy of the flight plan, local clearance forms, or unit’s tactical flight log to the accident report if relevant to the accident.
   (11) TAB 11-Army Aviators Flight Record (DA Form 2408–12). A copy of the DA Form 2408–12 covering the accident flight will be appended to the technical report if it has any bearing on the accident. In cases where crew rest may be an accident cause-related factor, DA Form 2408–12 information pertaining to the same crew member for the appropriate period preceding the accident should be included.
   (12) TAB 12-Aircraft Status Information Record (DA Form 2408–13). Append a copy of DA Form 2408–13 to the accident report if maintenance or materiel deficiencies are discovered.
   (13) TAB 13-Uncorrected Fault Record (DA Form 2408–14). Append copies of DA Forms 2408–14 applicable to the accident aircraft if a materiel problem related to an uncorrected fault is involved.
(14) **TAB 14-Equipment Modification Record (DA Form 2408–5).** Append copies of applicable DA Forms 2408–5 when necessary to substantiate maintenance errors, omissions, which caused or contributed to the accident.

(15) **TABs 15 through 18-Other.** Substantiating data that have a bearing on an accident and are not covered by other information items listed on DA Form 2397–13 should be appended to this part of the technical report or filed under an additional tab item (TAB 16). Examples include, but are not limited to the following:

(a) If the training proficiency/level of an individual is an issue, a copy of the training record will be included. The area of deficiency will be annotated.

(b) Copies of crew member post-accident flight evaluations.

(c) Copies of DA Form 2028 (Recommended Changes to Publications and Blank Forms) when changes in publications are recommended.

(d) Results of special investigations conducted by individuals/agencies in support of the accident investigation.

(e) Portions of transcripts of ATC logs, tower tapes, media news accounts, fire, rescue and law enforcement reports, and relevant portions of intra-cockpit voice recordings.

(f) Copies of DA Form 2408–18 (Equipment Inspection List) when necessary to show compliance or noncompliance with Safety of Flight messages and similar directives and publications.

### 3–18. Miscellaneous

A list may be beneficial to the local safety POC for actions required prior to the arrival/appointment of the accident investigation board. The guidelines in Appendix G can be used to prepare this list.

### 3–19. Assembly of the accident folder

When all required forms in the DA Forms 2397-series have been completed and the necessary substantiating data have been collected, the recorder will assemble the information using the instructions listed below.

- **a.** Use a separate manila or similar folder to enclose the forms and substantiating data for each copy. It is suggested that the creases and edges of each folder be reinforced with tape to maintain the integrity of the folders during subsequent handling.

- **b.** File substantiating data under the appropriate tab on the left side of the accident folder and the DA Forms 2397-series on the right. If the accident report will contain more than one DA Form 2397-series because of a multiple aircraft event, keep each DA Form 2397-1 and its associated forms together and file in a manner that will permit view of the “case aircraft” DA Form 2397-1 and its associated forms first.

- **c.** Tab and index each item on the left and right sides of the folder as shown in figure 3–18.

- **d.** File the completed DA Form 2397–13, Index A, on top of substantiating data on the left side of the folder and file the completed DA Form 2397–14, Index B, on top of the DA Forms 2397-series on the right side of the folder. The items to be included as substantiating data are addressed in paragraph 3–17. Additional items may be included as determined by the board.

- **e.** The front of the folder will be marked with the following information:
  (1) “Limited or General Use.”
  (3) Aircraft MTDS and Serial No. (UH60LXXXXXXXX).
  (4) Date of accident: (mmddyyyy).
  (5) Location of accident: (DA Form 2397-1, block 7).
  (6) Unit: (DA Form 2397–1, block 9).

### 3–20. DA Form 2397–AB, Abbreviated Aviation Accident Report (AAAR)

DA Form 2397–AB (see fig 3–17) is required for all aircraft ground and UAS accidents regardless of class, and Class C, D, E, and F flight and flight-related accidents/incidents. (See tables 3–2 through 3–6 and tables 3–8 and 3–9 for additional information.) The AAAR only reduces the reporting requirements and should not affect the quality or extent of the accident investigation. This form may also be used to report aviation Class A and B accidents during combat operations when the submission of the DA Form 2397-series is deemed not practicable by the senior tactical commander (see AR 385–10, para 3–8c).

- **a.** Investigation and submission of the DA Form 2397–AB will be according to AR 385–10.

- **b.** Submit AAARs in legible hand-printed or typed copy via mail, fax, courier, electronic mail (e-mail), or can be submitted through the automating reporting system. Work copies on plain paper will be acceptable, but each data element must reference the respective block of the DA Form 2397–AB.

  (1) The mailing address is as follows: Commander, U.S. Army Combat Readiness Center (CSSC–O), Bldg 4905, 5th Ave, Fort Rucker, AL 36362–5363.

  (2) The e-mail address is: accidentinformation@conus.army.mil.
(3) The automating reporting system allows for quick and easy reporting through the USACRC Web site: https://safety.army.mil.

c. For Class A, B and C accidents (those reported on DA Form 2397–AB), attach all additional information or forms required or deemed appropriate. For example: summaries of witness interviews, expanded narratives, ECOD/ACOD, PQDR, lab/CCAD reports, other DA Form 2397-series, additional personnel information sections, and additional AAAR forms for involved aircraft other than the case aircraft.
### Aviation Accident/Incident Reporting Requirements

**DA Form 2397**

<table>
<thead>
<tr>
<th>Accident Class</th>
<th>Telephonic AAAR 2397</th>
<th>-1</th>
<th>-2</th>
<th>-3</th>
<th>-4</th>
<th>-5</th>
<th>-6</th>
<th>-7</th>
<th>-8</th>
<th>-9</th>
<th>-10</th>
<th>-11</th>
<th>-12</th>
<th>-13</th>
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<td>Acft Filt/Fit Related A, B</td>
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<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Acft Filt/Fit Related C</td>
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<td>X</td>
<td>*</td>
<td>*</td>
<td>*</td>
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<td>*</td>
</tr>
<tr>
<td>Acft FB/Fit Related/ Gnd D, E, F</td>
<td>X</td>
<td>X</td>
<td>*</td>
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</tr>
<tr>
<td>Combat Acft A, B</td>
<td>#</td>
<td>X</td>
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<td>*</td>
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</tr>
<tr>
<td>Acft Gnd A, B, C</td>
<td>X</td>
<td>X</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
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</tbody>
</table>

**Legend:**

- X As required by circumstances.
- # Mandatory.
- * For combat operations, normal investigation and reporting procedures are deemed not practical by the senior tactical commander.

### Aviation Accident Notification, Reporting Requirements and Suspenses

<table>
<thead>
<tr>
<th>PEACETIME</th>
<th>COMBAT ²</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCIDENT/ INCIDENT CLASS</td>
<td>TELEPHONIC NOTIFICATION WORKSHEET</td>
</tr>
<tr>
<td>A &amp; B</td>
<td>Immediately ¹</td>
</tr>
<tr>
<td>C</td>
<td>Immediately ¹</td>
</tr>
<tr>
<td>D, E, F</td>
<td>N/A (unless SOF issue)</td>
</tr>
</tbody>
</table>

**NOTE:**

1. USACRC must be notified IMMEDIATELY by phone at DSN 555-2660/2539/3410 or COM (334) 255-2660/2539/3410 or notify safety rep forward (during combat).
2. When the senior tactical commander determined that the situation, conditions or time does not permit normal peacetime investigation and reporting.

Figure 3–1. Aviation Accident/Incident Notification, Reporting Requirements, and Suspenses
3–21. Completion instructions for DA Form 2397, Part I, Statement of Reviewing Officials

Figure 3–2. Example of a completed DA Form 2397, Part I, Statement of Reviewing Officials

**TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT**
**PART I - STATEMENT OF REVIEWING OFFICIALS**

1. **INITIAL REVIEW** (Include Name, Rank, Title and Organization; Use additional sheet if required)

   **Comment 1:**
   1. Concur with the findings and recommendations of the accident investigation board.
   2. Actions specified in recommendations pertaining to this level of command were implemented.

   **RICHARD F. FOREMAN, LTC, AV, Commanding, 1-3 Cavalry Regt**

   **Comment 2:** Concur with the findings and recommendations of the accident investigation board.

   **JAMES T. SUPERVISOR, COL, AV, Commanding, 3rd Avn Bde**

   *(See continuation sheet)*

2. **ARMY HEADQUARTERS REVIEW AUTHORITY COMMENTS**

   Concur with the findings and recommendations of the accident investigation board and comments of the initial reviewing officials. The command has no further recommendations.

   **BRIAN D. DIRECTOR, GEN, Commanding, FORSCOM**

   **Signature**

3. **DEPARTMENT OF ARMY REVIEW (USACRC)**

   Findings and recommendations of the accident investigation board are considered correct and appropriate. DA level recommendations have been forwarded to the appropriate agency for action. Facts and circumstances pertaining to this accident were published in the Sep 07 Ver 9 issue of KNOWLEDGE magazine. The report data is approved for inclusion into the USACRC database.

   **HENRY P. PRESERVER, LTC, AV, XO, USACRC**

   **Signature**

4. **CASE NO.**

   a. Date (YYYYMMDD)  
   b. Time  
   c. Act Serial No. 0100150

   **DA FORM 2397, FEB 2009**

   **PREVIOUS EDITION IS OBSOLETE.**

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   **DA PAM 385–40 • 6 March 2009**
a. Also see paragraph 3–3.
b. Complete instructions as follows:
   (1) **Block 1.** The initial reviewing official(s) will indicate the official’s organization as follows:
   (a) State concurrence or nonconcurrence with the findings and recommendations. Any nonconcurrence will be fully explained.
   (b) Report actions taken as well as recommendations for additional action by higher headquarters or other Army commands. Attach, as enclosures to this form, copies of correspondence, forms, and other data requiring additional action.
   (c) Identify those area(s) recommended for improvement by the investigating board that are beyond the resources available to the command.
   (d) Authenticate comments with signature, appropriate signature block, organization, and date at the close of each reviewing official’s remarks.
   (e) Higher command reviewing official(s) will indicate the official’s organization and enter the same information as (a) through (d), (above), as comment number 2 and 3.
   (2) **Block 2.** Army Headquarters reviewing authority. Army Headquarters commanders or their designated representatives will provide written concurrence or nonconcurrence for each finding and recommendation made by the accident investigation board.
   (a) Indicate reasons for nonconcurrence. Also, include any additional recommended actions.
   (b) The reviewing authority will make note of those areas recommended for improvement by the accident investigation board or subordinate reviewing officials on which action can or will be completed. If corrective action is beyond the purview or capability of the Army Headquarters reviewing authority, this will be stated.
   (c) Authenticate comments with signature, appropriate signature block, and organization at the close of remarks.
   (3) **Block 3.** This block is reserved for USACRC use and will be completed by the USACRC to show coordination/follow-up taken in response to recommendations requiring DA-level action.
   (4) **Block 4.** Enter the case number as shown in table 3–6.
### 3–22. Completion Instructions for DA Form 2397–1, Part II, Summary

**3. PERIOD OF DAY**
- Dawn
- Day
- Night
- a. On Post
- b. On Airend

**4. NEAREST MIL INSTALLATION**
- Camp Coxx

**5. LOCATION**
- a. City: Baghdad
- b. State: Iraq
- c. Country: Iraq
- d. Grid or Lat/Long: P31245678

**9. ORGANIZATION OF CMD INVOLVED AND ACCOUNTABLE**

<table>
<thead>
<tr>
<th>ORGANIZATION</th>
<th>CHAIN OF CMD</th>
<th>INVOLVED</th>
<th>ACCOUNTABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) Unit</td>
<td>C Troop</td>
<td>1-3 Cav</td>
<td>Army HQ</td>
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<tr>
<td>(2) UIC</td>
<td>WABC00</td>
<td>WABCA2</td>
<td>WABCG5</td>
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<td></td>
<td></td>
<td></td>
<td>W3YB6A</td>
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<tr>
<td>b.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) Unit</td>
<td>Org Accountable</td>
<td>Chain of Cmnd</td>
<td>Chain of Cmnd</td>
</tr>
<tr>
<td>(2) UIC</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**10. ESTIMATED TOTAL COST**
- $6,250,000.00

**11. SURVIVABILITY**
- a. Survivable
- b. Partially Survivable
- c. Non-Survivable
- d. Act Missing

**12. IN-FLT ESCAPE DIFFICULTIES**
- a. Ejection
- b. Bailout
- c. Post-

**13. FIRE**
- a. None
- b. Not
- c. NA

**14. POSTCRASH ESCAPE**
- a. Yes
- b. No

**15. USEABLE FUEL ABOARD**
- a. At Takeoff: 540 Blks
- b. At Time of Impact: 400 Blks

**16. GENERAL DATA**

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
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<tr>
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**17. FLIGHT PLAN**

<table>
<thead>
<tr>
<th>Type</th>
<th>C</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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</table>

**18. MISSION**

<table>
<thead>
<tr>
<th>T</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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**19. INJURIES**

<table>
<thead>
<tr>
<th>a. Occupants</th>
<th>(Number)</th>
</tr>
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<tbody>
<tr>
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</tr>
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</table>

**20. TERRAIN OF CRASH SITE**

<table>
<thead>
<tr>
<th>No</th>
<th>a. Surface at Crash Site</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**21. FLIGHT DATA**

| Flight Duration | Phase of Operation | Altitude | Attitude | Heading (compass) | Aircraft Weight | Overcross | Yes | No |
|-----------------|--------------------|----------|----------|------------------|-----------------|-----------|
|                 |                    | AGL      | MSL      |                  |                 |           |

**22. ACCIDENT CAUSE FACTORS**

<table>
<thead>
<tr>
<th>a. Personal</th>
<th>D, S, or U</th>
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**23. SEQUENCE**

<table>
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<th>a. Ground Crew</th>
<th>Daily</th>
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<tbody>
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</table>

**24. AVN SAFETY OFFICER**

<table>
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<tr>
<th>a. Name, Rank, and Org</th>
<th>b. Signature</th>
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**25. UNIT NO.**

<table>
<thead>
<tr>
<th>a. Unit Number</th>
<th>b. Time</th>
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<tr>
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</tbody>
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Figure 3–3. Example of a completed DA Form 2397–1, Part II, Summary

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DA FORM 2397-1, FEB 2009
PREVIOUS EDITION IS OBSOLETE.
Figure 3–3. Example of a completed DA Form 2397–1, Part II, Summary –continued

a. Also see paragraph 3–4.
b. Complete instructions as follows:
   (1) Blocks 1a and 1b. Check the appropriate box to indicate the appropriate classification and category for the accident. Accident classifications and categories are defined in AR 385–10 and chapter 1 of this DA Pam.
   Note. Accident classification is based solely on property damage or injury/illness severity. For example, fatal, permanent partial disability. In accordance with AR 385–10, not injury cost.
   (2) Block 2. Refer to table 3–2 for accident event codes. Appendix F contains explanations of events listed. Select the type event(s) that best categorize(s) the accident and enter code(s) in space(s) provided. More than one event may apply and up to three may be recorded. The event that best describes the accident should be listed first.
   (3) Block 3. Check the appropriate box. Dawn is that period of time between beginning morning nautical twilight and official sunrise. Dusk is that period of time between official sunset and end evening nautical twilight.
   (4) Block 4. Check the appropriate box. Tactical landing zones under positive ATC. For example, Corps’ instrumented airfield, Division’s VFR helipad, stagefields, and support bases are considered “on post” and “on airfield” for reporting purposes. Also, aircraft accidents occurring on joint-use civil airports and on civilian airports with USAR component facilities are considered “on post” and “on airfield” when there is intent to use the military facilities on that airport, (for example, visit the unit, acquire fuel, and conduct training).
   (5) Block 5. Enter name of military installation where the accident occurred or the nearest military installation.
   (6) Block 6. Enter the number of aircraft that were involved in the accident. Do not include damaged aircraft that were not being operated at the time of the accident. Ensure that the number entered in this block corresponds with the number of DA Forms 2397–1 submitted with the technical report. Paragraph 3–4 specifies when additional DA Forms 2397–1 are required.
   (7) Block 7. Enter the name of the closest city, state, and country to the accident site. Enter the military grid reference or latitude/longitude.
   (8) Block 8. Enter appropriate information for the aircraft addressed by this form. Organization aircraft assigned and unit identification code (UIC) pertaining to the organization which has the aircraft in its inventory as recorded in the property records or a hand receipt, whichever is applicable. Enter the installation’s name where the aircraft was assigned.
   (9) Block 9.
   (a) Block 9a. Beginning in the left column under “Organization Involved,” enter the six-digit UIC and abbreviated titles of the lowest level aviation unit and chain of command involved in the accident up through the Army Headquarters command.
Note. For Army Reserve or Army National Guard units on active duty status, if the unit of assignment is other than the Reserve or National Guard, enter the unit of assignment chain of command in block 9b. Enter the Army Reserve or Army National Guard unit chain of command in block 9a.

(b) Block 9b. If it is determined that an activity other than the involved unit is deemed the accountable for the accident, enter the six-digit UIC and abbreviated title of that unit and chain of command up through the Army Headquarters command and explain in the analysis paragraph of DA Form 2397–3. If the accident unit is the same as listed in block 9a, leave blank. Further guidance for determining accountability is contained in AR 385–10, paragraph 3–9.

(10) Block 10.

(a) Block 10a. If the aircraft identified in block 25c was damaged beyond economical repair limits, missing or abandoned, check the box indicating “total loss.” Insert the replacement cost of the aircraft obtained from TB 43–0002–3 in the space provided for the aircraft damage cost and leave the spaces for aircraft repair man-hours and cost blank. If the aircraft was repairable, enter in the spaces provided an estimated material cost of damage, number of man-hours, and a dollar amount for total man-hours to repair the aircraft, based on the standard labor rate per hour specified in paragraph 1–10. The ECOD and man-hours required to repair the aircraft should be obtained from the organization’s support maintenance. When more than one aircraft is damaged and the other aircraft is not operational, enter the total dollar cost of damage and man-hours to repair the other aircraft or other military property in the “Other Damage Mil” space. Report dollar value of civilian property damage (For example, damaged buildings, destroyed crops, broken utility poles and lines, livestock) in the space “Other Damage Civ” provided. Report the total dollar value of all injuries for this aircraft, as recorded in block 19, DA Forms 2397–9, Part X, Injury/Occupational/Illness Data. The cost is computed using the standard injury and illness costs contained in table 1–1 of this pamphlet. Injuries or fatalities to non-DOD personnel (For example, private citizens) are not included in accident injury/occupational illness cost. Show ownership of all damage by entering one of the codes listed in table 3–3.

(b) Block 10b. Complete this block only for accidents involving a multiple aircraft event. The information will be entered only on the DA Form 2397–1 applying to the “case aircraft” identified in block 25c. The cost entered in block 10b will show the total cost of all aircraft, property damage, injury, and occupational illness attributable to the accident.

(11) Block 11. Check the appropriate box. Two factors are required for an accident to be survivable. Crash forces imposed upon the inhabitable area of the aircraft must be within the limits of human tolerance (see app C), and all portions of the inhabitable area must remain reasonably intact and occupiable. If these criteria are met for at least one, but not all seat/litter positions, the accident is partially survivable. If no seat positions meet the criteria, the accident is nonsurvivable. Fatal injuries or occupancy of an inhabitable area is not the criteria for determining survivability of an accident.

(12) Block 12. Check the appropriate box to indicate the method or attempted method of in-flight escape. This block does not apply to occupants who fell out of the aircraft or were ejected/thrown out without a parachute. Check “NA” if the crew/aircraft is not equipped with parachutes/ejection seats.

(13) Block 13. For fires beginning before initial impact or breakup of the aircraft, check “in-flight.” For fires beginning after the initial crash impact has begun, check “post-crash.” Check both boxes if in-flight and post-crash fires occurred. If “in-flight,” “post-crash,” or “other” boxes is checked, ensure that a DA Form 2397–12 is completed. For the purpose of this block, movement of the aircraft under its own power is considered in-flight. If other is checked, explain in narrative (DA Form 2397–3).

(14) Block 14. Check the “Yes” block if any occupant had difficulty or required assistance during egress. Leave blank for nonsurvivable accidents with no survivors.

(15) Block 15. Enter in blocks a, b, and c the total amount of fuel on board within the aircraft fuel system, in pounds, for the times indicated. Enter in block d the type fuel with which the aircraft was last serviced.

(16) Block 16. Check appropriate blocks and record supporting data on appropriate forms.

(a) Block 16a. If “Yes,” enter types and quantity in block 9e of DA Form 2397–6.

(b) Block 16b. If “Yes,” identify the type night visual aid used in block 16b(2). If night visual aids were a factor in the accident, discuss in the findings (DA Form 2397–2) and “special investigation” portion of the narrative (DA Form 2397–3).

(c) Block 16c. Check “Yes” if a Digital Source Collector was installed, specify type in 16c(2). Explain in the narrative (DA Form 2397–3) portion of the report.

(d) Block 16d. If “Yes,” explain and enter name of field training exercise in “the preflight phase” of the narrative (DA Form 2397–3).

(e) Block 16e. Check “Yes” only if heads-up display was in use at the time of accident.

(f) Block 16f. If an emergency locator transmitter was installed, check “Yes.” Explain any malfunctions in the narrative (DA Form 2397–3).

(17) Block 17. Check the appropriate box to indicate under what flight rules the aircraft was being operated at the time of the accident. Check “none” if the aircraft was operated without a flight plan or without being recorded on appropriate flight dispatch records.

(18) Block 18.
(a) Block 18a. Use the mission symbols on DA Form 2408–12 or as specified in AR 95–1. For maintenance operational checks enter “S.” If none, enter “NA.” If the mission was classified, enter “Z.” If the mission symbol is undetermined, enter “U.”

(b) Block 18b. Check the appropriate box to indicate if the mission was a single- or multi-aircraft operation.

(19) Block 19. Enter the number of personnel in the appropriate boxes.

(a) Columns B through E (Disabling) - combine the injuries reported in blocks 1b through 1e of DA Forms 2397–9.

(b) Columns F through G (Nondisabling) - combine those injuries reported in block 1f and 1g of DA Forms 2397–9. Ensure the number of personnel reported as injured agrees with the number of injured personnel reported on DA Forms 2397–9 for this aircraft.

(c) Block 19f, “Multiple Acft Event,” is completed only on the DA Form 2397–1 for the “case aircraft” when reporting accidents involving multiple aircraft.

(20) Block 20. This block is used to describe the terrain at and around the crash site.

(a) Block 20a. “General characteristics” pertains to the dominant terrain features surrounding the accident site. More than one may apply.

(b) Block 20b. Refers to surface conditions on which the aircraft made its ground run and/or came to final rest. More than one type surface may apply.

(c) Block 20c. Pertains to the terrain grade on which the aircraft came to final rest. If “slope” is checked, specify degrees. Leave blank if not applicable.

(d) Block 20d. Pertains to obstacles located in the vicinity of the accident site that may have influenced the accident. More than one may apply.

(21) Block 21. Flight Data. For “Flight Duration,” enter hours and tenths of hours, and for “Phase of Operation,” enter appropriate code(s) (maximum of three) from the list at table 3–4. “Over gross” determinations are not in reference to design gross weight, but are in reference to the conditions under which the aircraft was being operated at the time of the accident.

(a) Block 21a. For planned data, enter the flight parameters that were used during preflight planning for that segment of the mission profile in which the emergency or accident occurred. “Variable” (VAR) may be used where heading, altitude, and airspeed are constantly changing due to mission requirements. Aircraft weight is the estimated take-off weight.

(b) Block 21b. For emergency data, enter the actual flight parameters at the time of the emergency.

Note. The use of the term “Emergency” in this pamphlet refers to “any occurrence/situation wherein the personnel involved sense a need to take appropriate measures to reduce the effects of the occurrence/situation or prevent injury/occupational illness, property damage, or further materiel failure.

(c) Block 21c. For accident or termination data, enter flight parameters at the time when the major impact/accident occurred or accident sequence stops if no major impact occurred (could be same as emergency data).

(22) Block 22. Place a “D,” “S,” or “U” in the appropriate space provided if personnel, materiel, or environmental factors definitely contributed, are suspected to have contributed, or the role in the accident could not be determined. Identify personnel by duty codes from the list at table 3–5. It is essential that each entry in block 22 be supported by the present and contributing findings reported in blocks 1 and 2 of the DA Form 2397–2, the analysis portion of the DA Form 2397–3, and the cause relationship block elements checked on DA Forms 2397–7, Part VIII, Maintenance and Materiel Data, 2397–8, Part IX, Personal Data, and 2397–11, Part XII, Weather/Environmental.

(23) Block 23. Enter a concise summary of the accident sequence of events from the first indication of the emergency through termination of the accident sequence. Avoid conclusions of the investigation as to the cause of the accident. Continue on letter-size paper as necessary; however, do not exceed a total of 15 lines of typewritten information.

(24) Block 24. The aviation safety officer (ASO) of the unit involved in the accident will normally review the completed report and sign in this block. The ASO’s signature does not indicate or imply his concurrence or nonconcurrence with the report but only that he has reviewed and is aware of the contents of the report.

(25) Block 25. Enter the case number. The case number is a 19-digit numerical entry consisting of an 8-digit date (Block 25a), 4-digit hour of the day (Block 25b), and the 7-digit tail number of the “case aircraft” (Block 25c). This case number will be placed on each form of the DA Form 2397-series accompanying the report, as indicated in table 3–6.

(26) Block 26. Block 26. If the accident involves a multiple aircraft event, block 26 will be completed only on additional DA Forms 2397–1, addressing the other aircraft. Leave blank if it is a single aircraft accident.
FINDING 1 (Present and Contributing: Human Error - Individual Failure)

While conducting day, nap-of-the-earth aircrew training at 50 feet AGL and 10 KIAS, the pilot in command (PC) and pilot (Pl) of the UH-60 improperly scanned. That is, both crew members failed to properly scan for obstacles when they both became visually fixated on an animal on the ground. This is in contravention of TC 1–237, Task 2026. As a result, the aircraft made contact with a tree approximately 50 feet AGL and damaged the main rotor blades. There were no injuries. The PC’s and PI’s actions were a result of overconfidence in each other’s ability to clear the aircraft and maintain obstacle clearance. The PC and the PI allowed the aircraft to fly too close to known obstacles, resulting in damage to the main rotor blades.

Table 3–1
Elements of a present and contributing finding

<table>
<thead>
<tr>
<th>Required Information</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Explanation of when and where the mistake/error occurred in context of the accident sequence of events.</td>
<td>While conducting day, nap-of-the-earth aircrew training at 50 feet AGL and 10 KIAS...</td>
</tr>
<tr>
<td>2. Aircraft and individual involved by duty position.</td>
<td>the pilot in command (PC) and pilot (Pl) of the UH-60...</td>
</tr>
<tr>
<td>3. Identification of mistake made (ref. aviation-specific mistakes/errors in DA Pam 385–40, table B–1) and an explanation of how task/activity was performed improperly.</td>
<td>improperly scanned. That is, both crew members failed to properly scan for obstacles when they both became visually fixated on an animal on the ground...</td>
</tr>
<tr>
<td>5. Consequences of mistake/error.</td>
<td>As a result, the aircraft made contact with a tree approximately 50 feet AGL and damaged the main rotor blades. There were no injuries.</td>
</tr>
<tr>
<td>6. Identification of reasons (root causes/system inadequacies) for the mistake/error (reference System Inadequacies in table B–5 of DA Pam 385–40).</td>
<td>The PC’s and PI’s actions were a result of overconfidence in each other’s ability to clear the aircraft and maintain obstacle clearance.</td>
</tr>
<tr>
<td>7. Brief explanation of how each reason (root cause/system inadequacy) contributed to the mistake/error.</td>
<td>The PC and PI allowed the aircraft to fly too close to known obstacles resulting in damage to the main rotor blades.</td>
</tr>
</tbody>
</table>
3–23. Completion Instructions for DA Form 2397–2, Part III, Findings and Recommendations

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART III – FINDINGS AND RECOMMENDATIONS

1. FINDINGS AND RECOMMENDATIONS
   (Use additional sheet if required)

   Finding 1 (Present and Contributing: Human Error-Individual Failure):

   While conducting night reconnaissance operations using night vision goggles (NVGs) and the mast-mounted sight (MMS), the PC and PI of the OH–58/DK did not properly coordinate. That is, the crew did not indicate to each other when they were inside or outside the aircraft as prescribed in TC 1–248, paragraph 6–3. The Board concluded that the PC was flying and looking out of the right side of the aircraft and the PI was looking inside the aircraft. Neither pilot confirmed where he was looking. As a result the PC flew the aircraft into wires that were depicted on the wire hazards map and were known to be present by the crew. The aircraft was destroyed, the PI received serious injuries and the PC received fatal injuries.

   The Board concluded that the crew’s actions were a result of overconfidence and excitement. The crew knew the area very well and had almost completed a tour of duty flying combat missions in theater. The accident crewmembers had flown together often and were overconfident in each other’s abilities. The Board also concluded that the crew was concentrating so intently on supporting the ground element that they forgot where they were relative to the wires.

RECOMMENDATION 1:

a. Unit-Level Action: Commander, C Troop, 1–3 Cavalry, 3d Aviation Brigade, 17th Cavalry Division:

   (1) Brief all assigned and attached personnel on the facts and circumstances surrounding this accident.

   (2) Ensure all assigned and attached pilots adhere to all published aircrew training manual procedures.

b. Higher-Level Action: Commander, 3d Aviation Brigade, 17th Cavalry Division: Continue enforcing the published risk-management procedures, policies, and guidance on proper crew coordination.

c. DA-Level Action: None

   (See continuation sheet)

2. CODED SUMMARY OF ACCIDENT FINDINGS, SYSTEM INADEQUACIES, AND RECOMMENDATIONS

   a. Personnel

   b. Equipment

   c. Material

   d. Environmental

   e. Condition Code

   f. Case No.

   DA FORM 2397–2, FEB 2009

Figure 3–4. Example of a completed DA Form 2397–2, Part III, Findings and Recommendations
THE FINDING LISTED BELOW DID NOT CONTRIBUTE TO THIS ACCIDENT; HOWEVER, IF LEFT UNCORRECTED, IT COULD HAVE AN ADVERSE EFFECT ON THE SAFETY OF FUTURE OPERATIONS.

FINDING 2 (Present but Not Contributing):

The Multi-National Corps-Iraq Helicopter Procedures Training Guide (HPG) has a requirement that no Army helicopter will go below 50 feet AGL. Paragraph 3-5 of the HPG states that the minimum operating altitude for all rotary-wing aircraft is 50 feet AGL, unless deviations are required for weather or are directed by the command based on mission requirements. Airspeeds will be consistent with safe operations for altitude, obstacle avoidance, and environmental conditions. The Board determined that the flight hazards are so numerous that the 50 foot AGL limit should be raised to 150 feet AGL except for enemy situations or if directed by the command.

RECOMMENDATION 2:

a. Unit Level Action: None.

b. Higher Level Action: Commander, Multi-National Corps-Iraq, consider changing the HPG from 50 feet AGL minimum altitude to 150 feet AGL minimum altitude.

c. DA Level Action: None.

Figure 3–4. Example of a completed DA Form 2397–2, Part III, Findings and Recommendations--continued

a. Also see paragraph 3–5.

b. Complete instructions as follows:

(1) **Block 1.** Instructions for reporting findings and recommendations. Each finding must be substantiated by the written analysis portion of the narrative (DA Form 2397–3). Findings fall into one of five categories:

(a) Present and contributing.

(b) Suspected present and contributing.

(c) Present and contributing to the severity of the injury/occupational illness or extent of property damage.

(d) Present but not contributing.

(e) Special observations. (This is noted at the end of the narrative only.)

1. **Findings.** As a minimum, the following elements of information will be addressed for each Present Contributing, Suspected Present Contributing, and Present Contributing to the Severity of Injury/Occupational Illness or Extent of Damage finding in the order stated. See table 3–1.

a. An explanation of when and where the error, materiel failure, or environmental factor occurred in the context of the accident sequence of events. For example, “During preflight,” “During takeoff,” “While employing.”

b. Identification of the individual involved by duty position; or the name and part number (PN) or national stock number (NSN) of the part, component, or system that failed; or a description of the environmental factor, as appropriate.

c. For human error, identification of the task or function the individual was performing and an explanation of how it was performed improperly. Refer to appendix B for mistake/error categories. The error could be one of commission or omission. For example, an individual performed the wrong task, incorrectly performed the correct task, or failed to perform a required task or function. In the case of a materiel failure, identify the mode of failure. For example, corroded, burst, twisted, decayed.

d. Identification of the directive, (for example, ATM, SOP, FM) or common practice governing the performance of the task or function. In lieu of a written directive, the error may represent performance that is contrary to common practice.

e. An explanation of the consequences of the error, materiel failure, or environmental effect. An error may directly result in damage to equipment or injury/occupational illness to personnel, or it may indirectly lead to the same end result. A materiel failure may have an immediate effect on equipment or its performance, or it may create circumstances that cause errors resulting in making further damage/injury or occupational illness inevitable.

f. Identification of the reasons (system inadequacy(ies)) the human, materiel, environmental conditions contributed to the accident. Refer to the list and examples of system inadequacy(ies) provided in appendix B.
g. A brief explanation of how each reason contributed to the error, materiel failure, or environmental factor.

h. In addition, for Present and Contributing to the Severity of Injury/Occupational Illness or Extent of Damage findings, the board should also:

i. Present but Not Contributing findings are those that did not cause or contribute to the accident or to the severity of injuries.

1. The board should report errors, materiel failures, or other hazards that did not contribute to the accident, but have a high potential for causing other accidents or adversely affecting the safety of personnel and equipment if not corrected. Reporting these deficiencies will ensure they receive command attention throughout the chain of command to include DA-level action.

2. The findings and recommendations in this category will be separated from those that caused the accident or those that did not cause the accident but contributed to the severity of injuries, and will be preceded by the following statement: “THE FINDING(S) LISTED BELOW DID NOT CONTRIBUTE TO THIS ACCIDENT; HOWEVER, IF LEFT UNCORRECTED, IT/THEY COULD HAVE AN ADVERSE EFFECT ON THE SAFETY OF FUTURE OPERATIONS.”

2. Recommendations. Each finding will be followed by recommendations having the best potential for correcting or eliminating the reasons (system inadequacy(ies)) for the error, materiel failure, or environmental factor that contributed to the accident. Recommendations will not focus on punitive steps addressing an individual’s failure in a particular case. To be effective at preventing accidents in the future, recommendations must be stated in broader terms. Refer to the list of remedial measures in Appendix B. The board should not allow the recommendation to be overly influenced by existing budgetary, material, or personnel restrictions. In developing the recommendations, the board should view each recommendation in terms of its potential effectiveness. For example, design improvement of a part that has a history of recurring failure is a better solution than recommending procedures to accommodate the deficiency. Each recommendation will be directed at the unit, command, or activity having proponency for and which is best capable of implementing the actions contained in the recommendation. The actions required at unit level (company, troop, battalion), higher level (brigade, division, corps, Army Headquarters), and DA (to include Army Headquarters with Army-level proponency) levels of command will be addressed by each recommendation. If one or more of these three command levels had no action requirement, a negative report is required. For example, “DA Level Action: None,” “Unit Level,” “Higher Level,” and “DA Level” of action, as used in this context, respectively refer to the unit deemed most responsible for the accident (the unit’s chain of command, up to and including Army Headquarters, and DA-level activities.) In cases where an Army Headquarters is the highest level proponent for a recommended action having Army-wide application, the Army Headquarters will be listed in the “DA Level” category.

(2) Block 2. Enter a coded summary of the present and contributing findings and recommendations to include duty, role, phase of operation, mistake/errors, aircrew training manual (ATM) tasks, system inadequacy(ies). Blocks 2a, 2b, and 2c pertain to personnel error, block 2d pertains to materiel failure or malfunction, and block 2e pertains to environmental effects or influence. All entries in block 2 will be consistent with and supported by the present and contributing findings reported in block 1 or the continuation sheet.

(a) Block 2a(1), Duty. Enter the code for the individual’s duty position at the time the mistake/error was made. Refer to table 3–5 for codes to be used.

(b) Block 2a(2), Role. Check “D” for definite or “S” for suspected to indicate the contributing role of this individual.

(c) Block 2a(3), Phase of Operation. Enter the code for the phase of operation that was in progress at the time the mistake/error occurred (may be different from emergency or accident phase of operation). Refer to table 3–4 for codes to be used.

(d) Block 2a(4), ATM Task No. Enter the ATM task number being performed at the time the mistake/error was made. Enter “NA” if no ATM task applies.

(e) Block 2a(5), Mistake/Error. In the space provided, enter the code of the mistake/error that best categorizes the error made by this individual. Enter only one code.

Note. An abbreviated list of codes and associated mistake/errors, system inadequacy(ies), corrective measures, materiel failures, and environmental conditions is provided at table 3–7 and/or appendix B, which contains expanded descriptions and examples of the abbreviated codes. Also, prefix corrective codes with “U” for unit, “H” for higher, and “A” for DA to indicate the level of command to which the remedial action is directed.

(f) System inadequacy(ies). In the spaces provided, enter the numerical codes of the system inadequacy(ies) that caused or permitted the mistake/error to become an accident cause factor. If there are more than three system inadequacy(ies) associated with the first mistake/error, skip the second duty and mistake/error entries and continue to list the additional system inadequacy(ies) spaces. (See table 3–7 and append B).

(g) Remedial corrective measures/recommendations. In the spaces provided to the right of each system inadequacy(ies), enter the codes for the corrective measures selected to correct that specific system inadequacy. (See table 3–7 and append B).

(h) Continue entries. Continue the entries in blocks 2a, b, and c until all personnel who made errors contributing to the accident, specified in the present and contributing findings of block 1 above, have been coded. If number of entries
exceeds space available, use blocks 2a, b, and c of an additional DA Form 2397–2 to continue entries. For each duty code entered in blocks 2a, b, and c, ensure that a DA Form 2397–8 is completed for each individual.

(i) Block 2d, Materiel. An entry is required for all materiel failure(s)/malfunction(s) that caused or contributed to the accident as specified in the present and contributing findings of block 1 above. If more than one materiel failure was involved, use block 2d of an additional DA Form 2397–2 to continue entries.

(j) Block 2d(1), Role. Check “D” for definite, or “S” for suspected to indicate the materiel role in the accident.

(k) Block 2d(2), Phase of Operation. Enter the code for the phase of operation that was in progress at the time of failure/malfunction. Refer to table 3–4 for codes to be used.

(l) Block 2d(3), Failed part number (PN). Enter the manufacturer’s PN. The number should coincide with the PN listed in block 3c of DA Form 2397–7.

(m) Block 2d(4), Failure code. Enter the code that best describes the materiel failure category. (See table 3–7 and app B).

(n) System inadequacy(ies). Enter the codes of the system inadequacy(ies) that caused or permitted the materiel failure/malfunction to become an accident cause factor. If system inadequacy(ies) identifying improper maintenance are selected, such as system inadequacies 13 and 14, and the duty code of the individual(s) can be identified, a resultant finding should be written as a human mistake/error and consider the failure/malfunction as a result of human mistake/error instead of a materiel failure. The mistake/error would then be recorded in block 2a, b, and/or c.

(o) Remedial corrective measures/recommendations. Enter codes for corrective measures in the spaces located to the right of each system inadequacy(ies).

(p) Block 2e, Environmental. This block is to summarize causal environmental conditions that had an adverse effect on human or equipment performance as related to the accident. Examples include unpredictable weather phenomena (wind/turbulence) resulting in airframe damage; bird strikes damaging aircraft. For the environment to be considered to have caused or contributed to an accident, it must have been unavoidable or unknown at the time of the accident. If the environment does not meet the criteria, a human mistake/error of failure to compensate for known or suspected conditions must be considered. If more than one environmental factor was involved, use block 2e of an additional DA Form 2397–2 to continue entries.

(q) Block 2e(1), Role. Check “D” for definite, or “S” suspected to indicate the environmental role in the accident.

(r) Block 2e(2), Phase of Operation. Enter the code for the phase of operation that was in progress at the time the environmental factor caused or contributed to the accident.

(s) Block 2e(3), Condition code. Enter the code for the environmental factor. (See table 3–7 and app B).

(t) System inadequacy(ies). Enter the code of the system inadequacy that caused or permitted the environmental factor to become an accident cause.

(u) Remedial corrective measures. Enter corrective measure codes in the spaces located to the right of each system inadequacy(ies).

(3) Block 3. Enter the case number as shown on the DA Form 2397–1 (see table 3–6).
3–24. Completion instructions for DA Form 2397–3, Part IV, Narrative

Figure 3–5. Example of a completed DA Form 2397–3, Part IV, Narrative
2. Human Factors investigation.

a. Personal Background/Management Information.

(1) CW2 Toms graduated from the U.S. Army Initial Entry Rotary Wing (IERW) Course on _______ and was awarded the Military Occupational Specialty (MOS) _______. He completed the OH-58D Aircraft Qualification Course (AQC) on _______ and was assigned to _______ on _______. CW2 Toms received the Army Achievement Medal (AAM) (3), National Defense Service Medal, Global War on Terrorism Expeditionary Medal, Global War on Terrorism Service Medal, and the Army Service Ribbon.

CW2 Toms was designated as a unit PC on _______. CW2 Toms’ DA Form 7122-R, Crew Member Training Record, indicated that he had completed Readiness Level (RL) 1 progression training in the OH-58D(R) on _______ and qualified as a Flight Activity Category (FAC) 1, RL 1 aviator for day/night/NVG operations. CW2 Toms had flown a total of _______ flight hours, of which _______ hours were in the OH-58D(R). He had flown _______ hours while using NVGs and had logged a total of _______ hours of combat time.

A review of CW2 Toms’ Individual Flight Records Folder (IFRF) and Individual Aircrew Training Folder (IATF) revealed no waivers for training, currency, or evaluation requirements. There were no unsatisfactory evaluations, Flight Evaluation Board (FEB) proceedings or flight violations listed in his records.

CW2 Toms’ peers and chain of command regarded him to be a very competent and professional officer. His subordinates also spoke very highly of him and said he was a good leader.

A review of CW2 Toms’ medical records indicated that he had no waivers or medical irregularities. He was not taking any prescribed medications. He was physically qualified to perform his assigned duties as indicated by his flight physical examination completed in March 2004. He had no reported social, family, or financial problems.

CW2 Toms was fatally injured when his OH-58D(R) crashed while performing a multi-ship, day out, NVG return mission. Test results of blood and urine samples completed by the Armed Forces Institute of Pathology were negative for drugs and alcohol.

(2) CPT Smith enlisted into the U.S. Army on _______. He graduated from the U.S. Army IERW Course on _______. He completed the OH-58D AQC on _______ and was assigned to _______. He served as the _______. CPT Smith was promoted to CPT on 16 December 2001. CPT Smith completed _______ Course and the _______ Course in _______. CPT Smith had a total of _______ flight hours, of which were in the OH-58D(R). He had _______ NVG hours and _______ hours of combat time.

A review of CPT Smith’s personnel file and IFRF revealed no errors. His IATF was up to date and revealed very few administrative errors. All DA Form 7122-R write-ups for progressions and evaluations were very positive and reflected highly on CPT Smith’s flying ability and maturity. There were no unsatisfactory evaluations. His APART was waived due to being deployed to Iraq.

A review of CPT Smith’s medical records indicated that he had waivers for diabetes and hypertension. He was taking prescribed medications for both. He was physically qualified to perform his assigned duties as indicated by his FDME, dated _______. His DA Form 4166 Up-slip was current, with expiration date of _______.

During the accident sequence, CPT Smith sustained serious injuries, which included a fractured leg, compressed spine, and multiple lacerations to the head and chest.

(3) Include similar information for all crew members and other personnel involved in the accident.

b. Aircraft Suitability. The OH-58D(R) was designated to perform reconnaissance and security missions in support of coalition forces. The accident aircraft, serial number 00-10013, was properly equipped for the mission. The board completed the performance planning card and the aircraft’s maximum gross weight for the altitude, weather, and aircraft performance conditions present at the time of the accident was 5,200 pounds. Post-accident weight and balance calculations indicated that the accident aircraft was within allowable gross weight and power requirements for the assigned mission.

c. Communications/Air Traffic Services. Air traffic services functioned as designed prior to the accident.

d. Meteorological Information. Weather observation was recorded by the U.S. Air Force, at Camp Coin, Iraq. The reported weather at the time of the accident was _______. The temperature was _______, dew point was _______, and the altimeter setting was _______ Hg. The pressure altitude was _______ and illumination was _______.

e. Navigational Aids. Investigation determined not a factor.

f. Ground Support. Investigation determined not a factor.

g. Crash Survival. This accident was partially survivable. After hitting a single ridge wire on a set of high-tension power lines, the aircraft fell and _______.

Figure 3–5. Example of a completed DA Form 2397–3, Part IV, Narrative—continued.
DA Form 2397-3 (Cont'd) — 2008201019400010031

(9) Rotor System. One main rotor blade separated at the main rotor hub yoke. The yoke was broken off and ———

   e. Power Plant. The aircraft was equipped with a ———engine. The engine was torn from the airframe during the accident. The engine separated ———.

   f. Transmissions/Gearboxes, and Drive Train. The transmission remained securely attached by its four mounts. All transmission fluid was contained within the transmission housing.

   The tail rotor gearbox was not damaged. The gearbox rotated freely by hand.

   g. Laboratory Analysis. Fluid samples were taken and sent to the local laboratory for analysis. Results still pending.

   h. Crash Site Information. The accident occurred at grid coordinates ———. The terrain along the road and near the crash site was ———. The stanchions are located approximately ——— meters apart.

   i. Fire. There was no post-accident fire.

4. Analysis. After analyzing the human, materiel, and environmental data collected during the investigation, the board concluded that human error caused the accident. Rational for this conclusion is as follows:

   a. Accident Sequence.

   b. Environmental Factors. The board evaluated meteorological and non-meteorological environmental factors and determined that they did not contribute to the accident.

      (1) Meteorological. The reported weather was ——— skies with visibility ——— statute miles, and winds ——— at ——— knots. The temperature was ———, dew point was ———, and pressure altitude was ——— feet. There were no weather advisories or warnings in effect.

      (2) Non-meteorological. The wires were erected three years prior to the accident. While the darkness made the wires less visible, the board determined that the crew had marked the wires on their maps and knew the wires were there. The support stanchions were clearly visible under NVGs.

   c. Materiel Factors. After conducting interviews, aircraft inspections, and reviewing all available documentation, the board determined that materiel factors did not contribute to this accident.

      (1) The accident aircraft was a OH-58D(R), S/N 00-10031, with ——— flight hours. After reviewing the logbook and historical records, inspecting the aircraft wreckage and components, and interviewing numerous personnel, the board determined that the aircraft was operating within normal parameters prior to and during the flight. The aircrew pre-flighted the aircraft and found no discrepancies.

      (2) Forms and Records. A review of the maintenance/historical records and logbook indicated that the OH-58D was airworthy and in compliance with all required safety bulletins and airworthiness directives. The maintenance records did not reveal any materiel defects or discrepancies that were identified as a contributing factor to the accident.

      (3) Aircraft Systems. A post-accident evaluation of the aircraft systems, including fuel, hydraulic, electrical, flight controls, power plant, rotor system, transmission, gearboxes, and drive train, was performed after the aircraft was recovered back to a hangar on Camp Colm. During the post-accident evaluation, the board concluded that all aircraft systems were operating normally prior to the accident sequence.

      (4) Aviation Life Support Equipment (ALSE). All ALSE gear was properly serviced and current on all required inspections. Both crew members were wearing the NOMEX(R) flight suits, gloves, HGU-55/P helmets, and survival armor recovery vest, insert, and packets flight vests. The PI was carrying the PRC-90 survival radio.

      (5) Night Vision Goggles. The board recovered both sets of AN-AVS-8 (V3) NVGs. The PC's NVGs were badly damaged and the PI's NVGs were fully functioning. The board carefully examined the PI's NVGs and determined that they functioned normally. The board sent the PC's NVGs to the Night Vision Laboratory for evaluation. Results are pending.

   d. Human Factors. After a methodical and detailed review of the mission, mission planning, environmental conditions, the maintenance history, wreckage analysis, numerous witness interviews, and the personal and professional background of both crew members, the board concluded that human factors contributed to this accident.

      (1) Support. The board reviewed issues relating to support and concluded that they did not contribute to this accident. The crew was adequately resourced to conduct his flight without incident and the company and battalion were resourced with adequate equipment needed to support the mission. The battalion's maintenance operational readiness rate was good and the accident aircraft was properly maintained.

Figure 3–5. Example of a completed DA Form 2397–3, Part IV, Narrative —continued
h. Emergency Egress, Survival, and Rescue. This accident was partially survivable. The PI was able to extricate himself before rescuers arrived.

i. Special Investigation. None conducted.

j. Witness Investigation. The board interviewed numerous personnel during the course of the investigation. Summaries of these interviews are located at Tab E


a. Aircraft Airworthiness.

(1) Historical/Maintenance Records. The aircraft accident was an OH-58D(R), serial number 00-10013, assigned to __________. A review of the aircraft historical record and logbook indicated that the aircraft had accumulated _____ flight hours prior to the accident and was airworthy. During the review of the records, the board found that all Safety of Flight (SOF) messages had been applied with. The maintenance records revealed no material defects/differences that would be considered causal to the accident.

(2) Weight and Balance Records. A review of the weight and balance records, DA Form 365-1, and DA Form 365, Chart C, revealed that the aircraft was within center of gravity and did not exceed maximum gross weight. The aircraft’s gross weight at the time of take-off was approximately _______ pounds. The aircraft’s weight at the time of the accident was approximately _______ pounds.

(3) Adequacy of Preflight. The preflight inspection was completed with no discrepancies noted. There were no reported in-flight problems or unusual noises.

b. Flight Data Recorder. The aircraft was equipped with a data transfer module (DTM).

c. Airframe. There was extensive structural damage to the lower supporting structure of the fuselage (belly). The bottom of the fuselage was ripped, torn, shredded, and detached; exposing numerous electronic components and the fuel bladder. (Add as much information as necessary to describe the damage to the structure.)

The pilot’s and copilot/gunner’s (CPG) forward glass windshields were shattered along with both lower chin bubbles. The pilot’s and CPG’s cockpit canopy were laid bare. The pilot’s and CPG’s indicators and instrument panels remained intact with various degrees of damage. The seat restraints appeared to have operated normally; the crush boxes exhibited indications of deformation (crushing) and the attenuation wires display signs of activation. The shoulder harness inertia reels appeared to have operated normally.

The main landing gear was ripped away from the lower fuselage and found upwind of where the main fuselage came to rest. All four mounting points were fractured and its retaining bolts were sheared. The tail landing gear remained attached to the vertical fin, which separated from the aircraft during the initial impact.

d. Systems.

(1) Flight Controls. All visible aircraft flight controls had nuts and cotter pins securing them. All accessible broken tubes, bell cranks, and supports were examined at the breaks; all had failed from over stress mechanisms. (Add as much information as necessary.)

(2) Armament Systems. The aircraft had seven-shot rocket pods mounted on both the left and right armament pylons.

(3) Night Vision Systems. No night vision systems anomalies were reported during the mission prior to takeoff. Both pilots were wearing NVGs that had been checked at the Aviation Life Support Equipment (ALSE) Shop. Both sets of NVGs had been working properly.

(4) Fuel Systems. The crashworthily fuel cells _______. The total fuel remaining at the time of the accident was approximately _______ pounds of JP-8 fuel.

(5) Warning System. No warning system anomalies were reported to the ground crew prior to flight. No warning systems were reported to the other aircraft (Chalk 2) during the flight.

(6) Hydraulic System. The hydraulic reservoir was _______. The mount for the three flight control servos was _______. All control hardware on the servos was secured with the proper safeties.

(7) Electrical System. The crew reported no anomalies with the electrical system prior to the accident.

(8) Stability and Augmentation System (SAS). The crew reported no anomalies with the aircraft SAS prior to the accident.
a. Also see paragraph 3–5.
b. Complete instructions as follows:

(1) Block I. Narrative account of investigation. The board will report, in narrative form, the facts, conditions, and circumstances as established during the investigation and present this information in four sections (History of Flight, Human Factors, Materiel Factors, and Analysis). The first three sections will contain factual data. The analysis section is reserved for the board’s documentation of its conclusions/opinions concerning the accident cause relationships. Chapter 2, paragraph 2-8, explains procedures for development of formal written analysis. Additional subheadings may be added as deemed necessary. It is important that the narrative address all of the chronological events and evidence that had a bearing on the cause of the accident and/or have the potential for adversely affecting safety of future operations. For accidents in which the investigation board determines that human error, materiel failure/malfunction or environmental conditions were a factor, that portion of the narrative will be completed in its entirety, as specified in the instructions below. The history of flight, personnel background/management, meteorological, airworthiness, laboratory analysis, and analysis portions will be completed for all accidents. For the remaining subheadings which the investigation board determines were not a factor, enter after the subheading “Investigation revealed not a factor.” and proceed to the next subheading. Opinions concerning the accident cause relationship of evidence cited throughout the narrative will be discussed only in the analysis section. Use letter-size paper for continuation sheets as required.

(a) History of flight.

1. Preflight phase. Report type of mission involved, its purpose, how the unit became tasked with the mission and who or what activity authorized it. Identify the crew members selected for the mission by duty assigned and crew member station, and indicate when and how they were informed of the mission. Describe the actions of the crew members in preparing for the mission to include preflight planning, weight and balance determinations, briefings, filing flight plan, inspecting aircraft. Describe facts which may indicate whether or not a sense of urgency was associated with the mission and if there were any delays prior to flight departure.

2. Flight phase. Indicate when the aircraft departed on the mission. If the mission involved more than one routine
flight segment and there were interim ground stops before the accident occurred, concisely summarize these events until addressing the flight segment involving the accident. If the flight segment involving the accident contained an in-flight emergency, give a detailed description of the onset of the emergency to include where and when it occurred, symptoms, warnings, and instrument readings. Also, describe actions/reactions of aircraft and crew members between the time of the emergency and when the aircraft came to final rest at the conclusion of flight.

3. Post-flight phase. Briefly describe condition of aircraft, to include whether or not engine(s) was still operating, and condition of occupants immediately after the accident. Reserve details of injuries, impact conditions, kinematics, and crash forces for the crashworthiness part of the narrative. Reserve details of damage to various aircraft components for the materiel factors part of the narrative. If a post-crash fire occurred, so indicate and explain how and when it was extinguished, if applicable. Briefly summarize egress of occupants from aircraft, survival, and rescue; reserve details for the part of the narrative devoted to egress, survival, and rescue.

(b) Human factors investigation. For accidents resulting from causes other than human factors, the human factors part of the narrative may be sharply reduced by making a statement like “none” for the subheadings except for subheadings addressing personnel background/management, and meteorological conditions.

1. Personnel background/management.

a. Personnel background is extremely important in terms of providing a complete and informative profile of the principal persons involved. It should be a joint effort of reporting on the part of the IP/SP and flight surgeon members of the board. The sources of information will include, but are not limited to, personnel, flight and training records, friends, peers, subordinates, superiors, and the persons themselves. Background information should primarily address the experience and qualifications of the individual upon arrival at the unit to which assigned at the time of the accident. For each crew member that had a contributing role in the accident, briefly summarize service background to include date of service entry, initial flight training, type of assignments, and aviation qualifications acquired prior to joining current unit. Report crew members’ background to include evidence of flight safety violations, flight evaluation boards, and history of prior aviation accident involvement. If the latter applies, explain role in the prior accident. Describe experience in mission aircraft relative to how initially qualified, total flight time to date, and amount of flight time in the past three months. The same scope of information is usually not necessary for nonrated crew members and/or passengers. If it is suspected or known that a nonrated crew member or passenger was at the controls, or was functioning as an aerial observer, or in another possible cause-related role, summarize background and qualifications. This part of the narrative should also address the background and qualifications of personnel not aboard the aircraft if they played a part in causing the accident. It can involve commanders, operations personnel, ATC, and weather personnel, maintenance personnel, and others if applicable.

b. Personnel management should primarily address how the individual was managed by the unit to which assigned at the time of the accident. Review how the unit has managed each individual involved. Begin with the date of assignment to current unit and report how the individual was tasked, trained, and otherwise managed up to the date of accident. Describe aviation qualifications and readiness to perform the mission. Indicate whether or not each aviator was qualified and current in the mission, type, design, and series (MTDS) aircraft assigned to the mission. Explain irregularities in the individual’s training folder.

c. Discuss additional duties and the percentage of time given them versus their primary duty. Report qualifications acquired since assignment to unit such as checkouts in additional aircraft, appointments as IP, SP, IE, PC, UT. Review the procedures involved in selecting the crew for the mission. Describe timelines of notification, compatibility of crew with mission, and the relative flight experience of the pilots if more than one was assigned to the mission. Describe aviator crew members in terms of their professional reputations in unit, opinions of peers, subordinates, and others who have flown with them. Describe crew members’ sleep and dietary habits and use of alcohol and nicotine. Review unit crew rest policy. Report whether or not a crew rest policy was in effect, being monitored and complied with. If post-accident flight evaluations were administered, summarize results. Highlight weaknesses inproficiency if appropriate, especially the performance of tasks duplicating those involved in the accident.

d. Report whether or not aviator crew members were physically qualified to perform mission. Discuss currency of flight physical. Explain waivers and other irregularities in medical history that may be relevant. Review results of the post-accident blood and urine specimen analyses and describe irregularities. If none, so state. If an aviator crew member was receiving medication before the accident, report type, source, dosage, side effects, and possible effect on performance. Summarize the findings of the post-accident medical examination. If an aviator crew member sustained injuries, give a brief description of the injuries and how they occurred. If an aviator crew member sustained fatal injuries, briefly summarize autopsy report to include cause of death.

2. Aircraft suitability. Describe suitability of the accident aircraft to perform the mission. Consider flight and navigation instrumentation in light of prevailing weather conditions, fuel consumption in relation to range, power available in relation to planned gross weight and density altitude, aircraft design limitations as found in applicable operators manual, configurations.

3. Communications/Air Traffic Services. Describe evidence relating to communications equipment (adequacy of visual and electronic signals) and the communication that occurred or failed to occur among the crew, between crew and passengers, and between crew and outside services; (for example, ATC, operations, FSS, command and control,
and pathfinders). Consider language difficulties, clarity of spoken words, adequacy and precision of instruction. Summarize tape recordings of communications between crew members and ground stations, if applicable.

4. Meteorological information. Describe weather conditions that prevailed throughout the mission and conditions that existed at the accident site at the time of the accident. Include sky condition, visibility, winds, icing, turbulence, and any significant weather conditions. Consider weather observations made by trained weather observers and/or witnesses in the area.

5. Navigation aids. Describe adequacy of navigation aids (VOR, NDB, ILS.) Consider FAA or other agency publications, notices to Airmen, pilot reports.

6. Ground Support Services. Describe evidence that relates to the role of ground support services in the accident. Consider POL personnel, ground guides, fire guards.

7. Crash survival. Report results of crash survival investigation. Discuss crashworthiness of the aircraft in terms of crash sequence, impact conditions, kinematics, and crash impact forces. Include the performance of the restraint systems and the adequacy of the aircraft structure to maintain occupiable space and attenuate crash forces. Explain occupant injury relationship to crashworthiness. Explain if injuries occurred during or after the crash sequence. Also include the performance of PPE, (for example, helmet, visor, clothing, survival vest components).

8. Emergency egress (including ejection or bailout), survival and rescue. Discuss details of egress, survival, and rescue investigations. Describe where individuals were located in aircraft, how and where they exited aircraft, difficulties encountered, and position of aircraft at time of egress. Describe factors that may have enhanced or inhibited the success of the survival/rescue situation. Report when and how rescue personnel were notified and how long it took rescue personnel to respond to the initial notification, arrive at accident site, and evacuate the survivors. Explain problems associated with delays in rescue.

9. Special investigation. Report results of any special investigations that were conducted because of the accident. If, for example, during the investigation, it is found that helmet mounted display or night vision systems were a factor in the accident, the applicable agency/program manager should be notified and a determination made as to their involvement.

10. Witness investigation. Briefly indicate number of witnesses interviewed and identify duty position. Summarize pertinent witness provided information. Resolution of inconsistencies in the information should be discussed in the analysis portion of the report. Opinions regarding witness credibility should also be reserved for the analysis section.

   (c) Materiel factors investigation. Report results of materiel factors investigation in the appropriate subparagraphs. Those accidents that do not involve materiel failure/malfunctions may be abbreviated to include negative reports, if applicable, for all subheadings except aircraft airworthiness and laboratory analysis. Identify and discuss damage resulting from pre-crash materiel failures/malfunctions and omit damage that resulted from crash forces exceeding design limits. References can be made to the wreckage distribution diagram, photographs, reports, records. Include the following areas:

   1. Aircraft airworthiness. Describe the airworthiness of the aircraft. Investigation should include, but not limited to, maintenance records, historical records, interviews with maintenance personnel, weight and balance records, conduct of preflight. Identify all deficiencies/discrepancies that had a role in the accident. Discuss those technical publications not complied with or inadequate in any manner.

   2. Digital source collectors. Report information obtained from digital source collectors, if applicable. The board’s analysis of this data, however, should be included in the analysis portion of the report.

   3. Airframe. Use subparagraphs to report evidence obtained in the examination of the airframe structure and landing gear components.

   4. Systems. Use subparagraphs to report evidence obtained in the examination of fuel, rotor, warning, flight control, hydraulic, electrical, stability augmentation/autopilot, and other aircraft systems. Note all discrepancies and their effects on the operation of the aircraft.

   5. Power plant. Report the evidence obtained during examination of the engine(s). Include indications of power at impact. List all discrepancies noted and their effect on engine operation.

   6. Transmissions/gearboxes and drive train. Report condition and describe any faults noted and cause, if known.

   7. Laboratory analysis. Report the results of aircraft fluids, components, and parts submitted for laboratory analysis.

   8. Crash site information. Describe adequacy of the crash site/airfield (heliport, helipad, PZ, LZ,), to include dimensions, lighting and markings, obstructions, type and condition of surface, slopes.

   9. Fire. Discuss the role of fire to include when it occurred, manner in which the fire was detected, ignition source, combustible material, location, propagation, and degree of success in extinguishing.

   (d) Analysis.

   1. The analysis paragraph should summarize the first three paragraphs of the narrative, plus the opinions and conclusions of the board, and must conclusively show the cause and effect relationship of the evidence gathered during the accident investigation. The analysis should also discuss those potential factors considered but not supported or determined not to be factors by the investigation board. The analysis discusses the influence of command activity or lack thereof in the occurrence or potential prevention of accidents. Subparagraph headings in the analysis may coincide with pertinent subparagraphs in the first three sections of the narrative, with the exception of command influence,
which is reserved for the analysis paragraph only. As a minimum, the analysis part of the narrative will provide the following information:

a. Identify the human errors, materiel failures, or environmental factors involved in the accident in the context of the accident sequence of events. The explanations, examples, and keywords are contained in appendix B.

b. Discuss the results/effects of the errors/materiel failures/environmental factors.

c. Identify the system inadequacy(ies) that caused or permitted the errors/materiel failures/environmental factors or injuries to occur. The definitions, examples, and keywords are contained in appendix B.

d. Report preventable injuries in the context of crash survivability/egress/rescue, and explain how they occurred.

e. Discuss the command influence in the accident sequence of events, or the prevention of potential accidents.

2. To fulfill these information requirements, the board should review all the evidence relating to the accident disclosed during the human, environment and materiel factors investigations. This may require readdressing specific paragraphs contained in the narrative and indicating the relationships between the facts disclosed and the errors/failures/environmental factors that occurred. From this review, the board should consider a logical development of the various circumstances and events that may have existed. This process of deductive reasoning should lead to the formulation of an explanation(s) concerning what caused the accident and preventable injuries, if they occurred, and why they happened. The explanation(s) should be discussed and tested against the evidence gathered during the investigation. If it is necessary to develop hypotheses, it is important for the board to state why a particular hypothesis was or was not supported by the evidence.

3. To initially outline and structure the correlation of cause-related errors/materiel failures/environmental factors and associated system inadequacy(ies), the board will find it useful to review the definitions and examples of mistakes/ errors, system inadequacy(ies), and corrective measures at appendix B, before composing the narrative part of the analysis. When the outline has been completed, the narrative rationale and conclusions should be composed using the following examples as a guide:

a. Begin the paragraph by specifying the scope and conclusions of the investigation. In all cases, begin the paragraph with these words: “After analyzing the human, materiel, and environmental data collected during the investigation, the board concluded the accident was caused by...” Complete the sentence by specifying the factor(s) (human, materiel, or environment) which caused the accident; for example, “...human error-leader failure.”

b. Describe when or where the error/failure/injury/environmental factor occurred in the context of the accident chronology of events; for example, “before the mission,” “during takeoff,” “during an NOE deceleration,” “while installing a hydraulic line,” “during the in-flight ejection,” and “during the crash sequence.”

c. Identify the duty position of the person who erred, became injured, or the name and PN or the NSN of the part, component or system that failed. For example, “the pilot,” “the mechanic,” “the fuel control, NSN 2915-00-157-2313,” “the input bevel gear, PN 2040405009.”

d. Identify the error in the context of a listed mistake/error category; “incorrectly diagnosed the emergency at hand,” “failed to assign responsibilities,” “failed to detect”. If a materiel failure is being reported, explain the type of failure. For example, “overheated,” “vibrated,” “frayed,” and “decayed.” If an injury/occupational illness is being reported, explain if the individual “struck” or “was struck by” the injury causing agent. See Appendix B for explanations.

e. Cite the directive or standard the mistake/error category failed to comply with. For example, “contrary to standard and description for Task 1411, TC 1–251”. In the absence of written guidance/standards for a mistake/error, evaluate the task in terms of how other equally qualified and prudent personnel would perform the same task under similar circumstances. If the error represents performance that is unacceptable, it is contrary to common practice.

f. Describe the specifics of the error. For example, “He failed to initially increase collective to maintain the altitude of the tail rotor,” “He excessively torque the nut, PN 12345.”

g. Describe the consequences of the error, materiel failure, environmental factor, or the resulting injury/occupational illness. For example, “As a result, when he applied aft cyclic to slow to a full stop, the tail rotor struck the ground, damaging the tail rotor blades and causing a loss of anti-torque control,” “As a result, the aircraft landed hard,” “As a result, the pilot sustained a compression fracture of the T12-L1 vertebrae.”

h. A complete error statement could read as follows: “During an NOE deceleration, the pilot improperly responded to the emergency as described in standard 2, Task No. 1411, TC 1–251. That is, he failed to initially increase collective to maintain sufficient altitude for tail rotor clearance of the terrain. As a result, when he applied aft cyclic to slow to a full stop, the tail rotor struck the ground damaging the tail rotor blades and causing a loss of effective anti-torque control.”

i. A complete materiel failure statement could read as follows: “During cruise flight, a section of the input bevel gear, PN 204045009, eroded through. As a result, the continuity of the tail rotor drive system was interrupted, causing a loss of effective anti-torque control.”

4. To initially outline and structure the correlation of cause-related errors/materiel failures/environmental factors and associated system inadequacy(ies), the board will find it useful to review the definitions and examples of mistakes/ errors, system inadequacy(ies), and corrective measures at appendix B, before composing the narrative part of the analysis. When the outline has been completed, the narrative rationale and conclusions should be composed using the following examples as a guide:
a. Begin the paragraph by specifying the scope and conclusions of the investigation. In all cases, begin the paragraph with these words: “After analyzing the human, materiel, and environmental data collected during the investigation, the board concluded the accident was caused by...” Complete the sentence by specifying the factor(s) (human, materiel, or environment) which caused the accident; for example, “...human error-leader failure.”

b. Describe when or where the error/failure/injury/environmental factor occurred in the context of the accident chronology of events; for example, “before the mission,” “during takeoff,” “during an NOE deceleration,” “while installing a hydraulic line,” “during the in-flight ejection,” and “during the crash sequence.”

c. Identify the duty position of the person who erred, became injured, or the name and PN or the NSN of the part, component or system that failed. For example, “the pilot,” “the mechanic,” “the fuel control, NSN 2915-00-157-2313,” “the input bevel gear, PN 2040405009.”

d. Identify the error in the context of a listed mistake/error category; “incorrectly diagnosed the emergency at hand,” “failed to assign responsibilities,” “failed to detect.” If a materiel failure is being reported, explain the type of failure. For example, “overheated,” “vibrated,” “frayed,” and “decayed.” If an injury/occupational illness is being reported, explain if the individual “struck” or “was struck by” the injury causing agent. See appendix B for explanations.

e. Cite the directive or standard the mistake/error category failed to comply with. For example, “contrary to standard and description for Task 1411, TC 1–251.” In the absence of written guidance/standards for a mistake/error, evaluate the task in terms of how other equally qualified and prudent personnel would perform the same task under similar circumstances. If the error represents performance that is unacceptable, it is contrary to common practice.

f. Describe the specifics of the error. For example, “He failed to initially increase collective to maintain the altitude of the tail rotor,” “He excessively torque the nut, PN 12345.”

g. Describe the consequences of the error, materiel failure, environmental factor, or the resulting injury/occupational illness. For example, “As a result, when he applied aft cyclic to slow to a full stop, the tail rotor struck the ground, damaging the tail rotor blades and causing a loss of anti-torque control,” “As a result, the aircraft landed hard,” “As a result, the pilot sustained a compression fracture of the T12-L1 vertebrae.”

h. A complete error statement could read as follows: “During an NOE deceleration, the pilot improperly responded to the emergency as described in standard 2, Task No. 1411, TC 1–251. That is, he failed to initially increase collective to maintain sufficient altitude for tail rotor clearance of the terrain. As a result, when he applied aft cyclic to slow to a full stop, the tail rotor struck the ground damaging the tail rotor blades and causing a loss of effective anti-torque control.”

i. A complete materiel failure statement could read as follows: “During cruise flight, a section of the input bevel gear, PN 2040405009, eroded through. As a result, the continuity of the tail rotor drive system was interrupted, causing a loss of effective anti-torque control.”

5. Each statement of error, materiel failure, environmental factor or injury/occupational illness will be followed by statements identifying the system inadequacy(ies) that caused or permitted the error/failure/injury or occupational illness to occur or an environmental factor to become a cause. The system inadequacy(ies) statements are the most important part of the analysis. The system inadequacy(ies) causing or permitting an error, failure, or injury/occupational illness to occur or an environmental factor to become a cause are more important from a remedial standpoint than the error, failure, injury/occupational illness, or environmental factor itself. Each system inadequacy(ies) statement will contain the following information:

   a. A transition phrase to tie the system inadequacy(ies) to the error/failure/injury or occupational illness. For example, “The pilot improperly responded to the emergency because...” “The bevel gear eroded to a point of failure because...,” “The pilot sustained the back injury because...”

   b. Identification of the system inadequacy(ies) category(ies). For example, “...because of inadequate motivation/mood (attitude),” “...inadequate supervision by the unit operations officer,” “...because of inadequate quality control on the part of the manufacturer,” “...because of inadequate seat design.”

   c. An explanation of how or why each system inadequacy(ies) caused or permitted the error/failure/injury/environmental factor. For example, “During the pilot’s last standardization flight evaluation, the IP told the pilot he did not perform the NOE deceleration properly and needed additional dual instruction. Regardless, the pilot chose to practice the maneuver by himself before he was given additional training. The IP contributed to the error because he graded substandard performance of the maneuver satisfactory during the standardization flight evaluation and he did not follow up the additional training. The unit operations officer contributed to the error because, after the IP recommended the additional training, he scheduled the pilot for a tactical training mission before ensuring the pilot had received the additional training.” “The manufacturer’s quality control procedures failed to detect a machining defect on the surface of the gear that became the source of progressive fatigue mechanisms.”

6. Once the preceding elements of information are reported for each error, failure, injury/occupational illness, or environmental factor in the manner stated, the resulting conclusions (findings) can stand on their own. The example of human error used in these instructions ties three system inadequacy(ies) to the error. There would be more or less system inadequacy(ies) depending upon the circumstances. The point to be made is that system inadequacy(ies) causing or permitting an error, materiel failure, or environmental cause must be made visible before effective corrective actions can be recommended.
7. The analysis part of the narrative does not have to be limited to explaining and concluding what caused or contributed to the accident or injuries. The analysis may also address present but noncontributing hazards if they could adversely affect the safety of aviation operations. There are provisions for reporting non-cause-related hazards. They are contained in the instructions for completing the DA Form 2397–2.

(2) **Block 2.** Enter the case number shown on the DA Form 2397–1 (see table 3–6).
11. Promise of confidentiality.

a. Was a promise of confidentiality offered to the witness? ☑ Yes ☐ No (If yes, read blk 14a to the witness and complete blk 15. If no, read blk 14b to the witness.)

b. Confidentiality was requested by the witness. ☑ Yes ☐ No (If Yes, interviewer sign and date statement below.)

THE WITNESS MADE THIS STATEMENT UNDER A PROMISE OF CONFIDENTIALITY.

SIGNATURE OF MAJ LEADER

SIGNATURE OF INTERVIEWER

DATE (YYYYMMDD)

12. SUMMARY OF INTERVIEW

CPT Smith was the pilot (PI) in the aircraft accident in a flight of two OH-58D(R) aircraft. He was flying with CW2 Toms. CPT Smith was also a battle captain for 1-3 Cav. When CPT Smith first arrived in theater, he was a company commander for approximately nine months, during which time CW2 Toms worked for him.

CPT Smith had several hundred hours in the area of responsibility and was very familiar with all the mission sets and the local area. The mission scheduled for that evening was to support the 1-4th Infantry and the 11th Mountain Division by performing overhead security and performing security for air lifter support around Baghdad International Airport (BIAP). The mission focus was on the upcoming elections and providing security for district election offices, which were typically school buildings.

Once the flight of two aircraft departed Coin Army Airfield for the mission, they were informed via radio that an Iraqi soldier might need assistance. They were told shortly thereafter that no action was needed. Soon afterward, the flight received another fragmentary order (FRAGO) informing them that a unit had been ambushed earlier in the day and needed overhead security while they recovered a destroyed vehicle. The flight then departed for the new mission.

The flight made radio contact with the unit that had been hit by the ambush. The flight then established visual contact with the unit, and the lead aircraft (accident aircraft) established radio contact with the supported unit and began coordination of the unit's departure route. At that time, the flight received another FRAGO with a mission time of 2100. CPT Smith relayed that they needed additional time to accomplish the next mission because they had to refuel.

CPT Smith and CW2 Toms discussed the fuel remaining, time on station, and route of flight to the closest refuel point. With only 15 minutes of on station time CPT Smith began to coordinate by radio with flight lead for a departure time. Flight lead informed CPT Smith that the supported unit needed approximately 10 minutes to clear the area.

CPT Smith advised flight lead that 15 minutes would be the maximum time his aircraft would have on station and that any longer would prevent them from reaching the refuel point safely. Flight lead acknowledged CPT Smith's fuel situation and that he would check again with the supported unit for an update.

The flight departed the area at approximately 2055 and had been flying a route in an area that was familiar to both of the crews for approximately 5 minutes.

(See continuation sheet)
a. Promise of confidentiality offered.

(1) This accident investigation board has been convened under the provisions of Army Regulation 385-10 for the purpose of conducting a safety investigation.

(2) This may be just one of a number of investigations being conducted regarding this accident; collateral or legal investigations may be ongoing as well. Those investigations are entirely separate from a safety investigation and are also required to inform you of their purpose and of your legal rights.

(3) This safety investigation is being conducted for accident prevention purposes only. Within the military, pursuant to AR 385-10, it cannot be used for any other purpose, to include any future disciplinary actions against any individuals.

Therefore, the interview you are being asked to provide will be used by the Army in the interest of safety and accident prevention only.

(4) Non-Confidential witness interviews may be released to the public pursuant to a Freedom of Information Act request. If you wish to protect your interview from public release outside the military, then your interview must be pursuant to a promise of confidentiality. Confidentiality means that your interview will not be released to the public outside DOD's safety channels.

(5) Whether your interview is confidential or not, the chain of command will review the final accident report, which may include a summary of your interview, but the chain of command may only use the investigation report and the interviews for safety and accident prevention purposes.

(6) If you ever have knowledge that your witness interview was used by the Army for anything other than accident prevention purposes (for example, disciplinary action against an individual), you should consult with your local Judge Advocate Defense Counsel Office and request that the Command Judge Advocate, U.S. Army Combat Readiness Center, be notified at DSN 509-2924 or commercial (324) 255-2924.

(7) The promise of confidentiality is available to you if you desire it. Do you desire it?

b. No promise of confidentiality offered.

(1) This accident investigation board has been convened under the provisions of AR 385-10 for the purpose of conducting a safety investigation.

(2) This may be just one of a number of investigations being conducted regarding this accident; collateral or legal investigations may be ongoing as well. Those investigations are entirely separate from a safety investigation and are also required to inform you of their purpose and of your legal rights.

(3) This safety investigation is being conducted for accident prevention purposes only. Within the military, pursuant to AR 385-10, it cannot be used for any other purpose, to include any future disciplinary actions against any individuals. Therefore, the interview you are being asked to provide will be used by the Army in the interest of safety and accident prevention only.

(4) The chain of command will review the final accident report, which may include a summary of your interview, but the chain of command may only use the investigation report and the interviews for safety and accident prevention purposes. The interviews and accident reports may be released to the public pursuant to a Freedom of Information Act request.

(5) If you ever have knowledge that your witness interview was used by the Army for anything other than accident prevention purposes (for example, disciplinary action against an individual), you should consult with your local Judge Advocate Defense Counsel Office and request that the Command Judge Advocate, U.S. Army Combat Readiness Center, be notified at DSN 558-2924 or commercial (324) 255-2924.

15. AVAILABILITY OF PROMISE OF CONFIDENTIALITY FOR “LIMITED USE” REPORT OF INVESTIGATION

a. Pursuant to AR 385-10, witness interviews may only be used within the military for purposes of accident prevention and may not be used as evidence in connection with any administrative or disciplinary proceeding. This protection alone does not prevent release of the interview outside of the military (to the public, newspapers, attorneys, etc.) under the Freedom of Information Act. If you wish to protect your interview from release outside of the military, then your interview must be pursuant to a promise of confidentiality.

b. If you do not wish a promise of confidentiality, you may decline such below. In that case, your interview will still be used in the military only for purposes of accident prevention, but it may be released outside of the military in response to a Freedom of Information Act request. Please indicate which option you desire by initialing one of the choices below:

I request a promise of confidentiality. I understand that the results of the interview will be used within the military only for the purposes of accident prevention, and will also be protected from public release outside the military under the Freedom of Information Act.

I decline a promise of confidentiality. I understand that the results of my interview will be used within the military only for purposes of accident prevention and I also understand that the results may be publicly released outside of the military under the Freedom of Information Act.

Name of witness (Print Name - do not sign)

Smith, Ronald L.

Figure 3–6. Example of a completed DA Form 2397–4, Part V, Summary of Witness Interview –continued
a. Also see paragraph 3–7.
b. Complete instructions as follows:

1) Block 1. Self-explanatory.
2) Block 2. Enter general occupation of the witness and duty being performed at time of the accident, if applicable. Use duties listed at table 3–5.
3) Block 3. Enter the grade of witness. Use one of the codes at table 3–8.
4) Blocks 4 and 5. Self-explanatory.
5) Block 6. List DSN number if applicable.
6) Block 7. Enter date(s) statement(s) was/were made.
7) Block 8. Summarize aviation experience and background. For example, “Army aviator 10 years. Total flight hours 3,500 (RW 3,000; FW 500).” Indicate FAA ratings and approximate flight hours for nonmilitary pilot witnesses. Indicate MOS and approximate total flight hours for non-aviator crew members drawing flight incentive pay.
8) Block 9. Enter location of witness at the time of the accident relative to flight path/impact of aircraft.
9) Block 10. Enter rank/grade and last name of person in charge of interview. If witness is interviewed by different persons in charge on separate occasions, list all interviewers in charge and prefix each name with “1st,” “2d,” “3d,” to designate which interview session the interviewer conducted.
10) Block 11. Check the appropriate box to indicate if the individual “was/was not” offered a promise of confidentiality. Also, check the appropriate box to indicate whether or not the witness requested a promise of confidentiality. The interviewer will sign and date the confidentiality statement if “Yes” was checked that a promise of confidentiality was offered and “Yes” was checked that a promise of confidentiality was requested by the witness.
11) Block 12. Complete the summary of interview block as follows:
   a) Multiple interviews, same witness. Prefix the summary of each interview with the date and indicate if the statement is the 1st, 2d, 3d.
   b) Comprehensiveness. As a general rule, the interview summaries of persons occupying crew stations aboard the aircraft during the accident should be summarized in greater detail than the statements of others. This is because the crew members are the best source of information pertaining to the accident chronology of events. The chronology for the “History of Flight,” DA Form 2397-3, will most often be obtained from the crew and should be used as a guide in determining what elements of information to include in the interview summaries. If crew error appears to be involved in the accident, the mistake/errors and system inadequacy(ies) listed in the instructions for completing the DA Form 2397-2 are useful for determining what should be addressed in the crew member witness summaries.
   c) Consolidating. When several witnesses, other than crew members, provide essentially the same observations, it is not necessary to prepare a separate DA Form 2397–4 for each witness except for statements made with a promise of confidentiality. In cases where the summarized statements of several witnesses can be consolidated, it is appropriate to leave blocks 1 through 9 blank. In block 13, list the names of the witnesses and then summarize their collective observations.
   d) Format. The proper format is a concise summary of information elements. An example is as follows: “This witness was occupying a passenger seat (identify location in passenger compartment) in the aircraft at the time of the accident. His account of the accident essentially agreed with the “History of Flight” portion of DA Form 2397-3. Additionally, he heard a grinding noise in the area of the aircraft’s transmission and felt a high-frequency vibration where his boots contacted the floor of the airframe in the passenger’s compartment.” In cases where such is essential, limited direct quotes of a witness (together with the specific questions they are in response to) may be used. This, again, should be done sparingly and only when necessary. It is important that the statement be the investigator’s summarization and not an exact verbatim transcript of what the witness said. The summary should be written in the third person (“The witness said...,” “He said...,”) and not the first person (“I saw....,” “I heard...”).
12) Block 13. Enter the case number shown on DA Form 2397–1.
13) Block 14. Interviewer will read block 14a or 14b to each witness, depending upon the category and/or circumstances of the witness.
14) Block 15. Those witnesses who were offered a promise of confidentiality must indicate acceptance or refusal by initialing the appropriate statement. The witness giving the statement will print his/her name directly above the “Name of witness” line.

![TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT](image)

Figure 3–7. Example of a completed DA Form 2397–5, Part VI, Wreckage Distribution

<table>
<thead>
<tr>
<th>DELINEATION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. GRID: SHOW MAJOR GOUGE MARKS, DISTRIBUTION OF WRECKAGE, OBSTACLES, DIRECTION OF NORTH, WIND DIRECTION, WIND VELOCITY, POSITION OF WITNESS, ETC.</td>
<td></td>
</tr>
<tr>
<td>Suggested Scale: 1&quot; Equals 50' Actual Scale: 1&quot; Equals</td>
<td></td>
</tr>
<tr>
<td>2. CASE NO.</td>
<td>3. OTHER ACFT SERIAL NO.</td>
</tr>
<tr>
<td>4. DATE (YYYYMMDD)</td>
<td>5. ACFT SERIAL NO.</td>
</tr>
<tr>
<td>60070626</td>
<td>0010031</td>
</tr>
<tr>
<td>2121</td>
<td></td>
</tr>
</tbody>
</table>

DA FORM 2397-5, FEB 2009

PREVIOUS EDITION IS OBSOLETE.
a. Also see paragraph 3–8.

Note. The current electronic version of DA Form 2397–5 does not allow the entry of information in block 1 of the form itself. An alternate method for submission of block 1 information is to attach an appropriate diagram containing the block 1 information (for example, Word, PowerPoint). The actual DA Form 2397–5 with block 2 information should be included in addition to the attached document. The electronic version of the form provides a dropdown menu, allowing the attachment of external files to the form. Click on the dropdown window located at the center top of the form and follow the dropdown display.

b. General. Orient the flight path (at instant of initial impact) along the horizontal or vertical axis of the grid and show the direction of true north, oriented to the top of the page, with an arrow. This procedure eases the task of locating the aircraft component(s) laterally and longitudinally along the crash path. A suggested scale of 40 feet per inch is shown. Actual scale used is to be entered. Show wind direction with an arrow pointed in the direction of the wind flow. Identify wind direction in degrees and velocity in knots.

c. Complete instructions as follows:
   (1) **Block 1.** Use grid to show the following information:
       (a) Location of all aircraft major and significant components.
       (b) Obstacles struck by aircraft in crash sequence. For example, structure, trees, power lines.
       (c) Terrain marks made by aircraft in crash sequence. For example, earth gouge length, width, and depth, snow or earth pushed in front of aircraft.
       (d) A profile view of the wreckage distribution, especially if the impact occurs on sloped terrain or on obstacles in the flight path.
       (e) If necessary, use more than one form to show the profile view of the crash sequence, especially if the initial impact occurs on a tall tree or power line where a large vertical axis is needed.
       (f) For midair collisions, construct a composite diagram (wreckage distribution of both aircraft superimposed on the same plot).
       (g) For a widely scattered wreckage distribution, use a larger grid sheet if needed, and attach it to this form.
       (h) If the aircraft rolls over or noses over one or more times along the crash path, so indicate by use of curved arrows.
       (i) Identify initial, major, and secondary impact points, as applicable.
       (j) Show location of key witnesses.
       (k) Show location of personnel thrown or ejected from the aircraft.

Note. A polar diagram is another acceptable method of diagramming rotary-wing or fixed-wing accident sites. The top of the diagram can represent north. A readily identifiable portion of the wreckage, for example, fuselage, nose, wing, can serve as a point of origin or pole for the diagram. Choose a scale that will allow plotting of the whole accident scene. Determine the compass heading of the aircraft at its final resting place and position a semblance of the aircraft on the diagram so debris can be plotted from that point. Determine the compass heading and distance of pieces of wreckage from the main body of the wreckage. Number the location of each piece of wreckage at the position it was found relative to the main wreckage. Define the numbers with a legend that identifies each piece of wreckage and shows its direction and distance from the main wreckage.

   (2) **Block 2.** Enter the case number as shown on the DA Form 2397–1, block 25.

   (3) **Block 3.** Use only for aircraft other than “case aircraft” in accidents involving more than one aircraft. Enter serial number of other aircraft to which the form applies.
### 3–27. Completion instructions for DA Form 2397–6, Part VII, In-flight or Terrain Impact and Crash Damage Data

**Figure 3–8. Example of a completed DA Form 2397–6, Part VII, In-flight or Terrain Impact and Crash Damage Data**

<table>
<thead>
<tr>
<th>Equipment Damage</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prop/Rotor</td>
<td>2</td>
</tr>
<tr>
<td>Rotor Mast</td>
<td>2</td>
</tr>
<tr>
<td>Tail Rotor</td>
<td>4</td>
</tr>
<tr>
<td>Tail Boom</td>
<td>1</td>
</tr>
<tr>
<td>Windscreen</td>
<td>1</td>
</tr>
<tr>
<td>LWR Nose/Gun Turret</td>
<td>1</td>
</tr>
<tr>
<td>FLIR</td>
<td>1</td>
</tr>
</tbody>
</table>

#### In-flight Collision Kinematics at Instant of Impact

- **Ground Speed** at Impact: 500 knots
- **Vertical Speed**: 500 ft/min
- **Flight Path Angle**: 70 degrees
- **In-flight Attitude At Impact**
  - Pitch Angle
  - Roll Angle

#### Terrain Collision Kinematics at Instant of Major Impact

- **Ground Speed** at Impact: 50 knots
- **Vertical Speed**: 500 ft/min
- **Impact Angle**: 70 degrees

#### Notation After Major Impact

- Did Aircraft Rotate About Any Axis After The Above Major Impact? (If yes, complete lines b, c, and d)
  - Yes

#### Impact Forces Relative to Aircraft Axes (G's)

- **Vertical (G's)**
  - Up: 50
  - Down: 50

#### Case No.

- **Date**: 20070626
- **Time**: 2121
- **ADT Serial No.**: 0010031

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DA FORM 2397-6, FEB 2009

PREVIOUS EDITION IS OBSOLETE.
Figure 3–8. Example of a completed DA Form 2397–6, Part VII, In-flight or Terrain Impact and Crash Damage Data –continued
a. Also see paragraph 3–9.
b. Complete instructions as follows:

(1) Block 1. This block is required for in-flight collisions, such as a midair collision, wire strike, bird strike, or tree strike. If doubt exists as to whether this block or block 2 should be used, both blocks can be completed. For example, the aircraft may strike a structure during an approach and continue under control some distance forward and crash; thus, in-flight and terrain collisions are involved. Near simultaneous impacts with trees, structures, and the ground require only block 2 to be completed. In other cases, such as a bird strike, in which a subsequent routine landing is made, only block 1 would be checked. If the information desired in these blocks cannot be determined, so state in the box(es) provided for information.

(a) Block 1a. Estimate or analytically determine and enter the knots indicated airspeed or true airspeed just before impact.

(b) Block 1b. Estimate or analytically determine and enter the vertical speed (feet per minute) just before impact, and check whether “Up” or “Down.” If zero, enter “0” in space provided and do not check “Up” or “Down” box.

(c) Block 1c. Enter the flight path angle (degrees) at major impact and check whether “Up” or “Down.”

(d) Block 1d. Enter the pitch and roll angles (degrees) at moment of impact and check the appropriate direction.

(e) Block 1e. Check obstacle(s) struck while aircraft was in flight. For example, contact with a hangar building would be checked as “Other.” Specify in the block. Also enter collision height above the ground.

(f) Block 1f. Check box to identify area of aircraft that sustained the strike. If aircraft sustained a strike at more than one location, check several boxes and indicate 1st, 2d, 3d, to show strike sequence.

(g) Block 1g. Check the appropriate box to reflect the wire/cable(obstacle conspicuousness to the pilot under the environmental conditions and terrain at the time of the accident.

(h) Block 1h. Enter the outside diameter for the type cable/bundle struck. The outside diameter of the wire bundle/cable including insulation is desired, not the individual wire inside the bundle or cable. Enter the number of wires struck in the impact. For example, in a five-cable power transmission line, only three cables may be struck.

(i) Block 1i. Check whether or not a Wire Strike Protection System (WSPS) was installed. Also check whether or not the WSPS cut the wire.

(j) Block 1j. Enter outside diameter of tree limb, pole, bush that was struck, if applicable.

(2) Block 2. Complete this block to show terrain collision kinematics at instant of major impact. If block 1 was filled out and aircraft continues under control after in-flight collision and then sustains further damage upon ground impact, complete block 2 also. If aircraft sustains in-flight damage such as from a bird strike and then makes a routine landing, block 2 does not have to be filled out.

(a) Block 2a. Estimate or analytically determine and enter the ground/horizontal velocity (knots) at the instant of the major impact. The horizontal velocity is desired. This value is not to be confused with airspeed or resultant velocity. The ground speed vector combined with the vertical speed vector can be used to determine the resultant velocity as shown for sample high-angle and low-angle impacts.

(b) Block 2b. Estimate or analytically determine and enter the vertical speed (feet per minute) just before impact and check whether “Up” or “Down.” The vertical speed at impact can be combined with ground speed to yield the resultant velocity as discussed above.

(c) Block 2c. Enter the flight path angle (degrees) just before impact and check whether “Up” or “Down.”

(d) Block 2d. Indicate by check marks which two of the three parameters above are the most accurate. Since any two items can determine the third, it is necessary to determine which two (a and b, b and c, or a and c) the investigator feels are most accurate. Check only two boxes.

(e) Block 2e. Enter the impact angle (degrees).

(f) Block 2f. Enter the pitch, roll, and yaw attitude (degrees) of aircraft at the instant of impact.

1. Pitch. Enter degrees and check “Up” or “Down” pitch in appropriate box.

2. Roll. Enter degrees and check “Left” or “Right” roll in appropriate box.

3. Yaw. Enter degrees and check “Left” or “Right” yaw as appropriate. If nose is to left of flight path, check “Left” box; if nose is to right, check “Right” box.

(3) Block 3.

(a) Block 3a. Check the appropriate box.

(b) Block 3b. Enter the roll in degrees for the appropriate direction if the aircraft rolled significantly after the major impact. A value should be entered even if the aircraft comes to rest in the original attitude after it has rotated during the crash sequence.

(c) Block 3c. Enter the yaw in degrees for the appropriate direction if the aircraft yawed significantly after the major
impact. A value should be entered even if the aircraft comes to rest in the original attitude after it has yawed during the crash sequence.

(d) Block 3d. Enter the pitch in degrees from the horizontal (level) attitude if the aircraft pitched (nose up or down) after major impact, and check the appropriate box to indicate if the pitch was up or down. For example, if an aircraft rotates forward about the nose as a fulcrum or a forward pitching motion, check “Down.”

(4) Block 4.

(a) Block 4a. Estimate or analytically determine and enter the vertical force (Gs) at the aircraft CG. Check whether the force was “Up” or “Down.”

(b) Block 4b. Estimate or analytically determine and enter the longitudinal force (Gs) at the aircraft CG. Check whether the force was “Fore” or “Aft.”

(c) Block 4c. Estimate or analytically determine and enter the lateral force (Gs) at the aircraft CG. Check whether the force was “Left” or “Right.”

(5) Block 5. Enter the case number as shown on the DA Form 2397–1 (see table 3–16).

(6) Block 6. Use only for aircraft other than “case aircraft” in accidents involving more than one aircraft. Enter serial number of other aircraft only on each DA Form 2397–6 that applies to other aircraft.

(7) Block 7. This block shows fuselage structural deformation or collapse and its relation to personnel impact injuries. The areas of fuselage most likely to be deformed are stated in items a through f. The location of the deformation is indicated in the four columns labeled cockpit, forward, middle and rear cabin. If the deformation or collapse caused injuries to personnel, the appropriate box of item (5), (6), (7), and (8) should be checked. Information in this block shall agree with the injury/occupational illness mechanism identified in DA Form 2397–9 and the LSE failure modes identified in DA Form 2397–10, Personal Protective/Escape/Survival/Rescue Data.

(a) Blocks 7a–e. Check column(s) 1 through 4 to show the location of deformation for each fuselage area. As a general rule, deformation of 3 inches or less is not enough to be recorded because injuries are not likely to result from such movement. If personnel injuries were caused by fuselage structural deformation, columns 5 through 8 should be checked in the appropriate box. Injuries caused by nonuse of restraint and seat failure and other injuries not related to fuselage deformation are not to be recorded here.

(b) Block 7f. Check box to indicate whether the floor was deformed locally under the seat structure. This type deformation may occur as a result of external rock or tree stump impact. For example, if one seat leg floor fitting is pushed upward by at least 2 inches with respect to the other three fittings, check the box. The same applies to sideward or fore-aft movement of the seat leg floor fittings.

Note. Photographs should be made of the deformed areas checked under items a through f. At least two photos should be obtained, and they should be taken along mutually perpendicular axes to help offset the effect of distortion.

(8) Block 8. This block indicates the displacement of heavy aircraft components so their potential for injury/occupational illness or for ignition of fires may be evaluated. Only those components expected to be a major hazard are listed under items a through e. Block f provides for the displacement of other heavy components, such as engines, prop blades, electrical boxes, which could be a hazard to personnel. Columns 1 through 4 describe the displacement of the components from their normal position.

(a) Blocks 8a–d. These components are potentially the most hazardous on rotary-wing aircraft. Displacement of single rotor transmission and/or rotor blades are to be checked in items “a” and “c” while tandem rotor aircraft are to be checked in items a, b, c, and d as appropriate. If the main rotor hub(s) remain attached to their blades, the hub is assumed an integral part of the blade(s) and is checked under item c or d. If the hub(s) remain attached to the transmission(s), the hub is assumed an integral part of the transmission and displacement is checked under item “a” or “b.”

(b) Block 8e. Check landing gear displacement. Specify which landing gear, wheel, or skid displaces by simply stating the location on the aircraft. For example, left front, center front, right front, left rear, center rear, right rear. If more than one gear displaces, continue the identities shown above in remarks block (block 11) to indicate the displacement.

(c) Block 8f. Check this box(es) to identify displacement of heavy component(s) not shown above. If more than one mass is involved, explain in block 11.

1. Column 1. Check box(es) in this column if sufficient displacement has occurred to cause the component to be hazardous even though injuries may not be present. For helicopter transmissions, it is probable that a 10-degree tilt of the transmission and rotor mast will result in a hazardous condition due to fuselage rotor blade strike potential. Likewise, a 6-inch displacement of the transmission, along any axis, will probably result in a hazardous condition. Check the box for rotor blade(s) (item c or d) if it is determined that further blade rotation would result in an occupiable volume blade strike.

2. Column 2. Check box if a major component is separated completely from its normal structural attachment even though the component may still be held by flexible attachments such as control cables or rods and electrical wires.

3. Column 3. Check this box if component actually deformed or penetrated the cockpit “container” sufficiently to create a hazard.
4. Column 4. Check this box if component actually deformed or penetrated the cabin “container” sufficiently to create a hazard. Photographs should be made of the displaced components checked under items a through f. At least two photos should be obtained, and they should be taken along mutually perpendicular axes to help offset the effect of distortion.

(9) Block 9.
   (a) Block 9a. Check whether or not aircraft is equipped with crash-resistant fuel system.
   (b) Block 9b. If aircraft is equipped with crashworthy fuel system, check to determine whether the breakaway valves in the fuel system did separate.
   (c) Block 9c. Check whether or not flammable fluid spillage occurred. If “Yes” box is checked, complete block e.
   (d) Block 9d. Check whether or not aircraft was equipped with auxiliary fuel tanks and indicate if the tanks were internal or external. Also, check the appropriate box which best describes the crashworthiness of the tanks. If the tanks are partially crashworthy, check “No” and explain in the remarks.
   (e) Block 9e. In the space corresponding with the amount of flammable fluid spilled, enter the type of fluid which was spilled. For example, JP-8, 7808. For example, 15 gallons of JP-8 fuel were spilled so enter “JP-8” under the fuel column, adjacent to the 10-20 amount line. The amount of spilled fluid can be estimated by:
      1. The difference between quantity of liquid remaining and fluid before accident.
      2. A knowledge of the probable mode of failure in the fluid system. For example, did fluid trickle out at slow rate, or did it gush out all at once?

(10) Block 10. Identify one or more spillage sources by writing the name of the part causing or permitting leakage. Rows 7, 8, and 9 may be used to list other sources such as coolers, accumulators. Also, write in the manufacturer’s PN and the NSN. The exact identity of the part causing leakage is desired, not the component or assembly. State the cause of fluid spillage in Remarks. For example, a shift of cargo may have crushed the internal auxiliary fuel tanks.

(11) Block 11. Explain in remarks any additional data the investigation board deems appropriate.
Figure 3–9. Example of a completed DA Form 2397–7, Part VIII, Maintenance and Materiel Data
a. Also see paragraph 3–10.
b. Complete instructions as follows:

(1) **Block 1.** Applies to the aircraft and not the component or part that failed. Enter data from aircraft records. If additional DA Forms 2397–7 are needed for multiple failed parts from the same aircraft, it is not necessary to duplicate this information.
   
   (a) **Block 1a.** Enter the total time on the airframe until the time of the accident. Obtain data from DA Form 2408–13, Status Information.
   
   (b) **Block 1b.** Obtain data from DA Form 2408–15, Historical Record for Aircraft.
   
   (c) **Block 1c.** Enter the date of the last phase inspection. Obtain data from DA Form 2408–15.
   
   (d) **Block 1d.** Enter the hours flown since the last phase inspection.
   
   (e) **Block 1e.** Enter the 6-digit UIC for the organization that performed the last phase inspection.

(2) **Block 2.** This block shows the causative role of materiel, maintenance, design, and manufacture as they pertain to the major component/part reported in block 3 of this form.

   (a) **Block 2a.** Check the appropriate box to show whether or not materiel failure/malfunction of the component/part in block 3 had a causative role in the accident.

   (b) **Block 2b.** Check the appropriate box to show whether or not a maintenance act of omission or commission had a causative role in the accident.

   (c) **Block 2c.** Check the appropriate box to show whether or not design had a causative role in the accident. Design is a factor when the component/part failed to perform its specified function because of design inadequacies.

   (d) **Block 2d.** Check the appropriate box to show whether or not manufacture had a causative role in the accident. Manufacture is a factor when the component/part was not manufactured to meet proper design specifications.

   *Note.* If maintenance was checked as a cause factor in block 2, explain in block 6 or continuation sheet. Provide the TM or other directive requirement for the maintenance and how the error was committed or the omission of a requirement(s) related to the major component/part shown in block 3. Complete a DA Form 2397–8 for person(s) committing the error.

(3) **Block 3.** Fill out major component and part columns in complete detail for each item of materiel whose failure or malfunction contributed or is suspected of contributing to the cause of the accident. Blocks a through k applies to the component or part, not the aircraft.

   (a) **Blocks 3a and b.** Obtain from appropriate parts manual. When the major component is an engine, transmission, or gearbox and the aircraft is equipped with more than one like item, identify which major component is listed. For example, No. 1 engine, forward transmission, 42-degree gearbox.

   (b) **Block 3c.** The PN should be taken from the part or component if possible. The TM will be used as a source for the PN only if it cannot be determined from the part.

   (c) **Blocks 3d and e.** Obtain from appropriate TM.

   (d) **Block 3f.** Enter the serial number from the item of materiel. If the number differs from that contained in the DA Form 2408–16, state this fact in block 6 or on a continuation sheet.

   (e) **Block 3g.** Obtain from appropriate TM.

   (f) **Block 3h.** Extract this information from DA Form 2408-16 and DA Form 2410 (Component Removal and Repair/Overhaul Record). Enter the type, date, and hours since the last special inspection on the listed item of materiel. For example, “overspeed,” “hard landing.” For components/parts installed during aircraft production, enter “N/A.”

   (g) **Blocks 3i and j.** Enter the type and cause of failure codes from DA Pam 738–751, figure 1–2.

   (h) **Block 3k.** Obtain from Standard Form 368, Deficiency Report.

   (4) **Block 4.**

   (a) **Block 4a.** Check the appropriate block to show status of aircraft warning system(s) for the failed part at time of emergency. If inoperative is checked, explain in block 6 or on a continuation sheet.

   (b) **Block 4b.** Check the appropriate box to indicate if the warning systems indication of the failure/malfunction provided to the crew was correct for the failed part. If incorrect, explain in block 6 or on a continuation sheet.

   (c) **Block 4c.** Check the appropriate block to indicate the initial indication of the failure. For example, a hydraulic warning light illuminates followed by stiffness in the controls. Check the “Warning System” block to indicate what first alerted the crew to a failure/malfunction.

   (5) **Block 5.**

   (a) **Block 5a.** Specify the organization/laboratory that performed the TDA.

   (b) **Block 5b.** Enter the USA_CRC control number, if applicable.

   (6) **Block 6.** Explain delays in shipment of failed part, fluid samples, or any other materiel related data deemed appropriate by the board president. If additional space is required, attach continuation sheet.
(7) **Block 7.** Enter the case number shown on the DA Form 2397–1.

(8) **Block 8.** Use only for aircraft other than “case aircraft” in accidents involving more than one aircraft. Make entry only on the form identifying the maintenance and materiel data for other aircraft.
3–29. Completion instructions for DA Form 2397–8, Part IX, Personal Data

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART IX - PERSONAL DATA

1. ROLE OF THIS INDIVIDUAL

   a. Errors That Caused/Contributed to Accident
      - Determined
      - Suspected
      - None
      - Undetermined
   b. On Controls When Accident Occurred
      - Yes
      - No
      - Undetermined

2. BACKGROUND DATA

   a. Age
      - 37
   b. Hours Awake Prior to Accident
      - 6
   c. Hours Drunk Last 24 Hours
      - 8
   d. Hours Drunk Last 48 Hours
      - 1
   e. Hours Drunk Last 60 Hours
      - 16
   f. Hours Drunk Last 72 Hours
      - 24

3. CREW MEMBER DATA

   a. Primary Act MTOS
      - OH-58D(R)
   b. Jutimze Act MTOS
      - NVG Qualified
   c. ATM Number Associated With Initial Indication of Emergency
      - Last Performed
   d. ATM Task Number Involved in Response to Emergency
      - Last Performed
   e. Physical Exam Completed
      - 2006/09/30
   f. Medical Waiver
      - Yes
   g. Physical Exam Completed
      - 2006/10/01
   h. Medical Waiver
      - Yes
   i. Last Accident Report
      - OH-58D(R)
   j. Medical Waiver
      - Yes
   k. Physical Exam Completed
      - 2006/10/01
   l. Medical Waiver
      - Yes

4. FLIGHT AND CREW DUTY EXPERIENCE

   a. Type Experience And Time
      - Military
      - Civilian
      - Total
   b. Duty Experience
      - Total Hours
   c. Flight Condition Experience
      - Total Hours
      - Monthly Flight Hours
        - Prev 30
        - Prev 60
        - Prev 90
      - This Mo.
      - Duty
        - CP
        - OA
      - Other Crew Duty Experience
        - Total Hours

5. MAINTENANCE AND SUPPORT PERSONNEL DATA

   a. PMOS
      - Title
   b. SMOS
      - Title
   c. DMOS
      - Title
   d. Performance Standards Met For This Task
      - Yes
      - No

Figure 3–10. Example of a completed DA Form 2397–8, Part IX, Personal Data
Figure 3–10. Example of a completed DA Form 2397–8, Part IX, Personal Data –continued
a. Also see paragraph 3–11.

b. Complete instructions as follows:

(1) Block 1.

(a) Block 1a. Check “Definitely” box if person made an error that caused or contributed to the accident. Do not check the “Definitely” box unless the relationship of the error to the accident is fully substantiated in the present and contributing findings of DA Form 2397–2 and analysis part of the DA Form 2397–3. Check the “Suspected” box if the individual committed an error that is suspected to have caused or contributed to the accident. Suspected factors must also be fully substantiated in the present and contributing findings of the DA Form 2397–2 and the analysis of the 2397–3. Check “None” or “Undetermined” box, as appropriate.

(b) Block 1b. Check the appropriate box.

(2) Block 2. Most items are self-explanatory. Record hours as appropriate. For items d through l, the 24-, 48-, and 72-hour periods are calculated to the time of the accident.

(3) Block 3. Most items in block 3 are self-explanatory. The sources for this information will be the individual’s IATF folder and DA Form 759, Individual Flight Record and Flight Certificate-Army. Those items requiring further explanation are indicated below.

(a) Blocks 3a-h. Can be obtained from Part III of the individual’s DA Form 759.

(b) Blocks 3i-k. Can be obtained from Part II of the individual’s DA Form 759.

(c) Block 3l. Enter the ATM task number that best describes flight profile (takeoff, climbs, turns, straight and level, hovering autorotation) that was in progress when the emergency situation developed. An event becomes an emergency whenever an error by the crew, a materiel failure, an obstacle strike, or other unpredictable event creates a need for an emergency response. If no ATM task applies, leave blank and explain the flight profile/activity in block 10.

(d) Block 3m. Pertains to the ATM task required to cope with the emergency. A tail rotor strike may result in a loss of antitorque control, thereby requiring the performance of the task procedures prescribed for an antitorque malfunction. If no ATM task applies, leave blank and explain the flight profile/activity in block 10.

(e) Block 3n. If “Yes” box is checked, identify in block 9 the condition for which the waiver was granted and the headquarters authorizing the waiver (DA, MEDDAC). If waiver data clarification is needed, enter a brief explanation in block 10.

(f) Block 3o. Report an “S” for satisfactory or “U” for unsatisfactory. If result is “U,” enter a brief explanation in block 10. If the evaluation has been delayed, enter a “dash” to indicate information is not available and explain delay in block 10.

(g) Block 3p. Enter date of post-accident medical examination or admission to a medical facility for treatment of injuries resulting from the accident. For non-survivors, enter date of autopsy.

(h) Block 3q. Check the appropriate box to indicate if the blood and urine laboratory test required by AR 385-10, paragraph 3-16, were accomplished.

(i) Block 3r. Enter the individual’s date of redeployment from a combat theater, if applicable, (yyymmdd).

(4) Block 4. Flight and crew duty experience will be completed for all crew members specified in paragraph 3–11, requiring a DA Form 2397–8. The source of this data is the individual’s DA Forms 759 and 759–1. Flight experience will be recorded to the nearest hour (no tenths).

(a) Block 4a(1). Pertains to flight experience, involving military operations, by category of aircraft. Combat, imminent danger, and flight experience in accident MTDS aircraft is also recorded in this block.

(b) Block 4a(2). Civilian. Civilian flight experience regardless of duty, not involving military operations (For example, flying clubs, instructional, hobby, pleasure, commercial) is to be entered in this block by category of aircraft.

(c) Block 4a(3). Total time. Self-explanatory.

(d) Blocks 4b and e. Duty experience. Block b pertains to rated aviator duties and item e pertains to other crew duty experience. Enter the total time for the duty listed. The source of this information is the individual’s DA Form 759–1.

(e) Block 4c. Flight condition experience. Enter the total flight hour experience in block 4c(1) for flight conditions listed. The source of this information is the individual’s DA Form 759–1.

(f) Block 4d. Monthly flight hours. Pertains to flight time in incident MTDS aircraft for the current calendar month plus the preceding 30, 60, and 90 days up to and including the accident flight.

(5) Block 5. Pertains to maintenance, medical, support, and other non-rated personnel only.

(a) Blocks 5a, 5b, and 5c. Enter the individuals Military Occupational Specialty designation and title. The information source is the individual’s personnel qualification record.

(b) Block 5d. Enter the task number associated with the error the individual committed. The source of the task number will be the Soldier’s Manual, ATM, or TC 1-210 (the Commander’s Guide) that addresses the task.

(c) Block 5e. Self-explanatory.
(d) **Block 5f.** Applies to government civilian employees. Source of information is the individual’s job description and performance standards. If “No” box is checked, enter a brief explanation in block 10.

(6) **Block 6.** Enter the case number shown on DA Form 2397–1 (see table 3–6).

(7) **Block 7.** Complete block 7 only if form applies to personnel associated with an aircraft other than “case aircraft” in accidents involving a multiple aircraft event.

(8) **Block 8.** Enter the case number shown on DA Form 2397–1 (see table 3–6).

(9) **Block 9.** Complete block 9 if block 3n is checked “Yes” or autopsy report reveals significant findings of preexisting diseases/defects.

(10) **Block 10.** Enter the individual’s social security number.

(11) **Block 11.** Enter grade code. Select code from Table 3-8.

(12) **Block 12.** Enter “M” to indicate male or “F” to indicate female.

(13) **Block 13.** Enter duty code. For crew members enter the duty code recorded on the DA Form 2408–12. For other personnel, select code from list at table 3–5.

(14) **Block 14.** Enter a 6-digit UIC of unit to which this individual was assigned at time of accident.
**Figure 3–11. Example of a completed DA Form 2397–9, Part X, Injury/Occupational Illness Data**
a. Also see paragraph 3–12.

b. Complete instructions as follows:

(1) Block 1. Check the appropriate box to indicate the highest degree of injury/occupational illness for this individual. Degrees of injury/occupational illness are defined below:

(a) Block 1a. Self-explanatory.

(b) Block 1b. Permanent Total Disability. Any nonfatal injury or occupational illness that in the opinion of competent medical authority, permanently and totally incapacitates a person to the extent that he cannot follow any gainful employment.

(c) Block 1c. Permanent Partial Disability. Any injury or occupational illness that does not result in death or permanent total disability, but in the opinion of competent medical authority, results in permanent impairment through loss or loss of use of any part of the body, with the following exceptions: Loss of teeth; Loss of fingernails or toenails; Loss of tips of fingers or tips of toes.

(d) Block 1d. Days Away from Work (Days lost).

(e) Block 1e. Workday(s) of Restricted Work Activity.

(f) Block 1f. Medical Treatment Beyond First Aid.

(g) Block 1g. First aid only.

(h) Block 1h. Missing and Presumed Dead. Individual not located at the time of the report.

(2) Block 2. If block “d” and “e” was checked in block 1, enter number of days away from work, the number of days hospitalized, and days of restricted work activity in spaces provided. Ensure that days away from work (2a) is not inclusive of the days hospitalized (2b).

(a) Block 2a. Days Away From Work. The actual or estimated number of days lost that the individual could not work excluding the day of the injury/occupational illness. Include quarters, bed rest, convalescence leave, or time that a physician indicated the individual could not work regardless of whether the individual was scheduled to work. Count all calendar days including weekends and holidays. For example, if the individual was injured on Friday and the individual could work on Monday, if the physician or licensed health care professional indicated they should not work over the weekend, enter 2 days. If there is no information from the physician, enter 0 days. Enter the appropriate number in block 2a.

(b) Block 2b. Days Hospitalized. The actual or estimated number of days the individual was hospitalized as an inpatient/admitted receiving treatment. Days hospitalized for “observation only” are only included if a workday is missed. Enter the appropriate number of days hospitalized in block 2b.

(c) Block 2c. Days of Restricted Activity. (Person is temporarily unable to perform regular duties; job transfer, light duty/profile.) Enter the actual or estimated number of days the individual was unable to perform one or more routine job functions (regularly performed by the individual at least once per week), or could not work a full workday they would otherwise have been scheduled to work; or a physician or licensed health care professional recommends that the employee not perform one or more routine functions of his/her job, or unable to work a full workday they would otherwise have been scheduled to work. Enter the number of days of restricted activities in block 2c.

(3) Block 3. If the person was unconscious, enter the duration in hours and minutes, and show the cause and mechanism, if known, in block 5. If none, check none.

(4) Block 4. If amnesia was present, show duration and explain in block 6. If amnesia was not present, check none.

(5) Block 5. Describe individual injuries in descending order of severity and associated cause factors, using the applicable information codes following these instructions.

(a) Column a. Enter number “1” for most severe injury/occupational illness followed by “2,” “3,” until all injuries have been listed. Only six injuries can be recorded per individual per form. Use additional DA Forms 2397-9 when greater than six injuries are coded.

(b) Columns b through e. Using information codes at Table 3-10 following these instructions, enter the appropriate numeric and/or alpha numeric code in each column. In the appropriate space below the code, enter the word(s) describing the injury/occupational illness.

(c) Columns f and g. Enter the action code and qualifier code from table 3–10 that best describe the injury/occupational illness mechanism (how the injury/occupational illness occurred).

(d) Columns h, i, and j. Enter the subject, action, and qualifier codes from table 3–10 which best describe, from an engineering viewpoint, what aspects of the aircraft contributed to the injury/occupational illness cause factors (why injury/occupational illness occurred). The purpose of these columns is to select those subjects, action, and qualifier codes that form a sentence or phrase that describes what aspect of the engineering/design of the aircraft should be looked at for potential modification to avoid a similar injury/occupational illness in a future similar accident. For
example, if the occupants of an aircraft sustained post-crash burns due to fuel lines breaking in the crash sequence, one could code: Subject: “10, Fuel lines,” Action: “03, Broke,” Qualifier: “07, Improperly.”

(6) **Block 6.** Enter any additional information which further clarifies information coded on the DA Form 2397-9. For instance, if the flight surgeon thinks the available codes do not describe the injuries, the mechanism of injury/occupational illness, or the injury/occupational illness cause factors, this block provides the opportunity for further description. It is imperative that any additional information be linked to a specific block/column on the form.

(7) **Block 7.** Check the appropriate box to indicate whether or not an autopsy was performed. If an autopsy was not performed on a fatally injured Soldier, civilian, or Army contractor, explain why in block 6.

(8) **Block 8.** Report the official cause and date of death, based on an autopsy report, if possible.

(9) **Block 9.** Check the appropriate duty status for government personnel.

(10) **Blocks 10 through 14.** Enter appropriate information for the individual concerned.

(11) **Block 15.** Block 15a through 15i entry are required for all injured individuals.

(12) **Block 16.** Enter individual’s unit UIC.

(13) **Block 17.** Enter the case number shown on DA Form 2397–1.

(14) **Block 18.** Use only in cases involving more than one aircraft. Enter the serial number of other aircraft only on the DA Form(s) 2397–9 that pertains to personnel injuries associated with the other aircraft.

(15) **Block 19.** Enter the injury or occupational illness/fatality cost in accordance with DA Pam 385–40, table 1–1.
### Figure 3–12. Example of a completed DA Form 2397–10, Part XI, Personal Protective Escape/Survival/Rescue Data

#### PERSONNEL PROTECTIVE/RESTRAINT/SURVIVAL EQUIPMENT

<table>
<thead>
<tr>
<th>Item</th>
<th>Type</th>
<th>Required</th>
<th>Available</th>
<th>Used</th>
<th>Prevented Injury</th>
<th>Allowed Injury</th>
<th>Prevented Injury</th>
<th>Reused Injury</th>
<th>Functioned as Designed</th>
<th>Information Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Helmet</td>
<td>HGK .56</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>1007</td>
<td>1009</td>
</tr>
<tr>
<td>b. Visor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Glasses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Flight Suit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>e. Flight Glove</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>f. Flight Jacket</td>
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<tr>
<td>g. Boots</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Other Clothing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Lap Belt</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>j. Shoulder Harness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>k. Gunner Harness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>l. Infant Seat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>m. SeatLap</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n. Survival Equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
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<tr>
<td>o.</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

#### PERSONNEL EVACUATION/ESCAPE

<table>
<thead>
<tr>
<th>Item</th>
<th>Information Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Method of Escape</td>
<td>1</td>
</tr>
<tr>
<td>b. Location in Aircraft</td>
<td>1 1 3 1 2</td>
</tr>
<tr>
<td>c. Exit Attempted</td>
<td>0</td>
</tr>
<tr>
<td>d. Exit Used</td>
<td>0</td>
</tr>
<tr>
<td>e. Aircraft Attitude During Escape</td>
<td>0</td>
</tr>
<tr>
<td>f. Cockpit/Cabin Conditions</td>
<td>4</td>
</tr>
<tr>
<td>g. Escape Difficulties</td>
<td>98</td>
</tr>
</tbody>
</table>

#### LAPSED TIME FOR RESCUE

<table>
<thead>
<tr>
<th>Date</th>
<th>Hour of Day</th>
<th>Lapsed Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM</td>
<td>DD</td>
<td>HR</td>
</tr>
</tbody>
</table>

#### DISTANCE FROM ACCIDENT TO ACTUAL RESCUE VEHICLE AT TIME OF ACCIDENT

<table>
<thead>
<tr>
<th>Information Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. To Aircraft in Nautical Miles</td>
</tr>
<tr>
<td>b. To Ground Vehicle in Statute Miles</td>
</tr>
</tbody>
</table>

#### PERSONNEL SURVIVAL/RESCUE

<table>
<thead>
<tr>
<th>Item</th>
<th>Information Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Survival Problems Encountered</td>
<td></td>
</tr>
<tr>
<td>b. Means Used to Locate Individual</td>
<td></td>
</tr>
<tr>
<td>c. Rescue Equipment Used</td>
<td></td>
</tr>
<tr>
<td>d. Factors That Helped Rescue</td>
<td></td>
</tr>
<tr>
<td>e. Factors Complicating Rescue</td>
<td></td>
</tr>
<tr>
<td>f. Individual Physical Condition</td>
<td>4</td>
</tr>
</tbody>
</table>

#### OTHER VEHICLES ASSISTING IN RESCUE (Specify) Military Ambulance

#### REMARKS

(Use additional sheet if necessary)

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**DA FORM 2397-10, FEB 2009**

**PREVIOUS EDITION IS OBSOLETE.**

**DA PAM 385-40 • 6 March 2009**

**83**
a. Also see paragraph 3–13.

b. Complete instructions as follows:

(1) Block 1. Check the appropriate box. If the “Yes” box is checked, ensure that a DA Form 2397–9 is completed for this individual.

(2) Block 2. Personal protective/restraint/survival equipment. The first column lists the major, common items of equipment worn/used by aircrew members and passengers. Report ONLY those items which had a role in the cause/prevention/reduction of an injury/occupational illness or failed to function as designed. Also list in block 2(o) or 2(p) other protective/survival items of equipment which, if available, could have prevented/reduced an injury/occupational illness or assisted in the rescue and survival efforts. Complete the columns to the right of each item that had a role in the accident, as follows: For columns (2) - (9) enter “Y” for “yes,” “N” for “no,” and “U” for “unknown.” For column 10, select the appropriate equipment information codes from table 3–11.

(a) Column (1). Type. Enter the type of equipment in the “Type” column. For example, helmet-enter HGU-56P; visor-enter clear, or tinted, or anti-laser; glasses-enter prescription, nonprescription, tinted, untinted, contact lenses, inserts, anti-laser, and flight suit-enter NOMEX.

(b) Column (2). Required. Enter “Y” for items that were required for the mission by directives. For example, Army regulations, major command/unit SOPs, or “N” for items not required, but which could have reduced the injury/occupational illness severity.

(c) Column (3). Available. Make appropriate entry for each applicable item that was available to the individual.

(d) Column (4). Used. Make appropriate entry for each applicable item used. Just because an item was available does not mean it was used. Used pertains to the use of an item as intended for the condition/situation.

(e) Column (5). Produced injury/occupational illness. An item of equipment may have produced an injury/occupational illness by its use or by its malfunction. For example, a lapbelt may have produced an injury/occupational illness to the individual (bruise on hip) but still may have prevented or reduced further injuries.

(f) Column (6). Allowed injury. An item of equipment may have allowed injury due to the forces of the accident exceeding the design of the equipment, or an individual not properly wearing or utilizing the item. For example, the chin strap of the helmet not being secured.

(g) Column (7). Prevented injury/occupational illness. An item may have prevented an injury by its use even though the item received damage; for example, damage was done to the helmet, but the individual did not receive an injury. If no injury occurred to the area protected by the item then enter “Y.”

(h) Column (8). Reduced injury/occupational illness. An item may have reduced the severity of an injury/occupational illness. For example, the individual received a severe blow to the head and incurred a head injury, but the helmet reduced the severity of the injury.

Note. Columns (6) and (7) cannot be marked “Y” for the same item. An item cannot allow and prevent an injury at the same time. Likewise columns (7) and (8) cannot be marked “Y” for the same item. If an injury is prevented, there is nothing to reduce.

(i) Column (9). Functioned as designed. This column is used to indicate the performance of equipment during the accident sequence to include rescue and survival. For example, if it is determined that the item performed the job for which it was intended, enter “Y” for “yes.” If the item was damaged, explain the damage in the “Information Codes” column. For all items that did not perform their intended function, enter “N” for “no” in the “functioned as designed” column and explain in the “Information Codes” column with the appropriate codes.

(j) Column (10). Information codes. The four columns under this title are used to report equipment problems/conditions pertaining to the performance of personnel, protective, restraint, and survival equipment. There are four blocks provided for each item of equipment to permit the identification of up to four separate problems/conditions. Each item with a problem/condition will be coded with a four-digit information code from Table 3-11. For example, if a helmet dislodged and the individual received a head injury/occupational illness due to its loss, enter “N” in columns (7), (8) and (9) for the helmet row and enter the code 1122 in the “Information Codes” column. For example, 11 (dislodged), 2 (nape strap), 2 (loose). All undamaged items that performed their job do not require codes in the “Information Codes” column.

(k) Survival equipment components The empty spaces in block 2 (o and p) are to be used to report problems/conditions with specific items of survival equipment/components. These are to be entered in the “Information Codes” columns using four-digit codes. More than one problem/condition may apply to any of the survival equipment/components. The first two digits are obtained from the survival equipment/component list and the second two digits are obtained from the problem/condition code at table 3–12. Examples are—

1. An aviator’s SDR-5/E strobe light failed during use because the battery became inoperative. Enter “Strobe light” in one of the empty spaces (o or p). The “Type” would be entered as “SDR-5/E.” Any other column across the page
may be used as applicable. The first four-digit code entered in the first “Information Codes” column should be “8438”; the second four-digit code should be “8440.”

2. An aviator could not get a survival radio before the mission because the radios were locked up in supply. Enter “survival radio” in an available empty space (o or p). The “Type” would be entered as “PRC-112.” The four-digit code entered in the “Information Codes” column would be “8101.”

3. In the event of a non-survivable accident in which there were no attempts to use the survival equipment/components, no entry is required unless the accident investigation board feels such reporting would benefit accident research/analyses.

4. If an item of equipment is used that is personal property (non-issue), such as, pocket knife or plastic compass, and a problem/condition exists (For example, “lost”), enter the item in blank spaces o or p (block 2) as “Pocket knife” and “Personal” in the “Type” column. The four-digit code in the “Information Code” column should be “9936.”

   (a) Block 3a. Method of escape. Enter the appropriate information codes from table 3–13 in the space provided.
   (b) Block 3b. Location in aircraft. Enter individual’s location in the aircraft at the time of the accident in the boxes provided using the codes at table 3–14. For example, an aviator was in the cockpit, forward section, left side, facing forward, in his seat. Code in sequential blocks 1, 1, 2, 1, 2 (one number per block).
   (c) Block 3c.
   (d) Block 3d. Exit attempted. Enter information code(s) from table 3–15 in order and in sequence if more than one exit attempt was made. The last coded entry, if more than one exit was attempted, will be the exit used by the individual to egress. For example, the normal exit was tried but it jammed, so exit was made through an opening in the aircraft wreckage. Code “1” in the first box and code “3” in the second box.
   (e) Block 3e. Aircraft attitude during escape. Enter information code from table 3–17 to best describe the attitude of the aircraft at time of escape.
   (f) Block 3f. Cockpit/cabin condition. Enter the cockpit/cabin condition code from table 3–18. Consider only that portion of the aircraft this individual occupied at the time of the accident. Disregard postcrash fire damage.
   (g) Block 3g. Escape difficulties. From table 3–19 select those difficulties the individual experienced. A total of six may be selected. Enter only one two-digit code per block. Occupants fatally injured during the mishap do not require an entry.

4. Block 4. Cumulative lapsed time for rescue. Enter local time in the appropriate blocks using the 24-hour clock. Lapsed time will be the cumulative number of hours/minutes from time of the accident for each phase. Leave blank if fatally injured at impact.

5. Block 5. Distance from accident site to actual rescue vehicle at time of accident. Enter nautical miles for airborne rescue vehicles or statute miles for ground rescue vehicles.

6. Block 6. Personnel survival/rescue. Enter the appropriate information codes in the spaces provided. Use one two-digit code per block.
   (a) Block 6a. Survival problems encountered. Review the list at table 3–20 for potential problems this individual may have encountered and enter codes sequentially in the boxes provided. Occupants fatally injured during crash do not require an entry for items a through e.
   (b) Block 6b. Means used to locate individual. Enter, in sequence, information codes from table 3–21 for means used to locate individual.
   (c) Block 6c. Rescue equipment used. Enter code in sequence of items used from table 3–22.
   (d) Block 6d. Factors that helped rescue. Enter codes from table 3–23 which assisted in the rescue of the individual.
   (e) Block 6e. Factors that complicated rescue. Enter the code from Table 3-24 which complicated the rescue of the individual.
   (f) Block 6f. Individual’s physical condition. Enter the code from table 3–25 which best describes the individual’s physical condition.
   (g) Block 6g. Vehicle(s) actually performing evacuation. Enter the type vehicle(s) performing the evacuation. If the vehicle is an aircraft, enter the mission, type, design and series. For example, UH-1H, if vehicle is a motor vehicle, state vehicle type; military ambulance, civilian ambulance, private auto.
   (h) Block 6h. Other vehicles assisting in rescue. Refer to “g” above and enter the type vehicle(s) which assisted in the rescue.

7. Block 7. Remarks. Explain failures, malfunctions, injuries, and other problems not adequately defined by code terms. When “other” is coded, use this block to explain details.


10. Block 11. Enter “M” to indicate male or “F” to indicate female.
11. Block 12. Enter duty code. For crew members, enter the duty code recorded on the DA Form 2408–12. For other personnel, select code from list at table 3–5.
(13) **Block 14.** Enter a 6-digit UIC of unit to which this individual was assigned at time of accident.

(14) **Block 15.** Enter the case number shown on DA Form 2397–1 (see table 3–6).

(15) **Block 16.** Uses only in cases involving more than one aircraft and make entry only on the form identifying personnel from the other aircraft.
### TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT

#### PART XII - WEATHER/ENVIRONMENTAL

**For use of this form, DA Pamphlet 385-40; the procponent agency is OCSA.**

<table>
<thead>
<tr>
<th>1. ENVIRONMENTAL ROLE</th>
<th>2. OTHER ENVIRONMENTAL CONDITIONS PRESENT DURING ACCIDENT SEQUENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Weather Role</td>
<td>a. Animals</td>
</tr>
<tr>
<td>b. Other Environmental Conditions</td>
<td>n. Foreign Objects</td>
</tr>
<tr>
<td>c. Altimeter Reading</td>
<td>l. Temperature</td>
</tr>
<tr>
<td>3. SKY CONDITION</td>
<td></td>
</tr>
<tr>
<td>a. Clear</td>
<td>g. Clouds</td>
</tr>
<tr>
<td>b. Obscured</td>
<td>h. Sky Obscuration</td>
</tr>
<tr>
<td>4. HORIZON</td>
<td></td>
</tr>
<tr>
<td>a. Visible</td>
<td>a. Main Vertical Blinds</td>
</tr>
<tr>
<td>b. Partially Obscured</td>
<td>b. Wings</td>
</tr>
<tr>
<td>5. VIBRITION (Nautical miles)</td>
<td>c. Properly</td>
</tr>
<tr>
<td>6. OBSTRUCTION TO VISION</td>
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</tr>
<tr>
<td>a. Natural</td>
<td>a. Rotor Head</td>
</tr>
<tr>
<td>(1) Dust</td>
<td>f. Tail Rotor</td>
</tr>
<tr>
<td>(2) Fog</td>
<td>g. Fuselage</td>
</tr>
<tr>
<td>(3) Ground Fog</td>
<td>h. Propeller System</td>
</tr>
<tr>
<td>(4) Haze</td>
<td>i. Altitude</td>
</tr>
<tr>
<td>(5) Ice Fog</td>
<td>j. Engine Air Inlet</td>
</tr>
<tr>
<td>(6) Smoke</td>
<td>k. Fuel Vents</td>
</tr>
<tr>
<td>b. Induced (squirting, etc.)</td>
<td>l. Antennas</td>
</tr>
<tr>
<td>(1) Blowing Snow</td>
<td>m. Windscreen</td>
</tr>
<tr>
<td>(2) Blowing Sand</td>
<td>n. Other</td>
</tr>
<tr>
<td>(3) Blowing Dust</td>
<td>(1)</td>
</tr>
<tr>
<td>(4) Blowing Spray</td>
<td>(2)</td>
</tr>
<tr>
<td>(5) Other (Specify)</td>
<td>(3)</td>
</tr>
<tr>
<td>(6) None</td>
<td>(4)</td>
</tr>
<tr>
<td>7. WINDS</td>
<td></td>
</tr>
<tr>
<td>a. Altitude (feet)</td>
<td>a. Moon Above Horizon</td>
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<tr>
<td>b. Velocity</td>
<td>b. Moon Visible</td>
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<td>c. Degrees Above Horizon</td>
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<td>8. SIGNIFICANT WEATHER (a maximum of three may be selected)</td>
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<tr>
<td>(1) Surface Wind and Variance</td>
<td>a. Rain</td>
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<tr>
<td>(2) Surface Wind Velocity and Gust Spread</td>
<td>b. Snow</td>
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<tr>
<td>(3) Visibility and/or Snow Fall</td>
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<td>9. SIGNS OF WEATHER</td>
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<td>a. Cold</td>
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<td>b. Other (Specify)</td>
<td>m. Other</td>
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<td>c. Lightning</td>
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<td>d. Wind</td>
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<tr>
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<tr>
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<td>s. Dew Point</td>
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<tr>
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<td>t. Humidity</td>
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<td>k. Wind Direction</td>
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</tr>
<tr>
<td>l. Wind Speed</td>
<td>w. Wind Speed</td>
</tr>
<tr>
<td>m. Wind Gust</td>
<td>x. Wind Gust</td>
</tr>
<tr>
<td>n. Wind Chill</td>
<td>y. Wind Chill</td>
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<td>o. Snowfall</td>
<td>z. Snowfall</td>
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<tr>
<td>p. Snowfall Rate</td>
<td>AA. Snowfall Rate</td>
</tr>
<tr>
<td>q. Rainfall</td>
<td>BB. Rainfall</td>
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<tr>
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<td>CC. Rainfall Rate</td>
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<td>GG. Snowflake Texture</td>
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<td>UU. Snowflake Temperature</td>
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<td>VV. Snowflake Humidity</td>
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**10. AIRCRAFT ICING**

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<th>Aircraft</th>
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<tr>
<td>Trace (1)</td>
<td>Light (2)</td>
</tr>
<tr>
<td>Moderate (3)</td>
<td>Severe (4)</td>
</tr>
<tr>
<td>None</td>
<td>Yes</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
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</tbody>
</table>

**13. FORECAST**

- Correct
- Incorrect
- Unknown

**14. REMARKS**

(Use additional sheet if required)

Block 2c: Aircraft altimeter damaged in accident.

**Figure 3–13. Example of a completed DA Form 2397–11, Part XII, Weather/Environmental**
a. Also paragraph 3–14.

b. Complete instructions as follows:

(1) **Block 1.** Check the appropriate box to indicate if weather or other environmental condition caused or contributed to the accident. Weather is a definite or suspected factor only when not forecast, improperly forecast or when it was unavoidable in the accident sequence of events. Weather must be supported in the present and contributing findings of the DA Form 2397–2 and the analysis of the DA Form 2397–3. See chapter 2, paragraph 2–6, for a complete discussion on determining the environmental role in the accident.

(2) **Block 2.**
   (a) **Block 2a.** Specify in degrees centigrade. If the temperature is actual, line out “est.”
   (b) **Blocks 2b and 2c.** Enter the altimeter setting in inches of mercury (Hg) and altimeter reading in feet at the time of the accident. This must be taken as soon as possible from the accident aircraft’s altimeter. If the altimeter was damaged so that the setting cannot be determined, enter “unknown” and explain in block 14 or continuation sheet. Do not use estimates.
   (c) **Block 2d.** Prefix the pressure altitude with a plus or minus.
   (d) **Block 2e.** Check the appropriate box which reflects the general weather conditions at the time and location of the accident.

(3) **Block 3.** When a scattered, broken, or overcast sky condition is checked, specify the altitude in the space provided.

(4) **Block 4.** Check the appropriate box.

(5) **Block 5.** Enter visibility in nautical miles.

(6) **Block 6.** Obstructions to visibility are shown in the two basic categories of “natural” and “induced.” If visibility was restricted, it is extremely important to accurately distinguish between natural and induced.
   (a) **Block 6a.** More than one may apply. For example, both haze and smoke may have existed at the same time during the accident sequence; therefore, both would be checked.
   (b) **Block 6b.** Check the induced obstructions to visibility that existed during the accident sequence. For example, if the crew lost all reference when they came to a hover due to rotorwash picking up and circulating a large cloud of dust, check block 6b(3), “Blowing Dust.”

(7) **Block 7.** Use existing winds at the time of the accident.
   (a) **Block 7a.** Enter the winds aloft at the assigned or en route altitude.
   (b) **Block 7b(1).** Enter surface wind direction in degrees magnetic. If wind direction is varying, (For example, “360 variable 010,”) then enter the average wind direction on this line “360/10.”
   (c) **Block 7b(2).** Enter surface wind velocity in knots and gust spread. If surface winds are gusty, enter the surface winds as reported. For example, for winds reported as 20 knots gusting to 38 knots, enter as “20G38” (gust spread of 18).

(8) **Block 8.** Indicate significant weather present at the time of the accident. A maximum of three conditions may be checked.

(9) **Block 9.** Indicate other environmental factors that caused, contributed to, or may have influenced human performance that caused or contributed to the accident.

(10) **Block 10.** If aircraft icing was present during the accident sequence, place an X in the “Yes” block and indicate those portions of the aircraft affected by placing an X in the appropriate severity column.

(11) **Block 11.** To be completed for night accidents only. If item “a” is checked “No,” no other entries are required.

(12) **Block 12.** If turbulence existed, check the appropriate block. C-Continuous (More than two-thirds of the time.); I-Intermittent (One-third to two-thirds of the time.); O-Occasional (Less than one-third of the time.). If no turbulence existed, check “None.”

(13) **Block 13.** Check whether forecast was correct or incorrect. If not known, check “unknown” box.

(14) **Block 14.** Discuss other environmental factors not covered by this form or items that need further explanation.

(15) **Block 15.** Enter the case number shown on the DA Form 2397–1, table 3-6.
3–33. Completion instructions for DA Form 2397–12, Part XIII, Fire

<table>
<thead>
<tr>
<th>TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT</th>
<th>REQUIREMENTS CONTROL SYMBOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>PART XIII - FIRE (To be completed for all events involving fire)</td>
<td>CSOCC-309</td>
</tr>
</tbody>
</table>

For use of this form, see DA Pamphlet 385-40; the proper agency is CASA.

1. **FIRE STARTED** (Check D - Defined S - Suspected) D S
   - a. Inflight
   - b. Upon Impact (less than 1 minute)
   - c. Upon Impact (more than 1 minute)
   - d. During Refueling
   - e. Other (Specify)
   - f. Undetermined

2. **INDICATIONS OF FIRE** (More than one may apply. Enter 1, 2, or 3 to show sequence)
   - a. Fire Warning System
   - b. Other Instruments
   - c. Sight
   - d. Other (Specify)

3. **INITIAL AND PRINCIPAL LOCATION OF FIRE** (Enter 1 to indicate initial location, 2 to indicate principal location)
   - a. Engine Section
   - b. Transmission Section
   - c. Cockpit
   - d. Tail Assembly
   - e. Passenger Section

4. **FIRE EXTINGUISHING SYSTEM**
   - a. Inlet
   - b. Arrestor
   - c. External Comm.
   - d. Other (Specify)

5. **FIRE SMOKE DETECTION SYSTEM**
   - Yes
   - No
   - Undetermined

6. **EFFECT OF EMER SHUTOFF PROCEDURE**
   - Enters G, D, or U
   - Frig
   - Fuel
   - Excel

7. **GENERAL DATA**
   - a. Exhaust Flames
   - b. Sparks, Friction, e.g., Skidding
   - c. Electrical Sparks
   - d. Hot Surfaces, e.g., Exhaust Ducts
   - e. Aircraft Subsystems
   - f. Aircraft Occupant, e.g., Luggage Box
   - g. External of Aircraft, e.g., Grass Fire
   - h. Cargo
   - i. Explosives
   - j. Short Circuit
   - k. Lightning

8. **REMARKS** (Use additional sheet if required)

9. **DATE**
   - 20070626
   - 2121
   - 0010031

Figure 3–14. Example of a completed DA Form 2397–12, Part XIII, Fire
Also see paragraph 3–15.

Complete instructions as follows:

1. **Block 1.** Check the appropriate box to indicate when the fire started.
2. **Block 2.** Enter a “1” in the appropriate block for the initial indication of fire. Enter “2,” “3,” for additional indications.
3. **Block 3.** Enter a “1” in the definite or suspected block to show the first location of the fire. When the principal location of the fire is different, enter a “2” to show the principal location. For example, ignition might occur at a broken fuel line to the engine. The fire might then spread to a ruptured fuel cell, causing it to become the principal location of the fire.
4. **Block 4.** Check the appropriate box to show the ignition source. If a definite source is not known, investigators are urged to indicate a suspected source. In all cases where a suspected source is indicated, explain in block 10.
5. **Block 5.** Check the materiel(s) that were the principal source of the fire.
6. **Block 6.** Check the appropriate box(es) to report on the adequacy of ground and aircraft fire extinguishing systems. Ground (Gnd) extinguisher systems include fire trucks, ramp extinguisher. Aircraft fire extinguishing systems include those that are integrally installed (INST) in the aircraft. For example, engine fire extinguishing systems; and/or 5-pound portable bottle (PORT). Explain in block 10 all malfunctions and failures of the extinguishers/systems. Include nomenclature, NSN, size of extinguisher, type of agent, reason for failure and EIR number.
7. **Block 7.** Check the appropriate box to indicate if a fire/smoke detection system was installed and its function. If “undetermined” is checked, explain in block 10.
8. **Block 8.** Enter effectiveness of the engine, fuel, and/or electrical shutoff procedure(s).
9. **Block 9.**
   
   a. **Block 9a.** Check percentage of damage caused by fire. In cases where an in-flight fire results in the crew ejecting from the aircraft, only the fire damage prior to impact should be recorded. The objective of this item is to distinguish between fire damage and impact damage.
   
   b. **Block 9b.** The purpose of this item is to determine the occupant’s exposure to fire during the emergency evacuation. Complete the items in all cases, even those in which the occupants were trapped or incapacitated and thus unable to escape. Since it is unlikely that the dimension of the fire will be uniform around the aircraft, select the avenue of greatest distance an occupant will have to traverse to escape.
   
   c. **Block 9c.** In addition to consumption of available oxygen, aircraft fires generate toxic gases such as carbon monoxide, acrolein, and phosgene. These toxic gases may seriously affect aircraft occupants in two ways: severe contamination, irritation of the mucous membrane of the eyes and respiratory passages, and systemic absorption in sufficient quantity to produce varying degrees of incapacitation. If toxic products are suspected to have affected occupants, record on a DA Form 2397-9 for the affected occupant.
   
   d. **Block 9d.** Complete the item even though the equipment was not at the scene of the fire. The objective of this item is to determine the distribution of available firefighting equipment relative to the location of the fire accidents.
   
   e. **Block 9e.** If the impact-activated fire extinguishing system was installed on the accident aircraft, check the appropriate block to indicate its function. If not installed checked, “NA.”
10. **Block 10.** Enter explanations or clarifications of other items on the form and continue remarks on letter-size paper.

11. **Block 11.** Enter the case number shown on DA Form 2397–1.
12. **Block 12.** Use only in cases involving more than one aircraft and make entry only on the form applying to the other aircraft. For example, other than the one identified in block 11c.
### TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT

**INDEX A**

For use of this form, see DA Pamphlet 385-40; the proponent agency is OCASA.

#### 1. MISSION, TYPE, DESIGN, AND SERIES

OH-58D(R)

#### 2. CASE NO.

- **a. Date (YYYYMMDD)**: 20070426
- **b. Time**: 2121
- **c. Aircraft Serial No.**: 0010031

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<th>Not Applic</th>
<th>Remarks</th>
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<td>Copy of Orders Appointing Investigating Board</td>
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<tr>
<td>2</td>
<td>Weather Data</td>
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<tr>
<td>3</td>
<td>Certificate of Damage/ECOD</td>
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<tr>
<td>4</td>
<td>Diagrams and/or Photographs</td>
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<td>5</td>
<td>Copy of Deficiency Reports</td>
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<td>6</td>
<td>Special Technical Reports and Laboratory Analysis</td>
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<td>7</td>
<td>Weight and Balance (DD Form 366-4)</td>
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<td>8</td>
<td>Copy of Directives, Regulations, Etc.</td>
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<td>9</td>
<td>Medical Data (Autopsy, Toxicology, AFIP, etc.) (In USARC only)</td>
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<td>Flight Planning Data (Flight Plan, Mission Briefing, PPC, Risk Assessment, etc.)</td>
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<td>12</td>
<td>Copy of Aircraft Inspection and Maintenance Record (DA Form 2406-13)</td>
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<td>Copy of Unreported Fault Report (DA Form 2406-14)</td>
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<td>14</td>
<td>Copy of Equipment Modification Report (DA Form 2406-5)</td>
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</table>

#### 4. REMARKS

- 7a. Board Computed Weight and Balance
- 7b. Weight and Balance Used By The Unit
- 10a. Flight Plan
- 10b. Mission Briefing
- 10c. Board Computed PPC
- 10d. Risk Worksheet

---

Figure 3–15. Example of an DA Forms 2397–13, Index A
**Figure 3–16. Example of an DA Forms 2397–14, Index B**

<table>
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<th>Title</th>
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<th>Not App</th>
<th>See Remarks</th>
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<td>c. Findings and Recommendations</td>
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<td>d. Narrative</td>
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<td>e. Summary of Witness Interviews</td>
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</tbody>
</table>
a. Also see paragraph 3–16.
b. Complete instructions as follows:

(1) **Block 1.** DA Forms 2397–13 and 2397–14. Enter the case number shown on DA Form 2397–1, table 3–6.

(2) **Block 2.** DA Forms 2397–13 and 2397–14. Place an “X” in the block opposite each item to indicate whether the information is “Enclosed” or “Not Applicable.” An “X” in the “See Remarks” block requires an explanation in block 3 “Remarks” section of the form.

(3) **Block 3.** DA Forms 2397–13 and 2397–14. The remarks are used to indicate that required information is being delayed or not available to the accident investigation board. Remarks pertaining to delayed information will contain an estimated forwarding date. Remarks pertaining to unavailable information will include reasons for non-availability. Also, when the accident board inserts multiple documents, or wants to clarify a document under a certain tab, it should be indentified in this block.

(4) **Block 4.** DA Form 2397–14. Type signature block of all voting board members to include grade, branch, unit address, e-mail address, and telephone number (SSN not required). Each voting board member will sign all copies of the accident report unless a minority report is submitted in accordance with chapter 2 of this pamphlet. Use a continuation sheet (plain bond paper) if there are more than six voting board members.
3–35. Completion instructions for DA Form 2397–AB, Abbreviated Aviation Accident Report (AAAR)

Figure 3–17. Example of a completed DA Form 2397–AB, Abbreviated Aviation Accident Report (AAAR)
Figure 3–17. Example of a completed DA Form 2397–AB, Abbreviated Aviation Accident Report (AAAR) –continued
Figure 3–17. Example of a completed DA Form 2397–AB, Abbreviated Aviation Accident Report (AAAR) –continued

a. Also see paragraph 3–20.

Note. Complete the entire form (both sides) for all aircraft ground Class A and B, combat Class A and B, all Class C accidents, and Class A, B, and C Unmanned Aircraft System (UAS) accidents. For Class D accidents, Class E and F accidents/incidents not involving human error or injury/occupational illness only blocks 1–18 are required. For Class D accidents and Class E and F accidents/incidents involving human error or injury, complete blocks 1 through 18, 21, 23, 24, and pertinent blocks dependent upon the circumstances/situation. Refer to table 3–2.

b. The DA Form 2397–AB will be completed as follows:
   (1) Block 1. The case number consists of the year, month, and day (YYYYMMDD) of the accident, the local time of the accident, and the seven-digit aircraft serial number. Aircraft serial number must contain seven digits. In those cases where the aircraft serial number is less than seven digits, insert zeros (0) after the model year (first two digits) until seven digits are reflected.
   (2) Block 2. Check the boxes corresponding to the appropriate classification per AR 385–10, paragraph 3–4, and category as defined in the DA Pam 385-40, paragraph 1–9.
   (3) Block 3. Enter the mission, type, design, and series of the aircraft involved in the accident. For example, UH-60L, RQ-7B.
   (4) Block 4. Check the appropriate box. Dawn is that period of time between beginning of morning nautical twilight (BMNT) and official sunrise. Dusk is that period of time between official sunset and end of evening nautical twilight (EENT).
   (5) Block 5. Enter the number of aircraft involved in the accident and submit additional DA Forms 2397–AB for each additional aircraft. Do not include inoperative aircraft. When completing additional AAAR forms, do not duplicate data already provided on the case aircraft form.
   (6) Block 6. Enter the name of the nearest military installation/facility from the accident site.
   (7) Block 7. Check the appropriate boxes to indicate whether or not the accident occurred on or off post, or on or off an airfield. Tactical landing zones under positive ATC. For example, Corps’ instrumented airfield, Division’s VFR helipad, stagefields, and support bases are considered “on post” and “on airfield” for reporting purposes. Also, aircraft accidents occurring on joint-use civil airports and on civilian airports with USAR component facilities are considered “on post” and “on airfield” when there is intent to use the military facilities on that airport. For example, visit the unit, acquire fuel, and conduct training. Enter the name of the closest city, state, and country to the accident site and Military Grid Reference or latitude/longitude. (See completion instructions for DA Form 2397–1, block 4, figure 3–3, for an explanation of an airfield).
   (8) Block 8. For the organization involved, enter the six digit UIC and abbreviated title of the lowest level organization having operational control of the aircraft at the time of the accident.

Note. For Army Reserve or Army National Guard units on active duty status, if the unit of assignment is other than the Reserve or
National Guard, enter the unit of assignment chain of command in block 8. Enter the Army Reserve or Army National Guard unit in block 21a(6).

9) Block 9. Enter the information pertaining to the organization most responsible/accountable for the accident. If the organization is the same as block 8, leave blank.

10) Block 10. Pertains to the estimated accident damage cost. Do not include those items excluded from accident cost by this DA Pamphlet, paragraph 1-10. Enter in blocks 10b through 10h, only the cost associated with the aircraft to which this form pertains. To complete this block:

a) Block 10a. If “Yes,” enter the replacement cost per TB 43-0002-3 in block 10b and do not fill in blocks 10c and 10d (man-hours). If “No,” enter AMDF cost of damaged components/parts in block 10b and fill in blocks 10c and 10d (man-hours). UAS cost to replace or repair will be calculated at the current cost at the time of the accident.

b) Block 10b. Enter the cost of replacement aircraft or component/part damage, excluding man-hour cost.

c) Block 10c. Enter only the number of man-hours required to repair aircraft damage.

d) Block 10d. Man-hour cost pertains to aircraft damage only, based on current cost criteria specified in this DA pamphlet. Other manhour cost will be included in block 10e (Other Damage Military). Some UAS are contractually bound to receive ECOD from the manufacturer. In this case, no entries will be made in block 10c or d.

e) Block 10e. Enter all costs to other military property resulting from the accident (includes inoperative aircraft).

f) Block 10f. Enter the damage cost to civilian property.

g) Block 10g. Enter the injury/occupational illness cost of all personnel. The cost can be obtained by adding the cost from block 19 of DA Form 2397-9 or injury/occupational illness criteria at table 1–1.

h) Block 10h. Enter the total of blocks 10b through 10g.

i) Block 10i. Leave blank unless block 5 indicates multiple aircraft are involved. Enter the total of blocks 10h when multiple aircraft accidents are involved.

11) Block 11. Complete the general data block as follows:

a) Block 11a. Enter the mission as shown on the DA Form 2408-12, from AR 95-1 or AR 95-23. For maintenance operations with or without intent for flight, enter “S” for service. If none enter “NA.” Also, check the appropriate box to indicate whether or not the subject aircraft was participating in a field training exercise (FTX). If “Yes,” enter the FTX name in the space provided.

b) Block 11b. Check the appropriate box which indicates the type flight plan on file at the time of the accident.

c) Block 11c. Check the appropriate box to indicate whether or not a Digital Source Collector was installed and type.

d) Block 11d. Check the appropriate box to indicate whether or not night vision device(s)/system was in use at the time of the accident/incident. If “Yes,” enter NVD used in the space provided.

e) Block 11e. Check the appropriate box to indicate the phase of operation when the fire started. Identify in the remarks, the combustible materiel and the ignition source of the fire.

f) Block 11f. If “Yes,” is checked for Class C and above accidents, complete a DA Form 2397-6 and attach it to the report. For Class D, E, and F, explain the type and source of spillage in block 15.

g) Block 11g. Check the appropriate box to indicate whether or not the subject aircraft was participating in a field training exercise (FTX). If “Yes,” enter the FTX name in the space provided.

12) Block 12. Enter the flight parameters at the times indicated. Flight parameters pertain to both flight and ground operations of the aircraft.

a) Block 12a. Enter the listed flight parameters at the onset of the emergency. Enter a maximum of three phase of operation codes listed at table 3–4.

b) Block 12b. Enter the flight parameters at the time of the first major impact/accident, except in those cases where an in-flight strike occurred, resulting in a second impact, in which case the second impact will be recorded here. This block may duplicate block 12a (emergency phase). Enter a maximum of three phase of operation codes listed at Table 3-4.

13) Block 13. Enter up to three event codes (see table 3–2 or app F) that best categorize the accident/incident. Enter the event code that best describes the accident/incident in the first space. Exception: Enter events 10, 12, 40, and 45 in the first space if applicable.

14) Block 14. Enter “D,” “S,” or “U” in the appropriate block to indicate whether or not human, materiel, or environment factors played a definite, suspected, or undetermined role in the accident/incident. Each indicated contributing cause factor will be substantiated by the findings (block 24), and by the summary (block 15), for all accidents. In addition, complete the appropriate block pertaining to the cause factor (block 16) for definite or suspected materiel factors.

15) Block 15. Enter a concise summary of events from the initial onset of the emergency until the aircraft is at rest, to include injuries resulting from the accident. Specify the actual errors/failures/effects and the root causes. The specified errors/failures/effects and root causes should be supported in the narrative of the summary. The summary
should substantiate the findings entered in block 24. For D, E, and F accidents/incidents not involving human error, describe all materiel and environmental contributing factors, fire ignition sources, and combustible materiel cases involving fire. Also, enter PQDR number, category, and status when materiel deficiencies are involved. Additionally, include the following risk management information for all Class C accidents and above:

(a) At what level was the mission/training conducted (brigade/battalion/company/platoon/squad/team/crew)?
(b) Who approved the mission/training (rank/position)?
(c) Was risk management performed?
   1. Who performed (rank/position)?
   2. Who accepted risks (rank/position)?
   3. What was the level of risk after the controls were applied? (Select one: low/moderate/high/extremely high)
   4. How was the risk management process communicated? (Select one or more: order/worksheet/verbal brief/not communicated.)
   5. Was the accident event identified/considered during risk management process (y/n)?
   6. If yes, what was the level of the identified risk (select one: low/medium/high/extremely high)?
   7. If yes, was control measure(s) applied (y/n)?
   8. If yes, who was responsible for implementing control(s) (rank/position)?
   9. If yes, was the potential for the accident event accepted as residual risk (y/n)?
(d) Who was in charge during the mission/training (rank/position)?
(e) Who was the senior leader present during the mission/training (rank/position)? Use a continuation sheet on plain bond paper if necessary.

Note. Attach a completed DA Form 2397–3 if the board determines that more narrative information is required. See DA Form 2397–3 completion instructions for figure 3–4.

(16) Block 16. This block must be completed if a materiel factor is indicated in block 14b. Enter the requested data for materiel failure/malfunction resulting from FWT, maintenance or manufacture error, and/or design deficiency (for maintenance error, over which the Army has control, block 21 must also be completed). A Product Quality Deficiency Report (PQDR) is required for all materiel accidents in accordance with AR 385–10, paragraph 3–9b(1) and DA Pam 738–751, paragraph 3–2. Component data is required only on those involving the power and drive trains. For example, engine, transmission, gearboxes, combining transmissions.

(17) Block 17. Check this block to reflect the environmental conditions present at the time and location of the accident/incident. This block must be completed for all reports. Environmental contributing factors will be checked and substantiated in the summary or findings, depending upon the classification and circumstances.

(18) Block 18. For Class C and above accidents, enter the data for the investigation board president. For Class D and E accidents, and for Class E and F incidents, enter the safety officer/representative submitting the report. Include the e-mail address of the board president/ASO/POC.

Note. For Class D, E, and F reports not involving human error/injury or occupational illness, no further entries are required.

(19) Block 19. Complete this block for night Class C and above accidents or night relevant dawn and dusk accidents involving human error, when NVD or environmental factors are present.

(20) Block 20. Complete this block for all wire strikes.

(21) Block 21. Complete this block for all Class A, B, and C accidents for crew members with access to the controls regardless of the accident cause factor. Also, complete this block for all personnel who had a causative role or was injured as a result of the accident/incident (Class A-F). This block is not required for materiel failure Class D and E accidents, Class E and F incidents, where the only cause of the failure was FWT. If more than three personnel are involved, use additional forms as necessary. Use the instructions for block 21a for completing blocks 21b and 21c.

(a) Block 21a. (1). Enter the individual’s last name, first name, and middle initial.
(b) Block 21a. (1). Enter the individual’s social security number.
(c) Block 21a. (2). Enter the individual’s pay grade. For example, O4, W3, GS–09, W–10. See table 3–8.
(d) Block 21a. (3). Enter the individual’s gender.
(e) Block 21a. (4). Enter the duty position code as shown on DA Form 2408–12 for the flight, or from the list at table 3–5.
(f) Block 21a. (5). Enter the personnel service code of the individual from the list at table 3–9.
(g) Block 21a. (6). Enter the UIC of the unit to which the individual is assigned at the time of the accident.
(h) Block 21a. (7). Check “D,” “S,” “N,” or “U” to indicate the individual’s casual role in the accident.
(i) Block 21a. (8). Check the box to indicate if the individual was on the flight controls/occupying a UAS flight control station at the time of the accident or his previous control input had any influence on the accident.
(j) Block 21a. (9)(a). Check if blood and urine samples were taken (required for Class C and above accidents).
(k) Block 21a. (9)(b). If the results are positive, attach the AFIP results and address in findings at block 24 (authorized medication excluded).
Block 21a. (10)(a). Enter the total number of hours this individual slept during the 24-hour period preceding the accident.

(m) Block 21a. (10)(b). Enter the total number of hours this individual worked in the 24 hours preceding the accident.

(n) Block 21a. (10)(c). Enter the total number of hours this individual flew in the 24 hours preceding the accident.

(o) Block 21a. (11)(a)(b). If the individual is a rated aviator/UAS operator, check the appropriate box to indicate his/her RL and FAC level.

(p) Block 21a. (11)(c). Enter the date the individual redeployed from a combat zone.

(q) Block 21a. (12). Check the appropriate box to indicate if the individual was injured. If “Yes” is checked, a DA Form 2397-9 is required to be submitted for each individual injured as a result of the accident. Accidents involving injury/occupational illness require a physician or physician’s assistant to be a member/advisor of the board. Instructions for completing the DA Form 2397-9 are contained in this pamphlet.

(r) Block 21a. (13). Enter the total number of flight hours this individual has accrued in the accident aircraft mission, type, design, and series.

(s) Block 21a. (14). Enter the total number of flight hours in all aircraft.

(22) Block 22. Pertains to Class C and above accidents only. This block is not required for UAS accidents.

(a) Block 22a. Any deformation of occupiable space constitutes a compromise for the purpose of this report. If “Yes” is checked, a DA Form 2397–6 is required to be submitted with the DA Form 2397–AB. Instructions for completing the DA Form 2397–6 are contained in this pamphlet. Pertains to Class C and above accidents only.

(b) Block 22b. Check the appropriate box to indicate if post-crash escape/rescue/survival difficulties were a factor for this individual. If “Yes,” submit a DA Form 2397-10 for the individual(s). Instructions for completing the DA Form 2397–10 are contained in this pamphlet.

(c) Block 22c. Check the appropriate box to indicate if protective/restraint equipment functioned as designed. If “No”, submit a DA Form 2397–10 for the individual(s). Additionally, check “No” and submit DA Form 2397–10 on the individuals if protective/restraint equipment was needed but not available, or was a contributing factor in the accident. Instructions for completing the DA Form 2397–10 are contained in this pamphlet.

(23) Block 23. Check the block(s) that best describe the cause(s) of the accident and substantiate each box checked in the findings.

(24) Block 24. Instructions for writing findings and recommendations are contained in paragraph 3–23, block 1, of this pamphlet. Completion instructions for DA Form 2397–2 are contained in this pamphlet.

(25) Block 25. Enter the substantiating data submitted with the DA Form 2397–AB.

(26) Block 26. For Class C and above accidents only.

Note. Supplemental DA Form 2397–AB. Follow-up data, (for example, CCAD, DR (PQDR)) teardown results are to be submitted as required. Complete only block 1 (case number) and those blocks for which the supplemental data applies.

Table 3–2
Event codes associated with aircraft accidents

<table>
<thead>
<tr>
<th>Code</th>
<th>Type event</th>
<th>Code</th>
<th>Type event</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Precautionary landing (PL)</td>
<td>53</td>
<td>Missing aircraft</td>
</tr>
<tr>
<td>02</td>
<td>Forced landing(FL)/UAS flight termination system (FTS) deployed</td>
<td>54</td>
<td>FOD (other than event 45)</td>
</tr>
<tr>
<td>03</td>
<td>Aborted takeoff</td>
<td>55</td>
<td>Dynamic rollover</td>
</tr>
<tr>
<td>04</td>
<td>Human factor</td>
<td>56</td>
<td>Maintenance operational test</td>
</tr>
<tr>
<td>05</td>
<td>Cargo</td>
<td>57</td>
<td>Weapons related</td>
</tr>
<tr>
<td>06</td>
<td>Personnel handling</td>
<td>58</td>
<td>Lightning strike</td>
</tr>
<tr>
<td>07</td>
<td>External stores</td>
<td>59</td>
<td>Rescue operations</td>
</tr>
<tr>
<td>08</td>
<td>Multiple aircraft event</td>
<td>60</td>
<td>Object strike</td>
</tr>
<tr>
<td>09</td>
<td>Misappropriated aircraft</td>
<td>61</td>
<td>Air-to-ground collision</td>
</tr>
<tr>
<td>10</td>
<td>Unmanned aircraft/Drone aircraft</td>
<td>62</td>
<td>Stump strike</td>
</tr>
<tr>
<td>11</td>
<td>Contractor aircraft accident</td>
<td>63</td>
<td>Antenna strike</td>
</tr>
<tr>
<td>12</td>
<td>Aircraft ground accident</td>
<td>64</td>
<td>Engine overtorque/overload</td>
</tr>
<tr>
<td>13</td>
<td>Laser-induced/related</td>
<td>65</td>
<td>Whiteout</td>
</tr>
<tr>
<td>14</td>
<td>Fratricide</td>
<td>66</td>
<td>Tiedown strike</td>
</tr>
<tr>
<td>Code</td>
<td>Type event</td>
<td>Code</td>
<td>Type event</td>
</tr>
<tr>
<td>------</td>
<td>------------</td>
<td>------</td>
<td>------------</td>
</tr>
<tr>
<td>15</td>
<td>Single-engine landing (multi-engine aircraft only)</td>
<td>67</td>
<td>Parachute deployment</td>
</tr>
<tr>
<td>16</td>
<td>Uncommanded control input</td>
<td>68</td>
<td>Mast bumping</td>
</tr>
<tr>
<td>17</td>
<td>Cockpit airbags</td>
<td>69</td>
<td>Structural icing</td>
</tr>
<tr>
<td>18</td>
<td>Icing</td>
<td>70</td>
<td>Engine failure, power loss, or internal</td>
</tr>
<tr>
<td>19</td>
<td>(Reserved for future addition)</td>
<td>71</td>
<td>Transmission failure</td>
</tr>
<tr>
<td>20</td>
<td>Refueling</td>
<td>72</td>
<td>Vertical fin strike</td>
</tr>
<tr>
<td>21</td>
<td>Midair collision</td>
<td>73</td>
<td>Spike knock</td>
</tr>
<tr>
<td>22</td>
<td>Helocasting</td>
<td>74</td>
<td>Seatbelt/restraint harness strike</td>
</tr>
<tr>
<td>23</td>
<td>Hard landing</td>
<td>75</td>
<td>Blade flapping</td>
</tr>
<tr>
<td>25</td>
<td>Landing gear collapse/retraction</td>
<td>76</td>
<td>Fuel exhaustion</td>
</tr>
<tr>
<td>26</td>
<td>Undershoot</td>
<td>77</td>
<td>Fuel starvation</td>
</tr>
<tr>
<td>27</td>
<td>Overshoot or overrun</td>
<td>78</td>
<td>Animal strike</td>
</tr>
<tr>
<td>28</td>
<td>Ditching</td>
<td>79</td>
<td>Battery fire/overheat</td>
</tr>
<tr>
<td>29</td>
<td>Ground loop/sweave</td>
<td>80</td>
<td>Excessive yaw/spin</td>
</tr>
<tr>
<td>30</td>
<td>Collision with ground/water</td>
<td>81</td>
<td>Tail boom strike</td>
</tr>
<tr>
<td>31</td>
<td>Aircraft collisions on the ground</td>
<td><strong>Material Factor Event Codes</strong></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Other collisions</td>
<td>82</td>
<td>Airframe</td>
</tr>
<tr>
<td>33</td>
<td>Rotor overspeed</td>
<td>83</td>
<td>Landing gear/arresting hook</td>
</tr>
<tr>
<td>34</td>
<td>Fire and/or explosion on the ground</td>
<td>84</td>
<td>Power train (except events 47 and 70)</td>
</tr>
<tr>
<td>35</td>
<td>Fire and/or explosion in the air</td>
<td>85</td>
<td>Drive train (except event 71)</td>
</tr>
<tr>
<td>36</td>
<td>Equipment loss or dropped object</td>
<td>86</td>
<td>Rotor/propellers</td>
</tr>
<tr>
<td>37</td>
<td>In-flight breakup</td>
<td>87</td>
<td>Hydraulics system</td>
</tr>
<tr>
<td>38</td>
<td>Spin or stall</td>
<td>88</td>
<td>Pneumatic system</td>
</tr>
<tr>
<td>39</td>
<td>Abandoned aircraft</td>
<td>89</td>
<td>Instruments</td>
</tr>
<tr>
<td>40</td>
<td>Flight-related accident</td>
<td>90</td>
<td>Warning system</td>
</tr>
<tr>
<td>41</td>
<td>Instrument meteorological condition (IMC)</td>
<td>91</td>
<td>Electrical system</td>
</tr>
<tr>
<td>42</td>
<td>Rappelling</td>
<td>92</td>
<td>Fuel system</td>
</tr>
<tr>
<td>43</td>
<td>Fast rope</td>
<td>93</td>
<td>Flight control</td>
</tr>
<tr>
<td>44</td>
<td>Overstress</td>
<td>94</td>
<td>Utility/environmental control system</td>
</tr>
<tr>
<td>45</td>
<td>Turbine engine</td>
<td>95</td>
<td>Avionics</td>
</tr>
<tr>
<td>46</td>
<td>Rotor/prop wash</td>
<td>96</td>
<td>Cargo handling equipment</td>
</tr>
<tr>
<td>47</td>
<td>Engine overspeed/overtemp</td>
<td>97</td>
<td>Ammunition</td>
</tr>
<tr>
<td>48</td>
<td>Brownout</td>
<td>98</td>
<td>Night vision device</td>
</tr>
<tr>
<td>49</td>
<td>Bird strike</td>
<td>A1</td>
<td>Launcher malfunction</td>
</tr>
<tr>
<td>50</td>
<td>Tree strike</td>
<td>A2</td>
<td>Tactical Automated Landing (TALS) recovery failure</td>
</tr>
<tr>
<td>51</td>
<td>Wire strike</td>
<td>A3</td>
<td>Arresting gear failure (drum, strap, pendant)</td>
</tr>
<tr>
<td>52</td>
<td>In-flight breakup (from mast bumping)</td>
<td>A4</td>
<td>Flight Termination System (FTS) parachute failure</td>
</tr>
</tbody>
</table>
### Table 3–3
Ownership of damaged property

<table>
<thead>
<tr>
<th>Code</th>
<th>Owner</th>
<th>Code</th>
<th>Owner</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Active Army</td>
<td>N</td>
<td>Army National Guard</td>
</tr>
<tr>
<td>B</td>
<td>Army contractor</td>
<td>R</td>
<td>Army Reserve</td>
</tr>
<tr>
<td>C</td>
<td>Non-appropriated fund</td>
<td>S</td>
<td>Commercial</td>
</tr>
<tr>
<td>F</td>
<td>Foreign Government</td>
<td>T</td>
<td>Private/civilian</td>
</tr>
<tr>
<td>J</td>
<td>Air Force (includes Reserve/ANG components)</td>
<td>X</td>
<td>Unknown</td>
</tr>
<tr>
<td>K</td>
<td>Navy (includes Reserve components)</td>
<td>Y</td>
<td>Ownership not elsewhere coded</td>
</tr>
<tr>
<td>L</td>
<td>Marine (includes Reserve components)</td>
<td>Z</td>
<td>Undetermined</td>
</tr>
<tr>
<td>M</td>
<td>Government, other (For example, FAA, FBI, Customs)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 3–4
Phase of operation

<table>
<thead>
<tr>
<th>Code</th>
<th>Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Starting engine/run-up</td>
</tr>
<tr>
<td>B</td>
<td>Stationary (engines running)</td>
</tr>
<tr>
<td>C</td>
<td>Taxi</td>
</tr>
<tr>
<td>D</td>
<td>Takeoff/catapult/launch</td>
</tr>
<tr>
<td>E</td>
<td>Hover IGE</td>
</tr>
<tr>
<td>F</td>
<td>Climb (after takeoff phase is completed and climb to altitude is established)</td>
</tr>
<tr>
<td>G</td>
<td>Cruise</td>
</tr>
<tr>
<td>H</td>
<td>Combat maneuver (masking, unmasking, gun run, evasive action)</td>
</tr>
<tr>
<td>I</td>
<td>Descent (does not include approach)</td>
</tr>
<tr>
<td>J</td>
<td>Approach (prior to landing/termination), UAS TALS</td>
</tr>
<tr>
<td>K</td>
<td>Emergency autorotation</td>
</tr>
<tr>
<td>L</td>
<td>Go-around (the intended landing/termination is aborted) TALS abort</td>
</tr>
<tr>
<td>M</td>
<td>Landing (aircraft touchdown until forward motion stops or aircraft clears surface)</td>
</tr>
<tr>
<td>N</td>
<td>Low level (constant airspeed and altitude below 500 feet AGL)</td>
</tr>
<tr>
<td>O</td>
<td>Contour (varying altitude, while maintaining constant height above the contour of the earth’s surface/obstacles)</td>
</tr>
<tr>
<td>P</td>
<td>NOE (varying airspeed and altitude, using the earth’s contour/vegetation for concealment)</td>
</tr>
<tr>
<td>Q</td>
<td>Hover OGE</td>
</tr>
<tr>
<td>R</td>
<td>Crash (crew has no control over the aircraft attitude)</td>
</tr>
<tr>
<td>S</td>
<td>Aerobatics</td>
</tr>
<tr>
<td>T</td>
<td>Termination w/power (planned/attempted termination of an autorotation is to hover)</td>
</tr>
<tr>
<td>U</td>
<td>Undetermined/unknown</td>
</tr>
<tr>
<td>V</td>
<td>Power recovery (the process of returning the aircraft to power; flight from an engine-out configuration)</td>
</tr>
<tr>
<td>W</td>
<td>Training autorotation</td>
</tr>
<tr>
<td>X</td>
<td>Formation</td>
</tr>
<tr>
<td>Y</td>
<td>Preflight activity (any activity prior to the flight that caused or contributed to the accident) For example, mission planning, crew assignment, training, preflight.</td>
</tr>
</tbody>
</table>
### Table 3-4
Phase of operation—Continued

<table>
<thead>
<tr>
<th>Code</th>
<th>Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z</td>
<td>Refueling (to identify the type refueling being conducted, use an additional code preceding the Z code) For example, in-flight refueling should be coded as “GZ”</td>
</tr>
<tr>
<td>2</td>
<td>Turning</td>
</tr>
<tr>
<td>3</td>
<td>Deceleration</td>
</tr>
<tr>
<td>4</td>
<td>Level off</td>
</tr>
<tr>
<td>5</td>
<td>Shut down</td>
</tr>
<tr>
<td>6</td>
<td>UAS Flight Termination System (FTS) deployed</td>
</tr>
</tbody>
</table>

### Table 3-5
Duty position codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Duty position</th>
<th>Code</th>
<th>Duty position</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABC</td>
<td>Avn Battalion Commander</td>
<td>LO</td>
<td>Liaison Officer</td>
</tr>
<tr>
<td>ADC</td>
<td>App/Dep Controller</td>
<td>MC</td>
<td>Mission Commander</td>
</tr>
<tr>
<td>AMC</td>
<td>Air Mission Commander</td>
<td>MCO</td>
<td>Major Commander/Supervisor</td>
</tr>
<tr>
<td>AO</td>
<td>Unmanned Aircraft Operator</td>
<td>ME</td>
<td>Maintenance Test Flight Evaluator</td>
</tr>
<tr>
<td>AOP</td>
<td>Assistant Operations Officer</td>
<td>MFP</td>
<td>Manufacturing/Rework Personnel</td>
</tr>
<tr>
<td>AOS</td>
<td>Assistant Operations</td>
<td>MO</td>
<td>Flight Surgeon/Medical Attendant</td>
</tr>
<tr>
<td>AFTP</td>
<td>AFTP Supervisor</td>
<td>MP</td>
<td>Maintenance Test Pilot</td>
</tr>
<tr>
<td>ASO</td>
<td>Aviation Safety Officer</td>
<td>MPI</td>
<td>Mission Payload Instructor</td>
</tr>
<tr>
<td>ART</td>
<td>Armament/Arms Technician</td>
<td>MPO</td>
<td>Mission Payload Officer</td>
</tr>
<tr>
<td>AUC</td>
<td>Aviation Unit Commander</td>
<td>MS</td>
<td>Maintenance Supervisor</td>
</tr>
<tr>
<td>AVT</td>
<td>Avionics Technician</td>
<td>OAY</td>
<td>Others Aboard Aircraft</td>
</tr>
<tr>
<td>CC</td>
<td>Company Commander</td>
<td>OGY</td>
<td>Other Personnel Not Aboard Aircraft</td>
</tr>
<tr>
<td>CE</td>
<td>Crew Chief/Flight Engineer</td>
<td>OP</td>
<td>Operations Officer</td>
</tr>
<tr>
<td>CET</td>
<td>Combat-Equipped Troops/Jumpers</td>
<td>OPN</td>
<td>Operations Dispatcher</td>
</tr>
<tr>
<td>CP</td>
<td>Copilot</td>
<td>OR</td>
<td>Gunner/Technical Observer/Aircraft Maintenance Personnel/Photographer</td>
</tr>
<tr>
<td>DCO</td>
<td>DA/DOD-Level/Cdr/Supervisor</td>
<td>PAX</td>
<td>Passenger</td>
</tr>
<tr>
<td>DC</td>
<td>Deputy Commander</td>
<td>PC</td>
<td>Pilot in Command</td>
</tr>
<tr>
<td>DS</td>
<td>Direct Supervisor</td>
<td>PF</td>
<td>Pathfinder</td>
</tr>
<tr>
<td>DEP</td>
<td>Design/Engineering Personnel</td>
<td>PI</td>
<td>Pilot</td>
</tr>
<tr>
<td>E</td>
<td>Electrician</td>
<td>PL</td>
<td>Platoon Leader</td>
</tr>
<tr>
<td>EO</td>
<td>External Operator</td>
<td>PO</td>
<td>Mission Payload Operator</td>
</tr>
<tr>
<td>FAC</td>
<td>Fwd Air Control</td>
<td>PPM</td>
<td>Power Plant Mechanic</td>
</tr>
<tr>
<td>FC</td>
<td>Flight Commander</td>
<td>PT</td>
<td>Pilot Trainee</td>
</tr>
<tr>
<td>FCO</td>
<td>Flight Leader</td>
<td>PTM</td>
<td>Power Train Mechanic</td>
</tr>
</tbody>
</table>
### Table 3–5

<table>
<thead>
<tr>
<th>Code</th>
<th>Duty position</th>
<th>Code</th>
<th>Duty position</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCT</td>
<td>Weather Personnel</td>
<td>PTO</td>
<td>Pilot Trainee Observer</td>
</tr>
<tr>
<td>FFT</td>
<td>Crash Rescue/ Firefighters</td>
<td>PTR</td>
<td>Pilot Trainee Rated</td>
</tr>
<tr>
<td>FI</td>
<td>Flight Engineer Instructor</td>
<td>RAP</td>
<td>Rappeller</td>
</tr>
<tr>
<td>FSP</td>
<td>Flight Service Personnel</td>
<td>RM</td>
<td>Rappeller Master</td>
</tr>
<tr>
<td>FTM</td>
<td>Fuel Team Member</td>
<td>RS</td>
<td>Rappeller Safety</td>
</tr>
<tr>
<td>FTS</td>
<td>Fuel Team Supervisor</td>
<td>SO</td>
<td>Standardization Instructor Operator</td>
</tr>
<tr>
<td>G–3</td>
<td>G–3</td>
<td>S3</td>
<td>S–3</td>
</tr>
<tr>
<td>GC</td>
<td>Ground Unit Commander</td>
<td>SI</td>
<td>Stan Flight Engineer Instructor</td>
</tr>
<tr>
<td>GCA</td>
<td>Final Controller</td>
<td>SM</td>
<td>Structure/Airframe Mechanic</td>
</tr>
<tr>
<td>GG</td>
<td>Ground Guide/“Follow Me”</td>
<td>SP</td>
<td>Standardization Instructor Pilot</td>
</tr>
<tr>
<td>GM</td>
<td>General Mechanic</td>
<td>TI</td>
<td>Technical Inspector</td>
</tr>
<tr>
<td>GSY</td>
<td>Other Ground Support Personnel</td>
<td>TWC</td>
<td>Tower Personnel</td>
</tr>
<tr>
<td>IE</td>
<td>Instrument Flight Examiner</td>
<td>UNK</td>
<td>Unknown</td>
</tr>
<tr>
<td>IP</td>
<td>Instructor Pilot</td>
<td>UT</td>
<td>Unit Trainer</td>
</tr>
<tr>
<td>IO</td>
<td>Instructor Operator</td>
<td>XO</td>
<td>Executive Officer</td>
</tr>
<tr>
<td>JPM</td>
<td>Para Jump Mstr</td>
<td>XP</td>
<td>Experimental Test Pilot</td>
</tr>
<tr>
<td>LCO</td>
<td>Local Commander/ Supervisor</td>
<td>ZR</td>
<td>Rated Passenger</td>
</tr>
</tbody>
</table>

### Table 3–6

<table>
<thead>
<tr>
<th>Digits</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 &amp; 4</td>
<td>4 Digits of the year in which the accident occurred. For example, 2008, 2009.</td>
</tr>
<tr>
<td>5 &amp; 6</td>
<td>A 2-digit designator for the month in which the accident occurred. For example, 01=Jan, 09=Sep, 11=Nov.</td>
</tr>
<tr>
<td>7 &amp; 8</td>
<td>A 2-digit designator for the day of the month in which the accident occurred. For example, 01, 02, 03.</td>
</tr>
<tr>
<td>9 - 12</td>
<td>A 4-digit designator for local time of day accident occurred. For example, 0930, 2200.</td>
</tr>
<tr>
<td>13 - 19</td>
<td>The serial number of the “case aircraft” involved.</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td>P01</td>
<td>Scan</td>
</tr>
<tr>
<td>P02</td>
<td>Maintain/recover orientation</td>
</tr>
<tr>
<td>P03</td>
<td>In-flight planning</td>
</tr>
<tr>
<td>P04</td>
<td>Preflight planning</td>
</tr>
<tr>
<td>P05</td>
<td>Estimate distance/closure/control input</td>
</tr>
<tr>
<td>P06</td>
<td>Detect hazards/obstacles</td>
</tr>
<tr>
<td>P07</td>
<td>Diagnose or respond to an emergency</td>
</tr>
<tr>
<td>P08</td>
<td>Coordination</td>
</tr>
<tr>
<td>P09</td>
<td>Failed to use or follow checklist</td>
</tr>
<tr>
<td>P10</td>
<td>Failed to follow maintenance manual (TM, SOP, TB), instructions while servicing acft/equip</td>
</tr>
<tr>
<td>P11</td>
<td>Failed to follow instructions (TM, TB, MWO) while repairing, installing, or adjusting equipment</td>
</tr>
<tr>
<td>P12</td>
<td>Inadequate/improper inspection</td>
</tr>
<tr>
<td>P13</td>
<td>Failed to read/follow available SOPs, notices, ARs, general rules/principles</td>
</tr>
<tr>
<td>P14</td>
<td>Inadequate tool/equip accountability</td>
</tr>
<tr>
<td>P15</td>
<td>Failed to secure materiel/equip/cargo</td>
</tr>
<tr>
<td>P16</td>
<td>Inadequate/improper LZ/termination point selection</td>
</tr>
<tr>
<td>P17</td>
<td>Improperly prepared LZ</td>
</tr>
<tr>
<td>P18</td>
<td>Improper mix/match/number of personnel</td>
</tr>
<tr>
<td>P19</td>
<td>Inadequate time allowed for pre-mission preparation</td>
</tr>
<tr>
<td>P20</td>
<td>Set/permitted inappropriate launch time for environmental conditions</td>
</tr>
<tr>
<td>P21</td>
<td>Permitted selection of inappropriate LZ for intended training or crew experience</td>
</tr>
<tr>
<td>P22</td>
<td>Failed to ensure repairs/services/inspections/MWO are in accordance with appropriate TMs, TB, MWOs</td>
</tr>
<tr>
<td>P23</td>
<td>Failed to take appropriate/timely action to prevent or stop violation of procedures/unsafe acts</td>
</tr>
<tr>
<td>P24</td>
<td>Inadequate mission planning for risk-management, operational, and logistic decisions</td>
</tr>
<tr>
<td>P25</td>
<td>Failed to brief/provide information</td>
</tr>
<tr>
<td>P97</td>
<td>Insufficient information to determine mistake/error</td>
</tr>
</tbody>
</table>

**Supervisor--Specific Mistakes/Errors**

<p>| M01  | Overheated/burned/melted |        |
| M02  | Froze (temperature) |        |
| M03  | Obstructed/pinched/clogged |        |
| M04  | Vibrated |        |
| M05  | Rubbed/worn/frayed |        |
| M06  | Corroded/rusted/pitted |        |
| M07  | Overpressured/burst |        |
| M08  | Pulled/stretched |        |
| M09  | Twisted/torqued |        |
| M10  | Compressed/hit/punctured |        |
| M11  | Bent/warped |        |
| M12  | Sheared/cut |        |</p>
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>M13</td>
<td>Decayed/decomposed</td>
</tr>
<tr>
<td>M14</td>
<td>Electric current action (short, arc, surge)</td>
</tr>
<tr>
<td>M97</td>
<td>Insufficient information reported to identify type of failure/malfunction</td>
</tr>
</tbody>
</table>

### Environmental Effects/Condition

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>E01</td>
<td>Illumination (dark, glare)</td>
</tr>
<tr>
<td>E02</td>
<td>Precipitation (rain, fog, ice, snow)</td>
</tr>
<tr>
<td>E03</td>
<td>Contaminants (fumes, dust, chemicals, FOD)</td>
</tr>
<tr>
<td>E04</td>
<td>Noise</td>
</tr>
<tr>
<td>E05</td>
<td>Temperature/humidity</td>
</tr>
<tr>
<td>E06</td>
<td>Wind turbulence</td>
</tr>
<tr>
<td>E07</td>
<td>Vibration</td>
</tr>
<tr>
<td>E08</td>
<td>Acceleration/deceleration</td>
</tr>
<tr>
<td>E09</td>
<td>Radiation (sunlight, X-ray, LASER)</td>
</tr>
<tr>
<td>E10</td>
<td>Work surface/space (slippery floor, cluttered walkway, steep rough road)</td>
</tr>
<tr>
<td>E11</td>
<td>Air pressure (explosion, decompression, altitude effects)</td>
</tr>
<tr>
<td>E12</td>
<td>Electricity (lightning, arc, surge, short, shock)</td>
</tr>
<tr>
<td>E13</td>
<td>Animals (deer, birds, rodents, insects)</td>
</tr>
<tr>
<td>E97</td>
<td>Insufficient information reported to identify environmental conditions</td>
</tr>
</tbody>
</table>

### System inadequacy(ies)/Root cause(s)/Readiness shortcomings

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Inadequate/improper supervision by “Higher command”</td>
</tr>
<tr>
<td>02</td>
<td>Inadequate/improper supervision by “Staff officer,” (or example, operations, safety, supply)</td>
</tr>
<tr>
<td>03</td>
<td>Inadequate/improper supervision by “Unit command”</td>
</tr>
<tr>
<td>04</td>
<td>Inadequate/improper supervision by “Direct supervisor,” (for example, instructor, squad leader, aircraft commander)</td>
</tr>
<tr>
<td>05</td>
<td>Inadequate school training</td>
</tr>
<tr>
<td>06</td>
<td>Inadequate unit training</td>
</tr>
<tr>
<td>07</td>
<td>Inadequate experience</td>
</tr>
<tr>
<td>08</td>
<td>Habit interference</td>
</tr>
<tr>
<td>09</td>
<td>Inadequate written procedures for operation under normal, abnormal, or emergency conditions</td>
</tr>
<tr>
<td>10</td>
<td>Inadequate facilities or services</td>
</tr>
<tr>
<td>11</td>
<td>Inadequate/improper equip/materiel design or equipment not provided</td>
</tr>
<tr>
<td>12</td>
<td>Insufficient type/number of personnel</td>
</tr>
<tr>
<td>13</td>
<td>Inadequate manufacture, assembly, packaging, or quality control</td>
</tr>
<tr>
<td>14</td>
<td>Inadequate maintenance (inspection, installation, troubleshooting, record keeping, and so forth)</td>
</tr>
<tr>
<td>15</td>
<td>Fear/excitement (inadequate composure)</td>
</tr>
<tr>
<td>16</td>
<td>Overconfidence (in self, others, equipment)</td>
</tr>
<tr>
<td>17</td>
<td>Lack of confidence (in self, others, equipment)</td>
</tr>
<tr>
<td>18</td>
<td>Haste/Attitude (motivation)</td>
</tr>
<tr>
<td>19</td>
<td>Fatigue (self induced)</td>
</tr>
<tr>
<td>20</td>
<td>Effects of alcohol, drugs, or illness</td>
</tr>
<tr>
<td>21</td>
<td>Poor attitude/indiscipline</td>
</tr>
<tr>
<td>22</td>
<td>Environmental conditions</td>
</tr>
<tr>
<td>97</td>
<td>Insufficient information reported to identify inadequacy/shortcoming/cause</td>
</tr>
</tbody>
</table>
Table 3–7
Accident errors/failures/effects/system inadequacy(ies)/recommendations—Continued

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Recommendations/Remedial Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Improve school training</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>Improve unit training</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>Revise procedures for operation under normal, abnormal, or emergency conditions</td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>Ensure personnel are ready to perform (training, experience, psycho physiological state)</td>
<td></td>
</tr>
<tr>
<td>05</td>
<td>Inform personnel of problems and remedies (meetings, publications, EIRs)</td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>Positive command action (to encourage proper performance and discourage improper performance)</td>
<td></td>
</tr>
<tr>
<td>07</td>
<td>Provide personnel resources (number or qualifications) required for job</td>
<td></td>
</tr>
<tr>
<td>08</td>
<td>Redesign (or provide) equipment or material</td>
<td></td>
</tr>
<tr>
<td>09</td>
<td>Improve (or provide) facilities or services</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Improve quality control</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Perform studies to get solutions to system inadequacy(ies)</td>
<td></td>
</tr>
</tbody>
</table>

Table 3–8
Pay grade codes

<table>
<thead>
<tr>
<th>Grade/Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>O1-O10</td>
<td>Commissioned officer</td>
</tr>
<tr>
<td>W1-W5</td>
<td>Warrant officer</td>
</tr>
<tr>
<td>E1-E9</td>
<td>Enlisted service member</td>
</tr>
<tr>
<td>GS1-GS18 &amp; GM13-GM18</td>
<td>DOD civilian employee</td>
</tr>
<tr>
<td>WG1-WG18 &amp; WS13-WS18</td>
<td>Wage board employee</td>
</tr>
<tr>
<td>XN</td>
<td>Foreign National</td>
</tr>
<tr>
<td>X-1</td>
<td>Foreign officer, all grades</td>
</tr>
<tr>
<td>X-2</td>
<td>Foreign enlisted, all grades</td>
</tr>
<tr>
<td>CAC</td>
<td>Civilian Army contractor employee</td>
</tr>
<tr>
<td>CIV</td>
<td>Non-DOD civilian</td>
</tr>
<tr>
<td>DAC</td>
<td>Department of Army Civilian</td>
</tr>
<tr>
<td>KAD</td>
<td>USMA</td>
</tr>
<tr>
<td>ROTC</td>
<td>ROTC student</td>
</tr>
<tr>
<td>NRPT</td>
<td>Not reported</td>
</tr>
<tr>
<td>NSPS</td>
<td>National Security Personnel System</td>
</tr>
<tr>
<td>OC</td>
<td>WOC/OC</td>
</tr>
<tr>
<td>UNK</td>
<td>Unknown</td>
</tr>
<tr>
<td>UNKE</td>
<td>Unknown Enlisted</td>
</tr>
<tr>
<td>UNKO</td>
<td>Unknown Officer</td>
</tr>
<tr>
<td>OTH</td>
<td>Personnel other than above</td>
</tr>
<tr>
<td>Code</td>
<td>Service</td>
</tr>
<tr>
<td>------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>A</td>
<td>Active Army</td>
</tr>
<tr>
<td>B</td>
<td>Army civilian</td>
</tr>
<tr>
<td>C</td>
<td>Army contractor</td>
</tr>
<tr>
<td>C1</td>
<td>Army direct contractor</td>
</tr>
<tr>
<td>D</td>
<td>Non-appropriated fund employee</td>
</tr>
<tr>
<td>E0</td>
<td>Other U.S. military personnel</td>
</tr>
<tr>
<td>E1</td>
<td>Navy</td>
</tr>
<tr>
<td>E2</td>
<td>Air Force</td>
</tr>
<tr>
<td>E3</td>
<td>Marine Corps</td>
</tr>
<tr>
<td>F0</td>
<td>Foreign</td>
</tr>
<tr>
<td>F1</td>
<td>Foreign National Direct Hire</td>
</tr>
<tr>
<td>F2</td>
<td>Foreign National Indirect Hire</td>
</tr>
<tr>
<td>F3</td>
<td>Foreign National KATUSA</td>
</tr>
<tr>
<td>F4</td>
<td>Foreign Military Attached</td>
</tr>
<tr>
<td>G</td>
<td>Dependent</td>
</tr>
<tr>
<td>M</td>
<td>Government, Other</td>
</tr>
<tr>
<td>N0</td>
<td>National Guard</td>
</tr>
<tr>
<td>N1</td>
<td>NG Tech</td>
</tr>
<tr>
<td>N2</td>
<td>NG IDT</td>
</tr>
<tr>
<td>N3</td>
<td>NG AT</td>
</tr>
<tr>
<td>N4</td>
<td>NG ADSW</td>
</tr>
<tr>
<td>N5</td>
<td>NG AGR</td>
</tr>
<tr>
<td>N6</td>
<td>NG ADT</td>
</tr>
<tr>
<td>N7</td>
<td>NG Activated</td>
</tr>
<tr>
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### Table 3–10
**Injury/illness terms and codes**

*NFS=Not Further Specified*

#### Body Region

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<td>11 Colon</td>
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<td>12 Gall Bladder</td>
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<tr>
<td>13 Intestines, General</td>
<td>46 Ribs/Sides</td>
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<td>14 Kidney</td>
<td>47 Sternum</td>
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<td>15 Liver</td>
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<td>16 Pancreas</td>
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<td>17 Spleen</td>
<td>51 Bladder</td>
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<td>18 Stomach</td>
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<td>20 Intestines (large)</td>
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<td>21 Intestines (small)</td>
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<td>30 Back, General</td>
<td>55 Rectum/Anus</td>
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<tr>
<td>31 Scapula</td>
<td>56 Pelvises, NFS</td>
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<td>61 Vertebra T2</td>
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<td>41 Clavicle</td>
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### Table 3–10
#### Injury/illness terms and codes—Continued

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<thead>
<tr>
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<th>63 Vertebra T4</th>
<th>81 Vena Cava</th>
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<tr>
<td>10 Upper Arm, General</td>
<td>20 Lower Arm, General</td>
<td>31 Finger(s), General</td>
</tr>
<tr>
<td>11 Shoulder</td>
<td>21 Wrist</td>
<td>32 Knuckles</td>
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<td>12 Elbow</td>
<td>22 Arm Lower, NFS</td>
<td>33 Thumb</td>
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<tr>
<td>13 Arm Upper, NFS</td>
<td></td>
<td>34 Hand, NFS</td>
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<td><strong>F</strong></td>
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<td>22 Leg Lower, NFS</td>
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<td>30 Foot, General</td>
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<tr>
<td>20 Leg Lower, General</td>
<td>31 Arch</td>
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<td><strong>Y</strong></td>
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#### Body Aspect, Primary

| 01 Right | 97 Not Reported |
| 02 Left | 98 Unknown |
| 03 Bilateral/Both | 99 Other (Specify) |
| 09 Medial/Mesial/Midline | |

#### Body Aspect, Secondary

| 04 Central (incl. internal organs) | 10 Medial/Mesial/Midline/Front |
| 05 Anterior/Ventral/Front | 11 Whole Body Regions, General |
| 06 Posterior/Dorsal/Back | 12 Whole Body Part |
| 07 Superior/Cranial/Upper | 98 Unknown |
| 08 Inferior/Caudal/Lower | 99 Other (Specify) |

#### Injury/illness Types or Results

**Burns (Chemical)**

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<td>01 First Degree</td>
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</tr>
<tr>
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**Burns (Thermal)**

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<td>06 1st &amp; 2d Degree</td>
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</tr>
<tr>
<td>02 2d Degree</td>
<td>07 1st &amp; 3d Degree</td>
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<td>03 3d Degree</td>
<td>08 2d &amp; 3d Degree</td>
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</tr>
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<td>09 3d &amp; 4th Degree</td>
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**Dismemberments**
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<td>Amputation</td>
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<td>02</td>
<td>Avulsion (Evisceration)</td>
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<td>Decapitation</td>
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<td>Dismemberment, NFS</td>
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<tr>
<td>05</td>
<td>Hypothermia</td>
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<tr>
<td>06</td>
<td>Immersion Foot</td>
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<tr>
<td>07</td>
<td>Noise Injury</td>
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<td>08</td>
<td>Radiation (Other than Burns)</td>
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<td>Exposure, NFS</td>
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<td>Asphyxiation</td>
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<tr>
<td>02</td>
<td>Hypoxia</td>
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<tr>
<td>03</td>
<td>Ingestion</td>
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<tr>
<td>04</td>
<td>Aspiration (Suffocation)</td>
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<tr>
<td>05</td>
<td>Inhalation</td>
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<td>Fractures, General</td>
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<tr>
<td>01</td>
<td>Chip/Wedge</td>
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<tr>
<td>02</td>
<td>Compound (open)</td>
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<tr>
<td>03</td>
<td>Compression</td>
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<td>Crushed/Depressed</td>
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<td>Incomplete (Greenstick)</td>
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<td>Simple (closed)</td>
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<td>Fracture/Dislocation</td>
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### Table 3–10
Injury/illness terms and codes—Continued

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<td>Bites</td>
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Table 3–10
Injury/illness terms and codes—Continued

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<th>Action</th>
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<td>06 Thrown from</td>
<td>02 Aircraft fire</td>
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<td>06 Console</td>
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<td>04 Exhaustion (Not Related to Heat or Cold)</td>
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<td>05 Foreign Object Retained</td>
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<tr>
<td>06 Herniation/Rupture</td>
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<table>
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<td>28 Hearing Loss (Acute)</td>
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<td>32 Hemorrhage</td>
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<td>44 Infection</td>
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<td>48 Occlusion</td>
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Table 3–10
Injury/illness terms and codes—Continued

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Injury/illness Cause Factors (Why Injury/illness Occurred)

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<td>Qualifier</td>
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<td>04 Canopy Removal System</td>
<td>23</td>
<td>Roof/Ceiling</td>
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<td>05 Cargo</td>
<td>24</td>
<td>Seat</td>
</tr>
<tr>
<td>06 Design</td>
<td>25</td>
<td>Structure</td>
</tr>
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<td>07 Door</td>
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<td>Transmission</td>
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<td>08 Engine</td>
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<td>Unauthorized Equipment</td>
</tr>
<tr>
<td>09 External Objects</td>
<td>28</td>
<td>Upper torso restraint system</td>
</tr>
<tr>
<td>10 Fuel Lines</td>
<td>29</td>
<td>Window</td>
</tr>
<tr>
<td>11 Fuel tanks/Cell</td>
<td>30</td>
<td>Windshield</td>
</tr>
<tr>
<td>12 Fuel vent line</td>
<td>31</td>
<td>Night Vision Device(s)</td>
</tr>
<tr>
<td>13 Helmet</td>
<td>32</td>
<td>Occupiable Space</td>
</tr>
<tr>
<td>14 Impact</td>
<td>33</td>
<td>Refueling Equipment</td>
</tr>
<tr>
<td>15 Instrument Panel</td>
<td>34</td>
<td>Lap Belt</td>
</tr>
<tr>
<td>16 Landing Gear</td>
<td>35</td>
<td>Inertial Reel</td>
</tr>
<tr>
<td>17 Litter</td>
<td>97</td>
<td>Not Reported</td>
</tr>
<tr>
<td>18 Internal Objects</td>
<td>98</td>
<td>Unknown/Unclassified</td>
</tr>
<tr>
<td>19 Main Rotor</td>
<td>99</td>
<td>Other (Specify)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Action</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 Absorbed</td>
<td>19</td>
<td>Separated/Dislodged</td>
</tr>
<tr>
<td>02 Allowed</td>
<td>20</td>
<td>Spilled</td>
</tr>
<tr>
<td>03 Broke</td>
<td>21</td>
<td>Stretched</td>
</tr>
<tr>
<td>04 Buckled</td>
<td>22</td>
<td>Trapped/Pinned</td>
</tr>
<tr>
<td>05 Caused</td>
<td>23</td>
<td>Used Improperly</td>
</tr>
<tr>
<td>06 Collapsed</td>
<td>24</td>
<td>Not Restained/Secured</td>
</tr>
<tr>
<td>07 Crushed</td>
<td>25</td>
<td>Allowed Excessive Motion</td>
</tr>
<tr>
<td>08 Displaced</td>
<td>26</td>
<td>Injured outside aircraft</td>
</tr>
<tr>
<td>09 Exceeded</td>
<td>27</td>
<td>Bottomed out</td>
</tr>
<tr>
<td>10 Failed</td>
<td>28</td>
<td>Disintegrated</td>
</tr>
<tr>
<td>11 Ignited</td>
<td>29</td>
<td>Penetrated Occupied Space</td>
</tr>
<tr>
<td>12 Injured</td>
<td>30</td>
<td>Injured During Exit</td>
</tr>
<tr>
<td>13 Located</td>
<td>31</td>
<td>Failed to Fully Stroke</td>
</tr>
<tr>
<td>14 Not provided</td>
<td>32</td>
<td>Failed to Attenuate For</td>
</tr>
<tr>
<td>15 Not used</td>
<td>97</td>
<td>Not Reported</td>
</tr>
</tbody>
</table>
### Table 3–10
Injury/illness terms and codes—Continued

<table>
<thead>
<tr>
<th>Qualifier</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 During Exit</td>
<td>01 Longitudinal</td>
<td></td>
</tr>
<tr>
<td>02 Excessive Loading</td>
<td>02 Occupiable Space</td>
<td></td>
</tr>
<tr>
<td>03 Excessive Motion</td>
<td>03 Outside Aircraft</td>
<td></td>
</tr>
<tr>
<td>04 Excessively</td>
<td>04 Properly</td>
<td></td>
</tr>
<tr>
<td>05 Fuel</td>
<td>05 Vertical</td>
<td></td>
</tr>
<tr>
<td>06 Human and Design Limits</td>
<td>06 6–12 Inches</td>
<td></td>
</tr>
<tr>
<td>07 Improperly</td>
<td>07 Greater than 12 Inches</td>
<td></td>
</tr>
<tr>
<td>08 Inadequate Clearance</td>
<td>08 Less than 6 Inches</td>
<td></td>
</tr>
<tr>
<td>09 Insufficient Loads</td>
<td>09 Not Reported</td>
<td></td>
</tr>
<tr>
<td>10 Jagged Edges</td>
<td>10 Unknown</td>
<td></td>
</tr>
<tr>
<td>11 Lateral</td>
<td>11 Other (Specify)</td>
<td></td>
</tr>
</tbody>
</table>

### Table 3–11
Equipment Information Codes

<table>
<thead>
<tr>
<th>Item</th>
<th>Component</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helmet 10 Retained</td>
<td>0 All</td>
<td>0 No damage</td>
</tr>
<tr>
<td>11 Dislodged from acceleration (no blow to helmet)</td>
<td>1 Chin Strap</td>
<td>1 Missing</td>
</tr>
<tr>
<td>12 Dislodged from blow</td>
<td>2 Nape Strap</td>
<td>2 Loose</td>
</tr>
<tr>
<td>3 Snap Fastener</td>
<td>3 Tom</td>
<td></td>
</tr>
<tr>
<td>4 Attachments</td>
<td>4 Burned</td>
<td></td>
</tr>
<tr>
<td>5 Shell</td>
<td>5 Slipped/Stretched</td>
<td></td>
</tr>
<tr>
<td>6 Strap Slide Fastener</td>
<td>6 Worn improperly/ Improperly fitted</td>
<td></td>
</tr>
<tr>
<td>7 Pads</td>
<td>7 Fractured or Punctured</td>
<td></td>
</tr>
<tr>
<td>8 Suspension Scratched</td>
<td>8 Scrapped/System</td>
<td></td>
</tr>
<tr>
<td>9 Crushable Liner</td>
<td>9 Compressed to half original thickness</td>
<td></td>
</tr>
</tbody>
</table>

Note: Helmet, retained, shell fractured. Enter Code“1057.” If LASER visor used, so indicate and include date of issue in block 7.

### Visor

<table>
<thead>
<tr>
<th>Retention</th>
<th>Component</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 Retained</td>
<td>1 Face piece</td>
<td>0 No Damage</td>
</tr>
<tr>
<td>21 Dislodged</td>
<td>2 Housing (cover)</td>
<td>1 Shattered</td>
</tr>
<tr>
<td>3 Track</td>
<td>2 Cracked</td>
<td></td>
</tr>
<tr>
<td>4 Screws</td>
<td>3 Punctured</td>
<td></td>
</tr>
<tr>
<td>5 Adjusting knob</td>
<td>4 Separated</td>
<td></td>
</tr>
<tr>
<td>6 All</td>
<td>5 Stripped</td>
<td></td>
</tr>
<tr>
<td>9 Other</td>
<td>6 Burned</td>
<td></td>
</tr>
<tr>
<td>7 Missing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Scratched</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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### Table 3–11
Equipment Information Codes—Continued

<table>
<thead>
<tr>
<th>Item</th>
<th>Component</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Visor, retained, face piece cracked. Enter Code “2012.”

#### Glasses

<table>
<thead>
<tr>
<th>Item</th>
<th>Component</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 Retained, Prescription, Clear</td>
<td>1 Lens(es)</td>
<td>0 No Damage</td>
</tr>
<tr>
<td>31 Retained, Prescription, Tinted</td>
<td>2 Frame(s)</td>
<td>1 Shattered</td>
</tr>
<tr>
<td>32 Retained, Nonprescription</td>
<td>3 Earpiece</td>
<td>2 Broken</td>
</tr>
<tr>
<td>33 Dislodged, Prescription, Clear</td>
<td>4 All</td>
<td>3 Bent</td>
</tr>
<tr>
<td>34 Dislodged, Prescription, Tinted</td>
<td>9 Other</td>
<td>4 Separated</td>
</tr>
<tr>
<td>35 Dislodged, Nonprescription, Tinted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36 Contact, Clear</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37 Contact, Tinted</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Glasses, retained, lenses shattered. Enter Code “3011.”

#### Flight Suit/Flight Gloves/Flight Jacket/Boots/Other Clothing

<table>
<thead>
<tr>
<th>Type</th>
<th>Configuration</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 Cotton, fire retarded, treated</td>
<td>0 All</td>
<td>0 No Damage</td>
</tr>
<tr>
<td>41 Cotton, non-fire retardant or open</td>
<td>1 Sleeves up</td>
<td>1 Torn</td>
</tr>
<tr>
<td>42 Wool</td>
<td>2 Sleeves down</td>
<td>2 Burned</td>
</tr>
<tr>
<td>43 Leather</td>
<td>3 Shirt out of pants or open</td>
<td>3 Melted</td>
</tr>
<tr>
<td>44 Synthetics, non-fire retardant, (for example, Nylon)</td>
<td>4 Pants out of or bloused over boots</td>
<td>4 Damaged, NFS</td>
</tr>
<tr>
<td>45 Fire retardant synthetics, (for example, NOMEX)</td>
<td>5 Short sleeves</td>
<td>5 Missing</td>
</tr>
<tr>
<td>46 Other</td>
<td>6 Worn properly</td>
<td>9 Other</td>
</tr>
</tbody>
</table>

**Note:** Flight suit (cotton), non-fire retardant; sleeves rolled up, burned. Enter Code “4112.” In the event crewmembers are wearing other than NOMEX, (for example, Army green shirt/pants/blouse/shirt) which causes a problem/condition, enter the item(s) of clothing in the blank space (line h, “other clothing.”) Specify type. Check the appropriate columns and enter the four-digit information codes in the “Information Code” column.

#### Restraint Equipment Codes (Items I through M)

<table>
<thead>
<tr>
<th>Component</th>
<th>Condition</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 Webbing (Strap/belt)</td>
<td>1 Broke</td>
<td>1 At end fitting</td>
</tr>
<tr>
<td>51 Hardware fittings</td>
<td>2 Slipped</td>
<td>2 At anchor fitting</td>
</tr>
<tr>
<td>52 Lock</td>
<td>3 Stretched</td>
<td>3 At buckle</td>
</tr>
<tr>
<td>53 Cable</td>
<td>4 Torn/cut</td>
<td>4 At slide adjustment</td>
</tr>
<tr>
<td>54 Mount</td>
<td>5 Failed to properly lock</td>
<td>5 At guide</td>
</tr>
<tr>
<td>55 Lap Belt, general</td>
<td>6 Worn loosely</td>
<td>6 In automatic lock</td>
</tr>
<tr>
<td>56 Shoulder harness</td>
<td>7 Bent</td>
<td>7 In manual lock</td>
</tr>
<tr>
<td>57 Inertial reel</td>
<td>8 Torn Free</td>
<td>8 Between attaching points</td>
</tr>
<tr>
<td></td>
<td>9 Burned/melted</td>
<td>9 Other, general</td>
</tr>
<tr>
<td></td>
<td>0 Missing</td>
<td>0 All locations</td>
</tr>
</tbody>
</table>
Table 3–11
Equipment Information Codes—Continued

<table>
<thead>
<tr>
<th>Item</th>
<th>Component</th>
<th>Condition</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Note: Shoulder harness broke at guide. Enter Code “5615.” Inertial reel lock failed to lock in automatic lock. Enter Code “5256.”</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Component</th>
<th>Condition</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seat/Litter</td>
<td>60 Back Rest</td>
<td>1 Bent/Distorted</td>
<td>1 Front</td>
</tr>
<tr>
<td></td>
<td>61 Seat Pan</td>
<td>2 Broken</td>
<td>2 Rear</td>
</tr>
<tr>
<td></td>
<td>62 Support/Legs</td>
<td>3 Bottomed out</td>
<td>3 Right</td>
</tr>
<tr>
<td></td>
<td>63 Anchor fittings</td>
<td>4 Displaced</td>
<td>4 Left</td>
</tr>
<tr>
<td></td>
<td>64 Track</td>
<td>5 Torn/Ripped</td>
<td>5 Center</td>
</tr>
<tr>
<td></td>
<td>65 Brace</td>
<td>6 Torn free</td>
<td>6 Longitudinal</td>
</tr>
<tr>
<td></td>
<td>66 Pole or Frame</td>
<td>7 Stroked</td>
<td>7 Vertical</td>
</tr>
<tr>
<td></td>
<td>67 Canvas/Netting</td>
<td>8 Did not stroke</td>
<td>8 Lateral/Diagonal</td>
</tr>
<tr>
<td></td>
<td>68 Energy attenuator</td>
<td>9 Missing</td>
<td>9 All</td>
</tr>
<tr>
<td></td>
<td>69 Litter support</td>
<td>0 No Damage</td>
<td>0 Removed/not installed</td>
</tr>
<tr>
<td></td>
<td>70 Armor, Sliding</td>
<td>10 Burned/melted</td>
<td></td>
</tr>
<tr>
<td></td>
<td>71 Armor, Hinged</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>72 Armor, Fixed</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>73 Seat, General</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>74 Litter Carousel</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:

1 The front leg(s) of a pilot’s seat was/were torn free. Enter Code “6261.” A longitudinal energy attenuator stroked on impact. Enter Code “6876.” The litter carousel had been removed, by direction of the unit commander, to facilitate rapid loading of patients during combat conditions. Enter Code “7490.”

Table 3–12
Equipment information codes

<table>
<thead>
<tr>
<th>Survival equipment/components</th>
<th>Survival Equipment Problem/Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>79</td>
<td>Cockpit airbags</td>
</tr>
<tr>
<td>80</td>
<td>Survival vest</td>
</tr>
<tr>
<td>81</td>
<td>Survival radio</td>
</tr>
<tr>
<td>82</td>
<td>Pen flare</td>
</tr>
<tr>
<td>83</td>
<td>Signal flare</td>
</tr>
<tr>
<td>84</td>
<td>Strobe light</td>
</tr>
<tr>
<td>85</td>
<td>Mirror</td>
</tr>
<tr>
<td>86</td>
<td>Flashlight</td>
</tr>
<tr>
<td>87</td>
<td>Compass</td>
</tr>
<tr>
<td>88</td>
<td>Panel marker</td>
</tr>
<tr>
<td>89</td>
<td>Reflective tape</td>
</tr>
<tr>
<td>90</td>
<td>Night vision goggles/devices</td>
</tr>
<tr>
<td>91</td>
<td>Helmet sighting system</td>
</tr>
<tr>
<td>92</td>
<td>Night vision imaging system</td>
</tr>
<tr>
<td>93</td>
<td>NBC protective clothing</td>
</tr>
<tr>
<td>94</td>
<td>NBC protective mask</td>
</tr>
<tr>
<td>95</td>
<td>Life preserver</td>
</tr>
<tr>
<td>96</td>
<td>Life raft</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Survival equipment/components</th>
<th>Survival Equipment Problem/Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>97</td>
<td>Survival kit (see Note 1)</td>
</tr>
<tr>
<td>98</td>
<td>First aid kit (see Note 2)</td>
</tr>
<tr>
<td>99</td>
<td>Other (specify), (for example, Parachute, Oxygen, Mask, Body Armor).</td>
</tr>
<tr>
<td>01</td>
<td>Not available-supply problem</td>
</tr>
<tr>
<td>02</td>
<td>Not available-left behind</td>
</tr>
<tr>
<td>03</td>
<td>Damaged, unable</td>
</tr>
<tr>
<td>04</td>
<td>Damaged, unusable</td>
</tr>
<tr>
<td>05</td>
<td>Failed to operate</td>
</tr>
<tr>
<td>06</td>
<td>Operated partially</td>
</tr>
<tr>
<td>07</td>
<td>Difficulty locating</td>
</tr>
<tr>
<td>08</td>
<td>Beyond reach</td>
</tr>
<tr>
<td>09</td>
<td>Connection/closure problems</td>
</tr>
<tr>
<td>10</td>
<td>Release/disconnect problems</td>
</tr>
<tr>
<td>11</td>
<td>Inadvertent released/disconnect</td>
</tr>
<tr>
<td>12</td>
<td>Inadvertent actuation</td>
</tr>
<tr>
<td>13</td>
<td>Actuation problems</td>
</tr>
<tr>
<td>14</td>
<td>Actuated by other person</td>
</tr>
<tr>
<td>15</td>
<td>Improper use</td>
</tr>
<tr>
<td>16</td>
<td>Unfamiliar with use</td>
</tr>
<tr>
<td>17</td>
<td>Cold hampered use</td>
</tr>
<tr>
<td>18</td>
<td>Injury hampered use</td>
</tr>
<tr>
<td>19</td>
<td>Water hampered use</td>
</tr>
<tr>
<td>20</td>
<td>Other equipment interfered</td>
</tr>
<tr>
<td>21</td>
<td>Donning/removal problem</td>
</tr>
<tr>
<td>22</td>
<td>Poor fit</td>
</tr>
<tr>
<td>23</td>
<td>Leaked</td>
</tr>
<tr>
<td>24</td>
<td>Materiel deficiency</td>
</tr>
<tr>
<td>25</td>
<td>Design deficiency</td>
</tr>
<tr>
<td>26</td>
<td>Hang-up/entanglement</td>
</tr>
<tr>
<td>27</td>
<td>Dragging (parachute only)</td>
</tr>
<tr>
<td>28</td>
<td>Nonstandard configuration</td>
</tr>
<tr>
<td>29</td>
<td>Aided in location/rescue</td>
</tr>
<tr>
<td>30</td>
<td>Not effective in location/rescue</td>
</tr>
<tr>
<td>31</td>
<td>Equipment produced injury</td>
</tr>
<tr>
<td>32</td>
<td>Failure/relay in using; compromised survival use</td>
</tr>
<tr>
<td>33</td>
<td>Maintenance/installation error</td>
</tr>
<tr>
<td>34</td>
<td>Problem experienced by others in actuation/release of equipment</td>
</tr>
<tr>
<td>35</td>
<td>Discarded</td>
</tr>
<tr>
<td>36</td>
<td>Lost</td>
</tr>
<tr>
<td>37</td>
<td>Deteriorated, not usable</td>
</tr>
<tr>
<td>38</td>
<td>Failed during use</td>
</tr>
<tr>
<td>39</td>
<td>Broken</td>
</tr>
</tbody>
</table>

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### Table 3–12
**Equipment information codes—Continued**

<table>
<thead>
<tr>
<th>Survival equipment/components</th>
<th>Survival Equipment Problem/Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>Battery inoperative</td>
</tr>
<tr>
<td>41</td>
<td>Burned</td>
</tr>
<tr>
<td>42</td>
<td>Locally procured item</td>
</tr>
<tr>
<td>98</td>
<td>Other</td>
</tr>
</tbody>
</table>

**Notes:**
1. Survival Kit. Specify type, then match the component with the problem/condition with the appropriate code from the problem/condition code list. Example, the food packet in the cold climate survival kit had deteriorated and was usable. Enter SURVIVAL KIT in an available open space (o or p), “type” would be cold climate, and the code 9737 should be entered in the “information code” column.
2. First aid kit. Specify type, then match the component with the problem/condition with the appropriate code from the problem/condition code list. Example, the providine iodine leaked inside the tropical first aid kit. Enter FIRST–AID KIT in an available open space, “type” would be entered as “tropical,” and the four-digit code “9823” would be entered in the “Information Codes” column.

### Table 3–13
**Method of evacuation/escape**

<table>
<thead>
<tr>
<th>Method of escape</th>
<th>Information codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not egress, (for example, fatally injured)</td>
<td>1</td>
</tr>
<tr>
<td>Exit unassisted</td>
<td>2</td>
</tr>
<tr>
<td>Assistance required</td>
<td>3</td>
</tr>
<tr>
<td>Blown/thrown out/fell out</td>
<td>4</td>
</tr>
<tr>
<td>Jumped prior to impact</td>
<td>5</td>
</tr>
<tr>
<td>Unknown if attempt was made</td>
<td>7</td>
</tr>
<tr>
<td>Other (specify in Remarks)</td>
<td>8</td>
</tr>
<tr>
<td>Egress method undetermined</td>
<td>9</td>
</tr>
</tbody>
</table>

### Table 3–14
**Location in aircraft**

<table>
<thead>
<tr>
<th>Aircraft station</th>
<th>Information codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cockpit</td>
<td>1</td>
</tr>
<tr>
<td>Engineer</td>
<td>2</td>
</tr>
<tr>
<td>Passenger</td>
<td>3</td>
</tr>
<tr>
<td>Gunner</td>
<td>4</td>
</tr>
<tr>
<td>Crew Chief</td>
<td>5</td>
</tr>
<tr>
<td>Other (specify in Remarks)</td>
<td>8</td>
</tr>
<tr>
<td>Undetermined</td>
<td>9</td>
</tr>
</tbody>
</table>

**Longitudinal Location**

| Forward section                      | 1                 |
| Center section                       | 2                 |
| Aft section                          | 3                 |
| Undetermined                         | 9                 |

**Lateral Location**

| Center                               | 1                 |
| Left side                            | 2                 |
| Right side                           | 3                 |
### Table 3–14
#### Location in aircraft—Continued

<table>
<thead>
<tr>
<th>Aircraft station</th>
<th>Information codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undetermined</td>
<td>9</td>
</tr>
</tbody>
</table>

#### Direction Facing

<table>
<thead>
<tr>
<th>Direction Facing</th>
<th>Information codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forward</td>
<td>1</td>
</tr>
<tr>
<td>Aft</td>
<td>2</td>
</tr>
<tr>
<td>Side-facing</td>
<td>3</td>
</tr>
<tr>
<td>Undetermined</td>
<td>9</td>
</tr>
</tbody>
</table>

#### Use of Seat

<table>
<thead>
<tr>
<th>Use of Seat</th>
<th>Information codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not in seat</td>
<td>1</td>
</tr>
<tr>
<td>In seat</td>
<td>2</td>
</tr>
<tr>
<td>Litter</td>
<td>3</td>
</tr>
<tr>
<td>Undetermined</td>
<td>9</td>
</tr>
</tbody>
</table>

### Table 3–15
#### Exit attempted

<table>
<thead>
<tr>
<th>Exit attempted</th>
<th>Information codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal exit</td>
<td>1</td>
</tr>
<tr>
<td>Emergency exit</td>
<td>2</td>
</tr>
<tr>
<td>Opening in aircraft wreckage</td>
<td>3</td>
</tr>
<tr>
<td>Cut through canopy</td>
<td>4</td>
</tr>
<tr>
<td>Canopy removal system</td>
<td>5</td>
</tr>
<tr>
<td>Cargo hatch</td>
<td>6</td>
</tr>
<tr>
<td>Other (specify in Remarks)</td>
<td>8</td>
</tr>
<tr>
<td>Undetermined</td>
<td>9</td>
</tr>
<tr>
<td>Fatal-None attempted</td>
<td>0</td>
</tr>
</tbody>
</table>

### Table 3–16
#### Exit used

<table>
<thead>
<tr>
<th>Exit used</th>
<th>Information codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal exit</td>
<td>1</td>
</tr>
<tr>
<td>Emergency exit</td>
<td>2</td>
</tr>
<tr>
<td>Opening in aircraft wreckage</td>
<td>3</td>
</tr>
<tr>
<td>Cut through canopy</td>
<td>4</td>
</tr>
<tr>
<td>Canopy removal system</td>
<td>5</td>
</tr>
<tr>
<td>Cargo hatch</td>
<td>6</td>
</tr>
<tr>
<td>Other (specify in Remarks)</td>
<td>8</td>
</tr>
<tr>
<td>Undetermined</td>
<td>9</td>
</tr>
<tr>
<td>Fatal-None used</td>
<td>0</td>
</tr>
</tbody>
</table>
### Table 3–17
**Aircraft attitude at time of Escape**

<table>
<thead>
<tr>
<th>Aircraft at rest</th>
<th>Information codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upright</td>
<td>A1</td>
</tr>
<tr>
<td>Inverted</td>
<td>A2</td>
</tr>
<tr>
<td>Nosed Over</td>
<td>A3</td>
</tr>
<tr>
<td>Lying on left side (More than 45 degrees from upright)</td>
<td>A4</td>
</tr>
<tr>
<td>Lying on right side (More than 45 degrees from upright)</td>
<td>A5</td>
</tr>
<tr>
<td>Tail low</td>
<td>A6</td>
</tr>
<tr>
<td>Other (specify in Remarks)</td>
<td>A8</td>
</tr>
<tr>
<td>Undetermined</td>
<td>A9</td>
</tr>
<tr>
<td>Fatal-Did not escape</td>
<td>A0</td>
</tr>
</tbody>
</table>

#### Aircraft in Motion Codes

<table>
<thead>
<tr>
<th>Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level</td>
</tr>
<tr>
<td>Inverted</td>
</tr>
<tr>
<td>Nose low</td>
</tr>
<tr>
<td>Left bank</td>
</tr>
<tr>
<td>Right bank</td>
</tr>
<tr>
<td>Nose high</td>
</tr>
<tr>
<td>Other (specify in Remarks)</td>
</tr>
<tr>
<td>Undetermined</td>
</tr>
</tbody>
</table>

### Table 3–18
**Cockpit/Cabin Condition**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Information codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>No damage</td>
<td>01</td>
</tr>
<tr>
<td>Survivable</td>
<td>02</td>
</tr>
<tr>
<td>Partially survivable</td>
<td>03</td>
</tr>
<tr>
<td>Nonsurvivable</td>
<td>04</td>
</tr>
<tr>
<td>Undetermined</td>
<td>09</td>
</tr>
</tbody>
</table>

### Table 3–19
**Escape difficulties**

<table>
<thead>
<tr>
<th>Difficulties</th>
<th>Information codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difficulty locating canopy jettison mechanism</td>
<td>01</td>
</tr>
<tr>
<td>Difficulty releasing canopy/door</td>
<td>02</td>
</tr>
<tr>
<td>Difficulty releasing restraints</td>
<td>03</td>
</tr>
<tr>
<td>Difficulty reaching exit due to obstructions</td>
<td>04</td>
</tr>
<tr>
<td>Difficulty reaching exit due to injuries</td>
<td>05</td>
</tr>
<tr>
<td>Difficulty reaching exit due to aircraft attitude</td>
<td>06</td>
</tr>
<tr>
<td>Difficulty reaching exit due to personal equipment hang-up</td>
<td>07</td>
</tr>
<tr>
<td>Canopy/door jettison problem</td>
<td>08</td>
</tr>
<tr>
<td>Canopy/door jettison failure (automatic)</td>
<td>09</td>
</tr>
<tr>
<td>Could not open canopy/door (mechanical failure)</td>
<td>10</td>
</tr>
<tr>
<td>Difficulties</td>
<td>Information codes</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Could not open canopy/door (jammed due to structural deformation)</td>
<td>11</td>
</tr>
<tr>
<td>Could not open canopy/door (Other, specify in Remarks)</td>
<td>12</td>
</tr>
<tr>
<td>Could have but did not open canopy/door</td>
<td>13</td>
</tr>
<tr>
<td>Exit inaccessible (out of reach)</td>
<td>14</td>
</tr>
<tr>
<td>Hampered by controls</td>
<td>15</td>
</tr>
<tr>
<td>Hampered by body armor</td>
<td>16</td>
</tr>
<tr>
<td>Hampered by seat armor</td>
<td>17</td>
</tr>
<tr>
<td>Hampered by seat</td>
<td>18</td>
</tr>
<tr>
<td>Hampered by airframe structure</td>
<td>19</td>
</tr>
<tr>
<td>Hampered by components of power train</td>
<td>20</td>
</tr>
<tr>
<td>Hampered by cargo or loose equipment</td>
<td>21</td>
</tr>
<tr>
<td>Hampered by armament system components</td>
<td>22</td>
</tr>
<tr>
<td>Hampered by clothing</td>
<td>23</td>
</tr>
<tr>
<td>Hampered by injuries</td>
<td>24</td>
</tr>
<tr>
<td>Personal equipment factor (Other than hang-up) (specify in Remarks)</td>
<td>25</td>
</tr>
<tr>
<td>Hampered by others aboard</td>
<td>26</td>
</tr>
<tr>
<td>Hampered by high temperature of exit surfaces</td>
<td>27</td>
</tr>
<tr>
<td>Parachute entanglement</td>
<td>28</td>
</tr>
<tr>
<td>Failure of lap belt to open</td>
<td>29</td>
</tr>
<tr>
<td>Smoke, fumes</td>
<td>30</td>
</tr>
<tr>
<td>Fire</td>
<td>31</td>
</tr>
<tr>
<td>Spilled fluids</td>
<td>32</td>
</tr>
<tr>
<td>Confusion</td>
<td>33</td>
</tr>
<tr>
<td>Anthropometric problem</td>
<td>34</td>
</tr>
<tr>
<td>Unconscious</td>
<td>35</td>
</tr>
<tr>
<td>Darkness-no visual reference</td>
<td>36</td>
</tr>
<tr>
<td>Cold</td>
<td>37</td>
</tr>
<tr>
<td>In rushing water</td>
<td>38</td>
</tr>
<tr>
<td>Intruding object (tree, rock, aircraft structure) (specify in Remarks)</td>
<td>39</td>
</tr>
<tr>
<td>Lack of emergency evacuation during preflight briefing</td>
<td>40</td>
</tr>
<tr>
<td>Lack of in-flight warning</td>
<td>41</td>
</tr>
<tr>
<td>Briefing not followed</td>
<td>42</td>
</tr>
<tr>
<td>Panic</td>
<td>43</td>
</tr>
<tr>
<td>Disorientation</td>
<td>44</td>
</tr>
<tr>
<td>Dazed</td>
<td>45</td>
</tr>
<tr>
<td>Other (specify in Remarks)</td>
<td>98</td>
</tr>
<tr>
<td>Undetermined</td>
<td>99</td>
</tr>
<tr>
<td>None</td>
<td>00</td>
</tr>
<tr>
<td>Problems</td>
<td>Information codes</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Inadequate flotation gear</td>
<td>01</td>
</tr>
<tr>
<td>Inadequate cold weather gear</td>
<td>02</td>
</tr>
<tr>
<td>Lack of signaling equipment</td>
<td>03</td>
</tr>
<tr>
<td>Lack of other equipment (specify in Remarks)</td>
<td>04</td>
</tr>
<tr>
<td>Entanglement (parachute)</td>
<td>05</td>
</tr>
<tr>
<td>Dragging (parachute)</td>
<td>06</td>
</tr>
<tr>
<td>Parachute hardware problems</td>
<td>07</td>
</tr>
<tr>
<td>Entrapment in aircraft</td>
<td>08</td>
</tr>
<tr>
<td>Pulled down by sinking chute</td>
<td>09</td>
</tr>
<tr>
<td>Pulled down by body armor</td>
<td>10</td>
</tr>
<tr>
<td>Unfamiliar with procedure</td>
<td>11</td>
</tr>
<tr>
<td>Confused</td>
<td>12</td>
</tr>
<tr>
<td>Incapacitated by injury/occupational illness</td>
<td>13</td>
</tr>
<tr>
<td>Poor physical condition</td>
<td>14</td>
</tr>
<tr>
<td>Exposure (heat, cold, sunburn)</td>
<td>15</td>
</tr>
<tr>
<td>Fatigue</td>
<td>16</td>
</tr>
<tr>
<td>Weather</td>
<td>17</td>
</tr>
<tr>
<td>Topography</td>
<td>18</td>
</tr>
<tr>
<td>Darkness</td>
<td>19</td>
</tr>
<tr>
<td>Thrown from raft</td>
<td>20</td>
</tr>
<tr>
<td>Hampered by rotor downwash</td>
<td>21</td>
</tr>
<tr>
<td>Problem boarding rescue vehicle</td>
<td>22</td>
</tr>
<tr>
<td>Thirst</td>
<td>23</td>
</tr>
<tr>
<td>Hunger</td>
<td>24</td>
</tr>
<tr>
<td>Insects</td>
<td>25</td>
</tr>
<tr>
<td>Sharks</td>
<td>26</td>
</tr>
<tr>
<td>Unfamiliar with equipment</td>
<td>27</td>
</tr>
<tr>
<td>Dazed</td>
<td>28</td>
</tr>
<tr>
<td>Animals</td>
<td>29</td>
</tr>
<tr>
<td>No problems encountered</td>
<td>30</td>
</tr>
<tr>
<td>Other (specify in Remarks)</td>
<td>98</td>
</tr>
<tr>
<td>Means</td>
<td>Information codes</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Survivor located rescuers</td>
<td>01</td>
</tr>
<tr>
<td>Accident observed</td>
<td>02</td>
</tr>
<tr>
<td>Accident site located w/o aid of signals or equipment</td>
<td>03</td>
</tr>
<tr>
<td>Individual located w/o aid of signals or equipment</td>
<td>04</td>
</tr>
<tr>
<td>Other aircraft orbiting scene to direct rescue personnel</td>
<td>05</td>
</tr>
<tr>
<td>Radio or radar vector or DF steer</td>
<td>06</td>
</tr>
<tr>
<td>Aircraft radio after mishap</td>
<td>07</td>
</tr>
<tr>
<td>Radar chaff</td>
<td>08</td>
</tr>
<tr>
<td>Sonar buoy</td>
<td>09</td>
</tr>
<tr>
<td>Walkie-talkie</td>
<td>10</td>
</tr>
<tr>
<td>Fire</td>
<td>11</td>
</tr>
<tr>
<td>Beacon (emergency locator transmitter)</td>
<td>12</td>
</tr>
<tr>
<td>Aircraft radio prior to mishap</td>
<td>13</td>
</tr>
<tr>
<td>Radio (survival type)</td>
<td>14</td>
</tr>
<tr>
<td>Telephone</td>
<td>15</td>
</tr>
<tr>
<td>Corner reflection</td>
<td>16</td>
</tr>
<tr>
<td>Reflective tapes</td>
<td>17</td>
</tr>
<tr>
<td>Mirror</td>
<td>18</td>
</tr>
<tr>
<td>Reflective surface other than code, 16, 17, or 18 (specify in remarks)</td>
<td>19</td>
</tr>
<tr>
<td>Raft</td>
<td>20</td>
</tr>
<tr>
<td>Flight clothing</td>
<td>21</td>
</tr>
<tr>
<td>Parachute</td>
<td>22</td>
</tr>
<tr>
<td>Signal flare</td>
<td>23</td>
</tr>
<tr>
<td>Smoke flare</td>
<td>24</td>
</tr>
<tr>
<td>Aircraft lights</td>
<td>25</td>
</tr>
<tr>
<td>Pen gun flare</td>
<td>26</td>
</tr>
<tr>
<td>Tracers</td>
<td>27</td>
</tr>
<tr>
<td>Strobe light</td>
<td>28</td>
</tr>
<tr>
<td>Flashlight</td>
<td>29</td>
</tr>
<tr>
<td>Signal wand</td>
<td>30</td>
</tr>
<tr>
<td>Smoke</td>
<td>31</td>
</tr>
<tr>
<td>Dye marker</td>
<td>32</td>
</tr>
<tr>
<td>Whistle</td>
<td>33</td>
</tr>
<tr>
<td>Voice</td>
<td>34</td>
</tr>
<tr>
<td>Gunfire</td>
<td>35</td>
</tr>
<tr>
<td>Signals on surface</td>
<td>36</td>
</tr>
<tr>
<td>Not applicable</td>
<td>37</td>
</tr>
<tr>
<td>Other (specify in Remarks)</td>
<td>98</td>
</tr>
</tbody>
</table>
**Table 3–22**

Rescue equipment used

<table>
<thead>
<tr>
<th>Item</th>
<th>Information codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sling</td>
<td>01</td>
</tr>
<tr>
<td>Seat</td>
<td>02</td>
</tr>
<tr>
<td>Cargo net</td>
<td>03</td>
</tr>
<tr>
<td>Rope</td>
<td>04</td>
</tr>
<tr>
<td>Life ring</td>
<td>05</td>
</tr>
<tr>
<td>Basket</td>
<td>06</td>
</tr>
<tr>
<td>Axe</td>
<td>07</td>
</tr>
<tr>
<td>Saw</td>
<td>08</td>
</tr>
<tr>
<td>Raft</td>
<td>09</td>
</tr>
<tr>
<td>Webbing cutters</td>
<td>10</td>
</tr>
<tr>
<td>Cable</td>
<td>11</td>
</tr>
<tr>
<td>Grapnel</td>
<td>12</td>
</tr>
<tr>
<td>Boarding ladder</td>
<td>13</td>
</tr>
<tr>
<td>Knife</td>
<td>14</td>
</tr>
<tr>
<td>Makeshift carrier/support</td>
<td>15</td>
</tr>
<tr>
<td>First-aid equipment</td>
<td>16</td>
</tr>
<tr>
<td>Forest penetrator seat</td>
<td>17</td>
</tr>
<tr>
<td>Helicopter platforms</td>
<td>18</td>
</tr>
<tr>
<td>Stretcher/litter</td>
<td>19</td>
</tr>
<tr>
<td>Cable cutters</td>
<td>20</td>
</tr>
<tr>
<td>Helicopter rescue boom</td>
<td>21</td>
</tr>
<tr>
<td>Not applicable</td>
<td>22</td>
</tr>
<tr>
<td>Other (specify in Remarks)</td>
<td>98</td>
</tr>
</tbody>
</table>

**Table 3–23**

Factors that helped rescue

<table>
<thead>
<tr>
<th>Item</th>
<th>Information codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rescue personnel training</td>
<td>01</td>
</tr>
<tr>
<td>Training of person to be rescued</td>
<td>02</td>
</tr>
<tr>
<td>Aircraft emergency escape means</td>
<td>03</td>
</tr>
<tr>
<td>Personal equipment</td>
<td>04</td>
</tr>
<tr>
<td>Accident plans</td>
<td>05</td>
</tr>
<tr>
<td>Availability of rescue equipment</td>
<td>06</td>
</tr>
<tr>
<td>Survivor’s techniques</td>
<td>07</td>
</tr>
<tr>
<td>Suitability of rescue equipment</td>
<td>08</td>
</tr>
<tr>
<td>Coordination of rescue effectors</td>
<td>09</td>
</tr>
<tr>
<td>Survival training (specify in Remarks)</td>
<td>10</td>
</tr>
<tr>
<td>Emergency locator transmitter</td>
<td>11</td>
</tr>
<tr>
<td>Electronic tracking equipment</td>
<td>12</td>
</tr>
<tr>
<td>Not applicable</td>
<td>13</td>
</tr>
<tr>
<td>Other (specify in Remarks)</td>
<td>98</td>
</tr>
<tr>
<td>Factors</td>
<td>Information codes</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Failure of rescue vehicle (mechanical problems)</td>
<td>01</td>
</tr>
<tr>
<td>Inadequacy of rescue vehicle</td>
<td>02</td>
</tr>
<tr>
<td>Failure of rescue equipment</td>
<td>03</td>
</tr>
<tr>
<td>Inadequacy of rescue equipment</td>
<td>04</td>
</tr>
<tr>
<td>Inadequacy of rescue personnel</td>
<td>05</td>
</tr>
<tr>
<td>Inadequate medical equipment</td>
<td>06</td>
</tr>
<tr>
<td>Inadequate medical facilities</td>
<td>07</td>
</tr>
<tr>
<td>Vehicle operator factor (poor procedure)</td>
<td>08</td>
</tr>
<tr>
<td>Rescue crewman assist hesitancy</td>
<td>09</td>
</tr>
<tr>
<td>Fire</td>
<td>10</td>
</tr>
<tr>
<td>Entrapment in aircraft</td>
<td>11</td>
</tr>
<tr>
<td>Physical limitations of rescue personnel</td>
<td>12</td>
</tr>
<tr>
<td>Physical limitations of person rescued</td>
<td>13</td>
</tr>
<tr>
<td>Carelessness by rescue personnel</td>
<td>14</td>
</tr>
<tr>
<td>Inappropriate actions of person rescued</td>
<td>15</td>
</tr>
<tr>
<td>Rescue vehicle accident</td>
<td>16</td>
</tr>
<tr>
<td>Communication problems</td>
<td>17</td>
</tr>
<tr>
<td>Entanglement by deployed parachute</td>
<td>18</td>
</tr>
<tr>
<td>Topography</td>
<td>19</td>
</tr>
<tr>
<td>Interference from other vehicles</td>
<td>20</td>
</tr>
<tr>
<td>Victim pulled away by extreme forces</td>
<td>21</td>
</tr>
<tr>
<td>Weather</td>
<td>22</td>
</tr>
<tr>
<td>Darkness</td>
<td>23</td>
</tr>
<tr>
<td>Weight/drag problems due to parachute</td>
<td>24</td>
</tr>
<tr>
<td>Hampered by equipment of person rescued</td>
<td>25</td>
</tr>
<tr>
<td>Floating debris</td>
<td>26</td>
</tr>
<tr>
<td>Primary rescuer delayed by other rescuers</td>
<td>27</td>
</tr>
<tr>
<td>Hampered by helicopter downwash</td>
<td>28</td>
</tr>
<tr>
<td>Head wind</td>
<td>29</td>
</tr>
<tr>
<td>Poor visibility</td>
<td>30</td>
</tr>
<tr>
<td>High sea state</td>
<td>31</td>
</tr>
<tr>
<td>Mechanical problems</td>
<td>32</td>
</tr>
<tr>
<td>Other obstructions (specify in Remarks)</td>
<td>33</td>
</tr>
<tr>
<td>Rescuers lost</td>
<td>34</td>
</tr>
<tr>
<td>No problems</td>
<td>35</td>
</tr>
<tr>
<td>Vehicle operator not available</td>
<td>36</td>
</tr>
<tr>
<td>Vehicle not ready</td>
<td>37</td>
</tr>
<tr>
<td>Vehicle crew not available</td>
<td>38</td>
</tr>
<tr>
<td>Communication breakdown</td>
<td>39</td>
</tr>
<tr>
<td>Completing previously assigned duties</td>
<td>40</td>
</tr>
<tr>
<td>Lack of information about crash site</td>
<td>41</td>
</tr>
</tbody>
</table>
### Table 3–24
Factors that complicated rescue—Continued

<table>
<thead>
<tr>
<th>Factors</th>
<th>Information codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor radio reception/transmission</td>
<td>42</td>
</tr>
<tr>
<td>Telephone line busy</td>
<td>43</td>
</tr>
<tr>
<td>Poor radio discipline</td>
<td>44</td>
</tr>
<tr>
<td>Aircraft radio equipment inoperative</td>
<td>45</td>
</tr>
<tr>
<td>Poor radio procedures</td>
<td>46</td>
</tr>
<tr>
<td>Lack of emergency locator transmitter</td>
<td>47</td>
</tr>
<tr>
<td>Lack of electronic tracking equipment</td>
<td>48</td>
</tr>
<tr>
<td>Other (specify in Remarks)</td>
<td>98</td>
</tr>
</tbody>
</table>

### Table 3–25
Individual’s physical condition

<table>
<thead>
<tr>
<th>Condition</th>
<th>Information codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fully able to assist</td>
<td>01</td>
</tr>
<tr>
<td>Partially able to assist</td>
<td>02</td>
</tr>
<tr>
<td>Immobile or unconscious</td>
<td>03</td>
</tr>
<tr>
<td>Fatal</td>
<td>04</td>
</tr>
</tbody>
</table>

### Chapter 4
Ground Accident Reporting

#### 4–1. Introduction

a. In accordance with AR 385–10, chapter 3, ground accidents will be reported on the DA Form 285 series forms. This chapter provides instruction for completing a full report of investigation and an abbreviated report of investigation.

b. All on-duty Class A and B accidents and other classes of accidents investigated by a formal board (on or off-duty) require a full report of investigation. For exceptions, refer to AR 385–10. The full report of investigation includes the following:

1. DA Form 285–A, Index A.
2. Substantiating data.
3. DA Form 285–B, Index B.
5. DA Form 285, Technical Report of U.S. Army Ground Accident Form. One completed form is required, unless more than one individual is involved (injured or had a causal or contributing role in the accident). An additional form with sections A (blocks 1-5) and B completed is required for each additional individual involved.
6. Findings and Recommendations. (Typed on plain bond paper).
7. Narrative of the investigation. (Typed on plain bond paper).

c. All other classes of accidents can be reported on a DA Form 285–AB, Abbreviated Ground Accident Report (AGAR). Abbreviated reports can be submitted using the on-line reporting system, or on an AGAR in legible hand-printed or typed copy by electronic mail, standard mail, FAX, courier, or message format. Work copies on plain paper will be acceptable, but each data element must reference the respective block of the DA Form 285–AB.

1. The message address is as follows: CDR USACRC FT RUCKER AL //CSSC–CG//.
2. The mailing address is as follows: Administrative QC, U.S. Army Combat Readiness Center (CSSC–OR), Bldg 4905, 5th Ave, Fort Rucker, AL 36362–5363.
3. The e-mail address is: accidentinformation@conus.army.mil.

d. The automated reporting system allows for quick and easy reporting at the USACRC Web site: https://safety.army.mil.

e. Table 4–1 summarizes the reporting requirements.
   a. The DA Form 285 is a five page form and is available through normal publications channels (see fig 4–1).
      (1) The entire report is required for on-duty Class A and B accidents according to AR 385–10.
      (2) Instructions are organized by sections and keyed to the block numbers of the form.
      (3) The form may be completed by typing or legibly printing the data in the appropriate blocks. Items may be
          continued on a blank sheet of paper and attached to the report.
   b. For supplemental reports, sections A (blocks 3a, 4, and 5), B, and pertinent blocks to be changed/added will be
      completed and forwarded through the appropriate chain of command to USACRC.

4–3. Findings and recommendations
   a. Findings and recommendations will be completed for all Class A and B on duty accidents requiring a report
      according to AR 385–10 (see fig 4–2). Findings fall into one of five categories:
      (1) Present and contributing.
      (2) Suspected present and contributing.
      (3) Present and contributing to the severity of the injury/occupational illness or extent of property damage.
      (4) Present but not contributing.
      (5) Special observations.
   b. Each finding must be fully substantiated in the analysis portion of the narrative of the investigation.
   c. As a minimum, the following elements of information will be addressed for each present contributing, suspected
      present contributing, and present contributing to the severity of injury/occupational illness or extent of damage finding
      in the order stated (see fig 4–2).
      (1) An explanation of when and where the error, materiel failure, or environmental factor occurred in the context of
          the accident sequence of events, (for example, “walking,” “lifting,” “while driving an M1114 on a dirt road,” “while
          employing an M16A2 on a range.”)
      (2) Identification of the individual involved by duty position (do not use individual’s name), or the name, and PN or
          NSN of the part, component, or system that failed or a description of the environmental factor, as appropriate.
      (3) Identification of the mistake/error and an explanation of the how the task was performed improperly. Refer to
          appendix B for mistake/error categories. The error could be one of commission or one of omission, (for example, an
          individual performed the wrong task, incorrectly performed the correct task, or failed to perform a required task or
          function). In the case of a materiel failure, identify the mode of failure, (for example, corroded, burst, twisted,
          decayed). See appendix B for definitions and examples.
      (4) Identification of the directive (for example, SOP, FM, TM) or common practice governing the performance of
          the activity/task or function. In lieu of a written directive, the error may represent performance that is contrary to
          common practice.
      (5) An explanation of the consequences of the mistake/error, materiel failure, or environmental condition. An error
          may directly result in property damage or injury/occupational illness. A materiel failure may have an immediate effect
          on equipment or its performance, or it may create circumstances that results in error, injury/occupational illness or
          make further damage inevitable. (For example, as a result, the vehicle rolled, the passenger was fatally injured, and the
          vehicle was damaged.)
      (6) Identification of the reasons (root cause(s)) the human, materiel, environmental conditions caused or contributed
          to the accident (why it happened). Refer to the list and examples of root cause(s)/system inadequacy(ies) at appendix
          B.
      (7) A brief explanation of how each reason (root cause/system inadequacy) influenced the error, materiel failure, or
          environmental factor.
   d. In addition, for Present and Contributing to the Severity of Injury/occupational illness or Extent of Damage
      findings, the board should also:
      (1) Summarize personnel injuries attributable to defects in life support equipment, PPE, or crashworthiness design as
          findings in this category.
      (2) Address injuries sustained from failure to use provided equipment (for example, seatbelts).
      (3) Separate the findings and recommendations in this category from those that caused the accident and preceding
          them with the following statement: “THE FINDINGS(S) LISTED BELOW DID NOT DIRECTLY CONTRIBUTE TO
          THE CAUSE FACTORS INVOLVED IN THIS ACCIDENT; HOWEVER, IT/THEY DID CONTRIBUTE TO THE
          SEVERITY OF INJURY(IES) AND/OR EXTENT OF DAMAGES(S).”
   e. “Present but Not Contributing” findings are those that did not cause or contribute to the accident or to the severity
      of injuries.
      (1) The board should report errors, materiel failures, or other hazards that did not contribute to the accident but have
          a high potential for causing other accidents or adversely affecting the safety of personnel and equipment if not
          corrected. Reporting these deficiencies will ensure they receive command attention throughout the chain of command
          to include DA-level action.
The findings and recommendations in this category will be separated from those that caused the accident or those that did not cause the accident but contributed to the severity of injuries, and will be preceded by the following statement: “THE FINDING(S) LISTED BELOW DID NOT CONTRIBUTE TO THIS ACCIDENT; HOWEVER, IF LEFT UNCORRECTED, IT/ THEY COULD ADVERSELY AFFECT THE SAFETY OF PERSONNEL AND EQUIPMENT.”

f. Each finding will be followed by recommendations having the best potential for correcting or eliminating the reasons for (root cause(s)/readiness shortcoming(s)/system inadequacy(ies)) the error, materiel failure, or environmental factor that caused or contributed to the cause of the accident (see app B–6 for definitions and examples).

1) Recommendations should not focus on punitive steps addressing an individual’s failure in a particular case.

2) To be effective at preventing accidents in the future, recommendations must be stated in broader terms. The board should not allow the recommendation to be overly influenced by existing budgetary, material, or personnel restrictions.

3) In developing the recommendations, the board should view each recommendation in terms of its potential effectiveness; for example, design improvement of a part that has a history of recurring failure is a better solution than recommending procedures to accommodate the deficiency.

4) Each recommendation will be directed at the unit, command, or activity which is best capable of implementing the actions contained in the recommendation. The actions required at unit level (company, troop, battalion), higher level (brigade, division, corps, Army Headquarters), and DA (to include Army Headquarters with Army-level ACOM, ASCC, DRU proponency) levels of command will be addressed in each recommendation.

5) If there is no recommendation at a particular command level, state “None,” (for example, “DA-level Action: None.”)

6) In cases where an Army Headquarters is the highest level proponent for a recommended action having Army-wide application, the Army Headquarters will be listed in the “DA-level” category.

4–4. Narrative of investigation

a. Narrative. A narrative of the investigation will be completed for all on-duty Class A and B accident reports required by DA Pam 385–40 (see fig 4–2).

1) The investigation board will report, in narrative form, the facts, conditions, and circumstances as established during the investigation and present this information in four sections (history of events, human factors, materiel factors, and analysis). The first three sections will contain only factual data.

2) The analysis section is reserved for the board’s documentation of its conclusions/opinions concerning the accident cause relationships. Chapter 2, paragraph 2–8, explains procedures for development of formal written analysis. Additional subheadings may be added as deemed necessary.

3) It is important that the narrative address all of the chronological events and evidence that had a bearing on the cause of the accident and/or have the potential for adversely affecting the safety of future operations.

4) For accidents in which the investigation board determines human error, materiel failure/malfunction, or environmental conditions were a factor, that portion of the narrative will be completed in its entirety, as specified in the instructions below. The history of events, personnel background/management, meteorological, and analysis portions will be completed. For the remaining subheadings which the investigation board determined were not a factor, enter after the subheading “Investigation revealed not a factor” and proceed to the next subheading.

5) Opinions concerning the accident cause will be discussed only in the analysis section.

6) Individual names will not be included in the analysis portion of the narrative. Personnel will be referred to by duty position; (for example, the driver, civilian passenger, the gunner).

b. History of events.

1) Pre-accident phase. Report type of mission, activity or event, its purpose, how the organization became tasked with it, and who authorized it. Identify the individual(s) involved in the accident/injury or occupational illness, to include duty, unit/organization assigned, and how they were selected for and informed of the mission, activity or event. Describe the actions of the personnel involved in preparing for the mission, activity or event to include planning, application of CRM, orders, and/or briefings. Describe vehicle/equipment/vessel/structure involved, to include type, serial/lot numbers, inspections conducted and the dispatching process. Describe facts which may indicate whether or not an undue sense of urgency was associated with the mission, activity, or event and if there were any delays prior to the onset of the operation.

2) Accident phase. Indicate when the vehicle/personnel departed on the mission, activity or event and continue until the accident occurred. If the mission, activity or event involved more than one routine segment, requiring multiple activities, functions or stops before the accident occurred, concisely summarize these events until addressing the segment involving the accident. If the segment involving the accident contained an emergency, give a detailed description of the onset of the emergency to include where and when it occurred, symptoms, warnings, indications, and instrument readings. Also, describe actions/reactions of the personnel between the time of the emergency and the conclusion of accident.

3) Post-accident phase. Briefly describe the condition of the equipment/vehicle/structure/vessel, to include whether...
or not the equipment was still operating and the condition of personnel immediately after the accident. Reserve details of damage to various equipment/vehicle/structure components for the materiel factors portion of the narrative.

(a) If a post-accident fire occurred, so indicate and explain how and when it was extinguished, if applicable.

(b) Describe how the accident site was located.

(c) Summarize rescue and first-aid efforts, to include who notified rescue/medical/police of accident, response time, type of equipment used in the evacuation, who administered first aid/cardiopulmonary resuscitation and their medical qualifications.

(d) Briefly summarize egress of occupants from vehicle/equipment, time of arrival at the medical facility, medical facility providing treatment, and time of death, if applicable. Reserve details of the egress, rescue, and evacuation for rescue operations portion of the narrative.

(c) Human factors investigation. For accidents resulting from causes other than human factors, the human factors portion of the narrative may be sharply reduced by making a statement like “none” for the subheadings except for subheadings addressing personnel background/management.

(1) Personnel Background/Management Information. Personnel background is extremely important in terms of providing a complete and informative profile of the principal persons involved. The sources of information will include, but are not limited to, personnel, training records, friends, peers, subordinates, superiors, and the persons themselves. Background information should primarily address:

(a) Briefly summarize service background, to include date of service entry (or the civilian equivalent), training, experience, type of assignments, and qualifications acquired prior to joining current unit.

(b) Report evidence of safety/traffic violations and prior accident experience on the primary personnel involved. If involved in a prior accident, explain their role.

(c) Describe experience in mission/duty/activity relative to the accident mission/duty/activity, also describe if the individual received his/her qualifications by on-the-job training (OJT) or attending a school. Discuss only those pre-service activities/experiences which are accident related.

(2) Personnel management. Personnel management should primarily address how the individual was managed by the unit/organization to which assigned at the time of the accident.

(a) Review how the unit/organization has managed each individual involved. Begin with date of assignment to current unit/organization.

(b) Review experience, training and qualifications upon assignment and report how individual was tasked, trained, and otherwise managed up to the date of the accident.

(c) Describe how the unit/organization prepared the individual with qualifications and readiness to perform the mission/activity/event. Indicate whether or not the individual was qualified to perform the mission/activity/event involved in the accident.

(d) Explain irregularities in the individual’s training folder.

(e) Also discuss whether the individual was medically qualified to perform the mission/activity/event involved in the accident.

(f) Discuss additional duties and the percentage of time given them versus their primary duty.

(g) Report qualifications acquired since assignment to unit such as OJT and schooling.

(h) Review the procedures involved in selecting the personnel involved for the mission/activity/event.

(i) Describe timelines of notification, compatibility of personnel for the mission/activity/event, and their relative experience for the mission/activity/event.

(j) Describe involved personnel in terms of their professional reputations in unit, opinions of peers, subordinates, and others who have worked with/for them.

(k) Describe the individuals’ sleep, work, and dietary habits and use of alcohol and nicotine. Review unit sleep/rest policy. Report whether or not a sleep/rest policy was in effect, being monitored, and complied with.

(l) Highlight weaknesses in proficiency, if appropriate, especially the performance of tasks duplicating those involved in the accident.

(m) Discuss if the individual was receiving medication before the accident. Report type, source, dosage, side effects, and possible effect on performance. Summarize the findings of the post-accident medical examination. If the individual sustained injuries, give a brief description of the injuries and how they occurred. If the individual sustained fatal injuries, briefly summarize autopsy report (if available), to include cause of death.

(n) The same scope of information is usually not necessary for personnel not directly involved, but if it is suspected or known that other personnel played a role in the accident, summarize their background, experience and qualifications. This part of the narrative can involve commanders/supervisors, operations personnel, supply and weather personnel, maintenance personnel, and others, if applicable.

(3) Vehicle/equipment/suitability. Describe suitability of the vehicle/equipment/structure/vessel involved to perform the mission/activity/event. Consider primary purpose versus use at the time of the accident, equipment design limitation as found in applicable operator’s manual, configurations.

(4) Communications. Describe evidence relating to communications equipment (adequacy of visual and electronic
signals) and the communication that occurred or failed to occur among and between personnel, (for example, base station, operations, command and control, agency to agency, service to service). Consider language difficulties, clarity of spoken words, static, interference, adequacy and precision of instruction, and so forth. Summarize tape recordings of communications between crew and other stations, if applicable.

5) Meteorological information. Describe weather conditions that prevailed throughout the mission/activity/event and conditions that existed at the accident site at the time of the accident. Include sky condition, visibility, winds, temperature, and any significant weather conditions. Consider weather observations made by trained weather observers and/or witnesses in the area. If weather was considered a contributory factor to the accident, describe the accuracy of the weather forecast. If the actual weather differed significantly from the forecast, include a discussion of the information that was available to the forecaster. For parachute accidents evaluate the winds aloft (at drop altitude) and surface winds. If the accident occurred at night, include details of moon illumination if it applied to the accident.

6) Support services. Describe evidence that relates to the role of support services in the accident. Consider ground guides, road guards, traffic signs, fire stations, POL and dispatch procedures.

7) Accident survivability.
   (a) Discuss crashworthiness/construction of the vehicle/equipment/structure in terms of crash/collapse sequence, impact conditions, kinematics, and crash impact forces.
   (b) Indicate whether the restraint systems failed or malfunctioned and the adequacy of the vehicle/equipment structure to maintain occupiable space and attenuate crash forces.
   (c) Explain occupant injury/occupational illness relationship to crashworthiness.
   (d) Explain if injuries occurred during or after the crash/accident sequence.
   (e) Include the performance of PPE. For example, seatbelt, visor, helmet, roll bar, and clothing. Discuss in terms of usage and nonusage.

8) Rescue operations. Discuss details of egress, survival, and rescue investigations. Describe where individuals were located in vehicle/structure/equipment, how and where they exited, difficulties encountered, and position of vehicle/equipment at time of egress. Describe factors that may have enhanced or inhibited the success of the survival/rescue situation. Report when and how rescue personnel were notified and how long it took rescue personnel to respond to the initial notification, arrive at accident site, and evacuate the survivors. Explain problems associated with delays in rescue.

9) Special investigation. Report results of any special investigations that were conducted because of the accident. If, for example, during the investigation, it is found that night vision devices played a role in the accident, the applicable agency/program manager should be notified and a determination made as to their involvement.

10) Witness interview. Briefly indicate number of witnesses interviewed and identify duty position and experience. Summarize pertinent witness observations and indicate whether or not witnesses generally agreed concerning accident events. In the analysis, describe major conflicts in the provided information and resolution of inconsistencies in the information. Opinions regarding witness credibility should also be reserved for the analysis section.

d. Materiel factors investigation. This report provides results of any special investigation in the appropriate subparagraphs. Those accidents that do not involve materiel failure/malfunctions may be abbreviated, to include negative reports. Identify and discuss damage resulting from pre-accident materiel failure/malfunctions and omit damage that resulted from crash/impact forces exceeding design limits. References can be made to the wreckage distribution diagram, photographs, reports, and records. Include the following:
   (1) Vehicle/equipment/structure/vessel worthiness. Describe the worthiness of the vehicle/equipment/structure.
   (a) Investigation should include, but not be limited to, maintenance records, historical records, interviews with maintenance personnel, operator preventive maintenance records, and dispatch records.
   (b) Identify all deficiencies, or discrepancies found during the investigation that had a role in the accident, or may not have had a role but, if not corrected could impair safe operations; however, reserve discussion of the results of discrepancies/deficiencies for the analysis portion of the narrative.

   (2) Systems. Use subparagraphs to report evidence obtained in the examination of fuel, steering/control, hydraulic, electrical, frame, tire, and weapon, suspension, and brake systems. Note all discrepancies.

   (3) Engine. Report the evidence obtained during examination of the engine(s). Include indications of power at impact, if available.

   (4) Transmission. Report condition and describe any faults noted.

   (5) Accident site information. Describe the accident site, to include grid location, dimensions, lighting and marking, obstructions, type and condition of surface, or any other peculiarities found.

   (6) Fire. Discuss the role of fire, to include when it occurred, manner in which the fire was detected, ignition source, combustible material, location, propagation, method, and degree of success in extinguishing.

   e. Analysis.

   (1) The analysis paragraph summarizes the narrative and discusses the opinions and conclusions of the board and must conclusively show the cause and effect relationship of the evidence gathered during the accident investigation. The analysis will discuss the influence of command activity, or lack thereof, in the context of its role in the accident or
the prevention of accidents. An example of an analysis organizational structure may be found in the USACRC Army Accident Investigator’s Handbook, which can be found at https://safety.army.mil. As a minimum, the analysis part of the narrative will provide the following information:

(a) Identify the errors, materiel failures, or environmental factors involved in the accident in the context of the accident sequence of events. To accomplish this task, the board will use the listings of mistake/errors, materiel failures/malfunctions, and environmental factors and the explanations, examples, and key words contained in appendix B.

(b) Discuss the results/effects of the errors/materiel failures/environmental factors.

(c) Identify the system inadequacy(ies)/root cause(s) that caused or permitted the errors/materiel failures/environmental factors to occur. To fulfill this task, the board will use the explanations, examples, and key words contained in appendix B.

(d) Report preventable injuries in the context of the accident sequence of events and explain how they occurred.

(e) Identify the root cause(s)/readiness shortcoming(s) that caused or permitted injuries to occur.

(f) Discuss the command/management influence relative to cause factors and accident prevention.

(g) Indicate whether Composite Risk Management (CRM) was performed, who accepted the risk, what the residual risk was, and include whether the accident event was considered during the CRM process.

(2) To fulfill these information requirements, the board should review all the evidence relating to the accident disclosed during the human, environment and materiel factors investigations. This may require readressing specific paragraphs contained in the narrative and indicating the relationships between the facts disclosed and the errors/materiel/failures/environmental factors that occurred. From this review, the board should consider:

(a) A logical development of the various circumstances and events that may have existed. This process of deductive reasoning should lead to the formulation of an explanation(s) concerning the accident cause and preventable injuries (if and why they occurred).

(b) The explanation(s) should be discussed and tested against the evidence gathered during the investigation.

(c) If it is necessary to develop hypotheses, it is important for the board to state why a particular hypothesis was or was not supported by the evidence.

(3) The investigation board should initially outline and structure the correlation of cause-related errors/materiel failures/environmental factors and associated root cause(s)/readiness shortcoming(s). When the outline has been completed, the narrative rationale and conclusions should be composed using the following examples as a guide:

(a) Begin the paragraph by specifying the scope and conclusions of the investigation. In all cases, begin the paragraph with these words: “After analyzing the human, materiel, and environmental data collected during the investigation, the board concluded the accident was caused by...” Complete the sentence by specifying the factor(s) (human, materiel, or environment) which caused the accident, (for example, “... human error-leader failure.”)

(b) Describe when or where the error/failure/injury or occupational illness/environmental factor occurred in the context of the accident chronology of events, (for example, “Before the mission/activity/event ...”, “While installing a hydraulic line ...”, “During steering ...”, “During the crash sequence...”)

(c) Identify the duty position of the person who erred, became injured, or the name and PN and NSN of the part, component or system that failed, (for example, “the mechanic”; “the brake line, PN 1-234-5678-9”; “the driver.”)

(d) Identify the error in the context of a listed mistake/error category, (for example, “inadequate planning,” “excessive speed,” “improper passing.”) See table B–2.

1. If a materiel failure is being reported, explain the type of failure; for example, “overheated,” “vibrated,” “frayed,” “decayed,” and so forth. See table B–3.

2. If an injury is being reported, explain if the individual “struck” or “was struck by” the injury-causing agent. Refer to DA Form 285, block 28.

(e) Cite the directive or standard the mistake/error category failed to comply with, (for example, “contrary to standard and description for task 5007, TC 1–135.”)

1. In the absence of written guidance/standards for a mistake/error, evaluate the task in terms of how other equally qualified and prudent personnel would perform the same task under similar circumstances.

2. If the error represents performance that is unacceptable, it is contrary to common practice.

(f) Describe the specifics of the error, (for example, “he excessively torqued the nut, PN 12345.”)

(g) Describe the consequences of the error, materiel failure, environmental factor, or the resulting injury/occupational illness.

(h) A complete failure statement could read as follows: “While driving an M1114, Up-Armored HMMWV, a section of the right front brake line, PN 1-234-5678-9, eroded through. As a result, all brake fluid was lost and subsequent loss of effective braking.”

(4) Each statement of error/materiel failure, environmental factor, or injury/occupational illness will be followed by statements identifying the system inadequacy(ies)/root cause(s) that caused or permitted the error/materiel failure/injury or occupational illness to occur or an environmental factor to become a cause. The system inadequacy(ies)/root cause(s) statements are the most important part of the analysis. This information is more important from a corrective
action standpoint than the error/materiel failure, injury/occupational illness, or environmental factor itself. Each system inadequacy(ies)/root cause(s) statement will contain the following information:

(a) A transition phrase to tie the system inadequacy(ies)/root cause(s) to the error/materiel failure, or injury/occupational illness, (for example, “The driver exceeded the posted speed limit because …,” “The brake line eroded to a point of failure because …”; “The driver sustained the back injury because …”)  

(b) Identification of the specific system inadequacy(ies)/root cause(s); for example, “because of inadequate motivation/mood (attitude),” “inadequate supervision by the unit operations officer,” “because of inadequate quality control on the part of the manufacturer,” “because of inadequate seat design,”.

(c) An explanation of how or why each system inadequacy(ies)/root cause(s) permitted or caused the injury/occupational illness or error/materiel failure/environmental factor.

(5) Once the preceding elements of information are reported for each error/materiel failure, injury/occupational illness, or environmental factor in the manner stated, the resulting conclusions (findings) can stand on their own. There could be more than one system inadequacy(ies)/root cause(s), depending upon the circumstances. The point to be made is that system inadequacy(ies)/root cause(s), which caused or permitted an error/materiel failure, or environmental cause must be made visible before effective corrective actions can be recommended.

(6) The analysis paragraph of the narrative does not have to be limited to explaining and concluding what caused or contributed to the accident, injuries or damage. It should also address present but not contributing hazards if they could adversely affect the safety of operations. There are provisions for reporting non-cause-related hazards. They are contained in the instructions for completing the findings and recommendations.

(7) Enter the following risk management information for all Class C accidents and above:

(a) At what level was the mission/training conducted (brigade/battalion/company/platoon/squad/team/crew)?

(b) Who approved the mission/training (rank/position)?

(c) Was risk management performed?
   1. Who performed (rank/position)?
   2. Who accepted risks (rank/position)?
   3. What was the level of risk after the controls were applied? (select one: low/moderate/high/extremely high)
   4. How was the risk management process communicated? (select one or more: order/worksheet/verbal brief/not communicated)
   5. Was the accident event identified/considered during risk management process (y/n)?
   6. If yes, what was the level of the identified risk (select one: low/medium/high/extremely high)?
   7. If yes, was control measure(s) applied (y/n)?
   8. If yes, who was responsible for implementing control(s) (rank/position)?
   9. If yes, was the potential for the accident event accepted as residual risk (y/n)?

(d) Who was in charge during the mission/training (rank/position)?

(e) Who was the senior leader present during the mission/training (rank/position)?


a. Instruction. DA Form 285–W, Summary of Witness Interview (see fig 4–3) will be completed for all on duty Class A and B accidents. As a minimum, summaries of the interviews with the primary personnel involved/injured will be included. Any individual identified in a finding having a causal or contributing role must be interviewed, if available. The form will also be used to summarize interviews and statements of commanders, supervisors, maintenance personnel, and others who are able to contribute pertinent information concerning the accident. If additional space is required, use letter-size paper for continuation sheets.

b. Procedural guidelines. The procedural guidelines instructions are as follows:

(1) All witnesses will be interviewed according to chapter 2, paragraph 2-3. The investigator will emphasize to the witness that the sole purpose of the accident investigation is for accident prevention. The witness should be further informed that the U.S. Army seeks to isolate the cause(s) of the accident so it may take appropriate action to avoid similar accidents. If the witness is a civilian, the investigator will avoid using Army terms and acronyms.

(2) The board president or recorder will brief all witnesses concerning the interview. This will be done by reading to the witness the information on page 2 of the DA Form 285–W, contained in block 15, “General Witness Information Briefing.” (See fig 4–3).

(a) The purpose is to ensure that the witness understands the intent of the interview, who will or can have access to the information, DOD restrictions on the use of the interview, and its public releasability.

(b) If a promise of confidentiality is not offered to the witness, the interviewer will read the section, “No promise of confidentiality offered.” As a general rule, ground accidents are “General Use” investigations and the promise of confidentiality cannot be offered unless they meet the criteria outlined in AR 385-10, paragraph 3–10.

(c) If a promise of confidentiality is to be offered—
   1. The interviewer will read the section, “Promise of confidentiality offered.”
2. The witness will complete block 16, “Availability of Promise of Confidentiality for Limited Use Report of Investigation.”

3. The witness will initial the appropriate paragraph indicating his/her choice, requesting or declining confidentiality. 

Note. (The exception for interviews under enhanced recall/hypnosis, which will automatically be deemed confidential and treated as such.)

Summaries of witness interviews will not be signed by the witness.

4. The interviewer will complete block 12 of the DA Form 285–W and only sign and date the form if “Yes” is checked.

(d) If the witness is willing to be interviewed or make a statement, it will be summarized in “third person” in block 13 of the DA Form 285-W. The complete verbatim account of all that was stated should not be included. A summarization is to be used, but it should not exclude any information that assists in explaining the circumstances of the accident.

4–6. Assembly of the accident folder

An accident folder (see fig 4–8) is required for all Class A and B on duty accidents. The recorder will assemble the information as follows:

a. Use folders to enclose the forms and substantiating data for each copy of each report.

b. Post substantiating data to the left side of the accident folder under the appropriate index. Other items such as the DA Form(s) 285, Findings and Recommendations and Narrative, are posted on the right side under the appropriate index.

c. Tab and index each item on the left and right sides of the folder as shown in Figure 4-9.

d. File the completed DA Form 285–A, Index A, on top of substantiating data on the left side of the folder and file the completed DA Form 285–B, Index B, on top of the right side of the folder.

(1) DA Form 285–A. Place a number for all tabs and type a description of what the tab contains. As a minimum, TABs 1 through 4 will always be used, TAB 5 is required when there is vehicle, system, and equipment damage or failure.

(2) DA Form 285–B. Place a letter for all tabs and type a description of what the tab contains. As a minimum, TABs A through E will always be used. Type the signature block of all board members, to include, grade, branch, unit address, telephone number, and e-mail address (SSN not required). Use a continuation sheet if there are more than six board members.

e. The front of the folder will be marked with the following information:

(1) Limited or General Use.


(3) Type Equipment and Serial No.: (M109A2XXXXX).

(4) Date of accident: (ddmmyyyy).

(5) Location of accident: (DA Form 285, block 11).

(6) Unit: (DA Form 285, block 3).


DA Form 285–A (see fig 4–4), and DA Form 285–B (see fig 4–5) will be completed for all on-duty Class A and B accidents requiring a report.

4–8. Substantiating data

a. Instructions. DA Form 285–A, Index A, lists the information that will be appended to the technical report as substantiating data.

b. Requirements. TAB items 1 through 4 of DA Form 285–A and TAB items A through E of DA Form 285–B are required for all Class A and B on duty accidents. All other items which are necessary to explain or substantiate other parts of the report should be submitted, if appropriate. Additional instructions pertaining to applicability are contained in the paragraphs below.

c. Special considerations.

(1) Social Security Numbers (SSN). None of the substantiating documents require an SSN. If any of the documents on the left side of the report have an SSN listed, black out the number with a black felt tip marker.

(2) Legibility. Original copies of substantiating data should not be appended to the report. (Leave originals with the unit for legal/legal accident investigations.) The copies provided, however, will be legible and suitable for additional reproduction.

(3) Extracts. Extracts or concise quotes of regulations, tasks, performance standards, specifications, and other directives are preferred in lieu of whole source documents to minimize bulk. When used, extracts will be annotated to include information which identified the source documents with date and latest change or update information.

(4) Highlighting key words and phrases. Substantiating data referred to by other parts of the report will have key
words, phrases, or passages made prominent to complement the review of the accident report. This should be done by underlining or annotating margins, which is preferred in lieu of felt-tipped markers in that the fluid dispensed devices may obliterate the legibility of subsequent copies if and when reproduced.

d. Information items at each TAB on the DA Form 285-A.

(1) TAB 1-Serious incident report/casualty report. A copy of the appropriate document should be included in the report.

(2) TAB 2-Investigation board orders. A copy of the original signed orders appointing the board and any amendments will also be appended.

(3) TAB 3-Map of the accident site. Always include a map of the site annotated to show where the accident occurred. A copy of the map sheet portion that includes the accident site annotated with an appropriate scale, distance, and map sheet name is acceptable.

(4) TAB 4-Diagrams and photographs. A diagram of the accident site should be appended to the report if it will assist in clarifying the accident sequence of events. The number and types of photographs, with captions, to be appended to the accident report will be determined by the accident circumstances. Additional guidance concerning photographic coverage of an accident is contained in chapter 2, paragraph 2–5e of this pamphlet.

(5) TAB 5-Certificate of damage/ECOD. Completed ECOD(s) or ACOD(s) are required for vehicle/system/equipment damage. The ECOD(s) will include an itemized list of damaged components, number and cost of man-hours, and the total cost of repair. If the vehicle/system/equipment is damaged to the extent that the items are classified as a total loss, a statement to that effect, signed by the maintenance officer assigned to the accident investigation board, will suffice in lieu of an ECOD. The statement will reflect the AMDF cost or applicable parts manual costs.

(6) TAB 6-Copy of deficiency reports/PQDR. Include a copy of each deficiency report submitted as a result of the accident. All failed or suspected failed parts/systems must be reported on a PQDR. When a materiel failure is the sole cause of the accident and a PQDR is not submitted, the accident will be charged to the accident unit in accordance with AR 385-10.

(7) TAB 7-Copy of directives and regulations. Extracts of directives or manuals that establish the standards for either human or materiel issues will be included in the report. The extracts will be annotated to reflect the source document, usually with the document cover.

(8) TAB 8-Special technical reports and laboratory analysis reports. Append a copy of the results of all fluid (fuel, oil, hydraulic) sample analyses, TDA, or other material-related analyses conducted as a result of the accident.

(9) TAB 9-Copy of uncorrected fault record. Append copies of the appropriate forms, if applicable to the accident vehicle/system/equipment, if a materiel problem related to an uncorrected fault is involved.

(10) TAB 10-Copy of equipment modification record (DA Form 2408–5). Append copies of DA Form 2408–5, if applicable to accident vehicle/system/equipment, when necessary to substantiate maintenance errors, and omissions that had a bearing on the accident.

(11) TAB 11-Weather reports. If weather had no bearing on the outcome of the accident, a brief synopsis by the nearest weather service activity of the weather that existed during the accident will suffice in most cases. If weather contributed or is suspected to have contributed to the accident, the information to be provided will include, but not limited to, the following:

(a) A signed narrative of the weather conditions prior to and during the accident provided by a weather forecaster, briefer, or observer.

(b) A copy of the weather forecast or observation from official files.

(12) TAB 12-Medical data. Copy of toxicology, AFIP, autopsy reports, and so forth. Autopsy protocol and pictures of deceased personnel will not accompany the report through channels. This information will be forwarded separately to USACRC (CSSC–O), for inclusion in the file copy of the report. For further discussion on autopsies see chapter 2, paragraph 2–4.

(13) TAB 13 through 18–Other. Include copies of other substantiating data deemed appropriate by the investigation board or information that is critical to the report and is not available from other sources.


DA Form 285–O (see fig 4–7) will be submitted with the copy of the technical report forwarded through channels to the USACRC. If additional space is required, use letter-size paper for continuation sheets.

4–10. Miscellaneous

A list may be beneficial to the local safety point of contact (POC) for actions required prior to the arrival/appointment of the accident investigation board. The guidelines in appendix G can be used to prepare this list.


DA Form 285-AB is required for all Class C and D on-duty and all off-duty accidents. (See fig 4–8 for an example and
table 4–1 for accident notification.) The AGAR only reduces the reporting requirements and should not affect the quality or extent of the accident investigation.

a. Investigation and submission of the DA Form 285–AB will be according to AR 385–10.

b. Submit AGARs in legible hand-printed or typed copy via mail, fax, courier, e-mail, or through the on-line reporting system. Work copies on plain paper will be acceptable, but each data element must reference the respective block of the DA Form 285–AB.

1. The message address is as follows: CDR USACRC FORT RUCKER AL //CSSC–O//.
2. The mailing address is as follows: Commander, U.S. Army Combat Readiness Center (CSSC–O), Bldg 4905, 5th Ave, Fort Rucker, AL 36362–5363.
3. The e-mail address is: accidentinformation@conus.army.mil.
4. The automating reporting system allows for quick and easy reporting through the USACRC Web site: https://safety.army.mil.

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ON-DUTY A &amp; B</td>
<td>Immediately ¹</td>
<td>Not required</td>
<td>IAI/CAI-90 days</td>
<td>As time Permits (Not to Exceed 60 days)</td>
</tr>
<tr>
<td>C</td>
<td>Not required</td>
<td>Within 90 days</td>
<td>Not required</td>
<td>As time Permits (Not to Exceed 60 days)</td>
</tr>
<tr>
<td>D</td>
<td>Not required</td>
<td>Within 30 days</td>
<td>Not required</td>
<td>As time Permits (Not to Exceed 30 days)</td>
</tr>
<tr>
<td>OFF-DUTY A &amp; B</td>
<td>Immediately ¹</td>
<td>Within 30 days</td>
<td>Not required</td>
<td>As time Permits (Not to Exceed 30 days)</td>
</tr>
<tr>
<td>C &amp; D</td>
<td>Not required</td>
<td>Within 30 days</td>
<td>Not required</td>
<td>As time Permits (Not to Exceed 30 days)</td>
</tr>
</tbody>
</table>

Notes:

¹ USACRC must be notified IMMEDIATELY by phone at DSN 558-2660/2539/3410 or COM (334) 255-2660/2539/3410 or notify safety rep forward (during combat).
² When the senior tactical commander determined that the situation, conditions or time does not permit normal peacetime investigation and reporting.

Figure 4–1. Example of completed DA Form 285, Technical Report of U.S. Army Ground Accident
Figure 4-1. Example of completed DA Form 285, Technical Report of U.S. Army Ground Accident –continued

SM was driving the accident vehicle (M114) on the compound (FOB Simdiah). While traveling south on River Creek Drive, SM lost control of the vehicle and slid down embankment of river creek and rolled over into the 8 1/2 feet deep river bed. The vehicle came to rest on the roof and the driver was unable to egress safely. The passenger was able to egress with minor cuts and bruises.
Figure 4–1. Example of completed DA Form 285, Technical Report of U.S. Army Ground Accident –continued
Figure 4–1. Example of completed DA Form 285, Technical Report of U.S. Army Ground Accident –continued
Figure 4–1. Example of completed DA Form 285, Technical Report of U.S. Army Ground Accident Report –continued
FINDING 1 (Present and Contributing - Materiel Failure):

While traveling on an interstate highway at approximately 70 mph, the M1083, Family of Medium Tactical Vehicles (FMTV) experienced a left front tire (NSN 2610-01-214-1344) failure. That is, the tire burst due to a defect in the sidewall. As a result, the driver lost control of the vehicle and it veered sharply to the left, striking a guardrail, flipping rear-end over front into the opposing lane of traffic. It then collided with a Ford pickup truck traveling in the opposite direction. During the accident sequence, the driver of the FMTV was fatally injured and the operator of the Ford pickup truck experienced minor injuries. Both vehicles incurred extensive damage.

Laboratory testing determined the tire wall had a manufacturing defect (weak spot), which was not detected by the manufacturer's quality-control procedures.

RECOMMENDATION 1:

a. Unit Level Action: None.

b. Higher Level Action: Commander, 6th Armor, require subordinate units to conduct an inspection of tires to ensure none have similar defects.

c. Army Level Action: Program Executive Office, Combat Support & Combat Service Support,

(1) Review historical information to determine if this failure was an anomaly or indicates a trend.

(2) Provide product deficiency information to the manufacturer so they can evaluate the adequacy of their quality-control procedures.

FINDING 2 (Present and Contributing: Human Error - Individual Failure):

While operating an M1083, 5-ton FMTV, west on an interstate highway, the driver operated the vehicle at excessive speeds. That is, the driver operated the vehicle at approximately 70 mph in contravention of the battalion SOP (55 mph). Consequently, when the tire burst, the driver could not maintain control of the vehicle. The vehicle ran into a guardrail, flipped rear-end over front and then collided with a Ford pickup truck in the opposing lane of traffic. The driver of the FMTV received fatal injuries. The passenger of the FMTV and driver of the pickup truck received minor injuries. Both vehicles were extensively damaged.

The driver willfully exceeded the battalion specified speed limit because he was overconfident in his ability to control the vehicle at any speed. The speed limit was stenciled on the dash. The driver was also in a hurry to complete the mission so he could meet a friend.

RECOMMENDATION 2:

a. Unit Level Action: Commander, C Co, 3d Bn. 6th Armor:

(1) Inform all personnel of the circumstances and consequences of this accident, reminding them of the battalion standards.

(2) Ensure first-line leaders enforce the standards and take corrective action before Soldiers get into an accident.

b. Higher Level Action: Commander, 6th Armor, inform all personnel of the circumstances and consequences of this accident.

c. Army Level Action: Commander, U.S. Army Combat Readiness Center, publish the facts and circumstances surrounding this accident in KNOWLEDGE Magazine with special emphasis on lessons learned, as appropriate.

Figure 4–2. Sample of a narrative investigation and findings and recommendations
FINDINGS AND RECOMMENDATIONS (Cont'd) – 20040115

THE FINDING LISTED BELOW DID NOT DIRECTLY CONTRIBUTE TO THE CAUSE FACTORS INVOLVED IN THIS ACCIDENT; HOWEVER, IT DID CONTRIBUTE TO THE SEVERITY OF THE INJURY.

FINDING 3 (Present and Contributing to the Severity of Injuries: Human Error – Individual Failure):

While traveling on an interstate highway at approximately 70 mph, the driver failed to use his seatbelt in accordance with AR 385-10 and local policy. Consequently, after losing control of the vehicle, the driver was violently thrown around in the cab of vehicle and then ejected during the accident sequence. He received fatal injuries while the other occupant of the vehicle, who was wearing a seatbelt, received minor injuries.

The driver’s actions were a result of indiscipline. The driver knew he was required to use seatbelts and was routinely corrected by leaders.

RECOMMENDATION 3:

a. Unit Level Action: Commander, C Co, 3d Bn, 6th Armor, take positive action to enforce policy to seatbelt use.


c. Army Level Action: None.

THE FINDING LISTED BELOW DID NOT CONTRIBUTE TO THIS ACCIDENT. HOWEVER, IF LEFT UNCORRECTED, IT COULD HAVE AN ADVERSE EFFECT ON THE SAFETY OF FUTURE OPERATIONS.

FINDING 4 (Present but Not Contributing):

During a review of the unit’s maintenance records, the Board noted a few of the assigned vehicles were overdue for services.

RECOMMENDATION 4:

a. Unit Level Action: Commander, C Co, 3d Bn, 6th Armor, conduct a review of the service schedule bi-weekly to ensure services on the training schedule have been completed.

b. Higher Level Action: None.

c. Army Level Action: None.

Elements of a Present and Contributing Finding
The following table illustrates the proper structure for human error findings. Materiel and environmental findings are slightly different but similar.
**Elements of a Present and Contributing Finding**

<table>
<thead>
<tr>
<th>Required Information</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Explanation of when, where, and why the mistake/error occurred in context of the accident sequence of events.</td>
<td>While operating an M1083, 8-ton Family of Medium Tactical Vehicle (FMTV), went on an intersected highway...</td>
</tr>
<tr>
<td>2. Individual involved duty position.</td>
<td>the driver</td>
</tr>
<tr>
<td>3. Identification of misused mode (n formation/specific misused/error in DA PAM 385-40, Table B-2) and an explanation of how task/activity was performed improperly.</td>
<td>Operating the vehicle at excessive speed. That is, the driver operated the vehicle at approximately 70 mph...</td>
</tr>
<tr>
<td>4. Directive (ATM, SOP, FM, TM, posted speed limit, and so forth) or common practice governing performance of task/activity.</td>
<td>in contravention of the battalion SOP (55mph).</td>
</tr>
<tr>
<td>5. Consequences of mistake/error.</td>
<td>Consequently, when the tire burst, the driver could not maintain control of the vehicle. The vehicle ran into a guardrail, flipped over and then collided with a Ford pickup truck in the opposing lane of traffic. The driver of the FMTV received back injuries. The passenger of the FMTV and driver of the pickup truck received minor injuries. Both vehicles were extensively damaged...</td>
</tr>
<tr>
<td>6. Reason(s) (root causes/system inadequacy(s)) for the mistake/error (Ref System Inadequacies in Table 3-6 of DA PAM 385-40).</td>
<td>The driver willfully exceeded the battalion specified speed limit because he was overconfident in his ability to control the vehicle at any speed. The driver was also in a hurry to complete the mission so he could meet a friend.</td>
</tr>
<tr>
<td>7. Brief explanation of how each reason (root causes/system inadequacy) contributed to the mistake/error.</td>
<td>The speed limit was steeped on the dash. The driver was also in a hurry to complete the mission so he could meet a friend.</td>
</tr>
</tbody>
</table>

**NARRATIVE OF INVESTIGATION**

1. **History of Events.**

a. **Pre-accident Phase.** The mission was a day time service mission in support of the 16th AD training exercise, Eagle Spear. C Co, 3d En, 6th AR, Fort Water, WA, was tasked by the battalion S-3 in OPORD 04-1 to provide an M1083 cargo truck and a driver for a daily logistics run between the training area and Fort Water. The mission was a recurring event scheduled approximately one week prior and was posted on the battalion mission schedule. SPC Charlie A. Driver, C Co, 3d En, 6th AR, was designated as the driver and SGT Just A. Passenger, who was newly assigned to the unit, was designated as the senior occupant. The driver was notified three days prior to execution. This time was used to prepare his vehicle and attend the required mission and safety briefings. All inspections, loading, and dispatching procedures of the vehicle were conducted in accordance with the battalion SOP. This provided sufficient time to plan and prepare for the mission. There was no undue sense of urgency or any delays in the mission’s departure time.
NARRATIVE (Cont’d) – 20040115

On 15 January 2004 at 0600, SPC Driver and SGT Passenger conducted PMCS on the vehicle, to include checking the tires, air pressure, and lug nuts on the vehicle, and there were no deficiencies noted. At approximately 0800, all drivers were briefed on the operation order by the platoon leader, which included the platoon’s mission, risk assessment worksheets, enemy situation, rules of engagement, route selection, and platoon brief back procedures. This was considered a low-risk mission. The briefed speed was 55 mph on hard-surface roads and 30 mph on all other roads. The road conditions and enemy situation would dictate speed. SPC Driver repositioned his vehicle for departure at 1015.

b. Accident Phase. SPC Driver and SGT Passenger departed the motor pool at 1100 on 15 January 2004 on route on a paved road to their designated training area. The M1083 arrived at 1140 and delivered cargo to requesting unit. While the vehicle was being unloaded, the driver and the passenger performed their during operations checks, noting no deficiencies. At 1315, the M1083 departed on the return trip to Fort Water and was empty except for 12 rounds of 105 mm ammunition and scrap containers.

At 1400, while traveling west on I-10 at approximately 70 mph, near the Tepetown exit SPC Driver and SGT Passenger heard a loud noise as their vehicle veered sharply to the left. Immediately SPC Driver felt the vehicle begin to slide to the left. He applied right steering, but the vehicle continued to slide to the left toward the edge of the road. As the vehicle was leaving the roadway, it struck the median guardrail and flipped rear-end over front into the opposing traffic lane. During the accident sequence, SPC Driver was ejected as the vehicle collided with a 2002 Ford Ranger pickup truck. The M1083 came to rest in the opposing traffic lane on its left side.

c. Post-accident Phase. The state troopers, military police, and rescue personnel were alerted by witnesses via cellular phone at 1402. SGT Passenger had to remove his individual ballistc armor (IBA) before exiting through the passenger window with minor scrapbs and bruises. As the vehicle flipped during the accident sequence, SPC Driver’s body came to rest 6 feet in front of the vehicle’s bumper. Emergency vehicles arrived at 1408. The driver of the M1083 was pronounced dead at the scene and transported to Winston Hospital. The driver of the civilian vehicle received minor injuries and was transported to Jackson Hospital. At approximately 1430, a recovery vehicle arrived at the accident site and began recovery operation. The vehicle was righted and transported to C Co, 3d En, 6th AR motor pool.

2. Human Factors Investigation.
   a. Personnel Background/Management.
      (1) SPC Driver enlisted into the U.S. Army National Guard in June 2000. He completed basic training in August 2000. He was awarded Military Occupational Specialty (MOS) 88M10 in November 2000. He enlisted into the U.S. Army (active duty) in June 2001. He was assigned to C Co, 3d Bn, 6th AR on 12 November 2002. He was current and qualified on the M915 series truck with over three years of driving experience. After assignment to C Co, he was trained on the M1083 5-ton cargo truck in accordance with AR 600-55, TC 21-305, and TM 9-2320-366-10-1 and was licensed on 26 May 2003. He was then assigned as the primary driver of the M1083. He was physically qualified to operate the M1083. He operated the M1083 from the time he was licensed to the date of the accident without any incidents/violations. He had driven the same route to the training area and back numerous times. He was respected and well-liked by his peers. His chain of command considered him a dedicated Soldier and hard worker. He had no known social or financial problems. His sleep and dietary habits were normal. He had eight hours of sleep the night before the accident and had been on-duty for eight hours. At the time of the accident, he was not under the influence of drugs or alcohol.

      (2) SGT Passenger. (Similar type of information as above)
      b. Vehicle Suitability. The M1083 was suitable to perform the supply mission. It is a cargo vehicle by design.
      c. Communications. Communications between the accident vehicle and the command was via FBCB2. Communication checks were made prior to vehicle departure and no difficulties were noted. The driver checked in with his command upon arrival at the training area, reporting no difficulties or delays had been encountered. He checked in again just prior to departure on the return trip to Fort Water.
      d. Meteorological Information. The weather was clear and dry with a temperature of 47°F upon departure for the training area. Conditions remained the same throughout the mission. There were no weather watches, advisories, or warnings in effect or issued during the mission.
      e. Support Services. The vehicle was dispatched in accordance with the unit SOP to the driver. The route consisted of mainly interstate highway, which was well marked and maintained.
NARRATIVE (Cont'd) – 20040115

f. Accident Survivability. The accident was survivable even though the truck flipped over, collided with a civilian vehicle, and landed on its left side. The roof of the cab was depressed, but there was sufficient occupiable space on the driver’s side of the cab for him to have survived. Seatbelts were present and serviceable. The driver was not wearing his seatbelt. The passenger was wearing his seatbelt.

g. Rescue Operations. State troopers, military police, and rescue personnel responded to the accident six minutes after being notified by witnesses via cellular phone. The driver was ejected from the truck during the accident sequence and landed in the median, 6 feet from where the truck came to rest in the opposing traffic lane. He was treated immediately upon arrival of emergency personnel, but was pronounced dead at the scene and transported to a local hospital. The driver of the civilian vehicle sustained only minor injuries and was transported to the hospital.

h. Witness Interview. The accident investigation board interviewed five personnel. Summaries of the interviews are included at Tab E.


a. Vehicle Worthiness. A review of the vehicle records revealed no major equipment or systems discrepancies. The driver recorded no deficiencies as a result of the preventive maintenance checks and services conducted prior to the mission and considered the vehicle to be roadworthy.

b. Systems. Post-accident investigation revealed a possible defective spot in the tire wall of one of the M1083 tires. The vehicle was equipped with seven Michelin 395/85 R20 Xmt tires. All rims were mounted properly. The fuel, steering, hydraulic, electrical, suspension, and breaking systems were examined and no equipment/system deficiencies were noted.

c. Engine. Examination of the engine revealed it was operating normally prior to the accident with no deficiencies.

d. Transmission. Examination of the transmission revealed it was operating normally prior to the accident with no deficiencies.

e. Laboratory Analysis. The tire with the possible defective spot in the tire wall was submitted to the U.S. Army tank-Automotive and Armament Command for laboratory testing. Tests revealed the tire wall had a manufacturing defect.

f. Accident Site Information. The accident occurred on I-10, a straight stretch of improved divided interstate without potholes, runs, and so forth. Visibility was unobstructed and the road surface was dry. Speed limits and exit ramps are well marked.

g. Fire. There was no pre- or post-crash fire.

4. Analysis. After analyzing command, human, materiel, and environmental data collected during the investigation, the board concluded that the accident was caused by human error and materiel failures. Rationale for this conclusion is as follows:

a. Command Data. The board evaluated the accident unit command policies and procedures and determined that command influence did not contribute to this accident. The board assessed unit status reports, quarterly training briefings, and unit policy and procedures for Composite Risk Management (CRM), mission planning, and briefings and determined all were appropriate for the level of command. Communications up and down the chain of command appeared to be effective and routine.

b. Environmental Factors. Environmental factors were evaluated and determined not to be causal in this accident.

(1) Meteorological Conditions. The weather was clear and dry.

(2) Non-meteorological Conditions. The roadway was typical four-lane interstate highway with guard rails and dividers. There were no unusual characteristics in the roadway.

c. Materiel Factors. The board evaluated materiel issues and determined a materiel failure caused this accident.

(1) Examination of the vehicle and systems revealed that all were functioning as designed except for a materiel defect in the left front tire wall. Laboratory testing revealed that a manufacturing defect consisting of a significant thinning of the tire wall which caused the tire to fail.

(2) The board determined that the driver’s and the passenger’s seatbelts were serviceable. The board determined that had the driver used his seatbelt, it is likely that he would have survived this accident. There was
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sufficient occupiable space in the driver's compartment, and there was no other apparent damage or objects in
the cab that would have caused a fatal injury (if belted in).

3) Explosive Ordnance Disposal personnel arrived at the accident scene, secured the explosives, and
transported them back to the Fort Walter Ammunition Supply Point. The ammunition was later disposed of.

4) Human Factors. After evaluating witness interviews, vehicle damage, skid and impact marks, the board
concluded that the M1083 was traveling at approximately 70 mph, in violation of the 65 mph posted speed limit
and the 55 mph speed limit imposed by the unit SOP. As a result, the driver was unable to maintain control of
the vehicle when the left front tire failed.

1) Support. The board evaluated support issues and determined that support issues did not contribute to
this accident. The accident unit is properly resourced to accomplish their mission. The accident vehicle was
properly maintained. The unit dispatch procedures were conducted in accordance with local and Army level
requirements. The board did note that several of the assigned vehicles were overdue some services. The unit
was quick to schedule the services when pointed out by the board.

2) Standards. The board evaluated standards issues and determined that they were not contributory to the
accident. The unit SOP addressed all areas associated with the accident mission. Installation and Army level
guidance and operators manual were considered adequate. The board noted that the maximum speed limit of
55 mph is stenciled on the front dash of the accident vehicle.

3) Training. The board evaluated training issues and determined that they were not causal to this accident.
The driver had received all appropriate battalion level training when he was qualified in the accident vehicle.
While the board did not consider him a highly experienced driver, he had been driving Army vehicles for over
three years and the M1083 5-ton for eight months.

4) Leader/Command. The board evaluated leader issues and determined that they were not contributory
to his accident. The passenger was the senior occupant in the vehicle and, as such, was responsible for the
senior occupant requirements contained in AR 600-55. Based on witness interviews, the board determined that
the driver's immediate supervisor briefed the driver and the passenger (senior occupant) on the mission in
accordance with the unit SOP and gave very specific instructions as to the route, use of seatbelts, and speed
limits. Upon notification of the accident, the unit leadership immediately activated the unit pre-accident plan
and took all the appropriate notification steps. The leadership in the unit appears to be well versed in CRM and in its
application to everyday missions. Although it had no bearing on this accident, the board noted unit leaders had
overlooked some required services on a few of the unit's assigned vehicles. Most of these vehicles had not
been used for some time so the missed services were not noticed during dispatch.

5) Individual. The board evaluated individual failure issues and determined that the driver was
overconfident in his abilities as a driver. Based on witness interviews with the surviving senior occupant of the
accident vehicle, unit leaders, and peers, the board determined that the driver often spoke of himself as a good
driver. The board concluded that part of this attitude was because of his sincere desire to do well as a Soldier,
but that he often drove too fast for conditions in Army vehicles and in his privately owned vehicle (POV).
Interviews with fellow Soldiers indicate that he tried to "show off" in his POV a couple of times by driving
aggressively away from stop signs. Through witness interviews, the board determined that the driver was in a
hurry to get back to the unit area in order to not be late for an appointment with a friend later that day.

The board also noted a degree of indiscipline on the part of the driver in that he was not wearing his
seatbelt at the time of the accident and his leaders had routinely correctly him. The driver had been briefed on
seatbelt use prior to the mission. Based on the fact that the senior occupant suffered only minor injuries and
was wearing a seatbelt, the board concluded that the driver been wearing his seatbelt as required by Army
regulation and Washington State law, it is likely that he would have survived the accident.

Figure 4–2. Sample of a narrative investigation and findings and recommendations –continued
a. Also see paragraph 4–2.

b. Section A-Accident Information. This section should be completed for the report and for any changes to a previously submitted report.

1. Block 1. Check “original” if this is the first report submitted on the accident. Check “change” if this report is a change or provides supplemental data for a previously submitted report of accident.

2. Block 2. Enter the six-digit UIC for the specific organizational unit or activity responsible for the accident, (for example, WXXXXX). Guidance on determining accountability for Army accidents is provided in AR 385–10, paragraph 3–9.

3. Block 3. For the unit/organization listed in block 2 provide the following data:
   (a) Block 3a. Name and full military address of unit/organization, (for example, B Company, 2/18th Cavalry, Fort Bragg, NC XXXXX-XXXX).
   (b) Block 3b. The branch of the Army with which the unit/organization is affiliated, (for example, Armor, Infantry, Engineer). Army branches are listed in table 4–2.

4. Block 4. Enter the year, month, and day of the accident in the appropriate blocks, (for example, 25 September 2007 would be shown as 20070925).

5. Block 5. In local military time (24-hour clock), report the time the accident occurred, (for example, 1845).

6. Block 6. Check the block that best describes when the accident occurred (day or night). Day is from first light to full night (dark). Night is from full night (dark) to first light. Dawn is the period of time between beginning of morning nautical twilight (BMNT) and official sunrise. Dusk is the period of time between official sunset and end of evening nautical twilight (EENT).

7. Block 7. Check either on post or off post, depending on where the accident happened.

Note. On post includes all land under DOD control.

8. Block 8. If the accident occurred on post, state the name of the post, government facility, or installation where it occurred, (for example, Fort Bragg, NC; Federal Center, Atlanta, GA).

9. Block 9. Check whether or not the accident occurred during combat. “Combat” should be checked if the accident occurred in a theater of hostile fire or enemy action, but not as a result of such fire/action. This includes direct preparation for combat, actual combat, or redeployment from a combat theater immediately following combat.

10. Block 10. Check if explosives, ammunition, or pyrotechnics were involved and explain in the narrative. Involved means the explosives/ammunition had a causal or contributing role in the accident, to include severity of damage or injury/occupational illness. If “Yes” is checked, provide the information specified in DA Pam 385–40, chapter 5, paragraph 5–3d, in blocks 52 and 76 and in the narrative, as appropriate. Check the appropriate fields in block 62 if the explosive/ammunition was exposed to significant environmental conditions and describe in the narrative.

   (a) Describe the exact location of the accident. Provide the building number or direction and distance from closest landmark, street or highway name/number, city or military installation, state and/or country.
   (b) Using the type location information in table 4–3, choose the type that best describes the location’s primary function. For example, a person injured in the kitchen of a private resident would be in “family housing,” not in a “dining facility.”
   (c) Enter the grid coordinate or the latitude/longitude of the accident location.

c. Section B-Personnel Information. Complete this section for each individual involved (caused/contributed and/or injured) in the accident. When more than one person is involved, complete an additional DA Form 285 (sections A and B) for each person. Staple all forms together.

1. Block 12. Enter last name, first name, and middle initial of involved person.

2. Block 13. Enter the social security number (SSN) for the individual listed in block 12.

3. Block 14. Enter the date of birth for the person listed in block 12.

4. Block 15. Check the appropriate block which reflects the gender of the individual listed in block 12.

5. Block 16. Enter the rank/pay grade of the individual listed in block 12 (for example, SGT/E5, CPT/O3, GS–11, WG–08). Complete for all government personnel.

6. Block 17. Enter the full MOS/job series for the individual listed in block 12. For military MOS, give the full series number including the alphabetic character, (for example, 54E20, 11B40). For civilians, give the full job series number or occupational code and include the pay plan and grade or ban (for example, GS–0018–13, WG–07, YA–0018–2). Do not give the job title.

7. Block 18. Address information for the individual listed in block 12.
(a) Provide individual’s full official military address of assignment for all government personnel if it is different than the address listed in block 3a. If different than block 3a, provide the UIC as well.

(b) For injured Army civilians or contractors, and members of the visiting public, enter their home address.

(8) Block 19.

(a) Check the correct block to indicate the duty status of the person listed in block 12 (See glossary for definition of duty status). (This determination applies for safety accident reporting purposes only, and has no relation to compensability or line-of-duty decisions.)

(b) If the Soldier was on leave or pass at the time of the accident, check the box and enter the inclusive leave/pass dates, (for example, 10 Jun - 5 Jul ‘06).

(9) Block 20. Check the appropriate block (for government personnel only) to indicate the current military flight status of the individual listed in block 12.

(10) Block 21.

(a) Enter the local military time the Soldier or employee began work.

(b) State how many continuous hours this individual was on duty without sleep before the accident.

(11) Block 22. Indicate how many hours of sleep (cumulative) this individual had in the last 24 hours before the accident.

(12) Block 23. Days lost or restricted.

(a) Days hospitalized. Enter the actual or estimated number of days the individual in block 12 was hospitalized as an inpatient/admitted receiving treatment. This also includes days hospitalized for observation only.

(b) Days away from work not hospitalized. Enter the actual or estimated number of days lost that the individual could not work excluding the day of the injury/occupational illness. Include quarters, bed rest, convalescence leave, or time that a physician indicated the individual could not work regardless of whether the individual was scheduled to work. Count all calendar days including weekends and holidays. For example, if the individual was injured on Friday and the individual could work on Monday, if the physician or licensed health care professional indicated they should not work over the weekend, enter 2 days. If there is no information from the physician, enter 0 days. You may stop counting days away from work or days of restricted work once the total of either or the combination of both reaches 180 days.

(c) Days restricted. Enter the actual or estimated number of days the individual was unable to perform one or more routine job functions (regularly performed by the individual at least once per week), or could not work a full work day they would otherwise have been scheduled to work; or a physician or licensed health care professional recommends that the employee not perform one or more routine functions of his/her job. Restricted work activities include light duty, profiles, and job transfers.

(13) Block 24. Check “Yes” if this individual was treated in an emergency room, otherwise check “No.”

(14) Block 25.

(a) OSHA Log 300 Case Number. Enter the OSHA Log 300 case number for the individual listed in block 12.

Note. Does not apply to off-duty personnel.

(b) Enter the name of the physician or other health care professional.

(c) If treatment was given away from the worksite, enter the name and address of the facility.

(15) Block 26. Check the block that indicates the severity of the injury/occupational illness to the person listed in block 12. If more than one applies, check the most severe. If fatal is checked, enter the date of death in the space provided.

(16) Block 27. Select the classification of the person listed in block 12 at the time of the accident. For complete definitions, consult the glossary in sections II and III of this pamphlet. Check only one block.

(17) Block 28. Number in order of the most severe (no more than three - with one being the most severe), the cause of the injury/illness. These numbers should correlate with the information in blocks 29 and 30. For example, an individual’s hand was caught between some machinery resulting in fractures. The number “1” would be assigned to “caught in/under/between.”

(18) Block 29. Select the body part(s) most seriously injured (no more than three) and number them in order of the most serious first. Enter the number(s) in the appropriate blocks next to the body part(s) affected. Be as specific as possible.

(19) Block 30. For each body part numbered in block 29, place a corresponding number in the block that indicates the type of injury/illness incurred by that body part (no more than three). Be as specific as possible. For example, the number “1” used to indicate item o, Hand, in block 29 is also used to indicate item f, Fractures, in block 30, showing that the most serious injury/occupational illness was to the hand, which was fractured. (If necessary, more than one number can be put into a block).

(20) Block 31. Check the block that best describes the individual’s activity/task at the time of the accident (For example, physical training). Check only one block. If the person was engaged in more than one activity at the time of the accident, check the one most relevant to the cause of the accident. For example, a PVT in the back seat was navigating while a passenger in a HMMWV. The HMMWV ran off the road and turned over. The PVT was injured.
The most relevant activity for the PVT would be “Passenger.” If block 31gg, Parachuting, is checked, complete 31gg (1) - (17) below.

(a) (1) Jumper height - In inches, (for example, 5’8” would be 68”).
(b) (2) Jumper weight - In pounds (round up at 1/2 lb or 8 ozs, that is, 168 1/2 lbs would be rounded up to 169 lbs).
(c) (3) Type of Jump - Static line, non-tactical; static line, mass tactical (night or day); freefall, non-tactical; freefall, tactical (night or day), and so forth.
(d) (4) Parachute type/model - Self explanatory.
(e) (5) Equipment - List type of equipment, (for example, rucksack (ALICE), weapon, LBE, AIRPAC)
(f) (6) Weight of equipment - Give approximate weight of jumper’s equipment, in pounds.
(g) (7) Wind direction/speed at - jump height, drop zone - What was the wind direction (in degrees) and speed (in knots) at jump altitude and on ground when jumper exited aircraft.
(h) (8) Jump altitude - Altitude jumpers exited aircraft (in feet).
(i) (9) Position in the stick - What number in stick was jumper to exit the door.
(j) (10) Door exited - Self explanatory.
(k) (11) Time pre-jump conducted - date and time (time in zulu).
(l) (12) Date of last jump - Self explanatory.
(m) (13) Type of last jump - See number 3 above.
(n) (14) Number of previous jumps - Self explanatory.
(o) (15) Date graduated basic airborne training - (YYYY/MM/DD).
(p) (16) Type aircraft - Self explanatory.
(q) (17) Accident factors (parachute) - Improper exit, static line injury, broken static line, parachute malfunction, entanglement, lost/stolen air, oscillation, unstable position, dragged on drop zone, tree landing, drop zone hazard (specify), or other. Explain as necessary.

Note. See the glossary, sections II and III for explanation of activities.

(21) Block 32. Provide a short but descriptive explanation of the item checked in block 31.
(22) Block 33. Check “Yes” if activity listed in blocks 31 and 32 was part of a field exercise or a named operation. Indicate the name of the exercise or operation (major and local field training exercise) if it has a name, (for example, Team Spirit, OEF/OIF). Check “No” if the activity was not part of a field exercise or named operation.

Note. Field exercise and tactical training begin when the individual reports to their primary duty location for movement to the field site and ends when they arrive back at the primary duty location from the field.

(23) Block 34. Check “Yes” or “No” to indicate whether the activity listed in blocks 31 and 32 was part of tactical training.
(24) Block 35. If the individual was participating in any type of training, check the type of training facility being used at the time of the accident. Leave blank, if not applicable.
(25) Block 36. If the individual was participating in any type of training, check the type of training in which he/she was participating. If unit training is selected, also indicate the type of unit training (platoon, crew, or individual). Leave blank if not applicable.
(26) Block 37. Indicate how long it had been since the individual received training, before the accident, on the activity listed in blocks 31 and 32.
(27) Block 38. Determine what PPE was required for the activity/task being performed. If PPE was required, determine if it was available and used, available but not used, or not available. Check the appropriate blocks for each item of PPE to indicate availability and use/non-use. If no PPE was required, check the NA (not applicable) column for each type of protective clothing and equipment. For privately owned motorcycle accidents, indicate whether the helmet was Department of Transportation approved.

Note. Restraint systems are those systems such as the Gunners Restraint System in military vehicles.

(28) Block 39.
(a) Indicate whether the individual listed in block 12 was properly licensed to operate the vehicle or equipment that was being operated at the time of the accident. Complete this block whenever operation of a vehicle or piece of equipment requiring a licensed operator is involved.
(b) Check “Yes” if the individual has attended the mandatory 4 hours of classroom instruction in traffic safety and indicate the date of the training, otherwise, check “No.” Leave blank if not applicable.
(c) If the individual was operating a motorcycle in this accident, check “Yes,” if the individual is motorcycle safety foundation certified enter the date, otherwise, check “No.”

(29) Block 40. Indicate whether any alcohol use by the individual in block 12 caused/contributed to this accident. If “Yes,” indicate test results, in space provided, (for example, percent blood alcohol content (BAC), percent BAC).
(30) Block 41. Indicate whether drug use by the individual in block 12 caused/contributed to this accident. Check “None” or indicate the type of drug suspected of being involved.
(31) **Block 42.** Indicate if the person listed in block 12 was using a vision-enhancement device (night vision goggles, AN/PVS-5A, night vision device, thermal imagery, FLIR) at the time of the accident. If a vision-enhancement device was being used, specify the type in block 42c and the model number in block 42d, even if it did not contribute to the accident. (If caused/contributed, explain in block 63.)

(32) **Block 43.** Check the type of guidance (standard/reference), if it exists, that covers correct performance of the activity/task identified in blocks 31 and 32. In the space provided following the selected type of guidance, specify by name/number (for example, FM 21–305, para 3c). Guidance may be written in state/local laws, ARs, TMs, FMs, Soldier’s manuals, SOPs, directives.

(33) **Block 44.** Indicate if the activity/task was being performed in accordance with the guidance (standard/reference) specified in block 43. If “No,” complete blocks 45 through 47.

(34) **Block 45.** Indicate whether the individual listed in block 12 made a mistake that caused or contributed to the accident. If “Yes,” enter the mistake number from Appendix B and complete blocks 46 and 47. If “No,” skip to block 48.

(35) **Block 46.** Provide a simple explanation of the mistake(s) made by the person listed in block 12 or explain how the activity/task was performed incorrectly. When describing mistakes, be sure to use one or more of the mistakes/errors listed at Appendix B to identify the specific mistake(s) made by the individual. Include the results or outcome of the mistake(s). For example, “The driver failed to use a ground guide to back the M915 truck, although one was required. As a result, the vehicle collided with a legally parked sedan.” For on-duty Class A and B accidents requiring separate findings and recommendations, reference the finding number in this block (see fig 4–1).

(36) **Block 47.** Identify why the mistake was made or the activity was performed incorrectly. What was the root cause of the mistake? Carefully consider deficiencies in system design, training, procedures, and command climate as well as individual factors such as attitude, haste, and overconfidence. Appendix B contains explanations and examples of root causes. Check the most important root causes (reasons) and explain in block 63. For on-duty Class A and B accidents requiring separate findings and recommendations and narrative of investigation, the root causes should be fully explained in the findings and supported in the analysis portion of the narrative, and referenced in block 63.

(37) **Block 48.** If the individual listed in block 12 was operating a vehicle, indicate how long they had been licensed to operate this type of vehicle before the accident.

(38) **Block 49.** If the individual listed in block 12 was operating a vehicle, indicate total miles they had driven Army motor vehicles (include all Army motor vehicles) before the accident.

(39) **Block 50.**

(a) Indicate the length of time the individual listed in block 12 had been in the unit shown in block 18 before the accident.

(b) Enter the date the Soldier was assigned or Army civilian/contractor was hired.

(c) Indicate the date of redeployment, if applicable.

(40) **Block 51.** Check the appropriate block to indicate which item from section C “Property/Materiel Involved” was associated with the individual listed in block 12. This information is required to ensure that it can be determined who was operating or using, each item of property/materiel involved in the accident. For example, PFC Jones was driving a tank. His name will be in block 12 and his vehicle will be item A in section C. Therefore, the correct entry for block 51 would be “Item A.” If the property/materiel associated with the individual will not be items A, B, or C, determine which letter will represent that item (see instructions for section C). Check “Other” and specify the appropriate letter in the space provided.

(c. Section C-Property/Materiel Involved. Complete an entire column (for example, column titled Item A) filling in blocks 52 through 59 on each piece of property or item of equipment involved in the accident (whether damaged or not). If the property/materiel experienced a materiel failure/malfunction, also complete blocks 60 and 61. Be sure the same column is used for all blocks. Include Army and non-Army equipment/materiel as well as equipment/materiel whose use or misuse contributed to the accident. Include up to three items of equipment on the initial form. Use additional sheets of bond paper for other equipment, if necessary, continuing letter sequence, (for example, D, E, F, and G). Each column will be used to provide information for one piece of equipment/materiel.

(1) **Block 52.** Enter the type of property/materiel (for example, sedan, truck, generator) involved in the accident. If explosives or ammunition were involved, enter the type of explosive/ammunition and the NSN.

(2) **Block 53.**

(a) Enter the full military equipment model number and/or civilian make and serial number, (for example, M109A2, M60A2, 2006 Ford Taurus, M16A2 rifle, M4 rifle). If explosives or ammunition were involved, enter the model number and DOD Address Code (DODAC) or DOD Identification Code (DODIC).

(b) Enter the serial number for Army equipment/materiel, as applicable.

(3) **Block 54.** Indicate who owns the equipment/materiel.

(4) **Block 55.** Enter the ECOD or ACOD for each piece of property.

(5) **Block 56.** Indicate whether a rollover protection system was installed. If rollover protection systems do not apply to the piece of equipment, check NA (not applicable).
(6) **Block 57.** Indicate if this specific piece of equipment was being towed at the time of the accident. (Does not refer to post-accident towing of vehicles/equipment.)

(7) **Block 58.** If the answer in block 57 is “Yes,” indicate in which column (item A, B, C, and so forth), the equipment doing the towing is listed.

(8) **Block 59.** From the list provided on the form, select the type(s) that best describe the collision in which this property/materiel was involved. More than one collision type might be appropriate for the property/materiel. If so, enter up to three, in sequence, in the blocks provided. If “Other” is selected, specify what type of collision in the space provided. If no collision was involved, leave blank.

**Note.** If the property listed in blocks 52 and 53 experienced a materiel failure/malfunction that caused or contributed to the accident, complete blocks 60 and 61. Ensure the information is entered in the same column as the involved property. For example, if item A (blocks 52 and 53) experienced a materiel failure/malfunction, the information about that failure/malfunction should be entered in blocks 60 and 61 in the column entitled “Item A.”

(9) **Block 60.** Complete items “a” through “d” for each component/part whose failure or malfunction contributed to the accident. Enter name/nomenclature of component/part in block 60c. Ensure an EIR/PQDR (SF 368) is prepared and submitted through appropriate channels for each component/part. Include EIR/PQDR number in block 60e (See DA Pam 750–8).

(10) **Block 61.** Indicate how and why each component/part failed/malfunctioned by selecting from the lists provided on the form and entering the appropriate number in the blocks provided. Appendix B contains explanations and examples. In block 63, include an explanation of how the materiel failed/malfunctioned and the reason (root cause) for the failure/malfunction. For on-duty Class A and B accidents requiring separate findings and recommendations, the findings should fully explain the failure and cause.

d. **Section D-Environmental Conditions Involved.**

(1) **Block 62.** Check the appropriate blocks (no more than three) to indicate the environmental conditions present at the time of the accident. Also check the cause/contributed block if the environmental condition caused or contributed to the accident and explain in block 63 how the environmental condition caused/contributed to the accident.

(2) **On-duty Class A and B accidents.** For on-duty Class A and B accidents, contributing environmental factors will be fully explained in the findings and analysis portion of the narrative.

e. **Section E-Accident Description/Narrative.**

(1) **Block 63.** The investigation board will report, in narrative form on letter-size paper, the facts, conditions, and circumstances as established during the investigation and present this information in accordance with DA Pam 385–40, paragraph 4–4.

(2) **Block 64.** Provide the following information for the individual that completed the report. Ensure the information is legible.

(a) Print the name. (First, MI, Last)

(b) Enter the rank.

(c) Enter the title.

(d) Signature of this individual.

(e) Enter the date of the signature.

(f) Enter the telephone number and specify whether it is DSN or commercial.

(g) Enter this individual’s e-mail address.

f. **Section F-Corrective Action and Command Review.**

(1) **Block 65.** The investigation board will formulate the findings and recommendations on letter sized paper in accordance with paragraph 4–3 and the examples contained in DA Pam 385–40.

**Note.** The level of command review (company, battalion, division, and so forth) is determined by either the Army Headquarters or installation policy.

(2) **Block 66.** Provide the name (block 66a), rank (block 66b), and telephone number (block 66e) of the unit commander. Ensure the information is typed or printed legibly, and specify whether the telephone number is DSN or commercial. Also ensure the commander signs and dates the report in blocks 66c and 66d as part of the review process. Enter this individual’s e-mail address in block 66f.

(3) **Blocks 67 through 69.** Provide the names and e-mail address (blocks 67a, 68a, and 69a), titles (blocks 67c, 68c, and 69c), and ranks (blocks 67d, 68d, and 69d) of the individuals in the chain of command who have reviewed this report. Ensure the information is typed or printed legibly. Ensure each individual in the chain of command signs and dates the report in blocks 67b and d, 68b and d, or 69b and d. For on-duty Class A and B accidents, use blocks 1 and 2, DA Form 285–O (Statement of Reviewing Officials), for reviewing official and approving authority comments, included at Tab A of the report, and reference that form in this block. (See para 4–9.)

g. **Section G-Safety Office Use Only.** This section is for local safety office use only and should be left blank by all other personnel. The safety office will complete this section on all accidents.

(1) **Block 70.** Enter the local report number for this accident report.
(2) **Block 71.** Enter the Army Headquarters of the unit shown in block 2 (the unit responsible for the accident).

(3) **Block 72.** Check the accident type(s) that best describe this accident. Check all that apply. Consult DA Pam 385-40, chapter 1, paragraph 1–9, for definitions. If fratricide is the type of accident, declare it in the narrative, block 63.

(4) **Blocks 73 and 74.** Provide the name (block 73) and signature, telephone number (block 74a), and the e-mail address (block 74b) of the local safety office POC for information about this report. Ensure the information is typed or printed legibly, and specify whether the telephone number is DSN or commercial.

(5) **Block 75.** Enter the date the report was completed by the safety office (yyyyymmdd).

**h. Section H-Explosives/Ammunition Information.**

(1) **Blocks 76, Explosives/Ammunition Information.** If block 10 was checked “Yes,” enter the following:

(a) Enter the lot numbers.

(b) Enter the quantity.

(c) Enter the net explosive weight (NEW) of all ammunition and explosives involved.

(d) If explosives or ammunition were involved, enter the model number and DODAC or DODIC.

(2) **Blocks 77 and 78.** Fill in the required information.

**Note.** If the explosive/ammunition was exposed to significant environmental conditions, the environmental conditions should be checked in block 62, and an explanation of the conditions and their effect on the explosive/ammunition should be provided in the narrative. Significant environmental effects E3. For example, radiated energy (RFI) (such as being in close proximity to a radar site), electromagnetic energy (EMR), electrostatic energy or high voltage; water or high humidity; or prolonged exposure to direct sunlight.

Figure 4–3. Example of completed DA Form 285–W, Summary of Witness Interview
14. GENERAL WITNESS INFORMATION BRIEFING  (Interviewer must read appropriate instructions to the witness)

**a. Promise of confidentiality offered.**

1. This accident investigation board has been convened under the provisions of Army Regulation 385-10 for the purpose of conducting a safety investigation.
2. This may be just one of a number of investigations being conducted regarding this accident; collateral or legal investigations may be ongoing as well. Those investigations are entirely separate from a safety investigation and are also required to inform you of their purpose and of your legal rights.
3. This safety investigation is being conducted for accident prevention purposes only. Within the military, pursuant to AR 385-10, it cannot be used for any other purpose, to include any future disciplinary actions against any individuals. Therefore, the interview you are being asked to provide will be used by the Army in the interest of safety and accident prevention only.
4. Nonconfidential witness interviews may be released to the public pursuant to a Freedom of Information Act request. If you wish to protect your interview from public release outside the military, then your interview must be pursuant to a promise of confidentiality. Confidentiality means that your interview will not be released to the public or outside DoD safety channels.
5. Whether your interview is confidential or not, the chain of command will review the final accident report, which may include a summary of your interview, but the chain of command may only use the investigation report and the interviews for safety and accident prevention purposes.
6. If you ever have knowledge that your witness interview was used by the Army for anything other than accident prevention purposes (for example, disciplinary action against an individual), you should consult with your local Judge Advocate Defense Counsel Office and request that the Command Judge Advocate, U.S. Army Combat Readiness Center, be notified at DSN 558-2924 or commercial (334) 255-7694.
7. The promise of confidentiality is available to you if you desire it. Do you desire it?

**b. No promise of confidentiality offered.**

1. This accident investigation board has been convened under the provisions of AR 385-10 for the purpose of conducting a safety investigation.
2. This may be just one of a number of investigations being conducted regarding this accident; collateral or legal investigations may be ongoing as well. Those investigations are entirely separate from a safety investigation and are also required to inform you of their purpose and of your legal rights.
3. This safety investigation is being conducted for accident prevention purposes only. Within the military, pursuant to AR 385-10, it cannot be used for any other purpose, to include any future disciplinary actions against any individuals. Therefore, the interview you are being asked to provide will be used by the Army in the interest of safety and accident prevention only.
4. The chain of command will review the final accident report, which may include a summary of your interview, but the chain of command may only use the investigation report and the interviews for safety and accident prevention purposes. The interview summary may be released to the public pursuant to a Freedom of Information Act request.
5. If you ever have knowledge that your witness interview was used by the Army for anything other than accident prevention purposes (for example, disciplinary action against an individual), you should consult with your local Judge Advocate Defense Counsel Office and request that the Command Judge Advocate, U.S. Army Combat Readiness Center, be notified at DSN 558-2924 or commercial (334) 255-7694.

15. AVAILABILITY OF PROMISE OF CONFIDENTIALITY FOR "LIMITED USE" REPORT OF INVESTIGATION

**a.** Pursuant to AR 385-10, witness interviews may only be used within the military for purposes of accident prevention, and may not be used as evidence in connection with any administrative or disciplinary proceeding. This protection alone does not prevent release of the interview outside of the military (to the public, newspapers, attorneys, etc.) under the Freedom of Information Act. If you wish to protect your interview from release outside of the military, your interview must be pursuant to a promise of confidentiality.

**b.** If you do not wish a promise of confidentiality, you may declare such below. In that case, your interview will still be used in the military only for purposes of accident prevention, but it may be released outside of the military in response to a Freedom of Information Act request. Please indicate which option you desire by initialing one of the choices below:

- I request a promise of confidentiality. I understand that the results of my interview will be used within the military only for the purposes of accident prevention, and will also be protected from public release outside of the military under the Freedom of Information Act.
- I decline a promise of confidentiality. I understand that the results of my interview will be used within the military only for purposes of accident prevention. I also understand that the results may be publicly released outside of the military under the Freedom of Information Act.

---

Boyd, Don D.

Name of witness  (Print Name - do not sign)

---

Figure 4–3. Example of completed DA Form 285–W, Summary of Witness Interview
a. Also see paragraph 4–5.
b. Block 15. See example of completed DA Form 285–W (see fig 4–3).
   (1) Block 1. Self-explanatory.
   (2) Block 2. Enter general occupation of the witness and duty being performed at time of the accident.
   (3) Block 3. Enter the grade of witness. Use codes from table 4–4.
   (4) Blocks 4-5. Self-explanatory. (SSN is not required.)
   (5) Block 6. List DSN number if applicable.
   (6) Block 7. Enter date(s) of interview(s) was/were made.
   (7) Block 8. Enter a summary of experience, expertise, and background in duty/MOS involved in the accident.
   (8) Block 9. Enter location of witness at the time of the accident relative to the accident.
   (9) Block 10. Enter grade and last name of person in charge of interview. If witness is interviewed by different persons in charge on separate occasions, list the lead interviewer.
   (10) Block 11. Promise of confidentiality.
       (a) Check the appropriate box to indicate if the witness was/was not offered a promise of confidentiality. This can only be offered for limited use investigations. See AR 385-10, paragraph 3-10.
       (b) Also, check the appropriate box to indicate whether or not the witness requested a promise of confidentiality.
       (c) If promise of confidentiality was offered and requested/accepted, the interviewer must sign and date the confidentiality statement.
   (11) Block 12. Summary of interview, will be completed as follows:
       (a) Multiple interviews, same witness. Preface the summary of each interview with the date and indicate if it is the first, second, third, and so forth, interview.
       (b) Comprehensiveness. As a general rule, the interview summaries of persons involved/injured in the accident should be summarized in greater detail than the statements of others. This is because the personnel involved are the best source of information pertaining to the accident chronology of events. The chronology for the “history of events,” Narrative of Investigation (see para 4–4) will most often be obtained from the personnel involved and should be used as a guide in determining what elements of information to include in the interview summaries. If human error appears to be involved in the accident, the mistakes/errors and system inadequacy(ies) listed in the instructions for completing the findings and recommendations (see para 4–3) are useful for determining what should be addressed in the witness summaries.
       (c) Consolidating. When several witnesses, other than person(s) involved, provide essentially the same observations, it is not necessary to prepare a separate DA Form 285-W for each witness except for statements made with a promise of confidentiality. In cases where the summarized statements of several witnesses can be consolidated, it is appropriate to leave blocks 1 through 9 blank. In block 13, list the names of the witnesses and then summarize their collective observations.
       (d) Format. The proper format is a concise summary of information elements. An example is as follows: “This witness was a passenger (identify location of passenger) in the vehicle at the time of the accident. Additionally, he heard a grinding noise in the area of the right rear wheel, prior to the brake failure.” In cases where it is essential, limited direct quotes of a witness (together with the specific questions they are in response to) may be used. Again, this should be done sparingly and only when necessary. It is important that the statement be the investigator’s summarization and not an exact verbatim transcript of what the witness said. The summary should be written in the third person (“The witness said …,” “He said …”) and not the first person (“I saw …,” “I heard …”).
   (12) Block 13. Enter the date of the accident.
   (13) Block 14. Interviewer will read block 15a or 15b to each witness, depending upon the category and/or circumstances of the witness.
   (14) Block 15. Those witnesses offered a promise of confidentiality, must indicate acceptance or refusal by initialing the appropriate statement. (See fig 4–4).

**Figure 4–4. Example of completed DA Form 285–A, Index A**

<table>
<thead>
<tr>
<th>TAB</th>
<th>Information</th>
<th>End</th>
<th>Not Applic</th>
<th>See Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Serious Incident/Casualty Report</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Copy of Orders Appointing Investigating Board</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Map of Accident Site</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Diagrams and/or Photographs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Certificate of Damage/ECR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Copy of Deficiency Reports</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Copy of Directives, Regulations, Etc.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Special Technical Reports and Laboratory Analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Copy of Unconnected Fault Record</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Copy of Equipment Modification Record (DA Form 2408-5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Weather Data</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Medical Data (Autopsy, Toxicology, ARP, etc.) (in USACRC copy only)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Other (Specify) DA Form 7308 - Telephonic Notification of Ground Accident</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Other (Specify) Composite Risk Management Worksheet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Other (Specify)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Other (Specify)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Other (Specify)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Other (Specify)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. DATE OF ACCIDENT (YYYY-MM-DD) 20071115

2. REMARKS
2. 6 - Copy of PQDR
2. 7a - AR 385-10
   7b - AR 600-55
   7c - TM 9-2320-387-10
   7d - Ft. Anywhere Directive #01-003
2. 12 - Autopsy report included in the USACRC Channel Copy

**TECHNICAL REPORT OF U.S. ARMY GROUND ACCIDENT INDEX A**

**REQUIREMENTS CONTROL SYMBOL**

CSOCS-308
### 1. DATE OF ACCIDENT (YYYYMMDD)

**20071115**

<table>
<thead>
<tr>
<th>TAB</th>
<th>Title</th>
<th>Enc</th>
<th>Not Appl</th>
<th>Side</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Statement of Reviewing Officials (DA Form 285-O)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>U.S. Army Accident Report (DA Form 285)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Findings and Recommendations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Narrative of Accident</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Summary of Witness Interviews (DA Form 285-W)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 2. REMARKS

2. A - Enclosed in channel copy only.

### 4. BOARD MEMBERS

<table>
<thead>
<tr>
<th>Name</th>
<th>Grade</th>
<th>Branch</th>
<th>Address and Tel. No.</th>
<th>E-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL PHACOLAPOCH</td>
<td>CW4</td>
<td>AV</td>
<td>USACRC Ft. Rucker, AL 36362-5363 DSN 558-3262</td>
<td><a href="mailto:phacolapoch.p@us.army.mil">phacolapoch.p@us.army.mil</a></td>
</tr>
<tr>
<td>RALPH D. WRITER</td>
<td>04</td>
<td>IN</td>
<td>USACRC Ft. Rucker, AL 36362-5363 DSN 558-3262</td>
<td><a href="mailto:ralph.writer1@us.army.mil">ralph.writer1@us.army.mil</a></td>
</tr>
<tr>
<td>ROBERT B. LIFESAVER</td>
<td>04</td>
<td>MC</td>
<td>WACH Ft. Walter, WA 94118-2809 DSN 222-4400</td>
<td><a href="mailto:bob.b.lifesaver@us.army.mil">bob.b.lifesaver@us.army.mil</a></td>
</tr>
<tr>
<td>JAMES W. FIXER</td>
<td>CW4</td>
<td>AV</td>
<td>HQ, 3/28 INF, 5 BDE, 2 INFDIV FOB Ramula, b Baghdad, Iraq 00000</td>
<td><a href="mailto:jwlimiter@us.army.mil">jwlimiter@us.army.mil</a></td>
</tr>
<tr>
<td>WILLIAM A. ADVISOR - Technical Advisor</td>
<td>GS13</td>
<td>DAC</td>
<td>TACOM, Warren, MI 48397-5000 DSN 872-9988</td>
<td><a href="mailto:william.a.advisor@us.army.mil">william.a.advisor@us.army.mil</a></td>
</tr>
</tbody>
</table>

**Figure 4–5. Example of completed DA Form 285–B, Index B**
a. Also see paragraph 4–7.
b. See legend for figures 4–5 and 4–6.

(1) **Block 1, DA Forms 285–A and 285–B.** Enter the date of the accident (YYYYMMDD).

(2) **Block 2, DA Forms 285–A and 285–B.** Place an “X” in the block opposite each item to indicate whether the information is “Enclosed” or “Not Applicable.” An “X” in the “See remarks” block requires an explanation in block 3 “Remarks” section of the form.

(3) **Block 3, DA Forms 285–A and 285–B.** The remarks block is used to indicate that required information is being delayed or not available to the accident investigation board. Remarks pertaining to delayed information will contain an estimated forwarding date. Remarks pertaining to unavailable information will include reasons for non-availability. Also, when the accident board inserts multiple documents or wants to clarify a document under a certain tab, it should be identified in this block.

(4) **Block 4, DA Form 285-B.** Type signature block of all voting board members to include grade, branch, unit address, e-mail address, and telephone number (SSN not required). Each voting board member will sign all copies of the accident report unless a minority report is submitted in accordance with chapter 2 of this pamphlet. Use a continuation sheet (plain bond paper) if there are more than six voting board members.
**Completion instructions for DA Form 285–O, Statement of Reviewing Officials**

**Figure 4–6. Example of completed DA Form 285–O, Statement of Reviewing Officials**

<table>
<thead>
<tr>
<th>1. INITIAL REVIEW</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Concur with the findings and the recommendations of the accident investigation board.</td>
<td></td>
</tr>
<tr>
<td>Actions specified in recommendation 2a, 3a, and 4a were implemented.</td>
<td></td>
</tr>
<tr>
<td>RICHARD F. FOREMAN, MAJ, AR Commanding, B Co, 2d BN, 28th INF</td>
<td></td>
</tr>
</tbody>
</table>

*Comment 2:*

<table>
<thead>
<tr>
<th>1. Concur with the findings and recommendations of the accident investigation board.</th>
<th>(See continuation sheet)</th>
</tr>
</thead>
</table>

**2. ARMY HEADQUARTERS REVIEWING AUTHORITY COMMENTS**

<table>
<thead>
<tr>
<th>1. Concur with findings and recommendations of the accident investigation board and comments of the reviewing official(s).</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Actions recommended by the board pertaining to higher headquarters are considered adequate. This command has no further recommendations.</td>
<td></td>
</tr>
<tr>
<td>BRIAN A. DIRECTOR, GENERAL, COMMANDING, (HQ element as appropriate)</td>
<td></td>
</tr>
</tbody>
</table>

*Signature*

**3. DEPARTMENT OF ARMY REVIEW (USACRC)**

Findings and recommendations of the accident investigation board are considered correct and appropriate. DA level recommendations have been forwarded to the appropriate agency for action. Facts and circumstances pertaining to this accident will be published in the Jun 08, Knowledge Magazine. The report data is approved for inclusion into the USACRC database.

| WILLIAM R. PRESERVER, GS14, DIRECTOR, G-3, USACRC |  |

*Signature*

**4. DATE OF ACCIDENT**

| YYYYMMDD | 20071115 |

**DA FORM 285–O, FEB 2009**

PREVIOUS EDITION IS OBSOLETE.
a. Also see paragraph 4–9.
b. See legend for figure 4-7.

(1) **Block 1.** The initial reviewing official(s) will indicate the official’s organization as follows:
   (a) State concurrence or nonconcurrence with the findings and recommendations. Any nonconcurrence will be fully explained.
   (b) Report actions taken as well as recommendations for additional action by higher headquarters or other Army commands. Attach, as enclosures to this form, copies of correspondence, forms, and other data requiring additional action.
   (c) Identify those area(s) recommended for improvement by the investigating board that are beyond the resources available to the command.
   (d) Authenticate comments with signature, appropriate signature block, organization, and date at the close of each reviewing official’s remarks.
   (e) Higher command reviewing official(s) will indicate the official’s organization and enter the same information as (a) through (d) (above), as comment number 2, 3, and so forth.

(2) **Block 2.** Army Headquarters reviewing authority. Army Headquarters commanders or their designated representatives will provide written concurrence or nonconcurrence for each finding and recommendation made by the accident investigation board.
   (a) Indicate reasons for nonconcurrence. Also include any additional recommended actions.
   (b) The reviewing authority will make note of those areas recommended for improvement by the accident investigation board or subordinate reviewing officials on which action can or will be completed. If corrective action is beyond the purview or capability of the Army Headquarters reviewing authority, this will be stated.
   (c) Authenticate comments with signature, appropriate signature block, and organization at the close of remarks.

(3) **Block 3.** Reserved for USACRC and will be completed by the USACRC to show coordination/follow-up taken in response to recommendations requiring DA-level action.

(4) **Block 4.** Enter the date of the accident.
Table 4–7. Example of a U.S. Army Abbreviated Ground Accident Report (AGAR)

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>TIME &amp; DATE OF ACCIDENT</strong></td>
<td>a. Year (YY) 2009 b. Month (MM) 05 c. Day (DD) 10 d. Time (HH:MM) 00:05 e. Period of Day (Day Night Dust Dawn)</td>
</tr>
<tr>
<td>2. <strong>UNIT IDENTIFICATION</strong></td>
<td>a. Unit Code &amp; Designation (M/D/DD) W/RAW/B0 b. Unit Address B Co, A-111 RN, Fort Fun, CA 33356 c. Unit's Branch TC d. Army HQs FORSCOM</td>
</tr>
<tr>
<td>3. <strong>LOCATION OF ACCIDENT</strong></td>
<td>a. Exact Location Corner of A and B street, Ft. Fun, CA 33356 b. Type Location B3 (insert code from DA Pam 385–40) c. Grid Coordinate/Lat-Long M2/3456</td>
</tr>
<tr>
<td>4. <strong>STATE/COUNTRY</strong></td>
<td>a. State/County California USA</td>
</tr>
<tr>
<td>5. <strong>MISSION</strong></td>
<td>a. Briefly describe the mission. Off-duty</td>
</tr>
<tr>
<td>6. <strong>VEHICLE/EQUIPMENT/MATERIAL INVOLVED</strong></td>
<td>a. Type of Item (Nomenclature) POV b. Make/Model # h. Part Nomenclature c. Serial # i. Part # j. Part NSN k. Part Manufacturer Code l. ER/CSR Submitted</td>
</tr>
<tr>
<td>7. <strong>EXPLOSIVES/AMMO INVOLVED</strong></td>
<td>a. Yes b. No</td>
</tr>
<tr>
<td>8. <strong>WHY DID THE MATERIAL FAIL/MALFUNCTION (Check the root cause(s))</strong></td>
<td>a. Yes b. No</td>
</tr>
<tr>
<td>9. <strong>LEADER</strong></td>
<td>a. SSN 111-22-3333 b. PERSONNEL CLASSIFICATION A c. DATE ASSIGNED/REDEPLOYED (YYYY/MM/DD) 2006/11/12 d. DATE OF REIEEPLOYMENT FROM COMBAT ZONE, IF APPLICABLE (YYYY/MM/DD) e. DUTY STATUS On-Duty f. OFF DUTY (If not above) Leave g. PASS FHD PASS h. FLIGHT STATUS Yes i. No</td>
</tr>
<tr>
<td>10. <strong>HOME ADDRESS</strong></td>
<td>a. 8000 K Street Avonville, CA 31111</td>
</tr>
</tbody>
</table>

Figure 4–7. Example of a U.S. Army Abbreviated Ground Accident Report (AGAR)
Figure 4–7. Example of a U.S. Army Abbreviated Ground Accident Report (AGAR) –continued
Figure 4–7. Example of a U.S. Army Abbreviated Ground Accident Report (AGAR) –continued

The soldiers' decision making process was hindered by fatigue and the consumption of alcohol. The soldier had no known history of speeding or other traffic-related offenses, and always demonstrated good driving habits while operating military vehicles. The soldier was not counseled, briefed, or integrated back into the unit after return from Iraq.

48. PARACHUTE INFORMATION FOR PERSON LISTED IN BOX 11

<table>
<thead>
<tr>
<th>a. Jumper Height</th>
<th>p. Wind Direction/Speed at</th>
<th>m. Type of Last Jump</th>
</tr>
</thead>
<tbody>
<tr>
<td>b. Jumper Weight</td>
<td>q. Jump Height</td>
<td>n. Number of Previous Jumps</td>
</tr>
<tr>
<td>c. Type of Jump</td>
<td>r. Drop Zone</td>
<td>o. Date Graduated Basic Airborne Training (YYYYMMDD)</td>
</tr>
<tr>
<td>d. Parachute Type/Model</td>
<td>s. Position in Stick</td>
<td>p. Type Aircraft</td>
</tr>
<tr>
<td>e. Equipment</td>
<td>t. Door Entered</td>
<td>q. Time Prejump Conducted</td>
</tr>
<tr>
<td>f. Wt. of Equipment</td>
<td>u. Date of Last Jump</td>
<td>r. Accident Factors (parachute) (Explain as necessary)</td>
</tr>
</tbody>
</table>

49. PROVIDE BRIEF SYNOPSIS OF EVENT (Use additional sheets if required; Explain sequence of events, tell how accident happened.)

Upon deployment return from Iraq, SGT Smith and SPC Wrench volunteered to go to the NTC to provide maintenance assistance in support of rail load operations while the rest of the unit returned to home station. The two soldiers were accompanied by their team chief, SFC Dunny. After completing the mission at the NTC, the team chief sent the two soldiers back to their home station while he remained to tie up loose ends. The soldiers arrived at 1630hrs and signed out on pass. Once the soldier arrived at the barracks he changed clothes and began drinking beer. A little before midnight they ran out of beer and drove to a nearby shop to purchase more beer. They departed the shoppe back to the barracks with SGT Smith driving. He accelerated to a speed between 60–70 MPH within 15 ft of a mile prior to entering into a series of S-curves in the road. The driver lost control of the vehicle while negotiating the curves and slid off the roadway into a gravel area on the right side until reaching an embankment then barrel rolled down the 15 embankment landing upright. The passenger expressed with minor cuts and bruises, the driver sustained a severe head injury (See cont. sheet)

41. CORRECTIVE ACTIONS TAKEN OR PLANNED

a. Unit Level: 1) Commander, B Co, A-111 BN: a) Ensure all personnel returning from deployments report to their supervisor for instructions and appropriate briefings prior to releasing them from duty. b) Brief all unit personnel on the facts and circumstances surrounding this accident. 2) Commander, A-111 BN, establish a policy for integrating personnel back into the unit after deployments.

b. Higher Level: None

b. Army Level: None

(Use continuation sheets as needed)

42. EXPLOSIVE/AMMUNITION INFORMATION

<table>
<thead>
<tr>
<th>a. Lot#</th>
<th>b. Quantity</th>
<th>c. Net Explosive Weight (NEW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>d. DoD/DoDAG</td>
<td>e.</td>
<td></td>
</tr>
</tbody>
</table>

43. POINT OF CONTACT INFORMATION ON THE ACCIDENT

a. Name (Last, First, MI): Rank Position/Title
   Johnson, Mary, A. MAJ, BN Safety Officer

b. Telephone No.
   DSN: 333-2222
   COM: (111) 333-2222

c. Email Address
   mary.johnson2@fas.army.mil

44. COMMAND REVIEW

a. Name
   White, Donald E.

b. Signature

c. Rank
   LTC

d. Date: YYYYMMDD
   20080528

45. SAFETY OFFICE REVIEW

a. Name
   A. Person

b. Signature

c. Rank
   LTC

d. Phone Number
   DSN 333-1212

46. Date Reviewed: YYYYMMDD
   20080528

47. Local Report No. (Safety Office use only)
   080510-001
a. Also see paragraph 4–11.
b. See legend for figure 4-7.

(1) Block 1. Date and time of accident.
   (a) Block 1a. Enter the year (for example, 2006).
   (b) Block 1b. Enter the month (for example, 06).
   (c) Block 1c. Enter the month (for example, 06).
   (d) Block 1d. Military time. Enter the local military time (for example, 2315).

(2) Block 2. Period of day. Check the block that best describes when the accident occurred (day or night). Day is from first light to full night (dark). Night is from full dark (full night) to first light. Dawn is the period between beginning of morning nautical twilight (BMNT) and official sunrise. Dusk is the period of time between official sunset and end of evening nautical twilight (EENT).

(3) Block 3. Accident class. Enter the accident’s classification: A, B, C, or D. (See definitions in AR 385–10, chapter 3).

(4) Block 4. Combat status. Check whether or not the accident occurred during combat. Combat should be checked if the accident occurred in a theater of hostile fire or enemy action, but not as a result of such fire/action. This includes direct preparation for combat, actual combat, or redeployment from a combat theater immediately following combat.

(5) Block 5. Unit Identification. Enter information for the unit or organization responsible for the accident. Guidance for determining accident accountability can be found in AR 385–10, paragraph 3–9.
   (a) Block 5a. Enter the six-digit unit identification code (UIC) for the specific organizational unit or activity responsible for the accident (for example, WXXXXX).
   (b) Block 5b. Unit address. Enter the full military address of unit/organization (for example, B Company, 2/18th Cavalry, Fort Bragg, NC XXXXX-XXXX).
   (c) Block 5c. Unit’s Branch. Enter the abbreviation of Army branch the unit is affiliated with (for example, Armor, Infantry, Engineer, and so forth) Army branches are listed in table 4–2.
   (d) Block 5d. Army Headquarters. Enter the abbreviation for the Army commands, Army Service Component Commands, or Direct Reporting Units that the unit/activity belongs to (for example, Army Materiel Command [AMC], U.S. Army Europe and 7th Army, Forces Command, and so forth.)

(6) Block 6. Location of the accident.
   (a) Block 6a. Enter the exact location of the accident (for example, building number, street name and address, distance from nearest landmark, and so forth).
   (b) Block 6b. Enter one code for primary function of the accident location, see table 4–3.
   (c) Block 6c. Enter the grid coordinate or latitude/longitude for the accident location.
   (d) Block 6d. Enter the state or country if outside the United States.
   (e) Block 6e. Indicate whether the accident occurred on or off post, and if on post, enter the name of the installation/activity.

(7) Block 7. Explosives/Ammunition. Check if explosives, ammunition, or pyrotechnics were involved. Involved meaning the explosives/ammunition had a causal or contributing role in the accident, to include severity of damage or injury/occupational illness. If “Yes” is checked, provide the information specified in DA Pam 385–40, chapter 5, paragraph 5–3, in blocks 9, 39, 42, and the synopsis. Check the appropriate fields in block 39 if the explosive/ammunition was exposed to significant environmental conditions and describe in block 40.

(8) Block 8.
   (a) Block 8a. Briefly describe the mission the individual or unit was conducting at the time of the accident. If off duty, state so.
   (b) Block 8b. Was the task a Mission Essential Task List task? Check the appropriate box.

(9) Block 9. Vehicle/Equipment/Materiel Involved. “Involved” means vehicle/equipment/materiel/property that is damaged, whose use or misuse contributed to the accident or whose materiel failure/malfunction caused and/or contributed to the accident. Include Army and non-Army equipment/materiel. Use one line for each piece of equipment or item and enter the requested information. Continue on blank paper if necessary (be sure to annotate the block number).
   (a) Block 9a. Enter the name of the equipment/materiel involved.
   (b) Block 9b. Enter the equipment model.
   (c) Block 9c. Enter the equipment serial number (if applicable).
   (d) Block 9d. Indicate who owns the vehicle/equipment/materiel (for example, DOD, DA, unit, person).
   (e) Block 9e. Enter an estimate of the damage cost for the piece of equipment listed in Block 9a.
(f) Block 9f. From the list below select the type(s) of collision in which this property/materiel was involved. More than one collision type might be appropriate for the property/materiel. If so, enter up to three, in sequence, in the space provided. If “Other” is selected, specify what type of collision in the space provided. If no collision was involved, leave blank.

1=Going forward and collided with moving vehicle
2=Going forward and collided with parked vehicle
3=Collision while backing
4=Collision with pedestrian
5=Collision with object (other than vehicle/pedestrian)
6=Overturned
7=Ran off road
8=Jackknifed
9=Going forward and rear-ended with moving vehicle
10=Going forward and rear-ended stopped vehicle
11=Collision while turning
12=Other (specify)

Note. If the item in block 9a experienced a materiel failure/malfunction that caused or contributed to the accident, complete blocks 9g - 9l and block 10. If not skip to block 11.

(g) Block 9g - 9l. Materiel malfunction/failure information. Enter the code that indicates how the component/part failed/malfunctioned (mode of failure). See appendix B for list and examples of failure codes. Complete items h through l for each component/part whose failure or malfunction contributed to the accident. Annotate whether an EIR/ PQDR (SF 368) was prepared and submitted through appropriate channels for each component/part.

(10) Block 10. Why Did the Materiel Fail/Malfunction (Root Cause)? Materiel failures/malfunctions can be caused by shortcomings of support. Specific causes may include:

(a) Block 10a. Support - shortcomings in type, capability, amount, or condition of equipment, supplies, services, or facilities (equipment/materiel not provided or improperly designed, inadequate or maintenance, or inadequate facilities/services). Determine the underlying reason (root cause(s) the materiel failed/malfunctioned and check accordingly (see app B).

(b) Block 10b. Describe how the materiel failed/malfunctioned and explain why (for example, explain mode of failure from block 9f and root cause. Example: Block 9f=M05, and block 10a=“Support equip/materiel improperly designed,” enter why the improper design caused the materiel to fail or malfunction by friction producing movement.

Note. One complete form is required. If more than one individual is involved, submit an additional form, completing only blocks 1 thru 5, and 11 thru 37 (38, if applicable) for each person. Involved means any person who was injured or who took actions or made decisions that caused or contributed to the accident.

(11) Block 11.

(a) Block 11a. Enter last name, first name, and middle initial of involved person. Include unit name, address, and UIC if it is different from block 5a.

(b) Block 11b. For Army civilians, Army contractors, or members of the visiting public that are injured, enter their home address.

(12) Block 12. Enter the SSN of the individual listed in block 11.

(13) Personnel Classification.

(a) Block 12a. Enter the code for the classification (at the time of the accident) of the person listed in block 11. See table 4–5.

(b) Block 12b. Date assigned/hired. Enter the date the soldier was assigned or the Army civilian/contractor was hired.

(c) Block 12b. Indicate the date of redeployment, if applicable.

(14) Block 14, MOS/job series. For Army personnel, enter the full MOS or job series of the individual, (for example, 63B10, GS-0018-14).

(15) Block 15. Duty status.

(a) Block 15a. For DOD personnel, check the appropriate box to reflect the duty status at the time of the accident of the individual listed in block 11. (See glossary for definitions of on- and off-duty status). (This determination applies for safety accident reporting purposes only, and has no relation to compensability or line-of-duty decisions.)

(b) Block 15b. If the Soldier was on leave or pass at the time of the accident, check the box and enter the inclusive leave/pass dates (for example, 20060705).

(16) Block 16. Enter the date of birth for the individual listed in block 11.

(17) Block 17. Enter the gender for the individual listed in block 11 (“M” for male or “F” for female).
(18) Block 18. For DOD personnel, enter the rank/pay grade for the individual listed in block 11 (for example, E5, 03, GS–11, WG–08).

(19) Block 19. Check the appropriate box (for government personnel only) to indicate the military flight status of the individual listed in block 11.

(20) Block 20, Most Severe Injury/Occupational Illness. For the individual listed in block 11, complete blocks “a” through “d” for the most severe injury/occupational illness.

(a) Block 20a, Degree. Enter the code that indicates the severity of the injury/occupational illness to the individual list in block 11 from the table below. If more than one applies, enter the most severe. Enter the date of death as indicated on the form. See glossary for definitions.

a=Fatal.
b=Permanent Total Disability.
c=Permanent Partial Disability.
d=Days Away From Work.
e=Restricted Work Activity (Light duty, profile).
f=Medical Treatment Beyond First Aid (Includes cases of loss of consciousness, needle stick/cuts from sharps).
g=First Aid Only.
h=No Injury/Occupational Illness.

(b) Block 20b, Injury/illness type. Enter the code below that best describes this person’s most serious injury/occupational illness type.

A - Burns (chemical)
B - Burns (thermal)
C - Amputation
D - Decompression sickness
E - Asphyxiation (suffocation)
F - Fractures
G - Dislocation
H - Abrasions
I - Concussion
J - Sprains/strain
K - Cuts/lacerations
L - Contusion
M - Puncture wound
N - Hernia, rupture
O - Frostbite
P - Heatstroke
Q - Heat exhaustion
R - Noise injury
S - Needle stick or cuts from sharps
T - Loss of consciousness
U - Other (specify)

(c) Block 20c, Body part. Enter the code below that best describes the most seriously injured part of this person’s body. Body part entered here should be the one with the injury indicated in previous block.

A - Body (General, cannot specify)
B - Head
C - Forehead
D - Eyes
E - Nose
F - Jaw
G - Neck
H - Trunk
I - Chest
J - Heart
K - Back
L - Shoulder
M - Arms
N - Wrist
O - Hand
P - Fingers
(d) Block 20d, Cause Enter the code below that best describes the cause of the most serious injury/occupational illness to this individual.

A - Struck against
B - Struck by
C - Fell from elevation
D - Fell from same level
E - Caught in/under/between
F - Rubbed/abraded
G - Bodily reaction
H - Overexertion
I - Exposure
J - External contact
K - Ingested
L - Inhaled
M - Thrown from

(21) Block 21, Lost time.

(a) Block 21a, Days hospitalized. Enter the actual or estimated total number of days this individual will be hospitalized (inpatient/admitted) receiving treatment. Days hospitalized for “observation only” are only included if they miss a day of work.

(b) Block 21b, Day lost not hospitalized. Enter the estimated or actual number of days this individual will be away from work (totally unable to perform any work, on bed rest/quarters, convalescence leave, or time a physician indicated that the individual could not work regardless of whether the individual was scheduled to work. Count all calendar days including weekends and holidays. For example, if the individual was injured on Friday and the individual could work on Monday, if the physician or licensed health care professional indicated they should not work over the weekend, enter 2 days. If there is no information from the physician, enter 0 days.

(c) Block 21d, Days restricted. Enter the actual or estimated number of days the individual was unable to perform one or more routine job functions (regularly performed by the individual at least once per week), or could not work a full work day they would otherwise have been scheduled to work; or a physician or licensed health care professional recommends that the employee not perform one or more routine function of his/her job. Restricted work activities include light duty, profiles and job transfers.

(d) Block 21e, Treated in ER. Check if this individual was treated in an emergency room.

(22) Block 22.

(a) Block 22a, OSHA Log 300 Case Number. For injured personnel, enter the OSHA Log 300 case number for the individual listed in block 12.

Note. (Does not apply to off-duty personnel.)

(b) Block 22b. Enter the name of the physician or other health care professional who treated the individual. Optional for military personnel.

(c) Block 22c. If treatment was given away from the worksite, enter the name and address of the facility.

(23) Block 23, Activity. Enter the individual’s activity at the time of the accident. Complete block 38 if the activity is parachuting (see DA Form 285, block 31 for codes, and DA Pam 385–40, sections II and III, glossary for explanation of activities.

(24) Block 24, Briefly describe this individual’s activity at the time of the accident. For example, the Soldier was a right rear passenger in the vehicle at the time of the accident; the individual was performing maintenance on a split rim tire in the maintenance shop.

(25) Block 25, Personal Protective Equipment. Determine what Personal Protective Equipment (PPE) was required for the activity/task being performed. If PPE was required, determine if it was available and used, available but not used, or not available. Check the appropriate blocks for each item of PPE to indicate availability and use/non-use. If no PPE was required, check the NA (not applicable) column for each type of PPE. For privately owned motorcycle accidents, indicate whether the helmet was Department of Transportation approved.

Note. Restraint systems are those systems such as the Gunner’s Restraint System in military vehicles.
(26) **Block 26.** Check the appropriate box to indicate whether or not this individual’s use of alcohol or drugs (include prescription, over the counter, supplements or illegal drugs) caused or contributed to the accident. If “Yes” is checked, explain in block 40.

(27) **Block 27.** Equipment this Person was Associated With. Enter the item number (for example, #1, #2) from block 9 that indicates which piece of equipment this individual was associated with.

(28) **Block 28.** Licensed to Operate Equipment.

(a) **Block 28a.** If this individual was operating a vehicle or equipment (at the time of the accident) that required a license, complete the following information. Check the appropriate block. If no, skip to block 29.

(b) **Block 28b.** Check “Yes” if the individual has attended the mandatory 4 hours of classroom instruction in traffic safety and indicate the date of the training. Otherwise, check “No.”

(c) **Block 28c.** If the individual was operating a motorcycle in this accident, check yes if the individual is motorcycle safety foundation certified and enter the date. Otherwise, check “No.”

(29) **Block 29.** Duty Hours.

(a) **Block 29a.** Enter the time the Soldier or employee began work.

(b) **Block 29b.** State how many continuous hours this individual was on duty without sleep before the accident.

(30) **Block 30.** Hours Sleep. Enter the number of hours of sleep (cumulative) this individual had in the past 24 hours.

(31) **Block 31.** Tactical Training. Indicate whether the activity listed in blocks 23 and 24 was part of tactical training. Field exercise and tactical training begin when the individual reports to his or her primary duty location for movement to the field site and ends when he or she arrives back at the primary duty location from the field.

(32) **Block 32.** Type Training Facility. If the individual was participating in any type of training, enter the code for the type of training facility being used (see FM 7–1 for definitions). Code/Facility is listed as follows:

A=Garrison
B=Local training area
C=Major training area
D=NTC
E=JRTC
F=CMTC
G=Standard range facility/live fire
H=Other (specify)

(33) **Block 33.** Last Training. For the activity specified in blocks 23 and 24, enter the number of months since the last time the individual received training prior to the accident.

(34) **Block 34.** Named exercise. Check “Yes” if activity listed in blocks 23 and 24 was part of a field exercise or a named operation. Indicate the name of the exercise or operation (major and local field training exercise) if it has a name (for example, Team Spirit, Gallant Eagle). Check “No” if activity was not part of a field exercise or named operation.

(35) **Block 35.** Night Vision System. Indicate if night vision devices were being used by this individual at the time of the accident, (for example, night vision goggles, AN/PVS-14). If used, specify the type. If they caused or contributed to the accident, explain in Block 40.

(36) **Block 36.** Individual Mistake(s) that Caused/Contributed to the Accident or Severity of Injury or Occupational Illness/Damage.

(a) **Block 36a.** In your opinion, did this individual make a mistake(s) that caused and/or contributed to the accident? If the answer is “YES”, complete Blocks 36b and 36c, and Block 37. If “NO”, skip to Block 39.

(b) **Block 36b.** Enter the code from appendix B, table B–2, which best indicates the type of mistake made by this individual.

(c) **Block 36c.** Describe the mistake and how it caused/contributed to the accident. Be specific, (for example, block 36a=“YES”; block 36b=“52”; block 36c=“M109A3 Howitzer driver trainee was being ground guided into parking space). When given the signal to stop, driver moved his foot left to apply brakes and depressed upper level of accelerator pedal instead (improper braking-improper foot placement on pedal). Consequently, the vehicle ran over the ground guide’s foot and fractured it.”

(37) **Block 37.** Why the mistake(s) was made (system inadequacies/root causes). Mistakes can be caused by shortcomings of support, standards/procedures, training, leaders, or the individual. Specific causes include—

Support-Shortcomings in type, capability, amount, or condition of equipment, supplies, services, facilities, and number and type personnel.

Standards/procedures not clear or not practical or do not exist.

Training-School training, Unit training, or Experienced/On-the-Job training insufficient in content/amount.

Leader-Direct, Unit Command, or Higher Command Supervision not ready, willing, or able to enforce known standards.
Individual-Soldier knows and is trained to standard but elects not to follow standard (self-discipline-mistake due to own personal factors).

(a) Block 37a. Identify why the mistake was made (specific root cause(s)). See appendix B for definitions. Enter the mistake number in the box next to the associated root cause.

(b) Block 37b. Describe the root cause(s) and tell how it/they caused the mistake. See appendix B for explanations. For example, if block 37a=“Support - Equip/Materiel Improperly Designed,” then block 37b might say something like, “Design of accelerator pedal on M109 series, unlike M110, consists of two distinct levels with upper level immediately adjacent to brake pedal. As a result, when M109A3 Howitzer driver was given the signal to stop, he moved his foot left to apply brakes and depressed upper level of accelerator pedal instead (improper braking-improper foot placement on pedal).”

(38) Block 38, Parachuting information. If the activity for the individual listed in block 11 is parachuting, complete blocks 38a thru 38q.

(39) Block 39, Environmental conditions. Enter the code(s) (no more than three from the list below) to indicate the conditions present at the time of the accident. Also indicate if the condition caused or contributed to the accident by checking the Caused/Contributed block and, if “YES”, explain in Block 40 (see app B). Code/Condition is listed follows:

A=Clear/dry
B=Bright/glare
C=Dark/dim
D=Fog/condensation/frost
E=Mist/rain/sleet/hail
F=Snow/ice
G=Dust/fumes/gasses/smoke/vapors
H=Noise/bang/static
I=Temperature/humidity (cold/heat)
J=Storm/hurricane/tornado
K=Wind/gust/turbulence
L=Vibrate/shimmy/sway/shake
M=Radiation/laser/sunlight
N=Holes/rocky/rough/rutted/uneven
O=Inclined/steep
P=Slippery (not due to precipitation)
Q=Air pressure (bends, decompression, altitude, hypoxia)
R=Lightning/static electricity/grounding
S=Electromagnetic radiation (EMR)
T=OTHER (specify)

(40) Block 40, Synopsis. Provide a brief synopsis of the accident explaining what and how the accident happened. If need be, continue on a separate sheet of paper annotating the block number and attach it to the report. The synopsis should include the events leading up to the accident, the actual accident sequence, and the post-accident scene and actions. For example, if a Soldier was involved in an off-duty POV accident, be sure to indicate where the Soldier was going, where he/she was coming from, and so forth. Also, please include the following information:

(a) For on-duty accidents:
   1. At what level was the mission/training conducted (individual, crew, squad, platoon, company, battalion, brigade)?
   2. Was risk management performed (yes/no)? If "yes,"
      a. Who performed (rank/position)?
      b. Who accepted the risk (rank/position)?
      c. What was the level of risk after controls were applied (low, moderate, high, extremely high)?
      d. How was the risk management process communicated? (select one or more of the following: order/worksheet/ verbal briefing/not communicated)
      e. Was the accident event identified or considered during the risk management process (yes/no)?
      f. If yes, what was the identified level of risk (low, moderate, high, extremely high)?
      g. If yes, who was responsible for implementing control(s) (rank/position)?
      h. If yes, was the accident event accepted as residual risk (yes/no)?
   3. Who was in charge during the mission/training (rank/position)?
   4. Who was the senior leader present during the mission/training (rank/position)?

(b) For off-duty accidents:
   1. Indicate whether the Soldier was on leave, pass, PCSing, or TDY?
a. How long was the Soldier on leave/pass when the accident occurred?
b. Did the accident occur while the Soldier was en route to/from his/her destination?
2. Was the Soldier deployed within the 365 days prior to the accident (yes/no)? If yes:
   a. When did the Soldier return from the deployment?
   b. Where was the deployment?
   c. How long was the deployment?
3. Was the Soldier recently notified that he/she would deploy soon?
4. Was there leader contact prior to the accident (yes/no)? If yes,
   a. What level of leadership?
   b. What type of contact (brief, ASMIS-1, trip planning, counseling, vehicle inspection, other)?
(41) Block 41, Corrective action(s) taken or planned. Briefly describe all actions taken, planned, or recommended to eliminate, or at least reduce, the root cause(s) of this accident and prevent similar accidents from happening (see app B).
(42) Block 42, Explosive/Ammunition. If block 7 was checked “Yes,” enter the lot numbers, quantity, and the net explosive weight (NEW) of all ammunition and explosives involved. Also, include the model number and DODA or DODIC.

Note. If the explosive/ammunition was exposed to significant environmental conditions, the environmental conditions should be checked in block 39, and an explanation of the conditions and their effect on the explosive/ammunition should be provided in the synopsis. Significant environmental conditions include the following: extremely high/low temperatures; electromagnetic environmental effects; for example, radiated energy (RFI) (such as being in close proximity to a radar site), electromagnetic energy (EMR), electrostatic energy or high voltage; water or high humidity; or prolonged exposure to direct sunlight.
(43) Block 43, Point of Contact.
   (a) Block 43a. Enter the name, rank, and position of the individual from the unit/organization who can answer questions about this accident report.
   (b) Block 43b. Enter the phone number for the individual listed in 43a.
   (c) Block 43c. Enter the e-mail address for the individual listed in block 43a.
(44) Block 44, Command Review. As locally required.
(45) Block 45, Safety office review.
   (a) Enter the name, rank and title of the safety office reviewing official.
   (b) Enter the DSN and commercial phone number of the safety office reviewing official
   (c) Enter the e-mail address of the individual listed in 45a.
   (d) Enter the date the report was reviewed.
   (e) Enter the local report number (safety office use only).
**Figure 4–8. Example of assembling an accident folder**
### Table 4–2

#### Army branches

<table>
<thead>
<tr>
<th>Army branch</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjutant General</td>
<td>AG</td>
</tr>
<tr>
<td>Air Defense Artillery</td>
<td>AD</td>
</tr>
<tr>
<td>Armor</td>
<td>AR</td>
</tr>
<tr>
<td>Army Medical Specialist Corps</td>
<td>SP</td>
</tr>
<tr>
<td>Army Nurse Corps</td>
<td>AN</td>
</tr>
<tr>
<td>Aviation</td>
<td>AV</td>
</tr>
<tr>
<td>Chaplain</td>
<td>CH</td>
</tr>
<tr>
<td>Chemical</td>
<td>CM</td>
</tr>
<tr>
<td>Dental Corps</td>
<td>DC</td>
</tr>
<tr>
<td>Engineers</td>
<td>EN</td>
</tr>
<tr>
<td>Field Artillery</td>
<td>FA</td>
</tr>
<tr>
<td>Finance Corps</td>
<td>FC</td>
</tr>
<tr>
<td>Infantry</td>
<td>IN</td>
</tr>
<tr>
<td>Judge Advocate General’s Corps</td>
<td>JA</td>
</tr>
<tr>
<td>Medical Corps</td>
<td>MC</td>
</tr>
<tr>
<td>Medical Service Corps</td>
<td>MS</td>
</tr>
<tr>
<td>Military Intelligence</td>
<td>MI</td>
</tr>
<tr>
<td>Military Police</td>
<td>MP</td>
</tr>
<tr>
<td>Ordnance</td>
<td>OD</td>
</tr>
<tr>
<td>Public Affairs</td>
<td>PA</td>
</tr>
<tr>
<td>Quartermaster Corps</td>
<td>QM</td>
</tr>
<tr>
<td>Signal Corps</td>
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</tr>
<tr>
<td>Space Command</td>
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</tr>
<tr>
<td>Special Forces</td>
<td>SF</td>
</tr>
<tr>
<td>Transportation Corps</td>
<td>TC</td>
</tr>
<tr>
<td>Veterinary Corps VC</td>
<td>VC</td>
</tr>
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</table>

### Table 4–3

#### Types of accident locations

<table>
<thead>
<tr>
<th>Code</th>
<th>Type Location</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maintenance/Fabrication facility</td>
</tr>
<tr>
<td>A1</td>
<td>Vehicle facility (motor pool, maintenance shop)</td>
</tr>
<tr>
<td>A2</td>
<td>Aircraft facility (hangar)</td>
</tr>
<tr>
<td>A3</td>
<td>Vessel facility (boat overhaul/rebuild facility)</td>
</tr>
<tr>
<td>A4</td>
<td>Engineer facility (carpentry/electrical/plumbing shop)</td>
</tr>
<tr>
<td>A5</td>
<td>Other maintenance facility</td>
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<tr>
<td></td>
<td>Travel ways</td>
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<tr>
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<td>Pedestrian way (sidewalk)</td>
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<td>B2</td>
<td>Vehicle trail (tank trail)</td>
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<tr>
<td>B3</td>
<td>Roadway (street, curb, shoulder, driveway)</td>
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<td>Code</td>
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<td>-------------------------------------------</td>
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<tr>
<td>B4</td>
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<td>B5</td>
<td></td>
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<tr>
<td>B6</td>
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</tr>
<tr>
<td></td>
<td>Other operational facilities/areas</td>
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<tr>
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<tr>
<td>D4</td>
<td></td>
</tr>
<tr>
<td>D5</td>
<td></td>
</tr>
<tr>
<td>D6</td>
<td></td>
</tr>
<tr>
<td>D7</td>
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<td>D8</td>
<td></td>
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<tr>
<td>D9</td>
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<tr>
<td></td>
<td>Services facilities</td>
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<tr>
<td>E1</td>
<td></td>
</tr>
<tr>
<td>E2</td>
<td></td>
</tr>
<tr>
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<td>E13</td>
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<td>E14</td>
<td></td>
</tr>
<tr>
<td>E15</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Type</td>
</tr>
<tr>
<td>------</td>
<td>-----------------------</td>
</tr>
<tr>
<td></td>
<td><strong>Terrain and water locations</strong></td>
</tr>
<tr>
<td>F1</td>
<td>Sloped terrain (ditch, mountain)</td>
</tr>
<tr>
<td>F2</td>
<td>Wooded terrain (forest, swamp, marsh)</td>
</tr>
<tr>
<td>F3</td>
<td>Open terrain (field, desert)</td>
</tr>
<tr>
<td>F4</td>
<td>Moving bodies of water (creek, stream, river)</td>
</tr>
<tr>
<td>F5</td>
<td>Standing bodies of water (pond, lake, ocean)</td>
</tr>
<tr>
<td>F6</td>
<td>Lake shore/beach</td>
</tr>
<tr>
<td></td>
<td><strong>Storage facilities</strong></td>
</tr>
<tr>
<td>G1</td>
<td>Storage buildings (ammunition bunker, warehouse, barn, storage shed)</td>
</tr>
<tr>
<td>G2</td>
<td>Outside storage area (POL dump, property disposal area)</td>
</tr>
<tr>
<td></td>
<td><strong>Plants and factories</strong></td>
</tr>
<tr>
<td>H1</td>
<td>Heating plant</td>
</tr>
<tr>
<td>H2</td>
<td>Printing plant</td>
</tr>
<tr>
<td>H3</td>
<td>Electric generating plant (includes power substations)</td>
</tr>
<tr>
<td>H4</td>
<td>Ammunition/weapons manufacturing plant</td>
</tr>
<tr>
<td>H5</td>
<td>Other industrial plants and factories</td>
</tr>
<tr>
<td></td>
<td><strong>Recreation/entertainment facilities</strong></td>
</tr>
<tr>
<td>I1</td>
<td>Indoor facilities (bowling alley, gym, movie theater, swimming pool)</td>
</tr>
<tr>
<td>I2</td>
<td>Outdoor facilities (playing fields, golf course, swimming pool)</td>
</tr>
<tr>
<td></td>
<td><strong>Housing facilities</strong></td>
</tr>
<tr>
<td>J1</td>
<td>Family housing</td>
</tr>
<tr>
<td>J2</td>
<td>Individual housing (BOQ, barracks, rooms)</td>
</tr>
<tr>
<td></td>
<td><strong>Freight and passenger terminals</strong></td>
</tr>
<tr>
<td>K1</td>
<td>Airport/airfield (includes control tower)</td>
</tr>
<tr>
<td>K2</td>
<td>Rail station/yard</td>
</tr>
<tr>
<td>K3</td>
<td>Port/dock/wharf</td>
</tr>
<tr>
<td>K4</td>
<td>Vehicle terminal (bus station, truck terminal)</td>
</tr>
<tr>
<td></td>
<td><strong>School facilities</strong></td>
</tr>
<tr>
<td>L1</td>
<td>Kindergarten through grade 12</td>
</tr>
<tr>
<td>L2</td>
<td>Army-operated technical/occupational training facilities/classrooms (university/college classes)</td>
</tr>
<tr>
<td>L3</td>
<td>Non-Army-operated technical/occupational training facilities/classrooms (university/college classes)</td>
</tr>
<tr>
<td></td>
<td><strong>Hobby shop</strong></td>
</tr>
<tr>
<td>M1</td>
<td>Auto hobby shop</td>
</tr>
<tr>
<td>M2</td>
<td>Woodworking hobby shop</td>
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<tr>
<td>M3</td>
<td>Other hobby shop</td>
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</table>
### Table 4–4
**Pay Grade/Rank Codes**

<table>
<thead>
<tr>
<th>Grade/code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>O1–O10</td>
<td>Commissioned officer</td>
</tr>
<tr>
<td>W1–W5</td>
<td>Warrant officer</td>
</tr>
<tr>
<td>E1–E9</td>
<td>Enlisted service member</td>
</tr>
<tr>
<td>GS1–GS18 &amp; GM13–GM18</td>
<td>DOD civilian employee</td>
</tr>
<tr>
<td>WG1–WG18 &amp; WS13–WS18</td>
<td>Wage board employee</td>
</tr>
<tr>
<td>NSPS</td>
<td>National Security Personnel System</td>
</tr>
<tr>
<td>XN</td>
<td>Foreign National</td>
</tr>
<tr>
<td>X–1</td>
<td>Foreign officer</td>
</tr>
<tr>
<td>X–2</td>
<td>Foreign enlisted</td>
</tr>
<tr>
<td>CAC</td>
<td>Civilian Army contractor</td>
</tr>
<tr>
<td>CIV</td>
<td>Non-DOD civilian</td>
</tr>
<tr>
<td>DAC</td>
<td>Department Army civilian</td>
</tr>
<tr>
<td>KAD</td>
<td>USMA</td>
</tr>
<tr>
<td>ROTC</td>
<td>ROTC students</td>
</tr>
<tr>
<td>NRPT</td>
<td>Not Reported</td>
</tr>
<tr>
<td>OC</td>
<td>WOC/OC</td>
</tr>
<tr>
<td>UNK</td>
<td>Unknown</td>
</tr>
<tr>
<td>UNKE</td>
<td>Unknown enlisted</td>
</tr>
<tr>
<td>UNKO</td>
<td>Unknown officer</td>
</tr>
<tr>
<td>OTH</td>
<td>Personnel other than above</td>
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</tbody>
</table>

### Table 4–5
**Personnel classification codes**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Active Army</td>
</tr>
<tr>
<td>B</td>
<td>Army civilian</td>
</tr>
<tr>
<td>C</td>
<td>Army contractor</td>
</tr>
<tr>
<td>C1</td>
<td>Army direct contractor</td>
</tr>
<tr>
<td>D</td>
<td>Non-appropriated Fund employee</td>
</tr>
<tr>
<td>E0</td>
<td>Other U.S. military personnel</td>
</tr>
<tr>
<td>E1</td>
<td>Navy</td>
</tr>
<tr>
<td>E2</td>
<td>Air Force</td>
</tr>
<tr>
<td>E3</td>
<td>Marine Corps</td>
</tr>
<tr>
<td>F0</td>
<td>Foreign Military</td>
</tr>
<tr>
<td>F1</td>
<td>Foreign National Direct Hire</td>
</tr>
<tr>
<td>F2</td>
<td>Foreign National Indirect Hire</td>
</tr>
<tr>
<td>F3</td>
<td>Foreign National KATUSA</td>
</tr>
<tr>
<td>F4</td>
<td>Foreign Military Attached</td>
</tr>
<tr>
<td>G</td>
<td>Dependent</td>
</tr>
<tr>
<td>M</td>
<td>Government, Other</td>
</tr>
<tr>
<td>NO</td>
<td>National Guard</td>
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</table>
### Table 4–5
Personnel classification codes—Continued

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>N1</td>
<td>NG Tech</td>
</tr>
<tr>
<td>N2</td>
<td>NG IDT</td>
</tr>
<tr>
<td>N3</td>
<td>NG AT</td>
</tr>
<tr>
<td>N4</td>
<td>NG ADSW</td>
</tr>
<tr>
<td>N5</td>
<td>NG AGR</td>
</tr>
<tr>
<td>N6</td>
<td>NG ADT</td>
</tr>
<tr>
<td>N7</td>
<td>NG Activated</td>
</tr>
<tr>
<td>O</td>
<td>Other</td>
</tr>
<tr>
<td>P</td>
<td>Public</td>
</tr>
<tr>
<td>RO</td>
<td>Reserve</td>
</tr>
<tr>
<td>R1</td>
<td>Reserve IDT</td>
</tr>
<tr>
<td>R2</td>
<td>Reserve AT</td>
</tr>
<tr>
<td>R3</td>
<td>Reserve ADT</td>
</tr>
<tr>
<td>R4</td>
<td>Reserve FTM</td>
</tr>
<tr>
<td>R5</td>
<td>Reserve Tech</td>
</tr>
<tr>
<td>R6</td>
<td>Reserve Activated</td>
</tr>
<tr>
<td>R7</td>
<td>Reserve AGR</td>
</tr>
<tr>
<td>T</td>
<td>ROTC</td>
</tr>
<tr>
<td>U</td>
<td>Unknown</td>
</tr>
<tr>
<td>Z</td>
<td>Not reported</td>
</tr>
</tbody>
</table>

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### Chapter 5
Special Notification and Reporting Requirements

#### 5–1. Marine accidents

*a. Overview.* Marine accidents (may also be known as watercraft accidents) involve a collision, grounding, sinking, fire, or explosion as a result of the operation of any Army watercraft. They also involve military diving (which does not include recreational diving) and hyperbaric exposure accidents, or swimming operations resulting in injury or illness to persons or damage to watercraft, cargo, or other property. Marine accidents will be reported as Class A through Class D accidents and shown as marine underway, marine not underway or marine diving, as appropriate, on DA Form 285 (block 72).

1. Marine accidents include—
   1. Accidents occurring while loading, off-loading, or receiving services at dockside.
   2. Damage to Army property handled as an on-board commodity.
   3. Accidents occurring during amphibious or on-shore warfare training operation.
   4. Damage and all injuries to Army personnel occurring onboard.

2. Marine accidents do not include accidents that are reportable under other major categories prescribed in this pamphlet. For example, aircraft, missile, or chemical agent accidents.

3. This chapter covers watercraft under the jurisdiction of DA that is—
   1. Used in logistics-over-the-shore (LOTS) operations; coastal, harbor, and inland waterways (CHI); and ocean operations.
   2. Identified in AR 56–9, table 1–1.
   3. Operated and exclusively controlled or directed by the Army. This includes watercraft furnished by a contractor or another government agency when operated by Army watercraft personnel.
   4. Lent or leased to non-Army organizations for modification, maintenance, repair, test, contractor training, research, or development projects for the Army.
   5. Under test by Army agencies responsible for research, development, and test of equipment.
   6. Under operational control of an Army contractor. Accidents involving Army equipment lent or leased by the Army to a non-Army organization for maintenance, repair, test, contract training, or experimental projects will not be
charged to the Army if the non-Army organization that has operational control of the equipment has assumed the risk of loss.

(g) Contractor-owned and operated watercraft where contractor accident reporting to the Army is contractually required.

(4) This chapter does not negate the Master’s responsibility to report any applicable marine accident, injury, or death involving commercial or government-owned watercraft or property to the U.S. Coast Guard.

b. Notification requirements. In addition to the notification required by AR 385–10, chapter 3, marine accidents will be reported as follows:

(1) Marine underway/Marine not underway. Any grounding that creates a hazard to navigation, the environment, or watercraft safety, or any occurrence affecting the watercraft’s seaworthiness or fitness for service, including but not limited to, fire, flooding, or damage to fixed fire extinguisher systems, life saving equipment, or bilge pumping systems will be telephonically reported to the U.S. Army Combat Readiness Center (CSSC–O), Fort Rucker, AL 36362–5363, DSN 558–2660, COM (334) 255–2660, within 24 hours.

(2) Marine diving. Marine diving accidents classified as Type II Decompression Sickness or Pulmonary Overinflation Syndromes will be telephonically reported to the U.S. Army Combat Readiness Center (CSSC–O), Fort Rucker, AL 36362–5363, DSN 558–2660, COM (334) 255–2660, within 24 hours. All other marine accidents will be reported to the Marine Safety/Diving Safety Office as soon as possible.

(3) Army Special Operations Forces diving. Army Special Operations Forces (ARSOF) diving accidents classified as Type II Decompression Sickness or Pulmonary Overinflation Syndromes (as defined in U.S. Navy Dive Manual, Volume I) will be telephonically reported to the Commander, U.S. Naval Safety Center, Norfolk, VA, DSN 564–3520, ext. 7837/7086, COM (757) 444–3520, ext. 7837/7086 within 24 hours of the occurrence.

(a) All other diving accidents will be reported to the Naval Safety Center and the USACRC, as soon as possible.

(b) Dives resulting in a mishap requiring recompression treatment or resulting in the diver being away from work for 24 hours or longer will be reported by message, per OPNAVINST, 5102–1D, to Commander, U.S. Naval Safety Center, Norfolk, VA. The Commander, USASOC//AOOS// will be an info addressee on the message. This message is required in addition to telephonic notification.

(c) A DA Form 285 will be completed for the incident and forwarded through appropriate command channels to USACRC. The following additional information is required:

1. Operation at time of accident (brief scenario).
2. Environmental/meteorological conditions at time of accident to include—
   a. Water temperature at surface.
   b. Water temperature at depth.
   c. Sea state.
   d. Visibility at depth.
   e. Visibility at surface.
   f. Outside air temperature.
   g. Wind speed and direction.
   h. Tide, wave, and current data.
   i. Type of dive platform.
3. Diving system utilized (surface supplied, open circuit, closed circuit scuba, or hyperbaric facility).
4. Maximum depth of dive in feet of sea water (FSW).
5. Total bottom time.
6. Total time of dive.
7. Onset of symptoms (month/day/hour/minute, depth).
8. Whether the accident victim is a current and qualified diver per AR 611–75.
9. Type of symptoms (neurological, serious symptoms, pain only, and/or mechanical).
10. Recompression started (month/day/hour/minute).
11. Treatment table used.
12. Treatment outcome (complete relief, partial relief, no relief, fatal).
13. Prognosis and diagnosis.

(4) Marine diving accidents. In addition to the information required by the DA Forms 285/285–AB, the following will be included on the DA Forms 285/285–AB when reporting marine diving accidents to the Diving Safety Office:

(a) Operation at time of accident (brief scenario of diving operation).
(b) Diving system utilized (surface supplied, open circuit scuba, closed circuit scuba, or hyperbaric facility).
(c) Maximum depth of dive in feet sea water (FSW).
(d) Total bottom time of exposure.
(e) Onset of symptoms (month/day/hour/minute, depth).
(f) Type of symptoms (embolism, serious symptom, pain only, and/or mechanical).
(g) Recompression started (month/day/hour/minute, depth).
(h) Treatment table used.
(i) Diagnosis or treatment outcome (complete relief, partial relief, no relief, fatal).
c. Recordkeeping.
(1) The Master/Coxswain, or person in charge of any watercraft involved in an accident, shall retain voyage records which are normally maintained by the watercraft.
(2) Voyage records include, but are not limited to—
   (a) Logs.
   (b) Bell books.
   (c) Navigation charts and workbooks.
   (d) Compass deviation cards.
   (e) Gyro records.
   (f) Stowage plans.
   (g) Records of draft.
   (h) Aids to mariners.
   (i) Night order books.
   (j) Radiograms sent and received.
   (k) Radio logs.
   (l) Crew and passenger lists.
   (m) Articles of shipment.
   (n) Other material which might be of assistance in investigating and determining the cause of the accident.
   (o) The Master/Coxswain or person responsible for the records’ custody shall make these records available upon request to the authorized safety investigator(s).
(3) The following records pertinent to the dive or hyperbaric exposure will be retained for possible use during the investigation:
   (a) Completed operation and emergency procedures which document the status of all equipment and systems relevant to the dive and/or hyperbaric exposure.
   (b) Diving log worksheet.
   (c) Recompression chamber treatment log.
   (d) Diver’s Medical Records for the past 5 years (if available).
   (e) DD Form 314, Preventive Maintenance Schedule and Record, (or the ULLs-generated equivalent) for the equipment being used.
d. Marine accident report. For watercraft accidents, the following additional information will be included on the DA Form 285/285–AB, or as an enclosure to those forms:
(1) Description of the circumstances, including the following when applicable:
   (a) Time and place of commencement of voyage and destination.
   (b) Current (direction and force).
   (c) Wind (direction and force).
   (d) Visibility in yards at time of accident.
   (e) Tide and sea conditions.
   (f) Name of person in charge of navigation and persons on the bridge at time of accident.
   (g) Name and rank of lookout and where stationed on Army watercraft.
   (h) Time when bridge personnel and lookouts were posted for duty.
   (i) Course and speed of watercraft at time of accident.
   (j) Number of passengers, troops, and crew on board Army watercraft.
   (k) Copies of all pertinent log entries.
   (l) List of the names and addresses of the witnesses who saw the accident.
   (m) When steering gear and controls of Army watercraft were last tested.
   (n) When and where compasses of Army watercraft were last adjusted and deviation, if any, at time of accident.
   (o) Statement of any outside assistance received.
   (p) Any further details not covered above.
(2) Diagrams, log extracts, and any pertinent documents or exhibits will be submitted with the accident report.
(3) If a pier, wharf, bridge, or other stationary structure is involved, submit a diagram showing the watercraft’s heading, the direction of tidal current and wind, longitudinal axis of the structure, and the berthing location if the watercraft is docking, undocking, or is coming alongside a vessel at anchor.
e. Marine accident investigation. In addition to the normal procedures required for investigating Army accidents, diving accidents require the following:
(1) All diving or hyperbaric exposure accidents classified as Type II and Gas Embolism will be investigated.
(2) All other marine diving accidents may be investigated upon determination of possible safety violations.

5–2. Chemical agent events
   a. General.
      (1) Program responsibilities. Commanders with a chemical agent mission/activity/event will establish procedures to ensure investigation and reporting of chemical agent events are accomplished per the following guidance.
      (2) Definition. Chemical events are defined in AR 50–6. For the purposes of this pamphlet, chemical events are those involving chemical compounds intended for use in military operations to kill, seriously injure, or incapacitate persons through physiological effects. Experimental compounds are included. Excluded are research, development, test, and evaluation (RDT&E) dilute solutions; riot control agents; chemical defoliants and herbicides; smoke; flame; military explosives; and incendiaries. Pesticides, insecticides, and industrially manufactured chemicals, unless selected by the Army for chemical warfare purposes, are also excluded.
      (3) Classifying chemical events. Events will be classified as appropriate in accordance with AR 385–10, Chapter 3, if applicable.
   b. Notification responsibilities and procedures. The commander of the organization experiencing the chemical event will follow the notification and reporting procedures in AR 50–6 and, in the case of Class A–D accidents, this pamphlet. The format for reporting chemical events and the distribution of this notification is given in paragraph 5–3.
   c. Investigation responsibilities and procedures.
      (1) All Army chemical events will be investigated for the purpose of accident prevention, whether or not legal accident investigations are conducted.
      (2) Chemical events which meet the criteria for Class A or B Army accidents or involve off-post contamination. That is, the predicted/actual chemical agent No-Effects dosage distance extends beyond the post/installation boundary will be investigated by a CAI limited use accident investigation board appointed by the DASAF. The board will consist of at least four members, two of whom are familiar with the effects of chemical agents. The board must also include members who are experienced in accident investigation techniques.
      (3) Depending on the situation, any other type of chemical event may also warrant HQDA investigation.
      (4) Army Headquarters will establish procedures to ensure an investigation appropriate to the severity/consequences of the event is promptly conducted for all other chemical events.
   d. Reporting responsibilities and procedures.
      (1) Army Headquarters commanders will forward the investigation report within 90 days of the accident to HQDA, OCSA (DACS–SF), Washington, DC 20310–2000, Commander, AMC (AMCSF), Alexandria, VA 22333–0001.
      (2) Chemical events which also meet the criteria of Class A–D accidents will be recorded on DA Form 285 or AGAR as appropriate for injury, illness, and property damage.
      (3) Occupational illnesses or injuries to DA military or civilian personnel resulting from chemical events will be reported as prescribed in AR 40–400.
   e. Release of information. Release of chemical event investigation reports and technical investigations to contractors and persons not employed by the U.S. Army is strictly forbidden unless prior approval is given by the DASAF.
   f. Exchange of information. Army Headquarters and the U.S. Army Chemical Materiel Destruction Agency will establish procedures to exchange information (copy furnished to DACS–SF) in chemical events which have lessons learned value for other chemical activities.

<table>
<thead>
<tr>
<th>Table 5–1</th>
<th>Chemical Accident and Incidents Report—Guidance and Distribution Format</th>
</tr>
</thead>
</table>
| A. Heading| For chemical accidents. Enter “This is a chemical accident report (RCS DD–FM&P (AR) 1020.”
| 1.        | For chemical incidents. Enter “This is a chemical incident report (RCS CSOCS–311).”
| 2.        | Date and time of event.
| 3.        | Location.
| 4.        | Quantity and type of weapon(s) or container(s) and chemical agent(s)
| 5.        | Description of property damage and personnel casualties.
| 6.        | Type of carrier (if one is involved).
| 7.        | Type of operation. For example, laboratory analysis, surveillance testing, logistical movement, storage inspection, alert, maintenance and renovation, or demilitarization.
| 8.        | Description of event.
5–3. Explosives accidents

a. Overview. Explosives are defined as all items of ammunition, liquid and solid propellants, high- and low-yield explosives, pyrotechnics, and substances associated with the foregoing that present real or potential hazards to life or property. The term includes any device or assembly of devices that contain an explosive material. Examples are bombs, guided or unguided; water and land mines; depth charges; non-nuclear warheads; explosive-loaded projectiles; explosive components of aircrew escape systems; missile propellants; guided or unguided missiles; and pyrotechnic, illuminating, and signaling devices. For reporting purposes, explosive accidents include—

(1) An unplanned explosion or functioning of a device containing explosives, propellants, pyrotechnics, or other similar substances associated with these items which present real or potential hazards to life or property. Included are—

(a) Accidents occurring during the explosives or pyrotechnics manufacturing process.

(b) Off-range impacts of projectiles, bombs, missiles, or their fragments/components, during range operations.

(c) Accidents involving dummy or inert materials, when used to simulate a real explosive item in training or testing situation.

(d) Accidents involving Engineer demolition explosives.

(e) Accidents involving explosive ordnance disposal (EOD) operations.

(f) The inadvertent actuation, jettisoning, release, or launching of explosive devices.

(2) Explosives accidents do not include the accidental discharge of small arms weapons (in unit arms rooms, on guard duty,) and hunting or recreational shooting accidents.

(3) Commanders will report and investigate all explosive accidents. The USACRC will provide a CAI for selected Class A and Class B explosives accidents. Army Headquarters will form an installation accident investigation (IAI) board for all Class A and B explosive accidents not investigated by the USACRC.

(4) Accidents involving Army explosives consigned to commercial carriers will be handled as outlined in AR 385–10 and AR 75–15.


(1) Accidents will be reported per AR 385–10, chapter 3. The type of investigation planned (CAI, IAI, DA Investigation Team for Malfunctions (DAITM)), must also be provided for all explosives accidents.

(2) In addition to normal accident reporting requirements, certain explosive accidents require an immediate telephonic report by the responsible Army Headquarters to the Army Operations Center (AOC) DSN 227–0218 or (COM (703) 697–0218) and the USACRC (DSN 558–2660/3410 or COM (334) 255–2660/3410). These accidents are—

(a) Explosive accidents resulting in the loss of a major weapons system. These accidents may or may not be Class A or B accidents.

(b) An explosive accident resulting in a production loss of 72 hours or more.

(c) An explosive accident involving probable public interest or network media coverage.

(3) Explosives accidents described in paragraph 5–3b, above will be reported on DA Form 285 or DA Form 285–AB. The DA Forms 285/285–AB will be submitted per AR 385–10, chapter 3. These forms should include all the basic data and the additional data described in paragraph 5–3d.
c. Explosives accident investigation.

(1) Commanders are required to investigate all explosives accidents. When USACRC receives telephonic reports of Class A or B explosives accidents, they will notify U.S. Army Technical Center for Explosives Safety (USATCES) of the accident telephonically. If the USACRC Commander determines a CAI team will respond to the accident, USATCES will be notified of the requirement to provide technical assistance to the investigating team.

(2) A decision by USACRC not to investigate an explosive accident does not eliminate the requirement to initiate a local or Army Headquarters level accident investigation. Technical support for Army Headquarters and local investigations may be requested from supporting Quality Assurance Specialist, Ammunition Surveillance (QASAS) personnel, or USATCES, DSN 956–8919 or COM (918) 420–8919. Technical expertise in explosives or explosives-related accident investigations is also available at U.S. Army Field Support Command, Safety/Rad Waste Directorate (DSN 793–2989/2971/2113 or COM (309) 782–2989/2971/2113).

(3) Explosive accidents may involve ammunition malfunctions, which are investigated per AR 75–1. When an ammunition malfunction is suspected, the CAI/IAI will conduct the primary comprehensive investigation for DA/Army Headquarters and the DAITM will conduct its investigation as part of the CAI/IAI team.

(a) Subject to the exercise of CID jurisdiction, the CAI/IAI board president shall exercise control over the coordination and investigative actions of all elements and/or technical teams supporting the board.

(b) The CAI/IAI board president shall control access to the accident site and shall be responsible for releasing the site after all legitimate investigative actions are complete.

d. Explosives accident report. The supplementary technical data indicated below (as applicable) will be included in the appropriate blocks of DA Form 285 or DA Form 285–AB, per the form’s instructions. Required data that is not entered on the DA Form 285 or DA Form 285–AB will be included as attachments. If a malfunction investigation was conducted as part of the investigation, much of this information should be available in the ammunition malfunction reports, prepared by the DAITM or local Quality Assurance Specialist (Ammunition Surveillance) (QASAS). If an ammunition malfunction investigation was not conducted, questions and assistance concerning the collection of this data may be obtained from local QASAS personnel or by calling USATCES (request for technical support): DSN 956–8919, COM (918) 420–8919 or FAX DSN 956–8503, COM (918) 420–8503. All data must be addressed. If not applicable, so state—

(1) Type of operation or transportation mode engaged in at the time of the accident (include reference to applicable SOP or regulatory document).

(2) The following information, if not previously reported: quantity, type, lot number, configuration, and packaging of ammunition/explosives involved in the accident.

(3) The following type of reaction or reactions:

(a) Single reaction such as detonation, deflagration, fire, release, or activation.

(b) Multiple reactions such as detonation and fire. Ensure communications of reactions, such as detonations caused by fire, fire caused by detonation, detonation propagates to detonation, detonation to deflagration, and the time sequences between such events, is included.

(4) Possible or known causes.

(5) Aerial and ground photographs, color whenever possible, of the accident be taken as soon as possible after the accident.

(6) Maps, charts, and overlays of the accident area showing or listing the following data:

(a) Location of personnel killed or injured with respect to the accident origin.

(b) Area containing property with complete destruction (more than 75 percent).

(c) Area containing property damage beyond economical repair (50 percent to 75 percent).

(d) Area containing repairable property (1 percent to 49 percent).

(e) Radii of uniform or irregular glass breakage. When possible, include type and dimensions of glass broken at the farthest point.

(f) Locations and dimensions of craters.

(g) Distances from the accident origin at which direct propagation occurred, and whether from blast, fragments, firebrands, or fire.

(h) Approximate number, size, and location of hazardous fragments and debris.

(7) Describe any influence of the following factors on the accident:

(a) Environmental and meteorological, such as cloud cover, wind direction and velocity, temperatures, relative humidity, EMR, and electrostatic conditions.

(b) Topographical features such as hills, forests, lakes.

(c) Structural features at the accident origin such as exterior and interior walls, substantial dividing walls, bulkheads, roofs, and overheads, doors and windows, cells or magazines, earth cover, barricades.

(d) Safety features other than structural at the accident origin such as remote controls, sprinkler systems, deluge systems, detectors, alarms, blast traps, suppressive shielding, PPE.

(e) Position, orientation, and type of construction of all structures, damaged or not, located within the maximum
radius of damage. When the applicable intermagazine (IMD), intra-line (ILD); or inhabited building distances (IBD) are greater than the radius of actual damage, show the location, orientation, and type construction of all structures situated within quantity distance (QD) radii.

(f) Vessels, vehicles, and mobile equipment locations within maximum radius of damage. If QD requirements are greater than the actual area of damage, indicate the actual distance and damage sustained to all equipment located within all the QD arcs.

(g) Personnel locations within maximum radius of damage. If QD requirements are greater than the actual area of injury, indicate the actual distance to all personnel located within all the QD arcs and extent of injuries received.

(h) Explosives, ammunition, and chemical agent location, type of configuration, amounts, and protection provided within maximum radius of damage, or if QD requirements are greater, the location within the applicable magazine and intra-line arcs.

(i) Identify buildings, exposures, and other locations that are under special consideration or waiver. The completed waiver package will be submitted as an appendix to the report. Describe interim safety measures that prevented injury or damage.

(8) The report will include an analysis of the accident sequence, the conclusions reached from the investigation, and recommendations to prevent occurrence.

5–4. Ionizing and nonionizing radiation accidents

a. Overview.

(1) Command responsibilities. Commanders and licensees will establish procedures to ensure investigation and reporting of ionizing and nonionizing radiation accidents are accomplished per this pamphlet.

(2) Classifying radiation accidents. Accidents will be classified in accordance with AR 385–10, chapter 3 for purposes of determination of DA requirements, to include criteria for entry into the DA accident data base.

b. Ionizing radiation accidents.

(1) Basis of reporting requirements. Ionizing radiation accident reporting will be accomplished per Nuclear Regulatory Commission (NRC) requirements as stated in Title 10 CFR, primarily in 10 CFR Part 20 (Standards for Protection Against Radiation), Part 30.50 (reporting requirements), Title 21 CFR (US Food and Drug Administration (FDA), primarily in 10 CFR Part 1002.20 (Reporting of accidental radiation occurrences) and per DA requirements as stated in this pamphlet. Revisions to Title 10 CFR and Title 21 CFR take precedence over that information in paragraphs 5–4b(2)(a), 5–4b(2)(b), and 5–4b(4)(a), below which is derived from the 1 January 2006 edition of Title 10 CFR and 1 April 2006 for 21 CFR.

(2) Notification requirements and procedures.

(a) Immediate notification requirements. The following situations, involving byproduct, source, or special nuclear material, require immediate voice or message notification per procedures in paragraph 5–4b(4)(a), below.

Note. This paragraph addresses initial notification. For written requirements, see paragraph 5–4b(2)(c), below.

1. Immediate notification (voice or message notification) upon discovery of an event that may have caused or threaten to cause any of the following conditions per 10 CFR 20.2202:

   a. Total effective dose equivalent of 25 rems (0.25 Sievert (Sv)) or more.
   b. A lens dose equivalent of 75 rems (0.75 Sv) or more.
   c. A shallow dose equivalent to the skin or extremities of 250 rads (2.5 Gy) or more.
   d. The release of radioactive material, inside or outside of a restricted area, so that, had an individual been present for 24 hours, the individual could have received an intake five times the annual limit on intake (the provisions of this paragraph do not apply to locations where personnel are not normally stationed during routine operations, such as hot cells or process enclosures).

2. Receipt of a package which has (10 CFR 20.1906):

   a. Removable radioactive surface contamination on the external surfaces of the package in excess of 220,000 disintegrations per minute per 100 square centimeters of package surface (0.1 μCi/100 cm2 or 4,000 Bq/100 cm2) for beta/gamma radiation and low toxicity alpha emitters or in excess of 22,000 disintegrations per minute per 100 square centimeters of package surface (0.01 μCi/100 cm2 or 400 Bq/100 cm2) for all other alpha emitters (10 CFR 71.87/49 CFR 173.443).

   b. Radiation levels in excess of 200 mrem/h (2 mSv/h) at any point on the external surface of the package or the transport index exceeds 10 (For example, 10 millirem per hour at three feet from the external surface) (10 CFR 71.47).

3. Loss or theft of radioactive material (10 CFR 20.802).

4. Loss (other than normal operating loss), theft, attempted theft of one gram or more or accidental criticality of special nuclear material (10 CFR 70.52).

5. Defects to include damage to protective housing (For example, shielding) such that the source is not fully shielded, or cannot be moved into the shielded position, in accordance with 10 CFR 30.50 (Reporting requirements). Also, the source is left exposed in an unrestricted area such that the radiation level exceeds 10 times the limit of 2 mrem in any 1 hour (For example, 20 mrem in any 1 hour) in accordance with 10 CFR 20.2203 and 10 CFR 20.405.
And that safety mechanisms on the equipment fail or are defective such that the possibility exists of the source inadvertently becoming unshielded or exposed (10 CFR 21 and 10 CFR 30.50).

6. Leak test results of a sealed source indicating total removable activity exceeding 0.005 microcuries (185 Becquerel (Bq)) (10 CFR 31.5 and 34.27).

7. Accidents involving transportation including loading, unloading, and temporary storage in which fire, breakage, spillage, or suspected radioactive contamination occurs involving shipment of radioactive material (49 CFR 171.15).

8. An unplanned fire or explosion damaging any licensed radioactive material or device container or equipment containing licensed radioactive material.

   a. The quantity of material involved is greater than five times the lowest annual limit on intake specified in 10 CFR 20.1001 to 20.2401.

   b. The damage affects the integrity of the licensed material or its container.

9. The release of radioactive material in concentrations which, if averaged over a period of 24 hours, would exceed 500 times the limits specified for such materials in 10 CFR 20.

10. When there is reason to believe there was a radiation accident/incident occurrence involving a manufactures electronic product as per 21 CFR 1002.20.

   b. Twenty-four hour notification. The following situations, involving byproduct, source, or special nuclear material, require 24 hour notification per procedures in paragraph 5–4(b)(4)(a), below. Each licensee shall, within 24 hours of discovery of the event, report any event involving loss of control of licensed material possessed by the licensee that may have caused, or threatens to cause, any of the following conditions - an individual to receive, in a period of 24 hours per 10 CFR 20.2202:

   1. A total effective dose equivalent exceeding 5 rems (0.05 Sv).

   2. A lens dose equivalent exceeding 15 rems (0.15 Sv).

   3. A shallow-dose equivalent to the skin or extremities exceeding 50 rems (0.5 Sv).

   4. The release of radioactive material, inside or outside of a restricted area, so that, had an individual been present for 24 hours, the individual could have received an intake in excess of one occupational annual limit on intake (the provisions of this paragraph do not apply to locations where personnel are not normally stationed during routine operations, such as hot-cells or process enclosures).

   5. An unplanned contamination event that requires access to the contaminated area by workers or the public to be restricted for more than 24 hours by imposing additional radiological controls or by prohibiting entry into an area or involves a quantity of material greater than 5 times the lowest annual on intake specified in 10 CFR part 20, appendix B, Sec. 20.1001–20.2401 of for the material AND has access restricted for a reason other than to allow isotopes with a half life of less than 24 hours to decay prior to decontamination.

   6. An unplanned fire or explosion damaging any licensed material or device, container, or equipment containing licensed material when the quantity of material involved is greater than 5 times the lowest annual limit on intake specified in Appendix B, Sec 20.1001–20.2401 of 10 CFR and part 20 for the material AND the damage affects the integrity of the licensed material or its container.

   c. Notification responsibilities and procedures.

   1. The commander or designated representative becoming aware of an ionizing radiation accident will telephonically report the accident within 3 hours of confirmation of the accident through command channels to—

Note. An exception to the 3-hour criteria is that each licensee must notify the NRC Operations Center within 1 hour after discovery of any case of accidental criticality or any loss, other than normal operation loss, of special nuclear material (10 CFR 70.52).

   a. The appropriate licensee, Army Radiation Authorization (ARA) holder or Army Radiation Permit (ARP) holder. Licensees and notification phone numbers are identified for commodities in their respective TM, TBs, technical reports or SOPs (a commodity matrix is provided https://www.monmouth.army.mil/rso/comm1_mat.htm with a valid Army Knowledge Online (AKO) account). When dealing with generally licensed radioactive material not covered under an authorization or permit contact the local command center, USACRC, and the Army Safety Office (ASO), phone numbers provided below.


2. Upon notification of the accident or incident as defined in 10 CFR 20, Subpart M, the licensee will—

   a. Notify the NRC and other applicable federal agencies, such as the Department of Transportation for transportation accidents.

   b. Provide technical information and status of NRC reporting to the Army Safety Office.

   c. Provide technical assistance concerning initial notification of the accident as requested by the unit experiencing the accident.

3. If the commander experiencing the accident is unable to notify the licensee in a timely manner, that commander will notify the NRC directly and subsequently inform the licensee. The radiation safety (or protection) officer and installation safety manager are sources of information concerning contacting the licensee. The NRC Operations Center
is at (301) 816-5100. Precise notification time requirements for various types of accidents or incidents are in 10 CFR 20, primarily 10 CFR 20.2202. Maximizing the expertise of the licensee in interacting with the NRC is the preferred process.

4. Notifications will contain as much information as is currently available using the format at table 5–2.

<table>
<thead>
<tr>
<th>Table 5–2</th>
<th>Radiological Accident Report, RCS DD–R&amp;E (AR) 1168</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Date and time of event.</td>
<td></td>
</tr>
<tr>
<td>2. Radiation-producing device or source involved, including NSN, serial</td>
<td></td>
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<tr>
<td>number, part number, radiation characteristics, and parameters of the</td>
<td></td>
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<tr>
<td>event.</td>
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<tr>
<td>3. Description of the event, including cause; names and SSNs of the</td>
<td></td>
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<tr>
<td>people exposed, injured, or contaminated; estimated exposure;</td>
<td></td>
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<tr>
<td>contamination levels; facilities effected; potential damages; impact</td>
<td></td>
</tr>
<tr>
<td>on operations; and immediate-response actions taken.</td>
<td></td>
</tr>
<tr>
<td>4. Actions taken to prevent occurrence.</td>
<td></td>
</tr>
<tr>
<td>5. Recommendations to avoid similar instances at other installations</td>
<td></td>
</tr>
<tr>
<td>possessing similar material or devices.</td>
<td></td>
</tr>
<tr>
<td>6. Name and telephone number of health physicist or radiation safety</td>
<td></td>
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<tr>
<td>officer, field unit identification and the appropriate Army Command</td>
<td></td>
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<tr>
<td>(ACOM), Army Service Component Command (ASCC) or Direct Reporting Unit</td>
<td></td>
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<tr>
<td>(DRU) involved.</td>
<td></td>
</tr>
<tr>
<td>7. Point of contact (name, address, and telephone number).</td>
<td></td>
</tr>
<tr>
<td>8. A statement of when the appropriate offices in DOL, NRC, and DOT were</td>
<td></td>
</tr>
<tr>
<td>notified (if applicable) and by whom notification was made.</td>
<td></td>
</tr>
<tr>
<td>9. NRC License, Army authorization number or Army permit number.</td>
<td></td>
</tr>
</tbody>
</table>

5. Notify the installation or activity public affairs officer at the onset of the accident or incident in order to activate public affairs contingency measures (AR 360–1). Radiation accidents or incidents attract the attention of local and national media quickly. Early disclosure of accurate information is vital to maintaining the confidence of both internal and external public.

(3) **Investigation responsibilities and procedures.**

(a) The commander experiencing the accident will—

1. Ensure an accident investigation is conducted.

2. Cooperate with licensees and federal regulatory agencies in providing information requested to determine accident cause and determine corrective measures.

(b) The licensee will—

1. Provide technical assistance to the investigation, as appropriate.

2. Interface with other federal agencies concerning investigation or other interaction as a result of an accident.

(4) **Reporting requirements and procedures.**

(a) Reporting requirements. The following requirements for reporting exposures, radiation levels, and concentrations of radioactive material exceeding the limits to the Nuclear Regulatory Commission will be met through procedures in paragraph 5–4b(4)(ii) below.

1. In addition to any notification required by paragraph 5–4b(2) above, each licensee shall submit a written report to the Nuclear Regulator Commission within 30 days after learning of any of the following occurrences (10 CFR 20.2201 to 10 CFR 20.2206) and as required to the Occupational Safety and Health Administration (OSHA) by 29 CFR 1910.1096(m), 29 CFR 1926.53(c) or FDA 21 CFR 1002:

   a. Any incident for which notification is required by 10 CFR 20.2202. This includes doses in excess of the occupational dose limits for adults (10 CFR 20.1201), the occupational dose limits for a minor (10 CFR 20.1207), the limits for an embryo/fetus of a declared pregnant woman (10 CFR 20.1208), the limits for an individual member of the public (10 CFR 20.1301), or any applicable limit in the license.

   b. Levels of radiation, or concentrations of radioactive material in a restricted area in excess of any applicable limit in the license, or an unrestricted area in excess of 10 times any applicable limit set forth in this part or in the license (whether or not involving exposure of any individual in excess of the limits in 10 CFR 20.1301).

   c. For licensees subject to the provisions of EPA’s generally applicable environmental radiation standards in 40 CFR 190, levels of radiation or releases of radioactive material in excess of those standards, or of license conditions related to those standards.

   d. Any accident/incident radiation occurrence resulting from a manufactures electronic product where reasonable grounds exist that an incident has occurred shall be reported to the Center for Devices and Radiological Health, FDA (21 CFR 1002).

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DA accident reporting criteria and requirements per AR 385–10, chapter 3 also apply.

(b) Reporting responsibilities and procedures.

1. The commander of the unit experiencing the accident will report the accident in accordance with AR 385–10, chapter 3.

2. The licensee will—
   a. Submit accident reports to the NRC to fulfill requirements of 10 CFR 20 (10 CFR 20.1007 Communications) and related CFR (10 CFR 30.6 Communications) see contact information provided in paragraph 5–4(5)(i), below and to other federal agencies as required.
   b. Provide technical assistance to the commander of the unit experiencing the accident in developing the written Army accident report.

(5) Telephone numbers and addresses for reporting radiation accidents and incidents.

(a) To report ionizing radiation accidents and incidents to the NRC follow the guidance in 10 CFR 20.1007.

(b) Unless otherwise specified, communications or reports concerning the regulations in this part should be addressed to the Executive Director for Operations (EDO), and sent—
   1. Either by mail to the U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001.
   2. By hand delivery to the NRC’s offices at 11555 Rockville Pike, Rockville, Maryland.
   3. Where practicable, by electronic submission, for example, via Electronic Information Exchange, or CD–ROM.
   4. Electronic submissions must be made in a manner that enables the NRC to receive, read, authenticate, distribute, and archive the submission, and process and retrieve it a single page at a time.

(c) Detailed guidance on making electronic submissions can be obtained by—
   2. By calling (301) 415–6030.
   3. By e-mail to EIE@nrc.gov.

   Note. The guidance discusses, among other topics, the formats the NRC can accept, the use of electronic signatures, and the treatment of nonpublic information.

(d) As per 10 CFR 30.6, the NRC has delegated to the four Regional Administrators licensing authority for selected parts of its decentralized licensing program for nuclear materials as described in 10 CFR 30.6 paragraph (b)(1). Any communication, report, or application covered under this licensing program must be submitted to the appropriate Regional Administrator. The administrators’ jurisdictions and mailing addresses are listed below.

   1. Region I. Maine, Vermont, New Hampshire, Maryland, District of Columbia, Massachusetts, Connecticut, Rhode Island, New Jersey, Delaware, Pennsylvania, and New York, contact U.S. Nuclear Regulatory Commission, Region I, 475 Allendale Road, King of Prussia, PA 19406–1415, telephone (800) 432–1156, e-mail: RidsRgn1MailCenter@nrc.gov.

   2. Region II. West Virginia, Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Mississippi, Alabama, Georgia, Florida, Puerto Rico, and Virgin Islands, contact U.S. NRC, Region II, Sam Nunn Atlanta Federal Center, 61 Forsyth Street, S.W., Suite 23 T85, Atlanta, GA 30303–8931, telephone (800) 577–8510, e-mail: RidsRgn2MailCenter@nrc.gov.

   3. Region III. Minnesota, Wisconsin, Michigan, Iowa, Illinois, Indiana, Ohio, and Missouri, contact U.S. NRC, Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60525–4352, telephone (800) 522–3025, e-mail: RidsRgn3MailCenter@nrc.gov.

   4. Region IV. Alaska, Arizona, California, Hawaii, Nevada, Oregon, Washington, Montana, Idaho, Wyoming, Utah, Colorado, Arkansas, Louisiana, New Mexico, Texas, Oklahoma, Kansas, Nebraska, North Dakota, South Dakota, and the Pacific Trust Territories, contact U.S. NRC, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, TX 76011–4005, telephone (800) 952–9677, e-mail: RidsRgn4MailCenter@nrc.gov.


   Note. The 1–800 number is to the National Response Center.

(f) The Office of Hazardous Materials Enforcement regional offices can be contacted at—


(g) Reports dealing with electronic products shall be addressed to the Director, Center for Devices and Radiological Health, 5600 Fishers Lane, Rockville, MD 20857, the reports and the envelopes shall be distinctly marked “Reports on 1002.20.”

(h) DOD (furnish information required by DODI 7730.12 to HQDA (DACS–SF) for OSD/AE).

(i) HQDA (DACS–SF) The Army Safety Office at DSN 329–2412, COM (703) 601–2412 and (SGPS–PSP) DSN 289–0132/COM (703)–756–0132 (during non-duty hours, contact AOC, DSN 227–0218, COM (703) 697–0218, and indicate the offices to be notified).

(j) Commander, AMC, ATTN: AMCGS, 9301 Chapek Road, Fort Belvoir, VA 22060–5527, AMC Operations Center: DSN 656–9200/COM (703) 806–9200, AMC Safety Office: DSN 656–8695, COM (703) 806–8695, FAX (703) 806–8859, and indicate the message should be passed on to AMC Safety (AMCSF).

   1) Definition. Nonionizing radiation accidents are of the following two types:
      (a) High-Intensity Optical Source. The primary types of these accidents involve lasers or arc sources, such as electric arc welding or arc lamp as used in a printing plant. Accidents occur when personnel exposure to nonionizing radiation exceeds levels established by DA, based on national standards (see AR 385–10, DA Pam 385–24, TB MED 524, ANSI Z136.1, or American Conference of Governmental Hygienists Threshold Limit Values (for laser, ultraviolet, or other optical sources), or when personnel injury/occupational illness results from exposure to nonionizing radiation during the use or maintenance of a nonionizing device. If nonionizing radiation levels are exceeded, immediately evacuate personnel suspected of experiencing potentially damaging eye exposure from laser radiation to the nearest medical facility for an eye examination (see FM 8–50). Laser eye injuries require immediate specialized ophthalmologic care to minimize long term visual acuity loss. Medical personnel should obtain medical guidance for such emergencies from the Tri-Service Laser Incident Hotline (DSN 240–4784 or COM (210) 536–4784 or (800) 473–3549) (e-mail: laser.safety@hedo.brooks.af.mil). Excluded from these accidents are cases of sunburn, which will be classified as “Personal Injury-other” accidents.
      (b) Microwave and radio frequency (RF). These accidents occur when a person is exposed to microwave and RF radiation in excess of levels set in AR 40–5 and TB MED 523.

   2) Notification. Accident notifications will be completed per AR 385–10, chapter 3. In addition, the commander experiencing a nonionizing radiation accident will send an electrically transmitted message to the following addressers providing as many details of the accident as possible in the format in figure 5–2 within 24 hours of occurrence: Commander, USACHPPM, 5158 Blackhawk Road, Aberdeen Proving Ground, MD 21010–5403, (800) 222–9698 and the USACHPPM Laser/Optical Radiation Program (LORP) (DSN 584–3932/2331 or COM (334) 255–2660/3410, FAX DSN 558–3749, COM (334) 255–3749.

   3) Accident investigations will be conducted per chapter 4.

   4) Nonionizing radiation accidents. These will be reported per chapter 5.

   5) Report a laser overexposure as per TB MED 524 appendix C (Medical Surveillance). For a laser overexposure once the optometrist or ophthalmologist suspects or confirms the incident, the occupational health clinic/Troop Medical Clinic or emergency responders will immediately notify—
      (a) The division/installation/garrison LSO.
      (b) The division/installation/garrison RSO.
      (c) The LSO or RSO will notify the Tri-Service Laser Incident Hotline (DSN 240–4784 or COM (210) 536–4784 or (800) 473–3549) (e-mail: laser.safety@hedo.brooks.af.mil).
      (d) The LSO or RSO will notify USACHPPM Laser/Optical Radiation Program (LORP) (DSN 584–3932/2331 or COM (410) 436–3932/2331 or (800) 222–9698) (e-mail: laserincident@ammed.army.mil).
      (e) The LSO or RSO will notify USACHPPM Tri-service Vision Conservation and Readiness Program (TVCRP).
(6) *Other investigations.* HQDA (SGPS–PSP) may require a medical technical investigation to obtain exposure data. This investigation is separate from the accident investigation. The technical investigation report is maintained by the USACHPPM, 5158 Blackhawk Road, Aberdeen Proving Ground, MD 21010–5403, (800) 222–9698.

5–5. Nuclear weapon and reactor accidents

*a. General.*

(1) **Command responsibilities.** Commanders with a nuclear weapon or reactor mission will establish procedures to ensure investigating and reporting of a nuclear accident is accomplished per guidance which follows.

(2) **Nuclear accident/incident response and assistance.** This guidance is published in AR 50–5, chapter 5. NAIRA is intended to minimize loss of life, personal injury, hazardous effects, and destruction of property.

*b. Definition.** Nuclear weapons and reactor accidents are defined in the glossary and AR 50–5.

*c. Classifying nuclear weapon accidents.** Accidents will be classified in accordance with AR 385–10, chapter 3.

*d. Notification.** The commander of the nuclear weapon or reactor operation experiencing the nuclear accident will follow notification procedures in AR 50–5, appendix B (Required Reports).

*e. Investigation.*

(1) The DASAF will convene the U.S. Army Nuclear Weapon/Reactor Accident Investigation Board to investigate nuclear weapon or reactor accidents.

(2) The Commander, AMC, will establish procedures to ensure that a technical investigation and analysis is done for each significant incident (RCS DD–R&E(AR)1168(MIN)) or minor nuclear system incident (RCS CSOCS–310), AR 50–5.

*f. Reporting.*

(1) The commander of the nuclear weapon or reactor operation experiencing the nuclear accident will follow the reporting procedures in AR 50–5.

(2) Nuclear weapon and reactor accidents which also meet the criteria of Class A–D will be reported on DA Form 285 or DA Form 285–AB and DOL Forms CA–1/CA–2 as appropriate for injury, illness, and property damage.

(3) Occupational illnesses to DA military or civilian personnel resulting from nuclear weapon or reactor accidents will be reported as prescribed in AR 40–400.

5–6. Biological mishaps

*a. Biologic mishaps will be investigated and reported in accordance with DA Pam 385–69.*

*b. Biological mishaps that also meet the criteria of Class A–D accidents will be investigated and reported in accordance with this pamphlet and AR 385–10.*

5–7. Investigation of North Atlantic Treaty Organization nation aircraft or missile accidents and incidents

*a. General.* STANAG 3531, Investigation of Aircraft/Missile Accidents/Incidents, sets forth procedures for the investigation of these events within the North Atlantic Treaty Organization (NATO) Armed Forces.

(1) In the provision—

(a) Each nation may conduct its own accident safety investigation. The proceedings and conclusions will be privileged. When permitted, representatives of other involved nations will be invited to attend.

(b) Some NATO nations, either by law or by procedure may—

1. Permit reports of investigations into aircraft and missile accidents and incidents to be used in disciplinary or legal proceedings and for determining responsibility for claims.

2. Determine reports of investigations are privileged and are to be used only for accident prevention and safety.

3. Conduct a separate investigation to determine civil responsibilities by the proper authorities of the country of occurrence. This is done according to the national laws of that country or other agreement between the governments concerned. When an investigation is required by disciplinary reasons, each nation concerned will be responsible for the conduct of the investigation.

(2) The operating nation is responsible for accidents or incidents which occur in an airfield or launch site located in allied territory occupied by forces of another NATO nation.

(3) Member nations should aid other member nations in investigating aircraft or missile accidents or incidents. When possible, they will release relevant information which does not compromise security or conflict with practices regarding privilege.

(4) National authorities of the country of occurrence will respect any security restrictions imposed by the operating nation on the issue of statements to the press concerning accidents which occur in their territory. No statement will be issued without the consent of the operating nation.
(5) When one nation carries out recovery of another nation’s aircraft at that nation’s request, payment of recovery costs will be as prescribed by STANAG 3113 ACS.

b. Reporting requirements. In addition to the reports shown in this pamphlet and AR 385–10, if the aircraft or missile accident or incident involves toxic chemical materiel or nuclear weapons, the chemical accident/incident control provisions of AR 50–6 or AR 50–5 apply. Additional reporting requirements are under the reports control jurisdiction of the major overseas Army command according to AR 335–15.

c. Explanation of terms. See glossary.

d. Functions. To initiate a good functional NATO nations accident and investigation reporting relationship, Army Headquarters commanders within separate NATO complexes should provide the following in their programs:

(1) Procedures for notifying involved countries of the accident or incident and safeguarding wreckage in an undisturbed condition until the safety investigators of each nation involved have released the wreckage.

(2) Measures to establish a safety zone around the location when there is reason to suspect the presence of explosives or other hazardous conditions in an accident or incident pending further guidance from the operating nation.

(3) Procedures to notify other member nations of the names of the national agencies to be informed when equipment, facilities, or persons of that country are involved in an aircraft or missile accident or incident with the equipment, facilities, or persons of another country.

(4) Procedures to designate an authority to be advised when a combined aircraft or missile accident investigation is needed.

(5) Joint planning and coordination procedures to investigate and report accidents and incidents.

e. Related documents. STANAG 3318, Medical Aspects of Aircraft Accident Investigations, and STANAG 3113 ACS, Provisions of Support to Visiting Personnel, Aircraft, and Vehicles, are related documents. In addition, addressees of appropriate military safety centers for NATO countries are included in and made a part of STANAG 3101. (See AR 95–30/AFR 127–11/OPNAVINST 3750.16B/CG 307.)

f. Investigation procedures. When an accident or incident occurs involving aircraft or missiles of one or more nations on another nation’s territory or ship, the military authorities of the country of occurrence should perform the following:

(1) The nation operating the aircraft or missile concerned is responsible for the accident safety investigation.

(2) The operating nation’s authorities will begin investigations after notifying the appropriate armed forces staff of the country of occurrence and the seriousness of their injuries.

(3) Local military authorities will accord honors to fatalities as prescribed by their regulations.

(4) Fatalities will be treated according to the desires of the nations concerned.

(5) Provide a medical doctor, preferably with specialist aeromedical qualifications, to—

(a) Initiate any necessary medical investigation according to STANAG 3318.

(b) Assist the medical member or adviser to the aircraft or missile accident safety investigation committee.

(c) Request national or local authorities to keep the scene of the accident guarded and untouched until the proper accident safety investigation committee assumes control. If the wreckage must be moved for technical or social reasons or to prevent further damage to the aircraft or missile, a reconstruction must be made by means of photographs, drawings, maps, and witnesses.

(d) Report the accident according to current procedures of the country of occurrence. The country of occurrence will promptly notify the nearest representative of the allied authorities of the countries concerned, (for example, military attaches, nearest air force, army, or naval base.) The nation operating the aircraft or missile will be invited to send an accident safety investigation committee.

(e) Report to the operating nation’s authorities the names (where known) of injured persons, giving their location and the seriousness of their injuries.

(f) No person may sit on the investigating committee or act as an observer who, in the line of duty:

1. May be directly associated with the cause factor(s) of the accident or incident.

2. May have personal interest in the outcome of the investigation.

g. National safety investigations.

(1) The nation operating the aircraft or missile concerned is responsible for the accident safety investigation. However, when the operating nation does not wish to investigate an accident, the nation on whose territory the accident occurred will be responsible for the investigation. An officer (or officers) of the country of occurrence may, with the consent of both countries, be attached to the operating nation’s investigating committee as an official assistant or observer. This officer will provide an interpreter if needed.

(2) The operating nation’s authorities will begin investigations after notifying the appropriate armed forces staff of the country of occurrence and the proper national headquarters.

(3) Medical aspects of aircraft accident investigations should be according to STANAG 3318.

(4) An officer of the country of occurrence should be sent at once to the scene of the accident to perform the following:

(a) Collect in advance all possible written statements and other evidence for the investigating committee.

(b) Assist the investigating committee as needed.
(c) Act as the liaison between the civil authorities of the country of occurrence and the accident safety investigation committee.

(5) When a member nation does not wish to take part in a safety investigation, the president of the accident investigation committee may receive evidence, oral or written, that is relevant to the investigation. Such evidence may be accepted, whether or not it would be admissible in a civil court. Evidence of any type, sworn or unsworn, or expert opinion may be accepted by the committee and any reasonable inferences should be drawn.

h. Combined safety investigations.

(1) General. All aircraft and missile accidents or incidents involving equipment, facilities, or persons of two or more member nations normally will be investigated by a combined aircraft or missile accident safety investigation committee. If equipment, facilities, or personnel of any other member nation were contributory causes to the accident, that nation will be notified and invited to take part in a combined investigation.

(2) Composition of the combined aircraft or missile accident safety investigation committee should—

(a) Include investigators and technical advisers deemed necessary by each of the countries involved and be formed into one investigating committee. They should work under the unified direction of a coordinating group consisting of the senior member of each nation’s investigating group. The most senior member of the group appointed by the operating nation will be president of the combined committee.

(b) When notified of an aircraft or missile accident falling within the category in “a” above, the nations involved will advise the headquarters of the air force or missile arm of the country of occurrence of the names of the officers in their investigating group. The nations will also identify the officer who will serve as the senior member of their group.

(c) When aircraft or missiles of two nations are involved in accidents over the territory of a third nation, the president of the combined committee will be determined by agreement among the nations involved.

(d) When the committee is unable to present a unanimous conclusion as to the prime and contributory causes of the accident, each national point of view will be stated.

(3) Coordination of investigating efforts. The coordinating group will—

(a) Be responsible for overall direction of the investigation.

(b) Organize the investigating committee into specialized subcommittees, as needed.

(c) Conduct the investigation according to procedures normally used by the operating nation.

(4) Reporting.

(a) The investigation committee will report its combined findings. The report will include the following data:

1. Factual circumstances.

2. Investigation and analysis.

3. Findings and conclusions.

4. Recommendations.

(b) Attach statements or exhibits to the report if they will make the findings more meaningful and comprehensive. The chief investigator of each nation involved will show his or her concurrence or nonconcurrence on the report. This combined report may be separate from any other report required by regulations of the individual nations. Copies of the combined report will be sent to the nations taking part in the investigation.

(c) When one nation involved cannot take part in a combined investigation, that nation may request and receive copies of all original reports and conclusions of the investigation committee. When a combined investigation is not conducted because a nation involved declined to take part, copies of the investigation report will not be made available if privileged status precludes release of such reports.
Appendix A
References

Section I
Required Publications

AR 40–21
Medical Aspects of Army Aircraft Accident Investigation (Cited in paras 2–1c(4)(a), 2–4g(1), 3–11a.)

AR 50–5
Nuclear Surety Program (Cited in paras 5–5f(1), 5–5e(2), 5–5d, 5–5b, 5–5a(2), 5–7b.)

AR 50–6
Chemical Surety Program (Cited in paras 5–2b, 5–2a(2), 5–7b.)

DA Pam 738–751
Functional Users Manual for the Army Maintenance Management System, Aviation (TAMMS) (Cited in paras 1–10b(10)(d), 2–5o(3)(f), 2–5o(1)(a).)

DA Pam 750–8
The Army Maintenance Management System (TAMMS) Users Manual (Cited in para 2–5o(1)(a).)

Section II
Related Publications

AR 15–6
Procedures for Investigating Officers and Boards of Officers

AR 27–40
Litigation

AR 40–5
Preventive Medicine

AR 40–14
Control and Recording Procedures for Exposure to Ionizing Radiation and Radioactive Materials (DLAR 1000–28)

AR 40–46
Control of Health Hazards from Lasers and Other High Intensity Optical Sources

AR 40–400
Patient Administration

AR 40–66
Medical Record and Quality Assurance Administration

AR 50–5
Nuclear Surety

AR 50–6
Chemical Surety

AR 56–9
Watercraft

AR 75–1
Malfunctions Involving Ammunition and Explosives

AR 75–15
Policy for Explosive Ordnance Disposal
AR 95–30
Participation in a Military or Civil Aircraft Safety Investigation

AR 190–45
Serious Incident Report

AR 335–15
Management Information Control System

AR 360–1
The Army Public Affairs Program

AR 380–86
Classification of Chemical Warfare and Chemical and Biological Defense Information

AR 385–10
Army Safety Program

AR 420–1
Fire Protection

AR 600–8–1
The Army Casualty and Memorial Affairs and Line of Duty Investigations

AR 611–75
Personnel Selection, Qualification, and Classification of Army Divers

AR 735–8
Bailment Agreements for U.S. Army Aviation Major and Secondary Air Items

AR 750–6
Ground Safety Notification System

DODI 5400.7
DOD FOIA Program

NATO Standardization Agreement (STANAG) 3101
Exchange of Accident/Incident Information Concerning Aircraft and Missiles

NATO Standardization Agreement (STANAG) 3113
Provision of Support to Visiting Personnel, Aircraft and Vehicles

NATO Standardization Agreement (STANAG) 3118
Aeromedical Aspects of Aircraft Accident/Incident Investigation

NATO Standardization Agreement (STANAG) 3531
Safety Investigation and Reporting of Accidents/Incidents Involving

NAVSHIPS 250–538

SB 742–1
Inspection of Supplies and Equipment Ammunition Surveillance Procedures

TB 43–0002–3
Maintenance Expenditure Limits for Army Aircraft

TB MED 523
Control of Hazards to Health from Microwave and Radio Frequency Radiation and Ultrasound
Section III
Prescribed Forms

Unless otherwise indicated, DA Forms are available on the APD Web site (www.apd.army.mil); DD Forms are available on the OSD Web site (www.dtic.mil/whs/directives/infomgt/formsprogram.htm); Standard Forms (SF) and Optional Forms (OF) are available on the GSA Web site (www.gsa.gov).

DA Form 285
Technical Report of U.S. Army Ground Accident (Prescribed in paras 1–4a, 1–9h(2), 2–9a(16), 4–1b(5), 4–2, 4–4e(3)d(2), 5–1d, 5–1b(4), 5–2d(2), 5–3d, 5–3a(3), 5–5c(2), 5–6d(1), 14–6e.)

DA Form 285–A
Technical Report of U.S. Army Ground Accident, Index A (Prescribed in paras 4–1b(1), 4–6d, 4–7.)

DA Form 285–B
Technical Report of U.S. Army Ground Accident, Index B (Prescribed in paras 4–1b(3), 4–6d, 4–7.)

DA Form 285–O

DA Form 285–W
Technical Report of U.S. Army Ground Accident, Summary of Witness Interview (Prescribed in paras 4–1b(8), 4–5.)

DA Form 285–AB
U.S. Army Abbreviated Ground Accident Report (AGAR) (Prescribed in paras 1–4a, 4–1c, 4–10, 5–1b(4), 5–3d, 5–3b(3), 5–5b(1)(b), 5–6d(1).)

DA Form 2397

DA Form 2397–1

DA Form 2397–2

DA Form 2397–3

DA Form 2397–4

DA Form 2397–5

DA Form 2397–6

DA Form 2397–7

DA Form 2397–8
DA Form 2397–9

DA Form 2397–10
(Prescribed in paras 2–4g(3)(f), 3–13.)

DA Form 2397–11

DA Form 2397–12

DA Form 2397–13

DA Form 2397–14

DA Form 2397–AB
Abbreviated Aviation Accident Report (Prescribed in paras 1–4a, 3–1, 3–20.)

Section IV
Referenced Forms

DA Form 759
Individual Flight Record and Flight Certificate–Army

DA Form 2028
Recommended Changes to Publications and Blank Forms

DA Form 1352
Army Aircraft Inventory, Status, and Flying Time

DA Form 2173
Statement of Medical Examination and Duty Status

DA Form 2404
Equipment Inspection and Maintenance Worksheet

DA Form 2407
Maintenance Request (Available through normal forms supply channels)

DA Form 2408–series
Aircraft Operational and Maintenance Forms

DA Form 2408–5
Equipment Modification Record

DA Form 2408–12
Army Aviator’s Flight Record

DA Form 2408–13
Aircraft Status Information Record

DA Form 2408–14
Uncorrected Fault Record (Available through normal forms supply channels)

DA Form 2408–15
Historical Record for Aircraft (Available through normal forms supply channels)
Appendix B
Explanations, Examples, and Keywords

B–1. Introduction
These explanations and examples are provided so all users will have the same understanding of what the factors mean. Where appropriate, a list of key words is given for each factor. These keywords, when appropriate, may be used instead of the factor term.

B–2. Tables
For ease of use, this appendix is organized as follows:
   a. Table B–1. Aviation-Specific Mistakes/Task Errors.
   b. Table B–2. Ground-Specific Mistakes/Task Errors. This table lists codes and explanations for ground specific task errors. Mistakes/errors are organized into three groups: general, vehicle specific and supervisory specific.
c. Table B–3. Materiel Failures/Malfunctions. Use these definitions to assist in determining what materiel failure/malfunction occurred that caused/contributed to the accident.

d. Table B–4. Environmental Conditions. Use these definitions to assist in determining what environmental conditions caused/contributed to the accident.

e. Table B–5. System Inadequacies/Root Causes/Readiness Shortcomings. These explanations are provided so all users will have the same understanding of what the readiness shortcomings (root causes) for mistakes/errors, materiel failures, and environmental conditions mean.

f. Table B–6. Recommendations/Controls/Corrective Actions/Countermeasures.

Note. Prefix remedial codes as follows: "U" for unit level (company, troop, battalion); “H” for higher level (brigade, division, corps, Army Headquarters); and “A” for DA level (to include ACOM, ASCC, DRU, Army Headquarters with Army level proponency) to indicate the level of command where the action is directed.

<table>
<thead>
<tr>
<th>Table B–1</th>
<th>Aviation specific</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Individual Task Errors</strong></td>
<td>Errors made by personnel not in a supervisory capacity or a supervisor that makes an error not relating to supervisory responsibilities. For example, it is an individual error if a supervisor is injured because he was not using the required equipment.</td>
</tr>
</tbody>
</table>

**Code: P01**

Keyword/explanation: Scan - Failure to properly direct visual attention inside or outside the aircraft, (for example, too much or too little time on one object/area/activity); scan pattern not thorough or systematic; channelizing/fixating attention, allowing attention to be drawn away from the scanning process so that visual information important to decision making and/or aircraft control is missed and/or not acted upon.

**Code: P02**

Keyword/explanation: Maintain/recover orientation - Failure to properly execute procedures necessary to maintain or recover orientation in flight environments know to restrict visibility, (for example, fog, clouds, blowing snow/dust, and over black water or other spatial disorientation producing conditions). Loss of situational awareness.

**Code: P03**

Keyword/explanation: In-flight planning - Failure to properly modify flight planning or procedure(s) in response to in-flight events, conditions, or circumstances. Improperly modifying the plan during execution.

**Code: P04**

Keyword/explanation: Preflight planning - Failure to choose appropriate flight options for known conditions and contingencies and develop these into a course of action to maximize probability of mission accomplishment.

**Code: P05**

Keyword/explanation: Improperly failed to estimate distance/closure/control input - Failure to accurately judge distance between objects, rate of closure with objects, or the amount of control input required to properly maneuver aircraft (over/under control).

**Code: P06**

Keyword/explanation: Failed to detect hazards/obstacles - Failure to identify obstacles or recognize hazardous conditions; such as, obstacles in landing area, unsecured or improperly secured equipment/cargo/PAX, improper control/switch position, crewmember, or aircraft performance out of-going out of acceptable limits, adverse environmental conditions.

**Code: P07**

Keyword/explanation: Failed to diagnose/respond to emergency - Failure to properly identify and/or respond to actual, simulated, or perceived emergency. “Properly” includes timeliness of identification and/or response as well as appropriateness of procedure(s) and/or control inputs.

**Code: P08**

Keyword/explanation: Coordination - Crew/work group coordination is the interaction between crewmembers/work group members (communication) and actions (sequence or timing) necessary for tasks to be performed efficiently, effectively, and safely.

Direct/request assistance - Failure to properly direct or request assistance from non-flying crewmembers (for example, provide information on airspeed, altitude, engine; or assist with aircraft clearance and control; failure to request assistance from more experienced co-worker in making complex repair for first time).

Announcement decision/action - Failure to announce decision or action that affects other crewmembers’/work group members’ duties.
<table>
<thead>
<tr>
<th>Code</th>
<th>Keyword/explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>P09</td>
<td>Positive communication - Lack of positive communication (transmission, acknowledgement, confirmation) using standard terminology with specific qualifiers.</td>
</tr>
<tr>
<td>P10</td>
<td>Assign responsibilities - Failure of ABC, AMC, AUC, FCO, IP and other supervisor to properly assign responsibilities.</td>
</tr>
<tr>
<td>P11</td>
<td>Offer assistance - Failure to offer assistance or information requested or needed by the flying pilot/ work group members.</td>
</tr>
<tr>
<td>P12</td>
<td>Action sequence - Improper sequencing or timing of actions. Crewmember/work group member initiated action before clearance to do so.</td>
</tr>
<tr>
<td>P13</td>
<td>Code: P10 Keyword/explanation: Failed to use/follow list(s) to perform before/during/after operations/inspections of aircraft/equipment.</td>
</tr>
<tr>
<td>P15</td>
<td>Code: P12 Keyword/explanation: Failed to follow proper instructions (TM, TB, MWO) while repairing/installing/adjusting equipment/ component/part.</td>
</tr>
<tr>
<td>P16</td>
<td>Code: P13 Keyword/explanation: Inspection - Inadequately/improperly inspected aircraft/equipment to determine its operational readiness, (for example, failed to search for/detect hazards). Inspection actions should include the following: Access panel latches not serviceable/fastened. Tools left in improper places, FOD. Bearings not lubricated. Damage to equipment.</td>
</tr>
<tr>
<td>P17</td>
<td>Code: P14 Keyword/explanation: Failed to read/follow SOPs, notices, ARs, general rules/principles, to get needed information for job performance, or knowingly violates ARs, SOPs, and rules.</td>
</tr>
<tr>
<td>P18</td>
<td>Code: P15 Keyword/explanation: Inadequate tool/equipment accountability. Failed to maintain strict equipment accountability, such as for tools and cleaning materials (for self or others).</td>
</tr>
<tr>
<td>P19</td>
<td>Code: P16 Keyword/explanation: Failed to secure materiel/equipment/cargo subject to being blown or thrown about/damaged by wind/ rotorwash/turbulence/crash forces, (for example, ground equipment, pads, TA–50, ammunition, tool chests, and medical equipment).</td>
</tr>
<tr>
<td>P20</td>
<td>Leader/supervisory task errors - Errors made by personnel acting in a leader or supervisory capacity in which they failed to execute a task associated with supervisory responsibilities.</td>
</tr>
<tr>
<td>P21</td>
<td>Code: P17 Keyword/explanation: Inadequately/improperly selected LZ/termination point; for example, size, obstacles/environmental hazards/aircrew experience.</td>
</tr>
<tr>
<td></td>
<td>Code: P18 Keyword/explanation: Improperly prepared LZ; for example, type/placement of landing markers/detection/removal of obstacles/hazards.</td>
</tr>
<tr>
<td></td>
<td>Code: P19 Keyword/explanation: Improper mix/match/number of personnel for job/mission (level of proficiency/fatigue).</td>
</tr>
<tr>
<td></td>
<td>Code: P21 Keyword/Explanation: Set/permited inappropriate mission launch time for environment/weather conditions.</td>
</tr>
</tbody>
</table>
### Table B–1
#### Aviation specific—Continued

<table>
<thead>
<tr>
<th>Keyword/explanation</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permitted inappropriate selection of LZ/touchdown or termination point for aircrew experience/level of training intended.</td>
<td></td>
</tr>
<tr>
<td>Code: P22</td>
<td></td>
</tr>
<tr>
<td>Failed to ensure repairs, services, modifications, installations, or maintenance such as lubrication/inspections, were completed in accordance with TMs, SOPs.</td>
<td></td>
</tr>
<tr>
<td>Code: P23</td>
<td></td>
</tr>
<tr>
<td>Failed to take appropriate/timely actions to prevent or stop violations of safe operations/procedures.</td>
<td></td>
</tr>
<tr>
<td>Code: P24</td>
<td></td>
</tr>
<tr>
<td>Inadequate mission planning. Risk management, operational and logistical decisions.</td>
<td></td>
</tr>
<tr>
<td>In-flight planning - Failure to properly modify flight planning or procedure(s) in response to in-flight events, conditions, or circumstances. Improperly modifying the plan during execution.</td>
<td></td>
</tr>
<tr>
<td>Preflight planning - Failure to choose appropriate flight options for known conditions and contingencies and develop these into a course of action to maximize probability of mission accomplishment.</td>
<td></td>
</tr>
<tr>
<td>Code: P25</td>
<td></td>
</tr>
<tr>
<td>Failed to brief/provide information adequate for mission accomplishment.</td>
<td></td>
</tr>
<tr>
<td>Code: P97</td>
<td></td>
</tr>
<tr>
<td>Insufficient information to determine the mistake or task error.</td>
<td></td>
</tr>
</tbody>
</table>

### Table B–2
#### Ground Specific

<table>
<thead>
<tr>
<th>Individual mistakes/task errors -</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Errors made by personnel not in a supervisory capacity or a supervisor that makes an error not related to supervisory responsibilities. For example, a supervisor was injured because he failed to wear his seatbelt.</td>
<td></td>
</tr>
<tr>
<td>Code: 01</td>
<td></td>
</tr>
<tr>
<td>Inadequate planning - Failed to properly organize or coordinate. Improper modification of the plan during execution.</td>
<td></td>
</tr>
<tr>
<td>Code: 02</td>
<td></td>
</tr>
<tr>
<td>Improperly/failed to lock/block/secure, (for example, load).</td>
<td></td>
</tr>
<tr>
<td>Code: 03</td>
<td></td>
</tr>
<tr>
<td>Inadequate inspection/check of vehicle or equipment (before, during, after operations check). Failed to use the appropriate checklist or TM to perform the inspection.</td>
<td></td>
</tr>
<tr>
<td>Code: 04</td>
<td></td>
</tr>
<tr>
<td>Improper application of safety equipment, device, guard, sign, signal, or PPE. Failed to adhere to posted warning signs/signals/guards. Failed to use required safety equipment, device, guard, sign, signal or PPE.</td>
<td></td>
</tr>
<tr>
<td>Code: 05</td>
<td></td>
</tr>
<tr>
<td>Operating while fatigued when not necessary/directed.</td>
<td></td>
</tr>
<tr>
<td>Code: 06</td>
<td></td>
</tr>
<tr>
<td>Improper use of equipment -</td>
<td></td>
</tr>
<tr>
<td>Did not use equipment when required.</td>
<td></td>
</tr>
<tr>
<td>Used right equipment improperly.</td>
<td></td>
</tr>
<tr>
<td>Used wrong equipment.</td>
<td></td>
</tr>
<tr>
<td>Code: 07</td>
<td></td>
</tr>
<tr>
<td>Improper lifting -</td>
<td></td>
</tr>
<tr>
<td>Used incorrect lifting technique.</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Keyword/Explanation</td>
</tr>
<tr>
<td>------</td>
<td>------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>08</td>
<td>Failed to use appropriate assistance.</td>
</tr>
<tr>
<td>09</td>
<td>Failed to take appropriate precautions for adverse environmental conditions (rain, haze, fog, snow, ice, reduced visibility).</td>
</tr>
<tr>
<td>10</td>
<td>Improperly walked, ran, or climbed.</td>
</tr>
<tr>
<td>11</td>
<td>Failed to stay alert, remain awake, or attentive to what was happening (situational awareness to environment, conditions, or operations).</td>
</tr>
<tr>
<td>12</td>
<td>Failed to ensure adequate clearance/space (enough room) for operation.</td>
</tr>
<tr>
<td>13</td>
<td>Misjudged clearance (improperly estimated/evaluated).</td>
</tr>
<tr>
<td>14</td>
<td>Improper weapons and ammunition handling -</td>
</tr>
<tr>
<td>15</td>
<td>Improperly pulled or pushed equipment or material.</td>
</tr>
<tr>
<td>16</td>
<td>Inadequate improvising/troubleshooting.</td>
</tr>
<tr>
<td>17</td>
<td>Inadequate crew coordination/communication.</td>
</tr>
<tr>
<td>18</td>
<td>Improper actions sequence - improper sequencing or timing of actions with other crewmembers; for example, driver initiated vehicle movement before receiving clearance from ground guide or senior occupant.</td>
</tr>
<tr>
<td>19</td>
<td>Failure to offer assistance, information, or warning, (for example, driver failed to warn other crewmembers of impending hazard (rollover)).</td>
</tr>
<tr>
<td>Code</td>
<td>Keyword/explanation</td>
</tr>
<tr>
<td>----------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>20</td>
<td>Improper assembly.</td>
</tr>
<tr>
<td>21</td>
<td>Under the influence of drugs or alcohol.</td>
</tr>
<tr>
<td></td>
<td>Codes 22–39 reserved for future use.</td>
</tr>
</tbody>
</table>

**VEHICLE/EQUIPMENT SPECIFIC**

<table>
<thead>
<tr>
<th>Code</th>
<th>Keyword/explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>Excessive speed.</td>
</tr>
<tr>
<td></td>
<td>Exceeding the posted speed limits.</td>
</tr>
<tr>
<td></td>
<td>Excessive speed for conditions.</td>
</tr>
<tr>
<td>41</td>
<td>Improper passing.</td>
</tr>
<tr>
<td></td>
<td>Misjudged clearance while passing.</td>
</tr>
<tr>
<td></td>
<td>Passing at an unsafe time or place.</td>
</tr>
<tr>
<td></td>
<td>Failed to take precautions when passing pedestrians.</td>
</tr>
<tr>
<td>42</td>
<td>Improper turning.</td>
</tr>
<tr>
<td></td>
<td>Failed to yield the right-of-way while turning.</td>
</tr>
<tr>
<td></td>
<td>Oversteering while turning.</td>
</tr>
<tr>
<td></td>
<td>Improper U–Turn.</td>
</tr>
<tr>
<td>43</td>
<td>Failed to yield the right-of-way other than when turning.</td>
</tr>
<tr>
<td>44</td>
<td>Failed to stop at a controlled intersection.</td>
</tr>
<tr>
<td>45</td>
<td>Improperly stopped or parked.</td>
</tr>
<tr>
<td>46</td>
<td>Improper backing.</td>
</tr>
<tr>
<td>47</td>
<td>Failed to use a ground guide when required.</td>
</tr>
<tr>
<td>48</td>
<td>Ground guide used improper/incorrect position, signal, or procedure.</td>
</tr>
<tr>
<td>49</td>
<td>Following too close for environmental conditions or vehicle speed/design.</td>
</tr>
<tr>
<td>50</td>
<td>Driving in the wrong lane.</td>
</tr>
<tr>
<td>51</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Keyword/explanation</td>
</tr>
<tr>
<td>--------</td>
<td>-------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>52</td>
<td>Improper lane change.</td>
</tr>
<tr>
<td>52</td>
<td>Improper braking.</td>
</tr>
<tr>
<td></td>
<td>Improper placement on the pedal.</td>
</tr>
<tr>
<td></td>
<td>Too much or too little pressure.</td>
</tr>
<tr>
<td></td>
<td>Applied too soon or too late.</td>
</tr>
<tr>
<td>53</td>
<td>Improperly shifted/placed gear selector on vehicle or equipment.</td>
</tr>
<tr>
<td>54</td>
<td>Abrupt control/steering response (except while turning).</td>
</tr>
<tr>
<td>55</td>
<td>Improperly mounted or dismounted vehicle/equipment.</td>
</tr>
<tr>
<td>56</td>
<td>Operating vehicle/equipment with known malfunction/unsafe mechanical conditions.</td>
</tr>
<tr>
<td>57–74</td>
<td>Reserved for future use.</td>
</tr>
<tr>
<td>75</td>
<td>Improper personnel selection/assignment.</td>
</tr>
<tr>
<td></td>
<td>Inexperienced.</td>
</tr>
<tr>
<td></td>
<td>Untrained.</td>
</tr>
<tr>
<td></td>
<td>Unlicensed.</td>
</tr>
<tr>
<td></td>
<td>Impaired, (for example, fatigued).</td>
</tr>
<tr>
<td>76</td>
<td>Knowingly allowed equipment operator to violate procedures.</td>
</tr>
<tr>
<td>77</td>
<td>Failure to ensure proper positioning of personnel prior to vehicle/equipment operation.</td>
</tr>
<tr>
<td>78</td>
<td>Failure to brief or provide adequate information.</td>
</tr>
<tr>
<td>79</td>
<td>Failure to assign responsibilities before or during the mission.</td>
</tr>
<tr>
<td>80</td>
<td>Inadequately/improperly selected site location/termination point, (for example, size, obstacles/environmental hazards/crew experience).</td>
</tr>
<tr>
<td>81</td>
<td>Improperly prepared site location, (for example, type/placement of markers/detection/removal of obstacles/hazards).</td>
</tr>
<tr>
<td>82</td>
<td>Failed to ensure adequate inspection/check of vehicle or equipment (before, during, after operations check) was conducted. Failed to ensure the appropriate checklist or TM to perform the inspection was used.</td>
</tr>
<tr>
<td>83</td>
<td>Failed to conduct adequate pre-mission inspection of personnel or equipment.</td>
</tr>
</tbody>
</table>
**Table B–2**  
*Ground Specific—Continued*

<table>
<thead>
<tr>
<th>Code</th>
<th>Keyword/explanation</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>84</td>
<td>Failed to ensure repairs, services, modifications, installations, or maintenance such as lubrication/inspections, were completed in accordance with appropriate TMs and SOPs.</td>
<td></td>
</tr>
<tr>
<td>85</td>
<td>Failed to take appropriate/timely actions to prevent or stop violations of safe operations/procedures; for example, make on the spot corrections.</td>
<td></td>
</tr>
<tr>
<td>86</td>
<td>Failed to enforce use of personal protective equipment.</td>
<td></td>
</tr>
<tr>
<td>87</td>
<td>Inadequate mission planning. Inadequate time allowed for pre-mission preparation. Set mission start time which did not allow adequate pre-mission preparation.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Set/ permitted inappropriate mission start time for environmental/weather conditions.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mission execution - failure to properly modify the plan or procedure(s) in response to mission events, conditions, or circumstances. Improperly modifying the plan during execution.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pre-mission planning - failure to choose appropriate options for known conditions and contingencies and develops this into a course of action to maximize probability of mission accomplishment. Risk management, operational, and logistical decisions.</td>
<td></td>
</tr>
<tr>
<td>97</td>
<td>Insufficient information to determine the mistake or task error.</td>
<td></td>
</tr>
</tbody>
</table>

**Table B–3**  
*Materiel failures/malfunctions*

<table>
<thead>
<tr>
<th>Code</th>
<th>Keyword/explanation</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Overheated/burned/melted. Key words: blister, boil, carbonize, char, flame, fuse, or glaze. Excessive heat caused materiel or equipment to fail or malfunction.</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>Froze (temperature). Key words: congeal or solidify. Excessive cold caused materiel/equipment to fail/malfunction.</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>Obstructed/pinched/clogged. Key words: block, crimp, or restrict. Function of materiel or equipment was hindered or completely cut off by an obstacle.</td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>Vibrated. Key words: oscillate or shake. Side-to-side or forward-and-backward movement of materiel or equipment caused it to fail or malfunction.</td>
<td></td>
</tr>
<tr>
<td>05</td>
<td>Rubbed/worn/frayed. Key words: abrade, chafe, fret, groove, score, or scrape. Friction-producing movement was applied to materiel or equipment to such and extent that it failed or malfunctioned.</td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>Corroded/rusted/pitted. Key words: erode or oxidize. Gradual wearing away (usually by chemical action) of materiel or equipment to such an extent that it failed or malfunctioned.</td>
<td></td>
</tr>
<tr>
<td>07</td>
<td>Overpressed/burst. Key words: balloon, bulge, explode, rupture, or swell. Steady or abrupt force was applied over the surface of materiel or equipment to such an extent that it failed or malfunctioned.</td>
<td></td>
</tr>
<tr>
<td>08</td>
<td>Pulled/stretched. Key word; elongate. Steady or abrupt force applied to materiel or equipment caused it to move toward the force, in whole or in part, to such an extent that it failed or malfunctioned.</td>
<td></td>
</tr>
<tr>
<td>09</td>
<td>Insufficient information to determine the mistake or task error.</td>
<td></td>
</tr>
</tbody>
</table>
### Table B–3
Materiel failures/malfunctions—Continued

<table>
<thead>
<tr>
<th>Keyword/explanation:</th>
<th>Description:</th>
<th>Code:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Twisted/torqued. Key word: turn. Steady or abrupt application of twisted forces caused materiel or equipment to fail or malfunction.</td>
<td></td>
<td>M10</td>
</tr>
<tr>
<td>Compressed/hit/punctured. Key words: chip, collapse, crush, dent, nick, pinch, press. Steady or abrupt application of force that presses/impacts materiel or equipment causing it to fail or malfunction.</td>
<td></td>
<td>M11</td>
</tr>
<tr>
<td>Bent/warped. Key words: bow or buckle. Changing materiel or equipment from an original straight, level, or even condition through the application of force to such an extent that it failed or malfunctioned.</td>
<td></td>
<td>M12</td>
</tr>
<tr>
<td>Sheared/cut. Key words: chop or sever. Failure or malfunction was caused by steady or abrupt force applied to materiel, resulting in a break with the two parts sliding parallel to each other in different directions.</td>
<td></td>
<td>M13</td>
</tr>
<tr>
<td>Decayed/decomposed. Key words: mildew, rot, or spoil. Chemical or biological action resulted in a gradual decline in materiel or equipment strength to such an extent that it failed or malfunctioned.</td>
<td></td>
<td>M14</td>
</tr>
<tr>
<td>Electric current action. Key words: short, arc, fusing, grounding, amperage, voltage, surge. Action of electric current caused materiel or equipment to fail or malfunction.</td>
<td></td>
<td>M15</td>
</tr>
<tr>
<td>No defect but does not meet the mission requirements.</td>
<td></td>
<td>M97</td>
</tr>
<tr>
<td>Insufficient information to determine type of failure.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table B–4
Environmental conditions

<table>
<thead>
<tr>
<th>Keyword/explanation:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illumination. Key words: bright, dark, dim, glare, or light. Too much or too little light that was a negative influence on vision.</td>
<td></td>
</tr>
<tr>
<td>Precipitation. Key words: condensation, fog, frost, hail, ice, mist, rain, sleet, or snow. Climatic precipitation that has a negative influence on human or machine performance.</td>
<td></td>
</tr>
<tr>
<td>Contaminants. Key words: carbon dioxide, carbon monoxide, chemicals, dust, foreign/debris, fumes, gases, impurities, mists, smog, smoke, toxic materials, or vapors. Natural or manmade elements that render material or the environment unsatisfactory for human or machine use and have a negative influence on performance.</td>
<td></td>
</tr>
<tr>
<td>Noise. Key words: bang, din, explosion, shout, or static. Unwanted sound that produces hearing loss, disturbs/distracts attention from task at hand, or interfered with communication.</td>
<td></td>
</tr>
<tr>
<td>Temperature/humidity. Key words: blow, blast, hurricane, storm, tornado, or turbulence. Natural or manmade air movement that has a negative influence on human or machine performance.</td>
<td></td>
</tr>
<tr>
<td>Wind/turbulence. Key words: blow, blast, gust, hurricane, storm, tornado, or turbulence. Natural or manmade air movement that has a negative influence on human or machine performance.</td>
<td></td>
</tr>
<tr>
<td>Vibration. Key words: bounce, buck, bump, jar, jolt, jump, oscillate, roll, shake, vibrate, shimmy, or sway. Repeated/periodic motions that have a negative influence on human or machine performance.</td>
<td></td>
</tr>
</tbody>
</table>
Table B–4
Environmental conditions—Continued

<table>
<thead>
<tr>
<th>Code:</th>
<th>Keyword/explanation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>E08</td>
<td>Acceleration/deceleration. Forces experienced by personnel/materiel due to rate of change of velocity.</td>
</tr>
<tr>
<td>E09</td>
<td>Radiation. Key words: alpha radiation, beta radiation, gamma radiation, ionizing, laser, maser, neutron radiation, non-ionizing, radio waves, sunlight, ultraviolet, or X radiation. Radiant energy emitted in waves or particles that have a negative influence on human or machine performance.</td>
</tr>
<tr>
<td>E10</td>
<td>Work surface/space. Keywords: holes, inclines, rocky, rough, rutted, slippery, steep, or uneven wave action. Conditions (excluding precipitation) of natural or manmade work surfaces on which personnel and machines operate that have a negative influence on performance.</td>
</tr>
<tr>
<td>E11</td>
<td>Air pressure. Key words: altitude, bends, blast, boom, chokes, decompression, explosion, or hypoxia. Sudden or gradual changes in air pressure that have a negative influence on human or machine performance.</td>
</tr>
<tr>
<td>E12</td>
<td>Electricity. Key words: burn out, electrocute, discharge, ground, lighting, shock, short, or static. Natural or manmade electrical current that has a negative influence on human or machine performance.</td>
</tr>
<tr>
<td>E13</td>
<td>Animals. Key words: bitten, burrowed, chewed, clawed, infects, infested, pecked, poisoned, scratched, stung, flew into. The actions or presence of animals that injures personnel, cause personnel to make errors, damage equipment, or cause equipment to malfunction.</td>
</tr>
<tr>
<td>E97</td>
<td>Insufficient information to identify environmental conditions.</td>
</tr>
<tr>
<td>E98</td>
<td>Not applicable, not caused by Army. Army had no contributing role.</td>
</tr>
<tr>
<td>E99</td>
<td>Insufficient information reported to identify the cause.</td>
</tr>
</tbody>
</table>

Table B–5
System inadequacies/readiness shortcomings/root causes ("Why" the error/failure/malfunction occurred)

LEADER FAILURE occurs when leaders fail to monitor mission execution and planning, correct inappropriate behavior, take appropriate action, or emphasize correct procedures that allowed subordinates to commit task errors or results in a materiel failure.

<table>
<thead>
<tr>
<th>Code:</th>
<th>Keyword/explanation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Inadequate/improper supervision by higher command.</td>
</tr>
<tr>
<td>02</td>
<td>Inadequate/improper supervision by staff officer.</td>
</tr>
<tr>
<td>03</td>
<td>Inadequate/improper supervision by unit command.</td>
</tr>
<tr>
<td>04</td>
<td>Inadequate/improper supervision by direct supervisor/noncommissioned officer in charge/platoon leader/instructor. Note: Inadequate supervision becomes a root cause when it leads to accident-causing personnel mistakes or materiel failure/malfunctions. Inadequate supervision is more clearly identifiable at the immediate-supervisor level.</td>
</tr>
<tr>
<td>04A</td>
<td>When a leader who is not in the individual chain of command fails to make an on-the-spot correction.</td>
</tr>
</tbody>
</table>

TRAINING FAILURE occurs when training is incorrect, incomplete, insufficient for performance to standard.

<table>
<thead>
<tr>
<th>Code:</th>
<th>Keyword/explanation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>05</td>
<td></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Keyword/explanation:</th>
<th>Inadequate school training. School training becomes a root cause when people make accident-causing mistakes because the school training was inadequate in content or amount.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code: 06</td>
<td></td>
</tr>
<tr>
<td>Keyword/explanation:</td>
<td>Inadequate unit/on-the-job training. Unit/on-the-job training becomes a root cause when people make accident-causing mistakes because the training provided was inadequate in content or amount.</td>
</tr>
<tr>
<td>Code: 07</td>
<td></td>
</tr>
<tr>
<td>Keyword/explanation:</td>
<td>Inadequate experience. Supervised on-the-job experience is the follow-up to school and unit training programs. Experience becomes a root cause when people make accident-causing mistakes because the experience provided was inadequate in content or amount.</td>
</tr>
<tr>
<td>Code: 08</td>
<td></td>
</tr>
<tr>
<td>Keyword/explanation:</td>
<td>Habit interference becomes a root cause when a person makes an accident-causing error because task performance was interfered with either the way he usually performs similar tasks, or the way he usually performs the same task under different conditions or with different equipment.</td>
</tr>
<tr>
<td>STANDARDS FAILURE</td>
<td>occurs when standards do not exist or they are unclear, impractical, or inadequate.</td>
</tr>
<tr>
<td>Code: 09</td>
<td></td>
</tr>
<tr>
<td>Keyword/explanation:</td>
<td>Inadequate written procedures for operation under normal or abnormal/emergency conditions. Inadequate written procedures (AR, TM, SOP, written directives) become the root causes when they lead to accident-causing mistakes or materiel failures/malfunctions.</td>
</tr>
<tr>
<td>SUPPORT FAILURE</td>
<td>occurs when the type, amount, capabilities, condition of the support is sufficient to correctly perform the mission. Support includes: personnel, equipment, materiel, supplies, services, or facilities.</td>
</tr>
<tr>
<td>Code: 10</td>
<td></td>
</tr>
<tr>
<td>Keyword/explanation:</td>
<td>Inadequate facilities/service. Inadequate facilities or services become root causes when the maintenance, space and/or support provided for personnel and materiel to accomplish their functions cause mistakes or failures/malfunctions that lead to accidents. (Examples of facilities or services are recreation areas, POL services, housing, medical clinics/hospitals, weather service, storage areas, maintenance facilities, and property disposal.)</td>
</tr>
<tr>
<td>Code: 11</td>
<td></td>
</tr>
<tr>
<td>Keyword/explanation:</td>
<td>Inadequate/improper equipment design or equipment not provided. Improperly designed equipment and materiel or lack of equipment/materiel become root causes when the design or lack of equipment leads to accident-causing personnel errors or materiel failures/malfunctions.</td>
</tr>
<tr>
<td>Code: 12</td>
<td></td>
</tr>
<tr>
<td>Keyword/explanation:</td>
<td>Insufficient number or type of personnel. Insufficient number or type of personnel becomes a root cause when people make accident-causing mistakes or material fails/malfunctions because the number or type of personnel was insufficient.</td>
</tr>
<tr>
<td>Code: 13</td>
<td></td>
</tr>
<tr>
<td>Keyword/explanation:</td>
<td>Inadequate quality control, manufacture, packaging, or assembly. The inadequate manufacture, assembly, packaging, or quality control of materiel becomes a root cause when it leads to accident-causing personnel errors or materiel failures/malfunctions. Note: (Includes original manufacture and rebuild.)</td>
</tr>
<tr>
<td>Code: 14</td>
<td></td>
</tr>
<tr>
<td>Keyword/explanation:</td>
<td>Inadequate maintenance. Inadequate maintenance. Inadequate maintenance (inspection, installation, troubleshooting, recordkeeping) becomes a root cause when it leads to accident-causing personnel errors or material failures/malfunctions.</td>
</tr>
<tr>
<td>INDIVIDUAL FAILURE</td>
<td>occurs when the individual knows the standard and is trained to standard but elected not to follow the standard.</td>
</tr>
<tr>
<td>Code: 15</td>
<td></td>
</tr>
<tr>
<td>Keyword/explanation:</td>
<td>Fear/Excitement/Anger (inadequate composure). Each person is a part of the system. Therefore, his state of mind is a system element. Inadequate composure is a temporary state of mind that becomes a root cause when a person makes an accident-causing error because of fear, excitement, or some related emotional factor made clear, rational thought impossible.</td>
</tr>
<tr>
<td>Code: 16</td>
<td></td>
</tr>
<tr>
<td>Keyword/explanation:</td>
<td>Overconfidence/complacency in abilities. Overconfidence is a temporary state of mine that becomes a root cause when an accident is caused by a person’s unwarranted reliance on their own ability to perform a task, the ability of someone else to perform a task, the performance capabilities of equipment or other materiel.</td>
</tr>
</tbody>
</table>
### Table B–5  
**System inadequacies/readiness shortcomings/root causes ("Why" the error/failure/malfunction occurred)—Continued**

<table>
<thead>
<tr>
<th>Code</th>
<th>Keyword/explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>Lack of confidence. Lack of confidence is temporary of mind that becomes a root cause when accident is caused by a person’s unwarranted lack of reliance on his own ability to perform the task, the ability of someone else to perform the task, the performance capabilities of equipment or other material.</td>
</tr>
<tr>
<td>18</td>
<td>Haste. A temporary state of mind that becomes a root cause when a person makes a mistake because they are in a hurry and the error contributes to or causes an accident.</td>
</tr>
<tr>
<td>19</td>
<td>Fatigue (self-induced). Fatigue is a temporary physical and/or mental state that becomes a root cause when a person makes an accident-causing error because of reduced physical or mental capabilities resulting from previous activity and/or lack of rest.</td>
</tr>
<tr>
<td>20</td>
<td>Effects of alcohol, drugs, illness. The temporary effects of alcohol, drugs, or illness become a root cause when a person makes an accident-causing error because of reduced physical or mental capabilities resulting from one or more of these effects.</td>
</tr>
<tr>
<td>21</td>
<td>Poor attitude/indiscipline. A temporary state of mind that becomes a root cause when a person’s unwarranted or willful disregard for existing standards or know safe conduct results in an error that causes or contributes to an accident.</td>
</tr>
<tr>
<td>22</td>
<td>Environment conditions. Unknown or unavoidable conditions, which result in materiel failure or induce human error.</td>
</tr>
<tr>
<td>97</td>
<td>Insufficient information to determine system inadequacy/cause.</td>
</tr>
</tbody>
</table>

### Table B–6  
**Recommendations/controls/corrective actions/countermeasures**

<table>
<thead>
<tr>
<th>Code</th>
<th>Keyword/explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Improve school training. The improvement recommended should be directed toward the content or amount of school training needed to correct the accident-causing error. For example: Provide school training for the person who made the error due to not being school trained. Improve the content of a school training program to better cover the task in which the error was made. Expand the amount of school training given on the task in which the error was made.</td>
</tr>
<tr>
<td>02</td>
<td>Improve unit training. The improvement recommended should be directed toward the content or amount of unit training needed to correct the accident-causing error. For example: Provide unit training for the person who made the error due to not being unit trained. Improve the content of unit training to better cover the task in which the error was made. Expand the amount of unit training given on the task in which the error was made.</td>
</tr>
<tr>
<td>03</td>
<td>Revise procedures for operation under normal or abnormal/emergency conditions. The changes recommended should be directed toward changing existing procedures or including new ones. If the change is to an AR, TM, FM, Soldier’s Manual, or other Army publication, tell the date when DA Form 2028 was submitted.</td>
</tr>
<tr>
<td>04</td>
<td>Ensure personnel are ready to perform. The purpose of this recommendation is to encourage supervisors to make sure that their people are capable of performing a job before making an assignment. They should consider training, experience, physical condition, and psycho-physiological state, (for example, fatigue, haste, excessive motivation, overconfidence, effects of alcohol/drugs.)</td>
</tr>
<tr>
<td>Code: 05</td>
<td>Keyword/explanation: Inform personnel of problems and remedies. This recommendation should be used when it is necessary to relay accident-related information to people at unit, installation, Army Command (ACOM), or DA levels.</td>
</tr>
<tr>
<td>Code: 06</td>
<td>Keyword/explanation: Positive command action. The purpose of this corrective action is to recommend that the supervisor take action to encourage proper performance and discourage improper performance by the personnel.</td>
</tr>
<tr>
<td>Code: 07</td>
<td>Keyword/explanation: Provide personnel resources required for the job. This recommendation is intended to prevent an accident caused by not enough qualified people being assigned to perform the job safely.</td>
</tr>
<tr>
<td>Code: 08</td>
<td>Keyword/Explanation: Redesign (or provide) equipment or materiel. This recommendation is made when equipment or materiel caused or contributed to an accident because: a. The required equipment or materiel was not available. b. The equipment or materiel used was not properly designed.</td>
</tr>
<tr>
<td>Code: 09</td>
<td>Keyword/explanation: Improve (or provide) facilities or services. This recommendation is made when facilities or services lead to an accident because— a. The required facilities or services were not available. b. The facilities or services used were inadequate.</td>
</tr>
<tr>
<td>Code: 10</td>
<td>Keyword/explanation: Improve quality control. This recommendation is directed primarily toward the improvement of training, manufacturing, and maintenance operations where poor quality products (personnel or materiel) have led to accidents.</td>
</tr>
<tr>
<td>Code: 11</td>
<td>Keyword/explanation: Perform studies to get solutions to root cause. This recommendation should be made when corrective actions cannot be determined without special study. Such studies can range from informal efforts at unit level to highly technical research projects performed by DA-level agencies.</td>
</tr>
</tbody>
</table>
Appendix C
Crash Survival Charts and Figures

C–1. Instructions
This appendix contains charts and figures to assist in computing crash forces relative to the aircraft, its components, and occupants.

C–2. The following information is provided for crash survival:
   a. A chart depicting the relationship of velocity of impact and declarative distance to force (see fig C–1).

---

Figure C–1. Relationship of velocity of impact and declarative distance to force
b. A chart indicating the relationship of velocity of impact and declarative distance to force (see fig C–2).

<table>
<thead>
<tr>
<th>Aircraft</th>
<th>Transmission &amp; Rotor</th>
<th>Engine</th>
<th>Seats</th>
<th>Landing Gear</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$N_x$</td>
<td>$N_y$</td>
<td>$N_z$</td>
<td>$N_x$</td>
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<tr>
<td>AH-1</td>
<td>± 8</td>
<td>± 8</td>
<td>± 8</td>
<td>± 15</td>
</tr>
<tr>
<td>OH-58</td>
<td>± 16</td>
<td>± 8</td>
<td>± 16</td>
<td>± 16</td>
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<tr>
<td>UH-1</td>
<td>± 8</td>
<td>± 8</td>
<td>± 8</td>
<td>± 1.5</td>
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<td>UH-60</td>
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<td>OH-6</td>
<td>± 17</td>
<td>± 15</td>
<td>± 17</td>
<td>± 20</td>
</tr>
</tbody>
</table>

* ND failure occurs
** Unarmored seats

Figure C–2. Aircraft Design Load Factors and Landing Sink Rates

c. An illustration of human tolerable declarative force limits (see fig C–3).
Figure C–3. Typical body crash impacts. Values are for no serious injury.

*d.* Six illustrations of human extremity strike envelopes (see figs C–4 through C–9).
Figure C–4. Lap Belt-Only Extremity Strike Envelope-Top View
Figure C–5. Lap Belt-Only Extremity Strike Envelope-Side View
Figure C–6. Lap Belt-Only Extremity Strike Envelope-Front View

Heel rest line for cockpit.
Aircraft floor line for troop compartment.
Figure C–7. Full-Restraint Extremity Strike Envelope-Top View
Figure C–8. Full-Restraint Extremity Strike Envelope-Side View
Appendix D
Basic Examples of Fractures and Damaging Stresses

D–1. Metal fatigue

a. When metal is subjected to excessive, continuous stress, overload, or excessive vibration over a period of time, the ability of the metal to withstand established stress limitations progressively decreases. Such a condition is called metal fatigue and can result in metal fracture, shear, or warp.

b. An example of metal fatigue failure is shown in figure D–1. The area of instantaneous failure will indicate the overstress placed on the fracture. If the area of instantaneous failure is larger in relation to the total area of failure, high overstress is indicated; if lower, a low overstress is indicated. Stop marks radiate outward from the origin of the failure. If the stop marks remain convex about the origin of the failure, low stress concentration is indicated; concave stop marks indicate a high stress concentration.
Figure D–1. Metal fatigue
D–2. Bending and/or rotation metal fatigue

a. One-way bending (A, see fig D–2) with low overstress indicated by large area of beach marks and stop marks, and high stress concentration indicated by reversal of stop marks.

b. One-way bending (B, see fig D–2) with high overstress indicated by small area of beach marks and stop marks, and high stress concentration indicated by reversal of stop marks.

c. Two-way bending (C, see fig D–2) with low overstress indicated by large area of beach marks and stop marks, and high stress concentration indicated by reversal of stop marks.

d. Two-way bending (D, see fig D–2) with high overstress indicated by small area of beach marks and stop marks, and high stress concentration indicated by reversal of stop marks.

e. Reversed bending and rotation (E, see fig D–2) with low overstress indicated by large area of beach marks and stop marks, and high stress concentration indicated by reversal of stop marks.

f. Reversed bending and rotation (F, see fig D–2) with high overstress indicated by large area of instantaneous failure.
Figure D–2. Fatigue fractures
D–3. Propagation of fatigue crack and ductile-type failure
Propagation of fatigue at right angle to tension stress lines and ductile-type failure of instantaneous zone is shown in figure D–3.

Figure D–3. Propagation of fatigue crack and ductile-type failure of instantaneous zone
D–4. Fatigue failure involving stress
Fatigue failure with no evidence of stress concentration and high stress concentration is shown in figures D–4 through D–13.

Figure D–4. Fatigue failure, no stress, and high stress concentration

Figure D–5. Fatigue failure under torsion loading
Figure D–6. Torsion load failure
Figure D–7. Bending load failure
Figure D–8. Deformation and fracture due to tension and compression

1. Tension and compression areas.
2. Permanent deformation (ductile metal).
3. Fracture (brittle metal).
Figure D–9. Failure characteristics of ductile metal
Figure D–10. Failure characteristics of brittle metal due to tension load
Figure D–11. Static tension failure
Figure D–12. Pure shear failure
Figure D–13. Compression buckles and tension shear failure due to shear loads
Appendix E
Medical

E–1. Processing a gross autopsy

a. Conduct of gross autopsy. To conduct the gross autopsy, the services of an experienced pathologist are highly desirable. When possible, autopsies should be performed by Armed Forces Institute of Pathology (AFIP). If AFIP personnel cannot perform the autopsy, it will be performed by personnel in the following order of precedence: first, DOD pathologist, secondly, by a civilian forensic pathologist. The Joint Committee on Aviation Pathology recommends the following six steps a pathologist should follow to perform an autopsy.

1. Become thoroughly familiar with the type of equipment, seating arrangements, escape mechanism, scene of the crash and objects personnel may have struck during the accident.
2. Become thoroughly familiar with all available information relative to the fatal accident, the nature of the accident, facts about weather, health of the deceased personnel involved, and their condition before and during the accident.
3. Carefully examine the helmet, clothing, and other protective clothing and equipment. Tissue particles attached to these objects may be identified by cytological examination and should also be examined under ultraviolet light.
4. Meticulously examine the exterior of the body and viscera with necessary close-up photographs and X-ray pictures of the skeleton, giving special attention to a detailed examination of all abrasions, lacerations, deep wounds, and fractures.
5. Request a microscopic study and chemical analysis of the tissues for poisons. Suitable samples should be fixed in formaldehyde and dispatched within 96 hours to the Director, Armed Forces Institute of Pathology, ATTN: AFIP–RRR, Washington, DC 20306–6000, for histological examination. Specimens for toxicological examination should be quickly frozen in unfixed condition, placed in plastic sacks or rubber bags, and sent by military aircraft or air express within 60 hours direct to the Director, Armed Forces Institute of Pathology. The AFIP is prepared to examine tissues for carbon monoxide, lactic acid, alcohol, and any other substances specified. Specimens of urine, blood, liver, kidneys, and brain are best suited for identifying poisons.
6. Write a complete autopsy protocol. The protocol will include the findings obtained from autopsy. This may be done in narrative form.

b. Preparation of gross autopsy report. Within 60 hours following completion of the gross autopsy, five copies of the completed gross autopsy report will be prepared to include—

1. A detailed description of gross pathologic changes will be attached.
2. Supplementary data. Supplementary data will include, if applicable, photographs of the body, individual organs, and other pertinent material, and copies of X-rays made at autopsy.
3. Results. The results of microbiological studies or the status of these studies and results of blood and urinalysis; for example, drug screen, lactic acid, carbon monoxide, and alcohol.

c. Distribution of gross autopsy report.

1. One copy of the autopsy report and photographs of each individual fatally injured in an aircraft accident will be submitted to Commander, USACRC (CSSC–SS), Fort Rucker, AL 36362–5363. The autopsy report and photographs of deceased personnel will not accompany the technical report of the accident through channels.
2. One copy of DA Form 2397–9 (aviation only), and one copy of the autopsy report for each individual fatally injured, along with accompanying photographs, will be sent directly to the Director, Armed Forces Institute of Pathology (Aerospace Pathology Division), Washington, DC 20306.
3. One copy of the report will be retained by the laboratory of the medical facility conducting the investigation.

E–2. Collection and shipment of specimens

a. Tissue and samples. The following tissue and fluid samples are recommended for fatalities and forensic studies:

(1) BLOOD: 25–50 ml.
(2) URINE: 100–500 ml.
(3) STOMACH CONTENTS: 100–500 ml. BILE: All available.
(4) LIVER: 500 Gm.
(5) BRAIN: 100–299 Gm.
(6) KIDNEY: 200–300 Gm.
(7) LUNG: 200–300 Gm.
(8) SKELETAL MUSCLE: 200–300 Gm. FAT: 200 Gm.

b. Packaging and preservation. Each specimen should be individually packaged and heat sealed in sturdy polyethylene bags. Cellophane laminated plastic bags must not be used for frozen specimens as they will become brittle, crack, and come apart when placed in dry ice for 24 hours or longer. If fluids, they should be placed in tightly closed,
preferably screw cap polyethylene containers. All of these primary containers are to be labeled with the name and service number of the individual, the type of specimen, date, name of the submitting facility, and the flight surgeon’s or pathologist’s name.

c. **Shipment.** All primary containers should be—

1. Wrapped with sufficient absorbent material to contain any leakage and
2. Then placed in a secondary container (a polyethylene plastic bag) and again heat sealed.
3. A third, large polyethylene bag may now be used to keep all the specimens from one individual together.
4. The frozen tissue and body fluids must now be packed in an insulated shipping container large enough to hold the specimens plus a quantity of dry ice approximately 3 times the weight of the specimens.
5. The frozen specimens and dry ice should not be packed in containers which seal to the extent that gas is not permitted to escape.
   
   (a) Gas pressure within a sealed container presents a potential hazard and could cause the container to burst.
   
   (b) Dry ice must not be placed in a thermos bottle.
6. The shipment MUST be made via Air Express (overnight) or Air Freight. This is the only method rapid enough to deliver the specimens to AFIP quickly as necessary to preserve them in their frozen state.
7. Never send specimens by military air (MEDEVAC or otherwise).
8. One cannot overemphasize the need to pack the specimens with the utmost care in sturdy containers, properly labeled, to include the proper paperwork.

d. **Addressing the shipment.** The following information should be placed on the outside wrapper of all shipments:

1. Flight Surgeon or Pathologist’s Address.
2. The Director, Armed Forces Institute of Pathology ATTN: AFIP–RRR, Washington, DC 20306–6000.
3. “RUSH. FRAGILE.”
4. Aircraft Accident/Forensic Case (as appropriate).
5. Specimen for Toxicological Examination.
6. Dry ice will last until (date).
7. If Chain of Custody is required: Annotate outside wrapper “Evidence Enclosed.”

e. **AFIP notification.**

1. Notifying AFIP that specimens are about to be shipped contributes immeasurably to expeditious handling of the shipment on arrival and may even make the difference as to whether the specimens reach AFIP in a good or bad condition.

2. Telephone numbers are as follows: Commercial Tox Div (202) 576–2982; Main Desk (202) 576–2800; DSN Tox Div 291–2910/2982; DSN Main Desk 291–2800.
3. The message and/or telephone call should include the following information:
   
   (a) Aircraft Accident/Forensic Case (as appropriate) Material.
   
   (b) Patient(s)’s name, rank, service number.
   
   (c) Method of shipment (Air Express/Air Freight).
   
   (d) Name of Washington, DC, area airport to receive shipment.
   
   (e) Name of airline.
   
   (f) Flight number.
   
   (g) GBL/Airbill number.
   
   (h) Flight surgeons or pathologist’s name and address.
   
   (i) Departure time and date.
   
   (j) Arrival time and date.
   
   (k) Brief description of contents.
   
   (l) Chain of custody, if required.
   
   (m) Other information.

**E–3. Incidents with survivors**

a. **Collection.** Only the following specimens need be collected:

1. SERUM: 15–20 ml (no preservatives) (unhemolyzed).
2. BLOOD: 15–20 ml (Sodium Fluoride or EDTA).
3. URINE: 50 ml is optimum (no preservatives).

b. **Armed Forces Institute of Pathology.** The AFIP recommends that regardless of the type of container that these specimens are collected in, that they be placed in a primary container of polyethylene (one with a top that is a screw cap or that seals tightly for shipment.) This primary container must be labeled with the name and service number of the individual.

c. **Packing and shipment.** For packing and shipment, the primary containers should be—
1. Wrapped with sufficient absorbent material to contain any leakage.
2. placed in a secondary container (polyethylene plastic bag) and then heat sealed.
3. A third, large, polyethylene bag may now be used to keep all the specimens from one individual together.
4. The blood and urine may now be packed, unfrozen, in a shipping container of sturdy cardboard, plastic or metal construction and mailed FIRST CLASS to AFIP.
5. Registered mail and/or “Return Receipt Requested” is not necessary or recommended and if the address is not present, could delay accessing and analysis.

   d. Outside markings. The following information should be placed on the outside wrapper of all shipments: Director, Armed Forces Institute of Pathology (AFIP–RRR), Washington, DC 20306–6000.

Note. If Chain of Custody is required: Annotate the above label “Evidence Enclosed.”

### E–4. Forms, documents, and paperwork

The following forms are necessary (original and 1 copy):

a. Aircraft accident fatalities. SF Form 543, Contributor’s List of Pathologic Material.

b. Medical/legal (forensics).

   1. SF Form 503–Medical Record-Autopsy Protocol.
   2. SF Form 543.

c. Form legibility. In order that these forms remain legible during packing, shipping, and unpacking. We request that they be placed into their own polyethylene bag. All available information on—

   1. The patient’s or crew member’s health history.
   2. The conditions prior to the crash or incident.
   3. A site description and the condition of the body(s) when recovered should be sent to AFIP.
   4. This historical data and array of pertinent facts can assist the toxicologist in selecting special procedures to supplement routine analysis.
   5. To the greatest extent possible, forms and paperwork should be typewritten or at least carefully printed.
# Appendix F
## Accident/Incident Event Codes Associated With Aircraft Accidents

### F–1. Categorizing accident/incident event codes

The following codes and explanations below are provided to categorize aviation accidents by the type of event(s) involved (see table F–1).

<table>
<thead>
<tr>
<th>Code</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Precautionary landing (PL). A landing resulting from unplanned events, occurring while the aircraft is in flight that makes further flight inadvisable. This event is to be used for PLs where no other event applies or in conjunction with other materiel failures events.</td>
</tr>
<tr>
<td>02</td>
<td>Forced landing (FL). A landing caused by failure or malfunction of engines, systems, or components that makes continued flight impossible. This event is to be used in conjunction with other materiel failure/malfunction events.</td>
</tr>
<tr>
<td>03</td>
<td>Aborted takeoff. An unplanned event that occurs before lift-off that interrupts a planned flight. This event is to be used for aborted takeoffs where no other events applies or in conjunction with other materiel failure events.</td>
</tr>
<tr>
<td>04</td>
<td>Human factor event. A psychological, physiological, or pathological condition that occurs to personnel when intent for flight exists and results in interference with a crewmember’s duties during aircraft operations or mission being delayed, diverted, or aborted.</td>
</tr>
<tr>
<td>05</td>
<td>Cargo event. Injury or property damage resulting from cargo-related accident/incident, intentional or unintentional jettisoning of cargo hook load.</td>
</tr>
<tr>
<td>06</td>
<td>Personnel handling event. Injury or property damage involving personnel handling errors or personnel handling.</td>
</tr>
<tr>
<td>07</td>
<td>External stores event. Injury or property damage resulting from external stores handling errors or equipment failures.</td>
</tr>
<tr>
<td>08</td>
<td>Multiple aircraft event. Injury or property damage resulting from the interactions of two or more aircraft. To qualify as a multiple aircraft event, two or more aircraft, with engines running, must be involved.</td>
</tr>
<tr>
<td>09</td>
<td>Misappropriated aircraft. An aircraft accident that occurs during the operation of an Army aircraft that has been misappropriated, regardless of aircrew designation. Intent for flight must exist.</td>
</tr>
<tr>
<td>10</td>
<td>Unmanned aircraft. Have a “Q” designator, and may be flown or operated by an air vehicle operator (AO) or external operator (EO).</td>
</tr>
<tr>
<td>11</td>
<td>Contractor aircraft accident. An aircraft accident that occurs as a result of a government contractor’s operation in which there is damage to Army property or injury to Army personnel. Included is non-delivered equipment for which the Army has assumed responsibility.</td>
</tr>
<tr>
<td>12</td>
<td>Aircraft ground accident. Injury/occupational illness or property damage involving an Army aircraft in which no intent or flight exists and the engines are in operation. UAS not applicable.</td>
</tr>
<tr>
<td>13</td>
<td>Laser-induced/related. Property damage or personnel injury resulting from laser operations created. May be used in conjunction with other events.</td>
</tr>
<tr>
<td>Code</td>
<td>Explanation</td>
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</tr>
<tr>
<td>15</td>
<td>Fratricide. Persons killed, wounded, or equipment damage, in military action, mistakenly or accidentally, by friendly forces actively engaged with the enemy, who are directing fire at hostile force or what is thought to be hostile force.</td>
</tr>
<tr>
<td>16</td>
<td>Single engine landing. An unplanned single engine landing of a multi-engine aircraft/UAS.</td>
</tr>
<tr>
<td>17</td>
<td>Uncommanded control input. An uncommanded aircraft/UAS pitch, yaw, or roll motion (regardless of amount) that is not induced by the crew or adverse environmental conditions.</td>
</tr>
<tr>
<td>18</td>
<td>Cockpit air bags. Activation/deployment of the cockpit airbags either intentional or unintentional.</td>
</tr>
<tr>
<td>19</td>
<td>Icing. Accidents/incidents as a result of icing conditions other than structural icing captured in Event 69.</td>
</tr>
<tr>
<td>20</td>
<td>Refueling accident. Damage incurred during refueling operations on the ground or in-flight.</td>
</tr>
<tr>
<td>21</td>
<td>Midair collision. Those accidents in which more than one aircraft collide in flight. Hover is considered in flight. Damage does not have to be done to both aircraft (will be used in addition to “08 multiple aircraft event”).</td>
</tr>
<tr>
<td>22</td>
<td>Helocasting. Property damage or personnel injury occurring during helocasting operations.</td>
</tr>
</tbody>
</table>
| 23   | Hard landing. Damage incurred due to excess sink rate on landing touchdown. Includes autorotation landings when skids are damaged; main rotor blade flexing into tail boom; tire blowing on touchdown; landing gear driven into fuselage; fuselage, wing, and buckling.  
  Note. The landing area must be suitable for a probable successful landing. |
| 24   | Wheels-up landing. Aircraft equipped with retractable landing gear in the wells. Includes intentional gear-up landings; crew forgetting to lower gear; gear does not extend when gear handle placed down. |
| 25   | Landing gear collapse/retraction. During takeoff, landing, or taxi, the gear collapses for any reason or the crew inadvertently retracts or retracts too soon on takeoff (does not include gear shearing due to hard landing). |
| 26   | Undershoot. When an approach is being made to a prepared area of field and the aircraft touches down short of the suitable landing surface. (Does not include striking wires, or trees on approach except an aircraft striking an airport boundary fence.) |
| 27   | Overshoot or overrun. Landing in which the aircraft runs off the end of the runway because of touchdown speed, runway too short, touching down too long, or failure of brakes. |
| 28   | Ditching. Landing in a controlled attitude in water. (Does not include creeks, streams, and so forth, or those landings to ships or barges in which the aircraft crashes in the water.) |
| 29   | Ground loop/swerve. When aircraft damage is incurred because absolute directional control is not maintained (intentional or unintentional). Includes F/W ground loops; R/W auto-rotational landings; R/W running landings due to antitorque failures; aircraft running off side of runway. |
| 30   | Collision with ground/water. Those accidents in which the aircraft strikes the ground or water unintentionally. Includes crashing into a mountain under IFR, IMC, or night, inadvertent flying into the ground or water, such as making a gun run and failing to pull up; low-level flight resulting in striking ground or water. |

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Table F–1  
Accident/incident event codes—Continued
<table>
<thead>
<tr>
<th>Code</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>Aircraft collisions on the ground. Accidents in which two or more aircraft collide on the ground. None of the aircraft can be in flight. (used in addition to “08” multiple aircraft event).</td>
</tr>
<tr>
<td>33</td>
<td>Other collisions. Accidents when an aircraft collides with something not accounted for by other type events listed.</td>
</tr>
<tr>
<td>34</td>
<td>Rotor overspeed. Main rotor rpm exceeding the allowable limits for continued flight.</td>
</tr>
<tr>
<td>35</td>
<td>Fire and/or explosion on the ground. Accidents that are initiated by a fire or explosion. The damage incurred must be prior to lift-off and/or after touchdown.</td>
</tr>
<tr>
<td>36</td>
<td>Equipment loss or dropped object. Accidents in which some part of the aircraft or attached equipment is lost in flight, other than cargo and external stores.</td>
</tr>
<tr>
<td>37</td>
<td>In-flight breakup. Accidents in which aircraft begins to break up in flight. In these accidents, any type of landing is not expected. Includes loss of main rotor blades; loss of wing.</td>
</tr>
<tr>
<td>38</td>
<td>Spin or stall. Fixed wing aircraft type accidents resulting in stalling and/or spinning due to loss of airspeed, or excessive angle of attack.</td>
</tr>
<tr>
<td>39</td>
<td>Abandoned aircraft. Accidents in which all flight crew eject or parachute.</td>
</tr>
<tr>
<td>40</td>
<td>Flight-related accident. Damage to property or injury/occupational illness to personnel without damage to aircraft. UAS not applicable.</td>
</tr>
<tr>
<td>41</td>
<td>Instrument meteorological condition (IMC). Aircraft must be in IMC conditions when the accident/emergency occurs. This is a condition event and should not be used in the first position.</td>
</tr>
<tr>
<td>42</td>
<td>Rappelling. Property damage or personnel injury occurring during rappelling operations.</td>
</tr>
<tr>
<td>43</td>
<td>Fast rope. Property damage or personnel injury occurring during fast rope operations.</td>
</tr>
<tr>
<td>44</td>
<td>Overstress. Stress damage to aircraft as a result of operating aircraft outside the design limitations.</td>
</tr>
<tr>
<td>45</td>
<td>Turbine Engine FOD. Internal or external FOD damage confined to aircraft turbine engines only.</td>
</tr>
<tr>
<td>46</td>
<td>Rotor/prop wash. Property damage or personnel injury resulting from rotor/prop wash (does not include damage incurred by Event 75).</td>
</tr>
<tr>
<td>47</td>
<td>Engine overspeed/overtemp. Engine rpm or temperature exceeding the allowable limits for continued operations.</td>
</tr>
<tr>
<td>48</td>
<td>Brownout. Loss of visual reference to the ground or horizon caused by rotor wash swirling dust around the aircraft. This is a condition event and should not be used in first position.</td>
</tr>
<tr>
<td>49</td>
<td>Bird strike. Accidents in which any part of the aircraft collides with a bird while in flight.</td>
</tr>
<tr>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Explanation</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td>51</td>
<td>Tree strike. Accidents as a result of aircraft striking vegetation during any phase of flight.</td>
</tr>
<tr>
<td>52</td>
<td>Wire strike. Accidents as a result of the aircraft striking any kind of wires during any phase of flight.</td>
</tr>
<tr>
<td>53</td>
<td>In-flight breakup due to a mast bumping. Accidents in which the main rotor separates as a result of mast bumping.</td>
</tr>
<tr>
<td>54</td>
<td>Missing aircraft. Used when an aircraft does not return from a flight and is presumed to have crashed.</td>
</tr>
<tr>
<td>55</td>
<td>Foreign object damage (FOD). Accident in which FOD is the only damaged incurred, excludes turbine engine FOD.</td>
</tr>
<tr>
<td>56</td>
<td>Dynamic rollover. Accident in which the main rotor blades strike the terrain as a result of exceeding the lateral CG limits, while the aircraft structure is still intact.</td>
</tr>
<tr>
<td>57</td>
<td>Maintenance operational check (MOC). Accidents that occur during MOC while the engine(s) is/are in operation and/or rotors turning.</td>
</tr>
<tr>
<td>58</td>
<td>Weapons related. Accidents involving weapons that result in property damage or injury to personnel.</td>
</tr>
<tr>
<td>59</td>
<td>Lightning strike. Damage to aircraft/injury to occupant because of lightning strike(s).</td>
</tr>
<tr>
<td>60</td>
<td>Rescue operations. Property damage or personnel injury occurring during rescue operations.</td>
</tr>
<tr>
<td>61</td>
<td>Object strike. Aircraft/aircraft component struck objects other than ground, trees, or objects included in other events.</td>
</tr>
<tr>
<td>62</td>
<td>Air-to-ground collision. Aircraft in the air collides with or strikes aircraft on the ground.</td>
</tr>
<tr>
<td>63</td>
<td>Stump Strike. Aircraft contacts stump during routine landing.</td>
</tr>
<tr>
<td>64</td>
<td>Antenna Strike. Aircraft damage caused by contact with an antenna.</td>
</tr>
<tr>
<td>65</td>
<td>Engine MAST/XMSN overtorque/overload. Engines MAST/XMSN that have been subjected to torque loads beyond power limits specified, or engine loses rpm because of overload of aircraft for density altitude.</td>
</tr>
<tr>
<td>66</td>
<td>Whiteout. Loss of visual reference to the ground or horizon caused by rotor wash swirling snow around the aircraft. This is a condition event and should not be used in the first position.</td>
</tr>
<tr>
<td>67</td>
<td>Tie-down strike. Damage to the aircraft caused by main rotor tie-down device attached to main rotor during engine start.</td>
</tr>
<tr>
<td>68</td>
<td>Parachute deployment. Accidents involving paradrop operations inside or still attached to the aircraft.</td>
</tr>
<tr>
<td>69</td>
<td>Mast bumping. Damage resulting from contact between the main rotor and mast but not resulting in rotor separation.</td>
</tr>
<tr>
<td>Code</td>
<td>Explanation</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td>70</td>
<td>Structural icing. The formation of ice on aircraft structures to include the rotor systems. Does not include carburetor, induction, or pitot static system icing.</td>
</tr>
<tr>
<td>71</td>
<td>Engine failure. Engine fails to develop sufficient power to maintain flight or internal failure of power plant. Excludes fuel starvation or fuel exhaustion and FOD.</td>
</tr>
<tr>
<td>72</td>
<td>Transmission Failure. Internal failure of a main transmission.</td>
</tr>
<tr>
<td>73</td>
<td>Vertical fin strike. Damage caused by the tail rotor blades coming in contact with the vertical fin on single rotor helicopters.</td>
</tr>
<tr>
<td>74</td>
<td>Spike knock. Damage occurred when the transmission spike contacts the striker plate with sufficient force to cause damage.</td>
</tr>
<tr>
<td>75</td>
<td>Seatbelt/restraint harness strike. Damage caused by unsecured seatbelts/restraint harnesses.</td>
</tr>
<tr>
<td>76</td>
<td>Blade flapping. Damage resulting from wind or rotor wash from other aircraft that causes the main rotor blades to flap to the extent that damage occurs.</td>
</tr>
<tr>
<td>77</td>
<td>Fuel exhaustion. Power loss resulting from using all usable fuel aboard an aircraft.</td>
</tr>
<tr>
<td>78</td>
<td>Fuel starvation. The result of fuel ceasing to flow to the power plant while fuel is still on board the aircraft. Example: The pilot fails to switch tanks when one runs dry or blockage of fuel lines occurs because of contamination.</td>
</tr>
<tr>
<td>79</td>
<td>Animal Strike. During takeoff, landing, an animal is struck by any part of the aircraft.</td>
</tr>
<tr>
<td>80</td>
<td>Battery fire/overheat. A fire in the battery compartment or over-heated battery, usually resulting in electrical failure.</td>
</tr>
<tr>
<td>81</td>
<td>Excessive yaw/spin. May occur on the ground or in the air (helicopter only). A maneuver where the aircraft yaws excessively or spins when power is added without adequate antitorque input, or a loss of antitorque control occurs.</td>
</tr>
</tbody>
</table>

Note: In addition to event codes 70 and 71 listed above the following events are used to categorize materiel factor related mishap events. The event applies regardless of the cause of the failure/malfunction (FWT, maintenance, design or manufacture).

F–2. Categorizing materiel factor events
Select the event(s) that best categorize the accident and enter the code(s) in block 2 of DA Form 2397–1.
<p>| Code: 82 | Explanation: Airframe. Failure/malfunction of any airframe structure to include doors, windows, fairings, canopies, to include hardware. |
| Code: 84 | Explanation: Power train. Failure/malfunction of any part/component of the power train except when Events 47 or 70 apply. |
| Code: 85 | Explanation: Drive train. Failure/malfunction of any part/component of the drive train except when Events 71 and 86 apply. |
| Code: 87 | Explanation: Hydraulics System. Failure/malfunction of any hydraulic part. The failure of other systems resulting from hydraulic initiated failures will be coded as hydraulic. |
| Code: 88 | Explanation: Pneumatic system. Failure/malfunction of any pneumatic part. The failure of any other system resulting from pneumatic initiated failures will be coded as pneumatic. |
| Code: 89 | Explanation: Instruments. Failure/malfunction of any part of the instrument system that results in a faulty instruments indication. |
| Code: 90 | Explanation: Warning system. Failure/malfunction of any part of the warning system that results in a false indication of a failure/malfunction. Includes electrical components of the warning system. |
| Code: 91 | Explanation: Electrical system. Failure/malfunction of any part of the AC or DC electrical systems. Includes current producing, transforming, converting and amplifying parts, (for example, battery, generator, alternator, and relay. |
| Code: 92 | Explanation: Fuel system. Failure of any part of the fuel system. Does not include the fuel metering/fuel control unit which will be reported as part of the engine. |
| Code: 94 | Explanation: Utility/environmental control system. Failure/malfunction of any part of the system. |
| Code: 95 | Explanation: Avionics. Failure of any part of the radio navigation/communication equipment. |
| Code: 96 | Explanation: Cargo handling equipment. Failure of the cargo handling equipment attached to the aircraft only. |
| Code: 97 | Explanation: Armament. Failure of any part to include the aiming/firing system. |
| Code: 98 | Explanation: Night vision device. Any failure or malfunction of any part of the night vision device. |
| Code: A2 | Explanation: Tactical automated landing (TALS) recovery. Failure or malfunction during TALS recovery. |</p>
<table>
<thead>
<tr>
<th>Explanation:</th>
<th>Arresting gear failure (drum, strap, pendant or net).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code:</td>
<td>A4</td>
</tr>
</tbody>
</table>
Appendix G
Accident Investigation Information/Equipment Requirements

G–1. Aviation
The investigator(s) should ensure the following items are available for use or examination when conducting an aviation accident investigation, as required.

a. Aviation-General.
   (1) Orders appointing investigation board (CAI and IAI only) signed.
   (2) Blood/urine samples/tissue samples.
   (3) Witness information: name, rank, telephone number (duty/work); summaries.
   (4) Secure work area with access to COM/DSN telephones.
   (5) CID/MP reports.
   (6) Individual flight records.
   (7) Individual medical records/autopsy results.
   (8) Individual personnel record(s) (field 201).
   (9) ECOD.
   (10) Computer.
   (11) Transportation: air and/or ground.
   (12) Name and location of flight surgeon, bodies, injured, AFIP personnel.
   (13) Weather statement (signed by forecaster).
   (14) Unit and parent organization SOPs to include:
      (a) Training.
      (b) Administrative.
      (c) Maintenance.
      (d) Shop standards.
      (e) Crew rest.
      (f) Safety.
      (g) Crew selection.
   (15) Directive/policy letters/supplements to regulations that pertain to:
      (a) That particular operation.
      (b) Assignment of tasks/missions.
      (c) AR 95–1, AR 95–2, and AR 95–23 (UAS).
      (d) Field manuals/training circulars.
   (16) Safety meeting minutes/council meeting minutes (if applicable).
   (17) Individual training folders (ATM).
   (18) 1:50,000 map which includes location of accident site.
   (19) Survey of mishap site/wreckage.
   (20) UICs/office symbols and chain of command addresses from unit through ACOM.
   (21) Name, grade, title of safety officer; address, and telephone number to send report.
   (22) Collateral officer’s name, address, and telephone number.
   (23) Post wiring diagram (organization chart).
   (24) ATC tapes (from initial contact through -1 hours).
   (25) Unit pre-accident plan.
   (26) PAO/PIO name and telephone number.
   (27) Inbrief/outbrief information.
   (28) Aircraft recovery team.
   (29) Aircraft release letter.
   (30) Inventory of aircraft.

b. Aviation Maintenance-Operations
   (1) Aircraft logbook.
      (a) DA Form 2408–5, Equipment Modification Record.
      (b) DA Form 2408–12, Army Aviator’s Flight Record.
      (c) DA Forms 2408–13, Aircraft Inspection and Maintenance Record.
      (d) DA Form 2408–14, Uncorrected Fault Record.
      (e) DD Form 365–4, Weight and Balance Clearance Form F–Transport/Tactical.
   (2) Historical records.
      (a) Six-month file (DA Form 2408–13 series).
(b) DA Forms 2408–15, 16, 17, 18.
(c) Oil analysis records.
(d) DA Forms 2407–Maintenance Work Orders.
(3) Equipment Improvement Report.
(a) Oil analysis records and samples sent.
(b) Fuel analysis.
(4) -10, Operator’s Manual.
(5) Any appropriate checklist.
(6) ATM.
(7) -10 Organizational Maintenance Manual.
(10) Operations Information.
(a) Performance Planning Card.
(b) Briefing forms/data.
(c) Flight plan.

G–2. Ground
The investigator(s) should ensure the following items are available for use or examination when conducting a ground accident investigation, as required.

a. Ground-General.
   (1) Orders appointing investigation board (CAI and IAI only) signed.
   (2) Blood/urine samples (Ask that the command test those involved in the accident.)
   (3) Witness information: name, rank, telephone number (duty/work), summaries.
   (4) Secure work area with access to DSN/COM telephones.
   (5) Serious Incident Report, MP, CID reports.
   (6) Individual personnel record(s) (field 201).
   (7) ECOD/ACOD.
   (8) Individual medical records/autopsy results.
   (9) Computer.
   (10) Photo lab support.
   (11) Location and name of doctor conducting autopsy. (Request a doctor on the board to be a part of the autopsy).
   (12) Weather statement (signed by forecaster).
   (13) Aircraft arrangements for overhead photos.
   (14) Unit and parent organization SOPs to include:
      (a) Training.
      (b) Administrative.
      (c) Maintenance.
      (d) Shop standards.
   (15) Directives that pertain to—
      (a) That particular operation.
      (b) Assigned tasks.
   (16) Training folders (individual, unit).
   (17) Individual counseling records.
   (18) Individual/OF 346.
   (19) 1:50,000 map which includes location of accident site.
   (20) UICs/office symbols and chain of command addresses from unit through ACOM.
   (21) Local report number.
   (22) Name, grade, title of safety manager; address and telephone number to send report.

   (1) DA Form 2404, Equipment Inspection and Maintenance Worksheet.
   (2) DA Form 2404, Retained on file (quarterly/semi-annually).
   (3) DA Form 2404, Deferred Maintenance Worksheet.
   (4) DA Form 2407, Maintenance Work Orders.
   (5) DA Form 2408–20, Oil Analysis Record.
   (6) DD Form 314, Preventive Maintenance Record.
   (7) DA Form 2406, Materiel Condition Status Report.
Appendix H
Notification Phone Numbers

H–1. Notification phone numbers list
   c. Office of the Armed Forces Medical Examiner, Armed Forces Institute of Pathology (AFIP), DSN 285–0000, COM (303) 319–0000.

   Note. The 800 number is to the National Response Center).

H–2. The Office of Hazardous Materials Enforcement regional offices
   d. Southwest Region - U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Office of Hazardous Materials Safety, 8701 S. Gessner Road, Suite 1110, Houston, TX 77074, COM (713) 272–2820, FAX (713) 272–2821.
   e. Western Region - 3401 Centrelake Drive, Suite 550B, Ontario, CA 91761, COM (909) 937–3279, FAX (909) 390–5142.
   h. USACRC SJA (DSN 558–2924, COM (334) 255–2924).
   i. USATCES (request for technical support): DSN 956–8919, COM (918) 420–8919 or FAX (918) 420–8503, DSN 956–8503.
   j. USATCES, DSN 956–8919, COM (918) 420–8919.

Appendix I
Military and Civilian OSHA Recordkeeping Requirements

I–1. General
The Occupational Safety and Health Administration’s (OSHA) final rule amending the occupational injury and illness recording and reporting requirements applicable to Federal agencies IAW 29 CFR Part 1960, Subpart I, will make the Federal sector’s recordkeeping and reporting requirements essentially identical to the private sector. However, this change will not diminish or modify Army’s responsibility to report or record injuries and illnesses as required by the Office of Workers’ Compensation Programs under the Federal Employees’ Compensation Act (FECA). Except as modified by 29 CFR Part 1960, Subpart I, Army’s injury and illness recording and reporting requirements will comply with the requirements under 29 CFR 1904, Subparts C, D, E, and G, except for the definition of “establishment” as contained in 29 CFR 1960.2(h).

I–2. Recording criteria
29 CFR 1904, Subpart C is the most important section of the rule, as it defines which cases are required to be recorded. Determinations of recordable cases are based on the following:

a. Work-relatedness. Work-relatedness is presumed for injuries and illnesses resulting from events or exposures occurring in the work environment. However, a case is presumed work-related only if an event or exposure in the work environment is a discernable cause of the injury or illness, or of a significant aggravation to a pre-existing condition.

b. New cases. A case is new if the employee:
   (1) Has not previously experienced a recordable injury or illness of the same type that affects the same part of the body; or
   (2) Previously experienced a recordable injury or illness of the same type that affects the same part of the body, but had recovered completely and an event or exposure in the work environment caused the signs and symptoms to reappear.

c. General recording criteria. An injury or illness to an Army civilian or Army direct contractor is classified based on severity. Those that result in less than a day away from work beyond the date of the accident will be considered Class D injuries. Injuries and illnesses are considered recordable if they result in one or more of the following:
   (1) Death,
   (2) Days away from work. Record the case if it involves one or more days away from work, but do not include the day of injury or illness in the count. Count the number of calendar days (includes weekend days, holidays, vacation days, and so forth) the employee was unable to work. The day count may be stopped if the employee leaves the job for a reason unrelated to the injury or illness or the count reaches the cap of 180 days,
   (3) Restricted work activity. A restricted work activity exists if the employee is unable to work the full workday they would otherwise have been scheduled to work or is unable to perform one or more routine job functions (regularly performed by the employee at least once per week). The day of injury/illness is not counted, and a restriction that is limited only to the day of injury or illness does not make a case recordable.
   (4) Transfer to another job. This is when an injured or ill employee is assigned to a job other than their regular job for part of the day. A case is recordable if the injured or ill employee performs their routine job duties for part of a day and assigned to another job for the rest of the day. If a permanent job transfer is made immediately, that is, on the day of injury or illness, at least one day of restricted work activity must be recorded.
   (5) Medical treatment beyond first aid. Medical treatment is the management and care of a patient to combat disease or disorder. Medical treatment does not include visits to a physician or licensed health care professional (PLHCP) solely for observation and counseling, including follow-up visits. Medical treatment also does not include diagnostic procedures such as X-rays, blood tests, or magnetic resonance imaging (MRI). Use of prescription medications for diagnostic purposes is also not considered medical treatment. (For example, prescription eye drops used to dilate the pupils.) Finally, medical treatment does not include first-aid procedures.
   (6) Loss of consciousness. All work-related cases involving loss of consciousness must be recorded. The length of time the employee is unconscious is irrelevant.
   (7) Significant injury or illness diagnosed by a PLHCP. Such conditions as cancer, chronic irreversible disease, punctured eardrum, and fractured or cracked bones or teeth must be recorded at the time of diagnosis. There are some significant injuries, such as a punctured eardrum or a fractured toe or rib, for which neither medical treatment nor work restrictions may be recommended. In addition, there are some significant progressive diseases such as byssinosis, silicosis, and some types of cancer for which medical treatment or work restrictions may not be recommended at the
time of diagnosis but are likely to be recommended as the disease progresses. OSHA believes that cancer, chronic irreversible diseases, fractured or cracked bones, and punctured eardrums are generally considered significant injuries and illnesses and must be recorded at the time of diagnosis, even if medical treatment or work restrictions are not recommended, or are postponed in a particular case. Significant injuries and occupational illnesses will be classified based on their severity. Those injuries resulting in less than a day away from work beyond the date of the accident will be classified as a Class D accident.

(8) Needle sticks and sharps injuries. The rule requires recording of all work-related needle sticks and cuts from contaminated sharp objects. This has the greatest affect on the health care sector. Record all work-related needle sticks and cuts from sharps that are contaminated with another person’s blood or other potentially infectious material (includes human bodily fluids, tissues, and organs; other materials infected with HIV or HBV such as laboratory cultures). Also record splashes or other exposures to blood or other potentially infectious material if it results in a diagnosis of a bloodborne disease or meets the general recording criteria.

(9) Medical removal. If an employee is medically removed under the medical surveillance requirements of an OSHA standard, (for example, lead, cadmium, and benzene), the case must be recorded. The case will be recorded as either one involving days away from work or days of restricted work activity, depending on the circumstances of the removal. If an employee is voluntarily removed below the thresholds established in the standards, the case does not need to be recorded.

(10) Hearing loss. Employers must record work-related hearing loss cases where—
(a) The employee has experienced a Standard Threshold Shift (STS) (see the OSHA noise standard 29 CFR 1910.95(g)(10)(i)).
(b) The employee’s hearing level is 25 decibels (db) or more above audiometric zero (averaged at 2000, 3000, and 4000 hertz [Hz]) in the same ears at the STS. Employers must record work-related hearing loss cases when an employee’s hearing test shows a marked decrease in overall hearing. If an event or exposure in the work environment caused or contributed to the hearing loss, or significantly aggravated a preexisting hearing loss, the case is work-related. If a physician or other licensed health care determines that the hearing loss is not work-related or has not been significantly aggravated by occupational noise exposure, employers are not required to record the case.

(11) Tuberculosis. If an employee is exposed to an active case of Tuberculosis (TB) at work and then has a positive TB skin test or becomes an active case, then it must be recorded. The case does not have to be recorded if there is evidence that the case did not arise from a workplace exposure.

I–3. First aid
If the most serious injury is first aid and there is no recordable property damage they are considered non-recordable. First aid is defined using a list of procedures that are all-inclusive. If a procedure is not on the list, it is not considered first aid for recordkeeping purposes. The following are the procedures contained in the list:

a. Using nonprescription medications at nonprescription strength. However, if an employee is provided prescription medications or nonprescription medications at prescription strength, this is considered medical treatment.
b. Tetanus immunizations.
c. Cleaning, flushing, or soaking surface wounds.
d. Wound coverings, butterfly bandages, Steri-Strips. However, use of wound closure methods such as sutures, medical glues, or staples is considered medical treatment.
e. Hot or cold therapy, regardless of how many times it is used.
f. Non-rigid means of support.
g. Temporary immobilization device used to transport accident victims.
h. Drilling of fingernail or toenail; draining fluid from blister.
i. Eye patches.
j. Removing foreign bodies from eye using irrigation or cotton swab. However, use of other methods to remove materials from the eye is medical treatment.
k. Removing splinters or foreign material from areas other than the eye by irrigation, tweezers, cotton swabs, or other simple means.
l. Finger guards.
m. Massages. Massage therapy is first aid, but physical therapy or chiropractic treatment is considered medical treatment.

I–4. Forms
Employers must enter each recordable case on the appropriate OSHA forms within 7 calendar days of receiving information that a recordable case occurred. The rule requires employers to keep three forms:

a. OSHA Form 300, Log of Work-Related Injuries and Illnesses. On the 300 Log, the employer checks one and only
one of the outcome columns for each case, the one representing the most serious outcome of the case. If the status changes, then the entry must be changed. For example, if the injured employee is experiencing days away from work, then dies, the employer must remove (or line out) the day’s away entry and the day count and check the box for a fatality. Only required for Army civilian occupational injuries and illnesses.

b. OSHA Form 300A. Summary of Work-Related Injuries and Illnesses. This form must be posted at the end of each calendar year from 1 February to 30 April of the year following the year covered by the form.

c. The OSHA Forms 300 and 300A or equivalent form will be maintained for all Army personnel, military, civilian, and contractors, as defined in this pamphlet. Maintain military occupational injuries/illnesses on a separate log from other personnel.

d. The DA Form 285-series or DA Form 2397-series forms as appropriate will be used in lieu of the OSHA Form 301, Injury and Illness Incident Report. This form captures data on each injury and illness (the length of service, what time the injury occurred, what time the employee started work).

Note. Employers can keep their records on equivalent forms, on a computer, or at a central location, provided they can get information into the system within 7 calendar days after the injury or illness occurs and they can produce the data at the establishment when required. Records must be retained for 5 years.

I–5. Privacy protection
For certain “privacy concern cases,” employers must not enter the employee’s name on the 300 form. Instead, they are to enter “Privacy Case.” A separate confidential list of the employees’ names and case numbers must be kept by the employer and provided to an OSHA inspector upon request. Privacy concern cases are defined very specifically as follows:

a. An injury or illness to an intimate body part or the reproductive system.
b. An injury or illness resulting from sexual assault.
c. Mental illness.
d. HIV infection, hepatitis, or TB.
e. Needle sticks and cuts from contaminated sharps with another person’s blood or other potentially infectious material.
f. Illness cases where employees independently and voluntarily request that their names not be entered on the log.

Note. For a privacy concern case, if the employee’s identity can still be implied, the employer may use some discretion in describing the case. Enough information must be entered to identify the cause and general severity of the incident. For example, a sexual assault can be entered as “Assault” or an injury to a reproductive organ can be entered as a "Lower abdominal injury.” The employer is not required to go into great deal in these types of cases. If the employer gives out the forms to the public, the names must be removed first. There are exceptions for employee access, OSHA access, auditor, insurance, or law enforcement personnel.

I–6. Travel status
When employees are traveling, an injury or illness that occurs while the employee is engaged in work activities for the employer is considered work-related.

a. Travel to and from customer contacts and entertaining or being entertained at the direction of the employer is work-related. For example, if an employee falls in the airport while on a business trip, the case is work-related.

b. “Home away from home.” When an employee checks into a hotel or motel, they establish a “home away from home.” While in “home away from home” status, cases that occur are not work-related. For example, if an employee slips in the hotel shower and is injured, the case is not work-related.

c. Detour for personal reasons. When an employee takes a side trip while on travel status for a vacation (For example, sight-seeing, shopping, and so forth.) and is injured, the case is not work-related.
Glossary

Section I
Abbreviations

AAAR
Abbreviated Aviation Accident Report

AAM
Army Achievement Medal

ACO
Administrative Contracting Officer

ACOD
Actual Cost of Damage

ACOM
Army Command

ACV
Army Combat Vehicle

ADSW
Active Duty for Special Work

ADT
Active Duty for Training

AFIP
Armed Forces Institute of Pathology

AFME
Armed Forces Medical Examiner

AFTP
Additional Flight Training Program

AGAR
Abbreviated Ground Accident Report

AGL
Above Ground Level

AGR
Active Guard/Reserve

AID
Analytical Investigation Division

AIS
Abbreviated Injury Scale

AKO
Army Knowledge Online

ALSE
Aviation Life Support Equipment

AMC
U.S. Army Materiel Command
AMCOM
Aviation and Missile Command

AMDF
Army Master Data File

AMV
Army Motor Vehicle

AO
Air Vehicle Operator

AOC
Army Operations Center

APART
Annual Proficiency and Readiness Test

APU
Auxiliary Power Unit

AQC
Aircraft Qualification Course

AR
Army Regulation

ARA
Army Radiation Authorization

ARAS
Accident Reporting Automation System

ARFOR
Army Forces

ARNG
Army National Guard

ARP
Army Radiation Permit

ARSTAF
Army Staff

ARSOF
Army Special Operations Forces

ASA (IL&E)
Assistant Secretary of the Army (Installations, Logistics, and Environment)

ASA (RDA)
Assistant Secretary of the Army (Research, Development, and Acquisition)

ASCC
Army Service Component Command

ASMIS
Army Safety Management Information System
ASO
Aviation Safety Officer

AT
Annual Training

ATM
Aircrew Training Manual

ATV
All Terrain Vehicles

BAC
Blood Alcohol Content

BAQ
Basic Allowance for Quarters

BMDF
Base Management Data File

BMNT
Beginning of Morning Nautical Twilight

CAI
Centralized Accident Investigation

CFR
Code of Federal Regulations

CG
Center of Gravity, Commanding General

CHI
Coastal, Harbors, and Inland Waterways

CID
Criminal Investigation Division

COE
Corps of Engineers

CONUS
Continental United States

CMTC
Combat Maneuver Training Center

CRM
Composite Risk Management

CSA
Chief of Staff, Army

CTT
Common Task Training

CVC
Combat Vehicle Crewman
CVFDR
Cockpit Voice Data Recorder

CY
Calendar Year

DA
Department of the Army

DAC
Department of Army Civilian

DAITM
Department of the Army Investigation Team for Malfunctions

DA PAM
Department of the Army Pamphlet

DACSF
Department of the Army Chief of Staff-Safety

DAS
Director of the Army Staff

DASAF
Director of Army Safety

DCS, G–1
Deputy Chief of Staff, G–1

DCS, G–3
Deputy Chief of Staff, G–3

DCS, G–4
Deputy Chief of Staff, G–4

DDN
Defense Data Network

DEH
Director of Engineering and Housing

DESOH
Deputy for Environment, Safety, and Occupational Health

DHFN
Direct Hire Foreign National

DIO
Director of Industrial Operations

DOB
Date of Birth

DOD
Department of Defense

DODAC
Department of Defense Address Code
DODIC
Department of Defense Identification Code

DOL
Department of Labor

DOT
Department of Transportation

DOTLMPF
Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel and Facilities (US DOD)

DR
Deficiency Report

DRU
Direct Reporting Unit

DSC
Digital Source Collector

DSN
Defense Service Network

DTM
Data Transfer Module

$E^3$
Electromagnetic Environmental Effects

ECOD
Estimated Cost of Damage

EDTA
Ethylendiaminetetraacetic acid (blood thinner)

EDO
Executive Director for Operations

EENT
End of Evening Nautical Twilight

EMI
Electromagnetic Interference

EIR
Equipment Improvement Report

ELT
Emergency Locator Transmitter

eMILPO
Electronic Military Personnel Office

EMR
Electromagnetic Radiation

EO
External Operator
**EOD**
Explosive Ordnance Disposal

**EPA**
Environmental Protection Agency

**ER**
Emergency Room

**FAA**
Federal Aviation Administration

**FAC**
flight activity category

**FBCB2**
Force XXI Battle Command, Brigade and Below

**FBI**
Federal Bureau of Investigation

**FDA**
U.S. Food and Drug Administration

**FDR**
Flight Data Recorder

**FECA**
Federal Employees’ Compensation Act

**FED LOG**
Federal Logistics

**FL**
Forced Landing

**FF**
Friendly Fire

**FM**
Field Manual

**FLIR**
Forward Looking InfraRed

**FMTV**
Family of Medium Tactical Vehicles

**FOA**
Field Operating Agency

**FOD**
Foreign Object Damage

**FOIA**
Freedom of Information Act

**FORSCOM**
Forces Command
fps
Feet Per Second

FRAGO
Fragmentary Order

FSS
Flight Service Station

FSW
Feet of Sea Water

FTM
Full-Time Manning

FTS
Flight Termination System

FTX
Field Training Exercise

FWT
Fair Wear and Tear

GCMCA
General Court-martial Convening Authority

GFE
Government Furnished Equipment

GFM
Government Furnished Material

GFP
Government Furnished Property

GPS
Ground Positioning System

GS
General Schedule

GSA
General Services Administration

HBV
Hepatitis B Virus

HE
High Explosive

HEAT
High Explosive Anti-tank

HIRTA
High-intensity Radio Transmission Area

HIV
Human Immunodeficiency Virus
INST
Integrally Installed

IP
Instructor Pilot

JAG
Judge Advocate General

JRTC
Joint Readiness Training Center

KATUSA
Korean Augmentation to the U.S. Army

LASER
Light Amplification by the Stimulated Emission of Radiation

LOTS
Logistics-Over-The-Shore

LMTV
Light Medium Tactical Vehicle

LRAS
Loss Reporting Automation System

LSE
Life Support Equipment

LSO
Laser Safety Officer

LWR
Laser Warning Receiver

LZ
Landing Zone

MDR
Maintenance Data Recorder

MEDCOM
Medical Command

MEDDAC
The United States Army Medical Department Activity

MEDEVAC
Medical Evacuation

METL
Mission Essential Task List

METT–TC
Mission, Enemy, Terrain, Troops, Time Available and Civil Considerations

MIPM
Multiple Injury Producing Mechanism
NOE
Nap of the Earth

NOK
Next of Kin

NRC
Nuclear Regulatory Commission

NSN
National Stock Number

NTC
U.S. Army National Training Center

NTSB
National Transportation Safety Board

NVG
Night Vision Goggles

OC
Officer Candidate

OCONUS
Outside the Continental United States

OCSA
Office of the Chief of Staff, Army

OEF
Operation Enduring Freedom

OIF
Operation Iraqi Freedom

OJT
On-the-job Training

OGE
Out of Ground Effect

OPNAVINST
Chief of Naval Operations Instruction

OPORD
Operation Order

OSD
Office of the Secretary of Defense

OSHA
Occupational Safety and Health Administration

OTSG
Office of the Surgeon General

PAO
Public Affairs Officer
PC
Pilot in Command

PPE
Personal Protective Equipment

PCS
Permanent Change of Station

PEO
Program Executive Officer

PI
Pilot

PL
Precautionary Landing

PLHCP
Physician or Licensed Health Care Professional

PM
Program Manager or Product Manager

PMCS
Preventive Maintenance Checks and Services

PMO
Provost Marshal Office

PN
Part Number

POC
Point of Contact

POL
Petroleum, Oils, and Lubricants

POV
Privately Owned Vehicle

PQDR
Product Quality Deficiency Report

PZ
Pick-up Zone

QASAS
Quality Assurance Specialist, Ammunition Surveillance

QD
Quantity Distance

QDR
Quality Deficiency Report

RAW
Risk Assessment Worksheet
RDT&E
Research, Development, Test, and Evaluation

RF
Radio Frequency

RFI
Radio Frequency Interference

RL
Readiness Level

ROTC
Reserve Officer Training Corps

RSO
Radiation Safety Officer

RTS
Recommendation Tracking System

SAS
Stability and Augmentation System

SDZ
Surface Danger Zone

SES
Senior Executive Service

SIR
Serious Incident Report

SJA
Staff Judge Advocate

SOF
Safety of Flight

SOH
Safety & Occupational Health

SOP
standing operating procedures

SOUM
Safety of Use Message

SP
Standardization Instructor Pilot

SSN
Social Security Number

SSRA
System Safety Risk Assessment

STANAG
Standardization Agreement (NATO)
STS
Standard Threshold Shift

TALS
Tactical Automated Landing System

TAMMS
The Army Maintenance Management System

TB
Technical Bulletin, Tuberculosis

TBO
Time Before Overhaul

TC
Training Circular, Track Commander, Tank Commander

TDA
Teardown Analysis, Table of Distribution and Allowances

TDY
Temporary Duty

TM
Technical Manual

TOC
Tactical Operations Center

TOE
Table of Organization and Equipment

TRADOC
U.S. Army Training and Doctrine Command

TTAD
Temporary Tour Active Duty

UAS
Unmanned Aircraft System

UIC
Unit Identification Code

ULLS
Unit Level Logistics System

USAARL
U.S. Army Aeromedical Research Laboratory

USACE
U.S. Army Corps of Engineers

USAR
U.S. Army Reserve

USACRC
U.S. Army Combat Readiness Center
Section II

Terms

Aborted Takeoff
An unplanned event that occurs before intent for flight exists, with engine(s) running that interrupts a planned flight (except for maintenance test flights and factory acceptance flights).

Accident
An unplanned event that causes personal injury or illness, or property damage.

Active Army Personnel
Members of the Army on full-time duty in active military service, including cadets at the U.S. Military Academy.

Aircraft
Free balloons, gliders, airships, and flying machines, whether manned or unmanned, weight carrying structure for navigation of the air that is supported by its own buoyancy or the dynamic action of the air against its surfaces.
Aircraft ground accident
Injury or property damage accidents involving Army aircraft in which no intent for flight exists and the engine(s) is in operation. (An installed aircraft Auxiliary Power Unit (APU) is not considered an aircraft engine.)

Aircraft, missile accident, or Incident
Any occurrence so classified by any of the nations involved and which involves projectiles. These projectiles can be of all types, whether guided or unguided and free-falling, rocket-propelled, or fired from a cannon.

Aircraft or missile accident safety investigation
A systematic and thorough analysis, research, or careful examination to disclose all relevant facts, conditions, and circumstances associated with or surrounding each aircraft or missile accident. It is conducted for the sole purpose of accident prevention. It is in addition to and separate from other investigations required by the laws of the nations involved.

Aircraft or Missile Accident Safety Investigation Committee
A body comprised of such investigators and medical and technical advisers as needed by the country or each of the countries involved to carry out aircraft or missile accident safety investigations.

Air Force
The Air Forces, Naval Air Forces, and Army Air Forces of the nations involved.

Ammunition and explosives
Includes, but is not limited to, all items of ammunition; propellants, liquid and solid; high and low explosives; guided missiles; warheads; devices; pyrotechnics; chemical agents; components and substances associated therewith, presenting real or potential hazards to life and property.

Ammunition malfunction
Failure of an ammunition item to function as expected when fired, launched, or when explosive items function under conditions that should not cause functioning. Malfunctions include hang-fires, duds, abnormal functioning, and premature functioning of explosive items under normal handling, maintenance, storage, transportation, and tactical deployment. Malfunctions do not include accidents or incidents that arise solely from negligence, all practice, or situations such as vehicle accidents or fires.

Army accident
An Army accident is defined as an unplanned event, or series of events, which results in one or more of the following:

a. Occupational illness to Army military or DA civilian personnel.

b. Injury to on-duty Army civilian personnel.

c. Injury to Army military personnel on or off duty.

d. Damage to Army property.

e. Damage to public or private property and/or injury or illness to non-Army personnel caused by Army operations (the Army had a causal or contributing role in the accident).

Army civilian personnel
Types of Army civilian personnel—


b. COE employees.

c. ARNG and USAR technicians.

d. NAF employees (excluding part-time military).

e. Foreign nationals directly or indirectly employed by DA (paid by appropriated funds).

f. Youth/Student Assistance and Temporary Program employees; VISTA volunteers; Job Corps, Neighborhood Youth Corps, and Youth Conservation Corps volunteers; Family Support Program volunteers.

Army combat vehicle
Tanks, self-propelled weapons, tracked armored personnel carriers, amphibious vehicles ashore, and similar equipment.

Army CRM Process
A holistic approach to preserving readiness that applies 24/7 to Soldiers, Army civilian employees, and contract workers. The process has five phases that form a closed-loop system of risk assessment, mitigation, and evaluation.
Army direct contractor
On-duty contractors supervised by Army personnel on a day-to-day basis.

Army Leadership
Army Leadership refers to Army Officers, NCOs, SES officials, and GS employees designated, authorized, held responsible, and accountable by the Army to make decisions at various levels of the Army involving execution of the Army’s mission. Designation must be documented in writing or contained in official orders.

Army motor vehicle
Any vehicle that meets the following criteria:
   a. A vehicle that is owned, leased, or rented by DA and/or USAR components.
   b. A vehicle that is primarily designed for over-the-road operation.
   c. A vehicle whose general purpose is the transportation of cargo or personnel. Examples are passenger cars, station wagons, trucks, ambulances, buses, motorcycles, fire trucks, and refueling vehicles.

Army National Guard (ARNG) Personnel
ARNG personnel who are on—
   a. Active duty for training.
   b. Inactive duty training.
   c. Annual training.
   d. ADSW.
   e. AGR.
   f. TTAD.
   g. Full-time manning.

Army personnel
Active duty Army personnel, Army civilian personnel, Army Reserve personnel, Army National Guard personnel and ROTC personnel as defined in this regulation.

Army property
Any item of Army property or property leased by the Army for which the Army has assumed risk of loss such as aircraft, vehicle, building, structure, system, and so forth.

U.S. Army Reserve (USAR) Personnel
USAR members who are on—
   a. Active duty for training.
   b. Inactive duty training.
   c. Annual training.
   d. ADSW.
   e. AGR.
   f. TTAD.
   g. Full-time manning.

Bailed aircraft
Any government-owned aircraft provided to a contractor under a Bailment Agreement for use in conjunction with a specific contractual requirement. Aircraft are usually bailed to a contractor to perform government contract work. Aircraft are usually leased to a contractor for the contractor’s use. Bailment Agreements are legal contracts between the Government Program Office and the contractor.

Bailment Agreement
An agreement for the delivery of personal property (as opposed to real property) in trust for a specific purpose, to be returned when the specific purpose is accomplished.

Biological mishap
A biological mishap is an event in which the failure of laboratory facilities, equipment, or procedures appropriate to the level of potential pathogenicity or toxicity of a given etiologic agent (organism or toxin) may allow the unintentional, potential exposure of humans or the laboratory environment to that agent.
Chemical event (Also see AR 50–6)
The term “chemical event” encompasses all chemical accidents, incidents, and politically/public-sensitive occurrences. Specifically, this applies to—

a. Confirmed releases of agent from munitions. A confirmed chemical agent release from stockpile or non-stockpile chemical weapons is any detection of agent outside the munitions body or bulk storage container into the atmosphere outside of a closed containment system that is confirmed by corroborating positive detections. Closed containment systems include filtered bunkers, igloos, or overpack containers that are capable of preventing the escape of chemical agent in concentrations exceeding the acceptable exposure limit. Reporting will begin based on the time of release confirmation and must not wait until location and isolation of the leaking munitions/container is accomplished.

b. Discovery of an actual or suspected chemical agent munitions or container that may require emergency transportation and/or disposal. Discovery as part of planned real property remediation will not be reported as a chemical event unless emergency transportation or disposal is required, but it will be reported in accordance with remediation plans.

c. Confirmed detection of agent above threshold concentration occurring for any period outside the primary engineering control. This includes agent operations conducted in a closed system that is contained in a facility equipped with secondary engineering controls to protect unprotected workers or the ambient environment. (For example, cascade ventilation/air filtrations.)

d. Actual exposure of personnel to agent above the allowable limits which is confirmed by clinical evaluation or initial laboratory evaluation or documented by sampling techniques. This includes any case where there is a reasonable belief that an exposure has occurred to any individual above these limits. Special attention needs to be given to workers reporting that they believe they were exposed to agent or the failure of personnel protective equipment.

e. Any terrorist or criminal act directed toward chemical agent storage, laboratory, or demilitarization facility or any deliberate release of chemical agent. This includes employment of an improvised chemical device intended to disperse chemical agent, regardless of whether the device has functioned.

f. Loss of chemical agent (other than deliberate destruction by approved, authorized laboratory and demilitarization processes).

g. Any malfunction or other significant activity at a chemical demilitarization plant that could reasonably be expected to cause concern within the local community or the press, or that, in the judgment of the facility or installation management or leadership, could cause embarrassment to the U.S. Army.

h. Above categories involving items configured as weapons containing the industrial chemical chlorine, hydrogen and potassium cyanide, carbonyl chloride, cyanogen chloride, or chloropicrin. This pertains to items that were designed as a delivery/dispersal system for use in war, irrespective of fusing or explosive configuration.

Combined Committee
A body formed to investigate accidents involving equipment, facilities, or personnel of two or more member nations.

Commander
An individual that exercises authority and responsibility over subordinates by virtue of rank or position. The purpose of that authority and responsibility is to effectively use available resources and plan the employment of, organize, direct, coordinate and control the actions of an Army organization for the purpose of successful mission accomplishment. Examples of commanders are as follows:

a. Commander of a major ACOM, CONUS and OCONUS.

b. The Chief of Engineers (civil and military works).


d. The Chief, National Guard Bureau.

e. Commander, U.S. Army Medical Research and Development Command.

f. Commanders of Army installations with a full-time safety professional. This includes posts, camps, stations, and military communities.

g. State Adjutants General (ARNG).

h. Commanders of USAR organizations with a full-time safety professional.

i. Commanders of medical treatment facilities.

j. Commanders in direct support of general support maintenance units.

k. Director of Facilities Engineering.

l. Provost Marshal/Law Enforcement Commander.

m. Director of Industrial Operations.

n. U.S. Army Plant Representative Office.

o. Commander of TOE, MTOE, or TDA organization.
Command Responsibility
Commanders down the entire chain of command are responsible for the safety of their personnel.

Competent authority
An individual of the Armed Forces designated in command, responsible for the direction, coordination, and control of military forces. The commander alone is responsible for everything his unit does or fails to do. He cannot delegate his responsibility or any part of it, although he may delegate portions of his authority to competent individuals. An individual designated by the commander to address areas of primary interest within that individual’s technical expertise.

Competent medical authority
Any duly qualified physician (government or private), who is approved by the Office of Workman’s Compensation to render treatment. “Competent medical authority” includes surgeons, podiatrists, dentists, clinical psychologists, optometrists, chiropractors, and osteopathic practitioners.

Composite risk
Blends tactical, threat-based risks with accidental, hazard-based risks. (U.S. Army).

Contracting Agency
The organization that has primary responsibility for monitoring, administering, and ensuring compliance with the contract, especially pertaining to the chemical agent program.

Contracting officer
A designated officer who performs administrative functions listed in the Federal Acquisition Regulation.

Contractor accident
An accident that occurs as a result of a government contractor’s operations in which there is damage to U.S. Government or Army property or equipment, injury or occupational illness to Army personnel, or other reportable event. Occupational injury or illness to a contractor or subcontractor is reported only if contractually required and occurs while on duty and engaged in work at the Army work site. Also see Army direct contractor.

DA contractor
A non-Federal employer engaged in performance of a DA contract, whether as prime contractor or subcontractor.

DA installation
A grouping of facilities located in the same vicinity that supports a particular DA function. Installations may include locations such as posts, camps, stations, or communities, land, and improvements permanently affixed thereto which are under the DA control and used by Army organizations. Where installations are located contiguous, the combined property is designated as one installation and the separate functions as activities of that installation. In addition to those used primarily by troops, the term “installation” applies to such real properties as depots, arsenals, ammunition plants (both contractor and government operated), hospitals, terminals, and other special mission installations.

Deflagration
A reaction characterized by a rapid burning action that generates vast amounts of heat and pressure if confined. However, the reaction is not as violent as a detonation. Burning propellants and pyrotechnics are typical deflagration type reactions.

Destroyed aircraft
An aircraft is considered destroyed/total loss when the estimated cost to repair exceeds the current full-up replacement cost.

Detonation
A violent reaction usually characterized by blast, high overpressure, and when located on or near the ground, a crater normally occurs. High-explosive (HE) munitions such as projectiles, grenades, and demolition material are typical detonation type munitions.

Digital source collector
An aircraft/vehicle on-board device (static and/or mission equipment) that collects analog and digital data on systems, components, and mission equipment. Examples of DSC devices are Maintenance Data Recorder (MDR), Flight Data and Cockpit Voice Data Recorder (CVFDR), digital data collection PC media, analog tape and digital media video

**Emergency**
An event for which an individual perceives that a response is essential to prevent or reduce injury or property damage.

**Emplacing**
The placing or setting of an explosives charge in a specific scenario for use as intended, but prior to the actual functioning of the item. Placing a shape charge against a door or a mine in the ground are examples of "emplacing munitions."

**Environmental factors**
Environmental conditions which had or could have had an adverse effect on the individual’s actions or the performance of equipment.

**EOD**
The detection, identification, field evaluations, rendering safe, recovery, and final disposal of unexploded explosive ordnance or munitions chemical agents.

**EOD procedures**
Those particular courses or modes of action for access to, recovery, render safe, and final disposal of explosive ordnance or any hazardous material associated with an EOD incident.

**Establishment**
A single physical location where business is conducted or where services or operations are performed. Where distinctly separate activities are performed at a single physical location, each activity shall be treated as a separate establishment. Typically, an establishment refers to a field activity, regional office, area office, installation, or facility.

**Fair wear and tear (FWT)**
Loss or impairment of appearance, effectiveness, worth, or utility of an item that has occurred solely because of normal and customary use of the item for its intended purpose.

**First aid**
First aid is defined as using a list of procedures that are all-inclusive and is not a recordable injury. If a procedure is not on the list, it is not considered first aid for recordkeeping purposes. The following are the procedures contained in the list:

- Using nonprescription medication at nonprescription strength. However, if an employee is provided prescription medications or nonprescription medications at prescription strength, this is considered medical treatment.
- Tetanus immunizations.
- Cleaning, flushing, or soaking surface wounds.
- Wound coverings, butterfly bandages, Steri-Strips. However, use of wound closure methods such as sutures, medical glues, or staples is considered medical treatment.
- Hot or cold therapy regardless of how many times it is used.
- Non-rigid means of support.
- Temporary immobilization device used to transport accident victims.
- Drilling of fingernail or toenail; draining fluid from blister.
- Eye patches.
- Removing foreign bodies from eye using irrigation or cotton swab. However, use of other methods to remove materials from the eye is medical treatment.
- Removing splinters or foreign material from areas other than the eye by irrigation, tweezers, cotton swabs or other simple means.
- Finger guards.
- Massages. Message therapy is first aid, but physical therapy or chiropractic treatment is considered medical treatment.
- Drinking fluids for relief of heat stress. (Drinking fluids for relief of heat stress is first aid, but administering an IV is medical treatment.)

**Flight crew**
Personnel on flight pay who are involved in operation of the aircraft.
**Forced landing**
A landing caused by failure or malfunction of engines, systems, or components that makes continued flight impossible.

**Foreign object damage (FOD)**
Damage to Army vehicle/equipment/property as a result of objects alien to the vehicle/equipment damaged. Excludes aircraft turbine engine(s) defined as a FOD incident.

**Fratricide/friendly fire (FF)**
Circumstances in which members of a U.S. or friendly military force are mistakenly or accidentally killed or injured in action by U.S. or friendly forces actively engaged with an enemy or who are directing fire at a hostile force or what is thought to be a hostile force. Fratricide/FF incidents will be primarily investigated and reported under AR 385–10.

**Ground accident**
Any accident exclusive of aviation (flight/flight related/aircraft ground) (For example, AMV, ACV, POV, marine).

**Hazard**
A condition with the potential to cause injury, illness, or death of personnel; damage to or loss of equipment, property or mission degradation.

**Hazard analysis**
A hazard analysis is a clear, systemic, concise, well-defined, orderly, consistent, closed-loop, quantitative or qualitative and objective methodology used to identify possible hazards within a mission, system, equipment, or process that can cause losses to the mission, equipment, process, personnel, or damage to the environment. Examples of hazard analyses are What-If, Preliminary Hazard Analysis, Sneak Circuit Analysis, Hazard and Operability Study, Fault Tree Analysis, Failure Mode and Effects Analysis, and Fault Hazard Analysis.

**Hazardous material**
There are many definitions and descriptive names being used for the term hazardous material, each of which depends on the nature of the problem being addressed. Unfortunately, there is no one list or definition that covers everything. The United States agencies involved, as well as state and local governments, have different purposes for regulating hazardous materials that, under certain circumstances, pose a risk to the public or the environment.

**Hospitalization**
Admission to a hospital as an inpatient for medical treatment.

**Human error**
Human performance that deviated from that required by the operational standards or situation. Human error in accidents can be attributed to a system inadequacy/root cause in training, standard, leader, individual, or support failure.

**Human factors**
Human interactions (man, machine, and/or environment) in a sequence of events that were influenced by, or the lack of human activity, which resulted or could result in an Army accident.

**Impact area**
The ground and associated airspace within the training complex used to contain fired or launched ammunition and explosives and the resulting fragments, debris, and components from various weapon systems. A weapon system impact area is the area within the surface danger zone (SDZ) used to contain fired or launched ammunition and explosives and the resulting fragments, debris, and components. Indirect fire weapon system impact areas include probable error for range and deflection. Direct fire weapon system impact areas encompass the total SDZ from the firing point or positions downrange to distance X:

- a. Temporary impact area. An impact area within the training complex used for a limited period of time to contain fired or launched ammunition and explosives and the resulting fragments, debris, and components. Temporary impact areas are normally used for non-dud-producing ammunition or explosives and should be able to be cleared and returned to other training support activities following termination of firing.

- b. Dedicated impact area. An impact area that is permanently designated within the training complex and used indefinitely to contain fired or launched ammunition and explosives and the resulting fragments, debris, and components. Dedicated impact areas are normally used for less sensitive ammunition and explosives than that employed in high hazard impact areas. However, any impact area containing fused HE or white phosphorous duds represent a high risk to personnel and access must be limited and strictly controlled.

- c. High hazard impact area. An impact area that is permanently designated within the training complex and used to
contain sensitive HE ammunition and explosives and the resulting fragments, debris, and components. High hazard impact areas are normally established as part of dedicated impact areas where access is limited and strictly controlled because of the extreme hazard of dud ordnance such as ICM, HEAT, 40-mm, and other highly sensitive ammunition and explosives.

**Individual failure**
Soldier knows and is trained to standard but elects not to follow standard (self-discipline-mistake due to own personal factors).

**Initial denial authority**
The official at HQDA level with the authority to deny release of a document, in whole or in part, under the FOIA.

**Injury**
A traumatic wound or other condition of the body caused by external force, including stress or strain. The injury is identifiable as to time and place of occurrence and member or function of the body affected, and is caused by a specific event or incident or series of events or incidents within a single day or work shift.

**Installation**
An aggregation of contiguous or near contiguous, common mission supporting real property holdings under the jurisdiction of the Department of Defense within and outside the continental United States. Examples include, but are not limited to, posts, camps, bases, and stations.

**Installation-level Safety Manager**
Definition of Installation Safety Managers:

- a. The senior full-time safety professional responsible for providing safety support to Army installations, including camps, stations, military communities, and USAR organizations.
- b. State Safety Manager or Specialist (ARNG).

**Intent for flight**
Intent for flight begins when power is applied or brakes released to move the aircraft under its own power, for the purpose of commencing authorized flight with an authorized crew. Intent for flight ends when the aircraft is at a full stop and power is completely reduced. Intent for Flight is the physical act of applying power to move the aircraft, not the thought process of the crew member as to what is going to occur in the future.

**Investigation**
A systematic study of an accident, incident, injury, or occupational illness circumstances.

**Job transfer**
When an employee/Soldier is assigned to a job other than his/her regular job for part of the day as a result of an injury or occupational illness.

**Leader failure**
Occurs when leaders fail to monitor mission execution and planning, correct inappropriate behavior, take appropriate actions, or emphasize correct procedures that allowed subordinates to commit task errors or results in a failure.

**Leased aircraft**
Any government-owned aircraft provided to a contractor under a Lease Agreement for use in conjunction with a specific contractor need. Aircraft are usually leased to a contractor for the contractor’s use. Aircraft are usually bailed to a contractor to perform government contract work. DODD 7230.8, further clarifies leased aircraft procedures and requirements. Lease agreements are legal contracts between the Government Program Office and the contractor.

**Lost-time case**
A nonfatal traumatic injury that causes any loss of time from work beyond the day or shift in which it occurred or a nonfatal non-traumatic illness/disease that causes disability at any time. This definition will be used when computing civilian lost-time frequencies for DOL reporting.

**Maintenance/repair/servicing**
Activities associated with the maintenance, repair, or servicing of equipment and other property. Excludes janitorial, housekeeping, or grounds-keeping activities. Examples: install/remove/modify equipment, tune/adjust/align/connect, hot
metal work, cold metal work, plastic working, soldering, repairing tires, inspecting tires/batteries, fueling/defueling, changing/inflating tires, charging batteries.

**Major component**
A combination of subassemblies, assemblies, components, modules, and parts connected in such a manner as to be a self-contained unit which, although part of an end-item, is capable of operating independently of the end-item (for example, engine T–53).

**Malfunction**
Failure of an ammunition item to function as expected when fired, launched, or when explosive items function under conditions that should not cause functioning. Malfunctions include hang-fires, misfires, duds, abnormal functioning and premature functioning of explosive items under normal handling, maintenance, storage, transportation, and tactical deployment. Malfunctions do not include accidents or incidents that arise solely from negligence, all practice, or situations such as vehicle accidents or fires.

**Materiel factors**
When materiel elements become inadequate or counter-productive to the operation of the vehicle/equipment/system.

**Medical treatment**
Any treatment (other than first aid) administered by a physician or by registered professional medical personnel under the orders of a physician.

**Military personnel**
All Soldiers (U.S. Army active duty personnel; USAR or ARNG personnel on active duty or full-time National Guard duty or in a paid drill status; Service Academy midshipmen/cadets; ROTC cadets when engaged in directed training activities; foreign national military personnel assigned to DA; and members of other U.S. uniformed services assigned to DA).

**Military-unique equipment, systems, and operations**
The term “uniquely military equipment, systems, and operations” excludes from the scope of 29 CFR, Part 1960, Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters, the design of DoD equipment and systems that are unique to the national defense mission, such as military aircraft, ships, submarines, missiles, and missile sites, early warning systems, military space systems, artillery, tanks, and tactical vehicles; and excludes operations that are uniquely military such as field maneuvers, naval operations, military flight operations, associated research test and development activities, and actions required under emergency conditions. The term includes, within the scope of the Order Department of Defense, workplaces and operations comparable to those of industry in the private sector such as vessel, aircraft, and vehicle repair, overhaul, and modification (except for equipment trials); construction; supply services; civil engineering or public works; medical services; and office work.

**Missile**
Air-to-air, surface-to-surface, air-to-surface, surface-to-air, and aerospace vehicles other than aircraft, whether guided or unguided.

**National Committee**
A body formed by an operating nation to investigate accidents involving only equipment, facilities, or personnel of that nation.

**Nation involved**
The nation—
   a. Owning the aircraft or missile.
   b. On whose territory (including territorial waters or ship) the accident occurs.
   c. To whom the crew belongs.

**NAF employees**
Employees paid from non-appropriated funds, including summer and winter hires and special NAF program employees. Military personnel working part-time in NAF employment are excluded.

**Non-fatal case without lost workdays**
Cases other than lost-workday cases where Army military or civilian personnel, because of an injury or occupational illness, experienced one or more of the following:
   a. Permanent transfer to another job or termination.
b. Medical treatment greater than first aid.

c. Loss of consciousness.

d. Restricted work activity or profile.

e. Diagnosis as having an occupational illness that did not result in a fatality or lost-workday case. This includes newly diagnosed occupational illnesses detected on routine physical examinations.

**Nuclear weapon**

A device in which the explosion results from the energy released by reactions involving atomic nuclei, either fission, fusion, or both. For the purpose of this pamphlet, nuclear components of weapons are also included.

**Nuclear weapon accident**

An unexpected event (Flagword: OPREP–3 PINNACLE BROKEN ARROW) involving nuclear weapons or nuclear components that results in any of the following:

- a. Non-nuclear detonation or burning of a nuclear weapon or radiological nuclear weapons component.

- b. Radioactive contamination.

- c. Seizure, theft, loss, or destruction of a nuclear weapon or radiological nuclear weapon component, including jettisoning.

- d. Public hazard, actual or implied.

**Nuclear weapon minor incident**

An unexpected event (Flagword DULL SWORD) involving nuclear weapons that is not reportable as a nuclear weapon accident or significant incident, but which results in any of the following:

- a. Damage to the warhead, or warhead section which Army organizations are authorized to repair, or malfunctions of associated equipment that could result in damage to the warhead, or warhead section. (Associated equipment includes test, handling, launch, control, arming, and monitoring systems.)

- b. Damage, loss, or destruction of a nuclear-type training weapon, warhead, or warhead section. Of particular concern are instances of damage or equipment failure when the same technical procedures and equipment prescribed for use with nuclear weapons were being used on a trainer.

- c. Unauthorized acts that degrade the safety of a nuclear weapon, unless they are reportable as accidents or significant incidents.

- d. A nuclear-capable missile system accident in flight that does not meet the definition of a NUCFLASH or while being transported or stored, even though no nuclear warhead or warhead joint flight test assembly is attached at the time. Missile system accidents will be reported and will contain the flagword “DULL SWORD.”

- e. Any unexpected occurrence which results from Army developmental weapon testing, stockpile testing, or product improvement program testing of a nuclear weapon.

- f. Any other condition (For example, potentially adverse publicity, unauthorized release of contamination, or suspected contamination of the environment.) which is reportable in the judgment of the commander or custodian of a nuclear weapon.

**Nuclear weapon significant incident**

An unexpected event (Flagword: OPREP–3 BENT SPEAR) involving nuclear weapons or nuclear components that does not fall into the nuclear weapon accident category but results in any of the following:

- a. Evident damage to a nuclear weapon(s) to the extent that major rework, complete replacement or examination, or recertification by the Department of Energy is required.

- b. The striking of a nuclear weapon by lightning or when a commander suspects that lightning has degraded the safety or reliability of a nuclear weapon system.

- c. Known or suspected arming (partially or fully) of a nuclear weapon.

- d. Probable high interest by the public or news media that may result in adverse public reaction (national or international) or premature release of classified information.

- e. An attempted penetration, actual penetration, or other unexpected degradation of the security of nuclear weapons sites, activities, or logistical movements.

- f. A threat, actual or implied, of an attempt to seize a nuclear weapon. This includes a threat to attack or inflict damage to a nuclear weapons storage site, nuclear weapons, or nuclear weapons security forces.

**Nuclear weapon war risk accident**

An event (Flagword: OPREP–3 PINNACLE NUCFLASH) that results in an accidental, unauthorized, or unexplained nuclear detonation; or an accidental or unauthorized launching, firing, or use by U.S. Forces or U.S.-supported Allied Forces of a nuclear-capable weapon system which could create the risk of an outbreak of war.
Occupational illness
Non-traumatic physiological harm or loss of capacity produced by systemic infection; continued or repeated stress or strain (For example, exposure to toxins, poisons, fumes); or other continued and repeated exposures to conditions of the work environment over a long period of time. Includes any abnormal physical or psychological condition or disorder resulting from an injury, caused by long-or short-term exposure to chemical, biological, or physical agents associated with the occupational environment. For practical purposes, an occupational illness is any reported condition which does not meet the definition of an injury.

Occupational injury
A wound or other condition of the body caused by external force, including stress or strain. The injury is identifiable as to time and place of the occurrence and a member or function of the body affected, and is caused by a specific event or incident or series of events or incidents within a single day or work shift.

Off duty
Army personnel are off duty when they—
   a. Are not in an on-duty status, whether on or off Army installations.
   b. Have departed official duty station, temporary duty station, or ship at termination of normal work schedule.
   c. Are on leave and/or pass.
   d. Are traveling before and after official duties such as driving to and from work.
   e. Are participating in voluntary and/or installation team sports.
   f. Are on permissive temporary duty (no cost to Government other than pay).
   g. Are on lunch or other rest break engaged in activities unrelated to eating or resting.

On duty
Army personnel are on duty when they are:
   a. Physically present at any location where they are to perform their officially assigned work. (This includes those activities incident to normal work activities that occur on Army installations such as lunch, coffee, or rest breaks, and all activities aboard vessels).
   b. Being transported by DoD or commercial conveyance for the purpose of performing officially assigned work. (This includes reimbursable travel in POVs for performing TDY, but not routine travel to and from work.)
   c. Participants in compulsory physical training activities, including compulsory sports.

Operational control
Operational control is the authority to perform those functions of command over subordinate forces involving organizing and employing command and forces, assigning tasks, designating objectives, and giving authoritative direction necessary to accomplish the mission. Operational control includes authoritative direction over all aspects of military operations and joint training necessary to accomplish missions assigned to the command. It does not, in and of itself, include authoritative direction for logistics or matters of administration, discipline, internal organization, or unit training.

Operating nation
The nation which owns the aircraft or missile. In certain cases, this explanation will not apply. Therefore, the nations concerned may agree that the operating nation is the nation under whose direct control the aircraft or missile was being flown or operated at the time of the accident or incident.

Over the road
Operation or driving on paved roads/highways.

Passenger
Activities associated with being a passenger.

Pedestrian
A person who travels on foot (walking).

Permanent total disability
Any nonfatal injury or occupational illness that, in the opinion of competent medical authority, permanently and totally incapacitates a person to the extent that he/she cannot follow any gainful employment. (The loss or loss of use of both hands, feet, eyes, or any combination thereof as a result of a single accident will be considered as permanent total disability.)
Permanent partial disability
Any injury or occupational illness that does not result in death or permanent total disability but, in the opinion of competent medical authority, results in the loss or permanent impairment of any part of the body, with the following exceptions:

- Loss of teeth.
- Loss of fingernails or toenails.
- Loss of tip of fingers or tip of toe without bone involvement.
- Inguinal hernia, if it is repaired.
- Disfigurement.
- Sprains or strains that do not cause permanent limitation of motion.

Physical training
Body conditioning or confidence building activities, excludes combat skills development. (For example confidence courses, combat football, combat basketball, push-ball, marches, calisthenics, pugil stick, running/jogging, physical training test.)

Precautionary landing
A landing resulting from unplanned events that makes continued flight inadvisable.

Preexisting physical condition
A medical condition that existed prior to the occurrence of the accident.

Probability
Probability is the qualitative or quantitative likelihood of a particular event or sequence of actions initiated by a hazard-related cause resulting in the Maximum Credible Loss. The probability can be expressed as the product of the Incident Rate and Mishap Set Likelihood.

Recommendations
Those actions recommended to the command to correct system inadequacies which caused, contributed, or could cause or contribute to an Army accident. Also referred to in this pamphlet as corrective action, remedial measures, and/or countermeasures.

Recordable accident
Reportable accident that meets the minimum criteria stated in the pamphlet for aviation Class A–E accidents and Class E and F incidents and ground Class A–D accidents.

Reportable
All occurrences that cause injury, illness, or property damage of any kind must be reported to the Soldier’s/employee’s/ unit’s servicing/supporting safety office.

Residual risk
The levels of risk remaining after controls have been identified and countermeasures selected for hazards that may result in loss of combat power (personnel or equipment). Risks remaining after hazard mitigation measures have been applied.

Residual significant risk
Residual significant risk is any risk remaining in a system after corrective actions have been executed.

Restricted work activity
Individual’s injury is such that they are unable to perform their normal duties. (For example, light-duty, profile.)

Risk
Probability and severity of loss linked to hazards.

Risk acceptability
Risk acceptability is that level of risk which has been determined as tolerable in order to fulfill mission requirements. It represents a level of risk where either the output of resources to rectify safety deficiencies does not result in a proportional increase in the level of safety be provided, or so restricts the performance that the assigned mission cannot be executed.
Risk acceptance
Risk acceptance is a formal and documented process indicating Army Leadership understands the hazard, its associated cause, and the probable consequences to mission, personnel, equipment, public and/or the environment and that they have determined the total risk is acceptable because of mission execution. Risk acceptance is an Army Leadership prerogative.

Risk acceptance level
Risk acceptance levels are used to denote the level of risk a particular level of Army Leadership and Management may accept. These levels are based on the magnitude of the risk involved and the duration of the risk acceptance.

Risk assessment
The identification and assessment of hazards (the first two steps of the Composite Risk Management process).

Risk decision
The decision to accept or not accept the risk(s) associated with an action; made by the commander, leader, or individual responsible for performing that action.

ROTC personnel
Types of ROTC personnel—
  a. Members of the ROTC during periods of basic or advanced training at premises owned or under the control of the Army whether on or off duty.
  b. Cadets performing professional enrichment training while under Army supervision and directed by competent orders, regardless of the location of the training site. Regular training on campus is excluded; that is, weekly drill and classroom instruction.
  c. Cadets involved in rifle and pistol marksmanship training under Army supervision on any firing range.
  d. Cadets undergoing ROTC flight instruction.

Severity
The expected consequence of an event (hazardous incident) in terms of degree of injury, property damage, or other mission impairing factors (loss of combat power and so on) that could occur.

Soldiering
Non-combat activities peculiar to military life, includes receiving instruction/training in such activities, excludes classroom training. (For example, marching, police call, formation, barracks detail, field sanitation.)

Sports
Includes activities associated with sports, regardless of whether the participation is on duty or off duty, Army-supervised or unsupervised, excludes hobbies. (For example, racquetball/paddleball, handball, softball, tennis, soccer, baseball, basketball, football, volleyball, skiing, swimming, scuba diving, golf, boating, hunting, fishing, martial arts, canoeing.)

Standards failure
Standards/procedures not clear or practical, or do not exist.

Support failure
Inadequate equipment/facilities/services in type, design, availability, or condition, or insufficient number/type of personnel, which influenced human error, resulting in an Army accident.

System inadequacy
A tangible or intangible element that did not operate to standards, resulting in human error or materiel failure. Also referred to in this pamphlet as causes, readiness shortcomings and/or root causes.

Tactical training
Training in a field environment that uses or develops combat, combat support, or combat service support skills.

Training failure
Soldier/individual not trained to known standard (insufficient, incorrect or no training on task-insufficient in content or amount).

Training-related death
A death associated with a non-combat military exercise or training activity that is designed to develop a military
member’s physical ability or to maintain or increase individual/collective combat and/or peacekeeping skills, and is due
to either an accident or the result of natural causes occurring during or within one hour after any training activity where
the exercise or activity could be a contributing factor. This does not apply to DA civilians participating in a Wellness
Program.

**Unexploded ordnance (UXO)**
Ammunition and explosives that have been primed, fused, armed, or otherwise prepared for action and that have been
fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations,
personnel, or materiel, and remain unexploded by malfunction, by design, or for any other cause. UXO is synonymous
for the dud.

**Unmanned Aircraft System (UAS)**
A powered, aerial vehicle that does not carry a human operator, uses aerodynamic forces to provide vehicle lift, can fly
autonomously or is remotely operated, can be expendable or recoverable, and can carry a lethal or non-lethal payload.
Ballistic or semi-ballistic vehicles, cruise missiles, unmanned aircraft rocket or rocket assisted launch, and artillery
projectiles are not considered unmanned aircraft systems.

**Workplace**
A place (whether or not within or forming part of a building, structure, or vehicle) where any person is to work, is
working, for the time being works, or customarily works, for gain or reward; and in relation to an employee, includes a
place, or part of a place, under the control of the employer (not being domestic accommodation provided for the
employee).

**Work-related injuries**
Injuries or occupational illnesses incurred while performing duties in an on-duty status.

**Section III**
Special Abbreviations and Terms
This publication uses the following terms not contained in AR 310–50. These include terms used for activities and
tasks applicable to Army accident investigating and reporting.

**Bystanding/Spectating**
Includes activities associated with bystanding or spectating regardless of whether on or off duty.

**Combat Soldiering**
Using/developing skills peculiar to combat. Includes receiving instruction or training in such skills, excludes classroom
training. (For example, hand-to-hand combat, slide for life, rope bridge, MOPP, NBC, bayonet training, military
operations on urban terrain.)

**Communications**
Activities related to installing, operating and recovering communications equipment. (For example, Erect/dismantle,
lay/string/recover wire/cable, splice wire cables, install/operate/disconnect common equipment.)

**Counseling/advisory**
Activities associated with nonsupervisory advice/assistance provided by subject-matter specialists on specific topics.
(For example, alcohol/drug abuse, mental health, community services.)

**Educational**
Includes classroom training. Excludes field settings such as field training exercises and maneuvers. (For example,
teach/instruct/brief/counsel student/audience activities.)

**Engineering or construction**
Those activities associated with surveying, building, erecting, dissembling, or destroying things. (For example, lay/clear
mine fields, bridging, quarrying, welding, brazing, roofing, installing electrical wiring, painting, land surveying,
demolition, clearing, digging, concrete work, masonry work, dredging, trenching.)

**Fabricating**
Activities associated with the construction or manufacture of equipment and other products. (For example, making/
modifying equipment/products.)
Firefighting
Activities associated with developing or using firefighting skills. Excludes vehicle operation going to and from the scene. (For example, inspecting, rescuing, salvaging, firefighting.)

Food/drink preparation
Activities associated with preparing, cooking, and serving food/drinks. (For example, preparing food, cleaning food preparation/serving equipment and facilities, cooking food, serving food.)

Food and drug inspection
Activities associated with the certification of conditions, products, and facilities. (For example inspect livestock/poultry/and so forth, inspect storage facilities, inspect processing facilities, inspect transport and market facilities.)

Handling Animals
Activities associated with handling animals.

Handling/material/passengers
Activities associated with the transportation, distribution, and storage of material or passengers. (For example, distributing/issuing, loading/unloading, transporting/moving/delivering, packing/unpacking/preserving, inventorying/in-inspecting, weigh/measure, palletize/slingload/rig, retrieve, turn in/store.

Hobbies
Includes activities associated with hobbies, regardless of whether the participation is on or off duty, Army-supervised or unsupervised. Excludes sports. (For example, camping, gardening, wood/metal working, ceramics.)

Horseplay
Spontaneous physical activities not required by duty or mission and not condoned by the Army.

Human movement
Excludes human movement activities listed elsewhere such as sports, maintenance, physical training. (For example, walking, running, jumping, bending/leaning, climbing.)

Information and arts
Activities associated with the processing and dissemination of information. Includes writing, drawing, drafting, and photographing. (For example, taking pictures, printing activities, drafting/illustrating activities.)

Janitorial/housekeeping/grounds keeping
Activities associated with the upkeep, tending, or cleaning of premises such as grounds, homes, offices, and other buildings; excludes maintenance, repair, or services activities. (For example, floor polishing, buffing, cleaning, vacuuming, sweeping, raking, shoveling, policing, planting, garbage disposal, incinerating.)

Laundry/dry-cleaning services
Includes activities performed at personal residences, Laundromats, or on-post laundry/dry-cleaning plants. (For example, handling laundry, operating laundry/dry-cleaning equipment.)

Maintenance/repair/servicing
Activities associated with the maintenance, repair, or servicing of equipment and other property; excludes janitorial, housekeeping or grounds-keeping activities. (For example, install/remove/modify equipment, tune/adjust/align/connect, hot metal work, cold metal work, plastic working, soldering, repairing tires, inspecting tires/batteries, fueling/defueling, changing/inflating tires, charging batteries.)

Office
Activities associated with the performance of clerical, typing, and administrative-type duties; excludes supervisory activities. (For example, typing/work processing, filing/posting, telephoning, operating office machines.)

Operating Vehicle or Vessel
Activities associated with operating vehicles or vessels under power. (For example, driving, convoying/road marching, towing/pushing, mowing, hauling/transporting, driver testing, flying, vehicle road testing.)

Parachuting
To descend by means of a parachute.
Patient care (people/animals)
Activities associated with the medical treatment, detection, and prevention of disease/injury; excludes experiments, studies, and tests conducted with well people or animals for research purposes. (For example, injection/inoculation, cleaning wounds, medical equipment operations and handling, laboratory equipment operations and handling, changing dressings, lift/position/escort patients.)

Personal hygiene/food/drink consumption/sleeping
Activities associated with taking care of personal requirements. (For example, personal cleaning,. grooming, eating, drinking, sleeping/resting.)

Pest/plant Control
Includes activities performed at personal residences and government facilities; excludes pest control tests and experiments. (For example, prepare/mix/ dispense chemicals, inspect, setting traps, baits.)

Physical training
Body conditioning or confidence building activities, excludes combat skills development. (For example, confidence course, combat football, combats basketball, push-ball, marches, calisthenics, pugil stick, running/jogging, physical training test.)

Security/law enforcement
Activities associated with MP, CID, and other military or civilian personnel performing security or law enforcement rescue duties. (For example, traffic safety, investigating, apprehending suspects, guarding/patrolling, controlling disturbances, intelligence activities.)

Soldiering
Noncombat activities peculiar to military life; includes receiving instruction/training in such activities; excludes classroom training. (For example, marching, police call, formation, barracks detail, field sanitation.)

Sports
Includes activities associated with sports, regardless of whether the participation is on duty or off duty, Army-supervised or unsupervised, excludes hobbies. (For example, racquetball/paddleball, handball, softball, tennis, soccer, baseball, basketball, football, volleyball, skiing, swimming, scuba diving, golf, boating, hunting, fishing, martial arts, canoeing.)

Supervisory
Activities associated with the management of personnel. (For example, inspection tasks, directing workloads/work crews, monitoring work/crews, planning unit activities.)

Test/study/experiments
Activities associated with the conduct of tests, studies, and experiments on natural or man-made materiel or on human beings or animals for research projects. (For example, preparing for test/study/experiment, performing test/study/experiment.)

Weapons firing
Carrying, loading, sighting, firing, assembling. (For example, emplacing, loading/unloading, sight/aim/target acquisition, elevate/lowering, traversing, fire/discharge/wield/launch/throwing, assemble/disassemble/cleaning, bore sighting, misuse.)