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Safety

Army Accident Investigations and Reporting

Rapid Action Revision (RAR) Issue Date: 25 February 2010

Headquarters
Department of the Army
Washington, DC
6 March 2009

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SUMMARY of CHANGE

DA PAM 385-40
Army Accident Investigations and Reporting

This rapid action revision, dated 25 February 2010--

- Updates Cost Thresholds for Accident Severity Classification (figs 1-2, 1-3, and 1-4).
- Introduces DA Form 2397-U, Unmanned Aircraft System Accident Report (UASAR) (paras 1-4 and 3-37).
- Updates Unmanned Aircraft System accident reporting requirements (paras 1-4, 1-6, 1-9, 1-10, 2-2, 3-1, 3-20, 3-21, 3-35, and 3-37).
- Makes administrative changes (throughout).

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Safety

Army Accident Investigations and Reporting

By Order of the Secretary of the Army:

GEORGE W. CASEY, JR.
General, United States Army
Chief of Staff

Official:

JOYCE E. MORROW
Administrative Assistant to the
Secretary of the Army

History. This publication is a rapid action revision (RAR). This RAR is effective 25 March 2010. The portions affected by this RAR are listed in the summary of change.

Summary. This is Department of the Army pamphlet is published in support of the consolidated AR 385–10 and it encompasses Army accident investigations and reporting procedures, to include aviation, ground, explosives, chemical, nuclear, radiation, biological, civilian, and maritime.

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. This edition publishes a rapid action revision of DA Pam 385–40.

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Glossary

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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)/failures(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 Form2397–8 (Technical Report of U.S. Army Aircraft Accident), DA Form 2397–AB (Abbreviated Aviation Accident Report, (AAAR)), DA Form 2397–U (Unmanned Aircraft System Accident Report (UASAR)), DA Form 285 (Technical Report of U.S. Army Ground Accident) or DA Form 285-AB (Abbreviated Ground Accident 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.

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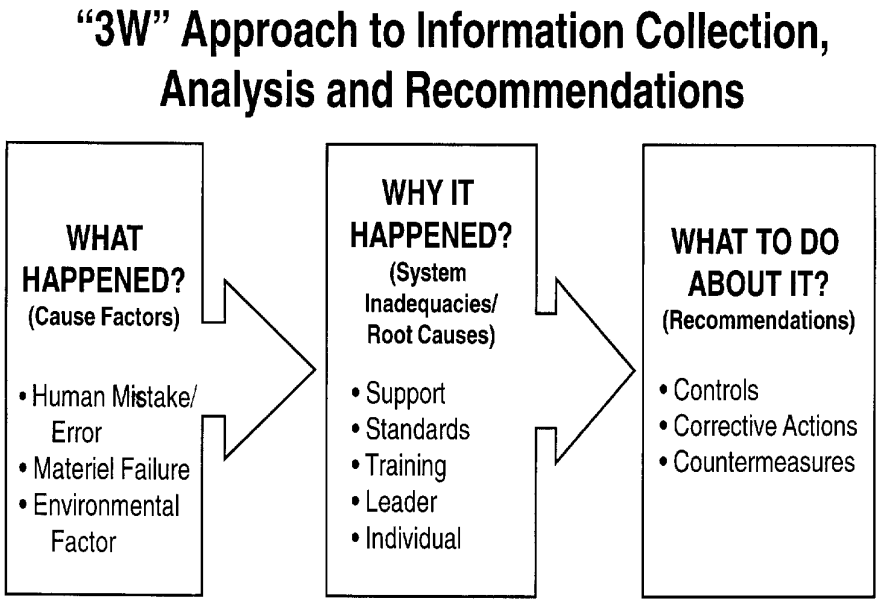

Figure 1–1. "3W" Approach to Information Collection, Analysis and Recommendations

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 of 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), Abbreviated Aviation Accident Report (AAAR), and Unmanned Aircraft System Accident Report (UASAR) 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.

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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.

(3) *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).

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

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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 3–7 *e*). 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

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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.

r. Visiting public. (AR 385–10, para 3–5).

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 until such time as UAS are included in TB 43-0002-3.

(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.

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(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.

(d) UAS cost to replace or repair will be calculated at the current established cost at the time of the accident until such time as UAS NSNs/part numbers are included in the AMDF.

(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. (UAS cost will be calculated using the current established cost at the time of the accident.)

(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. (UAS cost will be calculated using the current established cost at the time of the accident.)

(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. (UAS cost will be calculated using the current established cost at the time of the accident.)

(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.)

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(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.

Table 1–1
Cost Standards Table

	Fatality	Permanent total disability[3]	Permanent partial disability[3]	Lost time case	Days hospitalized[5]	No lost time case[6]
Submarine or Flying Officer	$1,100,000	$1,300,000	$210,000	$425 day	$466 day	$120 day
Other Officers	$395,000	$845,000	$145,000	$425 day	$466 day	$120 day
Enlisted Personnel, Cadets	$125,000[1] $270,000[2]	$500,000	$115,000	$375 day	$466 day	$120 day
Civilian[4] Employees	$460,000	$385,000	$250,000	$350 day	$466 day	$120 day
Program Youth, Student Assistance Program Employees, Foreign Nationals	$270,000	$390,000	$180,000	$300 day	$466 day	$120 day

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.

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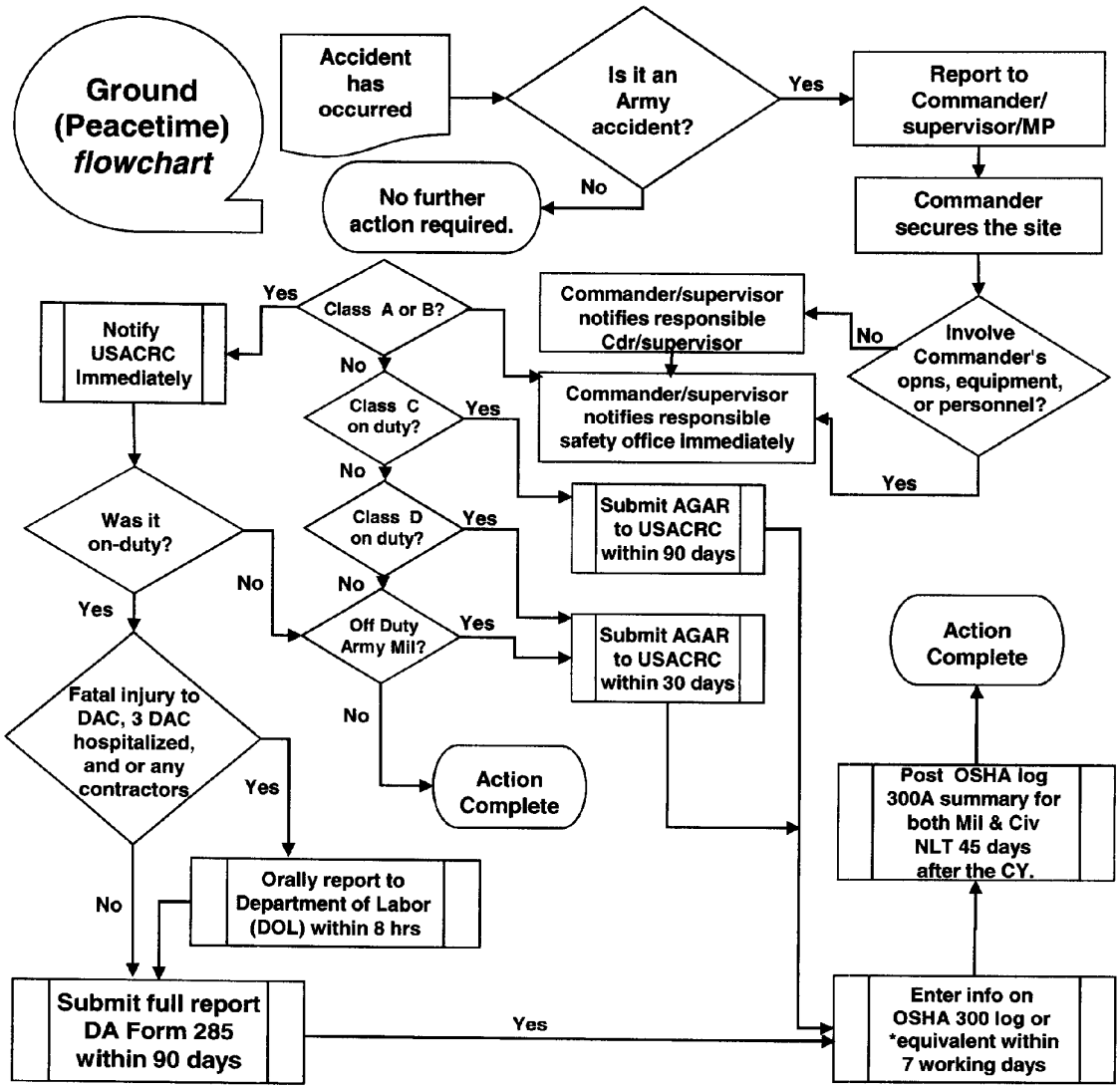

NOTE: In the event a safety of use or ground precautionary issue is suspected or identified, notify USACRC immediately.

Class Property Damage and/or Injury/Occupational Illness

A >$2M or more. Fatality or Permanent Total Disability.

B > $500K but < $2M; Permanent Partial Disability, or 3 or more hospitalized as in-patients.

C > $50K but < $500K; Days away from work or training day case.

D > $2K but < $50K; 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 illnesses.

Figure 1–2. Ground Accident Reporting (Peacetime)

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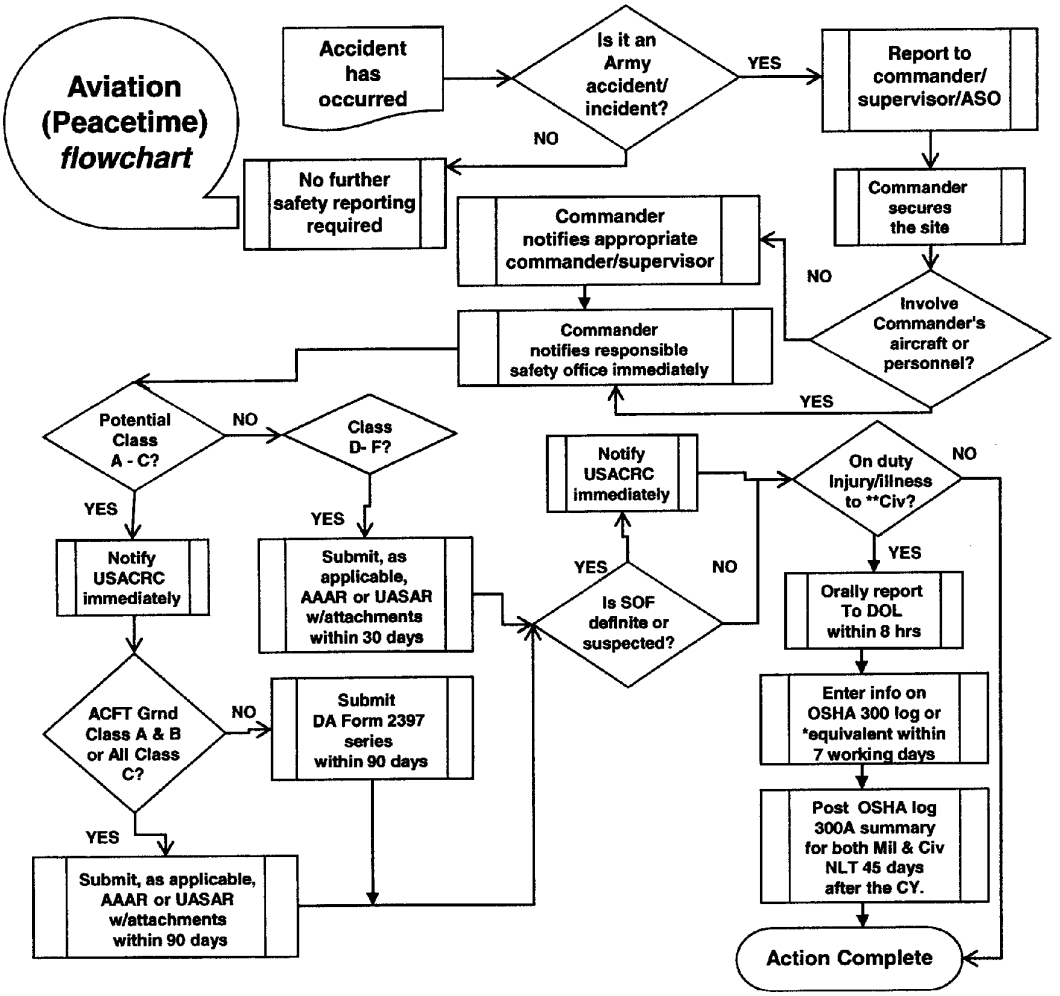

Class Property Damage and/or Injury/Occupational Illness
A $2M or more and/or Army aircraft, missile, or spacecraft missing, destroyed, or abandoned. Fatality or permanent total disability. Note: A destroyed, missing, or abandoned UAS will not constitute a Class A accident unless cost to replace or repair is $2,000,000 or more.
B >= $500K, but < than $2M. Permanent partial disability and/or three personnel are hospitalized as inpatients.
C >= $50K, but < $500K. Non-fatal injury or occupational illness resulting in days away from work beyond the day/shift when the injury occurred.
D > $2K but < $50K; 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.
E < $2K and/or an operational or maintenance mission is interrupted or not completed (intent for flight may or may not exist) due to fair wear and tear or malfunction of a component or part .
F Incident: Unavoidable aircraft turbine engine damage as a result of internal/external FOD.
* Military will maintain separate but equivalent OSHA 300 logs for injuries and illnesses.
** 3 DAC hospitalized, and or any contractors

Legend for Figure 1–3;
Note: A destroyed, missing, or abandoned UAS will not constitute a Class A accident unless cost to replace or repair is $2,000,00 or more.

Figure 1–3. Aviation Accident Reporting (Peacetime)

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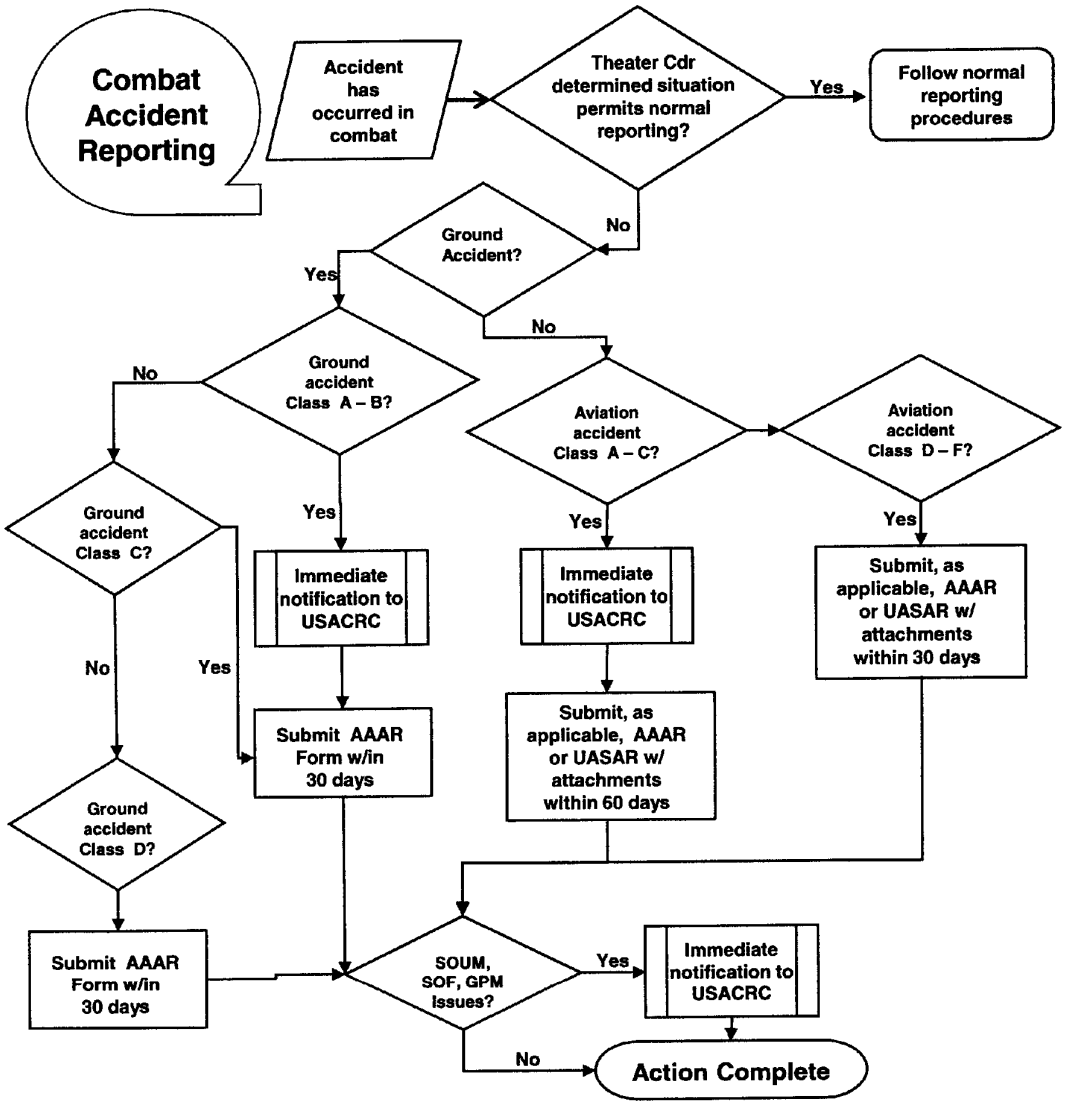

Notify by the most immediate means possible thru the Chain of Command to USACRC (preferably via the IN Tool).

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.

Figure 1–4. Combat Accident Reporting

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Chapter 2
Investigation Procedures and Techniques

Section I
Procedures

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

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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.

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(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.

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(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 2–2*e*.)

(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

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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.

c. 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.

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(c) Every effort must be made to preserve the evidence when it must be moved or disturbed.

(d) 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 (a UAS contract may require the ECOD(s) be provided by the contractor and/or manufacturer).

(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.

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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 and designated 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 forms and procedural guidelines for their completion are at paragraph 3–7 and paragraph 4–5.

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

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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.

c. 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).

Note. Interviews conducted to ascertain sensitive information should be conducted by the board president.

(2) *Supervisory and support 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.

(3) *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.

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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.

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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.

(2) *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.

(3) *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.

(2) *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

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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—

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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.

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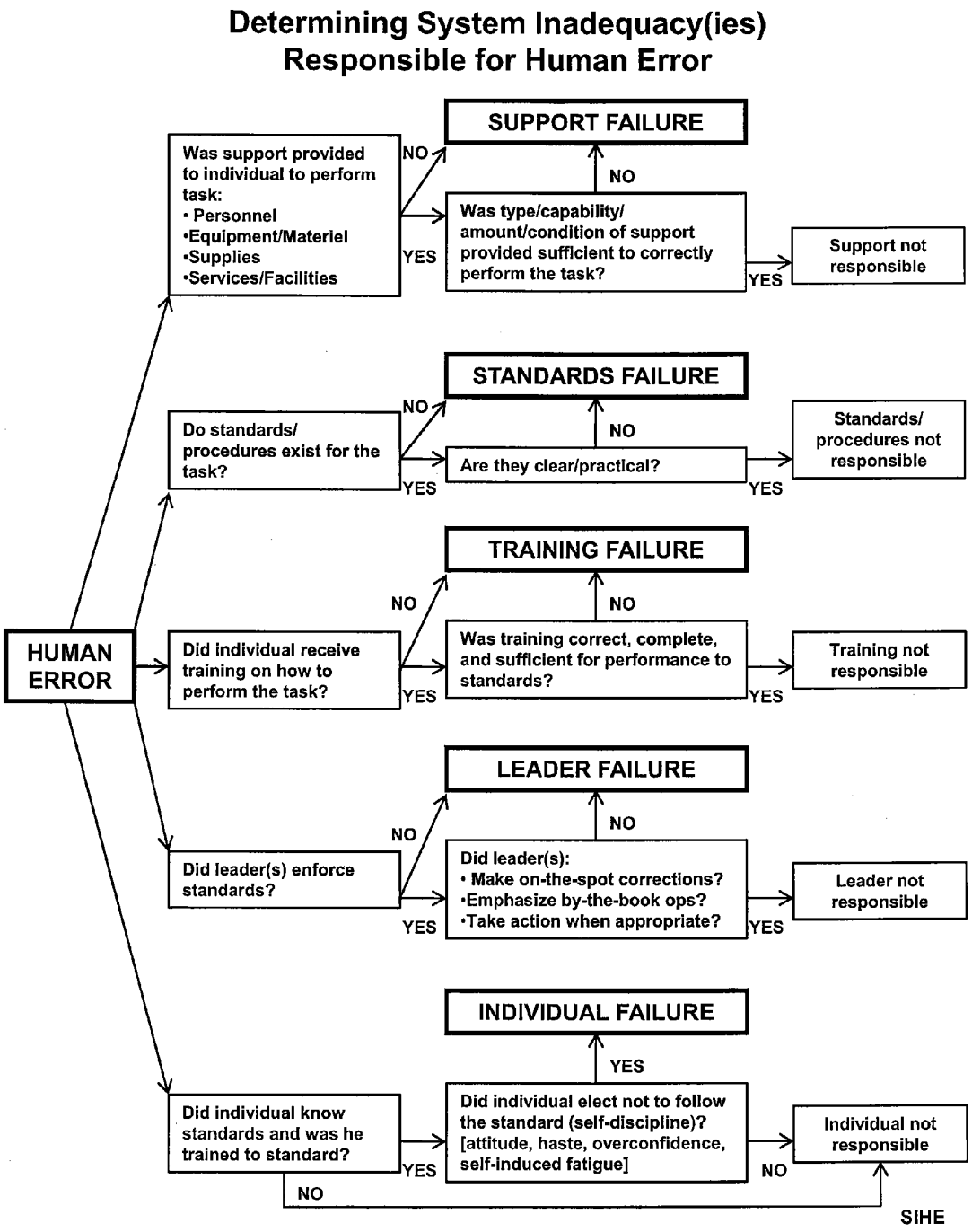

Figure 2–1. Determining System Inadequacy(ies) Responsible for Human Error

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Sequence of Events					
1. (When did error/failure/environment factor/injury occur?)					
a. Selection and training of personnel or design and manufacture of equipment	b. Mission, task, activity, event	c. Mission planning	d. Actions during mission	e. Accidents	f. Egress, survival, rescue
2. (What happened?) Human factors, material factors, environmental factors, injury					
3. (Why did it happen?) System inadequacy(ies)/Root cause(s)					
4. (What should be done about it?) Remedies for system inadequacy(ies)/Root cause(s)					

Figure 2–2. Methods to Place Each Factor in it's Proper Perspective in Relation to Other Events

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

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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.

(b) Ground vehicles. - Tank-Automotive and Armaments Command, Warren, MI 48397–5000, telephone DSN 786–6194/6121, COM (313) 574–6194/6121.

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

(d) LSE/PPE. - USAARL, Bldg 6901, Andrews Avenue, Fort Rucker, AL 36362–0577, telephone DSN 558–6960, COM 334–255–6960.

(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

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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 know 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 detained 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.

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(7) Defective hydraulic system components.

Note. Do not attempt to mate separate items together. This action could destroy evidence.

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

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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 2–5*n* 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 2–5*k* 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

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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

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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/space, 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 (E^3), 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 E^3 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 E^3 can be ruled out as a causal factor during this stage, then note the actions taken to eliminate E^3 as a causal factor. For all accidents where E^3 could have played a role but was ruled out, document "E^3 was considered but ruled out for the following reasons" in the narrative or accident summary.

(3) If E^3 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 incurrent 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.

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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 E^3, 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 E^3.

(3) If E^3 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 E^3 investigation. E^3 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.

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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 2–1*h*.

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(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.
(25) Appropriate forms (DA Form 285, DA Form 2397-series, DA Form 285–AB, Abbreviated Ground Accident Report (AGAR), DA Form 2397–AB, Abbreviated Aviation Accident Report (AAAR).
(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),

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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 (Technical Report of U.S. Army Aircraft Accident), DA Form 2397–AB (Abbreviated Aviation Accident Report, AAAR), and DA Form 2397–U (Unmanned Aircraft System Accident Report, UASAR). 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). Detailed instructions are included explaining how to complete each form, including the DA Form 2397–AB and the DA Form 2397–U.

3–2. DA Form 2397-Series, Technical Report of U.S. Army Aircraft Accident

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.

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(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. As a minimum, summaries of the interviews with surviving crew members aboard the aircraft will be included. The form will also be used to summarize interviews and statements of commanders, supervisors, maintenance and ground support 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 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 3–7*b* 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

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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.

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b. Each nonrated crew member. Fill in blocks 1a, 2, 3d, 3e, 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.

3–13. DA Form 2397–10, Part XI, Personal Protective Escape/Survival/Rescue Data

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 3–17*d.*

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.

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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.

Note. Weather data importance should be in consonance with the suspicion of weather as a factor.

(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 3–9*b*(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 laboratory 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 2–4*g* 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.

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(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."

(2) Safety Accident Investigation Report of U.S. Army Class (A - D) Accident.

(3) Aircraft MTDS and Serial No. (UH60LXXXXXXX).

(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 manned aircraft ground accidents regardless of class and Class C, D, E, and F 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 3–8*c*).

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.

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(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.

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Aviation Accident/Incident Reporting Requirements DA Form 2397																		
Accident Class	Tele-phonic	AAAR	USAR	2397	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11	-12	-13	-14
Acft Flt/ Flt Related A, B	X			X	X	X	X	X	*	*	*	X	*	X	X	*	X	X
Acft Flt/ Flt Related C	X	X					*	*		*			*	*				
Acft Flt/ Flt Related D, E, F		X											*					
Combat Acft A, B[1]	#	X						*		*			*	*				
Acft Gnd A, B, C	X	X					*	*		*			*	*				
UAS A, B, C, D, E, F	X		X		*	*	*			*			*		*			

Legend:

* *As required by circumstances.*

X *Mandatory.*

\# *If operational situation permits.*

1 *For combat operations where normal investigation and reporting procedures are deemed not practical by the senior commander.*

Aviation Accident Notification, Reporting Requirements and Suspense's					
	PEACETIME			COMBAT	
ACCIDENT/ INCIDENT CLASS	TELEPHONIC NOTIFICATION WORKSHEET	Abbreviated Report AAAR	Full Report DA Form 2397	TELEPHONIC NOTIFICATION WORKSHEET	AAAR ONLY by any means possible (automated, e-mail, fax, hand carry, mail)
A & B	Immediately[1]	Abbreviated Report AAAR	IAI/CAI-90 calendar days	Immediately[1]	As Time Permits (not to exceed 30 days)
C	Immediately[1]	Acft Ground & UAS Accidents 90 calendar days	Not Required	Immediately[1]	As Time Permits (not to exceed 60 days)
D, E, F	N/A (unless SOF issue)	Within 30 calendar days	Not Required	N/A (unless SOF issue)	As Time Permits (not to exceed 30 days)

Note:

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 3–1. Aviation Accident/Incident Notification, Reporting Requirements, and Suspenses

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3–21. DA Form 2397–U, Unmanned Aircraft System Accident Report

A DA Form 2397–U (see fig 3–18) is required for all UAS aviation accidents (flight, flight-related, and aircraft ground), regardless of the class. The UASAR provides a report form that is specific to the characteristics and operational parameters of UAS. The use of this form should not affect the quality or extent of the accident investigation.

a. Investigation and submission of the DA Form 2397–U will be in accordance with AR 385–10.

b. Submit UASARs in typed or legible hand-printed copy via mail, fax, courier, electronic mail (e-mail), through the automated reporting system.

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

(2) The e-mail address is: accidentinformation@conus.army.mil.

(3) The automated reporting system allows for quick and easy reporting through the USACR/SC Website: https://safety.army.mil.

c. Attach all additional information or forms required and/or deeemed appropriate. For example: summaries of witness interviews, expanded narratives, PQDR, ECOD/ACOD, lab/CCAD reports, contractor reports, other DA Form 2397–series, additional personnel information sections, and, if applicable, additional UASAR and 2397–AB forms for involved aircraft other than the case aircraft.

d. Detailed instructions for completing the UASAR are in paragraph 3-37 of this chapter.

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3–22. Completion instructions for DA Form 2397, Part I, Statement of Reviewing Officials

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART I - STATEMENT OF REVIEWING OFFICIALS
For use of this form, see DA Pamphlet 385-40; the proponent agency is OCSA.

REQUIREMENTS CONTROL SYMBOL
CSOCS-309

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 REVIEWING 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 Vol 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. Acft Serial No.
	20071010	2000	0100150

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

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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.

3–23. Completion instructions for DA Form 2397–1, Part II, Summary

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TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART II - SUMMARY
For use of this form, see DA Pamphlet 385-40; the proponent agency is OCSA.

REQUIREMENTS CONTROL SYMBOL
CSOCS-309

1. CLASSIFICATION a. Type ☒ A ☐ B ☐ C | b. Category ☒ Flight ☐ Flight Related | **2. TYPE EVENTS** a. 51 b. 30 c.

3. PERIOD OF DAY ☐ Dawn ☐ Day ☐ Dusk ☒ Night | 4. a. On Post ☐ Yes ☒ No | b. On Airfield ☐ Yes ☒ No

5. NEAREST MIL INSTALLATION Camp Coin | **6. NO. OF ACFT INVOLVED** 1

7. LOCATION a. City: Baghdad | b. State: | c. Country: Iraq | d. Grid or Lat./Long.: PJ12345678

8. a. Acft MTDS: OH58D(R) | b. (1) Orgn Acft Asgd: C Troop 1-3 Cav (2) UIC: WABCC0 | c. Instal Acft Asgd: Fort Campbell, KY

9. ORGN/CHAIN OF CMD INVOLVED AND ACCOUNTABLE

a. ORGN/Chain of Cmd Involved		Orgn Involved	Chain of Cmd	Chain of Cmd	Chain of Cmd	Chain of Cmd	Army HQ
	(1) Unit	C Troop	1-3 Cavalry	3d Avn Bde	17 Cav Div		ARCENT
	(2) UIC	WABCC0	WABCAA	WABCFF	WABCGG		W3YBAA
b. ORGN/Chain of Cmd Accountable		Orgn Accountable	Chain of Cmd	Chain of Cmd	Chain of Cmd	Chain of Cmd	Army HQ
	(1) Unit						
	(2) UIC						

10. a. Estimated Cost ☒ Total Loss

(1) Acft Damage Cost	$ 6,250,000.00	Owner A	
(2) Repair M/Hrs Cost	$	No. M/Hrs	
(3) Other Damage Mil	$	Owner	
(4) Other Damage Civ	$ 75,000.00	Owner S	
(5) Injury Cost	$ 1,310,000.00		
(6) Total Cost This Acft	$ 7,635,000.00		
b. Total Cost Multiple Acft	$		

11. SURVIVABILITY ☐ Survivable ☒ Partially Survivable ☐ Nonsurvivable ☐ Acft Missing

12. IN-FLT ESCAPE ☐ Ejection ☐ Bailout ☐ Not Accomplished ☒ NA

13. FIRE ☐ None ☐ Inflight ☒ Post-crash ☐ Other

14. POSTCRASH ESCAPE DIFFICULTIES ☒ Yes ☐ No ☐ NA

15. USABLE FUEL ABOARD ACFT a. At Takeoff: 540 lbs. | b. At Time of Emerg: 400 lbs. | c. At Acdt or Term: 400 lbs. | d. Type Fuel: JP8

16. GENERAL DATA	Yes	No
a. Fluid Spillage	☒	☐
b. (1) Night Visual Aids Used	☒	☐
(2) Specify Type AN/AVS-6(V3)		
c. (1) Digital Source Collector Installed	☒	☐
(2) Specify Type PC-DTS		
d. Field Training Exercise Involved	☐	☒
e. Heads-Up Display In Use	☐	☒
f. Emergency Locator Transmitter Installed	☐	☒

17. FLIGHT PLAN ☒ VFR ☐ IFR ☐ None ☐ NA

18. MISSION a. Type C | b. Operations ☐ Single-ship ☒ Multi-ship

19. INJURIES *(Number)*	Fatal (A)	Disabling (B - E)	Nondisabling (F-G)	Missing (H)	Not injured (I)
a. Occupants Military	1	1			
b. Occupants Other					
c. Non-Occupants Mil					
d. Non-Occupants					
e. Total This Acft	1	1			
f. Multiple Acft Event					

20. TERRAIN OF CRASH SITE *(More than one may apply)*

a. General Characteristics ☐ Mountain ☒ Desert ☐ Rolling ☒ Flat ☐ Water

b. Surface at Crash Site ☐ Prepared ☐ Ice ☒ Sod ☐ Snow ☐ Soggy ☐ Water

c. Crash Site Grade ☒ Level ☐ Slope _____ Degrees

d. Obstacles at Crash Site ☐ Stumps ☐ Trees ☐ Bldg ☒ Wires ☐ Rocks/Boulders ☐ Other

21. FLIGHT DATA	Flight Duration	Phase of Operation	Altitude AGL	Altitude MSL	Airspeed TAS	Heading *(Compass)*	Aircraft Weight	Overgross Yes	Overgross No
a. Planned Data	Hr 2 / Tns 3	G	300	450	VAR	VAR	5083	☐	☒
b. When Emergency Occurred	Hr 0 / Tns 7	N	95	220	50	270	4943	☐	☒
c. Accident or Termination	Hr 0 / Tns 7	R	0	125	50	360	4943	☐	☒

22. ACCIDENT CAUSE FACTORS *(Enter a D, S, or U in appropriate blocks to identify definite, suspected, or undetermined causes)*

a. Personnel		D, S, or U	Personnel *(Continued)*		D, S, or U
(1) Flight Crew: Duty	PC	D	(3) Supervisory Duty		
Duty	PI	D	Duty		
Duty			(4) Other Duty		
(2) Ground Crew: Duty			b. Materiel Failure/Malfunction		
Duty			c. Environmental		

23. SEQUENCE *(Factual accident sequence from onset of emergency through termination of flight. Use additional sheet if required.)*
SEE ATTACHED SHEET

24. AVN SAFETY OFFICER a. Name, Rank, and Orgn: Thomas M. Preventor, CW3, C Troop, 1-3 CAV | b. Signature

25. CASE NO. a. Date *(YYYYMMDD)* 20070626 | b. Time 2121 | c. Acft Serial No. 0010031 | **26. OTHER ACFT SERIAL NO.**

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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 (cont'd)

Sequence.

While conducting a night reconnaissance using night vision goggles, Chalk 1 in a flight of two OH-58ds struck the second of two 1/2-inch diameter ridge wires at approximately 115-120 feet AGL midway between the two stanchions. At least two of the main rotor blades struck the wires. The second rotor blade was severed approximately halfway from the blade tip to the hub after impacting the wire. As a result, the aircraft spun to the right approximately 360 degrees and fell diagonally approximately 150 feet before impacting a 3-foot-high earthen bank that paralleled the two-lane hard-surface road. The aircraft hit nose first and flipped tail over nose, coming to rest on its right side. The aircraft was destroyed and one of the crew members received fatal injuries.

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.

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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 materiel 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 i s 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.*

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(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.

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Table 3–1
Elements of a present and contributing finding

FINDING 1 (Present and Contributing: Human Error - Individual Failure)	
Required Information	Example
1. Explanation of when and where the mistake/error occurred in context of the accident sequence of events.	While conducting day, nap-of-the-earth aircrew training at 50 feet AGL and 10 KIAS...
2. Aircraft and individual involved by duty position.	the pilot in command (PC) and pilot (PI) of the UH-60...
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.	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...
4. Directive (ATM, SOP, FM, TM) or common practice governing performance of task/activity.	in contravention of TC 1–237, Task 2026.
5. Consequences of mistake/error.	As a result, the aircraft made contact with a tree approximately 50 feet AGL and damaged the main rotor blades. There were no injuries.
6. Identification of reasons (root causes/system inadequacies) for the mistake/error {reference System Inadequacies in table B–5 of DA Pam 385–40}.	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.
7. Brief explanation of how each reason (root cause/system inadequacy) contributed to the mistake/error.	The PC and PI allowed the aircraft to fly too close to known obstacles resulting in damage to the main rotor blades.

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 the pilot (PI) of the UH–60L 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.

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TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART III - FINDINGS AND RECOMMENDATIONS
For use of this form, see DA Pamphlet 385-40; the proponent agency is OCSA.

REQUIREMENTS CONTROL SYMBOL
CSOCS-309

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-58D(R) 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

			System Inadequacies	Remedial Measures/Recommendations					
a. Personnel		(5) Mistake/Error Code	1	16	1	U05	2	U06	3	H06
(1) Duty PC	(2) Role ☒ D ☐ S		2	15	1		2		3	
(3) Phase of Operation N	(4) ATM Task No. 1026	P08	3		1		2		3	
b. Personnel		(5) Mistake/Error Code								
(1) Duty PI	(2) Role ☒ D ☐ S		1	16	1	U05	2	U06	3	H08
(3) Phase of Operation N	(4) ATM Task No. 1026	P08	2	15	1		2		3	
			3		1		2		3	
c. Personnel		(5) Mistake/Error Code								
(1) Duty	(2) Role ☐ D ☐ S		1		1		2		3	
(3) Phase of Operation	(4) ATM Task No.		2		1		2		3	
			3		1		2		3	
d. Materiel		(4) Failure Code								
(1) Role ☐ D ☐ S	(2) Phase of Operation		1		1		2		3	
(3) Failed Part Number			2		1		2		3	
			3		1		2		3	
e. Environmental		(3) Condition Code								
(1) Role ☐ D ☐ S	(2) Phase of Operation		1		1		2		3	
			2		1		2		3	
			3		1		2		3	

3. CASE NO.	a. Date *(YYYYMMDD)*	b. Time	c. Acft Serial No.
	20070626	2121	0010031

DA FORM 2397-2, FEB 2009 PREVIOUS EDITION IS OBSOLETE. APD PE v1.00

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

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DA Form 2397-2 (Cont'd) -- 20060210194010010031

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 OPERAITONS.

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 HGP 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 HGP 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 on 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.

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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 UNCORRETED, 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 app 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 app 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

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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 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).

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3–25. Completion instructions for DA Form 2397–3, Part IV, Narrative

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART IV - NARRATIVE
For use of this form, see DA Pamphlet 385-40; the proponent agency is OCSA.

REQUIREMENTS CONTROL SYMBOL
CSOCS-309

1. NARRATIVE ACCOUNT OF INVESTIGATION *(Use format shown in DA Pamphlet 385-40.)*

1. History of Flight.

a. Preflight Phase. The mission was a night reconnaissance mission. The mission involved area reconnaissance, route reconnaissance, heavy lift aircraft escort, and enemy troop and ground target engagements. The 17th Cavalry Division tasked the 3rd Aviation Brigade who then tasked Task Force Arrow with the mission. The mission was considered a standard combat mission and was authorized by the 3rd Aviation Brigade commander. The mission had been scheduled on the squadron flight log 3 weeks prior to its execution. There was no undue sense of urgency to complete the mission and no unexpected delays in the mission.

The accident aircraft was an OH-58D(R), serial number 00-10031. It was one of eight OH-58D(R)s assigned to C Troop, 1-3 Cavalry Regiment, 3rd Aviation Brigade, 17th Cavalry Division, Camp Coin, Iraq. C Troop was one of two scout troops assigned to the 3rd Aviation Brigade.

For the night mission conducted on 26 June 2007, the crew of chalk 1, OH-58D(R) 00-10031, was CW2 Joe Toms, the pilot-in-command (PC) in the right seat, and CPT Ronald L. Smith, the pilot (PI) in the left seat. (Describe the second crew in a similar manner.)

On 26 June 2007, the two aircrews' duty day began at 1500, when they arrived at C Troop Operations. At approximately 1600, CPT Simmons, who was also the brigade battle captain, briefed both crews and gave the crews their flight packets for the night's mission. The flight packets included the weather briefing, the flight profile, and the supported unit's contact information.

The weather was updated at 1900, at which time visibility in some areas was forecasted to be 1 to 3 miles with fog. The battle captain was authorized to brief and approve low- and medium-risk missions. The PC calculated the risk-assessment worksheet for a medium-risk mission. At approximately 1800, the aircrews preflighted the aircraft. At approximately 1900, chalk 2, with the air mission commander (AMC) onboard, called the tactical operations center (TOC) and opened the flight log.

b. Flight Phase. At approximately 1900, both aircraft departed Camp Coin and proceeded to their assigned area of operations. At approximately 1920, the AMC in chalk 2 received a fragmentary order (FRAGO) from the brigade TOC stating that they were to escort a convoy moving through an area of suspected enemy activity. The AMC made contact with the ground unit, and the two aircraft turned south and then west, linking up with ground unit and providing over-watch aerial cover.

At approximately 2120, the aircraft were flying along a two-lane hard-surface road bordered on both sides by low-lying open fields. There was a 30 foot-high set of electrical wires running parallel to the north side of the road. A set of high-tension power lines stretched across the road between two stanchions 125 feet above ground level (AGL). The crew of chalk 2 saw chalk 1, which was flying at approximately 270 degrees, hit a set of high-tension power lines that crossed the road. Chalk 1 struck the second of two ridge wires at approximately 95 feet AGL midway between the two stanchions. The wires were 1/2 inch in diameter and were part of the high-tension power lines. The aircraft then descended vertically and impacted the ground.

c. Post-flight Phase. At approximately 2121, the AMC, in chalk 2, made a Mayday radio call to Flight Following and then called the brigade TOC to notify them of the accident. The PC of chalk 2 made a radio call to the ground unit to advise them of the situation. The PC then landed chalk 2 approximately 300 meters from the accident aircraft in an open field. As the PI of chalk 2 was getting out of the aircraft, the AMC contacted the MEDEVAC aircraft and also monitored the TOC radio frequency. The PC ran to the left side of the accident aircraft to check the crew's condition. The convoy that the accident aircraft had been supporting stayed with the aircraft until rescue personnel arrived. The accident crew was removed from the aircraft wreckage and transported to the closest available hospital. The remains of the aircraft were transported to Camp Coin that night.

(See continuation sheet)

2. CASE NO.	a. Date *(YYYYMMDD)*	b. Time	c. Acft Serial No.
	20070626	2121	0010031

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

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DA Form 2397-3 (Cont'd) – 2006201019400010031

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 assignment 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 was current 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 _____, where he served as the _____. He 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 4186 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 _____ with visibility greater than ___statute miles, and winds were _____at ___knots. 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

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DA Form 2397-3 (Cont'd) -- 2006201019400010031

(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 aOH-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 Coin. 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® flight suits, gloves, HGU-56(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-6 (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 detained 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

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DA Form 2397-3 (Cont'd) -- 2006201019400010031

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.

3. Materiel Factors Investigation.

a. Aircraft Airworthiness.

(1) Historical/Maintenance Records. The accident aircraft was an OH-58D(R), serial number 00-10013, assigned to _____. A review of the aircraft historical records 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 materiel defect/discrepancies that would be considered causal to the accident.

(2) Weight and Balance Records. A review of the weight and balance records, DA Form 365-4, 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 uphill 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 overstress 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 or 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 crashworthy 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.

Figure 3–5. Example of a completed DA Form 2397–3, Part IV, Narrative –continued

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DA Form 2397-3 (Cont'd) -- 2006201019400010031

(2) Standards. The board reviewed all issues related to standards and determined that standards failure did not contribute to this accident. There were sufficient written procedures and guidance for the flight. The mission approval/briefing and risk assessment process were in accordance with _____. The board assessed the theater aviator procedures guide and concluded that the wire avoidance procedures listed in the guide were adequate. The board concluded that had the crew complied with those procedures, the accident would have been avoided.

(3) Training. The board reviewed all issues related to training and concluded that training did not contribute to this accident. The board concluded that the unit level training was in accordance with Army regulation and training circulars. The accident crew had received all appropriate training for conducting the mission. The crew was also well experienced in the mission and was familiar with the area of operation.

(4) Command/Leader. The board evaluated the accident unit command policies and procedures and determined that command/leader influences did not contribute to this accident. The board assessed unit status reports, quarterly training briefings, and unit policy and procedures for Composite Risk Management, mission planning, and briefings and determined that all were appropriate. Communications up and down the chain of command were effective and routine.

The 17th Cavalry Division tasked the 3d Aviation Brigade who then tasked Task Force Arrow with the mission. The mission was considered a standard combat mission and was authorized by the 3d Aviation Brigade commander. The mission had been scheduled on the squadron flight log three weeks prior to its execution. The brigade battle captain briefed both crews and gave the crews their flight packets for the night's mission. The flight packets included the weather briefing, the flight profile, and the supported unit's contact information.

(5) Individual. The board determined that individual human error was present and causal to this accident. The board determined that the flight crew did not properly coordinate their actions due to excitement and over confidence in each other's abilities. During the surviving pilot's interview, the board determined that both crew members were fixated on the threat and were aggressively forcing the attack. The board determined that had the flight crew conducted crew coordination as indicated in the aircrew training manual, there would have been more division of attention and the crew would not have descended below the published altitude floor.

Figure 3–5. Example of a completed DA Form 2397–3, Part IV, Narrative –continued

a. Also see paragraph 3–5.

b. Complete instructions as follows:

(1) *Block 1.* 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

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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,

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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,

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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 2040405009, 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:

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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.

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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).

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3–26. Completion instructions for DA Form 2397–4, Part V, Summary of Witness Interview

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART V - SUMMARY OF WITNESS INTERVIEW
For use of this form, see DA Pamphlet 385-40; the proponent agency is OCSA.

REQUIREMENTS CONTROL SYMBOL
CSOCS-309

1. NAME OF WITNESS *(LAST, FIRST, MI)* Smith, Ronald L.	2. OCCUPATION/TITLE Army Aviator/Pilot	3. GRADE 03	4. DATE OF BIRTH 19800101
5. ADDRESS *(Include ZIP Code) (If military, include organization)* HHT, 1-3 Cavalry, 17th Cavalary Division Fort Campbell, KY 27555		6. TELEPHONE NUMBER *(Duty/Work)* 210-1234	
		7. DATE OF INTERVIEW *(YYYYMMDD)* 20070628	
8. EXPERIENCE AND BACKGROUND Army Aviator 4 yrs, 700 total flight hours	9. LOCATION AT TIME OF ACCIDENT Left seat of accident aircraft	10. INTERVIEWER *(Name and Grade)* Horacio Leader, 04	

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**

20070628 — **DATE** *(YYYYMMDD)*

12. SUMMARY OF INTERVIEW

CPT Smith was the pilot (PI) in the accident aircraft 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 misssion sets and the local area. The mission scheduled for that evening was to support the 14th Infantry and the 111 Mountain Division by performing overhead security and performing security for airlift support aroud 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)

13. CASE NO.	a. Date *(YYYYMMDD)*	b. Time	c. Acft Serial No.
	20070626	2121	0010031

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Figure 3–6. Example of a completed DA Form 2397–4, Part V, Summary of Witness Interview

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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) 255-2924.

(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 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) 255-2924.

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 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.

Smith, Ronald L.

Name of witness *(Print Name - do not sign)*

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Figure 3–6. Example of a completed DA Form 2397–4, Part V, Summary of Witness Interview –continued

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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.

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3–27. Completion instructions for DA Form 2397–5, Part VI, Wreckage Distribution

Attach External File(s)

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART VI - WRECKAGE DISTRIBUTION
For use of this form, see DA Pamphlet 385-40; the proponent agency is OCSA.

REQUIREMENTS CONTROL SYMBOL
CSOCS-309

1. GRID: SHOW MAJOR GOUGE MARKS, DISTRIBUTION OF WRECKAGE, OBSTACLES, DIRECTION OF NORTH, WIND DIRECTION, WIND VELOCITY, POSITION OF WITNESS, ETC.

Suggested Scale: 1" Equals 50' Actual Scale: 1" Equals _____

2. CASE NO.	a. Date *(YYYYMMDD)*	b. Time	c. Acft Serial No.	3. OTHER ACFT SERIAL NO.
	20070626	2121	0010031	

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

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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 From 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.

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3–28. Completion instructions for DA Form 2397–6, Part VII, In-flight or Terrain Impact and Crash Damage Data

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART VII - IN-FLIGHT OR TERRAIN IMPACT AND CRASH DAMAGE DATA
For use of this form, see DA Pamphlet 385-40; the proponent agency is OCSA.

REQUIREMENTS CONTROL SYMBOL
CSOCS-309

1. IN-FLIGHT COLLISION KINEMATICS AT INSTANT OF IMPACT

a. Airspeed at Impact *(knots)* 50

b. Vertical Speed *(feet per minute)* 20
☐ Up ☒ Down

c. Flight Path Angle *(degrees)* 5
☐ Up ☒ Down

d. In-Flight Attitude At Impact

(1) Pitch Angle — Degrees 5 ☒ Up ☐ Down

(2) Roll Angle — Degrees 0 ☐ Left ☐ Right

f. Obstacle Strike Sequence *(Enter 1, 2, 3, etc. to show sequence of strike)*

1	Prop/Rotor		Landing Gear
2	Rotor Mast		Wing
	Tail Rotor		Empennage
	Tail Boom		WSPS
	Windscreen		FLIR
	LWR Nose/Gun Turret		Other *(Specify)*

g. Obstacle Conspicuity *(Within accident distance from pilot's position, the obstacle in its surroundings was obscured)*
(1) ☐ Completely (2) ☐ Partially (3) ☒ Not Obscured

h. Wire or Cable Description

Type	Dia In Inches	No. Struck
(1) Power Transmission	0.5	1
(2) Telephone or TV		
(3) Bracing *(guy/support)*		
(4) Other *(Specify)*		

e. Obstacle Identity And Collision Height

Obstacle	Collision Height Above Ground *(feet)*
(1) ☐ Birds	
(2) ☐ Aircraft	
(3) ☒ Wires/Cables	95
(4) ☐ Vehicles	
(5) ☐ Tree	
(6) ☐ Other	

i. WSPS (1) Installed ☒ Yes ☐ No
(2) Cut Wire ☐ Yes ☒ No

j. Obstacle Struck Other Than Wire *(diameter in inches)*

2. TERRAIN COLLISION KINEMATICS AT INSTANT OF MAJOR IMPACT

a. Ground Speed at Impact 50 *(knots)*

b. Vertical Speed 500 *(FPM)*
☐ Up ☒ Down

c. Flight Path Angle 70 *(degrees)*
☐ Up ☒ Down

d. Indicate by Check Marks Which Two of The Three Preceding Parameters *(a, b, c)* Are The Most Accurate
a. ☒ b. ☒ c. ☐

e. Impact Angle 70 *(degrees)*

f. Attitude at Major Impact

(1) Pitch — Degrees 5 ☒ Up ☐ Down

(2) Roll — Degrees 20 ☒ Left ☐ Right

(3) Yaw — Degrees 10 ☒ Left ☐ Right

3. ROTATION AFTER MAJOR IMPACT

a. Did Aircraft Rotate About Any Axis After The Above Major Impact *(If yes, complete items b, c, and d)*
☒ Yes ☐ No ☐ Unknown

b. Roll Degrees ☒ Left ☐ Right Degrees 90

c. Yaw Degrees ☐ Left ☐ Right Degrees 0

d. Pitch Degrees ☐ Up ☐ Down Degrees 0

4. IMPACT FORCES RELATIVE TO AIRCRAFT AXES *(G's)*

a. Vertical *(G's)* ☐ Up ☒ Down G's 80

b. Longitudinal *(G's)* ☒ Fore ☐ Aft G's 20

c. Lateral *(G's)* ☒ Left ☐ Right G's 5

5. CASE NO.	a. Date *(YYYYMMDD)*	b. Time	c. Acft Serial No.	6. OTHER ACFT SERIAL NO.
	20070626	2121	0010031	

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Figure 3–8. Example of a completed DA Form 2397–6, Part VII, In-flight or Terrain Impact and Crash Damage Data

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7. FUSELAGE INWARD DEFORMATION OR COLLAPSE AND INJURY RELATIONSHIP *(Check appropriate boxes)*

Fuselage Area	Amount or Type of Deformation or Collapse	Specific Area of Deformation or Collaspse				Fuselage Deformation Produced/Contributed to Injury			
		Cockpit (1)	Forward Cabin Area (2)	Mid Cabin Area (3)	Rear Cabin Area (4)	Cockpit (5)	Forward Cabin Area (6)	Mid Cabin Area (7)	Rear Cabin Area (8)
a. Roof	Up to 1 Foot	☐	☐	☐	☐	☐	☐	☐	☐
	More Than 1 Foot But Less Than 3 Feet	☒	☐	☐	☐	☒	☐	☐	☐
	More Than 3 Feet	☐	☐	☐	☐	☐	☐	☐	☐
b. Left Side	Up to 1 Foot	☐	☐	☐	☐	☐	☐	☐	☐
	More Than 1 Foot	☐	☐	☐	☐	☐	☐	☐	☐
c. Right Side	Up to 1 Foot	☐	☐	☐	☐	☐	☐	☐	☐
	More Than 1 Foot	☒	☐	☐	☐	☒	☐	☐	☐
d. Nose	Up to 1 Foot	☐	☐			☐	☐		
	More Than 1 Foot	☐	☐			☐	☐		
e. Floor	Up to 1 Foot	☒	☐	☐	☐	☒	☐	☐	☐
	More Than 1 Foot	☐	☐	☐	☐	☐	☐	☐	☐
f. Floor *(local deformation under seats)*	Vertical	☒	☐	☐	☐	☒	☐	☐	☐
	Sideward	☐	☐	☐	☐	☐	☐	☐	☐
	Forward/Rearward	☐	☐	☐	☐	☐	☐	☐	☐

8. LARGE COMPONENT DISPLACEMENT *(Check appropriate boxes)*

Component	Displaced (1)	Torn Free (2)	Cockpit Penetrated/Entered (3)	Cabin Penetrated/Entered (4)
a. Transmission *(forward or main)*	☐	☐	☐	☐
b. Transmission *(rear)*	☐	☐	☐	☐
c. Rotor Blade *(forward or main)*	☐	☒	☐	☐
d. Rotor Blade *(rear or tail)*	☐	☐	☐	☐
e. Landing Gear *(specify location)*	☐	☐	☐	☐
f. Other *(specify)* Tailboom	☐	☒	☐	☐

9. FLUID SPILLAGE

a. Equipped With Crashworthy Fuel System: ☒ Yes ☐ No

b. If So Equipped, Did Breakaway Valves Separate as Designed: ☒ Yes ☐ No ☐ NA

c. Flammable Fluid Spillage Occurred: ☒ Yes ☐ No

d. Auxiliary Fuel Tanks Installed: ☐ Yes ☒ No ☐ Internal ☐ External Crashworthy ☐ Yes ☐ No

e. Amount and Type Fluid Spilled

Gallons	Fuel *(Type)*	Oil *(Type)*	Hyd Fluid *(Type)*	Other *(Specify)*
0 - 1				
> 1 - 2				
> 2 - 10				
> 10 - 20				
> 20	JP8			

10. SPILLAGE SOURCE

Part	a. Part Name/Nomenclature	b. Part Number	c. National Stock No.
(1) Cell/Tank/Reservoir	Tank, Fuel Aircraft	4060606010895	1560011646785
(2) Filter			
(3) Fitting			
(4) Fluid Line			
(5) Value			
(6) Breakaway Valve			
(7) Other *(Specify)*			
(8) Other *(Specify)*			
(9) Other *(Specify)*			

11. REMARKS

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Figure 3–8. Example of a completed DA Form 2397–6, Part VII, In-flight or Terrain Impact and Crash Damage Data –continued

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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 the 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(s)/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

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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.

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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.

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3–29. Completion instructions for DA Form 2397–7, Part VIII, Maintenance and Materiel Data

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART VIII - MAINTENANCE AND MATERIEL DATA
For use of this form, see DA Pamphlet 385-40; the proponent agency is OCSA.

REQUIREMENTS CONTROL SYMBOL
CSOCS-309

1. AIRCRAFT HISTORY

a. Hours Since New	1,670
b. Hours Since Last Major Repair	115
c. Last Phase Inspection *(YYYYMMDD)*	060511
d. Hours Flown Since Last Phase Inspection	200
e. Organization Completing Last Phase Inspection *(UIC)*	WABCDE

2. CAUSATIVE ROLE

	D Definite	S Suspected	U Unknown
a. Materiel	X		
b. Maintenance			
c. Design			
d. Manufacture			

3. FAILED OR MALFUNCTIONED MATERIEL

Identification	Major Component	Part	Identification	Major Component	Part
a. Nomenclature	Gear Box, Int	Gear, Bevel	h. TAMMS Data		
b. Type, Design, Series			(1) No. of Overhauls	0	0
c. Part Number	70357-06314-101	70357-06300-042	(2) Date of Last Overhaul *(YYYYMMDD)*		
d. NSN	1615-01-074-5152	3020-01-112-3065	(3) Hrs Since Overhaul		
e. MFG Code	782286	782286	(4) Hrs Since New	1,670	1,670
f. Serial Number	ABC-0714		(5) Hrs Since Last Installed	1,670	1,670
g. TM Data			(6) Date Last Installed *(YYYYMMDD)*		
(1) TM Number	55-1520-237-23P-2		(7) Last Overhaul Facility		
(2) Date *(YYYYMMDD)*	20020214		(8) Last Special Insp *(Type)*		
(3) Functional Group		06	(9) Hrs Since Last Special Inspection		
(4) Figure Number	359	359	(10) Date of Last Spec Inspection *(YYYYMMDD)*		
(5) Item Number	16	13	i. Type/Mode of Failure/Malfunction		
			j. Cause of Failure/ Malfunction		
			k. QDR/EIR Number	WDODA0702002	

4. WARNING SYSTEM AND INDICATION OF FAILURE/MALFUNCTION

a. Status of Aircraft Warning System for This Part: [ ] Operative [X] NA [ ] Inoperative

b. Indications of Failure/Malfunction: [ ] Correct [X] None [ ] Incorrect

c. Initial Indication of Failure/Malfunction: [ ] (1) Vibration [ ] (2) Noise [ ] (3) Attitude [ ] (4) Inspection [ ] (5) Odor [ ] (6) Fluid [ ] (7) Smoke or Fire [ ] (8) Other Personnel [ ] (9) Warning System [X] (10) None/Other

5. TEARDOWN ANALYSIS
a. Organization Performing: CCAD
b. USACRC Control No.: 07-302

6. REMARKS *(Use additional sheet if required)*

Block 3: No special inspections recorded in historical records for component or part.

7. CASE NO.	a. Date *(YYYYMMDD)*	b. Time	c. Acft Serial No.	8. OTHER ACFT SERIAL NO.
	20070101	1011	9911111	

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Figure 3–9. Example of a completed DA Form 2397–7, Part VIII, Maintenance and Materiel Data

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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 USACRC 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.

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(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.

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3–30. Completion instructions for DA Form 2397–8, Part IX, Personal Data

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART IX - PERSONAL DATA
For use of this form, see DA Pamphlet 385-40; the proponent agency is OCSA.

REQUIREMENTS CONTROL SYMBOL CSOCS-309

1. ROLE OF THIS INDIVIDUAL

a. Errors That Caused/Contributed to Accident: [X] Definitely [ ] Suspected [ ] None [ ] Undetermined

b. On Controls When Accident Occurred: [X] Yes [ ] No [ ] Undetermined

2. BACKGROUND DATA

a. Age	27	g. Hours Worked Last 24 Hours	6
b. Hours Awake Prior to Accident	6	h. Hours Worked Last 48 Hours	15
c. Hours Duration Last Sleep Period	8	i. Hours Worked Last 72 Hours	25
d. Hours Slept Last 24 Hours	8	j. Hours Flown Last 24 Hours	3
e. Hours Slept Last 48 Hours	16	k. Hours Flown Last 48 Hours	3
f. Hours Slept Last 72 Hours	24	l. Hours Flown Last 72 Hours	6

3. CREW MEMBER DATA

a. Primary Acft MTDS	OH-58D(R)	j. NVG Qualified [X] Yes [ ] No	
b. Alternate Acft MTDS		k. Date Qualified In Acdt MTDS *(YYYYMMDD)*	20030626
c. Additional Acft MTDS		l. ATM Task Number Associated With Initial Indication of Emergency	1408
d. FAC [X] 1 [ ] 2 [ ] 3		Last Performed *(YYYYMMDD)*	20070624
e. RL In Accident Acft MTDS [X] 1 [ ] 2 [ ] 3 [ ] NA		m. ATM Task Number Involved In Response To Emergency	
		Last Performed *(YYYYMMDD)*	
f. APART Completed *(YYYYMMDD)*	20061015		
g. Physical Exam Completed *(YYYYMMDD)*	20060910	n. Medical Waiver [ ] Yes [X] No	
h. Most Recent Evaluation Flight In Accident MTDS Acft *(YYYYMMDD)*	20061010	o. Post-Accident Flight Eval *(YYYYMMDD)* Result	
i. MTDS Acft Flown In Last 60 Days	(1) OH-58D(R)	p. Post-Accident Medical Exam/Autopsy *(YYYYMMDD)*	20070627
	(2)	q. Required Lab Tests Accomplished [X] Yes [ ] No	
	(3)	r. Last redeployment from a combat theater *(YYYYMMDD)*	

4. FLIGHT AND CREW DUTY EXPERIENCE *(Round off to the nearest hour)*

a. Type Experience And Time	Rotary Wing	Fixed Wing	Total	Imminent Danger	Combat	Acdt Aircraft Hrs Design	Acdt Aircraft Hrs Series
(1) Military	872		872		172	722	670
(2) Civilian							
(3) Total Hours	872		872				

b. Duty Experience

Duty	CP	PI	PC	UT	IP	IE	SP	MP	ME	XP
Total Hours		591	281							

c. Flight Condition Experience

Condition	D	N	H	W	NG	DG	NS	DS	TR	AA
Total Hours	490	36	20		326					

d. Monthly Flight Hours Past 3 Months In Accident Acft MTDS

Date	Prev 90	Prev 60	Prev 30	This Mo.
Hours	70	50	20	

e. Other Crew Duty Experience

Duty	CE	OR	AO	MO	FI	SI
Total Hours						

5. MAINTENANCE AND SUPPORT PERSONNEL DATA

a. PMOS		Title
b. SMOS		Title
c. DMOS		Title
d. Deficient Task No.		

e. Civilian Job Series or Title

f. Performance Standards Met For This Task [ ] Yes [ ] No

6. CASE	a. Date *(YYYYMMDD)*	b. Time	c. Acft Serial No.	7. OTHER ACFT SERIAL NO.
	20070626	2121	0010031	

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Figure 3–10. Example of a completed DA Form 2397–8, Part IX, Personal Data

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8. LABORATORY TESTS				
Type Test	Specimen Tested	Results	Name of Drug	USACRC Code Block
a. Carbon Monoxide	Blood	2%		
b. Alcohol/Volatiles	Blood	Neg		
c. Drug Screen	Urine	Neg		
d. Other				

9. HISTORY OF DISEASES/DEFECTS							
Diagnosis	Method of Discovery				Waivers		USACRC Code Block
	Anl Phy	Sick Call	Autopsy	Other	Auth.	Date (YYYYMMDD)	

10. REMARKS

Block 3m: Aircraft struck wires, no ATM task.

Block 3o: Fatality.

11. NAME *(Last, First, MI)*	12. SSN	13. GRADE	14. GENDER	15. DUTY	16. SVC	17. UIC
Toms, Joseph T.	987-65-4321	W2	M	PC	A	WABCC0

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Figure 3–10. Example of a completed DA Form 2397–8, Part IX, Personal Data –continued

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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, (yyyymmdd).

(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 accident 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.

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(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.* Record toxicological laboratory analysis results. In the "Specimen Tested" column, enter "blood," "urine," to indicate the source of the specimen. If no specimen was tested, enter "None." Enter "Pos" in the results block for drugs identified as present and the drug name in the appropriate box. If a drug(s) was administered by medical personnel following the accident but prior to collection of the test specimen, record this information in block 10. Use standard terminology to report methods and results. In accordance with AR 385–10, paragraph 3–16, the tests listed as items a, b, and c, are MANDATORY for ALL crew members and/or any fatality even if there seems to be no apparent likelihood of positive results. Timelines of the test is important and the specimens should be acquired as soon as possible following the accident. Significant results should be briefly explained in block 10 and thoroughly discussed in the analysis part of the narrative (DA Form 2397–3). If specimen testing was required by AR 385–10 but not accomplished, explain why it was not accomplished in block 10, remarks.

(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.* Significant medical history pertinent to the accident investigation should be briefly explained in block 10. Medical history that contributed to the accident or may have had bearing on the accident will be explained on the DA Form 2397–3.

(11) *Block 11.* Self-explanatory.

(12) *Block 12.* Enter the individual's social security number.

(13) *Block 13.* Enter grade code. Select code from Table 3-8.

(14) *Block 14.* Enter "M" to indicate male or "F" to indicate female.

(15) *Block 15.* 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.

(16) *Block 16.* Enter personnel service code. Select service code from list at table 3–9.

(17) *Block 17.* Enter a 6-digit UIC of unit to which this individual was assigned at time of accident.

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3–31. Completion instructions for DA Form 2397–9, Part X, Injury/Occupational Illness Data

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART X - INJURY/OCCUPATIONAL ILLNESS DATA
For use of this form, see DA Pamphlet 385-40; the proponent agency is OCSA.

REQUIREMENTS CONTROL SYMBOL CSOCS-309

1. DEGREE OF INJURY *(Check only the most severe injury)*

a. [X] Fatal
b. [ ] Permanent Total Disability
c. [ ] Permanent Partial Disability
d. [ ] Days Away From Work
e. [ ] Restricted Work Activity
f. [ ] Medical Treatment Above First Aid
g. [ ] First Aid Only
h. [ ] Missing and Presumed Dead

2. NUMBER OF LOST WORKDAYS | a. Days Away From Work | b. Days Hospitalized | c. Days of Restricted Activity

3. UNCONSCIOUS Hrs Min [ ] None | **4. AMNESIA** Hrs Min [ ] None

5. INJURIES

Seq No. a.	Body Region b.	Primary Aspect c.	Secondary Aspect d.	Inj Type/Result e.	Action f.	Qualifier g.	Subject h.	Action i.	Qualifier j.
	Injuries				Mechanism		Cause Factors		
1	B 0 6	0 3	0 4	F 0 4	0 4	0 1	1 4	0 6	1 3
	Skull	Both	Central	Crush	Struck Against	Aircraft	Impact	Collapsed	Occupiable Space
2	D 4 9	0 9	0 4	H 0 8	0 4	0 1	1 4	0 6	1 3
	Aorta	Midline	Central	Trans-ection	Struck Against	Aircraft	Impact	Collapsed	Occupiable Space

6. REMARKS *(Use additional sheet if required)*

7. AUTOPSY PERFORMED [X] Yes [ ] No

8. CAUSE OF DEATH / DATE OF DEATH
Blunt force injuries/20070626

9. DUTY STATUS [X] On Duty [ ] Off Duty

10. NAME *(Last, First, MI)*
Toms, Joseph T.

11. SSN 987-65-4321

12. GRADE W2

13. GENDER M

14. DUTY PC

15a. SVC A

b. HOME ADDRESS
119 Home Street, Hopkinsville, KY

c. DOB *(YYYYMMDD)* 19800101

d. DATE HIRED *(YYYYMMDD)* 20020101

e. TIME EMPLOYEE BEGAN WORK
1600

f. WAS EMPLOYEE TREATED IN EMERGENCY ROOM? [ ] Yes [X] No

g. ADDRESS & NAME OF HOSPITAL
Baghdad Army Hospital
Baghdad, Iraq

h. ATTENDING PHYSICIAN
COL H.D. Tyndall

i. LOG NUMBER
A111

16. UIC
WABCC0

17. CASE NO.

a. Date *(YYYYMMDD)*
20070626

b. Time
2121

c. Acft Serial No.
0010031

18. OTHER ACFT SERIAL NO.

19. INJURY COST
$1,100,000.00

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Figure 3–11. Example of a completed DA Form 2397–9, Part X, Injury/Occupational Illness Data

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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.

(g) Block 1g. Fir 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

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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.

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3–32. Completion instructions for DA Form 2397–10, Part XI, Personal Protective Escape/Survival/Rescue Data

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART XI - PERSONAL PROTECTIVE/ESCAPE/SURVIVAL/RESCUE DATA
For use of this form, see DA Pamphlet 385-40; the proponent agency is OCSA.

REQUIREMENTS CONTROL SYMBOL CSOCS-309

1. DID THIS INDIVIDUAL SUSTAIN AN INJURY OR OCCUPATIONAL ILLNESS BECAUSE OF ACCIDENT? ☒ Yes ☐ No
(NOTE: If "yes" box is checked, ensure a DA Form 2397-9 is completed for this individual)

2. PERSONNEL PROTECTIVE/RESTRAINT/SURVIVAL EQUIPMENT

Item	Type (1)	Required (2)	Available (3)	Used (4)	Produced Injury (5)	Allowed Injury (6)	Prevented Injury (7)	Reduced Injury (8)	Functioned as Designed (9)	Information Codes (10)			
a. Helmet	HGU-56P	Y	Y	Y	N	Y	N	N	Y	1057	1099		
b. Visor													
c. Glasses													
d. Flight Suit													
e. Flight Gloves													
f. Flight Jacket													
g. Boots													
h. Other Clothing													
i. Lap Belt													
j. Shoulder Harness													
k. Gunner Harness													
l. Inertia Reel													
m. Seat/Litter													
n. Survival Equipment													
o.													
p.													

3. PERSONNEL EVACUATION/ESCAPE

	Information Codes				
a. Method of Escape	1				
b. Location in Aircraft	1	1	3	1	2
c. Exit Attempted	0				
d. Exit Used	0				
e. Aircraft Attitude During Escape	A0				
f. Cockpit/Cabin Conditions	4				
g. Escape Difficulties	98				

4. LAPSED TIME FOR RESCUE

	Date MM	Date DD	Hour of Day HR	Hour of Day MIN	Lapsed Time HR	Lapsed Time MIN
a. Notification of Rescue Personnel						
b. Individual Physically Reached						
c. Individual Actually Aboard Rescue Vehicle						
d. Rescue Completed/Abandoned						

5. DISTANCE FROM ACCIDENT TO ACTUAL RESCUE VEHICLE AT TIME OF ACCIDENT
a. To Aircraft in Nautical Miles: 21
b. To Ground Vehicle in Statute Miles: 24

6. PERSONNEL SURVIVAL/RESCUE

	Information Codes								
a. Survival Problems Encountered									
b. Means Used to Locate Individual									
c. Rescue Equipment Used									
d. Factors That Helped Rescue									
e. Factors Complicating Rescue									
f. Individual Physical Condition	4								

g. Vehicles Actually Performing Evacuation *(Specify)* UH60A
h. Other Vehicles Assisting in Rescue *(Specify)* Military Ambulance

7. REMARKS *(Use additional sheet if required)*

8. NAME *(Last, First, MI)*	10. GRADE	11. GENDER	12. DUTY	13. SVC	14. UIC
Toms, Joseph T.	W2	M	PC	A	WABCC0

15. CASE NO.	a. Date *(YYYYMMDD)*	b. Time	c. Acft Serial No.	16. OTHER ACFT SERIAL NO.
	20070626	2121	0010031	

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Figure 3–12. Example of a completed DA Form 2397–10, Part XI, Personal Protective Escape/Survival/Rescue Data

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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

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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."

(3) *Block 3.* Personnel evacuation/escape.

(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.

(8) *Blocks 8 and 9.* Self-explanatory.

(9) *Block 10.* Enter grade code. Select code from table 3–8.

(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.

(12) *Block 13.* Enter service code. Select service code from list at table 3–9.

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(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.

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3–33. Completion instructions for DA Form 2397–11, Part XII, Weather/Environmental

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART XII - WEATHER/ENVIRONMENTAL
For use of this form, DA Pamphlet 385-40; the proponent agency is OCSA.

REQUIREMENTS CONTROL SYMBOL CSOCS-309

1. ENVIRONMENTAL ROLE *(Check "D, S, U, or N" to Indicate Definite, Suspected, Undetermined, or None)*

a. Weather Role ☐ D ☐ S ☐ U ☒ N
b. Other Environmental Condition *(Specify in blk 9)* ☐ D ☐ S ☐ U ☒ N

2. GENERAL DATA AT TIME OF OCCURRENCE

a. Temperature 15 °C *(est)* | d. Pressure Altitude *(+ or-)* 60
b. Altimeter Setting (HG) 29.98 | e. ☐ IMC ☒ VMC
c. Altimeter Reading (MSL) UNK

3. SKY CONDITION

a. Clear | d. Overcast (feet)
b. Scattered (1,000 feet) ☒ | e. Partial Obscuration
c. Broken (feet) | f. Obscuration

4. HORIZON

a. Visible | c. Obscured ☒
b. Partially Obscured

5. VISIBILITY *(Naut. miles)* 3

6. OBSTRUCTION TO VISION

a. Natural | (7) Blowing Dust
(1) Dust | (8) Blowing Sand
(2) Fog ☒ | (9) Blowing Snow
(3) Ground Fog | (10) Sun
(4) Haze | (11) Rain
(5) Ice Fog | (12) Other *(Specify)*
(6) Smoke | (13) None
b. Induced (rotorwash, etc.)
(1) Blowing Snow | (4) Blowing Spray
(2) Blowing Sand | (5) Other *(Specify)*
(3) Blowing Dust | (6) None ☒

7. WINDS

a. Aloft (at en route altitude) Dir 330 Velocity 15
b. Surface Winds (1) Surface Wind Dir. and Variance 300
(2) Surface Wind Velocity and Gust Spread *(KT)* 10G20

8. SIGNIFICANT WEATHER *(a maximum of three may be selected)*

a. Hail | h. Thunderstorm
b. Sleet | i. Gusty Winds
c. Fog ☒ | j. Freezing Rain
d. Drizzle | k. Other *(Specify)*
e. Rain | l. Unknown
f. Snow | m. None
g. Lightning

9. OTHER ENVIRONMENTAL CONDITIONS PRESENT DURING ACCIDENT SEQUENCE

a. Animals | h. Foreign Objects
b. Fowl | i. Temperature
c. Surface | j. Vibration
d. Noise | k. Dust
e. Chemicals | l. Other *(Specify)*
f. Radiation | m. None ☒
g. Glare

10. AIRCRAFT ICING

☒ None ☐ Yes

	Icing Severity			
	Trace (1)	Light (2)	Moderate (3)	Severe (4)
a. Main Rotor Blades				
b. Wings				
c. Propellers				
d. Control Surfaces				
e. Rotor Head				
f. Tail Rotor				
g. Fuselage				
h. Pitot Static System				
i. Aileron				
j. Engine Air Inlet				
k. Fuel Vents				
l. Antenna				
m. Windscreen				
n. Other				

11. MOON ILLUMINATION DATA *(for night accidents)*

a. Moon Above Horizon ☐ Yes ☒ No
b. Moon Visible ☐ Yes ☒ No
c. Moon Degrees Above Horizon
d. Percent of Moon Illumination 0
e. Moon O'clock Position From Flight Path/Nose of Aircraft
f. Time *(LCL)* of Moon Rise and Set 2300 L Rises 200 L Sets

12. TURBULENCE

☐ None ☒ Yes *(If "Yes" check "C" for continuous, "I" for intermittent, and "O" for occasional)*

	C	I	O
a. Light	☐	☐	☒
b. Moderate	☐	☐	☐
c. Severe	☐	☐	☐
d. Extreme	☐	☐	☐
e. None	☐	☐	☐

13. FORECAST ☒ Correct ☐ Incorrect ☐ Unknown

14. REMARKS *(Use additional sheet if required)*

Block 2c: Aircraft altimeter damaged in accident.

15. CASE NO.	a. Date *(YYYYMMDD)*	b. Time	c. Acft Serial No.
	20070626	2121	0010031

DA FORM 2397-11, FEB 2009 PREVIOUS EDITION IS OBSOLETE. APD PE v1.00

Figure 3–13. Example of a completed DA Form 2397–11, Part XII, Weather/Environmental

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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.

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3–34. Completion instructions for DA Form 2397–12, Part XIII, Fire

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART XIII - FIRE *(To be completed for all events involving fire)*
For use of this form, see DA Pamphlet 385-40; the proponent agency is OCSA.

REQUIREMENTS CONTROL SYMBOL CSOCS-309

1. FIRE STARTED *(Check D - Definite S - Suspected)*	D	S
a. Inflight		
b. Upon Impact *(Less than 1 minute)*	X	
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 d. [ ] Smell g. [ ] Other *(Specify)*
b. [ ] Other Instruments e. [2] Explosion *(Sound)*
c. [1] Sight f. [ ] External Commo

3. INITIAL AND PRINCIPAL LOCATION OF FIRE *(Enter 1 to indicate initial location, 2 to indicate principal location)*	D	S
a. Engine Section	1	
b. Transmission Section		
c. Cockpit		
d. Tail Assembly		
e. Passenger Section		
f. Baggage Compartment		
g. External Stores		
h. Ammunition Stores		
i. Avionic Section		
j. APU		
k. Wheel Well		
l. Wheel Brake		
m. Tail Pipe		
n. Instrument Panel		
o. Battery Compartment		
p. Heater Compartment		
q. Fuel Cell *(Specify)*		
r. Wing		
s. Gun Turret		
t. Tail Boom		
u. Cargo Section		
v. Tires		
w. Other *(Specify)*		
x. Undetermined		

4. IGNITION SOURCE	D	S
a. Exhaust Flames		
b. Sparks, Friction, e.g., Skidding		
c. Electrical Sparks		
d. Hot Surfaces, e.g., Exhaust Ducts	X	
e. Aircraft Subsystem		
f. Aircraft Occupant, e.g., Lighted Cigar		
g. External of Aircraft, e.g., Grass Fire		
h. Cargo		
i. Explosives		
j. Short Circuit		
k. Lightning		

4. IGNITION SOURCE *(Continued)*	D	S
l. Static Electricity		
m. Other *(Specify)*		
n. Undetermined		

5. COMBUSTIBLE MATERIAL	D	S
a. Main Fuel	X	
b. Auxiliary Fuel		
c. Hydraulic Fluid		
d. Engine Oil		
e. Transmission Oil		
f. Electrical Insulation		
g. Acoustical Materials		
h. Metal *(Specify)*		
i. Explosives		
j. Upholstery Materials		
k. Cargo		
l. External Material *(Specify)*		
m. Other *(Specify)*		
n. Undetermined		

6. FIRE EXTINGUISHING SYSTEM	a. Gnd	b. Aircraft Inst	Aircraft Port
(1) No Effect When Discharged			
(2) Activated, But Did Not Discharge			
(3) Reduced Fire			
(4) Extinguished Fire			
(5) Not Activated And Not Near Fire			
(6) Not Activated, But Near Fire			X
(7) Not Installed		X	

7. FIRE SMOKE DETECTION SYSTEM	Yes	No	Undet
a. System Installed		X	
b. Warning System Operated Properly			
c. Sensors Within Range of Smoke/Fire			

8. EFFECT OF EMER SHUTOFF PROCEDURE *(Enter D, S, or U)*	Eng	Fuel	Elect
a. Extinguished Flame			
b. Reduced Fire			
c. No Effects			
d. Not Accomplished	D	D	D
e. Used Faulty Procedure			

9. GENERAL DATA

a. Est of Aircraft Fire Damage *(Excl of impact damage)*
[X] 0-25% [ ] 26-50% [ ] 51-75% [ ] 76-100%

b. Fire Dimension: To Clear Fire, Aircraft Occupants Had To Move *(feet)*: 20

c. Toxicity: Was There Evidence of Toxic Products?
[ ] Yes [X] No

d. Distance To Nearest Available Military Firefighting Equipment
(1) Air Miles *(NM)*: 21 (2) Road Miles *(SM)*: 24

e. G-Force Activated Fire Extinguishing System Functioned As Designed
[ ] Yes [ ] No [X] NA

10. REMARKS *(Use additional sheet if required)*

11. CASE NO.	a. Date *(YYYYMMDD)*	b. Time	c. Acft Serial No.	12. OTHER ACFT SERIAL NO.
	20070626	2121	0010031	

DA FORM 2397-12, FEB 2009 PREVIOUS EDITION IS OBSOLETE. APD PE v1.00

Figure 3–14. Example of a completed DA Form 2397–12, Part XIII, Fire

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a. Also see paragraph 3–15.

b. 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.

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TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
INDEX A
For use of this form, see DA Pamphlet 385-40; the proponent agency is OCSA.

REQUIREMENTS CONTROL SYMBOL
CSOCS-309

1. MISSION, TYPE, DESIGN, AND SERIES	2. CASE NO.	a. Date *(YYYYMMDD)*	b. Time	c. Acft Serial No.
OH-58D(R)		20070626	2121	0010031

3. TAB	Information	Encl	Not Applic	See Remarks
1	Copy of Orders Appointing Investigating Board	X		
2	Weather Data	X		
3	Certificate of Damage/ECOD	X		
4	Diagrams and/or Photographs	X		
5	Copy of Deficiency Reports		X	
6	Special Technical Reports and Laboratory Analysis	X		
7	Weight and Balance *(DD Form 365-4)*	X		X
8	Copy of Directives, Regulations, Etc.	X		
9	Medical Data *(Autopsy, Toxicology, AFIP, etc.)* *(In USACRC copy only)*	X		
10	Flight Planning Data *(Flight Plan, Mission Briefing, PPC, Risk Assessment, etc.)*	X		X
11	Copy of Army Aviator's Flight Record *(DA Form 2408-12)*	X		
12	Copy of Aircraft Inspection and Maintenance Record *(DA Form 2408-13)*	X		
13	Copy of Uncorrected Fault Record *(DA Form 2408-14)*	X		
14	Copy of Equipment Modification Record *(DA Form 2408-5)*	X		
15	Other *(Specify)*			
16	Other *(Specify)*			
17	Other *(Specify)*			
18	Other *(Specify)*			

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

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Figure 3–15. Example of an DA Forms 2397–13, Index A

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TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
INDEX B
For use of this form, see DA Pamphlet 385-40; the proponent agency is OCSA.

REQUIREMENTS CONTROL SYMBOL
CSOCS-309

1. MISSION, TYPE, DESIGN, AND SERIES	2. CASE NO.	a. Date *(YYYYMMDD)*	b. Time	c. Acft Serial No.
OH-58D(R)		20070626	2121	0010031

3. TAB	Title	DA Form No.	Encl	Not Appl	See Remarks
a.	Statement of Reviewing Officials *(In Channel Copy Only)*	2397	X		
b.	Summary	2397-1	X		
c.	Findings and Recommendations	2397-2	X		
d.	Narrative	2397-3	X		
e.	Summary of Witness Interviews	2397-4	X		
f.	Wreckage Distribution	2397-5	X		
g.	In-Flight or Terrain Impact and Crash Damage Data	2397-6	X		
h.	Maintenance and Materiel Data	2397-7		X	
i.	Personal Data	2397-8	X		
j.	Injury/Occupational Illness Data	2397-9	X		
k.	Personal Protection/Escape/Survival/Rescue Data	2397-10	X		
l.	Weather/Environmental	2397-11	X		
m.	Fire	2397-12	X		

4. REMARKS

5. BOARD MEMBERS

	Grade	Branch	Rating	Address and Tel. No.
a. President *(Name and Signature)* John D. Leader	04	AV	SRARAV	USACRC, Ft Rucker, AL 36362 DSN 558-3410
	E-mail: jon.lead@us.army.mil			
b. Recorder *(Name and Signature)* RALPH L. WRITER	W5	AV	MAARAV	USACRC, Ft Rucker, AL 36362 DSN 558-3410
	E-mail: ral.rite@us.army.mil			
c. Flight Surgeon *(Name and Signature)* ROBERT B. LIFESAVER	04	MC	FS	HHC 603d ASB, Hunter AAF Savannah, GA 31499 DSN 333-3445
	E-mail: bob.lifer@us.army.mil			
d. Instructor Pilot *(Name and Signature)* GLORIA D. TRAINER	W4	AV	MAARAV	DES, Ft Rucker, AL 36362 DSN 558-3416
	E-mail: glo.train@us.army.mil			
e. Maint Officer/Tech/SME *(Name and Signature)* JAMES M. FIXER	03	AV	ARAV	A 603d ASB, Hunter AAF Savannah, GA 31499 DSN 333-2323
	E-mail: jim.fixer@us.army.mil			
f. Other *(Name and Signature)* WILLIAM A. TECHIE	GS-13			AMCOM, Huntsville, AL 36333 DSN 222-1234,
	E-mail: bill.techie@us.army.mil			

DA FORM 2397-14, FEB 2009 PREVIOUS EDITION IS OBSOLETE. APD PE v1.00

Figure 3–16. Example of an DA Forms 2397–14, Index B

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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.

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ABBREVIATED AVIATION ACCIDENT REPORT *(AAAR)*
FOR ALL CLASS C, D, E, F, COMBAT A AND B, AND ALL AIRCRAFT GROUND
For use of this form, see DA Pamphlet 385-40; the proponent agency is OCSA.

REQUIREMENTS CONTROL SYMBOL
CSOCS-309

COMPLETE BLKS 1-18 FOR ALL ACDTS. NO FURTHER ENTRY IS REQUIRED FOR CLASS D, E, AND F ACDTS NOT INVOLVING HUMAN ERROR/INJURY.

1. DATE/CASE NO. OF ACCIDENT	a. *(YYYYMMDD)* 20060522	b. Time *(Lcl)* 915	c. Acft Ser No. 0612345	2. a. Classification ☐ A ☐ B ☒ C ☐ D ☐ E ☐ F b. Category ☒ Flight ☐ Flight Related ☐ Acft Ground ☐ UAS
3. TYPE OF ACFT (MTDS) UH-60L	4. PERIOD OF DAY ☐ Dawn ☒ Day ☐ Dusk ☐ Night	5. NO. ACFT INVOLVED 1	6. NEAREST MIL INSTALLATION Fort Trainer, AL	
7. ACCIDENT LOCATION	a. ☐ On-Post ☒ Off-Post	b. ☐ On Airfield ☒ Not on Airfield	c. City *(Nearest to acdt site)* Level Sands	d. State AL; e. Country *(If not USA)*; f. Grid or Lat./Long. PU12345678

8. **ORGANIZATION INVOLVED**

a. Name of Unit	b. UIC *(6 Digit Unit Id Code)*	c. Home Station	d. Army HQ
A Company, 1-234 Avn Regt	WABCA0	Fort Trainer	TRADOC

9. **ORGANIZATION DEEMED ACCOUNTABLE** *(If same as block 8 leave blank)*

a. Name of Unit	b. UIC *(6 Digit Unit Id Code)*	c. Home Station	d. Army HQ

10. ESTIMATED ACCIDENT COST a. Acft Total Loss ☐ Yes ☒ No

b. Acft Damage *(Excl man hr)*	c. No. Man Hrs	d. Man Hrs	e. Other Damage Mil	f. Civilian Damage	g. Injury Cost	h. Total *(This acft)*	i. Total *(All acft)*
$ 88,000	2	$ 82	$	$	$	$ 88,082	$

11. GEN. DATA a. Msn [redacted]; (1) Type *(Trig, Svc, etc.)* T; (2) ☒ Single-ship ☐ Multi-ship; b. Flight Plan ☐ NA ☒ VFR ☐ IFR; c. Digital Source Collector Installed ☒ Yes ☐ No If "Yes" Specify type IVHMS; d. Night Vision Device/System In use ☐ Yes ☒ No If "Yes" Specify type

e. Fire ☒ None ☐ Inflight ☐ Postcrash ☐ Other; f. Flammable Fluid Spillage *(If "Yes" for Class A, B, and C acdts, attach DA Form 2397-5)* ☐ Yes ☒ No; g. Field Training Exercise *(FTX)* ☐ Yes ☒ No If "Yes" Name of FTX

12. FLIGHT DATA	Flight Duration	Phase of Operation *(Enter max of 3 codes from Table 3-4 of DA Pam 385-40 or specify phase (e.g., hover, NOE, etc.)*	Altitude AGL	Airspeed KIAS	Aircraft Weight	Overgross for Conditions Yes	No
a. At Emergency	Hours 1 Tenths 0	P	50	10	15450	☐	☒
b. At Impact/Acdt or Termination	Hours 1 Tenths 0	P	50	10	15450	☐	☒

13. TYPE EVENTS *(Enter max 3 codes from Table 3-2 DA Pam 385-40 or specify type event which best describes the acdt/incdt, e.g., tree strike, generator failure, eng overspeed, hard landing fuel exhaustion, dropped cargo, oil cooler bearing failure, etc.)*
50

14. ACCIDENT CAUSE FACTORS *(Enter D, S, or U to identify Definite, Suspected, or Undetermined causes)*	a. Human Error *(If D or S complete blks 21, 23, & 24)*	b. Materiel Failure/Malfunction *(Includes mfg/design induced failures)(If D or S complete blk 16)*	c. Environmental *(If D or S Complete blk 17)*
	D		

15. SUMMARY *(Enter summary of acdt sequence from onset of emergency through termination of flight. For Class D, E, and F, include the type of materiel failure and/or environmental factors.)*

While conducting NOE ATM training at 50 feet AGL and 10 knots with the PI on the controls, the UH-60L crew heard a loud popping noise. PC took control of the aircraft and landed in the nearest open area. CE examined the main rotor blades after landing but did not see any damage. PC brought the aircraft to a hover, felt vibrations so aircraft was landed and shut down. Inspection revealed damage to two of the main rotor blades. Both main rotor blades were sent to depot for repair.

(See continuation sheet)

16. COMPONENT AND PART FAILURE/MALFUNCTION DATA *(part that initiated failure/malfunction.)*

Identification	Major Component	Part
a. Nomenclature		
b. Type, Design, and Series		[redacted]
c. Part Number		
d. NSN		
e. Manufacturer's Code		
f. Part Serial No.		
g. Cause Failure/ Malfunction	(1) ☐ Materiel (2) ☐ Maintenance (3) ☐ Design (4) ☐ Manufacture	FGCODE *(USACRC)*; TYPEFL; CAUFL

17. ENVIRONMENTAL *(Chk conditions at time of acdt.)*
a. General *(1)* ☐ IMC *(2)* ☒ VMC *(3)* ☐ Unknown
b. Environmental Conditions [redacted]

(1) Weather Conditions		(2) Other Conditions	
(a) Hail		(a) Animals	
(b) Sleet		(b) Fowl	
(c) Fog		(c) Surface	
(d) Drizzle		(d) Noise	
(e) Rain		(e) Chemicals	
(f) Snow		(f) Radiation	
(g) Lightning		(g) Glare	
(h) Thunderstorm		(h) FOD	
(i) Gusty Winds		(i) Temperature	
(j) Freezing Rain		(j) Vibration	
(k) Other		(k) Dust	

c. Acft Icing ☒ No ☐ Yes; d. Turbulence ☒ No ☐ Yes

18. BOARD PRESIDENT/ASO/POC *(Name, Signature, and Date)*
Record, Robert R.
25 May 2006

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Figure 3–17. Example of a completed DA Form 2397–AB, Abbreviated Aviation Accident Report (AAAR)

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COMPLETE BLKS 19 - 26 FOR ALL CLASS C, COMBAT CLASS A, B, ACFT GROUND CLASS A, B, C, AND ALL CLASS ACDTS INVOLVING HUMAN ERROR/INJURY.

19. MOON ILLUMINATION DATA *(For night Class A, B, or C acdts. If blk a is "no", no other entry is required.)*

a. Moon Above Horizon	b. Moon Visible	c. Moon *(Degrees Above Horizon)*	d. Percent of Moon Illumination	e. Moon *(Clock Position from Flight Path/Nose of Acft)*
☐ Yes ☐ No	☐ Yes ☐ No		%	

20. WIRE STRIKE DATA *(If "no" in blk a, no other entry is required)*

a. Wire Strike	b. WSPS Installed	c. WSPS Engaged Wire	d. WSPS Cut Wire	e. WSPS Functioned as Designed	f. Wires Struck
☐ Yes ☒ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	No. Dia (inches)

21. PERSONNEL DATA (Complete for each crew member with access to flight controls or other personnel injured or having a contributing role in the accident; use additional forms as needed)

a. Name (last, first, MI)	(1) SSN	(2) Grade	(3) Gender	(4) Duty	(5) SVC	(6) UIC *(Assigned)*	(7) Contributing Role
Teacher, Robert G.	987-85-4321	W3	M	PC	A	WABCA0	☒ D ☐ S ☐ N ☐ U

(8) On Flt Controls	(9)(a) Lab Test	(9)(b) Results	(10) Activity *(Last 24 Hrs)*	(a) Hrs Slept	(b) Hrs Worked	(c) Hrs Flown	(11) (a) RL / (b) FAC	(c) DATE Redeployed from Combat Zone	(12) Injury *(If "yes" complete DA Form 2397-9)*	(13) Total Flight Hours (acdt MTDS)	(14) Total Flight Hours
☐ Yes ☒ No	☒ Yes ☐ No	☐ Pos ☒ Neg		7	5	1	RL ☒ 1 ☐ 2 ☐ 3; FAC ☒ 1 ☐ 2 ☐ 3	20050101	☐ Yes ☒ No	1,492	1,855

b. Name (last, first, MI)	(1) SSN	(2) Grade	(3) Gender	(4) Duty	(5) SVC	(6) UIC *(Assigned)*	(7) Contributing Role
Learner, Laura M.	123-45-6756	W2	F	PI	A	WABCA0	☒ D ☐ S ☐ N ☐ U

(8) On Flt Controls	(9)(a) Lab Test	(9)(b) Results	(10) Activity *(Last 24 Hrs)*	(a) Hrs Slept	(b) Hrs Worked	(c) Hrs Flown	(11) (a) RL / (b) FAC	(c) DATE Redeployed from Combat Zone	(12) Injury *(If "yes" complete DA Form 2397-9)*	(13) Total Flight Hours (acdt MTDS)	(14) Total Flight Hours
☒ Yes ☐ No	☒ Yes ☐ No	☐ Pos ☒ Neg		9	5	1	RL ☒ 1 ☐ 2 ☐ 3; FAC ☒ 1 ☐ 2 ☐ 3	20050627	☐ Yes ☒ No	512	789

c. Name (last, first, MI)	(1) SSN	(2) Grade	(3) Gender	(4) Duty	(5) SVC	(6) UIC *(Assigned)*	(7) Contributing Role
Corner, James J.	321-01-9876	E5	M	CE	A	WABCA0	☒ D ☐ S ☐ N ☐ U

(8) On Flt Controls	(9)(a) Lab Test	(9)(b) Results	(10) Activity *(Last 24 Hrs)*	(a) Hrs Slept	(b) Hrs Worked	(c) Hrs Flown	(11) (a) RL / (b) FAC	(c) DATE Redeployed from Combat Zone	(12) Injury *(If "yes" complete DA Form 2397-9)*	(13) Total Flight Hours (acdt MTDS)	(14) Total Flight Hours
☐ Yes ☒ No	☒ Yes ☐ No	☐ Pos ☒ Neg		8	6	1	RL ☒ 1 ☐ 2 ☐ 3; FAC ☐ 1 ☐ 2 ☐ 3	20050619	☐ Yes ☒ No	100	200

22. IMPACT/PROTECTIVE/ESCAPES/SURVIVAL/RESCUE DATA *(For Class A, B, and C acdts)*

a. Acft Occupiable Space Compromised *(If "yes" DA Form 2397-6 is required)*	b. Escape/Survival Difficulties *(If "yes" DA Form 2397-10 required for the individual)*	c. Protective/Restraint Equip Functioned as designed *(If "no" DA Form 2397-10 required for the individual)*
☐ Yes ☒ No	☐ Yes ☒ No	☒ Yes ☐ No

23. ACDT CAUSE FACTORS *(Blk 24 must support all cause factors checked; See DA Pam 385-40 for definition of cause factors)*

a. ☐ Training Failure *(Stds exist but not known or ways to achieve them not known)* b. ☐ Standards Failure *(Stds not clear, practical, or do not exist)* c. ☐ Leader Failure *(Stds are known but not enforced)* d. ☒ Individual Failure *(Stds known but not followed)* e. ☐ Support Failure *(Inadequate equip/facilities/svcs/no or type personnel)*

24. FINDINGS AND RECOMMENDATIONS *(See instructions in DA Pam 385-40 for writing findings and recommendations. Use additional sheet if required)*

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 (PI) of the UH-60L improperly scanned. That is, both crewmembers failed to properly scan for obstacles when they both became visually fixated on an animal on the ground in contravention of TC 1-237, Task 2026. As a result, the aircraft's main rotor blades were damaged when they made contact with a tree at approximately 50 feet AGL. 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 PI allowed the aircraft to fly too close to known obstacles resulting in damage to the main rotor blades.

Recommendation 1:

a. Unit Level Action: Commander Company A, 1-234 AVN, inform all assigned personnel of the facts and circumstances surrounding this accident.

b. Higher Level Action: None

c. Army Level Action: None

(See continuation sheet)

USACRC use only	Duty	Role	Failure/error Code	SI 1	RM 1	RM 2	RM 3
	Phase of OP	Task/part no.		SI 2	RM 1	RM 2	RM 3

25. LIST OF ATTACHMENTS *(CCAD, DA Forms 2397-4, 8, 9, etc.)*

2397-4, blocks 15 and 24 continuation sheet, ECOD, board appointment orders

26. COMMAND REVIEW *(Required for Class A and B combat and all Class C acdts. Use separate sheet for nonconcurrence, additional findings, and recommendations.)*

REVIEWER	Organization	Name (Typed/Printed)	Rank	Signature	Comments
a. Unit Commander	A Company 1-123 Avn Regt	Leader, William E.	CPT	SIGNATURE OF COMMANDER	☒ Concur ☐ Non-concur
b. Reviewing Official	USAATC	Reviewer, Mike W.	COL	SIGNATURE OF REVIEWER	☒ Concur ☐ Non-concur
c. Approving Authority	TRADOC	Approver, Glen D.	GEN	SIGNATURE OF APPROVER	☒ Concur ☐ Non-concur
d. DA Review	USACRC				Approved for entry into ASMIS *(YYYYMMDD)*

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Figure 3–17. Example of a completed DA Form 2397–AB, Abbreviated Aviation Accident Report (AAAR) –continued

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DA Form 2397-AB, block 15 (Cont'd), -- 2006052209150612345

After interviewing the accident aircraft crew members, the board determined that human error was the cause of this accident. The pilot in command (PC) who was on the controls and the pilot (PI), failed to properly scan while conducting TC 1-237, Task 1026, Perform Airspace Surveillance. The PC and PI simultaneously became visually fixated for several seconds on a deer approximately 50 feet off of the nose of the aircraft. The PC's and PI's improper scan can be attributed to their overconfidence in each other's ability to clear the aircraft of obstacles when flying NOE. They had flown with each other several times in the past month and both stated they were very comfortable flying with each other. The PC did not conduct a crew mission briefing for this flight. This is in contravention of the unit safety and standardization SOP, Chapter 12-3 and TC 1-237, Task 1000, Participate in Crew Mission Briefing.

The crew did not properly employ all of the tenets of crew coordination in accordance with TC 1-237, Chapter 6, in that the crew did not announce actions, provide aircraft control and obstacle advisories, or communicate positively. The board determined that the lack of crew coordination was due to the crew's overconfidence in themselves and each other's ability to complete the mission without a crew mission briefing. The crew chief sitting in the left gunner's seat thought the aircraft was too close to the trees, but did not advise the PC because he thought the PC could see how close the blades were to the trees and would avoid hitting them.

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 manned aircraft ground class A and B, combat Class A and B, and all Class C 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.

(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).

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(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).

(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).

(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 or AR 95–1. For maintenance operations with or without intent for flight, enter "S" for service. If none enter "NA." Also, check the appropriate box to indicate if the mission was a single or multi-ship operation.

(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 pertains 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.

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."

(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 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

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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 (bridage/battatlion/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 at the time of the accident or if 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).

(l) Block 21a. (10)(a). Enter the total number of hours this individual slept during the 24-hour period preceding the accident.

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(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, 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.

(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

Code	Type event		Code	Type event
01	Precautionary landing (PL)		53	Missing aircraft
02	Forced landing(FL)/UAS flight termination system (FTS) deployed		54	FOD (other than event 45)
03	Aborted takeoff		55	Dynamic rollover
04	Human factor		56	Maintenance operational test
05	Cargo		57	Weapons related
06	Personnel handling		58	Lightning strike
07	External stores		59	Rescue operations
08	Multiple aircraft event		60	Object strike
09	Misappropriated aircraft		61	Air-to-ground collision
10	Unmanned aircraft/Drone aircraft		62	Stump strike
11	Contractor aircraft accident		63	Antenna strike
12	Aircraft ground accident		64	Engine overtorque/overload
13	Laser-induced/related		65	Whiteout
14	Fratricide		66	Tiedown strike
15	Single-engine landing (multi-engine aircraft only)		67	Parachute deployment

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Table 3–2
Event codes associated with aircraft accidents—Continued

Code	Type event		Code	Type event
16	Uncommanded control input		68	Mast bumping
17	Cockpit airbags		69	Structural icing
18	Icing		70	Engine failure, power loss, or internal
19	(Reserved for future addition)		71	Transmission failure
20	Refueling		72	Vertical fin strike
21	Midair collision		73	Spike knock
22	Helocasting		74	Seatbelt/restraint harness strike
23	Hard landing		75	Blade flapping
25	Landing gear collapse/retraction		76	Fuel exhaustion
26	Undershoot		77	Fuel starvation
27	Overshoot or overrun		78	Animal strike
28	Ditching		79	Battery fire/overheat
29	Ground loop/swerve		80	Excessive yaw/spin
30	Collision with ground/water		81	Tail boom strike
31	Aircraft collisions on the ground			**Material Factor Event Codes**
32	Other collisions		82	Airframe
33	Rotor overspeed		83	Landing gear/arresting hook
34	Fire and/or explosion on the ground		84	Power train (except events 47 and 70)
35	Fire and/or explosion in the air		85	Drive train (except event 71)
36	Equipment loss or dropped object		86	Rotor/propellers
37	In-flight breakup		87	Hydraulics system
38	Spin or stall		88	Pneumatic system
39	Abandoned aircraft		89	Instruments
40	Flight-related accident		90	Warning system
41	Instrument meteorological condition (IMC)		91	Electrical system
42	Rappelling		92	Fuel system
43	Fast rope		93	Flight control
44	Overstress		94	Utility/environmental control system
45	Turbine engine		95	Avionics
46	Rotor/prop wash		96	Cargo handling equipment
47	Engine overspeed/overtemp		97	Armament
48	Brownout		98	Night vision device
49	Bird strike		A1	Launcher malfunction
50	Tree strike		A2	Tactical Automated Landing (TALS) recovery failure
51	Wire strike		A3	Arresting gear failure (drum, strap, pendant)
52	In-flight breakup (from mast bumping)		A4	Flight Termination System (FTS) parachute failure

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Table 3–3
Ownership of damaged property

Code	Owner		Code	Owner
A	Active Army		N	Army National Guard
B	Army contractor		R	Army Reserve
C	Non-appropriated fund		S	Commercial
F	Foreign Government		T	Private/civilian
J	Air Force (includes Reserve/ANG components		X	Unknown
K	Navy (includes Reserve components)		Y	Ownership not elsewhere coded
L	Marine (includes Reserve components)		Z	Undetermined
M	Government, other (For example, FAA, FBI, Customs)			

Table 3–4
Phase of operation

Code	Operations
A	Starting engine/run-up
B	Stationary (engines running)
C	Taxi
D	Takeoff/catapult/launch
E	Hover IGE
F	Climb (after takeoff phase is completed and climb to altitude is established)
G	Cruise
H	Combat maneuver (masking, unmasking, gun run, evasive action)
I	Descent (does not include approach)
J	Approach (prior to landing/termination, including UAS ATLS and TALS)
K	Emergency autorotation
L	Go-around (the intended landing/termination is aborted, including UAS ATLS and TALS aborts)
M	Landing (aircraft touchdown until forward motion stops or aircraft clears surface)
N	Low level (constant airspeed and altitude below 500 feet AGL)
O	Contour (varying altitude and airspeed, while generally following the contours of the earth's surface/obstacles)
P	NOE (varying airspeed and altitude, generally following the earth's surface/foliage for concealment)
Q	Hover OGE
R	Crash (crew has no control over the aircraft attitude)
S	Aerobatics
T	Termination w/power (planned/attempted termination of an autorotation is to hover)
U	Undetermined/unknown
V	Power recovery (the process of returning the aircraft to power; flight from an engine-out configuration)
W	Training autorotation
X	Formation
Y	Preflight activity (any activity prior to the flight that caused or contributed to the accident), for example: mission planning, crew assignment, training, loading UA on launcher, preflight.

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Table 3–4
Phase of operation—Continued

Code	Operations
Z	Refueling (to identify the type refueling being conducted, use an additional code preceding the Z code) For example, code in-flight refueling as "GZ", G=Cruise & Z=Refueling
2	Turning
3	Deceleration
4	Level off
5	Shut down
6	Flight Termination System (FTS) deployed (UAS)
7	Automatic Return Home Mode (UAS)
8	Holding pattern (includes UAS loitering on station to perform designated mission)
9	UAS crew hand-off (UA in-flight)
10	UAS crew hand-off (UA on ground, prior to take-off)
11	UA hand-off (manned/unmanned teaming, cooperative employment)

Table 3–5
Duty position codes

Code	Duty description
ABC	Avn Battalion Commander
AC	Aircraft Commander
AC–A	Aircraft Commander-Aircraft Seat
AC–P	Aircraft Commander-Payload Seat
ADC	App/Dep Controller
AMC	Air Mission Commander
AO	Unmanned Aircraft Operator
AO–A	Aircraft Operator-Aircraft-Seat
AO–P	Aircraft Operator-Payload Seat
AOP	Assistant Operations Officer
AOS	Assistant Operations
AFTP	AFTP Supervisor
ASO	Aviation Safety Officer
ART	Armament/Arms Technician
AUC	Aviation Unit Commander
AVT	Avionics Technician
CC	Company Commander
CE	Crew Chief/Flight Engineer
CET	Combat-Equipped Troops/Jumpers
CP	Copilot
DCO	DA/DOD-Level/Cdr/Supervisor
DC	Deputy Commander
DS	Direct Supervisor
DEP	Desing/Engineering Personnel
E	Electrician
EO	External Operator
FAC	Fwd Air Control
FC	Flight Commander
FCO	Flight Leader
FCT	Weather Personnel
FFT	Crash/Rescue/Firefighters
FI	Flight Engineer Instructor
FSP	Flight Service Personnel
FTM	Fuel Team Member
FTS	Fuel Team Supervisor
G–3	G–3
GC	Ground Unit Commander
GCA	Final Controller
GG	Ground Guide/"Follow Me"
GM	General Mechanic
GO	Ground Observer
GSY	Other Ground Support Personnel
IE	Instrument Flight Examiner
IP	Instructor Pilot

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Table 3–5
Duty position codes—Continued

Code	Duty description
IO	Instructor Operator
IO–A	Instructor Operator-Aircraft Seat
IO–P	Instructor Operator-Payload Seat
JPM	Para Jump Mstr
LO	Liaison Officer
LCO	Local Commander/Supervisor
MC	Mission Commander
MCO	Major Commander/Supervisor
MCU	Mission Commander (UAS)
ME	Maintenance Test Flight Evaluator
MFP	Manufacturing/Rework Personnel
MO	Flight Surgeon/Medical Attendant
MP	Maintenance Test Pilot
MPI	Mission Payload Instructor
MPO	Mission Payload Officer
MS	Maintenance Supervisor
OAY	Others Aboard Aircraft
OGY	Other Personnel Not Abroad Aircraft
OP	Operations Officer
OPN	Operations Dispatcher
OR	Gunner/Technical Observer/Aircraft Maintenance Personnel/Photographer
PAX	Passenger
PC	Pilot in Command
PF	Pathfinder
PI	Pilot
PL	Platoon Leader
PO	Mission Payload Operator
PPM	Power Payload Operator
PT	Pilot Trainee
PTM	Power Train Mechanic
PTO	Pilot Trainee Observer
PTR	Pilot Trainee Rated
RAP	Rappeller
RM	Rappeller Master
RS	Rappeller Safety
SO–A	Standardization Instructor Operator-Aircraft Seat
SO–P	Standardization Instructor Operator-Payload Seat
SO	Standardization Instructor Operator
S3	S–3
SI	Stan Flight Engineer Instructor
SM	Structure/Airframe Mechanic
SP	Standardization Instructor Pilot
TI	Technical Inspector
TWC	Tower Personnel
UAO	Unmanned Aircraft Observer
UNK	Unknown
UT	Unit Trainer
UT–A	Unit Trainer-Aircraft Seat
UT–P	Unit Trainer-Payload Seat
XO	Executive Officer
XP	Experimental Test Pilot
ZR	Rated Passenger

Table 3–6
Accident case number

Digits	Information
1 & 4	4 Digits of the year in which the accident occurred. For example, 2008, 2009.
5 & 6	A 2-digit designator for the month in which the accident occurred. For example, 01=Jan, 09=Sep, 11=Nov.
7 & 8	A 2-digit designator for the day of the month in which the accident occurred. For example, 01, 02, 03.
9 - 12	A 4-digit designator for local time of day accident occurred. For example, 0930, 2200.
13 - 19	The serial number of the “case aircraft” involved.

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Table 3–7
Accident errors/failures/effects/system inadequacy(ies)/recommendations

Code	Description
	Errors
P01	Scan
P02	Maintain/recover orientation
P03	In-flight planning
P04	Preflight planning
P05	Estimate distance/closure/control input
P06	Detect hazards/obstacles
P07	Diagnose or respond to an emergency
P08	Coordination
P09	Failed to use or follow checklist
P10	Failed to follow maintenance manual (TM, SOP, TB), instructions while servicing acft/equip
P11	Failed to follow instructions (TM, TB, MWO) while repairing, installing, or adjusting equipment
P12	Inadequate/improper inspection
P13	Failed to read/follow available SOPs, notices, ARs, general rules/principles
P14	Inadequate tool/equip accountability
P15	Failed to secure materiel/equip/cargo
P16	Inadequate/improper LZ/termination point selection
P17	Improperly prepared LZ
	Supervisor–Specific Mistakes/Errors
P18	Improper mix/match/number of personnel
P19	Inadequate time allowed for pre-mission preparation
P20	Set/permitted inappropriate launch time for environmental conditions
P21	Permitted selection of inappropriate LZ for intended training or crew experience
P22	Failed to ensure repairs/services/inspections/MWO are in accordance with appropriate TMs, TB, MWOs
P23	Failed to take appropriate/timely action to prevent or stop violation of procedures/unsafe acts
P24	Inadequate mission planning for risk-management, operational, and logistic decisions
P25	Failed to brief/provide information
P97	Insufficient information to determine mistake/error
	Materiel Failure/Malfunction
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

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Table 3–7
Accident errors/failures/effects/system inadequacy(ies)/recommendations—Continued

Code	Description
M13	Decayed/decomposed
M14	Electric current action (short, arc, surge)
M97	Insufficient information reported to identify type of failure/malfunction
	Environmental Effects/Condition
E01	Illumination (dark, glare)
E02	Precipitation (rain, fog, ice, snow)
E03	Contaminants (fumes, dust, chemicals, FOD)
E04	Noise
E05	Temperature/humidity
E06	Wind turbulence
E07	Vibration
E08	Acceleration/deceleration
E09	Radiation (sunlight, X-ray, LASER)
E10	Work surface/space (slippery floor, cluttered walkway, steep rough road)
E11	Air pressure (explosion, decompression, altitude effects)
E12	Electricity (lightning, arc, surge, short, shock)
E13	Animals (deer, birds, rodents, insects)
E97	Insufficient information reported to identify environmental conditions
	System inadequacy(ies)/Root cause(s)/Readiness shortcomings
01	Inadequate/improper supervision by “Higher command”
02	Inadequate/improper supervision by “Staff officer,” (or example, operations, safety, supply)
03	Inadequate/improper supervision by “Unit command”
04	Inadequate/improper supervision by “Direct supervisor,” (for example, instructor, squad leader, aircraft commander)
05	Inadequate school training
06	Inadequate unit training
07	Inadequate experience
08	Habit interference
09	Inadequate written procedures for operation under normal, abnormal, or emergency conditions
10	Inadequate facilities or services
11	Inadequate/improper equip/materiel design or equipment not provided
12	Insufficient type/number of personnel
13	Inadequate manufacture, assembly, packaging, or quality control
14	Inadequate maintenance (inspection, installation, troubleshooting, record keeping, and so forth)
15	Fear/excitement (inadequate composure)
16	Overconfidence (in self, others, equipment)
17	Lack of confidence (in self, others, equipment)
18	Haste/Attitude (motivation)
19	Fatigue (self induced)
20	Effects of alcohol, drugs, or illness
21	Poor attitude/indiscipline
22	Environmental conditions
97	Insufficient information reported to identify inadequacy/shortcoming/cause

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Table 3–7
Accident errors/failures/effects/system inadequacy(ies)/recommendations—Continued

Code	Description
	Recommendations/Remedial Measures
01	Improve school training
02	Improve unit training
03	Revise procedures for operation under normal, abnormal, or emergency conditions
04	Ensure personnel are ready to perform (training, experience, psycho physiological state)
05	Inform personnel of problems and remedies (meetings, publications, EIRs)
06	Positive command action (to encourage proper performance and discourage improper performance)
07	Provide personnel resources (number or qualifications) required for job
08	Redesign (or provide) equipment or material
09	Improve (or provide) facilities or services
10	Improve quality control
11	Perform studies to get solutions to system inadequacy(ies)

Table 3–8
Pay grade codes

Grade/Code	Description
O1-O10	Commissioned officer
W1-W5	Warrant officer
E1-E9	Enlisted service member
GS1-GS18 & GM13-GM18	DOD civilian employee
WG1-WG18 & WS13-WS18	Wage board employee
XN	Foreign National
X-1	Foreign officer, all grades
X-2	Foreign enlisted, all grades
CAC	Civilian Army contractor employee
CIV	Non-DOD civilian
DAC	Department of Army Civilian
KAD	USMA
ROTC	ROTC student
NRPT	Not reported
NSPS	National Security Personnel System
OC	WOC/OC
UNK	Unknown
UNKE	Unknown Enlisted
UNKO	Unknown Officer
OTH	Personnel other than above

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Table 3–9
Personnel service codes

Code	Service
A	Active Army
B	Army civilian
C	Army contractor
C1	Army direct contractor
D	Non-appropriated fund employee
E0	Other U.S. military personnel
E1	Navy
E2	Air Force
E3	Marine Corps
F0	Foreign
F1	Foreign National Direct Hire
F2	Foreign National Indirect Hire
F3	Foreign National KATUSA
F4	Foreign Military Attached
G	Dependent
M	Government, Other
N0	National Guard
N1	NG Tech
N2	NG IDT
N3	NG AT
N4	NG ADSW
N5	NG AGR
N6	NG ADT
N7	NG Activated
O	Other
P	Public
R0	Reserve
R1	Reserve IDT
R2	Reserve AT
R3	Reserve ADT
R4	Reserve FTM
R5	Reserve Tech
R6	Reserve Activated
R7	Reserve AGR
T	ROTC
U	Unknown
Z	Not reported

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Table 3–10
Injury/illness terms and codes

NFS=Not Further Specified

Body Region

A	**00 Body in General**		
B	00 Head, General	16 Mouth	30 Nasal
	01 Head Less	17 Nose	31 Lacrimal
	02 Brain	18 Teeth	32 Palatine
	03 Ears	19 Tongue	33 Zygoma/Malar
	04 Hair	20 Gums	34 Temporal
	05 Scalp	21 Chin	35 Parietal Area
	06 Skull	23 Frontal	36 Multiple Bonds (Face)
	07 Temple	24 Ethmoid	37 Multiple Bones (Calvarium)
	10 Face, General	25 Spheroid	
	11 Cheeks	26 Vomer	38 Multiple Bones (Basilar)
	12 Eyes	27 Occipital Area	39 Multiple Bones (Other)
	13 Forehead	28 Mandible	40 Orbit
	15 Lips	29 Maxilla Face	
C	**00 Neck, General**		
	01 Espophagus	08 Vertebra C3	14 Odontoid (Atlanta Multiple Axial)
	02 Larynx	09 Vertebra C4	15 Atlanto-occipital
	03 Trachea	10 Vertebra C5	16 Jugular Vein
	04 Vertebra, General	11 Vertebra C6	17 Carotid Artery
	06 Vertebra C1	12 Vertebra C7	
	07 Vertebra C2	13 Intervertebral Disk	
D	**00 Trunk, General**		
	10 Abdomen, General	43 Heart	64 Vertebra T5
	11 Colon	44 Lungs	65 Vertebra T6
	12 Gall Bladder	45 Mammary	66 Vertebra T7
	13 Intestines, General	46 Ribs/Sides	67 Vertebra T8
	14 Kidney	47 Sternum	68 Vertebra T9
	15 Liver	49 Aorta	69 Vertebra T10
	16 Pancreas	50 Pelvis, General	70 Vertebra T11
	17 Spleen	51 Bladder	71 Vertebra T12
	18 Stomach	52 Buttocks	72 Vertebras, Multi-lumber
	20 Intestines (large)	53 Genitalia	73 Vertebra L1
	21 Intestines (small)	54 Hip	74 Vertebra L2
	30 Back, General	55 Rectum/Anus	75 Vertebra L3
	31 Scapula	56 Pelvises, NFS	76 Vertebra L4
	32 Spinal Cord, General	59 Vertebras, Multi-thoracic	77 Vertebra L5
	33 Vertebra, Multiple	60 Vertebra T1	78 Sacryn
	40 Chest, General	61 Vertebra T2	79 Coccyx
	41 Clavicle	62 Vertebra T3	80 Intervertebral Disc

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Table 3–10
Injury/illness terms and codes—Continued

	42 Diaphragm	63 Vertebra T4	81 Vena Cava
E	**00 Upper Extremities, General**		
	10 Upper Arm, General	20 Lower Arm, General	31 Finger(s), General
	11 Shoulder	21 Wrist	32 Knuckles
	12 Elbow	22 Arm Lower, NFS	33 Thumb
	13 Arm Upper, NFS		34 Hand, NFS
F	**00 Lower Extremities, General**		
	10 Leg Upper, General	21 Ankle	32 Ball
	11 Knee	22 Leg Lower, NFS	33 Heel, NFS
	12 Leg Upper, NFS	30 Foot, General	34 Toes
	20 Leg Lower, General	31 Arch	35 Foot, NFS
X	**97 Not reported**		
Y	**99 Other**		
Z	**98 Unknown**		
	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)		
A			
	00 Burns, General	03 Third Degree	
	01 First Degree	04 Fourth Degree	
	02 Second Degree	05 Burns, Chemical, NFS	
	Burns (Thermal)		
B			
	00 Burns, General	05 Burns, Thermal, NFS	
	01 1st Degree	06 1st & 2d Degree	
	02 2d Degree	07 1st & 3d Degree	
	03 3d Degree	08 2d & 3d Degree	
	04 4th Degree	09 3d & 4th Degree	
	Dismemberments		
C			

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Table 3–10
Injury/illness terms and codes—Continued

	00 Dismemberments, General	03 Decapitation	
	01 Amputation	04 Dismemberment, NFS	
	02 Avulsion (Evisceration)		
		Environmental Exposure	
D			
	01 Decompression/Bends	06 Immersion Foot	
	02 Frostbite	07 Noise Injury	
	03 Heat Exhaustion	08 Radiation (Other than Burns)	
	04 Heatstroke	09 Exposure, NFS	
	05 Hypothermia		
		Environmental: Intake	
E			
	01 Asphyxiation	04 Aspiration (Suffocation)	
	02 Hypoxia	05 Inhalation	
	03 Ingestion		
		Fractures	
F			
	00 Fractures, General	08 Transverse	
	01 Chip/Wedge	09 Oblique	
	02 Compound (open)	10 Linear	
	03 Compression	11 Stellate	
	04 Crushed/Depressed	12 Comminuted	
	05 Incomplete (Greenstick)	13 Fracture/Dislocation	
	06 Simple (closed)	14 Blowout	
	07 Fracture, NFS		
		Stress Injuries	
G			
	01 Dislocation		
	02 Sprain (wrenching of joint with stretching or tearing of ligaments)		
	03 Strain (stretched ligaments or muscles)		
	04 Stress Injury, NFS		
		Wounds	
H			
	01 Abrasions (Scraping)	06 Laceration/Cut	
	02 Bites	07 Puncture, Perforation, or Penetration	
	03 Blister	08 Transection (Cut Across)	
	04 Contusion (Bruise, Hematoma)	09 Wounds, NFS	
	05 Crushed		
		Miscellaneous	
I			
	01 Collapsed Lung	08 Multiple Fatal Injuries	
	02 Concussion	09 Internal Injury, NFS	

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Table 3–10
Injury/illness terms and codes—Continued

	03 Dermatitis	10 Multiple Injuries, NFS	
	04 Exhaustion (Not Related to Heat or Cold)	11 Flail Chest	
	05 Foreign Object Retained	96 Injury, NFS	
	06 Herniation/Rupture	97 Not Reported	
	07 Inflammation (Irritation)	98 Injury Unknown	
		Results	
Z			
	00 Results, NFS	52 Paralyzed	
	04 Amnesia	56 Pneumoconioses	
	08 Cardiac Arrest	60 Pneumothorax	
	10 Drowned	64 Poisoning	
	12 Edema	68 Trauma Shock (Emotional)	
	16 Embolism	69 Trauma Shock (Physical)	
	20 Emphysema	69 Shock Due to Trauma (Physical)	
	24 Exsanguination	72 Syncope (Fainting)	
	28 Hearing Loss (Acute)	76 Unconsciousness/Coma	
	32 Hemorrhage	90 Vision Loss	
	36 Hemo-pneumothorax	84 Repeated Trauma Disorders, NFS	
	40 Hemothorax	96 Occupational Disorders, NFS	
	44 Infection	97 Not Reported	
	48 Occlusion	98 Unknown	
		99 Other (Specify)	
Injury Mechanism (How Injury Occurred)			
		Action	
	01 Caught in/under/between	05 Struck by	
	02 Experienced	06 Thrown from	
	03 Exposed to	97 Not reported	
	04 Struck against	98 Unknown	
		99 Other (Specify)	
		Qualifier	
	01 Aircraft	17 Irritating Fluids/Fumes	
	02 Aircraft fire	18 Litter/Litter support	
	03 Armor	19 Main rotor	
	04 Ceiling	20 Multiple injury producing mechanism (MIPM)	
	05 Collective	21 Pedals	
	06 Console	22 Restraint system	
	07 Cyclic	23 Seat	
	08 Door	24 Structure forces	
	09 Excessive deceleration	26 Windshield/window	
	10 External object	27 Night vision device(s)	

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Table 3–10
Injury/illness terms and codes—Continued

	11 Floor	28 Tail rotor	
	12 Gun sight	29 Transmission	
	13 Helmet	97 Not reported	
	14 Instrument panel	98 Unknown	
	15 Internal Object	99 Other (Specify)	
	16 Intruding Object		
Injury/illness Cause Factors (Why Injury/illness Occurred)			
Subject			
	01 Aircraft	20 Monkey Harness	
	02 Armor	21 Qualifier	
	03 Body/Body Part	22 Restraint System	
	04 Canopy Removal System	23 Roof/Ceiling	
	05 Cargo	24 Seat	
	06 Design	25 Structure	
	07 Door	26 Transmission	
	08 Engine	27 Unauthorized Equipment	
	09 External Objects	28 Upper torso restraint system	
	10 Fuel Lines	29 Window	
	11 Fuel tanks/Cell	30 Windshield	
	12 Fuel vent line	31 Night Vision Device(s)	
	13 Helmet	32 Occupiable Space	
	14 Impact	33 Refueling Equipment	
	15 Instrument Panel	34 Lap Belt	
	16 Landing Gear	35 Inertial Reel	
	17 Litter	97 Not Reported	
	18 Internal Objects	98 Unknown/Unclassified	
	19 Main Rotor	99 Other (Specify)	
Action			
	01 Absorbed	19 Separated/Dislodged	
	02 Allowed	20 Spilled	
	03 Broke	21 Stretched	
	04 Buckled	22 Trapped/Pinned	
	05 Caused	23 Used Improperly	
	06 Collapsed	24 Not Restrained/Secured	
	07 Crushed	25 Allowed Excessive Motion	
	08 Displaced	26 Injured outside aircraft	
	09 Exceeded	27 Bottomed out	
	10 Flailed	28 Disintegrated	
	11 Ignited	29 Penetrated Occupied Space	
	12 Injured	30 Injured During Exit	
	13 Located	31 Failed to Fully Stroke	
	14 Not provided	32 Failed to Attenuate For	
	15 Not used	97 Not Reported	

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Table 3–10
Injury/illness terms and codes—Continued

	16 Penetrated	98 Unknown	
	17 Provided	99 Other (Specify)	
	18 Ruptured		
		Qualifier	
	01 During Exit	12 Longitudinal	
	02 Excessive Loading	13 Occupiable Space	
	03 Excessive Motion	14 Outside Aircraft	
	04 Excessively	15 Properly	
	05 Fuel	16 Vertical	
	06 Human and Design Limits	17 6–12 Inches	
	07 Improperly	18 Greater than 12 Inches	
	08 Inadequate Clearance	19 Less than 6 Inches	
	09 Insufficient Loads	97 Not Reported	
	10 Jagged Edges	98 Unknown	
	11 Lateral	99 Other (Specify)	

Table 3–11
Equipment Information Codes

Item	**Component**	**Condition**
Helmet		
10 Retained	0 All	0 No damage
11 Dislodged from acceleration (no blow to helmet)	1 Chin Strap	1 Missing
12 Dislodged from blow	2 Nape Strap	2 Loose
	3 Snap Fastener	3 Torn
	4 Attachments	4 Burned
	5 Shell	5 Slipped/Stretched
	6 Strap Slide Fastener	6 Worn improperly/ Improperly fitted
	7 Pads	7 Fractured or Punctured
	8 Suspension Scratched	8 Scraped/System
	9 Crushable Liner	9 Compressed to half original thickness
Note: Helmet, retained, shell fractured. Enter Code"1057." If LASER visor used, so indicate and include date of issue in block 7.		
Visor		
Retention	**Component**	**Condition**
20 Retained	1 Face piece	0 No Damage
21 Dislodged	2 Housing (cover)	1 Shattered
	3 Track	2 Cracked
	4 Screws	3 Punctured
	5 Adjusting knob	4 Separated
	6 All	5 Stripped
	9 Other	6 Burned
		7 Missing
		8 Scratched

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Table 3–11
Equipment Information Codes—Continued

Item	Component	Condition
		9 Other
Note: Visor, retained, face piece cracked. Enter Code "2012."		
Glasses		
Item	**Component**	**Condition**
30 Retained, Prescription, Clear	1 Lens(es)	0 No Damage
31 Retained, Prescription, Tinted	2 Frame(s)	1 Shattered
32 Retained, Nonprescription	3 Earpiece	2 Broken
33 Dislodged, Prescription, Clear	4 All	3 Bent
34 Dislodged, Prescription, Tinted	9 Other	4 Separated
35 Dislodged, Nonprescription, Tinted		5 Missing
36 Contact, Clear		6 Burned
37 Contact, Tinted		7 Scratched
		9 Other
Note: Glasses, retained, lenses shattered. Enter Code "3011."		
Flight Suit/Flight Gloves/Flight Jacket/Boots/Other Clothing		
Type	**Configuration**	**Condition**
40 Cotton, fire retarded, treated	0 All	0 No Damage
41 Cotton, non-fire retardant or open	1 Sleeves up	1 Torn
42 Wool	2 Sleeves down	2 Burned
43 Leather	3 Shirt out of pants or open	3 Melted
44 Synthetics, non-fire retardant, (for example, Nylon)	4 Pants out of or bloused over boots	4 Damaged, NFS
45 Fire retardant synthetics, (for example, NOMEX)	5 Short sleeves	5 Missing
46 Other	6 Worn properly	9 Other
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)		
Lap Belt/Shoulder Harness/Gunner Harness/Inertial Reel		
Component	**Condition**	**Location**
50 Webbing (Strap/belt)	1 Broke	1 At end fitting
51 Hardware fittings	2 Slipped	2 At anchor fitting
52 Lock	3 Stretched	3 At buckle
53 Cable	4 Torn/cut	4 At slide adjustment
54 Mount	5 Failed to properly lock	5 At guide
55 Lap Belt, general	6 Worn loosely	6 In automatic lock
56 Shoulder harness	7 Bent	7 In manual lock
57 Inertial reel	8 Torn Free	8 Between attaching points
	9 Burned/melted	9 Other, general
	0 Missing	0 All locations

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Table 3–11
Equipment Information Codes—Continued

Item	Component	Condition
Note: Shoulder harness broke at guide. Enter Code"5615." Inertial reel lock failed to lock in automatic lock. Enter Code "5256."		
Seat/Litter		
Component	**Condition**	**Location**
60 Back Rest	1 Bent/Distorted	1 Front
61 Seat Pan	2 Broken	2 Rear
62 Support/Legs	3 Bottomed out	3 Right
63 Anchor fittings	4 Displaced	4 Left
64 Track	5 Torn/Ripped	5 Center
65 Brace	6 Torn free	6 Longitudinal
66 Pole or Frame	7 Stroked	7 Vertical
67 Canvas/Netting	8 Did not stroke	8 Lateral/Diagonal
68 Energy attenuator	9 Missing	9 All
69 Litter support	0 No Damage	0 Removed/not installed
70 Armor, Sliding	10 Burned/melted	
71 Armor, Hinged		
72 Armor, Fixed		
73 Seat, General		
74 Litter Carousel		

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

Survival equipment/components	Survival Equipment Problem/Condition
79	Cockpit airbags
80	Survival vest
81	Survival radio
82	Pen flare
83	Signal flare
84	Strobe light
85	Mirror
86	Flashlight
87	Compass
88	Panel marker
89	Reflective tape
90	Night vision goggles/devices
91	Helmet sighting system
92	Night vision imaging system
93	NBC protective clothing
94	NBC protective mask
95	Life preserver
96	Life raft

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Table 3–12
Equipment information codes—Continued

Survival equipment/components	Survival Equipment Problem/Condition
97	Survival kit (see Note 1)
98	First aid kit (see Note 2)
99	Other (specify), (for example, Parachute, Oxygen, Mask, Body Armor).
01	Not available-supply problem
02	Not available-left behind
03	Damaged, unable
04	Damaged, unusable
05	Failed to operate
06	Operated partially
07	Difficulty locating
08	Beyond reach
09	Connection/closure problems
10	Release/disconnect problems
11	Inadvertent released/disconnect
12	Inadvertent actuation
13	Actuation problems
14	Actuated by other person
15	Improper use
16	Unfamiliar with use
17	Cold hampered use
18	Injury hampered use
19	Water hampered use
20	Other equipment interfered
21	Donning/removal problem
22	Poor fit
23	Leaked
24	Materiel deficiency
25	Design deficiency
26	Hang-up/entanglement
27	Dragging (parachute only)
28	Nonstandard configuration
29	Aided in location/rescue
30	Not effective in location/rescue
31	Equipment produced injury
32	Failure/relay in using; compromised survival use
33	Maintenance/installation error
34	Problem experienced by others in actuation/release of equipment
35	Discarded
36	Lost
37	Deteriorated, not usable
38	Failed during use
39	Broken

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Table 3–12
Equipment information codes—Continued

Survival equipment/components	Survival Equipment Problem/Condition
40	Battery inoperative
41	Burned
42	Locally procured item
98	Other

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 provodine 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

Method of escape	Information codes
Did not egress, (for example, fatally injured)	1
Exit unassisted	2
Assistance required	3
Blown/thrown out/fell out	4
Jumped prior to impact	5
Unknown if attempt was made	7
Other (specify in Remarks)	8
Egress method undetermined	9

Table 3–14
Location in aircraft

Aircraft station	Information codes
Cockpit	1
Engineer	2
Passenger	3
Gunner	4
Crew Chief	5
Other (specify in Remarks)	8
Undetermined	9
Longitudinal Location	
Forward section	1
Center section	2
Aft section	3
Undetermined	9
Lateral Location	
Center	1
Left side	2
Right side	3

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Table 3–14
Location in aircraft—Continued

Aircraft station	Information codes
Undetermined	9
Direction Facing	
Forward	1
Aft	2
Sidefacing	3
Undetermined	9
Use of Seat	
Not in seat	1
In seat	2
Litter	3
Undetermined	9

Table 3–15
Exit attempted

Exit attempted	Information codes
Normal exit	1
Emergency exit	2
Opening in aircraft wreckage	3
Cut through canopy	4
Canopy removal system	5
Cargo hatch	6
Other (specify in Remarks)	8
Undetermined	9
Fatal-None attempted	0

Table 3–16
Exit used

Exit used	Information codes
Normal exit	1
Emergency exit	2
Opening in aircraft wreckage	3
Cut through canopy	4
Canopy removal system	5
Cargo hatch	6
Other (specify in Remarks)	8
Undetermined	9
Fatal-None used	0

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Table 3–17
Aircraft attitude at time of Escape

Aircraft at rest	Information codes
Upright	A1
Inverted	A2
Nosed Over	A3
Lying on left side (More than 45degrees from upright)	A4
Lying on right side (More than 45 degrees from upright)	A5
Tail low	A6
Other (specify in Remarks)	A8
Undetermined	A9
Fatal-Did not escape	A0
Aircraft in Motion	**Codes**
Level	B1
Inverted	B2
Nose low	B3
Left bank	B4
Right bank	B5
Nose high	B6
Other (specify in Remarks)	B8
Undetermined	B9

Table 3–18
Cockpit/Cabin Condition

Condition	Information codes
No damage	01
Survivable	02
Partially survivable	03
Nonsurvivable	04
Undetermined	09

Table 3–19
Escape difficulties

Difficulties	Information codes
Difficulty locating canopy jettison mechanism	01
Difficulty releasing canopy/door	02
Difficulty releasing restraints	03
Difficulty reaching exit due to obstructions	04
Difficulty reaching exit due to injuries	05
Difficulty reaching exit due to aircraft attitude	06
Difficulty reaching exit due to personal equipment hang-up	07
Canopy/door jettison problem	08
Canopy/door jettison failure (automatic)	09
Could not open canopy/door (mechanical failure)	10

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Table 3–19
Escape difficulties—Continued

Difficulties	Information codes
Could not open canopy/door (jammed due to structural deformation)	11
Could not open canopy/door (Other, specify in Remarks)	12
Could have but did not open canopy/door	13
Exit inaccessible (out of reach)	14
Hampered by controls	15
Hampered by body armor	16
Hampered by seat armor	17
Hampered by seat	18
Hampered by airframe structure	19
Hampered by components of power train	20
Hampered by cargo or loose equipment	21
Hampered by armament system components	22
Hampered by clothing	23
Hampered by injuries	24
Personal equipment factor (Other than hang-up) (specify in Remarks)	25
Hampered by others aboard	26
Hampered by high temperature of exit surfaces	27
Parachute entanglement	28
Failure of lap belt to open	29
Smoke, fumes	30
Fire	31
Spilled fluids	32
Confusion	33
Anthropometric problem	34
Unconscious	35
Darkness-no visual reference	36
Cold	37
In rushing water	38
Intruding object (tree, rock, aircraft structure) (specify in Remarks)	39
Lack of emergency evacuation during preflight briefing	40
Lack of in-flight warning	41
Briefing not followed	42
Panic	43
Disorientation	44
Dazed	45
Other (specify in Remarks)	98
Undetermined	99
None	00

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Table 3–20
Survival problems

Problems	Information codes
Inadequate flotation gear	01
Inadequate cold weather gear	02
Lack of signaling equipment	03
Lack of other equipment (specify in Remarks)	04
Entanglement (parachute)	05
Dragging (parachute)	06
Parachute hardware problems	07
Entrapment in aircraft	08
Pulled down by sinking chute	09
Pulled down by body armor	10
Unfamiliar with procedure	11
Confused	12
Incapacitated by injury/occupational illness	13
Poor physical condition	14
Exposure (heat, cold, sunburn)	15
Fatigue	16
Weather	17
Topography	18
Darkness	19
Thrown from raft	20
Hampered by rotor downwash	21
Problem boarding rescue vehicle	22
Thirst	23
Hunger	24
Insects	25
Sharks	26
Unfamiliar with equipment	27
Dazed	28
Animals	29
No problems encountered	30
Other (specify in Remarks)	98

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Table 3–21
Means used to locate individual

Means	Information codes
Survivor located rescuers	01
Accident observed	02
Accident site located w/o aid of signals or equipment	03
Individual located w/o aid of signals or equipment	04
Other aircraft orbiting scene to direct rescue personnel	05
Radio or radar vector or DF steer	06
Aircraft radio after mishap	07
Radar chaff	08
Sonar buoy	09
Walkie-talkie	10
Fire	11
Beacon (emergency locator transmitter)	12
Aircraft radio prior to mishap	13
Radio (survival type)	14
Telephone	15
Corner reflection	16
Reflective tapes	17
Mirror	18
Reflective surface other than code, 16, 17, or 18 (specify in remarks)	19
Raft	20
Flight clothing	21
Parachute	22
Signal flare	23
Smoke flare	24
Aircraft lights	25
Pen gun flare	26
Tracers	27
Strobe light	28
Flashlight	29
Signal wand	30
Smoke	31
Dye marker	32
Whistle	33
Voice	34
Gunfire	35
Signals on surface	36
Not applicable	37
Other (specify in Remarks)	98

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Table 3–22
Rescue equipment used

Item	Information codes
Sling	01
Seat	02
Cargo net	03
Rope	04
Life ring	05
Basket	06
Axe	07
Saw	08
Raft	09
Webbing cutters	10
Cable	11
Grapnel	12
Boarding ladder	13
Knife	14
Makeshift carrier/support	15
First-aid equipment	16
Forest penetrator seat	17
Helicopter platforms	18
Stretcher/litter	19
Cable cutters	20
Helicopter rescue boom	21
Not applicable	22
Other (specify in Remarks)	98

Table 3–23
Factors that helped rescue

Item	Information codes
Rescue personnel training	01
Training of person to be rescued	02
Aircraft emergency escape means	03
Personal equipment	04
Accident plans	05
Availability of rescue equipment	06
Survivor's techniques	07
Suitability of rescue equipment	08
Coordination of rescue effectors	09
Survival training (specify in Remarks)	10
Emergency locator transmitter	11
Electronic tracking equipment	12
Not applicable	13
Other (specify in Remarks)	98

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Table 3–24
Factors that complicated rescue

Factors	Information codes
Failure of rescue vehicle (mechanical problems)	01
Inadequacy of rescue vehicle	02
Failure of rescue equipment	03
Inadequacy of rescue equipment	04
Inadequacy of rescue personnel	05
Inadequate medical equipment	06
Inadequate medical facilities	07
Vehicle operator factor (poor procedure)	08
Rescue crewman assist hesitancy	09
Fire	10
Entrapment in aircraft	11
Physical limitations of rescue personnel	12
Physical limitations of person rescued	13
Carelessness by rescue personnel	14
Inappropriate actions of person rescued	15
Rescue vehicle accident	16
Communication problems	17
Entanglement by deployed parachute	18
Topography	19
Interference from other vehicles	20
Victim pulled away by extreme forces	21
Weather	22
Darkness	23
Weight/drag problems due to parachute	24
Hampered by equipment of person rescued	25
Floating debris	26
Primary rescuer delayed by other rescuers	27
Hampered by helicopter downwash	28
Head wind	29
Poor visibility	30
High sea state	31
Mechanical problems	32
Other obstructions (specify in Remarks)	33
Rescuers lost	34
No problems	35
Vehicle operator not available	36
Vehicle not ready	37
Vehicle crew not available	38
Communication breakdown	39
Completing previously assigned duties	40
Lack of information about crash site	41

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Table 3–24
Factors that complicated rescue—Continued

Factors	Information codes
Poor radio reception/transmission	42
Telephone line busy	43
Poor radio discipline	44
Aircraft radio equipment inoperative	45
Poor radio procedures	46
Lack of emergency locator transmitter	47
Lack of electronic tracking equipment	48
Other (specify in Remarks)	98

Table 3–25
Individual's physical condition

Condition	Information codes
Fully able to assist	01
Partially able to assist	02
Immobile or unconscious	03
Fatal	04

Table 3–26
Weather factors

Code	Weather factor
W1	Wind gusts
W2	Rain
W3	Lightning
W4	Thunderstorms
W5	Drizzle
W6	Hail
W7	Tornado/Cyclone/Waterspout
W8	Hurricane/Typhoon
W9	Freezing rain
W10	Ice
W11	Sleet
W12	Blowing/Swirling
W13	Snow
W14	Fog
W15	Mist
W16	Haze
W17	Cross wind
W18	High/Strong Winds
W19	Winds greater than forecast
W20	Density Altitude
W99	Insufficient information to identify environmental condition

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Table 3–27
Other Environmental Factors

Code	Other environmental factors
X1	Wildlife (including fowl, animals)
X2	Moon Illumination (including bright, dark, glare, too little, too much)
X3	Sun Illumination (including bright, dark, glare, too little, too much)
X4	Contaminants (gases, smog, toxic materials, debris, fumes, chemicals, and so forth)
X5	Smoke
X6	Dust, Dirt, Sand
X7	Blowing/Swirling Dust, Dirt, Sand
X8	Noise
X9	Temperature
X10	Humidity
X11	Radiation
X12	Surface condition (including sloped, steep, gullies, rough, rocky, wet (excluding precipitation), slippery, rutted, pot holed, and so forth)
X13	Static electricity
X14	Structural impediments to line of site/frequency interference
X99	Insufficient information to identify other environmental factors

3–37. Completion instructions for DA Form 2397–U, Unmaned Aircraft System Accident Report (UASAR)

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UNMANNED AIRCRAFT SYSTEM ACCIDENT REPORT *(UASAR)*
Use for all UAS Aviation Accidents
For use of this form, see DA Pamphlet 385-40; the proponent agency is OCSA.

REQUIREMENTS CONTROL SYMBOL
CSOCS-309

1. ACCIDENT CASE INFORMATION	a. Date *(YYYYMMDD)* 20091014	b. Time *(Local)* 1515	c. UA Tail Number 2001
2. ACCIDENT CLASS/ CATEGORY	a. Classification [ ] A [ ] B [X] C [ ] D [ ] E [ ] F	b. Category [X] Flight [ ] Flight Related [ ] Aircraft Ground	**3. UAS MTDS** RQ-7B
4. PERIOD OF DAY [ ] Dawn [X] Day [ ] Dusk [ ] Night	**5. AIRCRAFT INVOLVED** a. Number of Aircraft Involved 1	b. In Flight/Mid-Air Collision [ ] Yes [X] No [ ] Unknown	**6. NEAREST MILITARY INSTALLATION** Ft Where, TX
7. ACCIDENT LOCATION a. [X] On-Post [ ] Off-Post	b. [ ] On Airfield [X] Not on Airfield	c. City Whoville	d. State TX; e. Country USA; f. Grid and/or Lat/Long 16R12345678

8. ORGANIZATION INVOLVED

a. Unit Designation	b. Unit Identification Code (UIC)	c. Home Station	d. Army Headquarters
B Co 9 BSTB	W?????	Ft Where, TX	FORSCOM

9. ACCOUNTABLE ORGANIZATION *(if same as block 8 leave blank)*

a. Unit Designation	b. Unit Identification Code (UIC)	c. Home Station	d. Army Headquarters

10. ACCIDENT COST DATA	a. UA Total Loss [ ] Yes [X] No	b. UA Damage or replacement Cost *(Excluding Man-hours)* $ 180,327	c. Number of Man-Hours	d. Man-Hours Cost $	e. Other UAS Sub-System Cost $
f. Other Damage Cost-Military $	g. Other Damage Cost-Civilian $	h. Injury/Occupational Illness $	i. Total Cost *(This UAS)* $ 180,327	j. Total Cost *(All Aircraft)* $	

11. GENERAL DATA	a. Mission	a(1). Type Mission T	a(2). Aircraft Mode [X] Single-ship [ ] Multi-ship [ ] Manned/Unmanned Teaming	a(3). Level of Interoperability (LOI) [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [X] NA
a(4). Simultaneous UA Operation? [ ] Yes [X] No *(If Yes, specify number & MTDS)*			b. Flight Plan [ ] Military [ ] Civil [X] Operation's Log	c. Flight Rules [X] VFR [ ] IFR
d. Mission/ Training	d(1). At what level was mission/training conducted? [ ] Bde [ ] Bn [X] Co [ ] Plt [ ] Sqd [ ] Team [ ] Crew			d(2). Who approved the mission/training? Rank & Position: CPT, Co Cdr
d(3). Was a mission brief completed? [X] Yes [ ] No	d(4). Who was in charge during the mission? Rank & Position: CW2, Plt Ldr			d(5). Who was the senior leader present during the mission/training? Rank & Position: CW2, Plt Ldr
e. Risk Management (RM)	e(1). RM Performed? [X] Yes [ ] No	e(2). Who performed the RM? Rank & Position: SSG, MC	e(3). RM Approved? [X] Yes [ ] No	e(4). Who accepted risks? Rank & Position: LTC, Bn Cdr
e(5). What was the level of the risk after controls applied? [ ] Low [X] Moderate [ ] High [ ] Extremely High			e(6). How was the RM process communicated? *(Check all that apply.)* [X] Worksheet [X] Verbal Brief [ ] Order [ ] Not Communicated	
e(7). Accident event identified/considered during RM process? *If yes, complete blocks 11a(7)a thru 11e(7)d)* [X] Yes [ ] No			e(7)a. What was the level of the identified risk? [ ] Low [X] Moderate [ ] High [ ] Extremely High	
e(7)b. Was the control measure(s) applied? [X] Yes [ ] No	e(7)c. Who was responsible for implementing the controls? Rank & Position: SSG, MC			e(7)d. Was the potential for accident event accepted as residual risk? [X] Yes [ ] No
f. Digital Source Collector (DSC)	f(1). DSC installed? *(If yes, enter type of DSC)* [X] Yes [ ] No ACE II Box & GCS		f(2). Data captured and preserved? *(If yes, specify storage location)* [X] Yes [ ] No HHC, 9BSTB, Bldg 777, Ft Where, TX	
g. Fire [X] None [ ] Inflight [ ] Postcrash [ ] Other *(Specify)*		h. Hazardous Material Spillage *If yes & a Class A, B or C accident, attach DA Form 2397-6)* [ ] Yes [X] No	i. Did accident occur while on an exercise or at a training facility/center? *(If yes, enter the name)* [X] Yes [ ] No FTX Eye in the Sky	

12. SUMMARY *(Attach a continuation sheet(s) as needed)*

The Unmanned aircraft (UA) was launched successfully, no problems detected. The aircraft was flying in Points Nav Mode with engine at 5750 rpm, airspeed of 70 Kts, and altitude of 4850 feet AGL. At 2.7 hrs of uneventful flight the engine abruptly failed. The aircraft operator (AO) switched to Knobs Mode and turned the UA towards home base. The parachute was successfully deployed. The UA impacted the ground incurring major, but repairable, damage. A preliminary engineering investigation was conducted on the UA which concluded that a suspected magneto failure under changing engine temperature conditions caused the engine failure (see attached Engineering Report). The payload and high power amp were left on after the engine failed, but did not appear to have contributed to the failure of the engine. The UA will be shipped to AAI Hunt Valley, MD, for further investigation of the ignition system components.

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Figure 3–18. Example of a completed DA Form 2397–U, Unmaned Aircraft System Accident Report (UASAR)

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13. FLIGHT DATA	Flight Duration	Phase of Operation (Enter max of 3 codes from Table 3-4 of DA Pam 385-40 or specify the phase if there is no code for it in the table)	Altitude MSL	Altitude AGL	Airspeed KIAS	UA Weight	UA Overgross Weight for Conditions Yes	No	14. TYPE EVENTS (Enter max of 3 codes from Appendix F table F-3 of DA Pam 385-40 or specify the type event which best describes the accident/incident event if there is no code for it in the table.)
a. At Emergency/ Onset	Hours 2 Tenths 7	G	5000	4850	70	338	☐	☒	
b. At Impact/Acdt or Termination	Hours 2 Tenths 8	6 R	150	0	0	338	☐	☒	U33 U05 U09
c. Flight Ctrl Malfunction	Check all that apply: ☐ Human ☐ Environmental ☐ Materiel ☐ Hardware ☐ Software ☐ Component/Part ☒ Not Applicable								

15. ACCIDENT CAUSE FACTORS *(For blocks 15a-c, D=definite, S=Suspected, U=Undetermined and N=No/None)*

a. Human Factors *(Check box D, S, U or N. If D or S, complete blocks 15a(1)(a)-(e))* ☐ D ☐ S ☐ U ☒ N

a(1). System Inadequacies *(Enter max of 3 codes in each block below from table B-5 (Additional codes in table B-1) DA Pam 385-40 or if there is no code in the table, write in that which best describes the failure)*

a(1)a. Support Failure	a(1)b. Standards Failure	a(1)c. Training Failure	a(1)d. Leader Failure

a(1)e. Individual Failure	b. Materiel Factors *(Check box D, S, U or N. If D or S, complete blocks 15b(1)-(2))* ☐ D ☒ S ☐ U ☐ N	b(1). Type *(Check all that apply.)* ☒ Component/Part ☐ Hardware ☐ Software

b(2). Component and Part *(Part that initiated failure/malfunction)*

	UAS Subsystem *(UA, GCS, GDT, TALS, etc.)*	Major Component	Part
a. Nomenclature	UA	Engine	Magneto
b. Type, Design, and Series	RQ-7B		
c. Part Number		68629-41005-30	38393-43307-10
d. NSN/ Manufacturer's Number			
e. Manufacturer's Code			97384
f. Serial Number	2001	263	173
g. Cause of Failure/ Malfunction		☒ Materiel ☐ Maintenance ☐ Design ☐ Manufacture	*(Enter the applicable Failure Codes (max 2) using table 1-2, DA Pam 738-751 (TAMMS-Aviation))* 374

c. Environmental Factors *(Check box D, S, U or N, as appropriate.)* ☐ D ☐ S ☒ U ☐ N

c(1). General *(Check all that apply.)* ☒ VMC ☐ IMC ☐ Icing ☐ Turbulence

c(2). Weather Conditions *(Enter max of 3 codes from Appendix F table 3-26 of DA Pam 385-40 or specify the weather condition if there is no code for it in the table.)* WI

c(3). Environmental Signal Factors ☐ Uplink ☐ Downlink ☐ Interference ☐ E[3] ☒ NA ☐ Other *(Specify)*

c(4). Other Environmental Factors *(Enter max of 3 codes from Appendix F table 3-27 of DA Pam 385-40 or specify the weather condition if there is no code for it in the table.)* X5

16. LOSS OF LINK *(Check box D, S, U or N. If D or S, complete blocks 16 a-d)* ☐ D ☐ S ☐ U ☒ N

a. Type of Link Lost ☐ Uplink ☐ Downlink ☐ Unknown

b. Type of Link ☐ LOS ☐ BLOS ☐ C-Band ☐ Ku-Band ☐ Other *(Specify)*

c. UA distance from the GCS at time of LOL

d. LOL Factors *(Check all that apply.)* ☐ Human ☐ Environment ☐ Materiel ☐ Hardware ☐ Software ☐ Component/Part

17. TAKE OFF/LANDING DATA *(Complete block 17a if accident occured during take-off phase and block 17b if during landing phase.)*

a. Take-Off (T/O) Phase	a(1). T/O Method ☐ ATLS ☐ Launcher ☐ Manual	a(2). T/O Accident Factors *(Check all that apply.)* ☐ Human ☐ Environment ☐ Materiel ☐ Hardware ☐ Software ☐ Component/Part
b. Landing Phase	b(1). Landing Method ☐ ATLS ☐ TALS ☐ FTS ☐ Manual	b(2). Landing Accident Factors *(Check all that apply.)* ☐ Human ☐ Environment ☐ Materiel ☐ Hardware ☐ Software ☐ Component/Part

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Figure 3–18. Example of a completed DA Form 2397–U, Unmaned Aircraft System Accident Report (UASAR) –continued

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18. TYPE OF STRIKE

☐ Wire ☐ Bird ☐ Tree ☐ Object ☐ Lighting ☐ Antenna ☒ N/A ☐ Other *(Specify)*

19. PERSONNEL DATA *(Complete for each crew member with access to flight controls, personnel injured/occupational illness, personnel having a contributing role in the accident; use additional forms if needed.)*

a. Name *(Last, First, MI)*	(1) SSN	(2) Grade	(3) Gender	(4) Duty	(5) SVC	(6) UIC *(Assigned)*	(7) Contributing Role	(8) On Fit Ctrls	(9) Lab Test
Operator, John Q.	999-99-9999	E5	☒ Male ☐ Female	AO	A	W??????	☐ D ☐ S ☐ U ☒ N	☒ Yes ☐ No	☐ Pos ☒ Neg ☐ Not Required

(10) Activity			(11) Individual Status	(12) Injury/Occupational Illness	(13) MTDS Flt Hrs	(14) Total Flt Hrs
	(a) Hrs Slept	8.0	(a) RL ☒ 1 ☐ 2 ☐ 3 ☐ Msn Prep ☐ Msn Qual	*(If "yes" complete and attach DA Form 2397-9)*		
	(b) Hrs Worked	7.7	(b) FAC ☒ 1 ☐ 2 ☐ 3 ☐ NA *(SUAS Operators)*			
	(c) Hrs Flown	2.8	(c) Redeployed Date *(YYYYMMDD)*	☐ Yes ☒ No	350.1	425.5

b. Name *(Last, First, MI)*	(1) SSN	(2) Grade	(3) Gender	(4) Duty	(5) SVC	(6) UIC *(Assigned)*	(7) Contributing Role	(8) On Fit Ctrls	(9) Lab Test
Payload, Jane M.	888-88-8888	E5	☐ Male ☒ Female	PO	A	W??????	☐ D ☐ S ☐ U ☒ N	☐ Yes ☒ No	☐ Pos ☒ Neg ☐ Not Required

(10) Activity			(11) Individual Status	(12) Injury/Occupational Illness	(13) MTDS Flt Hrs	(14) Total Flt Hrs
	(a) Hrs Slept	7.5	(a) RL ☒ 1 ☐ 2 ☐ 3 ☐ Msn Prep ☐ Msn Qual	*(If "yes" complete and attach DA Form 2397-9)*		
	(b) Hrs Worked	8.0	(b) FAC ☒ 1 ☐ 2 ☐ 3 ☐ NA *(SUAS Operators)*			
	(c) Hrs Flown	2.8	(c) Redeployed Date *(YYYYMMDD)*	☐ Yes ☒ No	225.3	321.7

c. Name *(Last, First, MI)*	(1) SSN	(2) Grade	(3) Gender	(4) Duty	(5) SVC	(6) UIC *(Assigned)*	(7) Contributing Role	(8) On Fit Ctrls	(9) Lab Test
			☐ Male ☐ Female				☐ D ☐ S ☐ U ☐ N	☐ Yes ☐ No	☐ Pos ☐ Neg ☐ Not Required

(10) Activity			(11) Individual Status	(12) Injury/Occupational Illness	(13) MTDS Flt Hrs	(14) Total Flt Hrs
	(a) Hrs Slept		(a) RL ☐ 1 ☐ 2 ☐ 3 ☐ Msn Prep ☐ Msn Qual	*(If "yes" complete and attach DA Form 2397-9)*		
	(b) Hrs Worked		(b) FAC ☐ 1 ☐ 2 ☐ 3 ☐ NA *(SUAS Operators)*			
	(c) Hrs Flown		(c) Redeployed Date *(YYYYMMDD)*	☐ Yes ☐ No		

20. FINDINGS AND RECOMMENDATIONS *(See instructions in DA Pam 385-40, para 2-24, for writing findings and recommendations. Use additional sheets if needed)*

Finding 1 (Suspected Present and Contributing: Materiel Failure): While the RQ-7B was in cruise flight on a day time surveillance mission, the ignition system magneto (P/N 38393-43307-10) failed to operate properly due to a suspected low coil short. The failure of the magneto caused to UA's engine to fail. The UA was descended with its parachute deployed, impacting the ground nose first causing major fuselage and systems damage. The magneto failure was due to the improper assembly/seating of the magneto connector pins by the manufacturer. The magneto's (P/N 38393-43307-10) low coil short caused a decline in bus voltage and the resulting engine failure.

Additional Findings and Recommendations (see attached continuation sheet)

USACRC use only	Duty	Role	Failure/error Code	SI 1	RM 1	RM 2	RM 3
	Phase of OP	Task/part no.		SI 2	RM 1	RM 2	RM 3

21. LIST OF ATTACHMENTS *(ECOD/ACOD, CCAD, PQDR, DA Forms 2397-series, etc.)*

Block #20 Continuation Sheet, ECOD, PQDR, DA Form 2397-4, Preliminary Engineering Investigation (TFN 05-14), Photos, Weight & Balance, RAW, Weather Brief

22. BOARD PRESIDENT/ASO/POC *(Name, Signature, and Date)*	a. Grade	b. Branch	Address and Tel No. *(DSN and Com)*
Andrew T. Byrd signature 28 Dec 09	W3	AV	HHC, 8 BCT Ft Where, TX DSN 323-2121 Comm 999-999-9999
	E-Mail: email@us.army.mil		

23. COMMAND REVIEW *(Only required for class A, B & C)*

Reviewer	Organization	Name *(Last, First, MI)*	Rank	Comments	Signature
a. Unit Commander	B Co 9 BSTB	Leader, William E.	CPT	☐ Concur ☐ Non-concur	
b. Reviewing Official	9 BCT	Reviewer, Ray J.	COL	☐ Concur ☐ Non-concur	
c. Approving Authority	FORSCOM	Approver, Glen D.	GEN	☐ Concur ☐ Non-concur	
d. DA Review	USACR/SC			Approved for entry into ASMIS *(YYYYMMDD)*	

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Figure 3–18. Example of a completed DA Form 2397–U, Unmaned Aircraft System Accident Report (UASAR) –continued

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a. Also see paragraph 3–21. Complete the entire form for all UAS accidents, regardless of accident class.

b. Complete the UASAR, DA Form 2397–U, as follows:

(1) *Block 1, Accident Case Information.* Complete this block as follows:

(a) Block 1a, Date of accident. Enter the year, month, and day of the accident in YYYYMMDD format.

(b) Block 1b, Time (Local). Enter the local time of the accident using the 24 hr clock.

(c) Block 1c, UA Tail Number. Enter the Unmanned Aircraft's (UA) tail number Exception: some UAS (for example, the gMav SUAS) do not have a tail number. In that case enter the UAS serial number.

(2) *Block 2, Accident Class/Category.* Complete this block as follows:

(a) Block 2a, Classification. Check the box corresponding to the appropriate accident classification per AR 385–10, paragraph 3–4.

(b) Block 2b, Category. Check the box corresponding to the appropriate accident category as defined in the paragraph 1–9*a*(1)-(3) of this pamphlet.

Note. Block 2b does not apply to Class E FWT materiel failure incidents, leave blank.

(3) *Block 3, UAS MTDS.* Enter the mission, type, design, and series (MTDS) of the UAS involved in the accident (examples: RQ-7B, MQ-1C).

(4) *Block 4, Period of Day.* Check the appropriate box.

Note. (Dawn is between the beginning of morning nautical twilight (BMNT) and official sunrise; Day is between official sunrise and official sunset; dusk is between official sunset and the end of evening nautical twilight (EENT); and night is between EENT and BMNT.)

(5) *Block 5, Aircraft Involved.* Complete this block as follows:

(a) Block 5a, Number of Aircraft Involved. Enter the number of aircraft involved in the accident.

Note. (If more than one aircraft is involved, submit additional DA Forms 2397–U for each UA and DA Form 2397–AB for each manned aircraft. Do NOT include damaged aircraft that were NOT being operated at the time of the accident. When completing additional forms, do not duplicate data already provided on the case aircraft form.)

(b) Block 5b, In Flight/Mid-Air Collision. Check the appropriate box to indicate whether or not this accident involved an in flight/mid-air collision.

(6) *Block 6, Nearest Military Installation.* Enter the name of the military installation/facility nearest to the accident site.

(7) *Block 7, Accident Location.* Complete this block as follows:

(a) Block 7a, On/Off Post. Check the appropriate box to indicate whether the accident occurred on or off post.

(b) Block 7b, On/Off Airfield. Check the appropriate box to indicate whether the accident occurred on or off an airfield.

Note. (Tactical landing zones under positive ATC (for example: Corps' instrumented airfield, Division's VFR helipad, stagefields and support bases, UA Launch and Recovery Site) are considered "on post" and "on airfield" for reporting purposes. Also, UA 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.)

(c) Block 7c, City. Enter the name of the city nearest to the accident site.

(d) Block 7d, State. Enter the state in which the accident occurred.

(e) Block 7e, Country. Enter the country in which the accident occurred.

(f) Block 7f, Grid and/or Lat/Long. Enter the Military Grid Reference and/or latitude/longitude for the accident site.

(8) *Block 8, Organization Involved.* Complete this block as follows:

(a) Block 8a, Unit Designation. Enter the unit designation for the lowest level organization having operational control of the UAS at the time of the accident.

(b) Block 8b, Unit Identification Code. Enter the unit's six-digit Unit Identification Code (UIC).

(c) Block 8c, Home Station. Enter the unit's home station.

(d) Block 8d, Army Headquarters. Enter the organization's Army Headquarters (the ACOM, ASCC, or DRU).

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 active duty unit information. Also, enter the UIC of the Army Reserve or Army National Guard unit in block 19a(6).)

(9) *Block 9, Accountable Organization.* Complete this block as follows:

Note. (If this organization is the same as block 8, leave blank).

(a) Block 9a, Unit Designation. Enter the unit designation of the organization most responsible/accountable for the accident.

(b) Block 9b, Unit Identification Code. Enter the organization's 6-digit Unit Identification Code (UIC).

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(c) Block 9c, Home Station: Enter the organization's home station.

(d) Block 9d, Army Headquarters. Enter the organization's Army Headquarters (the ACOM, ASCC, or DRU).

(10) *Block 10, Accident Cost Data.* Do not include those items excluded from accident cost in DA Pam 385–40, paragraph 1–10. Enter in blocks 10b-i, only the cost associated with the UA/UAS to which this form pertains. Complete this block as follows:

Note. Fair Wear and Tear (FWT) materiel failure, where there is no corresponding damage to other components, is not considered damage, enter "0" or leave blank.

(a) Block 10a, UA Total Loss. Check the appropriate box to indicate whether the UA is a total loss. If "Yes", enter the replacement cost in block 10b and leave blocks 10c & d (man-hours) blank.

(b) Block 10b, UA Damage or Replacement Cost (excluding man-hours). If "Yes" is checked in block 10a, enter the current replacement cost (in whole dollars) for the UA. If "No" is checked in block 10a, enter the current cost (in whole dollars) to repair the UA to which this form pertains including component/part damage, but excluding man-hour cost. Cost to replace or repair the UA will be calculated at the current cost at the time of the accident.

Note. (Some UAS are contractually bound to receive ECOD/ACOD from the manufacturer who may not be required to break out man-hours cost. In that case, enter the cost to repair as provided by the manufacturer.)

(c) Block 10c, Number of Man-Hours. If block 10a is "No", enter the number of man-hours required to repair the damaged UA.

Note. (Some UAS are contractually bound to receive ECOD/ACOD from the manufacturer who may not be required to break out the number of man-hours or man-hours cost. In that case, leave blank.)

(d) Block 10d, Man-Hours Cost. If block 10a is "No", enter man-hour cost (in whole dollars) pertaining only to this aircraft's damage, based on current cost criteria specified in this DA pamphlet. Other man-hour costs will be included in block 10e (Other Damage Military).

Note. (Some UAS are contractually bound to receive ECOD/ACOD from the manufacturer who may not be required to break out the number of man-hours or man-hours cost. In that case, leave blank.)

(e) Block 10e, Other UAS Sub-Systems Cost. Enter the estimated/actual cost (in whole dollars) to repair or replace other UAS sub-systems (such as GCA, GDT, TALS, Arresting Gear, and so on) as a result of the accident. Cost to replace or repair the UAS sub-systems will be calculated at the current cost at the time of the accident.

Note. (Some UAS are contractually bound to receive ECOD/ACOD from the manufacturer who may not be required to break out man-hours cost. In that case, enter the cost to repair as provided by the manufacturer.)

(f) Block 10f, Other Damage Cost-Military. Enter all costs (in whole dollars) to other military property resulting from the accident (including inoperative aircraft).

(g) Block 10g, Other Damage Cost-Civilian. Enter the damage costs (in whole dollars) to civilian property.

(h) Block 10h, Injury/Occupational Illness Cost. Enter the injury/occupational illness cost (in whole dollars) for all personnel. The total cost can be computed by sum totaling the dollar amount found in block 19 of each DA Form 2397–9 completed or by using the cost standards table in DA Pam 385–40, table 1–1.

Note. A DA form 2397–9 is required to be submitted for each individual receiving an injury/occupational illness as a result of the accident. Instructions for completing DA Form 2397–9 are in DA Pam 385-40, paragraph 3–31.

(i) Block 10i, Total cost (this UAS). Enter the total of the dollars in blocks 10b through 10h.

(j) Block 10j, Total Cost (All Aircraft). Leave blank unless block 5 indicates multiple aircraft are involved. Enter the total cost (in whole dollars) for all aircraft (manned and unmanned) when multiple aircraft are involved.

(11) *Block 11, General Data.* Complete this block as follows:

(a) Block 11a, Mission. Complete this block as follows:

1. Block 11a(1), Type Mission. Enter the symbol for the mission as shown on the DA Form 2408–12 and/or from AR 95–23 (para 2–5*b*).

2. Block 11a(2), Aircraft Mode. Check the appropriate box to indicate if the mission was single-ship, multi-ship (more than one aircraft on same mission), or Manned/Unmanned Teaming (cooperative employment). If Manned/Unmanned Teaming is checked, complete block 11a(3).

3. Block 11a(3), Level of Interoperability (LOI). Check the appropriate box to indicate the LOI at the time of the accident. LOI refers to degree of manned aircraft control of the UAS during manned/unmanned teaming (cooperative employment). There are 5 levels: 1=Reception of the secondary product, 2=Direct data receipt, 3=Payload control, direct data receipt, 4=Flight control, payload control, direct data receipt, and weapons system operations, 5=Full function and control (only authorized when performing emergency procedures). Refer to AR 95–23, appendix C.

4. Block 11a(4), Simultaneous UA Operation. Check the appropriate box to indicate whether or not multiple unmanned aircraft were being operated simultaneously from the same ground control station (GCS). If "YES", specify the number, and MTDS, in the space provided.

(b) Block 11b, Flight Plan. Check the appropriate box to indicate the type flight plan (Military, Civil, or Operations

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Log) on file at the time of the accident.

Note. (Units may be using a locally developed form or DA Form 1594 as an Operations Log.)

(c) Block 11c, Flight Rules. Check the appropriate box to indicate the flight rules the UA was flying under at the time of the accident.

(d) Block 11d, Mission/Training. Complete this block as follows:

Complete this block as follows:

1. Block 11d(1), At what level was the mission/training conducted? Check the appropriate box to indicate the level at which the mission/training was conducted.

2. Block 11d(2), Who approved the mission/training? Enter the Rank and Position of the individual that approved the mission/training.

3. Block 11d(3), Was a mission brief completed? Check the appropriate box to indicate whether or not a mission brief was completed.

4. Block 11d(4), Who was in charge during the mission/training? Enter the Rank and Position of the individual that was in charge during the mission/training.

5. Block 11d(5), Who was the senior leader present during the mission/training? Enter the Rank and Position of the senior leader present during the mission/training.

(e) Block 11e, Risk Management (RM). Complete this block as follows:

1. Block 11e(1), RM Performed? Check the appropriate box to indicate whether or not a risk management was performed. If "YES", complete blocks 11e(2) – 11e(7).

2. Block 11e(2), Who performed the RM? Enter the Rank and Position of the individual that performed the risk management.

3. Block 11e(3), RM Approved? Check the appropriate box to indicate whether or not the risk management was approved.

4. Block 11e(4), Who accepted the risk(s)? Enter the Rank and Position of the individual that accepted the risk(s).

5. Block 11e(5), What was the level of risk after controls applied? Check the appropriate block to indicate the level of risk after the controls were applied.

6. Block 11e(6), How was the RM process communicated? Check the appropriate box (check all that apply) to indicate how the risk management process was communicated.

7. Block 11e(7), Accident event identified/considered during RM process? Check the appropriate box to indicate whether or not the accident event was identified/considered during the risk management process. If "YES", complete blocks 11e(7)(a) – 11e(7)(d).

a. Block 11e(7)(a), What was the level of the identified risk? Check the appropriate box to indicate the level of the identified risk.

b. Block 11e(7)(b), Was the control measure(s) applied? Check the appropriate box to indicate whether or not the control measure(s) was applied.

c. Block 11e(7)(c), Who was responsible for implementing the control(s)? Enter the Rank and Position of the individual responsible for implementing the control(s).

d. Block 11e(7)(d), Was the potential for the accident event accepted as residual risk? Check the appropriate box to indicate whether or not the potential for the accident event was accepted as residual risk.

(f) Block 11f, Digital Source Collector (DSC). Complete this block as follows:

1. Block 11f(1), DSC installed? Check the appropriate box to indicate whether or not a Digital Source Collector was installed. If "YES," specify the type of DSC in the space provided.

2. Block 11f(2), Was the data captured and preserved? Check the appropriate box to indicate whether or not the DSC data was collected and preserved. If "YES," specify the storage location of the DSC data in the space provided.

(g) Block 11g, Fire. heck the appropriate box to indicate if and when there was a fire during the accident sequence. If "Other," specify in the space provided.

(h) Block 11h, Hazardous Material Spillage. Check the appropriate box to indicate whether or not a hazardous material spillage occurred. If "Yes" and this was a class A, B, or C accident, complete a DA Form 2397–6 (form completion instructions are in para 3–28 of this pamphlet) and attach it to the report (note the attachment in block 21); for Class D, E, and F accidents explain the type and source of spillage in block 12, Summary.

(i) Block 11i, Did the accident occur while on an exercise? Check the appropriate box to indicate whether or not the subject UAS was participating in an exercise or while at a training facility (FTX, NTC, JRTC, named event such as Desert Eagle, and so on). If "Yes," enter the name of the exercise in the space provided.

(12) *Block 12, Summary.* Enter a concise summary of events from the initial onset of the emergency until the aircraft came to rest, to include injuries/occupational illness 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 20. Refer to figure 3–5 of this pamphlet for narrative examples. Enter the SF 368 PQDR number, category, and status when materiel deficiencies

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are involved. Use a continuation sheet(s) on plain bond paper as necessary. Note: Attach a completed DA Form 2397–3 (form completion instructions are in para 3–25 of this pamphlet) if the board determines that more narrative information is required.

Note. Note the attachment in block 21.

(13) *Block 13, Flight Data* Enter the flight parameters at the times indicated in the table. Flight parameters pertain to both flight and ground operations of the aircraft.

(a) Block 13a, At Emergency/Onset. Enter the listed flight parameters at the onset 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."

1. Block 13a(1), Flight Duration. Enter the duration of the flight in hours and tenths of hours in the spaces provided.

2. Block 13a(2), Phase of Operation. Enter a maximum of 3 codes from table 3-4 of this pamphlet in the spaces provided or specify the phase of operation if there is no code for it in the table.

3. Block 13a(3), Altitude MSL. Enter the aircraft's altitude (Mean Sea Level) in the space provided.

4. Block 13a(4), Altitude AGL. Enter the aircraft's altitude (Above Ground Level) in the space provided.

5. Block 13a(5), Airspeed KIAS. Enter the aircraft's speed (Knots Indicated Air Speed) in the space provided.

6. Block 13a(6), UA Weight. Enter the aircraft's weight (pounds) in the space provided.

7. Block 13a(7), UA Overgross Weight for Conditions? Check the appropriate box to indicate whether or not the UA was over gross weight limitations. If "YES," explain in block 12 and/or block 20.

(b) Block 13b, At Impact/Accident or Termination. Enter the listed flight parameters at the time of the first major impact/accident or termination. Exception: in those cases where an in-flight strike occurred, resulting in a second impact, record the second impact in this block. This block may duplicate block 13a (At Emergency).

1. Block 13b(1), Flight Duration. Enter the duration of the flight in hours and tenths of hours in the spaces provided.

2. Block 13b(2), Phase of Operation. Enter a maximum of 3 codes from table 3–4 of this pamphlet in the spaces provided or specify the phase of operation if there is no code for it in the table.

3. Block 13b(3), Altitude MSL. Enter the aircraft's altitude (Mean Sea Level) in the space provided.

4. Block 13b(4), Altitude AGL. Enter the aircraft's altitude (Above Ground Level) in the space provided.

5. Block 13b(5), Airspeed KIAS. Enter the aircraft's speed (Knots Indicated Air Speed) in the space provided.

6. Block 13b(6), UA Weight. Enter the aircraft's weight (pounds) in the space provided.

7. Block 13b(7), UA Overgross for Conditions? Check the appropriate box to indicate whether or not the UA was over gross weight limitations. If "YES," explain in block 12 and/or block 20.

(c) Block 13c, Flight Control Malfunction. Check all boxes that apply. Flight Control System related accidents could be the result of Human, Materiel, and/or Environmental factors. In addition to this block, complete blocks 15a-c as applicable.

(14) *Block 14, Type Events.* Using appendix F, table F–3 of this pamphlet enter up to a maximum of three event codes that best categorize the accident/incident. The 3 codes should be listed in the sequence of occurrence. If there is no code for the event in the table, specify the Type of Event(s) in the space(s) provided.

(15) *Block 15, Accident Cause Factors.* Indicate if Human, Materiel, or Environment cause factors (H/M/E) played a role in the accident/incident by selecting "D" if definite, "S" if suspected, "U" if undetermined, or "N" if None/No in the appropriate block. Accident Cause Factors contributing to the accident will be substantiated in block 12, Summary, and/or block 20, Findings and Recommendations.

(a) Block 15a, Human Factors. Check the appropriate box (D, S, U, or N) to indicate if Human Factors played a role in the accident. If D or S is checked, complete blocks 15a(1)(a)-(e).

1. Block 15a(1), System Inadequacies (SI). Using figure 2–1 of this pamphlet, determine the System Inadequacy(s) responsible for the Human Factor(s). An accident may have multiple human factors and, therefore, multiple system inadequacies. Include all identified system inadequacies. The form allows for the entry of up to three codes for each system inadequacy.

Note. (If more than 3 are identified, use a continuation sheet.)
The primary table for System Inadequacy codes is table B–5, appendix B, of this pamphlet. Additional aviation specific codes can be found in table B–1. If there is no code(s) for the identified system inadequacy in either table, write in that which that best describes the failure.

a. Block 15a(1)(a), Support Failure. Enter up to 3 codes to identify the support failure.

b. Block 15a(1)(b), Standards Failure. Enter up to 3 codes to identify the standards failure.

c. Block 15a(1)(c), Training Failure. Enter up to 3 codes to identify the training failure.

d. Block 15a(1)(d), Leader Failure. Enter up to 3 codes to identify the leader failure.

e. Block 15a(1)(e), Individual Failure. Enter up to 3 codes to identify the individual failure.

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(b) Block 15b, Materiel Factors. Check the appropriate box (D, S, U, or N) to indicate if Materiel Factors played a role in the accident. If D or S is checked, complete blocks 15b(1) and 15b(2)(a)-(g).

1. Block 15b(1), Type. Check the appropriate box(s) to indicate the type of materiel failure and/or malfunction. Check all that apply.

2. Block 15b(2), Component and Part Data. Complete blocks 15b(2)(a)-(g) for the component and/or part that failed or malfunctioned. Enter the requested data for materiel failure and/or malfunction resulting from FWT, maintenance error, manufacturing defect or error, and/or design deficiency. Component column data is required "only" for those items involving power and drive trains; for example, engine, transmission, gearboxes, and so forth. For maintenance error, over which the Army has control, block 19 must also be completed. This is a three column chart. Column 1 is for the UAS sub-system (UA, GCS, GDT, TALS, FTS, ATLS, etc), column 2 is for the component, and column three is for the part. Note: If more than one UAS sub-system had a materiel causal factor, attach additional forms for each sub-system. An EIR/SF 368 (Product Quality Deficiency Report, PQDR) is required for all materiel accidents in accordance with paragraph 3–9b(1), AR 385–10 and paragraph 3–2, DA Pam 738–751. Attach a copy of the SF 368 to this report and note the attachment in block 21.

a. Need a title. Block 15b(2)(a), Nomenclature: Enter the noun nomenclature in the space provided.

b. Block 15b(2)(b), Type, design, and series. Enter the Type, design, and series in the space provided.

c. Block 15b(2)(c), Part Number. Enter the part number in the space provided.

d. Block 15b(2)(d), NSN/Manufacturer's Number. Enter the National Stock number (NSN) or Manufacturer's Number (if no NSN assigned) in the space provided.

e. Block 15b(2)(e), Manufacturer's Code. Enter the code to identify the manufacturer in the space provided

f. Block 15b(2)(f), Serial Number. Enter the item's serial number in the space provided.

g. Block 15b(2)(g), Cause of Failure/Malfunction. Column 1 intentionally left blank; in column 2 check the appropriate box; and in column 3 enter the applicable Failure Codes (maximum of 2) using DA Pam 738–751, table 1–2, (TAMMS-Aviation).

(c) Block 15c, Environmental Factors. Check the appropriate box (D, S, U, or N) to indicate if Environmental Factors played a role in the accident.

1. Block 15c(1), General. This block identifies specific meteorological weather conditions at the time the accident occurred. Check all applicable boxes (more than one may apply).

Note. "VMC and IMC are NOT environmental "causal" factors if the conditions were forecast."

2. Block 15c(2), Weather Factors. Enter up to three codes from table 3–26 of this pamphlet in the spaces provided to indicate weather factors that played a role in the accident. If there is no code(s) for the weather condition in the table, specify the factor(s) in the space(s) provided.

3. Block 15c(3), Environmental Signal Factors. Check the appropriate box(s) to indicate the environmental signal factors/conditions at time of the accident. If "other" is checked, specify the signal factor(s) in the space provided.

Note. If the "signal" problem was not environmental related, but rather the result of human and/or materiel factors, DO NOT enter it in this block; enter it in block 15a and/or block 15b.

4. Block 15c(4), Other Environmental Factors. Enter a maximum of three codes from table 3–27 of this pamphlet in the spaces provided to indicate other environmental factors that played a role in the accident. If there is no code(s) for the other environmental factors in the table, specify the factor in the space(s) provided.

(16) *Block 16, Loss of Link (LOL).* Enter D (definite), S (suspected), U (undetermined), or N (none/no) as appropriate to indicate if Loss of Link played a role in the accident. If D or S is checked, complete blocks 16a-d. LOL can be the result of Human, Materiel, and/or Environmental factors. In addition to blocks 16a-d, complete blocks 15a-15c as/if applicable.

(a) Block 16a, Link Lost. Check the appropriate box to indicate whether it was a loss of uplink, downlink, or unknown.

(b) Block 16b, Type of Link. Check the appropriate box to indicate the type of link lost. If "other" is checked, specify the type of link in the space provided.

(c) Block 16c, UA distance from GCS at time of LOL. Enter the distance (nautical miles) the UA was from the GCS at the time that the link was lost.

(d) Block 16d, LOL Factors. Check the appropriate box(s) to indicate LOL Factors. Check all that apply.

(17) *Block 17, Take-Off/landing Data.* Complete block 17a if the accident occurred during the take-off phase or block 17b if it occurred during the landing phase. Accidents occurring during T/O or Landing could be the result of human, materiel, and/or environmental factors. In addition to blocks 17a & 17b, complete blocks 15a-15c as/if applicable. If the accident did NOT occur during the takeoff or landing phase, leave blank.

(a) Block 17a, Take-off (T/O) Phase. Complete this block, if the accident occurred during the take-off phase of flight, as follows:

1. Block 17a(1), T/O Method. Check the appropriate box to indicate the method of T/O. Examples of "manual" include joystick and hand launched.

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2. Block 17a(2), T/O Accident Factors. Check the appropriate box(s) to indicate T/O accident factors. Check all that apply.

(b) Block 17b, Landing Phase. Complete this block, if the accident occurred during the landing phase of flight, as follows:

1. Block 17b(1), Landing Method. Check the appropriate box to indicate the method of Landing. Example of "manual" is joystick flown.

2. Block 17b(2), Landing Accident Factors. Check the appropriate box(s) to indicate Landing accident factors. Check all that apply.

(18) *Block 18, Type of Strike.* Check the appropriate box to indicate whether or not a "strike" occurred and the type. If "Other" is checked, specify the type of strike in the space provided.

(19) *Block 19, Personnel Data.* Complete this block for class A, B and C accidents for all crewmembers occupying UAS flight crew station, regardless of the accident cause factor. Also, complete this block for all personnel who had a causative role or had injury/occupational illness as a result of the accident/incident (Class A-F). This block is not required to be completed for class C, D and F materiel failure accidents/incidents if the only cause of the failure was FWT. If more than three personnel are involved, use and attach additional forms as necessary. Use the instructions for block 19a to complete blocks 19b and 19c.

(a) Block 19a, Name. Enter the individual's last name, first name, middle initial and complete (1)–(14).

1. Block 19a(1) (SSN). Enter the individual's social security number.

2. Block 19a(2), Grade. Enter the individual's pay grade. For example, O4, W3, GS–11, WG10 (refer to table 3–8 of this pamphlet).

3. Block 19a(3) (Gender). Check the appropriate box to indicate the individual's gender.

4. Block 19a(4), Duty Position. Enter the duty position/seat code as shown on the DA Form 2408–12 for the flight or in table 3–5 of this pamphlet.

5. Block 19a(5), Service Code. Enter the personnel service code of the individual from table 3–9 of this pamphlet.

6. Block 19a(6), UIC Assigned. Enter the six position UIC of the unit to which the individual was assigned at the time of the accident.

7. Block 19a(7), Contributing Role. Check D (definite), S (suspected), U (undetermined), or N (none/no) to indicate the individual's contributing role in the accident.

8. Block 19a(8), On Flight Controls. Check the appropriate box to indicate if the individual was on the UAS flight controls at the time of the accident or if his/her previous control input had any influence on the accident.

9. Block 19a(9) (Lab Testing). Check the appropriate box to indicate the results of lab testing (testing required for class A, B and C accidents). If the test result was "positive", attach the Armed Forces Institute of Pathology (AFIP) results to this report and address it in block 20 (authorized medication excluded). Note the AFIP attachment in block 21.

10. Block 19a(10), Amount of Activity. Complete this block as follows:

a. Block 19a(10)(a), Hours Slept: Enter the total number of hours this individual slept during the 24-hour period preceding the accident.

b. Block 19a(10)(b), Hours Worked. Enter the total number of hours this individual worked during the 24-hour period preceding the accident.

c. Block 19a(10)(c), Hours Flown. Enter the total number of flying hours for this individual during the 24-hour period preceding the accident.

11. Block 19a(11), Individual Status. Complete this block as follows:

a. Block 19a(11)(a), Readiness Level (RL). If the individual is a UAS operator, check the appropriate box to indicate his/her RL.

Note. Mission Preparation and Mission Qualification indicate SUAS operator status.

b. Block 19a(11)(b), Flight Activity Code (FAC). If the individual is a certified UAS operator, check the appropriate box to indicate his/her FAC.

Note. (FAC is not applicable to SUAS operators, check NA).

c. Block 19a(11)(c), Redeployment Date. Enter the date (YYYYMMDD) of the individual's last redeployment from a combat zone.

12. Block 19a(12), Injury/Occupational Illness. Check the appropriate box to indicate if the individual was injured or had an occupational illness as a result of this accident. If "Yes" is checked, a DA Form 2397–9 (refer to para 3–30 of this pamphlet for form completion instructions) is required to be submitted for each individual injured or had an occupational illness as a result of this accident (note the attachment in block 21). Accidents involving injury/occupational illness require a physician or physician's assistant to be a member/advisor of the board.

13. Block 19a(13). MTDS Flight Hours. Enter the total number of flight hours the individual has accrued in the accident aircraft mission, type, design, and series (MTDS).

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14. Block 19a(14), Total Flight Hours. Enter the total number of flight hours the individual has accrued in all UAS.

(b) Block 19b(1)-(14). Complete as above for 19a(1)-(14).

(c) Block 19c(1)-(14). Complete as above for 19a(1)-(14).

(20) *Block 20, Findings and Recommendations:* Instructions for writing findings and recommendations are contained in paragraph 3–5, table 3–1, and paragraph 3–24 of this pamphlet. Use additional/continuation sheets, as required. Accident causal/contributing factors identified in block 15 must be substantiated in this block.

(21) *Block 21, List of Attachments.* List all substantiating data (examples include continuation sheets, ECOD/ACOD, CCAD, PQDR, AFIP Results, RAW, Msn Brief, photos, maps, weight & balance, weather brief, DA forms 2397–series, and so on) submitted with this DA Form 2397–U. Note that not all the above is required. The board always has the option of submitting any substantiating data it deems necessary to support the accident investigation and report.

Note. If this is a class A or B accident, refer to paragraph 3–17 of this pamphlet and submit those document and forms, pertinent to this accident investigation and report.

(22) *Block 22, Board President/ASO/POC.* For class A, B and C accidents, enter the Name, Signature, and Date of the investigation board president. For class D, E, and F enter the information for the safety officer or POC representative submitting the report.

(a) Block 22a, Grade. Enter the individual's Grade (not rank).

(b) Block 22b, Branch. Enter the individual's Branch.

(c) Block 22c, E-mail. Enter the individual's e-mail address.

(d) Block 22d, Address & Tel No. (DSN & Comm). Enter the individual's mailing address and telephone numbers (DSN & Commercial) in the space provided.

(23) *Block 23, Command Review:* Required for class A, B, and C accidents only. The reference for determining the individuals responsible for performing the Command Review is AR 385–10, paragraph 3–17.

(a) Unit Commander. Enter the individual's organization, name (last, first, MI), rank, and signature. Indicate comment by checking the applicable box.

(b) Reviewing Official. Enter the individual's organization, name (last, first, MI), rank, and signature. Indicate comment by checking the applicable box.

(c) Approving Authority. Enter the individual's organization, name (last, first, MI), rank, and signature. Indicate comment by checking the applicable box.

(d) DA Review. Enter the individual's organization, name (last, first, MI), rank, and signature. In column 6, enter the date (YYYYMMDD) the report is approved for entry into the Army Safety Management Information System (ASMIS).

Note. Submission of Supplemental UAS Accident Report (DA Form 2397–U): Follow-up data (for example, CCAD, DR (PQDR), ECOD/ACOD, and teardown results) are to be submitted as required. Using DA Form 2397–U (UASAR) complete only Block 1a-c (Accident Case Information), Block 21 (List of Attachments), and those blocks to which the supplemental data applies.

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.

(4) DA Form 285–O, Statement of Reviewing Officials.

(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).

(8) DA Form 285–W, Summary of Witness Interview.

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-

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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.

4–2. DA Form 285, Technical Report of U.S. Army Ground Accident

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).

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(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.

(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 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 determines 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

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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

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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.

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(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 readdressing 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.

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(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 (bridage/battatlion/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)?

4–5. DA Form 285–W, Technical Report of U.S. Army Ground Accident, Summary of Witness Interview

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

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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.

(2) Safety Accident Investigation Report of U.S. Army Class (A-B) Accident.

(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).

4–7. DA Forms 285–A, Technical Report of U.S. Army Ground Accident, Index A and 285–B, Index B

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.

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(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 2–5*e* 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.

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4–9. DA Form 285–O, Technical Report of U.S. Army Ground Accident, Statement of Reviewing Officials

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.

4–11. DA Form 285–AB, Abbreviated Ground Accident Report (AGAR)

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 4–1
Ground accident notification, reporting requirements, and suspense's

	PEACETIME			COMBAT [2]	
Accident Class	Telephonic Notification Worksheet	Abbreviated Report AGAR	Full Report DA Form 285	Telephonic Notification Worksheet	AGAR ONLY by any means possible (automated, e-mail, fax, hand carry, mail)
ON-DUTY A & B	Immediately [1]	Not required	IAI/CAI-90 days	Immediately [1]	As time Permits (Not to Exceed 60 days)
C	Not required	Within 90 days	Not required	Not required	As time Permits (Not to Exceed 60 days)
D	Not required	Within 30 days	Not required	Not required	As time Permits (Not to Exceed 30 days)
OFF-DUTY A & B	Immediately [1]	Within 30 days	Not required	Immediately[1]	As time Permits (Not to Exceed 30 days)
C & D	Not required	Within 30 days	Not required	Not required	As time Permits (Not to Exceed 30 days)

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.

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4–12. Completion instructions for DA Form 285, Technical Report of U.S. Army Ground Accident

TECHNICAL REPORT OF U.S. ARMY GROUND ACCIDENT
For use of this form, see DA Pamphlet 385-40; the proponent agency is OCSA.

FOR USACRC USE ONLY

REQUIREMENTS CONTROL SYMBOL CSOCS-308

SECTION A - ACCIDENT INFORMATION

1. CHECK ONE: [X] a. ORIGINAL [ ] b. CHANGE
2. UIC (Unit Identification Code) (6-Digit Code of Unit Having Accident): WAAWAA
3a. UNIT NAME AND MILITARY ADDRESS (Accountable Unit): B Company, 2/28th INF, 5th BDE, 2nd INF DIV, FOB Ramadi, Baghdad, Iraq 00000
3b. BRANCH (Armor, Infantry, etc.): Infantry
4. DATE OF ACCIDENT: a. YEAR 2007 b. MONTH 11 c. DAY 15
5. TIME OF ACCIDENT (Local Military Time): 1715
6. PERIOD OF DAY (Check one): [ ] a. Dawn [X] b. Day [ ] c. Dusk [ ] d. Night
7. ACCIDENT OCCURRED (Check one): [X] a. On Post [ ] b. Off Post
8. IF ON POST, NAME OF INSTALLATION/FACILITY: FOB Smedlab, Iraq
9. ACCIDENT OCCURRED DURING (Check one): [X] a. Combat [ ] b. Non-Combat
10. WERE EXPLOSIVES OR AMMUNITION INVOLVED (Causal or Contributing Role): [ ] Yes (See DA PAM 385-40) [X] No
11a. EXACT LOCATION OF ACCIDENT (Detailed enough to locate site): River Creek and PX Road, FOB Smedlab, Iraq
11b. TYPE OF LOCATION: River Creek and embankment
11c. GRID COORDINATES OR LAT/LONG: 46E AC 1234554321

SECTION B - PERSONNEL INFORMATION

12. NAME (Last, First, MI): Doe, John D.
13. SOCIAL SECURITY NUMBER (SSN): 123-45-6789
14. DOB (YYYYMMDD): 19880202
15. GENDER (Check): [X] a. Male [ ] b. Female
16. RANK OR GRADE: PVT
17. MOS OR JOB SERIES: 19K10
18a. ADDRESS (Use Official Address for All Military or Government Personnel) (if different than Block 3, add UIC): B Company, 2/28th INF, 5th BDE, 2nd INFDIV, FOB Ramadi, Baghdad, Iraq, 00000
18b. For injured Army Civilians or Contractors, enter home address
19a. DUTY STATUS AT TIME OF ACCIDENT (Check one): [X] On Duty [ ] Off Duty
19b. IF OFF DUTY (if on leave/pass): [ ] Leave [ ] Pass Date From: Date To:
20. FLIGHT STATUS (Check one): [ ] a. Yes [X] b. No
21a. TIME BEGAN WORK: 0645L
21b. CONTINUOUS WORK w/o SLEEP: 10.5
22. HRS. SLEEP IN LAST 24: 6
23. DAYS LOST/RESTRICTED (not counting day of injury): a. Hospitalized: Days b. Not Hospitalized: Days c. Restricted Activity: Days
24. TREATED IN EMERGENCY ROOM: [X] a. Yes [ ] b. No
25a. OSHA 300 Log Case Number:
25b. Name of Physician/Health Care Provider:
25c. If treatment was given away from worksite, where was it given? Facility: Street: City: State:

26. SEVERITY OF ILLNESS/INJURY (Check most severe):
- [X] a. Fatal (Date of Death 20071115)
- [ ] b. Permanent Total Disability. Person can never again do gainful work.
- [ ] c. Permanent Partial Disability. Person loses or can never again use a body part
- [ ] d. Days Away from Work. Person misses one or more workdays; bed rest/on quarters.
- [ ] e. Restricted Work Activity. Person is temporarily unable to perform regular duties; job transfer/light duty/profile.
- [ ] f. Medical Treatment Beyond First Aid. Loss of consciousness, needle stick, etc.
- [ ] g. First Aid Only. Person has one-time treatment of minor injury. (No lost work days.)
- [ ] h. No Injury.

27. CLASSIFICATION AT TIME OF ACCIDENT (Check):
- [X] a. Active Army
- [ ] b. Army Civilian
- [ ] c. Army Contractor
- [ ] d. Army Direct Contractor
- [ ] e. Nonappropriated Fund (NAF)
- [ ] f. Other U.S. Military
- [ ] g. ROTC
- [ ] h. Dependent
- [ ] i. NGB Tech
- [ ] j. NGB IDT
- [ ] k. NGB AT
- [ ] l. NGB ADSW
- [ ] m. NGB AGR
- [ ] n. NGB ADT
- [ ] o. NG Activated
- [ ] p. USAR IDT
- [ ] q. USAR AT
- [ ] r. USAR ADT
- [ ] s. USAR FTM
- [ ] t. USAR AGR
- [ ] u. USAR Activated
- [ ] v. Foreign Nat. Direct Hire
- [ ] w. Foreign Nat. Indirect Hire
- [ ] x. Foreign Nat. KATUSA
- [ ] y. Foreign Mil. Attached to the U.S. Army
- [ ] z. Public
- [ ] aa. Not reported

28. CAUSE OF INJURY/OCCUPATIONAL ILLNESS (Number in order of severity) (No more than 3):
- a. Struck Against
- b. Struck By
- c. Fell from Elevation
- d. Fell from Same Level
- 1 e. Caught In/ Under/ Between
- f. Rubbed/Abraded
- g. Bodily Reaction
- h. Overexertion
- i. Exposure
- j. External Contact
- 2 k. Ingested
- l. Inhaled

29. BODY PART(S) AFFECTED (Number in order of severity) (No more than 3):
- 2 a. Body (General)
- b. Head
- c. Forehead
- d. Eyes
- e. Nose
- f. Jaw
- g. Neck
- h. Trunk
- i. Chest
- j. Heart
- k. Back
- l. Shoulder
- m. Arm
- n. Wrist
- o. Hand
- p. Fingers
- q. Leg
- r. Knee
- s. Ankle
- t. Foot
- u. Toes
- 1 v. Other (Specify)

30. TYPE OF INJURY/ILLNESS (Number to Correspond with Block 29):
- a. Burns (Chemical)
- b. Burns (Thermal)
- c. Amputation
- d. Decompression Sickness
- 1 e. Asphyxiation (Suffocation)
- f. Fractures
- g. Dislocation
- h. Abrasions
- i. Concussion
- j. Sprain/Strain
- 2 k. Cuts/Lacerations
- l. Contusion
- m. Puncture Wound
- n. Hernia, Rupture
- o. Frostbite
- p. Heat Stroke
- q. Heat Exhaustion
- r. Noise Injury/Illness
- s. Needle Stick or Sharp
- t. Loss of Consciousness
- u. Other (Specify)

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Figure 4–1. Example of completed DA Form 285, Technical Report of U.S. Army Ground Accident

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SECTION B - PERSONNEL INFORMATION *(Continued)* | Doe, John D.

31. Person's action(s) at time of accident *(Check one and explain in Block 32.)*

☐ a. Soldiering	☐ i. Patient Care *(People/Animals)*	☐ q. Handling Animal	☐ y. Counseling/Advisory
☐ b. Combat Soldiering	☐ j. Test/Study/Experiments	☐ r. Maintenance/Repair/Servicing	☐ z. Sports
☐ c. Physical Training	☐ k. Educational	☐ s. Fabricating	☐ aa. Hobbies
☐ d. Weapons Firing/Handling	☐ l. Information and Arts	☐ t. Handling Material/Passengers	☐ bb. Passenger
☐ e. Engineering or Construction	☐ m. Food and Drug Inspection	☐ u. Janitorial/Housekeeping/ Grounds Keeping	☐ cc. Human movement
☐ f. Communications	☐ n. Laundry/Dry Cleaning Services	☐ v. Food/Drink Preparations	☐ dd. Horseplay
☐ g. Security/Law Enforcement	☐ o. Pest/Plant Control	☐ w. Supervisory	☐ ee. Bystanding/spectating
☐ h. Fire Fighting	☒ p. Operating Vehicle or Vessel	☐ x. Office	☐ ff. Personal Hygiene/Food/Drink Consumption/Sleeping

☐ gg. Parachuting *(See Instructions DA Pamphlet 385-40)*

(1) Jumper Height	(7) Wind Direction/Speed At Jump Height Drop Zone	(15) Date graduated basic airborne training *(YYYYMMDD)*
(2) Jumper Weight		
(3) Type of Jump	(8) Jump Altitude	(16) Type of Aircraft
(4) Parachute Type/Model	(9) Position in Stick	
(5) Equipment	(10) Door Exited	(17) Accident factors (parachute): *(Explain as necessary)*
	(11) Time pre-jump conducted	
	(12) Date of Last Jump	
	(13) Type of Last Jump	
(6) Wt. of Equipment	(14) Number of previous jumps	

32. SPECIFIC DESCRIPTION OF ACTIVITY/TASK

SM was driving the accident vehicle (M1114) on the compound (FOB Smedlab). 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.

33. ON FIELD EXERCISE/NAMED OPERATION
☐ a. Yes *(If YES, specify name of exercise/operation.)*
☒ b. No

34. ACTIVITY PART OF TACTICAL TRAINING?
☐ a. Yes
☒ b. No

35. Type of training facility being used *(Check one)*

☐ a. Garrison	☐ d. NTC	☐ g. Std. range facility/live fire
☐ b. Local training area	☐ e. JRTC	☐ h. Other *(Specify)*:
☐ c. Major training area	☐ f. CMTC	

36. Type of training participating in at the time of accident *(Check/specify)*

☐ a. School *(Specify)*:
☐ b. UNIT → ☐ (1) Platoon ☐ (2) Crew ☐ (3) Individual
☐ c. On-the-job training
☐ d. Other *(Specify)*:

37. Last time individual received training prior to accident on activity specified in Block 31? *(Check one)*

☐ a. 0 - 3 months	☐ e. 1 - 2 years
☒ b. 3 - 6 months	☐ f. More than 2 years
☐ c. 6 - 9 months	☐ g. Never
☐ d. 9 - 12 months	☐ h. Not applicable

38. REQUIRED PROTECTIVE EQUIPMENT

CHECK APPROPRIATE BLOCK(S)	AVAILABLE? YES	AVAILABLE? NO	USED? YES	USED? NO	N/A
☒ a. Seat belt	☒	☐	☐	☒	☐
☒ b. Goggles/Glasses/Visor	☒	☐	☐	☒	☐
☐ c. Gloves	☐	☐	☐	☐	☐
☐ d. Ear plugs	☐	☐	☐	☐	☐
☒ e. IBA	☒	☐	☒	☐	☐
☐ f. Other *(Specify)*:	☐	☐	☐	☐	☐
☒ g. Helmet	☒	☐	☒	☐	☐

DOT Approved (If Motorcycle)? ☐ Yes ☐ No

39a. INDIVIDUAL LICENSED TO OPERATE VEHICLE/EQUIPMENT?	39b. MANDATORY 4 hr TRAFFIC SAFETY TRAINING	39c. MSF CERTIFIED
☒ a. Yes ☐ b. No ☐ c. N/A	☐ a. Yes ☐ b. No If Yes, Date	☐ a. Yes ☐ b. No If Yes, Date

40. DID ALCOHOL USE BY THIS INDIVIDUAL CAUSE/CONTRIBUTE TO THIS ACCIDENT? *(Check one)*
☐ a. Yes BAC %: ☒ b. No ☐ c. Unknown

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Figure 4–1. Example of completed DA Form 285, Technical Report of U.S. Army Ground Accident –continued

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SECTION B - PERSONNEL INFORMATION *(Continued)* | Doe, John D.

41. If drug use by this individual caused/contributed to this accident, check appropriate block.

☐ a. Prescription ☐ b. Illegal ☐ c. Over-the-counter ☐ d. Supplements ☒ e. None

42. Were vision enhancement devices being used? *(Check appropriate block.)*

☐ a. Yes *(Specify type/model in c and d.)* ☒ b. No | c. TYPE: | d. MODEL:

43. Standard/Reference covering activity/task

☐	a. Soldier's Manual *(Task No.)*	☐	e. Federal/State Law
☐	b. CTT *(Task No.)*	☐	f. Other *(Specify):*
☒	c. AR/TM/FM *(Specify)* AR 385-10	☐	g. None *(Go to Block 45.)*
☒	d. SOP		

44. WAS ACTIVITY/TASK PERFORMED IAW STANDARD/REFERENCE? *(Check one)*
☐ a. Yes ☒ b. No *(If NO, complete blocks 45-47.)*

45. DID INDIVIDUAL MAKE A MISTAKE? *(Check one)*
☒ a. Yes *(If YES, complete blocks 46-47.)* ☐ b. No

46. What was the mistake? How was the activity/task performed incorrectly? *(Explain below.)*

Finding 1- Soldier failed to maintain control of vehicle and improperly divided his attention. The driver was temporarily distracted, swerved off road and rolled over into river creek, which was approximately eight and a half feet deep. The vehicle came to rest on its roof, the passenger egressed safely, but the driver was unable to egress and drowned.
Finding 2- Soldier failed to wear seatbelt which contributed to the severity of injury. (add continuation sheet if needed)

47. Why was mistake made/activity performed incorrectly? *(Check all that apply.)*

☐	a. Inadequate school training *(content/amount)*	☒	g. Poor/bad attitude/indiscipline	☐	m. Inadequate written procedures *(AR, TM, SOP)*
☐	b. Inadequate unit training *(content/amount)*	☐	h. Lack of rest/sleep	☐	n. Improper supervision
☐	c. Inadequate on-the-job training	☐	i. Effects of alcohol/drugs/illness	☐	o. Other *(Specify in narrative)*
☐	d. Fear/excitement/anger	☐	j. Inadequate facilities		
☒	e. Overconfident in own/others abilities/complacent	☐	k. Inadequate services		
☒	f. In a hurry	☐	l. Improper equipment design		

48. Time licensed on this vehicle *(Check one)*	49. Total AMV driving mileage *(Check one)*	50a. Total time in unit *(Check one)*
☒ a. Less than one year	☐ a. Less than 1,000 miles	☐ Less than 6 months
☐ b. One to two years	☒ b. 1,000 - 5,000 miles	☒ 6 months - 1 year
☐ c. Over two years	☐ c. 5,000 - 10,000 miles	☐ Over one year
☐ d. Unlicensed	☐ d. Over 10,000 miles	50b. Date Assigned/Hired *(YYYYMMDD)* / 50c. Date of redeployment from combat zone, if applicable *(YYYYMMDD)*

51. WHICH ITEM FROM SECTION C APPLIES TO THE INDIVIDUAL NAMED IN BLOCK 12?
(This is needed in order to relate the person in Block 12 to the equipment/vehicle below.)
☒ Item A ☐ Item B ☐ Item C ☐ Other *(Specify)*

SECTION C - PROPERTY/MATERIEL INVOLVED *(Whether Damaged or Not)*

	ITEM A	ITEM B	ITEM C
52. Type of Item	Truck, Utility		
53a. Model number	HMMWV M1114		
b. Serial number	MQ234789D		
54. Ownership *(DoD, DA, POV, Unit Person)*	DA		
55. Dollar cost of damage.	$27,500.00		
56. Rollover protection system installed?	☒ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA
57. Was this item being towed?	☐ Yes ☒ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA
58. If towed, enter letter for item doing towing.			
59. Types of collision codes *(Pick up to three from list below and enter in blocks.) (In sequence)*	7 / 6 /		

Types of Collisions

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 the road
8- Jackknifed
9- Going forward and rear-ended moving vehicle
10- Going forward and rear-ended parked vehicle
11- Collision while turning
12- Other *(Specify)*

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Figure 4–1. Example of completed DA Form 285, Technical Report of U.S. Army Ground Accident –continued

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SECTION C - PROPERTY/MATERIEL INVOLVED *(Whether Damaged or Not) (Continued)* Doe, John D.

60. Component/Part that Failed/Malfunctioned *(Complete this section if a materiel failure/malfunction caused/contributed to the accident.)*

	ITEM A	ITEM B	ITEM C
a. National Stock Number			
b. Part Number			
c. Describe Part			
d. Manufacturer's Identification Code			
e. EIR/QDR Number			

61. How/Why Part Malfunctioned *(Select code from "How" list below and enter in first block; select code from "Why" list and enter in second block.)*	HOW	WHY	HOW	WHY	HOW	WHY

How Part Failed/Malfunctioned Codes:

1 - Overheated/burned/melted
2 - Froze *(temperature)*
3 - Obstructed/pinched/clogged
4 - Vibrated
5 - Rubbed/worn/frayed
6 - Corroded/rusted/pitted
7 - Overpressured/burst
8 - Pulled/stretched
9 - Twisted/torqued
10 - Compressed/hit/punctured
11 - Bent/warped
12 - Sheared/cut
13 - Decayed/decomposed
14 - Electric current action
15 - Unknown/Other
Blank - Not Reported

Why Part Failed/Malfunctioned Codes:

1 - Improper equipment design
2 - Inadequate maintenance
3 - Inadequate manufacture of equipment
4 - Inadequate written procedures *(AR, TM, SOP)*
5 - Improper supervision
6 - Unknown
7 - Other *(Specify in narrative)*

SECTION D - ENVIRONMENTAL CONDITIONS INVOLVED

62. Environmental Conditions. *(Check environmental conditions present and indicate if conditions caused/contributed to the accident.)*

PRESENT	CAUSED/ CONTRIBUTED	CONDITION	PRESENT	CAUSED/ CONTRIBUTED	CONDITION
☒	☐	a. Clear/dry; visibility unlimited	☐	☐	k. Wind gust/turbulence
☒	☐	b. Bright, glare	☐	☐	l. Vibrate, shimmy, sway, shake
☐	☐	c. Dark, dim	☐	☐	m. Radiation, laser, sunlight
☐	☐	d. Fog, condensation, frost	☐	☐	n. Holes, rocky, rough, rutted, uneven
☐	☐	e. Mist, rain, sleet, hail	☐	☐	o. Inclined/steep
☐	☐	f. Snow, ice	☐	☐	p. Slippery *(not due to precipitation)*
☐	☐	g. Dust, fumes, gasses, smoke, vapors	☐	☐	q. Air pressure *(bends, decompression, altitude, hypoxia)*
☐	☐	h. Noise, bang, static	☐	☐	r. Lightning, static electricity, ground
☐	☐	i. Temperature/humidity *(cold, heat)*	☐	☐	s. Other *(Specify)*
☐	☐	j. Storm, hurricane, tornado			

SECTION E - ACCIDENT DESCRIPTION/NARRATIVE *(From Blocks 10, 46, 47, 61 and 62)*

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.

See Tab D, Narrative

64a. PRINTED/TYPED NAME OF PERSON COMPLETING THIS REPORT	64b. RANK	64c. TITLE
Writer, Ralph A.	CW4	Board Recorder

64d. SIGNATURE	64e. DATE OF SIGNATURE *(YYYYMMDD)*	64f. TELEPHONE NO.
		DSN 239-123-4321
		64g. EMAIL ADDRESS: ralph.a.writer2@us.army.mil

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Figure 4–1. Example of completed DA Form 285, Technical Report of U.S. Army Ground Accident –continued

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SECTION F - CORRECTIVE ACTION AND COMMAND REVIEW	Doe, John D.

65. The investigation board will formulate the findings and recommendations on letter sized paper in accordance with the examples contained in DA PAM 385-40, paragraph 4-3.

See Tab C, Findings and Recommendations

66a. PRINTED/TYPED NAME OF COMMANDER		66b. RANK
Major, Jon A.		MAJ
66c. SIGNATURE	66d. DATE OF SIGNATURE *(YYYYMMDD)*	66e. TELEPHONE NO. DSN 236-345-6789
		66f. EMAIL ADDRESS jon.a.major2@us.army.mil

	a. TYPED NAME/EMAIL ADDRESS	b. SIGNATURE	c. TITLE	d. RANK/DATE
67.	Fill out completely, or if commander signed in Tab A, type "See DA Form 285-O, Tab A"			
68.	Fill out completely, or if commander signed in Tab A, type "See DA Form 285-O, Tab A"			
69.	Fill out completely, or if commander signed in Tab A, type "See DA Form 285-O, Tab A"			

SECTION G - SAFETY OFFICE USE ONLY

70. LOCAL REPORT NO.	71. ARMY HEADQUARTERS
071115-001	USARCENT

72. ACCIDENT TYPE *(Check choice)*

☒	a. Army Motor Vehicle	☐	h. Other Army Vehicle	☐	o. Personal Injury - Other
☐	b. Army Combat Vehicle	☐	i. Fire	☐	p. Property Damage - Other
☐	c. Army Operated Vehicle	☐	j. Chemical Agent	☐	q. POV - On Official Business
☐	d. POV - Not on Official Business	☐	k. Explosive	☐	r. Space
☐	e. Marine Diving	☐	l. Missile	☐	s. Commercial Carrier/Transportation
☐	f. Marine Underway	☐	m. Radiation		
☐	g. Marine Not Underway	☐	n. Nuclear		

73. NAME OF SAFETY POINT OF CONTACT *(POC)*	74a. PHONE NO. OF SAFETY OFFICER POC *(DSN, Commercial, etc.)*	75. DATE REPORT COMPLETED BY SAFETY OFFICER *(YYYYMMDD)*
Safeman, Roger D.	DSN 222-3455	20080116
	74b. EMAIL ADDRESS roger.d.safeman@us.army.mil	

SECTION H - EXPLOSIVES/AMMUNITION

76. EXPLOSIVE/AMMUNITION INFORMATION:	ITEM 1	ITEM 2	ITEM 3	ITEM 4
a. LOT #				
b. QUANTITY				
c. NET EXPLOSIVE WEIGHT (NEW)				
d. DoDIC/DoDAC				

77. SPECIAL INTEREST

78. SUPPLEMENTAL INFORMATION

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Figure 4–1. Example of completed DA Form 285, Technical Report of U.S. Army Ground Accident Report –continued

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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 rearend 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

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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.

b. Higher Level Action: Provost Marshall, Fort Water, consider conducting no-notice seatbelt checks of Army vehicles with off-post dispatches.

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.

Figure 4–2. Sample of a narrative investigation and findings and recommendations –continued

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FINDINGS AND RECOMMENDATIONS (Cont'd) – 20040115

Elements of a Present and Contributing Finding

FINDING 2 (Present and Contributing: Human Error – Individual Failure	
Required information	**Example**
1. Explanation of when and where the mistakes/errors occurred in context of the accident sequence of events.	While operating an M1083, 5-ton Family of Medium Tactical Vehicle (FMTV), west on an interstate highway…
2. Individual involved by duty position.	The driver…
3. Identification of mistake made (ref ground-specific mistakes/errors in DA PAM 385-40, Table B-2) and an explanation of how task/activity was performed improperly.	operated the vehicle at excessive speeds. That is, the driver operated the vehicle at approximately 70 mph…
4. Directive (ATM, SOP, FM, TM, posted speed limit, and so forth.) or common practice governing performance of task/activity.	in contravention of the battalion SOP (55mph).
5. Consequences of mistake/error.	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.
6. Reason(s) (root cause(s)/system inadequacy(s)) for the mistake/error (ref System Inadequacies in Table B-5 of DA PAM 385-40).	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.
7. Brief explanation of how each reason (root cause/system inadequacy) contributed to the mistake/error.	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.

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.

Figure 4–2. Sample of a narrative investigation and findings and recommendations –continued

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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 en 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 Tepeetown 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 ballistic armor (IBA) before exiting through the passenger window with minor scraps 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 this 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.

Figure 4–2. Sample of a narrative investigation and findings and recommendations –continued

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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.

3. Materiel Factors Investigation.

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 Xml 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

Figure 4–2. Sample of a narrative investigation and findings and recommendations –continued

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NARRATIVE (Cont'd) – 20040115

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.

d. 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 had 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

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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 5–3*d*, 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.

(11) *Block 11.* Enter accident location information.

(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.

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(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.

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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 ½ lb or 8 ozs, that is, 168 ½ 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.

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(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).

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(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.

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(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 (yyyymmdd).

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 E^3. 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.

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4–13. Completion instructions for DA Form 285–W, Summary of Witness Interview

TECHNICAL REPORT OF U.S. ARMY GROUND ACCIDENT
SUMMARY OF WITNESS INTERVIEW
For use of this form, see DA Pamphlet 385-40; the proponent agency is OCSA.

REQUIREMENTS CONTROL SYMBOL
CSOCS-308

1. NAME OF WITNESS *(LAST, FIRST, MI)* Boyd, Don D.	**2. OCCUPATION/TITLE** Driver	**3. GRADE** E8	**4. DATE OF BIRTH** 19780101
5. ADDRESS *(Include ZIP Code) (If military, include organization)* C Co, 2-215th Aviation Fort Rucker, AL 36330		**6. TELEPHONE NUMBER** *(Duty/Work)* DSN 558/1236 **7. DATE OF INTERVIEW** *(YYYYMMDD)* 20090101	
8. EXPERIENCE AND BACKGROUND TIS 5 yrs	**9. LOCATION AT TIME OF ACCIDENT** Behind accident vehicle	**10. INTERVIEWER** *(Name and Grade)* DAC Darlington	

11. Promise of confidentiality. A promise of confidentiality can only be offered in Limited Use Investigations, which normally are not ground accidents. For exception, see AR 385-10, paragraph 3-10.

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 INTERVIEWER	20090101 **DATE** *(YYYYMMDD)*

12. SUMMARY OF INTERVIEW

SSG Boyd was the low jumper in the stack and the #1 jumper for final. SSG Boyd stated that on the crosswind (base) he signaled with his leg for a left turn to final. After 50 feet, he heard shouting and turned to see a jumper behind him tell another jumper to turn away. SSG Boyd stated that the jumper to his left turned right into the jumper behind him. SSG Boyd said that he saw the two jumpers collide and become entangled. After they entangled, the two jumpers began to spin in a downward plane and impacted the ground.

End of Summary.

13. DATE OF ACCIDENT *(YYYYMMDD)*
20090101

DA FORM 285-W, FEB 2009 PREVIOUS EDITION IS OBSOLETE. PAGE 1 OF 2
APD PE v1.00

Figure 4–3. Example of completed DA Form 285–W, Summary of Witness Interview

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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) 255-2924.

(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 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) 255-2924.

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 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)*

DA FORM 285-W, FEB 2009

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Figure 4–3. Example of completed DA Form 285–W, Summary of Witness Interview

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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).

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4–14. Completion instructions for DA Forms 285–A, Index A and 285–B, Index B

TECHNICAL REPORT OF U.S. ARMY GROUND ACCIDENT
INDEX A
For use of this form, see DA Pamphlet 385-40; the proponent agency is OCSA.

REQUIREMENTS CONTROL SYMBOL
CSOCS-308

1. DATE OF ACCIDENT ***(YYYYMMDD)***
20071115

2. TAB	Information	Encl	Not Applic	See Remarks
1	Serious Incident/Casualty Report	X		
2	Copy of Orders Appointing Investigating Board	X		
3	Map of Accident Site	X		
4	Diagrams and/or Photographs	X		
5	Certificate of Damage/ECOD	X		
6	Copy of Deficiency Reports	X		X
7	Copy of Directives, Regulations, Etc.	X		X
8	Special Technical Reports and Laboratory Analysis		X	
9	Copy of Uncorrected Fault Record	X		
10	Copy of Equipment Modification Record *(DA Form 2408-5)*	X		
11	Weather Data	X		
12	Medical Data *(Autopsy, Toxicology, AFIP, etc.) (In USACRC copy only)*	X		X
13	Other *(Specify)* DA Form 7306 - Telephonic Notification of Ground Accident	X		
14	Other *(Specify)* Composite Risk Management Worksheet	X		
15	Other *(Specify)*			
16	Other *(Specify)*			
17	Other *(Specify)*			
18	Other *(Specify)*			

3. 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

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Figure 4–4. Example of completed DA Form 285–A, Index A

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TECHNICAL REPORT OF U.S. ARMY GROUND ACCIDENT
INDEX B
For use of this form, see DA Pamphlet 385-40; the proponent agency is OCSA.

REQUIREMENTS CONTROL SYMBOL
CSOCS-308

1. DATE OF ACCIDENT *(YYYYMMDD)*
20071115

2. TAB	Title	Encl	Not Appl	See Remarks
A	Statement of Reveiwing Officials *(DA Form 285-O)*	X		X
B	U.S. Army Accident Report *(DA Form 285)*	X		
C	Findings and Recommendations	X		
D	Narrative of Accident	X		
E	Summary of Witness Interviews *(DA Form 285-W)*	X		

3. REMARKS
2. A - Enclosed in channel copy only.

4. BOARD MEMBERS

	Grade	Branch	Address and Tel. No.
a. President *(Name and Signature)* PHIL PHACOLAPOCH	04	IN	USACRC Ft. Rucker, AL 36362-5363 DSN 558-3262
	E-mail: phacolapoch.p@us.army.mil		
b. Recorder *(Name and Signature)* RALPH D. WRITER	CW4	AV	USACRC Ft. Rucker, AL 36362-5363 DSN 558-3262
	E-mail: ralph.writer1 @us.army.mil		
c. Medical Officer *(Name and Signature)* ROBERT B. LIFESAVER	04	MC	WACH Ft. Walter, WA 94118-2809 DSN 222-4400
	E-mail: bob.b.lifesaver@us.army.mil		
d. Maint Officer/Tech/SME *(Name and Signature)* JAMES W. FIXER	CW4	AV	HQ, 3/28 INF, 5 BDE, 2 INFDIV FOB Ramadi, b Baghdad, Iraq 00000
	E-mail: james.w.fixer@us.army.mil		
e. Other *(Name and Signature)* WILLIAM A.. ADVISOR - Technical Advisor	GS13	DAC	TACOM, Warren, MI 48397-5000 DSN 872-9988
	E-mail		
f. Other *(Name and Signature)*			
	E-mail		

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Figure 4–5. Example of completed DA Form 285–B, Index B

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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.

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4–15. Completion instructions for DA Form 285–O, Statement of Reviewing Officials

TECHNICAL REPORT OF U.S. ARMY GROUND ACCIDENT
STATEMENT OF REVIEWING OFFICIALS
For use of this form, see DA Pamphlet 385-40; the proponent agency is OCSA.

REQUIREMENTS CONTROL SYMBOL
CSOCS-308

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

1. Concur with the findings and the recommendations of the accident investigation board.

2. Actions specified in recommendation 2a, 3a, and 4a were implemented.

RICHARD F. FOREMAN, MAJ, AR Commanding, B Co, 2d BN, 28th INF

Comment 2:

1. Concur with the findings and recommendations of the accident investigation board.
(See continuation sheet)

2. ARMY HEADQUARTERS REVIEWING AUTHORITY COMMENTS

1. Concur with findings and recommendations of the accident investigation board and comments of the reviewing official(s).

2. Actions recommended by the board pretaining to higher headquarters are considered adaquate. This command has no further recommendations.

BRIAN A. DIRECTOR, GENERAL, COMMANDING, (HQ element as appropriate)

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. APD PE v1.00

Figure 4–6. Example of completed DA Form 285–O, Statement of Reviewing Officials

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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.

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4–16. Completion instructions for DA Form 285–AB, Abbreviated Ground Accident Report (AGAR)

U.S. ARMY ABBREVIATED GROUND ACCIDENT REPORT *(AGAR)*
For use of this form, see and DA Pamphlet 385-40; the proponent agency is OCSA

REQUIREMENTS CONTROL SYMBOL
CSOCS-308

1. TIME & DATE OF ACCIDENT	a. Yr 2008	b. Mth 05	c. Day 10	d. Time 0015	2. PERIOD OF DAY ☐ Day ☒ Night ☐ Dusk ☐ Dawn	3. ACDT CLASS B	4. COMBAT STATUS ☐ Combat ☒ Non-Combat

5. UNIT IDENTIFICATION	a. UIC *(6-digit Code)* WBAWB0	b. Unit Address B Co, A-111 BN, Fort Fun, CA 33356	c. Unit's Branch TC	5d. Army HQ's FORSCOM
6. LOCATION OF ACCIDENT	a. Exact Location Corner of A and B street, Ft. Fun, CA		b. Type Location B3 (insert code from DA Pam 385-40)	6c. Grid Coordinates/Lat-Long MJ123456
d. State/Country California/USA	e. ☐ Off Post ☒ On Post Name: Ft. Fun, CA.			7. EXPLOSIVES/AMMO INVOLVED? ☐ Yes ☒ No
8. MISSION	a. Briefly describe the mission. Off-duty			b. METL Task? ☐ Yes ☒ No

9. VEHICLE/EQUIPMENT/MATERIEL INVOLVED

	a. Type of Item *(Nomenclature)*	b. Make/Model #	c. Serial #	d. Ownership	e. Estimated Cost of Damage	f. Vehicle Collision
#1	POV	Honda/Accord 4dr.	VIN #	SGT Smith (POV)	$0.00	7 & 6

Materiel Failure/Malfunction Information *(Blks 9g-9l)*

g. Failure Mode	h. Part Nomenclature	i. Part #	j. Part NSN	k. Part Manufacturer Code	l. EIR/QDR Submitted
					☐ Yes ☐ No

	a. Type of Item *(Nomenclature)*	b. Make/Model #	c. Serial #	d. Ownership	e. Estimated Cost of Damage	f. Vehicle Collision
#2						

Materiel Failure/Malfunction Information *(Blks 9g-9l)*

g. Failure Mode	h. Part Nomenclature	i. Part #	j. Part NSN	k. Part Manufacturer Code	l. EIR/QDR Submitted
					☐ Yes ☐ No

10. WHY DID THE MATERIEL FAIL/MALFUNCTION? *(Check the root causes(s) in Blk 10a. In Blk 10b., explain how the root causes(s) led to the materiel failure/malfunction.)*

a.	LEADER *(Not ready, willing, or able to enforce standards)*	STDS/PROCEDURES *(Not clear, Not practical)*				SUPPORT *(Short comings in type, capability, amount or condition of equip/supplies/services/facilities)*			
☐	Direct Supervision	☐	AR	☐	SOP	☐	Equip/Materiel Improperly Designed	☐	Inadequate Manufacture
☐	Unit Command Supervision	☐	TM	☐	Other	☐	Equip/Materiel Not Provided	☐	Inadequate Maintenance
☐	Higher Command Supervision	☐	FM	☐	None Exists	☐	Inadequate Facilities/Services	☐	Other

b. Describe how the materiel failed/malfunctioned and explain why *(root cause)*.

11a. NAME *(Last, First, MI) (include Address and UIC if different than Blks 5a and 5b.)* Smith, Joey K.	12. SSN 111-22-2333	13a. PERSONNEL CLASSIFICATION A	13b. DATE ASSIGNED/HIRED *(YYYYMMDD)* 20061112
11b. HOME ADDRESS 8900 K Street Avonville, CA 31111	13c. DATE OF REDEPLOYMENT FROM COMBAT ZONE, IF APPLICABLE *(YYYYMMDD)* 20070922	14. MOS/JOB SERIES 88P20	15a. DUTY STATUS ☐ On-duty ☒ Off-duty; 15b. IF OFF DUTY *(if on leave/pass)* ☐ Leave ☒ Pass; Date from *(YYYYMMDD)* 20080509; Date to *(YYYYMMDD)* 20080512
	16. DOB *(YYYYMMDD)* 19830110	17. GENDER M	18. PAY GRADE E-5; 19. FLIGHT STATUS ☐ Yes ☒ No

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Figure 4–7. Example of a U.S. Army Abbreviated Ground Accident Report (AGAR)

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20. MOST SEVERE INJURY *(See Instructions)*	a. Degree C	Date of Death *(YYYYMMDD)*	b. Type F	c. Body Part B	d. Cause A

21. LOST TIME	ACTIVITY OF INDIVIDUAL *Provide code (from list in instructions) and describe in space below.*
a. Days Hospitalized 90 b. Days lost not Hospitalized 30 c. Days Restricted 180 d. Treated in ER ☒ Yes ☐ No	23. ACTIVITY CODE *(If activity is parachuting, complete Blk 38)* P 24. SPECIFIC DESCRIPTION OF ACTIVITY/TASK Service member was operating his POV at the time of the accident.
22a. OSHA Log 300 Case No.	
b. Name of Physician	
c. Name and Address of Treatment Facility	

25. PERSONAL PROTECTIVE EQUIPMENT CHECK APPROPRIATE BLOCK(S)	AVAILABLE? Yes	AVAILABLE? No	USED? Yes	USED? No	N/A
☒ a. Seat Belt	☒	☐	☐	☒	☐
☐ b. Restraint System	☐	☐	☐	☐	☐
☐ c. Goggles/glasses/visor	☐	☐	☐	☐	☐
☐ d. Gloves	☐	☐	☐	☐	☐
☐ e. Ear Plugs	☐	☐	☐	☐	☐
☐ f. IBA	☐	☐	☐	☐	☐
☐ g. Other *(Specify)*	☐	☐	☐	☐	☐
☐ h. Helmet	☐	☐	☐	☐	☐
DOT Approved (if Motorcycle)? Yes ☐ No ☐					

26. ALCOHOL/DRUGS CAUSE/CONT	27. EQUIP THIS PERSON WAS ASSOCIATED WITH? *(Enter Item No. from Blk 9)*
☐ Yes BAC % 0.09 ☐ No ☐ Unknown	#1
28a. LICENSED TO OPERATE EQUIPMENT ☒ Yes ☐ No ☐ N/A	28b. MANDATORY 4hr TRAFFIC SAFETY TRAINING ☒ Yes ☐ No If Yes, Date: 20080122
28c. MSF CERTIFIED ☐ Yes ☐ No If Yes, Date:	29. DUTY HOURS a. Time work began (e.g., 0645): 0605 b. Continuous hours: 12

30. HRS SLEEP LAST 24	31. TACTICAL TRAINING	32. TYPE TRAINING FACILITY	33. LAST TRAINING
4	☐ Yes ☒ No		

34. FIELD EXERCISE/NAMED OPERATION	35. NIGHT VISION SYSTEM USED
☐ Yes ☒ No If Yes, provide name:	☐ Yes ☒ No If Yes, provide type:

36. DID INDIVIDUAL MAKE A MISTAKE THAT CAUSED/CONTRIBUTED TO ACCIDENT OR SEVERITY OF INJURY/DAMAGE? *In Blk a, indicate if individual made a mistake. If yes, provide the code (from instructions) in Blk b and describe in Blk c.*

a. Mistake	c. Tell what the mistake was and how it caused/contributed to the accident or serverity of injury/damage.
☒ Yes ☐ No	Service member traveled at excessive speed in contravention to the posted speed limit. The soldier was traveling approximately 60-70 MPH in a 30 MPH zone. Driver was unable to control vehicle on the curving road.
b. Code 40	

37. WHY WAS THE MISTAKE MADE? *(ROOT CAUSE) (Check the root cause(s) in Blk a. In Blk b, tell how the root cause(s) led to the mistake.)*

a.	LEADER *(Not ready, willing, or able to enforce standards)*		TRAINING *(Insufficient in Content/Amount*		STDS/PROCEDURES *(Not clear/Not practical)*			SUPPORT *(Shortcomings in type, capability, amount or condition of equip/supplies/services/facilities)*			INDIVIDUAL *(Mistake due to own personal factors)*		
☒	Direct Supervision	☐	School	☐	AR	☐	SOP	☐	Equip/Materiel Improperly Designed	☐	Inadequate Manufacture	☐	Poor/Bad Attitude	☒	Fatigue
☐	Unit Command Supervision	☐	Unit	☐	TM	☐	Other	☐	Equip/Materiel Not Provided	☐	Inadequate Maintenance	☒	Overconfident	☐	Alcohol, Drugs
☐	Higher Command Supervision	☐	Experience, OJT	☐	FM	☐	None exists	☐	Inadequate Facilities/Services	☐	Other	☒	In a Hurry	☐	Fear/Excitement

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Figure 4–7. Example of a U.S. Army Abbreviated Ground Accident Report (AGAR) –continued

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37b. Describe root cause(s) *(reason)* and tell how it/they caused the mistake.

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.

38. PARACHUTE INFORMATION FOR PERSON LISTED IN Blk 11.

a. Jumper Height	g. Wind Direction/Speed at	m. Type of Last Jump	39. ENVIRONMENTAL CONDITIONS
b. Jumper Weight	Jump Height Drop Zone	n. Number of Previous Jumps	a. Present: #1 C ☒ Yes ☐ No ☐ Unk
c. Type of Jump	h. Jump Altitude	o. Date Graduated Basic Airborne Training *(YYYYMMDD)*	#2 ☐ Yes ☐ No ☐ Unk
d. Parachute Type/Model	i. Position in Stick		#3 ☐ Yes ☐ No ☐ Unk
e. Equipment	j. Door Exited	p. Type Aircraft	b. Caused/Contributed: #1 ☐ Yes ☐ No ☐ Unk
	k. Time Pre-jump Conducted	q. Accident Factors (parachute): *(Explain as necessary)*	#2 ☐ Yes ☐ No ☐ Unk
f. Wt. of Equipment	l. Date of Last Jump		#3 ☐ Yes ☐ No ☐ Unk

40. PROVIDE BRIEF SYNOPSIS OF ACDT *(Use additional sheets if required)(Explain sequence of events, tell how acdt 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 Darny. 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's arrived at the barracks they changed clothes and began drinking beer. A little before midnight they ran out of beer and drove to a nearby shoppette to purchase more beer. They departed the shoppette back to the barracks with SGT Smith driving. He accelerated to a speed between 60-70 MPH within 1/3 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 egressed with minor cuts and bruises, the driver sustained a severe head injury (See cont. sheet)

41. CORRECTIVE ACTION(S) 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 c. Army Level: None (Use continuation sheets as needed)

42. EXPLOSIVE/AMMUNITION INFORMATION	ITEM 1	ITEM 2	ITEM 3	ITEM 4
a. Lot#				
b. Quantity				
c. Net Explosive Weight *(NEW)*				
d. DoDIC/DoDAC				

43. POINT OF CONTACT INFORMATION ON THE ACCIDENT

a. Name *(Last, First, MI)*,Rank Position/Title
Johnson, Mary, A. MAJ, BN Safey Officer

b. Telephone No. DSN: 333-2222
COM: (111) 333-2222

c. Email Address: mary.johnson2@us.army.mil

44. COMMAND REVIEW	a. Name White, Donald E.	b. Signature	c. Rank LTC	d. Date *(YYYYMMDD)* 20080528
45. SAFTETY OFFICE REVIEW	a. Name, Rank & Title Johnny A. Person, GS13, Chief, BDE Ground Safety			b. Phone Number DSN 333-1212
c. Email Address johnny.a.person@us.army.mil	d. Date Reviewed *(YYYYMMDD)* 20080528	e. Local Report No. *(Safety Office use only)* 080510-011		

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APD PE v1.00

Figure 4–7. Example of a U.S. Army Abbreviated Ground Accident Report (AGAR) –continued

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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.

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(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 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).

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(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

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Q - Leg
R - Knee
S - Ankle
T - Foot
U -Toes
V - Other

(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.

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(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.

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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?

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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).

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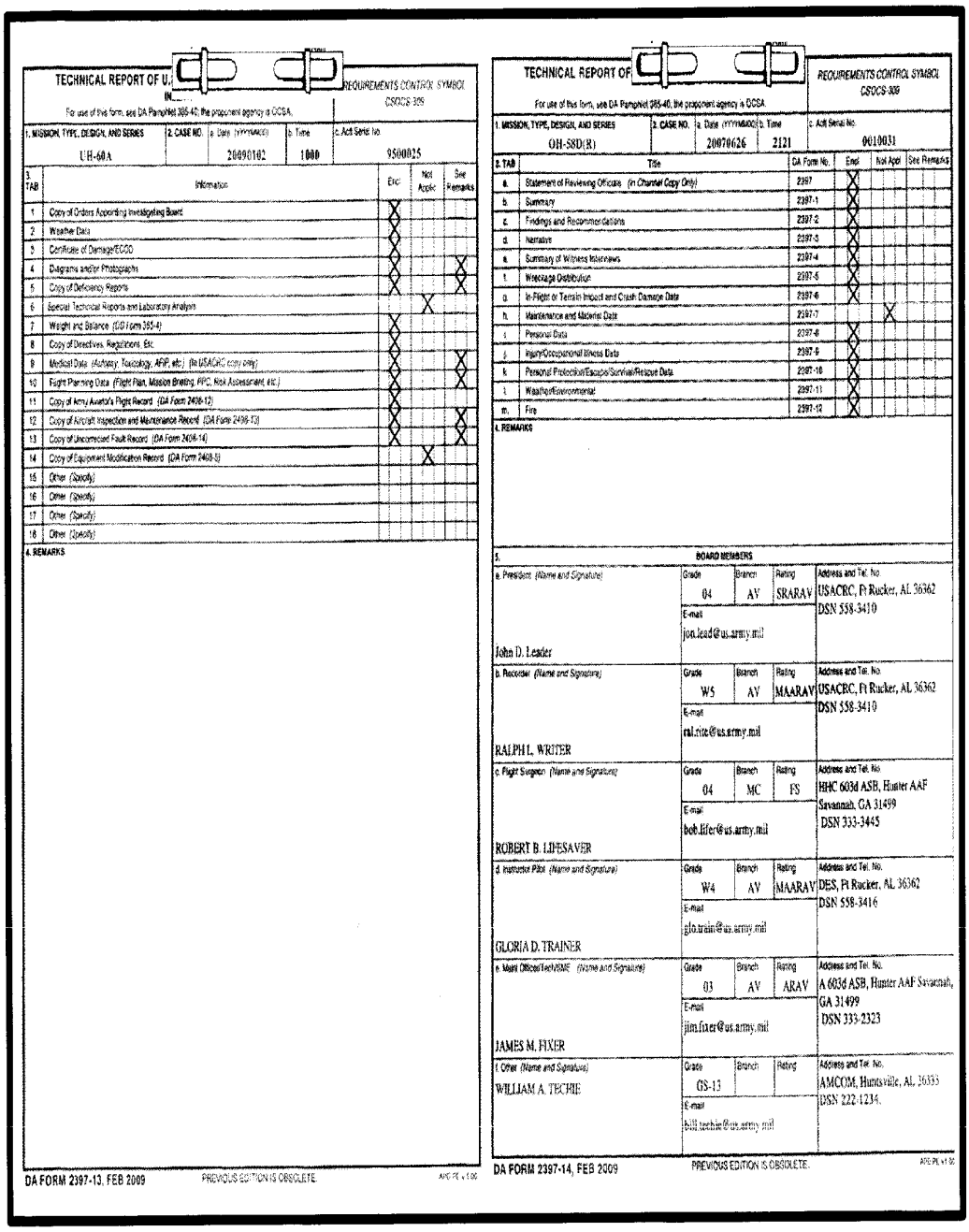

TECHNICAL REPORT OF U.S. ARMY AVIATION ACCIDENT

For use of this form, see DA Pamphlet 385-40; the proponent agency is DCSA.

REQUIREMENTS CONTROL SYMBOL CSOCS-309

1. MISSION, TYPE, DESIGN, AND SERIES	2. CASE NO.	a. Date (YYYYMMDD)	b. Time	c. Acft Serial No.
UH-60A		20090102	1000	9500025

3. TAB	Information	Encl	Not Applic	See Remarks
1	Copy of Orders Appointing Investigating Board	X		
2	Weather Data	X		
3	Certificate of Damage/ECOD	X		
4	Diagrams and/or Photographs	X		X
5	Copy of Deficiency Reports	X		X
6	Special Technical Reports and Laboratory Analysis		X	
7	Weight and Balance (DD Form 365-4)	X		
8	Copy of Directives, Regulations, Etc.	X		
9	Medical Data (Autopsy, Toxicology, AFIP, etc.) (In USACRC copy only)	X		X
10	Flight Planning Data (Flight Plan, Mission Briefing, FPC, Risk Assessment, etc.)	X		X
11	Copy of Army Aviator's Flight Record (DA Form 2408-12)	X		
12	Copy of Aircraft Inspection and Maintenance Record (DA Form 2408-13)	X		X
13	Copy of Uncorrected Fault Record (DA Form 2408-14)	X		X
14	Copy of Equipment Modification Record (DA Form 2408-5)		X	
15	Other (Specify)			
16	Other (Specify)			
17	Other (Specify)			
18	Other (Specify)			

4. REMARKS

DA FORM 2397-13, FEB 2009 PREVIOUS EDITION IS OBSOLETE. APD PE v1.00

TECHNICAL REPORT OF U.S. ARMY AVIATION ACCIDENT

For use of this form, see DA Pamphlet 385-40; the proponent agency is DCSA.

REQUIREMENTS CONTROL SYMBOL CSOCS-309

1. MISSION, TYPE, DESIGN, AND SERIES	2. CASE NO.	a. Date (YYYYMMDD)	b. Time	c. Acft Serial No.
OH-58D(R)		20070626	2121	0010031

2. TAB	Title	DA Form No.	Encl	Not Applic	See Remarks
a.	Statement of Reviewing Officials (In Channel Copy Only)	2397	X		
b.	Summary	2397-1	X		
c.	Findings and Recommendations	2397-2	X		
d.	Narrative	2397-3	X		
e.	Summary of Witness Interviews	2397-4	X		
f.	Witnesses Distribution	2397-5	X		
g.	In-Flight or Terrain Impact and Crash Damage Data	2397-6	X		
h.	Maintenance and Materiel Data	2397-7		X	
i.	Personnel Data	2397-8	X		
j.	Injury/Occupational Illness Data	2397-9	X		
k.	Personal Protection/Escape/Survival/Rescue Data	2397-10	X		
l.	Weather/Environmental	2397-11	X		
m.	Fire	2397-12	X		

4. REMARKS

5. BOARD MEMBERS

	Grade	Branch	Rating	Address and Tel. No.
a. President (Name and Signature) John D. Leader	04	AV	SRARAV	USACRC, Ft Rucker, AL 36362 DSN 558-3410
	E-mail: jon.lead@us.army.mil			
b. Recorder (Name and Signature) RALPH L. WRITER	W5	AV	MAARAV	USACRC, Ft Rucker, AL 36362 DSN 558-3410
	E-mail: ral.rite@us.army.mil			
c. Flight Surgeon (Name and Signature) ROBERT B. LIFESAVER	04	MC	FS	HHC 603d ASB, Hunter AAF Savannah, GA 31499 DSN 333-3445
	E-mail: bob.lifer@us.army.mil			
d. Instructor Pilot (Name and Signature) GLORIA D. TRAINER	W4	AV	MAARAV	DES, Ft Rucker, AL 36362 DSN 558-3416
	E-mail: glo.train@us.army.mil			
e. Maint Officer/Tech/NME (Name and Signature) JAMES M. FIXER	03	AV	ARAV	A 603d ASB, Hunter AAF Savannah, GA 31499 DSN 333-2323
	E-mail: jim.fixer@us.army.mil			
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Figure 4–8. Example of assembling an accident folder

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Table 4–2
Army branches

Army branch	Abbreviation
Adjutant General	AG
Air Defense Artillery	AD
Armor	AR
Army Medical Specialist Corps	SP
Army Nurse Corps	AN
Aviation	AV
Chaplain	CH
Chemical	CM
Dental Corps	DC
Engineers	EN
Field Artillery	FA
Finance Corps	FC
Infantry	IN
Judge Advocate General's Corps	JA
Medical Corps	MC
Medical Service Corps	MS
Military Intelligence	MI
Military Police	MP
Ordnance	OD
Public Affairs	PA
Quartermaster Corps	QM
Signal Corps	SC
Space Command	SP
Special Forces	SF
Transportation Corps	TC
Veterinary Corps VC	VC

Table 4–3
Types of accident locations

Code	Type Location
	Maintenance/Fabrication facility
A1	Vehicle facility (motor pool, maintenance shop)
A2	Aircraft facility (hangar)
A3	Vessel facility (boat overhaul/rebuild facility)
A4	Engineer facility (carpentry/electrical/plumbing shop)
A5	Other maintenance facility
	Travel ways
B1	Pedestrian way (sidewalk)
B2	Vehicle trail (tank trail)
B3	Roadway (street, curb, shoulder, driveway)

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Table 4–3
Types of accident locations—Continued

Code	Type Location
B4	Parking lot
B5	Aircraft way (flight line, runway)
B6	Railroad
	Other operational facilities/areas
C1	Office building
C2	Communications facility
C3	Construction site
C4	Security/law-enforcement facility
C5	Bridge
C6	Dam
C7	Navigation locks
C8	Barge
C9	Dredge
C10	Floating plant
C11	Vessel (not elsewhere coded)
C12	ARNG/Reserve armory)
	Training areas
D1	Range–small arms/individual weapons
D2	Range–crew-served weapons
D3	Range-aerial firing/bombing
D4	Range-infiltration course
D5	Designated nonfiring training area (obstacle/confidence course, parachute drop zone, landing zone, stagefield)
D6	Temporary training area (unit assembly area, bivouac area)
D7	Range-EOD
D8	Range tirehouse
D9	Urban training
	Services facilities
E1	Library
E2	Chapel/church
E3	Child-care center
E4	Post office
E5	Laboratory
E6	Medical care facility
E7	Fire station
E8	Commissary
E9	Post exchange
E10	Dining facilities
E11	Service station, gas station, and shopette
E12	Museum
E13	Animal-care facility
E14	Refuse disposal area
E15	Laundry/cleaning facility

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Table 4–3
Types of accident locations—Continued

Code	Type Location
	Terrain and water locations
F1	Sloped terrain (ditch, mountain)
F2	Wooded terrain (forest, swamp, marsh)
F3	Open terrain (field, desert)
F4	Moving bodies of water (creek, stream, river)
F5	Standing bodies of water (pond, lake, ocean)
F6	Lake shore/beach
	Storage facilities
G1	Storage buildings (ammunition bunker, warehouse, barn, storage shed)
G2	Outside storage area (POL dump, property disposal area)
	Plants and factories
H1	Heating plant
H2	Printing plant
H3	Electric generating plant (includes power substations)
H4	Ammunition/weapons manufacturing plant
H5	Other industrial plants and factories
	Recreation/entertainment facilities
I1	Indoor facilities (bowling alley, gym, movie theater, swimming pool)
I2	Outdoor facilities (playing fields, golf course, swimming pool)
	Housing facilities
J1	Family housing
J2	Individual housing (BOQ, barracks, rooms)
	Freight and passenger terminals
K1	Airport/airfield (includes control tower)
K2	Rail station/yard
K3	Port/dock/wharf
K4	Vehicle terminal (bus station, truck terminal)
	School facilities
L1	Kindergarten through grade 12
L2	Army-operated technical/occupational training facilities/classrooms (university/college classes)
L3	Non-Army-operated technical/occupational training facilities/classrooms (university/college classes)
	Hobby shop
M1	Auto hobby shop
M2	Woodworking hobby shop
M3	Other hobby shop

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Table 4–4
Pay Grade/Rank Codes

Grade/code	Description
O1–O10	Commissioned officer
W1–W5	Warrant officer
E1–E9	Enlisted service member
GS1–GS18 & GM13–GM18	DOD civilian employee
WG1–WG18 & WS13–WS18	Wage board employee
NSPS	National Security Personnel System
XN	Foreign National
X–1	Foreign officer
X–2	Foreign enlisted
CAC	Civilian Army contractor
CIV	Non-DOD civilian
DAC	Department Army civilian
KAD	USMA
ROTC	ROTC students
NRPT	Not Reported
OC	WOC/OC
UNK	Unknown
UNKE	Unknown enlisted
UNKO	Unknown officer
OTH	Personnel other than above

Table 4–5
Personnel classification codes

Code	Description
A	Active Army
B	Army civilian
C	Army contractor
C1	Army direct contractor
D	Non-appropriated Fund employee
E0	Other U.S. military personnel
E1	Navy
E2	Air Force
E3	Marine Corps
F0	Foreign Military
F1	Foreign National Direct Hire
F2	Foreign National Indirect Hire
F3	Foreign National KATUSA
F4	Foreign Military Attached
G	Dependent
M	Government, Other
NO	National Guard

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Table 4–5
Personnel classification codes—Continued

Code	Description
N1	NG Tech
N2	NG IDT
N3	NG AT
N4	NG ADSW
N5	NG AGR
N6	NG ADT
N7	NG Activated
O	Other
P	Public
RO	Reserve
R1	Reserve IDT
R2	Reserve AT
R3	Reserve ADT
R4	Reserve FTM
R5	Reserve Tech
R6	Reserve Activated
R7	Reserve AGR
T	ROTC
U	Unknown
Z	Not reported

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—

(a) Accidents occurring while loading, off-loading, or receiving services at dockside.

(b) Damage to Army property handled as an on-board commodity.

(c) Accidents occurring during amphibious or on-shore warfare training operation.

(d) 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—

(a) Used in logistics-over-the-shore (LOTS) operations; coastal, harbor, and inland waterways (CHI); and ocean operations.

(b) Identified in AR 56–9, table 1–1.

(c) 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.

(d) Lent or leased to non-Army organizations for modification, maintenance, repair, test, contractor training, research, or development projects for the Army.

(e) Under test by Army agencies responsible for research, development, and test of equipment.

(f) 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

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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).

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(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:

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(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; smokes; 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 5–1
Chemical Accident and Incidents Report-Guidance and Distribution Format

A. Heading	1.	For chemical accidents. Enter "This is a chemical accident report (RCS DD–FM&P (AR) 1020."
	2.	For chemical incidents. Enter "This is a chemical incident report (RCS CSOCS–311)."
B. Body	1.	Date and time of event.
	2.	Location.
	3.	Quantity and type of weapon(s) or container(s) and chemical agent(s
	4.	Description of property damage and personnel casualties.
	5.	Type of carrier (if one is involved).
	6.	Type of operation. For example, laboratory analysis, surveillance testing, logistical movement, storage inspection, alert, maintenance and renovation, or demilitarization.
	7.	Description of event.

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Table 5–1
Chemical Accident and Incidents Report-Guidance and Distribution Format—Continued

A. Heading	1.	For chemical accidents. Enter "This is a chemical accident report (RCS DD–FM&P (AR) 1020."
	8.	Whether a weapon or container burned, detonated (to what degree), or was exposed to fire.
	9.	Details of any existing chemical weapon or container.
	10.	Condition of chemical weapon or container.
	11.	Whether news release was given to the media. If so, attach copies.
	12.	Measures taken to ensure safety and security.
	13.	Any other pertinent information, including cause factors if know, and any possible political implications.
	14.	Statement of corrective actions recommended, if appropriate.
	15.	Assistance required. For example, Augmentation Reserve Force, Explosive Ordnance Disposal.
C. Distribution	1.	DA WASH DC//DACS–SF/DAMO–NCC/DASG–PSP/DAIG–TI/DALO–ZD//.
	2.	CDRAMC ALEX VA//AMCSF–C/AMCCB//.
	3.	CDRUSANCA FT BELVOIR VA//MONA–SU/MONA–MS//.
	4.	CDR USACRC FT RUCKER AL//CSSC–I–D//.
	5.	DIRUSADACS SAVANNA IL//SMCAC–ES// (WHEN EXPLOSIVES ARE INVOLVED).
	6.	Other appropriate Army Headquarters.

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.

b. Notification procedures (RCS DD–FM&P (AR) 1020).

(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 5–3*b*, 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 5–3*d*.

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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

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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 5–4*b*(2)(*a*), 5–4*b*(2)(*b*), and 5–4*b*(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 5–4 *b*(4)(*a*), below.

Note. This paragraph addresses initial notification. For written requirements, see paragraph 5–4*b*(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 (0.01μCi/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 (2mSv/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.

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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 of 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 TMs, 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.

b. The USACRC at DSN 558–2660/3410, COM(334)255–2660/3410, FAX DSN 558–3749, COM (334)255–3749.

c. The Army Safety Office at DSN 329–2412, COM (703) 601–2412 or the Army Operations Center (AOC) after duty hours, DSN 227–0218, COM (703) 697–0218.

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

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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 5–2
Radiological Accident Report, RCS DD–R&E (AR) 1168

1.	Date and time of event.
2.	Radiation-producing device or source involved, including NSN, serial number, part number, radiation characteristics, and parameters of the event.
3.	Description of the event, including cause; names and SSNs of the people exposed, injured, or contaminated; estimated exposure; contamination levels; facilities effected; potential damages; impact on operations; and immediate-response actions taken.
4.	Actions taken to prevent occurrence.
5.	Recommendations to avoid similar instances at other installations possessing similar material or devices.
6.	Name and telephone number of health physicist or radiation safety officer, field unit identification and the appropriate Army Command (ACOM), Army Service Component Command (ASCC) or Direct Reporting Unit (DRU) involved.
7.	Point of contact (name, address, and telephone number).
8.	A statement of when the appropriate offices in DOL, NRC, and DOT were notified (if applicable) and by whom notification was made.
9.	NRC License, Army authorization number or Army permit number.

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 medial 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 Regulator Commission will be met through procedures in paragraph 5–4*b*(4)(*ii*) below.

1. In addition to any notification required by paragraph 5–4*b*(2)(*i*) 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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2. 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—

1. Visiting the NRC's Web site at http://www.nrc.gov/site-help/eie.html.

2. By calling (301) 415–6030.

3. By e-mail to EIE@nrc.gov.

4. By writing the Office of Information Services, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001.

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 60532–4352, 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.

(e) Other involved federal agencies telephone numbers and addresses: U.S. Department of Transportation (DOT), Pipeline and Hazardous Materials Safety Administration, Office of Hazardous Materials Enforcement, PHH–40, 400 7th Street, S.W., Washington, D.C. 20590, COM (202) 336–4700, FAX (202) 336–2784, (800) 424–8802

Note. The 1–800 number is to the National Response Center.

(f) The Office of Hazardous Materials Enforcement regional offices can be contacted at—

1. Eastern region. 820 Bear Tavern Road, Suite 306, West Trenton, NJ 08628, COM (609) 989–2181, FAX (609) 989–2277.

2. Central region. 2300 East Devon Avenue, Suite 478, Des Plaines, IL 60018–4696, COM (847) 294–8580, FAX (847) 294–8590.

3. Southern region. U.S. Department of Transportation, Pipeline and Hazardous Materials Enforcement, Office of Hazardous Materials Safety, 233 Peachtree Street NE, Suite 602, Atlanta, GA 30303, COM (404) 832–1140, FAX (404) 832–1168.

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4. Southwest region. U.S. Department of Transportation, Pipeline and Hazardous Materials Enforcement, Office of Hazardous Materials Safety, 8701 S. Gessner Road, Suite 1110, Houston, TX 77074, COM (713) 272–2820, FAX (713) 272–2821.

5. Western region. 3401 Centrelake Drive, Suite 550B, Ontario, CA 91761, COM (909) 937–3279, FAX (202) 390–5142.

(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 Belvior, 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).

c. Nonionizing radiation accidents.

(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 addressees providing as many details of the accident as possible in the format in figure 5–2 within 24 hours of occurrence: Commander, USACRC (CSSC–CG), Fort Rucker, AL, at DSN 558–2660/3410, COM (334) 255–2660/3410, FAX DSN 558–3749, COM (334) 255–3749.

(a) 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).

(b) Commander, U.S. Army Center for Health Promotion and Preventive Medicine (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 (410) 436–3932/2331 or (800) 222–9698) (e-mail: laserincident@ammed.army.mil).

(c) 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 360–5). Radiation accidents or incidents attract the attention of local and national medial quickly. Early disclosure of accurate information is vital to maintaining the confidence of both internal and external public.

(3) *Investigation.* 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)

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Manager (DSN 584–2714 or COM (410) 436–2714) (e-mail: laserincient@ammed.army.mil). After normal duty hours, contact the USACHPPM personnel via the staff duty officer (DSN 584–4375 or COM (410) 436–4375 or (800) 222–9698).

(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. Biological 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.

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(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) Assist injured crews and remove fatalities. In the event of fatal accidents—

(2) Provide an officer detailed to the country of occurrence to take legal steps required by the local civil authorities.

(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.

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(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.

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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.)

AR 385–10
The Army Safety Program

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
A related publication is a source of additional information. The user does not have to read it to understand the publication.

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

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AR 75–1
Malfunctions Involving Ammunition and Explosives

AR 75–15
Policy for Explosive Ordnance Disposal

AR 95–1
Flight Regulations

AR 95–23
Unmanned Aircraft System Flight Regulations

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 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
U.S. Dive Manual, Volumes I, General Principles of Diving; Volume II, Surface Air and Self-Contained Diving (SCUBA)

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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

TB MED 524
Control of Hazards to Health from Laser Radiation

RCS CSOCS–309
Unmanned Aircraft System Accident Report (UASAR)

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
Technical Report of U.S. Army Ground Accident, Statement of Reviewing Officials (Prescribed in paras 4–1d(4), 4–8.)

DA Form 285–W
Technical Report of U.S. Amy 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
Technical Report of U.S. Army Aircraft Accident, Part I, Statement of Reviewing Officials (Prescribed in paras 3–1, 3–2b, 3–2a, 3–3, 3–8a, 3–19d, 3–19b, 3–19.)

DA Form 2397–1
Technical Report of U.S. Army Aircraft Accident, Part II, Summary (Prescribed in paras 3–2b(3), 3–4, 3–19b.)

DA Form 2397–2
Technical Report of U.S. Army Aircraft Accident, Part III, Findings and Recommendations (Prescribed in paras 3–2b(1), 3–5.)

DA Form 2397–3
Technical Report of U.S. Army Aircraft Accident, Part IV, Narrative (Prescribed in para 3–6.)

DA Form 2397–4
Technical Report of U.S. Army Aircraft Accident, Part V, Summary of Witness Interview (Prescribed in para 3–7.)

DA Form 2397–5
Technical Report of U.S. Army Aircraft Accident, Part VI, Wreckage Distribution (Prescribed in paras 3–2b(2), 3–8.)

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DA Form 2397–6
Technical Report of U.S. Army Aircraft Accident, Part VII, In-Flight or Terrain Impact and Crash Damage Data (Prescribed in paras 2–4g(3)(f), 3–2b(3), 3–9.)

DA Form 2397–7
Technical Report of U.S. Army Aircraft Accident, Part VIII, Maintenance and Material Data (Prescribed in para 3–10.)

DA Form 2397–8
Technical Report of U.S. Army Aircraft Accident, Part IX, Personal Data (Prescribed in para 3–11.)

DA Form 2397–9
Technical Report of U.S. Army Aircraft Accident, Part X, Injury/Occupational Illness Data (Prescribed in para 3–12.)

DA Form 2397–10
Technical Report of U.S. Army Aircraft Accident, Part XI, Personnel Protective/Escape/Survival/Rescue Data (Prescribed in paras 2–4g(3)(f), 3–13.)

DA Form 2397–11
Technical Report of U.S. Army Aircraft Accident, Part XII, Weather/Environmental. (Prescribed in para 3–14.)

DA Form 2397–12
Technical Report of U.S. Army Aircraft Accident, Part XIII, Fire (Prescribed in para 3–15.)

DA Form 2397–13
Technical Report of U.S. Army Aircraft Accident, Index A (Prescribed in paras 3–16, 3–17d, 3–17b, 3–17a, 3–19d.)

DA Form 2397–14
Technical Report of U.S. Army Aircraft Accident, Index B (Prescribed in paras 3–16, 3–19d.)

DA Form 2397–AB
Abbreviated Aviation Accident Report (Prescribed in paras 1–4a, 3–1, 3–20.)

DA Form 2397–U
Unmanned Aircraft System Accident Report (Prescribed in paras 1–4a, 3–1, 3–21, and 3–37.)

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

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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)

DA Form 2408–16
Aircraft Component Historical Record (Available through normal forms supply channels)

DA Form 2408–18
Equipment Inspection List (Available through normal forms supply channels)

DA Form 2408–20
Oil Analysis Record

DA Form 2410
Component Removal and Repair/Overhaul Record

DA Form 3946
Military Police Traffic Accident Report

DD Form 175–1
Flight Weather Briefing

DD Form 314
Preventive Maintenance Schedule and Record (Available through normal forms supply channels)

DD Form 365–4
Weight and Balance Clearance Fom F-Transport/Tactical (Available through normal forms supply channels)

OF 346
U.S. Government Motor Vehicle Operator's Identification Card

OSHA Form 300
Log of Federal Occupational Injuries and Illnesses (Available from www.osha.gov)

OSHA Form 300A
Summary Log of Federal Occupational Injuries and Illnesses (Available from www.osha.gov)

OSHA Form 301
Injury and Illness Incident Report (Available from www.osha.gov)

SF 368
Product Quality Deficiency Report

SF 503
Medical Record – Autopsy Protocol

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SF 543
Contributor's List of Pathological Material (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 B–1
Aviation specific

Individual Task Errors	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.
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	

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Table B–1
Aviation specific—Continued

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.
	Positive communication - Lack of positive communication (transmission, acknowledgement, confirmation) using standard terminology with specific qualifiers.
	Assign responsibilities - Failure of ABC, AMC, AUC, FCO, IP and other supervisor to properly assign responsibilities.
	Offer assistance - Failure to offer assistance or information requested or needed by the flying pilot/work group members.
	Action sequence - Improper sequencing or timing of actions. Crewmember/work group member initiated action before clearance to do so.
Code: P09	
Keyword/explanation:	Failed to use/follow list(s) to perform before/during/after operations/inspections of aircraft/equipment.
Code: P10	
Keyword/explanation:	Failed to follow maintenance manual (TM, SOP) instructions in servicing aircraft/equipment.
Code: P11	
Keyword/explanation:	Failed to follow proper instructions (TM, TB, MWO) while repairing/installing/adjusting equipment/component/part.
Code: P12	
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.
Code: P13	
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.
Code: P14	
Keyword/explanation:	Inadequate tool/equipment accountability. Failed to maintain strict equipment accountability, such as for tools and cleaning materials (for self or others).
Code: P15	
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).

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Table B–1
Aviation specific—Continued

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.
Code: P16	
Keyword/explanation:	Inadequately/improperly selected LZ/termination point; for example, size, obstacles/environmental hazards/aircrew experience.
Code: P17	
Keyword/explanation:	Improperly prepared LZ; for example, type/placement of landing markers/detection/removal of obstacles/hazards.
Code: P18	
Keyword/explanation:	Improper mix/match/number of personnel for job/mission (level of proficiency/fatigue).
Code: P19	
Keyword/explanation:	Inadequate time allowed for pre-mission preparation. Set mission launch time which did not allow adequate pre-mission preparation.
Code: P20	
Keyword/Explanation:	Set/permitted inappropriate mission launch time for environment/weather conditions.
Code: P21	
Keyword/explanation:	Permitted inappropriate selection of LZ/touchdown or termination point for aircrew experience/level of training intended.
Code: P22	
Keyword/explanation:	Failed to ensure repairs, services, modifications, installations, or maintenance such as lubrication/inspections, were completed in accordance with TMs, SOPs.
Code: P23	
Keyword/explanation:	Failed to take appropriate/timely actions to prevent or stop violations of safe operations/procedures.
Code: P24	
Keyword/explanation:	Inadequate mission planning.
	Risk management, operational and logistical decisions.
	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.
	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: P25	
Keyword/explanation:	Failed to brief/provide information adequate for mission accomplishment.
Code: P97	
Keyword/explanation:	Insufficient information to determine the mistake or task error.

Table B–2
Ground Specific

Individual mistakes/task errors -	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.
Code: 01	
Keyword/explanation:	Inadequate planning - Failed to properly organize or coordinate. Improper modification of the plan during execution.
Code: 02	
Keyword/explanation:	Improperly/failed to lock/block/secure, (for example, load).
Code: 03	
Keyword/explanation:	Inadequate inspection/check of vehicle or equipment (before, during, after operations check). Failed to use the appropriate checklist or TM to perform the inspection.

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Table B–2
Ground Specific—Continued

Code: 04	
Keyword/explanation:	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.
Code: 05	
Keyword/explanation:	Operating while fatigued when not necessary/directed.
Code: 06	
Keyword/explanation:	Improper use of equipment -
	Did not use equipment when required.
	Used right equipment improperly.
	Used wrong equipment.
Code: 07	
Keyword/explanation:	Improper lifting -
	Used incorrect lifting technique.
	Failed to use appropriate assistance.
Code: 08	
Keyword/explanation:	Failed to take appropriate precautions for adverse environmental conditions (rain, haze, fog, snow, ice, reduced visibility).
Code: 09	
Keyword/explanation:	Improper body position -
	Hazardous position.
	Awkward position.
	Unprotected position (sleeping, eating).
Code: 10	
Keyword/explanation:	Improperly walked, ran, or climbed.
Code: 11	
Keyword/explanation:	Failed to stay alert, remain awake, or attentive to what was happening (situational awareness to environment, conditions, or operations).
	Failed to pay attention.
	Improperly divided attention.
	Improperly monitored.
	Improperly scanned.
	Fell asleep.
Code: 12	
Keyword/explanation:	Failed to ensure adequate clearance/space (enough room) for operation.
Code: 13	
Keyword/explanation:	Misjudged clearance (improperly estimated/evaluated).
Code: 14	
Keyword/explanation:	Improper weapons and ammunition handling -
	Improper sighting, aiming, firing, throwing.
	Unauthorized use or handling.
	Improper carrying, lifting, transporting.
	Improper clearing, disarming, unloading.
	Improper assembling, cleaning, disassembling.

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Table B–2
Ground Specific—Continued

	Improper disposal or turn-in.
Code: 16	
Keyword/explanation:	Improperly pulled or pushed equipment or material.
Code: 17	
Keyword/explanation:	Failed to firmly grip/hold equipment/material.
Code: 18	
Keyword/explanation:	Inadequate improvising/troubleshooting.
Code: 19	
Keyword/explanation:	Inadequate crew coordination/communication.
	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.
	Failure to offer assistance, information, or warning, (for example, driver failed to warn other crewmembers of impending hazard (rollover)).
	Lack of positive communication, (for example, transmission, acknowledgement, or confirmation using standard terminology with specific qualifiers); (for example, tank commander failing to confirm crewmembers were clear before traversing turret).
	Failure to announce decision/action that affects other crewmembers' duties, (for example, occupant failed to announce to the driver their decision to dismount the vehicle during a momentary halt).
	Failed to direct/request assistance from other crewmembers, (for example, although neither track command (TC) nor driver could see, the TC failed to direct a crewmember to dismount and act as a ground guide).
Code: 20	
Keyword/explanation:	Improper assembly.
Code: 21	
Keyword/explanation:	Under the influence of drugs or alcohol.
Codes 22–39 reserved for future use.	

VEHICLE/EQUIPMENT SPECIFIC

Code: 40	
Keyword/explanation:	Excessive speed.
	Exceeding the posted speed limits.
	Excessive speed for conditions.
Code: 41	
Keyword/explanation:	Improper passing.
	Misjudged clearance while passing.
	Passing at an unsafe time or place.
	Failed to take precautions when passing pedestrians.
Code: 42	
Keyword/explanation:	Improper turning.
	Failed to yield the right-of-way while turning.
	Oversteering while turning.
	Improper U–Turn.
Code: 43	
Keyword/explanation:	Failed to yield the right-of-way other than when turning.
Code: 44	
Keyword/explanation:	Failed to stop at a controlled intersection.

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Table B–2
Ground Specific—Continued

Code: 45	
Keyword/explanation:	Improperly stopped or parked.
Code: 46	
Keyword/explanation:	Improper backing.
Code: 47	
Keyword/explanation:	Failed to use a ground guide when required.
Code: 48	
Keyword/explanation:	Ground guide used improper/incorrect position, signal, or procedure.
Code: 49	
Keyword/explanation:	Following too close for environmental conditions or vehicle speed/design.
Code: 50	
Keyword/explanation:	Driving in the wrong lane.
Code: 51	
Keyword/explanation:	Improper lane change.
Code: 52	
Keyword/explanation:	Improper braking.
	Improper placement on the pedal.
	Too much or too little pressure.
	Applied too soon or too late.
Code: 53	
Keyword/explanation:	Improperly shifted/placed gear selector on vehicle or equipment.
Code: 54	
Keyword/explanation:	Abrupt control/steering response (except while turning).
Code: 55	
Keyword/explanation:	Improperly mounted or dismounted vehicle/equipment.
Code: 56	
Keyword/explanation:	Operating vehicle/equipment with known malfunction/unsafe mechanical conditions.
Codes: 57–74 reserved for future use.	
Leader/Supervisory Mistakes/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.	
Code: 75	
Keyword/explanation:	Improper personnel selection/assignment.
	Inexperienced.
	Untrained.
	Unlicensed.
	Impaired, (for example, fatigued).
Code: 76	
Keyword/explanation:	Knowingly allowed equipment operator to violate procedures.
Code: 77	
Keyword/explanation:	Failure to ensure proper positioning of personnel prior to vehicle/equipment operation.
Code: 78	
Keyword/explanation:	Failure to brief or provide adequate information.

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Table B–2
Ground Specific—Continued

Code: 79	
Keyword/explanation:	Failure to assign responsibilities before or during the mission.
Code: 80	
Keyword/explanation:	Inadequately/improperly selected site location/termination point, (for example, size, obstacles/environmental hazards/crew experience).
Code: 81	
Keyword/explanation:	Improperly prepared site location, (for example, type/placement of markers/detection/removal of obstacles/hazards).
Code: 82	
Keyword/explanation:	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.
Code: 83	
Keyword/explanation:	Failed to conduct adequate pre-mission inspection of personnel or equipment.
Code: 84	
Keyword/explanation:	Failed to ensure repairs, services, modifications, installations, or maintenance such as lubrication/inspections, were completed in accordance with appropriate TMs and SOPs.
Code: 85	
Keyword/explanation:	Failed to take appropriate/timely actions to prevent or stop violations of safe operations/procedures; for example, make on the spot corrections.
Code: 86	
Keyword/explanation:	Failed to enforce use of personal protective equipment.
Code: 87	
Keyword/explanation:	Inadequate mission planning.
	Inadequate time allowed for pre-mission preparation. Set mission start time which did not allow adequate pre-mission preparation.
	Set/permitted inappropriate mission start time for environmental/weather conditions.
	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.
	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.
Code: 97	
Keyword/explanation:	Insufficient information to determine the mistake or task error.

Table B–3
Materiel failures/malfunctions

Code: M01	
Keyword/explanation:	Overheated/burned/melted. Key words: blister, boil, carbonize, char, flame, fuse, or glaze. Excessive heat caused materiel or equipment to fail or malfunction.
Code: M02	
Keyword/explanation:	Froze (temperature). Key words: congeal or solidify. Excessive cold caused materiel/equipment to fail/malfunction.
Code: M03	
Keyword/explanation:	Obstructed/pinched/clogged. Key words: block, crimp, or restrict. Function of materiel or equipment was hindered or completely cut off by an obstacle.
Code: M04	

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Table B–3
Materiel failures/malfunctions—Continued

Keyword/explanation:	Vibrated. Key words: oscillate or shake. Side-to-side or forward-and-backward movement of materiel or equipment caused it to fail or malfunction.
Code: M05	
Keyword/explanation:	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.
Code: M06	
Keyword/explanation:	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.
Code: M07	
Keyword/explanation:	Overpressured/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.
Code: M08	
Keyword/explanation:	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.
Code: M09	
Keyword/explanation:	Twisted/torqued. Key word: turn. Steady or abrupt application of twisted forces caused materiel or equipment to fail or malfunction.
Code: M10	
Keyword/explanation:	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.
Code: M11	
Keyword/explanation:	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.
Code: M12	
Keyword/explanation:	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.
Code: M13	
Keyword/explanation:	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 if failed or malfunctioned.
Code: M14	
Keyword/explanation:	Electric current action. Key words: short, arc, fusing, grounding, amperage, voltage, surge. Action of electric current caused materiel or equipment to fail or malfunction.
Code: M15	
Keyword/explanation:	No defect but does not meet the mission requirements.
Code: M97	
Keyword/explanation:	Insufficient information to determine type of failure.

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Table B–4
Environmental conditions

Code: E01	
Keyword/explanation:	Illumination. Key words: bright, dark, dim, glare, or light. Too much or too little light that was a negative influence on vision.
Code: E02	
Keyword/explanation:	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.
Code: E03	
Keyword/explanation:	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.
Code: E04	
Keyword/explanation:	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.
Code: E05	
Keyword/explanation:	Temperature/humidity. 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.
Code: E06	
Keyword/explanation:	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.
Code: E07	
Keyword/explanation:	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.
Code: E08	
Keyword/explanation:	Acceleration/deceleration. Forces experienced by personnel/materiel due to rate of change of velocity.
Code: E09	
Keyword/explanation:	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.
Code: E10	
Keyword/explanation:	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.
Code: E11	
Keyword/explanation:	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.
Code: E12	
Keyword/explanation:	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.
Code: E13	
Keyword/explanation:	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.
Code: E97	
Keyword/explanation:	Insufficient information to identify environmental conditions.
Code: E98	
Keyword/explanation:	Not applicable, not caused by Army. Army had no contributing role.
Code: E99	

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Table B–4
Environmental conditions—Continued

Keyword/explanation:	Insufficient information reported to identify the cause.

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.	
Code: 01	
Keyword/explanation:	Inadequate/improper supervision by higher command.
Code: 02	
Keyword/explanation:	Inadequate/improper supervision by staff officer.
Code: 03	
Keyword/explanation:	Inadequate/improper supervision by unit command.
Code: 04	
Keyword/explanation:	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.
Code: 04A	
Keyword/explanation:	When a leader who is not in the individual chain of command fails to make an on-the-spot correction.
TRAINING FAILURE occurs when training is incorrect, incomplete, insufficient for performance to standard.	
Code: 05	
Keyword/explanation:	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.
Code: 06	
Keyword/explanation:	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.
Code: 07	
Keyword/explanation:	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.
Code: 08	
Keyword/explanation:	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.
STANDARDS FAILURE occurs when standards do not exist or they are unclear, impractical, or inadequate.	
Code: 09	
Keyword/explanation:	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.
SUPPORT FAILURE 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.	
Code: 10	
Keyword/explanation:	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.)
Code: 11	

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Table B–5
System inadequacies/readiness shortcomings/root causes ("Why" the error/failure/malfunction occurred)—Continued

Keyword/explanation:	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.
Code: 12	
Keyword/explanation:	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.
Code: 13	
Keyword/explanation:	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.)
Code: 14	
Keyword/explanation:	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.
INDIVIDUAL FAILURE occurs when the individual knows the standard and is trained to standard but elected not to follow the standard.	
Code: 15	
Keyword/explanation:	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.
Code: 16	
Keyword/explanation:	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.
Code: 17	
Keyword/explanation:	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.
Code: 18	
Keyword/explanation:	Haste. A 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.
Code: 19	
Keyword/explanation:	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 metal capabilities resulting from previous activity and/or lack of rest.
Code: 20	
Keyword/explanation:	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.
Code: 21	
Keyword/explanation:	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.
Code: 22	
Keyword/explanation:	Environment conditions. Unknown or unavoidable conditions, which result in materiel failure or induce human error.
Code: 97	
Keyword/explanation:	Insufficient information to determine system inadequacy/cause.

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Table B–6
Recommendations/controls/corrective actions/countermeasures

Code: 01	
Keyword/explanation:	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.
Code: 02	
Keyword/explanation:	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.
Code: 03	
Keyword/explanation:	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.
Code: 04	
Keyword/explanation:	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.)
Code: 05	
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.
Code: 06	
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.
Code: 07	
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.
Code: 08	
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.
Code: 09	
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.
Code: 10	
Keyword/explanation:	Improve quality control. This recommendation is directed primarily toward t he improvement of training, manufacturing, and maintenance operations where poor quality products (personnel or materiel) have led to accidents.
Code: 11	
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.

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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).

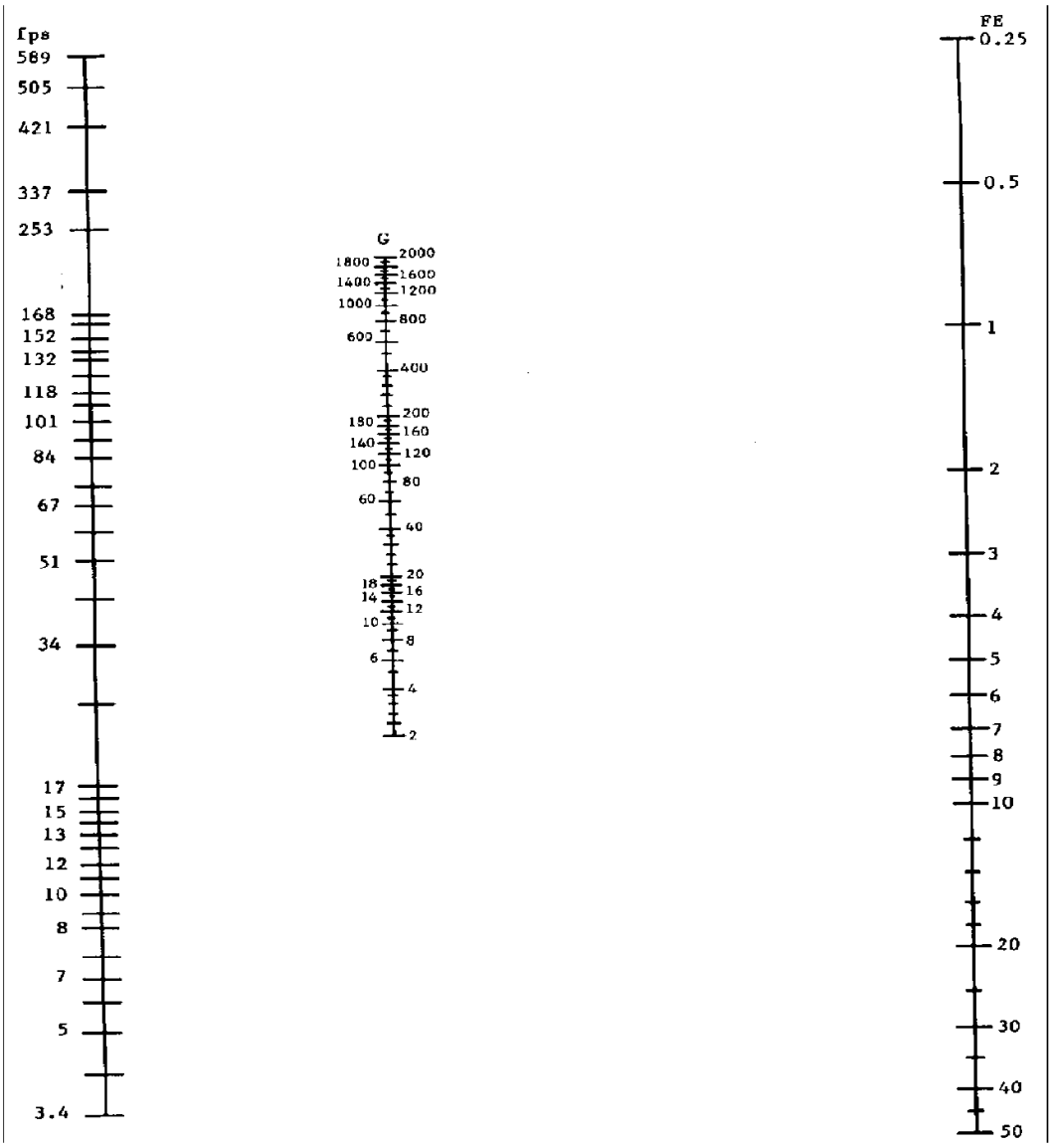

Figure C–1. Relationship of velocity of impact and declarative distance to force

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b. A chart indicating the relationship of velocity of impact and declarative distance to force (see fig C–2).

	Transmission & Rotor			Engine			Seats			Landing Gear
Aircraft	N_x	N_y	N_z	N_x	N_z	N_x	N_y	N_z	N_z	Sink Rate
AH-1	±8	±8	±8	±15	±5	±15	+ 15 −5	±15	±15	8-10 fps
OH-58	±16	±8	±16	±16	±8	±16	±20	+10	±20	10-15 fps
UH-1	±8	±8	±8	±8	±1.5	±8	±15** −5	±15**	+ 15** −7.5	8-10 fps
UH-60	±20	±18	+20 −10	±20	±18	±20 -10	+ 20 −12	+10	+ 25 −8	20 fps
AH-64	±20	±18	+20 −10	±20	±18	+20 −10	+ 20 −12	±10	±25 −8	30 fps
CH-47	±8	±8	±8	±8	±8	±8	±8	±8	±8	A&B 8.2 fps C 6.0 fps
CH-54	±10	±5	±10	±10	±5	±10	±10	±5	±10	9.8-12 fps
CH-6	±17	±15	±17	±20	±6	±12	±20	±10	±20	15 fps

* Nil failure occurs
** Unarmored seats

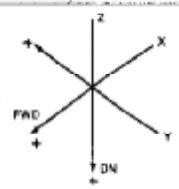

Figure C–2. Aircraft Design Load Factors and Landing Sink Rates

c. An illustration of human tolerable declarative force limits (see fig C–3).

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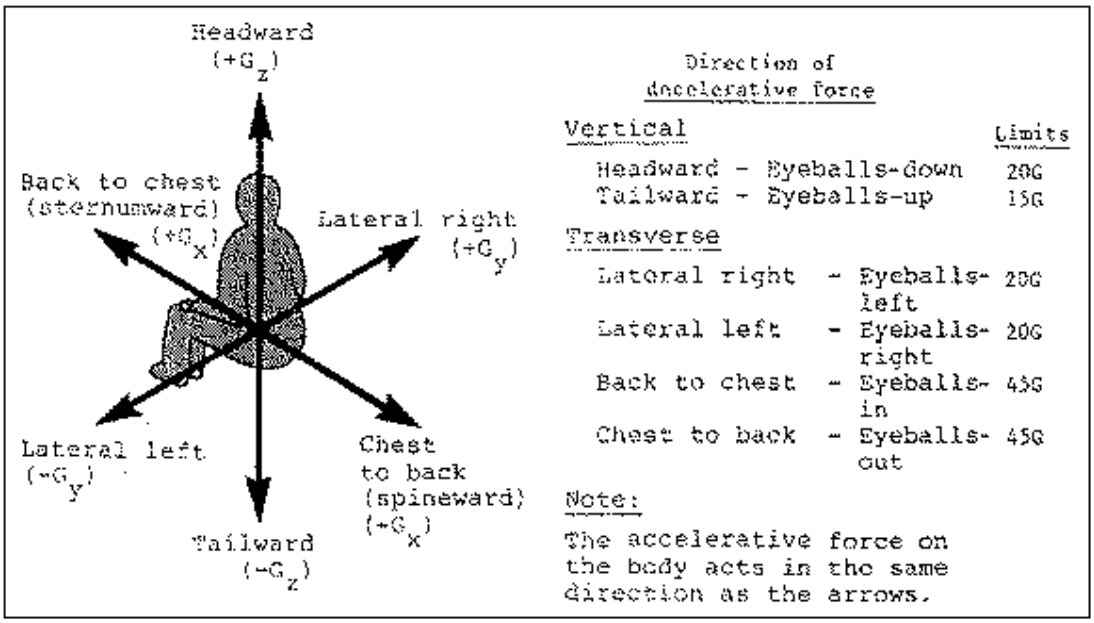

Figure C–3. Typical body crash impacts. Values are for no serious injury

d. Six illustrations of human extremity strike envelopes (see figs C–4 through C–9).

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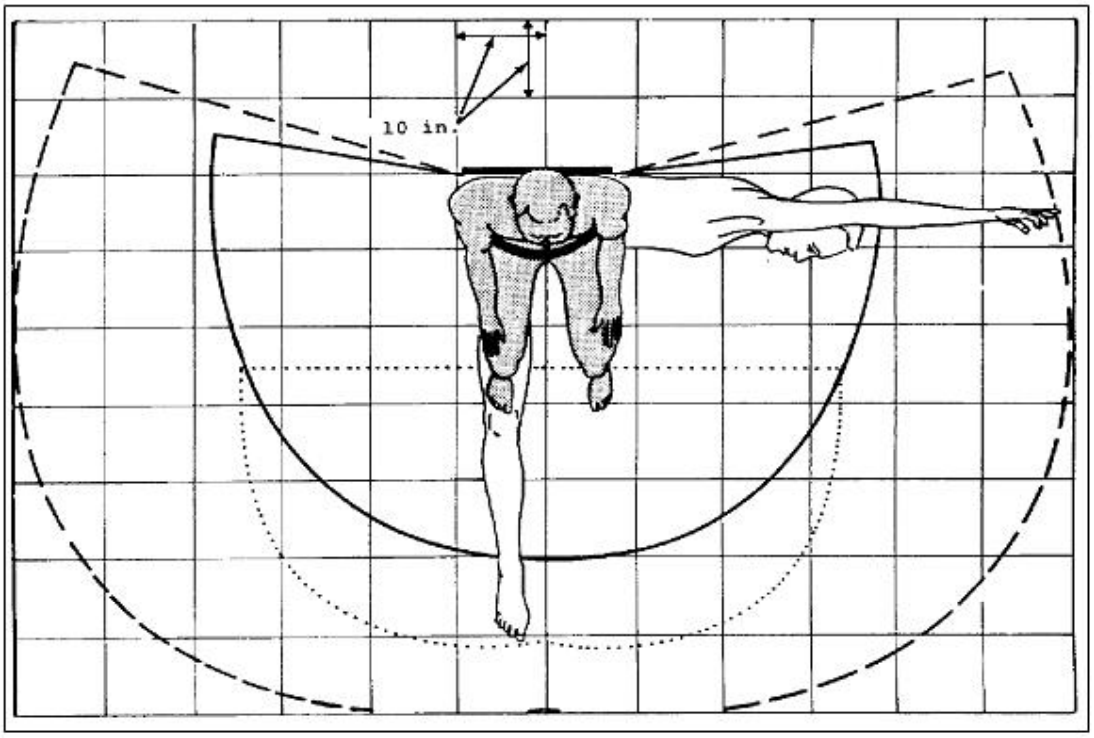

Figure C–4. Lap Belt-Only Extremity Strike Envelope-Top View

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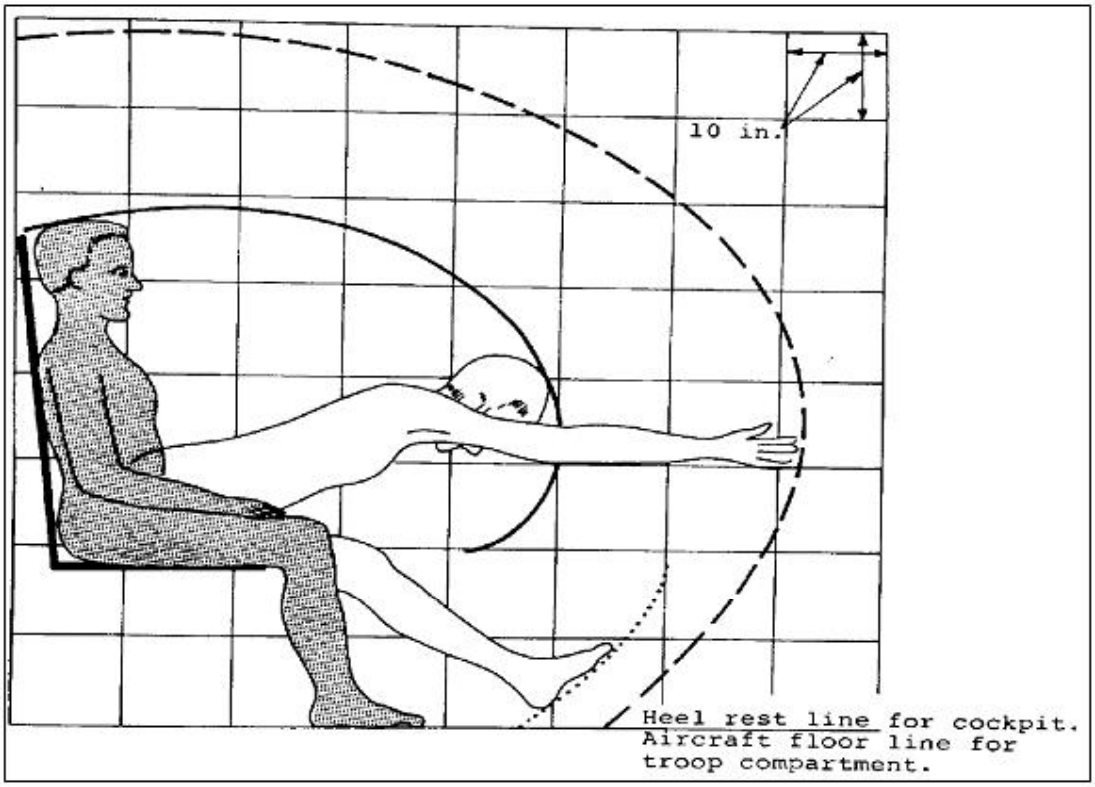

Figure C–5. Lap Belt-Only Extremity Strike Envelope-Side View

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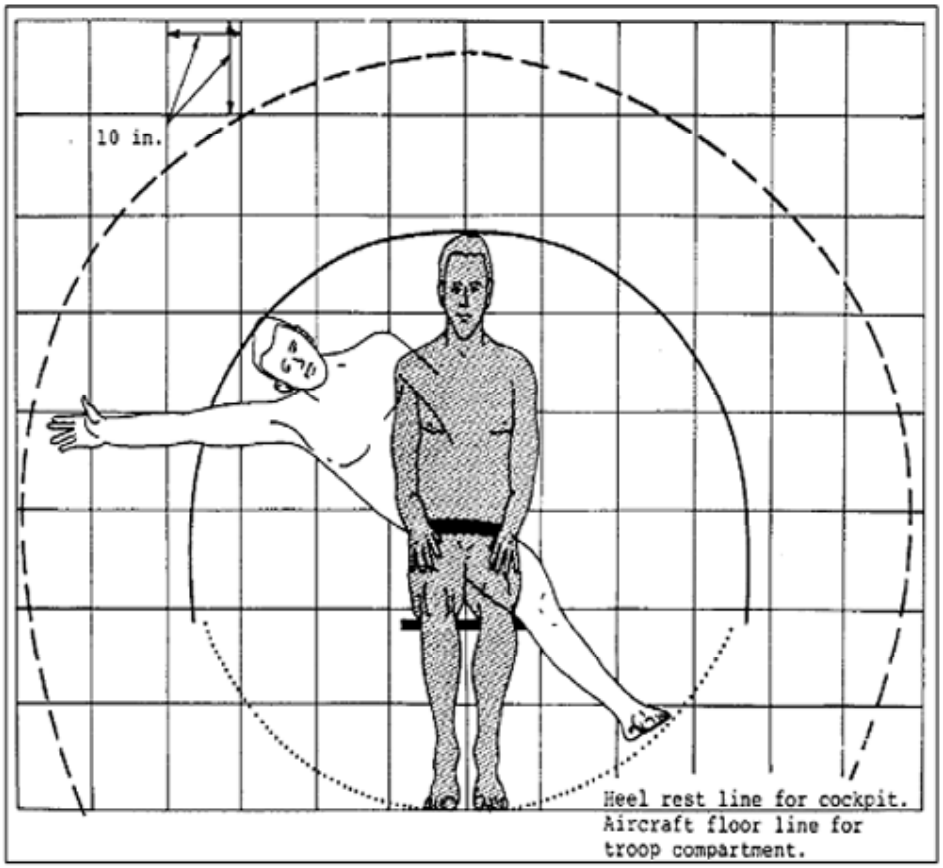

Figure C–6. Lap Belt-Only Extremity Strike Envelope-Front View

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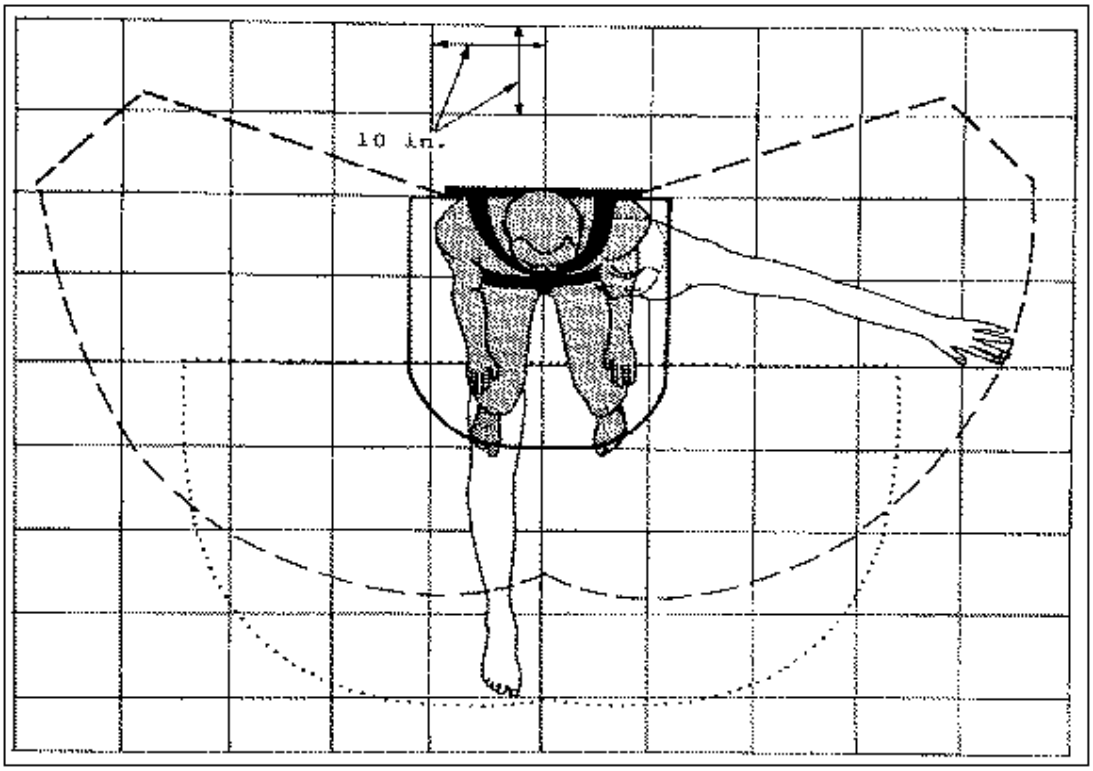

Figure C–7. Full-Restraint Extremity Strike Envelope-Top View

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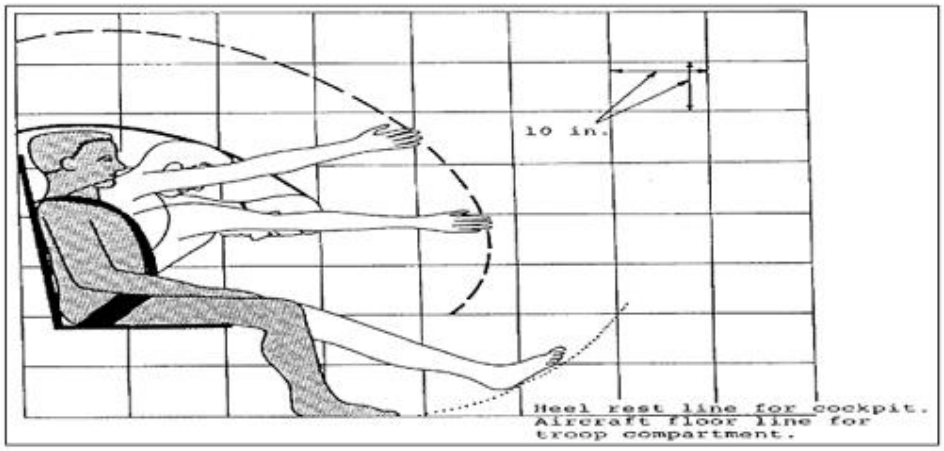

Figure C–8. Full-Restraint Extremity Strike Envelope-Side View

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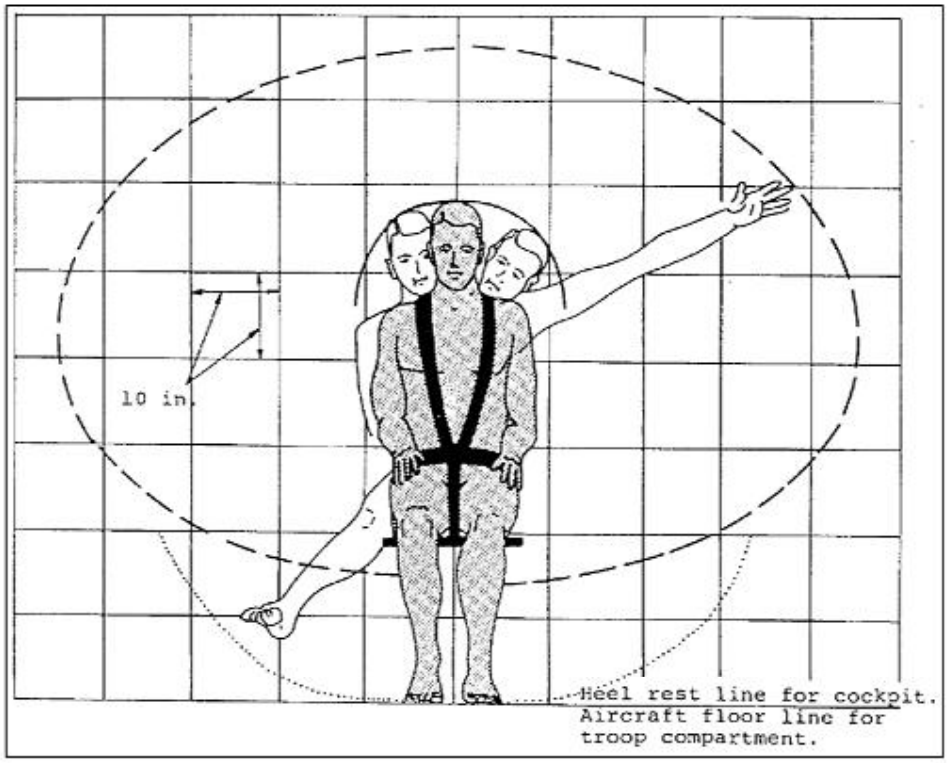

Figure C–9. Full-Restraint Extremity Strike Envelope-Front View

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.

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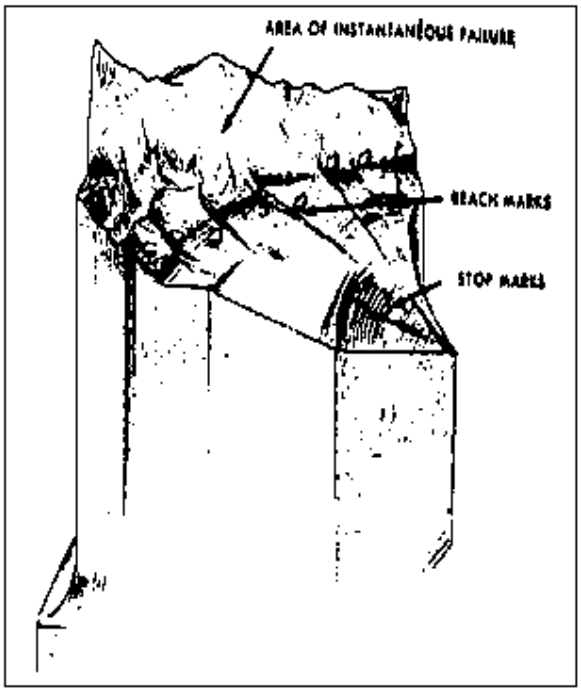

Figure D–1. Metal fatigue

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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.

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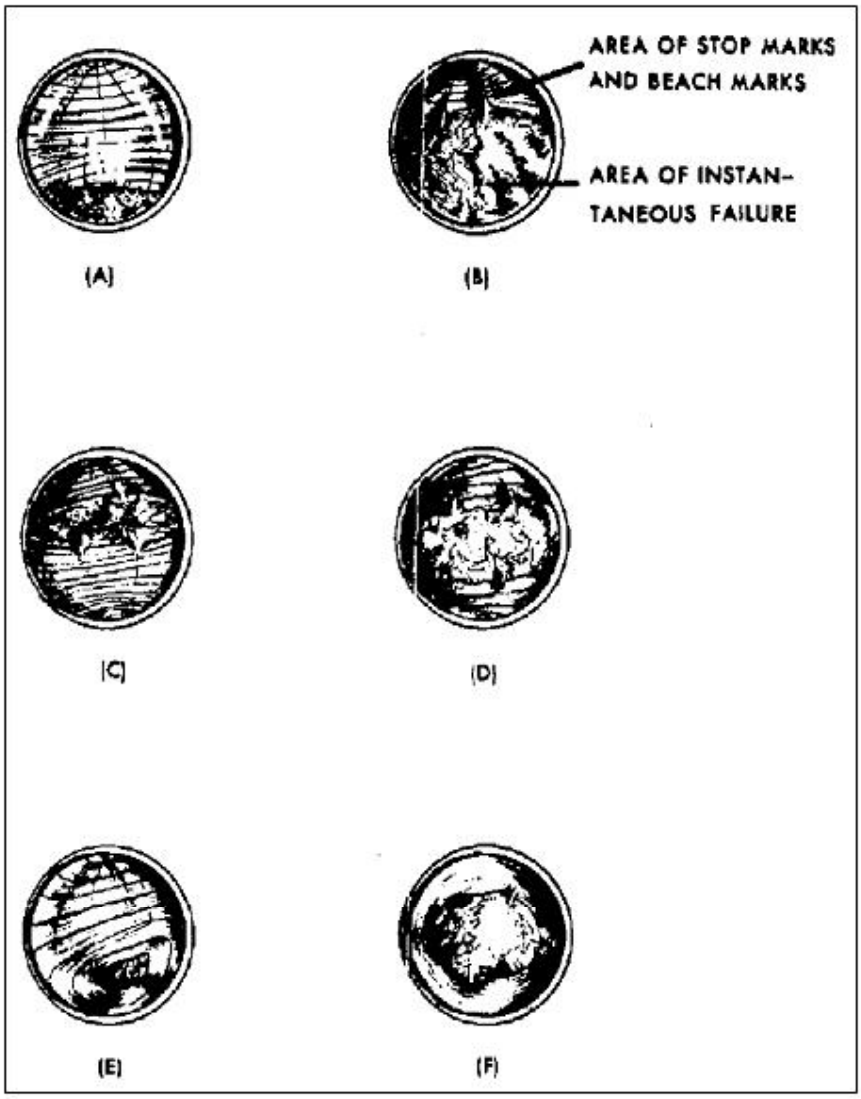

Figure D–2. Fatigue fractures

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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.

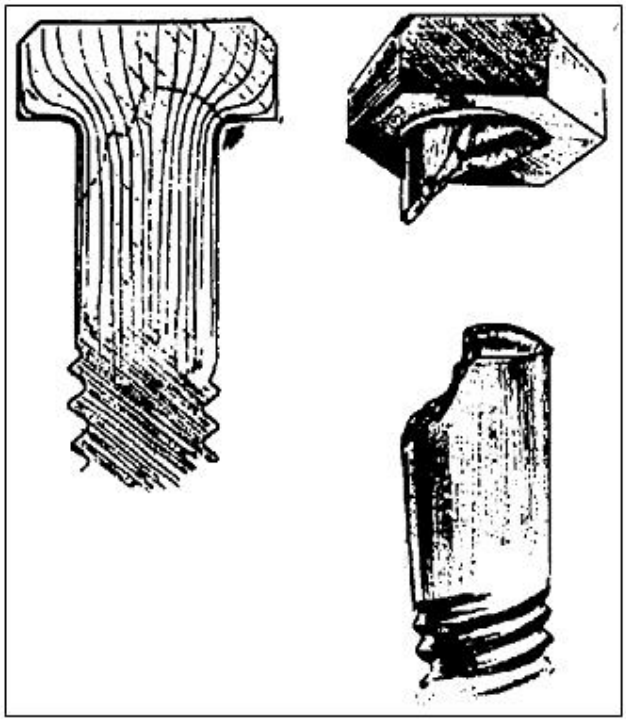

Figure D–3. Propagation of fatigue crack and ductile-type failure of instantaneous zone

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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.

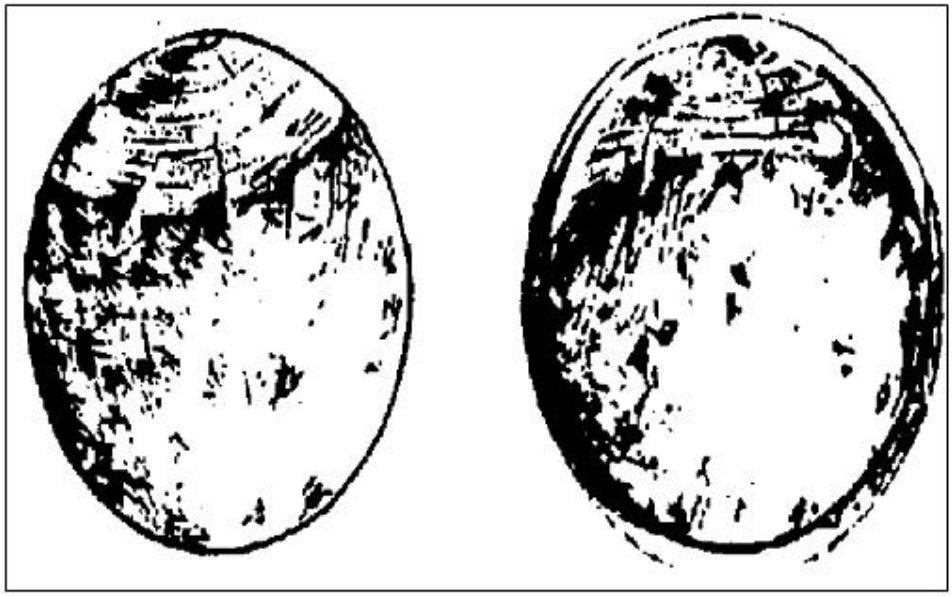

Figure D–4. Fatigue failure, no stress, and high stress concentration

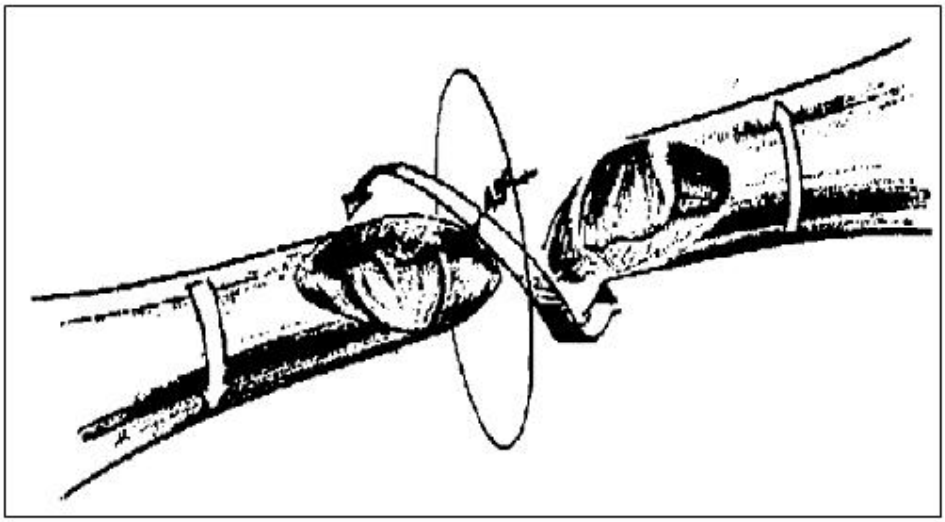

Figure D–5. Fatigue failure under torsion loading

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Figure D–6. Torsion load failure

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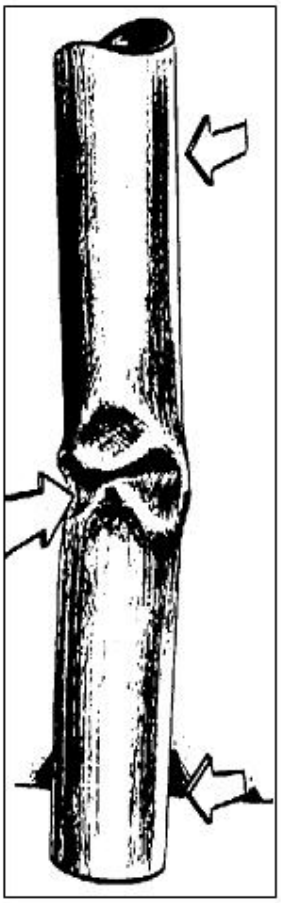

Figure D–7. Bending load failure

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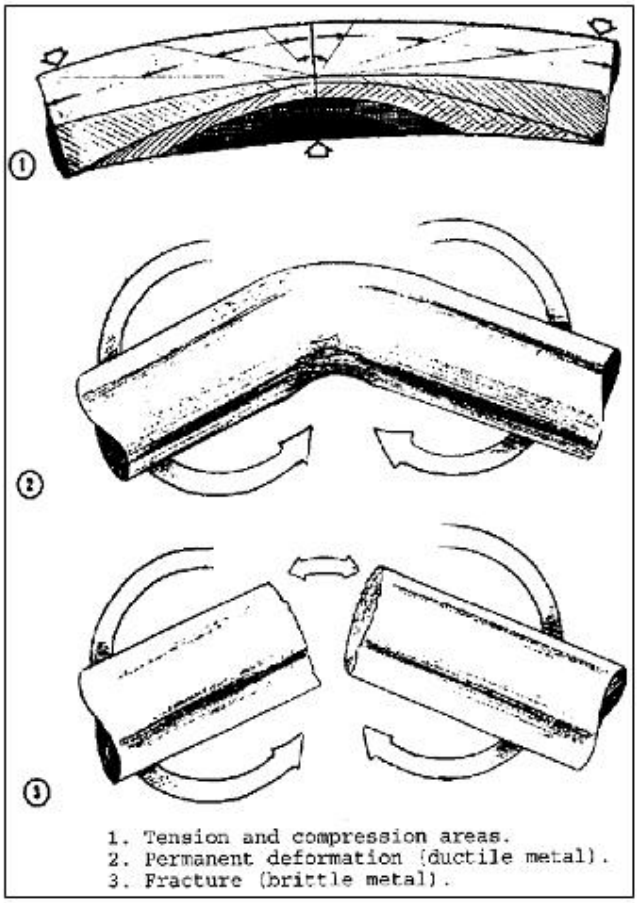

Figure D–8. Deformation and fracture due to tension and compression

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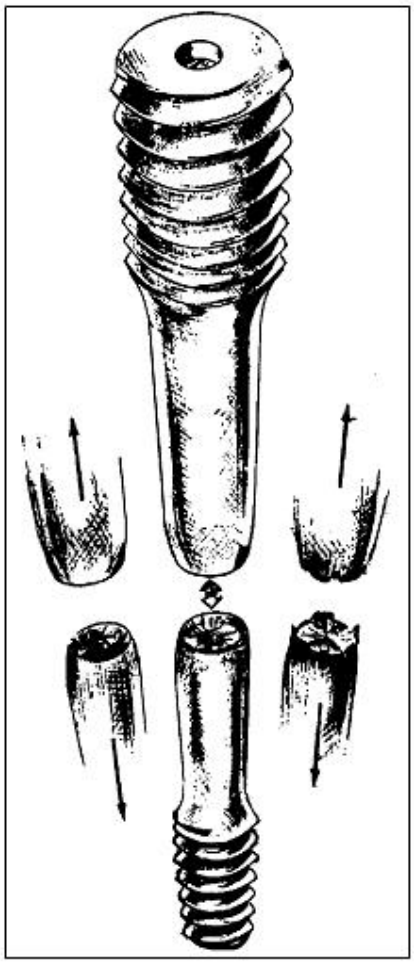

Figure D–9. Failure characteristics of ductile metal

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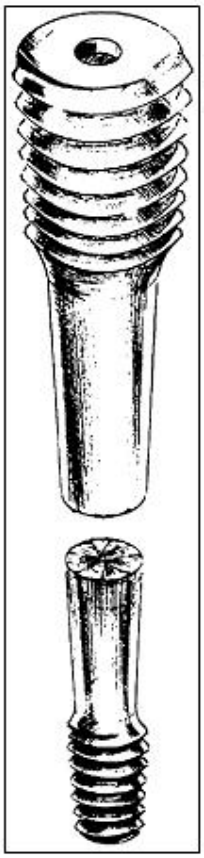

Figure D–10. Failure characteristics of brittle metal due to tension load

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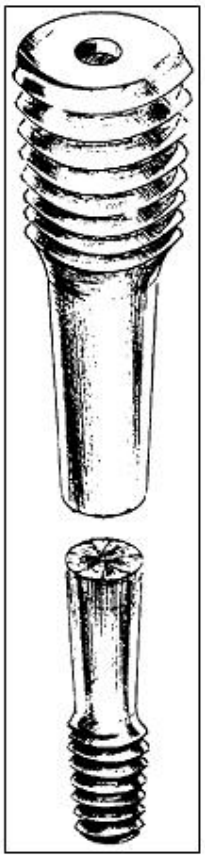

Figure D–11. Static tension failure

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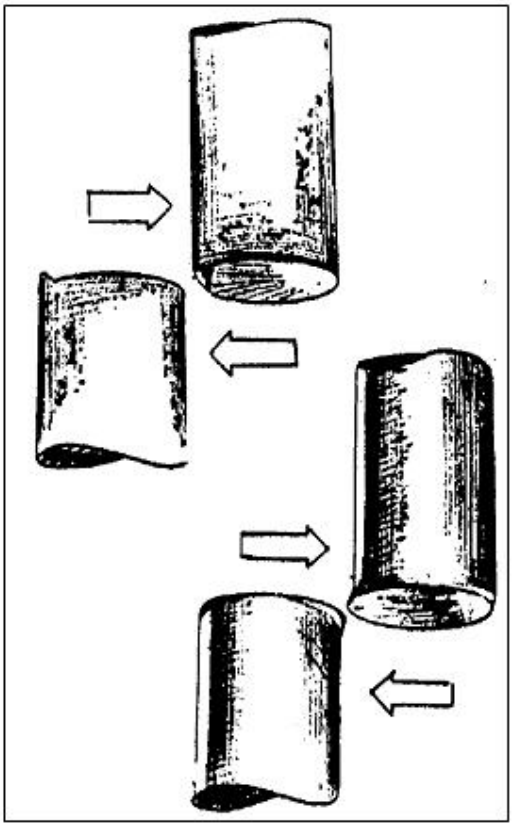

Figure D–12. Pure shear failure

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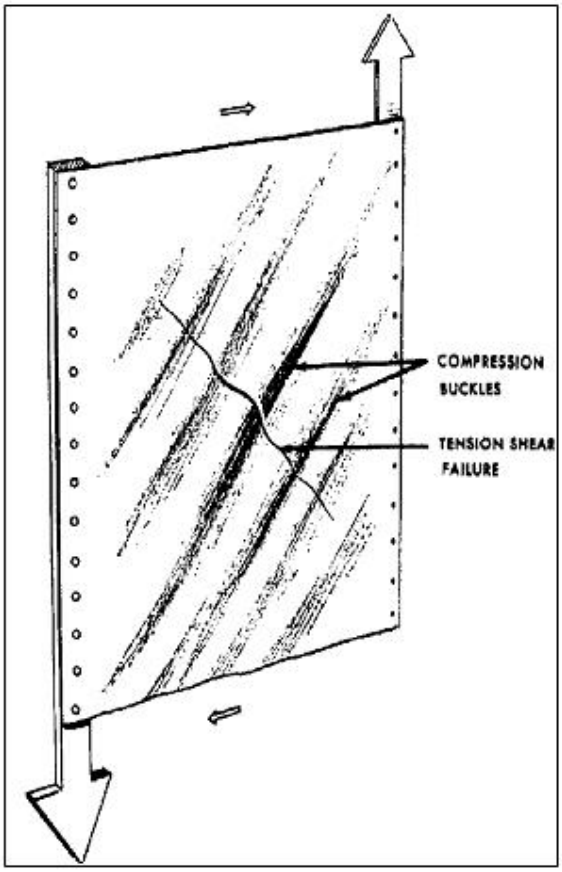

Figure D–13. Compression buckles and tension shear failure due to shear loads

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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 transmitted from the AFIP and will be correlated with 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.

(4) Summary. Summary of the case and pathological diagnoses.

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,

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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—

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(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.

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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 F–1
Accident/incident event codes

Code: 01	
Explanation:	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.
Code: 02	
Explanation:	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.
Code: 03	
Explanation:	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.
Code: 04	
Explanation:	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.
Code: 05	
Explanation:	Cargo event. Injury or property damage resulting from cargo-related accident/incident, intentional or unintentional jettisoning of cargo hook load.
Code: 06	
Explanation:	Personnel handling event. Injury or property damage involving personnel handling errors or personnel handling.
Code: 07	
Explanation:	External stores event. Injury or property damage resulting from external stores handling errors or equipment failures.
Code: 08	
Explanation:	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.
Code: 09	
Explanation:	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.
Code: 10	
Explanation:	Unmanned aircraft. Have a "Q" designator, and may be flown or operated by an air vehicle operator (AO) or external operator (EO).
Code: 11	
Explanation:	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.
Code: 12	
Explanation:	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.
Code: 13	
Explanation:	Laser-induced/related. Property damage or personnel injury resulting from laser operations created. May be used in conjunction with other events.
Code: 14	

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Table F–1
Accident/incident event codes—Continued

Explanation:	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.
Code: 15	
Explanation:	Single engine landing. An unplanned single engine landing of a multi-engine aircraft/UAS.
Code: 16	
Explanation:	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.
Code: 17	
Explanation:	Cockpit air bags. Activation/deployment of the cockpit airbags either intentional or unintentional.
Code: 18	
Explanation:	Icing. Accidents/incidents as a result of icing conditions other than structural icing captured in Event 69.
Code: 19	(Reserved for Future Use)
Code: 20	
Explanation:	Refueling accident. Damage incurred during refueling operations on the ground or in-flight.
Code: 21	
Explanation:	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").
Code: 22	
Explanation:	Helocasting. Property damage or personnel injury occurring during helocasting operations.
Code: 23	
Explanation:	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.
Code: 24	
Explanation:	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.
Code: 25	
Explanation:	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).
Code: 26	
Explanation:	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.)
Code: 27	
Explanation:	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.
Code: 28	
Explanation:	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.)
Code: 29	
Explanation:	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.
Code: 30	
Explanation:	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.
Code: 31	

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Table F–1
Accident/incident event codes—Continued

Explanation:	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).
Code: 32	
Explanation:	Other collisions. Accidents when an aircraft collides with something not accounted for by other type events listed.
Code: 33	
Explanation:	Rotor overspeed. Main rotor rpm exceeding the allowable limits for continued flight.
Code: 34	
Explanation:	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.
Code: 35	
Explanation:	Fire and/or explosion in the air. Same as on the ground except damage must be after lift-off and before touchdown.
Code: 36	
Explanation:	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.
Code: 37	
Explanation:	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.
Code: 38	
Explanation:	Spin or stall. Fixed wing aircraft type accidents resulting in stalling and/or spinning due to loss of airspeed, or excessive angle of attack.
Code: 39	
Explanation:	Abandoned aircraft. Accidents in which all flight crew eject or parachute.
Code: 40	
Explanation:	Flight-related accident. Damage to property or injury/occupational illness to personnel without damage to aircraft. UAS not applicable.
Code: 41	
Explanation:	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.
Code: 42	
Explanation:	Rappelling. Property damage or personnel injury occurring during rappelling operations.
Code: 43	
Explanation:	Fast rope. Property damage or personnel injury occurring during fast rope operations.
Code: 44	
Explanation:	Overstress. Stress damage to aircraft as a result of operating aircraft outside the design limitations.
Code: 45	
Explanation:	Turbine Engine FOD. Internal or external FOD damage confined to aircraft turbine engines only.
Code: 46	
Explanation:	Rotor/prop wash. Property damage or personnel injury resulting from rotor/prop wash (does not include damage incurred by Event 75).
Code: 47	
Explanation:	Engine overspeed/overtemp. Engine rpm or temperature exceeding the allowable limits for continued operations.
Code: 48	
Explanation:	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.
Code: 49	
Explanation:	Bird strike. Accidents in which any part of the aircraft collides with a bird while in flight.
Code: 50	

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Table F–1
Accident/incident event codes—Continued

Explanation:	Tree strike. Accidents as a result of aircraft striking vegetation during any phase of flight.
Code: 51	
Explanation:	Wire strike. Accidents as a result of the aircraft striking any kind of wires during any phase of flight.
Code: 52	
Explanation:	In-flight breakup due to a mast bumping. Accidents in which the main rotor separates as a result of mast bumping.
Code: 53	
Explanation:	Missing aircraft. Used when an aircraft does not return from a flight and is presumed to have crashed.
Code: 54	
Explanation:	Foreign object damage (FOD). Accident in which FOD is the only damaged incurred, excludes turbine engine FOD.
Code: 55	
Explanation:	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.
Code: 56	
Explanation:	Maintenance operational check (MOC). Accidents that occur during MOC while the engine(s) is/are in operation and/or rotors turning.
Code: 57	
Explanation:	Weapons related. Accidents involving weapons that result in property damage or injury to personnel.
Code: 58	
Explanation:	Lightning strike. Damage to aircraft/injury to occupant because of lightning strike(s).
Code: 59	
Explanation:	Rescue operations. Property damage or personnel injury occurring during rescue operations.
Code: 60	
Explanation:	Object strike. Aircraft/aircraft component struck objects other than ground, trees, or objects included in other events.
Code: 61	
Explanation:	Air-to-ground collision. Aircraft in the air collides with or strikes aircraft on the ground.
Code: 62	
Explanation:	Stump Strike. Aircraft contacts stump during routine landing.
Code: 63	
Explanation:	Antenna Strike. Aircraft damage caused by contact with an antenna.
Code: 64	
Explanation:	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.
Code: 65	
Explanation:	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.
Code: 66	
Explanation:	Tie-down strike. Damage to the aircraft caused by main rotor tie-down device attached to main rotor during engine start.
Code: 67	
Explanation:	Parachute deployment. Accidents involving paradrop operations inside or still attached to the aircraft.
Code: 68	
Explanation:	Mast bumping. Damage resulting from contact between the main rotor and mast but not resulting in rotor separation.
Code: 69	

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Table F–1
Accident/incident event codes—Continued

Explanation:	Structural icing. The formation of ice on aircraft structures to include the rotor systems. Does not include carburetor, induction, or pitot static system icing.
Code: 70	
Explanation:	Engine failure. Engine fails to develop sufficient power to maintain flight or internal failure of power plant. Exdudes fuel starvation or fuel exhaustion and FOD.
Code: 71	
Explanation:	Transmission Failure. Internal failure of a main transmission.
Code: 72	
Explanation:	Vertical fin strike. Damage caused by the tail rotor blades coming in contact with the vertical fin on single rotor helicopters.
Code: 73	
Explanation:	Spike knock. Damage occurred when the transmission spike contacts the striker plate with sufficient force to cause damage.
Code: 74	
Explanation:	Seatbelt/restraint harness strike. Damage caused by unsecured seatbelts/restraint harnesses.
Code: 75	
Explanation:	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.
Code: 76	
Explanation:	Fuel exhaustion. Power loss resulting from using all usable fuel aboard an aircraft.
Code: 77	
Explanation:	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.
Code: 78	
Explanation:	Animal Strike. During takeoff, landing, an animal is struck by any part of the aircraft.
Code: 79	
Explanation:	Battery fire/overheat. A fire in the battery compartment or over-heated battery, usually resulting in electrical failure.
Code: 80	
Explanation:	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.
Code: 81	
Explanation:	Tail boom strike. Main rotor contacts tail boom on the ground due to wind conditions. Excludes hard landings and damage caused rotor wash.
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.

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Table F–2
Materiel factor events

Code: 82	
Explanation:	Airframe. Failure/malfunction of any airframe structure to include doors, windows, fairings, canopies, to include hardware.
Code: 83	
Explanation:	Landing gear/arresting hook. Failure/malfunction of any landing gear part exclusive of the hydraulics.
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: 86	
Explanation:	Rotor/propellers. Failure/malfunction of rotor/prop assembly, hubs, blades. Exclude other drive train part failures, (for example, gearboxes, and mast).
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: 93	
Explanation:	Flight control. Failure/malfunction of any part of the system. Excludes hydraulic part failures.
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: A1	
Explanation:	Launcher malfunction. Any failure or malfunction of the launcher.
Code: A2	
Explanation:	Tactical automated landing (TALS) recovery. Failure or malfunction during TALS recovery.
Code: A3	

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Table F–2
Materiel factor events—Continued

Explanation:	Arresting gear failure (drum, strap, pendant or net).
Code: A4	
Explanation:	Flight Termination System (FTS). Parachute failure.

F–3. Accident/incident codes associated with unmanned aircraft systems

The following codes and explanations below are provide to categorize unmanned aircraft systems accidents by the type of event(s) involved (see table F–3).

Table F–3
Type event codes for unmanned aircraft systems

Code	Code Description	Code Explanation
U01	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 event applies.
U02	ATLS failure/malfunction take-off	Automatic Take-off and Landing System (ATLS) failure/malfunction during the take-off phase of flight.
U03	Launcher failure/malfunction	Any failure or malfunction of the aircraft launcher.
U04	Precautionary landing	A landing resulting from unplanned events, occurring while the aircraft is in flight, that makes further flight inadvisable. This event is to be used when no other event applies.
U05	Forced landing	A landing caused by failure or malfunction of engines, systems, or components that makes continued flight impossible.
U06	Single engine landing	An unplanned single engine landing of a multi-engine UA.
U07	ATLS failure/malfunction landing	ATLS failure/malfunction during the landing phase of flight.
U08	Tactical Automatic Landing (TALS) System landing/recovery	TALS failure or malfunction during landing/recovery.
U09	Flight Termination System (FTS) deployment	Deployment of the FTS, either manually or automatically, to land the UA.
U10	Flight Termination System (FTS) failure/malfunction	Failure or malfunction of the FTS/parachute.
U11	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.
U12	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.
U13	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).
U14	Landing gear/arresting hook failure/malfunction	Failure/malfunction of any landing gear part or the UA's arresting hook exclusive of the hydraulics system.
U15	Arresting gear failure/malfunction	Failure or malfunction of the arresting gear (drum, strap, pendant, net, and so forth).
U16	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; does include aircraft striking an airport boundary fence).
U17	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, failure of brakes, and so forth.
U18	Ditching	Landing in a controlled attitude in water (does not include creeks, streams, etc., or those landings to ships or barges in which the UA crashes in the water).
U19	Missing aircraft	Used when an aircraft does not return from a flight and is presumed to have crashed.
U20	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. Note: includes manned/unmanned aircraft events.
U21	Ground loop/swerve	When aircraft damage is incurred because absolute directional control is not maintained, whether intentional or unintentional. This event includes F/W ground loops; R/W auto-rotational landings; R/W running landings due to anti-torque failures; and aircraft running off side of runway.
U22	Air-to-ground collision	Aircraft in the air collides with or strikes aircraft on the ground (will be used in addition to event code U20).

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Table F–3
Type event codes for unmanned aircraft systems—Continued

Code	Code Description	Code Explanation
U23	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 event code U20).
U24	Collision with ground/water	This is a cause event, not a result event. It is for those accidents in which the aircraft strikes the ground or water unintentionally. It includes crashing into a mountain, inadvertent flying into the ground or water, and low-level flight resulting in striking ground or water.
U25	Aircraft collisions on the ground	Accidents in which two or more aircraft collide on the ground. None of the aircraft can be in flight (use in conjunction with event code 20).
U26	Other collisions	Accidents when an aircraft collides with something not accounted for by other type events listed in this table.
U27	Misappropriated aircraft	An aircraft accident that occurs during the operation of an Army UA that has been misappropriated. Intent for flight must exist.
U28	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.
U29	Avionics failure/malfunction	Failure or malfunction of any part of the radio navigation or communication equipment, including the antenna. This event may be used in conjunction with event codes U30, Loss of Downlink, or U31, Loss of Uplink.
U30	Loss of Downlink	Any loss of downlink regardless of cause (signal interference, materiel failure (hardware or software), and so forth.
U31	Loss of Uplink	Any loss of uplink regardless of cause (signal interference, materiel failure (hardware or software), and so forth.
U32	Loss of Link	If the type of Loss of Link (downlink or uplink) is unknown, use this code.
U33	Engine failure	Engine fails to develop sufficient power to maintain flight or internal failure of power plant (excludes event codes U35, engine FOD, U56, fuel exhaustion, and U57, fuel starvation).
U34	Engine overspeed/over- temp	Engine rpm or temperature exceeding the allowable limits for continued operations.
U35	Turbine Engine FOD	Internal or external FOD damage confined to aircraft turbine engines only. No other aircraft component is damaged.
U36	Power train over torque/overload	Components of the power train (engines, transmission, and sof forth) have been subjected to torque loads beyond specified power limits or loss of engine rpm because of overload of aircraft for density altitude.
U37	Transmission Failure	Internal failure/malfunction of a main transmission.
U38	Drive train failure/malfunction	Failure/malfunction of any part/component of the drive train (gearboxes, drive shafts, and so forth). This event does NOT include engine, transmission, rotor/propeller, and so forth.
U39	Hydraulics system failure/malfunction	Failure/malfunction of any hydraulic system part. The failure of other systems resulting from hydraulic initiated failures will be coded as hydraulic.
U40	Pneumatic system failure/malfunction	Failure/malfunction of any pneumatic part. The failure of any other system resulting from pneumatic initiated failures will be coded as pneumatic.
U41	Electrical system failure/malfunction	Failure/malfunction of any part of the AC or DC electrical systems. This event includes current producing, transforming, converting and amplifying parts, (for example, battery, generator, voltage regulator, relay, ignition system, fuse, wiring, and so forth).
U42	Battery failure	Battery failed due to a loss of charge, received max number of recharges, and so forth.
U43	Battery fire/overheat	A fire in the battery compartment or over-heated battery, usually resulting in electrical failure.
U44	Instrument failure/malfunction	Failure/malfunction of any part of the instrument system that results in a faulty instruments indication.
U45	Warning system failure/malfunction	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).
U46	Maintenance Operational Check (MOC)	Accidents that occur during an MOC while the engine(s) is in operation and/or (for RW UA) rotors turning.
U47	Test Flight	Accidents occurring while a test flight (experimental or maintenance) is being performed.
U48	Weapons related	Accidents involving weapons that result in property damage or injury to personnel.
U49	Fratricide	Persons killed, wounded, or equipment damaged, in military action, mistakenly or accidentally, by friendly forces actively engaged with the enemy, who are directing fire at a hostile force or what is thought to be hostile force.
U50	Armament failure/malfunction	Failure or malfunction of any part to include the aiming/firing system.
U51	Laser-induced/related	Property damage or personnel injury resulting from laser operations created. This event may be used in conjunction with other events.

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Table F–3
Type event codes for unmanned aircraft systems—Continued

Code	Code Description	Code Explanation
U52	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.
U53	Airframe failure/malfunction	Failure/ malfunction of any airframe structure to include doors, windows, fairings, canopies, to include hardware.
U54	Refueling accident	Damage incurred during refueling operations on the ground or in-flight.
U55	Fuel system failure/malfunction	Failure of any part of the fuel system. This event does NOT include the fuel metering/fuel control unit which will be reported as part of the engine.
U56	Fuel exhaustion	Power loss and/or engine failure resulting from using all usable fuel aboard an aircraft.
U57	Fuel starvation	The result of fuel ceasing to flow to the power plant while fuel is still on board the aircraft. Examples: pilot fails to switch tanks when one runs dry or blockage of fuel lines occurs because of contamination.
U58	Rotor overspeed	Main rotor rpm exceeding the allowable limits for continued flight.
U59	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.
U60	Mast bumping	Damage resulting from contact between the main rotor hub and mast, but not resulting in rotor separation.
U61	In-flight breakup due to a mast bumping	Accidents in which the main rotor separates as a result of mast bumping.
U62	Rotor/prop wash	Property damage or personnel injury resulting from rotor/prop wash (does not include damage incurred by event 59, blade flapping).
U63	Rotor/propellers failure/malfunction	Failure/malfunction of rotor/prop assembly, hubs, or blades (excludes other drive train part failures including gearboxes and mast).
U64	Flight control failure/malfunction	Failure/malfunction of any part of the system (excludes hydraulic part failures).
U65	Uncommanded control input	An uncommanded UAS pitch, yaw, or roll motion (regardless of amount) that is not induced by the crew or adverse environmental conditions.
U66	Overstress	Stress damage to aircraft as a result of operating aircraft outside the design limitations.
U67	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.
U68	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 anti-torque input, or a loss of anti-torque control occurs.
U69	Spin or stall	Fixed wing aircraft type accidents resulting in the aircraft stalling and/or spinning due to loss of airspeed, or excessive angle of attack.
U70	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.
U71	Fire and/or explosion in the air	Accidents that are initiated by a fire or explosion. The damage must be incurred after lift-off and before touchdown.
U72	Instrument meteorological condition (IMC)	Aircraft must be in IMC when the accident/emergency occurs. This is a condition event and should not be used in the first position.
U73	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.
U74	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.
U75	Icing	Accidents/incidents as a result of icing conditions other than structural icing captured in event U76, structural icing.
U76	Structural icing	The formation of ice on aircraft structures to include the rotor systems. This event does not include carburetor, induction, or pitot static system icing.
U77	Animal strike	During takeoff or landing, an animal is struck by any part of the aircraft.
U78	Antenna strike	Aircraft damage caused by contact with an antenna.
U79	Bird strike	Accidents in which any part of the aircraft collides with a bird while in flight.
U80	Lightning strike	Damage to UAS as a result of lightning strike(s).
U81	Object strike	Aircraft/aircraft component struck objects other than ground, trees, or objects included in other events.
U82	Tail boom strike	Main rotor contacts tail boom on the ground due to wind conditions (excludes hard landings and damage caused by rotor wash).
U83	Tie-down strike	Damage to the aircraft caused by main rotor tie-down device being left attached to main rotor during engine start.
U84	Tree strike	Accidents as a result of aircraft striking vegetation during any phase of flight.
U85	Wire strike	Accidents as a result of the aircraft striking any kind of wires during any phase of flight.
U86	External stores	Injury or property damage resulting from external stores handling errors or equipment failures/malfunctions.
U87	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 (example - compartment access cover/door).

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Table F–3
Type event codes for unmanned aircraft systems—Continued

Code	Code Description	Code Explanation
U88	Personnel handling	Injury or property damage involving personnel handling errors.
U89	Foreign object damage (FOD)	Accident in which FOD is the only damage incurred, excludes turbine engine FOD, event U35.
U90	GCS Failure/Malfunction	A failure/malfunction of the Ground Control Station (including portable GCS) causing/resulting in the aviation accident.
U91	GDT Failure/Malfunction	A failure/malfunction of the Ground Data terminal causing/resulting in the aviation accident.
U92	Ground Power Generation Equipment Failure/ Malfunction	A failure/malfunction of the Ground Power Generation equipment causing/ resulting in the aviation accident.
U93	Other UAS Equipment Failure/Malfunction	A failure/malfunction of any other UAS equipment causing/resulting in the aviation accident.
U94	(Reserved for future addition)	

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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 Modificatoin 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).

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(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.
(8) Parts "P," Manual.
(9) Monthly Maintenance Report.
(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.

b. Ground Maintenance Records.
(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.

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(8) Calibration Records.
(9) Dispatch log.
(10) Equipment logbook.
(11) -10, Operator's Manual.
(12) -20, Organizational Maintenance Manual.
(13) Parts "P," Manual.

Appendix H
Notification Phone Numbers

H–1. Notification phone numbers list

a. AMC Operations Center: (703) 806–9200, DSN 656–9200, AMC Safety Office: DSN 656–8695, COM (703) 806–8695, FAX (703) 806–8863.

b. Commander, AMC, DSN 284–9475, COM (703) 274–9475 (During non-duty hours, call duty officer DSN 284–9223, COM (703) 274–9223 or FAX DSN 284–9469, COM (703) 274–5481).

c. Office of the Armed Forces Medical Examiner, Armed Forces Institute of Pathology (AFIP), DSN 285–0000, COM (303) 319–0000.

d. Army Operation Center (AOC) (DSN 227–0218, COM (703) 697–0218).

e. Diving Safety Office, ATTN: ATSP–OCT–S, Fort Eustis, VA 23604–5407, DSN 927–1329, COM (804) 878–1329.

f. DOT, Pipeline and Hazardous Materials Safety, 1200 New Jersey Avenue, S.E., East Building, 2nd Floor (PH), Washington, DC 20590, COM (202) 366–4433, FAX (202) 366–3666, Toll free:1–800–424–8802.

Note. The 800 number is to the National Response Center).

H–2. The Office of Hazardous Materials Enforcement regional offices

a. Eastern Region - 820 Bear Tavern Road, Suite 306, West Trenton, NJ 08628, COM (609) 989–2256, FAX (609) 989–2277.

b. Central Region- 2300 East Devon Avenue, Suite 478, Des Plaines, IL 60018–4696, COM (847) 294–8580, FAX (847) 294–8590.

c. Southern Region - U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Office of Hazardous Materials Safety, 233 Peachtree Street NE, Suite 602, Atlanta, GA 30303, COM (404) 832–1140, FAX (404) 832–1168.

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.

f. National Response Center: Federal Hotline, for all oil or chemical spills (800) 424–8802, COM (202) 267–2675.

g. Transportation Branch Marine Safety Office, ATTN: ATZF–CSS, Fort Eustis, VA 23604–5113, DSN 826–1327, COM (757) 878–1327.

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.

k. U.S. Army Field Support Command, Safety/Rad Waste Directorate (DSN 793–2989/2971/2113 or COM (309) 782–2989/2971/2113).

l. U.S. Naval Safety Center, Norfolk, VA, DSN 564–6389/6427, COM (804) 444–6389/6427.

H–3. U.S. Nuclear Regulatory Commission

a. Region I, U.S. NRC, 475 Allendale Road, King of Prussia, PA 19406–1415, COM (610) 337–5000, Toll free: 1–800–432–1156.

b. Region II, U.S. NRC, Sam Nunn Atlanta Federal Center, 61 Forsyth Street, S.W., Suite 23T85, Atlanta, GA 30303–8931, COM (404) 562–4400, Toll free: 1–800–577–8510.

c. Region III, U.S. NRC, 2443 Warrenville Road Suite 210, Lisle, IL 60532–4352, COM (603) 829–9500, Toll free: 1–800–522–3025.

d. Region IV, U.S. NRC, Texas Health Resources Tower, 611 Ryan Plaza Drive, Suite 400, Arlington, TX 76011–4005, COM (817) 860–8100, Toll free: 1–800–952–9677.

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e. Also contact: HQDA (DACS–SF), 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/(703) 697–0218, and indicate the offices to be notified).

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) soley 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

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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.

n. Drinking fluids for relief of heat stress. Drinking fluids for relief of heat stress is first aid, but administering an IV is 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

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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 empbyer 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.

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Glossary

Section I
Abbreviations

AAAR
Abbreviated Aviation Accident Report

AAM
Army Achievement Medal

AC
Aircraft Commander

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

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AMC
U.S. Army Materiel Command

AMCOM
Aviation and Missile Command

AMDF
Army Master Data File

AMV
Army Motor Vehicle

AO
Aircraft 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

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ASMIS
Army Safety Management Information System

ASO
Aviation Safety Officer

AT
Annual Training

ATLS
Automated Take-off and Landing System

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

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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

DACS–SF
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

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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
Ethylenediaminetetraacetic 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

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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

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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

GO
ground observer

GPS
Ground Positioning System

GS
General Schedule

GSA
General Services Administration

HBV
Hepatitis B Virus

HE
High Explosive

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HEAT
High Explosive Anti-tank

HIRTA
High-intensity Radio Transmission Area

HIV
Human Immunodeficiency Virus

HMMWV
High-mobility Multi-purpose Wheeled Vehicle

HPG
Helicopter Procedures Guide

HQDA
Headquarters, Department of the Army

HUMS
Health and Usage Monitoring System

IAI
Installation-level Accident Investigation

IATF
Individual Aircrew Training Folder

IBA
Interceptor Body Armor

IBD
Inhabited Building Distances

ICM
Improved Conventional Munitions

IDT
Inactive Duty Training

IE
Instrument Examiner

IERW
Initial Entry Rotary-Wing

IFR
Instrument Flight Rules

IFRF
Individual Flight Record Folder

IGE
In Ground Effect

ILD
Intraline Distance

ILS
Instrument Landing System

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IMA
Installation Management Agency

IMC
Instrument Meteorological Conditions

IMD
Intermagazine Distance

INST
Integrally Installed

IO
instructor operator

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

MC
mission commander

MCU
mission commander (UAS)

MDR
Maintenance Data Recorder

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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

MMS
Mast-mounted Sight

MOS
Military Occupational Specialty

MP
Military Police

MFG
Manufacturing (code)

MOC
Maintenance Operational Check

MRI
Magnetic Resonance Imaging

MSF
Motorcycle Safety Foundation

MTDS
Mission, Type, Design, and Series

MTF
Medical Treatment Facility

MTOE
Modified Table of Organization and Equipment

MTV
Medium Tactical Vehicle

MWO
Modification Work Order

NAF
Non-appropriated Fund

NAIRA
Nuclear Accident and Incident Response and Assistance

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NATO
North Atlantic Treaty Organization

NCO
Noncommissioned Officer

NDB
Non-directional Beacon

NVD
Night Vision Device

NEW
Net Explosive Weight

NFS
Not Further Specified

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

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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

PO
payload operator

POL
Petroleum, Oils, and Lubricants

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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

SO
Standardization Instructor Operator

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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

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TTAD
Temporary Tour Active Duty

UA
unmanned aircraft

UASAR
Unmanned Aircraft System Accident Report

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

USAREUR
U.S. Army, Europe

USARPAC
U.S. Army, Pacific

USATCES
U.S. Army Technical Center for Explosives Safety

USMA
U.S. Military Academy

UT
Unit Trainer

UXO
Unexploded Ordnance

VAR
Variable

VFR
Visual Flight Rule

VISTA
Volunteers in Service to America

VMC
Visual Meteorological Conditions

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VMEP
Vibration Enhancement Management Program

VOR
Very High Frequency (VHF) Omni-directional Range

WOC
Warrant Officer Candidate

WSPS
Wire Strike Protection System

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

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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—
a. Senior Executive Service, General Management, General Schedule, and Federal Wage System, NSPS, employees.
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.

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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

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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 an Army Headquarters (ACOM, ASCC, DRU), CONUS and OCONUS.
b. The Chief of Engineers (civil and military works).
c. Commander, U.S. Army Space and Strategic Defense Command.
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.

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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 contiguously, 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 devices, Health and Usage Monitoring System (HUMS), Vibration Enhancement Management Program (VMEP), MILTOPE, GPS, and Mission Equipment Flash Cards and hard drives.

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.

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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:

a. 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.

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. Message therapy is first aid, but physical therapy or chiropractic treatment is considered medical treatment.

n. 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 accidents
Those accidents in which intent for flight exists (as defined in this glossary) and for which 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.)

Flight crew
Personnel on flight pay who are involved in operation of the aircraft.

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, other injury, and/or property damage.

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

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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.

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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.

Intent for life (UAS)
Intent for flight begins when power is applied and brakes released (if so equipped), or UA is hand released by the operator, or the launcher is released, for the purpose of moving an aircraft under its own power to commence authorized flight (including ground taxi/hover) by an authorized crew. Intent for flight ends when the aircraft is at a full stop and power is completely reduced and/or engine(s) stopped.

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.

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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.

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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.

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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:
a. Loss of teeth.
b. Loss of fingernails or toenails.
c. Loss of tip of fingers or tip of toe without bone involvement.
d. Inguinal hernia, if it is repaired.
e. Disfigurement.
f. 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.)

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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.

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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 (UA)
An Army aircraft operated without the possibility of direct human intervention from within or on the aircraft. It is operated by personnel on the ground or in a manned aircraft. It is the major component of an unmanned aircraft system (UAS). A UA carries a variety of payloads to include day/night cameras, weapons, and so forth.

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Unmanned Aircraft System (UAS)
The system , whose components include the necessary equipment, data communications links, and personnel to control and employ unmanned aircraft. The unmanned aircraft system is composed of six primary components: the aircraft, payloads, data communication links, ground control stations, ground support equipment, and personnel to operate and maintain.

Unmanned Aircraft System (UAS) Groups
Group 1 - Has a maximum gross takeoff weight of 1 - 20 pounds; operates normally at less than 1,200 feet above ground level (AGL) and at a speed of less than 100 KIAS.
Group 2 - Has a maximum gross takeoff weight of 21 - 55 pounds; operates normally at less than 3,500 feet AGL and at a speed of less than 250 KIAS.
Group 3 - Has a maximum takeoff weight less than 1,320 pounds; operates normally at less than 18,000 feet AGL and at a speed of less than 250 KIAS.
Group 4 - Typically weighs more than 1,320 pounds and normally operates below 18,000 feet mean seal level (MSL) at any speed.
Group 5 - Typically weighs more than 1,320 pounds and normally operates higher than 18,000 MSL at any speed.

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.)

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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/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.

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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.)

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