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 table 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 table 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 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 LSE, PPE, or crashworthiness design as findings in this category.
2. Address injuries sustained from failure to use provided equipment (for example, seatbelt)
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.”
Table 4–2
Ground Finding Examples (Human, Materiel, Environmental)

<table>
<thead>
<tr>
<th>Required Information</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Explanation of when and where the error occurred in context of the accident</td>
<td>While receiving driver’s training on an unimproved road during New Equipment Training (NET) at the Yankee Training Center,</td>
</tr>
<tr>
<td>sequence of events.</td>
<td>the student driver of an M1117 Armored Security Vehicle (ASV) ...</td>
</tr>
<tr>
<td>2. Identification of individual involved by duty position and equipment involved</td>
<td>oversteered the vehicle. That is, while descending a hill on a dirt/gravel road, he made abrupt and excessive steering inputs causing</td>
</tr>
<tr>
<td>(if applicable).</td>
<td>the vehicle to swerve uncontrollably from one side of the road to the other ...</td>
</tr>
<tr>
<td>Pam 385–40, table B-2) and an explanation of how task/activity was performed</td>
<td></td>
</tr>
<tr>
<td>improperly.</td>
<td></td>
</tr>
<tr>
<td>4. Directive (SOP, FM, TM, etc.) or common practice governing performance of task/</td>
<td>Consequently, the vehicle departed the roadway, slid into a ditch, pivoted and rolled four times, coming to rest in an upright position.</td>
</tr>
<tr>
<td>activity or function.</td>
<td>The vehicle sustained substantial damage. The gunner and passenger were critically injured when they were ejected from the vehicle</td>
</tr>
<tr>
<td>5. Consequences of mistake/error.</td>
<td>during the rollover sequence. The driver and senior occupant received minor injuries.</td>
</tr>
<tr>
<td>6. Reason(s) (root cause(s)/system inadequacy(s)) for the mistake/error (ref System</td>
<td>The student driver’s actions were the result of inadequate unit training and inexperience.</td>
</tr>
<tr>
<td>Inadequacies in Table B-5 of DA Pam 385–40).</td>
<td></td>
</tr>
</tbody>
</table>
7. Brief explanation of how each reason (root cause/system inadequacy) contributed to the error.

The unit failed to ensure the student driver received the required prerequisite training, testing and a learner’s permit for the ASV before allowing him to attend NET and operate the vehicle on an unimproved road. Due to the student driver’s lack of experience, he was unfamiliar with the handling characteristics of the ASV and over-steered the vehicle causing loss of control.

*NOTE: When ‘Leader’ is identified as a system inadequacy/root cause, this will probably lead to a second finding, in which case a mistake/error will be assigned to the leader/command and the root cause(s)/system inadequacy(s) for that mistake will be identified. When a finding is written on a leader/command, it is important to determine why that mistake/error was made so that, if necessary, the problem can be brought to the attention of senior Army leadership. For example, if inadequate risk management is identified, was it due to a support problem (lack of sufficient resources), a standards problem, and so forth.

**NARRATIVE EXAMPLE FOR HUMAN ERROR**

FINDING 1 (Present and Contributing: Human Error—Training, Leader)

While receiving driver’s training on an unimproved road during New Equipment Training (NET) at the Yankee Training Center, the student driver of an M1117 Armored Security Vehicle (ASV) over-steered the vehicle. That is, while descending a hill on a dirt/gravel road, he made abrupt and excessive steering inputs causing the vehicle to swerve uncontrollably from one side of the road to the other in contravention of AR 385–10, AR 600–55, and TC 21–305. Consequently, the vehicle departed the roadway, slid into a ditch, pivoted and rolled four times, coming to rest in an upright position. The vehicle sustained substantial damage. The gunner and passenger were critically injured when they were ejected from the vehicle during the rollover sequence. The driver and senior occupant received minor injuries.

The student driver’s actions were the result of inadequate unit training and inexperience. The unit failed to ensure the student driver received the required prerequisite training, testing and a learner’s permit for the ASV before allowing him to attend the NET and operate the vehicle on an unimproved road. Due to the driver’s lack of experience, he was unfamiliar with the handling characteristics of the ASV and over-steered the vehicle causing loss of control. The Board concluded the senior occupant did not properly supervise the student driver.

**Materiel Cause Factor—Ground Example**

FINDING 1 (Present and Contributing: Materiel Failure)

Required Information

1. Explanation of when and where the materiel failure/malfunction occurred in context of the accident sequence of events.

Example

While traveling on an interstate highway at approximately 55 mph, ..

2. Name and part number (PN) or national stock number (NSN) of the part, component, or system that failed.

Example

the left front tire (NSN 2610–01–214–1344) of a M925A2...

3. Mode of failure (see DA Pam 385–40, appendix B for definitions and examples).

Example

failed (burst).

4. Consequences of materiel failure.

Example

As a result, the vehicle veered sharply to the left, striking a guardrail.

5. Identification of reasons (root causes/system inadequacies) materiel failure/malfunction caused or contributed to accident.

Example

The cause of the tire failure was inadequate quality control by the manufacturer. That is, a defect (weak spot) in the tire wall was not detected during the manufacturer’s inspection process.

6. Brief explanation of how each reason (root cause/system inadequacy) contributed to the materiel failure/malfunction.

Example

The inadequate quality control allowed a defective tire to be distributed and placed in service. During normal operation, the tire failed causing personal injuries and equipment damage.

**NARRATIVE EXAMPLE FOR ENVIRONMENT**

FINDING 1 (Present and Contributing: Materiel Failure)

While traveling on an interstate highway at approximately 55 mph, the left front tire (NSN 2610–01–214–1344) of a M925A2 failed (burst). As a result, the vehicle veered sharply to the left, striking a guardrail. The impact caused the driver to strike his head on the steering wheel, and he received minor injuries. The left front and side of the vehicle received substantial damage.

The cause of the tire failure was inadequate quality control by the manufacturer. That is, a defect (weak spot) in the tire wall was not detected during the manufacturer’s inspection process. The inadequate quality control allowed a defective tire to be distributed and placed in service. During normal operation, the tire failed causing personal injuries and equipment damage.

**Environmental Cause Factor—Ground Example**

FINDING 1 (Present and Contributing: Environment)

Required Information

1. Explanation of when and where the environmental factor occurred in context of accident sequence of events.

Example

At approximately 1915 hours, a severe thunderstorm passed through ...
Table 4-2
Ground Finding Examples (Human, Materiel, Environmental)—Continued

<table>
<thead>
<tr>
<th>Finding</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Identification of individual involved by duty position and/or equipment involved. The heliport in Camp Doha, Kuwait...</td>
</tr>
<tr>
<td>3.</td>
<td>Description of environment involved. With estimated sustained winds of 40 mph and gusts to 60 mph.</td>
</tr>
<tr>
<td>4.</td>
<td>Consequences of environmental effect. As a result, two temporary sunscreen shelters were destroyed and four helicopters that were secured on the ramp were damaged. One UH-60A was damaged as the temporary shelter under which it was parked was destroyed.</td>
</tr>
<tr>
<td>5.</td>
<td>Explanation of reason(s) environmental conditions caused/contributed to accident. The property damage was caused by an abrupt, rapidly developing thunderstorm that was neither forecasted nor expected. The exposed aircraft were secured on the ramp in accordance with established policy.</td>
</tr>
</tbody>
</table>

NARRATIVE EXAMPLE FOR ENVIRONMENT

FINDING 1 (Present and Contributing: Environment)

At approximately 1915 hours, a severe thunderstorm passed through the heliport in Camp Doha, Kuwait, with estimated sustained winds of 40 mph and gusts to 60 mph. As a result, two temporary sunscreen shelters were destroyed, and four helicopters that were secured on the ramp were damaged. One UH-60A was damaged as the temporary shelter under which it was parked was destroyed. One destroyed shelter was blown into and damaged another UH-60A secured on the ramp. The high winds also overcame the main rotor blade tie downs for two AH-64 aircraft, causing extensive damage due to excessive blade flapping. The property damage was caused by an abrupt, rapidly developing thunderstorm that was neither forecasted nor expected. The exposed aircraft were secured on the ramp in accordance with established policy.

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 Armywide application, the Army Headquarters will be listed in the “DA-level” category.
FINDING 1 (Present and Contributing: Material 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 2010-01-214-1344) failure. That is, the tire burst due to a defect in the sidewall. As a result, the driver lost control of the vehicle and it veered sharply to the left, striking a guardrail, flipping rear-end over front into the opposing lane of traffic. It then collided with a Ford pickup truck traveling in the opposite direction. During the accident sequence, the driver of the FMTV was fatally injured and the operator of the Ford pickup truck experienced minor injuries. Both vehicles incurred extensive damage.

Laboratory testing determined the tire wall had a manufacturing defect (weak spot), which was not detected by the manufacturer's quality-control procedures.

RECOMMENDATION 1:

a. Unit Level Action: None.

b. Higher Level Action: Commander, 6th Armor, require subordinate units to conduct an inspection of tires to ensure none have similar defects.

c. Army Level Action: Program Executive Office, Combat Support & Combat Service Support,

(1) Review historical information to determine if this failure was an anomaly or indicates a trend.

(2) Provide product deficiency information to the manufacturer so they can evaluate the adequacy of their quality-control procedures.

FINDING 2 (Present and Contributing: Human Error: Individual Failure):

While operating an M1083, 5-ton FMTV, west on an interstate highway, the driver operated the vehicle at excessive speeds. That is, the driver operated the vehicle at approximately 70 mph in contravention of the battalion SOP (55 mph). Consequently, when the tire burst, the driver could not maintain control of the vehicle. The vehicle ran into a guardrail, flipped rear-end over front and then collided with a Ford pickup truck in the opposing lane of traffic. The driver of the FMTV received fatal injuries. The passenger of the FMTV and driver of the pickup truck received minor injuries. Both vehicles were extensively damaged.

The driver willfully exceeded the battalion specified speed limit because he was overconfident in his ability to control the vehicle at any speed. The speed limit was stenciled on the dash. The driver was also in a hurry to complete the mission so he could meet a friend.

RECOMMENDATION 2:

a. Unit Level Action: Commander, C Co, 3d Bn. 6th Armor:

(1) Inform all personnel of the circumstances and consequences of this accident, reminding them of the battalion standards.

(2) Ensure first-line leaders enforce the standards and take corrective action before Soldiers get into an accident.

b. Higher Level Action: Commander, 6th Armor, inform all personnel of the circumstances and consequences of this accident.

c. Army Level Action: Commander, U.S. Army Combat Readiness Center, publish the facts and circumstances surrounding this accident in KNOWLEDGE Magazine with special emphasis on lessons learned, as appropriate.
FINDINGS AND RECOMMENDATIONS (Cont’d): 20040115

THE FINDING LISTED BELOW DID NOT DIRECTLY CONTRIBUTE TO THE CAUSE FACTORS INVOLVED IN THIS ACCIDENT; HOWEVER, IT DID CONTRIBUTE TO THE SEVERITY OF THE INJURY.

FINDING 3 (Present and Contributing to the Severity of Injuries: Human Error - Individual Failure):

While traveling on an interstate highway at approximately 70 mph, the driver failed to use his seatbelt in accordance with AR 385-10 and local policy. Consequently, after losing control of the vehicle, the driver was violently thrown around in the cab of vehicle and then ejected during the accident sequence. He received fatal injuries while the other occupant of the vehicle, who was wearing a seatbelt, received minor injuries.

The driver’s actions were a result of indiscipline. The driver knew he was required to use seatbelts and was routinely corrected by leaders.

RECOMMENDATION 3:

   a. Unit Level Action: Commander, C Co, 3d Bn, 6th Armor, take positive action to enforce policy to seatbelt use.


   c. Army Level Action: None.

THE FINDING LISTED BELOW DID NOT CONTRIBUTE TO THIS ACCIDENT. HOWEVER, IF LEFT UNCORRECTED, IT COULD HAVE AN ADVERSE EFFECT ON THE SAFETY OF FUTURE OPERATIONS.

FINDING 4 (Present but Not Contributing):

During a review of the unit’s maintenance records, the Board noted a few of the assigned vehicles were overdue for services.

RECOMMENDATION 4:

   a. Unit Level Action: Commander, C Co, 3d Bn, 6th Armor, conduct a review of the service schedule bweekly to ensure services on the training schedule have been completed.

   b. Higher Level Action: None.

   c. Army Level Action: None.