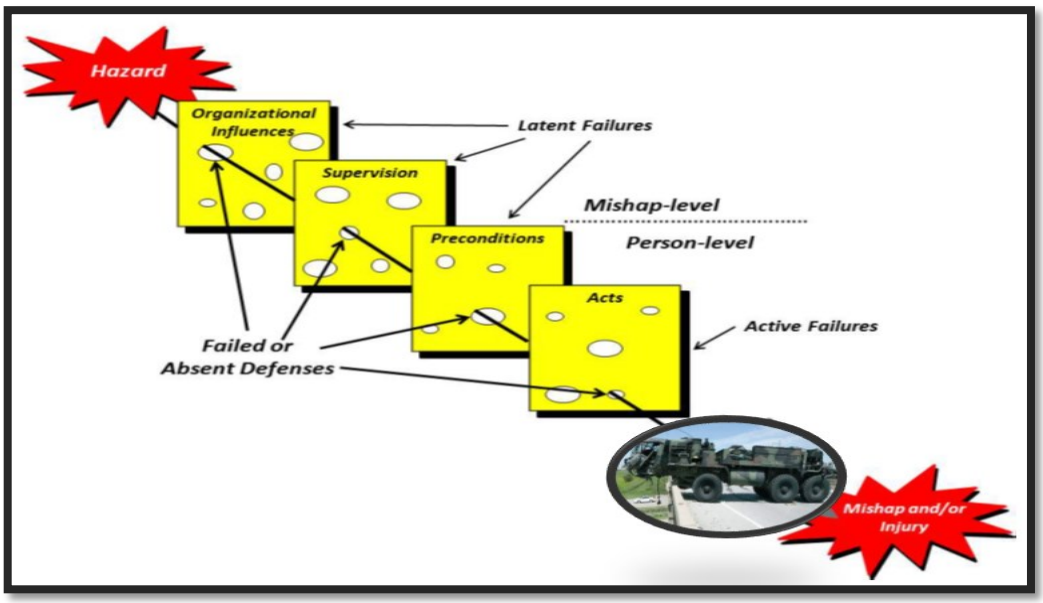
THE U.S. ARMY COMBAT READINESS CENTER

GROUND DIVISION

DIRECTORATE OF ASSESSMENTS AND PREVENTION

VOLUME 2, JANUARY 2017 QUARTERLY NEWSLETTER

PREDICTING AND PREVENTING MISHAPS



Have you ever stopped to ask yourself how an accident could have been prevented? An overview of the tools that investigators use to evaluate an accident can help leaders in pinpointing trouble areas ahead of time. Identifying these trouble areas may assist proactive Leaders with preventing the next mishap. One of these tools that investigators use to conduct accident / mishap investigations is the HFACS 7.0 (Human Factors Analysis and Classification System). The HFACS system was developed by behavioral scientists to evaluate how performance and human factors contribute to mishaps. One of the tools within HFACS is the Swiss-Cheese model (above), that helps to illustrate how a mishap occurs through several layers of *failures* or *errors*. The HFACS system helps investigators get to the "why" of the mishap and not just the "what."

As you glance at this model please take a second to think about an accident that happened in your motorpool or with a vehicle. Most of us remember the act that led to the Soldier's injury. The **"Act"** or active failure component starts at the lowest level and involves the decision of the Soldier that led to the mishap. An active failure typically involves something the Soldier did or did not do. This includes failure to follow procedures, making a wrong decision, or violating a regulation. Understanding this stage of the HFACS model can assist leaders with focused training to mitigate these risks.

The next slice of cheese in the model illustrates the **"Preconditions"** of a mishap. The preconditions often come from environmental factors, physical or mental stress, and personal factors. These can include a variety of factors to include fog, dust, weather, restraint systems, instruments, workspace, communication equipment, mental awareness, state of mind, effects of substances, loss of consciousness, fatigue, nutrition, body size, or physical strength. Recognizing these preconditions ahead of time may make the difference in preventing a mishap in your workplace. **Continued on page 2...**

MISSION STATEMENT

The Army Safety Team provides the Army with safety and risk management expertise to preserve readiness through the prevention of accidental loss of our Soldiers, Civilians, Families and vital resources.

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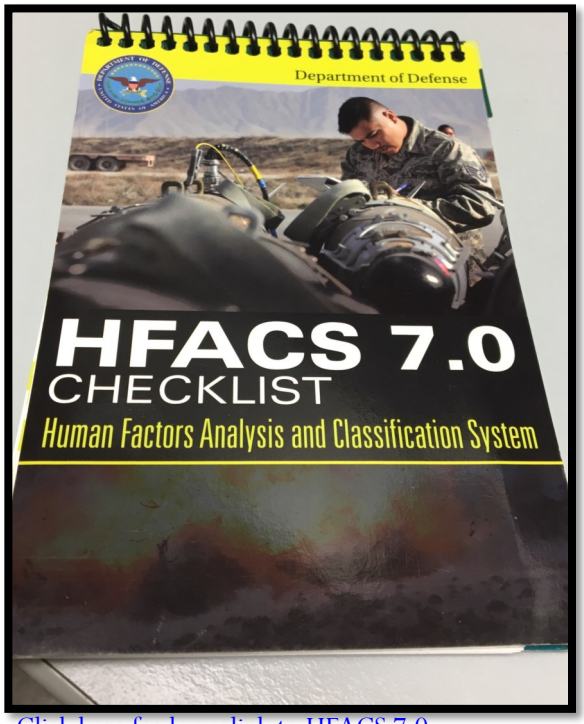
PREVENTING MISHAPS

The third slice of cheese in the model illustrates the **"Supervision"** or command's role in the mishap. This typically involves a supervisor's knowledge of the preconditions, failing to enforce standards, allowing Soldiers to violate existing regulations, permitting untrained Soldiers to operate equipment or to conduct a task, exceeding capabilities, failing to provide adequate oversight, or failing to provide training opportunities for Soldiers. Focusing on effective training and enforcing standards is the greatest area that leaders can impact safety and prevent mishaps. This also includes the use of Deliberate Risk Management to identify hazards, develop controls, and make risk decisions (see GRAT overview on page 4).

The final slice of cheese in the model illustrates **"Organizational Influences."** This step looks at the organization as a whole and reveals gaps that are created through lack of resources, funding, personnel, infrastructure, using aged equipment, excessive OPTEMPO, inadequate training, lack of procedural guidance, unclear mission, or inadequate organizational structure. Understanding where organizational shortfalls exist enables Leaders to address these issues with the command. These shortfalls may merit elevating the decision authority for missions or tasks that carry higher levels of residual risk.



Click here for hyperlink to HFACS 7.0

This model reveals the fact that a mishap rarely has only one failure or "Act" and shows how there are layers of failures or "absent defenses" from the organization on down to the individual Soldier that line up and allow a mishap to occur. A Soldier that was injured while using a winch on a wrecker may have made a poor decision to violate procedures in the TM. However, the HFACS model reveals that this mishap may also be contributed to fatigue, lack of leadership oversight, inadequate SOP procedures, or even high OPTEMPO. Risk mitigation requires thinking about the "big picture" and taking necessary steps to safeguard our Soldiers.

The methodology of the HFACS system not only helps accident investigators get to the root causes of a mishap, but Leaders can also **use this methodology to assess their organizations in order to prevent conditions that cause accidents**. Maintenance leaders should be keen to these contributing factors and do everything possible to create a safety culture in their maintenance facilities. As you spot Soldiers using shortcuts or taking unnecessary risks while conducting maintenance, you should ask yourself, "How can I identify preconditions, improve supervision, and influence the organization to ensure my Soldiers are conducting maintenance in the safest possible manner?"

ENSURE SAFETY OFFICERS ARE TRAINED!

Here at the Combat Readiness Center, we provide Safety Officer training to certify DA Civilians, NCOs (SSG and above), Warrant Officers, and Officers in the Ground Safety Officer Course (GSOC). The GSOC course is six weeks long and provides the skills necessary to oversee and manage Risk Management, Human Factors Analysis and Classification System, Fire Safety, Motorpool Safety, Tactical Safety, Traffic Safety, Explosives Safety Management, Accident Investigation and Reporting, Range Safety, and Occupational Safety and Health Administration (OSHA) 511 certification. Completion of the training awards students with the Ground Safety Officer "6Q" Additional Skill Identifier (ASI).

FY 2017	
GSOC (6 Week)	17-001: 06 Oct - 18 Nov 2016
	17-002: 01 Feb - 15 Mar 2017
	17-003: 27 Mar - 05 May 2017
	17-004: 16 May – 27 Jun 2017
	17-005: 11 Aug - 22 Sep 2017

The ATRRS course number is: 6Q-F12, and the available FY 17 course dates can be found at the following hyperlink: https://www.atrrs.army.mil/atrrscc/

$2 MILLION DOLLAR LOSS EXPOSES MAINTENANCE FAILURE...

Maintenance leaders are often the busiest personnel in any organization and have the daunting responsibility to balance a myriad of priorities on a day-to-day basis. The art of running an effective maintenance program requires a delicate balance to address maintenance management, shop supply, Oil Analysis, Test Measurement & Diagnostics Equipment (TMDE), tool accountability, petroleum management, recovery operations, records keeping, inspections, safety message compliance, manpower utilization, driver licensing, corrosion prevention, safety, etc. This list isn't by any means all inclusive and only provides a small glimpse into the busy world of running a maintenance program. Maintenance leaders are often so busy staying afloat that it is easy to overlook internal shortfalls in programs until an inspection is scheduled, or even worse when an accident happens.

The following scenario is an example of how a recent accident opened up Pandora's box exposing numerous gaps in an organization's operator training and maintenance program.

Background Scenario: Last year, a 915A Warrant Officer received a phone call requesting assistance to recover a D7 dozer. The Warrant Officer immediately contacted his recovery section NCOIC and gave orders to execute the recovery mission.

Within minutes the NCO contacted his crew members to prepare the M88A1 for movement. His crew consisted of a PFC driver (91M), a PFC mechanic (91M-H8), and SGT recovery vehicle NCOIC (91J). Their departure was delayed several hours while trying to obtain the necessary paperwork (QAQC / Dispatch) to conduct the recovery mission.

Once the crew exited the gate of the motorpool, it was an additional four hours before they reached the disabled D7 dozer. Upon arrival to the dozer, the crew determined that they could not recover the vehicle and decided to return to the motorpool. Several minutes after departure, the driver began to notice a loss of power and spotted smoke flowing from the rear of the M88A1. The driver quickly exited the hatch and noticed a fire in the engine compartment. He immediately returned to the driver's hatch and engaged the fire suppression system. The attempt to extinguish the fire was unsuccessful, so the NCOIC ordered the crew to evacuate the vehicle and contacted the fire department for assistance. The result of this fire was a total loss of the M88A1 tracked recovery vehicle.

Accident Investigation Findings

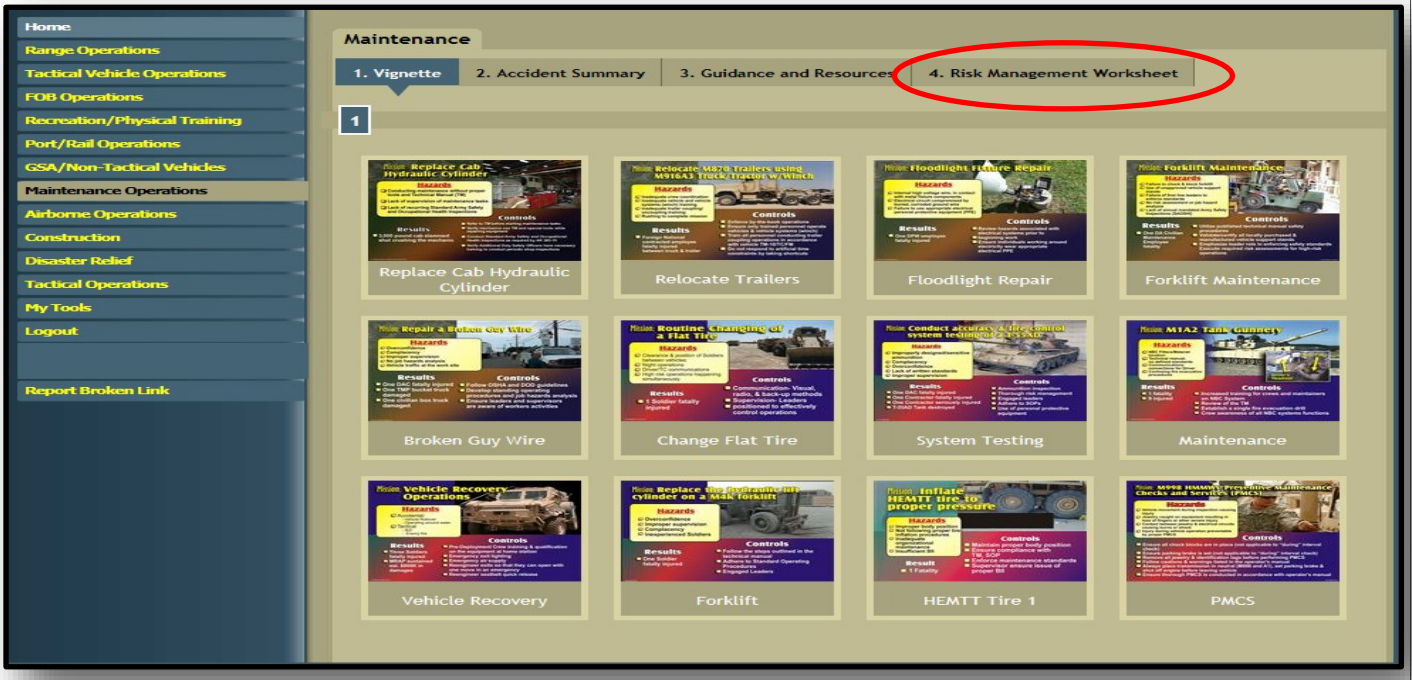
Vehicle Service Failure: The investigation identified that service data in GCSS -Army and the service packet revealed that the last time the M88A1 was serviced over three (3) years ago. The fire started due to a leak at the air box heater manifold, and proper servicing would have likely identified and corrected this leak.

Operator Licensing Failure: Both the driver and the NCOIC were fraudulently licensed and did not have adequate training on the M88A1. These individuals had numerous vehicles on their licenses (21 vehicles for SGT, and 11 vehicles for PFC), with no substantiating documentation in their driver records.

Dispatching Failure: The urgency to recover the disabled dozer prompted the crew to leave the motorpool without a signed dispatch for the M88A1 recovery vehicle.

Conclusion: This accident revealed numerous shortfalls in the organizational service program, QAQC / dispatch program, and Driver Training program. Fortunately this incident didn't result in injuries or fatalities. However, it did highlight deeper organizational and leader failures that had to be addressed. The intent of sharing this event with the Warrant Officer community is to illustrate how quickly a routine mission can go awry when shortcuts are taken and standards are not being enforced.

SAFETY TOOLKIT SPOTLIGHT



The Combat Readiness Center has an online tool that simplifies completing DD 2977 Deliberate Risk Assessment Worksheet. This tool allows users the ability to save risk assessments for future use, and also provides the ability to export the document into PDF or Word documents. The Ground Risk Assessment Tool (GRAT) is an interactive, automated online system developed to augment risk management planning and decision making for ground operations. GRAT assists users in identifying, assessing, and controlling hazards associated with specific missions or tasks and also produces a risk management worksheet.

GRAT empowers Leaders and Soldiers to reduce accidental loss and injury by incorporating risk management into a quick, user-friendly system that eases the mission planning process. By providing users with up-to-date accident statistics, relevant accident vignettes and guidance including regulations, training circulars, field manuals, tactics, techniques and procedures, GRAT helps users capture a complete picture of hazards and controls they may not have previously considered.

Request Support:

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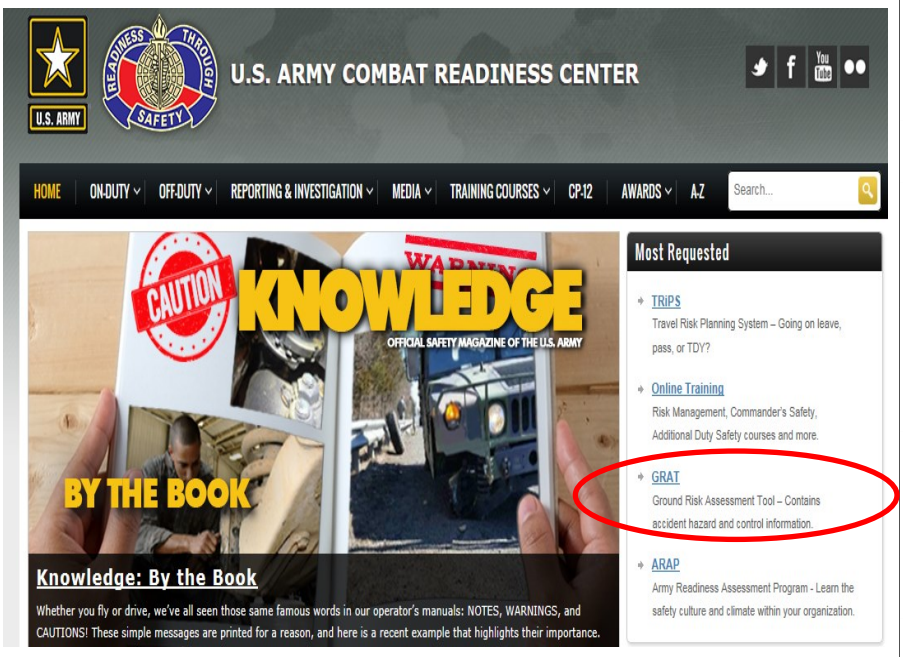

Click on this link to access the Ground Risk Assessment Tool.