Updated Leader's Guide to Maintenance and Services

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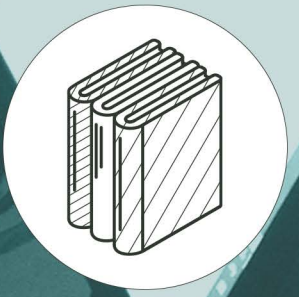

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Foreword
From a Sustainment Leader

Equipment readiness and command maintenance discipline are essential for the United States Army to be prepared to fight tonight. Leaders at all levels must understand what the Army maintenance standard is, the factors that degrade equipment readiness, and how to counter those factors through a focused and efficient maintenance program. Maintenance operations are integral to all operations. Maintenance is not a separate administrative function. It is fundamental to the conduct of multidomain operations.

Priorities, operator and maintainer proficiency, unit standard adherence, and resource availability including time, repair parts (Class IX), funding, and shop stock listing/bench stock listing are all major factors bearing on a unit's ability to execute its wartime mission. A gap in any one of these resources will directly degrade readiness. Command teams must remain ahead of these requirements to directly affect positive outcomes through operational maintenance activities. Equally important is empowering subordinate leaders and their supporting maintenance teams by providing them the resources needed to accomplish the assigned mission and decision authority and space to prioritize efforts.

The Army's modernization effort will result in the fielding of increasingly complex equipment. With increased complexity comes associated maintenance challenges. Proactive and dynamic leaders are essential to building and sustaining readiness at echelon. This handbook details various observations, insights, lessons learned, and best practices from the National Training Center and other contributors that will help all stakeholders improve upon their maintenance programs at echelon. While focused on the brigade combat team, stakeholders from the division, corps expeditionary sustainment command, and theater sustainment command can find invaluable information within this handbook to ensure their supported units are ready to successfully deploy their personnel and equipment on short notice and maintain combat power through the fight.

Michael B. Lalor
Brigadier General, USA
43rd Chief of Ordnance

Foreword
From a Combat Arms Leader

While winning on the modern battlefield depends upon many factors, the American Soldier cannot win without operational equipment. Given the tempo, distances, and intensity of modern combat, our ability as an Army to maintain at pace becomes an essential element for successful operations. From home station training to combat training center rotations, if the Army cannot maintain its equipment to keep pace with our operations, forces cannot accomplish our assigned missions. Although good maintenance procedures will not guarantee success, bad maintenance procedures virtually guarantee failure.

We have watched this dynamic play out during multiple National Training Center rotations. Units with proficient crews who understand the criticality of maintaining their equipment spend most of their time training and fighting versus sitting at a maintenance collection point. Units with knowledgeable maintainers rebuild combat power more quickly. Units with a practiced repair parts distribution system get critical parts to the point of need quickly. Units with leaders who understand the impact of maintenance on operations are more likely to win. Units that can do all these tasks exponentially increase the odds of winning against a determined enemy. Units that do not have these capabilities cede initiative to our enemies and relegate themselves to mission failure over time.

This handbook provides a great reference for any leader desiring to know more about how to build a first-class maintenance system capable of winning in combat. It provides key focus areas and links to other references for continued study. Every leader at echelon should study the lessons put forth by the authors. Keep it handy and use it as a tool to help navigate the Army maintenance system.

Michael J. Simmering Brigadier
General, USA
Deputy Commanding General (Operations)
1st Armored Division and Fort Bliss, TX

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Per Army Doctrine Publication (ADP) 3-0 Operations, July 2019, "Combat Power is the total means of destructive, constructive, and information capabilities that a military unit or formation can apply at a given time."

Leaders account for the requirement to preserve combat power while sustaining people, systems, and formations over the time and distance necessary throughout the depth of an area of operations (FM 3-0 Operations, 1 October 2022, page 3-6).

For units to muster the equipment needed to create, maintain, and bring combat power to bear when required, a unit must establish and execute a comprehensive maintenance program. Leaders must know the basics of preventative maintenance checks and services (PMCS) for every piece of unit equipment and supervise their unit's execution of the program. Leaders should also be well versed in the repair parts process from finding a fault to requisitioning the part in the supply system. Equipment operators must be able to perform PMCS in all conditions of light, weather, terrain, and stress. Mechanics must have protected time to repair and return equipment to mission capable status. The equipment service program must be an integral part of the unit's training program, included on training schedules, and briefed during training meetings. Units should conduct maintenance during all portions of an operation for it is the cornerstone for the sustainment of the equipment life cycle.

This handbook is a tool for leaders, especially those of the brigade combat team, to find information on a myriad of maintenance topics and subjects.

CHAPTER 1

Building a Better Maintenance Program

Trends from the National Training Center show that rotational units' maintenance, at home station and during rotations, lacks the focus and proficiency required of a quality program. This makes it harder for units to be successful at the National Training Center. Unit equipment is often not at the Army maintenance standard of 10/20 (see Chapter 3) when it arrives before the rotation. Unit leaders and maintenance supervisors typically have neither planned for nor rehearsed executing maintenance in a field environment. Soldiers are not proficient in conducting PMCS or ordering parts. To further complicate an already complex problem, commanders do not have a correct assessment of their unit's readiness because of inaccurate and/or delayed status reporting.

MG David Wilson, 40th Chief of Ordnance
Writing in "The Anatomy of Two-level Maintenance in Multidomain Battle"

Readiness starts with preventive maintenance checks and services (PMCS). To achieve the Army's maintenance standard, every piece of equipment goes through the PMCS process. PMCS starts with the operator, the equipment, and the associated technical manual. It gives the operator or crew member a checklist that delineates an order of checks and services. Each step is clearly defined and tells the user what to check, when to check it, and exactly how to check it. According to 10 series of technical manuals, operators and crews conduct PMCS before, during, and after any type of movement or use. On the other hand, 20 series of technical manuals have the maintainer performing routine quarterly, semiannual, annual, and biennial services. Both standards require the unit to conduct scheduled services, lubricate equipment, record and report deficiencies and shortcomings, and order replacement parts. Through the PMCS process, all faults should be identified. Are Soldiers conducting their required inspections before, during, and after use? The key to maintaining readiness is reporting, not just reporting, but reporting accurately and on time. Inaccurate or late reporting leads to limited resources and a false sense of readiness. Poor maintenance supervision contributes to a user's failure to check the condition of equipment and report faults accurately.

Where are leaders throughout all these processes? They are on the line. The commander's maintenance program is most successful when leaders at all levels are fully engaged. Their involvement in maintenance meetings underscores the principle that maintenance is the cornerstone of readiness and readiness is a priority. Complacency is the enemy of leaders, maintainers, and operators alike during routine actions in a non-combat environment. Therefore, a leader's presence on the line is critical to enforce standards of discipline, impart pride in ownership, and keep Soldiers engaged. Soldiers care when they see their leaders care. Is maintenance your priority? If so, it will be theirs. The hard questions I encourage you to ask are: Is my unit ready? Can I do more? Your involvement is critical to building and preserving readiness.

– MG David Wilson, the 40th Chief of Ordnance[1]

Combat training center observer, coach/trainers (OC/Ts) have a vast array of experiences that come from observing several units during multiple rotations every year. They see multiple rotations every year. Each rotation is unique, each unit brings their own strengths and challenges with them. These experiences allow a unique vantage point to offer recommendations to improve a unit's maintenance program whether at home station or in the maneuver area engaged in contact.

Sustainment warfighting function [WfF] OC/Ts at the combat training centers routinely report that the effectiveness of a brigade combat team's home station maintenance program determines how the unit performs maintenance during the fast-paced decisive action fight in the maneuver area of the combat training center. Brigade combat team(s) can overcome many of the challenges they face at combat training centers by implementing best maintenance practices.

Units that practice proper maintenance at home station will tend to be more operationally ready than those that do not.[2]

The combat training centers serve as the premier test of a unit's combat capability short of actual combat. And as such, lessons taken from a rotation, if applied rigorously, can help leaders with building a unit that is fit to fight. As the Army reduces dependance on contractor augmented equipment maintenance to primarily Soldier performed maintenance of equipment in large-scale combat operations, maintenance becomes even more critical. Maintenance of equipment certainly plays a significant role in the multidomain operations framework. It is the doctrinal "key" to building and sustaining combat power. Below are selected passages from Army Techniques Publication (ATP) 4-33, *Maintenance Operations*, 19 November 2019, that amplify the importance of a sound maintenance program.

- Maintenance plays a key role across all strategic roles. Regardless of whether Soldiers perform maintenance during home station training, combat training center rotations, or during large-scale combat, effective maintenance enhances readiness. Readiness directly correlates to combat power. Combat power is reflected in the assets commanders can employ to carry out the mission" (paragraph 1-15).
- Generating credible readiness is the most important shaping task for units as they train at home station and during combat training center exercises (paragraph 1-19).
- Engaged leaders provide supervision and ensure accountability. This results in effective unit maintenance programs; relevant command maintenance discipline programs; and timely test, measurement, and diagnostic equipment calibration and maintenance programs. This contributes to a positive organizational readiness rate. Standard battle rhythm events, such as brigade maintenance meetings, sustainment readiness reviews, and theater maintenance working groups, are effective for tracking readiness and prioritizing efforts (paragraph 1-21).
- Commanders rely on maintenance operations to provide the initial combat power and rapidly repair damaged weapon systems to help maintain that combat power. During combat operations, maintainers recover and repair damaged platforms allowing them to shoot, move, and communicate and stay in the fight (paragraph 1-28).
- During combat operations, maintainers prioritize work on weapon systems. Field maintenance assets move as far forward as possible to repair inoperable and damaged equipment to return it to service as quickly as possible. Crews perform preventive maintenance checks and services as modified for the climate and terrain in which they find themselves. Battle damage assessment and repair restores the minimum essential combat capabilities necessary to support a specific combat mission or to enable the equipment to self-recover. Crews and maintenance and recovery teams conduct battle damage assessment and repair and controlled exchange to rapidly return disabled equipment to battlefield service using field expedient components and means (paragraph 1-29).

Former National Training Center Operations Group Commander, BG Michael J. Simmering offered some wisdom on the correlation of maintenance and building combat power. He notes in Winning the Maintenance Fight at Pace, that:

- An insufficient maintenance program can grind any brigade combat team to a halt, even more so than an opposing force. You cannot fix it after first contact. Once you are in the middle of a fight, it is too late.
- Maintenance is everyone's business. Maintenance does not just belong to the mechanics in your formation. Maintenance does not belong to the executive officer. As a commander or small unit leader, you are responsible for the condition of your equipment, but you must make maintenance the business of every member of your organization. If first sergeants are more worried about fulfilling red cycle tasks than they are the condition of your equipment, you have a problem. If you are willing to place staff duty requirements above managing the work schedule for your maintainers and supply personnel, you have a problem. Commanders must remove organizational maintenance distractors to every extent possible. Nobody cares more about your equipment than you (at least, nobody should). If your stuff is broken, you cannot perform your wartime mission and your unit is not ready.
- Mission Command is central to a solid maintenance program. At the brigade or battalion levels, you cannot centrally manage your maintenance program. Brigade maintenance meetings do not fix vehicles. They merely establish priorities, identify problems, coordinate resources, and hold subordinates accountable. A solid maintenance program requires a "team of teams" approach. Just like any other task, every echelon's operators, mechanics, and supervisors maintenance efforts require educated Soldiers, skilled leaders, and supervisors willing to prioritize efforts, enforce standards, and hold subordinates accountable.
- The typical maintainer's education comes from the Army in advanced individual training but must continue in the unit. Your unit requires a deliberate junior leader driven individual training approach to operator and mechanic education. Keep in mind, our Army is still recovering from a programmatic mindset born of the counterinsurgency era, when Soldiers and leaders needed a wide array of skill and lost expertise in critical areas like equipment knowledge and maintenance. Therefore, many leaders do not necessarily have true expertise on their equipment. While the institution has begun to change this mindset, there is still a way to go. You, as a leader, play a critical role. One of the greatest indicators of a formation's discipline is the condition of its equipment. In the words of General Abrams, "There is only one standard for maintenance in the Army, 10/20 (referring to the 10 and 20 series of equipment technical manuals)." Individual shortcuts, an unwillingness to bring up issues with higher headquarters, and perceived financial constraints, often lead to an environment where we fall short of 10/20. If your unit's standard is 10/20, you, as a company-level leader and below, should know the exact shortcomings that are preventing you from achieving that standard. As a field grade officer, you should know the major faults of every piece of equipment in the formation. As a brigade combat team commander, you should have an in-depth knowledge of the routine challenges your unit faces, the parts they need, what long lead time parts you need assistance with, and what is preventing you from achieving the standard. Anything less opens the door to a cultural acceptance of sub-par standards.

– BG Michael J. Simmering Former National Training Center Operations Group Commander[3]

As these leaders articulated in the earlier passages, leader involvement is an essential ingredient to the maintenance process. There are many other aspects needed to facilitate the development and sustainment of a strong maintenance program that can stand the stress, strain, and rigors required to conduct operations in contact with the opposition.

Endnotes

1 Wilson, David , BG, The anatomy of two-level maintenance in Multi-Domain Battle, 5 January 2018. https://www.army.mil/article/198430/the_anatomy_of_two_level_maintenance_in_ multi_do- main_battle

2 Goldminer Team, National Training Center Operations Group, Brigade Maintenance at Pace, National Training Center Lessons on Maintaining Pace, Company Leader, Leadership Les- sons from the Tactical Level of War, 9 May 2020. https://companyleader.themilitaryleader.com/? s=maintenance+at+pace&submit=Search

3 Simmering, COL Michael J., "*Winning the Maintenance Fight at Pace,*" The Company Leader, Leadership Lessons from the Tactical Level of War, http://companyleader.themili- taryleader.com/2020/03/16/winning-the-maintenance-fight-at-pace, assessed 12 December 2021.

CHAPTER 2
Things Leaders Should Consider

Leaders in the brigade combat team must focus on several areas. Tactics, maintenance, personnel issues, and training are a few of those issues. The list can seem endless. This chapter provides the leader important maintenance best practices that will help develop a sound maintenance program:

- Leaders must schedule and protect enough time on training schedules for mechanics, equipment operators, and crews to perform preventive maintenance, checks and services (PMCS). It is important to plan and resource the maintenance of weapons; night vision devices; communication assets; and chemical, biological, radiological, and nuclear (CBRN) equipment. Leaders play a significant part in the process through supervising, mentoring, and coaching.

- Leaders must ensure that the service schedule for all equipment is current and complete before deployment off their installation. Army policy provides an authorization for a 10 percent variance to the service schedule of a piece of equipment, use it as necessary.[1] This also includes low density equipment. Training meetings and long-range training calendars should address servicing schedules.

- Commanders and their subordinate leaders are key to the success of the maintenance process and involvement in the unit's PMCS training program is a must to ensure operators and crews are knowledgeable, practiced, and proficient in maintenance procedures**.** It is important to instill the importance of PMCS in your Soldiers. Train them on the proper execution of PMCS until it becomes second nature to them. This will allow operators and crews to execute PMCS in field conditions, with all the accompanying stressors like fatigue, darkness. inclement weather and interference from a hostile force. Combined Arms Support Command (CASCOM) created an application or app that can help Soldiers in mastering the basics of PMCS. Soldiers can find the app at: https://play.google.com/store/apps/details?id=com.cascom.pmcsandpli=1lay.

- Leaders should know and understand the repair parts process so they can train and supervise their personnel as they use the process to order Class IX repair parts. Leaders confirm reports and ensure Soldiers conduct the process to standard. The Global Combat Support System-Army (GCSS-Army) is the system of record. Having Soldiers who understand this system will assist the commander in building a great maintenance program. Leaders should schedule, supervise, and conduct training for operators and crews on GCSS-Army. Take advantage of the courses offered by the installation and by using the Command Maintenance Evaluation and Training (COMET) Team, if available, for additional classroom and over-the-shoulder training opportunities on this critical system. The GCSS-Army website lists the procedures for repair parts processing. Figures 2-1 and 2-2 also outline the procedures.

- Leaders must understand the difference between equipment readiness codes (ERC): ERC-A versus ERC-P (pacing item). The Army's equipment readiness goal for ground equipment is 90 percent, according to AR 700-138, *Army Logistics Readiness and Sustainability*, 23 April 2018. A unit's modified table of organization and equipment (MTOE) will identify ERCs for each line-item number (LIN). Due to the low density of ERC-P items in many organizations, the ERC-P readiness rate will determine the unit's overall readiness level, or R-level. According to AR 220-1, *Army Unit Status Reporting and Force Registration*, 16 August 2022, the unit's R-level is always the lowest of the two readiness rates. For example, if the aggregate equipment readiness rate for ERC-A items is 95 percent, but the readiness rate for an ERC-P item is 70

percent, the unit readiness rate is 70 percent. Additionally, for every pacing item in a 30-day reporting period, a unit can only accumulate three not-mission-capable (NMC) days before the item goes below 90 percent (27/30=90%).

- Leaders are responsible for reporting equipment status. The accuracy of this report is critical to the commander "seeing" their unit. The commander's unit status report (CUSR) emphasizes the commander's responsibility for accuracy.[2] There are multiple techniques for the receipt of supplies (i.e., repair parts), personnel, and equipment. Examples of techniques for planned resupply are:
  - Logistics packages (LOGPAC)
  - Pre-positioned supplies
  - Cached supplies
  - Modular system exchange equipment
- One of the more important tasks to consider is how to implement one or more of these planned sustainment operations once deployed. Regarding maintenance, the commander must decide the items (Class IX repair parts) to include in the logistics packages and how to get them to the point of use. It is vital that units rehearse and synchronize LOGPAC procedures, timing, contents, and responsibilities with all key personnel (unit first sergeant, executive officer, forward support company, battalion S-4, and the brigade support battalion support operations). The unit's tactical standard operating procedure (TACSOP) should describe the LOGPAC process and actions at the logistics release point.[3]
- Keep shop stock and bench stock as close to 100 percent on hand as possible. Leaders must constantly track the order status of repair parts and know the amount of Class IX stocks on-hand. This increases the probability of having adequate repair parts on hand to complete required repairs. Soldiers should inventory and document repair part packing locations before deployment to ensure accessibility.
- Leaders must supervise unit personnels' practice of the unit maintenance standard operating procedures (SOPs). Include forward support company and brigade support battalion in rehearsals/practice and update the SOP as needed. Only through constant practice for proficiency, can Soldiers perform this process in times of stress and fatigue. Annex A has a unit maintenance SOP (1-7th Cavalry). The intent of this SOP is to serve as an example for commanders to develop a unit SOP that best serves the unit and its mission.
- Operators and crews must rehearse vehicle recovery operations until proficient in all conditions (day, night, adverse weather). The first step in the recovery process is self-recovery. Leaders should ensure that operators and crews are proficient in self-recovery procedures and similar vehicle recovery procedures. Ensure recovery equipment is on hand and serviceable or listed on a valid funded requisition.
- Soldiers should practice maintenance collection point (MCP) procedures for proficiency in all conditions. The maintenance collection point is a temporary location established within the battalion area of operations for the collection of equipment requiring or undergoing field maintenance. Units often conduct MCP procedures during hours of darkness to minimize observation.

- Leaders should inventory all components end item, basic issue items, and associated tools and ensure they are on hand and serviceable or listed on a valid funded requisition. Leaders should routinely inspect for broken or unserviceable items and replace these immediately.
- Leaders should implement maintenance terrain walks (MTWs) into their planning process. A MTW is a tool that can help increase understanding of maintenance and sustainment operations. The MTW usually begins with a maintenance overview brief, followed by a terrain walk of the maintenance areas. Key maintenance personnel should participate.

List of potential MTW topics include:

- Ongoing maintenance/safety initiatives
- Maintenance concerns and challenges
- Recoverable item management
- Tools/special tools/ test, measurement, and diagnostic equipment (TMDE) status
- Equipment status report (maintenance summary) review
- Review of oldest non-mission capable equipment (Department of the Army [DA] Form 5988-
- E, *Equipment Maintenance Inspection Worksheet*, 1 March 1991)
- Maintenance layout issues such as:
  - Location of maintenance areas
  - Current facility status
  - Future upgrade projects.

Refer to the link below for more information on these topics:

https://www.psmagazine.army.mil/News/Article/2062543/maintenance-terrain-walk-mtw-boosts-unit-readiness/

See Global Combat Support System-Army Smart book for information on Class IX on-hand procedures. Common card access required. https://gcss.army.mil/Documents/Library/GCSS_Army_SmartBook_MMv14_1.pdf

Endnotes

1. Army Regulation (AR) 750-1, *Army Materiel Maintenance Policy*, 2 February 2023, page 19.
2. AR 220-1, *Army Unit Status Reporting and Force Registration–Consolidated Policies*, 16 August 2022, page 18.
3. Army Techniques Publication (ATP) 4-90, *Brigade Support Battalion*, 18 June 2020, page 6-4.

CHAPTER 3

Maintain Army Maintenance Standards

Russia's performance during the current Russian/Ukraine conflict, demonstrates that poorly maintained vehicles and equipment can severely impact momentum, operational reach, and tactical flexibility. Leaders not enforcing maintenance procedures are principally responsible.

Army Regulation (AR) 750-1, *Army Materiel Maintenance Policy*, 2 February 2023, explains the U.S. Army standards for maintenance. This regulation provides the maintenance standard units must achieve to maintain readiness and provide the combat power required when called upon. Unit equipment must meet nine conditions to achieve Army's maintenance standards:

- The equipment is fully mission capable.
- All faults are identified in accordance with equipment Technical Manual (TM)-10/20 series preventive maintenance checks and services (PMCS) tables.
- All required repairs and services have been completed.
- Parts and supplies are on a valid funded requisition.
- Corrective actions that are not authorized at field level by the applicable TM's maintenance allocation chart must be evacuated to the next higher level.
- Scheduled services are performed within the service interval required.
- All modification work orders (MWOs), and safety of use messages (SOUMs) are completed or applied.
- All basic issue items and components of end items are present, serviceable, or on a valid supply request.[1]
- All maintenance information or action messages involving weapon system software updates have been applied and entered the Modification Management Information System (MMIS).

During a U.S. Army Audit Agency audit conducted during 2018-2019, several armored brigade combat teams had challenges with maintaining established maintenance standards. As a result, the major command headquarters instituted several measures to assist units in achieving the established standards. The recommended measures were categorized into four broad-focused areas:

- Mission capability of equipment
- Command oversight
- Knowledge and proficiency of maintenance personnel
- Protected time to perform maintenance[2]

Units that have effective maintenance programs perform the four measures listed above well. The most important of the four is command oversight. Commanders and subordinate leaders must be present and involved in maintenance. This involvement will have a profound impact on the effectiveness of the maintenance program, which directly impacts the maintenance readiness of the unit. Commanders must allow time for Soldiers to perform maintenance. Leaders at all levels must develop programs that enable operators/crews and maintenance personnel to become trained and proficient in their duties.

In combat, maintenance standards are even more important. The following vignette from operations in Iraq 2003 highlights the results that maintenance can have on operations. Only through exceptional leadership and Soldier effort was disaster adverted.

Thunder Run to Baghdad

On the evening of April 4, 2003, two weeks after the invasion of Iraq began, 3rd Infantry Division's 1-64th Armored Regiment found themselves just outside of Baghdad, 600 kilometers from their initial start point. The unit spent the day "mopping up" remnants of the Iraqi Republican Guard's Medina Division and were now in an assembly area. That night the commanders and crews received the order to conduct a reconnaissance in force into Baghdad at first light, a Thunder Run.

Throughout the night, the crews worked alongside the battalion's mechanics to prepare their vehicles for the mission. The long advance over the previous two weeks severely impacted maintenance operations and many vehicles needed extensive repairs. A lack of Class IX repair parts dead lined two of the four M-1 Abrams tanks in Charlie Company's first platoon. At daylight, the 1-64th lined up all its mission capable armored vehicles. Non-armored wheeled vehicles including fuel tankers remained behind in expectation of impending heavy combat. Despite the best efforts of the maintainers and crew, many of the armored vehicles, though mission capable, were operating in a circle X status (command override) with multiple major maintenance deficiencies. The advance into Iraq constituted the fastest overland march in U.S. military history and provided minimal time for maintenance. Few, if any, Class IX repair parts reached forward units, resulting in abandoned vehicles, vehicles with degraded capabilities, and cannibalization of vehicles that might otherwise have been returned to a fully mission-capable status if time and repair parts were available. Despite the shortage of spare parts, combat units sustained the drive north because of the skill, experience, hard work, and energy of their forward deployed maintenance Soldiers. The first Thunder Run on April 5, 2003, traveled up Highway 8 through the southwestern sector of Baghdad and then pivoted west to cross into the international airport. The 1-64th met determined resistance and lost one tank to enemy action. In return, they inflicted approximately 1,000 casualties on the Iraqi defenders. Moreover, they proved that the American military could push into the heart of Baghdad at will. The 1-64th withdrew to their previous positions that night.

Two days later, COL David Perkins, the 2nd brigade commander, who accompanied the 1-64th on the first Thunder Run, took his entire brigade back into Baghdad. As a result of the ceaseless effort by crew and maintainers to repair the battle damage incurred during the first Thunder Run, the 1-64th was in the lead. After a series of hard-fought engagements, Perkins elected to remain in the city. The second Thunder Run proved to be the tipping point that caused Saddam Hussein's regime to collapse. The lessons learned during the advance into Iraq helped shape current maintenance doctrine to include fixing forward, enhanced maintenance planning, and a renewed emphasis on command and control.[3]

Endnotes

1. Army Regulation (AR) 750-1, *Army Materiel Maintenance Policy*, 2 February 2023, paragraph 3-2, page 16.

2. Harryman, MAJ Christina, Army Sustainment Magazine, "GREAT Team: Changing the Culture of the Force," December 16, 2021.

3. Army Techniques Publication (ATP) 4-33, *Maintenance Operations*, 9 July 2019, page 1-13.

CHAPTER 4

Maintenance Standard Operating Procedures, Programs, and Plans

How to Develop a Stronger Maintenance Enterprise

To develop a strong procedure for an outstanding maintenance program there are several ingredients that must be considered. The first is a comprehensive standard operating procedure (SOP).

Developing a comprehensive unit's maintenance SOP is one of the more important documents a unit can have. This document sets the stage for the entire maintenance program's success. It must be easy to read and understand. Soldiers and subordinate leaders will use this information to understand the processes and programs that collectively make up the unit maintenance program. Some issues to consider when developing the SOP are included in the following paragraphs.

Field maintenance operations. Leaders must train unit personnel to proficiency on field maintenance operations. For the last several years, combat training center trends have identified that units struggle with maintenance in a decisive action environment[1]. One way to abate this deficiency is to concentrate on operator/crew maintenance routinely in a garrison and field environment before deployment to a combat training center or a real-world operation.

Maintenance training. This is critical to equipment readiness. The SOP should define how maintenance personnel from the mechanic to the operator receive maintenance training. Who are the trainers, frequency of training, and training topics? The SOP should answer these questions.

Define units in support. Leaders should consider defining the relationship and responsibilities of the forward support company (FSC) or platoon.

The Army Maintenance Management System. Department of the Army Pamphlet (DA Pam) 750-8, *The Army Maintenance Management System (TAMMS)* User Manual*,* 22 August 2005, contains the specifics.

Training program for operators. Trained drivers and crews normally operate and care for their equipment with greater diligence than poorly trained operators. Operators and crews of high caliber take ownership of their equipment and work to keep it in the best possible condition. Units should document how Soldiers can obtain a government equipment operator's license (Department of the Army (DA) Form 5984–E, *Operator's Permit Record*/OF 346, (*U.S. Government Motor Vehicles Operator's Identification Card*).

Environmental program. There are many regulations and laws (military and civil) that apply to protection of the environment. Commanders and leaders must become well versed in local policies and regulations and translate those into a unit comprehensive program.[2] As part of the unit environmental protection program, units must establish hazardous materials teams and train unit personnel on hazardous material/hazardous waste procedures. The unit maintenance SOP should include measures, policies, and tasks the unit must adhere to or accomplish. Consider operations in field conditions as well as garrison operations.[3] As units develop their maintenance SOP, they should include actions, policies, and tasks for spill prevention, control, and countermeasures[4].

Quality control program. To provide Soldiers with proper supervision and feedback, targeting their performance on maintenance tasks, you will need a comprehensive quality control program.[5] Checking Soldier performance is inherent in a leader's responsibility. In addition to this, leaders should delegate specific individuals that possess a high level of maintenance skill and experience with the responsibility to spot check Soldier performance of PMCS and Technical Manual (TM) 10 series maintenance. Brigade combat team leaders should also discuss the FSC quality assurance program with the brigade support battalion commander, FSC commander, executive officer, maintenance control officer, and/or field maintenance team non-commissioned officer in charge.

Safety program. A unit's safety program must be comprehensive, yet easy to understand. Everyone must enforce safety procedures. Leaders must embrace protection of the force as a primary goal and have no tolerance for safety violations. During large-scale combat operations, leaders may have to assume some risk as the conditions during combat differ; however, safe operations are a combat multiplier for a unit and can prevent unnecessary causalities and damage to equipment.[6]

Awards Program. It is important to recognize exceptional Soldier performance with positive re-enforcement. One way to do this is with the Operator and Maintainer Award Program. Awards and recognition for Soldiers that demonstrate outstanding performance will help develop a sense of pride in maintaining and operating equipment throughout the unit.[7]

Warranty procedures. To ensure that units get the most out of on-hand equipment during its life cycle, the maintenance SOP should include warranty procedures and have Soldiers be familiar with the specifics of the program. The objectives of the Army's warranties program for military equipment are:

- Achieve and sustain a cost-effective warranty program for Army materiel.
- Minimize user burden and promote user satisfaction.
- Control warranty execution to ensure maximum use and benefit from warranties.
- Provide information for warranty administration, execution, and evaluation.
- Achieve uniformity in managing and executing warranties.
- Expedite problematic equipment for repairs before the warranty expires.
- Eliminate the unintended and erroneous obligation of appropriated funds for the repair of equipment purchased by the Army that is still under a warranty. [8]

An important requirement you have in supporting your unit's warranty program is knowing and executing the reporting procedures when there is an issue with the quality of products under warranty.[9] Specific guidance may vary, but normal requirements are to pass issue reports to higher headquarters. Leaders should document these actions in the maintenance SOP.

Corrosion prevention. The nature of military operations places equipment in environments conducive to damage by corrosion. Unit commanders must appoint unit corrosion monitors (recommend at least two) to execute the Army's Corrosion Prevention and Control (CPC) Program responsibilities. Army Regulation (AR) 750-59, *Corrosion Prevention and Control for Army Materiel*, 22 June 2020, directs unit commanders to include CPC procedures in the unit maintenance SOP.[10]

Army Oil Analysis Program (AOAP). Units take routine samples of oil from their equipment and send them to laboratories supporting AOAP. This analysis increases the ability to predict part failure cause by contaminates like sand, that cause excessive wear. COL James Rentz in the article "Oil Analysis Program Keeps Equipment Running writes," "The detailed diagnostics report that AOAP provides allows us to see unfavorable trends developing and the ability to give the maintenance units a recommendation of what needs attention before a system failure occurs. Given the known parameters of the elements used in the manufacture of an item, the AOAP will zero in on the specific part (i.e., a bearing or gear) which needs attention. A goal of the program is to alleviate problems by changing components, as opposed to a major assembly like an engine or gearbox. This effort reduces the equipment's downtime and improves its availability to perform its intended mission. Replacing failed engines, transmissions, hydraulics, or even complete platforms is far more expensive than program costs. More importantly, the AOAP enhances the safety of the personnel that use these systems.[11] See Technical Bulletin (TB) 43-0211, Army Oil Analysis Program (AOAP) for more information.

Test, measurement, and diagnostic equipment. Be sure to include policies, procedures, and tasks to maintain the unit's test, measurement, and diagnostic equipment (TMDE) in the maintenance SOP. (See TB 750-25, Maintenance of Supplies and Equipment Army Test, Measurement, and Diagnostic Equipment (TMDE) Calibration and Repair Support (C&RS) Program, 1 April 2022, paragraph 3-8).

Leaders should also assign a non-commissioned officer with the additional duty of TMDE support coordinator to fix responsibility for coordination with the TMDE support activity. Properly calibrated TMDE is essential in troubleshooting and diagnosing equipment faults. To perform maintenance on the equipment of today's modern Army you need TMDE that is accurately calibrated. Most measuring instruments drift out of accuracy with time and use. From the scale at the post office to the one in your bathroom, the multimeter used by a mechanic to the torque wrench in your garage, the need for calibrating TMDE is enduring. Weapons systems require routine testing and measurements with TMDE to ensure they are safe to drive, fly, or shoot. Therefore, leaders must ensure that TMDE receives scheduled calibration. An effective technique is to use a monthly required calibration report from the maintenance section. Leaders should develop this forecast and combine it with the unit's monthly service report. Regular and disciplined forecasting can promote a structure plan that allows for the accuracy of TMDE equipment.[12]

Tool accountability procedures. Leaders should be good stewards of the property for which they are responsible. To properly conduct equipment maintenance, you need the right tools on hand. Tool accountability and control procedures must be known and practiced by Soldiers and codified, supervised and enforced by leaders.[13]

Security. Leaders must always ensure the security of unit equipment and property. The commander should ensure that the maintenance SOP collects (and leaders enforce) security policies and practices for motor pools, tool rooms, repair parts areas and other storage areas (e.g., petroleum, oils, and lubrications storage facilities) .[14]

Hazardous materials. The unit maintenance SOP should cover supervisory procedures for, warnings of, and dangers with painting vehicles with chemical agent resistant coatings (CARC). CARCs contain carcinogens. Soldiers must follow strict procedures while exposed during the painting process to protect themselves.[15]

Readiness reports. Commanders use readiness reports to understand the unit's ability to maneuver and generate combat power. The maintenance status of equipment feeds the overall readiness report for the commander. Maintenance reporting must be timely and accurate to provide the commander the best possible picture of the equipment available for use during potential or imminent operations. The maintenance SOP should provide the format and timelines for equipment status reporting.

Commanders and subordinate leaders should verify work orders and their status in Global Combat Support System-Army (GCSS-Army). Then will leaders have a clear picture of the status of their equipment. The GCSS-Army workflow indicates where in the repair process the equipment falls (i.e., awaiting parts, parts on hand, awaiting repair, etc.).[16]

Other Programs to Consider

A unit maintenance SOP provides guidance to the unit's Soldiers and serves as a reference for standardization. In addition to the SOP, the following programs can serve to broaden and strengthen the overall unit maintenance effort.

Command Maintenance Discipline Program (CMDP). The CMDP is a program to help commanders and leaders focus on maintenance management and its operational core competencies. The CMDP is a tool leaders use to evaluate their unit's maintenance programs, simplify, and standardize command and supervisor responsibilities, and formalize follow-up procedures. Leaders that use the CMDP effectively find it easier to identify areas in their maintenance program that require additional emphasis. It provides a guide that leaders can use to correct and improve systemic problems. The intent of the CMDP to improve combat readiness and sustainability. Subordinate leaders must be well versed in the program to recognize substandard performance and make on the spot corrections, conduct reinforcing training, and stress execution of proper procedures. The overriding principle of CMDP is to improve the Soldier and unit's ability to maintain their equipment in any environment.[17]

Publications library. A well-stocked publications library is a maintenance multiplier. Units should have sufficient publications (pubs) for each piece of equipment to support unit operations. Each piece of equipment comes with a series of technical manuals (TMs) [10 and 20 series]) or interactive electronic technical manuals (IETMs) that specifically outline how to use and maintain the equipment properly. The pubs should be complete with all the latest updates, changes, and modification work orders (MWOs). They should be in a location where Soldiers have access. The commander should designate a publications clerk (as an additional duty) to maintain a current and complete set of publications for myriad of unit equipment. Leaders must train their Soldiers on how to effectively use the publications as they meet the challenges of maintaining and repairing assigned equipment. It is imperative that the unit has a procedure to order and maintain publications.[18] Outline the procedures for utilizing publications in the unit maintenance SOP.

Class IX management. Unit leaders should take an active role in the unit's Class IX repair parts management. Repair items at the depot level and shop/bench stock (definitions listed below) are the categories of Class IX repair items. To ensure you have the requisite repair parts on hand or on order you should know the repair parts requisition process found in AR 710 series, such as AR 710-2, *Supply Policy Below the National Level*, 28 March 2008, including associated supply policy publications in the series (DA Pam 710-2-1, and DA Pam 710-2-2, and associated automated systems TMs). Leaders should document procedures in the unit SOP to ensure standardization and provide reference for unit Soldiers with the following considerations:

- **Depot level repairable.** This includes an item purchased with the intent to overhaul and repair it over time. Depot level maintenance teams will rebuild overall items that are complex and expensive rather than throw them away. "But eventually the item becomes too worn to repair and must be replaced."[19] (Gene Duncan, Army Contracting Command Deputy Director).
- **Shop and bench stock.** These are two types of maintenance-related supplies authorized to be on hand in support-level maintenance activities, including:
  - **Shop stock (demand supported stocks).** See AR 710-2, paragraph 2-23, for more information.
  - **Bench stock (unpredictable and low-cost items such as bolts, O-rings, and seals).** All maintenance activities are authorized bench stocks. AR 710-2, paragraph 2-24 outlines the criteria for bench stock.

It is vitally important to closely manage these assets, so resources are available when needed. Different management policies apply for shop stock and bench stock, respectively. Shop stocks and bench stocks provide repair parts and supplies that fully support troop standards and customer total logistics response time-maintenance standards. AR 710-2 covers policies for managing shop and bench stocks.

Global Combat Support System-Army. GCSS-Army brings together supply, maintenance, and property accountability functions and their associated financial data.[20] It is the system of record for things to know, such as:

- Training- Global Combat Support System-Army Training and Certification system (GTRAC) is the source for the most current GCSS-Army online training.
- https://gcss.army.mil/training/
- The GCSS-Army GTRAC Smart Book provides the process of taking GCSS-Army training through the GCSS-Army Training and Certification Program.
- https://gcss.army.mil/training
- The GCSS-Army *End User Manual* provides detailed information on operating in GCSS-Army.[21]

In common language, the equipment status report (ESR) often refers to the Z_EQUST in GCSS-Army and contains the technical status of all equipment in the unit. It is the common operating picture of the maintenance status of all equipment. It provides leaders a shared understanding of the force maintenance posture.[22]A unit's data input must be accurate and reflect current equipment status because senior leaders use the ESR to make decisions, allocate resources, and develop priorities.[23] Use the ESR Z_EQUST report to verify all the actions completed by the mechanics on a piece of equipment. The ESR is the GCSS-Army Z_EQUST report. The ESR shows the maintenance status of all equipment in GCSS-Army.

Become knowledgeable on the common GCSS-Army Report Codes and know where to find information on the codes. Common GCSS-Army Report Codes, Headquarters, Department of the Army G-4 "Cheat Sheet" Codes can be found at https://alu.army.mil/alog/2017/NOVDEC17/PDF/NOVDEC2017_insert.pdf Common access card required.

As a unit hones and refines maintenance programs, commanders may want to submit their unit for the Chief of Staff of the Army maintenance award program (The Army Award for Maintenance Excellence [AAME]). The AAME program annually recognizes Army units and/or activities that have demonstrated excellence in maintenance operations. Evaluators assess units on Soldier maintenance competency, overall program effectiveness, unit attitude, and effective leadership. The AAME goals are to facilitate improvement and sustain field maintenance readiness, assess the maintenance component of unit readiness, improve efficiency, reduce waste, and recognize exceptional maintenance accomplishments and initiatives.[24] Information on the AAME is located at https://goordnance.army.mil/aame/aame_process.html.

Endnotes

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2 Army Regulation (AR) 750-1, *Army Materiel Maintenance Policy*, 2 February 2023. https://armypubs. army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN13933_AR750-1_FINAL.pdf

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CHAPTER 5

Equipment Services

Up Front

Important references for the development of an effective service program are:

- HQDA EXORD 335-23, Army Equipment Services Optimization, 1 November 2023, and associated maintenance action messages
- Army Regulation (AR) 750 -1. *Army Materiel Maintenance Policies and Procedures,* 2 February 2023
- Department of the Army Pamphlet (DA PAM) 750-8. *The Army Maintenance Management System*, 22 August 2005
- Local Maintenance Policies and Procedures
- Technical manuals (TM) and lubrication orders applicable to the equipment series

The Army relies on four core maintenance processes to manage equipment during its service life to achieve and maintain a high state of readiness. They are:

- Performance observation
- Equipment services
- Fault repair
- Single-standard repair

Services, also referred to as scheduled maintenance, are the foundation of every maintenance program and deserve continuous emphasis by leaders at all levels. "Equipment services are specified maintenance actions performed when required where equipment, components, and systems are routinely checked, adjusted, changed, analyzed, and lubed in accordance with designer and engineer specifications."[1]

Commanders ensure Soldiers maintain their assigned equipment to the Army's maintenance standards by fostering a positive command climate and enforcing maintenance standards.[2] Leaders that maintain this standard can better plan, schedule, and execute a unit's service program. The key to the entire process is the commander providing time and assigning responsibility to subordinates. Commanders must train Soldiers to ensure proficiency and the ability to achieve and maintain the stated standards. Leaders should strive to develop a sense of pride of ownership for organic equipment.

There are several different services for each type of equipment. Each service has specific requirements and tasks for Soldiers to perform. Leaders must ensure that the appropriate technical manual (TM) series is on hand and used to determine which type of scheduled services applies to a piece of equipment.

Scheduled services are most effective when annotated on the unit's training schedule in accordance with Army Regulation (AR) 750-1, *Army Materiel Maintenance Policy,* 2 February 2023 and

Department of the Army Pamphlet (DA PAM) 750-1, *Army Materiel Maintenance Procedures*, 2 February 2023.

The unit maintenance standard operating procedures (SOP) should address the equipment service program. As mentioned above, participation in the service by operator/crew is essential to a quality service. The equipment TM prescribes the interval for required services. See DA Pam 750-8 for authorized services variant. Services completed outside the variance will have the next service scheduled using the date of the service completed. In accordance with AR 750-1, units will report equipment with scheduled services not completed by the end of the variance window as administratively deadline or not-mission capable and will not be available for use or dispatch.

Equipment operators will perform preventive maintenance checks and services and thoroughly clean their equipment before the start of the services. Leaders involved in equipment services ensure Soldiers and maintenance crews perform and reinforce the importance of services to standard. Fully mission capable status equals combat power. There are many different categories of services. Listed below are a few of the more common field level types of services performed by unit maintenance and operators/crews:

- Quarterly service (Q)
- Semi-annual service (S)
- Annual service (A)
- Biennial service (B)
- Special Services (gauging, load testing, inspections, purging, Army Oil Analysis Program, etc.)

An effective service program contributes to getting the maximum use of a piece of equipment throughout its life cycle. As service programs develop, consider scheduling (along with the primary equipment fleet) the associated components and equipment that make up the system or is associated with its use. Include items like radios; basic issue items; chemical, biological, radiologic, nuclear (CBRN) equipment; and test, measurement, diagnostic equipment.

Whatever the echelon, executing services on all unit equipment at one time will allow unit leaders to focus on the service process. Some units include the individual Soldier in the service program using the service period to conduct Soldier readiness processing, Army Financial Readiness Program counseling, and performance reviews. Regardless of the echelon or scope of services, leaders and Soldiers should consider it as a training event. Plan services to the same level of detail as any other combat mission.

Summary

Maintenance services are critical to combat readiness. Commanders must allocate time and resources to execute services to standard. The echelon performing services and providing additional equipment (or personnel) is up to the commander.

Endnotes

1 Army Regulation (AR) 750-1, *Army Materiel Maintenance Policy*, 2 February 2023.

2 Ibid.

CHAPTER 6
Field Maintenance

To fight and win in large-scale combat operations, units must be able to conduct maintenance often in or soon after contact. The Army has adopted a two-tiered maintenance structure of field maintenance and sustainment maintenance.

The first echelon is field maintenance, provided by operators/crews and mechanics of the brigade combat team or sustainment brigade. Operators troubleshoot the entire system using the operator's Technical Manual (TM) 10 series and simplified or embedded diagnostic equipment to identify, isolate, and trace problems. Their primary focus is on a system's performance and proper operation. Troubleshooting typically identifies a faulty line replaceable unit.

Every piece of equipment is assigned an equipment readiness code. The code can be found at FMS web and on the modified tables of organization and equipment (MTOEs). It explains an item's importance to a unit's combat, combat support, or service-support mission. The codes are assigned to items on MTOEs. Since equipment can serve different purposes, the same item may have a different code in different units. Army Regulation (AR) 220-1, Army Unit Status Reporting and Force Registration-Consolidated Policies, 16 August 2022, governs equipment readiness codes (ERCs). ERCs go on the DA Form 2407, Maintenance Request, and DA Form 2406, Materiel Condition Status Report. ERC A and P apply to primary weapons and equipment. Those are items essential to and used directly in the assigned mission. It is a one-digit code.

The forward support company (FSC) provides this support for most maneuver units.[1] These are the mechanics primarily from the brigade support battalion's (BSB's) FSC. Maintainers perform field maintenance on all types of unserviceable items of equipment and weapon systems. Field maintenance is more than removing and replacing parts. The equipment should remain onsite if the operator/crew or FSC Ordnance School-trained maintainers possess the requisite skills, special tools, proper repair parts, references, and adequate time to repair the equipment, such as:[2]

- The expertise to fix major weapon systems (Abrams, Bradley, Paladin, Stryker) resides only with the FSC in armored and Stryker brigade combat teams. There are no maintenance units equipped or staffed to perform field-level maintenance repairs to these weapon systems outside the FSC. The exceptions are the maintenance surge team in the division sustainment brigade and the BSB in a Stryker brigade combat team which includes mechanics to maintain the medical company's Stryker medical evacuation vehicles.

- Other than the FSC, the brigade combat team has mechanics in its BSB. These are low-density specialty maintainers who provide maintenance for specialty equipment in the brigade combat team. BSB mechanics maintain equipment that the forward support companies cannot. These mechanics can service missile systems, fire control systems, fire direction systems and signal/ communication systems.

- Field maintenance includes adjustment, alignment, services, applying approved field modification work orders, fault/failure diagnoses, battle damage assessment and recovery, and common software updates. Typically, field-level maintenance mechanics return equipment to the user after they complete repairs. This includes maintenance actions performed by crewmembers, operators, and ordnance school trained maintainers.

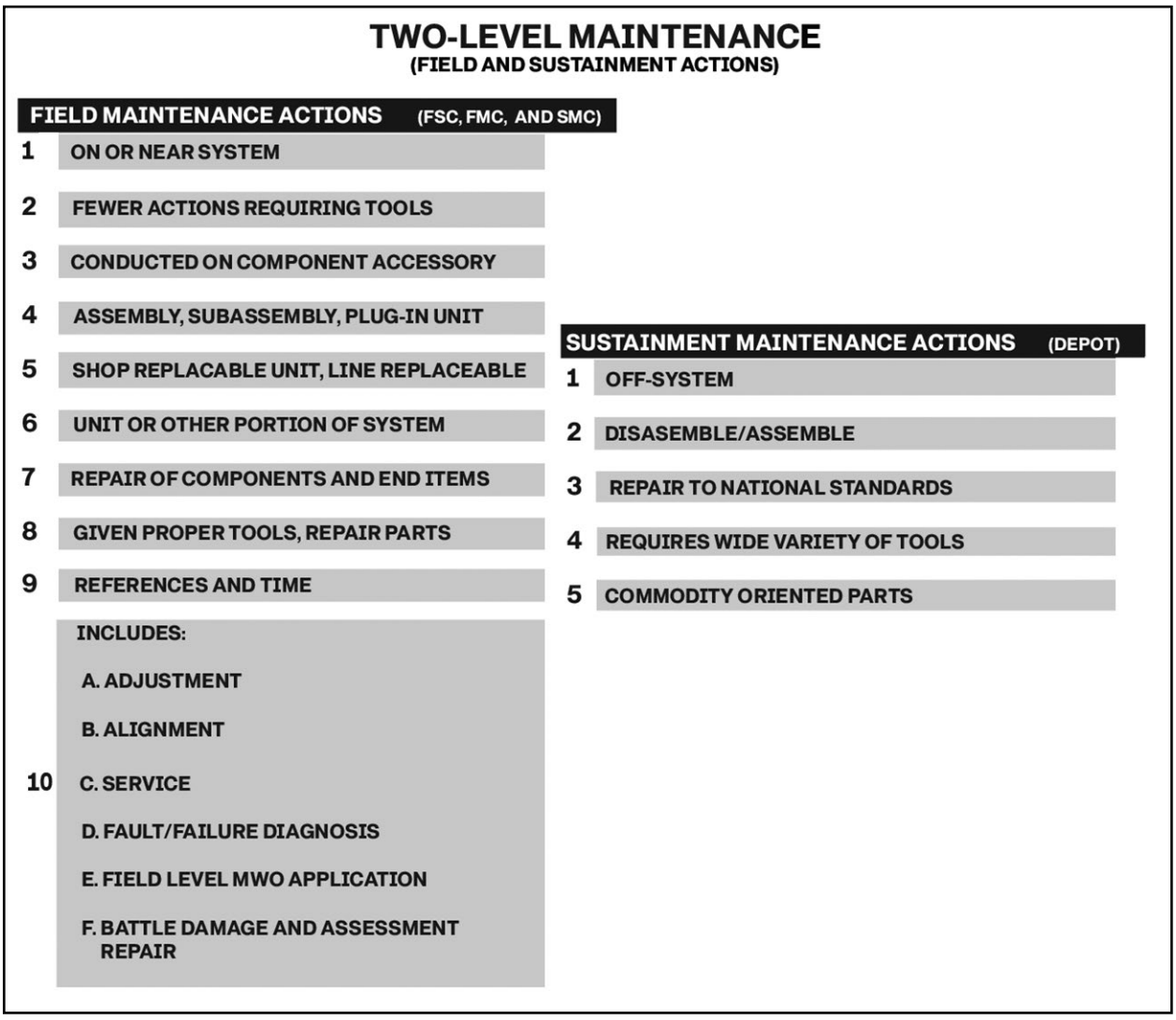

Figure 6-1. The Hip-pocket Guide to two-level Maintenance Outlines Differences Between the Two Levels and the Field Level Workflow

Figure 6-2 outlines the field maintenance workflow. Operators/crews are normally the first to observe or identify the development of a fault. In many instances, they can repair the fault or minimize its impact using onboard spare parts allowing mission completion. Condition-based maintenance indicators or instrumentation can also initiate operator/crew maintenance tasks.

These tasks typically consist of inspecting, servicing, lubricating, adjusting, and replacing minor components/assemblies as authorized by the equipment's maintenance allocation charts.

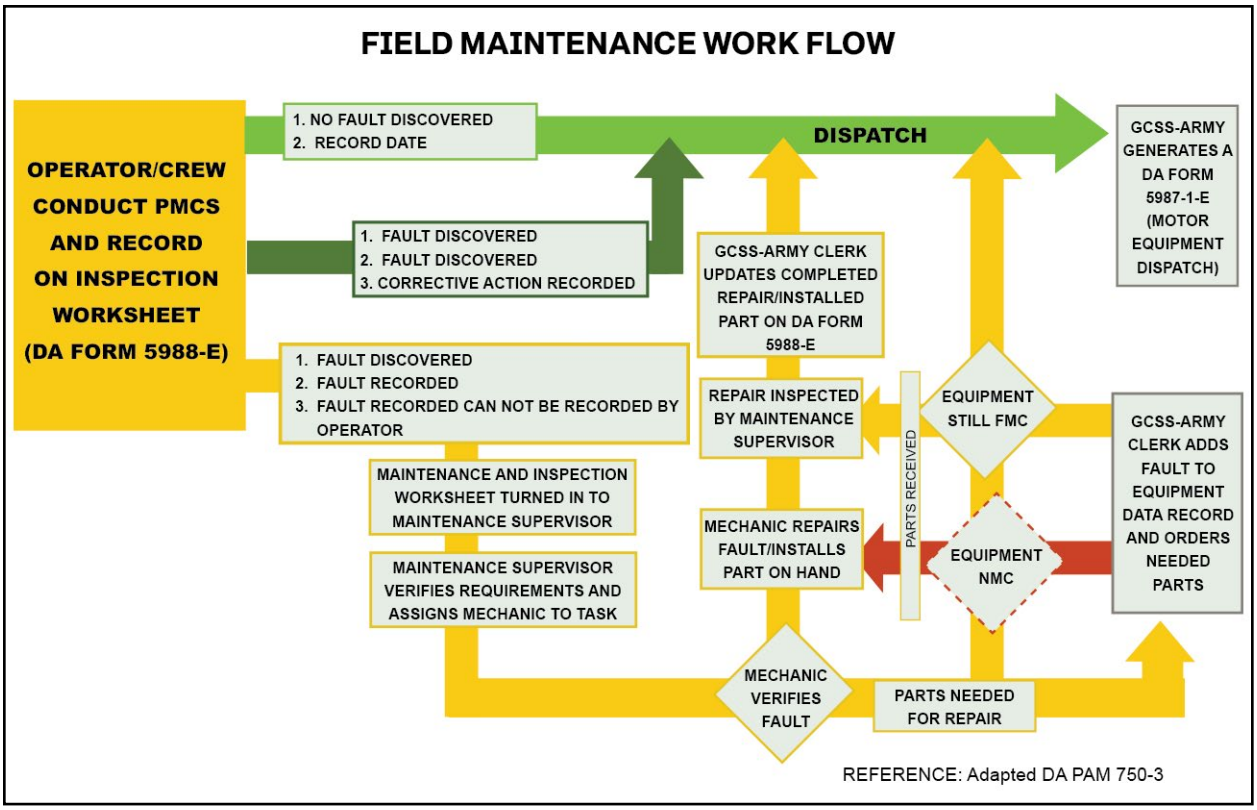

Figure 6-2. The Hip-pocket Guide to two-level Maintenance Outlines Differences Between the Two Levels and the Field Level Workflow (continued)

It is important for units to establish and maintain a high standard for driver/operator training. Driver training programs emphasize the critical role that operators play in preventive maintenance checks and services (PMCS) of their vehicles. Some Soldiers in the brigade combat team may receive formal training from their proponent on a specific system through advanced individual training (AIT) or new equipment training. Newly assigned Soldiers from AIT will more than likely need additional military occupational specialty related or specialized training from their unit to bring them to the proficiency level require to support the unit's mission. Some units test newly assigned solders to determine what training they might require becoming fully integrated into the unit. AR 600-55, *The Army Driver and Operator Standardization Program*, 17 September 2019, and Training Circular (TC) 21-305-2, *Training Program for Night Vision Device Driving Operations*, 17 January 2014, provide relevant information on drivers training programs.

Maintenance Allocation Chart

Maintenance 20 series manuals identify operator/crew and mechanic tasks.

Leaders should become familiar with the maintenance allocation chart for every piece of assigned equipment. Information in a maintenance allocation chart (MAC) identifies:

- The basic issue item, tools, and onboard spares required to complete a given service are determined.
- Personnel authorized to perform certain repairs are determined.

Maintainers perform tasks in accordance with the maintenance allocation charts. Field maintenance organizations have the authorization to perform all maintenance tasks coded "C;" "O;" and "F" as outlined in the equipment TM's maintenance activity chart when skilled maintainers; required sets, kits, and outfits (SKOs); tools; test, measurement, and diagnostic equipment (TMDE); and other necessary resources are available to perform the maintenance task. Sustainment maintenance organizations have the authorization to perform maintenance tasks coded "C," "O," "F," and "H" as outlined in the equipment TM maintenance allocation charts when skilled maintainers, required SKOs tools, TMDE, and other necessary resources are available to perform the maintenance task. Only depot maintenance organizations and Army Materiel Command (AMC) designated sustainment maintenance activities have the authorization to perform the full range of maintenance tasks (coded "C," "O," "F," "H," "L," and "D" as outlined in the equipment TM maintenance allocation charts). Those that possess skilled labor, industrial facilities, equipment, SKOs, tools, TMDE, and other necessary resources have authorization to perform the maintenance task.[3]

Every piece of equipment will have a MAC in the 20 series TMs. Figure 6-3 is a sample of a MAC from Army Techniques Publication (ATP) 4-33, *Maintenance Operations*, 9 July 2019, page 1-9.

FIELD MAINTENANCE
TSEC/ST-34
MAINTENANCE ALLOCATION CHART (MAC)
Table 1. MAC for TSEC/ST-34

(1)	(2)	(3)	(4) Maintenance Level				(5)	(6)
			Field		Sustainment			
Group Number	Component Assembly	Maintenance Function	Crew C	Maintainer F	Below Depot H	Depot D	Tools and Equipment Reference Code	Remarks Code
00	TSEC/ST-34	Inspect	0.1					A
		Service	0.2					B
		Replace	0.4				1	C, D
		Test	0.3					E
		Repair		.0			1,2	F
		Repair			2.0		1,2,3,4,5	G, H
		Repair				2.0	1,2,3,4,5,6,7,8	I
		Overhaul				10.0	1,2,3,4,5,6,7,8	J
01	Power Unit, STP-34	Inspect	0.1					A
		Test	0.3					E

SAMPLE

Figure 6-3. Field Maintenance, Maintenance Allocation Chart

Lubrication Order

Another valuable resource is the equipment lubrication order (LO). The LO provides the details on how and when to properly lubricate points on your specific piece of equipment. The equipment's TM-10 series operator's manuals contain LOs. Lubrication orders can be found at Army Doctrine Publications under Technical & Equipment category. Common access card required.

Other Maintenance Assets

A couple of exceptional assets that leaders can consult for maintenance advice include the unit (or supporting maintenance unit's) maintenance technician or senior maintenance non-commissioned officer, as well as the unit's master gunner. The master gunner can play an important maintenance training role in the battalion and brigade combat team by insisting on a high standard of quality for operator/crew PMCS. This is a basic requirement for a sound weapons qualification program.

The Abrams, Bradley, and Stryker system maintainers of the Maintenance Surge Team assigned to the Division Sustainment Brigade can also be employed. They enable the sustainment brigade commander to weight the effort and provide surge capability to armored and Stryker brigade combat teams.

For more information on field maintenance see AR 750-1, *Army Maintenance Policy*, 2 February 2023; ATP 4-33, paragraph 1-39 to 1-45. For specific unit maintenance tips see PS Magazine. It is an excellent resource and is the U.S. Army's Preventative Maintenance Magazine. It is full of information for leaders and Soldiers performing field level maintenance on equipment. The magazine is located at https://www.psmagazine.army.mil/.

Endnotes

1 Army Techniques Publication (ATP) 4-33, *Maintenance Operations*, 9 November 2019.

2 Ibid, pages 1-39 to 1-45.

3 Ibid, Annex C.

CHAPTER 7
Combat Training Center Observations

Lessons Learned and Best Practices from Combat Training Centers

This chapter covers maintenance in a field environment. This should not be confused with field-level maintenance, which is the first echelon of the Army maintenance system. The following paragraphs articulate the experiences of sustainment observer coaches/trainers (OC/Ts) from combat training centers operational groups. They examine the "how" of successful units conducting maintenance at pace. It offers observations, best practices, and the pitfalls and successes seen during in-contact sustainment at the combat training centers.

The focus is on helping leaders and Soldiers understand specific tactics, techniques, and procedures (TTPs) that allow the Army to maintain combat power while simultaneously conducting large scale combat operations against a near-peer threat. The entire brigade combat team sustainment enterprise to examine includes cavalry squadron maintenance, combined arms battalion maintenance, sustainment of Army aviation, field artillery battalion and below maintenance, maintenance in the brigade engineer battalion, and brigade combat team maintenance at pace.

Cavalry Squadron Maintenance

Observation. One of the biggest challenges facing a cavalry squadron at the National Training Center is the demand of maintaining their equipment in a tactical environment. Units often provide maintenance support from their motor pool while training at home station. This causes the unit to develop a brick-and-mortar infrastructure mentality as it offers easy access to tools of maintenance support and their brigade supply support activity (SSA) and other SSAs on the same installation. Maintenance teams do not get the repetitions performing their jobs in a field environment. When working out of a garrison environment; units do not stress their equipment; develop analog systems of record; test the strength of their shop stock listing (SSL); practice their Department of the Army (DA) Form 5988-E, *Equipment Maintenance Inspection Worksheet*, 1 March 1991; process flow; or fine tune hasty maintenance meetings at logistical release points (LRPs).

Challenges with the Very Small Aperture Terminal at National Training Center

Observation. Soldiers often lack expertise on the Very Small Aperture Terminal (VSAT). Clerks struggle setting up and tearing down the VSAT at the National Training Center. Degraded VSAT connectivity significantly affects the ability of maintenance teams to process dead lined equipment and requisition parts. Unit standard operating procedures (SOPs) often do not outline a primary, alternate, contingency, and emergency (PACE) plan for executing maintenance when the VSAT is not operational. Units can be vulnerable to VSAT outages and slow to execute maintenance until a leader takes the initiative to solve the issue.

The Global Combat Support System-Army (GCSS-Army) is the system of record for executing maintenance in the Army. Maintenance control sections rarely have efficient analog trackers updated within their shop, informing all leaders within the section, and creating shared understanding of operations.

Best Practices. Automated logistics clerks need to understand the VSAT's capabilities and develop trouble shooting skills to expedite VSAT connectivity when the shop office displaces or VSAT maintenance issues arise. An SOP that captures TTPs within maintenance control impacts success.

A TTP for ensuring VSAT connectivity is vital for maintenance control. Training clerks on the VSAT is as simple as tearing it down and setting it up monthly at home station in the motor pool. Sections expand the training by tearing down the VSAT and moving to a local training area and setting up the VSAT and shop office. Another TTP is networking with other maintenance control shops in the brigade. During VSAT outages, clerks can update the equipment status report (ESR) at another GCSS-Army workstation within the brigade streamlining coordination with adjacent maintenance control sections in the event of a VSAT outage.

Building a good relationship with the Sustainment Automation Support Management Office (SASMO) is critical in developing contingencies for VSAT outages. A TTP that units can establish, is coordinating with SASMO to tear down and set up their brigade substitute VSAT. This builds cohesion between the maintenance and SASMO clerks and gives the maintenance clerks hands-on training on the substitute VSAT in case the primary develops a dead-lining fault.

Maintenance control needs redundant analog maintenance trackers within their sections. They must update analog trackers as the ESR changes to maintain a common operational picture within the shop. Additional trackers capturing on-hand packaged petroleum, oil, and lubricants; recovery operations; high-demand parts out of SSL; and status of critical job-orders are essential for maximizing the shared understanding and efficiency amongst all leaders in the squadron/battalion and maintenance section. For increased accuracy and efficiency, print the inventory list and bin locations for shop and bench stock to serve as an analog tracker in cases of system outages.

Units must maintain analog redundancy using the Department of the Army (DA) forms outlined in appendix A, section I of Army Regulation (AR) 750-1, *Army Materiel Maintenance Policy*, 2 February 2023. to ensure they can continue to execute maintenance in cases of extreme VSAT outages. DA forms required to execute analog maintenance are:

- DA Form 2407, *Maintenance Request*, 1 July 1994, for each work order
- DA Form 2405, *Maintenance Request Register*, 1 August 2004, as a registrar for all work orders
- Department of Defense (DD) Form 1970, *Motor Equipment Utilization Record,* 1 November 1999, for dispatches
- DA Form 2401 *Organization Control Record for Equipment,* 8 September 2004, for accountability
- DA Form 2404 *Equipment Inspection and Maintenance Worksheet,* 1 February 2011, for equipment inspections
- DA Form 2765 (1 April 1976), *Request for Issue or Turn-in*, to walk-up parts at the SSA, DA Form 2064, *Document Register for Supply Actions*, 1 January 1982, as a document registrar to track parts
- DD Form 314, *Preventive Maintenance Schedule, and Record,* 1 January 1953, to monitor time that is non-mission capable (NMC)

These forms allow the maintenance control section to continue executing maintenance in place of GCSS-Army connectivity. Soldiers should continue to input manual forms and processes into GCSS-Army to ensure continuity and accuracy of data.[1]

Shop Stock Lists: Allowing Quick Forward Repair

Observation. GCSS-Army automatically tracks the demand history of parts issued against job orders. Internal SSL reviews chaired by the senior maintenance warrant officer can capture unique needs that automatic demand history audits will not achieve. For example, at the National Training Center, Stryker formations consume tires at a higher rate because of the harsh terrain, but without an SSL review, units will not increase their stockage levels for tires. Without increased SSL, maintenance control must order the part, which requires GCSS-Army inputs. They must pick up the tires from the SSA, which in turn slows tempo and delays repair.

Units often maintain the SSL at the maintenance collection point rather than distributing across the maintenance footprint, including field maintenance teams (FMTs) and contact teams. SSL that is out of reach of mechanics or does not meet the demands of unscheduled maintenance, reduces operational readiness rates, and puts a strain on the pass-back maintenance process, limiting the ability to maintain at pace.

Best practice. Key maintenance leaders and senior mechanics should review historical data from the ESR and identify routine faults. This review will determine demand history and provide changes to the SSL. A good TTP for fleet management is reviewing the fleet by bumper number and fault, following field problems, and keeping a historical record over time. Reviewing the historical ledger within GCSS-Army allows maintenance leaders to have data that they can review, this gives them insight into their fleet. They also need to examine demands that an upcoming mission might have on their fleet so they can forecast the potential parts their fleet may require based on the task and terrain. The maintenance control team conducts a fleet analysis to identify the parts required by troops and provides the parts to them. This analysis allows FMTs and contact teams to push forward in a tactical environment with their supported troops and have parts on hand that can rapidly fix equipment forward. The objective SSL is a predetermined list based upon demand history of like organizations which has modified the way SSLs are authorized.

Challenges with 5988-E Flow, Maintenance at Logistical Release Points, and Field Maintenance at the National Training Center

Observation. Cavalry squadron SOPs articulate a DA Form 5988-E, flow interval which is neither mutually understood nor practiced. Many units have inadequate systems to support their self-imposed 24–48-hour flow requirement. Soldiers do not fill out their 5988-Es properly. Key maintenance managers rarely attend LRPs. Thus, maintenance leaders miss an opportunity to discuss and resolve maintenance issues at an LRP meeting. At the forward line of own troops, troops often fail to conduct maintenance efficiently. Most units fail to have an SOP that explains a standardized way of when and how to perform field maintenance. Units fail to understand where field maintenance falls on the priorities of work and how to maintain security when conducting maintenance.

Best practices. The SOP should express how to conduct field maintenance while maintaining security, refine where maintenance sits in the troop priorities of work, and list roles and responsibilities of FMT and contact team personnel as well as key leaders of the troop in how to manage maintenance. A good TTP is establishing a 5988-E flow that directly involves essential leaders (see Figure 7-1). Normally, the key leaders who need to play an active role in the 5988-E flow are first line supervisors, platoon leadership, troop executive officers, troop first sergeants, distribution platoon leadership, and the squadron maintenance officer.

Field maintenance teams must be in this loop to execute repairs or annotate required parts before exchange. Preferably, the 92A military occupational specialty personnel authorized within the

armored brigade combat team FMT, has GCSS-Army access to update faults and order repair parts in the unit maintenance collection point (UMCP).

To build continuity within the repair parts flow structure the unit should published 5988-E procedures in the unit SOP. Units should look to practice published procedures at every home station opportunity. Another TTP, that helps to ensure 5988-Es remain protected and sorted by unit, is providing two polyvinyl chloride (PVC) pipes per troop. A new set of 5988-Es goes in one PVC pipe, and the completed set in another. Key points of contact personnel exchange the PVC pipes at the LRP. This TTP speeds up the LRP and protects the 5988-Es in the process.

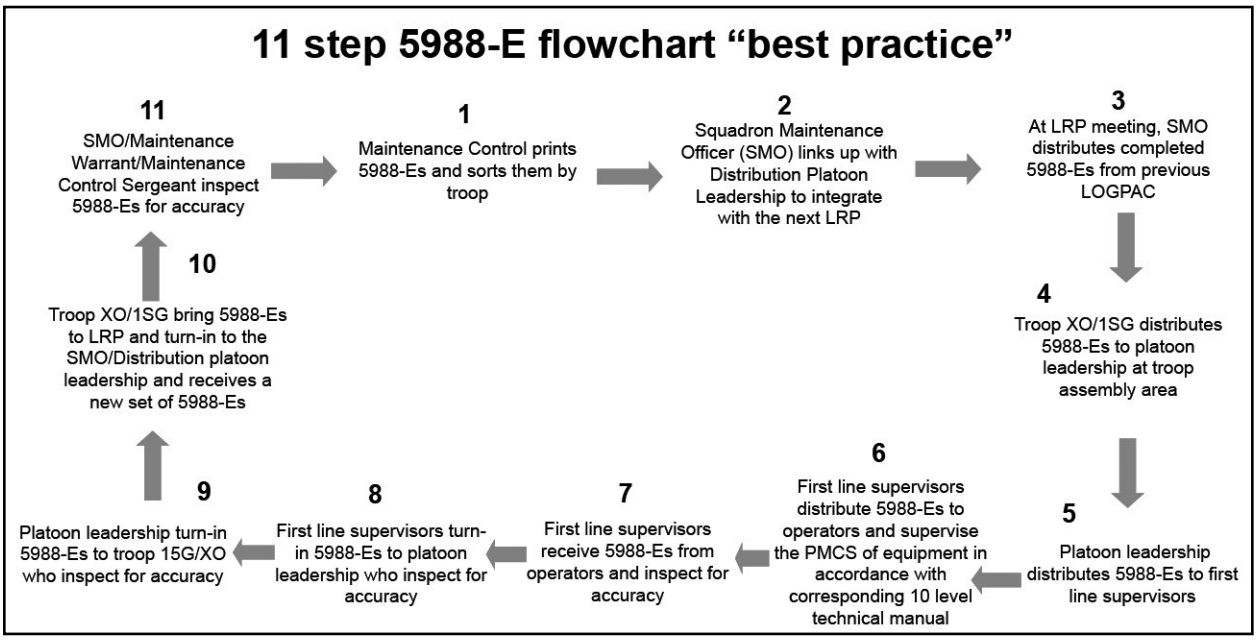

Figure 7-1. 5988-E Flowchart Best Practice Product of National Training Center Operational Group

Combined Arms Battalion Maintenance

Observations at echelon. Operations in a decisive action environment stress all levels of the maintenance system. The following discussion is based on observations over multiple combat training center rotations, acknowledging variation between the units' training level and competencies. Decisive action also demands a maintenance plan that is clear, disciplined, realistic, understood, and practiced at all levels to maintain the high pace of operations required. This discussion will flow from the battalion to the platoon level.

Battalion Level Observations

Soldiers often find it difficult to manage information. Lack of prioritization or the failure to incorporate accurate information can significantly affect the accuracy of the common operating picture. This can result in the loss of large amounts of other information (intelligence, operations, plans, sustainment reports). Often when key players (e.g., battalion executive officers) are away from command-and-control nodes, their lack of involvement can cause the overall system to become rudderless and fail to deliver optimal results.

Units often plan to conduct maintenance at the National Training Center along the following lines:

- Crews conduct preventive maintenance checks and services (PMCS) at least once daily and record faults on a DA Form 5988-E.
- They then turned in daily 5988-Es during logistics package (LOGPAC) operations and hand carry them back to the UMCP for processing.
- Soldiers input the information into the GCSS-Army where Soldiers order parts.
- The forward support company (FSC) or field trains command post (FTCP) personnel at the SSA (in the brigade support area) pick up parts when available.
- Battalion executive officers and battalion maintenance technicians (BMTs) report daily to the brigade support area or brigade main command post for an in-person brigade maintenance meeting. This system is fully compliant with Army Techniques Publication (ATP) 4-33, *Maintenance Operations,* 19 November 2019.

Observations over past rotations indicate this system commonly falls along three lines:

- **The printing, distribution, and collection of paper 5988-Es by units is too slow to keep pace with rapid operations.** Unit have limited printing capability at UMCPs and the battalion maintenance collection point. The significant quantity of paper flowing back and forth is often difficult for company leaders to effectively manage. Delays or failures to submit 5988-Es to the UMCP can cause subsequent delays in parts ordering. Compounding this problem, the 5988-Es submitted are often poor quality.
- **Many units require the battalion executive officers to attend the brigade maintenance meeting in person.** This removes a critical leader from the command post and operations process for four to eight hours per day. Battalions sometimes choose not to send the battalion executive officer, which can improve battalion staff performance; but can create an information vacuum that can potentially hamper the brigade's ability to support the battalion's maintenance. Brigade and battalion leadership should perform a risk assessment on the requirement for the executive officer's attendance at the brigade maintenance meeting. A qualified staff officer or senior non-commissioned knowledgeable on the battalion's maintenance posture may be required to attend the brigade maintenance meeting instead of the battalion executive officer. Key here is the battalion leadership assessment. Under the current situation which has more payoff, the executive officer attending the maintenance meeting or remaining at the command post directing the staff and sending a representative to the maintenance meeting.
- **The maintenance communication PACE plan is often insufficient for maintenance operations to keep up with the pace of decisive action.** Plans usually use some combination of frequency modulation (FM) radio, Joint Capabilities Release (JCR)/Joint Battle Command-Platform (JBC-P) message traffic, tactical satellite, or high frequency radio communications. Without specific frequencies, chats, or role names, maintenance information is not prioritized or lost amid the din of intelligence and operational information.

Observations at the Company Level

There are multiple challenges with maintenance at the company level. Compiling data and PMCS information are challenging if the chain of command does not emphasize and enforce requirements to conduct PMCS. A lack of maintainers attached to the company results in inaccurate reporting or ineffective quality control when reporting equipment faults. Offensive operations, or geographically

extended units, can further exacerbate issues. Without a clear plan for PACE plan communication, the transfer of maintenance requirements from the companies to the maintenance platoon and battalion command posts is difficult.

At the company level, the maintenance system commonly involves the executive officer as that person, "Plans and supervises the company's maintenance effort before battle with the first sergeant and works with the first sergeant, platoon leaders, platoon sergeants and maintenance team noncommissioned officer in charge to maintain a current operating picture on maintenance."[2] In the prevailing TTP seen used at the National Training Center , the company executive officer receives a ream of 5988-Es from the LOGPAC and then distributes them to platoons. The executive officer then gives the completed 5988-Es back to the distribution element, hoping that his companies' 5988-Es do not get lost or forgotten about during transit.

A critical company 5988-E chokepoint is the quality check. Company executive officers can supervise 5988-E flow, but they often lack the necessary subject matter expertise to conduct the quality check without a forward mechanic to advise them. OC/Ts observe that units rotating through the National Training Center, which do not detach FMTs to their companies, have drastically degraded maintenance outcomes. This is less common in armored brigade combat teams, which are resourced by their modified tables of organization and equipment (MTOEs) to include FMTs for each company. Infantry brigade and Stryker brigade combat teams do not have MTOE FMTs and doctrinally rely on smaller contact teams. The decision not to have FMT/maintainers forward can be because of a lack of manning in the FSC's maintenance platoon, because of an equipment shortage, or because the battalion wants to maximize maintenance capabilities and throughput at the UMCP. Without even one maintainer to assist the PMCS process, assist in basic diagnosis and repair, conduct troubleshooting, and conduct quality control of maintenance needs, company executive officers often provide incomplete and/or inaccurate data to the battalion and unit maintenance personnel. Bad information leads to incorrect parts ordered/on hand, which causes inefficiency and unnecessary delays in fixing equipment.

Observations at the Platoon Level

At the platoon level, Soldiers often poorly execute operator-level PMCS because of factors such as the pace of operations, Soldier fatigue, or a lack of leader enforcement. Operators and small-unit leaders often do not understand how the PMCS process provides the parts they need. Unit personnel often demonstrate they are poorly trained and/or equipped to conduct basic recovery, troubleshooting, and repair operations.

Platoons and subordinate crews lack the experience or desire to conduct basic operator-level maintenance, placing undue burdens on the FSC's maintenance platoon. Crews and operators fail to conduct basic troubleshooting and diagnosis of faults or operator-level repairs. OC/T observations indicate that platoon leadership and crews see daily 5988-E processing as a burdensome administrative requirement and fail to prioritize it. The requirement for a crew to fill out daily 5988-Es, while conducting operations, becomes a cursory paper drill as competing requirements take precedence. Delay or friction in receiving parts, reinforces junior leader and operator perceptions that 5988-Es are a waste of time. In this environment, leaders who attempt to enforce daily 5988-E execution often gain higher frequency at the cost of reduced actual quality.

Platoons and subordinate crews often come to a combat training center without the equipment or training they need to conduct self-recovery. Relying on critical recovery assets, when unneeded, increases the workload on maintainers and reduces their availability to respond elsewhere.

Best Practices at Echelon

Not every recovery requires a wrecker or purpose-built recovery vehicle. Effective battalions that keep operational readiness (OR) rates up throughout high tempo decisive action operations, address the issues stated above at all levels. They establish a maintenance system that makes sense and ensures the quick and effective distribution of information, parts, and capabilities. Most importantly, the units establish this system early and train to maintain at all levels.

Battalion best practices. A best practice is to reduce the requirement for hard-copy 5988-Es to a manageable frequency. By submitting 5988-Es less often, units can prevent the overloading of maintenance clerks and printing assets and significantly reduce the requirement for Soldiers to fill out paperwork to order parts. At the National Training Center, a period of 48-72 hours between 5988-E turn-ins required seems to strike the right balance. This effectively utilizes the limited time available and balances competing requirements. OC/T observations indicate that turn-in rates for 5988-Es on a 48–72-hour cycle approach 100 percent compliance. Whereas turn-in rates for 5988-Es on a daily schedule often are as low as 25-50 percent. Even when turn-in rates are higher, OC/T observations indicate that the vast majority of daily 5988-Es are incorrect or have incomplete information. A 5988-E turn-in cycle of 48-72 hours may seem like a decline in standards and a way to excuse operators from conducting PMCS. No regulatory or policy guidance exists that require 24-hour 5988-E cycles. In practice, OC/Ts often see an increase in actual PMCS, even without a fresh 5988-E to log it on. A best practice for daily PMCS with a semi-daily 5988-E cycle is maintaining maintenance notes on a running and laminated 5988- E or Form 2404. OC/Ts observe that battalion maintenance actions often speed up to keep pace with decisive action operations when units execute less frequent but more accurate 5988-Es in combination with the best practice of having the FMTs/maintainers at the company level help with quality control.

None of this precludes the ability of any subordinate to immediately report a deadline fault to higher headquarters to expedite the troubleshooting and parts ordering process. One TTP practiced often by successful units is to reduce the frequency of 5988-E while maintaining a method for immediately reporting deadlines via JBC-P to expedite deadline maintenance. This TTP does reduce the daily burden on operators and clerks by placing an emphasis on quality over quantity.

The battalion executive officer's input to the brigade maintenance meeting is vital to keep the brigade's sustainers informed on battalion operations, intent, and friction. When the brigade requires the battalion executive officer's physical presence, battalions can sometimes mitigate the friction of removing the battalion executive officer's absence by deliberately planning for the battalion executive officer's absence (synchronizing battalion planning around the brigade battle rhythm, coordinating for the S-3 to stand in for the executive officer, etc.). When the brigade can accept the risk of not having the battalion executive officer present or the battalion needs to have its executive officer on hand, the battalion executive officer should participate via Ventrilo Secure Voice over Internet Protocol (SVoIP), or another distributed command and control system. Units find it more effective to establish coordination before operations beginning and more difficult once execution begins.

The overall message of these best practices is that the maintenance system must be clear, disciplined, realistic, understood, and practiced. It is too late to implement a system when a unit arrives at the combat training center or deploys to an operation. The prevailing maintenance system executed by brigade combat teams at combat training centers is often a departure from home station training exercises and normal training/garrison operations. Units often struggling to execute a system with which they are not familiar. Units must train and perfect at home station the brigade combat team's maintenance system/methods/procedures chosen for use during deployment to the combat

training center or operation. There must be specific and clear expectations, roles, and training communicated throughout all unit levels. Units must practice designated maintenance procedures at every opportunity, whether in the motor pool, during steady-state training, or at major training events like collective field training exercises or live fire exercises.

Company best practices. A best practice is to have habitually attached maintainers with the company trains. OC/T observations of a Stryker infantry battalion that pushed maintainers forward indicate a significantly higher OR rate across the force than those that did not (about 60-70 percent OR rate versus 90-95 percent OR rate averages). Leaders can coordinate for maintainers to train operators on recovery and repair operations. Operators that identify faults during PMCS can seek assistance from forward maintainers with diagnostics and troubleshooting and translate this information into actionable data passed to the UMCP and battalion leadership. Forward positioned maintainers can assist with a quality control review of unit's 5988-Es. This contributes significantly to an increase in the accuracy of maintenance data transmitted to higher headquarters. Aa properly equipped FMT will be able to conduct most required repairs if parts are available. This increases efficiency and potentially reduces the time required to evacuate a vehicle to the UMCP, repair it, and return it to the unit.

As another best practice, companies should send FMT verified parts reports directly to the battalion main command post, combat trains command post (CTCP), FTCP, and UMCP via JCR/JBCP. Units should then use this information to order parts in GCSS-Army. This TTP ensures that multiple command and control nodes are receiving the information at the same time. This also helps to speed up ordering parts in GCSS-Army without having shop office clerks work through reams of paper. The benefits of this time saving information sharing effort can be significant. The battalion main command post and CTCP will receive nearly real time data on maintenance faults and requirements. As a result, the maintenance common operational picture will be significantly more accurate. Likewise, the UMCP can look forward and prepare parts for movement if they are available in the bench or shop stock list. The FTCP can keep track of parts needed and coordinate with the brigade support battalion to try to acquire the parts as quickly as possible, or at the least be ready to pick those parts up from the SSA when they become available. The requirement to do 5988-Es to officially account for the parts still exists. Per Army Techniques Publication (ATP) 4-33, Maintenance Operations, 9 July 2019, paragraph 3-18, "units may use communications to rapidly pass information up the chain of command but must use a DA Form 5988-E to maintain a permanent record.

Platoon best practices. Platoon leadership, crews, and operators must understand the importance of conducting PMCS to identify faults and issues that deadline equipment. Leaders must train Soldiers to proficiency on diagnostics and operator-level repair. Through their proficient use of the system, Soldiers must see their work produce parts and understand what causes delays when it does not. When combined with a less-frequent 5988-E cycle (described in the battalion-level recommendations), junior leaders can successfully reframe the PMCS process from and attitude of, "Fill out the form so we can get battalion off our back" and more about one of, "Let us do the PMCS we need to so we can keep this equipment running to stay in the fight."

Units should maintain minimum essential recovery/repair equipment and high-failure rate parts on hand. Prepared load plans should be an annex in the unit SOPs. A best practice is to have two appropriate tow bars (and associated other equipment) per platoon, with the other vehicles in the platoon carrying chains or tow straps. Stryker platoons may load a spare tire per vehicle with the other equipment associated with changing tires, as load plans and SOPs allow. Platoons should also carry commonly used Class III supplies like oil, coolant, and transmission fluid so operators can conduct quick fixes that keep vehicles running until they can perform more thorough repairs.

Maintaining at Night

Observation. One of the key strengths of our Army is our ability to operate in adverse conditions (weather night, fatigue, etc.). Just as forces maneuver and engage the enemy at night, they must also be able to maintain at night. Often, maintenance at the unit maintenance collection point stops shortly after the sun goes down. This is often because of a lack of comfort or familiarity with repairing in limited visibility, or more commonly having limited experience doing so. Major maintenance operations only performed during daylight significantly reduces the speed and ability to regenerate combat power.

Often during after action reviewing, units discuss SSL parts received but not installed, or the number of toolboxes available. Rarely do units discuss the hours of operation for a UMCP. It should be a 24-hour operation and often is not. Everything in the process can align perfectly, however; if there are limited maintainers to turn wrenches even a flawless supply system will yield less than desired results.

A Vignette
The Role of the Forward Support Company

You find yourself deployed as a forward support company commander in support of a combined arms battalion of an armored brigade. You receive an urgent message from the battalion S-4 over your Joint Battle Command–Platform, "Need you at the CTCP. We need to talk combat power for the attack. Bring a copy of the equipment status report with Class IX repair parts statuses you are tracking at the brigade support area and any parts on hand there."

You think to yourself, "We already rehearsed and discussed the plan at length at the battalion combined arms rehearsal. Why do they need Class IX repair parts earlier than our scheduled logistics package?" You reply to the battalion S-4, "I'll be there in two hours."

On the way to the CTCP you get to catch up on messages from the battalion administration/logistics chatroom. Then you realize why the battalion S-4 wants to talk. Scrolling up you read:

- Company A/executive officer: 1 M1 no mobility, 1 M1 turret destroyed, 1 M1 no power.
- Company B/executive officer: 1 M1 no brakes, 1 M1 transmission inoperable.

You arrive at the CTCP. The distribution platoon Soldiers immediately begin downloading the Class IX repair parts. The battalion S-4 and the battalion maintenance warrant officer greet you at your joint light tactical vehicle door, "Did you see the messages from the company executive officers?" The maintenance warrant officer adds, "We have 18-24 hours to get three more M1s back in the fight for the commander. Let us talk."

Best practices. There are three major keys to success that that will enable the fictional organization described above to regenerate combat power for future operations:

- Proper task organization of FMTs
- Specifying maintenance control roles and responsibilities.
- Sharing understanding of the battalion's maintenance picture

Mobile and well-equipped FMTs are critical to fixing forward. The FMT looks different than in garrison operations because they must keep up with the fight forward. The most successful method is to attach each company's assigned M88 recovery vehicle, a contact truck, and light/medium tactical vehicle to haul a small section of the unit's SSL. This will enable field maintenance teams to fix as far forward as possible. The forward repair systems (FRSs), each FMT chief, and the bulk of each SSL should be located inside the UMCP. A crucial component to maintenance operations inside the UMCP is lift assets. Each FRS and the M88s organic to the FSC give that capability.

Another key to success is operations inside of the expandable van. Each member of shop office has specific roles and responsibilities. The ability to successfully synchronize these efforts can effectively drive maintenance for the battalion. There are three key leaders inside the maintenance control section: the maintenance warrant officer, the maintenance control officer, and the maintenance control sergeant.

The maintenance warrant officer is the primary driver of maintenance for the battalion. The maintenance warrant officer should be the most technically proficient member of the UMCP regarding maintenance and supply/GCSS-Army operations. They focus on parts flow from the SSA, work order statuses, and attend the daily maintenance meeting at the brigade support area. The maintenance warrant officer keeps the battalion executive officer informed of available and projected combat power.

The maintenance control officer (MCO) battle tracks what is happening forward with the companies through JBCP and FM communication with the company executive officers. The MCO synchronizes daily operations between the shop office and FMTs, especially when the maintenance warrant officer must be away at the brigade support area.

The maintenance control sergeant directly manages operations and work orders on the ground inside the UMCP. The maintenance control section (MCS) receives priorities of maintenance from the maintenance warrant officer and assigns work orders to each FMT. The MCS should be interfacing multiple times a day with FMT chiefs to inspect progress of work orders and ensuring safe operating procedures.

The last thing for successful maintenance operations is a maintenance common operational picture inside of the shop office. GCSS-Army is the system of record for maintenance in the Army. Analog tracking inside of shop office creates redundancy for when the VSAT becomes NMC. Analog tracking synchronizes efforts and gives leadership a complete picture of the battalion's maintenance posture. A maintenance common operational picture inside the shop office should include:

- Overall slant for combat power in the battalion
- Status of work orders for combat power inside the UMCP
- Parts statuses
- Estimated time of completion for repairs
- List of ongoing recovery missions

The previous vignette began with a situation from the perspective of the FSC commander. FSC commanders are in command of all maintenance assets for their supported battalion, and they are also the senior logistician for their supported battalion. In that role, the FSC commander must be involved in maintenance management. Too often their response to this is, "I have too many other things to worry about. That is why there is a maintenance warrant officer." The FSC commander

should use their command authority to employ the processes outlined above to enable successful maintenance operations for their supported battalion.

Sustaining Army Aviation Combat Power

Observations. An aviation task force (AVTF) provides a lethal mixture of firepower and maneuverability. Depending on task force configuration, an AVTF consists of a varying quantity of rotary wing and unmanned aircraft that enable the ground force commander to find, fix, and destroy the enemy through fire and maneuver. This can present the AVTF commander with maintenance challenges not typically found in any other unit.

After years of counterinsurgency operations and preparation for decisive action against near peer threats, Army aviation developed some maintenance techniques and lessons learned that can help alleviate these complex and unique maintenance problem sets and help maintain combat power for the ground force commander (GFC). This section focuses on successful maintenance operations observed at the National Training Center during a decisive action training environment (DATE).

Lack of key maintenance personnel participation in unit military decision-making process (MDMP)**.** Many units overlook the critical task of identifying maintenance requirements during mission analysis. At the combat training centers, OC/Ts continually observe that key maintenance leaders such as the aviation maintenance officer, production control officer in charge, and aviation maintenance company commander, do not participate in the MDMP. They are also not contributing members at key AVTF meetings and rehearsals. These missed opportunities could assist in identifying and synchronizing operational and maintenance requirements. By integrating key maintenance leaders, the executive officer can drive maintenance decisions and prioritize actions early in the planning process, thus maximizing the generation and sustainment of combat power for the operation. With the addition of these running estimates as part of the planning process, the AVTF executive officer will be able to identify limitations of the available combat power and develop appropriate courses of action before execution. When running estimates concerning aircraft maintenance become afterthoughts rather than continuous planning factors, delays in mission execution are unavoidable, or the commander must execute something other than the pre-approved course of action.

The AVTF has become even more critical to the success in today's highly dynamic and unforgiving operational environment, where aviation assets are always in high demand. The ability of an AVTF to perform its mission is directly related to its ability to maintain the operational readiness status of its aircraft and support equipment. Aviation units with exceptional operational readiness rates deliberately plan and execute their maintenance training program. They consistently integrate aviation maintenance throughout the MDMP.

Best practice. Aviation maintenance training. Aviation maintenance is the foundation for any AVTF providing continuous mission support to the GFC. It is important that key leaders within the formation continuously evaluate the ability of the unit to perform the required level of maintenance necessary to meet the GFC's intent. It is the commander's responsibility to plan, prepare, execute, and assess unit training plans. This not only results in a unit proficiency in executing mission essential tasks, but also incorporates low-density or small-section training opportunities to improve individual task proficiencies and contribute to overall unit readiness. Each leader must be capable of performing every task required of their immediate subordinates and understand the relationship between individual job requirements, Soldier's manuals, and collective tasks.

Observation. Expeditionary aviation maintenance. Multiple observations see rotational training unit commanders expressing concern at the difficulty in planning and performing aviation

maintenance in expeditionary environments. Compounding the difficulty is mixed mission design series and inexperienced maintainers. As a result, units struggle with returning aircraft back to an operational status in a timely manner, especially after following an unscheduled maintenance event.

Best practices. A simple maintenance approach to combat this problem set is to implement the "P4T3" method. It consists of seven elements: problem, plan, people, parts, time, tools, and training (P4T3). P4T3 provides a methodology and framework for any aviation maintainer and manager to coordinate complex aviation maintenance requirements without fail. This method helps anticipate maintenance requirements at the individual Soldier level for any maintenance task and help identify shortcomings early. Units who begin MDMP early and adapt the P4T3 methodology at home station typically perform better than those who treat the P4T3 process as "just another process."

The P4T3 methodology in ATP 3-04.7, *Army Aviation Maintenance*, 20 October 2020, is a common-sense platform for an effective maintenance and logistics program. The P4T3 method should include a standardized document with multiple checks and balances from production control, quality control, and technical supply supervisors.

Observation. Split-based maintenance operations. An aviation maintenance company must have the capability to conduct split-based operations within and across an entire theater to help maintain and generate combat power for the AVTF. aviation maintenance company is responsible for conducting field level maintenance in accordance with the maintenance allocation chart. aviation maintenance company consistently arrive at National Training Center unequipped and untrained in their two most critical mission essential tasks, downed aircraft recovery team (DART) and battle damage assessment and repair (BDAR).

Best practice. DART and BDAR are critical to any unit trying to maintain combat power after receiving battle damage and unforeseen unscheduled maintenance issues. AR 750-1 provides specific guidance on BDAR. Leaders should incorporate DART battle drills into their quarterly training plan and require aircraft recovery briefs at every rehearsal. aviation maintenance company SOPs should include at a minimum downed aircraft recovery section that outlines basic recovery procedures for damaged or disabled aircraft. DART battle drills and training should aim to improve proficiency in ground convoy operations, aerial recovery kit installation, battle damage/repair, and security team emplacement.

System-level embedded diagnostic and smart tool aviation maintenance picture. Commanders also have new and innovative tools to help track aircraft and help develop situational awareness when aircraft are executing their mission. The System-level Embedded Diagnostic (SLED) and Smart Tool Aviation Maintenance Picture (STAMP) are new programs that leaders should incorporate into an AVTF main command post when available. The SLED and STAMP identifies maintenance faults and/or issues experienced by aircraft and automatically sends digital traffic to the STAMP with aircraft status and fault experienced. Maintenance can use the data to initiate P4T3 before the aircraft arriving back at the AVTF. The aircraft automatically sends the data through the air fault reports provided by STAMP. The system can also improve accuracy and consistency in fault reporting and provides maintenance production control with useful data which will reduce troubleshooting time and reducing the down time of aircraft.

Each unit must identify and establish its own approach to maintaining its equipment to generate combat power and meet the GFC's intent. The aviation task force must sustain its equipment throughout the operation at a fully mission capable level to continue as one of the most maneuverable and powerful units on the battlefield.

Field Artillery Battalion and Below Maintenance

The purpose of this section is to provide lessons for field artillery units executing maintenance operations during a high operational tempo fight in a DATE. In this environment, units must conduct maintenance at a pace that enables the maneuver commander to have readily available combat power despite conducting operations during prolonged periods in harsh environmental conditions. Moreover, units must conduct maintenance actions themselves in these demanding conditions, and do not have the luxury of utilizing hardened bays or paved motor pools. Leaders must operationalize all maintenance actions to ensure proper utilization of manpower and resources to consistently provide maximum available indirect firepower to the maneuver commander.

Observation. Field artillery units often are arriving at the combat training centers with a 90 percent operational readiness (OR) rate but cannot maintain that level of readiness throughout the rotation. Historically, the OR rate begins to decline on training day four (4). This section will detail the various contributing factors for the decline. OC/Ts often observe maintenance difficulties at all echelons. Proving maintenance issues are not just an operator issue. Leaders at all levels must understand that operator or crew maintenance is the most critical operation of the Army maintenance system and requires continuous emphasis.[3] At National Training Center there is either a tactical decision by battery commanders to not conduct maintenance because of concerns about operational tempo or misunderstanding of its importance. This section will discuss the observations of rotational units' ability to maintain at pace and the doctrinal references to apply to provide fires in a continuous fight.

Battalion Communications Maintenance Focused Reviews

Observation. Field artillery battalions habitually focus on the readiness of their pacing items, but observations from National Training Center suggest that they struggle with maintaining their communications equipment at the battery and battalion level regardless of the operating environment. These struggles include not having a tracking system for FM equipment not listed as reportable by default within GCSS-Army and a lack of S-6/signal Soldier involvement in maintenance meetings. The inability to perform effective signal maintenance at home station degrades unit readiness and further hinders the mission in a high operational tempo environment.

Best practices. Greater involvement from the battalion S-6 sections and battery communications specialists in sustainment and maintenance functions is critical to properly identifying faults at the battery and battalion levels. Military occupational specialty [Army Support Operations Specialist] (MOS 25Us) at the battery level, must be involved in training end users on proper PMCS as well as conducting their own troubleshooting and inspections of equipment and service records. They must also be able to advise the battery executive officer, first sergeant, and battery commander on signal maintenance issues to ensure the accuracy of any status reports and maintenance work orders.

Battalion S-6 sections must have representation at battalion and brigade level maintenance meetings to provide their expertise and recommendations to the battalion executive officer and ensure that their unit's reports and requests are accurate. They must also understand the status of NMC equipment on the ESR. Battalion S-6 officers in charge and noncommissioned officers in charge must also collaborate with the S-4 section and forward support company to ensure follow up on parts ordered and coordination of services.[4]

Counter Battery Radar Maintenance

Observation. When preparing for deployment, developing a counter battery radar maintenance schedule is critical to the successful employment of this platform. The ability to be self-sustaining because of the separation in space from its parent organization on the battlefield is essential to the survival of the radar section and its successful employment in accordance with the brigade fires plan. Like the battery maintenance teams, a radar section has radar mechanics and a parts container, with an essential repair parts stockage list (ERPSL). Although the radar system is a pacing item, units often do not view maintaining this critical system with the same priority as the delivery systems. Radar sections frequently do not maintain 100 percent of their ERPSL, or do not bring all parts forward when they deploy. These identified parts in the ERPSL will provide the radar section with the ability to repair forward and stay in the fight.

Best practice. When developing a radar maintenance schedule, a strategy is to synchronize radar coverage with division assets throughout the operation. Our radar systems are an enemy's high payoff target, and as such, require the radar to continuously conduct survivability moves or to reposition for the next phase. Synchronizing with division will allow blocks of time where other radar assets can be employed and provide the necessary coverage to facilitate planned maintenance and priorities of work. This requires detailed planning at the battalion, brigade, and division levels and will allow, when correctly conducted, critical PMCS during and after operations. Concurrently, the radar section can execute maintenance during non-cueing timelines. The brigade should publish a cueing schedule that provides the radar section a shared understanding of the requirement for when and where the radar should radiate. When not radiating, the radar section leaders have an opportunity to conduct priorities of work, to include during and after PMCS operations.

Battery Maintenance Focus Overview

Observation. Maintenance at the section and company level is a battle rhythm event at home station. Every Monday, units across the Army conduct Technical Manual-10 level maintenance on their vehicles and equipment to maintain a "Fight Tonight" posture. To ensure mission capability in a continuous operational environment, units conduct field maintenance but struggle to maintain at pace.

Soldiers conduct field maintenance in accordance with the respective technical manual, but do not possess the ability to troubleshoot issues. Leadership often does not have the required materiel available at the section level. Often the section chief or squad leader maintains the PMCS excerpt of the technical manual (TM) to conduct the required PMCS checks but does not have the entire TM to enable troubleshooting. This in turn requires maintenance support to intervene during a Technical Manual 10-level maintenance task. This effect can increase issues systemically throughout the battery and battalion by not addressing faults head on at the operator level.

Faults that require a simple action when left unattended increase in severity to a dead-lining fault. Conducting PMCS and operator level troubleshooting may be time consuming during field operations and offers challenges to the commander on how to employ the mission capable guns to support the maneuver commander's intent. It is essential that battery level leaders incorporate the necessary time to execute maintenance into their troop leading procedures. Ineffective time management will cause delays in the unit identifying faults early and receiving repair parts in a timely manner.

Best practices. Commanders at all levels need to operationalize maintenance into their battle rhythm and timeline. Successful commanders and leaders create deliberate maintenance plans that facilitate planned maintenance during operations while maintaining firing capability and achieving the commander's desired effects.

During reception, staging, onward movement, and integration, maintenance plans briefings should include the lowest level leader. Leaders across the brigade understand the importance of maintenance. They also need to understand the recovery plan for their equipment and personnel during the operation as briefed by higher commands. While Soldiers may be performing maintenance before and after operations, OC/Ts often observe a lack of commanders providing adequate supervised time during operations for elements to perform effective PMCS. Soldiers conduct maintenance while first line leaders conduct other priorities of work in preparation for follow on operations. Leaders must plan and supervise maintenance operations. Much like units at home station place services on their training calendars, batteries should include the planned maintenance periods on their operational timeline during operations. Successful units enforce the correct PMCS before, during and after an operation with leadership supervision.

> Preventive maintenance operations performed by Soldiers in field organizations, which preserve the operational condition and inherent reliability of equipment, comprise the most critical of all building blocks in the Army maintenance system.
>
> – DA PAM 750-1, *Army Materiel Maintenance Procedures,* 2 February 2023

A common practice of field artillery units is to designate platoons as "hot and cold." This allows them to maintain a constant firing capability within the battery and for the cold platoon to execute priorities of work. Before pulling sections or platoons out of the fight to conduct maintenance the commander must understand the larger fight at battalion and brigade level so units can plan optimal times to conduct maintenance with the lowest risk to mission. OC/Ts often observe that when howitzers become not-mission capable, the platoon hot-cold concept collapses and becomes a firing battery. If this occurs during a time of scheduled fires, commanders are understandably reluctant to take howitzers out of the fight to conduct maintenance. Decision makers identify the required need of mission capable guns to provide the required volume of fire to meet the commander's desired effects, but do not weigh the consequence of continuous operation without conducting field maintenance.

There are a multitude of reasons why a howitzer can become non-mission capable, but a loss because of lack of maintenance is an unacceptable loss. Maintenance operations are a critical priority of work, therefore commanders and leaders at all levels need to provide the necessary time to conduct maintenance operations. If that means pulling a howitzer out of the fight to conduct maintenance to continue the operational use of that equipment longer, then that requires a commander's decision. Shared understanding of the equipment's capabilities and limitations will provide the necessary analysis maintenance requirements. There are several methods to conduct maintenance while in the fight, but commanders must make the deliberate decision to take an echelon out of the fight to conduct maintenance to ensure the future operational use.

Successful units operationalize their maintenance schedule throughout the deployment. Planners can forecast periods of operational tempo that require the entire battalion, and other periods of time that will enable sections or platoons to conduct priorities of work. Understanding the larger fight at the battalion and brigade level will allow shared understanding of the times throughout the fight to conduct maintenance. Subordinate leaders should synchronize maintenance periods with the battalion's operational plan. It is important that leaders make coordination and seek approval from their higher headquarters for these periods. This will facilitate the operations process and ensure units are ready to perform fire support missions when required.

Field Artillery Forward Support Company Maintenance

Observation. Shop stock list management: To compound issues such as poor maintenance at the section level and ineffective priorities of work, forward support companies often struggle to maintain the correct shop stock to fix problems as they occur. Whether at home station or deployed, the SSA supports the unit with critical supplies. In general terms, the SSA acts as a warehouse of Class IX repair parts at the brigade combat team level. Each battalion has authorization to carry a shop stock listing of additional parts that allow for the quick forward repair of equipment. Fire support battalions should routinely inventory and analyze their SSLs to adjust the stocked quantity based upon valid demands or known upcoming mission requirements. Units should stive to maintain repair part levels at 100 percent fill. Too many units fail to auto-replenish their SSLs on a routine basis as a method for saving operational tempo dollars.

Best practice. Successful units routinely recommend to their leadership an established automatic re-order trigger for Class IX repair parts when they drop below a pre-determined level. This creates an efficient resupply system when correctly executed. It is important that maintenance personnel account for the consumed Class IX repair part and update the inventory levels in the systems. Unfortunately, maintenance teams often struggle to conduct accurate inventories of all Class IX repair parts on hand.

Take all your parts with you. Many deploying units do not take all Class IX parts forward when leaving home station. When ordering parts, the GCSS-Army system determines if the unit requesting parts has any on hand. If units do not conduct proper inventories before leaving home station or elect not to deploy with all Class IX repair parts, they might not be available when the need arises. When GCSS-Army identifies the unit has the repair parts on hand, (e.g., on hand but left at home station) the system will cancel the requisition.

Resource ield maintenance teams. Each armored brigade combat team battery's modified table of organization and equipment (MTOE) contains a FMT that typically contains a fueler, contact truck, and a parts container. Maintaining sustainment at pace is a planned, well stocked inventory and comprehensive SOPs for operating each battery's parts container. The FMT's ability to maintain communication with the maintenance control section on stock line quantities and status of incoming parts is critical to the success of maintaining all equipment in the fight. Separation from the forward support company adds a level of decentralization for accountability of all Class IX repair parts.

Reports. Another critical aspect to maintaining the fleet is a thorough understanding of reporting requirements throughout the formation. Units experience difficulties establishing troubleshooting parameters in reporting faults to higher echelons. The ESR provides situational awareness in real time to decision makers on the ground to understand combat power when planning and synchronizing operations.

Successful units immediately report faults as they occur and update the ESR to reflect equipment in the troubleshooting phase by placing a work request status code "A" (awaiting initial inspection). This code will show a piece of equipment being NMC on the ESR without an identifying fault or part; however, it will provide the situational awareness to higher echelons on the equipment's mission capable status.

Work request status code "B" represents "in shop" to account for comprehensive troubleshooting that ensures that the unit places all necessary parts on order or conduct controlled exchanges as necessary to repair the equipment. If conducting controlled exchanges, units must also establish shared understanding of who may authorize them, reporting requirements, and how many they

may authorize in each period. This enables proper tracking of incoming repair parts and ensures that commanders maintain visibility on the number of controlled exchanges occurring in their fleet.

Command and control. Units assess mission variables to determine the location of the CTCP. The FSC should position its UMCP within the CTCP. During offensive operations, the UMCP should be located as close to the firing batteries as possible or within one kilometer. Doctrinally, the CTCP should maintain a 1–4-kilometer distance from the firing batteries to enable freedom of action, prolonged endurance, and operational reach for the supported battalion.[5]

The FSC and maintenance personnel should understand the battalion's current operations to efficiently manage time in conjunction with workflow when determining maintenance jobs at the CTCP. This understanding of the supported battalion's operational tempo will determine if the unit initiates repair on a piece of equipment or postpones them until after conducting a required move.

FSCs must be able to keep pace with the supported battalion and cease operations at the UMCP if necessary. A few situations in which the UMCP would terminate operations and move include the supported battalion can recover equipment forward, the FSC can recover the equipment forward, or the firing battery can conduct battle damage assessment and repair to enable the equipment to move forward. The UMCP might delay movement if it has a NMC pacing item, all NMC parts are on hand and the repair estimate is less than 24 hours.

Increased Technology Challenges and Maintenance

Observation. As Army technology becomes more complex, so does the equipment. When units receive new equipment, contractors often provided maintenance for a certain period. These contracts or agreements may prevent operators from fixing certain field maintenance level issues. This can reduce Soldiers confidence and expertise with the system. Mission accomplishment requires Soldiers to be subject matter experts on their equipment. This includes understanding and implementing maintenance operations.

These contracts increase the time it takes Soldiers to understand the limitations of their equipment. As technology increases, equipment grows more complex. Maintainers are critical in this aspect; they must develop a maintenance schedule with contracted mechanics or field service representatives (FSRs) and ensure that support is available during all operations. Units must capture this on unit training calendars and maximize operations in the field. Waiting until a problem presents itself is a reactive choice in a complex environment that requires proactive thinking. Many argue that this is an unnecessary risk and only produces additional threats to the unit. This equipment does not receive the proper before, during, and after PMCS because of contracted mechanics not being available to work on the equipment. The right to repair will continue to be a highly debated concept and challenge the unit's ability to maintain at pace.

There are a multitude of reasons why units experience maintenance issues and struggles throughout their rotation. These reasons vary from a shortage of qualified personnel, poor training plans leading up to this collective training event, reduction in the daily PMCS of equipment, misuse of equipment through lack of leadership supervision, and inaccurate or unreliable reporting of equipment status.

Best practices. Unique to the United States military force is our non-commissioned officer corps' ability to apply disciplined initiative to accomplish the commander's intent. It is difficult to train on all subtasks of a unit's mission essential task list. Noncommissioned officers training Soldiers on critical tasks using appropriate publications allow leaders at all levels to execute their mission.

The most efficient units make maintenance a priority. The leaders of these units collectively have the expertise and shared understanding of the importance of conducting regularly scheduled maintenance and the importance of accurate reporting.

Commanders at all levels must establish ownership of their maintenance plans. Commanders and leaders must prioritize maintenance as a deliberate action. As Soldiers mindset changes from operators to owners, they take more pride in the maintenance status of their equipment. Commanders must annotate maintenance on training calendars and schedules to achieve deployment readiness gates.

Successful units include maintenance cycles that apply to their entire equipment fleet to guarantee operational use in the field. These cycles include all equipment, not just pacing items.

As operators take ownership of their equipment and leaders provide the time and supervision for PMCS, Soldiers will gain confidence in their equipment and their ability to operate.

Maintenance in the Brigade Engineer Battalion

A unit's ability to conduct maintenance can directly impact their success at their combat training center rotation. Maintenance is especially important for units during National Training Center rotations. This section provides observations, best practices, and potential solutions for:

- FSC maintenance operations problems
- Engineer specific problems
- Chemical, biological, radiological, and nuclear (CBRN) reconnaissance platoon problems

Echo Forward Support Company

Observations. The goal of any FSC at the National Training Center is to prolong operational endurance for the brigade combat team using their organic maintenance assets. The most common roadblock to achieving that goal is the flow of DA 5988-Es from operator thru the brigade engineer battalion maintenance chief. In the effort to maintain situational awareness of the combat power available, units normally have a 24-hour issue/submission cycle for 5988-Es. The 24-hour process frequently results in inefficient and ineffective 5988-E flow. O/CTs recommend staggering 5988-E submissions over 72-hours for 05/12 priority issues. Any 02 priority issues require immediate notification via Voice over Internet Protocol (VOIP) or other available means directly to the supporting maintenance echelon and the brigade engineer battalion maintenance chief. Maintenance units will not become overwhelmed if supported units stagger submission of 5988-Es, leading to higher OR rates.

Maintenance sections across all FSCs share similar struggles. One of those is the inability to effectively defend themselves while conducting maintenance operations. This is normally from a poor tactical assembly area (TAA) occupation plan, lack of noncommissioned officer knowledge of defensive operations, and FSCs not deploying with all personnel and equipment, leaving the unit under-resourced. The TAA plan determines whether an FSC's UMCP and CTCP are co- located or separated from the TAA, which have different manpower requirements for the unit. The best practice observed are to co-locate the UMCP and CTCP within the brigade engineer battalion TAA, minimizing the number of Soldiers drawn from the maintenance platoon for defense of the TAA.

Best practices. Units can improve their ability to conduct a defense through tough, realistic training. Units should train on establishing fighting positions, building sector sketches, employing crew-served weapons, and establishing communications, which are the notable shortcomings during

FSC defenses at the National Training Center. FSCs have a variety of reasons for not bringing all their equipment to a combat training center rotation. Though not the preferred method, a unit can overcome equipment shortages by drawing needed equipment at the combat training center, if coordinated for early. FSCs should also bring their full MTOE of crew served weapons to improve the TAA's defenses. Properly trained and resourced units can accomplish their maintenance and defensive missions.

Personnel shortages limit effective maintenance operations within the echo FSC distribution platoon. Attaching additional Soldiers from the headquarters platoon or field feeding section can solve this issue. Without changes to the FSC MTOE, the best practice observed is to cross-train the field feeding teams and headquarters platoon Soldiers to accomplish the distribution platoon's mission.

Enabler Units

Observations. Echelons above brigade (EAB) enablers attached to the brigade engineer battalion increase existing maintenance and sustainment issues. Most non-organic units struggle with maintenance and sustainment operations during their rotation at the National Training Center. Some common issues include brigade engineer battalion not pulling the enabler under the brigade engineer battalion Department of Defense activity address code (DoDAAC) in Class IX repair parts denied by brigade when the enabler company requests parts, and the company failing to submit 5988-Es correctly or in a timely manner. Most enabler units that support the brigade engineer battalion faces one of these issues, severely restricting their ability to be a combat multiplier. Fortunately, there are best practices to help integrate enablers into maintenance operations.

One of the most frustrating issues with ordering Class IX repair parts is ensuring that the enabler has their DoDAACs aligned under the brigade engineer battalion in GCSS-Army. OC/Ts focus on making sure the unit coordinates DoDAAC relocation with the brigade engineer battalion before arrival at National Training Center. After arrival at the logistics support area, OC/Ts advise enablers to order a washer in GCSS-Army, commonly referred to as the "washer test." This ensures the unit will receive parts they order, their supported higher unit has their DoDAAC, and the part will arrive at the correct SSA. While uncommon, the enabler DoDAACs can get pulled back to their organic higher unit, which prevents them from receiving parts during the rotation. If this occurs, the unit must contact their organic property book officer (PBO) and request the release of their DoDAAC for realignment under the supported brigade engineer battalion. If this occurs during the unit's fourteen training days, it becomes difficult to reach the PBO and may result in the unit not receiving any additional parts until the rotation's end.

Over the past rotations, OC/Ts have seen nearly half of the enablers fail to receive any parts because of ordering parts improperly. One of the most common errors they see in GCSS-Army is ordering parts and sending them to the wrong storage location (SLOC), usually at their home station. Training the equipment repair specialist clerk on GCSS-Army and is coordinating well with the brigade engineer battalion's battalion maintenance warrant officer is the way to solve this issue. The maintenance warrant officer is the unit's subject matter expert and can catch SLOC errors when ordering parts.

Some enablers do not have a solid maintenance program in place. Companies and Battalions must solve this problem. During most rotations, OC/Ts note that units fail to effectively conduct PMCS before, during, and after missions. This becomes apparent when the enabler has a drastic drop in their combat power mid-rotation. The simplest fix to this is the company creating and enforcing a maintenance SOP for the field. Many units seem to get stuck in the "motor pool Monday" mentality

and fail to understand the importance of submitting 5988-Es more than once a week while at the National Training Center. When enablers come to the National Training Center, they bring their own maintenance SOP, which sometimes conflicts with the supported units SOP. Enablers that coordinate and integrate with rotational unit SOPs before arrival at the National Training Center tend to have a more effective maintenance program.

Best practice. EAB enabler maintenance presents a real challenge to brigade combat teams. There are solutions that will make enabler maintenance successful. Companies must work with PBOs to move their DoDAAC to the correct parent unit. by working with PBOs. It is also important that companies have certified and trained equipment repair specialist clerks, and if possible, a maintenance team chief who can supervise the ordering of their specific parts. The enabler leaders work with the unit the supported unit months in advance of the rotation to identify what changes they must make to match the supported unit's maintenance standards and requirements. These changes and TTPs will have a significant positive impact on the unit's performance during their rotation at the National Training Center.

Chemical, Biological, Radiological, and Nuclear Platoons

Observations. The Army maintains two variants of the light and heavy chemical, biological, radiological, and nuclear (CBRN) reconnaissance and surveillance (RandS) platoons in the modular force design. The primary differences between the platoons are the way in which they conduct missions and the vehicles they use to conduct those missions. The CBRN RandS platoon (light) can conduct missions in urban terrain and uses dismounted reconnaissance sets, kits, and outfits (SKOs). The CBRN RandS platoon (heavy) conducts mounted reconnaissance using three CBRN reconnaissance vehicles with a variety of detection equipment, affording increased terrain coverage in support of route and area reconnaissance. Stryker brigade combat teams and armored brigade combat teams have one CBRN RandS heavy platoon as part of their MTOE. While Soldiers with the military occupational specialty 74D do not necessarily perform CBRN team duties, the RandS platoons are 74D specific with special skill identifiers, allowing the highly specialized RandS platoon to effectively support the brigade combat team.

Almost without exception, every RandS platoon over the last year has arrived at the National Training Center with NMC Nuclear, Biological, Chemical Reconnaissance Vehicles (NBCRVs). The platoon often struggles to turn in 5988-Es and struggles to maintain an accurate status of ordered parts. A key to success is following through with the FSC maintenance section to ensure parts are in fact on order. Success at National Training Center has a direct correlation to units that conduct maintenance to standard at home station and have systems and processes in place to mitigate maintenance problem sets.

Best practices. At the National Training Center, RandS platoons are consistently underutilized, there is no maintenance plan (nor are personnel capable of supporting the specialized equipment within the NBCRV), and brigade combat teams do not use their RandS platoons with any regularity or consistency. To alleviate the lack of trained maintainers, the owning organization must ensure their FSC has a 94F MOS with additional skill identifier (ASI) F6 on the team. If they lack this required skill set to maintain the NBCRV, owning organizations must send their Soldier to the ASI training well in advance of the National Training Center rotation. Some brigade combat teams will place their RandS platoons forward with the cavalry squadron while others keep them in reserve. To incorporate the RandS platoon, staff considerations must include:

- CBRN defense to provide the commander versatility and synchronization.
- Focus on CBRN reconnaissance assets on repositioning and withdrawal routes, passage points, and passage lanes.

- Identifying alternate routes if passage routes become contaminated.
- Balancing vulnerability of the force against the need for mass, agility, and depth.
- Understanding the enemy order of battle and doctrinal templates as they relate to CBRN use.

Using these considerations will allow the RandS platoon to shape the battlefield while providing valuable insight to the brigade combat team.

Brigade Maintenance at Pace

The purpose of this section is to inform brigade combat teams of the challenges and best maintenance practices observed at the National Training Center. The brigade maintenance program at home station sets the climate for maintenance management during the fast-paced decisive action fight. Unless practiced at home station, the maintenance system will not be effective or efficient in a tactical environment.

The brigade maintenance system is critical to the accomplishment of every brigade combat team's and battalion/squadron's mission. The system must operate every day and all year to support unit training and contingency operations. Leaders must be familiar with their equipment, the equipment faults, the process to get the equipment repaired, and the supply chain containing the repair parts. Commanders at every level must set the tone necessary to achieve the Army maintenance standards. Subordinate leaders must take ownership of their equipment and hold their team to the standard if they are going to have a positive maintenance culture in their unit. At the National Training Center, the Goldminers (Army sustainment trainers) identified three things to produce positive maintenance results:

- Run the maintenance meeting and include ESR management.
- Consider the option to operate a consolidated maintenance collection point.
- Conduct maintenance talent management and training.

Maintenance meetings

Observation. An effective brigade maintenance meeting is a combat multiplier. Units struggle when they use their garrison maintenance meeting agenda at the time-constrained environment at National Training Center. Ineffective maintenance meetings have an unclear agenda with leaders that are not prepared or not familiar with their equipment and its faults. Sometimes meetings do not happen at all because of untested PACE plans.

The agenda helps focus subordinate leaders on the commander's priorities and builds situational understanding. Many units will default to reviewing the ESR by unit. Avoid this highly inefficient practice, especially if any commander is involved in the meeting. A detailed scrub of the ESR can easily take two hours and will still not provide any projections of what combat power will be available in the next 12-72 hours.

Best practice. When battalion executive officers and maintenance warrant officers arrive at the meeting with their updated analysis of their ESR, proper identification of parts requirements, diagnosis of faults, and their Class IX repair part requirements, the maintenance meeting will produce positive results. In-person maintenance meetings encourage cross-unit coordination, cross-leveling of resources, and are more productive than distributed maintenance meetings. Unfortunately, conducting meetings in person is not always feasible. A maintenance meeting needs

a PACE plan, or it will be overcome by other events. No maintenance meetings will cause OR rate to fall as units attempt to solve their equipment challenges without prioritization or access to necessary resources. Figure 7-2 shows CASCOM's and the Ordnance School's maintenance meeting playbook trifold which goes into more detail about unit maintenance meetings.

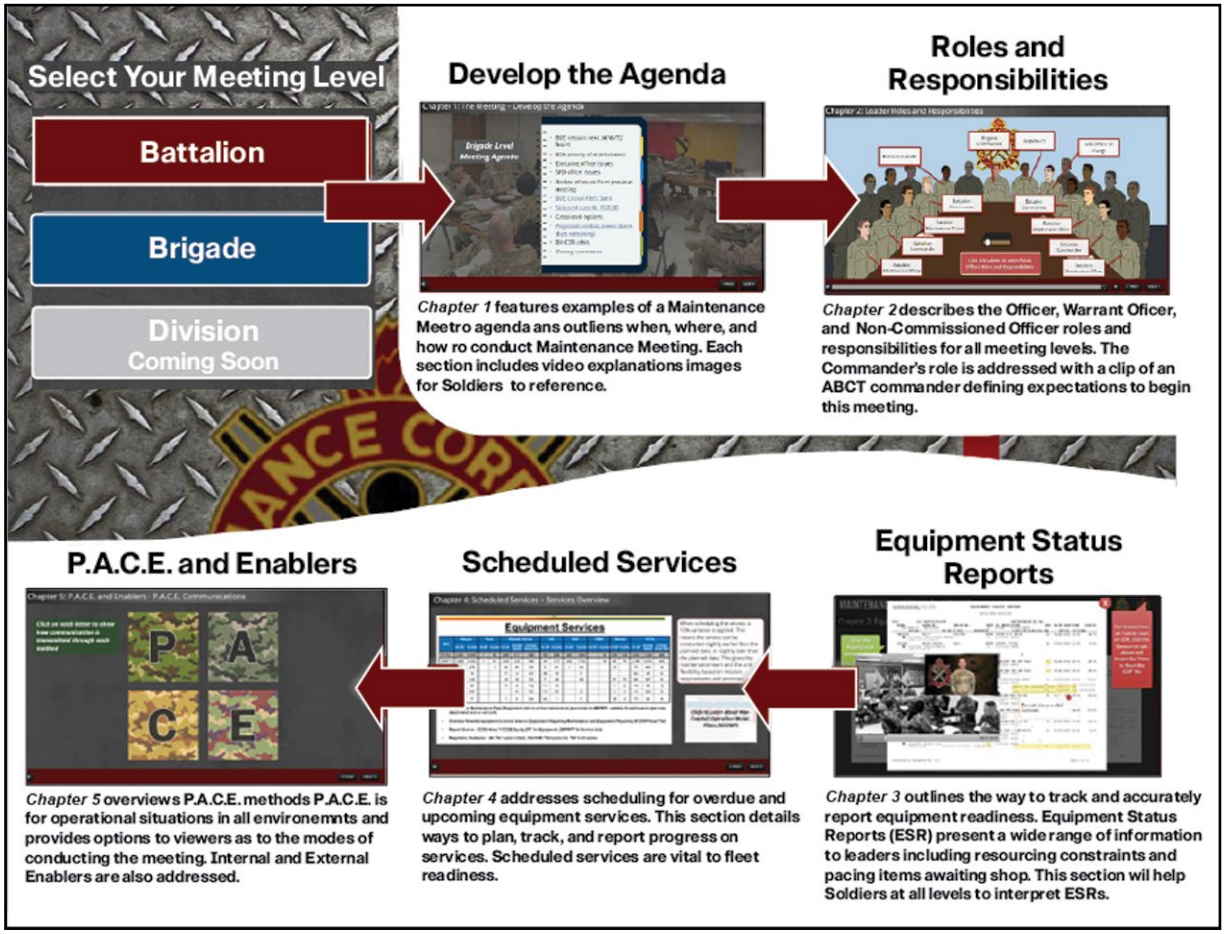

Figure 7-2. Maintenance Meeting Playbook[6] (Trifold)

Figure 7-2. Maintenance Meeting Playbook[7] (Trifold) (continued)

The best brigade executive officers set the priorities for maintenance, by unit and by equipment type, based on their understanding of the scheme of maneuver and the commander's requirements. Once the priorities are set, each battalion or task force should provide their situation report.

ATP 4-33 recommended maintenance meeting attendees include the following:

- The brigade/battalion executive officer
- Brigade combat team/battalion S-4
- Brigade support battalion support operations officer
- Brigade support battalion support operations maintenance officer
- Supported battalion or task force executive officer or shop officer
- Separate company executive officers or motor sergeants
- Supply support activity officer

ATP 4-33 recommends the following maintenance meeting agenda for the brigade missions for the next 24/48/72 hours:

- Include brigade priority of maintenance.
- Discuss executive officer issues.
- Discuss support operations officer issues.
- Review issues from the previous meeting.
- Include current combat power status.
- Include status of Class IX parts.
- Include cross-level options.
- Include projected combat power based on management maintenance management.
- Discuss miscellaneous issues.
- Include a review of issue assignment.
- Include closing comments.

Situation Reports

Briefing the battalion situation reports early in the meeting will provide a snapshot for the overall status of combat power. The brigade combat team commander can attend a small portion of the maintenance meeting and leave with a good understanding of the combat power available for the next phase of the operation.

Maintenance Collection Points

Observation. Battalion maintenance collection points (MCPs) will often move frequently to maintain proximity to the CTCP, but this challenges a mechanic's ability to properly diagnose and repair the faults. Frequently moving MCPs disrupt maintenance operations. This leads to a decrease in combat power. If the commander sees that combat power is falling below an acceptable level because of maintenance issues, they may decide to consolidate MCPs at the brigade support area.

Best practices. Consolidating maintenance activities at the brigade support area provides several benefits that speed up the generation of combat power, but this can come at a cost. Relocating maintenance activities to the brigade support area can drastically shortens the supply chain, thus improving access to repair parts. Many units rely and survive on their SSL, but the SSL can only hold a fraction of the parts depth found in the common authorized stockage list located at the brigade support area. The shortened supply chain eliminates the double handling of parts and increases the velocity of repair parts to maintainers. The consolidated maintenance collection point also provides the stability for the mechanics to make the repairs that may require additional time. The brigade field maintenance company in the brigade support battalion (BSB) also contains all the commodity shops and the expertise necessary to make on-system repairs instead of removing components that require select skills will lengthen overall repair times.

Consolidating maintenance at the brigade support area does have some drawbacks. Consolidating MCPs at the brigade support area can drastically increase the physical size of the brigade support area and its life support requirements. The brigade support area is typically a large area already, and the inclusion of additional non-organic elements can drastically increase its size. The protection of a support area that is roughly the size of a grid square with a dozen BSB organic crew served weapons is difficult, and that difficulty compounds when the perimeter becomes larger.

The most successful units welcome the consolidated maintenance collection point into the perimeter with a copy of the BSB tactical standard operating procedures and their specific task and purpose while on the brigade support area. The crews for the damaged systems can provide a significant aid to brigade support area protection. Their weapon systems, when integrated into the brigade support area defense plan, dramatically increase the lethality of the brigade support area.

The culture of maintenance in the brigade combat team and each leader's authorities can set the stage to avoid having to consider consolidating MCPs. The field maintenance companies have some of the most overworked and under-appreciated Soldiers in the brigade combat team, and they are only one of the solutions to the maintenance challenge.

Operator Level Maintenance

Observation. Operator-level maintenance is critical to ensuring a maintenance program is producing a fleet ready to conduct its wartime mission.

Best practices. Each Soldier must have a technical manual available so they can conduct a correct and thorough PMCS of their equipment. A PMCS with the technical manual in hand and not from memory will catch minor faults before they become large dead lining faults. Operator ownership and pride leads to more involvement in repairs and a greater respect for work involved in repairs.

Equipment operators pay more attention to their equipment's indicators when they understand the repair work involved. This further reduces the need for unscheduled maintenance. Training operators to know the limits of their equipment, how to conduct a proper PMCS, and encouraging pride and ownership in their equipment, will reduce (but not eliminate), the workload on the field maintenance company.

Talent Management

Observation. The wrong person for the job struggles to meet standard.

Best practices. Leaders in the BSB manage maintenance talent. The BSB commander decides who and where logistics officers in the FSCs and BSB base companies serve. The brigade combat team commander should approve the assignment of logistics captains. The BSB command sergeant major manages enlisted maintainer talent with input from the maintenance non-commissioned officers in charge across the brigade. The noncommissioned officers in charge have the most contact with the younger Soldiers and understand how to best develop their talent.

Allocating the right maintainers to the right duty position requires a great deal of attention and care to ensure that the FSCs are all manned so they can best support their assigned battalion. Ensuring that this management lies within the BSB allows the BSB commander to exercise their authority to weigh the main effort and surge effort, in accordance with ATP 4-33.

The maintainers in our formations will not receive all the necessary training during their advance individual training to be truly effective. An untrained maintainer will likely damage additional components while attempting to make a repair, thus extending the time equipment is NMC. Leaders can find recommendations for individual training in:

- Noncommissioned Officers can find training in the U.S. Army Noncommissioned Officer Professional Development Guide, 11 December 2018.
- Information concerning civilian certifications and licenses related to MOSs and ASIs, eligibility and exam requirements, and preparation resources can be found at the Army Credentialing Opportunities Online at https://www.cool.osd.mil/army/index/htm.

Materiel management - Global Combat Support System-Army (GCSS-Army)

Observation. Units struggle with GCSS-Army use during contact.

Best practices. GCSS-Army is the tool used to manage a wide range of functions including materiel management and maintenance. All maintenance managers will benefit from completing the following courses in the GCSS-Army Training and Certification on-line training:

- GCSS-Army Overview
- Basic Navigation
- Intermediate Navigation
- Data Mining
- Process Flow
- Maintenance Supervisor
- Store and Forward Maintenance

Additional Resources

While the Automotive Service Excellence professional certification is not an Army course, the experience and general knowledge a Soldier acquires through the certification process will dramatically increase mechanic proficiency. Soldiers take advantage of the command maintenance evaluation and training teams, local troop schools that often offer maintenance manager and executive officer courses, and Tank-Automotive and Armaments Command representatives at home station as training facilitators.

Summary

Training, to maintain equipment, enables the brigade combat team to accomplish its wartime mission. Setting standards is instrumental in fostering an individual's pride in their equipment. Soldiers will have more confidence that their equipment will help them close the distance with and destroy the enemy.

The brigade combat team maintenance meeting builds situational awareness of the fleet and resources parts needed to increase readiness. Consider the triggers to consolidate MCPs at the brigade support area to shorten the supply chain, but do not ignore the impacts of burdening the BSB commander with additional unit tenants.

Leaders have a vested interested in developing the maintenance talent in equipment operators and mechanics. When we treat maintenance as a system that runs 24 hours a day, we will be able to validate readiness rates during routine training and combat operations. TTPs and lessons learned from a combat training center rotations is an excellent resource to use to craft maintenance plans. Figures 7-3a and 7-3b provide insights into what successful units do to excel at maintenance while in contact. It also shows common reoccurring challenges most units face.

BUILDING & SUSTAINING READINESS THROUGH A CTC ROTATION

FOCUS AREAS	SYSTEMS & ROUTINES	OUTPUT DESIRED	ENDSTATE
1 Mission	• Clearly defined vision and mission that faciilitate trust, open communications, and responsibility • Sustainment rehearsals • Mission Orders use: OPORD Paragraph 4. Annex F. Concept of Support and Logistics Estimates • Management of acceptable risk	• Time and resources allocated to achieve mission objects and Commandere's intent • Units trained and ready to execute their Mission Essential Tasks (METs) and win across the spectrum of operations • Formations integrated into combined arms teams: delivering sustainment support enabling maneuver commander freedom of action • Ability to synchronize, integrate, and echelon commodities and materiel in support of maneuver commanders • Command climate unafraid of failure, accepting of honest mistakes that inculcates accountability, the warrior Ethos and a customer focus	Unit trained and validated to display and conduct Decisive Action Operations when ordered
2 Training	• Maximize use of time and training resources available (MCTP and home station training exercises) • Training Meetings, QTBs and S-3 Synch Meetings • Established standards of enforcement • Redefined and validated SOPs/Battle Drills	• Proficiency in MDMP and orders production • Skillful execution of tactical tasks • Ready, confident and adaptive formations prepared to operate in fluid environments • Confident leaders who act independently within Commander's intent	
3 Maintenance & Supply	• Properly executed command maintenance, maintenance meetings, and logistics sychronization (LOGSYNC) meetings • Active CSDP and CMDP programs	• Ability to forcast sustainment and surge requirements based on operational and human factors • Efficiencies created through well-rehearsed processes and enforced standards and discipline • Expeditionary, ready, and self-deployable units	
4 Leader Development	• Focused on growing leaders through professional development and certification progress • Leadership presence, mentorship and oversight • Proper balance between work, family, and health	• Professionally developed Officers and NCOs • Subordinate leaders trained and resourced to achieve goals • Use of mission command in execution of tasks • Competent and adaptive leaders who overcome unplanned challenges and establish and enforce high standards and discipline • Component and adaptive leaders who overcome unplanned challenges and establish and enforce high standards and discipline • Learning organizations that use the AAR process	
5 Team Building	• Formal and informal engagements that develop rapport and foster collaboration • Develop the wider sustainment team • Understand the role of influence vs direct oversight • Integration of EAB units into long range training plan • Volunteer to provide OC/T support to CTC	• Organization that quickly and effectively disseminate important information synchronized across the command • Seamless modularity and task organization to complete assigned tasks • Synchronization between tactical units (FSC/BSB), operational assets (Sustainment BDE/ESC/TSC), and strategic enablers (AMC/DLA)	

Figure 7-3a. Readiness through a Combat Training Center Rotation[8] (Guide)

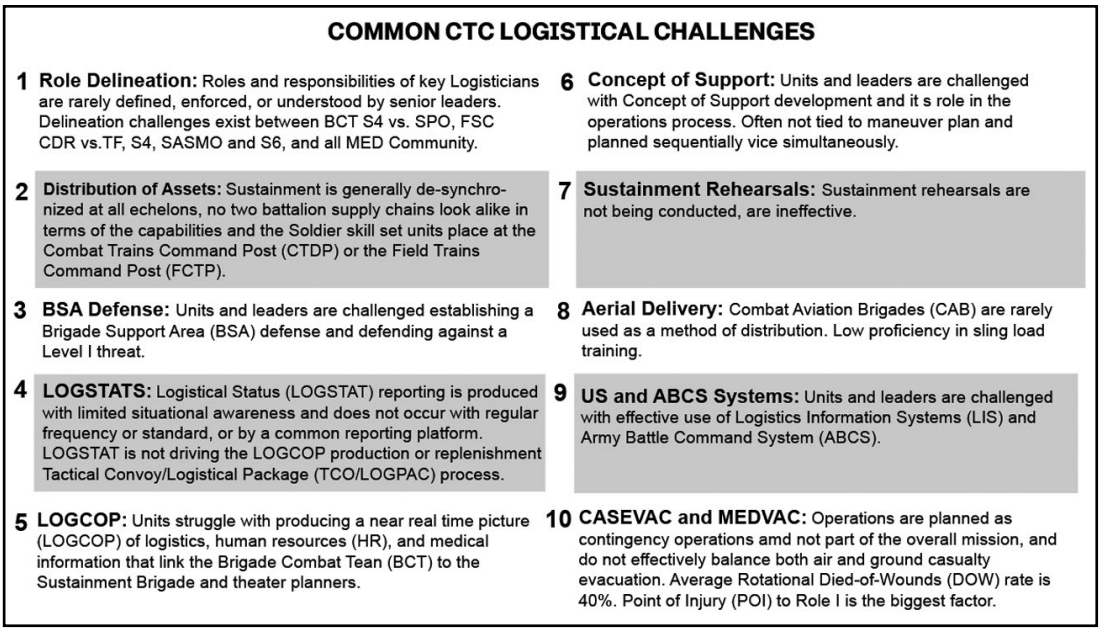

Figure 7-3b. Combat Training Center Logistical Challenges[9] (Guide)

Endnotes

1 Army Regulation (AR) 750-1, *Army Materiel Maintenance Policy*, 2 February 2023, Appendix A, Section I.

2 Army Techniques Publications, (ATP), 4-33, *Maintenance Operations*, 19 November 2019.

3 AR 750-1, *Army Materiel Maintenance Policy*, 2 February 2023. https://armypubs.army.mil/epubs/DR_pubs/DR_a/ARN32929-AR_750-1-000-WEB-1.pdf

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5 ATP 4-90, *Brigade Support Battalion*, 18 June 2020.

6 CASCOM Maintenance Meeting Playbook Trifold. https://cascom.army.mil/asrp/od-tech.html

7 CASCOM Maintenance Meeting Playbook Trifold. https://cascom.army.mil/asrp/od-tech.html

8 Headquarters, Department of the Army (HQDA), G-4 Hip Pocket Guide. https://api.army.mil/e2/c/downloads/449576.pdf

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CHAPTER 8

Agencies for Assistance

Seasoned professionals are available to assist the leaders of the brigade combat team with maintenance questions or concerns. These professionals are available to instruct, advise, and if needed, help correct deficiencies the unit might have with their maintenance program. A listing of the professionals follows.

Division G-4 Maintenance/Supply Sections

This organization normally has the most experienced maintenance and supply warrant officers and senior non-commissioned officers in the division. They can offer instruction, mentorship and assist the brigade combat team leader in developing a strategy and a course of action to improve the unit's maintenance program.

Command Maintenance Evaluation and Training Team

The Command Maintenance Evaluation and Training team (COMET) Team usually consists of experts (retired warrants and senior non-commissioned officers), in the maintenance and supply field. They are a powerful tool for commanders to use to assess the status of their unit in the areas of supply and maintenance. The team can help identify areas of weakness, issues, and concerns. They can also provide tailored individual/unit reinforcement training based off each assessment.

The mission of the COMET team is to help prepare, sustain, and reset conventional land forces to support combatant commander requirements. COMET team members are well versed in all current and updated regulations, field and technical manuals, and standard operating procedures, to ensure they provide accurate information to train the Soldiers.

Unit commanders can contact the COMET Team and request courtesy inspections on their operations. Courtesy inspection results are kept between the COMET team and the unit commander. More importantly, COMET personnel stand ready to assist the unit with efforts to correct any deficiencies found. They can identify trends or logistics issues the unit might have, and then provide the tools to correct the deficiencies.[1]

COMET can help with:

- Preventative maintenance checks and services
- Maintenance management
- Shop operations
- Food service operations
- Army Supply
- Army Maintenance
- Property accountability
- Supply management
- Supply Support Activity operations

- Publications
- Unit movement
- Command Supply Discipline Program
- Command Maintenance Discipline Program

COMET teams are located at:

- Fort Stewart, GA
- Fort Campbell, KY
- Fort Cavazos, TX
- Fort Carson, CO
- Fort Riley, KS
- Fort Drum, NY
- Fort Bliss, TX
- Fort Irwin, CA
- Aberdeen Proving Grounds, MD
- Joint Base Lewis-McChord, WA
- Hawaii with coverage for Guam and America Samoa
- Alaska
- Korea with coverage of Japan[2]

Army Materiel Command's Army Field Support Brigade and Army Field Support Battalion

The Army field support battalions (AFSBn) have subject matter experts from:

- Tank-Automotive and Armament Command (TACOM)
- Communication and Electronic Command (CECOM)
- Aviation and Missile Command (AMCOM)
- Joint Munitions Command
- Defense Logistics Agency
- Logistics Readiness Centers

Logistics Assistance Representatives (LARs) accommodate for the following:

- Technical guidance to resolve problems with weapon systems, systemic logistics and equipment.
- Updated technical and safety information to the field.
- One-on-one technical/logistics training to maintain unit readiness and safety.

The LARs listed above are under operational control to the Army field support brigade (AFSB) and AFSBn and are available to assist units and leaders with maintenance and supply issues. If requested, they are available to attend the battalion and brigade commander's maintenance meetings. They can also deploy with the unit to combat training center rotations, on exercises, or on operational mission deployments.

An AFSBn has a lead senior technical representative (General Schedule [GS]-13/14 pay grade) and a team of LARs based on commodity (i.e., Communication and Electronic Command has a generator LAR, Radar LAR, Radio LARs, etc.). The AFSBn support operations officer unit readiness division, assists in unit readiness issues and provides reach-back to the Army Materiel Command (AMC) enterprise to resolve issues.

The AFSBn division logistics support element (DLSE) deploys with the division to provide readiness visibility and reach back to the AMC enterprise. When the DLSE deploys, the LARs work under the operational control for the DLSE. There is also a representative from Defense Logistics Agency in support.

The DLSEs serve as the primary link to sustainment-level maintenance capabilities for the division, brigade combat team and combat aviation brigade. DLSEs provide maintenance support forward and reach-back capability. The team collaborates with supported units and helps maintain the division's equipment using a mix of Soldiers and contracted technicians. The DLSE works with FSRs to support the brigade's ability to shoot, move, and communicate. DLSE support for the brigade support battalion requires additional coordination/approvals from higher headquarters.

The Defense Logistics Agency customer service representative is an important asset for providing information on the status of non-Army managed items provided by Defense Logistics Agency. This representative can also facilitate delivery of long lead time parts.[3]

Forces Command Ground Readiness Evaluation Assessment and Training Team

The U.S. Army Forces Command **(**FORSCOM) established the ground readiness evaluation assessment and training (GREAT) team because of an Army Audit Agency inspection of 15 brigade combat teams equipment readiness. The GREAT team mission is to provide oversight and an external review of potential challenges that impact readiness within brigade combat team formations.[4] FORSCOM developed it to support the overall FORSCOM Foundational Training Strategy, leveraging commander-to-commander dialogue to improve and reinforce the brigade combat team's multi-echelon training strategy and overall operational readiness.

The team has three fundamental purposes:

- **Evaluate.** Provide the brigade combat team commander an indication of where their unit stands relative to Army policies and regulation.
- **Assess.** Soldier knowledge, training, and ability to execute the brigade combat team's established standing operating procedures.
- **Train.** Provide immediate feedback to operator and crews, as well as operations/supply/maintenance personnel.

The FORSCOM GREAT team reinforces the Army's action plan to prioritize people and teams by measuring the brigade combat team's "interconnected network" of vehicle crews, squads, and logistics teams. The team provides the brigade combat team commander actionable information to build on by assessing three areas: maintenance, supply, and training. The sub-areas and individual

tasks under these functional areas connect directly to Command Discipline Programs, Army regulations, policies, or relevant technical manuals.[5]

Reserve Component

The Army National Guard has four types of maintenance facilities:

- Field Maintenance Shop (FMS)
- Combined Support Maintenance Shop (CSMS)
- Unit Training Equipment Site (UTES)
- Maneuver Area Training and Equipment Site (MATES)

Maintenance conducted at FMS facilities primarily involves inspections and mechanical repairs of vehicles. FMS facilities are not usually equipped to provide all levels of maintenance on vehicles or other types of equipment requiring other skill sets. When an FMS encounters a piece of equipment or set of repairs that it cannot complete, it may evacuate the equipment to another support facility. Usually, an FMS sends such equipment to a CSMS. CSMS facilities are staffed and equipped for a broad variety of standard and complex maintenance tasks, including non-routine or complex work "evacuated" from FMS facilities. Staffing levels are higher, and the profile of supported equipment is more varied at CSMS facilities than at FMS facilities, with CSMSs servicing small arms, artillery, electronics, and other specialized equipment.[6]

Endnotes

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CHAPTER 9
Protection

The Nagorno-Karabakh conflict, and more recently, the Russia invasion of Ukraine, prove the modern-day battlefield is truly transparent. Units, especially support units, cannot hide. The prolific use of small, unmanned aircraft systems (sUAS) for targeting and strikes, make it nearly impossible to remain undetected.

> "States and organizations who cannot afford a full capability air force of manned aircraft can now acquire a capability that may not be as comprehensive or as powerful as manned aircraft. Thus, this is a huge leap from nothing, or almost nothing, to capabilities they could only dream of. For states like the U.S., [those in] Western Europe, Turkey, and Israel, with large and advanced air forces of manned aircraft, the drones are an incremental, albeit useful, improvement. For states like Azerbaijan, unable to fund and maintain an air force, though it had a smaller weaker air force, this was a radical enhancement in military capability. For an organization like Hezbollah, which cannot even establish and maintain an air force like Azerbaijan's, and which only began to use armed drones during its involvement in the Syrian Civil War, this is an enormous leap up." [1]

These platforms, enhanced with sensors and weapons, make hiding day or night a significant challenge. There is no sanctuary area within the brigade combat team or division area of operations. The enemy will target the brigade support area and sustainment units throughout the depth of the area of operations with direct and indirect fires.

Brigade support battalions (BSBs) should assume they are under observation and plan to displace, disperse, and react to all forms of contact during operations.[2] Understanding the operational environment facilitates proactive planning. Effectively reacting to contact is a battle drill. It requires Soldiers to understand these drills in each of the BSB's subordinate elements[3]. It is of emphasize that non-combat arms military occupational specialties may have to defend the brigade support area/unit maintenance collection point. This requires training in garrison prior to going to a combat training center or real-world operation.

Sustainment units, should disperse as much as possible, take every measure to implement effective cover and concealment, and take extensive measures to appear unimportant to increase survivability. Adversaries will collect battlefield intelligence and search for high value targets. Reduced ability to sustain forces is a lucrative target. Taking active measures to cover, conceal, or disguise can protect maintainers from enemy observation and targeting.

Army Doctrine Publication (ADP) 3-37, *Protection,* 31 July 2019, advises that, "Units conduct survivability within the limits of their capabilities". When terrain offers insufficient cover and concealment, digging in may be required to provide or improve cover enhances survivability. Similarly, using natural or artificial supplies such as camouflage may protect units from visual detection[4].

Key to survivability for sustainment units is integration of the brigade staff, specifically the protection working group. Survivability operations can provide the sustainment leader vital considerations that aid the formulation of a complete risk assessment for maintenance assets. See Army Techniques Publication (ATP) 3-37.34 *Survivability Operations*, 16 April 2018, for more information.

Steps to protection planning are identifying threats and hazards, assessing the threats and hazards to determine the risks, developing preventive measures, and integrating protection tasks into a comprehensive scheme of protection that includes mitigating measures. [5]

Leaders must ask themselves, "How can we remain undetected from observation and reduce our chances of being targeted?" Utilizing terrain, such as draws, reverse slopes, or urban terrain can result in protection to some degree. These features may provide protection by enhancing camouflage and concealment and providing protection against blast and fragmentation. Units obtain further protection by leveraging existing terrain and digging in by hand or with engineer assets.

All units conduct survivability operations within the limits of their capabilities. These include camouflaging positions and constructing individual or crew served fighting positions. "Engineers and chemical, biological, radiological, and nuclear (CBRN) units possess additional capabilities to assist survivability operations. These include hardening structures and positions and the reconnaissance, surveillance, and decontamination of CBRN hazards." (Field Manual [FM] 3-90, Tactics, 1 May 2023, paragraph 1-174)

Dispersion is the friend of a unit's effort to go unnoticed. Rows of vehicles and stacks of war materiel create equipment patterns that are easier to detect than random patterns of dispersed equipment. Use the surroundings to break up equipment patterns and disperse vehicles. Do not disperse equipment so far apart that it reduces the unit ability to accomplish a mission.[6]

The BSB provides the logistical support for the brigade. The BSB operates from a base or base cluster in the brigade support area. From this location, the BSB executes command and control over its organic companies conducting sustainment support. The BSB distribution company, field maintenance company, and medical company operate in the brigade support area. These companies may be collocated with the BSB command post, but during large-scale combat operations are tactically dispersed within the brigade support area in a way that facilitates sustainment operations, mutual support, and protection. The forward support companies collocate with the combat trains command post and operate in proximity with the supported battalions in the brigade combat team close area. The forward support company position capabilities in the brigade support area as part of field trains to expedite distribution support to the maneuver battalions." [7]

Clusters[8]

Base clusters may provide the leader the most advantages for dispersal and security. Figure 9-1 shows the notional layout of a brigade support area using base clusters and shows the advantages of dispersion and terrain masking.

Of primary concern for maintainers are the maintenance collection points (MCPs). The MCP is often located with the maneuver battalion combat trains command post and share defensive tasks. Dispersal within the combat trains for greater protection from hostile artillery and aviation (specifically UASs is important.

Site selection is an important consideration as leaders plan for unit MCPs. A good location for a MCP can help the unit remain undetected and have multiple exit routes in case of enemy contact.

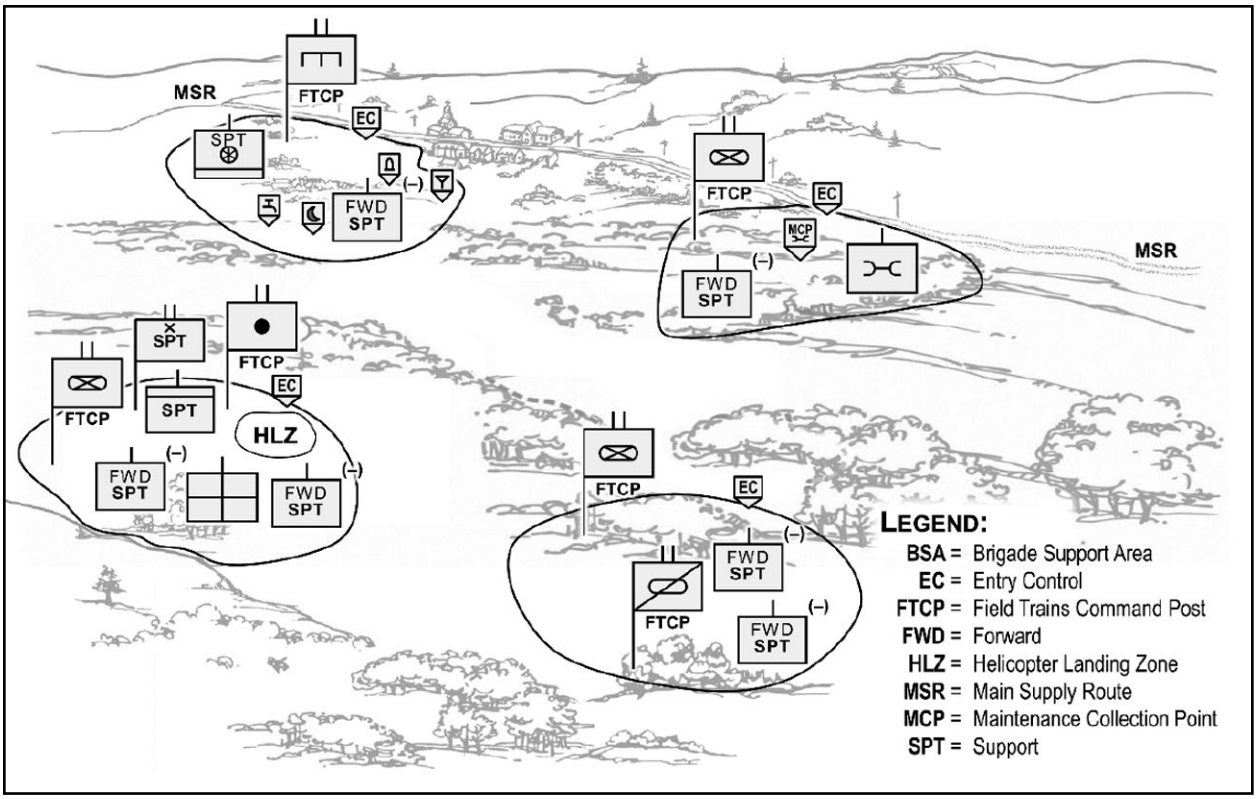

Figure 9-1. Example of Notional Brigade Support Area Layout using a Base Cluster

Maintenance teams should take every measure to reduce the enemy's ability to observe and target maintenance collection points (MCPs). See ATP 3-37.34, *Survivability Operations*, 16 April 2018 for more information.

MCPs in defensive operations are normally located further back from the front than during offensive operations. Dispersal within the MCP during defensive operations is even more important than in offensive operations as the location is typically in operation a longer time and easier to locate. The same considerations apply for collocating or not collocating with the combat trains command post. Collocation typically decreases the size of the perimeter allowing more maintainers to concentrate on repair operations.

The MCP can gain greater disbursement by not collocating with the combat trains command post; however, this requires more personnel for defensive tasks. The BSB commander must consider the impact on repair rates when using maintenance personnel for perimeter defense. Integrate crews accompanying non-mission capable platforms into brigade support area security operations.[9]

Leaders may need to consider diverging from doctrine if the threat situation dictates. Depending on conditions, units may have to modify the principle of fixing forward. When identified, Russia used long-range precision strikes against Ukrainian Armed Forces stockpiles, training establishments, and maintenance facilities. Ukraine was forced to move maintenance facilities much farther from the line of contact, not because distance assured protection, but because increasing the space over which the enemy had to search for them improved survivability.[10] Given this trend in modern combat, leaders need to be aware of the threat capability and intent and be prepared to adjust the positioning of maintenance activities in the brigade combat team area for survivability.

For further information on Protection see the following:

- ATP 3-01.81, *Counter-Unmanned Aircraft System Techniques*, April 2017, Chapter 2, 3 and 4
- ATP 3-37.34 *Survivability Operations,* 16 April 2018
- ATP 4-90, *Brigade Support Battalion*, June 2020
- ADP 3-37, *Protection*, 31 July 2019

Helpful Individual tasks include:

- Soldier's Manual of Common Tasks (STP) 21-1-Soldier training publication (SMCT) 052-COM-1361 Camouflage Yourself and Your Individual Equipment
- STP 21-1-SMCT 071-COM-4408 Construct Individual Fighting Position
- STP 21-1-SMCT 071-COM-0815 Practice Noise. Light, and Litter Discipline
- STP 21-1-SMCT 071-COM-0804 Perform Surveillance without the Aid of Electronic Device
- STP 21-1-SMCT 171-COM-4080 Send a Spot Report

Vignette

SPC Christopher Strawn sweated heavily under a glaring sun as he knelt beside an improvised checkpoint on a dusty gravel road. The checkpoint was not much — concertina wire strung between spindly tripods of tree branches set up on either side of the road. But it would have to do for now.

Strawn's unit, G Company, 250th Brigade Support Battalion, New Jersey Army National Guard, was arrayed in a rough semicircle nearby in the woods the road ran through.

His eyes darted left and right from under his helmet, scanning the area for anything out of place after a probing attack on the unit's flank. As a mechanic, he was usually more likely to be found under the hood of a Humvee than pulling security on a seemingly deserted road in the middle of nowhere.

But much of the past few days had been new experiences as the brigade his unit supports advanced into enemy territory. Most days, the company usually moved to a new location — breaking down equipment, loading trucks and then setting it back up again with each move, all made more difficult by sporadic attacks.

The enemy seemed to know every inch of the undulating wooded landscape. And they should. While much of the past few days may have been new experiences for Strawn and others in his unit, for the opposing forces at the Joint Readiness Training Center, this is what they do day in and day out.

By SFC Jon Soucy, National Guard Bureau, 20 June 2023, from National Guard Website https://www.nationalguard.mil/News/Article/3432496/44th-ibct-builds-generational-readiness-in-jrtc-rotation/

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3 ADP 3-37, *Protection*, 31 July 2019, page 2-1.

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5 ADP 3-37, *Protection*, 31 July 2019, pages 3-1, 3-37.

6 Ibid, p. 6-9

7 Ibid page 1-2

8 ATP 4-90, *Brigade Support Battalion*, 18 June 2020, page 4-5.

9 ATP 4-33, *Maintenance Operations*, 19 November 2019, page 3-09.

10 Zabrodskyi, Mykhaylo Watling, Jack Danylyuk, Oleksandr V., and Reynolds, Nick, Royal United Services Institute for Defence and Security Studies, Preliminary Lessons in Conventional Warfighting from Russia's Invasion of Ukraine: February–July 2022, Whitehall, London SW1A 2ET, United Kingdom.

CHAPTER 10

Battle Damage Assessment and Repair

The Russian invasion of Ukraine has clearly demonstrated that national logistics systems struggle to replace the damaged or destroyed equipment that results from large-scale combat operations (LSCO). A perfect example was seen in February 2023, when Russia tapped into strategic stocks to replace losses with old T54/T55 tanks.

If the United States suffers losses like Russia has in the Ukraine in the next fight, the U.S. will face similar difficulties in replacing key combat equipment as well. The industrial base that supplied the kind of Army that fought World War II battles has long since disappeared.

In Fiscal Year 2023, the Army plans to acquire 22 new M1 Abrams tanks, 80 less than originally planned. Over the next three years, the Army will deliver 200 fewer tanks to the force than was originally planned for in the Fiscal Year 2021 justification document. In Fiscal Years 2026 and 2027, the Army plans to receive 42 and 40 new M1's respectively. When comparing this to the battle damage assessments from the Russia-Ukraine war, the Army will struggle to field brigade combat teams in a prolonged conflict.[1]

As the paragraph above illustrates; this is not an environment conducive to production of massive amounts of equipment in a short amount of time. Currently the United States is scrambling to support the replacement of equipment loss in combat by the Ukrainian Armed Forces. World War II and the Korea conflict forced the United States economy to transition from a peacetime industrial base that made cars, refrigerators, and stoves to a war base that made combat equipment and trucks.[2] Even if the economy of the United States had to and did reorient from a peacetime footing to one supporting LSCO, it would not transition overnight. This would take months to complete. Unfortunately deploying units and units fighting have little time to prepare and successfully engage the opposition.

Therefore, it is imperative for a brigade combat team to have a training program that supports a plan to implement battle damage assessment and repair (BDAR). Units must be able to fix damaged equipment using expedient methods (i.e., BDAR kits, cannibalized parts from unrepairable equipment, and parts on hand in the bench and shop stock) to maintain sufficient combat power and stay in the fight.

The Army's primary source of information on Battle Damage Assessment and Repair is Army Technical Publication (ATP) 4-31/Marine Corps Reference Publication (MCRP) 3-40E.1, *Recovery and Battle Damage Assessment and Repair (BDAR),* 9 November 2020. This publication, ATP 4-31. ATP 4-31 provides an overview of battlefield recovery and battle damage assessment and repair for the fundamental purpose of returning combat assets to the battlefield as soon as possible. This publication presents the different types and methods used in recovery operations as well as guidance on the assessment and repair of battle-damaged equipment. This publication also reviews the rigging procedures and the utilization of mechanical advantage to accomplish recovery missions. This publication provides an overview of common recovery methods, techniques, and safety precautions for use by dedicated recovery personnel. The major change to ATP 4-31 from its previous version is the discussion of expedient repair and planning considerations for recovery operations and BDAR across all echelons.

Center for Army Lesson Learned (CALL) Handbook, 20-01, *Corps and Division Planer's Guide to Reconstitution Operations* indicates that, "Organizational changes have degraded capacity at echelons above brigade to conduct reconstitution operations. The capability to conduct limited reconstitution operations migrated to the tactical level, such as materiel management and human resource capabilities. This has led to a lack of operational-level capability to execute reconstitution operations. At echelons above brigade, organizations are challenged when conducting necessary reconstitution requirements such as:*

- Heavy equipment distribution
- Materiel integration and management
- Field-level pass back maintenance
- Sustainment-level maintenance
- Battle damage assessment and repair
- Human resource operations at division and corps levels

*Center for Army Lessons Learned (CALL) Handbook, 20-01, *Corps and Division Planner's Guide to Reconstitution Operations*. page vii.

It all starts with the unit commander. Commanders determine whether to use BDAR on damaged equipment when standard maintenance repairs are not practical. The commander may also approve the use of controlled exchange or cannibalization to meet repair parts requirements. Cannibalization is only used during combat operations. Commanders must clearly communicate the authority to use BDAR, control exchange, and allow cannibalization in the operation order. The commander may limit these actions to a specific operation or phase of an operation. The support operations staff can also task or attach maintenance assets to supported units and help expedite parts delivery by ground or air to speed repairs and equipment return to a supported unit.

Commanders can use fabrication to enable rapid replacement of critical repair parts or to enhance BDAR. Fabrication on the battlefield is a critical capability that uses many different technologies including additive and subtractive processes. Emerging additive manufacturing technologies can drastically reduce the amount of time it takes to obtain or make parts. This technology also enables the production of shapes that are impossible with traditional manufacturing processes. Subtractive manufacturing, using computer numerical controlled mills and lathes, enhances a Soldier's ability to fabricate and replicate items in an expeditionary environment (ATP 4-33, *Maintenance Operations*, 9 July 2019 page 3-3).

The brigade support battalion commander plays a key role in developing the brigade combat team BDAR plan. ATP 4-33 outlines the responsibilities for the commander as follows.

The brigade combat team commander, with input from the brigade support battalion (BSB) commander, may establish time factors for evacuation of battle-damaged or non-mission capable equipment. Time limits identify the amount of time a piece of non-mission capable equipment can be worked on before moving it to the rear. The decision on whether to implement time limits must include an analysis of time-distance factors. Moving a piece of equipment to another location for service may significantly increase the amount of time it takes to return the item to the unit in a combat ready status. Time limits, when adopted, are typically included within a unit's standard operating procedures but should provide flexibility to adjust to local conditions and operational tempo.

The maneuver unit commander and brigade support commander can array their maintenance personnel across the battlefield in a manner that will most efficiently allow maintainers to repair disabled or battle-damaged equipment. Commanders must keep in mind if they elect to use time-factored evacuation, there is no maintenance support for key weapons systems above the forward support company level. The commander must pre-position maintainers who possess the requisite skills, special tools, proper repair parts, references, and adequate time to preclude key weapons evacuated to the brigade support area to be fixed.

The forward support company in the maintenance collection point must be aware of time limits established by unit standard operating procedures and manage workflow accordingly. This ensures that a planned move does not interfere with maintainers repairing equipment. The time between moves during offensive operations is typically shorter than in other operations. An accurate maintenance assessment of incoming equipment, like the triage process used by medical personnel, determines priorities of work. It may also be the basis for the maintenance collection point not accepting equipment for repair. For more information see ATP 4-33, pages 3-5 to 3-6.

Critical to the BDAR process is the battle damage assessment. Maintainer's must quickly, and accurately assess the extent of the damage and perform expedient repairs or recovery requirements for the equipment. A poor damage assessment can result in overlooked secondary damage or result in unnecessary equipment recovery. Battle damage assessment must take place at the site of the breakdown. Maintainers must constantly be aware of the threat and take preventive measures for cover, concealment, and dispersion during maintenance. A properly conducted battle damage assessment accurately determines the extent of primary damage and secondary damage to the sub-systems and components and considers the type of repair and the risks involved in that repair. The assessment should also include an estimate of required personnel, time, and supplies required to perform expedient repairs (ATP 4-33, page 3-24). For additional information see ATP 4-33, page 3-180 for basic rules of assessment. The brigade combat team commanders must work with the brigade support battalion commander to develop a home station training program to educate maintainers and crews on methods to execute BDAR. It will be essential to keep the brigade combat team in the fight.

For further information on BDAR, see the following references:

- ATP 4-31, *Recovery and Battle Damage Assessment and Repair (BDAR)*, November 2020
- https://armypubs.army.mil/epubs/DR_pubs/DR_a/ARN34177-ATP_4-31-001-WEB-2.pdf
- Battle Damage Assessment and Repair (BDAR), Smart Book, December 2017
- https://rdl.train.army.mil/catalog/dashboard Hsearch Graphic Training Aid (GTA) 01-14- 001, December 2017 latest version
- U.S. Army Training and doctrine Command (TRADOC) Battlefield Recovery Smart Book, GTA 09-14-002, Sept 2017
- https://rdl.train.army.mil/catalog-ws/view/100.ATSC/1B1B6532-FE39-4386-904C- 4A2E9326D5A3-1274530630894/gta09_14_002.pdf
- ATP 4-33 3-24, *Maintenance Operations*, 9 July 2019, page 3-24 https://armypubs.army. mil/epubs/DR_pubs/DR_a/pdf/web/ARN19571_ATP%204-33%20 C1%20FINAL%20WEB. pdf

- Training and Evaluation Outline Report, Task Number: 43-SEC-1503 Task Title: Perform Battlefield Damage Assessment Repair (BDAR) Operations, 9 November 2021 https://rdl.train.army.mil/catalog-ws/view/100.ATSC/06A07D1D-2047-468D-AB71- 3FAAAF3CA9CE-1578331059422/report.pdf

Endnotes

1 Judson, Jen, DefenseNews, "Army acquisition chief would welcome tank ramp- up if Congress funds it," 18 May 2022.

2 Harper, Jon, National Defense, "Vital Signs 2020: Industrial Base Could Struggle to Surge Production in Wartime," 24 January 2020.

APPENDIX A
Logistic Web-based Tools

There are many websites that can assist the leader with information that can help craft a better maintenance program. Below are just a few to assist in developing and maintaining a unit maintenance program.

Army Enterprise Portal (AESIP) includes Commanders'Actionable Readiness Dashboard (CARD): https://www.aesip.army.mil/irj/portal

Army Pubs Directorate (APD): http://www.apd.army.mil/

Army Records Information Management System, (ARIMS): https://www.arims.army.mil/MainPage.aspx

Army Sustainment Magazine: https://www.army.mil/armysustainment

Army Sustainment Resource Portal: https://cascom.army.mil/asrp/index.html

(formerly known as Sustainment Unit One Stop) [SUOS]), this new updated portal is managed by the U.S. Army Combined Arms Support Command (CASCOM) and provides consolidated access to Army sustainment resources, including training, doctrine, lessons learned, and more)

CASCOM Command Supply Discipline program: https://cascom.army.mil/g_staff/g3/TTD/Products/QM-How-to-Handbook/CSDP%20Inventory%20Types%20and%20Procedures%20Handbook%20Final%2022%20November%2021.pdf

CASCOM interactive maintenance playbook: https://train.gordon.army.mil/webapps/imi/CASCOM/maintenance/story.html

CASCOM Sustainment Center of Excellence (SCOE): https://cascom.army.mil/

Defense Logistics Agency (DLA) Disposition Services: https://www.dla.mil/DispositionServices/
Force and Asset Search Tool, (FAAST): https://www.faast.army.mil/

Force Management System (FMS): https://webtaads.belvoir.army.mil/unprotected/splash/

Global Combat Support System-Army, (GCSS-Army): https://www.gogcss-army.army.mil/welcome

Integrated Development Environment/Global Transportation Network) Convergence (IGC): https://www.igc.ustranscom.mil/igc/

Materiel Management Information System (MMIS): https://www.mmis.army.mil/mmis/index11.asp

MilSuite Logistics Magazines and Newsletters: https://www.milsuite.mil/book/community/spaces/sustainnet/news_items/logisticsmagazinesandnewsletters/content?filterID=contentstatus[published]~category[sustain-warfighters-forum-newsletter]

Procurement Integrated Enterprise Environment (PIEE): https://piee.eb.mil

PS Magazine: https://www.psmagazine.army.mil/

Radio Frequency Identification-In Transit Visibility (RF-ITV): https://national.rfitv.army.mil/
Single Mobility System: https://sms.transcom.mil/sms-perl/smswebstart.pl

TACOM Training Products: https://utap.army.mil/

TACOM-Unique Logistics Support Applications (TULSA): https://tulsa.tacom.army.mil/

Technical manuals: https://armypubs.army.mil/ProductMaps/PubForm/EM.aspx

U.S. Army Ordnance Corps Command Maintenance Discipline Program (CMDP) Portal: https://goordnance.army.mil/

APPENDIX B

References

AR 600-55, *The Army Driver, and Operator Standardization Program,* September 17. 2019. AR 700-138, *Army Logistics Readiness and Sustainability (MMDF),* 23 April 2018.

AR 710–2, *Supply Policy Below the National Level,* 28 March 2008. AR 750-1, *Army Materiel Maintenance Policy,* 2 February 2023.

AR 750–10, *Modification Program,* 23 October 2019.

ATP 3-04.7, *Army Aviation Maintenance*, 20 October 2020.

ATP 3-09.23 *Field Artillery Cannon Battalion*, 14 September 2015.

ATP 4-33, Change 1, *Maintenance Operations*, 9 July 2019.

ATP 4-90, *Brigade Support Battalion*, June 2020, 18 June 2020.

DA Pam 710-2-1, *Using Unit Supply System* (Manual Procedures), 1 December 2016. DA Pam 750-1, *Commanders' Maintenance Handbook,* 2 February 2023.

DA Pam 750-3, *Guide for Field Maintenance Operations,* 11 April 2023.

DA Pam 750–8, *The Army Maintenance Management System (TAMMS) User's Manual,* 22 September 2005.

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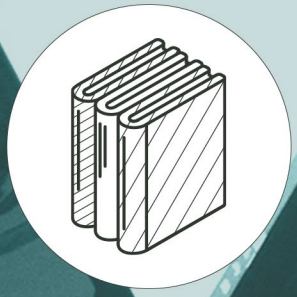


REQUEST FOR PUBLICATION

The CALL library is home to thousands of articles and publications. Our materials support units and Soldiers in multiple scenarios covering CTC and MCTP rotations, DSCA, and ongoing contingency.

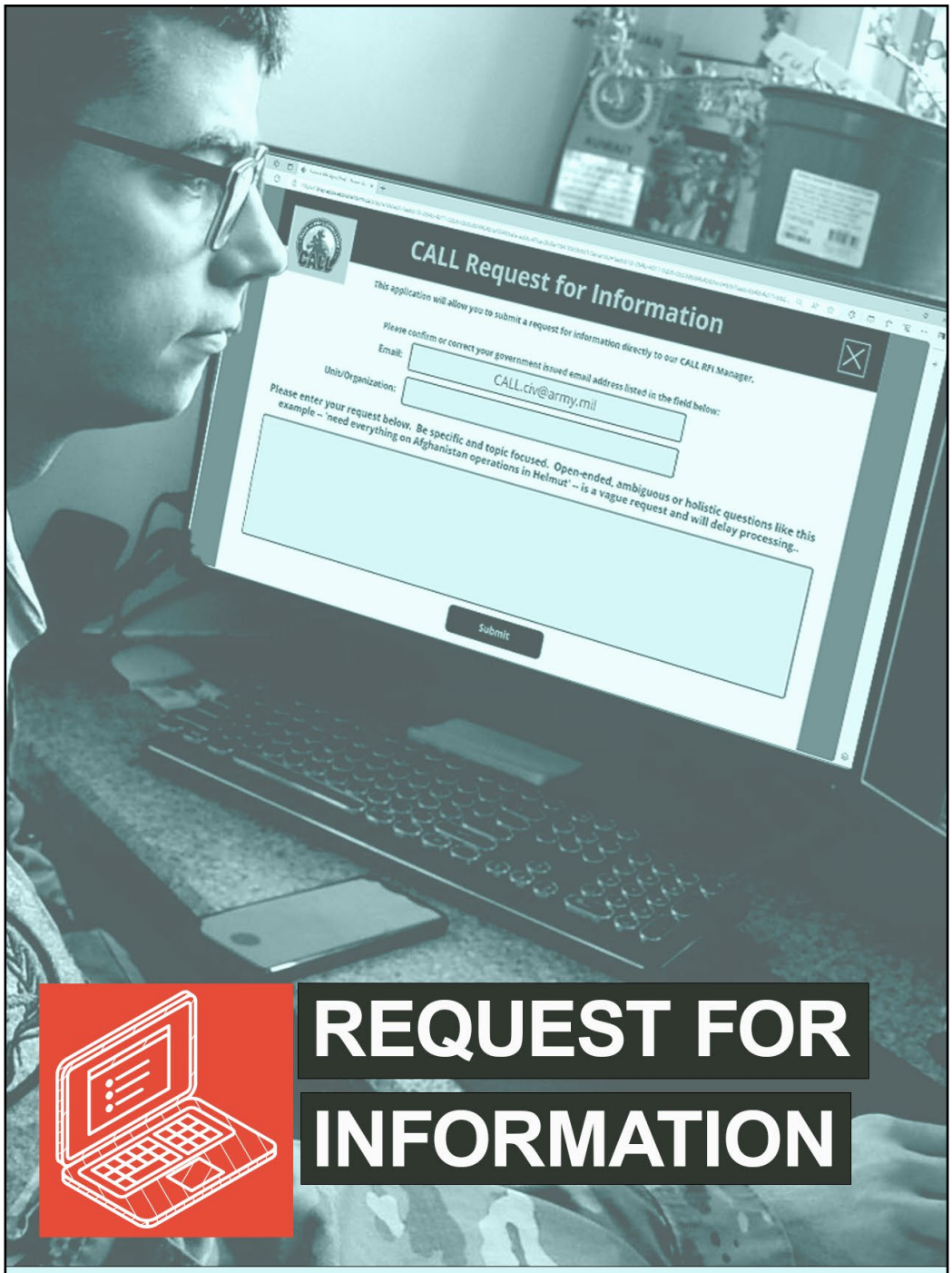
APPENDIX C

Glossary

AAME	Army Award for Maintenance Excellence
ADP	Army doctrine publication
AFSB	Army field support brigade
AIT	advanced individual training
AMC	Army Materiel Command
AOAP	Army Oil Analysis Program
AR	Army regulation
ASI	additional skill identifier
ATP	Army techniques publication
ATSC	Army Training Support Center
AVTF	aviation task force
BDAR	battle damage assessment and review
BSB	brigade support battalion
CALL	Center for Army Lessons Learned
CARC	chemical agent resistant coating
CASCOM	Combined Arms Support Command
CBRN	chemical, biological, radiological, and nuclear
CM	counter mobility
CMDP	Command Maintenance Discipline Program
COA	course of action
COMET	command maintenance evaluation and training team
CPC	corrosion prevention and control
CTCP	combat trains command post
CUSR	commander's unit status report
DA	Department of the Army
DART	downed aircraft recovery team
DATE	decisive action training environment
DD	Department of Defense
DLSE	division logistics support element
EAB	echelons above brigade
ERPSL	essential repair parts stockage list
ESR	equipment status report
FM	field manual
FM	frequency modulation

FMT	field maintenance team
FORSCOM	U.S. Army Forces Command
FRS	forward repair system
FSC	forward support company
FTCP	field trains command post
GCSS-A	Global Combat Support System-Army
GFC	ground force commander
GREAT	ground readiness evaluation assessment and training
GS	general schedule
GTA	graphic training aid
GTRAC	Global Combat Support System-Army Training and Certification
JBC-P	Joint Battle Command-Platform
JCR	Joint Capabilities Release
JLTV	Joint Light Tactical Vehicle
LAR	logistics assistance representative
LO	lubrication order
LOGPAC	logistics package
LRP	logistical release point
LSCO	large-scale combat operations
LUP	low-usage program
MAC	maintenance allocation chart
MAM	maintenance action message
MCO	maintenance control officer
MCP	maintenance collection point
MCPP	Marine Corps planning process
MCRP	Marine Corps reference publication
MCS	maintenance control section
MCWP	Marine Corps Warfighting publication
MDMP	military decision-making process
MMIS	Modification Management Information System
MOS	military occupational specialty
MTOE	modified table of organization and equipment
MTW	maintenance terrain walk
NBCRV	nuclear, biological, chemical reconnaissance vehicle
NMC	non-mission capable
OC	observer controller
OR	operational rate
PACE	primary, alternate, contingency, and emergency (plan)

PAM	pamphlet
PBO	property book officer
PMCS	preventive maintenance checks and services
PVC	poly vinyl chloride
RandS	reconnaissance and surveillance platoons
SASMO	Sustainment Automation Support Management Office
SLED	System-Level Embedded Diagnostic (program)
SLOC	storage location
SMCT	Soldier's manual of common tasks
SOP	standard operating procedure
SSA	supply support activity
SSL	shop stock listing
STAMP	Smart Tool Aviation Maintenance Picture (program)
STP	Soldier training publication
TAA	tactical assembly area
TACOM	Tank-Automotive and Armament Command
TACSOP	tactical standard operating procedure
TAMMS	The Army Maintenance Management System
TC	technical circular
TM	technical manual
TMDE	test, measurement, and diagnostic equipment
TRADOC	Training and Doctrine Command
TTP	tactics, techniques, and procedures
UMCP	unit maintenance collection point
USA	United States Army
VOIP	voice over Internet protocol
VSAT	Very Small Aperture Terminal
Z_EQUST	equipment status



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APPENDIX D

Change sheet for Leaders Guide to Maintenance and Services

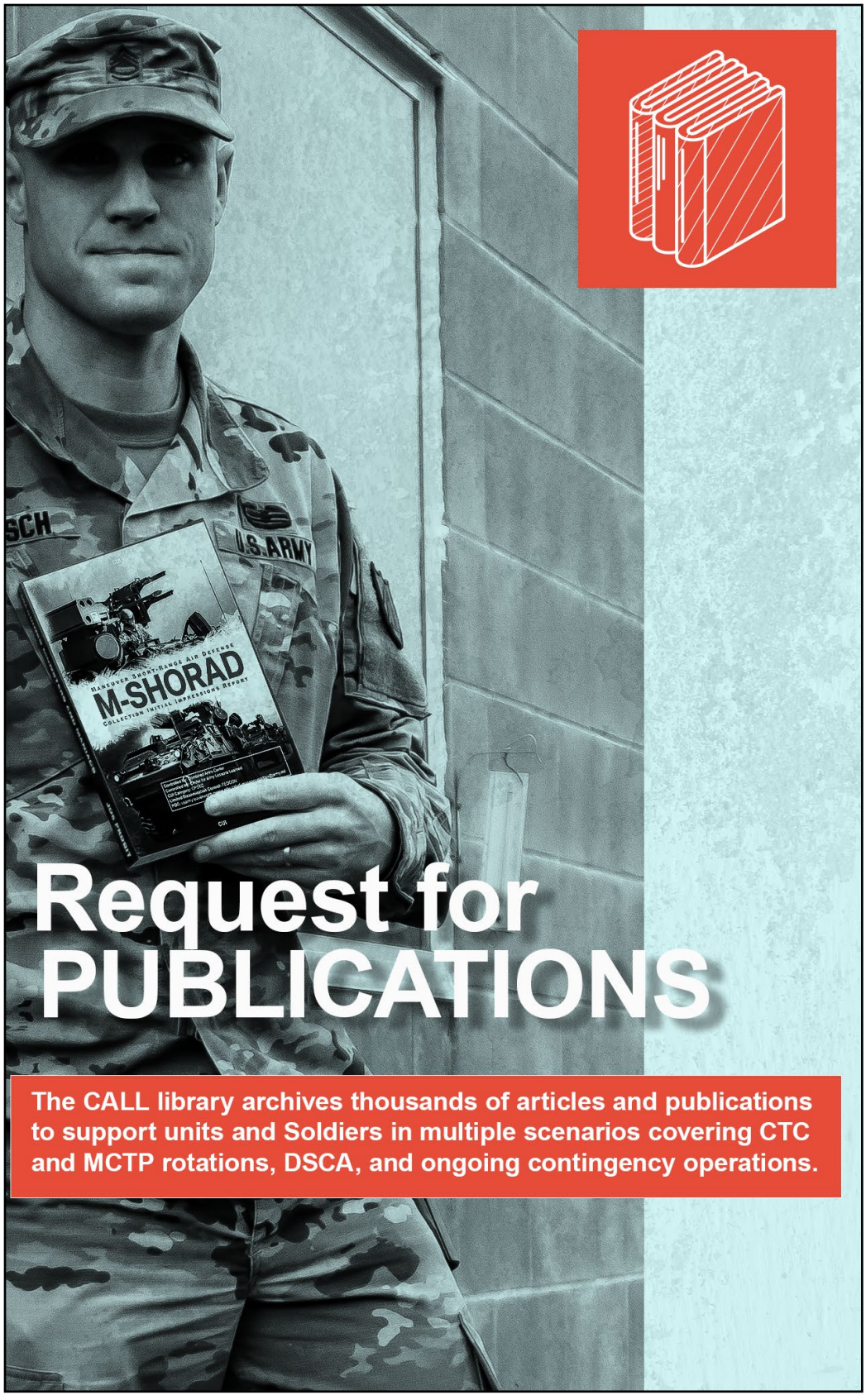
CALL 23-08 (682)

The reader should make the following changes/deletions to the *Leaders Guide to Maintenance and Services*. This will serve as Change 1 to the Handbook.

- Add into the grey box ("Up Front") at the top of Chapter 5:

  HQDA EXORD 335-23, *Army Equipment Services Optimization,* 1 November 2023, and associated maintenance action messages

- Delete Chapter 8 (Non-combat Operations Maintenance Plans) in table of contents and in book.
- Change Chapter 9 to Chapter 8 in table of contents and in book.
- Change Chapter 10 to Chapter 9 in table of contents and in book.
- Change Chapter 11 to Chapter 10 in table of contents and in book.
- Delete any other references to NCOMP (non-combat operations maintenance plans).



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Annex A
Example Unit Maintenance SOP

1-7 CAVALRY
GARRY OWEN

MAINTENANCE SOP

UPDATED 05 JUN 2021

Click here to link to the MS Word version Annex A:
Example Unit Maintenance SOP

Approved for Public Release
Distribution Unlimited

DEPARTMENT OF THE ARMY
1st Squadron, 7TH Cavalry Regiment
1st Armored Brigade Combat Team, 1ST Cavalry Division
Fort Hood, Texas 76544

AFVA-UAI-GCO 5 June 2021

MEMORANDUM FOR RECORD

SUBJECT: 1-7 CAV Maintenance SOP

1. Commander's Guidance.

   a. According to AR 750-1, the Army has one maintenance standard. It is based on the technical manuals of the operator's -10 manual and the unit level maintenance -20 manuals. The unit level maintenance program provides the cornerstone that will sustain our equipment readiness level at a go to war posture. Maintenance requires continuous emphasis by all leaders and maintenance managers.

   b. The Commander must approve any deviations from this SOP. However, sections may amplify applicable portions of the SOP which require modification or clarification. Maintenance leaders will review and update this SOP semiannually and when needed due to changes in policies and procedures.

   c. All Officers, Non-Commissioned Officers, and Troopers must read and comply with the provisions of this SOP. The Commander will ensure this SOP is always readily available down to section level.

   d. There are constant changes in policies and procedures throughout the Army that may require changes to this SOP. As we gain maintenance experience throughout the command, there may be occasions where this SOP requires revisions. Therefore, Soldiers and leaders can submit their written recommendations for changes through the commander. The commander must approve the recommendation before implementing the change. This document is a living document requiring semi-annual updates or as needed.

   e. This SOP supersedes all previous Maintenance SOPs.

2. PURPOSE. This SOP is standardizing organizational maintenance policies, training procedures, and operations. It intends to provide the necessary guidance for 1-7 CAV, 1ABCT, 1CD with the goal of achieving and maintaining maximum materiel readiness and mission capability of all equipment assigned.

3. POLICY.

a. Maintenance is a continuous process. Supervisors must evaluate in both field and garrison environments. Commanders will ensure that maintenance periods, scheduled services, command maintenance, and PMCS days are scheduled on the Troop training calendars and approved copies are provided to MCS. The Troop's short range and long-range calendars will also reflect maintenance requirements IAW FM 25-101. Troops will conduct these activities in a manner that will provide the most benefit from a maintenance and training standpoints. The leadership will be present during services along with the assigned driver to each vehicle.

b. Troop Commander will designate an officer who will perform the duties of troop maintenance officer.

4. SCOPE – This SOP applies to all personnel assigned or attached to 1st Squadron, 7th Cavalry Regiment.

5. OBJECTIVES:

a. Maintain equipment at -10/-20 standards.

b. Obtain maximum operational readiness of equipment.

c. Enhance the unit's materiel readiness program by identifying areas requiring special attention.

d. Meet the maintenance goals and objectives.

(1) Operational readiness of all fleets more than 90 percent
(2) SSL zero balance less than 6 percent
(3) Class IX recoverable items turned in within Army standard of 10 days – 100%
(4) AOAP and calibration: 100 percent enrolled and less than 2 percent delinquent.
(5) All items post good receipted (PGR) from 115th BSB SSA within 3 days and all discrepancies corrected with the SSA's Accountable Officer.

e. Clarify maintenance policies and procedures as they pertain to this Troop.

f. Ensure the maximum service life of all equipment.

6. MAINTENANCE PRIORITIES: The Troop and unit's maintenance efforts will be directed according to the following order of priorities:

a. Safety.

b. Deadline Deficiencies: Identify, repair, or order part within 24-hours. Create a job order for equipment requiring DS maintenance support 72 hours. Install non-

mission capable repair parts 02 priority on equipment within 24 hours from received date.

c. Schedule services: Execute services within 10 percent tolerance from date issued from the GCSS-A computer.

d. Non-deadline deficiencies: These deficiencies can wait for scheduled services or as directed otherwise by the Commander. However, correct deficiencies as soon as time is available.

7. CONCEPT: This SOP sets, describes and provides sustainment for unit level maintenance policies and procedures. It will also allow the Commander, platoon leaders, and leaders at all levels the flexibility they need in designing and implementing an effective maintenance operational plan that will ensure maximum equipment operational readiness.

8. The point of contact for this action CW3 Jane Doe at jane.c.doe.mil@mail.mil or (210) 724-xxxx.

John M. Doe
LTC, AR
Squadron Commander

TABLE OF CONTENTS

Appendix A Responsibilities

1. Purpose: The purpose of this appendix is to describe the responsibilities of all personnel involved in the Squadron Maintenance Program from the Squadron Commander to the Operator.

2. General: Maintenance is everyone's responsibility, and everyone listed in this appendix plays a vital role in the success or failure of the Squadron Maintenance Program. Every area of responsibility listed is necessary for success and all Troopers and leaders in the Squadron must be familiar with these responsibilities.

3. Responsibilities:

A. Squadron Commander

(1) Commands, directs, and supervises the Squadron and attached units' maintenance plan. Conducts Command Maintenance Discipline Program (CMDP) inspections at random intervals; requires subordinate Commanders to conduct their own Troop CMDP inspections.

(2) Gives guidance and directs the planning and execution of the Squadron level maintenance program.

(3) Provides command supervision to Squadron maintenance activities.

(4) Advises higher headquarters of maintenance and repair parts supply requirements, support status, problem areas, recommended solutions, and anticipated future requirements.

(5) Implements maintenance and repair parts supply policies.

(6) Monitors the Army Maintenance Management System data accumulation.

(7) Reports improper supply economy or abuse of equipment and takes or recommends corrective actions.

(8) Establishes priorities for maintenance support.

B. Squadron Executive Officer

(1) The Squadron Commander's appointed administrator for all maintenance functions and operations within the Squadron.

(2) Directs and supervises the Squadron maintenance program IAW with the Squadron Commander's intent.

(3) Gives guidance and directs the planning and execution of the Squadron maintenance program IAW III Corps, 1CD, and 1ABCT policies and procedures.

(4) Reviews instructions issued by the staff to ensure conformity with established policies.

(5) Supervises plans, and reviews periodic reports and special reports to be submit to higher headquarters.

(6) Directs staff analysis to maintenance situations.

(7) Evaluates the maintenance program and recommends changes as required.

C. Squadron S-1

(1) Monitors personnel status.

(2) Programs assignments of maintenance personnel in coordination with the Squadron Maintenance Control Supervisor, FSC First Sergeant, and Squadron Command Sergeant Major.

(3) Ensures equal distribution of maintenance personnel unless directed by the Squadron Commander to prioritize a specific Troop as a line of effort.

(4) Assigns personnel based on Commander's guidance.

(5) Processes recommendations for citations, honors, and awards.

D. Squadron S-3

(1) Serves as the main staff coordinator on the relocation of units and mission assignments.

(2) Prepares, publishes, confirms, and distributes operation orders, movement orders, and SOP's, to include maintenance and recovery plan.

(3) Allocates training time, including maintenance training.

(4) Coordinates with MCO and Troop Commanders on individual training requirements; for example: MOS schools, on-the-job training, cross training, skill qualification training, and professional development training.

(5) Programs, allocates, obtains, and fills appropriate school allocations.

(6) Coordinates with Commanders and staff to forecast training, and associated maintenance and logistics requirements.

(7) Annotates all Troop Services windows on Squadron Long Range Training Calendar to avoid conflict with taskings from higher, etc.

E. Squadron S-4

(1) Monitors equipment status for availability (new equipment).

(2) Coordinates with SMO on equipment turn in procedures.

(3) Monitor changes in equipment authorizations.

(4) Allocates and monitors funds for all expendable/durable items.

(5) Consolidates the supply requirements for organic and attached units.

(6) Coordinates with the S-1 on EM requirements.

(7) Maintains Durable/Expendable Shortage Annexes for all end items by Troop at the Squadron Level, ensures the Troop Commander has authorized all shortages and appropriate requisition initiated.

(8) Ensures the BDE Property Book Office maintains Non-Expendable Shortage Annexes for all end items. Validates that all shortages are properly authorized and have a valid requisition.

F. Squadron S-6

(1) Provides dedicated communications personnel to each Troop for each command maintenance day, training exercise, and services.

(2) Establishes Communications Shop to provide -20 Level support to all Troops and to interact with -30 Level C&E Shop for all communications equipment in the Squadron.

(3) Ensures timely and accurate reporting of all communication equipment maintenance on all appropriate GCSS-A reports to include Troop NMC.

(4) Ensures all Joint Capabilities Release (JCR) parts are on order, tracked by document number and FMC/NMC, and accurately reported to Brigade S-6.

(5) Principle collection point for all radio batteries; both rechargeable and non-rechargeable batteries.

G. Squadron Command Sergeant Major

(1) Attends scheduled Command Maintenance periods.

(2) Ensures First Sergeants and first line supervisors attend scheduled maintenance periods.

(3) Advises the Squadron Commander of the unit's personnel gains, losses, strengths, and weaknesses.

(4) Checks maintenance operations from operator level through Squadron maintenance level and makes corrections where applicable.

(5) Identifies maintenance weaknesses, makes corrections through the NCO chain, and advises the Squadron Commander as needed.

(6) Distributes Squadron detail requirements between the Troops to limit distractions to maintenance.

(7) Ensures maximum participation of operator and first line supervisor during command maintenance periods.

(8) Ensures Troops comply with Motor Pool Safety, Organization, and Cleanliness standards through the NCO Chain, advises the Squadron Commander as needed.

(9) Ensures maintenance personnel (mechanics, clerks, armament, etc.) are not assigned duties that are not directly related to maintenance to include Staff Duty, Charge of Quarters, etc.

H. Squadron Maintenance Officer

(1) Plans, evaluates, and analyzes the maintenance program.

(2) Monitors the Squadron's maintenance program.

(3) Keeps the Squadron Commander, Squadron XO, and staff informed of the maintenance situation and the operational status of equipment.

(4) Supervise shop operations as needed.

(5) Supervise AOAP.

(6) Monitor operator/crew maintenance of equipment.

(7) Recommend new maintenance procedures to the Maintenance. Technician.

(8) Supervise the maintenance operation administrative sections.

(9) Develop maintenance-related training programs.

(10) Manage the Brigade warranty and recovery programs, and environmental programs.

(11) Perform quality assurance checks based upon the Brigade. Commander's guidance.

(12) Assist GCSS-A operators when required.

(13) Provide technical assistance as required.

(14) Conduct SAV/TAVs, Roadside Inspections.

(15) Ensure the timely submission of records and reports to higher headquarters in a timely manner.

(16) Runs the Squadron's Unit Maintenance Collection Point, including:

- reporting to Squadron TOC/TAC
- overseeing maintenance and recovery missions
- ensuring security is emplaced.
- selecting future UMCP sites IAW the Squadron's scheme of maneuver

I. Maintenance Control Officer (MCO).

(1) Is directly responsible to the Squadron Executive Officer for planning, organizing, and supervising the Squadron maintenance operations.

(2) Keeps the Squadron Executive Officer informed on the operational status of equipment.

(3) Supervises the Squadron maintenance program.

(4) Plans, evaluates, and analyzes the maintenance program.

(5) Directs and coordinates scheduled services windows with Squadron units.

(6) Monitors environmental compliance.

(7) Directly responsible for all Shop Stock List (SSL), GCSS-A procedures.

(8) Attends all brigade level maintenance meetings.

(9) Reconciles Class II/IX VL06I for the Squadron with 115th BSB SSA to ensure the Squadron receives all items within the five-day requirement.

I. Maintenance Control Technician (SMT)

(1) Monitors and supervises the Squadron maintenance section.

(2) Monitors the flow of requests for parts, scheduled maintenance, and repairs.

(3) Monitors the scheduling of preventive maintenance services, quality control inspections of maintenance operations and records, and analyze equipment deficiencies/failures.

(4) Monitors calibration requirements and coordinates with calibration coordinator for calibration support.

(5) Monitors the Squadron Army Oil Analysis (AOAP) program.

(6) Recommends and advises Squadron and Troop maintenance managers on new maintenance procedures, trends or patterns, and technical matters related to the maintenance of equipment.

(7) Coordinates with Supply Support Activity (SSA) on all matters related to SSL/Class IX repair parts.

(8) Assists the MCO in the preparation of the Squadron monthly readiness and AMSS reports.

(9) Maintains maintenance records IAW DA Pam 750-8 and other governing regulations.

(10) Provides technical assistance and guidance on all operator and organizational level maintenance.

(11) Attends brigade level maintenance meetings as required.

(12) Serves as the Squadron's Accountable Officer for all Shop Stock Listings; works with Troop Team Chiefs to ensure Shop Stock is accurately inventoried.

J. Maintenance Control Supervisor (MCS)

(1) Is the principal assistant to the Squadron Maintenance Officer and Squadron Maintenance Technician and assumes the SMO/SMT duties in their absence.

(2) Organizes and supervises shop operations and records section.

(3) Supervises testing, troubleshooting, repair, use of tools, replacement parts, and shop safety.

(4) Ensures all assigned mechanics have on hand, quality tools, toolboxes, and TMDE equipment to perform their daily maintenance tasks. Ensures mechanics and their supervisors maintain accountability of tools, protective clothing, and safety equipment.

(5) Organizes, conducts and/or supervises MOS related training and cross training personnel within the maintenance section.

(6) Monitors or ensures inventories are complete and ensures replacements are on order IAW AR 735-5 Cyclic and Annual Inventory requirements.

(7) Serves as the Squadrons Maintenance Talent Manager and assist the FSC First Sergeant in assigning maintenance personnel where they best support the maintenance section and its mission.

(8) Supervises Service and Recovery (SNR), GSE, Armament, evacuation, and combat repair team (CRT) procedures.

(9) Keeps the MCO informed on the status of all scheduled and unscheduled maintenance service and/or repairs.

(10) Supervises and monitors the maintenance operation administrative section.

(11) Mentors Troop Maintenance Teams in maintenance fundamentals, provides technical assistance, leadership, and development of the teams when necessary.

(12) Attends brigade level maintenance meetings as required.

K. Technical Inspector NCOs:

(1) Primary NCOs for all QA/QC of all vehicles for services, dispatching, and NMC fault repairs.

(2) Create and Maintain the Squadron QA/QC Schedule for all vehicles within the Squadron.

(3) Responsible for QA/QC bay to include all posted safety standards, work area, and inspection flow.

(4) Advises the MCS, SMT, and MCO of issues with the QA/QC schedule and forecasted need of additional QA/QC NCO support.

L. Troop Level Mechanics

(1) Troubleshoot, test, adjust, diagnose, and replace parts, assemblies, and/or subassemblies within their organizational responsibilities.

(2) Perform scheduled and unscheduled maintenance on all organic equipment IAW the applicable publications.

(3) Advise, teach, and/or supervise the equipment operators in their performance of operator maintenance during the repair/service process.

(4) Responsible for the care, maintenance, and accountability of all assigned tools, to include any tools signed out from the tool room (Contact Trucks, FRSs and SATS).

(5) Perform quality repairs and services on Squadron equipment as you would on your own POV, equipment must be safe to operate and perform its mission without risking the health of its operators and crew.

(6) Notify supervisor of any faults or deficiencies in which you do not understand, beyond your capabilities to research, or beyond your capabilities to repair.

M. GCSS-A Section NCOIC

(1) Responsible for supervising GCSS-A clerks in all administrative processes under GCSS-A, SSL, electronic maintenance, and dispatching operations.

(2) Ensure forms and reports for higher headquarters are accurate and complete IAW DA Pam 750-8 and DA Pam 710-2.

(3) Ensures and monitors unit dispatchers and dispatching procedures. Ensures operators are properly qualified to dispatch equipment.

(4) Ensure clerks maintain, account for, and replenish unit SSL.

(5) Ensures only authorized personnel have access to equipment/parts bins, SLL areas, and access to GCSS-A systems/files in consultation with SMO, SMT, and MCS.

(6) Will be Exempt from Duty (ED) from Troop and Squadron duty rosters as directed by the Squadron Executive Officer and Squadron Command Sergeant Major.

N. GCSS-A Clerks.

(1) Responsible for operation of GCSS-A systems IAW End User Manual, DA Pam 750-8, DA Pam 710-2, and all other governing policies and SOPs.

(2) Prepare and submit all required reports on time, i.e., daily, and monthly NMC reports, SSL Zero Balance reports, etc.

(3) Provides maintenance management information to Squadron maintenance managers as required.

(4) Pick up, turn in, and requisition repair parts daily from SSA during prescribed duty hours and annexes in this SOP.

(5) Inventory SSL quarterly or at the discretion of supervisors to ensure proper balance of repair parts are on hand or on valid request.

(6) Safeguard GCSS-A systems security passwords and user identification codes.

(7) Act as equipment dispatcher and ensure each operator requesting dispatch possesses proper documentation prior to issuing dispatch.

(8) Maintain GCSS-A systems hardware, software, and associated components IAW End User Manual and appendix in this SOP.

(9) Will be Exempt from Duty (ED) from Troop and Squadron duty rosters as directed by the Squadron Executive Officer and Squadron Command Sergeant Major.

O. Troop Tool Room Custodian (All Contact Trucks, FRSs, and SATS):

(1) Accounts for all tool Sets, Kits, and Outfits (SKO) assigned by utilizing the tool sign out register (DA Form 5519-R).

(2) Maintains locator cards for all tools in accordance with DA Pam 710-2-1, paragraph 6-3.

P. Troop Commanders

(1) Commands, directs, supervises and is responsible for the Troop's maintenance program. Conducts random inspections of their Troop's CMDP program to ensure compliance and CMDP feeds into their War Fighting Function responsibilities.

(2) Gives guidance and directs the planning and the execution of the Troop maintenance program in accordance with Squadron Commander's intent and unit METL.

(3) Publish a Commander's policy statement on materiel readiness.

(4) Appoints a Troop Maintenance Officer.

(5) Appoints an Army Oil Analysis Program and assistant coordinator.

(6) Appoints a TMDE/calibration coordinator.

(7) Hold supervisors and operators accountable for the readiness and maintenance posture of assigned equipment.

(8) Post equipment services by administration number and service due on unit training schedule.

(9) Establish a Troop level internal and external maintenance SOP; forward one copy to MCO.

(10) Ensures crews are as stable as possible. Trains crews to ensure continuity when crews fluctuate.

Q. Troop Maintenance Officer (TMO).

(1) Will be the Troop Executive Officer appointed in writing.

(2) Supervises maintenance of Troop equipment and directs maintenance training as required. Interfaces daily with the Squadron XO in reference to his or her Troop CMDP issues.

(3) Primary point of contact for all maintenance actions between the maintenance section and the Troop. Coordinates with the MCO or MCS on all matters related to organizational and direct support level maintenance support for equipment assigned to his/her Troop.

(4) Validates NMC operator reported deficiencies; ensures DA 5988-E is filled out corrected with dates, technical status per the TM, faults, quantities, and FEDLOG'd NIINs.

(5) Assigns a primary and alternate operator to all Troop equipment.

(6) Keeps Troop Commander informed on the status of his/her equipment.

(7) Ensures dispatches are closed out with proper miles and hours readings.

(8) Maintains inspection dates for all lifting devices, i.e., hydraulic jacks, jack stands, wheel dollies. Inspects lifting devices monthly to ensure serviceability and safe use of equipment.

R. First Sergeants.

(1) Attends command maintenance periods.

(2) Ensures NCO/supervisors attendance at scheduled command maintenance periods.

(3) Ensure operators are available for equipment in scheduled or unscheduled maintenance.

(4) Restrict equipment maintenance distractors.

(5) Ensures individual Troop complies with Motor Pool Safety, Organization, and Cleanliness standards through the NCO Chain, advises the Troop Commander as needed.

(6) Ensures all operators have required NCO supervision for any activity in the motor pool and all operators are in the correct uniform and have the proper PPE. This includes serviceable mechanic's coveralls for all mechanics and vehicle crewmen.

(7) Completes motor pool cleanliness closeout checks weekly.

(8) Primary POC for all details provided by the Troop to ensure motor-pool cleanliness/HAZMAT compliance.

S. Platoon Leaders

(1) Supervises the maintenance procedures of his or her platoon.

(2) Verifies DA Form 5988-E accurately reflects the current statuses of all assigned equipment. Ensures the platoon 5988-Es contain all faults for each piece of assigned equipment.

(3) Enforces all safety procedures during maintenance operations.

(4) Ensures operators are trained in proper use of all equipment.

(5) Ensure Soldiers properly safeguard, operate, and maintain all equipment as prescribed by appropriate publications.

(6) Notify TMO of any maintenance faults that renders any equipment unserviceable.

(7) Service all assigned platoon equipment within 10% tolerance of published service date.

T. Platoon Sergeants

(1) Assist Platoon Leader in the performance of maintenance duties.

(2) Make frequent inspections of platoon equipment to ensure operator's performance is satisfactory. Inspect operator equipment qualification records to ensure they are up to date and valid.

(3) Supervise the performance of operator maintenance through first line supervisor.

(4) Ensure publications, forms, tools, and other required items are on hand for the performance of operator maintenance.

(5) Supervise and instruct first line supervisors on maintenance aspects and ensure that they are thoroughly familiar with their assigned equipment.

(6) Ensure Soldiers properly safeguard, operate, and maintain assigned equipment as prescribed by appropriate publications.

(7) Will keep a status of all assigned equipment in consultation with their Platoon Leader's 5988-E scrubs.

(8) Ensure all operators within their platoon are in the correct uniform and have the proper PPE.

U. First Line Supervisor/Squad Leader

(1) Supervise and train squad personnel on operator maintenance and maintenance of equipment records.

(2) Be familiar with the contents of the operator's manual, lubrication order, and the operator's phase of equipment forms and records as outlined in DA Pam 750-8.

(3) Enforce safety practices/procedures during performance of operator's maintenance.

(4) Identify and report shortcomings and deficiencies beyond the capability of the operator to the Platoon Sergeant on DA Form 5988-E.

(5) Ensure that all forms filled out by the operator are accurate and IAW DA Pam 750-8.

(6) Maintain assigned equipment as prescribed by the appropriate publication.

(7) Ensure the service of all assigned equipment 10% tolerance of published service date.

V. Operator/Crew

(1) Perform operator level maintenance on assigned equipment as authorized and required by the applicable Technical Manuals and Lubrication Orders.

(2) Assist organizational maintenance personnel on all scheduled services and unscheduled maintenance.

(3) Properly maintain equipment forms and records contained in the equipment logbook.

(4) Report all discrepancies that the operator cannot correct to the Squad Leader on DA Form 5988-E.

(5) Be familiar with the contents of the equipment operator's manual, lubrication order, and the operator's responsibilities of the equipment records and forms IAW DA Pam 750-8.

(6) Maintain assigned equipment as prescribed by the appropriate publications.

(7) When the operator's equipment is being serviced or repaired at the organizational maintenance level, the operator will consider this as their appointed place of duty and will:

A. Assist the mechanic in the performance of the required service or repair action.

B. Learn the proper maintenance procedure as outlined in the applicable technical manual.

C. Help keep the maintenance area clean and orderly.

Note: Operator maintenance is the most important phase in the overall maintenance process and program. Without this vital link, the Squadron readiness report will not be accurate or reflect the true condition of the maintenance program. The operators are directly responsible to their immediate supervisor for the accomplishment of operator level maintenance and services on their assigned equipment.

Appendix B Maintenance Platoon Section Organization

1. **Purpose**: The purpose of this appendix is to describe the organization of the maintenance platoon.

2. **General**: All members of the Maintenance Platoon must work tirelessly to support all aspects of the Squadron maintenance program.

3. **Platoon Organization**:

    A. **Headquarters Section**: Includes the Maintenance Platoon Leader and Platoon Sergeant; all administrative functions from through this section.

    B. **Maintenance Control Section**: Central point of management on all maintenance, logistics, and support related issues. The Maintenance Control Section includes the MCO, SMT, MCS, Technical Inspectors, and shop office section. The NCOIC leads the shop office and a total of eight 92As. This section controls and directs all class IX flow for the Squadron and operates six GCSS-A systems. The Technical Inspectors run all QA/QC for the Squadron for services, dispatching, and NMC fault repair. Shop Office maintains operational control of Darkhorse's Armament, GSE, and SNR sections.

    C. **Service and Maintenance Section**: Includes all assigned organizational and support maintenance level wheeled mechanics. The section performs services, organizational and direct support level unscheduled maintenance on all wheeled vehicles within the DH/HHT; provides technical support and expertise to all other Troops for wheeled vehicle maintenance. The service and maintenance section also act as the primary maintenance support for all vehicles in HHT and the FST.

    D. **Recovery Section**: This section includes at least seven personnel that are responsible for recovery operations for the platoon and includes Allied Trades. In addition, they augment Troop maintenance teams during deployment and field exercises. Operationally controlled by MCS.

    E. **Combat Repair Teams (CRT)**: There are four Combat Repair Teams. These teams each provide organizational and direct support maintenance for one tank and three Cavalry Troops.

    F. **Armament Section**: Consists of all small arms assigned to the unit. The armament section serves as liaison between the FST and the BSB armament shop for all line replaceable unit (LRU) repairs. They also perform organizational and direct support maintenance for all arms rooms within the Squadron.

Appendix C Shop Operations

1. **Purpose**: This appendix describes the conduct of Shop Operations for all maintenance sections within the Squadron.

2. **General**: This appendix describes routine shop operations for the support Troop maintenance sections. This appendix applies to all repair shops conducting maintenance within the Squadron motor pool.

3. **Daily operations**: The following paragraphs describe a routine workday without regard to any other extraordinary events. Without a DA 5990-E, mechanics will not begin work on any equipment.

    A. The daily duty day starts at 0630 hours with physical training (PT) unless otherwise directed by the Commander. Conduct PT daily or as directed by Troop training schedule and the platoon PT plan.

    B. The maintenance control team conducts their meeting with team chiefs every morning at 0845 to disseminate information and to discuss upcoming events.

    C. On PT days, the first work call formation is at 0900 in the motor pool for maintenance personnel unless otherwise dictated by the platoon sergeant and/or training schedule. Team chiefs gain accountability of their Troopers begin work for the day after the accountability formation.

    D. Troop Executive Officers are responsible for printing all DA 5988-Es for their Troops to include ancillary equipment. Troops cannot dispatch any vehicles until they close out all overdue dispatches. This applies to all vehicles organic to the Troop.

    E. Mechanics begin daily maintenance operations based on the maintenance team chief’s workload schedule. All maintenance team chiefs are required to use basic workload management tools to assign maintenance jobs. The maintenance chief tracks all maintenance requirements and uses this information to plan his/her Troopers' activities for the next day. This allows him/her to plan which vehicles to work on and at what times and notifies vehicle crews in advance. It lists each Trooper's work assignments by time slot, bumper number, task, and any remarks pertaining to a particular job. The team chief and shop foreman complete work assignment sheets listing the next day's schedule prior to COB each day. This process effectively manages the time available for conducting maintenance operations.

    F. The team chief normally releases maintenance personnel for lunch by 1200 hours or as he or she sees fit. However, it may be necessary for the team chief to rotate Troopers through lunch if he or she feels the need to continue

working on a particular project or vehicle service. In any case, the team chief must provide Troopers ample time to eat lunch and get back to the motor pool. Normal lunchtime is between 1200-1300 hours.

G. After lunch, Troopers continue work until recall formation at 1700 hours. If Troopers complete their assigned tasks for the day before recall, the team chief will assign them other tasks to best use their time. The duty day ends with 1700 hours recall formation except when certain circumstances exist:

(1) The maintenance team has 02 parts on hand required to repair a pacing item; they will continue work until equipment is FMC.

(2) A Troop Commander can hold their Troopers after 1700 hours recall if he/she has jobs to complete to support upcoming unit missions with the Squadron Commander approval.

H. Maintenance team chiefs ensure that all shop bays, offices, and maintenance vehicles are secure at the end of the duty day. The Staff Duty Officer will check the security of the motor pool and if he/she finds any unsecured shops, offices, or vehicles, he/she will contact the unit First Sergeant or Maintenance Control Sergeant to correct the problem.

I. Clear out all parts pick-up boxes before COB each day. Troop cannot dispatch vehicles or order parts until they clear their box each morning.

4. Equipment Inspection and Maintenance Worksheet (DA Form 5988-E) Cycle:

A. The Troop Executive Officer Equipment will print out DA Form 5988-Es before COB on the last duty day of the week to use during the next command maintenance period.

B. The Troop Executive Officer will disseminate DA Form 5988-Es the day prior or the day of Command Maintenance to the Platoon Leaders/Sergeants and all HQ elements.

C. Troopers perform command maintenance on designated equipment and return DA Form 5988-Es to maintenance teams after supervisors screen them. Troop Executive Officers along with their maintenance chief check the forms for completeness and turn into Shop Office or their assigned clerks. Notify the SMO/SMT/MCS immediately if you find any deadline deficiencies on vehicles so the MCS Section can work on resourcing the part within the Army’s 72-hour troubleshooting period.

D. The Troop Executive Officer prints out any work orders for the Troop's team chief's action. This is an important part of the Troop's internal prioritization of work and to capture demand analysis and man-hours as part of CMDP.

E. Upon receipt, maintenance teams screen DA Form 5988-Es to immediately address any deadlines.

F. On the second duty day of the week, maintenance teams begin to process DA Form 5988-Es and take corrective action on all new faults listed. Corrective actions include:

(1) Make repairs as necessary and initial off faults.

(2) Defer work to the commodity shops by opening a W/O in GCSS-A requesting additional specified support.

(3) Open work order for BSB support maintenance.

(4) Order request parts by entering legible fault descriptions, NSNs, noun/nomenclatures, quantities of parts required and priorities of requests.

G. Forward original copies of DA Forms 5988-E and parts requests to the shop office for processing. Team chiefs will forward forms to the shop office NLT 1300 of the third day of work week. The respective Platoon leader maintains copies of DA Form 5988-Es. Delays in 5988-E flow require approval from Squadron XO.

H. The shop office clerks process the DA Form 5988-Es and parts requests by ordering required parts and adding faults in the GCSS-A computers. Resolve all discrepancies immediately with team chiefs before new DA Form 5988-Es are re-printed.

I. The shop office returns all finished forms to the maintenance chiefs, who return to their Troops. Platoon Leaders and Platoon Sergeants are responsible for keeping all maintenance records for their platoon's vehicles.

J. Troop maintenance team chiefs will actively track Equipment Maintenance and Inspection Worksheets throughout the entire cycle. They will maintain DA Form 5988-Es on file for a minimum of one month. Team chiefs will maintain a log of all DA Form 5988-Es received and processed on file each week. Maintenance teams will inform the Maintenance Control Officer of units not complying with DA Form 5988-E standards.

5. **BSB support maintenance**: The BSB conducts direct support maintenance is conducted in the same manner as organizational level maintenance with the following exceptions:

    A. Work Request: Units start all direct support maintenance by opening a work request through the GCSS-A box, and then immediately send that transaction to the GCSS-A (v2) box. Units cannot order major through the GCSS-A box.

    B. The units close the job out in GCSS-A after equipment is returned to an FMC status.

6. **GCSS-A equipment records**: The following are procedures concerning records that are not included in other appendices:

    A. **Equipment Record Folder:**

        (1) Maintain equipment record folders for each piece of equipment that requires dispatch. This includes all wheeled and tracked vehicles. Maintain generators and trailers records in their respective prime mover's folder.

        (2) Platoon Leaders maintain all vehicle logbooks. Drivers will be issued logbooks when dispatching their equipment.

        (3) Vehicle operators/crews are responsible for required records and forms in equipment record folder as listed in DA Pam 750-8, Chapter 2 and required local forms (i.e., SQDN QA/QC Check list). Folders will not contain paperwork or forms other than those listed in DA Pam 750-8 and local SOPs.

    B. DA Forms 2408-4: Used to record firings and components replacements of 120mm cannons, M242 25mm, and mortar tubes. Troop Master Gunners maintain DA Forms 2408-4s IAW DA PAM 750-8 and updated in TULSA NLT seven days post services or use of weapons systems.

Appendix D Scheduled Services

1. **Purpose**: This appendix provides guidance and instructions for the performance of the Squadron Service Program.

2. **General**: The Squadron Service Program is our opportunity as a professional force to ensure that we properly maintain all our equipment and Troopers are prepared to sustain the fight. Due to the nature of the deployment, units conduct scheduled services at the platoon level to allow Troops to stay on mission. This requires that leadership at the platoon level fully understands the Squadron Commander's intent and guidance and rigidly enforces standards.
   Scheduled services are the basis for an effective preventative maintenance program, and it provides unit leadership with a tool to ensure that the entire unit is compliance with the Army Maintenance Standard. With proper preparation, inspections, maintenance, and reconciliation, platoon leaders within the unit use the Squadron Service Program to not only ensure compliance to Army and Unit standards, but to establish their own standards for their equipment and Troopers.
   This requires properly invested mental energy to create comprehensive and creative check lists for all components involved in services from vehicles and weapons to Troopers. To do this, leaders must make use of all the technological tools at their disposal and their subordinate leaders. At all times, platoon leadership must articulate the mission and intent during their scheduled service period both up and down the chain of command.

3. **Scheduling**: Enter all scheduled maintenance services in the GCSS-A system IAW DA Pam 750-8. Use the appropriate technical manual, lubrication order, or other written directives to determine the proper intervals of scheduled maintenance. Coordinate and schedule all services with the Squadron S-3 and reflect on the Squadron/Troop long range training calendar (LRTC). It is Troop leadership's responsibility to ensure that the appropriate scheduled service period takes place within the required service interval for equipment with minimal effect on the Troop mission.

   A. Schedule Maintenance Services by platoon and allow for sufficient time to complete services on all assigned equipment. to include weapons, NVDs, CBRN, and communications plus all requirements for personnel.

   B. The MCO provides the Troop XO's a monthly schedule for scheduled services at least six weeks in advance. The Troop Training Schedule or Patrol matrix will reflect these services.

   C. Maintain service schedules in GCSS-A with MCS oversite. Troop Command teams are responsible for services scheduling, standards, and completion.

D. The Garry Owen resources to use to plan, implement, and track maintenance are in **Appendix AB, Appendix, AC, Appendix, AD, Appendix AE, and Appendix AF**. **Appendix AB** is a graphical timeline for planning and completing services. **Appendix AC** is a coversheet for service packets that depicts all the forms and steps needed to properly complete a service. **Appendix AD** is a service task tracker to use as a template for outlining daily mission requirements to complete services. **Appendix AE** is a service personnel tracker to use for tracking personnel readiness metrics. **Appendix AF** is an overall service tracker that outlines task completeness for an entire Troops' services.

4. **Management and Control:** Overall control of all personnel involved in scheduled services will belong to the Troop Executive Officer. The Troop Executive Officer must ensure that the vehicle maintenance team under the CRT Team Chief, the platoon under the Platoon Leader, the Troop armorer and armament section representative, communications shop representative, medics, and Troop supply sergeant are all operating in conjunction with one another and with the same understanding of the schedule, roles, and desired end state for the platoon in services. The MCO and the Platoon Leader assist the XO in control of all the various participants. The primary means of control by the Troop Executive Officer is the Service In-brief, Daily Out-brief, and Service Out-brief.

   A. Maintenance Team Chiefs are responsible for all the maintenance personnel assigned to their CRT. The Team Chief will assign maintenance personnel to the vehicles that are due scheduled maintenance services. Assignment of maintenance personnel to vehicles entering services is based upon skill levels and availability. Pair semi-skilled maintenance personnel with skilled, experienced maintenance personnel. No unskilled or non-MOS qualified individuals will perform unsupervised maintenance on any piece of equipment.

   B. Platoon Leaders and Platoon Sergeants are responsible for all operators. They will ensure that a **qualified operator with qualified, NCO supervision and IAW the Team Chief's guidance service all equipment.** If separated between several locations, the platoon leadership will designate an NCO to supervise each location. Ensure the designated NCO has a clear task and purpose. The Platoon Leader and Platoon Sergeant position themselves at the two most critical points of the services to provide needed senior leadership. As with any Platoon mission, during services the Platoon Leader and Platoon Sergeant must be present with their platoons. The Platoon Leader ensures **the service of all** equipment.

C. During a service period for a platoon, the Troop Executive Officer must ensure that each platoon has a dedicated Commo Representative and Medic and has ample support and attention from the Troop Supply Sergeant, Admin Sergeant, and Troop Armorer. The XO must also coordinate for EWO support and support from the Armament Section. After publishing of the schedule of support in the Service In-brief, the XO should delegate control to the Platoon Leader or Platoon Sergeant.

D. The Platoon Leader runs the Service In-brief before executing platoon level services. At a minimum, the Troop Commander, Executive Officer, Platoon Leader, Platoon Sergeant, and CRT Team Chief must attend. In the absence of the Squadron Commander or a designated representative, the Squadron Executive Officer receives the Service In-brief. If possible, the MCO, SMT, and/or the MCS should also attend in addition to all available participants such as the Supply Sergeant and Armorer. The purpose of Service In-Brief is part confirmation brief and to identify and resolve potential problems prior to beginning any services. Additionally, the in-brief confirms the equipment being serviced and that all proper check sheets are updated and finalized. This In-brief occurs approximately 24 hours prior to the start of scheduled services. The brief should include:

(1) Platoon mission and Platoon Leader guidance to subordinates.

(2) Bumper number, vehicle type, last service date, and comments of vehicles being serviced.

(3) Table of equipment by type including type of equipment, number of pieces assigned, last service date, and comments.

(4) Table of personnel including name, rank, PT/Gunnery scores, longevity in position, and comments.

(5) Schedule of inspections and maintenance including action, location, time, personnel allocated to the activity, and OIC/NCOIC.

(6) Daily work schedule including Platoon PT plan, times to report for work, appropriate breaks for meals.

(7) Composite Risk Management Worksheet.

(8) Any scheduling conflicts.

(9) Sample copies of all available check lists for all maintenance, personnel, and inventory actions.

E. The Platoon Leader conducts daily out-briefs to the Squadron Executive Officer. The purpose of this meeting is to check for compliance with the schedule and make any necessary adjustments. Immediately report any significant delays or events that interrupt services to the Troop Commander and MCO.

F. The Platoon Leaders facilitates the Service Out-brief after the completion of all services, to include reconciliation. The Troop Commander, Executive Officer, Platoon Leader, Platoon Sergeant, and CRT Team Chief must attend at a minimum. The Squadron Executive Officer will attend the Service Out-brief in the absence of the Squadron Commander. If possible, the SMO, MCO, SMT, and/or the MCS should also attend. The purpose of this meeting is to report on the outcome of all services and the mission readiness of all equipment and personnel. The brief includes any significant loss of combat power or change of personnel status. Include the following topics in the brief:

(1) Vehicles serviced including bumper number, vehicle type, service date, status, and comments.

(2) Table of equipment including type of equipment, number of pieces assigned, service date, status, and comments.

(3) Table of personnel to including name, rank, all checks completed, and comments.

(4) Any remaining reconciliatory actions required and scheduled date for those actions.

5. Performance: Conducting Platoon Services involves multiple participants working to complete complex tasks. Some tasks are independent of each other, some must be conducted in order. The three main areas of performance are Preparation, Maintenance and Inspections, and Reconciliation and Reporting.

A. Preparation before Platoon Services Begin

(1) 5988-Es printed for all pieces of equipment requiring services.

(2) Clothing records available for all Troopers.

(3) BII/COEI/AAL Inventory Lists from -10 TMs for all pieces of equipment.

(4) -10 TMs and Lubrication Orders available for all pieces of equipment.

(5) Vehicles Cleaned inside and out, all additional equipment and BII, Class I, Class III, and Class V removed from vehicle.

(6) All necessary cleaning materials, tools, and POL are on hand.

(7) All scheduling conflicts resolved before start of services.

B. Maintenance and Inspections

(1) Operator level PMCS (before, during, after, daily, weekly, monthly)

(2) Initial road test.

(3) -20 level checks, services, and lubrications (performed per vehicle technical manual (TM) and lubrication order (LO)).

(4) All checks and services completed IAW technical manuals and service checklists i.e., Hull, turret, gun, communications.

(5) All ancillary equipment and weapons inspected and gauged/serviced per TM requirements.

(6) All communications equipment and CREW devices inspected and cleaned.

(7) Completion of all deferred maintenance (i.e., welding and higher echelon repairs).

(8) Final road test, if applicable.

(9) Inventory Basic Issue Items BII/COEI/AAL.

(10) Inventory and inspect all personnel TA-50 for cleanliness and completeness.

(11) Inspect and review all personnel records for completeness to include medical, counseling, administrative data, and PT scores.

(12) Review all Drivers Training Records and licenses for completeness and accuracy.

(13) Inspect all Trooper living areas and interview all Troopers regarding mental, emotional, and spiritual health.

C. Reconciliation

(1) All deficiencies for equipment have correct part on order with a valid requisition document number or other appropriate corrective action.

(2) All shortages properly annotated on platoon shortage annexes and matched with a valid requisition document number for all property shortages.

(3) All Hand Receipts and Sub-Hand Receipts updated and filed with Supply Sergeant/S4/PBO.

(4) All TA-50 shortages have completed Statement of Charges or Cash Collection Voucher.

(5) All medical or personnel actions scheduled at earliest date.

(6) All Service Packet QA/QC completed by SMT or MCS.

(7) Gun Cards for the M1A2 and M2A3 updated by the Troop Master Gunner and present in the finalized services packet.

C. Inspect all equipment using only the equipment's DA Form 5988-E/5990-E and applicable technical manuals. Use DA Form 2404 only if GCSS-A is non-functional. Qualified personnel will individually inspect each subsystem that is due service (automotive, generator, communications, and trailers) using a separate DA Form 5988-E. Annotate all faults with the corrective action taken.

D. Organizational level maintenance is complete after making all quality control checks, completing the final road test, and ordering all required parts. Once complete, the SMT or MCS will inspect all service packets and filed in the shop office section. Units will maintain the service on file until next completed service.

6. Quality control: Prior to any vehicle being released from a scheduled maintenance service, the following checks will be made:

A. Check all open entries on the maintenance worksheet against the vehicle and the list of "parts requested" on DA 5988-E. Annotate all open entries showing parts on hand with a solid line through the fault and "remove" written on the left side of the DA 5988-E by the operator and/or mechanic performing the scheduled maintenance service. Platoon Leaders are responsible for ensuring all DA 5988-Es are updated correctly and for deconflicting with the CRT when parts show as on-hand but have not been installed.

B. The SMT and MCS will spot check all services, who will decide how many and what items to check. The maintenance control sergeant and/or the maintenance team chief should spot-check additional items.

C. Only the SMT or MCS will perform final inspections. For remote stations, the CRT Team Chief will conduct the QA/QC. If possible, the Troop Commander will assign another CRT to conduct the QA/QC.

D. The operator will also perform the highest level of -10 PMCS (before, during, and after, daily, weekly, and monthly) to ensure that they are receiving a fully serviced vehicle.

7. **Service intervals**: Record the scheduled maintenance services and lubrications using the intervals in the appropriate TM and LO. Perform all services and lubrications that fall under the checks that are due (i.e., if an annual is due, then all also conduct all semi-annual checks). See DA Pam 750-8 for service scheduled variance.

Appendix E Command Maintenance

1. **Purpose**: This appendix provides guidance and instruction for performance of the Squadron's Command Maintenance Program to include Dispatching Procedures while deployed.

2. **References**: DA Pam 750-8, AR 385-55

3. **General**: Vehicle accidents can be catastrophic. The chances of a military vehicle accident increases when operators do not properly maintain and operate their vehicle properly. The risk associated with an uncontrolled maintenance and dispatch program is extremely high. To mitigate this risk, Commanders use command maintenance and dispatch procedures to ensure Troopers properly maintain and operate their equipment. It is the Commander’s responsibility to authorize the use and dispatch of one of his or her vehicles. However, the Maintenance Control Section and the unit mechanics assist the Commander with additional checks that utilize superior mechanical knowledge and the Army’s automated maintenance systems. The following dispatch procedures ensure the checks and verification of the key components of a proper dispatch at multiple levels and create a thorough, complete vehicle dispatch system.

   These include ensuring that proper -10 Level Maintenance has been performed and properly recorded by a qualified individual, the vehicle has been through Quality Assurance and Quality Control checks from a -20 Level mechanic, the vehicles data is recorded in the GCSS-A system for services, the actual vehicle operator is licensed and acknowledges that the vehicles has been maintained and prepared properly, and the Commander authorizes the use of the vehicles after ensuring all proper dispatch procedures have been followed. The responsibility to properly dispatch vehicles rests with all levels of the chain of command, the Maintenance Control Section, Unit Mechanics, SHOP OFFICE, and the Troop Commander who owns the equipment and is responsible for the Troopers.

4. **Procedures**: The following procedures will be used during command maintenance periods:

   A. Due to the nature of combat operations and multiple complex Troop missions, command maintenance, the squadron will conduct maintenance at the Platoon Level with emphasis from the Troop Commander and Troop 1SG. The Troop Executive Officer will establish a command maintenance Schedule. The Troop Executive Officer (XO) should submit the dispatching schedule to the MCS Section NLT five days before a major training event and NLT three days for minor training events, details, and/or taskings. Emergency dispatches are at the discretion of the MCS Section unless directed by SCO/SXO/CSM. Troops can request to adjust this schedule to accommodate operational requirements. The Squadron Commander is the approval

authority to dispatch any equipment that is NMC for a mechanical fault or safety. Troop Commanders/XOs approve the dispatch in GCSS-A and submit to the SCO with the restrictions for use that result from the faults for the SCO's consideration.

B. For units located at remote stations, the Troop XO must adapt the following procedures acting in place of the MCO. However, the Troop XO must notify the MCO of the changes. It is the Troop XO's responsibility to ensure Troops follow all appropriate standards and checks in the dispatch procedures outlined below IAW regulations and the Squadron Commander's intent.

C. On a platoon's assigned day, the Squadron or Troop will hold accountability formation in the motor pool NLT 0930. Once all required operators and leaders are present, the Platoon Leader will supervise the conduct of command maintenance.

D. Immediately following formation, PL, PSG, and appropriate Section Sergeants will attend a 15-minute class from the MCO, SMT, or led by a CRT on an area of how to properly supervise command maintenance. The intent of this class is to continue to train the trainers and develop our Leaders and Operators; ensuring all personnel are knowledgeable in command maintenance.

E. Following the 0930 Class, the Platoon Sergeant will prepare the platoon for PMCS by having all operators and supervisors stand by their assigned vehicle on the platoon's vehicle line with appropriate TMs present and opened to the PMCS section. Vehicles must be free of excess equipment, loose TA-50, and trash. The vehicle must also be clean.

F. The PL/PSG will receive their DA 5988-E from their Troop XO. The only acceptable 5988-E for dispatching a vehicle will be the one from the last command maintenance session. Use the 5988-E from the previous dispatch for interim before, during, and after PMCS **ONLY** based on mission requirements. Transfer new information not added by the SHOP OFFICE to a new 5988-E on command maintenance day. For remote stations, send the 5988-Es to a designated "clerk" (via email) who is responsible for ensuring that the MCS clerks correctly updated the 5988-Es.

G. Mechanics PMCS their equipment weekly, as is the standard for all other operators. After this PMCS, they are available to make on the spot corrections/repairs, diagnose problems, assist in replacing parts, and troubleshooting/verifying faults for the Troop. Team Chiefs sign out operator and organizational maintenance level parts to maintain accountability. Mechanics initial 5988-Es after operators/maintenance personnel correct faults. Install parts as soon as time is available and/or the next services date; **no vehicle will finish services until after installing on parts on hand.**

H. Once all conditions are set, operators will perform all appropriate PMCS checks in accordance with the -10 technical manual and lubrication order. The operator who on the dispatch conducts the PMCS IAW the Garry Owen dispatching SOP. However, during command maintenance, it is recommended, but not required, for Troopers to conduct a command maintenance PMCS. The operator signing the dispatch is verifying that the vehicle has been maintained to his or her standards, regardless of who conducts the PMCS.

I. Regardless of who conducts the PMCS,

(1) Perform a full Daily PMCS each day the equipment is used. **Especially during checks while equipment is in use in the field/training.**

(2) Perform full Daily and Weekly PMCS each Command Maintenance Day. Additionally, perform Monthly PMCS on the 1st Command Maintenance Day of the month.

(3) Use Lubrication Orders during Command Maintenance and time intervals that correspond with the command maintenance day.

J. Operators will not annotate on the spot correctable faults unless it is a recurring fault indicating a larger, mechanical issue.

K. Once a vehicle crew completes the PMCS, the Platoon Leader or Platoon Sergeant will check the maintenance worksheet (DA Form 5988-E) and equipment for the following:

(1) The individual conducting the PMCS is licensed for the equipment and fills out all appropriate information in the header of the 5988-E.

(2) Correct or annotate all previous faults on the 5988-E sheet (i.e., job order number or parts request document number).

(3) All corrected faults marked for removal from the 5988-E; verified by a mechanic during faults verification.

(4) Match all faults on the maintenance work sheet against the equipment to verify all faults still exist.

NOTE: Notify the team chief of any faults that do not match to take corrective action.

(5) All new faults entered on the 5988-E have appropriate Item Number annotated in the first column, and the appropriate fault in the third column. The Maintenance Team Chief or Shop Foreman must initial

any *X,* or *Circle X* verifying the correction of the fault before removing (this verification cannot be done by the same mechanic who completed the work).

(6) If there are no new faults found during that PMCS, fill the header out with the information of the Trooper conducting the PMCS. For example: “No New Faults – PFC Joe Snuffy, 27 MAY 2020.”

(7) Once the 5988-E completed to standard, the PL or PSG must print, sign, and date below the last annotated fault.

L. Once the PMCS is complete and the 5988-E verified and signed by the PL or PSG, the vehicle proceeds to the appropriate maintenance bay for QA/QC by the Troop mechanics. Crews present their 5988-E and blank QA/QC Checklist with complete header information to the mechanics for verification, then the vehicle will enter the bay for QA/QC. Any Troop mechanic reject any vehicle from QA/QC if it is dirty, has trash in it, or an incomplete 5988-E or QA/QC Checklist.

M. Complete the QA/QC using the most up to date QA/QC Checklist attached as Appendix 1: 1-7 CAV QA/QC Checklist.

N. Occasionally, it is not possible to correct all faults on maintenance day due to parts availability and time, therefore mechanics may call operators and/or equipment back for maintenance throughout the week. It is essential that all platoons schedule a time with the team chief to complete installation of all parts.

O. Once QA/QC is complete the Maintenance Team Chief or Shop Foreman signs the QA/QC Checklist. The then vehicle moves back to the platoon line and the PSG or PL takes the completed QA/QC Checklist and 5988-E to the shop office for the 5987-E (Dispatch Form). It is the PL or PSG responsibility to ensure that the 5987-E indicates the proper Primary and Secondary Operator for that vehicle and trailer if applicable.

P. Troopers must complete and a properly filled out 5988-E and QA/QC form before the shop office will prepare and issue the Dispatch Form. The clerk will ensure that both the operator who conducted the PMCS and the operator(s) annotated on the 5987-E have valid licenses for the dispatched equipment. They will also ensure that the last 5987-E is complete and to standard with all necessary signatures and miles and hours. The clerk will issue a new, updated 5988-E and Dispatch form to the PL or PSG after meeting all dispatch conditions. It is the PL/PSG’s responsibility to keep the previous 5988-E, 5987-E, and QAQC Checklist on file.

Q. If a Platoon Leader or Platoon Sergeant cannot redispatch a vehicle due to an NMC fault, they must properly close out the previous dispatch.

R. At this point, the vehicle has been officially re-dispatched within the GCSS-A system. However, the Troop Commander still has not authorized the vehicle for use. It is the PL/PSG's responsibility to ensure the vehicle operator signs the Dispatch form to indicate that he or she is satisfied that the is maintained to the TM's 10/20 Standard.

S. Once this is complete, the Dispatch packet is ready for review by the Troop Commander for authorization for use by the assigned operator. Once the Troop Commander/Executive Officer's signs the 5987-E the operator on the dispatch can operate the vehicle.

5. Dispatch Length:

A. Troops can dispatch vehicles for up to seven days.

B. Only the Squadron Commander or a designated representative has the authority to extend a dispatch. Extensions will only be long enough to meet mission requirements.

6. Reoccurring dispatches: Each Troop must keep a portion of their wheeled vehicles dispatched for emergency missions and late taskings.

Appendix F Dispatching Procedures

1. **Purpose**: This appendix establishes the policies governing the Quality Control and dispatching of equipment and provides maintenance personnel with a time management tool.

2. **References**: DA Pam 750-8, FH REG 750-2

3. **General**: Dispatching is how the Commander controls the use of equipment. The following procedures ensure that leaders check and verify key components of a proper dispatch at multiple levels to create a thorough, complete system for dispatching vehicles. These include ensuring that:

- Qualified individuals perform and record proper -10 Level maintenance.
- A -20 Level mechanic performed Quality Assurance and Quality Control checks.
- The vehicles data is recorded in the GCSS-A system for services.
- The actual vehicle operator has a license for the vehicle and acknowledges that the vehicle is maintained and prepared properly.

The Commander authorizes the use of the vehicles after ensuring all proper dispatch procedures were followed. The responsibility to properly dispatch vehicles rests with all levels of the chain of command, the Maintenance Control Section, Unit Mechanics, SHOP OFFICE, and the Troop Commander who owns the equipment and is responsible for the Troopers.

4. **Procedures**:

A. The following procedures ensure uniformity for dispatching equipment within the Squadron. Leaders must strictly enforce these procedures to ensure equipment is available for missions. Do not dispatch equipment that is NMC for a mechanical or safety fault unless approved by the Squadron Commander or a designated representative in writing that outlines restrictions for use that result from the faults. Do not dispatch vehicles that do not have current maintenance records (i.e., brake test, services) unless approved by the Squadron Commander.

B. The Squadron Technical Inspectors will establish a weekly Squadron dispatch schedule by Troop based on input from both the MCS and the Troop XOs. The time will be adequate to meet the needs of the Squadron, but it will also allow the MCS internal time management. All wheeled vehicles will be QA/QC checks conducted in the QA/QC bay while all tracked vehicles will have QA/QC checks done on-line.

C. Troops may only dispatch vehicles during designated times. If the mission requires, Troop Commanders can request to dispatch vehicles outside of these hours. The Troop Commander must provide a signed memorandum stating the reason for requesting dispatch outside of normal dispatching hours. Dispatching hours for the week will be as follows:

a. Monday: 1300-1600
b. Tuesday: 0900-1130 and 1300-1600
c. Wednesday: 0900-1130 and 1300-1600
d. Friday: 0900-1130 and 1300-1600

D. Before Dispatching:

(1) The licensed operator reports to the Technical Inspection Section with the following:

(a) Valid driver's license.

(b) Current 5988-E with complete daily before operation PMCS completed that day, verified by the supervisor.

(c) Equipment Records Folder with required forms listed on the III Corps and 1CD Roadside Inspection Checklist.

(d) Blank QA/QC sheet with heading filled out completely.

(e) Refer to Command Maintenance Section on requirements and processes for Circle X of NMC faults.

(2) Follow the procedures listed above. The Technical Inspection Section will ensure operators have completed all items. If the section finds a -10-operator fault the operator will move the vehicle out of the bay and perform a proper PMCS. The section will reinspect the vehicle only when the vehicle supervisor verifies repairs. Any vehicle that needs a QA/QC outside the scheduled hours of operation must have approval from the MCO, SMT or the MCS.

(3) Line teams and the recovery section require the same actions for QA/QC, but dispatching times vary from team to team. Team Chiefs will ensure their mechanics fully understand the severity and standards of QA/QCs.

E. During QA/QC Procedures: Operators must correct any faults found during QA/QC or record any faults they cannot immediately correct.

Note: If the inspectors identify the equipment as non-mission capable during the QA/QC, the fault must be corrected before dispatching the equipment.

F. Completion of Mission Procedures:

(1) Clean the equipment.

(2) Top off fuel tank if the vehicle is below 3/4 of a tank.

(3) Perform after operation PMCS and operator lists uncorrected faults on the 5988-E.

(4) Park vehicle online in the motor pool and place the drip pan underneath the vehicle.

(5) Chock block wheels.

(6) Empty vehicle of trash.

(7) Secure BII.

(8) Lock vehicle.

(9) Supervisor prints and signs his name in the equipment dispatch.

(10) Operator turns in the dispatch packet to GCSS-A section after the supervisor inspects forms for completeness.

F. As some mission's end after duty hours or on weekends, the operator or supervisor must return the dispatch as soon as possible.

G. Troop Commanders or their Executive Officers as delegates of the Troop Commanders authority and approve on-post dispatches. Off-post dispatches require approval from the Squadron Commander.

K. **Alert Dispatches:**

(1) Shop office will maintain alert dispatches for all vehicles in a secure location.

(2) In case of an alert, the Troop XO issues dispatches to required vehicles.

(3) Only properly licensed operators will dispatch vehicles.

(4) Operators must perform a before operations PMCS prior to departing the motor pool.

Note: Only use Alert Dispatches for valid Alerts or immediate, last-minute Troop or Squadron Missions. Poor Prior Planning does not constitute an Alert.

5. **Reoccurring dispatches**: Each Troop must keep a portion of their wheeled vehicles dispatched for emergency missions and late taskings. It is especially important that the Supply and Transportation Platoon keep a minimum number of M978s and M1120s dispatched.

6. **Motor Pool Departure**

A. Motor Pool gate guards will inspect all vehicles leaving the motor pool. Guards will ensure operators have required documents to leave motor pool IAW III Roadside Inspection Checklist and have all safety equipment on hand. The checklist is posted in each guard shack and is in each logbook.

B. All vehicles leaving Squadron motor pool will have a valid inspection completed by a Technical Inspector NCO. (QAQC)

C. Unless heading out to the field, all wheeled vehicles will depart the main (south) gate of the motor pool only. The North Gate is for track vehicles and vehicles heading to the field.

D. Vehicles and operators that fail the QA/QC inspection report to the Maintenance Team Chief.

E. North (tracked) gate of the motor pool is locked to allow walk through traffic only. Coordinate with the 1-7 CAV SDNCO or gate guard for the use of the back gate.

Appendix G Operator Licensing and Training

1. **References**: At a minimum, keep the following regulations on-hand or on order for all Troop driver's training programs:

   a. AR 600-55, 17SEP19, The Army Driver and Operator Standardization Program (Selection, Training, Testing, and Licensing).
   b. AR 385-10, 24FEB17, Army Safety Program.
   c. AR 190-5, 22MAY06, Motor Vehicle Traffic Supervision.
   d. AR 25-400-2, 02OCT07, The Army Records Information Management System (ARIMS).
   e. DA PAM 385-10, 23MAY08, Army Safety Program.
   f. DA PAM 385-40, 18MAR15, Accident Reporting Investigations and Records.
   g. AR 600-8-22, 05MAR19, Military Awards.
   h. AR 40-501, 22DEC16, Standard of Medical Fitness.
   i. ATP 4-11, 05JUL13, Army Motor Transport Operations.
   j. FHR 750-2, 05APR12, Maintenance Policies and Procedures.
   k. FHR 190-5, 11OCT13, Fort Hood Traffic Code.
   l. FHR 210-20, 17SEP84, Convoy Movements, Road Closures, and Blackout Driving on the Fort Hood Military Reservation.
   m. FHR 600-15, 02FEB89, Driver Selection, Training, Testing, and Licensing.
   n. FHR 385-1, 02Mar92, Rail Operations Safety Requirements.
   o. TC 21-305, 25APR03, Training Program for Wheeled Vehicle Accident Avoidance.
   p. TC 21-305-1, 04FEB14, Training Program for the Heavy Expanded Mobility Tactical Truck (HEMTT), Palletized Load System (PLS), and Load Handling System (LHS) Family of Vehicles.
   q. TC 21-305-2, 17JAN14, Training Program for Night Vision Device Driving Operations.
   r. TC 21-305-3, 01AUG97, Training Program for the M939 Series 5-TON Tactical Cargo Truck.
   s. TC 21-305-4, 031MAY94, High Mobility Multipurpose Wheeled Vehicle (HMMWV).
   t. TC 21-305-5, 12DEC99, Equipment Transporters (C-HET, MET, and LET).
   u. TC 21-305-6, 31DEC91, Training Program for the Tractor and Semi-trailer (M915, M931, and M932).
   v. TC 21-305-7, 09SEP92, Training Program for Light Vehicles.
   w. TC 21-305-8, 16SEP92, Training Program for Medium Vehicles.
   x. TC 21-305-9, 05JUN97, Heavy Equipment Transporter System.
   y. TC 21-305-10, 20SEP94, Training Program for the Palletized Load System.
   z. TC 21-305-11, 20MAY99, Training Program for the Family of Medium Tactical Vehicles Operation.
   aa. TC 21-305-20, 12JAN2016, Manual for the Wheeled Vehicle Operator.
   bb. TC 21-305-100, 19AUG96, The Military Commercial Driver's License Drivers Manual.

cc. TC 21-305-200, 19OCT92, The Army Commercial Driver's License Examiners Manual.
dd. TC 21-306, 05MAY09, Tracked Combat Vehicle Driver Training.
ee. TC 7-31, FEB 2011, Mine Resistant Ambush Protected (MRAP) Family of Vehicles Driver Training.
ff. TC 55-60-17, Date Pending, Training Program for the 50,000-Pound Rough-Terrain Container Handler.
gg. TC 55-60-18, OCT08, Training Program for the Kalmar 53,000-Pound Rough Terrain Container Handler (RTCH).
hh. TC 55-HEAT: 18JUL07, Training Program for the High Mobility Multipurpose Wheeled Vehicle (HMMWV) Egress Assistance Trainer (HEAT).
ii. TM 4-14.21, 24FEB15, Rail Safety.

2. Purpose: This appendix will standardize vehicle operator training and licensing throughout the Squadron. It defines responsibilities for the design and conduct of the driver's training program, and defines the procedures and resources required for conducting the driver's training program.

3. General: The Squadron Commander will appoint, on orders, a Squadron Master Driver. The Master Driver serves as the senior driver's trainer for the Squadron. Troop Commanders will appoint License Examiners for their Troop to serve as the Troop representative for operator licensing. The Troop Commander will also appoint License Instructors to assist the License Examiner in conducting Troop level Driver's Training Program. The License Examiner is responsible for training operators at the Troop level and inspecting platoon driver's license packets for accuracy and completeness. The Squadron Master Driver supervises the driver's training program throughout the Squadron. The License Examiner and License Instructor from each Troop will assist the Squadron trainer. The training approach emphasizes Task, Condition, and Standards format with hands-on, performance-oriented training and testing. The result is a well-trained, safety conscious driver who knows how to drive and can properly maintain his vehicle to -10 standards. This program has four phases.

Selection Process: Troop Commanders will screen prospective drivers for valid civilian license and must interview each candidate. The Troop License Examiner will create a folder for all prospective drivers which includes:

- DA Form 348 with stamp from the Transportation office
- A copy of a valid driver's license
- Commander's interview, DWI prevention, and Driver's pledge

Use the interview checklist, enclosed in the Trooper's driver training folder, as a tool to conduct the interview. The Troop Commander will also sign all learner permits and the Commander's interview for Troopers approved to attend training.

A. Phase I: Classroom instruction: During this phase, The Troop Driver Training Instruction and the Squadron Master Driver will conduct the mandatory classroom instruction. Upon completion of this phase, students must pass a written examination.

B. Phase II: Hands on PMCS and driving: Troopers will receive hands-on driver training and instruction by unit road test examiners and the Squadron Master Driver. This also includes PMCS procedures, defensive driving, highway, off-road, convoy operations and night driving instruction.

C. Phase III: Final road exam: This exam is the responsibility of the Squadron Master Driver. After the troop road test examiner completes all classroom and hands on training, they will then schedule a final road exam for the prospective candidates. The troop road test examiners and the Squadron Master Driver will test each student on the road test. Using the road test sheet, road test examiners will test each student on all required measures. The test will take from 20 to 30 minutes per student. Once the student has passed the road test, the Squadron Master Driver will then provide the Unit Instructor Driver (UID) a DA Form 348 with “ARMY STANDARD” printed in “type of license” block of all students who have completed the entire training course. The Troop UID will in turn input operator data into GCSS-A for licensing.

4. Responsibilities:

A. Squadron S-1

(1) Provide publications as required.

(2) Process award recommendations (Driver/Mechanic’s Badges).

B. Squadron S-3

(1) Publish class dates in training guidance.

(2) Coordinate for use of the driver’s training site.

(3) Provide necessary training aids.

(4) Task Troops for personnel and vehicles for training.

C. Squadron S-4

(1) Provide training support items as required.

D. Troop Commanders

(1) Provide Squadron Master Driver with a list of personnel requiring training.

(2) Inform Squadron Master Driver of all drivers' accidents and traffic violations.

(3) Ensure traffic violators attend remedial training.

(4) Provide vehicle for hands-on training and road test.

(5) Assign a responsible NCO as the Troop UID.

(6) Track density of trained drivers and equipment operators in the Troop.

(7) Ensure supervisors conduct an annual review of DA Form 348.

E. Squadron Master Driver

(1) Adjust POI IAW any updates to regulations and policies.

(2) Ensure adequate supply of training materials is on hand for training.

(3) Conduct training IAW applicable Army regulations and 1-7 CAV requirements.

(4) Produce, revise, and maintain lesson plans and outlines for Drivers Training.

(5) Serve as the primary instructor for all drivers training. Supervise the Troop trainers in executing their duties.

(6) Road test drivers and issue DA Form 348's with "ARMY STANDARD" to qualified operators.

(7) Conduct annual sustainment, remedial, and refresher driver training as directed.

(8) Train newly assigned Unit Instructor Drivers.

(9) Provide UIDs with packets for prospective drivers to attend training.

(10) Conduct quarterly inspections of Troop UIDs on a checklist.

(11) Issue Certificates of Training to new drivers after completion of Driver's Training

F. License Examiner

(1) Coordinate with the Squadron Master Trainers for sustainment, remedial, refresher and initial training.

(2) Train all prospective drivers prior to sending them to the Squadron Master Driver for testing.

(3) Assist master driver in conducting Driver's Training classes.

(4) Keep a ledger with names of licensed driver's names, date of examination and qualification, vehicle codes qualified for, and license expiration dates. (May build report from SDI)

(5) Update automated DA Form 348s after completion of training.

(6) Maintain and update all Troop operators' driving packets in GCSS-A.

(7) Be the senior driver trainer for the Troop.

5. Driver selection criteria: When selecting personnel to be drivers in the unit, Commanders must consider the following criteria:

(1) All personnel not previously licensed on any equipment requiring a license.

(2) Recommended by the chain of command. Record of good performance.

(3) Motivated and demonstrated the ability to assume responsibility.

(4) Meets physical requirements.

6. LICENSING STANDARDS: Troopers must meet the following standards for licensing.

a) Possess a valid civilian driver's license valid in the state in which they wish to drive.
b) All training must be successfully completed and recorded on the DA Form 348.
c) Students who pass the written examination will proceed to the hands-on training. The road test will determine if the student possesses adequate

driving / operating skills to qualify for a license. The student must score 70% or higher on the road test checklist to qualify for a vehicle license.

d) Students who successfully complete all phases will have their DA Form 348 posted to the GCSS-A computer.

7. Sustainment training: Driver's training is a perishable skill that unit leadership and must constantly check and update. Recognize drivers who demonstrate maturity and skill and award with appropriate citations. When planning and conducting sustainment training, Commanders must consider the following standards.

a) Document all training and keep on file.
b) Unit is responsible for all nighttime driver's training to include the use of NVGs.
c) Unit Instructor Drivers will complete annual recertification.
d) Upon verification of meeting the requirements, the UID submits Driver awards. Units will make every effort to award qualified drivers Driver's Badges.

8. License Suspension and Revocation

A. Drivers identified as unsafe due to accidents, traffic violations, roadside spot checks, or by the senior occupant will enroll in remedial driver's training and /or have their license revoked or suspended. Drivers involved in an accident that results in injury to any person will automatically have their license suspended. The Squadron Commander may reinstate Drivers after successful completion of remedial training. Only the Squadron Commander may grant reinstatement. Drivers who have had their civilian license revoked or suspended will also have their military license revoked or suspended for a period not less than that imposed on the civilian license IAW AR 600-55.

B. Annotate if an incident occurs that causes debits (accidents and traffic violations) individuals DD Form 348. The information will include the following.

(1) The time and date of the incident.

(2) The location of the incident.

(3) The weather and road conditions.

(4) Casualties, circumstances, agencies notified and driver identification data.

(5) Remedial training conducted.

(6) Attach the operator's military driver's license to the DA Form 348. The Troop UID must maintain the license and DA 348 until resolving the issue.

9. Annual Check Ride

A. The Squadron conducts annual refresher training for all licensed operators in the Squadron and adhere to the following standards during the annual check ride:

(1) Training will consist of winter driver and safety training.

(2) The UID will annotate the annual refresher training on each operator's DA Form 348. Additionally, the UID will review and update all 348s as needed.

(3) The UID will maintain a roster of class attendees and keep on file.

10. DRIVER'S TRAINING BOOKS: The following list consists of binders that the UID will keep to manage the unit program. Each program could have binders depending on the number of regulations and number of operators.

A. BOOK 1: Orders and Local Regulations

(1) Appointment orders for the Squadron Master Driver, Unit Instructor Driver, and Troop Examiners

(2) Division/Brigade Driver's Training SOP

(3) 1-7 CAV Driver's Training SOP

(4) Troop Driver's Training SOP

(5) Copy of UID, Troop Examiner's DA Form 348

(6) List of all licensed drivers in the Troop with class codes; also used as the ledger.

(7) List of class codes (GCSS-A box)

(8) Copies of classes conducted with attendance rosters attached (i.e., winter driving, safety)

B. Book 2: Army Regulations

C. Book 3: Field Manuals

D. Book 4: Training Circulars

E. Book 6: Department of the Army Pamphlets

F. Book 7: Technical Bulletins

G. Book 8: Program of Instruction (POI) for Driver's Training Class

Appendix H Safety

1. **Purpose**: To appendix establishes the safety policies governing fire prevention, accident prevention, vehicle operation, personnel safety, security, and environmental awareness.

2. **General**: An effective safety program is essential during all types of maintenance operations. Personnel must understand the importance of working in a safe environment. The entire chain of command must be safety conscious.

3. All Master Drivers, Fire Marshalls, Safety Officers, Environmental Compliance Officers, etc. are additional duties and require, on file, annual appointment orders and/or during Changes of Command.

4. **Procedures**:

A. Fire Prevention

(1) Post "No Smoking" signs in shop areas and designate a smoking area at least 50ft from doors or flammables.

(2) Post "No Smoking or Open Flames within 50 Feet" signs on paint, flammables, fuel points, and package POL storage areas.

(3) Store paint, POL products, and cleaning solutions only in designated areas. Do not use gasoline as a cleaning solution.

(4) Use covered metal containers to store dirty or oily rags.

(5) Do not refuel equipment when the engine is running, hot from operation, or inside a building (i.e., power generation equipment).

(6) Store industrial gases (Oxygen and acetylene) IAW AR 700-68.

(7) All maintenance bays will have serviceable fire extinguishers and first aid kits present, prominently displayed, and accessible.

(8) Train assigned personnel on the proper use of fire extinguishers.

(9) Inspect fire extinguishers regularly and certify for serviceability (Monthly and Initialed).

(10) Designate primary and alternate fire extinguisher operators from assigned personnel.

(11) Post a fire evacuation plan for all work areas. Mark the location of fire extinguishers and first aid kits on a posted building map.

(12) Maintain good housekeeping to reduce fire and other safety hazards. Require personnel to police and clean the area as they work.

(13) Inventory first aid kit contents on a regular basis and restock if necessary.

B. Vehicle Operations

(1) Only properly licensed drivers will start or operate vehicles.

(2) Do not leave vehicles unattended with engine running.

(3) Goggles will be available for use in dusty environments.

(4) All engines running in shop will have the exhaust connected to shop ventilation system or the bay doors in the area completely open.

(5) All vehicles will have serviceable fire extinguishers and first aid kits present during operations.

(6) Spacing and arrangement of parked vehicles will provide ready access and not hinder fire lanes.

(7) Vehicle operators will use troop safety straps and ensure Troopers are seated when transporting personnel in cargo type vehicles. All occupants will use seat belts during operation if vehicle is equipped with restraint devices.

(8) Tie downs must be present for all vehicle antennas.

(9) Use ground guides when backing any vehicle. Ground guides will always remain visible to the driver and always wearing a reflective belt. Ground guide(s) will never run when guiding a vehicle. Ground guide(s) will know proper hand and arm signals and will never stand between a moving vehicle and a stationary object or another vehicle. Ground guides will have a safe distance between them and the vehicle. Ground guides must never allow anyone to pass between them and the vehicle. Ground guides will not be an excessive distance away from the vehicle they are guiding.

(10) Single vehicles operating in isolated terrain will maintain radio communications with higher headquarters.

C. Personnel

(1) No horseplay in maintenance facilities or areas.

(2) Use hearing protection in areas with high noise levels. All operators and maintenance personnel must always have hearing protection available.

(3) Always wear face and eye protection when performing welding, cutting, grinding, sanding, hammering, or chipping.

(4) Wear protective clothing when performing welding operations or when handling batteries.

(5) When performing maintenance, use jack stands or trestles to support equipment when necessary.

(6) Personnel will not lean on, stand, or sit under equipment suspended by recovery vehicles, A-frames, jacks, or other forms of lifting devices.

(7) Properly lock hydraulic lifts in the fully raised position when using for equipment maintenance.

(8) Maintain and inspect all lifting and support devices at regular intervals.

(9) Inspect and maintain the tire inflator cage regularly. Use when inflating tires. (25 ft min safety zone)

(10) Properly ground power generation equipment during use, maintenance, and servicing.

(11) Remove jewelry, chains, rings, and watches while performing maintenance or servicing equipment.

(12) Maintain a safety board in all bay areas.

D. Security

(1) Do not climb over fences or gates.

(2) Secure all vehicles with a 5200 series lock and security devices when not in use.

(3) Lock individual toolboxes and secure to the toolbox rack.

(4) No privately owned vehicles are allowed in the motor pool.

(5) Lock motor pool gates during non-duty hours and keys controlled at Squadron level IAW Physical Security procedures.

(6) During duty hours, vehicles will use one gate for an entrance and exit.

E. Split Rim Tire Servicing: IAW TM 9-2610-200-20, OSHA standard 29CFR 1910.77.

(1) Servicing and inflation equipment split rim tires: Troopers will have the following tire servicing equipment to safely service and inflate split rim tires.

(a) Guard, safety tire inflation, NSN 4910-00- 204-2448.

(b) Inflator gage pneumatic tire, NSN 4910-00- 441-8685. This gage and 10-foot hose connect to the air hose in the NO.1 Common Tool Set.

(c) Adapter, NSN 4730-00-391-3771. Use the adapter from the NO. 1 Common Tool Set to connect the 25-foot air hose to the gage.

(2) Split rim servicing standards: Standards for servicing a tire mounted on a split rim include.

(a) Remove the valve core and completely deflate the tire before removing a wheel from the vehicle for tire repair.

(b) Inspect wheel components, clean, and lubricate before mounting. Do not weld, braze, or heat any bent, pitted, broken, or cracked components. Verify tire size and type rim compatibility before assembly.

(c) Use the tire inflation cage and servicing equipment when inflating a tire. Clip the airing chuck on the valve stem and clear the trajectory hazard area (10 feet) before airing. The operator must be at least 10 feet away from the tire and cage to avoid being struck by fragments if the tire separates from the rim while in the cage.

(d) After inflation, inspect the tire assembly for proper seating and locking before removal from the tire cage.

(3) Procedures for inflating a low tire: Determine the current tire pressure before inflating the tire, then:

(a) If the pressure is less than 50% of the recommended split rim wheel tire pressure, deflate the tire must, remove from the vehicle, inspect, and inflate in a tire cage.

(b) If the pressure is more than 50% recommended split rim wheel tire pressure, you may inflate the tire while on the vehicle. However, the operator must use the clip-on inflating device, ensure that all personnel are not closer than 10 feet from the tire. The operator must take a position not closer than 10 feet from the tire. (System design: install the air gage and air control lever at the outlet of the compressor source. Ensure the compressor source is 10 feet or more from the inflating tire. Where possible, install the compressor source and air gage "around the corner" from the tire inflation cage).

(c) WARNING. SEVERE PERSONNEL INJURY OR DEATH MAY OCCUR IF YOU IGNORE THE PRINCIPLES OF RESTRAINT AND DISTANCE. SUPERVISORS MUST BE KNOWLEDGEABLE IN THESE PROCEDURES AND EXERCISE THE APPROPRIATE LEVELS OF TRAINING AND DIRECT SUPERVISION.

(4) FIELD EXPEDIENT METHODS FOR SPLIT RIM WHEEL TIRE INFLATION: Commanders may consider the following field expedient alternatives for split rim wheel tire inflation.

(a) Portable cage method. IAW local directives, Units can transport tire cages used in garrison for use in a field environment. When used in a field environment, units must bolt the cage to floors of vehicle beds or secure to a tree or other structure with 5/8-inch minimum gage chain.

(b) Units not having sufficient vehicle cargo space to carry tire cages for field operations may consider using the following field expedient methods for inflating split rim wheel tires.

[1] Spade method. Units may use this method if they possess heavy equipment such a M88 vehicles or engineer equipment. This method employs heavy equipment with blades. The bladed vehicles lay the

blade directly on the tire/rim being inflated. All personnel will remain a minimum of 10 feet from the tire being inflated.

[2] Five chain method. This method employs four each 5/8-inch chains to exploding rims and another chain of sufficient length to secure the tire to a secure object (tree, another vehicle, or piece of heavy equipment). Each of the four chains must be a minimum of 60 inches long which is suitable for securing tires up to size 14 x 24. Wrap chains snugly around the tire at quartering points. Secure the ends of the chains using chain locks or a shackle system and use a U bolt w/nut to secure the ends of the chains. You do not need to weight test the chains. Do not allow personnel closer than 10 feet from the secured tire while inflating.

[3] Bolt on vehicle method. Troopers may bolt the wheels to inner hubs of vehicles with the split rim pointed towards the center of the vehicle. Inflation occurs with the vehicle functioning as a buffer for potentially exploding split rims.

[4] Steel cross-bar method. Place two 1/2-inch (minimum) steel bars of sufficient length through the hub holes and extend across the entire width of the tire. These bars will serve as restraints for exploding split rims. After the bars are in place, chain the entire tire to a secure object such as a tree, another vehicle, or piece of heavy equipment. Troopers may have to bend the bars to accommodate passage through the hub holes. The inflator and other personnel must remain at least 10 feet from the secured tire being inflated.

5. Risk Assessment (Per 385-10 and Countermeasure vol 12 No 11 (Nov-Dec 91)

A. Purpose: To establish a risk management procedure that are easy to incorporate into the decision-making process outlined in FM 5-19.

B. Principles of Risk Management

(1) The need for risk management--statistics on accident losses.

(2) What is risk management? A smart, systematic, decision-making process; a way of thinking through a mission to balance the risks with the mission needs.

(3) Benefits of risk management:

a) Conservation of resources.
b) Enhanced training.

c) Training realism.
d) Improved combat effectiveness.
e) Enhanced mission accomplishment.

(4) Four principles of risk management:

a) Accept no unnecessary risks.
b) Make risk decisions at the proper level.
c) Accept risk when benefits outweigh the costs.
d) Integrate into all training planning.

C. The Risk Management Process

(1) Identify the hazards-- potential sources of while performing a task or mission.

(2) Assess the hazards and determine risk-- Determine the severity of adverse impact of an event and the probability that the event would occur. Determine the level of risk based on the Risk Assessment Matrix.

(3) Make a risk decision--weigh the risks against the benefits of performing an operation.

(4) Implement the controls--based on the results of steps a-c above.

(5) Supervise and evaluate--follow up before, during and after.

D. Procedures:

(1) Use DA Form 7566: Composite Risk Management Worksheet.

(2) Fill out the worksheet by filling out each block in the order indicated by the block numbers. List risks in order of the level of risk, starting with the highest risk.

(3) Ensure your Composite Risk Management Worksheet approved by the appropriate authority.

(4) Brief your Risk Assessment to the Troopers under your control.

(5) Maintain a copy of your Risk Assessment with you and continuously supervise.

Appendix I Environmental Protection

1. **Purpose**: This appendix establishes standardized procedures for environmental protection training, waste, and hazardous waste management. Failure to comply may result in:

    a) Endangerment of personal health and safety
    b) Citations by federal or state agencies
    c) Civil or military penalties against offenders

2. **General**: This SOP delegates responsibilities, procedures, and command guidance concerning the environmental and used product management. This SOP applies to all Troopers assigned/attached to this Squadron.

3. **References**:

    a) Army Regulation 200-2 Environmental Effects of Army Actions
    b) Ft. Hood Suppl 1 to AR 385-10 The Army Safety Program
    c) Ft. Hood Reg 420-1 Fire Regulations
    d) Ft. Hood Reg 420-2 Environmental and Natural Recourses
    e) Ft. Hood Reg 420-6 Recycling Program
    f) 1st Cavalry Division Environmental Protection SOP

4. **Responsibilities**:

    A. **Squadron Commander.** Will appoint an Environmental Compliance Officer (ECO) and alternate. The person will be in the grade of E-6 or above. He/she will ensure they have the time and resources to perform their duties daily. Responsible for the training of all Troopers within his/her command, from initial in brief to sustainment training. Will appoint a HAZMAT Representative in all Troops that order, issue, or store hazardous materials, (i.e., DISTRIBUTION, CBRN, supply, etc.) to assist the ECO in consolidating the monthly inventory. The main collection point of all unused POL is the Squadron POL shed; UNITS WILL NOT STORE EXCESS (beyond UBL) POL outside of the POL Shed.

    B. **Environmental Compliance Officer.** Responsible for the over-all management of the Squadron's environmental program. Acts as the squadron commander's principal advisor concerning environmental and hazardous material management issues.

    C. **Environmental Compliance NCO.** Is responsible for the execution of the Squadron's Environmental Program. Conducts environmental inspections, consolidates the hazardous material inventory and forwards to III CORPS. Ensures proper procedures are followed in the maintenance bays, and acts

as a liaison between the Squadron and Troop EPA managers to ensure personnel follow proper procedures with the Used Product Reclamation Point (UPRP)

D. Individual Troopers. All Troopers assigned/attached to the Squadron are responsible for protecting the environment and for preventing damage through their action or inaction when using products. They are also personally liable for any damage they cause and can be charged with a State/Federal crime and be held accountable in State/Federal court.

5. USED product reclamation point (UPRP): The Support Troop controls and supervises the UPRP in the motor pool. It consists of three 600-gal storage pods for used oil, antifreeze, and another pod for off-spec fuel. The UPRP area has one HAZMAT container for drained fuel filters, one container for grease, one container for drained oil filters, and one container for used absorbent material. There is a shelter to prevent the containers from accumulating rainwater. In each maintenance bay are 1 or 2 containment pallets for the draining of filters, cans, and recoverable's. There are recycle containers for plastic, cardboard, office paper, wood, and empty metal POL cans. There are 3 containers for scrap metal to the east of Hellfighter's line collocated with 3 more containers for scrap wood. Troopers may place parts in the scrap metal container or dumpster once they have been determined as non-recoverable by maintenance personnel. NCO's need to ensure that their Troopers understand where to place used products and supervise their disposal. Improper dumping of POL products in the wrong container can turn hazardous material into hazardous waste.

6. Motor Pool:

A. Do not wash vehicles outside the maintenance building. Conduct steam cleaning at the wash rack after coordinating with maintenance. Park vehicles so water flows into oil water separator drains. Do NOT use detergents or solvents during steam cleaning operations as this breaks down the oil in the separator and makes it unsaleable.

B. The maintenance bays do not have drains for any type of fluid. Clean up spills immediately.

C. There are containers for trash, used dry sweep, aluminum cans, and used rags. Do not mix items. Dispose of dry sweep no longer usable at in the collection points located in the Troop's bays. Always cover the used rags and used dry sweep cans.

D. There are separate containment pallets for the storage of batteries removed during services, and open POL products. Check daily and take all empty containers to the UPRP. Return all unopened serviceable POL products units

did not need that day to the POL section after coordinating with the Distribution Platoon.

E. All vehicles in the bay will have empty drip pans. Use dry sweep to clean up oil and fuel spills. Do not leave dry sweep on the floor. Collect and properly dispose of the dry sweep after completing the maintenance procedure causing the spill. Make every effort to use drip pans to collect spills.

F. Each bay has contracted solvent bins. Keep the lid closed when not in use. Do not use the solvent bins without safety goggles and gloves. See the maintenance teams for these items.

G. Do not sweep trash and garbage into the floor drains or mix with the dry sweep. Place trash into the proper receptacles. Unless contaminated by POL; there is a special receptacle at the UPRP for this type of waste.

H. Do not use solvent or other unauthorized materials to clean heavily soiled floors. Clean the bays daily IAW the published bay cleanliness checklist (Appendix CC).

7. **Safety data sheets (MSDS)**: All Troopers have the right to know the hazards of the materials they are working with and how to minimize the risks. This is the purpose of the Material Safety Data Sheet. MSDS's are in the Right-To-Know bulletin board in the motor pool and maintained by the Environment Control NCO. Each section ordering, issuing, or storing HAZMAT will maintain MSDS’s on all materials, promptly posted, and produce them when requested.

8. **Hazmat inventories**: The Environment Control NCO must provide a HAZMAT inventory to III CORPS monthly. The format for the inventory is:

    a) NSN
    b) Nomenclature
    c) Manufacturer (if more than one manufacturer per NSN list each separately.
    d) Unit of Issue
    e) Quantity on hand
    f) MSDS on hand
    g) MSDS serial #
    h) Building location

    The HAZMAT OIC/NCO will maintain a copy of the complete HAZMAT inventory for the Troop and a copy posted at the “Right to Know” bulletin board in the motor pool.

9. **Vehicle parking**: Do not park vehicles on the grass or landscaped areas in the garrison. Vehicle maintenance is not allowed in the POV parking lots. All vehicles will have a drip pan under them. Place drip pans as needed to contain drips, not to

create a uniform appearance. Use as many drip pans as needed to contain the leaks. Check drip pans and empty as needed, especially before the weekend or after a rainfall.

10. POL storage areas:

A. Store POL in the POL Shed next to Hellfighter COF.

B. Service and Maintenance Team from Distribution Platoon maintain the POL shed. Store all POL not actively in use in the shed under direct control of the shed's NCOIC. Post MSDS's for these products and containers and labels checked monthly.

C. Inspect containers and labels weekly for expired lots and illegible labels, as well as leaking or damaged containers. Stop leaks and unpack and transfer the contents to a non-leaking container. Labels will remain legible and reflect actual contents. Retest expired lots and either remark or turn in as required. Do not issue expired products until after receiving the new test date.

D. The shed NCOIC will inventory of POL products by NSN and manufacturer and update weekly. The NCOIC will submit the list to the MCS, who will use the list to order needed POL products.

E. All products are issued on a first in first out basis.

F. Place drip pans under all supply valves and nozzles.

11. Inspections and Training

A. The Troop EPA NCO will use the checklist to perform weekly inspections of the maintenance bays, CBRN room, supply room, and the vehicle line.

B. All Environmental Compliance Officers/NCOs will attend the III Corps Environmental Management Course. Troopers can schedule the class through the SQDN S-3.

C. The troop commander will ensure all incoming troopers receive an initial in brief regarding spill prevention, recycling, location of MSDS's and the UPRP.

D. Post monthly spill prevention briefings to the training schedule and a by name roster with signature.

E. Post quarterly environmental training consisting of HAZMAT minimization, pollution abatement and the UPRP to the training schedule and with a by name roster. Keep both on file until the next scheduled class.

F. HAZCOM training occurs twice a year. All personnel who do not have this class annotated on a DA Form 1556 must attend. The HAZCOM NCOIC will provide a copy of the DA Form 1556 to the Trooper for their personnel file and will retain a copy for the environmental compliance files.

G. Maintain the inspection results and training records on file for 3 years.

12. CBRN and Supply Rooms

A. Do not store petroleum products store in the supply, arms, or CBRN rooms. Store CLP in a HAZMAT locker location determined by the Troop Commander.

B. Place a placard on CBRN rooms when storing an M8A1 alarm indicating the presence of a radiological hazard.

C. Store decontaminating materials in the HAZMAT locker.

D. Do not store flammable materials in the CBRN or supply rooms.

E. Store all lawn mowing and gas-powered equipment outside of the building. Store on a concrete or containment dev to prevent soil contamination.

F. The CBRN and supply rooms will maintain a hazardous material inventory and update it weekly. A copy of this inventory is due to the EPA NCO every month. They will also maintain MSDS's on the products they store or issue. Both the inventory and the MSDS's will be in an easily accessible location for the Troopers to read.

13. Field Operations:

A. Leaving garrison does not minimize the responsibility of protecting the environment.

B. Contact the Central Station Fire Department at 287-3908 and Range Control if there is a spill of 5 gal or more of POL, a spill that covers a 100 sq. ft area, or the substance threatens human health or the environment. Attempt to safely stop the spread of the spill, without endangering personnel, while awaiting assistance.

C. Dig up smaller spills to include the contaminated soil, triple bag and take to the TFSA.

D. Conduct all maintenance procedures requiring pack pulling over the vehicle's tarp.

E. The UMCP has containment pallets and 55 gal drums on site for used product collection. The Squadron ECO is responsible for ensuring the Squadron follows this requirement.

F. Triple bag oil filters, fuel filters, and empty POL cans and return to the TFSA.

14. It is the responsibility of every Trooper to protect the environment, and to prevent injury to themselves, the environment, and others. This is done through training and the diligent supervision by leaders, and a concerted effort on the part of every Trooper.

Appendix J Motor Pool Security

1. **Purpose**: To outline security procedures and responsibilities to ensure maintenance facilities and all assigned vehicles, equipment, sets, kits, and outfits (SKOs) IAW AR 190-13, 190-51, and FH Reg 190-3.

2. **General**: Every individual is responsible for securing his/her own equipment upon completion of all tasks and missions. Immediately report unsecured equipment to the MCO or SMT.

3. **Procedures**:

   A. Wheeled vehicles:

      (1) Affix a 1/4 -inch hardened steel chain (or larger) and medium security lock to the steering wheel IAW TB 9-2500-242-2. Vehicles with attached steel cables already in place do not require a steel chain. Do not lock FUEL TANKERS UNDER ANY CIRCUMSTANCE FOR ANY REASON DUE TO SAFETY CONCERNS. STORE BII IN CONTAINERS TO PREVENT PILFERAGE.

      (2) Close windows.

      (3) Place the gear selector in neutral or “park” position, parking brake applied, and proper chock block placed under the front or rear wheels preventing the vehicle from rolling.

   B. Communications Equipment:

      (1) Always secure C&E items.

      (2) Secure with 1/4-inch hardened steel chain and a medium security lock.

      (3) Chain CCI when mounted and zeroed upon completion of the mission.

   C. Facilities: Facilities include the maintenance building and any other container/shed provided. At the end of each workday, supervisors will ensure that:
      a. All windows are closed.
      b. All doors are secured and locked.
      c. Firelights are turned on.
      d. Any keys signed out are returned to the key control custodian.

   The Squadron Staff Duty NCO is responsible for securing the main gate at the close of each business day. Troop motor sergeants/team chiefs will secure their

prospective entrances at the end of each day. The MCS ensure the Squadron Staff Duty has the current keys. It is the responsibility of Commanders and their appointed UKLCs to ensure compliance with Fort Hood Physical Security Requirements.

D. Secure all SKOs in a way to prevent removal or forced entry IAW the following guidelines:

(1) Always lock tool rooms (FRSs, SATS, and Contact Trucks) when not in use.

(2) Return all tools signed out and secure in the tool room unless signed out overnight.

(3) Secure toolboxes with a 1/4-inch hardened steel chain affixed with a medium series lock to an immovable rack in the motor pool bay designed solely for that purpose.

(4) Do not leave tools unattended at any time.

E. The SQDN SDO/SDNCO will check the motor pool after duty hours IAW staff duty SOP to ensure the building and the front and rear gate is secure.

F. Appendix BB provides a motor pool physical checklist, though not all-inclusive, for unit motor pools to use as a guideline in physical security measures. The motor pool gate is secured with a guard from Hellfighter and Darkhorse that have the following responsibilities: (1) ensure all vehicles leaving the motor pool are dispatched, with all required safety equipment, and all crews are wearing the appropriate personal protective equipment (PPE), (2) ensure all FSRs/LARs/DOD Civilians check in with shop office, and (3) ensure all local vendors are licensed with III Corps/1 CD G-4.

Appendix K Awards (Driver and Mechanics Badge)

1. **Purpose**: To establish procedures for selection, procurement, and award of Driver and Mechanic Badges.

2. **General**: An excellent motivator for Troopers is to reward them for good work performance. Platoon leadership will establish and manage an active program of awards for mechanics. Selection, procurement, and award for Mechanic Badges are based upon AR 385-55, AR 672-5-2, FM 21-17, FM 21-305, and CTA 50-900.

3. **Eligibility Requirements for Drivers Badge**:

    A. A driver must possess a current DA Form 5984-E valid for the equipment, issued as prescribed in AR 600-55.

    B. An equipment operator or assistant must operate the equipment for at least 12 consecutive months without a recorded accident or traffic violation on the DA Form 348 (DA Form 5983-E), Driver Qualification Record. Safe vehicle operation of at least 8,000 miles will also qualify an operator.

    C. Equipment operators or assistant operators must perform all other assigned duties as an operator in a satisfactory fashion for at least 12 months. Equipment operation instructors and qualified motor vehicle driver examiner are also eligible.

4. **Eligibility Requirements for Mechanics**.

    A. The individual's primary duty must be as an equipment mechanic at organizational or higher level of maintenance.

    B. An individual must demonstrate competence by job performance or by sufficient skill to justify the rating of automotive or power generation equipment mechanic.

5. **Authority**: Squadron Commanders or other officers in the grade of LTC (O-5) or higher can authorize the Drivers or Mechanics Badge.

6. **Procedures**:

    A. First-line supervisor will establish a system to monitor and identify individuals that qualify for mechanic awards.

    B. Submit a memorandum to the S-1 containing the following information on the award recommendation:

(1) Name and rank.

(2) DOD ID Number

(3) Number of months assigned as a driver/mechanic.

(4) PMOS/ASI.

(5) Type of award (driver/mechanic badge).

C. The S-1 will verify all information and ensure the Trooper meets the eligibility requirements.

D. The S-1 awards clerk requests the order for the award.

E. The S-4/supply sergeant requests the award (Badge).

Appendix L TMDE (Calibration Equipment)

1. **Purpose**: To outline procedures and establish responsibilities for test, measurement, and diagnostic equipment (TMDE) calibration IAW AR 750-43 and TB 43-180.

2. **General**:

   A. Troop commanders will appoint the TMDE Support Coordinator (TSC) on orders, as the Troop TMDE coordinator.

   B. Each Troop will appoint a coordinator to manage Troop programs. These personnel have the responsibility to submit TMDE equipment to the TMDE lab for calibration and/or repair. The primary TSC should be an NCO and assigned as the Troop's CBRN NCOIC. The alternate should be the Team Chief or Shop Foreman.

   C. The Troop CBRN NCO is responsible for sending CBRN TMDE equipment to the Troop TMDE coordinator when calibration is due. The CBRN NCO must work closely with the Troop TMDE coordinator to ensure the Troop meets calibration deadlines.

3. **Responsibilities**:

   A. Troop TMDE Coordinator:

      (1) Maintain updated density list of all TMDE in the Troop. (TB 43-180)

      (2) Ensure TMDE listing is an accurate reflection of TMDE equipment assigned.

      (3) Submits items for calibration IAW the Unit Maintenance SOP (TMDE).

      (4) Prepare and submit new TMDE equipment for calibration.

      (5) Attach filled out DA Label 80s to the equipment. This includes "Calibrate Before Use" (CBU) equipment and "Calibration Not Required" (CNR) equipment.

   B. Troop CBRN NCO:

      (1) Ensure TMDE coordinator has an accurate list of CBRN related TMDE equipment on hand.

      (2) Attach filled out DA Label 80s to CBRN TMDE equipment.

(3) Submit CBRN TMDE equipment to Troop TMDE coordinator 10 working days before next calibration is due.

4. Calibration Procedures:

A. Submit TMDE equipment requiring calibration to the Troop TMDE coordinator 10 working days prior to the calibration due date shown on the DA Label 80 with a DA Form 2404 requesting repair or calibration. The calibration facility will not accept incomplete equipment.

B. The TMDE facility will notify the Troop TMDE coordinator when calibration is complete, and equipment is ready for pick-up. The TMDE coordinator then informs the appropriate team that the item(s) are ready for pickup and ensures the Troop promptly picks up the items. The TMDE coordinator and section will annotate on the TMDE listing the date of calibration.

Appendix M AOAP

1. **Purpose**: To set procedures and responsibilities in the 1-7 CAV to effectively manage and implement the Army Oil Analysis Program (AOAP). AOAP improves equipment readiness through monitoring automotive drive trains and selected hydraulic systems and detecting early signs of mechanical failure. AOAP allows for restorative maintenance at a lower maintenance level and reduces unnecessary consumption of engine, transmission, and hydraulic system oils and lubricants. This reduces maintenance costs and directly effects the reduction of equipment being non-Mission capable (NMC).

2. **General**: Commanders at all levels of maintenance are responsible to participate in the AOAP program. This program tests oil samples of all assigned equipment/components in tables 4-1 through 4-8 of DA Pam 750-8 and Department of the Army Directives (FORSCOM Memos). 1-7 CAV's AOAP goal is a 0% delinquency rate.

3. **Applicability**: This SOP applies to all units and personnel assigned or attached to 1-7 Combined Arms Squadron.

4. **AOAP OBJECTIVE**: AOAP is a condition monitoring program designed to:

    A. Improve equipment reliability and readiness by early detection of potential failures.

    B. Lower support costs by reducing the number of catastrophic failures and curtailing excessive component wear.

    C. Reduce resource usage by conserving petroleum products by adhering to the On-Condition Oil Change policy.

5. **Types of Samples**:

    A. Routine Samples. Submit routine samples at the prescribed intervals below. Take samples as near the prescribed interval as possible. Occasionally, the equipment is not available for testing. In such instances a 10 percent variance before or after the scheduled date, hours, or miles for sampling is permissible. The GCSS-A system tracks and posts equipment requiring routine AOAP samples.

        (1) Tracked Vehicles: 25 hours or 90 days.

        (2) Wheeled Vehicles: On Condition Only

B. Special Samples. Special samples are those other than routinely scheduled. Special sample request forms will be clearly marked “Special,” and its border outlined in red. Special samples will be submitted to the Post AOAP laboratory under the following conditions:

(1) At the request of the laboratory.

(2) Immediately before transfer among commands or overseas deployment of equipment. The laboratory will process these special samples prior to the transfer or deployment.

(3) After maintenance, overhaul, or replacement of the component.

(4) After indication of a problem, for example, overheating, excessive oil loss, or loss of oil pressure.

(5) After indication of contamination, that is, cloudy, sludge, water, excessively dirty, visible metal particles, etc.

C. Resample. Resample is a special sample specifically requested by the laboratory. Resample requests from the AOAP laboratory will specify detailed instructions to clarify any unusual properties found in initial oil samples. Submit resamples to the laboratory within **three (3) working days** of laboratory notification.

6. Sampling rules: If the equipment was operated within the last 30 days, operators can submit an oil sample without warming the equipment to operating temperature. If not, take the sample after bringing to operating temperature. This applies to both routine and special oil samples. The laboratory may request operating the component before sampling. Units must comply with all such requests from the laboratory. Equipment under the low usage service program submit samples as normal. They are not exempt from the AOAP program.

7. Sampling Methods:

A. Sampling valve method. Take the oil samples from the attached pre-installed sampling valve. Refer to equipment TM for location of valve(s).

B. Pump method. This procedure utilizes a hand operated vacuum pump to draw oil samples from individual components by the components fill tube (where dip stick attaches to component).

8. Responsibilities:

A. Squadron AOAP Monitor.

(1) Primary and Assistant Squadron AOAP monitors must be E-5 or above and certified by Ft. Hood AOAP Coordinator. Troop Commander's must appoint a Primary and Assistant Coordinator as well. The Troop Commanders should appoint non-maintenance personnel as AOAP Monitor to not overburden maintenance personnel.

(2) The Squadron commander must assign and appoint on orders and place a copy in the Squadron CMDP book.

(3) Review the monthly AOAP printout and ensure all Squadron equipment that requires sampling are enrolled in the AOAP program. Also confirms the correct equipment administration numbers, serial numbers, components, and components model and serial numbers. Annotate any changes or corrections made on the printout IAW Post AOAP Coordinator's SOP and policies and submit to laboratory by the 15th of each month.

(4) Notify Troop AOAP coordinators of oil sample requests due NLT COB of following working day of lab notification with bumper number, component, and recommendations.

(5) Submit a Memorandum for Deferment to AOAP lab requesting TDY status for equipment in support maintenance by COB of the following day of maintenance request to support Troop.

(6) Log all telephone transactions between AOAP lab and unit coordinators for oil resample accountability.

(7) Report all delinquent resamples through MCO to SQDN XO for action.

(8) Notify Troop Executive Officers to announce AOAP requirements during maintenance meetings.

(9) Inspect each oil sample for proper identification, component sampled, and accuracy of documentation.

(10) Publish an early calendar identifying equipment due for routine samples.

(11) Ensure a 90-day supply of sampling and oil change supplies are on hand.

(12) Sampling supplies consist of the following:

a) Tubing, Nonmetallic	4720-00-964 -1433	2 Rolls (2,000 ft)
b) Pump, Oil Sampling	4930-01-119-4030	2 per Troop (8 min)
c) Bottle, Oil Sampling	8125-01-082-969	2 Boxes (240 ea.)
d) Bag, Plastic	8105-00-837-7754	2 Boxes (2,000ea.)

(13) Conduct quarterly inspections of Troop AOAP programs.

B. Troop Commanders.

(1) Overall responsible for the unit AOAP program.

(2) Appoint a primary and assistant AOAP coordinator in writing in the rank of E-5 or above, post certified, and assigned by duty appointment orders endorsed by the MCO.

(3) Submit oil samples to Fort Hood AOAP Lab within two (2) working days of notification.

(4) Do not task or dispatch equipment/vehicles overdue an oil sample.

(5) Ensure operators the properly training of operators to pull AOAP samples. Ensure operators receive annual refresher training. Annotate AOAP on the operators OF 346/348E.

(6) Appoint replacement AOAP coordinators within 30 days of outgoing primary and/or assistant AOAP coordinators.

C. Troop AOAP coordinator.

(1) Primary point of contact for the Squadron AOAP monitor. Contacts and interacts with operators and supervisors on AOAP.

(2) Issues AOAP bottles and tubing when oil samples are due. Collects and submits samples to Squadron AOAP monitor for turn in.

(3) Ensures information is accurate and complete on oil sample request forms.

(4) Subject Matter Expert (SME) to train operators on AOAP procedures and perform annual refresher training to his/her platoon.

(5) Identify equipment with missing or damaged AOAP sampling valves. Order sampling valve kits for equipment missing valves.

D. Operator. The assigned operator will draw the component oil sample as required and will submit it to the Troop AOAP Coordinator along with the miles, hours, component, and vehicle administration number labeled on the bottle lid. Indicate an “E” for engine samples, “T” for transmission samples and “HYD” for hydraulic samples.

9. Feedback data, DA FORM 3254-R

A. The AOAP lab will contact the Squadron AOAP monitor when equipment requires maintenance. The Maintenance Control Sergeant will receive the DA Form 3254-R for corrective action. The Squadron AOAP monitor will return the DA Form 3254-R Packet to the AOAP lab within five (5) working days or by the AOAP lab suspense date of completed repairs. The DA Form 3254-R will list the lab recommendations and the maintenance activity action to complete the repairs.

B. If evacuating the item to support maintenance for further evaluation and/or repair, attach the DA Form 3254-R and AOAP labels to the Maintenance Request and turn the item into support maintenance. The Direct Support Unit must submit a special oil sample and the DA Form 3254-R Packet to the AOAP lab within five (5) working days after taking corrective maintenance action.

C. If replacing a component, the Squadron AOAP monitor will enter all necessary information into the GCSS-A computer to update the Equipment Data File (EDF) information.

10. Training

A. The Post AOAP Coordinator administers a four-hour block of instruction to Squadron and Troop AOAP monitor during the certification process and every two years after.

B. Operators will receive their initial AOAP training during the Squadron Drivers Training Course on the basic equipment they are qualified to operate. The Troop AOAP coordinator or the Commander’s delegated AOAP trainer trains specialized equipment operators. Annotate initial AOAP training and refresher training on all operators OF346/348E. Operators that do not attend Driver’s training will be AOAP qualified by the Troop AOAP coordinator and/or the Commander’s designated trainer.

C. The Post AOAP Coordinator has AOAP certification courses scheduled every Wednesday morning and one Thursday afternoon per month. The Squadron and Troop AOAP personnel assists Commanders in reserving slots for prospective AOAP coordinators and monitors.

11. Publications: The Squadron AOAP Monitor and Troop AOAP monitors must have the following publications on hand or on order.

a) AR 750-1, Para 4-36, Army Oil Analysis Program (AOAP) (Current Maintenance Update)
b) DA Pam 750-8, Chapter 4, Non-aeronautical Equipment, AOAP (Current Maintenance Update)
c) FH Reg. 750-2, Appendix L, AOAP Non-aeronautical Equipment
d) TB 43-0211 AOAP, Guide for Leaders and Users
e) FH AOAP User's Guide

Appendix N Tool Control Procedures

1. **Purpose**: To establish policies governing security, accountability, and maintenance of hand tools, SKO, and TMDE. References: AR 735-5, AR 710-2.

2. **General**: An effective tool control program is essential during all types of maintenance operation. Personnel must understand the importance of having adequate and serviceable tools on hand for the unit's ability to accomplish its mission.

3. **Security/Storage**:

    A. Catalog all sets, kits, outfits (SKO), test measuring diagnostic equipment (TMDE), and tools using a card index file or hand receipt with pictures.

    B. Store all SKO's, TMDE, and hand tools in a secure location such as a tool truck, room, or toolbox.

    C. Secure tool trucks when unoccupied.

    D. Lock toolboxes and secure to a permanent fixture, in the tool room or a toolbox rack in the motor pool.

4. **Accountability**:

    A. Inventory all shop sets and general mechanic toolboxes quarterly and after training exercises.

    B. Appoint a tool custodian using a memorandum signed by the Commander.

    C. Account for all tools, SKO, and TMDE by hand receipting to the user and inventory IAW AR 710-2.

    D. The individual requesting tools must sign out those tools using FH Form 550, DA Form 5519-R, DA Form 3161 or DA Form 2062.

    E. The team chief approves all tools signed out for an extended period (more than 24 hours). Tools are hand receipted to the requester on a DA Form 3161 or DA Form 2062.

    F. Inventory and update tool room hand receipts quarterly. Order any missing items and annotate a valid document number.

5. Maintenance:

A. Keep all SKO, TMDE, and tools clean, free of rust and perform preventive maintenance IAW TM's.

B. Tool Room Custodian will not accept dirty tools for turn-in.

C. Tools that have cutting edges or tips will have protective covers on cutting surfaces.

D. The operator or the tool custodian will identify unserviceable tools and turn in to the Troop Supply Sergeant accompanied with a turn-in document for reorder.

Appendix O SSL Procedures

1. **Purpose:** To provide guidance for managing units' Shop Stock Listing (SSL), ordering repair parts, and maintaining related forms and records.

2. **General:** SLL is a fifteen (15) day supply of organizational repair parts used to support maintenance operations. Equipment technical manuals (TM) identify repair parts by National Stock Number (NSN) or part number, nomenclature, Useable on Code (UOC), and Sources, Maintenance, and Recoverability (SMR) Code. They also prescribe the level of maintenance authorized to request and use repair parts.

3. **Technical manuals:** Each piece of equipment, vehicle, or Family of Vehicles (FOV) in the Army inventory have a Parts (-P) Technical Manual. The last three characters of the TM number represents the level of maintenance authorized to use the manual, i.e., -20P Organization/Crew level maintenance, -24P Organizational/DS Maintenance, -30/34P DS/GS Maintenance. Operators and unit level mechanics must use the correct manual to request repair parts. Under the GCSS-A system units cannot order DS/GS level repair parts.

4. **Repair Parts Control**

   A. Squadron Maintenance Technician

   (1) The Squadron Maintenance Technician ensures 100% SSL inventories are conducted quarterly on each SSL container. The Commander reviews, signs and dates the SSL listing upon completion of the inventory and GCSS-A system update.

   (2) Review the quarterly SSL Demand Analysis and make recommendations to the Troop Commander. He/she will review each SSL line and either concurs or non-concurs with the recommendation to add, delete, or increase an SSL stockage line. The Commander will indicate changes by annotating a "Y" (Yes, he/she agrees with the Demand Analysis), "N" (He/she wants to maintain the current on hand quantity or increase/decrease current stockages) or annotate a number along the right-hand column indicating the stockages level he/she wishes to maintain.

   (3) Forward a memorandum through the first General in the Chain of Command to request retention of Non-Demand-Supported (NS) items or to exceed the authorized SSL line stockages based on the quarterly demand analysis.

(4) Submit an access roster to the Shop Office NCOIC of all personnel authorized to receive Class IX (12) priority repair parts. Update the access roster quarterly to reflect incoming and outgoing personnel.

B. Troop maintenance officers (TMO). TMOs will inspect the equipment parts bins weekly for repair parts waiting for operators to install and are not awaiting additional parts or components. He/she will compare repair parts on hand in the equipment parts bins to the ***Parts Received Not Installed*** listing and the latest DA Form 5988-E PMCS produced by the GCSS-A system. The CMO will issue parts that do not require additional parts or assemblies to the operator's first line supervisor and ensure the GCSS-A operator updates the equipment files in the GCSS-A system. Turn in repair part(s) that are no longer required to the Shop Office section for reissue or turn in to SSA.

C. GCSS-A Operators (GCSS-A Clerks)

(1) When receiving a part, the GCSS-A Clerk will identify the part by labeling (with a felt tip marker) the document number, the corresponding vehicle number, priority, and placing it in the appropriate vehicle parts bin. The GCSS-A clerk updates the Parts Received Not Installed process in the GCSS-A system only if verified by team chiefs. The clerk will immediately notify the Maintenance Control Sergeant (MCS) or the MCO after receiving 02 parts.

(2) The GCSS-A Clerk ensures that the operator's supervisor signs for all (12) priority repair parts taken from the equipment parts bin. High priority (02/05) repair parts are only issued to the following:

i. MCO
ii. SMT
iii. MCS
iv. Unscheduled Maintenance NCOIC
v. Service Section NCOIC
vi. Contact Team Leaders
vii. Shop Office NCOIC
viii. Mechanics approved by MCS

Additionally, the GCSS-A Clerk updates the equipment fault record in the GCSS-A system after operators/mechanics install the part on the equipment. Turn in repair parts no longer required or not installed (12 priority) within 10 working days to the SSA. Keep repair parts awaiting additional parts or assemblies until receiving all required parts.

(3) The GCSS-A Clerk will secure all repair parts until issued to authorized personnel. GCSS-A Clerks will not store Class IX SSL in

office area, desk, or wall lockers. Move and secure parts away from the office area after processing for issue or turn-in.

(4) The GCSS-A Clerk will pick up repair parts daily from supporting SSA.

(5) Conduct monthly 10% inventories and ensure that all authorized SSL stocks are always on hand or on a valid request.

(6) Responsible for requisitioning and controlling the Shop Stock Listing stockage and the maintenance of all forms and records in accordance with the Supply Management Update (update 12) and GCSS-A End User Manual.

(7) Only allow personnel in the SSL stockage room if their names appear on the access roster signed by the Troop Commander.

(8) Conduct a 100% SSL stockage inventory quarterly. The GCSS-A operator will update any adjustments in GCSS-A following the inventory. Print out a new SSL inventory report confirm the adjustments. The Commander signs and dates the SSL listing upon completion of the inventory. Maintain the SSL inventory report on unit file until the completion of the next quarterly SSL inventory.

(9) Customer Reconciliation. The GCSS-A clerk will conduct a bi-weekly reconciliation with the opened/closed DCR at unit level. The GCSS-A clerk will conduct a face-to-face customer reconciliation with the supporting SSA if recon rate is below 95%.

(10) Under no circumstances will a Troop carry Small Arms Repair Parts (SARPS) on their SSL.

D. Troop Motor Sergeant/Shop Foreman will spot check all part installation the quality of work.

6. Shop stock listing (SSL) stockage: A revised stockage criteria for SSL stocked lines/items is six demands in a 180-day control period to add lines/items and three demands in a 180-day control period to retain lines/items. Units can have no more than 300 lines of repair parts for stockage on their SSL. The first general Officer in the Chain of Command must approve any non-demand stocked items. Approvals for non-demand items cannot exceed 10% of the total demand supported line SSL stock.

7. Request for Issue

A. The Shop Foreman or Service Section NCOIC will verify the description, NSN, and quantity on all parts requested prior to submitting to the Motor Sergeant for approval. Line Troop supervisors will verify NSN, UOC, SMR codes, and need prior to submitting repair parts requests for (12) priority repair parts.

B. The MCS or SMT will review, verify, and assign priority for all parts requests prior to submitting to the Supply Support Activity (SSA), therefore preventing abuse of priority, and validating the requirement.

C. The Squadron Commander or designated representative will authenticate all (02/05) priority requests. The Squadron Executive Officer must review the Squadron's ZPARK to verify all expenditures and approve all expenditures within S-8/G-8 guidance.

D. Ensure personnel requesting repair parts from equipment parts bins are on access roster authorized to receive parts. Inventory parts as part of cyclic monthly inventories. Troop Commanders will do a 100% inventory every quarter.

8. Repairable Exchange (RX): The Troop Team Chief will designate a secure holding area for all unserviceable recoverable parts pending turn in.

A. The Shop Office NCOIC, GCSS-A Clerk and Team Chief (primarily) will ensure Troopers clean and tag all unserviceable repair parts (NSN, nomenclature, and date), before turn-in to the SSA. Damaged or unserviceable recoverable items with missing parts require a damage statement (APPENDIX BB) or a Missing Parts Statement (APPENDIX BB). Parts that require any sort of fluids require a drainage statement verifying all fluids are drained and the part is clean (APPENDIX BB).

B. The Troop GCSS-A Clerk will FEDLOG all Class IX Repair Part requisitions. Repair parts with a Recoverability Code (RC) of A, D, F, H, or L, require an unserviceable exchange prior to requisition, except for items described in paragraph c. Dispose of repair parts with a RC of O or Z at unit level. Turn in recoverable repair parts to the 115th BSB SSA within 10 ten days of receipt. The SHOP OFFICE clerk will highlight the NSN, annotate a "R" next to the NSN for a recoverable part, and mark a large "R" at the top of the DA Form 5988-E. Return the DA Form 5988-E to the CRT Chief or TMO. The clerk will order the new part after the unserviceable part is turned in.

C. Retain recoverable repair parts such as tires, HMMWV hoods, seat covers, and any safety item with the vehicle until receiving the replacement part, however, the parts must meet turn in cleanliness and turn in standards.

D. The operator must clean, drain, and mark all unserviceable recoverable repair parts prior to turning into GCSS-A clerk. Turn in the DA Form 5988-E with the NSN or Part Number, QTY, and brief description of fault to the GCSS-A clerk when dropping off recoverable part.

E. The SHOP OFFICE NCOIC will ensure repairable/recoverable parts are prepared for next following parts turn in appointment. Coordinate special turn in appointments through the SMT and SSA.

F. The MCO is responsible to ensure GCSS-A Clerks make scheduled appointments on time to turn in repair parts, to include all necessary documentation, packaging requirements, and transportation requirements.

9. Excess Management

A. Tag all repair parts identified as excess and prepared for turn in within 10 days of identifying as excess. Tags will include NSN, nomenclature, and the date of identifying the item as excess. Standard pricing takes priority over excess turn in unless directed by the Commander.

B. Separate excess parts from the SSL stock and scheduled for turn in to the SSA.

C. The MCO/MCS must approve any excess parts issued to maintenance personnel or operators.

D. Turn in all excess SARP SSL immediately after identifying as excess.

E. The GCSS-A Clerk will list all parts identified as excess on the excess management report and controlled.

10. Small Arms Repair Parts (SARP)

A. Units will not stock SARP SSL their SSL.

B. GCSS-A Clerks will not accept SARP items unless approved by Squadron Executive Officer for SSL stockage.

C. The SMT will inspect unit SSL’s monthly to ensure there are no SARP in stock.

D. Secure SARP parts on hand awaiting installation under double barrier until authorized personnel sign for and receive repair parts (a locked container in a locked room).

E. Commanders will designate authorized person (s) unaccompanied access to SARP Room. Unit armorers will not have unaccompanied access to the SARP Room at any time. Access roster must be on file in SSL area, posted outside and inside controlled barriers, and in a hand receipt folder or binder.

F. GCSS-A Clerks:

(1) Serves as the Troop's principal maintainer of all electronic maintenance to include the ordering of parts, creation of work orders, creation of AOAP sample labels, etc. This is the primary electronic maintainer for the troop.

(2) Ensures that the Troop SARP manager reviews all requests for small arms repair parts.

(3) Determines whether the requester is authorized use to the repair part IAW the assigned SMR and CIIC codes. When the requested SARP does not have a CIIC of 1-8 or a pilferable item code of "J", the replacement part may be issued without regard to restrictions.

(4) Requires the requester to turn in the unserviceable SARP prior to issuing the replacement. If the damaged part is not available for turn in, the requester presents a 15-6 or FLIPL. Maintain this statement on file for a period of one year.

(5) Turns in parts with a completed certificate witnessed by a second person, attesting to the turn in of SARP for demilitarization, or Demilitarization Statement (APPENDIX BB). Maintain a copy of witness/demilitarization for one year.

(6) Takes the following actions upon receiving a request for issue of SARP, before issuing that part:

a. Matches the name of individual making request against the name of the individual authorized to request/receive, as shown on the file copy of DA Form 1687 (Notice of Delegation of Authority/Receipt for Supplies).

b. Determine whether the assigned MUC and MRC codes as indicated by the appropriate Technical Manual, authorizes the requester/requisitioner use of SARP.

c. Does not process the transaction, but notifies the maintenance officer if the review reveals:

(i) The MUC or MRC code does not authorize the repair part to the requester.

(ii) There is no authorization form on file.

(iii) The DA Form 1687 does not specifically state the individual has the authority to request/receive SARP.

d. Issue SARP parts on a DA Form 3161 (hand receipt).

e. Will not have access to SARP container key.

f. Will maintain a SARP inventory for all parts received, including quantity issued and on hand, used for issuance of repair parts to the armors. Maintain a log for all SARP transactions.

Appendix P GCSS-A Operations

1. **Purpose**: To prescribe policies and procedures to assist unit personnel in operating the GCSS-A system. The policies and procedures in this appendix are in addition to those contained in the GCSS-A Functional End User Manual (EM) and User's Manual (UM).

2. **Responsibilities**:

A. Commander.

(1) Appoint an individual to perform additional duties as the GCSS-A Commander's Representative.

(2) Appoint an individual to perform additional duties as Unit Dispatcher.

B. System Administrator.

(1) Monitor the daily administrative operation of the GCSS-A.

(2) Monitor all accounts within the Troop for lock outs, correct level of access, and correct usage of GCSS-A rights.

(3) Ensure that the unit maintains proper control of all files.

(5) Monitor the daily preventive maintenance of the GCSS-A hardware.

(6) Ensure that the GCSS-A is operating properly and report any problems to Shop Office.

(7) Ensure that the GCSS-A software is the correct version for current operations.

C. GCSS-A Operator

(1) Operate the GCSS-A system to include pulling ZOAREP, VLO6I, ESR, AOAP and other necessary reports. Note, some users may carry dual responsibilities in GCSS-A.

(2) Perform daily electronic maintenance within the guidelines of other parts of this SOP to include dispatching, ordering of parts, updating of work orders, etc. WHEN IN DOUBT, ASK SMO, SMT, MCS, or MCO BEFORE COMPLETING ANY UPDATES IN THE SYSTEM. ONLY THE TROOP'S CLERK AND SUPPLY PERSONNEL SHOULD BE

MAKING EDITS; ALL OTHER USERS SHOULD ONLY BE VIEWING REPORTS.

(3) Report problems to the unit system administrator.

Appendix Q Controlled Exchange

1. **References**

    a) AR 750-1
    b) AR 710-35

2. **General**: This appendix serves to minimize, monitor, and ensure proper authorization of controlled exchanges.

3. **Objective**:

    A. To ensure the Squadron monitors and properly authorizes controlled exchanges.

    B. To keep the number of controlled exchanges to a minimum and ensures that controlled exchanges do not become cannibalization.

3. **Responsibilities**:

    A. Squadron Maintenance Technician (SMT) and Maintenance Control Supervisor (MCS) shared responsibilities:

        (1) Ensures that the SMT/MCS attempt to take other measures to obtain the repair parts prior to requesting permission to conduct a controlled exchange.

        (2) Return the NMC equipment to FMC as soon as possible after a controlled exchange.

        (3) Obtains authorization from the Squadron Commander to perform all controlled exchanges.

        (4) Verifies non-availability of parts through various resources.

        (5) Advises the Squadron XO on part status.

        (6) Verifies cannibalization is not taking place.

    B. Squadron Commander is the authorizing official for all controlled exchanges up to 3 parts; to conduct controlled exchanges above this level it requires the Brigade Commander for a maximum of five parts.

4. Procedures:

A. The SMT/MCS ensures all required components are not available through the supply system and undocumented sources, prior to requesting permission to conduct a controlled exchange.

B. The maintenance control technician ensures there is a valid to replenish used part.

C. The SMT/MCS depletes all other resources and verifies that exchanging the part is the best solution.

APPENDIX R RECOVERY OPERATIONS

1. **References**:

    a) FM 20-22
    b) FM 29-2
    c) Rigging card for vehicle recovery.

2. **Objective**: To provide a standard procedure for recovering disabled vehicles and equipment.

3. **Responsibilities:**

    E. Operator/Crew:

    (1) Pull the vehicle off to the far side of the road. Set warning triangles to the front and rear of the vehicle IAW AR 385-55.

    (2) The operator/crew stays with the vehicle until the recovery mission is complete and restores the vehicle to FMC status.

    (3) If the vehicle becomes operational after submitting the request, the operator may move the vehicle only if a representative (i.e., maintenance team) remains at the grid coordinate until the recovery vehicle arrives.

    (4) The operator/crew assists the recovery team in evacuating the vehicle.

    (5) If the disabled vehicle is carrying ammunition, the crew will coordinate to download the ammunition to another vehicle if using dedicated recovery assets. The crew should make sure that self-recovery and like vehicle recovery is not an option before submitting a request for dedicated recovery.

    (6) Submit the request using the following format:

        i. The fault resulting in requesting recovery assets and any necessary details about the vehicle.

        ii. What actions the crew has taken?

        iii. Any required special tools.

        iv. Location.

v. Type of vehicle and any significant secondary load.

vi. Enemy and CBRN activity (tactical).

vii. Terrain type i.e., muddy, grade of slope, wooded.

viii. Unit and bumper number.

ix. Condition of vehicle i.e., can start, can move, safety issue.

A. Recovery Operator (MUST BE H8/H9 Certified):

(1) Ensure that all required equipment and towing devices are on hand.

(2) Know the methods and procedures for recovering a vehicle in any type of situation. The operator must also know the capabilities of the recovery equipment.

(3) **The H8/H9 certified operator is the subject matter expert on all recoveries. Follow all instructions by the recovery operator regardless of rank. The Commander may overrule this operator, but it is strongly discouraged due to the unacceptable level of risk in damage to equipment and Trooper safety.**

B. Recovery NCOIC (Preferably H8/H9 Qualified):

(1) Train recovery section in recovery methods, techniques, theory, and BDAR.

(2) Recover a disabled or mired vehicle IAW FM 20-22.

(3) Must be able to locate a vehicle with a given grid coordinate.

(4) Use ground guides during hook-up and observe safety measures.

4. Procedures:

A. Towing Procedures:

(1) Follow minimum and maximum speeds according to vehicle TM's and local speed limits.

(2) Do not allow personnel to ride in the recovered vehicle.

B. Request Procedures:

(1) Submit requests for recovery requests through the Troop CRT Chief to the MCS Section, Maintenance PSG (Garrison only), or SPO for BSB/CSSB support.

5. Combat Systems and Self Recovery

A. The first option for towing NMC combat systems is to tow using a like vehicle. Do not conduct a like vehicle recovery with M1A2, M2A3, and all M113 family variants except on level grades over short distances.

B. Each platoon will have ample tow bars and heat shields to allow for internal platoon towing capabilities.

C. Only use an M88 when self-recovery is not possible due to mission requirements.

Appendix S AOM (After Operations Maintenance)

1. **Reference:** Omitted.

2. **Purpose:** To establish minimum requirements for the conduct of recovery operations following a deployment or field exercise. This SOP contains those actions a unit must execute to be fully mission capable in the event of an emergency deployment. Troop Commanders may add to the requirements in this SOP to accomplish any recovery activity peculiar to certain situations.

3. **Objectives:**

   A. Assist Troop Commanders in the planning and execution of recovery operations.

   B. Provide a means of maximizing the use of time by establishing a Squadron standard for performing tasks and the timeline for completion of all recovery tasks.

   C. Provide a standard of excellence for the Troops which will contribute to overall mission accomplishment and sustainment of combat readiness in the Squadron.

4. **Scope:** This SOP applies to all units assigned or attached to 1-7 CAV.

5. **Responsibilities:**

   A. Individuals. Individual Troopers are personally responsible for properly maintaining all equipment assigned to them.

   B. Commanders.

      (1) Providing command emphasis and resources while supervising all aspects of the recovery process.

      (2) Ensuring the unit's key leaders are present on-site during recovery operations.

      (3) Coordinating for the required logistical support for all recovery activities.

      (4) Submitting a recovery progress report to the Squadron S3 at the end of each recovery day. This report will include the status of the completion of each phase and associated tasks.

(5) Ensure recovery operations are on the Troop Training Schedule.

C. Squadron S3.

(1) Notifying the Brigade S3 of completion of Phases II and IV.

(2) Monitoring the Training Schedule to protect unit recovery operations from taskings to the maximum extent possible.

(3) Monitoring the recovery status reports from the Troop Commanders and briefing the Squadron Commander at the close of each recovery day as to the status of completion of each phase and task by Troop.

6. Procedures:

A. General. There are four phases in recovery operations. Each phase includes specific tasks to accomplish prior to a unit advancing to the next phase. Phase I through IV are normally take five days to complete. The Squadron Commander must approve any extensions or changes to the normal five-day recovery timeline. Normal duty day hours do not exist during recovery operations. The Troop Commander determines the length of the duty day based on the unit's progress in completing all required tasks for each phase. The following paragraphs outline the general requirements for each phase of recovery. Specific tasks are in Enclosures 1-5. (Note: for the purpose of this SOP, D-Day is the day of redeployment from the field).

(1) Phase I (D-Day): Consists of those actions required to account for personnel and property prior to the unit's departure from the field site.

(2) Phase II (D-Day): Consists of those actions requiring completion immediately upon return from the field and prior to the release or dismissal of personnel.

(3) Phase III (D +1 to +4): Consists of those tasks required to return personnel and equipment to a combat ready state.

(4) Phase IV (D +5): Consists of a comprehensive inspection to ensure the unit is ready to assume follow on tasks and training.

Enclosure 1 (Phase I Tasks) to the 1-7 CAV AOM SOP

Phase I (D-Day) consists of nine tasks completed in the field. Units must complete all tasks prior to departure from the range or field site to garrison.

1. Account for all personnel, equipment, and sensitive items. Account for sensitive items by serial number.

2. Inspect all personnel and equipment for contraband (verified by COC and reported to Squadron).

3. Turn in all Class III (P), IV, and V (residue & live). Retain Class III (P) vehicle basic load for AOM.
4. Turn in all classified material to the Squadron S2 at the Squadron Tactical Operations Center.

5. Begin after operations PMCS. Note: Distribute 5988-Es on the evening LOGPAC on D-1 (day prior to REDEPLOYMENT).

6. Reload vehicles IAW established load plan.

7. Use available waiting time prior to REDEPLOYMENT to conduct preliminary cleaning of weapons and MTO&E equipment.

8. Remove MILES, conduct initial cleaning of MILES, Hoffman devices, and other training aids.

9. Police training area/range/facility prior to departure. Clean up any oil spills.

Enclosure 2 (Phase II Tasks) to the 1-7 CAV AOM SOP

Phase II (D-Day) consists of thirteen tasks to complete upon a unit's immediate return from the field and prior to releasing or dismissing personnel for the day. Units will not advance to Phase III until completing all Phase II tasks.

1. Wash and clean all vehicles and trailers at 1CD wash rack; the facility requires an SFC (E-7) or higher NCOIC.

2. Refuel all vehicles.

3. Account for all personnel, equipment, and sensitive items upon closure at the MP (within 2 hours of closing in the MP).

4. Punch gun tubes and conduct initial cleaning.

5. Conduct initial after operations PMCS. Deadline items repaired and /or parts ordered and /or work order requirements identified.

6. Properly close out and turn in all dispatches. Note: operator annotates miles, hours, fuel, and oil added.

7. All vehicles and equipment parked and properly aligned in MP with tarps, drip pans, and chock blocks in place.

8. Ensure all radios “z-off” with fill erased (wheeled radios secured w/lock).

9. Account for and secure all MILES equipment, and other training aids.

10. Turn in all unit level CBRN equipment.

11. Turn in all sensitive items to include COMSEC to arms room and conduct 100% inventory of arms room by serial #.

12. Initiate DA Form 285 for all recordable accidents.

13. Submit a closing report to the Squadron S-3.

Enclosure 3 (Phase III Tasks) to the 1-7 CAV AOM SOP

Phase III (D +1 to D +4) consists of thirty-one tasks and will normally begin at D +1. The Squadron Commander can delay the start of Phase III to allow sufficient time for Troopers to obtain adequate rest. It normally takes four days to complete the thirty-four Phase III tasks.

1. After Operations PMCS complete on all vehicles and equipment. Verify all faults and install parts or place on order. Update and verify all 5988-Es. Update all GCSS-A records to reflect proper equipment status.

2. Confirm status of maintenance requests submitted for NMC equipment.

3. Complete lube order on all vehicles

4. Submit maintenance request for equipment requiring BSB (evacuation work order) repair.

5. Second cleaning of Main Gun and update of all gun cards in TULSA.

6. Clean, service, and inspect all Weapons. Submit work orders if required.

7. Clean, service, and inspect all CBRN equipment. Submit work orders if required.

8. Replenish all basic loads.

9. Clean, service, and inspect all TA-50. DX complete.

10. Clean and inventory MILES / Hoffman equipment, and other training aids. Initiate adjustment documents for damaged or missing items.

11. Spot paint / repaint bumper numbers as needed.

12. Drain, clean, and store common use items such as stoves, tents, fuel, and water cans.

13. Turn in MREs not consumed to the mess sergeant or supply sergeant. Turn in all ration accountability documents (i.e., memorandum for Troopers receiving separate rations).

14. Drain, clean and service water trailers.

15. Clean common use areas to include motor pool, storage, wash racks, dumpsters, and UPRP.

16. Complete washing of vehicles (interior, exterior). DO NOT WASH THE INTERIOR OF M1A2/M2A3 turrets. Clean with brushes/brooms. Units will police the wash rack of all trash and debris before turning the wash rack over to the next unit. The Squadron S-4 will schedule and clear the units at the wash rack.

17. Clean, repair, inventory, inspect and secure COEI, BII, AAL, and other MTOE equipment. Replace as required.

18. Clean, service, repair, and inventory tents, cots, camo systems and other CTA items. Order necessary shortages and prep torn tents for canvas repair shop.

19. Inventory and replenish field sanitation kits.

20. CONNEX’s, QUADCON’s and ISU-90’s cleaned and repacked.

21. 100 percent inventory of SSL (if applicable).

22. Verify that SSL replenishment requisitions are submitted or have valid status (if applicable).

23. Submit requisitions to replenish basic loads for all classes of supply maintained by the unit.

24. Identify all damaged and lost property. Submit damage statements and shortage lists to troop commander. Initiate relief of accountability actions (ROS, SOC, FLIPL, etc.).

25. Submit required property adjustment documents with the S-4.

26. Schedule medical, finance, and legal appointments.

27. Complete admin requirements resulting from deployment.

28. Schedule compensatory time for Troopers as appropriate. To include compensatory time for mechanics and GCSS-A clerks who routinely work past normal duty hours.

29. Complete DA Form 285 for all accidental injury reports and investigations as required.

30. Ensure shortage annexes are up to date, accurate and signed by the Commander.

31. Review and update alert rosters.

Enclosure 4 (Phase IV Tasks) to the 1-7 CAV AOM SOP

Phase IV (D +5) consists of six tasks that to complete within one day of completing Phase III. Phase IV is a comprehensive inspection of all vehicles and related BII/AAL, individual and crew served weapons, other equipment (CBRN, mess, communications, etc.), OCIE, billets, maintenance areas, storage areas, and other areas specified by the Squadron Commander. The Squadron XO will publish the inspection schedule.

1. The Squadron Commander inspects vehicles for cleanliness, completion of operator/crew maintenance, and the accountability and condition of the BII/AAL. Preparation for the inspection is as follows:

    (A) Vehicles unlocked and driver/crew present in duty uniform.

    (B) All BII/AAL displayed IAW the Troop SOP. Hand receipts and Shortage annexes are on hand. A copy of the most recent DA Form 5988-E is present for each vehicle/piece of equipment. Communications equipment, both mounted and dismounted, is ready for operation and inspection.

Squadron Signal Officer will establish a distant station for radio checks during the inspection.

2. The Squadron Executive Officer inspects maintenance facilities, to include tool rooms, for organization, cleanliness, and accountability. Inspects POL package storage site.

3. The Squadron Master Gunner will inspect individual, and crew served weapons for serviceability and cleanliness. He/she will also inspect required records for completeness.

4. The Squadron CBRN Officer/NCO will inspect CBRN equipment and rooms for cleanliness, serviceability, and accountability.

5. The Squadron S-4 will inspect unit supply rooms and records for completion of recovery-related tasks (e.g., the initiation of property adjustment documents, restocking of the basic loads, turn in of excess, etc.).

6. Operationally controlled (OPCON) elements return to HHT/FST or another unit as applicable.

Appendix T Maintenance Training

1. **General**: To achieve an effective maintenance posture, the Squadron must train all personnel, including officers, NCO's, technical specialists, and operators in their maintenance requirements.

2. **Operator Level Training**

   A. First line supervisors are responsible to train their assigned operators on performance of Preventive Maintenance Checks and Services (PMCS) per the applicable equipment Technical Manual (TM) and Lubrication Order (LO). Additionally, supervisors will train equipment operators on the operation and control functions of his/her assigned equipment and proper maintenance of forms and records, i.e., DA Form 5988-E, DA Form 5987-E.

   B. Platoon leaders and Platoon sergeants will conduct refresher training for all personnel within their platoon annually.

   C. Troops will conduct special operator training, i.e., night driving, NVG training, winter driving, convoy training, annually and annotate on the operator's Equipment Qualification Record.

   D. Newly assigned equipment operators without a military driver's license receive initial PMCS training through the Squadron Drivers Training Course by Subject Matter Experts (SME) and/or instructors. Troop level SMEs certify operators E-5 and below transferring from another unit with a valid DA Form 348/E. Annotate PMCS training for all personnel on operator's equipment qualification record (DA Form 348-E). Indicate with the special training code "OO" and PMCS Certified with date and verifying official signature in the Code, Date, Description, and Verified Section restriction/action area. A qualified command delegated Master Driver will train operators who operate unique equipment. E-5s and below must be PMCS certified every two years.

   E. Upon request, maintenance personnel will assist and/or instruct operators on any subject matter requested.

3. **Unit Level Mechanic Training**

   A. Unit Level Training

   (1) The Maintenance Control Sergeant (MCS), Team Chief, Shop Foreman, and Section NCOs are responsible to train all assigned and/or attached mechanics to perform organizational and direct support maintenance tasks, operate, and recover equipment assigned and/or maintained by the Maintenance Platoon.

(2) The Shop Foreman and Section NCO's will train assigned mechanics to perform -10 and -20 level maintenance tasks that pertains to the individuals MOS on equipment maintained or operated by the Squadron. Cross training of mechanics may be necessary due to mission requirements and availability of key MOS trained personnel. In preparation for deployment and/or personnel shortages all assigned mechanics will receive familiarization training on equipment unique to the Squadron in special sessions, during Sergeant's Time Training by qualified NCOs/instructors, and on the spot training.

B. Service Schools.

(1) Make maximum use of all available maintenance related courses at DA level and III Corps service schools to enhance Squadron level mechanics technical and maintenance management skills.

(2) The MCS will request quotas for service schools as far in advance as possible. Fill all requested quotas.

(3) Service schools, i.e., Non-Commissioned Officer Development Courses (NCOES), are available to Department of the Army and Military Branch select Troopers. Leaders should encourage Troopers to participate in all available service schools for career and technical skill enhancement.

(4) Carefully interview individuals considered for attendance at service schools to ensure they meet the prerequisites for the training.

C. Military Education.

(1) The following is a list of military\civilian education opportunities available to maintenance personnel.

a. **Army correspondence courses.** This program offers self-paced study courses tailored to the MOS skill of the Trooper.

b. **Automotive Excellence Service (ASE) certification program.** This program certifies individuals in specialized automotive available repair at a nominal fee per test, (available through Central Texas College).

c. **Squadron and Post maintenance training courses.** III Corps Troop School offers courses in GCSS-A management, Motor pool Maintenance Management, Power Generation, Fuel Handlers

course, etc. Schedule maintenance refresher training through the 1CD Logistics Assistance Office (LAO). Ft. Hood offers maintenance training from COMET, TACOM and DOL personnel to units to enhance their equipment maintenance programs.

d. **Army sponsored college/technical school courses.** These courses are available to selected personnel to train maintenance personnel in technical skills related to unique Engineer equipment, i.e., Armored Combat Engineer Vehicle School in Michigan.

e. **Post and community college courses.** Ft. Hood educational services offers accredited and technical degrees in maintenance technical and management courses through Central Texas College, Texas A&M, and many other local and nationally recognized universities/colleges.

f. **Train the Trainer Programs.** The Squadron will conduct mandatory Noncommissioned Officers Development Programs (NCOPD) and Officer Development Programs (OPD) for key leaders during one Command Maintenance period per month. The purpose is to train the chain of command members to on how to train and supervise their subordinates in maintenance subjects.

D. On-the-job training (OJT). Use OJT to alleviate MOS shortages and to meet 1CD directives. The MCO/MCS use the following guidelines in OJT.

(1) The MCS and/or the SMT will strictly monitor and supervise the On-The-Job Training and Cross Training of personnel.

(2) Team inexperienced or newly assigned mechanics/GCSS-A clerks with an experienced mechanic/GCSS-A clerk to perform assigned tasks.

(3) The section NCOIC will counsel their personnel undergoing OJT monthly on their performance and progress in their duties.

(4) The MCO and MCS are responsible for the overall OJT program and will keep the Squadron Executive Officer informed on the progress of all personnel.

(5) Upon successful completion of OJT program or reassignment, the MCO/Motor Sergeant will submit a request for award of a secondary MOS through Squadron Commander.

E. Certifications. All MCS Personnel will certify on GCSS-A. Personnel must complete the certification within 90 days of assignment through GTRAC.

F. Standard Army Maintenance System Enhanced (GCSS-A) for Leaders Certification. This program is a 16 hour on site class designed to teach Squadron level leaders a hands-on working knowledge of GCSS-A. Attendance is mandatory for Squadron Commanders, Executive Officers, and Troop Commanders. This class is an annual training requirement for Squadrons and is available through III Corps G3 Education Services.

Appendix U Publications

1. **General**: Troop Maintenance Team Chiefs will maintain a library of all maintenance publications essential to their Troop's equipment. Maintain the library IAW the ARMIS system. Mark publications with "Deployment" or "Field."

2. **Procedures**: To ensure that all publications remain up to date, the follow procedures below:

    A. Assign personnel additional duty as publication clerk.

    B. Have current military references required for maintaining your publication account with your Troop publication clerk.

    C. Have current requisition printout from Troop publication clerk and make sure it coincides with your records.

    D. Conduct semi-annual review of 12-series subscription.

    E. Use Army Publishing Directorate web site (http://www.apd.army.mil/) when ordering publications with the following information:

        (1) Account letter and number

        (2) Publication item (i.e., AR 670-1)

        (3) Unit of issue

        (4) Quantity

        (5) Change number

    F. Order FT Hood publications separately.

    G. Pick up publications weekly from Squadron publications clerk.

    H. Review accounts every 6 months with the unit publications clerk.

    I. Post all changes immediately to the applicable publications, make additional copies as needed.

    J. Return excess publications to the unit publication clerk for distribution and/or storage.

K. The SMT and MCS will periodically review and check the unit's 12 series subscription to ensure that it is current and working.

3. **Maintenance publications**: Refer to DA Pam 750-8 for the required publications for Troop maintenance. At a minimum, keep these publications on hand or on order. This is in addition to each unit’s equipment publications.

Appendix V Motor Pool Appearance

1. **Purpose:** To provide policy and procedures for maintaining a professional appearance of vehicles, maintenance areas, and Troop areas within the motor pool, and parking of vehicles and equipment within the motor pool.

2. **Procedures:**

   A. Vehicle Chock Blocks. Use chocks blocks every time when parking a vehicle, regardless of location and the duration. Each vehicle (including trailers) will have two positioned as follows:

   (1) **Vehicles under 2.5 tons**: Place one chock block against the left front tire (e.g., driver's side) and one chock block against the right rear tire on the downhill side of both tires. The minimum size chock block is 6" high by 7" long by 6" wide. (NSN 2540-00-406-4588 is the preferred chock block). Chock blocks will remain with the vehicle during operations; secure chock blocks in the vehicle to prevent loss or damage to vehicle or other vehicles. If parking the vehicle on even terrain, simply place one chock block against the front of the left front tire and one against the rear of the right rear tire. Park vehicles with tailgates down and roll up tarps (if applicable, in a method that prevents water collection) to show they are free of trash.

   (2) **FMTVs and above:** Place one chock block against the left front tire on the downhill side of the tire. Place one chock block between the right-side duels against the down-hill side of the outer up-hill tire. The minimum size chock block is 5.5" high by 15" long by 5.5" wide. (The standard metal chocks that are 12" high by 14" long by 9.5" wide are an acceptable substitute. NSN 2540-01-165-6136 is the preferred chock block). M916s when coupled to a trailer (loaded or unloaded); place one chock block against the down-hill side of the left front tire and one against the down-hill side of the right rear #2 axle outer tire. When vehicles are in operation, store chock blocks in the cab, storage box, or a secure compartment on vehicle to prevent loss, damage to vehicle, and/or damage to other vehicles. For vehicles parked on even terrain, simply place one chock block against the front of the left front tire and one against the rear of the right rear tire.

   (3) **HEMMTTs/LHS'/PLS':** Place one chock block against the left front tire on the down-hill side of the tire. Place one chock block against the right tire on the rear most axle on the downhill side of the tire. Use approved rubber or nonmetallic chock blocks for HEMMTT Fuel Tankers (M978). The minimum size chock block is 5.5" high by 15" long by 5.5" wide. (The standard metal chocks that are 12" high by 14" long by 9.5" wide are an acceptable substitute NSN 2540-01-165-6136 is the preferred

chock block.) Secure and safeguard chock blocks during operation as stated in Para 2a (1-2).

(4) **TRACKED VEHICLES:** Place the chock blocks on the down-hill side of both tracks. The minimum size chock block is 5.5” high by 15” long by 5.5” wide. (The standard metal chocks that are 12” high by 14” long by 9.5” wide are an acceptable substitute.)

B. Trailers: Each trailer will have two chock blocks positioned as follows, they will have tailgates down and tarps installed (if applicable, rolled up in a method that prevents water collection):

(1) **One-Axle Trailers:** Place one chock block against each tire on the down-hill side of the tires. The minimum size chock block is 5.5” high by 15” long by 5.5” wide. (The standard metal chocks that are 12” high by 14” long by 9.5” wide are an acceptable substitute. NSN 2540-01-165-6136 is the preferred chock block).

(2) **Two-Axle Trailers:** Place a chock block against the down-hill side of each of the tires on the down-hill axle. The minimum size chock block is 5.5” high by 15” long by 5.5” wide. (The standard metal chocks that are 12” high by 14” long by 9.5” wide are an acceptable substitute. NSN 2540-01-165-6136 is the preferred chock block).

(3) **Lowboy Trailers:** Place a chock block against the down-hill side on the rear-most axle. The minimum size chock block is 5.5” high by 15” long by 5.5” wide. (The standard metal chocks that are 12” high by 14” long by 9.5” wide are an acceptable substitute. NSN 2540-01-165-6136 is the preferred chock block).

C. Drip Pans:

(1) Wheeled Vehicles: There will be a minimum of one drip pan beneath each wheeled vehicle. Place drip pan beneath the front differential unless there is a leak elsewhere under the vehicle. In that case, place one pan beneath the drip. If there are several leaks beneath a vehicle, place an adequate number of drip pans to prevent ground contamination. If an oil leak is a Class III leak, report leak to the maintenance section for action. NSN 4910-00-387-9592 is the standard drip pan. #10 cans are an acceptable substitute. Standardize drip pans within each platoon. Place drip pans underneath the vehicle anytime it is parked, regardless of where it is parked. Secure drip pans in vehicle during operation to prevent damaging and/or losing drip pan. Mark each drip pan with the vehicle bumper number. Inspect drip pans daily and drain water accumulation. During weather of high winds, attach drip pans to vehicle to prevent the drip pans from blowing away

or toppling over. Operators/crews will remove drip pan and place it in vehicle prior to driving away.

(2) Tracked Vehicles: There will be a minimum of two drip pans beneath each tracked vehicle. Place one drip pan under each final drive. If there are other leaks beneath a vehicle, place an adequate number of drip pans to prevent ground contamination. NSN 4910-00-387-9592 is the standard drip pan. #10 cans are an acceptable substitute. Standardize drip pans within each platoon. Report excessive fluid leaks to maintenance for verification and repair. Place drip pans underneath vehicle after parking, regardless of the parking location. Secure drip pans in the vehicle during operation to prevent damaging and/or losing drip pan. Mark each drip pan with the vehicle bumper number. Inspect drip pans daily and drain water accumulation. During high winds, attach the drip to vehicle to prevent drip pan from blowing away or toppling over. Operators/crews will remove drip pan and place it in vehicle prior to driving away.

D. Parking Plan: Units will park vehicles and equipment IAW the Squadron parking plan. Request temporary exceptions or permanent changes through the MCS. Do not park trailers against the fence line. No parking on gravel or grassy areas in motor pool. If parking vehicles around the maintenance facility, ensure to park perpendicular to building with all doors, access panels, and hoods closed. When maintenance is complete for the day, equipment will be clean, chocked, and have the appropriate number of drip pans in place as prescribed in Para. 2c (2).

E. Maintenance Area. The SMT and MCS will routinely inspect the maintenance facility and surrounding areas for the following:

(1) Obvious safety violations

(2) Environmental compliance policy violations.

(3) Security of vehicles/equipment in for maintenance (i.e., closed hoods, doors, access panels).

(4) Unsecured operator and mechanics tools and toolboxes.

(5) Area cleanliness, to include cabs, cargo, and hulls areas of vehicles.

(6) Unsecured repair parts (new or unserviceable).

(7) Industrial health hazards.

(8) Remove all BII/operator belongings and unlock vehicles if inside maintenance bay. Secure the maintenance bays or open a work order for the security deficiency.

F. Miscellaneous.

(1) Commanders and First Sergeants inspect their lines weekly and report results to the Squadron Commander and Command Sergeant Major.

(2) Keep vehicles and containers clean, secure, free of trash and excess serviceable/unserviceable repair parts, and free of excess POL products and POL containers.

(3) Locations: Park vehicles and equipment in the areas specified in the 1-7 CAV parking plan.

(4) Use of wash racks: Motor pool wash racks provide an area for preparing vehicles and equipment for maintenance and final cleaning of equipment after missions, services, and field exercise only. Equipment returning from missions or field exercises are to utilize the **Division** wash rack for cleaning excessive build-ups of mud, grease, and debris. Do not use soaps, detergents, and cleaning on the motor pool wash rack for any reason. Do not drain vehicle/equipment fluids on wash rack. However, operators can drain drip pans with oil and water mixtures in the wash rack.

(5) Fuel tanks. Keep fuel tanks at least 3/4 full when parked in the motor pool or overflow lot.

(6) Antennas. Leave antennas in the “up” position.

Appendix W Small Arms Repair

1. **Purpose**: To provide a standard for operator and unit level maintenance of individual and crew served weapons.

2. **Operator Level Maintenance**:

   A. In garrison, Troopers conduct operator/crew level maintenance on assigned individual and crew served weapons each time they sign them out of the arms room or monthly (whichever comes first). This includes conducting all operator level checks and services and filling out the appropriate form. Individual and crew served weapons are in the GCSS-A databases and will therefore be PMCSd using a GCSS-A generated Equipment Maintenance and Inspection Worksheet (5988-E).

   B. In the field, operators/crews conduct maintenance IAW the operator level technical manual. Upon return to home station, perform operator maintenance before returning the weapon the arms room. In all cases, perform proper PMCS checks according to the appropriate TM and complete a DA Form 5988-E.

   C. After firing weapons, a perform a PMCS IAW the appropriate TM and complete a DA Form 5988-E. The operator will field strip and clean each weapon thoroughly. A supervisor will inspect each weapon for cleanliness and verify the PMCS before the operator returns the weapon to the arms room.

3. **BSB Support Level Maintenance**:

   A. BSB level work requests will be job ordered to the FST armament section. All equipment will be job ordered using GCSS-A generated DA 5990-Es. A DA Form 5988-E listing all organizational deficiencies or shortcomings must accompany the request. Weapons submitted for repair must be clean, complete, and include spare barrels, if applicable.

   B. Make requests for classification of weapons using GCSS-A work request.

4. **Maintenance Records**:

   A. Reportable Crew Served Weapons:

      (1) Reportable crews served weapons include those weapons that are subsystems of vehicles that are reportable items.

(2) The armorer will maintain DA Form 5988-Es on all crew served weapons.

(3) Armorers must immediately report deadlined reportable equipment to their Troop maintenance team. Armors have 24 hours to repair weapons or have definitive action taken (definitive action includes either ordering necessary parts or job ordering equipment to FST support maintenance).

B. The Troop armorer will maintain a DA Form 5988-E in the Troop arms room on each piece of equipment kept in the arms room. The armorer will maintain operator level 5988-Es until 30 days after correcting the last fault. Maintain service 5990-Es until completion of the next service.

Appendix X QA/QC Program

1. **General**: This appendix covers the inspection criteria for use by appointed technical inspectors when inspecting organizational and direct support maintenance tasks, and dispatch QA/QC. Maintenance supervisors, as well as vehicle supervisors, are responsible for ensuring all mechanics and operators complete assigned tasks to standard and in accordance with applicable technical manuals and references. The inspection section will verify compliance with these established guidelines.

2. **Purpose**: The purpose of this appendix is to establish guidelines as well as a checklist for use by appointed QC inspection personnel for organizational and direct support level maintenance tasks. In addition, commanders use information from QC inspection is used to further enhance the unit's organizational and direct support level maintenance procedures.

3. **References**: TM 750-245-4, DA PAM 750-8, AR 750-1.

4. **Responsibilities**:

   A. Commander:

   (1) Appoint all technical inspectors on appointment orders.

   B. Maintenance Control Officer:

   (1) Establish an effective QA/QC program that ensures operators and maintenance personnel repair in accordance with applicable references.

   (2) Ensure all necessary and relevant references are on hand or on a valid requisition for QA/QC personnel.

   C. Maintenance Control Technician:

   (1) Assist MCO is establishing guidelines and standards for the unit QA/QC program.

   (2) Enforce all established guidelines and standards for conducting organization and direct support level repairs by maintenance and QA/QC personnel.

   (3) Provide technical advice and assistance to maintenance personnel.

   (4) Act as a mediator when there is a discrepancy between maintenance personnel and QA/QC personnel.

(5) Conduct periodic spot checks of QA/QC program to ensure compliance with established standards.

(6) Maintain a copy of all final inspections completed on BSB support level jobs at the Maintenance Control Section.

D. Maintenance Control Supervisor:

(1) Assist MCO and SMT in enforcing QA/ QC inspection standards.

(2) Make recommendations and interview prospective candidates for the unit's QA/QC program.

(3) Assist QA/QC and maintenance personnel in obtaining required publications.

(4) Conduct periodic spot checks of QA/QC program to ensure compliance with established standards.

(5) Provide technical assistance and guidance to QA/QC and maintenance personnel on equipment repairs.

(6) Approve finalized QA/QC schedule the Technical Inspectors and all subsequent adjustments submit. Ensure all CRT Chiefs have the current QA/QC schedule.

E. CRT Chief:

(1) Ensure maintenance personnel assigned to jobs are qualified to perform that task.

(2) Ensure maintenance personnel use technical manuals when performing all assigned tasks, regardless of how many times they have completed that task.

(3) Assign section sergeants to verify mechanics work before sending equipment to QA/QC.

(4) Perform periodic spot checks of direct support level tasks to enforce standards.

(5) Report all problems to Maintenance Control Sergeant.

(6) Coordinate with Troop XOs regarding scheduling for QA/QC of Troop equipment.

(7) Provide input to Technical Inspectors during QA/QC scheduling and advise Troop XOs on the resulting schedule.

F. Inspection Section Personnel:

(1) When conducting any inspection, ensure all technical data comes from the equipment's -10 and -20 technical manual.

(2) Ensure maintenance personnel meet established repair standards and guidelines during the conduct of the inspection.

(3) Report findings in writing to SMT or MCS upon completion of inspection on checklist provided. (See APPENDIX BB for Checklists)

(4) Provide maintenance section with written results of your inspection.

(5) Utilize all technical data and tools available to assist you in your inspection.

(6) Work with CRT Chiefs and MCS to create QA/QC schedule for all vehicles in the SQDN and submit schedule to MCS for approval.

5. Procedures: The inspection section will complete a QA/QC on all dispatches, scheduled services, and direct support level maintenance jobs. This includes both tracked and wheeled vehicles. Complete the inspection on a QA/QC checklist and turn in to Maintenance Control Section after completing the final inspection. The signature of QA/QC personnel is final. Only the Maintenance Control Sergeant or Maintenance Control Technician have the authority to contradict the opinion of an inspector. If the inspectors reject a piece of equipment for any reason, they share the results of inspection to the senior maintenance person with specific instructions on the nature of the deficiencies. The original inspector conducts all re-inspections whenever possible, under the same standards.

6. Designated technical inspection personnel will report to the MCS or SMT once daily to brief status or get updates of on-going direct support level actions and dispatch QA/QC results.

Appendix Y Maintenance Meetings

1. **Purpose:** This appendix outlines the times, locations, and requirements of the various maintenance meetings.

2. **General:** To designate maintenance priorities, check progress, and maintain proper awareness of equipment, there will be meetings of regular frequency across the chain of command. This provides directions to the Troopers performing maintenance and gives guidance to the leadership who then create maintenance plans of action.

3. **CRT Team Chief Meeting**

   A. The CRT Team chief meeting is every morning at 0845 in the Shop Office unless stated otherwise. The purpose of this meeting is to maintain proper awareness of maintenance progress and disseminate maintenance priorities to the team chiefs. The team chiefs must be prepared to brief all things maintenance within their line Troops including but not limited to: jobs finished, jobs in shop, jobs scheduled to go into shop, 02 parts statuses, ESR projections, Standard Pricing, training focus, and issues or concerns.

4. **Squadron Maintenance Meeting**

   A. The Squadron maintenance meeting will take place every Tuesday and Thursday from 1600-1700 in the Squadron conference room unless stated otherwise. The purpose of this meeting is to inform the Squadron XO of major maintenance events and voice Troop maintenance concerns. The audience for this meeting is all Troop Team Chiefs and XOs, MCS, SMT, SMO, and the Squadron XO. The Troop XOs must be prepared to brief all this maintenance in their Troop including but not limited to scheduled services, NMC report, equipment out of the motor pool, and major maintenance concerns. The MCS will send the Troop XOs the initial slide deck on the last working day of the week. The XOs must update the information and return them to the MCS NLT Monday at 1600.

5. **Brigade Maintenance Meeting**

   A. The Brigade maintenance meeting will take place every Thursdays from 1000-1130 in the SPO conference room unless otherwise stated. The purpose of this meeting is to inform the Brigade XO on major maintenance movements within the Squadron. The audience required from 1-7 CAV at this meeting is the SMO, SMT, and the SXO. The maintenance control officer must be prepared to brief all things maintenance within 1-7 CAV including but not limited to: 026 report, scheduled services, recoverable items, and major maintenance concerns.

Appendix Z Sample Forms

1. **Purpose**: This appendix provides examples of forms and checklists referenced in this SOP IOT give a reference for correct completion.

2. **General**: This SOP delegates responsibilities, procedures, and command guidance concerning the environmental and used product management. This SOP applies to all Troopers assigned/attached to this Squadron.

3. **Form Reference:**

QA/QC Checks (Completed by Mechanic)

Deficiencies found during QA/QC will be added to the DA Form 5988-E and submitted to maintenance supervisor for action prior to dispatch	GO	NO-GO
Does vehicle contain a serviceable validated fire extinguisher? (VEH carrying CL V requires 2ea). Ref: APPLICABLE -10 manual, AR 385-10 CHP 11-10 b. (1)		
Do any NMC faults (deficiencies) exist, as described in applicable TMs? If yes, equipment is NMC Ref: AR 750-1, CH 3-2, b (2)		
Does last service exceed 10% variance? If so, equipment is administratively deadline. Ref: DA PAM 750-8, CH 2-4, E (4)		
Is there any improper functioning or condition of steering, lights, windshield wipers, horn, warning signals, side or rearview mirrors, restraint devices, reflectors, or other safety devices that are broken, cracked, discolored, or covered with frost, ice, snow, dirt, mud, or grime Ref: AR 385-10, PARA 11-3 (a,b) & Applicable TM		
Is there any defective, inoperable, or out-of-adjustment service or parking brakes Ref: AR 385-10, PARA 11-3 & Applicable TM		
Any condition likely to cause injury to personnel or failure of a component. Examples are cracked wheel hubs, worn or frayed tie down straps, torn sheet metal with exposed sharp edges, damaged or missing exhaust, low, flat or tires worn past tread wear indicator, improper track tension, loose half shaft / prop shaft bolts, loose end connectors, missing center guides. Ref: AR 385-10, PARA 11-3 & Applicable TM		
Are occupant restraint devices and other safety devices serviceable and operational? Ref: AR 385-10, PARA 11-3 & Applicable TM		
Any fuel or Coolant leak; Any CI III Oil Leaks?		
Appropriate fluid levels (ex: engine, transmission, brake, coolant)? Ref: AR 385-10, PARA 11-3 & Applicable TM		
Is the battery box clean and serviceable, battery terminals secure and clean (not corroded) and battery hold-downs secure? Ref: Applicable TM		

QA/QC Name		Rank		Date of Inspection	
QA/QC Signature					

Dispatch and Vehicle Operation Guideline

1.	Operator uses DA Form 5988-E from command maintenance and completes a PMCS IAW equipment -10.
2.	Dispatch request and PMCS submitted to maintenance and a QA/QC is scheduled.
3.	Operator and QA inspector complete QA/QC IAW Squadron Dispatch inspection Checklist.
4.	Corrective action taken by maintenance on NMC and administrative deadlines.
5.	Repairs or action taken on un-corrected faults. (ie parts ordered or faults added to DA form 5988-E that cannot be corrected prior to mission).
6.	Maintenance supervisor reviews dispatch packet for completeness and submits to dispatcher for action.
7.	Dispatcher updates DA form 5988-E, verifies all documents are in equipment records folder are present, checks for overdue service, dispatches equipment, verifies operator qualifications and issues dispatch packet.
8.	TC conducts PCC using checklist on the front of this form prior to rolling out.
9.	TC or operator ensures "During" PMCS IAW equipment -10 is completed and annotated on DA Form 5988-E, as well as *subsequent daily PMCS is completed for every day equipment is used*.
10.	Senior occupant notifies maintenance of any NMC or safety deficiencies upon identification of such faults and obtains approval to continue operating the vehicle.
11.	Upon completion of the mission, operator completes the "after" operations PMCS IAW equipment -10, annotates the odometer reading on the dispatch form and submits to the senior occupant for a release signature. Completed DA Form 5988-E, dispatch form, logbook with all its required documents are returned back to dispatcher to be closed out.

NOTE: If equipment is NMC or administratively dead-lined, (either overdue service or IAW AR 385-10) the squadron commander may use the circle X fault and write restrictions and limitations for a one time use of the vehicle. The circle X is only good for a one-time use, not an entire mission.

NOTE: Amber roads require SQDN XO's signature on dispatch.

Important Contacts

Troop Commander Contact #

Troop 1SG Contact #

Troop XO Contact #

TC Confirms with driver:

- ◊ Road conditions / weather
- ◊ Route
- ◊ Speed limits
- ◊ Proper PPE / uniform
- ◊ Adequate rest past 24-48hrs

1-7 Cavalry Dispatch Request & QA/QC

Today's Date		Destination	
Date of Departure			**Vehicle Information**
Date of Return			Admin # - Primary Mov -
1st Operator's Name/		License #	Admin # - Trailer At -
2nd Operator's Name/		License #	Admin # - Cargo
Senior Occupant / TC Name / Rank			
Mission Supervisor Name / Rank			

Senior Occupant / TC (Prior to Rolling Out)	GO	NO-GO
Equipment record folder present and labeled with Admin number in front		
Dispatch DA Form 5987-E, signed by Dispatcher, Operator and Comamnder Ref. DA PAM 750-8 FIG 2-7		
Does the operator have their Military Operators License (Signed, licensed on the equipment, signed by current CDR, not expired...) Ref: AR 600-55, CH 6: DA PAM 750-1 CH 5-2		
Proper Authorizations on DA Form 5988-E if operating NMC or Admin dead-lined equipment		
SF 91 Operator Report of Motor Vehicle Accident (2ea.) and DD form 518,92 ea) and DA Form 1970. Ref. AR 385-10 PAR 2 d (4). DA PAM 750-8 PARA 2-8.		
If DA Form 5987 operator blocks are full, the senior occupant completes a DD Form 1970		
Is operator level TM/LO current and present? Ref: DA PAM 750-1 CH 5-2		
Daily PMCS completed and annotated on DA Form 5988-E		
The Service date is within 10% tolerance, (see DA form 5988-E) (no service date is the same as an overdue svc)		
First aid kit on hand, complete and not expired		
Warning triangles are present and serviceable		
Fire extinguisher present, sealed, and serviceable IAW the - 10		
Safety strap is present and serviceable. If transporting troops, this strap must be in use. Gunner restraints, if being used are present, sealed and serviceable. Ref: AR 385-10, PARA 11-5 c (2)		
Are all personnel wearing approved headgear, with chinstrap fastened and utilizing occupant re-straints. REf: AR 385-10, CH 11-10 b (5)		
Improper functioning or conditioning of steering, lights, windshield wipers, horn, warning signals, side or rearview mirrors, restraint devices, reflectors, or other safety devices that are broken, cracked, disccol-ored, or covered with frost, ice snow, dirt, mud, or grime Ref: AR 385-10, PARA 11-3 (a,b,) & Appli-cable TM		
Defective, inoperable, or out-of-adjustment service or parking brakes REf" AR 385-10. PARA 11-3 & Applicable TM		
Any condition likely to cause injury to personnel or failure of a component. Examples are cracked wheel hubs, worn or frayed tie down straps, torn sheet metal with exposed sharp edges, damaged or missing exhaust, low flat or tires worn past tread wear indicator, improper track tension, loose half shaft / prop shaft bolts, loose and connectors, missing center guides. Ref: AR 385-10, PARA 11-3 & Applicable TM		
Occupant restraint devices, and other safety deveices are present and serviceable Ref: AR 385-10, PARA 11-3 & Applicable TM		
No fuel or coolant leaks. Any CI III Oil Leaks		
Appropriate fluid levels (ex: engine, transmission, brake coolant) Ref: AR 385-10, PARA11-3 & Applicable TM		
Battery box clean and serviceable, battery terminals secure and clean Ref: Applicable TM		
Signature:		

QA/QC Checks (Completed by Mechanic)		
Deficiencies found during QA/QC will be added to the DA Form 5988-E and submitted to maintenance supervisor for action prior to dispatch	**GO**	**NO-GO**
Does vehicle contain a serviceable validated fire extinguisher? (VEH carrying CL V requires 2ea). Ref: APPLICABLE - 10 manaul, AR 385-10 CHP 11-10 b. (1)		
Do any NMC faults (deficiencies) exist, as described in applicable TMs? If yes, equipment is NMC Ref: AR 750-1, CH 3-2, b (2)		
Does last service exceed 10% variance? If so, equipment is administratively deadline. Ref: DA PAM 750-8, CH 2-4, E (4)		
Is there any improper functioning or condition of steering, lights, windshield wipers, horn warning signals, side or rearview mirrors, restraint devices, reflectors, or other safety devices that are broken, cracked, discolored, or covered with frost, ice snow, dirt, mud or grime Ref: AR 385-10, PARA 11-3 (a,b) & Applicable TM		
Is there any defectiive, inoperable, or out of-adjustment service or parking brakes Ref: AR 385-10, PARA 11-3 & Applicable TM		
Any condition likey to cause injury to personnel or failure of a component. Examples are cracked wheel hubs, worn or frayed tie down straps, torn sheet metal with exposed sharp edges, damaged or missing exhaust, low, flat or tires worn past tread wear indicator, improper track tension, loose half shaft / prop shaft bolts, loose and connectors missing center guides. Ref: AR 385-10, PARA 11-3 & Applicable TM		
Are occupant restraint devices and other safety devices serviceable and operational? Ref: AR 385-10, PARA 11-3 & Applicable TM		
Any fuel or Coolant leak: Any CI III Oil Leaks?		
Appropriate fluid levels (ex: engine, transmission, brake coolant)? Ref: AR 385-10, PARA 11-3 & Applicable TM		
Is the battery box clean and serviceable, battery terminals secure and clean (not corroded) and battery hold-downs secure? Ref: Applicable TM		

QA/QC Name		Rank		Date of Inspection	
QA/QC Signature					

Dispatch and Vehicle Operation Guideline	
1.	Operator uses DA Form 5988-E from command maintenance and completes a PMCS IAW equipment -10.
2.	Dispatch request and PMCS submitted to maintenance and a QA/QC is scheduled.
3.	Operator and a QA inspector complete QA/QC IAW Squadron Dispatch inspection Checklist.
4.	Corrective action taken by maintenance on NMC and administrative deadlines.
5.	Repairs or action taken on un-corrected faults. (ie parts ordered or faults added to DA form 5988-E that cannot be corrected prior to mission).
6.	Maintenance supervisor reviews dispatch packet for completeness and submits to dispatcher for action.
7.	Dispatcher updates DA form 5988-E, verifies all documents are in equipment records folder are present, checks for overdue service, dispatched equipment, verifies operator qualifications and issues dispatch packet.
8.	TC conducts PCC using checklist on the front of this form prior to rolling out.
9.	TC or operator ensures "During" PMCS IAW equipmwnt - 10 is completed and annotated on DA Form 5988-E, as well as ***subsequent daily PMCS is completed for every day equipment is used.***
10.	Senior occupant notifies maintenance of any NMC or safety deficiencies upon identification of such fruits and obtains approval to continue operating the vehicle.
11.	Upon completion of the mission, operator completes the "after" operations PMCS IAW equipment - 10, annotates the odometer reading on the dispatch form and submits to the senior occupant for a release signature. Completed DA Form 5988-E, dispatch form, logbook with all its required documents are returned back to dispatcher to be closed out.

NOTE: If equipment is NMC or administratively dead-lined, (either overdue service or IAW AR 385-10) the squadron commander may use the circle X fault and write restrictions and limitations for a one time use of the vehicle. The circle X is only good for a one-time use, not an entire mission.

NOTE: Amber roads require SQDN XO's signature on dispatch

Important Contacts

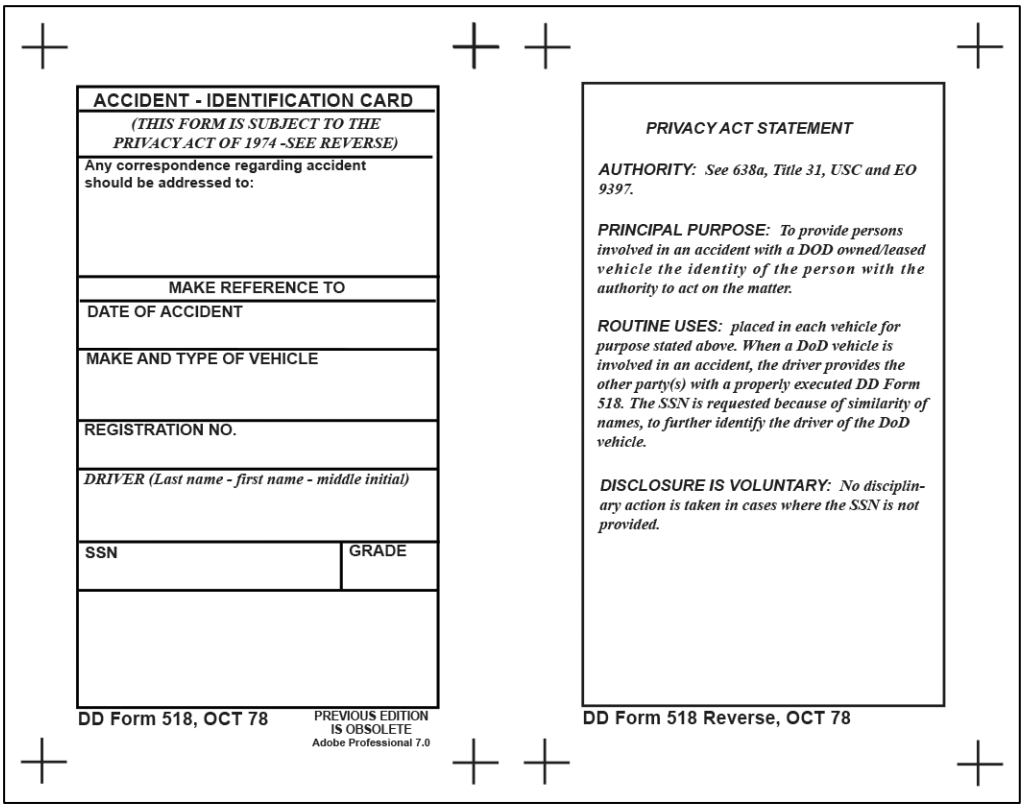
Troop Commander Contact #

Troop 1SG Contact #

Troop XO Contact #

TC Confirms with driver

- ◊ Road conditions / weather
- ◊ Route
- ◊ Speed limits
- ◊ Proper PPE / uniform
- ◊ Adequate rest past 24-48hrs



ACCIDENT - IDENTIFICATION CARD

(THIS FORM IS SUBJECT TO THE PRIVACY ACT OF 1974 -SEE REVERSE)

Any correspondence regarding accident should be addressed to:

MAKE REFERENCE TO

DATE OF ACCIDENT

MAKE AND TYPE OF VEHICLE

REGISTRATION NO.

DRIVER (Last name - first name - middle initial)

SSN | GRADE

DD Form 518, OCT 78 PREVIOUS EDITION IS OBSOLETE Adobe Professional 7.0

PRIVACY ACT STATEMENT

AUTHORITY: *See 638a, Title 31, USC and EO 9397.*

PRINCIPAL PURPOSE: *To provide persons involved in an accident with a DOD owned/leased vehicle the identity of the person with the authority to act on the matter.*

ROUTINE USES: *placed in each vehicle for purpose stated above. When a DoD vehicle is involved in an accident, the driver provides the other party(s) with a properly executed DD Form 518. The SSN is requested because of similarity of names, to further identify the driver of the DoD vehicle.*

DISCLOSURE IS VOLUNTARY: *No disciplinary action is taken in cases where the SSN is not provided.*

DD Form 518 Reverse, OCT 78

MOTOR VEHICLE ACCIDENT REPORT	Please read the Privacy Act Statement on Page 3	INSTRUCTIONS: Sections I through IX are filled out by the vehicle operator. Section X, items 72 thru 82c are filled on by the operator's supervisor. Section XI thru XIII are filled out by an accident investigator for bodily injury, fatality,and/or damage exceeding $500.

SECTION I - FEDERAL VEHICLE DATA

1. DRIVER'S NAME (Last, first, middle)	2. DRIVER'S LICENSE NO./STATE/LIMITATIONS	DATE OF ACCIDENT

4a. DEPARTMENT/FEDERAL AGENCY PERMANENT OFFICE ADDRESS	4b. WORK TELEPHONE NUMBER

5. TAG OR IDENTIFICATION NUMBER	6. EST. REPAIR COST	7. YEAR OF VEHICLE	8. MAKE	9. MODEL	10. SEAT BELTS USED
	$				☐ YES ☐ NO

11. DESCRIBE VEHICLE DAMAGE

SECTION II - OTHER VEHICLE DATA (Use Section VIII if additional space is needed)

12. DRIVER'S NAME (Last, first, middle)	13. SOCIAL SECURITY NO./ TAX IDENTIFICATION NO.	14. DRIVER'S LICENSE NO./STATE/LIMITATIONS

15. a DRIVER'S WORK ADDRESS	15b. WORK TELEPHONE NUMBER
16a. DRIVER'SHOME ADDRESS	**16b. HOME TELEPHONE NUMBER**
17. DESCRIPTION OF VEHICLE DAMAGE	**18. ESTIMATED REPAIR COST**
	$

19. YEAR OF VEHICLE	20. MAKE OF VEHICLE	21. MODEL OF VEHICLE	22. TAG NUMBER AND STATE

23a. DRIVE'S INSURANCE COMPANY NAME AND ADDRESS	23b. POLICY NUMBER
	23c. TELEPHONE NUMBER

24. VEHICLE IS	25a. OWNER'S NAME(S) (Last, first, middle)	25b. TELEPHONE NUMBER
☐ CO-OWNED ☐ RENTAL ☐ LEASED ☐ PRIVATELY OWNED		

26. OWNER'S ADDRESS(ES)

SECTION III - KILLED OR INJURED (Use Section VIII if additional space is needed)

A

27. NAME (last, first, middle)	28. SEX	29. DATE OF BIRTH

30. ADDRESS

31. MARK "X" IN TWO APPROPRIATE BOXES	32. IN WHICH VEHICLE	33. LOCATION IN VEHICLE	34. FIRST AID GIVEN BY
☐ KILLED ☐ DRIVER ☐ PASSENGER ☐ INJURED ☐ HELPER ☐ PEDESTRIAN	☐ FED ☐ OTHER (2)		

35. TRANSPORTED BY	36. TRANSPORTED TO

B

37. NAME (last, first, middle)	38. SEX	39. DATE OF BIRTH

40. ADDRESS

41. MARK "X" IN TWO APPROPRIATE BOXES	42. IN WHICH VEHICLE	43. LOCATION IN VEHICLE	44. FIRST AID GIVEN BY
☐ KILLED ☐ DRIVER ☐ PASSENGER ☐ INJURED ☐ HELPER ☐ PEDESTRIAN	☐ FED ☐ OTHER (2)		

45. TRANSPORTED BY	46. TRANSPORTED TO

47. Pedestrian

a. NAME OF STREET OR HIGHWAY	b. DIRECTION OF PEDESTRIAN (SW corner to NW corner, etc.)	
	FROM	TO

c. DESCRIBE WHAT PEDESTRIAN WAS DOING AT TIME OF ACCIDENT *(crossing intersection with signal, against signal, diagonally; in roadway playing, walking, hitchhiking, etc.)*

NSN 7540-00-634-4041
Previous edition not usable

STANDARD FORM 91 (2/2004)
Prescribed by GSA-FMR 102-34.295

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT HOOD
FORT HOOD, TEXAS 75644-5002

GARRISON POLICY
DPW-04

IMHD-PWE

19 JUN 2019

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Fort Hood's Environmental Policy

1. REFERENCES:

a. Executive Order 13824, Planning for Federal Sustainability in the Next Decade, dated 17 May 2018.

b. Army Regulations 200-1 Environmental Protection and Enhancement, dated 13 December 2007.

c. III Corps and Fort Hood Regulation 200-1, Environment and Natural Resources, dated 24 April 2014.

2. PURPOSE: To define the Fort Hood Environmental Policy in accordance with Executive Order 13834, Army regulations, and other guidance.

3. APPLICABLITY: This policy applies to all Soldiers and Civlians performing duties in units or activities assigned, attached, stationed, based, or otherwise located on the Fort Hood military reservation.

4. POLICY:

a. The Army has a comprehensive strategy to support energy security and sustainability with a focus on energy, water, and solid waste managment at Army installations. That vision includes a culture that recognizes the value of sustainability measured not just in terms of financial benefits, but in terms of the benefits to qualify of life, relationships with local communities, the preservation of options for the Army's future, and maintaining mission capability and resilience.

b. In support of the Army strategy and vision. Fort Hood's environmental program has adopted goals to significantly reduce the amount od waste going into our landfill, and to reduce our energy and water consumption. These programs will help to preserve both our natural and fiscal resources, and will enhance the installation's ability to support readiness, training, and deployment of military units.

IMHD-PWE
SUBJECT: Fort Hood's Environmental Policy

c. To achieve these goals, Fort Hoos is commited to:

(1) Continually improving our environmental stewardship

(2) Evaluating opportuniites for pollution prevention

(3) An involved leadership who monitors activities impacting the environment.

(4) Complying with all legal requirements as the minimum standard.

(5) The inherent responsibility of all personnel to protect and preserve the environment.

5. EXPIRATION: This Fort Hood Command Policy memorandum will remain in effect until suspended or rescinded.

Encl

JASON A. WESBROOK
COL, IN
Commanding

DISTRIBUTION:
IAW FH Form 1853: A

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT HOOD
FORT HOOD, TEXAS 75644-5002

IMHD-SO

GARRISON POLICY
SAFETY-01

MEMORANDUM FOR Directors and Support Office Chiefs/Managers

SUBJECT: Safety Policy

1. I am the Safety Officer for the Garrison. I expect every director, support chief, and leader to be a Safety Officer and take personal responsibility of the safety employees entrusted to their care.

2. Accident prvention in this Garrison is based on the philosophy that all accidents can be prevented, and that accident prevention is an inherent function of leadership and discipline. The employees of this Garrison must be so thouroughly trained in safety principals and procedures that safety awareness is a part of their thought process, both on and off duty. Disciplined organizations operate to standard because it is the right thing to do, and they do no take short cuts. As a result, they conduct safe, well thought out operations from start to finish. Leaders must nuture and enforce discipline, guarding against complacency short cuts.

3. At times, we are faced with accomplishing tough missions in challenging environments During operations, leaders at each level manage risk and assure that our employees conduct all activities safely. We must remember that "nothing" we do is so important as to cost the life of an employee. Every operation will have a Risk Assessment completed to determine how risks will be managed, and will be approved at the appopriate level.

4. The safety policy of this Garrison is to achieve "Safety Through Thorough Operating Procedures". We will not use safety as an excuse for avoiding difficult and challenging support missions. We will use safety to enhance rather than undermine effectiveness. We will ensure that we prepare so thoroughly and intelligently that we avoid adhoc planning, which so often leads to the individual employee having make the choice between ineffective or "safe". Using a thoroughly thought out support plan and the maintenance of a constantly discliplined environment we can eliminate needless risk. When safety in doubt cease operations and consult your chain of command/leadership.

5. The point of contact for this policy is Mr. Orta, Garrison Dierector of Safety, at (254) 287-3323 or email at daniel.orta.civ@mail.mil.

JASON A. WESBROOK
COL, IN
Commanding

Appendix AA Overnight Storage Checklist

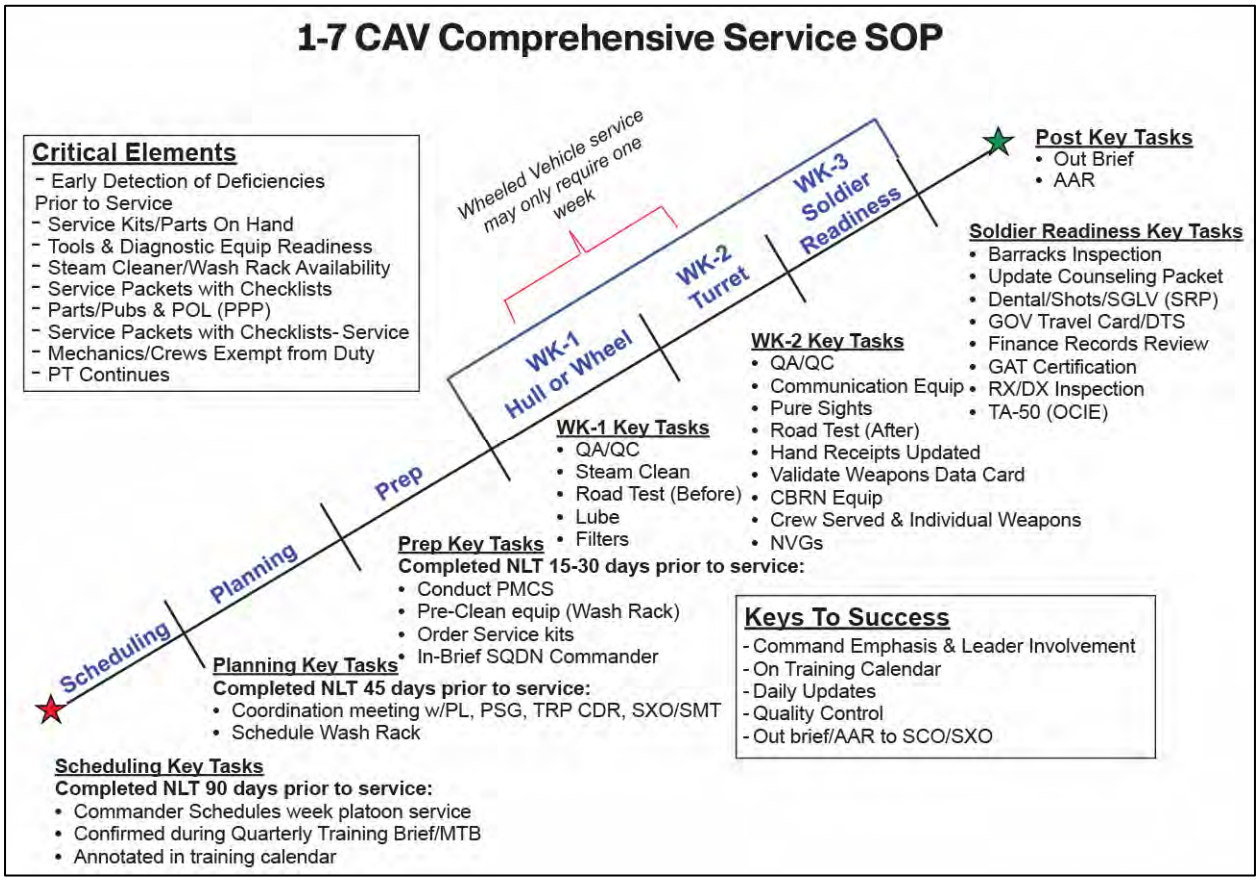
1-7 CAV Maintenance Bay Close-out Checklist

- T/I performed IAW AR750-1, chapter 3 to ensure vehicle is FMC, or there is no need to order more parts.
- All POL spills in work area cleaned to standard.
- All used POL products disposed of properly to include empty POL containers, filters, contaminated materials, and used dry sweep.
- Vehicle thoroughly inspected for items not belonging to crew or vehicle. I.E tools, parts, and/or trash.
- Wipe down open POL containers that have uncontaminated product and place on secondary containment pallets.
- Remove all trash from the work area.
- Nothing belonging to vehicle or crew left in bay.
- Clean, band, and complete all associated paperwork on all unserviceable parts needing turn in.
- Completion of any unrelated tasks needed by maintenance team to improve workflow, efficiency, and environmental compliance.
- Notify CRT team chief after completing this checklist, and releases vehicle crew from maintenance area.

Checklist for Vehicles Staying in Bay Overnight

- All task from Bay Closeout checklist complete to the extent possible
- All BII and other equipment belonging to crew secured elsewhere; to include any Sensitive/High Dollar Items
- Vehicle left unlocked.
- Chock blocks positioned in most effective place to prevent vehicle movement.
- Drip pans positioned in most effective place to prevent POL spillage.

Appendix AB Comprehensive Service SOP



ANNEX AC SERVICE PACKET DOCUMENT REQUIREMENTS

1-7 Cavalry, 1 ABCT
FT HOOD, TX, 76544

SERVICE PACKET CHECK LIST

Admin #	Model#	Mechanics Assigned	Service Type
Troop:		Operators Assigned:	

Start Date:	Form:	Comments	Verified by Motor SGT/NCOIC
REQUIRED	Operator 5988-E with 10 level before PMCS	PMCS Type: Before operation. Mileage, inspector # (GCSS-A), signature TM item numbers annotated, dates, status, mileage accuracy, and deficiencies or short comings annotated or corrected prior to dispatch.	
REQUIRED	Initial/Final Road Test Dispatch 5987 E W/ QA/QC Form	QA/QC form verifies equipment is safe to operate prior to dispatch and that operator has conducted PMCS. Operator/Crew performs an operational test and performs During, and After PMCS (Road Test, min 5 mi) and reports and issues and annotates faults on the 5988E.	
REQUIRED	Work Order DA 5990-E Service Performed	Svc Type: Usage based (Miles/Hrs),Quarterly, Semi, Annual, or Biennial. Initial inspection, tasked/LO performed, parts installed/issued to w/o, new deficiencies annotated with required material on order, final inspection.	
REQUIRED AS APPLICABLE	DA Form 5990-E 10/20 level Service, brake test, coolant test, or battery test if applicable	20 level Tasks IAW TM & LO, man hours specified. Signatures and dates	
REQUIRED	QC NCO final 5988-E	Troop QA/QC NCO (on appointment orders) performs final Quality Control inspection on DA 5988-E.	
REQUIRED	Updated 5988-E	Service closeout with accurate information, dates, mileage/hours, and service repair parts on order if found or updated if repaired or installed. Updated service interval.	
IF APPLICABLE	Low Usage Memo	Low Usage Memorandum for Record if applicable	
REQUIRED for M1A2, M2A3, BFIST, M1064	GUN CARD (DA 2408)	Master Gunner updates Gun Card in TULSA to reflect necessary services and EFCs (Borescope, Recoil, etc.)	
AS REQUIRED	MISC, MFR, etc.		

Equipment Repair/Parts Specialist (ERP) Squadron MCS/Maintenance Technician Signature:
_____ Signature: _____

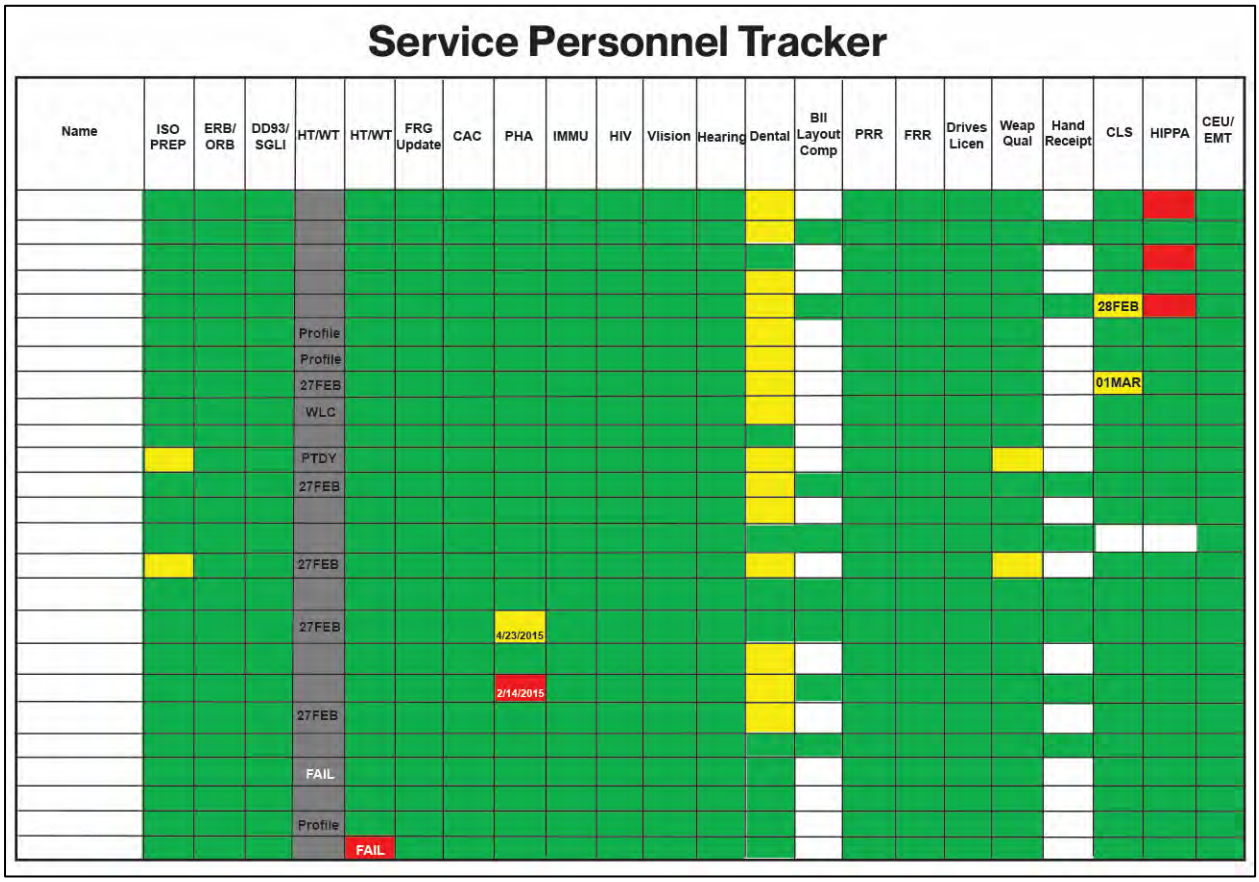
Equipment Repair/Parts Specialist (ERP) Squadron MCS/Maintenance Technician Signature:
_____ Signature: _____

Appendix AD Service Task Tracker

Service Task Tracker

Week 1					
	Day 1	**Day2**	**Day3**	**Day4**	**Day 5**
(BF V CREWS) M3 Hull Services Operators _____ Mechanics _____	• 10/20 level TI • Road test • Lube order • Suspension TI • Troop MG - Pull 25MM, service, and update digital and paper gun card for CFV 1	• Hull TI • Drive.crew area TI • Troop MG - Pull 25 MM, service, and update digital and paper gun card for CFV 2	• Engine compartment TI • Battery/coolant tests • Troop MG - Pull 25MM, service, and update digital and paper gun card for CFV 3	• Initial trouble shooting - begin working on all hull faults identified • Troop MG - Pull 25MM, service, and update digital and paper gun card for CFV 4	• Continue trouble shooting work off hull faults found • Repaint Bumper #s and Crew names • *M242 services completed
(HQs) Personnel and Equipment Services Operators _____ Mechanics _____	• M4/M9 services • COMMO equipment services	• Crew-served weapon services • $1 verification (DD93/SGLI)	• Optics/Lasers services • Purge NVGs • MEDPROS verification (hearing/dental/vision/ medical tags/immunizations)	• OCIE Inventories • Counseling's/ personnel actions • Barracks inspection (Focus on serviceablity of barracks and inventory of furniture rather than health and welfare)	• Ancillary Equipment • NBC masks • Update shortage annexes
(Tank Crews) M1A2 Hull Services Operators _____ Mechanics _____	• Pull Packs • Change Fuel Filters • Inspect Fuel Tanks • Start 20 Level TI • Fluid Levels • Check Linkages • Pull and Drain EAPU's • Install New Terminal Guards	• Ensure Labels And Weights Recorded From V-packs • Check Steering Controls • ADJ Brake Controls • Heater Fuel Lines And Filters • Continue To Install Service Kits	• Engine Health Test • Ground Hop • 1600 Test • IGV AND PTS Adjustments • Check Connections, Lines, And Sensors • Meter Batteries	• Remove NBC Covers • Pull Driver's Seat • Re-install Batteries • Engine Health Check Continued • Continued To Ground Hop Packs	• Distribute Parts On Hand • Set Packs • Update 5988's And Service Packets

Appendix AE Service Personnel Tracker



Appendix AF Service Overall Tracker

Platoon Services Overall Tracker

Specified Tasks	Status	Issues:
Vehicle Services Complete	4/4	•
COEI/BII Inventory, SHR and Shortage Annex Updates	100%	
Verify all Serial Numbered Equipment	100%	
Drivers Licenses	9/19	
PMCS on Commo Systems (FM/JBC-P/POP/SNE)	4/4	
LR Communications Checks	4/4	
Road Test / Rollout	4/4	AAR:
Service Packets	4/4	•
Weapons Services (-10/-20/-30)	31/31	
Optics Services (-10/-20)	19/19	
NBC Services (-10/20)	19/19	
NVG Services (-10/-20-30)	17/17	
MBTR, and Manpack FM/HF (-10/-20)	1/2	
Platoon MAL Updated	100%	
Counseling Packets Updated	17/17	
OCIE Inventories Conducted	19/19	
Medical Readiness Verified with MEDO	18/19	
APFT/ACFT Complete	19/19	
Personnel Records Updated (DD93, SGLI, ERB/ORB)	19/19	

OUR SERVICES

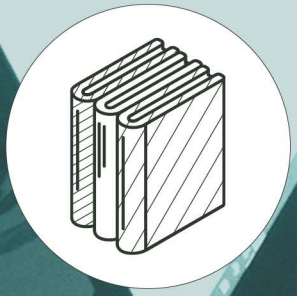
BE AN AGENT FOR CHANGE

WORKING FOR CALL

Work with us to drive Army change and impact Soldiers. Join us as a CALL Military Analyst (Forward) at a COMPO 1 active division or corps headquarters! Highly motivated self-starters currently serving in the rank of KD-qualified major or colonel (O4-O6) or master sergeant to sergeant major (E8-E9) are encouraged to apply. Soldiers selected will serve as a critical link between operational and institutional forces.

REQUEST FOR INFORMATION

CALL provides a unique service to the force by providing research and answers on a wide variety of topics. Reach out to us with your questions and your topics of interest.



REQUEST FOR PUBLICATION

The CALL library is home to thousands of articles and publications. Our materials support units and Soldiers in multiple scenarios covering CTC and MCTP rotations, DSCA, and ongoing contingency.

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U.S. ARMY COMBINED ARMS CENTER

COMBINED ARMS CENTER - TRAINING

NO. 23-08 (682)
May 2024