Operationalizing Command Maintenance to Train Organizational Systems and Build a Culture of Maintenance Readiness

by MAJ Gary M. Klein

Task Force Strike was preparing for crew-gunnery Table IVs tomorrow, but the commander and executive officer were beginning to get nervous. The battalion's M1A2 crews were conducting live-fire accuracy screening tests (LFASTs). Its M2A3 crews were zeroing their M242 Bushmasters (25mm single-barrel chain-driven autocannons), but things were not going well.

It all started the day before when several vehicles unexpectedly broke down before making it to the range. Some vehicles never made it out of the motorpool, while others broke down for seemingly simple issues. Also, some crews were troubleshooting radios after they were unable to communicate with personnel in the range tower during Table IIIs. Issues continued to pile up, and operational-readiness (OR) rates continued to drop as crews discovered turret, main gun and ancillary-weapon-system faults during LFAST and zero.

After meeting at the maintenance collection point, the commander and executive officer agreed to meet again later that evening to discuss what had gone wrong. In the meantime, the battalion executive officer was researching several questions. The battalion had been conducting command maintenance every week, so why had they not discovered more of their maintenance issues before now? Had they provided enough orders and guidance to their company commanders to ensure Soldiers were conducting all preventative-maintenance checks and services (PMCS) on their vehicles? Had their Soldiers not performed PMCS on their ancillary equipment? Why was there such a large discrepancy between the equipment-status report (ESR) before deploying to the field and today's ESR? The executive officer decided to have some initial recommendations ready for his meeting with the commander so they could mitigate the current volume of maintenance challenges for next month's platoon gunnery.

Incorporating PMCS

Command maintenance is a well-known weekly event where Soldiers conduct PMCS on their vehicles. It often happens on Mondays, or the first duty day of the week, to ensure units maintain their equipment according to the Army's 10-level technical manuals (TMs).

Command maintenance is a great way to incorporate routine PMCS into a unit's battle rhythm. Depending on a unit's operations tempo (OPTEMPO), priorities and depth of planning, command maintenance is also an opportunity to build a broader culture of readiness. Commanders and leaders at all echelons should operationalize command maintenance to deliberately exercise all aspects of their maintenance systems and, as able, achieve additional training objectives, including reporting and command-post operations, communications-systems readiness and rollout exercises.[1]

Figure 1. Troopers from 1st Squadron, 1st Cavalry Regiment, conduct PMCS on their M2A3 Bradleys at Fort Bliss, TX. (*Photo by MAJ Steve Modugno, 2nd Brigade Combat Team, 1st Armored Division, Public Affairs*)

Admittedly it is challenging to incorporate all the readiness activities in this article every week, but commanders can modulate the specified tasks of each week's command maintenance based on their priorities and the unit's OPTEMPO. If the commander assesses that Soldiers need more time to conduct PMCS, he or she might direct a course of action (CoA) that focuses exclusively on conducting PMCS on their rolling stock that week (Table 1, CoA 1). On the other hand, if a unit is on Red Cycle and is not conducting as much collective training at the time, the commander might choose to conduct everything from PMCS on rolling stock up to rollout exercises (Table 1, CoA 6).

During most weeks, commanders will likely fall somewhere in the middle, selectively conducting some readiness activities but not others.

Table 1. CoAs to operationalize command maintenance, with the maintenance tasks mentioned in this article (y-axis) charted against a unit's OPTEMPO (x-axis). Each column represents a CoA where "X" indicates a task the commander decides to execute in that CoA based on his or her priorities.						
	OPTEMPO					
	High	**<-**	**Medium**		**->**	**Low**
TASKS TO EXECUTE	CoA 1	CoA 2	CoA 3	CoA 4	CoA 5	CoA 6
PMCS rolling stock	X	X	X	X	X	X
PMCS ancillary equipment		X	X	X	X	X
More maintenance systems tasks (AOAP, TMDE, MWOs/SOUMs and combat spares)			X	X	X	X
Communications checks and reporting operations				X	X	X
Command-post operations					X	X
Rollout exercise						X

Maintenance objectives

At a minimum, Soldiers conduct PMCS on their vehicles during command maintenance, but which checks are they conducting? Army TMs include before, during and after, as well as weekly and monthly checks.[2] So, how do commanders ensure their Soldiers conduct all these checks over time?

Without more guidance, Soldiers may only conduct before, during and after PMCS every week to ensure their vehicles are dispatched. However, to ensure all checks are conducted, leaders need to build a battle rhythm to add weekly and monthly checks to their training calendars to ensure these checks are completed as well.

The command-maintenance battle rhythm included in Table 2 is one example of how commanders can implement this idea within their units. Table 2 details a command-maintenance technique whereby a commander incurs some risk by not conducting weekly-level PMCS checks each week, but this time saved enables Soldiers to conduct checks on ancillary equipment and other maintenance systems that might otherwise be overlooked. Arguably, this deliberate decision is better than an alternative, which is that Soldiers may never conduct weekly or monthly checks or may never touch their ancillary equipment.

Soldiers must maintain their ancillary equipment, too. So when do you maintain your communications equipment; weapons and mounts; vehicular weapon systems; chemical, biological, radiological and nuclear (CBRN) equipment; optics; night-vision devices; tents; and other equipment? Like command decisions regarding what PMCS checks to conduct each week, commanders must focus their Soldiers' maintenance efforts on ancillary equipment as well.

Table 2 details a battle rhythm that emphasizes shooting (weapons), moving (rolling stock and optics) and communicating (communications equipment and generators) while assuming some risk on CBRN, tents, command-post equipment, basic-issue items (BII), etc. This ancillary-equipment PMCS battle rhythm provides clear guidance and predictability for company/battery/troop (C/B/T) commanders to dedicate time on their training calendars to PMCS all organizational equipment.

A benefit of creating a battle rhythm for ancillary-equipment PMCS is that 10-level operator PMCS can be synchronized with 20-level maintainer PMCS to enable services. Some operator checks on ancillary equipment are redundant with 20-level services (for example, M4 10-level functions checks and M4 20-level quarterly services, and PVS-14 (night-vision monocular) 10-level PMCS and PVS-14 20-level semi-annual services).[3] Services must be a team effort among operators, maintainers and commodity-shop leaders, including arms-room and CBRN noncommissioned officers (NCOs) in charge and officers in charge.

Some organizations struggle with ancillary-equipment services because they do not enable their commodity shops with operator assistance. Operators should conduct PMCS under the supervision of commodity-shop subject-matter experts to increase Soldier proficiency on their equipment and drastically reduce the time required to complete ancillary services. By creating a battle rhythm for PMCS ancillary equipment, leaders are dedicating time to directed services.

Table 2. Monthly/quarterly command maintenance battle rhythm that directs which PMCS checks, ancillary equipment and additional maintenance systems to focus on each week during command maintenance.			
Week of the month	**PMCS checks**	**Ancillary equipment to PMCS**	**More maintenance system focus items**
1	Before, during, after	Communications equipment and night-vision devices	AOAP / TMDE
2	Through weekly	Weapons (individual, crew-serve and associated mounts and optics	MWOs / SOUMs
3	Before, during, after	Weapons (M242s, M256s, Common Remotely Operated Weapon Station and associated optics	AOAP / TMDE
4	Through monthly	Generators, trailers and quarterly ancillary equipment (see below)	MWOs / SOUMs

5	Before, during, after	To be determined by C/B/T	Combat spares
Week 4: quarterly ancillary equipment to PMCS	January / April / July / October	CBRN equipment	
	February / May / August / November	Tents and command-post equipment	
	March / June / September / December	BII	

Finally, what systems does your unit's leadership use to ensure your organization stays current on its other maintenance systems: the Army Oil Analysis Program (AOAP); test, measurement and diagnostic equipment (TMDE); maintenance work orders (MWOs)/safety-of-use messages (SOUMs); and combat-spares inspection? Leaders likely cover these topics in weekly maintenance meetings, but command maintenance is an ideal time to capitalize on engaged operators and leaders so the required actions are completed while Soldiers are already fully engaged in the motorpool.

Commanders should incorporate reporting requirements to ensure leaders are doing their research to determine when these maintenance requirements are due so that Soldiers anticipate and execute the necessary actions to meet required suspenses. Just like ancillary services, the suspenses for these maintenance systems should be added to C/B/T training calendars to ensure they are synchronized with the unit's training and other requirements. By emphasizing these maintenance systems during command maintenance, commanders can proactively address these requirements when Soldiers are already focusing on equipment maintenance.

Maintenance reporting and command-post operations

Depending on the commander's priorities and time available, leaders may wish to add reporting and minimally manned command-post operations to command maintenance to maintain or improve readiness in command-and-control systems and processes. While Soldiers and leaders at the platoon-and-below-level are executing the tasks necessary to achieve command-maintenance objectives, leaders at C/B/T-and-above echelons should be supervising these actions to coach, teach and ensure their units maintain high maintenance-readiness levels.

One way to achieve this – while simultaneously building proficiency at communications systems, reporting and battle tracking – is to establish very simple C/B/T, battalion/squadron, and maybe even brigade-level command posts. To ensure the priority remains on maintenance, command posts should be an economy-of-force effort during command maintenance, but they should also have enough manning to accomplish a few key tasks: receive and send reports, battle-track maintenance efforts and provide communications expertise to enable communications-systems troubleshooting. A unit can likely achieve these objectives with one radiotelephone operator (RTO), one battle NCO and one signal-support-systems specialist (military-occupation specialty 25U).

Command maintenance is a great opportunity to train on reporting, including building RTO proficiency and unit-reporting standing operating procedures (SOPs). At a minimum, command posts at echelon need an RTO to send and receive reports on radios and Joint Battle Command-Platforms (JBC-Ps). Ideally, command posts should include a battle NCO to enable the team to update trackers, proactively seek out information, provide assistance to subordinate units and maintain a maintenance common operating picture (COP). Finally, having one 25U Soldier on hand to troubleshoot radios and JBC-Ps is extremely valuable to help maintain and teach communications equipment techniques to other Soldiers.

Command maintenance is a low-threat environment to train RTOs and battle NCOs. It's also an ideal time to build familiarity and experience with reporting formats and SOPs. Report formats should mirror, or at least be modified versions of, reports from the unit's tactical SOP (TACSOP). Example reports might include using command-update brief (CUB) formats for mid- or end-of-day situation reports (SITREPs) and slant-reporting SOPs (for instance, tanks/Bradleys/Bradley fire-support teams/M1064s/M88s).

Table 3 is an example command-maintenance timeline that includes a mid-day JBC-P SITREP and an end-of-day CUB via frequency modulation (FM) radio. Given the weekly frequency, command maintenance is an outstanding opportunity to achieve sets and repetitions on reporting and command-post procedures.

With a command post capable of receiving and sending reports, the next step is to build and update a COP nested with the unit's TACSOP. Two trackers pertinent to command maintenance and part of a unit's larger COP are a combat-power tracker and the unit's communications-status (COMSTAT) tracker.[4]

As Soldiers execute PMCS on their vehicles, they should report via radio and JBC-Ps. This allows the battle NCO to update and track the maintenance readiness of their vehicles while validating the communications systems associated with each vehicle and updating the COMSTAT as each crew checks in. Vehicle crew members should report the status of PMCS and their vehicle's OR (fully mission-capable or non-mission-capable, and any new faults discovered).

Then, the command post can compile this information and compare it to the unit's Global Combat Support System-Army (GCSS-A) ESR to update the unit's combat-power tracker. Battle-tracking maintenance like this enables leaders to receive initial notification of changes to the ESR based on that week's equipment maintenance and inspection worksheets (DA Form 5988-Es).

To maximize communications training during command maintenance, leaders may choose to communicate using a combination of encrypted radio and JBC-P systems to build proficiency and validate these systems. In addition to validating the radios are operating properly, reporting using encrypted radios on frequency-hop (FH) cypher text (CT) is a great technique to ensure units' communications- security (COMSEC) systems are fully functional and efficient. Leaders sometimes overlook their COMSEC systems until they deploy to the field, overlooking questions such as:

- How many COMSEC custodians do you need in your unit?
- Where are they assigned?
- Have your Soldiers established accounts/systems to draw and issue COMSEC efficiently and effectively?

Table 3. Command maintenance timeline, presenting events and specified tasks to prepare for and execute command maintenance. The timeline includes four critical events to enable command maintenance: printing 5988s the prior week, mid-day JBC-P SITREP, an end-of-day FM CUB to test those systems and a leadership walk-through to inspect the status of the work.	
Time	**Event**
No later than end-of-day Friday	C/B/T executive officers coordinate and receive all blank 5988s for next week's command maintenance
6:30 a.m.-7:30 a.m.	Physical training
8:45 a.m.	C/B/T executive officers issue 5988s to platoons and a fresh ESR to their command post
9 a.m.	Battalion/squadron command-maintenance formation
9:10 a.m.-4 p.m.	Command maintenance
No later than 1:30 p.m.	C/B/Ts submit mid-day SITREP via JBC-P
3 p.m.	Battalion/squadron leadership walk-through
3:30-4 p.m.	Commanders' maintenance synch via FM (using TACSOP CUB format)
4:30 p.m.	Battalion/squadron closeout format

If a company only has one COMSEC custodian, it will take "forever" to load new COMSEC during command maintenance when communications keys change. This same challenge would be exacerbated when the company is dispersed across an operational area during collective training or combat operations. So, command maintenance is a great opportunity to learn in a forgiving environment and build repetitions.

Similarly, battalion S-6 personnel sometimes find themselves with insufficient accounts and systems in place to draw new COMSEC and share them across subordinate units' simple-key loaders. Having all crews turn on their radios, validate or load new COMSEC keys and report command-maintenance progress via FM (FH CT) validates the unit's COMSEC readiness.

In addition to using FM systems, leaders should incorporate reporting via JBC-Ps to validate those systems as well. This is another system that brigade-and-below units almost always include in their primary, alternate, contingency and emergency communications plan. However, maintaining JBC-P OR rates is challenging without emphasis and supervision. Commanders should incorporate JBC-P reporting into command maintenance as a forcing function to track JBC-P OR rates. This can be as simple as operators sending a test message from each JBC-P system or a more thorough SITREP as referenced in the command-maintenance timeline of Table 3.

Troubleshooting JBC-P problems in the field is much more difficult than in the motorpool because of the relative shortage of operator-level JBC-P troubleshooting expertise. Common challenges range from simple misunderstanding of proper start-up and shut-down procedures to the inability to troubleshoot potential JBC-P wiring faults and the availability of JBC-P repairs parts. Communications-systems repair parts are usually centralized at the battalion S-6 shop in garrison and command posts in the field. With the proper planning, standards and supervision, these potential challenges – low JBC-P OR rates and operator-level troubleshooting expertise – can be addressed during command maintenance to increase unit readiness in the field.

Culture of readiness: rollout exercises

Finally, commanders may wish to use command maintenance as an opportunity to test a subordinate unit's overall readiness. To this end, leaders can order units to conduct simple, no-notice rollout exercises during command maintenance. Some preparation is required, but leaders at all echelons can randomly select subordinate units to rollout to the field with no prior notice, challenging their Soldiers and leaders to own all aspects of readiness and create a culture of maintenance excellence. Commanders can give these units a simple tactical task to conduct during rollout exercises such as conducting a short convoy or establishing an assembly area in a close-in training area.

Rollouts test subordinate units' ability to maintain their systems, enable leaders to check readiness, ensure that maintenance systems of record (GCSS-A) reflect reality and encourage competitiveness between units to prove their readiness. Rollouts test various unit systems, from its ESR to testing communications systems at distance, and its ability to execute basic tactical tasks. Leaders should know which vehicles are capable of deploying to the field and which can't based on its ESR.

However, a rollout will test the accuracy of a unit's ESR, sometimes revealing previously unknown faults or issues. Also, leaders will often discover inefficiencies in simple tasks or systems such as drawing weapons from the arms room, the system used to fill radios across the unit or the storage systems used to store ancillary equipment.

Finally, rollouts can be used to train and test a unit's proficiency in basic tactical tasks such as movement techniques, high-frequency radio-communications tests, reporting procedures, establishing a retransmission station, establishing an assembly area, etc. If conducted frequently enough, commanders will find that their subordinate units will take pride in their ability to execute these tasks and they will compete to see how quickly they can complete these tasks to standard.

Figure 2. Soldiers from 1ˢᵗ Battalion, 35ᵗʰ Armor Regiment conduct PMCS on their M1A2 Abrams tank at Fort Bliss, TX. *(U.S. Army photo by MAJ Steve Modugno, 2/1 Armored Division Public Affairs)*

To ensure Soldiers can rollout on short notice, leaders should consider standardizing the creation of monthly alert dispatches. Alert dispatches (DA Form 5987-1-E) can be authorized for extended periods of time depending on local command orders or policies.[5] To ensure the frequency of PMCS, and quality control and quality assurance checks, standard dispatches (DA Form 5987-E) are usually only authorized for up to seven days. So it's wise for commanders to implement more controls on the use of month-long 5987-1-E alert dispatches. Common controls include requiring company commanders to collect and secure their C/B/T's alert dispatches to manage when they are used. Also, Soldiers should be required to have a valid Form 5988-E and complete PMCS on the same day they use an alert dispatch.

Either way, creating monthly alert dispatches makes it easier to conduct alert rollouts and minimizes the requirement for equipment records parts specialists (ERPS) to create dispatches during command maintenance since ERPS clerks need to be conducting maintenance on their own equipment at that time.

Conclusion

Most Army units conduct command maintenance in some way, shape or form, but the specifics – PMCS frequencies, what equipment is maintained and the depth of systems exercised – often vary from one unit to the next. Commanders and leaders at all echelons should operationalize command maintenance to exercise all aspects of their maintenance systems while seizing the opportunity to achieve additional training objectives on communications systems, command-post operations and simple tactical tasks during rollout exercises. Command maintenance is a great way to incorporate routine PMCS into a unit's battle rhythm, but it is also an opportunity to build a culture of maintenance and readiness.

After struggling through crew gunnery due to maintenance issues, Task Force Strike's commander and executive officer decided to be more prescriptive with weekly command-maintenance tasks. Battalion orders now directed what checks to conduct each week on what equipment while requiring reporting and periodic rollout exercises to validate their ESRs. Soldiers and leaders bemoaned these changes at first, but they realized the wisdom and enjoyed the fruits of their labor at their next gunnery. Higher OR rates at platoon gunnery enabled them to train on their own vehicles; spend less time fixing faults that could have been discovered before deploying to the field; and focus more on shooting, moving and communicating.

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Notes

[1] This article uses the term "rollout exercise," but some leaders might call these "deployment readiness exercises (DREs)" or "emergency DREs (EDREs)." The author deliberately chose not to use the term *DRE* because AR 525-93, ***Army Deployment and Redeployment***, October 2019, Paragraphs 3-6 to 3-9 (***Conducting a Deployment Readiness Exercise***) state that DREs must include load teams and other unit-movement related tasks, which is beyond the author's recommendation for command maintenance. That being said, FM 7-0, ***Training***, June 2021, Paragraph F-8 (EDRE) states that "[c]ommanders [can] vary the scope and complexity" of EDREs based on mission variables, which might signal an addition or change to future regulatory language.

[2] Commanders need to know if any of their equipment has multiple manuals to ensure Soldiers are conducting checks on all subcomponents. For instance, an M2A3 Bradley Fighting Vehicle has both hull and turret TMs. The hull TM is 9-2350-294-10-1, while there are two turret TMs: TM 9-2350-294-10-2-1 and TM 9-2350-294-10-2-2.

[3] Operator 10-level M4 functions checks satisfy nearly 50 percent of the quarterly services requirement. See TM 9-1005-319-10, ***Operator's Manual for Rifle, 5.56 mm, M16 and M4***, August 2016, and TM 9-1005-319-23&P, ***Unit and Direct Support Maintenance Manual for Rifle, 5.56 mm, M16 and M4***, April 2019. In the 10-level TM, Work Package 10 in Chapter 2 covers operator functions checks, and Chapter 2, Section III of the -23&P covers quarterly PMCS requirements. Also, operators can conduct two-thirds of a PVS-14 180-day service, which has three requirements: 10-level PMCS, purging (must be conducted by direct-support mechanics) and a 10-level resolution test. See Section III of TM 11-5855-306-23&P, ***Field Maintenance Manual for Monocular Night-Vision Device AN/PVS-14,*** September 2013, and TM 11-5855-306-10, ***Operator Manual for Monocular Night Vision Device AN/PVS-14***, October 2010.

[4] See Gary M. Klein and Ragan T. Rutherford, "The Armored Brigade Combat Team Cavalry Squadron's Combat Trains during Large-Scale Combat Operations: Balancing Maintenance, Recovery, Freedom of Maneuver," ***ARMOR***, Fall 2020 edition, for an example combat-power tracker that was successfully used during command maintenance and at the National Training Center.

[5] See DA Pam 750-8, ***The Army Maintenance Management System Users' Manual***, August 2005.

Acronym Quick-Scan

AOAP – Army Oil Analysis Program
BII – basic-issue item
CBRN – chemical, biological, radiological and nuclear
C/B/T – company/battery/troop
CoA – course of action
COMSEC – communications security
COMSTAT – communications status
COP – common operating picture
CT – cypher text
CUB – command-update brief
DRE – deployment-readiness exercise
EDRE – emergency deployment-readiness exercise
ERPS – equipment records parts specialist
ESR – equipment-status report
FH – frequency hop
FM – frequency modulation
GCSS-A – Global Combat Support System-Army
JBC-P – Joint Battle Command-Platform
LFAST – live-fire accuracy screening test

MCCC – Maneuver Captain's Career Course
MWO – maintenance work order
NCO – noncommissioned officer
OPTEMPO – operations tempo
OR – operational readiness
PMCS – preventative-maintenance checks and services
RTO – radiotelephone operator
SITREP – situation report
SOP – standing operating procedure
SOUM – safety-of-use message
TACSOP – tactical SOP
TM – technical manual
TMDE – test, measurement and diagnostic equipment