Pressing Manning and Maintenance Challenges
Threatening Artillery Combat Readiness

By SGM Pedro I. Campoverde

Artillery, often dubbed as the "King of Battle," is a cornerstone of modern warfare, balancing firepower and precision. The conflict in Ukraine over the past three years has underscored its crucial role in providing the upper hand to Ukrainians across the southern front in what is primarily an artillery war (Miller & Galouchka, 2022). Despite the ever-evolving nature of modern warfare, the core of artillery combat readiness remains in manning and maintenance. As the Army shifts its focus from counterinsurgency missions to Large-Scale Combat Operations (LSCO) against technologically advanced adversaries, the challenges in manning and maintaining these complex weapon systems become more critical, directly impacting battlefield effectiveness.

Personnel Shortages and the Skills Gap

A persistent challenge facing artillery units across the Army is the shortage of qualified personnel. During Fiscal Year 2023, the United States Armed Forces fell short of their recruitment targets by approximately 41,000 individuals (Vergun, 2023). Attracting and retaining skilled individuals for military occupational specialties (MOS)—such as crewmembers, system operators, fire control specialists and fire support specialists—can become challenging when compounded by civilian sector competition, lack of training and experience gaps. Also, the demand for specialized skills necessary to other specialties and are easily transferable to civilian industries often offers Soldiers the opportunity to work in more attractive sectors with better salaries and benefits after their

military service. As a result of the demanding and rigorous training that Soldiers undergo to operate and maintain the Army's artillery systems, potential recruits can hesitate to enlist because of the prolonged process. Another critical issue is the knowledge gap that widens as the Army loses experienced individuals due to retirement and other separations, ultimately harming mission readiness.

Maintenance Hurdles

The U.S. Army's Field Artillery and Air Defense Artillery have complex systems that require careful upkeep. The war in Ukraine is prompting the United States to pay increased attention to the significance of artillery in combat operations. While there is an emphasis on precision strike weaponry, there is also heightened interest in enhancing traditional artillery capabilities (Ghoshal, 2024). Due to logistical limitations, operational speed and specialized knowledge, this poses a distinct set of maintenance issues. For example, during National Training Center (NTC) 24-04, 2nd Battalion, 3rd Field Artillery Regiment (2-3FA) tested and validated a unique mission set that resulted in some successful innovations for fire support. However, the brigade and battalion command posts challenged the Ready First Combat Team to maintain equipment to organize, prepare and carry out operations without upper tactical internet (Upper TI) (Buckner et al., 2024). Maintaining digital fire control systems, hydraulics and automated loading mechanisms demands high technical expertise, often requiring specialized training and certifications. Also, having a steady and reliable supply chain for spare parts, particularly for mission-critical components, can be challenging, mainly in remote areas, during deployments or under budgetary constraints. Moreover, the increased demand for artillery support in high-intensity conflicts for prolonged periods, like the war in Ukraine, can hinder equipment maintenance and potentially compromise readiness (Miller & Galouchka, 2022).

Impact on Combat Readiness

Insufficient manning and maintenance directly affect artillery combat readiness, reduced operational availability, accuracy and precision degradation, morale and mission effectiveness. Another challenge is whether towed artillery is still relevant, given their mobility problems. Further development of wheeled howitzers is necessary, considering the lessons learned from the Ukrainian War (Ghoshal, 2024). A shortage of personnel unable to fill allocated positions for fully operational crews affects units' ability to properly execute maintenance and respond to mission requirements. It significantly reduces the ability of artillery units to train and deploy. For this reason, not having personnel allocations correctly filled, lack of well-maintained systems or inadequate crew training can diminish the effectiveness of artillery fire support and increase the risk of collateral damage. Because of increased personnel shortages and equipment limitations within artillery units, there are negative impacts on crew proficiency, talent management and professional development across the total force, ultimately affecting the overall mission's success.

Addressing the Challenges

Strategic leaders must deliberately invest in personnel, streamline training and optimize logistical support to mitigate these challenges. (Vergun, 2023). First, leaders at all levels must attract and retain qualified Soldiers by offering competitive enlistment incentives, retention packages and relevant professional development opportunities. There needs to be more leader involvement in engaging with initial and mid-term Soldiers to create thoughtful and pertinent conversations that effectively address career progression. Second, individual and collective training must use innovative approaches like simulations, virtual reality and artificial intelligence (AI) to provide valuable and realistic training. Artillery units must share what they have learned as well as suitable methods to improve skills, readiness and the organization's overall performance (Buckner et al., 2024). Third, strategic leadership can leverage enablers, such as maintenance surge teams, surge supply chains and foster partnerships with civilian industries to acquire critical equipment parts.

For example, the Army allocated $3.1 billion in Fiscal Year 2024 supplemental funding to enhance the production capacity of 155mm munitions as it seeks to replenish the stock sent to aid Ukraine in its conflict against the Russian invasion (Judson, 2024). Innovation and experimentation by organizational and strategic leaders will pave the path to success in addressing and working toward overcoming these challenges.

Conclusion

While technological advancements will play a key role in modern warfare, addressing the manning and maintenance challenges impacting artillery operations through strategic investment, which includes financial resources, time, leadership commitment and innovative solutions, offers a promising path to continuing the "King of Battle" at its highest level of effectiveness and excellence.

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