

# Expeditionary PGM 120mm Mortar Employment

CPT BRIAN COSTELLA

At 0200 under the light of headlamps and with the start point (SP) time quickly approaching, my mortar platoon loaded our precision-guided munition (PGM)-capable 120mm mortar system and 700 pounds of ammunition into the back of a mine-resistant ambush protected (MRAP) all-terrain vehicle (M-ATV), securing it with merely ratchet straps and 550 cord. Once all mission preparation was complete, we began our 30-minute movement across uneven terrain. As we bounced across the desert in our convoy of M-ATVs and MRAPs, we all held our breath hoping that one of the high explosive rounds wouldn't disappear into the night after being dislodged by one too many bumps. When we finally reached our pre-planned mortar firing point (MFP), we all dismounted and raced to put the system into action. Approximately 90 minutes later, our gun was laid in and we were standing by the radio ready to execute fire missions. In recent warfare, the U.S. military has not typically used the 120mm mortar in such a mobile capacity; however, by doing so the light infantry mortar platoon can provide maneuver forces with mobile, PGM-capable indirect fire assets at the battalion level.

While deployed to Helmand Province, Afghanistan, in the summer of 2016, our battalion mortar platoon was tasked with employing our PGM-capable 120mm mortars throughout the area of operations. Through trial and error and detailed after action reviews (AARs), we adapted to overcome many of the constraints inherent in our task. Our platoon securely maneuvered our mortars from the back of an M-ATV in order to accomplish the commander's intent of having PGM munitions able to effect the enemy throughout our battalion area of responsibility (AOR).



**Soldiers from the 2nd Battalion, 12th Infantry Regiment conduct an illumination fire mission in Afghanistan to deter approaching enemy fighters. (Photos courtesy of author)**

Although this was an unorthodox method of employing our 120mm mortars, after several successful employments, we developed rapid and secure procedures for employing the system. This method of employment enabled more rapid and accurate indirect fires support.

Doctrinally, the mortar platoon's mission is to provide close and immediate indirect fire support for maneuver battalions and companies. In order to remain relevant and effective in light of an increasingly restrictive operating environment, precision delivery must also remain at the forefront of planning and execution. The 120mm mortar's PGM makes accurate and precise mortar fire an attainable and unmatched asset for any maneuver commander. Not only does the PGM round meet the rules of engagement that we encountered in Afghanistan, it also allows ground force commanders to employ indirect fires safely as close as 80 meters from their maneuver forces. Although the 60mm and 81mm mortars are regularly employed in dismounted and mounted operations, these systems are not yet able to fire PGM. Therefore, these assets did not meet our precision requirements.

While deployed to Helmand, our battalion was organized with two rifle companies supported by 60mm mortar sections, as well as our battalion mortar platoon equipped with 81mm and 120mm mortars. Typical fire missions would be executed from our static mortar firing point (MFP), but occasionally during maneuver operations we were tasked to provide close indirect fire support for maneuver forces in the operational area. In order to secure an MFP, we operated out of built up Afghan National Army (ANA) patrol bases and from vehicle patrol bases. These forward positions allowed us to operate within the desired two-thirds range of our maneuver forces while maintaining adequate security. Working within the ANA patrol bases also provided the added benefit of furthering our partnered relationships. Not only did our missions provide countless opportunities for information gathering and cross training with the Afghans, they also gave the ANA the psychological benefit of having a heavy mortar system in the patrol base, which deterred enemy attacks and bolstered the morale of the Afghan soldiers.

Originally, we attempted to persuade our leadership to allow us to take our 81mm mortars on our forward support missions, as this 121-pound system would be much easier to move and employ than the 309-pound 120mm mortar system. With the lighter mortar system, we would be more maneuverable and better able to provide our commander with rapid employment. However, our higher headquarters' need to mitigate the risk of collateral damage through the use of our PGM-capable 120mm mortars trumped our desire for a lighter, more maneuverable system.

Each time we were called on to employ our 120mm mortar in sector, we made adjustments to our systems to mitigate risk and make our employment faster and more secure. The first risk that we identified while transporting the mortar system was the possibility of damaging the weapon system or ammunition. Due to the odd arrangement in the back of a M-ATV, we had to put the system at unstable angles. We mitigated the risk of damaging the system by carefully tying down every piece of equipment. This mitigated the risk of system damage but did not eliminate it. Hardware modifications to the back of the M-ATV to allow secure and rapid storage would be one course of action to greatly reduce the risk of damaging the system during movement. The use of the standard 120mm mortar stowage trailer as either theater-provided equipment (TPE) or rolling stock brought with deploying units would be another means to assist in the deployment of mobile 120mm mortars.

Through consistent rehearsals and detailed AARs, we continually modified our methods for employment. Small refinements — including the use of a "go bag" with all necessary basic issue items and standardized tie downs — and the delegation of personalized roles were made along the way, bringing our employment time to under 25 minutes. We tested several different methods of tying down the equipment (550 cord, ratchet straps, and cargo nets) and eventually determined that the best balance between speed and security was carefully placed 550 cord. We marked our rounds for easy identification in day and night and loaded them last so that they were not damaged by the weight of the system. Having the rounds loaded last allowed them to be offloaded first, which proved to be necessary as the two mortarmen in the M-ATV could offload them while waiting for the rest of the section to arrive and assist in offloading the cumbersome mortar system. By applying lessons learned for continuous improvement, we were able to employ in a third of our original time, reduce risk, and engage targets with indirect fires within 10 meters of accuracy. At end state, we provided the commanders with an unmatched battalion-level fire support asset.

Although inherent risk is assumed when transporting the 120mm mortar in the back of a M-ATV, the ability to provide precision-guided indirect mortar fire throughout the battlefield provides an invaluable internal asset to the infantry mortar battalion. With the need to mitigate collateral damage growing, it remains increasingly necessary to



**Soldiers from the 2nd Battalion, 12th Infantry Regiment's Mortar Platoon stand ready to fire 120mm mortar missions in support of a battalion operation.**

be able to maintain precision accuracy with fire support assets. The 120mm mortar has not typically been a mobile weapon system in the wars in Iraq and Afghanistan; however, through innovative techniques, maneuver forces can provide mobile, PGM-capable indirect fire assets at the battalion level.

#### **Notes**

<sup>1</sup> Field Manual (FM) 3-22.90, *Mortars* (December 2007), Chapter 1.

<sup>2</sup> ATP 3-09.32, *Multi-Service Tactics, Techniques, and Procedures for Joint Application of Firepower* (January 2016), Appendix H.

<sup>3</sup> FM 3-22.90, 1-1.

<sup>4</sup> Quick Reference Guide for Interface Unit, Remote, Fire Control: Precision Lightweight Universal Mortar Setter System, XM395 Capabilities, 11.

**CPT Brian Costella** serves as the mortar platoon leader with the 2nd Battalion, 12th Infantry Regiment, 2nd Infantry Brigade Combat Team, 4th Infantry Division, Fort Carson, CO. He previously served as a rifle platoon leader with 2-12 IN. He graduated from the U.S. Military Academy at West Point, NY, with a bachelor's degree in defense and strategic studies.