

# THE NEED FOR A NEW CARGO HMMWV

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As part of the current Army transformation, every light infantry brigade is undergoing a massive overhaul of task organization and equipment to become the new Infantry Brigade Combat Team (IBCT), a fighting force capable of conducting full-spectrum operations from high intensity conflicts to stability and support operations. The IBCT's modified table of organization and equipment (MTOE) is a significant improvement over the previous organization, but it fails to provide a survivable, tactical vehicle to its maneuver units, despite the proof of such a vehicle's worth in the streets of Baghdad and in the mountains of Afghanistan. These battlefields have demonstrated the need for infantry companies and platoons to cover longer distances and operate further from their headquarters and support structures than ever before. To meet these needs, the Army must develop and field a variant on the M1114 up-armored HMMWV (high-mobility multipurpose wheeled vehicle) with the ability to move a squad, carry its equipment, and protect it until the squad can dismount and execute its assigned mission.

Task Force 2-27 (2nd Battalion, 27th Infantry Regiment), as a part of 3rd Brigade Combat Team, 25th Infantry Division, deployed in March 2004 to Forward Operating Base (FOB) Orgun-E, located in Afghanistan's Paktika Province. Paktika shares a mountainous border to the east and south with Pakistan, and the province is dominated by ridgelines that vary in elevation between 6,000 and 12,000 feet above sea level. The roughly 300,000 people in the province live in small, tribal villages with minimal infrastructure, no paved roads, no plumbing, no electrical grid, and few government or police systems. Aside from diesel engines, a small number of satellite telephones and basic electronics imported from Pakistan, there is little difference between Paktika in 2004 and Paktika in 1004. Given its remote location, its proximity to the border (and the region in Pakistan where many believed some of the major Al-Qaeda leadership were and are still hiding) and that it holds the dubious honor of being dubbed the "most evil place on earth" by Colonel Rodney Davis in *Time* Magazine, it was taken as fact that TF 2-27 was deploying to a place where the operational focus would be on finding, capturing, or killing the enemy that was reputedly hiding in the hills, looking to kill Americans.

This scenario was far from reality. The operations that TF 2-27 conducted for a year in Paktika evolved from kinetic, enemy-

focused operations to non-kinetic, population-focused operations, marking a dramatic shift away from conventional light infantry tactics and operations towards stability and support operations. For the first two months, the task force conducted three-to-four-day operations, acting on intelligence gathered locally and pushed down from higher levels, to identify and capture Taliban, Al-Qaeda, and foreign fighters whom most people assumed were in the province. During these operations, the task force searched compounds, patrolled mountains, and discovered caves that were supposed waypoints on the infiltration routes the enemy was using. These were the traditional light infantry operations that the Soldiers and leaders of TF 2-27 expected to be conducting, and, with a few notable exceptions, they were largely ineffective. For all the time and resources expended, a disproportionately small



Photos by Specialist Gul A. Alisan

*Soldiers from the 2nd Battalion, 27th Infantry Regiment leave on a mission to Orgun-E, Afghanistan, in April 2004.*

number of “terrorists” or foreign fighters were found, and units spent more time attempting to mend fences with the villages that they searched than they did fighting the enemy.

TF 2-27 was also responsible for assisting the new governor of the province, Gulab Mangal, in establishing a legitimate and effective provincial government, one that would set the conditions for the first democratic presidential election in October 2004. After the first two months in the province, the task force commander, Lieutenant Colonel Walter Piatt, and Governor Mangal developed a plan that

would support these objectives. TF 2-27, in conjunction with the governor and his provincial police, would travel to all 23 districts in the province in three separate operations, addressing the districts’ reconstruction needs, making them aware of the upcoming elections, and laying the groundwork for voter registration. The response to these operations was enormously positive, yielding more cooperation from the population, better intelligence on the insurgency, and greater security throughout the area of operations (AO). Operations of this type became the main effort of the battalion. The task force

found that by demonstrating that the provincial government and U.S. forces were working together to bring security and stability to their lives, the support the insurgents had previously enjoyed from the population had eroded, isolating and marginalizing the enemy by eliminating his logistical, monetary, and security networks. This profound change occurred across Afghanistan throughout 2004, and traditional light infantry tactics and missions were replaced with full-spectrum operations that focused on reconstruction, government development, training national and local police, and helping the Afghan National Army become a professional force.



The nature of the conflict changed, and we found ourselves, for the first time, successfully fighting an insurgency.

While this shift is well-documented, the implications of this shift have yet to be addressed. To be able to focus our efforts on the population, the task force had to get its maneuver forces to where the people lived. Unfortunately, for a light infantry unit, nothing was within walking distance.

Paktika is 19,101 square kilometers, with over 600 kilometers of border with Pakistan. The “box” at the Joint Readiness Training Center at Fort Polk, Louisiana, the Army’s premier light infantry training area, is approximately 800 square kilometers, only about one-sixth of which is used by a light infantry battalion during a rotation. According to the MTOE, the primary maneuver forces in a light infantry battalion, the rifle companies, have no internal transportation assets. The only vehicles it has are assigned to headquarters and headquarters company (HHC) and consists of approximately 40 cargo HMMWVs which are used to transport the battalion headquarters, staff, specialty platoons, and limited supplies across the battlefield. This lack of vehicles presented a significant problem for missions that demanded rifle companies and platoons to move hundreds of miles for weeks at a time. Anticipating this sort of challenge prior to deployment, the battalion reorganized and deployed 27 organic HMMWVs, and once in theater, the task force signed for more vehicles that had become installation equipment from previous rotations. The task force signed for approximately 25 M1114, up-armored, five-person models, most less than three years old with improved engines, suspensions, and drive trains. To supplement these gun trucks, the task force also signed for approximately 65 M998, M1038, and other miscellaneous unarmored cargo models, capable of carrying up to 11 Soldiers, their weapons, and supplies. These vehicles, as well as the 27 from Hawaii, had an average age of 15 years and had no improvements to the major stock components. These cargo versions were modified with Kevlar blankets and sheeting to improve survivability, and units strapped M240B machine guns on tripods to the top of the vehicle’s cab to create a makeshift weapons platform. With a hodgepodge collection of tactical vehicles, TF 2-27 became motorized.

While creating a fleet of vehicles for the mission in Paktika and motorizing TF 2-27 worked, it was far from ideal. The cargo HMMWV, which made up well over half of the vehicles used by the maneuver elements in the task force, was never meant to be a tactical troop carrier, and its use as such had a variety of disadvantages. The number of vehicles assigned to each company, between six to eight M1114s and 10-15 cargo variants, required companies and platoons to put an average of 10 Soldiers in a cargo variant, and the limited space in the cargo area made carrying the necessary food, water, parts, and equipment to sustain operations challenging at best. The lack of room in the cargo space made firing weapons or defending the vehicle difficult as well.

Companies and platoons attempted to mitigate this problem by securing their automatic weapons on tripods to the top of the vehicle, but accurate, controlled fire was almost impossible to achieve, and that fire could only be directed forward due to the limitations placed on the gunner’s movement by the configuration

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of the truck. Intended for operation in rear areas, there were no provisions for survivability of the operator, truck commander, or its occupants in the cargo area. Kevlar blankets, Kevlar sheets, and add-on armor kits saved many lives and improved the survivability immensely, but overall, the trucks could not handle the role as a tactical troop carrier.

The maximum load for a HMMWV, no matter what configuration, is 2,500 pounds. A cargo variant, with 10 Soldiers, their equipment, supplies for four days of operations (the average mission conducted by task force patrols), and the minimum Kevlar protection, carried a load of 3,830 pounds, or 153 percent of its maximum capacity. A cargo HMMWV, with an add-on armor kit, carried 4,530 lbs, or 183 percent of its maximum capacity. These numbers, while shockingly large, still do not account for the added weight of special equipment, such as mortar systems and their associated ammunition, and weight added by supplies for longer patrols.

Paktika Province, as mentioned before, had no paved roads, and this compounded the problems created by the weight demands. Patrols averaged a movement rate of approximately 15 miles an hour. Short stretches of moving at normal speeds were broken up by conditions that demanded vehicles inch along, crawling over rocks, holes, and obstacles that would have stretched an empty HMMWV to the limits of its capabilities. In these inhospitable conditions, operations demanded that the 15-year-old vehicles cover greater distances in shorter periods of time than ever before. The HMMWVs averaged 1,000 miles a month, while the cargo vehicles that deployed with the task force had previously averaged only 2,000 miles a year.

All of these demands on the cargo vehicles had an expected result: they were incapable of completing the mission. In a sample month with average vehicle usage, the task force mechanics replaced 10 differentials, 16 cross members, and a constant stream of shocks, control arms, and half-shafts. More than one cargo truck had its rear wheel wells and side panels literally fall off from the wear and tear of its use as a tactical vehicle. Throughout the deployment, the battalion maintained an average operational readiness (OR) rate of only 65 percent. This figure includes the M1114 trucks which, on average, were 13-15 years younger and fared much better than their cargo counterparts.

It is worth noting that the battalion also maintained a small number of light medium tactical vehicles (LMTVs) in Paktika, and they were the least used vehicles in the task force. These trucks were unable to safely negotiate moderately difficult terrain, getting stuck easily and posing a roll-over threat with their high center of gravity. They were a large target, and hardening the cargo area, while possible, did not offer much protection. An LMTV with two squads in the back was a large target and a disproportionately high concentration of combat power. Finally, there were no assets in the province that could recover the vehicle in the event that it broke down. The LMTVs were useful in moving supplies around the firebase and in the rear areas, but that was the extent of their employment. They were not useful tactical vehicles.

Another problem with reorganizing as a motorized battalion when TF 2-27 arrived in Paktika was the lack of tactical and

technical training and experience with vehicles throughout the task force. Though the battalion was a well-trained infantry unit, there was a significant dearth of experience working as a mounted force. The task force lacked qualified drivers and qualified M2 and Mk19 gunners, and few, if any, had conducted a mounted live-fire exercise. As with most infantry tasks, this lack of experience could have been overcome had the task force had vehicles to train with prior to deployment. Although there are a limited number of vehicles in a light infantry battalion, it was not possible to get every company trained in mounted tactics prior to our departure. Once in Paktika, the tactical learning curve was steep, but the battalion accepted a large amount of risk in the first month, using vehicles that the operators were just not trained to use. The technical learning curve was not as steep, and it had greater long-term effect. Maintenance on any piece of equipment is important to ensure that it works when it is needed. It is especially true with vehicles, and that truth is magnified when those vehicles are operating in the conditions mentioned above. Trained vehicle operators are taught to inspect the vehicle before every use, monitor its condition during operation, and check the vehicle every time it stops. The majority of the Soldiers operating vehicles

did not receive formal training on the maintenance required for a HMMWV, and this had a major impact on the vehicles. In the first month, operator errors resulted in vehicles breaking down at an extremely high rate. Simple mistakes such as failing to tighten loose half-shaft bolts before operation and putting the wrong kind of fuel in the engine were common, and these mistakes could have been avoided with proper training prior to deployment. Had the rifle companies spent even one month with their vehicles prior to deployment, many of the problems the task force experienced could have been avoided.

The third major problem faced by TF 2-27 operating as a motorized unit was the lack of a combat service support system that could support the number of vehicles operating in the conditions of Paktika. The task force arrived in Paktika with four organizational-level vehicle mechanics who were initially responsible for close to 100 vehicles, armed with only their personal tool boxes and a place to work. Additionally, the unit was authorized only 53 different types of parts to have on hand, or lines of prescribed load list (PLL). The task force was terribly undermanned and under supported trying to maintain such a large number of vehicles in the conditions of Paktika. The mechanics worked literally from sunrise to sunset (and beyond) seven days a week, yet it was

impossible to keep the trucks running.

Part of the problem was the institutional mind-set at higher levels that parts, mechanics, and tools could be maintained at the brigade level and surged forward as needed, or worse, the broken vehicles could be evacuated to the rear to be fixed. For example, an M1114 was deadlined because it lacked enough power to drive up hills. The mechanics determined that it needed a new engine, a direct support maintenance fix, so the vehicle was evacuated to Bagram Airbase, the next higher level of maintenance support. The vehicle did not return to the FOB for 60 days. The task force was using a maintenance system designed to support a light infantry battalion that traditionally had to worry about little more than a broken rifle, and it could not adapt to support the maintenance needs of more than 100 vehicles located a two-day drive away. Great credit is due to Captain Patrick Soule and Staff Sergeant Isaia Villanueva, who worked tirelessly to redesign the system to support the task force. They personally developed a maintenance plan that could support the needs of the task force. At its most robust, just prior to redeployment, the task force had both organizational and direct support mechanics, two motor pools, 183 lines of PLL, and had enough tools to run a full-service shop. An M1114 that used to take 60 days to get a new engine could now be fully mission capable in 48 hours. As with the rest of the difficulties faced by TF 2-27,



Soldiers and leaders invented creative solutions to solve problems and accomplish missions, but the system was so broken that no matter how successful the task force was at collecting intelligence, working with the population or finding the enemy, the lack of a sustainable tactical vehicle fleet and a system to support it resulted in enemy weaknesses that went unexploited and casualties that could have been avoided.

A significant change has already begun to fix some of these problems. The Army is currently reorganizing all light, air assault, and airborne units into IBCTs. This reorganization of the Army from division-centric units to brigade-centric units is a significant change in the task organization of combat, combat support, and combat service support assets intended to make the

Army more flexible, deployable, and adaptable to today's battlefield. Infantry battalions will be more robust, adding a forward support company and a weapons company. The forward support company is commanded by a Quartermaster, Transportation, or Ordnance officer who controls a maintenance platoon, a transportation platoon (consisting primarily LMTVs), and a recovery section. By placing these assets under the direct control of the battalion commander, an infantry battalion has a much better chance of being able to handle the maintenance requirements that operations in a stability and support environment demand. Just as in Paktika, the assets will be located forward so that the battalion can fix the faults and get the vital equipment back into the fight. The weapons company is another positive change to the system, as it is essentially a motorized company organic to the battalion. The Soldiers in that company will be able to train at home station to accomplish the tasks that a stability and support environment will demand, i.e. the ability to conduct tactical operations over great distances while being able to maintain the equipment used in that environment.

Unfortunately, while the new IBCT takes steps in the right direction, it fails in two major respects. First, there are still not enough tactical vehicles in the MTOE to facilitate the projection of the battalion's combat power over the distances that stability and support operations demand. Second, the vehicles that are assigned to an IBCT are not capable of accomplishing the mission. The weapons company is undoubtedly a step in the right direction, providing at least one company the ability to move over great distances without external support, but the rifle companies are still under-equipped with just two cargo HMMWVs.

TF 2-27's experience in Afghanistan clearly demonstrates that rifle companies must be able to project combat power in a stability



and support environment, but unless that need is met with an updated MTOE, units will continue to be unprepared and untrained on the equipment that they will use in a combat environment. At the very least, inexperienced or untrained operators will cause unnecessary wear and tear on the vehicles that will reduce the operational readiness rate of the IBCT. At the worst, Soldiers unaccustomed to operating the vehicles and weapons in a motorized unit will become injured or killed as they attempt to learn the basics in combat rather than in training. Both of these scenarios could be fixed with the proper equipment.

In addition to the lack of vehicles in general, the vehicles that are a part of the IBCT MTOE are the wrong vehicles. All of the HMMWVs are variants on the M998 cargo model, exactly the same vehicles that proved to be woefully inadequate in a tactical role by TF 2-27. It cannot handle the wear and tear of combat patrolling; it has no provision for securing itself or the formation it moves in; and, as a stock vehicle, it has no survivability. Modifications can be made to improve these deficiencies; however, the modifications place such great demands of the vehicle, exceeding its design parameters, that they cannot be accepted as a viable course of action.

The problem is theoretically easy to fix, but the actual implementation will take resources and funds that are already in short supply. The M1114 has proved to be a reliable tactical vehicle. It is durable, survivable, and capable of providing a weapons platform to secure the formations it which it moves. The Army must continue to improve, produce, and distribute this platform to its IBCTs as a primary tactical vehicle, and it must be added to the IBCT MTOE to allow units to become proficient in its application and maintenance before they arrive in a combat theater.

As viable as this vehicle is, it possesses some inherent weaknesses. Only five Soldiers can patrol in the vehicle. For a 38-man platoon with attachments, that means nine vehicles are needed just to move everyone. When it is time to get out and conduct infantry operations, a platoon of M1114s loses a minimum of 19 Soldiers to vehicle security (driver and gunner per vehicle and one additional leader for command and control). This greatly reduces the commander's combat power by fixing almost half of his platoon in a support role. Even if the remaining Soldiers provide enough combat power to get out and fight, should they need to immediately stop and dismount, the platoon will be spread out in groups of three over several hundred meters. In this situation, command and control in an M1114 would be significantly reduced, especially if in contact with the enemy. Finally, overall situational awareness is reduced by the lack of visibility out of the M1114, potentially adding to an already confusing situation.

It has been suggested that the Army tap into stockpiles of M113 armored personnel carriers to address its vehicle needs. While it would be an inexpensive alternative, the characteristics of the vehicle are unsuited to the current operational situation. With a maximum speed of 45 miles per hour, it lacks the mobility of a HMMWV-type vehicle. The tracked carrier already has a

reputation for lagging behind the mechanized forces with which it habitually operates. While it has some armor protection, it is still less survivable than the M1114. There are much greater maintenance demands on an M113-equipped unit compared to one using trucks, and it is nearly impossible to recover an M113 with another M113. Most importantly, a flat tire can be fixed in five minutes with a trained squad, while a track change pushes five hours for an M113. If M113s were used in a small area of operations with even terrain and were supported by a unit with robust maintenance systems, it would be a viable option. Unfortunately, that environment is rare on today's battlefield.

The Army must develop a cargo variant of the M1114 that allows for the tactical movement of squad-sized elements in a durable, survivable, and securable platform across great distances and for long periods of time. The improved engine, suspension, and drivetrain can handle the demands placed on a tactical vehicle that a cargo HMMWV cannot. It is more mobile and recoverable than the ungainly LMTV. It is simple to become proficient in its use and maintenance, a distinct advantage over the newer wheeled vehicles such as the Stryker or its equivalent from another country. The only U.S. vehicle in current use that approaches filling this need is the Ground

Mobility Vehicle (GMV) found in many Special Operations Forces units. It has the improved engine, suspension, and drivetrain of the M1114, but it lacks the stock survivability.

The Army must replace the current tactical vehicles in the IBCT with command and cargo models of the M1114. Each rifle platoon will need two M1114s for the platoon headquarters and four M1114 cargos (one per squad) to project combat power across the battlefield while maintaining the command and control needed to be able to quickly transition into dismounted light infantry operations. A company, with vehicles for the headquarters section, requires seven M1114s and 14 M1114 cargos. The identification of this need is simple, but developing, mass producing, and fielding a new HMMWV variant while continuing to produce M1114s to meet the current need is not. Currently, the vast majority of all M1114s are sent immediately to Iraq and Afghanistan to sustain the forces currently fighting in those operations. While this system ensures that the proverbial tip of the spear is receiving the best and newest equipment, it is a stopgap at best. To truly support the infantrymen and the battles that they will fight, production of the M1114 must be exponentially increased, and a new cargo M1114 must be fielded to ensure continued mission success now and in the future.

Given the current and projected world situation, where few nations have militaries that would even entertain the thought of engaging the United States in a conventional fight, stability and support operations will be the most common operations that the Army will conduct. It is imperative that the lessons learned in places like Paktika Province, Afghanistan, are applied to current organizations and doctrine to ensure the Army continues to be the most effective fighting force in the world.

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*Soldiers with the 25th Infantry Division's 2nd Battalion, 27th Infantry Regiment pass through a valley during a mission in Orgun-E, Afghanistan.*