



Figure 3. Securing an assembly area with BFVs and dismounts.

approach routes (Figure 3). The most difficult part of this entire operation was providing adequate security while also seeing that the soldiers received enough rest.

The mechanized infantry's change from M113s to BFVs has also changed

some of our capabilities; urban warfare requires a large pool of dismount strength that is not always feasible in a BFV-equipped company. The dramatic increase in firepower goes a long way toward compensating for the loss of dismount strength. Still, the nature of ur-

ban warfare requires a large number of dismounted infantrymen to enter, clear, and hold buildings. The constraints of the mechanized infantry tables of organization and equipment on the ability of a BFV-equipped company to fight effectively in an urban environment is an issue that must be carefully considered by commanders at all levels.

In a MOU environment, the shock effect of the Bradley's M242 main gun, combined with the size and speed of the vehicle itself, are tools we cannot afford to use ineffectively. The key to using Bradleys in an urban environment is figuring out how to do it now and then practicing it before we have to use it in a real deployment.

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# Mechanized Forces in MOU

## M113 Lessons from Operation *Just Cause*

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The increasing urbanization of our world—coupled with the instability in areas undergoing political change—and the reduction of the Army to a force of ten combat divisions demand that we prepare our mechanized infantry units to carry out a greater variety of missions. Military operations on urban terrain (MOU) is one of those missions, and we must be able to do it right the first time, every time.

One of the first requirements is more flexibility on the part of our doctrine. For too long, we have taught, or at least implied, that MOU is primarily for light infantry. Leaders of mechanized units must now think of MOU as a realistic contingency for them and then train accordingly.

A look at some of the experiences of mechanized infantry in Operation *Just Cause* and the lessons learned will illus-

trate the utility of such units in urban combat.

The first mechanized infantry task force deployed from Fort Polk, Louisiana, to the Republic of Panama in early 1989 in response to President Manuel Noriega's annulment of democratic elections. That force was made up of two rifle companies, equipped with M113A2 armored personnel carriers, along with headquarters and headquarters company

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(HHC) support and slice elements. Approximately four months later the 4th Battalion, 6th Infantry, replaced that force with a full four rifle companies, a battalion HHC, and an antiarmor platoon of improved TOW vehicles from the battalion's Echo Company. The vehicles moved by ship while the soldiers flew into Howard Air Force Base near Panama City.

The battalion task force arrived in Panama about four months before Opera-

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tion *Just Cause* began. Its mission was to protect U.S. lives and property, which it accomplished in part simply through its presence. The existence of a mechanized reaction force gave the U.S. contingent a powerful tool in its dealings with the Panamanian Defense Force (PDF).

In order to remain highly visible, the task force occupied positions in and near Panama City. Initially, the rifle companies occupied three positions: The company designated the battalion's Quick Reaction Force (QRF) 1 stayed on the U.S. Army compound at Corozal on the east side of the canal, ready to roll within 15 minutes of alert, 24 hours a day. The battalion headquarters, support elements, the QRF 2 company (one hour reaction time), and the QRF 4 company (four hours reaction time) stayed at Camp Gator, a short distance from Rodman Naval Station on the west side of the canal. After the failed coup attempt of October 1989, the QRF 2 company moved to the Curundu military housing area on the Panama City side. The QRF 3 company (two hours reaction time) was based to the north of Camp Gator at the Empire Range complex and concentrated on live-fire exercises and weapons qualification. The companies rotated stations once every five or six days.

The most visible of the task force's missions were company movements through the streets of the city in the vi-

city of the Canal. These were called "sand flea" missions, after the tiny biting insects, because they were to be a constant irritation to the PDF, serving as a reminder of the presence and potential of the U.S. forces in the country. They also gave U.S. military intelligence an opportunity to observe PDF reactions to U.S. movements and served to desensitize the Panamanians to the activities of mechanized forces in the vicinity of Panama City.

The sand flea missions normally belonged to QRF 2. This left QRF 1 available to react to emergencies and did not interfere with the maintenance of QRF 4 or the training of QRF 3. The mission plan was simple: The start and release points were at the QRF 2 base camp. Battalion gave the company a designated route through the streets of the city. This route normally included a maintenance halt. Despite the tension of the situation, the company moved without rounds in the APCs' .50 caliber machineguns and without magazines in the individual weapons. This not only demonstrated the lack of hostile intent but also eliminated the chances of an accidental discharge during movement.

The company moved with the vehicles at intervals of ten meters and speeds averaging about 15 miles per hour. This close interval was an adjustment to the urban conditions. It prevented Panamanians, civilians or PDF, from getting between the APCs and separating the company's vehicles. Battalion standing operating procedure was for the company column to continue without reducing speed, regardless of traffic signals or other vehicles, and no major accidents occurred as a result of this policy. The sight of a column of tracked vehicles moving steadily forward was enough to persuade competing traffic to clear the way.

The combat service and combat service support (CSS) aspects of the operation were relatively simple at company level. The vehicle crews performed daily preventive maintenance checks and services on their vehicles wherever they were used. The mechanics of each company's maintenance team were attached to their respective companies for the duration of the deployment. They traveled with the

companies as they rotated, bringing with them a parts and tool truck and a tracked recovery vehicle. If a vehicle went down or needed spare parts beyond what the company maintenance team carried with it, the battalion motor officer would send parts on a HMMWV (high-mobility multipurpose wheeled vehicle) or a 2 1/2-ton truck to the company location from the battalion base camp. The recovery vehicle always moved with the company to tow any vehicle that had problems enroute. Tank and pump units moved from the base camp to the companies to refuel vehicles as needed.

The battalion cooks set up and operated kitchens at the base camp and the Empire Range complex. The troops at Corozal used mess facilities nearby, and those at Curundu received breakfast and dinner in mermite containers and ate MREs (meals, ready to eat) for lunch.

The carrying capacity of the M113s enabled the soldiers to take their rucksacks and other baggage with them without using company wheeled vehicles. The company's 2 1/2-ton truck normally remained at the battalion base camp under the control of the company supply sergeant who maintained the company supply room at the base camp. He also ran mail, quartermaster laundry, and meals to the companies when they were at locations other than Camp Gator.

During the actual invasion of Panama, the companies of the task force had sev-

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eral important missions. Companies B and D, reinforced by one platoon from Company C, blocked the streets leading to and from the Comandancia, the headquarters of Noriega and the PDF. The rest of Company C served as the battalion reserve.

Company A, attached to the 5th Battalion, 87th Infantry, was spread out into platoon and squad-sized positions that

were responsible for sealing off assigned intersections. The company's 1st Platoon blocked two road intersections about two kilometers north of the Comandancia to make sure that PDF forces could not assist the besieged headquarters and that those trapped in that area did not escape north into the battalion's area of operation. Company A's 2d Platoon blocked a major road intersection slightly farther

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north, and 3d Platoon occupied the northernmost position. Before taking up its blocking position, 3d Platoon used its .50 caliber machineguns to provide suppressive fire to help a company from the 5th Battalion seize a nearby PDF station.

During the night, 2d Platoon suffered several casualties from a sniper attack. Instead of risking the medic vehicle, the company executive officer moved forward in his own M113 and evacuated two wounded soldiers and one killed in action to the company casualty collection point.

After the invasion, the battalion continued mounted and dismounted patrols to maintain order in Panama City and to locate PDF and "Dignity Battalion" weapon caches. Several days after the invasion, President Noriega entered the compound belonging to the Papal Nuncio, claiming sanctuary. During his stay there, the building and the surrounding area were guarded by soldiers from 4th Battalion, 6th Infantry. They and their APCs ringed the compound to prevent Noriega's escape or a rescue attempt by his supporters. When Noriega finally surrendered to U.S. authorities, the objectives of Operation *Just Cause* were complete.

The experience of this task force in the MOUT environment offers many valuable lessons for the employment of heavy

forces in an urban area. One of its primary assets was speed of movement. Since the mechanized companies had no need to coordinate or link up with transportation assets, they could react and move immediately in response to emergencies or changing situations. For this reason, the task force often served as a "fire brigade" quick reaction force for all the U.S. forces in the Panama City area.

The APCs were, of course, largely confined to the city streets. In the city's major roads, there was more than enough room for vehicle movement, but in the narrower side streets and alleys, it was often impossible for the tracked vehicles to move. Here, especially in the search missions that followed the invasion, the task force's well-trained dismounts played the key role. When dismounting became necessary to conduct door-to-door searches, the platoons parked their APCs together in a place that afforded the best protection from sniper fire. Drivers and track commanders stayed with the vehicles while the rest of the platoon conducted searches on foot. Whenever the dismounted forces needed anything from the vehicle, a radio call brought a quick response.

Reluctance to use mechanized forces in urban terrain often grows out of concerns about their mobility. But Army leaders must remember that city streets in most countries are well-suited to the movement of mechanized vehicles. Although there is a potential for ambushes and blocked choke points, vehicles can still move faster down paved streets than they can going cross-country, even in the best of terrain.

In addition to speed, the M113s gave the task force some armor protection. Although they were vulnerable to antiarmor weapons, they did provide protection from small arms and sniper fire. On the modern battlefield, vulnerability to antiarmor weapons, especially one-man weapons, cannot be ignored, but this vulnerability alone should not deter the use of mechanized forces in MOUT.

Rules of engagement and concern for the civilian population of Panama greatly restricted the use of field artillery and aviation fire support assets. The M2 .50 caliber machinegun mounted on the

M113s provided effective direct fire support that could penetrate the wood and masonry walls of buildings used as sniper positions. Because of the abundance of ready-made fighting positions in MOUT, units must have immediate access to direct-fire weapons that can penetrate the walls of most buildings in the area. Antiarmor weapons such as the AT4 can fulfill this role, but dismounted soldiers cannot carry many of them. This makes city fighting the ideal environment for the direct-fire weapons of the M113 and the Bradley fighting vehicle.

Another great advantage of the M113s in *Just Cause* was the mobility of CSS. Each M113 carried a significant load of ammunition. One typical load on an APC included 2,015 rounds of 5.56mm, 2,560 rounds of 7.62mm, 3,320 rounds of .50 caliber, 6 light antiarmor weapons (LAWs), and 6 AT4 rounds. Even with these amounts, the APCs had room for all the soldiers' rucksacks and additional ammunition as well. This load was enough for all of *Just Cause*, and it eliminated the need for resupply. Knowing that resupply was right behind them, troops could move, immediately on call, with just basic loads for their individual weapons.

Besides the Class V supplies, each M113 also carried a large amount of Class

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IV. Three rolls of concertina wire hung on each side. These kept demonstrators from climbing up the sides of the vehicles during the pre-invasion confrontation days. They also gave the squad a quickly available resource to use in blocking streets. Besides the wire, each vehicle carried a large number of sandbags. A layer covered the floor of each to provide protection from mines. The soldiers also built a parapet of sandbags two high and

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two wide around the top of the vehicle to provide extra protection for the soldiers standing up in the cargo hatch. When the vehicle arrived at its position, soldiers could use sandbags from this parapet to build fighting positions on the sidewalks and streets, where they could not dig in.

The resupply of Class IX repair parts was no more difficult in MOUT than in regular field operations. The battalion supply system pushed parts forward as needed. The CSS portion of the battle, while more difficult for mechanized forces than for light, was much simpler than it had been back at Fort Polk. In Panama City, resupply vehicles carrying Class III oils and lubricants and Class IX repair parts moved on paved streets instead of dirt trails and cross-country.

The MOUT environment did not seriously affect maintenance operations. Moving through the streets caused less wear and tear than the normal cross-country movement at Fort Polk or the National Training Center—except for increased wear on track shoes and pads.

The command and control systems within the task force facilitated the decentralized operations that the task force carried out simultaneously over a large section of Panama City. Each squad had a radio in the M113, and each squad leader carried an AN/PRC-126. This,

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combined with the mobility of the vehicles, allowed for the almost immediate concentration of the company whenever it was needed.

In mobility, countermobility, and survivability, the M113s proved their usefulness in several ways. Mobility was aided by the fact that the mechanized forces could move through potential choke points before the PDF could emplace enough obstacles to block them.

The improvised roadblocks the PDF used in trying to block the task force were easy to overcome.

Before the deployment to Panama, the battalion had developed and practiced a roadblock drill in which a platoon quickly and effectively sealed off an intersection with concertina, steel caltrops designed to puncture vehicle tires, and sandbagged fighting positions. The speed with which the platoons moved to designated locations and set up their road blocks multiplied their effects, because it gave the PDF less time to react to them.

The protection offered by the vehicles gave the troops a higher level of survivability. Although the armor protection of the M113 is much less than that of the M2 Bradley or the M1 Abrams tank, it was still enough to protect the troops from most small arms fire. Many of the task force soldiers worried about the vulnerability of their M113s to antiarmor weapons, but the vehicles offered more protection than soft-skinned wheeled vehicles, which were the only other transportation that could have given the task force equal mobility.

In static positions, the sandbags enabled the task force soldiers to build fighting positions that gave them considerable protection from drive-by shootings. They were quickly constructed without collateral damage to the area, an important consideration in operations other than war.

In addition to the battlefield operating systems discussed here, the psychological effects of tracked vehicles are worth mentioning as well. The PDF, unaccustomed to dealing with tracked vehicles, were intimidated by the very noise of the M113s. The unexpected appearance of tracked vehicles in an area where they are not normally used can have a powerful effect.

The experience of the 4th Battalion, 6th Infantry, in Operation *Just Cause* shows that mechanized forces can conduct effective operations in an urban environment. They are not a cure-all for the difficulties of urban warfare, and it is not advisable, or even possible, to use mechanized forces in every imaginable situation. But mechanized forces can make far greater contributions to urban com-

bat than many in today's Army believe. The same advantages that mechanized forces have in open terrain—speed, flexibility, and troop protection—still exist and in some cases are multiplied in urban operations.

The amount of space in Field Manual 90-10-1, *An Infantryman's Guide to Combat in Built-up Areas*, that is dedicated to MOUT with fighting vehicles is compara-

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tively little. This training must include both dismounted infantrymen and vehicle crews. Dismounts must train on the standard MOUT dismounted skills. They must also learn how to integrate their actions with their support vehicles. Vehicle crews need to learn how to maneuver their vehicles through city streets, to estimate at a glance whether bridges and overpasses are likely to support their vehicles, and to coordinate their actions with moving dismounts. Both must learn the effects of M1 and M2 weapons on the different types of construction found in urban areas. They must also learn how to integrate their weapons into a defensive network in the middle of a built-up area.

MOUT is an unavoidable fact of modern warfare. Mechanized forces can have a decisive effect on city fighting and must train to do so. Once this is accomplished, U.S. forces deployed to conduct stability operations can do so with the confidence that they are trained and equipped for the task at hand.

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