Chapter 9

Military Operations on Urbanized Terrain

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Section 1. Tanks in Military Operations on Urbanized Terrain

The role of tanks in urban warfare can be significant. Of 22 urban battles studied in MCWP 3-35.3, MOUT, tanks participated in 21. In three-fourths of these battles, organic tank support was a central element of task organized special assault teams. Overall, special assault units supported by tanks were more successful than any other task organization.

The use of tanks to the attacker inside a city has been effective only when infantry protected them. Tanks in support of infantry act as an "assault gun" that delivers concentrated, sustained fires to reduce enemy held strongpoints. The U.S. experience in Hue demonstrated that tanks, when employed as part of a combined arms team, could be employed successfully in combat inside a city. The Marines' most effective weapons during the battle were the M48A1 Patton tank and the M-50 Ontos. Both worked in concert with the infantry. The M48A1, with its 90-mm main gun, was used extensively to reduce fortified positions. The Ontos, an armor-protected tracked vehicle mounting six 106-mm recoilless rifles, was highly effective against concrete and steel structures. The munitions of these armored systems provided breaches through walls and into buildings that the infantry could exploit.

In contrast, during the Suez City battle, Israeli armored forces attacked on "armor thrust avenues" into the city, outpacing their armored personnel carrier (APC) mounted paratroop/infantry support. The Egyptian defenders lacked organic artillery (except limited antiaircraft artillery (AAA) and mortars) and had no air support and virtually no armor support. The Egyptians prepared "kill zones" on the principal avenues of approach. As the lead IDF armor battalion entered the second of the three road intersection objectives, the Egyptians engaged with Sagger missiles, RPGs, ZSU-23 antiaircraft guns, antitank grenades thrown from balconies, and small arms. All of the tank commanders in the lead battalion were killed or wounded. Disabled vehicles blocked the road. Vehicle mobility was greatly reduced by narrow side streets and IDF forces became trapped and were destroyed. The lack of a cohesive infantry/armor team proved disastrous to the attacking Israeli armor battalions.

Section 2. Marine Armor in MOUT

The powerful, high-velocity cannon mounted on the M1A1 tank provides Marines with a key requirement for victory in urban areas—heavy direct-fire support. Although the infantry assumes the lead role during combat in urban areas, tanks and infantry work as a close team. Tanks move down streets after the infantry has cleared them of any suspected ATGM positions. Tanks, in turn, support the infantry with fires. The tank is one of the most effective weapons for heavy fire against structures. The primary role of the tank cannon during combat in urban areas is to provide heavy direct fire against buildings and strongpoints that are identified as targets by the infantry. The quick, accurate and devastating effects of the 120-mm tank cannon are major assets to Marines fighting in urban areas.

9201. Marine Tank Unit

The paradigm that has driven the use of tanks as the primary fire and maneuver force on the armor heavy battlefield has not changed. What has changed is the role the main battle tank plays in the lower end of the range of military operations. In that environment, the tank clearly is in a support role. If properly integrated in the scheme of maneuver, the tank is a great combat multiplier and can provide a tremendous advantage to combined arms forces engaged in urban combat.

The tank provides an all-weather direct-fire platform. It has the ability to utilize its thermal viewer capability to engage targets in low-illumination and limited-visibility conditions. Precision engagement will consist of a system that enables our forces to locate the objective or target with enhanced optics, engage with desired effect and retain the flexibility to re-engage when required. Even from extended ranges, precision engagement capability of tank units provides a degree of force protection for the GCE and can limit collateral damage to noncombatants and local infrastructure. The wide arrays of responsive and accurate weapons on the tank provide the commander with flexible options.

The very presence of tanks is a physical and psychological deterrent to any adversary and sends a strong signal of our national resolve when deployed into theater.

When the mechanized Marine force is employed in urban areas that are very restricted, tank units may have to be task organized down to sections. Marine tank units support Marine infantry in urban areas by:

- Providing overwhelming firepower and shock effect.
- Isolating objectives with direct fire to prevent enemy withdrawal, reinforcement, or counterattack.
- Neutralizing or suppressing enemy positions with smoke, high explosive (HE), and automatic weapon fire as infantry closes with and destroys the enemy.

- Assisting opposed entry of infantry into buildings when debris, obstacles, or enemy fire blocks doorways.
- Smashing through street barricades or reducing barricades by fires.
- Using fires to reduce enemy strongpoints in buildings.
- Holding cleared portions of the objective by covering avenues of approach.
- Attacking by fire any other targets designated by the infantry.
- Establishing roadblocks.
- Suppressing identified sniper positions.

9202. Marine Infantry.

Marine infantry facilitate tank employment in urban terrain by:

- Locating targets for engagement by the tank.
- Suppressing and destroying antiarmor weapons with mortars, automatic weapons, and grenades.
- Assaulting positions and clearing buildings.
- Providing local security for tanks at night or during other periods of reduced visibility.

9203. Planning

A major characteristic of combat in an urban environment is compression. Compared to combat in open terrain, urban operations are compressed in space and time. This compression limits observation distances, engagement ranges, weapons effectiveness, and mobility. Time is also compressed: time to maneuver, time to generate more fires, time to anticipate enemy actions, plan, conduct operations and if necessary, respond to enemy actions. These factors tend to force extremely close combat with troops fighting from building to building and from room to room. Command and control is difficult, because small unit leaders cannot see their troops and radio communication is subject to interference caused by the presence of structures. Historically, urban combat has called for a high degree of initiative by small unit leaders directing the employment of task organized special assault teams.

When tanks are to be task organized for MOUT, it is vital that tank unit representatives be integrated into the planning process as early as possible. Familiarity with unit SOPs must be achieved down to infantry squad and tank section levels for effective tank-infantry employment in MOUT operations. Additionally, the tank unit leader must keep the infantry commander informed regarding his units, supply, crew, and weapons status, and any special equipment available (such as mine plow and rollers). These capabilities/limitations must be factored into planning.

When planning a mission, commanders must consider the capabilities, limitations and likely courses of action available to the enemy. The commander and staff must consider the strength, composition, disposition, and activities of the enemy forces. Enemy tactics may range from ambushes, snipers, and urban terrorism to large-scale conventional

operations. The tactics and techniques utilized in execution against either of these types of forces should differ. The addition of armor creates other planning considerations for the infantry commander. He must plan and allow time for:

- Full dress rehearsals.
- Standardizing reporting formats.
- Establishing Standard Operating Procedures (SOPs).
- Determining the maintenance and logistical support requirements for the tanks.
- Considering battle damage assessment and recovery, resupply and casualty evacuation.

9204. Employment Considerations

The following are some techniques and concerns Marine infantry and/or tank commanders should consider when employing tanks in urban terrain:

- Tank maingun fire is an effective method for eliminating a sniper in a building or creating a psychological effect that destroys the enemy's will to continue.
- Streets and alleys constitute ready-made fire lanes and firing zones. They can greatly restrict and canalize vehicular traffic.
- Tanks should be employed by section. All fundamental fire and movement techniques are conducted at the section level, so tanks should never be employed individually. In extreme cases, tanks can work separately, but this is not recommended.
- Typically, a tank and an infantry squad will work in intimate support of each other. The infantry furnish local security and designates targets for the tank.
- SINCGARS radios are utilized for inter-vehicular communications and should be the primary means of communications between the infantryman and the vehicle commander. Otherwise a hastily rigged external TA-1 phone or hand and arm signals can be used.
- The tank should use HE ammunition to create holes in the walls of buildings so the infantry can enter.
- The tank should also use HE ammunition against barricades. HE rounds can be used to demolish towers, steeples, chimneys, and other tall structures likely to contain enemy artillery observers. This technique is dependent on the established rules of engagement.
- Tanks should avoid stopping or moving slowly near non-secure buildings.
- Tanks should mount the fording kit elbow exhaust plenum pipe attachment or the heat deflector to allow Marine infantry to safely approach the rear of the M1A1 tank.
- Units should check all bridges and overpasses for mines and should determine their weight-carrying capacity.
- Tanks should stay near buildings held by friendly troops. Crewmembers should watch for signals from the infantry inside the buildings on their flanks.
- Tank crewmembers should keep their personal weapons ready for close-in combat.

- When possible, tanks should be used to destroy enemy strongpoints with maingun fire. One technique is to fire armor-piercing ammunition to penetrate the reinforced wall of a building followed by high-explosive antitank (HEAT) rounds to kill or neutralize the enemy. Tanks should fire first into the ground floor to drive the enemy into the basement, where infantry can attack them, or to higher floors, where the wing tank can destroy them.
- Tanks are sometimes at a disadvantage because their main guns cannot depress or elevate sufficiently to fire into basements and upper floors at close range (see Figure 9-1).

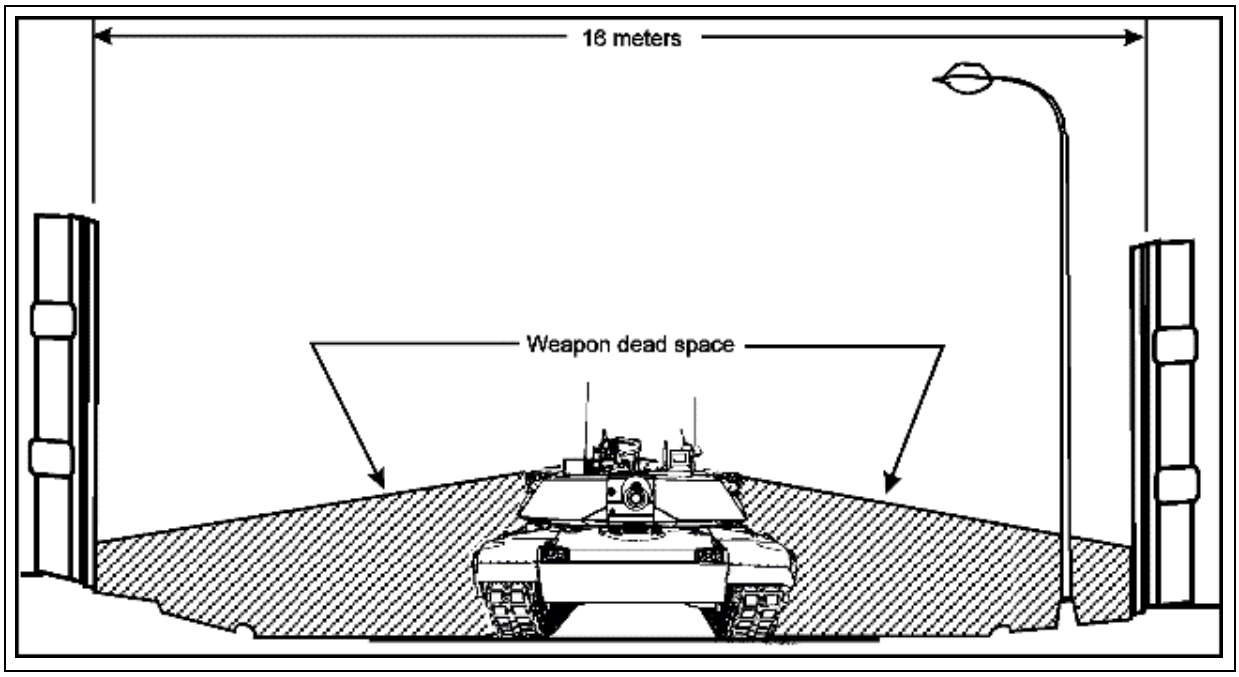

Figure 9-1. Tank Cannon Dead Space at Street Level

9205. Control Measures.

Combat in urban areas requires control measures with which all troops must be familiar. These include the following:

- *Boundaries.* In dense urban areas, units should place boundaries along one side of the street to provide easy and definite identification. In areas where observation and movement are less restricted, they may place boundaries in alleys or within blocks so that one unit's zone includes both sides of the street.

- *Objectives.* Objectives are specific and limited. Choosing major intersections, principal buildings, or other readily identifiable physical features improves control. Numbering buildings along the route of attack simplifies the assignment. As the unit moves forward through an area, unit commanders should designate the near side of

the street as the objective. If they choose the far side of the street, the unit will have to secure buildings on both sides of the street to take the objective. Units must promptly report seizure of objectives.

- *Frontages, formations, and zones of action.* Attacking battalions normally operate within relatively narrow zones of action. The frontages depend on the enemy's strength, the size of the buildings, and the anticipated resistance. Normally, a battalion-sized unit has a frontage of three to six blocks and attacking companies of one to two blocks. Frontages and zones of action influence tank employment. The tanks should be well forward to add momentum to the attack, exploit success, repel counterattacks, and protect the flanks and rear against enemy action.

- *Phase lines (PLs).* PLs increase control by regulating the advance of attacking forces. PLs are less restrictive than objectives. They encourage the rapid exploitation of success without halting. Principal streets, rivers, and trolley or railroad lines make good PLs.

- *Checkpoints and contact points.* Street corners, buildings, railway crossings, bridges, and easily identifiable features can be checkpoints or contact points. They improve the reporting of locations. The commander can use them as specific points where he desires units to make physical contact.

Section 3. Offensive MOUT Operations

Because of the nature of the terrain, offensive operations in urban areas are normally conducted primarily by dismounted infantry. Tanks should be employed as much as possible in close support of dismounted teams to secure locations and provide direct fire support.

9301. Attacking in Urban Areas.

A detailed study of the city and the enemy's dispositions in and around it forms the basis for planning the attack and seizure of an urban area. Planning may include tanks for both maneuver and fire support. The attacking force is normally separated into two forces--the enveloping force (tank heavy) and the direct assault force (infantry heavy). Follow the procedures and considerations listed below when attacking an urban area:

- Dissipate the enemy's strength by causing him to react to demonstrations, feints, or ruses.
- Concentrate overwhelming combat power to force a quick and violent disruption of the defenses, envelop the urban area, and move rapidly to the enemy's rear.
- When possible, reduce strongpoints with fires only, secure them with follow-on forces, and maintain the momentum of the attack
- Cut lines of communication and defeat the enemy through isolation.

- Attack at night to gain surprise or to take objectives whose assault during daylight would be too costly. An attack at night will take advantage of the tank's thermal sight capability.
- Once momentum has been gained, attack continuously until defenses have been splintered.

Obliquity. The tank cannon produces its best urban target effects when fired perpendicular to the hard surface (zero obliquity). During combat in built-up areas, however, finding a covered firing position that permits low-obliquity firing is unlikely. Most shots strike the target at an angle that would normally reduce penetration. With tank cannon APFSDS rounds, obliquity angles of up to 25 degrees have little effect, but angles greater than 45 degrees greatly reduce penetration

Ammunition. Armor-piercing, fin-stabilized, discarding sabot (APFSDS) rounds are the most commonly carried tank ammunition. These rounds work best against armored vehicles. However, the 120-mm cannon also fires an effective high-explosive, antitank multipurpose (HEAT-MP) round. Tank units conducting MOUT should carry a HEAT/MPAT heavy mix.

Characteristics. The 120-mm tank cannon has two specific characteristics that affect its employment in built-up areas: limited elevation and depression and short arming ranges. In addition, the tank has another characteristic that is not involved with its cannon but affects Marines working with and around the tank—extremely hot turbine exhaust. Tanks should mount the fording kit exhaust plenum pipe attachment or the heat deflector to allow Marine infantry to safely approach the rear of the M1A1 tank.

- The M1A1 tank can elevate its cannon 20 degrees and depress it 10 degrees. The lower depression limit creates a 35-foot (10.8-meter) dead space around a tank. On a street 16 meters wide, this dead space extends to the buildings on each side (Figure 9-1). Similarly, there is a zone overhead in which the tank cannot fire (Figure 9-2). This dead space offers ideal locations for short-range antiarmor weapons and allows hidden enemy gunners to fire at the tank when the tank cannot fire back. It also exposes the tank’s most vulnerable areas: the flanks, rear, and top. Infantry must move ahead, alongside, and to the rear of tanks to provide close protection. Protection from small-arms fire and fragments is provided by the tank’s bulk and armor. The M1A1 tank also has a blind spot caused by the zero-degree depression available over part of the back deck. To engage any target in this area, the tank must pivot to convert the rear target to a flank target.

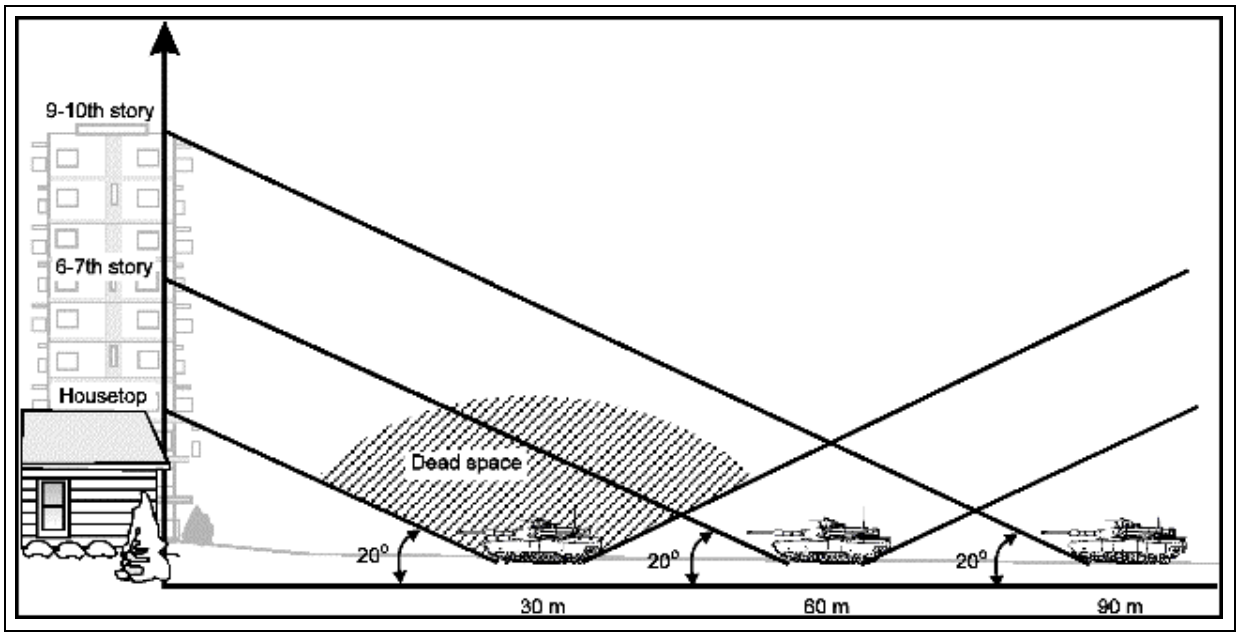

Figure 9-2. Tank Cannon Dead Space Above Street Level

- The 120-mm MPAT round arms at about 60 feet. This arming distance allows the tank to engage targets from short ranges. The armor of the tank protects the crew from both the blowback effects of the round and enemy return fire. The APFSDS round does not need to arm and can, therefore, be fired at almost any range. The discarding portions of the round can be lethal to exposed infantry forward of the tank.

- *Target Effects.* HEAT rounds are most effective against masonry walls. The APFSDS round can penetrate deeply into a structure but does not create as large a hole or displace as much spall behind the target. In contrast to lighter HEAT rounds, tank HEAT rounds are large enough to displace enough spall to inflict casualties inside a building. One HEAT round normally creates a breach hole in all but the thickest masonry construction—a single round demolishes brick veneer and wood-framed constructions. Even the 120-mm HEAT round cannot cut all of the reinforcing rods, which are usually left in place, often hindering entry through the breach hole (Figure 9-3). Both HEAT and APFSDS rounds are effective against all field fortifications. Only large earth berms and heavy mass-construction buildings can provide protection against tank fire.

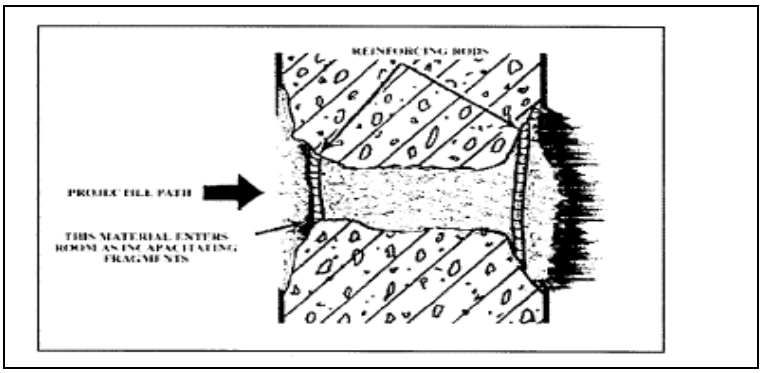

Figure 9-3. Tank HEAT Round Effects on Reinforced Concrete Walls

(1) Tanks need infantry to provide security in built-up areas and to designate targets. Against targets protected by structures, tanks should be escorted forward to the most covered location that provides a clear shot. On-the-spot instructions by infantry commanders ensure that the tank's fire is accurate and its exposure is limited. The tank commander may have to halt in a covered position, dismount, and reconnoiter his route forward into a firing position.

(2) When the tank main gun fires, it creates a large fireball and smoke cloud. In the confines of a built-up area, dirt and masonry dust are also picked up and added to this cloud. The target is further obscured by the smoke and dust of the explosion. Depending on the local conditions, this obscuration could last as long as two or three minutes. Marines can use this period to reposition or advance unseen by the enemy.

(3) A tank cannon creates an overpressure and noise hazard to exposed Marines. All dismounted Marines working near tanks should wear Kevlar helmets and protective vests, as well as ballistic eye protection. If possible, they should also wear earplugs and avoid the tank's frontal 60-degree arc during firing.

WARNING

The overpressure from the tank 120-mm cannon can kill a Marine within a 90-degree arc extending from the muzzle of the gun tube out to 200 meters. From 200 to 1,000 meters along the line of fire, on a frontage of about 400 meters, dismounted Marines must be aware of the danger from discarding sabot petals, which can kill or seriously injure personnel. Personnel outside the tank should remain at least 50 meters from the tank in all directions as they may receive damaging effects from firing noise and overpressure. Personnel must also wear hearing protection when operating within 704 meters of a tank that is firing its main gun.

(4) Tanks are equipped with powerful thermal sights that can be used to detect enemy personnel and weapons that are hidden in shadows and behind openings. Dust, fires, and thick smoke significantly degrade these sights.

(5) Tanks have turret-mounted grenade launchers that project screening smoke grenades. The grenades use a bursting charge and burning red phosphorous particles to create this screen. Burning particles can easily start uncontrolled fires and are hazardous

to dismounted Marines near the tank. The tank commander and the infantry small-unit leader must coordinate when and under what conditions these launchers can be used. Grenade launchers are a useful feature for protecting the tank but can cause significant problems if unwisely used.

(6) The tank's size and armor can provide dismounted Marines with cover from direct-fire weapons and fragments. With coordination, tanks can provide moving cover for Marines as they advance across small open areas. However, enemy fire that strikes but does not penetrate a tank is a major threat to nearby Marines. Fragmentation generated by antitank rounds and ricochets off of tank armor have historically been a prime cause of casualties while infantry were working with tanks in built-up areas.

9302. Attack Phases.

An attack of an urban area comprises four phases:

- Reconnoiter the Objective
- Isolate the Objective.
- Secure a foothold.
- Systematic clearance and seizure of objectives.

(1) Reconnoiter the Objective. Intelligence gathering and reconnaissance & surveillance are critical to the planning process. Whenever possible, leaders should make a personal reconnaissance of the objective area to collect first-hand information regarding the area to be attacked. Avenues of approach, observation posts, supply routes, and the emplacement positions of direct- and indirect-fire weapons systems are all examples of information that can be obtained during reconnaissance. Composition and structure of buildings and roadbeds, cover and concealment opportunities, and other information not apparent in a map study may have a significant impact on the plan.

(2) Isolate the Objective. Seizing natural and manmade features that dominate the area can isolate the objective. Isolation may also be accomplished by coordinated use of supporting arms to seal off enemy lines of communication. This phase may be conducted simultaneously with Phase III (securing a foothold). Isolating the objective:

Once the attacker has isolated the city, he can either continue the attack or fix the defender and force him to capitulate. If necessary, the unit then secures positions outside the urban area from which to support entrance into the city itself. The tactics and techniques for this phase of the operation are similar to those used in an attack against an enemy strongpoint.

(3) Secure a Foothold. Once the objective is isolated, a foothold should be secured as soon as possible in order to maintain tempo. Dismounted forces can be employed to attack from any direction. Examples include bypassing strongly defended buildings by going under, over, and around them and by using cellars, sewers, subways, or other

underground passages. The attacking force uses the foothold area to reorganize, regain control, and emplace units to supporting positions. After seizing a foothold, the attacking force continues the attack through the objective area. Normally, the attacking force penetrates the enemy defenses on a narrow front. The assault is supported by all available supporting arms and usually maximizes use of smoke to screen the attacking forces movement.

The commander may employ variations of the column formation. For example, a battalion may use a column, with each of its companies in a line, wedge, or echelon. These formations tend to shorten the length of the column, reducing the time necessary to move into the urban area. The leading tank elements normally use a formation that speeds the delivery of maximum fire on the point of penetration. Air bursting artillery and mortar fires are usually placed over the entry point to prevent the enemy from manning crew-served or individual antitank weapons. The infantry moves as close to the objective as possible. When the infantry attacks a strongly defended area, it provides close-in protection for the tanks. Unit leaders may assign fire teams or squads to work with each tank. If radios are not available, visual signals and TA-1 phones externally rigged to the tank may help maintain direct communication between the rifle squad or fire team leader and the tank commander. The infantry maneuvers to suppress or destroy the enemy. Tanks move forward as soon as possible to support them. Suppressive tank fires can be effectively used to cover the attacking forces exposed flanks. When buildings on the periphery of a town are heavily fortified, the commander may have to employ techniques for the attack of a fortified area.

(4) Seizing the Objective. Once a foothold is seized and consolidated, supporting forces move to the built-up area to support the seizing of the objective area. To maintain tempo, the transition between the phases should be seamless. Once the foothold has been established, forward units continue the attack through the objective area. The attack can vary from a systematic block-by-block, house-to-house reduction of the urban area to a rapid advance with clearance of critical areas and buildings. Clearance and seizure techniques depend on the mission, the size of the town, construction and building arrangement, and the enemy's disposition, strength, and objective. The momentum of the assault is continued until the objective area is cleared or controlled.

When the urban area is small or lightly defended, the attacking force should drive through or into it as rapidly as possible. Marine armor should lead the column in this instance, closely followed and supported by infantry. It will rarely be possible to employ more than two tanks at the head of the column except when advancing on a wide street. Tanks continuously concentrate main gun and automatic weapons fire on windows and the rooftops of buildings (see Figure 9-4). The infantry protects the tank from close-in enemy fire. When required to protect tanks from fire from nearby buildings, an infantry squad moves along each side of the street, keeping abreast of the lead vehicles. Depending on the resistance, the infantry may challenge every doorway or ground floor window by throwing in hand grenades and spraying the interior with small arms fire. Unit leaders will usually assign Marines in each squad to locate and engage targets on the

upper floors and rooftops of the buildings. The infantry may also assist in the removal of obstacles or barriers halting the advance.

When seizing buildings, the tanks support the assault by isolating the building and providing suppression during entry. The tank can also create a hole in a wall of a building with main gunfire to allow the infantry to enter the building through an unexpected entrance. The wall and fortification breaching effects of the 120-mm tank cannon are major assets to Marines fighting in built-up areas.

The assault force should establish limited objectives to ensure that the attacking forces do not get strung out along the axis of advance. Gaps may give the enemy the opportunity to infiltrate along the line of advance or make isolated friendly forces vulnerable to attack.

Figure 9-4. M1A1s advancing with infantry.

Section 4. Defensive MOUT Operations

In urban combat, the defender possesses key advantages over the attacker. The defender can shape the battle space to his advantage by maximizing the natural restrictions and obstacles found in the urban environment. Knowledge of the terrain and time available for preparing defensive positions are advantages, which may enable the defender to successfully resist a numerically superior force. Defensive operations in a built-up area require thorough planning and precise execution based on METT-T. This section examines MOUT considerations that affect the tank unit in the defense.

9401. Defensive Techniques in MOUT.

In the defense, Marine tanks provide the MOUT commander with a mobile force that can respond quickly to enemy threats. They should be located on likely enemy avenues of approach in positions that allow them to take advantage of their long-range fires. Effective positioning allows the commander to employ the armored vehicles in a number of ways, such as the following:

- On the edge of the city in mutually supporting positions.
- On key terrain on the flanks of towns and villages.
- In positions from which they can cover barricades and obstacles by fire.
- As part of the reserve.

The commander has the alternative of employing sections or individual armored vehicles with infantry platoons and squads; this allows the tank take advantage of the close security provided by the infantry.

9402. Fighting Positions.

Fighting positions for tanks are an essential component of a complete and effective defensive plan in built-up areas. Vehicle positions must be selected and developed to afford the best possible cover, concealment, observation, and fields of fire; at the same time, they must not restrict the vehicles' ability to move when necessary. The following considerations apply:

If fields of fire are restricted to the street area, hull-down positions should be used to provide cover and to enable tanks to fire directly down the streets. From these positions, the armored vehicles are protected while retaining their ability to rapidly move to alternate positions. Buildings collapsing from enemy fires are a minimal hazard to the armored vehicles and their crews.

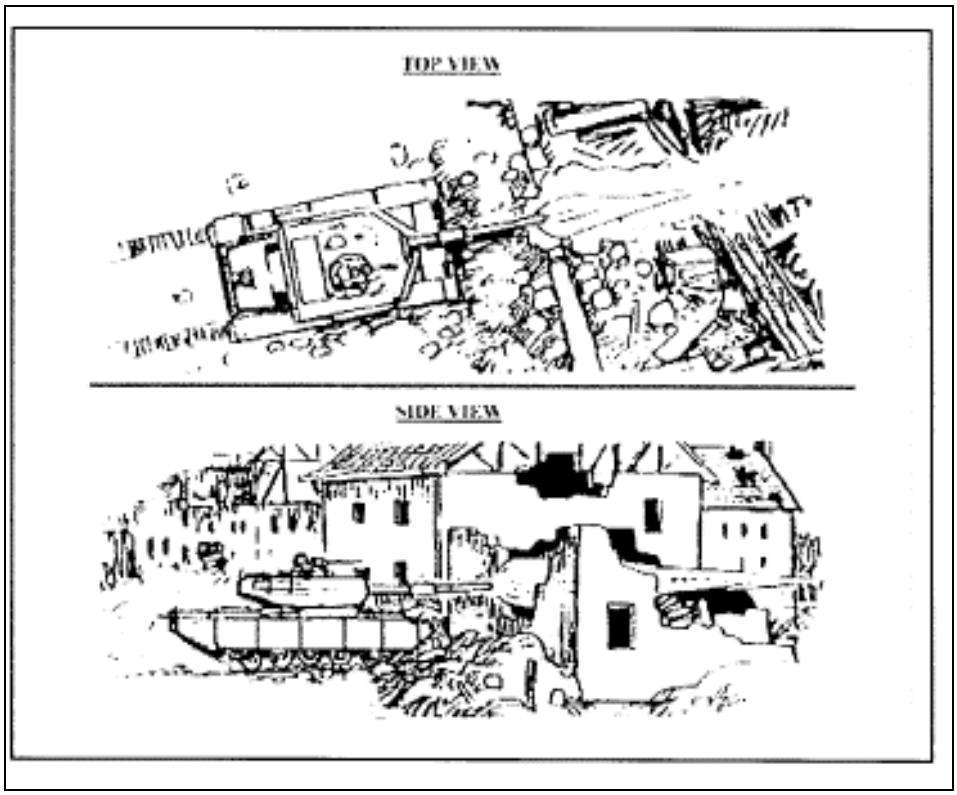

Figure 9-5. Hull-Down Position

- Before moving into position to engage the enemy, a tank can occupy a hide position for cover and concealment. Hide positions for armored vehicles may be located inside buildings or underground garages, adjacent to buildings (using the buildings to mask enemy observation), or in culverts.

- Since the crew will not be able to see the advancing enemy from the hide position, an observer from the vehicle or a nearby infantry unit must be concealed in an adjacent building to alert the crew (see Figure 9-6). When the observer acquires a target, he signals the armored vehicle to move to the firing position and, at the proper time, to fire.

- After firing, the tank moves to an alternate position to avoid compromising its location.

Infantry are usually employed abreast so that they all can fire toward the expected direction of attack. In a company team battle position however, the limited number of available infantrymen may require infantry fighting positions to be interspersed with vehicle positions. In urban areas, rooms within a building may separate small units such as platoons, squads, and fire teams, or they may be positioned in different buildings. Infantry positions must be mutually supporting and allow for overlapping sectors of fire, even when they are in separate buildings or are divided by walls.

The commander's defensive scheme of maneuver in MOUT must always include the employment of a reserve force. This force should be prepared to counterattack to regain key positions, to block enemy penetrations, to protect the flanks of the friendly force, or to provide a base of fire for disengaging elements. For combat in urban areas, the reserve force has these characteristics:

- Normally consists of infantry elements.
- Must be as mobile as possible.
- May be supported by tanks, LAVs and/or AAVs.

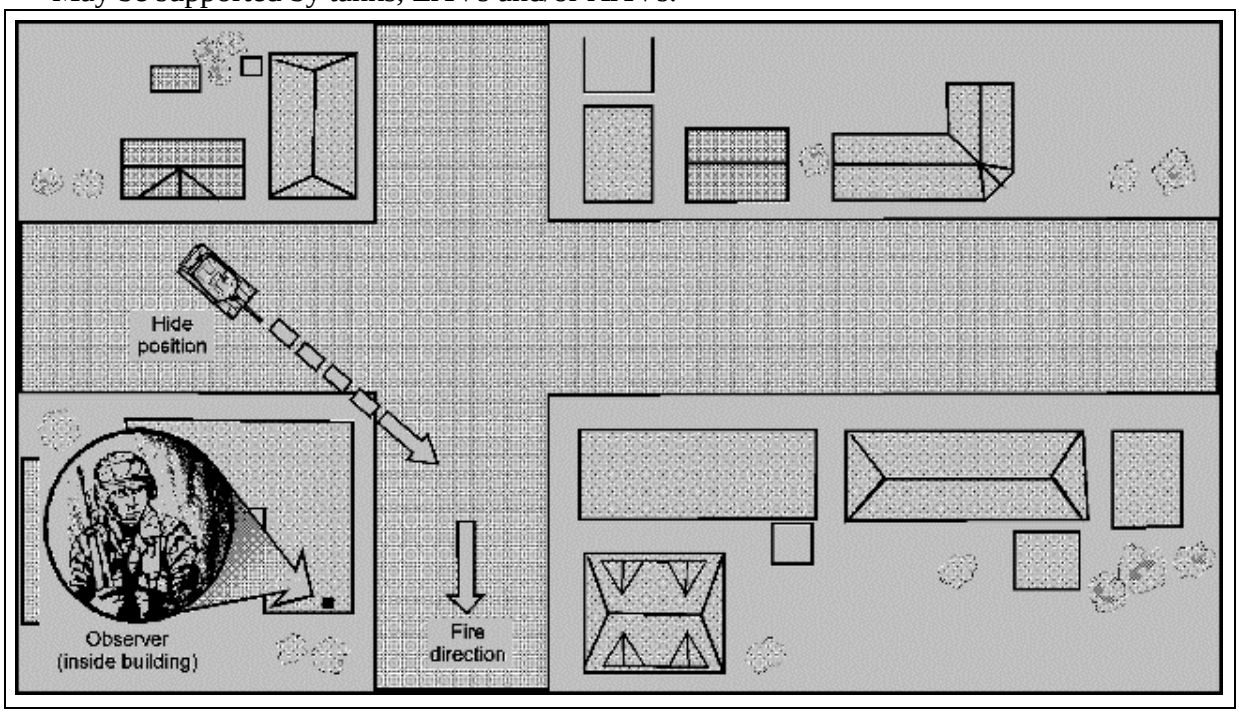

Figure 9-6. Example vehicle hide position in a MOUT environment.

In conclusion: provided below are six major points of consideration for successful integration of tanks in MOUT:

- Situational awareness must exist between the tanker and the infantry. Cross talk between the tankers and the infantry also fosters a good working team. Communications between elements can take many forms: radio communication, use of field phones externally mounted on the right rear fender of the tanks, and visual signals such as hand and arm signals and pyrotechnics.
- Both the infantry and the tankers must exercise tactical patience. The tanks, indoctrinated in moving quickly from one position to another, must remember they are in a support role to the infantry. They also depend on infantrymen for support and protection against close ambush. Separating themselves from the infantry will not only result in needless loss of life and equipment but mission failure. Also, terrain can create mobility restrictions for the tank. Terrain that is easily trafficable by infantrymen may be impassable to a tank.

- Use of tanks does not negate the need to use smoke, obscurants, and indirect fire when moving up to obstacles and support-by fire positions.
- It is essential that tankers attached to the infantry unit be involved in every step of the operations order development, especially rehearsals.
- To be effective, organize the unit as a combined arms team.