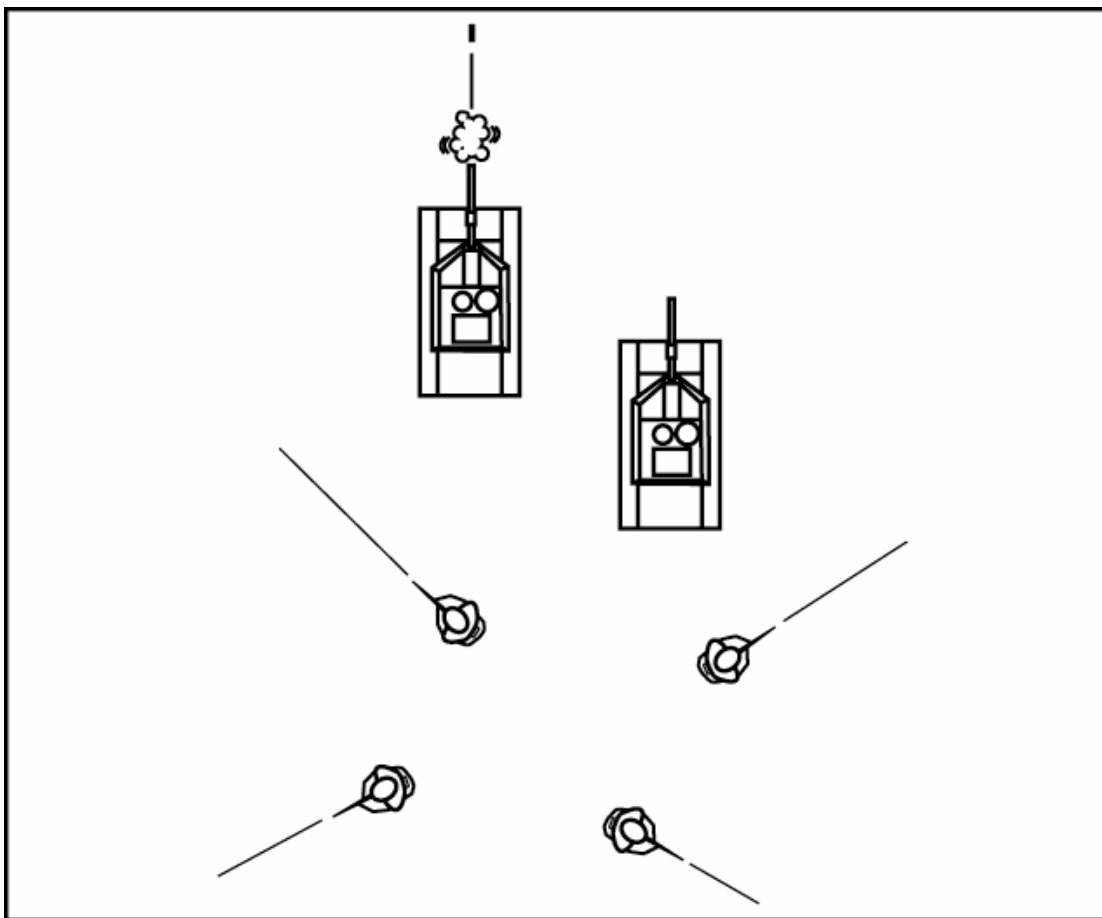

Tank-Infantry SOP

Squad



Version 2.1
September 2005

Contributing Editors:

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Maj Brendan McBreen, Editor

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100. Scope

1. **This SOP describes the actions of the tank-infantry team at the squad level.** The focus of this SOP is on the *dedicated dismounted security tasks* that small infantry units provide tanks in close urban terrain against an enemy with an AT capability.
2. **This SOP describes how tanks fight alongside a single foot-mobile infantry unit.** All tactics, techniques, and procedures (TTPs) describe the actions of one tank and one small infantry unit in the context of tank section and rifle platoon operations.

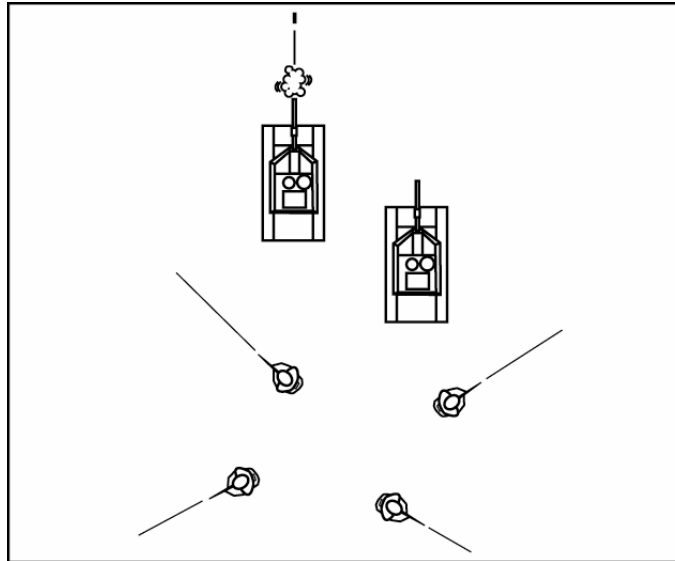


Figure 100-1. The tank-infantry team.

The SOP does **NOT** describe tank tactics. This SOP does **NOT** describe how tank platoons or tank companies integrate and fight with infantry companies or battalions. This SOP does **NOT** describe mechanized vehicle and tank coordination.

This SOP does **NOT** discuss tank-on-tank combat. This SOP does **NOT** discuss combat in open terrain where a tank-infantry team would likely **NOT** be integrated at the platoon level.

This SOP does **NOT** include any tank-specific data. No specific tank is mentioned. Tank infantry training must include specifics on tank capabilities and limitations.

3. Abbreviations used in this SOP:

AT	Anti-tank	OP	Observation Post
ATGM	Anti-tank Guided Missile	RPG	Rocket Propelled Grenade
LOS	Line Of Sight	TC	Tank Commander
MG	Machinegun	TRP	Target Reference Point

101. Tasks

- 1. The tank helps the infantry unit fight.
The infantry unit protects the tank.
The infantry unit helps the tank fight.**

The infantry unit can see and hear what the tank crew cannot. As the eyes and ears of the tank, the infantry unit's observations increase the situational awareness of the tank. This relationship is mutually beneficial – the tank crew is given targets by the infantry unit and the infantry unit gains firepower.

The infantry unit and the tank crew must be in constant communication to enhance each other's situational awareness.

The infantry unit provides overwatch and designates targets for the tank. The infantry unit moves forward to examine and clear terrain, obstacles, and enemy threats for the tank.

- 2. The security that the infantry unit provides for the tank is critically important when tanks are operating in close terrain against an enemy with AT weapons.** Security is crucial when the enemy location is unknown, when visibility is poor, during retrograde operations when the enemy is closing, or during offensive movement, when tanks need protection to advance in close terrain.
- 3. An infantry unit supported by tanks needs specific training on the collective skills needed to protect the tank and help the tank fight. They must be proficient in the following:**

Protect a Stationary Tank
Protect a Firing Tank
Protect a Tank Fighting Position
Protect a Moving Tank
Clear Danger Areas
Suppress Enemy AT Weapons

Designate Targets
Spot Friendly Units
Guide Tank Movement
Overcome Obstacles

102. Options for Organization

1. **To form a combined-arms tank-infantry team**, a tank platoon or tank section is placed in Direct Support (DS) of an infantry company. Tanks roll to Co Tac and operate as a subordinate element of the company. The company may also be reinforced with other types of units.

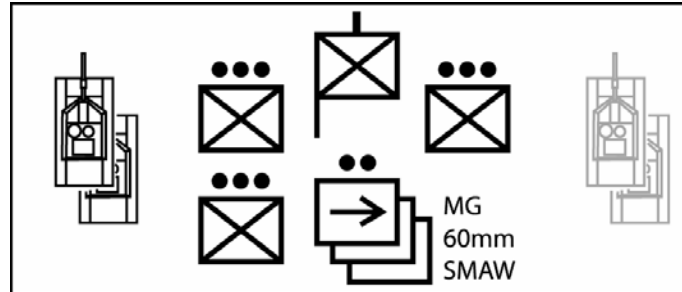


Figure 102-1. Infantry Company reinforced with a DS Tank Section or Tank Platoon.

2. **The company commander can then assign a tank section in DS to one infantry platoon.** Tanks roll to Platoon Tac and operate as a subordinate element of the platoon. Tanks may be assigned to a platoon for a very short time to support a single tactical evolution. The platoon may also be reinforced with other types of weapons units or engineer units.

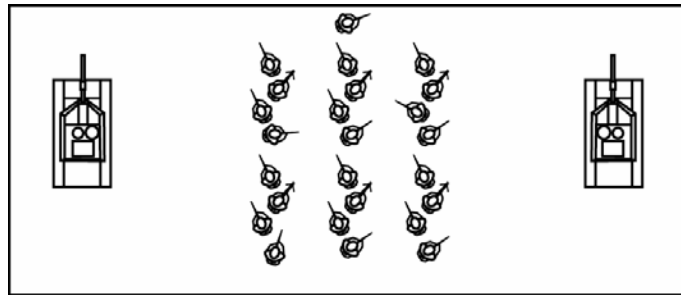


Figure 102-2. Infantry Platoon reinforced with a DS Tank Section.

Sections of two tanks are almost never split. Tanks fight as pairs for reasons of overwatch, mutual support, recovery, internal and external ammunition transfers, and tactical employment.

3. **The platoon commander has a number of options to organize and fight his reinforced platoon:**
 - a. The platoon commander can attach a dedicated infantry tank security squad to the tank section, one reinforced team to each tank. This organization guarantees full-time security for each tank, establishes habitual relationships and fixed comm links, and enables the tank security units to focus on developing tank knowledge and refining tank-infantry SOPs. Short squads are ideal for this mission. Attached mortarmen, machinegunners, assaultmen, or engineers should NOT be assigned to protect the tanks except as part of a rifle squad. *However, the remaining two-squad platoon is now significantly less flexible and tactically limited.*

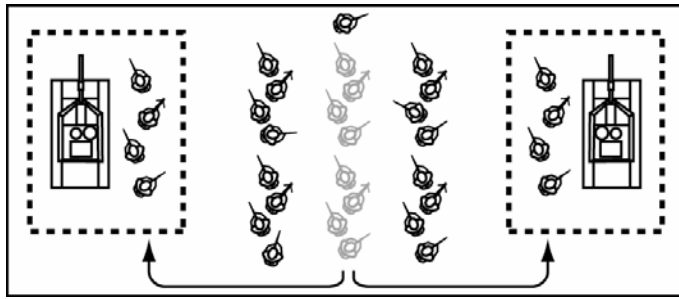


Figure 102-3. Tank security squad, attached to tank section, attaches one team to each tank.

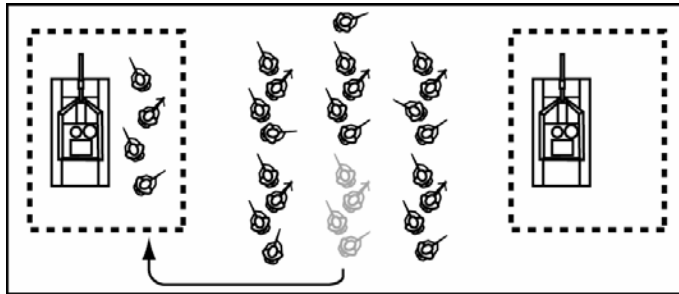


Figure 102-4. Single tank security team attached to tank section.

- b. **The platoon commander can marry squads with tanks on a rotating basis.** This is the recommended technique. The squad operates together with the tanks for a specific tactical mission. Over the course of an engagement, as squads rotate missions and locations, the tanks will work with each of the three squads. *The benefits of tactical flexibility far exceed the benefits of habitual relationships.*

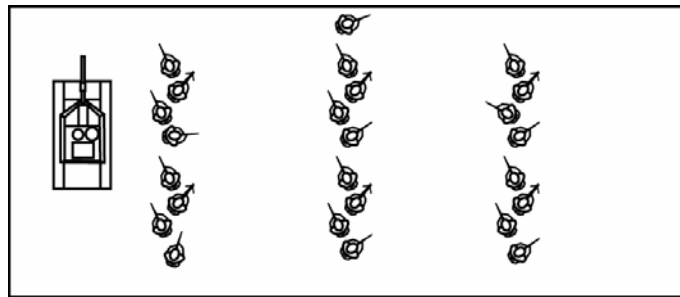


Figure 102-5. Tank support to one squad rotates among squads.

- c. **A squad leader, working with tanks, can assign one fire team the tank security mission.** One element of the squad is then continuously focused on tank security, communication, and cooperation.

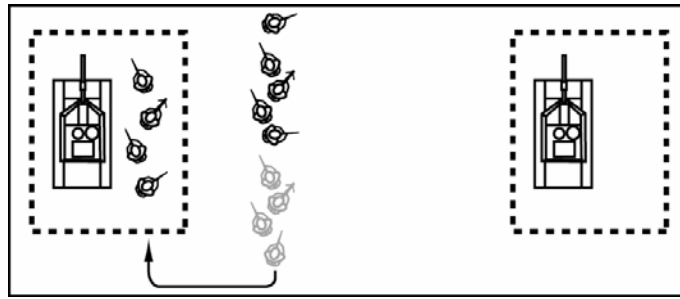


Figure 102-6. Squad assigns one team the tank security mission.

4. **Every infantryman must understand the fundamentals of providing security for a tank.** Infantry leaders must know how to employ tanks. The chaotic nature of the urban battlefield will not allow tanks to work exclusively with one unit. Tanks must be flexible enough to rotate among supported elements with minimal friction. Both tankers and infantrymen must be trained to conduct concise talk-ons to target enemy positions.
5. **Doctrine.** Existing manuals suggest that tanks and infantry are not integrated below the company level. In practice, tanks have fought as combined arms teams with mixed infantry squads – mortars, machineguns, and engineers – from WWII through the Iraq War.
6. **The remainder of this SOP refers only to operations with a single tank.** The term, “infantry unit” refers to any small infantry unit working with the tank, supporting the tank, or maneuvering in coordination with the tank, regardless of task organization.

103. Threat

1. **In close terrain, the tank is vulnerable to RPGs, ATGM and other AT weapons. The tank is vulnerable to mines, explosive devices, and close assault with explosives or flame weapons.**

Buildings, thick vegetation, difficult terrain, and crowds can hide the approach of an enemy. Standoff distance is eliminated by close terrain. Concealment permits engagements inside 300 meters.

Enemy volley fire – firing multiple AT rockets or missiles simultaneously – is more likely and more dangerous in close terrain. A U.S. Army study showed that teams using volley fire were far more effective than individuals. Two inexperienced men firing two rockets could hit a moving tank about a 90% of the time at ranges of seventy-five meters and less. Three inexperienced men almost *guaranteed* a hit at ranges of seventy-five meters and less.

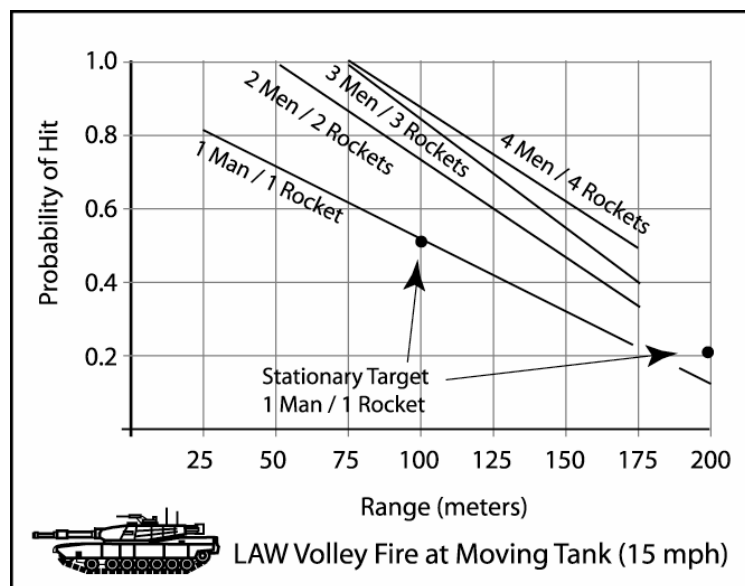


Figure 103-1. Effectiveness of the Volley Fire Technique.

Source: Gorman, P.F., "Infantry in Mid-Intensity Battle." MS. Fort Monroe, VA: Deputy Chief of Staff for Training and Schools (DCSTS), 22 January 1974. Cited in Gorman, P.F., *The Secret of Future Victories*. Fort Leavenworth, KS: Combat Studies Institute, USACGSC, 1992.

2. **Snipers can shoot exposed crewmen from near or far positions.**
3. **Mines and demolitions are difficult to detect and avoid in restrictive terrain.**
4. **Man-made obstacles are easier for the enemy to construct in close terrain.** Obstacles on narrow routes are harder for the tank to bypass. Obstacles can be mined.
5. **Natural obstacles are a threat to the tank.**

200. Protection Tasks

1. **The infantry unit protects the tank** from AT fire and close assault. The infantry unit provides *overwatch* – a continuous 360-degree bubble of security for the tank whether or not the tank is being employed. The infantry unit spots mines, obstacles, AT weapons, and enemy sappers before the tank can. The infantry unit needs training on the following *protection tasks*:

Protect a Stationary Tank

Protect a Firing Tank

Protect a Tank Fighting Position

Protect a Moving Tank

Clear Danger Areas

Suppress Enemy AT Weapons

2. **The infantry unit must know where to look for the enemy.** For enemy *vehicles*, focus on treelines and buildings. *Look* for exhaust smoke, antennas, dust clouds and reflections. *Listen* for engines and track clatter. *Thermally search* for engine heat sources.

For enemy *soldiers* with AT weapons, focus 360° around and up and down on buildings, rooftops, vegetation, culverts, and other dead space. Focus on protecting the roof and rear of the tank. *React quickly* to the flash and blast of a firing signature or the smoke trail of a missile in flight.

One attack may be immediately followed by another near-simultaneous attack from a different direction and elevation. When an enemy position is discovered, immediately search other sectors.

Multiple RPGs can be volley-fired from different locations simultaneously.

3. **The infantry unit protects the tank crew if the tank is disabled.** If the tank is disabled, the infantry unit secures the site. The infantry unit suppresses the enemy if the tank crew needs to dismount, and helps evacuate wounded tank crew members.

If the tank is used to transport casualties, the infantry unit provides protection for the moving tank.

4. **All protection tasks are a balance between *infantry-too-close* and *infantry-too-far-away*.** If the infantry is too far away, the tanks are not protected. If the infantry is bunched-up too close, they cannot maximize the cover of microterrain and are exposed to enemy fire directed at the tank. The rule of thumb is “overwatch, not firewatch.” The *effects* of the infantry weapons protect the tank, NOT the nearness of the infantrymen.

201. Protect a Stationary Tank

1. **In close terrain, the infantry unit is critical to tank defense.** When the tank is stationary – at night, in laager, while conducting refueling and resupply evolutions, while conducting maintenance or recovery, or when disabled but still firing – the infantry unit relieves the tank crew of some watch obligations by protecting the tank from AT weapons, RPGs, mines, or close assault with explosives or flame weapons.

If a tank is no longer operational, it should be evacuated to a rear area as soon as possible. This will ensure that infantry units are not tied down supporting a disabled tank.

2. **For temporary halts, the infantry unit provides overwatch for the tank.** The infantry unit leader positions Marines on dismounted avenues of approach where terrain impedes observation or early warning of enemy activity. The infantry unit leader coordinates with the TC to ensure that the tank's dead space is covered. The infantry unit leader and the TC collaborate to ensure the tank's optics are gainfully employed.
3. **For longer halts, the infantry unit leader emplaces his Marines in fortified positions to provide overwatch for the tank.** Tank crew sectors of observation and tank weapons sectors of fire are coordinated with the infantry unit's sectors. The infantry unit leader assigns positions that can be occupied safely when the tank is firing. See *203 Protect a Tank Fighting Position*.
4. **Close Terrain.** Urban terrain or heavily vegetated areas require overwatch positions that are close to the tank. The infantry unit leader will position his Marines to cover the tank's dead space while not cutting off the tank's ability to employ his main gun.

Tanks should NOT remain in static positions in built-up areas for long periods. Tanks may be withdrawn for security, vulnerability, utility, and crew rest issues.

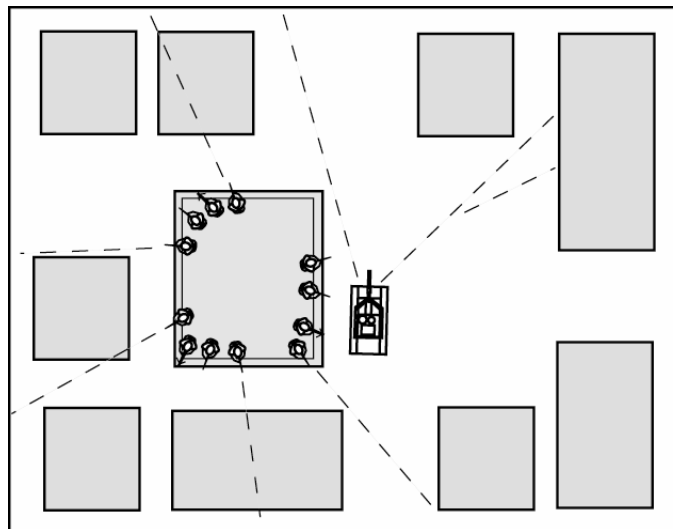


Figure 201-1. Infantry provides overwatch for tank in an urban area.

5. **Open Areas.** Desert or open grasslands require overwatch positions that are farther from the tank. The infantry unit leader will position his Marines to cover the tank's dead space and give the tank the maximum possible space to maneuver.

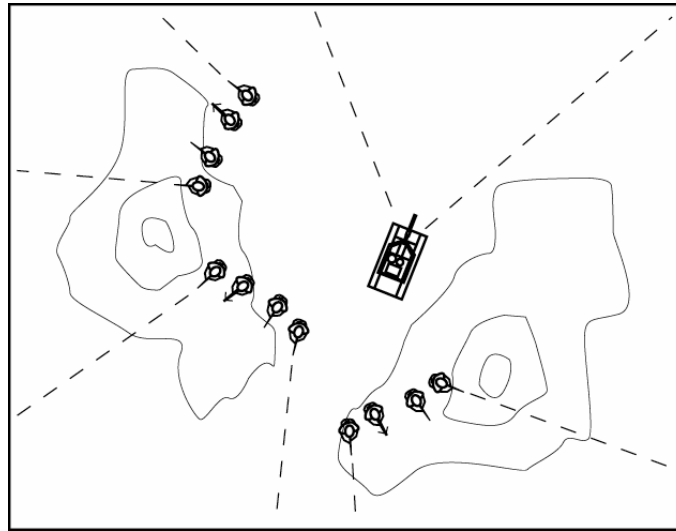


Figure 201-2. Infantry provides overwatch for tank in an open area.

202. Protect a Firing Tank

1. **The tank never fights alone.**
2. **The infantry unit protects the tank with all-around security while the tank engages the enemy.** The infantry unit helps the tank engage the enemy with fires, marks, adjustments, and observation of both the enemy and friendly units.
3. **The TC warns the infantry unit that the main gun is about to fire.** He does this over the radio or out of the TC hatch using a hand and arm signal or voice command.
4. **The infantry unit leader ensures his Marines are clear.** If the infantry unit is in a battle position, he makes sure that Marines dangerously close to the tank are under cover. If the Marines are in the assault, the unit leader moves his Marines out of the blast radius of the tank. In both instances the infantry unit leader lets the tank know his Marines are clear. Infantrymen in positions that are clear of tank weapons effects can *still* suffer blast concussions.

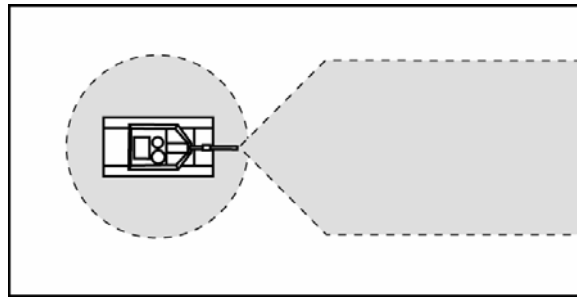


Figure 202-1. 50m Overpressure area around tank. Sabot danger area in front of gun.

5. **The warning and clearing procedure for the tank coax MG is the same as for the main gun.**
6. **Tank-mounted MG fire is coordinated dynamically by the TC.** The TC should have eyes on each member of the infantry unit when the TC's machinegun is firing.
7. **Friction.** In combat, the noise, chaos, and enemy threats will make it challenging to follow these procedures. Frequently, the tank must fire with little or no notice to the infantry unit. It is up to the TC to make sure that his fire is clear of the infantry unit. It is up to the infantryman to understand his own position in relation to the tank.
8. **When the tank provides support-by-fire for a dismounted infantry assault, the infantry unit can protect the tank, suppress enemy AT fire, assist in designating targets, and help spot friendly infantry closing on the objective.** See 301 *Designate Targets* and 302 *Spot Friendly Units*.

In fire and maneuver attacks in restricted terrain such as villages, towns, and woods, and against pillboxes and bunkers, precise tank-infantry coordination is required. Good communications is required. In addition to the main gun, the coax MG and TC MG provide precise, accurate, and high-volume suppressive and destructive fires.

203. Protect a Tank Fighting Position

1. **The TC establishes the tank fighting position.** The infantry unit helps dig in the tank and camouflage the position. The infantry unit should understand tank fighting positions, especially *hide*, *turret down*, and *hull down* concepts, and know how the tank will move within the position.

Primary, Alternate, and Supplementary positions are each planned in the same way. The infantry unit needs to understand the routes and signals for movement between positions to avoid being run down or shot by the tank.

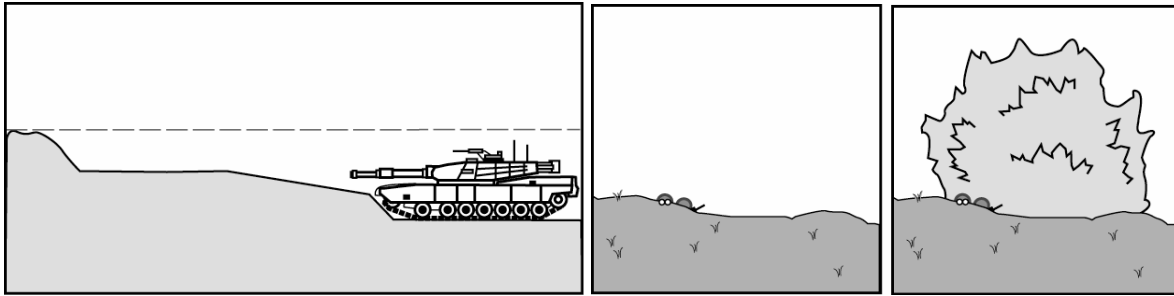


Figure 203-1. Hide position. Side view, front view, and front view with background vegetation to avoid skylining. The OP reports to the tank. Depending on terrain, a hide position may be some distance from the fighting position.

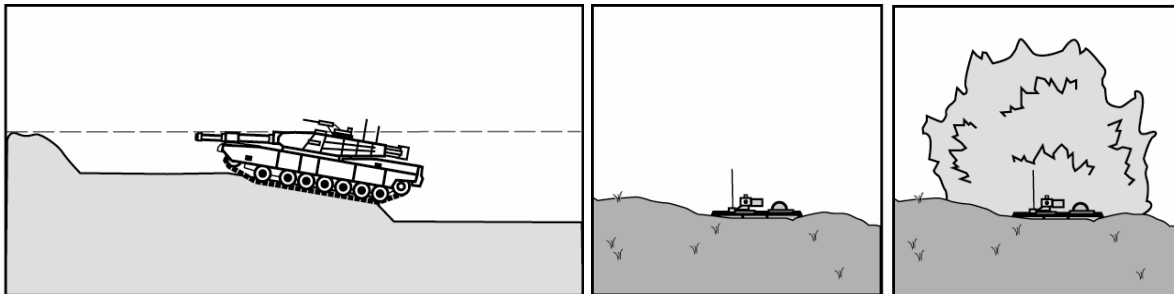


Figure 203-2. Turret down. Side view, front view, and front view with background vegetation to avoid skylining.

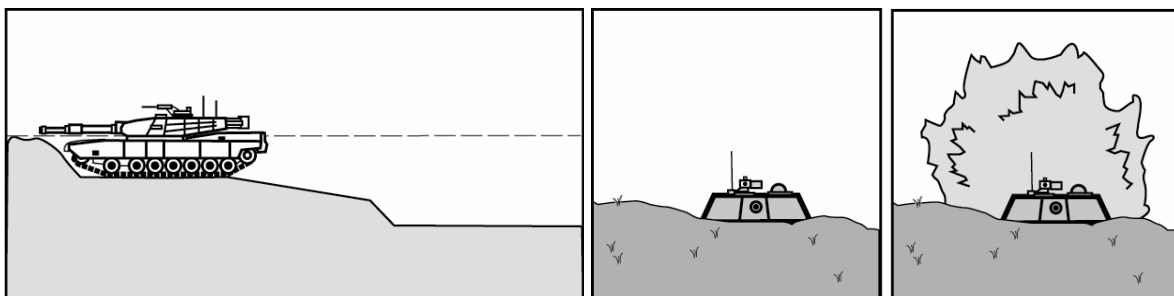


Figure 203-3. Hull down. Side view, front view, and front view with background vegetation to avoid skylining.

2. **The infantry unit can man an OP when the tank occupies a hide position.**
3. **The infantry unit provides security for the tank.** The infantry unit leader works with the TC to ensure that tank crew sectors of observation and tank weapons sectors of fire are coordinated with the infantry unit's sectors. The infantry unit leader assigns positions that provide all-around security and can be safely occupied when the tank is firing. The infantry unit digs fighting holes and camouflages their positions in order not to compromise the position.

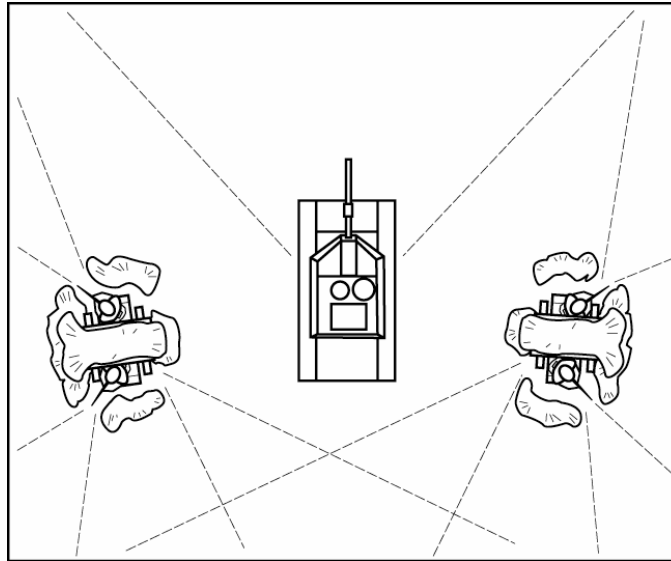


Figure 203-4. Infantry fighting positions integrated with a Tank Fighting Position.

- 4. When the tank fires, the infantry unit observes and helps corrects the tank's fire.** The infantry unit should have a coordinated engagement plan with the tank and be able to reference any designated TRPs. See *301 Designate Targets*.

204. Protect a Moving Tank

1. **The infantry unit protects the tank by finding the enemy *first*.** The infantry unit threatens and engages hidden enemies before they can engage the tank. The infantry unit keeps AT gunners at a distance.
2. **The infantry unit uncovers dead ground before the tank does.** The infantry unit is the “seeing eye dogs” of the tank, clearing a location *before* the tank moves there.

The infantry unit must understand the blind spots of the tank crew, as well as tank weapons dead space – up, down, and flank. Enemies will try to use these spaces for attacks.

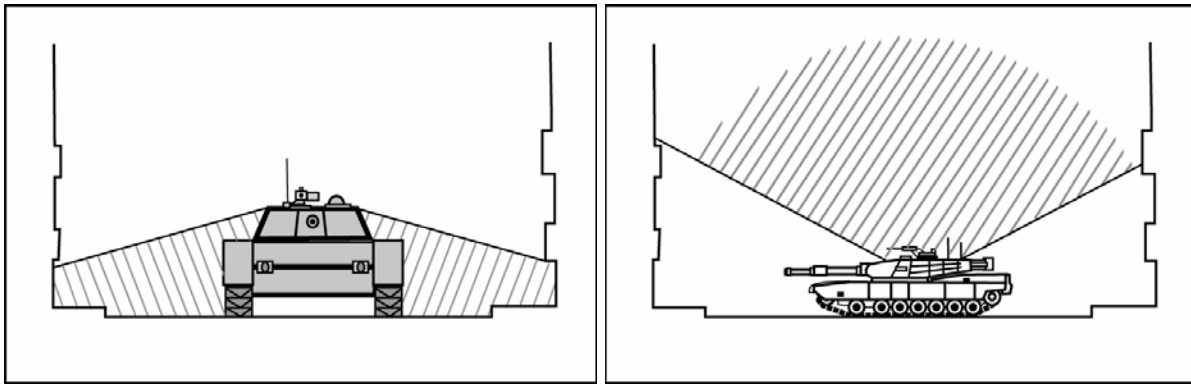


Figure 204-1. Tank weapons dead space. Flank and overhead weapons dead space.

3. **The infantry unit should understand how the tank moves.** To move with the tank, the infantry unit should understand tank tactics, tank terrain movement techniques, and tank movement limitations, especially turning radius, main gun clearances, and turret and bustle rack clearances in restricted spaces. In narrow streets, traversing the gun is sometimes not possible.

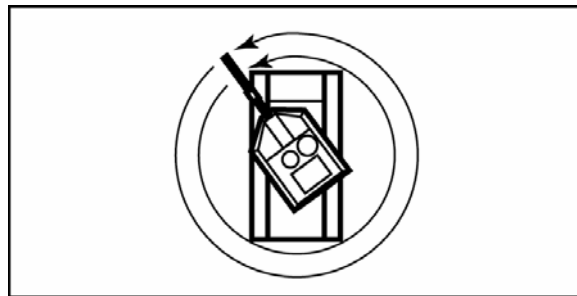


Figure 204-2. Tank turning radius. Chassis turn and main gun traverse.

4. **The infantry unit should understand what routes a tank can and cannot travel.** Difficult areas require ground guides with knowledge of the tank’s movement capabilities, especially what size walls, trees, or other obstacles can be knocked down by the tank. Culverts can collapse. Bridges may be impassable. Engineers can help tank mobility.

Route selection needs to be coordinated between the infantry unit leader and the TC. Shared situation awareness requires the same route card and the same map.

5. **Safety. The infantry unit should understand how to safely operate near the tank.** Communication between the infantry unit leader and the TC is critically important.

Safety Guidelines

You are responsible for your own safety.

Always assume the tank does NOT see you. If you cannot see the driver, he cannot see you. In contact, the crew is focused on the enemy, not on you.

Keep your distance from the tank. Close objects are harder for the tank crew to see. Do not stand near a moving or turning tank.

In the dark, stay farther from the tank. Place yourself near a building that the tank will avoid. *Always* ask permission before moving in front of the tank.

Do not wait to be told to move away from a tank. If you are in doubt, move out. Never take up a prone position in front of, adjacent to, or behind the tank. Do not stand between two tanks, between a tank and a vehicle, or a tank and a building.

When the tank is under fire, find positions protected from the splash and ricochet of enemy rounds off the tank.

6. **Tank movement is slowed when working with infantry.** When the tank sprints short distances across open terrain, the infantry unit will need to run to catch up. Slow movement limits the tank's ability to use speed as a survivability tool.
7. **Movement Drills.** During movement, the following mutual support guidelines are followed:

The tank avoids moving next to an uncleared building or obvious enemy hide area.

The infantry unit avoids moving beyond overwatch of the tank.

In close terrain, **the infantry unit stays between the tank and potential enemies.**

In open terrain, **the infantry unit overwatches the tank from the flanks.**

Either by SOP or by direct assignment, the infantry unit leader and the TC should both know every Marine's sector assignments. Sectors are not only 360°, but up and down, especially covering rooftops and cellars.

Traveling Overwatch Drill

1. Infantry unit moves with the tank.
2. Infantry unit covers 360° with assigned sectors. Use cross-compartment scanning. Priority coverage goes to vulnerable top, flanks and rear of tank.

3. Infantry unit leader stays nearest the tank on the right side near the grunt phone.
4. Lead infantrymen should stay behind of the front bumper of the tank and farther outboard. They should clearly communicate, "Moving forward," when they need to move ahead of the tank.

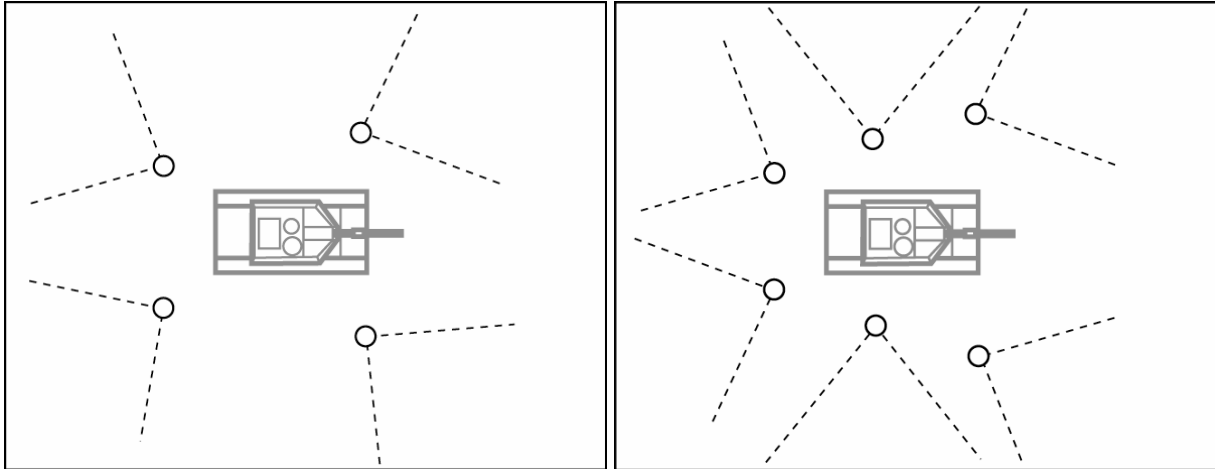


Figure 204-3. Travelling in Open Terrain. Four-man and six-man patterns.

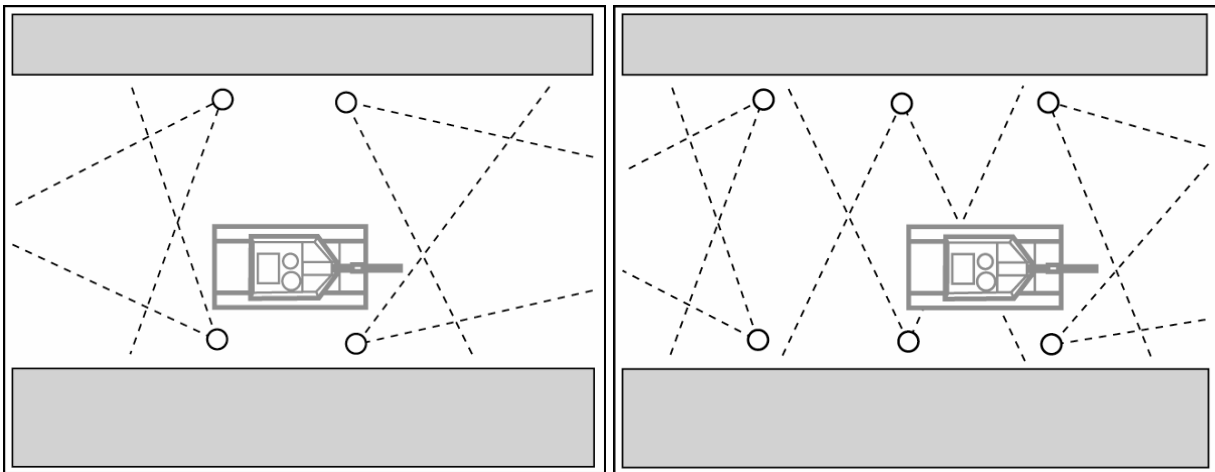


Figure 204-4. Travelling on City Streets. Four-man and six-man patterns.
Infantrymen face inboard to cover the opposite sides of the street.

Diagrams are NOT to scale. Marines too close beside the tank offer NO security benefit.
Infantry in overwatch positions protect the tank with the *effects* of their fires.

Flank Sweep Drill

1. Infantry unit moves with the tank.
2. Infantry unit sweeps flank ground ahead of and behind tank.

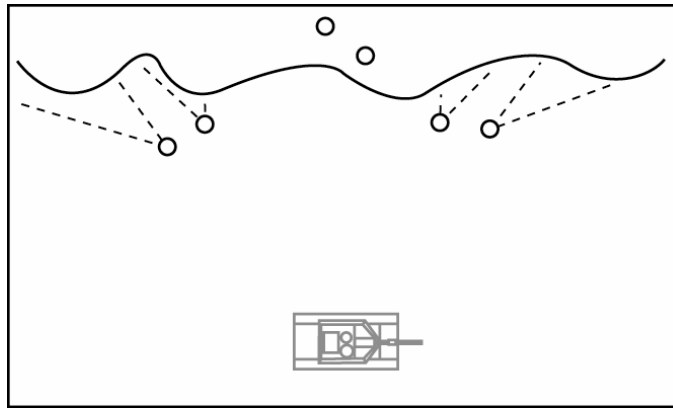


Figure 204-5. Flank Sweep Drill.

Bounding Overwatch Drill

1. Tank stops – SET.
2. Infantry unit bounds forward – MOVE. Tank provides overwatch.
3. Tank catches up.
4. Successive bounds are repeated. Tank does NOT execute alternating bounds in front of the infantry unit.

Notes:

The infantry unit uses best cover and concealment. AVOID skylining.
 Don't move directly forward from defilade position – enemy may have weapons sighted on last position.
 Cross open areas quickly.

The tank and infantry unit can bound together as a single element in a platoon or larger unit bounding drill.

The tank and the infantry unit can individually bound to protect each other.

The infantry unit leader coordinates sectors of coverage with the tank using the clock method.
 "TC, you take 9 o'clock, we've got 3 o'clock!"

The infantry unit needs to provide overwatch to the rear of the tank as they move.
 Tanks have difficulty seeing behind them. The TC transmits when he has stopped.
 When the infantry unit moves, the unit leader transmits that he is on the move.
 This dialogue continues as the infantry unit and the tank alternate moving.

On enemy contact or ATGM fire, the tank-infantry team executes a Suppress IA Drill.
 See *206 Suppress Enemy AT Weapons*.

Route information, TRPs, and control measures, are passed between the tank and infantry unit as they move.

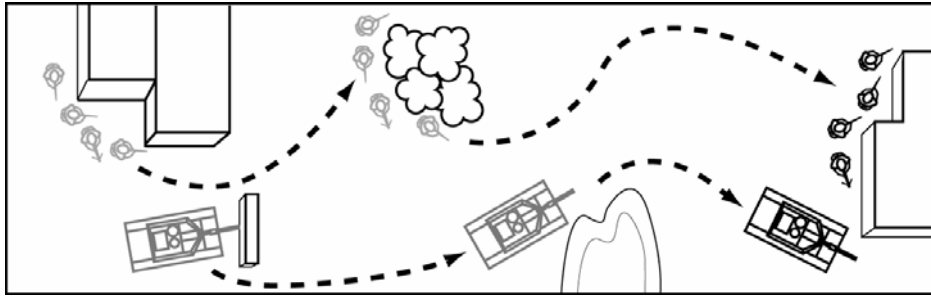


Figure 204-6. Bounding Overwatch Drill.

React to Indirect Fire Drill

1. TC selects and announces direction and distance to safe area.
2. Tank and infantry unit move together only when there is a lull in the barrage. While rounds are impacting, the infantry goes to ground in the nearest covered position.
3. It is essential that the enemy does not split the infantry unit and the tank.

Go Firm Drill

1. Tank stops.
2. Infantry unit establishes 360° security and observes sectors. They then identify friendly and enemy positions.
3. The infantry unit and the tank cross talk to share situation reports. The TC can use his amplified radio to build the situational awareness of the infantry unit by talking back to battalion or any other higher headquarters.

The Defile Drill

In combat, first to fire is first to kill - this is the 3-6 second advantage. The first to identify the target, aim, and fire gains a huge advantage. The 3-6 second advantage is life and death.

When fighting in built up areas or narrow mountain passes, multiple perpendicular defiles provide the enemy with plenty of good AT positions. With defilade on both sides, and very narrow fields of fire, these hidden positions are called “keyhole” positions. Keyhole positions can defeat overwatch techniques. Anticipating the keyhole shot requires a keen understanding of the ground, an effective map reconnaissance, and knowledge of AT positions and tactics. The infantry unit must practice until their target acquisition techniques are instinctive.

The infantry unit should be able to identify evidence of recent presence of vehicles or personnel: tracks, fighting holes, recent fires, dust clouds, exhaust smoke, ATGM guide wires, and loose earth. Gun tube orientation of the tank is critical to gain the 3-6 second advantage.

In the defile fight, the tank has less time to react to enemy actions. You need to fire at him *before* he fires at you. The infantry unit can smoke a keyhole, blinding the AT gunner and giving the 3-6 second advantage to the thermally-equipped tank.

**The infantry unit searches and visually clears each defile in advance of the tank.
The infantry unit provides overwatch of each defile as the tank crosses in front.**

Information exchange is continuous, keeping everyone aware of the situation.

“Narrow alley coming up on the left.”

“Roger, main gun at nine-o’clock.”

“Alley is clear.”

Camouflage and Light Discipline: A moving camouflaged tank can still be seen. However, a few seconds of indecision on the part of an enemy AT gunner could be the 3-6 second advantage needed to destroy that threat.

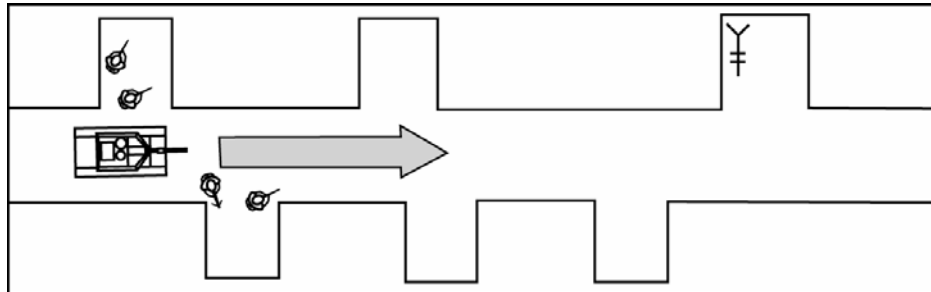


Figure 204-7. The Defile Drill.

205. Clear Danger Areas

1. **The infantry unit protects the tank while crossing exposed danger areas:** defiles, clearings, choke points, intersections, bridges, roadblocks, and small villages.

Hasty Intersection Danger Area Drill

1. Tank stops short of the intersection.
2. The infantry unit examines danger area and covers possible enemy locations. Upper buildings and basement windows, in the tank's weapons dead space, should be visually examined and covered carefully.

One element crosses rapidly and secures the far side, again looking for possible enemy locations and quickly scanning the ground surface for any evidence of mines.

Smoke can be used to obscure the enemy's view. The benefits of smoke must be balanced against the possibility of telegraphing your movements.

3. Once the infantry unit is SET, tank sprints across danger area.
Stay out of intersections and other open areas.
4. Infantry unit follows, covering rear sectors, and regains position with tank.

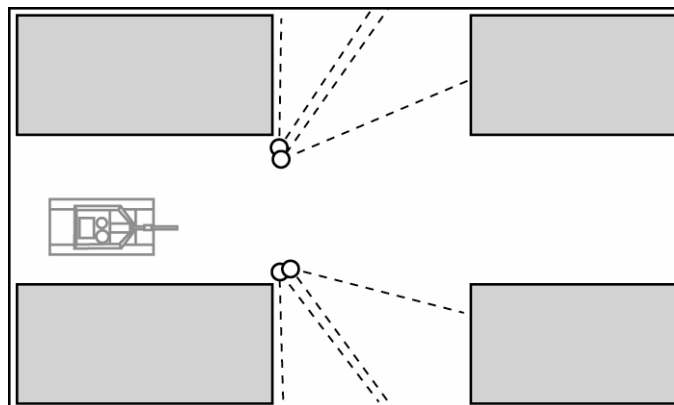


Figure 205-1. Infantry Unit covers danger area.

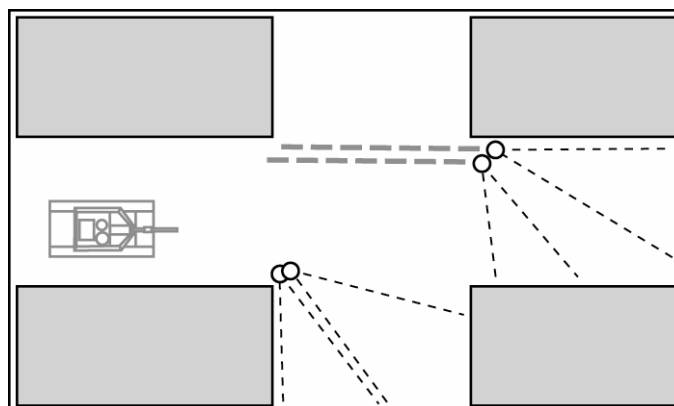


Figure 205-2. One element rapidly crosses and secures far side of danger area.

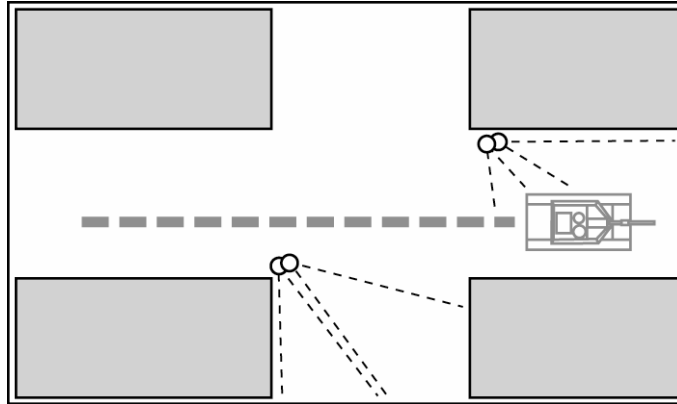


Figure 205-3. Tank rapidly crosses danger area.

2. **Bridge crossing is especially dangerous.** The tank emerges on the far side at the possible apex of an enemy cone of fire.

206. Suppress Enemy AT Weapons

AT weapons are the most dangerous threat to the tank. The infantry unit must protect the tank against AT weapons. Kill enemy AT weapons *first* to give the tank freedom to maneuver. Preventing all AT weapon attacks may NOT be possible in a built up area.

The tank can absorb some RPG hits. Responding to AT weapons with massive firepower makes the enemy cautious and may reduce AT attacks.

In combat, first to fire is first to kill – this is the 3-6 second advantage that is particularly important when suppressing AT weapons.

1. **Detect.** The infantry unit tries to detect enemy AT weapons *before* they fire. The infantry unit should understand how AT weapons are best emplaced in order to closely observe possible enemy locations, and how multiple AT weapons can attack the tank simultaneously from multiple directions. A clever enemy will let a tank pass before engaging the tank from behind. See *103 Threat*.

Whoever detects a missile in flight, transmits, “Missile, missile, missile! Three o’clock!” and opens fire. The direction is especially important. **Target acquisition – communicating the location of the enemy – is the critical task and first priority of the infantry unit.** The tank executes an immediate action drill. The infantry unit immediately fires at the origin of the smoke trail.

2. **Suppress.** The tank and the infantry unit continues to suppress the enemy AT position with direct fire. The infantry unit should understand how the tank responds to AT fire – turning rapidly to face his frontal armor toward the threat.

The infantry unit leader may call for indirect fire suppression. The infantry unit leader may call for direct fire suppression – heavy machineguns – from adjacent units. The TC decides whether or not to discharge smoke from his tank. Mortars and artillery can provide smoke. The infantry unit leader may direct his Marines to throw smoke.

The tank’s ability to suppress enemy AT weapons is far greater than the infantry unit’s. The tank has significant heavy caliber MG suppression with plenty of ammunition. While the tank suppresses, members of the infantry unit cover other sectors for other simultaneous threats.

3. **Destroy.** The tank and the infantry unit destroy the enemy position with direct and indirect fire. Before a planned movement, infantry unit leader and TC should include any supporting indirect fire assets into their scheme of maneuver.
4. **Displace.** While firing to destroy the enemy, the tank displaces to a covered position. Smoke can be used to cover displacement. The infantry unit and the tank need to have a *Break Contact Drill* that is understood and rehearsed by all parties. **Suppression has no residual effects.** Once suppressive fire ceases, the enemy may attack again.

300. Observation Tasks

1. **The infantry unit helps the tank fight.** The following *observation tasks* increase the situational awareness of the tank:

Designate Targets

Spot Friendly Units

Guide Tank Movement

Overcome Obstacles

Find Mines and Improvised Explosive Devices (IEDs)

301. Designate Targets

- 1. The infantry unit designates targets for the tank.** The infantry unit should know and understand tank weapons capabilities, tank ammunition capabilities and basic loads, and tank observation limitations. The infantry unit and the tank must understand common talk-on procedures.
- 2. If needed, the infantry unit guides the tank to a firing position.** The infantry unit can scout a hot position on foot and then lead the tank in.
- 3. The talk-on.** The infantry unit leader *talks* the TC *on* to the target:
 - a. Choose a large visible landmark. State the range.
 - b. Direct the TC's vision from this landmark to another, moving from large to small, until you reach the target.
 - c. Have the TC confirm the target.
 - d. If the TC gets confused, STOP. Go back and start again from the last good landmark.

Remember, the TC is ten feet taller than the infantry leader with different equipment and different perspective.

4. Techniques to reinforce the talk-on

Clock Technique. Direction is given by referencing the tank hull. The front is 12 o'clock. "RPG gunner at your ten o'clock. Five hundred meters. One-story white stone building. Second window from the left."

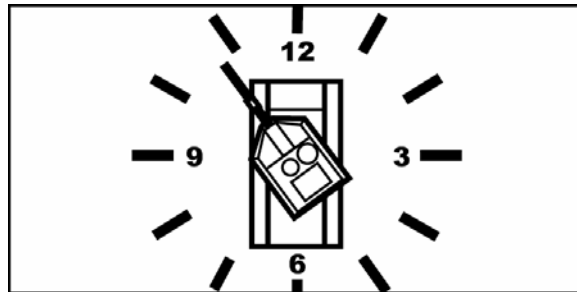


Figure 301-1. Clock Technique. Clock face is parallel to ground, centered on tank hull, NOT the turret.

Target Reference Point Technique. The infantry unit leader designates an easily recognizable structure or terrain feature as a TRP. "From the building with the red Pepsi sign. Left fifty meters. Target is the red house with the green steel gate."

Mark Technique. Whenever possible, the infantry unit leader will provide a mark for the tank.

A combination of all three techniques is most effective:

"Panzer this is Avenger 1."

“This is Panzer, over.

“Main gun target at your 10 o’ clock, 100 meters.” [Clock technique]

“Roger, 10 o’clock.”

“Yellow building with red sign. [Target Reference Point technique] Target is left hand second story window. Standby for mark.” [Mark technique]

“Roger.”

“This is Avenger 1. Do you contact my mark?”

“Roger – Contact. I tally the target - second story window. Main gun on the way.”

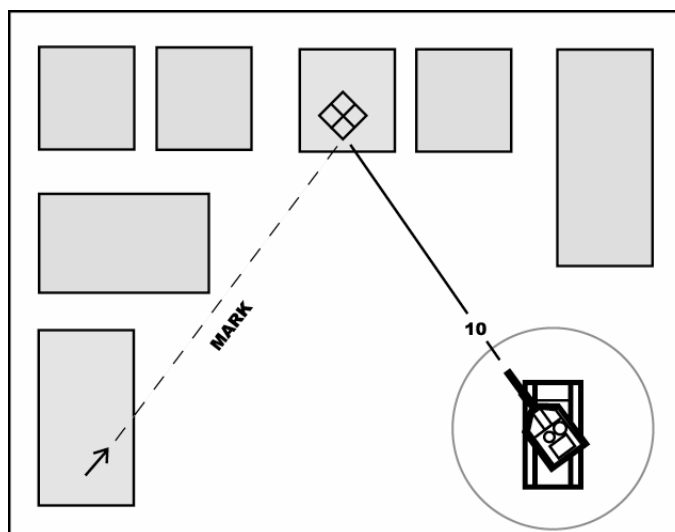


Figure 301-2. Combination of clock, target reference point, and mark techniques.
Tank orients to 10 o’ clock. Infantry unit leader describes target. Machinegun marks target.

See *500 Simple Target Designation* and *Advanced Target Designation*.

5. There are multiple methods to mark a target for the tank:

- **Tracers.** 5.56 tracer rounds are difficult for the tank to see. All-tracer magazines are better. In thermal mode, there is little difference between tracer and non-tracer. What the tank needs is multiple rounds, which is why M-249 or M-240G is best.
- **Smoke.** M-203 range is limited. The range of smoke grenades is even more limited.
- **M-203 HE.** M-203 range is limited, but the signature of an HE round is very visible.
- **IR Laser Pointer.** In the dark, hand-held laser pointers are stronger than weapons-mounted PEQ-2A, but dust can obscure the laser. Tank thermal sights CANNOT see IR lasers.
- **M-240G Machine Gun tracers.** The 7.62 tracer round is the best mark. However, the M240G is NOT an ideal marking weapon. It takes time to set up. It requires an additional talk-on for the gunner. It may have to be pulled away from its primary mission and sector of fire.

The TC can confirm the target with a burst of his coax MG fire.

There is a requirement for a heavier caliber tracer weapon for infantry unit leaders to mark targets. The M-14, firing 7.62 tracer, would meet this requirement. Mk-19 and M2 MG fire are good marks, but not available to foot-mobile units.

- 6. The infantry unit should train to identify enemy armor, vehicles, and equipment.**
- 7. The TC can designate targets and direct the small-arms fire of the infantry unit.**

302. Spot Friendly Units

1. **The infantry unit observes and reports friendly positions to the tank in order to maintain the tank's situation awareness and avoid fratricide.**

In the confusion of combat, with smoke and fire and rapidly changing situations, constant effort is needed to help keep track of multiple units in contact. The infantry unit helps the tank by seeing, hearing, and reporting the all-around situation.

Friendly infantry are particularly difficult to see and are commonly in places that the TC thought were unoccupied or occupied by the enemy. In thermal mode, the tank cannot easily distinguish between friendly and enemy. Avoid crossing in front of the tank in the dark.

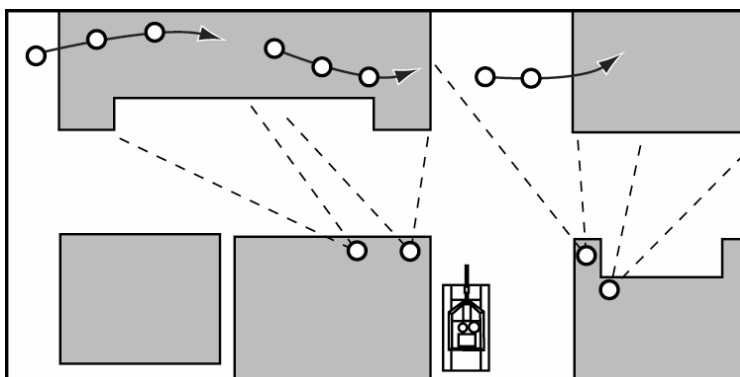


Figure 302-1. Infantry unit observes and reports other friendly infantry locations.

2. **Tanks operating with dismounted units learn NOT to shoot immediately.** Tanks should confirm all targets with the infantry unit.
3. **Infantry units operating with tanks learn to keep the tanks informed.** Direct communications are needed between infantry and tanks. The infantry unit's ability to observe and report on friendly locations allows the tank-infantry combined-arms team to fight more effectively.

A "Go Firm" drill permits leaders to declare times of no movement to facilitate identification of friendly and enemy.

303. Guide Tank Movement

Checking routes and guiding the tank saves the tank crew time-consuming foot reconnaissance.

1. **The infantry unit checks the trafficability of the route.** The infantry unit should understand the tank's mobility capabilities and limitations, and the visibility capabilities and limitations of the tank driver.

The infantry unit checks for passable terrain in order to prevent bogging down on slopes, cliffs, trenches, defiles, culverts, creeks, swamps, and bogs. Narrow muddy trails through thick woods are especially difficult.

The infantry unit checks tank clearance in narrow alleys in built-up areas.

The infantry unit checks roads, overpasses, and especially bridges. The infantry unit does NOT determine the load-bearing capability of a bridge or overpass. This must be done by a trained expert.

2. **The infantry unit guides the tank across difficult terrain.** See *204 Protect a Moving Tank*.
3. **On the battlefield, the infantry unit ground-guides the tank through congested areas.** The tank crew will ground-guide themselves when moving in congested administrative areas. For notes on hand-and-arm signals, see *401 Communications*.

304. Overcome Obstacles

1. **Find.** The infantry unit finds obstacles. While the tank provides overwatch, the infantry unit moves forward to examine and secure the obstacle site against any overwatching enemy weapons. Smoke can be used to obscure the obstacle from enemy view. The benefits of smoke must be balanced against the possibility of telegraphing your movement. See *205 Clear Danger Areas*.
2. **Bypass.** The infantry unit finds a bypass route if possible, marks the obstacle, and quickly guides the tank around the obstacle.
3. **Breach.** If the tank cannot bypass, the tank and the infantry unit breach the obstacle by driving through it, by disassembly, or by destruction with tank fire or demolitions.
4. **Mines.** Mines or mined obstacles are especially dangerous and may require engineer support to breach. The infantry unit needs to understand the tank's vulnerability to mines and explosive devices.

305. Find Mines and Improvised Explosive Devices (IEDs)

1. **Find.** The infantry unit finds explosive devices and evidence of explosive devices *before* the tank can be threatened. *Powerful mines are one of the greatest threats to the tank.* The infantry unit needs to understand the tank's vulnerability to mines and explosive devices.

When a possible device is found, the area should be secured both forward of and behind to a distance of at least a hundred meters. Explosives experts should be immediately available.

The infantry unit should search the area for enemy observers who may be waiting to trigger the device, enemy ambushers, or any other evidence of enemy activity. Multiple explosive devices can be linked in complex ambush positions.

2. **Training.** Engineers and EOD Marines should train infantrymen on the latest explosive threats and what to search for when guiding tank movement. Likely terrain, clever hiding places, and local techniques for emplacing should all be understood by infantrymen.

Unusual tracks in the dirt, footprints, different colored sand, and other evidence of recent disturbances on the ground should trigger caution.

3. **Breach.** Explosive devices should be breached only by experts.

400. Tank-Infantry Team Coordination

1. The Tank-Infantry Team must coordinate:

Communications

Weapons and Equipment

Riding on the Tank

Training

Platoon Integration

401. Communications

1. **Radio. The tank-infantry team needs to be in radio communication with each other at the lowest possible level.** Ideally, the tank monitors the infantry unit's tactical net. Tank SINCGARS is interoperable with infantry PRC-119, PRC-119F, and PRC-148.

A separate net, sometimes created due to other infantry radios or other equipment limitations, is NOT the best option. Callsigns need to be well understood.

2. **A Tank-Infantry Phone is rigged to the rear of the tank.** This "grunt" phone is an alternative means of communication for the infantry unit leader. It is used primarily by those Marines in the immediate vicinity of the tank for coordination. Infantrymen on the grunt phone are vulnerable to enemy fire and the phone is sometimes damaged in close terrain.

The first sentence is "[Callsign], on intercom."

3. **Hand and Arm Signals.** While moving, hand and arm signals are effective. In a high intensity fight, the tank will be buttoned up and hand and arm signals are no longer effective.

Minimum SOP signals should include:

Stop

Advance

Move Right

Move Left

Reverse

Enemy (Direction)

Fire!

Cease Fire

I Want to Talk

4. **Visual Signals.** Flags, panels, pyro, lights, and IR devices need to be developed as SOP signals. Pyro / star clusters / parachute flares can be difficult to see since they are usually above the tank's line of sight.
5. **The infantry unit and the TC need to work from a common map.**

402. Weapons and Equipment

1. **Tank.** The tank SOP should address equipment needed for combat in close terrain:

If not using SINCGARS, any radio adapter equipment to enable a tank to net with the infantry unit
Fording elbow / heat deflector to protect infantry and avoid fire hazards by venting hot exhaust
Tow cables

2. **The tank crew needs:**

Personal weapons and ammunition
Grenades

3. **The infantry unit needs:**

Binoculars and night optics for increasing observation capabilities
Demolitions for obstacles
Smoke for obscuration and marking
Tracers for marking targets
Laser pointers for marking targets

4. **The tank can carry extra ammunition and equipment.** The bustle rack load plan should be adjusted.

403. Riding on the Tank

1. The infantry unit can ride on the tank when enemy contact is NOT expected.

Riding on the tank can be hazardous. Riders are vulnerable to enemy fire. Obstacles can cause the tank to turn suddenly knocking riders off. Low-hanging tree limbs can knock riders off. The turret can turn and knock riders off.

The tank can be used to evacuate wounded.

Riders can enter the second story of a building from the tank.

If the infantry unit has a vehicle, there is no reason to ride on the tank.

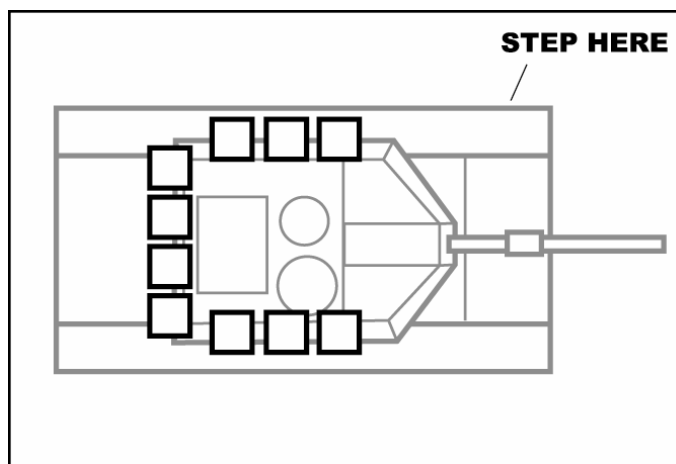


Figure 403-1. Riding Positions on the Tank.

2. The infantry unit needs a well-practiced drill to mount and dismount the tank. Riders mount only with permission from the TC. Approach the tank from the front in view of the driver. Mount and dismount over the left front slope. Avoid the coax MG.

Sit facing outboard to the flanks and rear of the turret, NOT the front. Position legs to avoid becoming caught between the turret and the hull. Do NOT dangle arms, legs or equipment off the side of the tank. They could get caught in the tracks. Riders wear hearing protection.

Rope can be rigged on the turret as a handhold. Riders should carry only battle equipment. Riders dismount when the tank needs to negotiate difficult terrain or cross a danger area.

3. Sectors of observation are assigned to riders. Riders must stay alert for obstacles and the enemy, and always be ready to immediately dismount. Do NOT sleep.

4. On enemy contact, riders immediately dismount. The tank will respond quickly, so riders are responsible for their own safety. Men dismount to the flanks, NOT the front of the tank.

Immediate Dismount Drill

1. Tank stops.
2. TC orders, "Dismount!" Riders immediately dismount to flanks and move at least 5 meters to either side of the tank, but NOT to front or rear. Riders maintain unit integrity.
3. The Infantry unit signals "All Clear" to the TC.

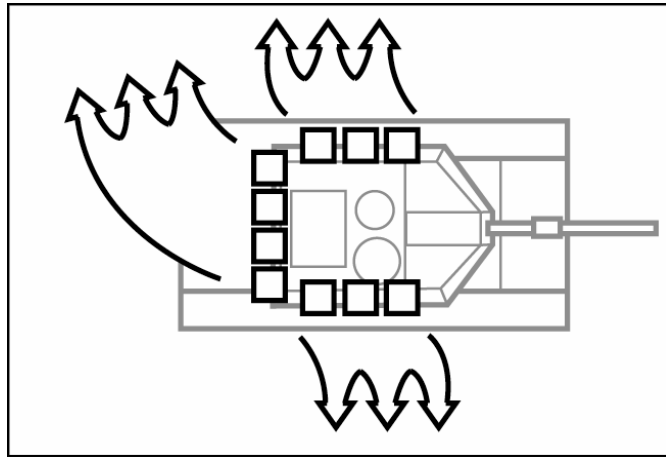


Figure 403-2. Immediate Dismount Drill.

404. Training

1. The infantry unit needs training on the tasks and drills contained in this SOP.

Protect a Stationary Tank
Protect a Firing Tank
Protect a Tank Fighting Position
Protect a Moving Tank
Clear Danger Areas
Suppress Enemy AT Weapons

Designate Targets
Spot Friendly Units
Guide Tank Movement
Overcome Obstacles
Riding On the Tank

2. The infantry unit needs training to understand tank capabilities and limitations. See “C” Company, 2nd Tank Battalion, “Tank-Infantry Smartpack.” (FOUO) Every man should be given a ride in a buttoned up tank, if possible.

Firepower. Weapons capabilities. Ammunition types, loads, and capabilities. Smoke. Weaponing. Up, down, and flank weapons dead space. Danger zones in front of tank, and backblast and overpressure areas around tank. Precision fire.

Mobility. Trafficability. Bogging. Slopes. Obstacles and obstacle reduction capability. Hull turning radius. Main gun and bustle rack turning radius. Hasty infantry carrier, casevac platform, or hasty infantry logistic carrier.

Visibility. Blind spots. Visibility in darkness and when hatches are closed. Optics capabilities: Sights, laser rangefinder, and thermal imaging system.

Protection. Vulnerabilities to AT fire and mines. Rear, flank and top vulnerabilities.

Communications. Radios. Tank-Infantry phone. GPS.

3. The infantry unit needs training to understand how the tank fights. Tank SOPs, immediate action drills, and actions in combat need to be rehearsed by the tank-infantry team. The tank is NOT a stealthy platform. Tanks can be heard by day with wind at 1500m, without wind at 800m. Tanks can be heard at night with wind at 4000m, without wind at 2000m.

4. The tank crew needs to understand the capabilities of the infantry unit. Communications and weapons. Realistic rates of movement. Immediate action drills. How the infantry fights.

5. The Tank-Infantry Team needs training to understand enemy AT tactics. Integrated AT positions. Kill zones, fields of fire, overwatching obstacles, reinforcing and interlocking positions, volley fire, fall back or alternate positions. Enemy armor, vehicle, and equipment identification. Enemy movement below and above ground, enemy movement along rooftops.

6. The infantry unit needs training to understand visibility differences between themselves and the tank crew. These are caused by differences in elevation, location, optics, and tank limitations. The infantry unit needs training to designate targets for the tank. See 301 *Designate Targets*.

7. **Infantry unit leaders need to understand the challenges posed by resupply and maintenance for the tank.** This is a significant lesson for infantry leaders. 500 gallons of fuel can be burned in a few hours.
8. **Safety.** The infantry unit needs training to be able to safely *move* with the tank. Additional comprehensive training is required to effectively *fight* with the tank.
9. **Untrained infantry tends to keep distance from tanks.** Tanks are unfamiliar, dangerous, and noisy. Infantry are unable to hide in the ground. Tanks attract far more enemy fire, especially AT weapons, than infantry units. Men close to the tank are exposed to fire directed at the tank. Tank-infantry coordination requires training, sharing ideas across units, and extensive rehearsals.

405. Platoon Integration

1. The scope of this SOP is on tank-infantry *security* tasks at the squad level.

Tank-Infantry integration at the platoon and company level – tactical combinations where multiple infantry units maneuver and fight together with tanks – requires training on a number of collective skills:

<i>Travelling Overwatch</i>	Dismounted security squad overwatch coordinated with multiple infantry squad movement and overwatch
<i>Bounding Overwatch</i>	SET – GO dialog with multiple infantry squads Using the tank as a shield to protect a squad moving across an open area or between buildings
<i>Clear a Street</i>	Tanks lead with dismounted security unit overwatch Infantry clears adjacent buildings on both sides D-9, AAV, and HMMWV follow
<i>Breach a Pillbox or Strongpoint</i>	Tank main gun and D-9 destruction Infantry overwatch
<i>Breach a Building</i>	Tank main gun or Demolition Infantry overwatch and penetration
<i>Breach an Obstacle</i>	Tank main gun or Demolition Infantry overwatch
<i>Attack an Enemy Position</i>	ABF or SBF with Infantry maneuver Tank main gun can mark for CAS
<i>Hasty Infantry Movement</i>	
<i>Hasty CasEvac</i>	
<i>Hasty Logistics Movement</i>	

For these tasks, the dedicated security squad serves as a buffer and liaison with the other infantry units.

2. **Do NOT separate tanks and infantry.** Tanks and maneuvering infantry units need to learn how NOT to be separated. This is the goal of the enemy. Both infantry and tanks need to practice tactical patience. Tanks need to train to move and fight at an infantry pace, and cannot move away under fire.
3. **IFF.** Platoons and companies maneuvering multiple units need an SOP to identify friendlies, especially inside adjacent buildings. A dedicated security unit helps spot friendlies.
4. **Tank thermal sights can be used to identify enemy positions, especially snipers.** The TC can then help maneuver infantry squads to close on the position.
5. **Geometry of fire coordination is important at the platoon and company level,** especially in built up areas where adjacent units are so close.
6. **A separate SOP, *Tank-Infantry SOP: Platoon*, covers these platoon integration issues.**

500. Appendices

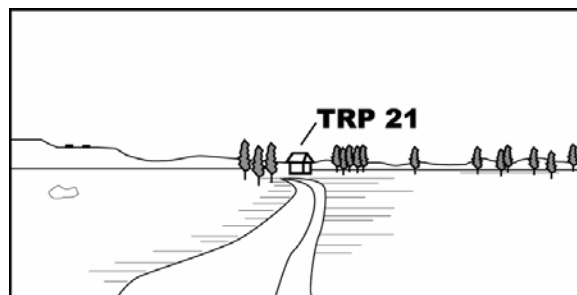
Simple Target Designation

Leaders point out key locations to orient their units and establish control measures – a TRP, the left and right limits of a sector, a PDF or FPL, the limits of an EA, the location of an OP, or a destination for movement. These ‘targets’ are terrain features, not enemy positions. Sometimes called a ‘talk-on’ – the leader *talks* the shooter *on* to the target.

Leaders direct fire by pointing out actual or suspected enemy positions. Designating targets *precedes* fire commands. For enemy targets, a mark is quicker and better than a talk-on. But often a laser pointer, tracer round, or smoke round cannot be used. Even if a mark is fired, a talk-on may still be needed for adjustments.

Simple Target Designation

Used when the leader and the shooter are co-located, looking at the same ground, pointing at objects, and talking directly to each other.



Simple Target Designation Example

(L) is Leader, (S) is Shooter

General Talk-On Procedure

1. Choose a large landmark that you both can see. Estimate the range. This is your first *anchor* point.
2. Direct the shooter’s vision from one *anchor* to another, moving from large to small, until you reach the *target*.
3. Have the shooter *confirm* the target.
4. If the shooter gets confused, STOP. Go back and re-establish the last good anchor and continue from there.

L: “From the *farmhouse* [anchor] at nine-hundred meters [range], come *left* [direction] *three fingers* [distance] along the ridge to *two small buildings* [anchor]. Seen?”
S: “*Seen.*” [Confirmation.]

L: “Come *down* [direction] *one finger* [distance] to a *bare patch* of wet ground [anchor]. Seen?”
S: “*Seen.*” [Confirmation.]

L: “That is the left limit of your sector. The farmhouse is TRP two-one, your right limit. Brief-back.”
S: “*The bare patch is our left limit at one-three-five degrees magnetic, and TRP two-one is our right limit at one-five-five degrees magnetic.*” [Brief-back confirmation with azimuths.]

Alternate Simple Techniques to use when the leader and shooter are co-located:

Anchors can be control measures, especially TRPs or building numbers.

Direction can be indicated using the *clock method* – superimposing a vertical clock face on a distinctive elevated landmark on the horizon.

Distance can be estimated in *meters*.

Simple Anchors

- Use visible landmarks.

Confirmation. The shooter can confirm *each anchor* with a *brief-back*, describing what he sees in different words.

Simple Directions

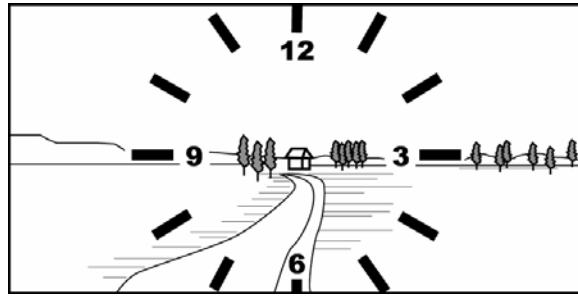
- Use *right, left, up,* and *down.*

Simple Distances

- Use fingers. With hand extended at arm's length, measure the number of fingers, fist, or hand's width.

Simple Confirmation

- Confirm each *anchor* by asking, "Seen?" The shooter responds, "Seen" or "Not Seen."
- Confirm the *target* with a brief-back and an azimuth.



Alternate Simple Target Designation Example

L: "*TRP two-one is the farm house* [anchor]. Seen?"

S: "*Seen. The square stone building with the red roof.*"
[Brief-back confirmation of anchor.]

L: "Go about *three-hundred-fifty meters* [distance] at *three o'clock* [clock direction] to a *pair of pine trees* [anchor]. Seen?"

S: "*Seen. Two pine trees blocking the cut in the hills beyond.*"
[Brief-back confirmation of anchor.]

L: "The base of those trees is your machinegun FPL. Brief-back."

S: "*The dip in the hill blocked by the double trees is machinegun FPL at one-nine-zero degrees magnetic.*" [Brief-back confirmation with azimuth.]

Advanced Target Designation

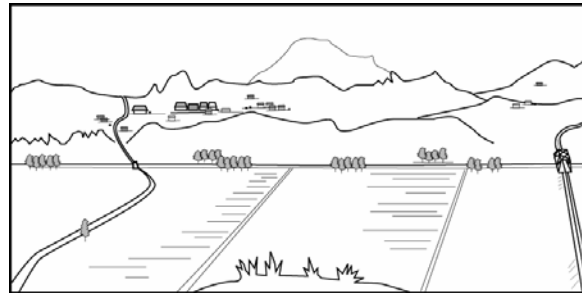
Leaders establish control measures or direct fire against enemy targets by radio. Distant support weapons – TOWs, heavy machineguns, mortars, tanks, amphibious vehicles, LAVs, and rotary wing and fixed wing aircraft – need an accurate, well-communicated talk-on to find and confirm their targets.

Advanced Target Designation

Used when the leader and shooter are NOT side-by-side, and a talk-on is done by radio.

Do NOT use *right, left, up* or *down*, or the *clock method* for direction.

Do NOT estimate the range for distant weapons. Do NOT use fingers for distance. Do NOT use control measures for anchors – TRPs or building numbers – that are not understood by supporting weapons.



Advanced Target Designation Example
(L) is Leader, (S) is Shooter

General Talk-On Procedure

1. Choose a large landmark that you both can see. This is your first *anchor* point.
2. Direct the shooter's vision from one *anchor* to another, moving from large to small, until you reach the *target*.
3. Have the shooter *confirm* the target.
4. If the shooter gets confused, **STOP**. Go back and re-establish the last good anchor and continue from there.

L: "The river runs East – West. Highway Four crosses the river on a steel girder *bridge* [anchor]. Say Contact."
S: "Contact." [JCAS confirmation of anchor.]

L: "From the steel *bridge* [anchor], follow the river *West* [direction] about *two-thousand meters* [distance] to a secondary stone *bridge* [anchor]."
S: "I *contact* the stone bridge." [JCAS confirmation of anchor.]

L: "From the stone *bridge* [anchor], follow the dirt road *North-North-West* [direction] about *three-hundred meters* [distance] to the village town hall, a large sand-colored *building* [anchor]."
S: "I *contact* the building." [JCAS confirmation of anchor.]

L: "Your target is a vehicle parked at the East end of that building in the courtyard."
S: "I *tally* a black truck in the yard." [JCAS confirmation of target.]

Alternate Advanced Techniques to use for radio talk-ons between distant units.

Direction can be indicated using an azimuth.

Distance can be indicated by establishing a unique unit of measure such as the distance between two objects or the height or length of a distinctive landmark.

Confirmation. Ask the shooter, "What do you see?" or request specific information about the anchor or target to confirm: "How many do you see?" This is sometimes called a 'reverse talk-on.'

L: "How many vehicles do you see?"
S: "On the South side of the church is a line of trees along the road. I count six vehicles lined up alongside the trees."

Advanced Anchors

- Use a map for a larger perspective. Select distinctive landmarks that appear on both the map and the ground.
- Your position – marked with smoke, laser, or signal mirror – can be your initial anchor.
- A mark – laser, tracer, burst, or smoke – can be your initial anchor.
- When moving from anchor to anchor, describe terrain that is easily seen at a distance – color changes in terrain, large

bodies of water, and distinctive man-made landmarks. Try to envision the terrain as the shooter sees it.

Advanced Direction

- Use *North, South, East, and West*.

Advanced Distance

- Use meters. Convert mils – from binoculars, optics, or finger estimation – to meters.

Advanced Confirmation

- Use JCAS terminology to confirm exactly each type of landmark. Standard targeting terms should be used by both ground and air units.
 - (1) If the shooter sees an anchor, he says “Contact.” If not, he says, “No Joy.”
 - (2) If the shooter sees the target, he says, “Tally.” If not, he says, “No Joy.”
 - (3) If the shooter sees the leader’s friendly position, he says, “Visual.” If not, he says “Blind.”
- Confirm anchors by asking “Say Contact.”
- Confirm target with a brief-back.

Alternate Advanced Target Designation Example

L: “Can you see my position?”
 S: “I have a *visual*.” [JCAS confirmation of friendly position.]

L: “South of my pos is a narrow *lake* [anchor]. What do you see?”
 S: “I *contact* a long North-South lake with a dam at the Southern tip.” [JCAS confirmation of anchor.]

L: “Use the length of the lake as one unit-of-measure. From the dam, go *two units-of-measure* [distance] *West-North-West* at *one-nine-five degrees magnetic* [direction] to a series of long, low factory *buildings* [anchor].”
 S: “Wait one. I *contact* four long grey buildings.” [JCAS confirmation of anchor.]

L: “Counting from the South, locate the third *building* [anchor]. How many roof-top air conditioning units do you see?”
 S: “Standby. I count three systems on the roof.” [Confirmation.]

L: “The middle unit is your target – RPG gunners and a machinegun on the roof.”
 S: “*Tally*. Targets on roof of third building behind middle air conditioning unit.”

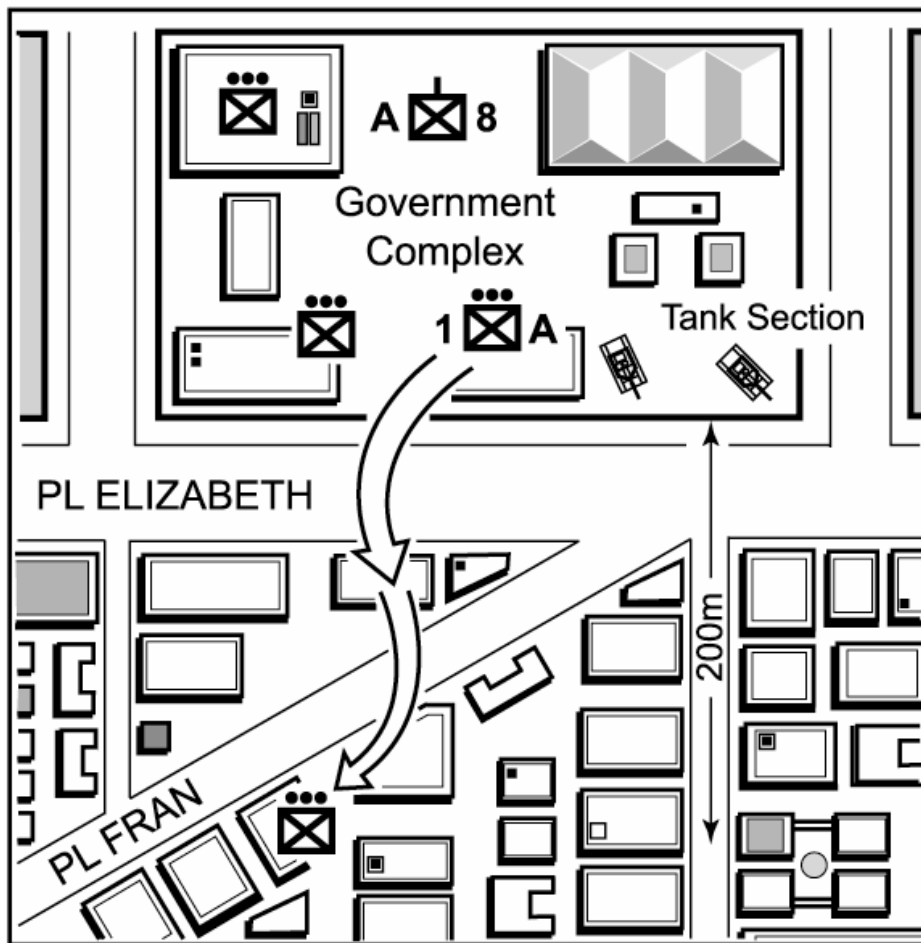
JCAS Terminology

JP 3-09.3 of 3 September 2003

Do You See:	Yes	No
Anchor (or Mark)?	CONTACT	NO JOY
Target?	TALLY	NO JOY
My Position?	VISUAL	BLIND

Tank-Infantry Fight in Fallujah

The following combat action took place on 11 November 2004 in Fallujah, Iraq as part of Operation Phantom Fury. 1st Platoon, Alpha Company, 1st Battalion, 8th Marines consisted of three squads, an attached machinegun squad and an attached assault squad, totaling forty-six Marines. The Company was positioned in the Government Complex in anticipation of receiving orders to clear a sector south of the complex. Footnotes in the following account refer to TTPs outlined in the Tank-Infantry SOP.



Map 1. 1st Platoon moves into position before dawn.

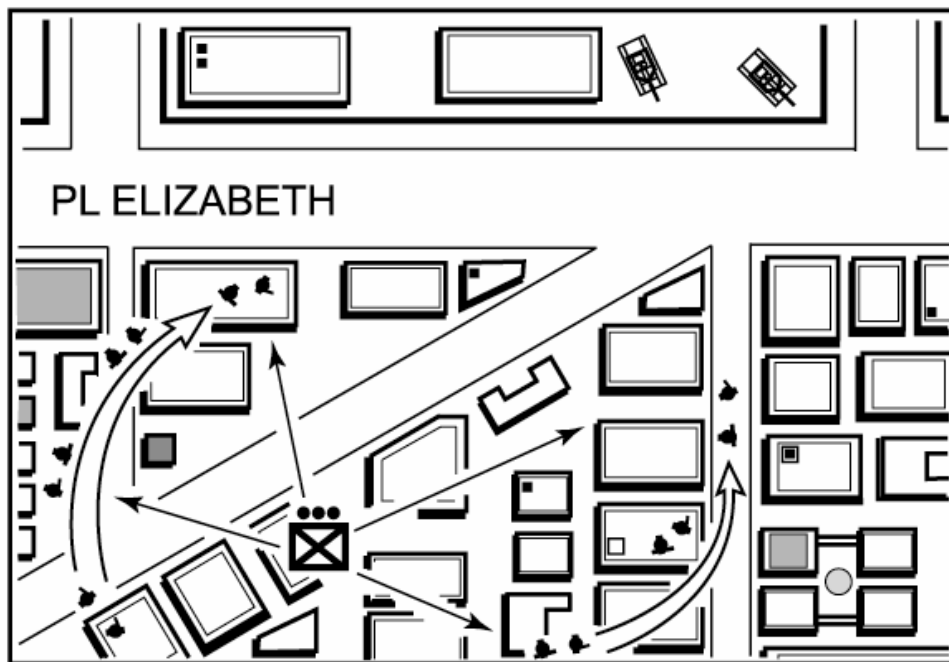
1. On the night of 10 November, 2004, 1st Platoon received orders to **seize a dominant building in order to overwatch the Company's advance the following day**. The Platoon planned to infiltrate from the Government Complex across Phase Line ELIZABETH – a road approximately 30 meters wide – and

gain a foothold for the Company's planned attack into the city.

At 0400 1st Platoon moved to a three-story structure immediately across the road. The Marines bounded by squad with an assault element in the lead, a support element behind, and a security element providing overwatch from the previous position.

Upon reaching the building that the Platoon had intended to occupy, the Platoon Commander realized that the structure was untenable due to damage done by the previous day's fighting. The decision was made to push across Phase Line FRAN to another building approximately 200 meters in front of the main body of the Company.

By the time the Platoon had consolidated in this position it was 0530. Half an hour still remained until sunrise. As the sun came up that day, the Platoon's overwatch position was well forward of the Company and was, in effect, an ambush position as well. A section of tanks, staged in a cold position back at the government complex, was attached to Alpha Company and on call to support 1st Platoon.

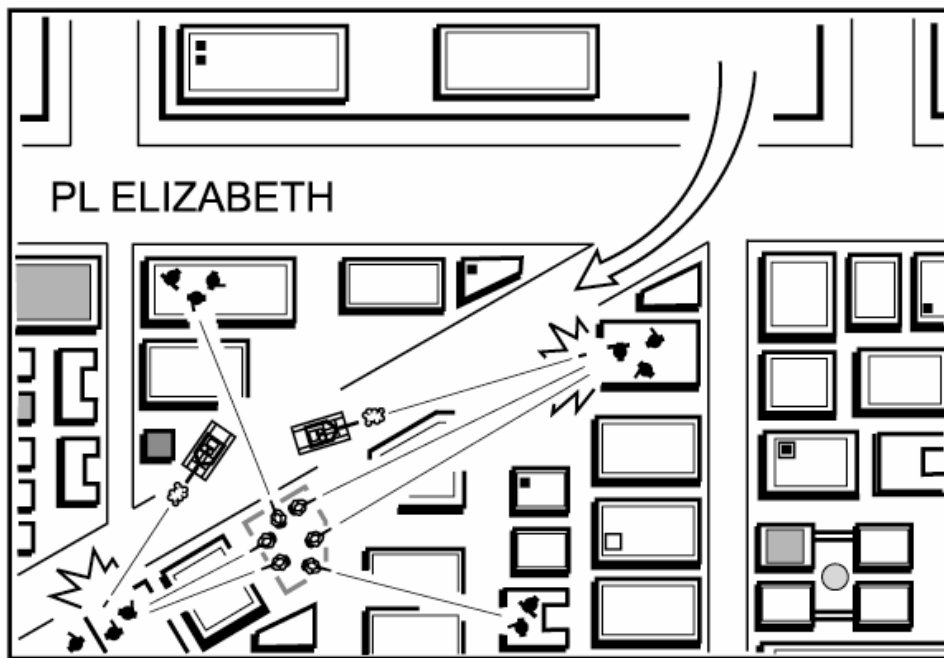


Map 2. 1st Platoon engages multiple enemy positions.

2. As it got light that morning, the Marines were able to observe enemy moving from south to north in an attempt to resume the fight against the main body of the Company in the Government Complex. The enemy moved about in the open not expecting any Marines to be this far to the south.

Immediately, the Marines from 1st Platoon engaged the enemy with direct fire, air, artillery, and 81mm mortars. As the enemy pinpointed the Platoon's position, they began to engage the Marines from multiple fortified structures. Some of the enemy had moved around the Platoon's northern flank and tucked into the buildings between 1st Platoon and Alpha Company. This made geometries of fire to the north very challenging.

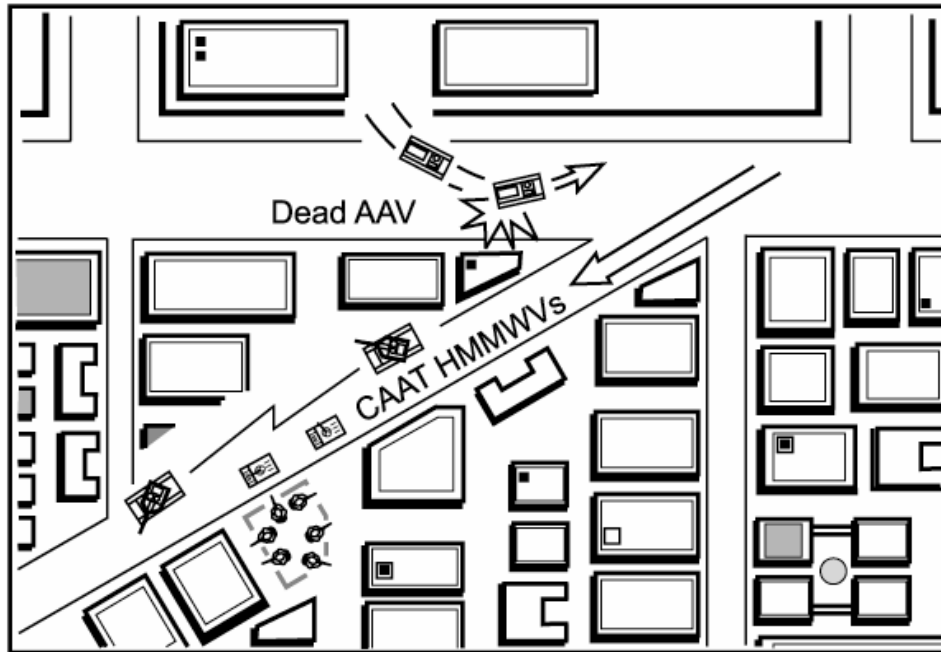
Because the enemy had pinpointed the Platoon's position, rocket employment became very difficult. Marines could not remain exposed for an extended period to get off a good shot.



Map 3. 1st Platoon fights a series of tank-infantry engagements.

3. At this point, the tank section became invaluable. After multiple enemy positions had been located, the Platoon Commander called the tanks over the company tactical net and moved them from their cold position to a hot position adjacent to the Platoon. [TTP 401] As the tanks moved down the street, the Marines provided security for them from their overwatch position. [TTP 201, TTP 202] While the Platoon suppressed the enemy positions, the Platoon Commander talked the tank section onto the targets. Using multiple techniques in combination – the clock method, target reference points, and 7.62 tracer to mark targets – the Platoon Commander oriented the tanks onto their targets and the tanks proceeded to destroy the enemy positions one after another. [TTP 301, TTP 302]

After all the known enemy positions were destroyed, the tanks moved back to their cold position. Throughout the course of the day, as the enemy attempted to reoccupy many of the buildings or moved to new buildings, the same process was repeated fifteen to twenty times. The Platoon would pinpoint the enemy's location, suppress the position, and then talk-on the tanks to destroy the enemy.

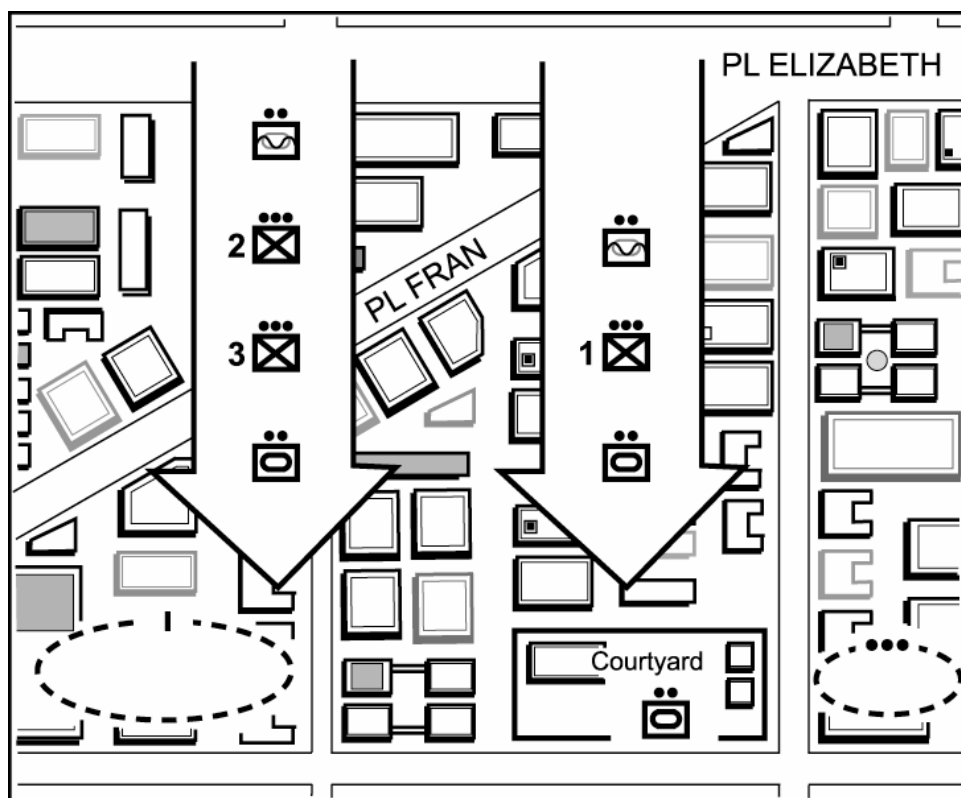


Map 4. Tanks screen HMMWV casevac.

4. That afternoon, the Platoon sustained two urgent casualties. One Marine was shot in the head and another was shot in his femoral artery. Time was critical.

The initial casevac was composed of one AAV that was destroyed by an enemy RPG north of the Platoon on Phase Line ELIZABETH.

The second casevac was made up of several CAAT vehicles. Before the CAAT vehicles could approach the Platoon, the tank section moved up to the casevac site and effectively suppressed the enemy to the north, west and south. This allowed the vulnerable CAAT vehicles to move in and pick up the casualties. The CAAT vehicles would surely have been destroyed if it was not for the effective screen provided by the tanks.



Map 5. Alpha Company attacks south on two parallel alleyways.

5. After the casevac, 1st Platoon continued to engage enemy targets with tanks. At 1500, the Platoon received a frago to **attack 200 meters to the south with the rest of the Company in order to destroy the enemy in zone.** The Company would attack and clear two parallel axis on adjacent alleyways.

The main body of the Company pushed out of the Government Complex with tanks in the lead, a main body of dismounted infantrymen following, and AAVs in the rear serving as armored ambulance and resupply vehicles. 1st Platoon conducted a linkup with the tank section that had been supporting them throughout the day.

At the time of the linkup, the only exit from 1st Platoon's position was effectively covered by enemy fire. The tank section suppressed the enemy positions around the Platoon, which allowed the Platoon to create an explosive breach in the building they occupied, and attack south with the tanks.

As the three rifle platoons attacked down the Company's two axis of advance, the infantry squads cleared houses until they made contact with the enemy. [TTP 204, TTP 205] Each time they made contact, the infantrymen called for tank support, which then destroyed the enemy-held building. While moving, the tanks were positioned at the front of the Platoon's column to engage targets of

opportunity. The 400-meter attack took over five hours.

Upon consolidation at the next phase line, the tanks occupied clearings in the city and continued to engage targets with the help of the infantry, who now occupied platoon-sized battle positions adjacent to the tanks. [TTP 201]

By the end of the attack, the Company had engaged between 150 to 200 enemy and sustained thirty percent casualties.

6. Key Insights. 1st Platoon's ability to integrate tanks into their urban combined-arms team was a direct result of the training the Platoon had undergone in the weeks before the Fallujah fight.

2nd Tank Battalion provided a four-day familiarity training exercise on their tanks. Tank sections were assigned to the same company, where in turn they would be assigned to support a specific platoon when required.

Infantry squads, weapons sections, engineers, mortars, aircraft, and tanks fought as combined arms teams led by leaders who understood how to integrate these units and weapons on the urban battlefield.

Lt Elliot Ackerman commanded 1st Platoon, A/1/8 during this fight in Fallujah.

Tank-Infantry References

From World War II to Operation Iraqi Freedom, a recurring trend can be seen: On the battlefield, combat leaders develop integrated, combined-arms units, with combat-proven tactics and techniques. The needs of combat allow them to disregard flawed pre-war doctrine, established organizations, and training restrictions. After combat, armies resist making doctrinal or organizational changes. Organizations revert to single branch or weapon focus, combined arms training atrophies, combat lessons grow less relevant, and experienced men retire.

*In 1945, both the U.S. Army and the U.S. Marine Corps had developed highly effective practices for small-unit tank-infantry coordination. By 2003, **none** of these practices were contained in any training manual in either service. The lessons of 1942-1945 had to be relearned in Iraq.*

[See notes in brackets] Some of the following documents are available on-line at:

www.2ndbn5thmar.com/tank/tankpage.htm

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Roy E. Appleman, James M. Burns, Russell A. Gugeler, and John Stevens. *Okinawa: The Last Battle.* Washington, DC: Center of Military History, U.S. Army, 1947. On Okinawa, one U.S. Army tank battalion, the 193rd, supporting an infantry battalion of the 27th Division, suffered extremely from a lack of tank-infantry coordination during a one-day attack. Of thirty U.S. Army tanks, three were stopped by mines or road hazards and five were shot by Japanese anti-tank guns enroute to the village objective. In the village, fourteen more tanks were disabled by mines, anti-tank guns, artillery, and close assault units. Six more tanks were attacked by suicide attackers who swarmed the unprotected tanks and destroyed them with satchel charges. At 1330, the tanks withdrew. Only eight vehicles of the original thirty made it back to the start point. The tanks had operated wholly without infantry support.

Robert J. Bodisch. *Tank-Infantry Smartpack: The Urban Fight, Tools for the Tank-Infantry Team.* Iraq: Charlie Company, 2nd Tank Battalion, Regimental Combat Team 1, 2005.
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[See "C" 2nd Tanks OIF AAR]
[See OIF MOUT Observations]

Larry Q. Burris. *Operation Iraqi Freedom After Action Review Comments.* Iraq: Team C, 3rd Battalion, 15th Infantry Regiment, Task Force 1-64 Armor, 24 April 2003. The tank platoon's pre-OIF urban training was invaluable in Iraq. The infantry squad attached to the tanks worked well and repelled an RPG attack, but radio communications between tanks and infantry was hobbled by field-expedient solutions.
[See *Task Force 1-64 OIF AAR*]

William R. Campbell. "Tanks With Infantry," *Armored Cavalry Journal*, September-October, 1947, pp 49-51. Although the 745th Tank Battalion was attached to the 1st Infantry Division three months before the Normandy invasion, it was not until after the D-Day landings that a tank platoon was attached to each infantry battalion. These attachments – with the same tank platoons attached to the same infantry battalions – continued for the rest of the war. In the fighting in the town of Aachen, four-man tank

security teams were attached to each tank. “The tank-infantry team...should not be made up on the battlefield but must be trained long before battle.”

[See *Tanks With Infantry*]

Joseph D. Celeski. *The Use of Armor and Mech Forces in Urban Operations: With Implications and Considerations for Special Operating Forces.* February 2002.

Mark T. Calhoun. *Defeat at Kasserine: American Armor Doctrine, Training, and Battle Command in Northwest Africa, World War II.* Fort Leavenworth, Kansas: U.S. Army Command and General Staff College, 2003. Although poor leadership, inadequate equipment, and faulty training did contribute to the American defeat at Kasserine Pass in 1943, the underlying, more important, and rarely discussed reason for the defeat was flawed U.S. armor doctrine.

[See *Defeat at Kasserine*]

Michael Del Palazzo. *After Action Report for Project Metropolis.* Twentynine Palms, California: Third Platoon, Company “B,” 1st Tank Battalion, 4 December 2000.

[See *Project Metropolis AAR*]

Paul A. Disney. *Tactical Problems for Armor Units.* Harrisburg, PA: The Military Service Publishing Company, 1952. Disney, an experienced tanker who fought throughout Europe during World War II, presents fifteen tactical problems for tank leaders. Of note, every single tactical problem and diagram emphasizes the combined arms integration of infantry units. Fifty years later, these lessons have largely been lost due to tank doctrine’s Cold War focus on defeating Soviet tank armies.

Michael D. Doubler. *Busting the Bocage: American Combined Arms Operations in France, 6 June – 31 July 1944.* Fort Leavenworth, KS: U.S. Army Command and General Staff College, 1988. Doubler recounts how the specific tactical problem of penetrating the well-defended hedgerows was solved by developing tank-infantry organizations and tactics while under fire during the Normandy campaign.

[See *Busting the Bocage*]

Michael D. Doubler. *Closing with the Enemy: How GIs Fought the War in Europe, 1944-1945.* Lawrence, KS: University Press of Kansas, 1994. In European city fighting, the U.S. Army learned uncontested lessons on the value of the combined-arms team. The tank developed into the key support weapon in city fighting. Despite battlefield experiences, new training manuals did not go far enough in advocating organizational changes or combined arms tactics and techniques.

[See *Closing with the Enemy*]

W. D. Duncan. “Tanks and Infantry in Night Attacks,” *Armored Cavalry Journal*, January-February, 1948, pp 56-61.

Kenneth W. Estes. *Marines Under Armor: The Marine Corps and the Armored Fighting Vehicle, 1916-2000.* Annapolis, MD: Naval Institute Press, 2000. A detailed review of a half-century of Marine-specific armor practices and experiences, clearly linking doctrine, procurement and training with combat performance. After non-existent cooperation on Guadalcanal, Marine tanks received new radios – that still couldn’t net with the infantry. 3rd Marines on Bougainville used M3 half-tracks as bunker-busting assault guns. On Cape Gloucester, tank sections were attached to infantry platoons. At Arawe, the U.S. Army’s 158th Regiment, working with Company B, 1st Marine Tank Battalion, attached a rifle squad to each tank. The 2nd Marine Division had almost no tank-infantry coordination prior to Tarawa – some SOPs were worked out between Marines during the first intense night ashore – but by Saipan coordinated assaults by tanks and vigilant infantry had become the norm. On Okinawa, infantrymen overwatched tanks, looking especially for traces of Japanese anti-tank guns, and protecting the vehicles from close-in assaults: not a single tank in action was destroyed by tank hunters. Light planes conducted talk-ons for

tank-infantry teams. During the intense week long battle on Kunishi ridge, tankers delivered urgently needed supplies, ammunition, and 550 infantry reinforcements to the cut-off and exposed infantry companies of 7th Marines, and evacuated over 600 casualties. In Korea, regimental tank platoons became part of the infantry regiment's T/O. By the early 1960s, the Marine Corps' interest in helicopters negatively affected the tank's perceived value. The 1980 publication, "Marine Combined Arms Task Forces," reflected a lack of true mechanized doctrine even after thirty years of experience. The Marine could not balance heavy equipment requirements with strategic lift limitations. The Gulf War, and the success of the four fielded Marine Corps Armored Task Forces, propelled the Marine Corps finally into the heavy mechanized fight. In 1993, the Krulak board recommended a "Combined Arms Regiment" (CAR) as a standing infantry-LAR-tank-artillery team. But doctrine never envisioned tank units as the basis for offensive combat power, still relegating them to the anti-armor role. The Marine Corps completed acquisition of the M1 fifteen years after it became the Army standard.

Benis M. Frank and Henry I. Shaw, Jr. *Victory and Occupation: History of U.S. Marine Corps Operations in World War II, Volume V.* Washington: Historical Branch, G-3 Division, Headquarters, U.S. Marine Corps, 1968. Each of the Pacific island campaigns contributed to the continuous development of Marine tank-infantry team tactics, organizations, and techniques.

[See *Victory and Occupation*]

Oscar E. Gilbert. *Marine Tank Battles in Korea.* Havertown, PA: Casement, 2003.

Oscar E. Gilbert. *Marine Tank Battles in the Pacific.* Conshohocken, PA: Combined Books, 2001. Although primarily focused on Marine WWII tank equipment and tank units, Gilbert does touch on the development of Marine "infantry tank" doctrine and tactics. After Tarawa, where there had been very little pre-invasion tank-infantry coordination, the 2nd Marine Division trained extensively at Parker Ranch on Hawaii. By Saipan, the division's tank-infantry teams were fully integrated and highly effective. By the battle of Okinawa in 1945, Marine Corps units had fully implemented their hard-won tank-infantry lessons – the importance of small-unit integration and pre-invasion training, clear command relationships, habitual assignments, equipment modifications, and tank-infantry tactics such as target designation using tank phones, using tracers to mark targets, and close-in infantry protection of tanks.

John Gordon IV and Bruce R. Pirnie. "Everybody Wanted Tanks: Heavy Forces in Operation *Iraqi Freedom*," *Armed Forces Journal*, Number 39, pp 84-90.

[See *Everybody Wanted Tanks*]

Bruce I. Gudmundsson. *On Armor.* Westport, CN: Praeger, 2004. An overview of the history of armor. Gudmundsson does not focus on vehicle development, but analyses how different armies addressed specific warfighting challenges. Armored force development is shown to be an interplay between history, theory, industrial capability, military budgets, strong personalities, organizational design, doctrine, and battlefield experiences.

[See *On Armor*]

Karl J. Gunzelman. "White Knight Or White Elephant: The M1A1 "Abrams" In The Marine Corps." Fort Leavenworth, KS: Army Command and General Staff College, 1989. "The Marine Corps has procured a main battle tank that fails to adequately support its doctrinal mission as an infantry support weapon. The M1A1 was designed to destroy tanks, not support infantry, and has few features required of a good infantry support vehicle such as ammunition variety, and redundant communications capabilities."

Emerson F. Hurley. "Tank-Infantry Teamwork At Its Peak In The Armored Division," *Armored Cavalry Journal*, May-June, 1947, pp 27-28. In 1944, the Fifth Armored Division attached a half-track mounted infantry squad to each tank. Each of these "married" squads ate, slept, trained, and fought as a single combined-arms tank-infantry team. "The secret of combined infantry and tank fighting is to keep the

same infantry squad with the same tank crew all the time.”
[See *Tank-Infantry Teamwork*]

Jon Latimer. *Alamein*. Cambridge, MA: Harvard University Press, 2002. The British Army’s lack of pre-war tank doctrine and the 1935 *Field Service Regulations’* separation of armor into “infantry” and “cruiser” tanks, hindered operations throughout WWII. British Army hippomania – love of horses and cavalry traditions – led to gross deficiencies in armor training, especially the mistaken belief that tanks could operate without infantry support. Strong regimental traditions and mindsets also prevented the development of integrated combined-arms teams.

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B. B. McBreen. *Tank-Infantry Insights from World War II*. 2005.
[See *Tank-Infantry Insights*]

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[See *Marine Mech Formations in OIF*]

J. L. Mudd. “Development of the American Tank-Infantry Team During World War II in Africa and Europe,” *Armor*, September-October, 1999, pp 15-22.
[See *American Tank-Infantry Team*]

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Richard E. Simpkin. *Mechanized Infantry*. New York: Pergamon Press, Inc., 1980. *Armor* consists of the tanks and the dismounted infantrymen who work with them. There is no distinction. One school, one doctrine, one body of tactics, one on-scene commander, one *unit*.

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Douglas Stewart. “MOUT Battle Drills for Infantry and Tanks,” *Infantry*, May-June 1993.

Rudolf Steiger. *Armour Tactics in the Second World War*. Oxford, UK: Berg Publishers, Ltd., 1992. Chapter 4, “Armour and Infantry,” explains the radical pre-war German philosophy of not tying the new weapon, the tank, to the old doctrine and the old weapons. General Guderian wrote that tanks needed

mobile infantry specially trained and equipped to support tanks. The infantry, engineers, and artillery in the panzer units were then the supporting weapons to the tank. The French, British, and U.S. only came to this philosophy on the battlefields of World War II. Tanks needed to remember, however, that their primacy was not absolute and they could not afford to outrun their supporting units. They depended on the combined arms effects of the infantry, engineers, anti-tank, aviation, and artillery.

Allyn R. Vannoy and Jay Karamales. *Against the Panzers: United States Infantry versus German Tanks, 1944-1945.* Jefferson, NC: McFarland & Company, Inc., 1996. Vannoy and Karamales extract multiple after-action reports to show how U.S. units fighting German tanks overcame a lack of pre-combat combined arms training and teamwork and worked out techniques on the battlefield.
[See *Against the Panzers*]

Harry Yeide. *Steel Victory: The Heroic Story of America's Independent Tank Battalions at War in Europe.* New York: Presidio Press, 2003. The U.S. WWII independent tank battalions, fielded specifically to work with infantry divisions, developed and adjusted tank-infantry teamwork in combat. Most of these lessons were lost as post-war tankers focused primarily on the actions of the armored divisions. Yeide's chronology includes insights on using tank machinegun fire to cover maneuvering infantry, transporting infantry on tanks, the difficulties of voice coordination, the dangers of separation, the challenges for tanks of identifying friendly units and enemy positions in combat, and the myriad skills infantrymen need to work with tanks.
[See *Steel Victory*]

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FM 17-5 Organization and Tactics of Tank Destroyer Units. Washington: HQ Department of the Army, 16 June, 1942. The original tank destroyer doctrinal publication is a practical and useful manual. A focused and important wartime effort, the manual clearly explains the tactical challenges of how to fight tanks. It has hundreds of useful tactical map diagrams showing the "right" and "wrong" techniques for defilade, cover, ambush, overwatch, defense, and multiple other tactical procedures.

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TC 7-3-1 How to Defend with Mechanized Infantry and Light Infantry Platoons. Washington: HQ Department of the Army, 30 June 1975. Interesting handbook for integrated defense, including a diagrammed step-by-step study of the Battle of Singling, 6 December 1994.

Tank-Infantry Fight in Fallujah. The details of a tank-infantry action by A/1/8 in Fallujah, Iraq on 11 November 2004 are described.
[See *Fight in Fallujah*]

